Appendix F: Analyses by Job Function—Federal Respondents

This Appendix presents results by the job functions. Examining federal responses revealed that important variations were linked to job function categories. For example, agency was linked to one of the categories (meteorologist in the National Weather Service); gender was linked to other categories (specifically, the majority of PAO/information officers was female, while other categories were majority male). The number of years of employment also varied by job function, as did educational attainment.

We ordered the sections of this Appendix by the number of respondents in each category. The initial sample was developed to gain representation from each of the job categories represented. Some of the job function categories have lower numbers of respondents than others. When the number of respondents is a matter of concern a cautionary statement is included in that section. Since we have no census on the number of individuals who actually fall into each functional category, we have no insights on the proportion of individuals from that community who participated. Findings represent the opinions and views of those who participated in the survey, and are not assumed to represent all federal employees within a particular functional group.

Findings derived from this Appendix can help guide communication to individuals within the specific functional areas at the agencies served by Predictive Services. Findings also offer greater insight into how products and services are currently being used and how they might be improved for particular groups. Some key findings derived from this Appendix were reported in the body of the report, here all data are reported.

Appendix F1: Public Affairs/Information Officers—Federal Respondents

Federal PAO/information officers were grouped into one category (*n*=276). These respondents came from the Forest Service (73.6%), Bureau of Land Management (14.9%), National Park Service (10.9%), Fish and Wildlife Service (.4%), and a federal interagency group (.4%).

Who Were the Federal PAO/Information Officers?

The majority was female (55.1%), mostly between 45 to 54 years old (*Figure F1-1*).
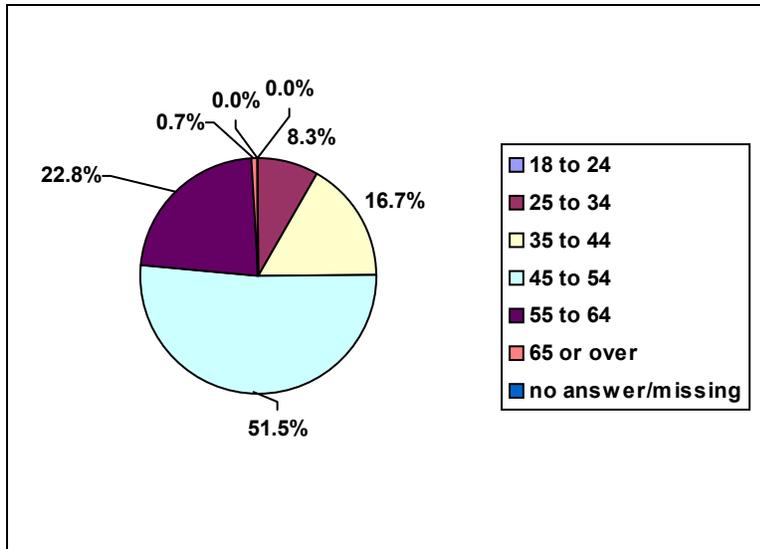

Figure F1-1. Age—federal PAO/information officers.

Educational background / degree or equivalent—Educational attainment was at the Bachelor's degree level among the majority in this subgroup, with more than one-fourth reporting graduate education (*Figure F1-2*).
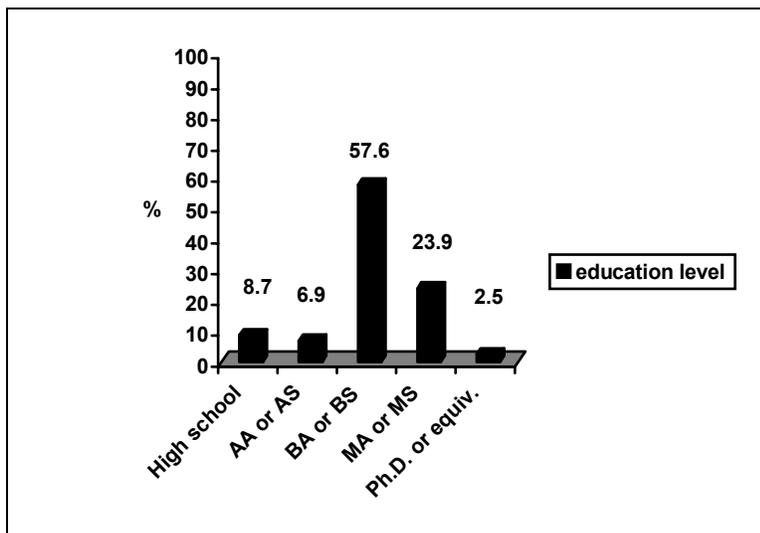

Figure F1-2. Educational attainment—federal PAO/information officers.

Respondents reported degrees in the following subjects (these are on an individual basis so when lines contain multiple subjects they reflect an individual's response):

Aerospace systems
Agriculture (2 respondents)
Anthropology (6 respondents)
Anthropology and geosciences
Anthropology/archaeology
Arts/aviation
Biology (7 respondents)
Biology and environmental studies
Botany
Business (3 respondents)
Business administration (3 respondents)
Chemistry
Commercial art
Communication (10 respondents)
Communication/business
Communication/journalism
Communications media
Communications-public relations
Communications, radio, tv, film
Community and regional planning
Criminal justice
Economics
Education (2 respondents)
Education (curriculum and development)
Education/anthropology
Elementary education/ art education
English (5 respondents)
English, French, journalism
English/technical communication
Environmental geography
Environmental science/environmental studies (4 respondents)
Environmental resources
Fine arts
Fine arts, museum studies
Food service & housing administration
Forest management (3 respondents)
Forest resources management (6 respondents)
Forest resources and wildlife biology
Forest recreation (3 respondents)
Forestry (14 respondents)
Forestry and business administration
Forestry; city planning
Forestry/recreation
Forest and range management
Forest biology
Forest ecology
Forestry and wildlife management

Forest science (2 respondents)
Forest watershed science
General science (2 respondents)
General studies (2 respondents)
Geography-environmental planning systems
Geography
Geology (4 respondents)
History (2 respondents)
Humanities
Juris doctor (2 respondents)
Journalism (9 respondents)
Journalism and technical communications
Journalism, geology
Journalism/public relations
Landscape architecture
Landscape architecture/horticulture
Liberal arts
Management
Management technology
Marketing
Mass communication (4 respondents)
Mass communication and urban forestry
Natural resources/forestry, recreation (2 respondents)
Natural resources recreation management (4 respondents)
Natural resources
Natural resources interpretation
Natural resources management (2 respondents)
Natural resources management/watershed management
Natural resources recreation and tourism
Occupational therapy assistant
Old English language and literature
Outdoor recreation (2 respondents)
Paralegal
Park and recreation management (2 respondents)
Physical education/elementary education
Political science, public relations
Public administration (2 respondents)
Physical therapy
Political science/journalism
Political science (3 respondents)
Political science/communications
Public administration (2 respondents)
Public policy and management
Public relations (2 respondents)
Public relations and communications
Public relations/journalism; natural resources
Range science
Rangeland management/wildlife
Resource conservation
Rhetoric
Rural sociology, agricultural and resource economics

Secondary education
Social science
Social work
Sociology
Sociology and Spanish
Sociology/psychology
Soil science
Soil science/rangeland resources management
Speech communications
Spiritual psychology
Technical editing
Tourism and leisure sciences
U.S. history
Urban and regional planning/public policy
Wildlife (2 respondents)
Wildlife biology
Wildlife management (2 respondents)
Wildlife science
Zoology
Zoology/fisheries

Home office Geographic Area location—Respondents came from across the United States, with their home offices falling within the various Geographic Areas (GAs) shown below *(Figure F1-3)*.
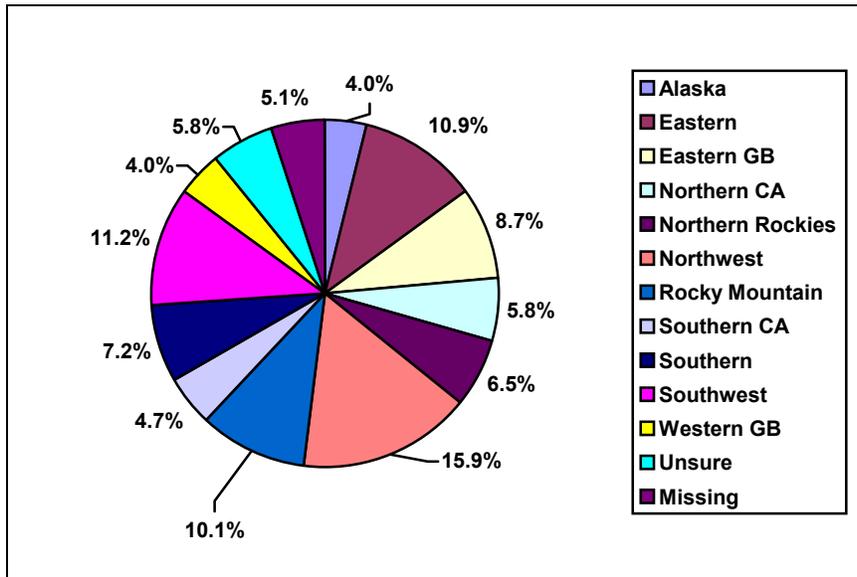

Figure F1-3. GAs—federal PAO/information officers.

Level of geographic responsibility and scope of duties—Respondents' level of geographic responsibility varied. Nearly one-half reported their duties linked to their local unit (including forest, district, reserve, etc. at 45.7%). Responsibilities for the remainder were at the national (12.3%), regional (16.3%), state (7.2%), national and international (4.0%), or incident specific (14.1%) level.

A near majority of respondents (48.9%) indicated that their work was specific to multiple agencies, while almost another half (49.6%) had duties specific to their agency only. Four respondents (1.4%) did not answer.

The number of years reported in the current position of employment averaged 10.3 years (sd=8.5, *n*=185). Median responses for number of people supervised included zero on a routine basis, zero on a seasonal basis, and zero on an incident/project basis.

Almost one-third of the federal PAO/information officers (30.8%) had job responsibilities that included gathering and reporting data that are utilized by Predictive Services such as: situation reports, ICS-209s, NFDRS/WIMS, etc. Among the respondents with data gathering and reporting duties (*n*=85), the duties were assigned as one of their primary responsibilities (25.9%), or when others with this routine responsibility were away from the office (23.5%). The largest proportion of these respondents (47.1%) was assigned the duties as part of a group that fulfills that responsibility.

What are their Levels of Experience with Predictive Services?

Frequency of access and information acquisition—The frequency of accessing and obtaining information from Predictive Services was examined under two conditions, during fire season and outside of fire season. Frequency of access was greatest during fire season (*table F1-1*).

Table F1-1. Frequency of accessing and obtaining information from Predictive Services— federal PAO/information officers.

Frequency	During Fire Season %	Outside Fire Season %
Daily	18.1	1.1
Weekly	16.3	2.9
Monthly	5.8	9.4
Quarterly	1.4	7.2
Rarely	8.0	23.2
Not at all	50.0	55.4

Specific circumstances for access/acquisition—In addition to frequency, respondents provided information regarding specific situations when they access or obtain information from Predictive Services. Nearly two-fifths reported accessing Predictive Services during fire season (38.0%), and another two-fifths during a fire incident (37.0%). Other situations were reported including when a prescribed burn is being planned (8.7%) and when a prescribed burn is taking place (9.1%). About one-half indicated none of the above situations applied to them (47.5%).

Respondents listed additional situations when they access/obtain information from Predictive Services including:

   when there is a rumor of a significant weather pattern
   Preparing any briefings for FS or State personnel
   pre-season for indications of upcoming fire season conditions
   during significant political events & situations
   to write briefing papers, program profiles, other products
   congressional or media inquiry
   disaster takes place

Not sure, I am not familiar with Predictive Services info.
To explain why vegetation is not growing/fire drought effects on wild horses, livestock and
   wildlife
None that I know of. Don't know what predictive services is.
when I'm curious about conditions
Frontliners check when callers query the situation
When fire activity is high within my GACC
Hurricanes
during detail to NICC
not sure, never heard of this
implementing burned area rehab treatments
When media inquiries occur
To be prepared for media inquiries during key periods
During a lightning bust
when responding to the media and concerned citizens
I am confused is this what is on the Fire Page FS
Writing the weekly Status Report for the State Director
hurricane season
I am not sure if I have ever used ps unless it is part of information from NIFC

Use of specific websites and services—Respondents were asked to indicate which Predictive Services websites they had visited/which GACC services they had used, revealing that a majority had been to/used the National Interagency Coordination Center (NICC–51.4%). The Geographic Area Coordination Center sites from most to least mentioned were the Southwest (19.9%), Northwest (18.5%), Rocky Mountain (18.1%), Eastern Great Basin (15.9%), Northern Rockies (15.2%), Southern (13.4%), Western Great Basin (12.3%), Southern California (10.1%), Northern California (10.1%), Eastern (6.9%), and the Alaska site (6.9%; responses do not sum to 100% because respondents could select multiple sites). Nearly one-half had visited one or two sites, while others reported multiple sites (as many as all 12). About one-tenth (12.3%) were not sure which if any sites they had visited, while one-fifth (21.0%) indicated they had not visited any of the listed sites/used any of the GACC services.

Familiarity with the products and services—Federal PAO/information officers were asked to indicate how true or untrue the following statement was "I am unfamiliar with Predictive Services products and services." About one-half indicated this statement was true (*Figure F1-4,* 51.5% selected a rating of 4, or 5, where 5=very true).
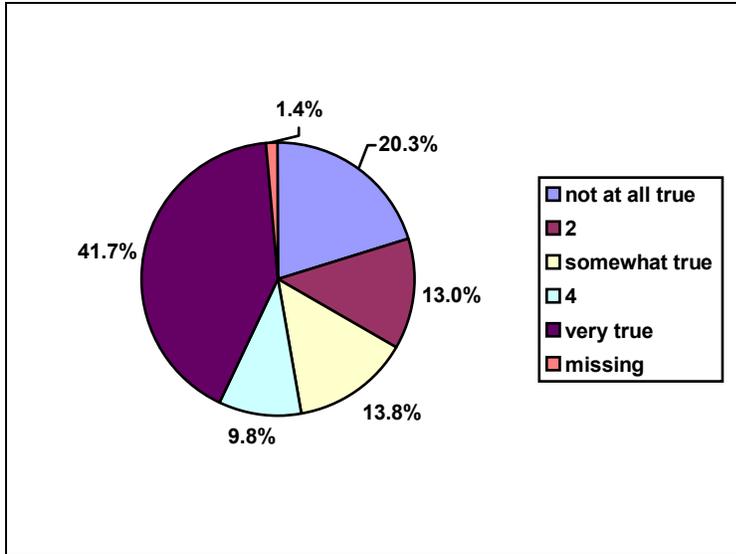
Figure F1-4. Unfamiliar with Predictive Services products and services—federal PAO/information officers.

About two-fifths of respondents were interested in Predictive Services products and services (*Figure F1-5*, 38.1% selected a 4 or 5, where 5=very true in response to "I am interested…; another 32.2% marked 'somewhat true').
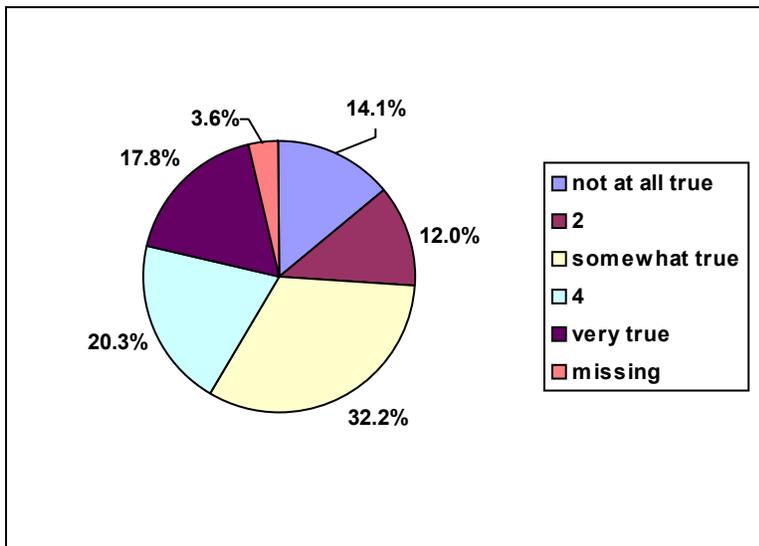

Figure F1-5. Interest in Predictive Services products and services—federal PAO/information officers.

Respondents were asked their familiarity with Predictive Services' products on the web, the briefings, and the emails. Most were unfamiliar with the web products (*Figure F1-6*, M=2.1, sd=1.3, n=243), the briefings (i.e., national, geographic, situational, or meteorological, M=2.2, sd=1.4, n=239), and the emails (these contain current projections and/or information about Predictive Services, M=1.6, sd=1.0, n=240).
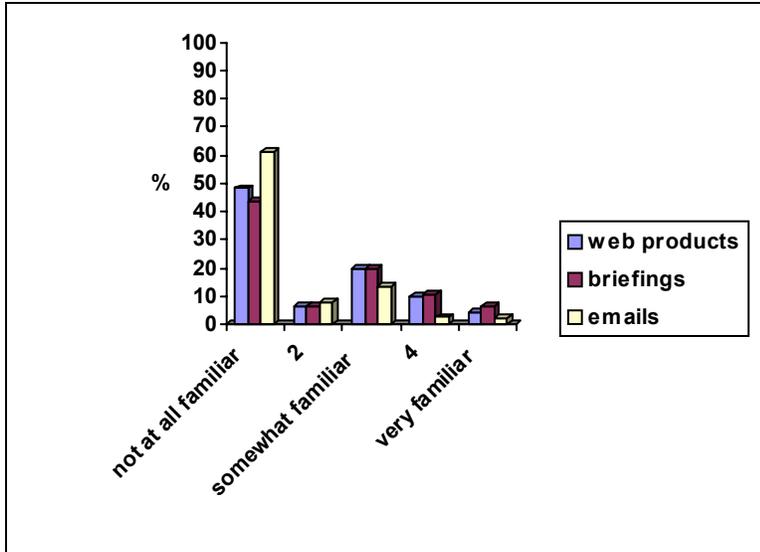
Figure F1-6. Familiarity with Predictive Services products on the web, briefings, and emails—federal PAO/information officers.

What are their Opinions of the Products and Services?

Ratings of Predictive Services information—Respondents agreed that Predictive Services information was accessible (M=3.7, sd= .9, n=121, *Figure F1-7*, 54.3% marked 'don't know').
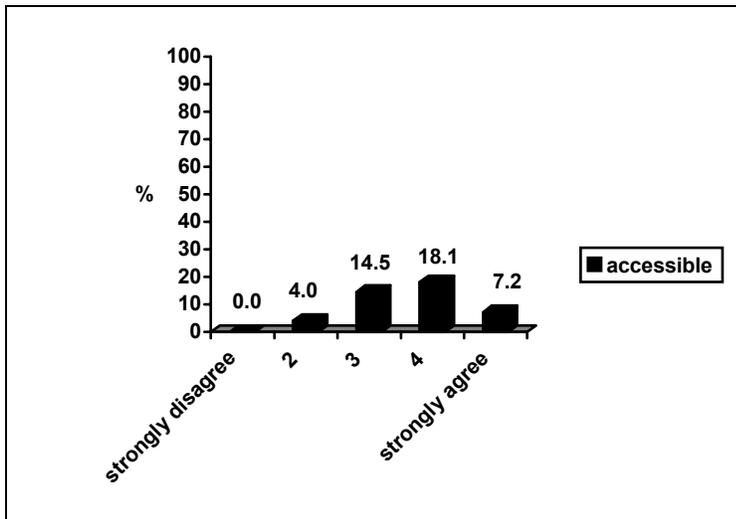

Figure F1-7. Ratings of accessibility of Predictive Services information—federal PAO/information officers.

While about one-third agreed that Predictive Services information was timely, over one-half disagreed with this as an attribute (*M*=2.3, sd=1.7, *n*=247, *Figure F1-8*, 9.1% marked 'don't know').
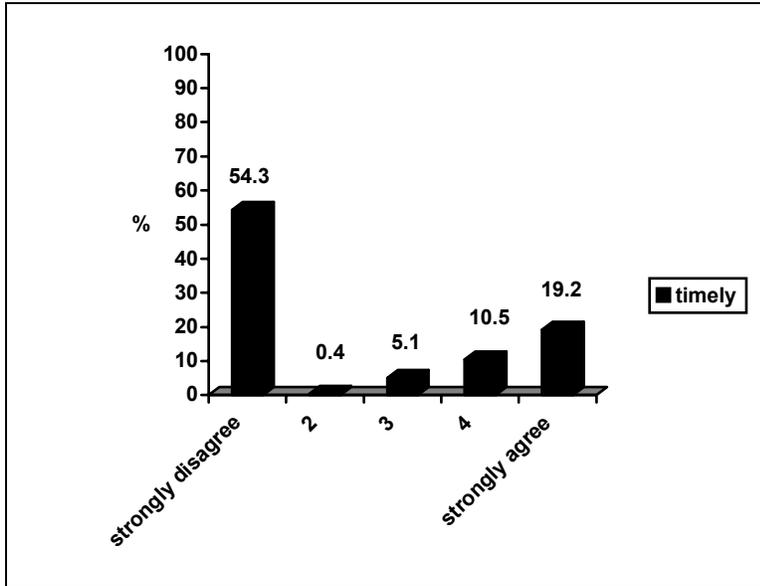

Figure F1-8. Ratings of timeliness of Predictive Services information—federal PAO/information officers.

About one-third agreed that Predictive Services information was relevant (*M*=2.4, sd=1.8, *n*=239, *Figure F1-9*, 11.6% marked 'don't know').
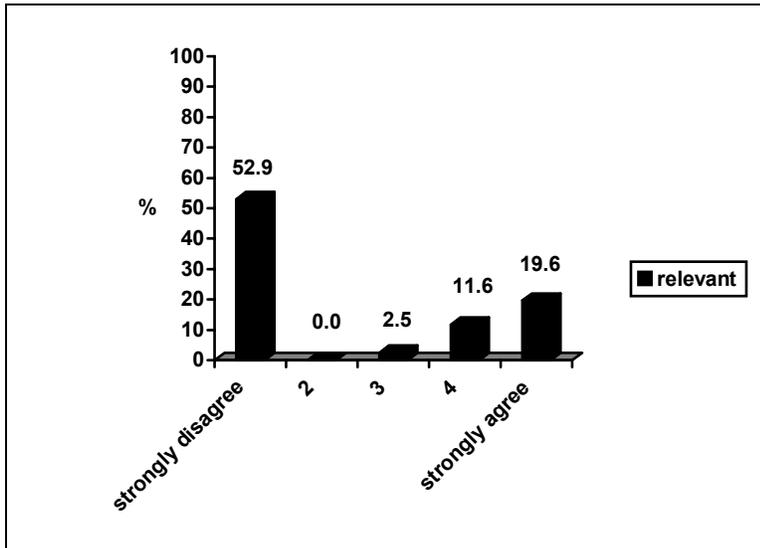

Figure F1-9. Ratings of relevance of Predictive Services information—federal PAO/information officers.

About one-third agreed that Predictive Services information was accurate (*M*=2.2, sd=1.7, *n*=252, *Figure F1-10*, 6.9% marked 'don't know').
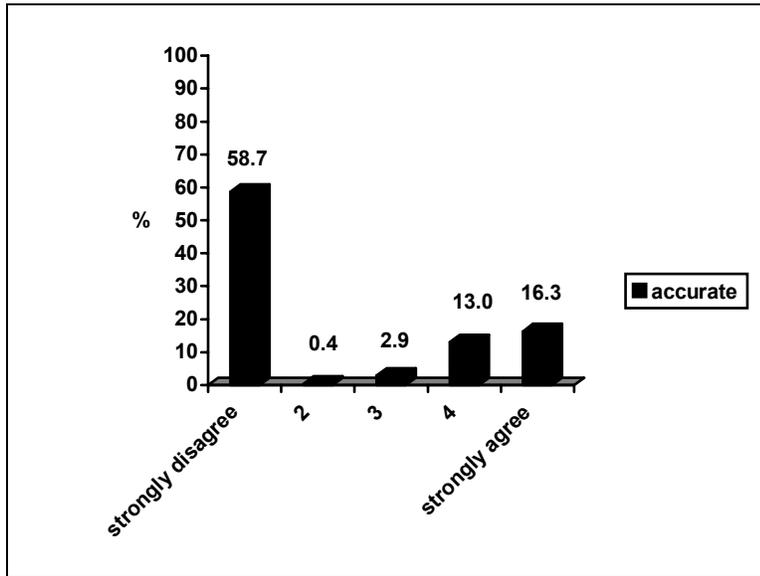

Figure F1-10. Ratings of accuracy of Predictive Services information—federal PAO/information officers.

About one-third also agreed that Predictive Services information was complete (*M*=2.3, sd=1.7, *n*=254, *Figure F1-11*, 5.8% marked 'don't know').
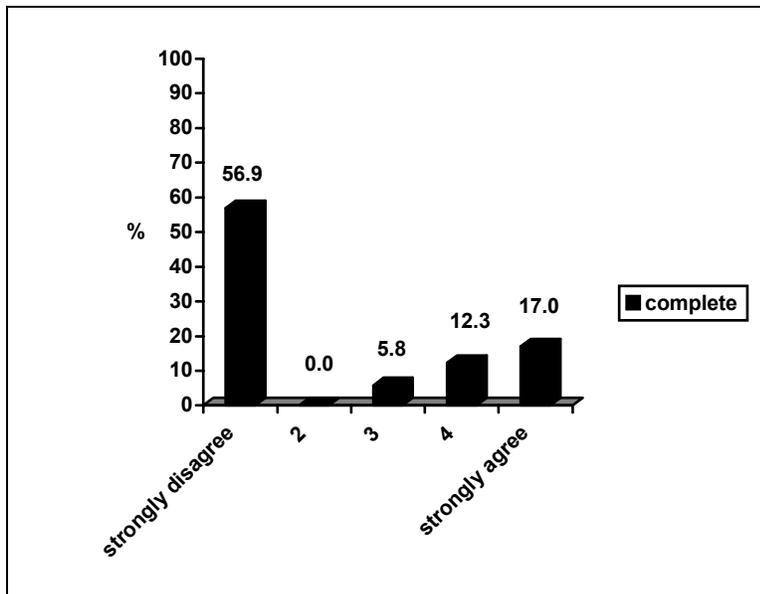

Figure F1-11. Ratings of completeness of Predictive Services information—federal PAO/information officers.

About one-third agreed that Predictive Services information was easy to understand (*M*=2.4, sd=1.7, *n*=254, *Figure F1-12*, 6.2% marked 'don't know').
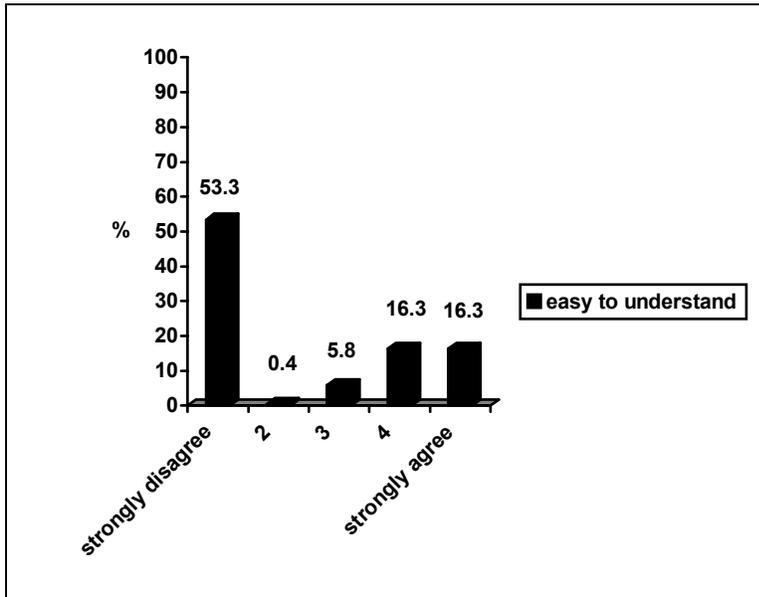
Figure F1-12. Ratings of ease of understanding of Predictive Services information—federal PAO/information officers.

Similarity and importance of similarity of GACC sites—Federal PAO/information officers rated how true the following statement was "The Predictive Services products and services available through the GACCs (you selected) are similar in format, quality, and the range of products and services offered." One-eighth perceived the products and services as similar (*Figure F1-13*).
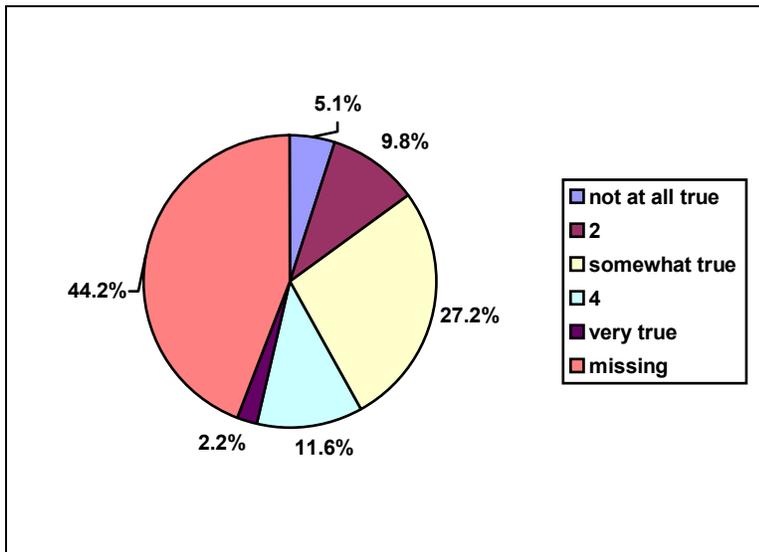
Figure F1-13. Products and services available through the GACCs you selected are similar—federal PAO/information officers.

Respondents were invited to comment on their responses regarding similarity across GACCs. Comments included these:

I have always found the information I've been looking for to get information out to folks needing the info

I am a recreation manager and go out on incidents as a FIO; during fire season I keep track of what is happening to see how likely a dispatch would be. The sites are similar in tracking current area incidents.

The similarity of the sites has made it much more convenient to navigate through them.

I don't access all sites every year. I am most familiar with NW, less so with Western Basin and Southern California GACCs

The information seems similar to me.

Formats differ at times, inconsistent use of terms

Mmmm, guess it's been a while since I looked at both as it's been a while since I went out on a project fire. More hurricanes than flames for me lately.

Only use out of region GACCs when on fire assignment - don't familiarize myself with them.

Really don't pay attention to format. Just looking for information.

Some variation, but not much or is some what seamless.

In the past, some GACCs were dissimilar in format Etc.

The services are reliable and similar.

I don't know who you are or what you provide, but I suspect you produce the sit reports and other predictive elements of various sites.

I can navigate each GACC because of some form of consistency between sites.

Things were a little different but I was able to navigate my way through

I'm not sure I've consciously compared the sites to answer this question accurately.

Usually a specialist, such as a hydrologist, will find the material in response to a query from me.

They convey information clearly

Not all things are available on each GACC website.

NICC has more extensive information.

Every region varies a little bit.

I am not sure where I have not used predictive services before.

I accessed the GACCs while working at the NIIC in DC. I thought the websites were somewhat different.

Really not sure - haven't checked other regions very often.

The two website I've been on are a little different.

Similar in my experience to what's offered, but the approaches are not consistent. It can take time searching for something on an unfamiliar site.

Great variability in services, quality, accessibility, and true links. Some are great, some are not. All seem to have different formats, some are difficult to navigate, some have broken links.

I haven't compared them enough to be certain, but expect them to be the same. My focus is the Great Western Basin GACC.

I help staff the National Incident Information Center in Washington, DC and often retrieve info from NIIC and GACCS. I don't know if it is from predictive services.

Have not used.

Don't use the service.

Most of the information used at NICC is for verification of figures and looking for news releases. Each GACC's website is a little different and not always up to date for news releases.

Only accessed one site.

I'm not sure of this, never heard of predictive services
I rely heavily on the SWCC pages.
I am not sure what services I have encountered or used, therefore the question is irrelevant.
The type of information sought is found in similar format.
Things really vary, and they varying in currency and quality. Some stuff is too general
What is Predictive Services !!??? Is this a branch of the Forest Service ?
I mostly telephone predictive services folks to obtain information and check on their
    availability for media interviews.
I worked the NIFC fire center in 2000. I have not been at an incident since then. So my
    memory of services is very uncertain re: Predictive Services.
I have no idea what 'Predictive Services' is. I don't know why I was sent this questionnaire.
I didn't know that I was using Predictive Services products in my 'surfing'.
I have very little knowledge of these products or services.
Generally good quality prevails.
Have not used
I really don't know, I have never been aware of using Predictive Services
Need continuity of links, wide-variety of home pages. So. Cal is least favorite.
To be fair, I would need to go back and compare all side by side. I do support consistency
    in presentation and content across the GACCs
Do not know.
I mostly use the NWCC website and predictive/fire weather services briefings.
Wish they were updated year-around because of the increased all-risk assignments in
    winter
Never used
Don't have a clue.
I do not know anything about this service
Can only compare with two or more. I've only used one that I know of.
I have searched these sites, but I am not sure which information was the Predictive Services
    portion. I use all these sites to research current conditions in each area. They are
    somewhat similar to each other.
actually - I've visited the web sites but am not at all familiar with predictive services
This is a puzzling question similar in format to what, what product?
I'm most familiar with NW area info, though I do use NICC info at times and have accessed
    info from the Southern area for non-fire incidents.
I have had one occasion to require additional information about IIO reports/products etc... I
    referenced 2 websites from my IIO3 class
I am still not sure what predictive services are, to know if I have used them
Differ in scale of area covered, use more local for shorter term outlook, national for seasonal
    outlook.

While about one-eighth indicated that similarity of Predictive Services' products and services in format and quality across GACCs was unimportant (13.7% assigned a 1=not at all important, or a 2), about one-fifth indicated that it was somewhat important (20.7%), and nearly half indicated that it was important (44.6% assigned a 4 or 5=very important; 21.0%, did not answer this item).

Satisfaction with Predictive Services contacts—A few respondents (2.5%) had contacted Predictive Services to report a problem with a product or service. All of these (100.0%) selected a 4 or 5 on the scale indicating they were responsive (scale was 1 to 5, 1=not at all responsive, 5=very responsive). Seven respondents (2.5%) had contacted Predictive Services to suggest a new product or service. Using the same responsiveness scale as for reporting a problem, over half (57.2%) rated Predictive Services as responsive to their suggestion.

Use and utility of products and services—Products and services available through Predictive Services were examined. The 39 specific listings included some products and services that are generated elsewhere, or that are available only on some sites, but not all. Respondents were asked first to indicate if they had not used each product, and then for those that they had used, to rate each according to its usefulness to them on a scale from 1 to 5, where 1=not at all useful and 5=very useful.

The first set of product ratings (*table F1-2*) are those that are shown on Predictive Services sites, but are produced through other agencies.

Table F1-2. Use and utility of Predictive Services products and services provided by other agencies/groups—federal PAO/information officers.

Product or Service	% Not Used	Usefulness *M*	SD, N
National fire weather outlook	30.4	3.98	1.0; 170
Red flag warnings	34.1	4.35	.9; 159
Drought information	40.6	3.93	1.0; 136
Haines index	48.2	3.76	1.0; 118
7-day precipitation maps	49.3	3.65	1.0; 117
7 and 14-day precipitation percent of normal	50.0	3.56	1.0; 113
12-hour forecast maps	50.7	3.79	1.0; 111
MODIS active fire maps	53.3	3.93	1.0; 101
7 and 14-day average maximum temperature departure from normal	51.8	3.57	1.1; 108
7-day average maximum temperature maps	51.1	3.66	1.0; 108
Wind maps	60.9	3.53	1.0; 83
Observed fire danger images	65.2	3.73	.9; 74
ROMAN real time fire weather and information report	67.4	3.59	1.0; 63
Upper air soundings	83.7	2.96	1.3; 25

A set of products and services is produced by Predictive Services and is available on a limited scale (*table F1-3,* less than national, typically on a local and regional level). These products and services are offered on a limited scale to meet specific regional needs and interests.

Table F1-3. Use and utility of Predictive Services products and services provided by Predictive Services on a limited scale—federal PAO/information officers.

Product or Service	% Not Used	Usefulness M	SD, N
Interagency situation reports	31.9	4.24	.9; 161
Daily fire weather/danger outlook	38.8	4.17	.9; 149
Prescribed fire reports	65.2	3.57	1.1; 77
Smoke program reports	62.3	3.41	1.1; 78
Online briefings	67.0	3.63	1.1; 71

This last set of products is available on a national scale and is created by Predictive Services, sometimes in collaboration with other entities (*table F1-4*).

Table F1-4. Use and utility of Predictive Services products and services provided by Predictive Services on a national scale—federal PAO/information officers.

Product or Service	% Not Used	% With 4 or 5 Rating[1]	Usefulness M	SD, N
Incident Management Situation Reports	30.8	85.1	4.45	.8; 168
Weekly fire weather/danger outlook	40.2	72.6	3.99	.9; 139
Seasonal fire weather/danger outlook	39.1	57.3	3.70	1.0; 145
Monthly fire weather/danger outlook	41.3	54.4	3.65	1.1; 136
10-day fire weather/danger outlook	43.8	64.4	3.89	.9; 132
Live fuel moisture	48.9	54.7	3.67	1.0; 117
Dead fuel moisture	48.6	55.8	3.68	1.0; 113
7-day large fire potential	43.8	68.3	3.95	.9; 129
Fire news and notes	44.2	66.2	3.90	1.0; 133
ERC and fuels charts	58.7	55.0	3.61	1.0; 89
Links to other services/websites	52.2	59.1	3.78	.9; 110
Multi-season fire weather maps	49.3	49.5	3.43	1.1; 111
Interagency RAWS program	68.1	49.3	3.57	1.1; 65
Reference links	61.6	64.3	3.76	1.0; 84
Training	70.3	47.6	3.46	1.2; 61
State of the fuels program	76.1	37.8	3.27	1.1; 45
Technological guidance and transfer	79.0	32.4	3.08	1.1; 37
Predictive service forms	79.0	27.0	2.81	1.2; 37
Regional monsoon update	73.2	56.0	3.52	1.3; 50

[1] This column considers only those who rated the product and is not based on all federal PAO/information officers.

Respondents were invited to specify any other products or services they had used, resulting in the following remarks:

On-site observation at dispatch center.
Public callers
I wish I knew something about this
I get info from the NIFC website. Is that Predictive Services?
I am fortunate as I am able to attend briefings where the predictive services folks do presentations. The verbal presentations are always good.
I do not work in fire

Overall satisfaction—Responses indicate that Predictive Services had neither met nor failed to meet most expectations (*M*=3.1, sd=1.0, *n*=179, *Figure F1-14*), and respondents were neither satisfied nor dissatisfied (*M*=3.2, sd=1.0, *n*=180, *Figure F1-15*).
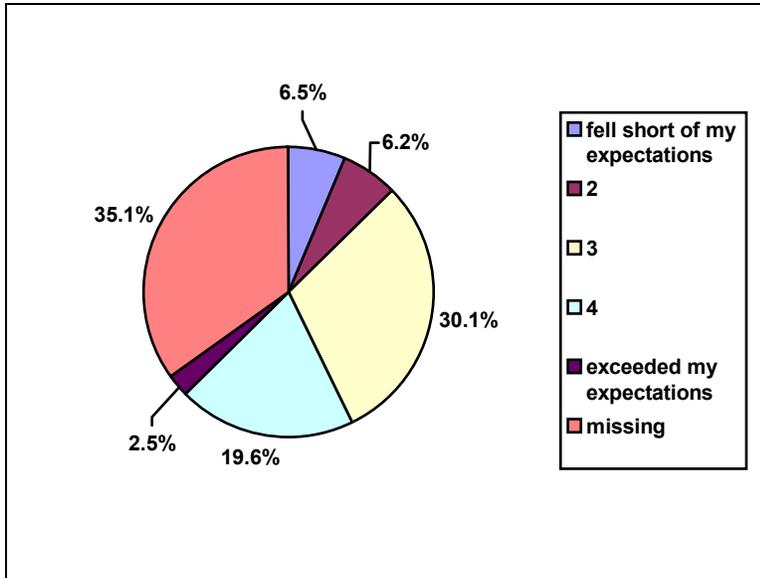

Figure F1-14. Ratings of degree to which Predictive Services met expectations—federal PAO/information officers.
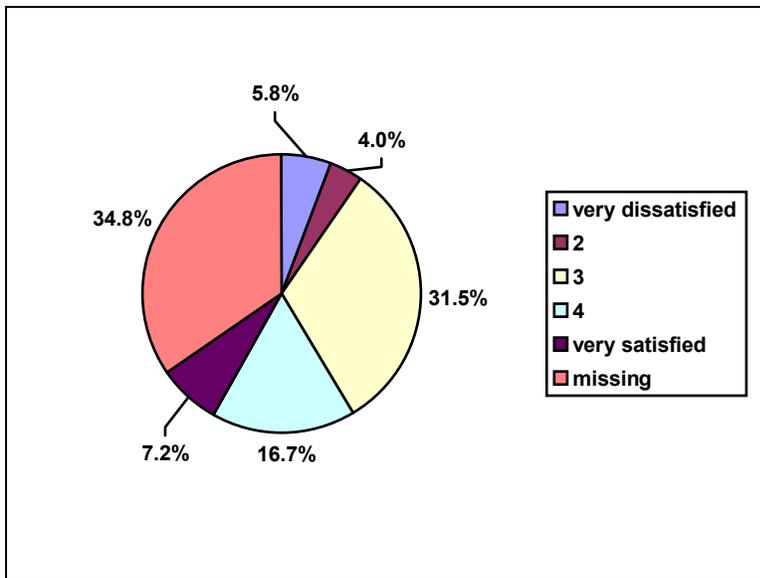

Figure F1-15. Ratings of satisfaction with Predictive Services products and services—federal PAO/information officers.

Trust and confidence in the information—A majority expressed some, to a great deal of trust and confidence in Predictive Services information (*Figure F1-16*, *M*=3.1, sd=1.4, *n*=215; 22.1%, did not answer this item.)
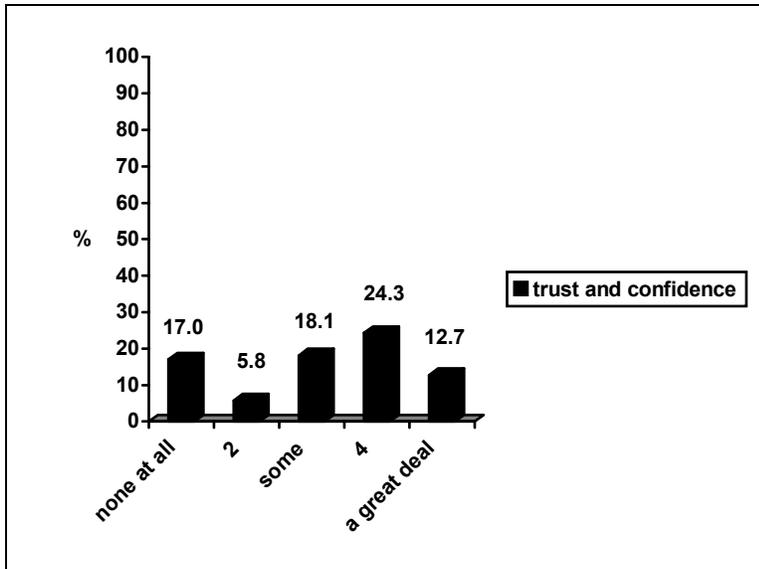

Figure F1-16. Ratings of trust and confidence in Predictive Services information—federal PAO/information officers.

Are Respondents Relying on and Taking Action Based on Predictive Services?

Reliance on products and services—About one-tenth (9.5%, *Figure F1-17*) indicated that they *did* rely on the products and services in making important decisions (selected a 4 or 5, where 5 was very true). About one-eighth (16.3%, *Figure F1-17*) indicated that they relied on other sources more heavily than the products and services provided by Predictive Services (chose a 4 or 5, where 5=very true).
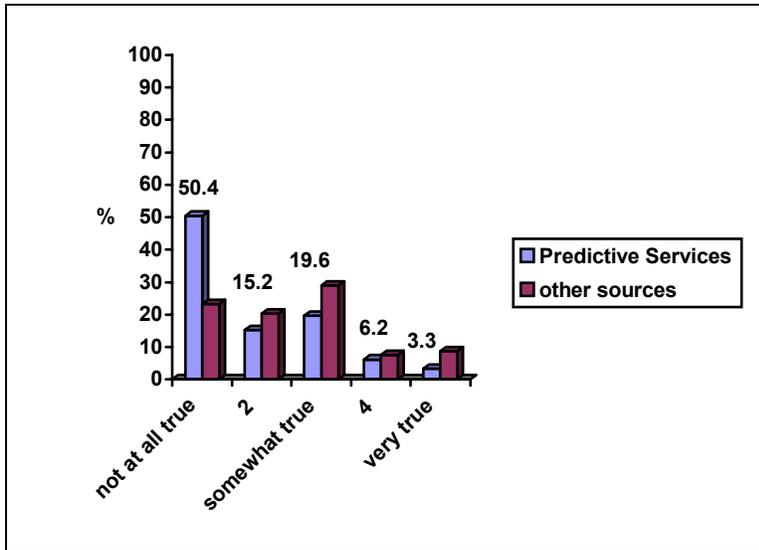
* The proportion of respondents in each category is shown for reliance on Predictive Services.

Figure F1-17. Reliance on Predictive Services and reliance other sources—federal PAO/information officers.

Reliance on other sources was investigated further. Respondents were asked to comment when they provided ratings of 4 or 5, indicating they relied on other sources, resulting in the following comments:

   I utilize reports from Predictive Services almost exclusively.
   material specific to Eastern Great Basin and to local sources
   Local resources, information personnel.
   I mostly focus on the morning fire weather briefings and SIT reports.
   I use whatever resources I have collected over the years, or when in doubt, merely Google
       required information.
   The Weather Channel
   through Eastern Great Basin and NIFCI and my own Fire Mgmt. Center just because I am
       more familiar with them.
   I get my information from the Information Officer from the Team or if I am working solo I get
       my information directly from the IC.
   Regional and National fire situation reports.
   I typically hear first from media, then callers, and lastly from Predictive Services.
   Don't use other products either.
   Since I did not know what predictive services was and had to ask Dr. Winter its function, I
       have not used your product but may in the future
   Not familiar with predictive services
   What in the (expletive deleted) IS Predictive Services?
   I don't know what Predictive Services provides, so I can't answer.
   What is National Predictive Services
   I do not use any other services... no need to
   I am sorry once again, but I am not sure which services on these sites are yours, but I am
       very interested in finding out more about your services.

Degree of reliance on Predictive Services was also queried. About one-half indicated little to no reliance on Predictive Services information (51.5% chose a rating of 1 or 2, where 1=none at all when asked "How much do you rely on the information provided by Predictive Services to assist in decision-making?"). Another one-fifth (21.7%) indicated some reliance, and about one-eighth indicated reliance (14.2% chose a 4 or 5 rating, where 5=a great deal; 12.7% did not answer this item.)

The likelihood of taking action based on Predictive Services information was examined. About one-eighth were likely to take action based on Predictive Services information (16.3% chose a 4 or 5 rating, where 5=very likely, *Figure F1-18,* 17.4% did not answer this item).
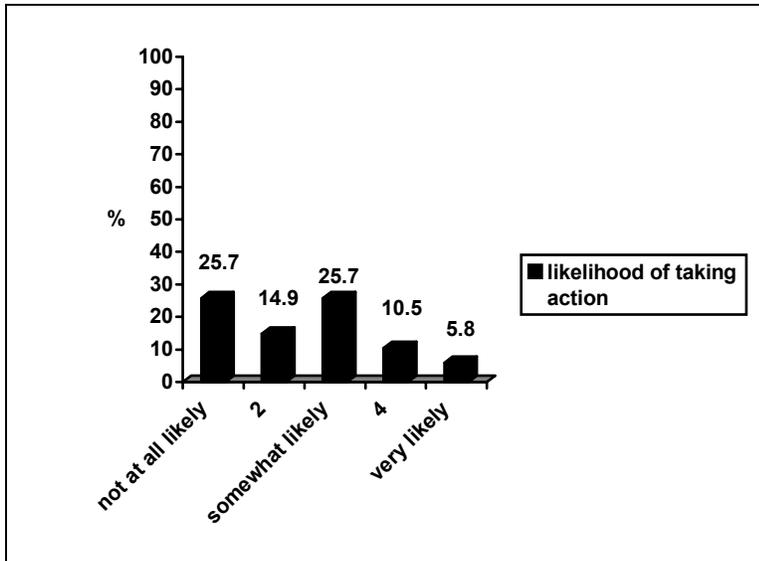

Figure F1-18. Likelihood of taking action based on Predictive Services information received, or gathered from a website—federal PAO/information officers.

Did Respondents offer Insights into Reliance and Barriers?

Perceived overlap—Respondents were asked how true or untrue it was that there is overlap in the type of information that can be obtained from Predictive Services and other sources (rated on a scale from 1 to 5, 1=not at all true, 3=somewhat true, 5=very true). While about one-half (47.1%) indicated there was not overlap (chose ratings of 1 or 2), nearly one-third (29.7%) felt this was somewhat true, and a few indicated it was true to very true (4.3% chose ratings of 4 or 5; 18.8%, did not answer this item.)

Respondents provided the following comments regarding perceived overlap with other sources:

Overlap is good, as it provides another measure of validation.
The same incident daily updates are available depending on different web sites, some have more detail than others
Some of it is provided through area dispatch or fire offices and through fire information offices
Not so much overlap as supplemental. Drought indices, spot weather, etc.
Again, who are you and what do you do?
National Weather Service charts

NIFC, GACCs
I get information from callers with questions, public media and Predictive Services
  (especially when steered there by other FS employees or my FMO).
Have not used, so I don't know.
I don't know any thing about predictive services
Again, because I am unsure what services I have used, the questions are not relevant.
A synopsis of information on a large incident is provided from the incident's jurisdictional
  unit, sometimes from an IMT web posting, NIFC, the National Incident Information Center
  web, Regional website, etc. General public and media should be able to go to a single
  location for a one-stop shop instead of finding various degrees of information at several
  sites. The new InciWeb can provide this and I feel the channeling of incident information
  should be transitioned to this single website. A lot less time would be consumed for this
  effort. The information will remain consistent, accurate and without conflict, and most
  important users will always know where to go to get the information they seek.
Incident Commander, Park dispatch, Park Headquarters
Since I haven't a clue what Predictive Services is and don't use it, I get info from the internet.
Have not used
Never used these services before. Totally unfamiliar with them. I am awaiting for S-203
  training. I have only worked two Type II fires in three years. And that was only 5to support
  the FIOs assigned.
There may be but I do not use them
Never used services
I don't even know what Predictive Services does, but since I work hard to gather intelligence
  related to incidents, I'm assuming that Predictive Services would duplicate this.
I've seen products accessed by IMETs but don't know where they obtain them.

Beliefs about Predictive Services among those who had data gathering and reporting duties—
The respondents with data gathering and reporting duties related to Predictive Services were
asked: "How likely is it that you will gather and report data to Predictive Services?" Very few
indicated that they were likely to gather and report data (8.2% chose a 4 or 5 on the 5 point
scale, where 1=not at all likely, 5=very likely; 10.6% did not provide a response; *Figure F1-19*).
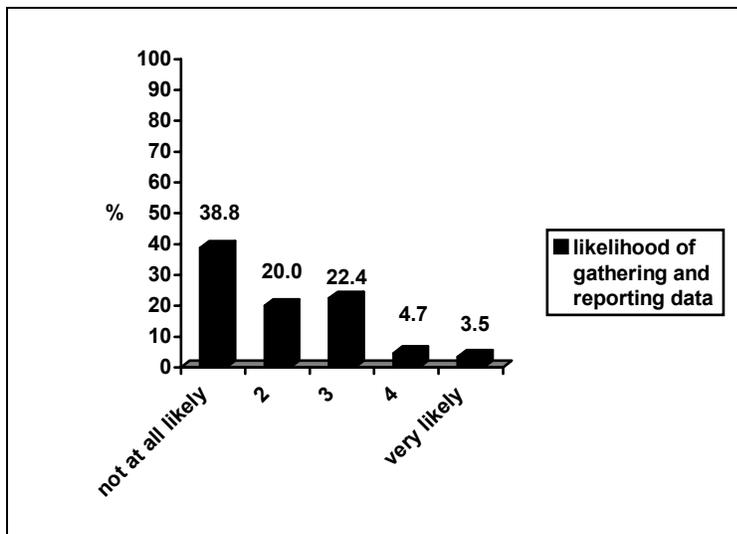
Figure F1-19. Likelihood of gathering and reporting data to Predictive Services—federal
PAO/information officers with data gathering and reporting duties.

Respondents tended to disagree that they had the resources to gather field data for reporting (*M*=2.1, sd=1.1, *n*=70, rated on a 1 to 5 scale where 1=strongly disagree and 5=strongly agree; *Figure F1-20*; 17.6% did not answer this item).
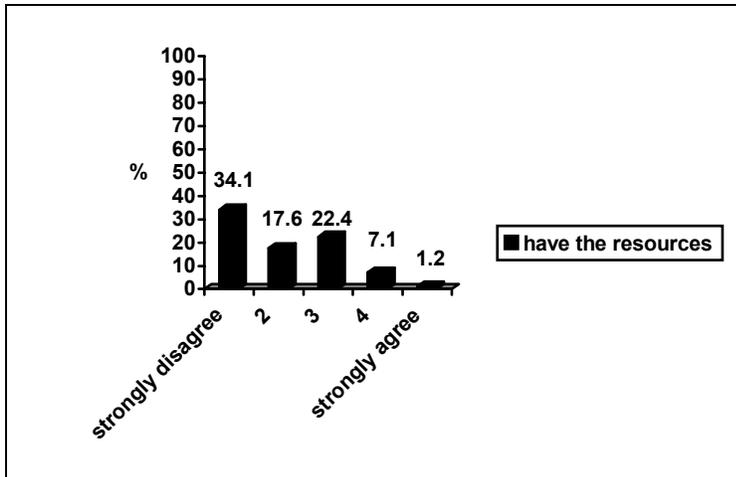

Figure F1-20. Degree of agreement or disagreement with "I have the resources (e.g., time/skills/personnel) to gather field data for Predictive Services reporting" —federal PAO/information officers with data gathering and reporting duties.

This subgroup was also asked to rate five items focused on positive impact of reporting, and negative effects of not reporting. Federal PAO/information officers were most likely to disagree with "My consistent upward reporting of data (e.g., 1300 obs for RAWS) increases the reliability and quality of Predictive Services products and services" (*M*=2.3, sd=1.3, *n*=69; *Figure F1-21*; 18.8% did not answer). They were also most likely to disagree with "My consistent upward reporting of data (e.g., 1300 obs for RAWS) increases the reliability and quality of products and services provided by groups and agencies that use the data from Predictive Services to generate their own products" (*M*=2.3, sd=1.2, *n*=64; *Figure F1-21;* 24.7% did not answer).
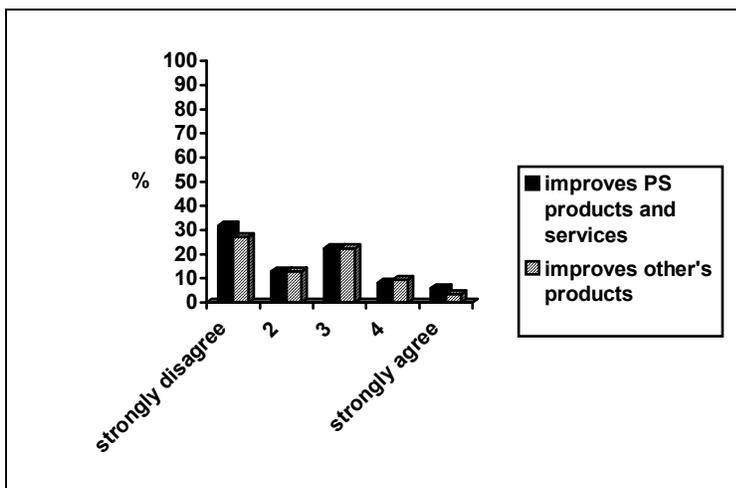

Figure F1-21. Degree of agreement or disagreement with positive outcomes of reporting data—federal PAO/information officers with data gathering and reporting duties.

Responses indicate that the majority disagreed there are adverse outcomes when/if data are not gathered and reported. This was assessed through two items "If I don't collect and report Predictive Services data, it could affect my unit's ability to make sound decisions to manage fire" (44.7% selected a 1 or 2 rating on the scale; *M*=2.4, sd=1.3, *n*=68; *Figure F1-22;* 20.0% did not answer); and "If I don't collect and report Predictive Services data it could adversely impact firefighter or public safety" (40.0% selected a 1 or 2 rating; *M*=2.7, sd=1.4, *n*=67; *Figure F1-22;* 21.2% did not answer).
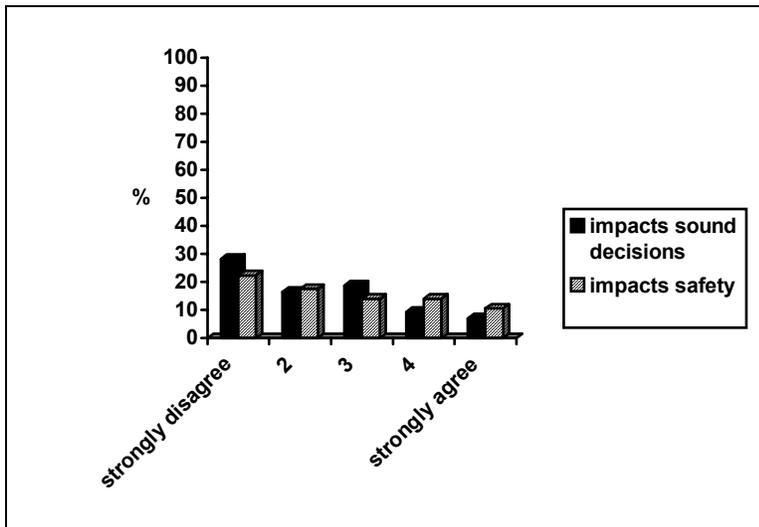

Figure F1-22. Degree of agreement or disagreement with adverse impacts of not collecting and reporting data—federal PAO/information officers with data gathering and reporting duties.

Ratings of ability and impact of applying Predictive Services information—General ability to access and apply the information from Predictive Services, as well as its utility in job performance, was queried (using a 5-point Likert scale where 1=strongly disagree and 5=strongly agree). Federal PAO/information officers were somewhat in agreement with "I can access and apply Predictive Services information as part of my job duties" (*M*=3.8, sd=1.0, *n*=133). However, they were in less agreement with "Predictive Services information helps me perform my job with greater precision" (*M*=2.7, sd=1.0, *n*=126).

Two general items examined perceived impacts of inaccuracies of Predictive Services information. The first was "Inaccurate Predictive Services information would decrease my ability to predict fire behavior." Rated on a 1 to 5 scale, where 1=strongly disagree and 5 was strongly agree, the average was 3.4 (*M*, sd=1.2, *n*=122; *Figure F1-23*). Over half did not answer this item (44.9% selected 'don't know', and 14.5% did not select any answer). The second was "Inaccurate Predictive Services information used in my decision making may adversely impact firefighter or public safety." Again, the average was at the mid-range of the scale (*M*=3.5, sd=1.2, *n*=124; *Figure F1-23*). Over half also failed to indicate degree of agreement or disagreement with this item (40.9% marked 'don't know' and 14.1% did not select any answer).
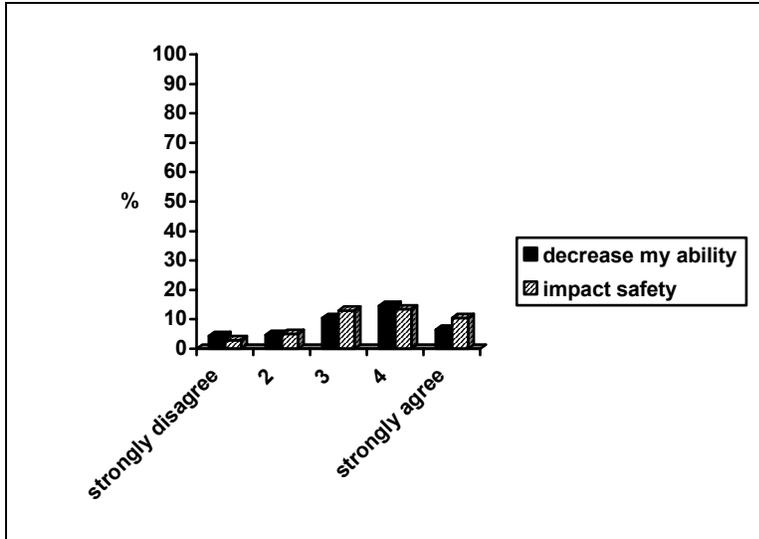
Figure F1-23. Impacts of inaccurate reporting of Predictive Services information—federal PAO/information officers.

Barriers to use of products and services—There were various reasons why respondents did NOT use the products and services offered by Predictive Services, although no one overwhelming reason or set of reasons emerged among the 16 offered as potential barriers (*table F1-5*). The most frequent reason provided was not having thought about using the products and services. A lack of trust was not frequently cited.

Table F1-5. Reasons why they had not used the products and services offered by Predictive Services—federal PAO/information officers.

Reason	Percent
I never thought about it.	38.4
My current management practices don't require the types of information provided by Predictive Services	22.1
I don't know how to use these products	19.6
I need information that is site specific	9.8
I am not mandated to use these products	10.9
I don't have the time to use these products	6.5
I don't know where to get advice about using these products	13.0
I don't know where to get the technology to use these products	7.6
I don't have the technology I need to use these products	4.3
I don't trust the products and services	.7
I don't want to use these products	2.5
I don't think these products support my agency's current practices	.7
Agency directives/guidelines instruct me to use other information	2.2
I don't have the money to use these products	2.2
I don't trust the advice I get about using these products	.7
I don't trust information that is generated by multiple agencies	.4

As a follow-up to the above items, we invited respondents to explain why they might not want to use the products, resulting in the following comments:

I don't know how to interpret some of the reports but others I do. It would be nice to have a
  training specific to all the reports available and how to use them.
I'm not sure what Predictive Services is
I did not know any of these products were available.
I probably use your stuff a lot but I am not familiar with who you are and what you are
  supposed to do.
I had never heard of Predictive Services until completing this survey. I'm not familiar with
  any of the products or services of Predictive Services.
I have never heard of this
My staff handle these products rather than me.
Don't know about these products.
For my purposes, I don't need to use all the products.
I have no knowledge of the products or service provided by predictive services
I believe this questionnaire was sent to me in error. Although I used to work in Region 3
  with some public affairs duty in fire, I now work in state and private forestry on the east
  coast with little involvement in fire issues.
Since I've never heard of you, don't know where you are, how do you expect that I would
  use your services? You're invisible!
It is not my decision to use these products independently in a ICS team context-this falls to
  the fire behavior experts.
At times I wish there was a 'tutorial' for how to interpret the information so I could use it more
  effectively when speaking to the public or non-fire staff within our agency.
I use some of the products via FS sites when assigned to an incident or awaiting a potential
  assignment...or if local resources are assigned to an incident. Otherwise I don't visit the
  sites as a rule. My current position does not require this type of information
I don't work on many fires anymore living in aspen I left the front range of Colorado where
  fires happen all the time and my summer job is too busy
This survey is the first time I've heard of 'Predictive Services'.
I use predictive services, and I don't know why other people don't.
This is the first time of hearing of this product, so do not know much about it.
I didn't know it existed

How can Existing as well as New Products and Services be Improved or Designed?

How fire danger/fire information is used to support decision-making—Respondents were asked
to indicate how they use fire danger/fire information to support decisions made regarding fire
management. About half of respondents used fire danger and fire information to make decisions
about public use restrictions (55.8%), for resource allocation (13.4%), for severity requests
(9.1%), and for decisions about resource staffing (19.2%).

Respondents were asked to indicate other uses of fire danger/fire information, resulting in the
following comments:

  public information and news releases
  Coordination with state agencies and Governor's office
  Helps in knowing what to say to the public
  Presentations to public
  media requests
  Public information dissemination
  interaction with Governor regarding political fire-related decisions
  public information and education

haven't used it
media outreach
alerts me to monitor for activity and severity
fire/public/agency information reporting
general information for the public/personnel
Public information
Public information/news/planning
incorporate the information into various media to convey to the public
I don't make the decisions on fire management
Only use for information to public
inform FAM, public
Public information and prevention messaging
In news releases to the public to use care when in wild country.
public information
Reporting to Officials and Media
public use information
Public information/working with media
I rely on Predictive Services in our daily, and often hourly, communication with the national,
    regional and local media. Predictive Services has been a blessing to every information
    officer, whether working at a home unit, fire camp, or an information center.
Briefings to Chief, USDA and Congress
Public Information
daily updates to Agency and Department Management groups
I used my knowledge and local weather for fire
news releases
public information
information sharing, news releases, responding to public inquiries
Media, public inquiries
I'm not aware of using your information.
Provide wildfire incident information to public
Public notice through the media
Interpretation
Public news releases of fire danger
Do not use it, not fire personnel
Not part of my present duties.
basic information for media contacts
public education
Briefing papers
pre, post education materials
Public Information
stay informed for media info
Fire prevention, fire season assessments for news media
public/legislative staffer information

Tolerance for errors and inaccuracies—Respondents were asked to rate their tolerance for false alarms and inaccurate reporting (rated on a scale from 1 to 5, where 1=low tolerance and 5=high tolerance). While respondents did not indicate a high tolerance for false alarms or inaccurate reporting, they were somewhat more tolerant of false alarms pertaining to fire danger (*M*=2.5, sd=1.2, *n*=244; *Figure F1-24;* 11.6% did not answer), than they were of inaccurate reporting of high fire potential (*M*=2.3, sd=1.1, *n*=245; *Figure F1-24;* 11.2% did not answer).
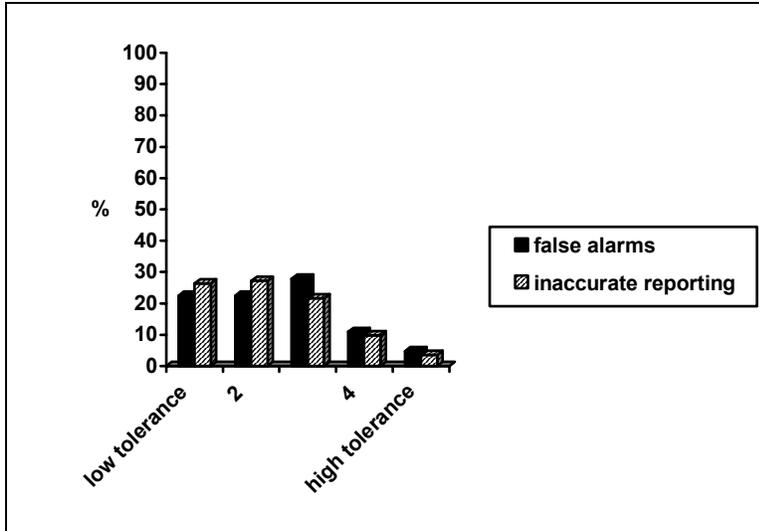
Figure F1-24. Tolerance for false alarms and inaccurate reporting—federal PAO/information officers.

In order to capture overall preferences for approaches to errors ("Although it is understood that accurate and reliable reporting of fire danger and high fire potential are desirable, margins of error are involved in predictions. In these cases, do you prefer that…"), respondents chose between two statements:

"Statements of danger or risk be issued with a greater margin of error allowing for an early response, knowing that this may lead to unnecessary alarms and response (Better safe than sorry)" —65.2 percent chose this statement as their preference.

"Statements of danger or risk should only be given with certainty, knowing that this may allow a few dangerous events to emerge that were not anticipated (Don't cry wolf)." —20.3 percent chose this statement as their preference.

A few (14.5%) did not choose either statement as their preferred approach.

Audience identification—According to the federal PAO/information officers, the primary audiences for Predictive Services' products should include: local and district fire managers (65.6%), regional and state fire managers (65.6%), national fire managers (61.6%), and to a lesser extent non-fire land managers (35.1%), and the public (30.4%; note that respondents could select multiple audience types, so responses do not sum to 100%).

Respondents were invited to specify other primary audiences, resulting in the following comments:

Media (4 respondents)
public affairs
I don't know anything about ps so can't answer
Fire Information Officers who can interpret data for the public
It's hard to serve too many masters. Who does P.S. consider their primary audience?
Anybody involved with fire that has to distribute information internally or externally
Public Affairs staff (3 respondents)

Fire Information Officers
Can't the question because I'm not familiar Predictive services.
Frontliners
The information/public affairs community; all members of an IMT organization; communities.
public info and prevention providers
not full time fire person so many question don't work for me
Since it's not clear what you do or how you display it, I don't know how to answer
You know much better than I would. I don't know enough about the subject. Specifically:
   what constitutes 'Predictive Services'? I probably use some of the services of fire
   incidents, but don't know them by that name.
Key regional media outlets
Fire Patrols
I would like to see a public page where a homeowner can click their location on a map and
   get the fire danger for debris burning, leaf burning etc
Anyone who could benefit from them.
Fire Information Officers
You're asking the wrong person
incident information officers

Preferred information formats—Respondents were asked to indicate their preferences for the style and format of information presented. For each of 11 formats presented, a rating from 1 to 5 was requested (1=not at all useful, 5=very useful). Based upon the proportion of respondents assigning ratings of 4 or 5 to each format, the formats most to least useful were: information presented in regional or national maps (50.7%), brief executive summaries of data (47.1%), satellite maps (37.3%), data in table form (35.9%), bar charts or figures that summarize data (35.1%), brief annotations that accompany data presentations (33.7%), data in text form (31.9%), radar maps (25.7%), data in spreadsheet form (21.4%), web-based ArcIMS maps with user-defined layers and scales (20.3%), and non-web-based Geo database files (4.7%).

Other styles or formats of information offered by respondents, or comments surrounding this issue, included:

Powerpoint slide presentation format.
Limiting to the greatest degree possible the use of acronyms and including of lay terms
   whenever possible
I am very visual graphs, maps, pictures, etc portray much more information that is easier to
   assimilate and interpret with accuracy than tables and figures.
Greater use of plain English.
Simple dialog about each fire and the latest status - by State so we can see a picture of
   what is happening in the State.
Video.
I really like the charts of fire causes by regions etc
Photos/video clips
Basic information in a form of a memo might be very useful... or a press release.. that would
   get the attention of the people using it!

Respondents were also asked to indicate what, if any information they would like to see in summary or synthesis form, resulting in the following comments (for this item the 'don't know' and 'not applicable' responses have been excluded):

Daily fire weather forecasts by Forest.

Fuels, precip, fire danger by local regions rather than just by forests

The current forms are useful.

Product line

whatever can be presented in a concise summary is a great help.

Yearly acres, by agency and state for wildland fire , prescribed fire and wildland fire use. Costs by agency and state for wildland fire, prescribed fire and wildland fire use. Structures destroyed by agency and state.

No specific recommendations, but summarized information is always a benefit

current activities across the county

Results of this needs assessment.

Weather predictions for the state of Nevada by regions/zones like northern, eastern, western and southern Nevada.

1.) Current Fire Danger by areas within each state; 2.) Numbers of acres burned to date in the same areas; 3.) Precipitation to date in the same areas; 4.) Numbers of firefighting-qualified personnel, aircraft by type, dozers, water tenders, engines, etc. currently IN the same areas; 5.) Anticipated fire activity based on past data for the same areas. All of this should be available through an on-line map of the U.S. including Alaska by clicking on the areas of interest within states, or on an entire state, region or all of the US.

I do not use these products so I have no good answer

Concise information relative to recreationists; public safety information.

Trends, overall situations.

Summary for information officers to share with the media.

Don't know. Use a few products that are provided to me by other people.

need to find out just what this is about

This survey would have been more efficient if up front it defined what Predictive Services was. Then when asked whether or not the user knew what it was, no more questions would be required to answer. Seemed silly to answer questions that did NOT apply. Most of the information I seek to assist in my duties as an PIO are usually summarized.

Number of acres burned, number of fires compared to previous years.

Anything about what you are and do and where you hide your information. This is a pretty ridiculous survey.

Nothing that isn't already summarized.

Maybe have a summary link on the homepage

all of it

May a 'newspaper' type summary at the beginning that media can be referred to. We also use KBDI maps in the south

Drought data and future meteorological conditions

More weather/drought/snowpack info in short (pre-analyzed) form would be GREAT!

Inter regional fire summaries

Public information presentations

Fire season predictions, up-to-date hazard and fuel moisture assessments through out the season.

I would like to know more about Predictive Services!

drought, national information/sit reports.

Improving existing products and services—Respondents were asked to complete the sentence "The information and services provided by Predictive Services would be more useful to me if…", resulting in the following open-ended remarks:

I would take the time and remember to use them.

it became known how to access the information.

I knew about them

there was ready access and information is timely and accurate

they are presented on a statewide basis, in addition to agency jurisdictions. I think they
    already are available that way.

I know what all you offered and how to use it.

they were provided as a powerpoint version as well as the .pdf format. The Powerpoint
    version would be quite useful at public meetings and briefings.

I knew more about them.

other folks I work with had more knowledge of the predictive services site

I had a regular job more closely involved in fire management.

local area landmarks we included in some of the danger level descriptions, i.e. North of
    Snoqualmie Pass, south of Mt Rainer etc

public affairs was considered as a target audience for their use and sharing

all fire related information, predictive and current situational, was located on one site, or with
    links from one site (too many sites/too much overlap in info).

I had more time and understanding.

I was better informed about the full range of services available and how to access them.

I know about them and how to access them.

I knew what is available and how to use it.

I knew what they were and if they applied to my area of work.

I had time to utilize more often. As I work closely with congressional staffs, who want to
    know forecast conditions and resources available in case an incident on their turf requires
    resources. 'No surprises' drives my relationships with these folks, and I value interpretive
    sources to help me explain situations (current, predicted).

if I knew something about ps

I were in a primary firefighter position.

I had more training in how to use them to interpret the data for the public.

I could find them easier on the website. The new NICC/GACC website is poorly designed
    and not intuitive in trying to locate information.

I knew more about it.

I was aware of how others used them.

I took more time to understand them. Because I've spent more time on hurricane recovery I
    haven't been forced to learn more about the products and what they might do for me.

it were more timely.

... every one on my fire team was required to observe, understand, discuss and use the data
    provided.'

I knew what it was. I guess I didn't realize that all these 'products' are offered by one entity.

I knew what they were.

if ... layman's language were used.

easier to find and use, only use when on fire assignment or at dispatch

I had known it was available, and what it is used for.

I knew more about it.

I invested the time to more fully explore the available information and its application.

I utilized the information more often.

they were updated in time to use during the media's news cycle (we often don't have new
    reports early enough for the television/radio news shows).

I don't have to use any of this

I knew where to find it.

I knew who you were, what you are supposed to provide, the statistical reliability and
    significance of your products, how to access them, who to ask.

I had the time to fully explore the information offered - and if fire information/fire prevention
   was my only role for my agency.
I knew what was available to me
I knew what they were
I knew more about what they can be used for.
the products were consistent with all GACCs
I bookmarked them for use or I got a daily e-mail with links.
I had been aware of the many reports that were available.
someone told me exactly what they were.
I was familiar with the products and services that are offered by Predictive services. I have
   never heard of Dr. Patricia Winter who, as I see works for the Forest Service based on her
   email address. I think time could have been saved on this survey if a question up front
   had been asked 'if one has ever heard of Predictive services.' If the answer in 'NO', then
   why take the survey? Additionally, an explanation of what those products and services are
   and would they be useful in assisting me in performing my function(s).
remained the same
I knew how to consistently get to charts/maps dealing with longer-term data such as on
   drought. Need to be able to share simple information with media.
I needed it in my every day job. I am in public affairs and am part of the militia.
More reports were in 'layman's' terms
I could sort by locality quicker.
I knew how to access it all & or had the time to dive in more depth. Not sure what all is
   available
I knew more about it.
I remembered to use them. I often get my info. from our fire staff officer (who gets it from
   predictive services).
the Haines index were trashed and something that ordinary human beings could understand
   replaced it, AND if a hands-on training course were offered at the local unit level to train
   novices and non-Fire personnel in WHAT National Predictive Services is, WHAT
   PRODUCTS it provides, and HOW TO ACCESS & USE THEM.
I had the time to study them more thoroughly thus understand and use them more
   frequently.
I needed it in my current position.
I knew more about the services provided and how they could assist me in my various
   responsibilities on fire assignments. I work in various fields, both in the wildfire and rx fire
   arena, i.e. resource advisor, fire investigator, fire information, human resources, law
   enforcement - security, etc. Thank you.
I had any idea what they were.
I knew more about those services.
I knew they existed.
I knew what it was and knew how to access it.
I were involved in fire
I don't have any suggestions. I get the information as I need it.
it was easily available all the time.
I was involved in fire more than I am currently.
I was involved in fire activities daily.
in simpler format and updated very frequently.
site were consistent
All GACCs had the same format, links, navigational tools, and information.
I had knowledge of their products and my need for them.
they were readily available and advertised/made available

I could access the site while on an assignment.
I had an example of what the products were and when they were used.
I had a frequent need to review and use the information.
I needed to use them.
They are useful to me only when I am detailed to NICC--then they are very useful to me.
I had more time to explore what is available.
I understood its direct relevance to me.
they were more basic and accessible
If I knew exactly what the range, offerings and purpose was for using it.
I knew what I needed them for.
it would help to know just what this is all about
the information was more tailored for public information purposes.
I knew what it was.
I had a clue.
I was familiar with how to access it. I rely on my dispatch center for this information.
I had any idea of who they are and what they do. Again, because I have no knowledge of
   them or their product, my responses to this questionnaire are of no use.
I had an idea what it was all about.
there was a way to receive automated email with the daily SIT report and other reports of
   choice rather than having to go to the bookmarked page to retrieve them.
I actually knew what the information and services were.
I knew who predictive services were and what they do
I knew anything about the products.
I knew what those services were.
I knew more about this service.
...I knew what the (expletive deleted) Predictive Services was. I use several of the reports
   mentioned early in this survey, but I need more background on where they come from.
   Predictive Services seems to have no real identity. Maybe someone should be doing some
   internal communications on this. I'm very knowledgeable on fire issues but I don't feel
   qualified to answer this survey.
Had more training in the use of the data.
I was more in an operations position.'
Staff were available for media interviews about fire season predictions, snow pack. I believe
   the staff has been very helpful in the past in this regard.
I were more involved in the fire program than I have been in the last 6 years.
Have never heard of Predictive Services
Not full time fire person so many questions don't work for me
I knew what it was and where to find it.
I knew what it was and where to find it.
I really know what they were all about
I was informed about the product and trained to use it.
I knew what it really was and where to find them.
... I knew just what is meant by 'Predictive Services.' I don't know anything specific by that
   name.
I were not juggling so many duties and could access them more often.
I am familiar
easier to locate in one area.
if were in a position to make fire management decisions. Currently I am not. They have been
   useful overall to PIO duties.
I had more time in my life to check out everything on the internet I want to look at.

they were introduced in S-290, 390 and 490 as useful tools and their application was used in
   scenarios to predict severe fire weather and conditions.
I knew more about it!
I had a use for them.
I knew anything about them. I am not yet trained as an FIO, so many of these products may
   avail themselves to me after I am trained.
If I was properly trained in the use of it. I think it can be a great tool for me on a daily basis.
If the GACCS were similarly organized, and the news and notes sections updated daily,
   during the season. (not all have news and notes, I really like getting the scoop, as a PIO to
   see what is going on nationally)
I had a better idea on how to translate the language, understand the system, and knew
   where to look to get a comprehensive picture to share with the public and the working
   crews.
I missed the opportunity to state that I use the fire statistic information. the graphs are
   excellent
I knew more about them & where to find them & how to use them.
more of my job was in fire. Auxiliary duties now.
I mentioned earlier that at times I wish there was a tutorial so I knew how to use and
   interpret the information more effectively. As you know I checked Public
   Affairs/Information Officer - so I don't have the full scope of fire knowledge that many of
   your respondents may have - but I serve as an advocate of the fire program and
   information predictive services are a very useful tool.
knew what this was all about.
I knew at the beginning of this survey what Predictive Services was
I attended a 4-hour orientation on predictive services and fire weather and how their daily
   briefings are prepared and delivered.
I were responsible for hands-on fire management.
I could remember to go to their website first.
I knew how it applied to my job.
They were current within 24 hours
I knew what was available and not available.
N/A. Predictive Services is very useful to me, for my purposes, as is now.
I knew what was available and I knew how to use it.
I used the information but I never have.
If I knew what this was about.
I don't know
I knew just what 'Predictive Services' is.
I a better understanding of what they are and what they could do for me.
I had known they existed, and I was more involved in fire management.
Can't think of anything that would make it more useful. It meets my needs.
I knew more about the information and services provided by Predictive Services.
I knew more about it. If there was something on a website that they provided, was easy
   access and pertained to my search, I may have used it. I just don't remember specific
   items that were labeled as 'Predictive Services' that I have used.
I knew what they are and how to access them,
I knew more about it.
if knew more about what they provide and how to best utilize the information.
a larger portion of my job required me to use the information offered.
I knew more about it.
I knew what the program is about.
I went on more fires.

I knew more about it and if it pertain more to my job.

I was more aware of them, their capabilities and their reach.

it was marketed to Public Affairs/Information Officers

I have no idea how I arrived on the list of people to be surveyed. I have almost no fire experience and to date, have only dome some small time Incident Information on my District. My answers may skew your results and are probably not worth much at all. Don't change anything you do on my account!

I were in a position to use them

I was making decisions related to fire management. I do use Predictive Services to help inform employees and the public of fire conditions and situations.

I knew more about them.

links to RAWS and other local real-time info products were included. Making such links easy to access and fine tune to indiv locations would help those of us working on an incident out of our normal area

it related to my job, but it doesn't.

if I had a need for it.

I knew what was available and how to access it.

can't think of anything. I find the information most helpful.

I knew more about these services... and how they would be beneficial to my job in serving the public!

I knew about this being available to managers

more widely available.

I knew more about it.

it were more available.

Not sure. Haven't used the services much in the context of my job.

I knew what they were and had to offer

Respondents were also asked to consider the existing products and services, and comment on how they could be modified to better meet their needs, leading to the following comments (answers of 'don't know' or 'no comment' have been excluded):

Powerpoint slide presentations (summarizing the report)

of the few Predictive Services products I use, they meet my needs fairly well - I often use RAWS to gather information about fire danger in my area - I suppose it might help to offer some interpretation of what some of the numbers, codes and measurements actually mean. I am fairly well-versed in use of the RAWS stations, but to novices it would be meaningless.

Inclusion of a short guide of where to access information and what technical terms mean (Haines index, etc.)

My need is for general information, not for management purposes. I won't complain.

Make sure the SIY reports accurately reflect the 209s

I am not familiar enough with the products to answer.

Don't know enough about them to answer this question.

The products are good. The website is poorly designed.

Printer friendly mapping programs.

At the moment, I can not think of any way to better meet my or my team's needs.

unknown -- info officers have basic needs within the scope of what is provided by predictive services and that seems to be satisfactory to me.

They work now no need for a change.

Easier to find and use

The 209 should be accessible without passwords for access.

Better advertising as to what is available
they could all be the same and include a 20 year history
I'll be using it this year so will be better able to comment on this next year.
Not familiar with all of the existing products and services.
The products I've seen are primarily designed for use by Fire specialists and scientists. It
   would be very helpful if there were a 'layman's' version available that could be easily
   understood by non-Fire employees.
Include more definitions to technical weather terms etc for those of us who are not fluent or
   familiar with Predictive Services language.
I work in information with specific fires.
Standardized sites. Longer lead time for training opportunities.
I don't know what products they offer.
Perhaps a less-technical orientation would be helpful for the lay person.
Don't use enough to know.
Follow KISS
I don't know what the existing products and services are.
don't know, haven't used them
I receive all of my briefings from the IC assigned to the incident or other agency ops/plans
   folks involved.
Present material to your audience (written & w/ graphics) that is more meaningful and more
   in lay terms.
User-friendly and consistency in products is always appreciated by over-worked federal
   employees.
Send out sample information or trial membership services.
I can't think of needed improvements.
Consistency, Consistency, Consistency!
Some get a little technical for me, but certainly most users need the technical stuff.
Not familiar w/services. Don't feel educated enough in services to judge.
NO basis for answering the question.
Maybe just more consistent formatting/information among the different GACCS
As a Public Affairs Officer (and IOF on a national team) I'd like a 'media page' or an area
   that is very 'basic' with maps & reports that I can share with the public & media.
Maybe if you could send me a history of what your services is all about.
More easily understood terminology
I really don't know what they offer...

Products or services that should be added to what Predictive Services provides—Respondents
were asked to explain which products and services should be added to Predictive Services and
why, resulting in the following comments:

Power Point slide presentations that reflect information in .pdf reports.
Snapshot ERC charts with historical data so we can see specific spots included in high fire
   danger areas.
Not sure, I will check out what you offer.
20 year historical data - acres and cause
I'm sure there are but since I haven't used it much I don't know what to ask for.
Don't know because I don't know what all is provided now.
Why don't you give explanation as to what predictive products & services are or offers?
I'm sure there are and I wish I were familiar enough with what it does provide to intelligently
   answer this question.

State summaries of fire situations so one can more easily look at individual fires, what's happened, how many people, etc are on them. simple information can say alot.

There are always ways to improve, new products and services to add but I can't think of anything right now.

more summarized information on current situations.

a section for information officers and media.

Threats that could intrude that could complicate the analyzed situation.

An annual mailer about who you are and what you do. Also presentations at conferences to better market themselves.

Media contacts for the annual spring news stories about what the fire season might hold for the Northwest.

Make yourselves known.

I mentioned a site that the homeowner could go to, click on a map of their location and get the fire danger. this would be good for farmers and ranchers as well.

An orientation package targeting the public affairs community that explains who you are, what you provide, to whom you provide it, and how it is available.

No products from Predictive services - but I wish we had good websites with current maps and information of large fires nationally.

handy to use links to local real time data and predictive products

Were There Additional Comments?

As is customary in such surveys, we invited respondents to offer any comments about Predictive Services, or any comments about the survey, resulting in the following remarks:

I value this product highly and appreciate the opportunity to participate in the survey.

Don't use the word 'utilized' in your next survey. 'Used' works just as well and makes you sound smarter (fewer syllables = more considerate of reader).

While answering this survey, my answers were based on the fact that I am do NOT have fire as my main job responsibility, just when I am on an incident assigned as a Fire Information Officer...this can affect how I answered questions that said 'How important are ....to you in your job', etc

I am an information officer and/or information receptionist in need of general information, except when on an incident. At that time I need incident-specific information. The current information provided by Predictive Services seems to meet my needs.

I am interested but still rely mostly on the data gathered by the FMO and the 2 assistant FMOs for pertinent information. I am uncertain of the extent to which they utilize predictive services.

These reports are probably most useful to FMOs. However, they are useful to use with the public before and during fire season and to justify fire restrictions to the lay public.

very useful tool. appreciate having access to predictive services products and information.

With few exceptions, I find the PS folks provide excellent products. I think they should update the national more often, and the GACCs should update more often even in their 'off-season'. Again, the website needs work to bring me or help me direct others to the right information.

I learned a few things just taking the survey.   Willing to play along by answering age and gender questions, but please tell me what they were for! I know that 20-somethings tend to be more comfortable than I with the latest technological advancements, but I also know many geeks who are older, etc.

Keep up the good work. We do use what you provide to aid us in our work.

My fire experience is not very current, so that may have biased some of my responses.

The public wants to know where the flame front is in relation to their property. They want to know the flame direction and intensity. We only update once daily, if gathered through IR flights. As the WUI becomes more of a problem, there is more pressure to know.

I am only a seasonal user - during fire season - and not a fire manager. My needs are to quickly grasp information and convey accurate information to multiple internal and external audiences. Having data and trends portrayed in visually interesting and meaningful ways that the public can relate to is important to me and helps me accomplish my role for my agency.

I really don't use them much right now but hope to use them more in the near future.

Predictive Services is a very important tool. My experience has been very positive at all times

Please read my comments. Please note that unanswered questions were because I don't anything about your products or services that you provide. still don't!

1) The term 'predicative services' is not a familiar term to me...when the email for this survey showed up in my inbox (with predicative services used as the email header), I deleted it without opening it thinking it was 'junk mail'. When the second email showed up, I checked with IT staff to see what it was before opening...fortunately they knew what it was about, hence my participation in the survey. 2) Since the terms 'predicative services' and 'National Predicative Services' are not terms I use or think about frequently, I am not sure if I am aware of all the products and services that are available from the organizational unit 'Predicative Services'...the assessment questions provide some insight about the products and services available...I'm guessing that I use or have used a number of the products and services that I tend to associate with fire information sources and so my responses are submitted under that caveat.

Thanks for your support and work.

I think it would have been helpful to explain just what Predictive Services IS and what it DOES in the message that contained the link to this questionnaire. As a PAO I have used much of the data provided by Predictive Services, but don't recall ever hearing the supplier actually called that.

Predictive Services offers many useful products.

I have none.

I have used the msps to post on the NIIC web page and found them excellent sources of easily understandable information.

Sorry, but I don't really have the foggiest idea what you are all about. Not sure how you received my name for this survey but I really am not the candidate that you needed to fill out this survey form. Best of luck to you.

One problem is I-net access. At fires, not always can I get an I-net connection or if I can, working with a phone modem, it takes forever ... like watching paint dry.

disregard answers in 'providing data to predictive services' section. I don't do that, but misunderstood the question until it was too late

This survey was a waste of my time since I am not familiar with the company or its products. It has no bearing on my usual duties.

Excellent survey; Predictive Services needs to advertise a bit more perhaps.

As an Information Officer who rarely goes out these days, I am a rare user of these services.

I guess if you were to filled out a survey you would need to know just what they are talking about, not sure about predictive services

Advertise your services to let folks know who you are, what you do, and how they may benefit from learning about and using your services.

Glad to see you're seeking input from users to improve the efficiency of the services you provide.

It would be helpful to limit this survey to people who actually use Predictive Services or know what it is. I've never used it and only completed this survey to stop the email 'reminders' to take the survey from coming into my inbox. Enjoy

I don't know how I was selected to participate in this survey, but I know my answers are not very helpful. I don't about the services or products offered by predictive services, therefore I have not used them in any capacity. There should be a question early on in the survey that would end the survey if the participant has no knowledge of predictive services instead of having to complete the survey and portray negative results...

Am not familiar with Nat. Pred. Svcs

This took much longer than 12-18 minutes to complete.

I really don't think I was a good person to survey about the quality and use of your products. I'm not aware of your services.

I have been told several times by predictive service folks that ignitions have a significant impact on fire season, perhaps more than snowpack or precipitation. More information about how ignitions are affecting the fire season would be very important, particularly for fire prevention efforts.

You should disregard my input since I haven't been in the force in so many years.

Don't know anything about the product therefore my survey is not useful.

These questions were aimed at full time fire people. Currently am resource staff officer for national forest. Support fire as information officer with Type 1 and 2 Teams doing fire season.

This survey assumes I know what you are. I don't, so I found the survey a waste of time. There's nothing about where you have information so this survey isn't a good marketing tool, let alone a survey of my needs.

I don't think I was an appropriate person to complete this survey

All questions needed a 'Don't Know' option. Some survey questions required an opinion answer, when my answer needed to be 'Don't Know' or 'No Knowledge.' Thus, to meet the instructions to attempt to 'complete all the questions,' I had to give opinion on subjects I have little or no knowledge about. That will skew results.

Thanks for making it plain and simple!

I've not had the responsibility to use Predictive Services, but based on this survey, it is something I should be using if only to be better informed during fire danger or general information.

How can I receive proper training in the use of this product and access it?

You have 2 customers- one who is very technical and must get it right such as fire behavior analysts and the second is the information officer who wants the public to understand the climate situation as it relates to fire danger. Really are 2 entirely different audiences that need different presentation of information

This survey got a little long!

Although as I went through the survey, I received a better understanding of what Predictive Services is and that I have utilized it, but a better understanding of that before I began the survey would have been good.

I had never heard of Predictive Services. I thought the emails were either spam or might have contained viruses. I still don't know why I would use Predictive Services.

I DON'T WHY I WAS ENCOURAGED TO COMPLETE THIS SURVEY

I deleted the e-mails because I had no idea what this was about and always delete mail from people I don't know.

I don't know so I am no help in this survey but wanted to stop the emails so I filled it out

Initial I received emails concerning this survey, but was hesitant because I did not know who Predictive Services was.

Sounds like interesting services. First time I've heard of Predictive Services. How does a person contact you to use the services?

A more targeted audience for this assessment would have been useful. It would save my time and give you better results.

I would love to know more about Predictive Services. And realize I will have to check out the GACC sites now to specifically see what information is provided by them. My curiosity is anxious to find out now before the next season.

Who knows? I may use your services and don't know it because I never heard of 'predictive services' until now. I use the weather service fire weather forecasts and satellite info as well as the national fire situation reports. Are these part of 'predictive services'?

I am unsure about this company, it could be I use it without knowing, is it a subscription, or a contract that National Federal Fire folks use?

Again, please send me some infor to know some what of your services

I have absolutely NO idea how I was asked to be part of this survey, other than possibly I had a red card until 2005. I have never heard of NPS, don't know what it does, and think you should toss out my survey because I started to answer questions but shouldn't have. You need a question at the top: Have you ever HEARD of NPS? If NO, then done with survey.

I am not sure if any of my comments should be taken as valid as I have little knowledge of your services

You offered no intro info about what predictive services was or purpose of survey so I avoided because I assumed it was unsolicited SPAM.

Why was a picked to do this survey

I don't have a good understanding of assistance provided by predictive services, or where to find it.

I would like to know more about this service... I felt it was hard to do this survey when I'm not acquainted with it at all.

I have been off work for a couple of months, so I couldn't give you any real good answers.

Appendix F2: Fire Management Officers or Assistants—Federal Respondents

Federal fire management officers and their assistants were grouped into one category (*n*=160, FMOs/assistants). These respondents came from the Forest Service (54.4%), National Park Service (17.5%), Bureau of Land Management (10.6%), Fish and Wildlife Service (9.4%), Bureau of Indian Affairs (5.6%), tribal government (1.3%), a federal interagency group (.6%), and another federal agency (.6%).

Who Were the Federal FMOs/Assistants?

The majority was male (91.9%), mostly between 45 to 54 years old (*Figure F2-1*).
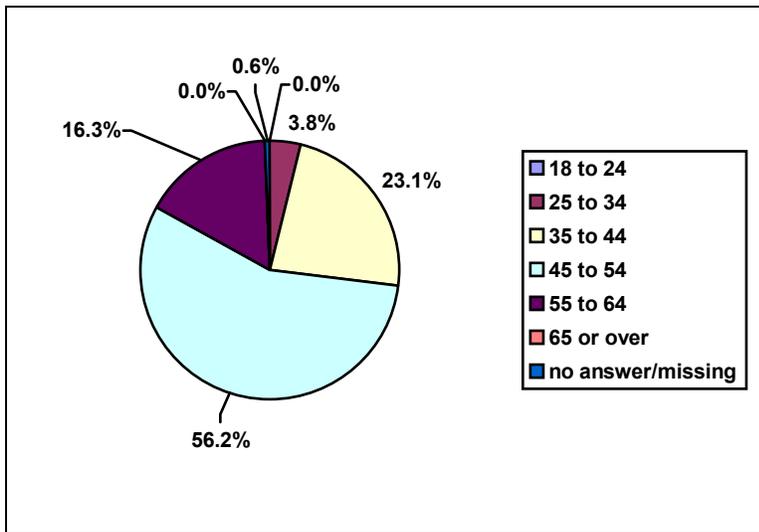
Figure F2-1. Age—federal FMOs/assistants.

Educational background / degree or equivalent—Educational attainment was fairly high among the majority in this subgroup, with about three-fourths reporting a bachelor's degree or higher education (*Figure F2-2;* .6% did not answer).
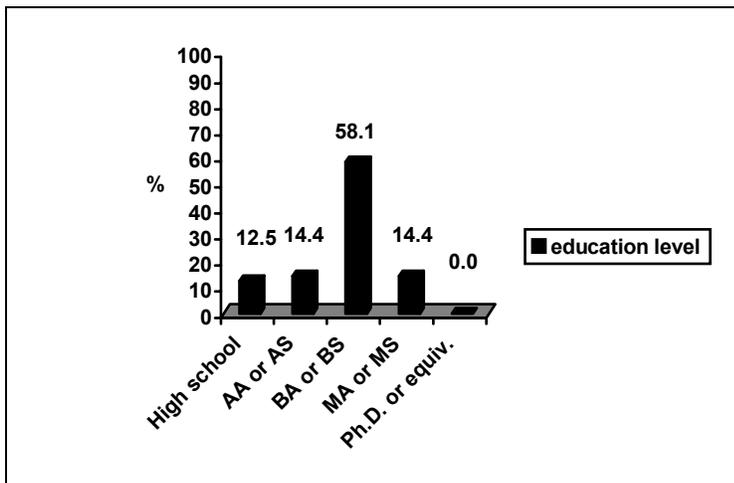
Figure F2-2. Educational attainment—federal FMOs/assistants.

Respondents reported degrees in the following subjects (these are on an individual basis so when lines contain multiple subjects they reflect an individual's response):

401 cert
Administration of justice, fire and fuels management
Anthropology
Architecture
Biology (7 respondents)
Biology/physiology
Business administration
Criminal justice
Ecology
Education-secondary
Education (2 respondents)
Environmental biology
Fire management (4 respondents)
Fire science (4 respondents)
Fisheries and wildlife biology
Forestry (17 respondents)
Forestry management/accounting
Forestry/business administration
Forest management (19 respondents)
Forest and range management
Forest resource development
Forestry, silviculture & forest ecology
Forest economics
Forest management/forest resource management (3 respondents)
Geography/natural resource management
Music performance
Natural resources conservation (2 respondents)
Natural resources management (10)
Natural resource management/outdoor recreation
Psychology
Range science
Range and forestry
Recreation and park administration
Technical fire management (2 respondents)
Wildland fire (2 respondents)
Wildlife biology (3 respondents)
Wildlife biology and range ecology
Wildlife resources (2 respondents)
Wildlife science (2 respondents)
Wildlife science/forest management

Home office Geographic Area location—Respondents came from across the United States, with their home offices falling within the various Geographic Areas (GAs) shown below *(Figure F2-3).*
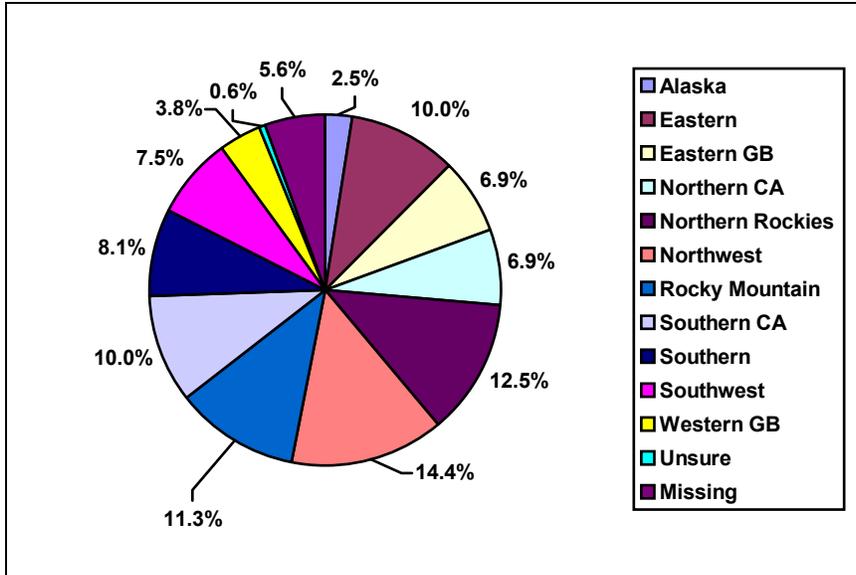
Figure F2-3. GAs—federal FMOs/assistants.

Level of geographic responsibility and scope of duties—Respondents' level of geographic responsibility varied. About three-fourths reported their duties linked to their local unit (including forest, district, reserve, etc. at 76.3%). Responsibilities for the remainder were at the national (5.6%), regional (13.1%), state (3.1%), county (.6%), or incident specific (1.3%) level.

The majority (57.5%) had duties specific to their agency only, although some respondents (42.5%) indicated that their work was specific to multiple agencies.

The number of years reported in the current position of employment averaged 7.9 years (sd=7.2, *n*=105). Median responses for number of people supervised included four on a routine basis, five on a seasonal basis, and ten on an incident/project basis.

Almost two-thirds of the FMOs/assistants (61.9%) had job responsibilities that included gathering and reporting data that are utilized by Predictive Services such as: situation reports, ICS-209s, NFDRS/WIMS, etc. Among the respondents with data gathering and reporting duties (*n*=99), the duties were assigned as one of their primary responsibilities (43.4%), or were assigned the duties as part of a group that fulfills that responsibility (30.3%). About one-fourth (24.2%) had this set of responsibilities when others with this routine responsibility were away from the office.

What are their Levels of Experience with Predictive Services?

Frequency of access and information acquisition—The frequency of accessing and obtaining information from Predictive Services was examined under two conditions, during fire season and outside of fire season. Frequency of access was greatest during fire season (*table F2-1*).

Table F2-1. Frequency of accessing and obtaining information from Predictive Services—federal FMOs/assistants.

Frequency	During Fire Season %	Outside Fire Season %
Daily	59.4	7.5
Weekly	30.0	30.6
Monthly	2.5	31.9
Quarterly	.6	12.5
Rarely	5.0	14.4
Not at all	2.5	3.1

Specific circumstances for access/acquisition—In addition to frequency, respondents provided information regarding specific situations when they access or obtain information from Predictive Services. Over three-fourths reported accessing Predictive Services during fire season (86.9%), and about three-fourths during a fire incident (79.4%). Other situations were reported including when a prescribed burn is being planned (66.3%) and when a prescribed burn is taking place (56.9%). A few indicated none of the above situations applied to them (5.0%).

Respondents listed additional situations when they access/obtain information from Predictive Services including:

drought
during times with flash flood potential
when exceptional drought is suspected to be developing
major weather event
prior to fire season, when I am writing annual operating plans, risk analysis etc
Preparing responses to update Monthly outlooks
travel plans
severity requests
supporting documentation for Severity funding requests
Developing briefings/reports
Fire investigation assignments
Check weather trends through out the year.
Winter snowpack/moisture/long -range forecasts
PRECENT OF NORMAL PRECIP, SNOW/WATER EQ.
Aviation projects
When evaluating step up planning needs due to severity
pre-fire season for planning purposes
During Wildland Fire Use Events
When indices are getting above the 90%
All Hazard/Risk Incident
Lightning forecasted

Use of specific websites and services—Respondents were asked to indicate which Predictive Services websites they had visited or which GACC services they had used, revealing that a majority had been to/used the National Interagency Coordination Center (NICC–61.9%). The Geographic Area Coordination Center sites from most to least mentioned were the Southwest (31.9%), Northern Rockies (31.3%), Rocky Mountain (27.5%), Northwest (27.5%), Western Great Basin (24.4%), Southern (21.3%), Eastern Great Basin (20.6%), Southern California (18.1%), Northern California (16.9%), Eastern (15.6%), and the Alaska site (15.6%; responses

do not sum to 100% because respondents could select multiple sites). Nearly one-half had visited one or two sites or used GACC services, while others reported multiple sites (as many as all 12). A few (3.1%) were not sure which if any sites they had visited/GACCs used, while three (1.9%) indicated they had not visited any of the listed sites.

Familiarity with the products and services—Federal FMOs/assistants were asked to indicate how true or untrue the following statement was "I am unfamiliar with Predictive Services products and services." About one-eighth indicated this statement was true (*Figure F2-4,* 12.2% selected a rating of 4, or 5, where 5=very true).
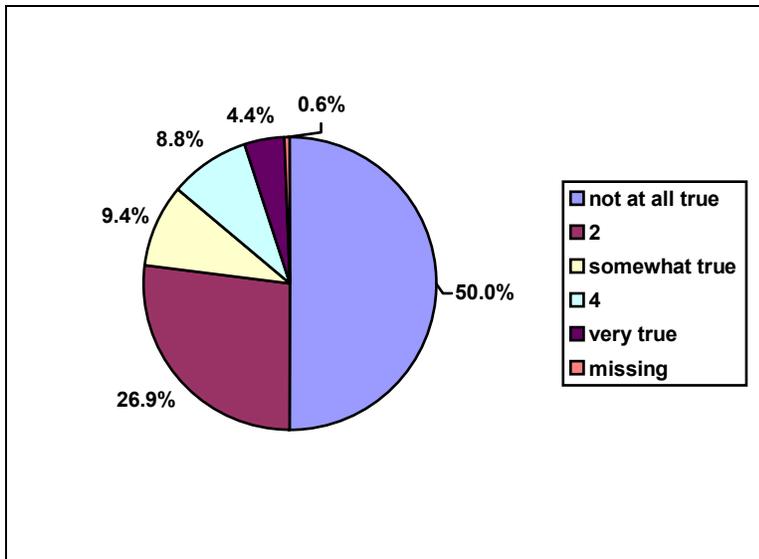
Figure F2-4. Unfamiliar with Predictive Services products and services—federal FMOs/assistants.

The majority of respondents was interested in Predictive Services products and services (*Figure F2-5*, 80.0% selected a 4 or 5, where 5=very true in response to "I am interested…; another 15.0% marked 'somewhat true').
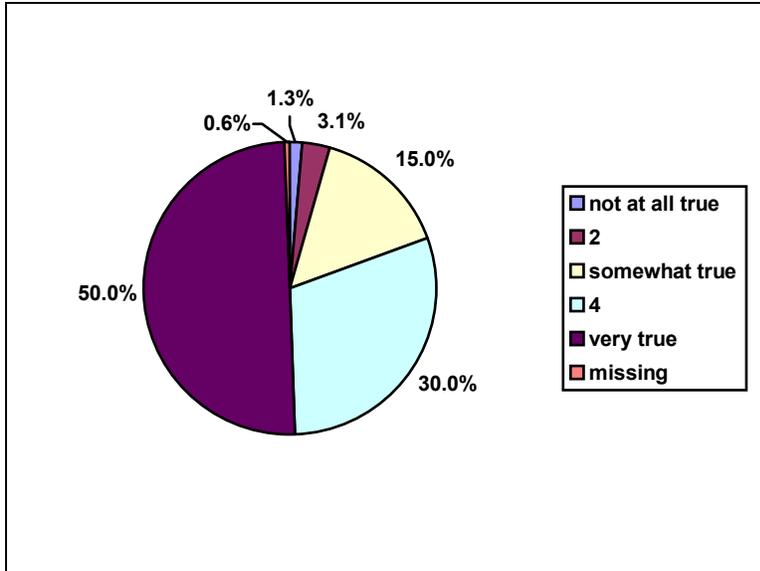
Figure F2-5. Interest in Predictive Services products and services—federal FMOs/assistants.

Respondents were asked their familiarity with Predictive Services' products on the web, the briefings, and the emails. They were more familiar with the web products (*Figure F2-6*, M=3.8, sd=1.1, n=158), and the briefings (i.e., national, geographic, situational, or meteorological, M=3.8, sd=1.1, n=159), than with the emails (these contain current projections and/or information about Predictive Services, M=3.1, sd=1.4, n=155).
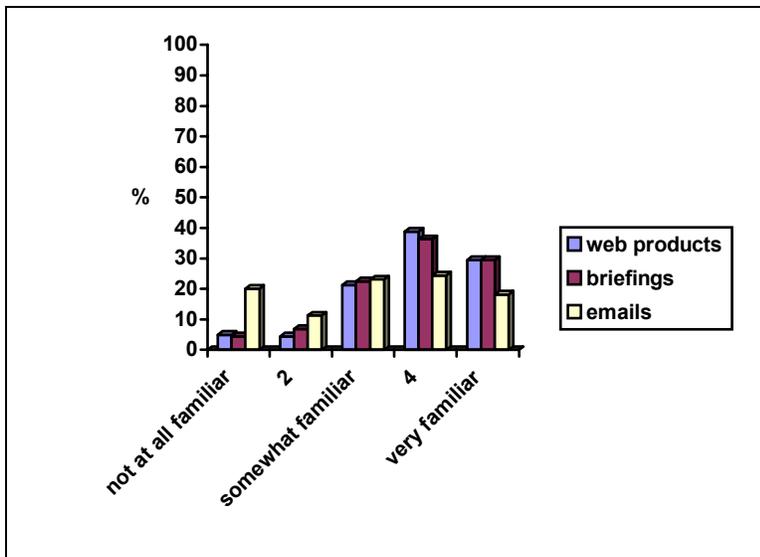
Figure F2-6. Familiarity with Predictive Services products on the web, briefings, and emails—federal FMOs/assistants.

What are their Opinions of the Products and Services?

Ratings of Predictive Services information—Respondents tended to agree that Predictive Services information was accessible (*M*=4.0, sd= .9, *n*=154, *Figure F2-7*, 3.9% marked 'don't know').
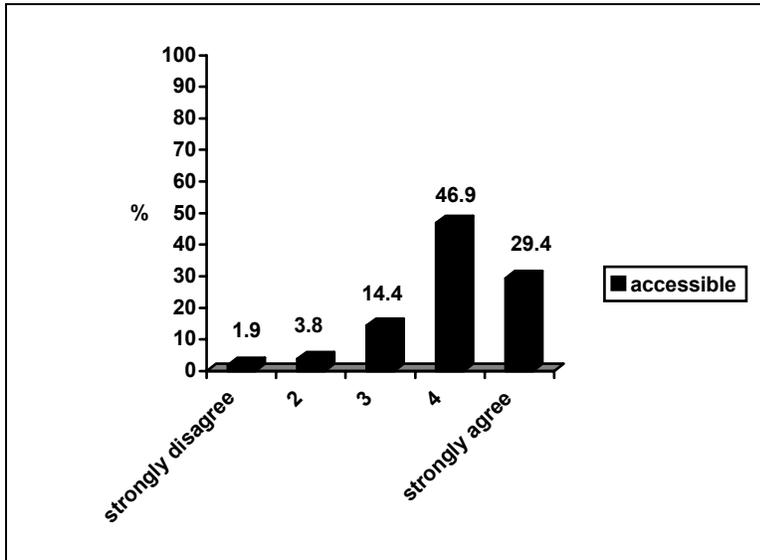

Figure F2-7. Ratings of accessibility of Predictive Services information—federal FMOs/assistants.

The majority agreed that Predictive Services information was timely (*M*=4.2, sd=1.0, *n*=131, *Figure F2-8*, 16.9% marked 'don't know').
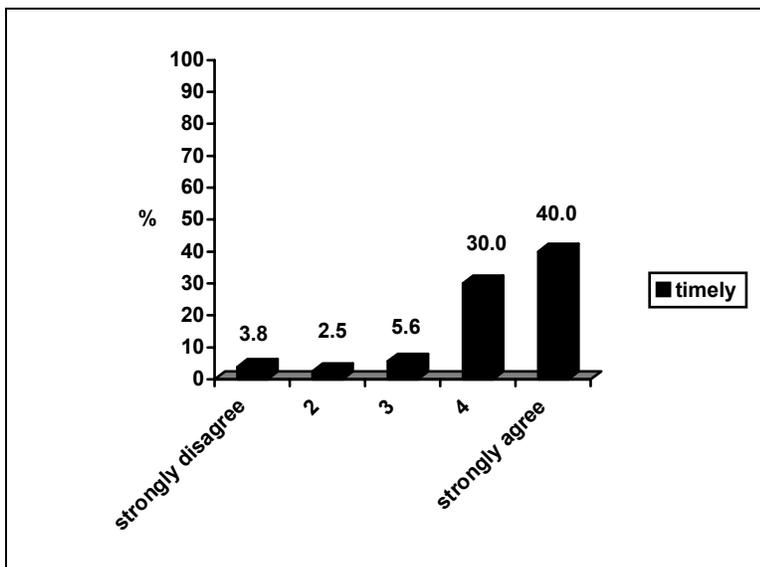
**Figure F2-8.** Ratings of timeliness of Predictive Services information—federal FMOs/assistants.

A majority agreed that Predictive Services information was relevant (*M*=4.2, sd=1.1, *n*=124, *Figure F2-9*, 22.5% marked 'don't know').
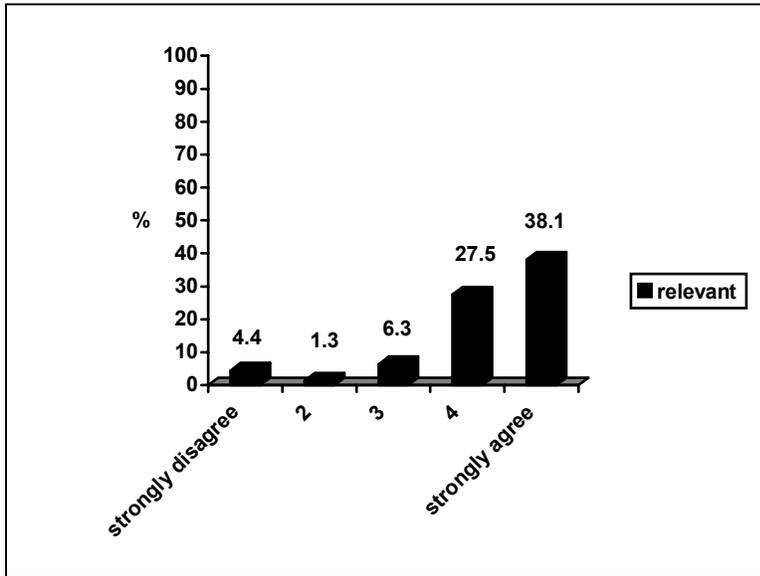
Figure F2-9. Ratings of relevance of Predictive Services information—federal FMOs/assistants.

More than three-fourths agreed that Predictive Services information was accurate (*M*=4.1, sd=1.0, *n*=148, *Figure F2-10*, 6.9% marked 'don't know').
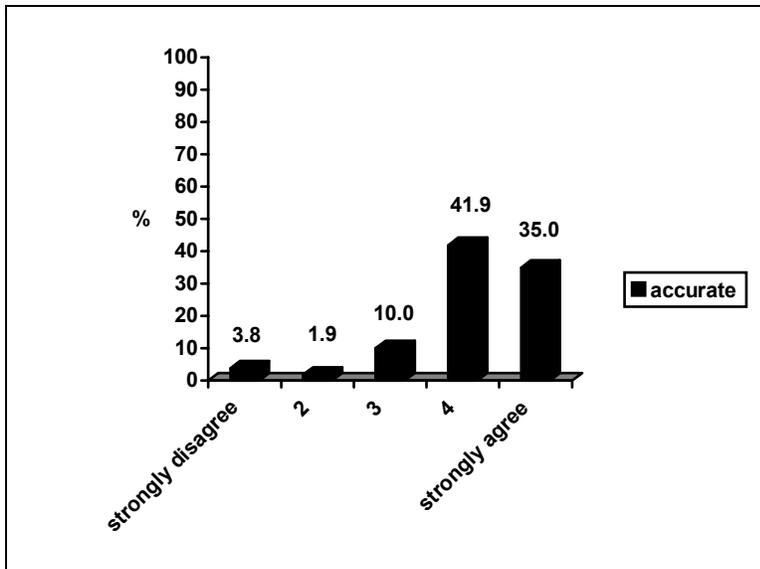
Figure F2-10. Ratings of accuracy of Predictive Services information—federal FMOs/assistants.

A majority also agreed that Predictive Services information was complete (*M*=4.2, sd=1.1, *n*=141, *Figure F2-11*, 11.3% marked 'don't know').
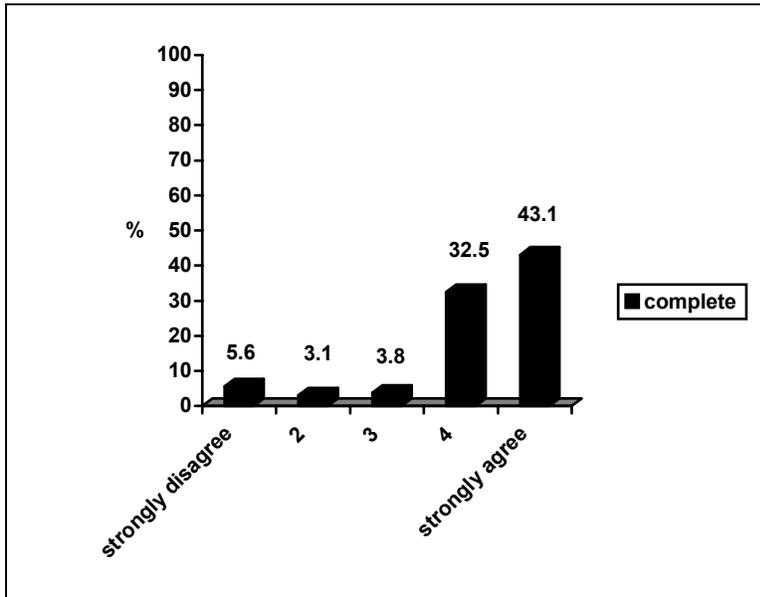
Figure F2-11. Ratings of completeness of Predictive Services information—federal FMOs/assistants.

More than two-thirds agreed that Predictive Services information was easy to understand (*M*=4.2, sd=1.0, *n*=134, *Figure F2-12*, 16.3% marked 'don't know').
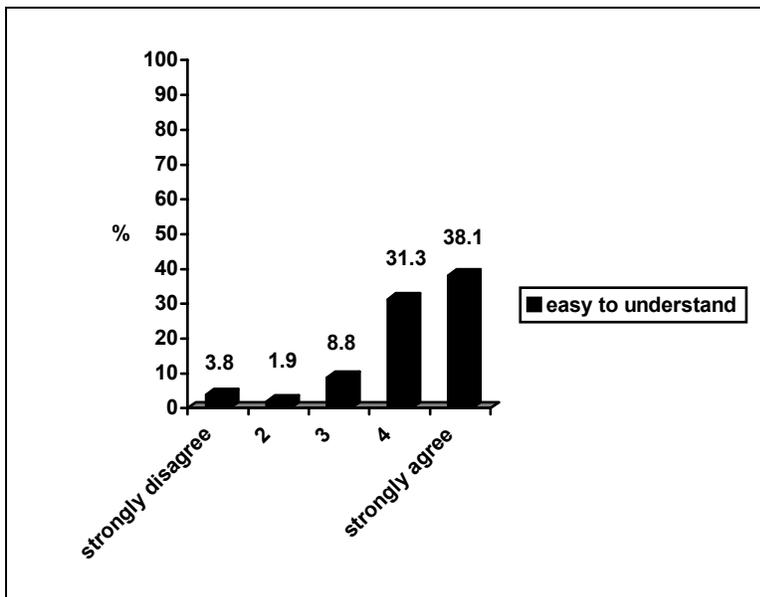
Figure F2-12. Ratings of ease of understanding of Predictive Services information—federal FMOs/assistants.

Similarity and importance of similarity of GACC sites—Federal FMOs/assistants rated how true the following statement was "The Predictive Services products and services available through

the GACCs (you selected) are similar in format, quality, and the range of products and services offered." One-third perceived the products and services as similar (*Figure F2-13*).
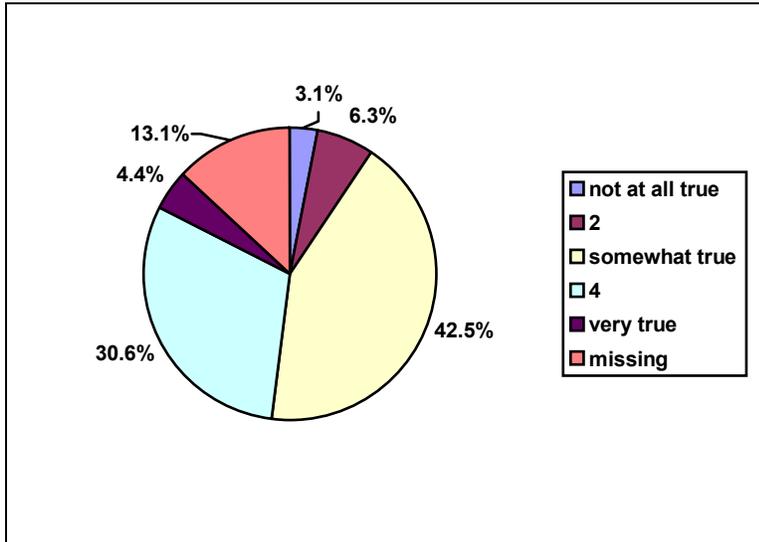

Figure F2-13. Products and services available through the GACCs you selected are similar—federal FMOs/assistants.

Respondents were invited to comment on their responses regarding similarity across GACCs. Comments included these:

Each GACC has a different set of information they like to focus on.
They are similar in quality but with such a vast geographic range I have to use different GACCs
Consult Wx info from my GACC daily during fire season.
Over the last few years they are all starting to follow the same format
Have improved over previous versions.
May have subtle differences, but can figure out what I want info from...
The primary difference is how fire behavior is discussed.
I can't recall the web pages format in specific right now...
The GACC is where I get all my links and info for weather data.
There is no standard format for a briefing so they are all a little different.
Access to some is confusing, some have dated material (GACC and NICC).
One size doesn't fit all. We deal with lot of State resources back here, may have different information they like to see.
easy for me to use
Some packaging and formatting differences. Similar data displayed differently.
The predictive services received in the past from the Southern GACC were more informative and detailed than Eastern. It was also easier to find in the older system.
It would take some time to find the same product that I use in my local GACC in another GACC
They have similar informational offerings but with a little different perspective or emphasis.
Eastern Great Basin fire WX forecasts contain a % increase or decrease in the temp and Rh. RM doesn't
It would be helpful to deal with the same format. If my IHC is heading out of GACC it would be helpful to retrieve the information in a consistent spot.

At times, during the 'stereotypical' non-fire season, some of the GACCs quit publishing regional predictions. Sometimes there is a need for a specific service and it is frustrating to obtain one.

Checking multiple GACC sites primarily driven by need to be aware of fuels conditions/relative fire behavior over a broad area, and more specifically, to be aware or relative danger facing our resources when we send them off on fire assignments and/or details to locations within those other geographic areas.

There tends to be a few subtle differences such as link locations or degree of visibility similar in content

The NW GACC has been doing and excellent job with predictive services in giving the line officers good info on high risk days and potential of wildfire risk. (name removed) has put together some products that should be a national standard.

Easy to follow, but I'm not sure of all that is available on the web.

Fire behavior conditions and predictions

All pages should be the same format regardless of GACC

Each area has different needs and wants so the products may vary.

They all seem to be migrating toward a common format and template.

Seemed like the NICC site just had links to the GACCs, not really much in there.on Predictive Services.

different templates make it hard to use the information on some of the web sites

Individuals have their own styles

I have overall found consistency of materials throughout the various GACCs.

I tend to use information from the GACC adjacent to the one I'm assigned to since their information and predictions tend to better represent our situation.

Getting closer to the same format, etc.

Although there are differences evident in the way information\predictive services are presented, the content is uniformly professional and capable.

Some variation; not serious enough to worry about

Becoming more standardized format.

It is my impression that each GACC places emphasis on the particular fire potential predictive elements which correspond to the weather, climate and fuels conditions in the geographic area. I haven't seen some of these sites in several years, and my perceptions may not be entirely accurate.

Some of the GACC pages have not yet switched to the standard format, i.e. Eastern and Alaska.

I don't use outside gacc services that often but have always been able to find what I am looking for when needed.

Products give a good overview of potential situations.

All areas tended to have the core information I wanted.

Brief review of multiple GACC info/site was explored due to pending fire assignment in those areas, other than SW GACC

Most at least use the same heading titles. Quality of data and info vary from GACC to GACC.   Some are more creative than others.

There is a high degree of variability in the type and quality of information offered between GACCs within the Pacific West Region of the NPS

Haven't used a lot of them so hard for me to answer.

More of the GACCs are following a similar format, but there are still differences.

While about one-tenth indicated that similarity of Predictive Services' products and services in format and quality across GACCs was unimportant (8.2% assigned a 1=not at all important, or a

2), about one-fifth indicated that it was somewhat important (21.3%), and a majority indicated that it was important (67.6% assigned a 4 or 5=very important; 3.1%, did not answer this item).

Satisfaction with Predictive Services contacts—About one-third of respondents (31.3%) had contacted Predictive Services to report a problem with a product or service. More than three-fourths of these (80.0%) selected a 4 or 5 on the scale indicating they were responsive (scale was 1 to 5, 1=not at all responsive, 5=very responsive). More than one-tenth of respondents (15.0%) had contacted Predictive Services to suggest a new product or service. Using the same responsiveness scale as for reporting a problem, nearly half (45.8%) rated Predictive Services as responsive to their suggestion.

Use and utility of products and services—Products and services available through Predictive Services were examined. The 39 specific listings included some products and services that are generated elsewhere, or that are available only on some sites, but not all. Respondents were asked first to indicate if they had not used each product, and then for those that they had used, to rate each according to its usefulness to them on a scale from 1 to 5, where 1=not at all useful and 5=very useful.

The first set of product ratings (*table F2-2*) are those that are shown on Predictive Services sites, but are produced through other agencies.

Table F2-2. Use and utility of Predictive Services products and services provided by other agencies/groups—federal FMOs/assistants.

Product or Service	% Not Used	Usefulness *M*	SD, N
National fire weather outlook	3.8	3.55	1.0; 151
Red flag warnings	3.8	4.41	.8; 152
Drought information	2.5	4.05	1.0; 151
Haines index	3.8	3.93	1.0; 151
7-day precipitation maps	11.9	3.59	.9; 136
7 and 14-day precipitation percent of normal	13.1	3.40	1.0; 134
12-hour forecast maps	16.3	3.94	.9; 130
MODIS active fire maps	21.3	3.41	1.0; 123
7 and 14-day average maximum temperature departure from normal	15.0	3.31	1.0; 134
7-day average maximum temperature maps	15.6	3.29	1.0; 128
Wind maps	16.3	3.82	.9; 130
Observed fire danger images	18.8	3.68	.8; 127
ROMAN real time fire weather and information report	26.9	4.28	.9; 114
Upper air soundings	45.0	3.13	1.0; 85

A set of products and services is produced by Predictive Services and is available on a limited scale (*table F2-3,* less than national, typically on a local and regional level). These products and services are offered on a limited scale to meet specific regional needs and interests.

Table F2-3. Use and utility of Predictive Services products and services provided by Predictive Services on a limited scale—federal FMOs/assistants.

Product or Service	% Not Used	Usefulness M	SD, N
Interagency situation reports	3.8	4.13	.8; 148
Daily fire weather/danger outlook	5.0	4.22	.9; 151
Prescribed fire reports	23.1	3.31	.9; 118
Smoke program reports	28.8	3.31	1.1; 110
Online briefings	23.8	3.60	1.0; 118

This last set of products is available on a national scale and is created by Predictive Services, sometimes in collaboration with other entities (*table F2-4*).

Table F2-4. Use and utility of Predictive Services products and services provided by Predictive Services on a national scale—federal FMOs/assistants.

Product or Service	% Not Used	% With 4 or 5 Rating[1]	Usefulness M	SD, N
Incident Management Situation Reports	3.1	82.5	4.23	.8; 154
Weekly fire weather/danger outlook	4.4	66.5	3.95	.9; 152
Seasonal fire weather/danger outlook	3.1	47.7	3.35	1.1; 153
Monthly fire weather/danger outlook	5.6	46.0	3.39	1.1; 150
10-day fire weather/danger outlook	5.0	53.3	3.61	1.0; 148
Live fuel moisture	5.6	75.1	4.08	.9; 149
Dead fuel moisture	5.0	79.1	4.17	.9; 148
7-day large fire potential	5.6	54.3	3.66	1.0; 149
Fire news and notes	18.1	38.4	3.34	.9; 125
ERC and fuels charts	9.4	76.7	4.08	.9; 142
Links to other services/websites	16.3	48.1	3.53	.9; 131
Multi-season fire weather maps	23.8	28.3	3.00	1.0; 120
Interagency RAWS program	10.6	67.1	3.94	1.0; 140
Reference links	20.6	42.3	3.41	.9; 123
Training	37.5	38.6	3.28	1.0; 96
State of the fuels program	43.1	32.1	3.06	.9; 87
Technological guidance and transfer	36.3	40.8	3.24	1.0; 98
Predictive service forms	36.9	37.5	3.21	.8; 96
Regional monsoon update	53.1	39.7	3.29	1.1; 73

[1] This column considers only those who rated the product and is not based on all federal FMOs/assistants.

Respondents were invited to specify any other products or services they had used, resulting in the following remarks:

Many of the services are provided by others (NWS) that are made available on the PS page...some confusion on how to answer the questions.
I am unaware of training, and tech. guidance that is available

Overall satisfaction—Responses indicate that Predictive Services had met most expectations (*M*=3.4, sd= .8, *n*=158, *Figure F2-14*), and respondents were satisfied (the majority marked 4 or 5 on the scale, *M*=3.6, sd= .9, *n*=157, *Figure F2-15*).
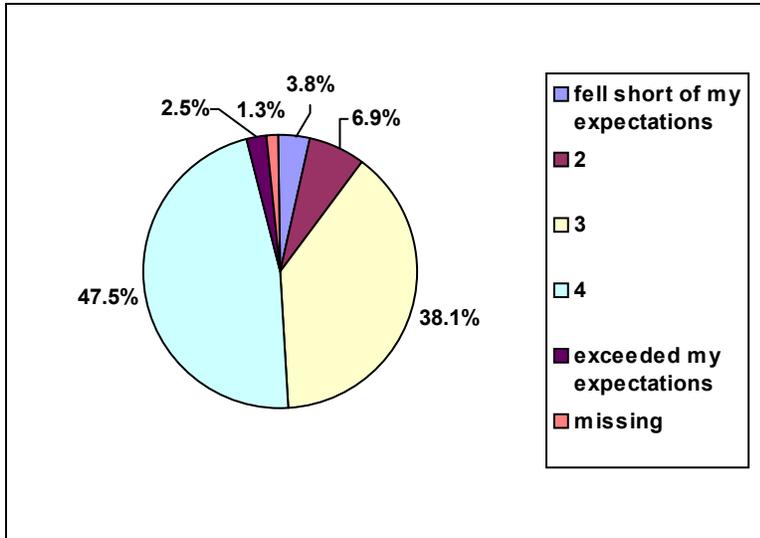
Figure F2-14. Ratings of degree to which Predictive Services met expectations—federal FMOs/assistants.
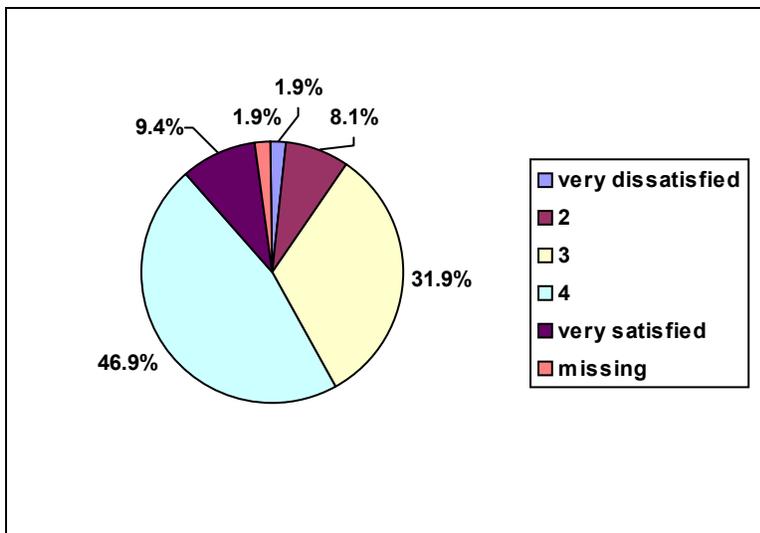
Figure F2-15. Ratings of satisfaction with Predictive Services products and services—federal FMOs/assistants.

Trust and confidence in the information—A majority expressed some, to a great deal of trust and confidence in Predictive Services information (*Figure F2-16*, *M*=3.7, sd=.8, *n*=160).
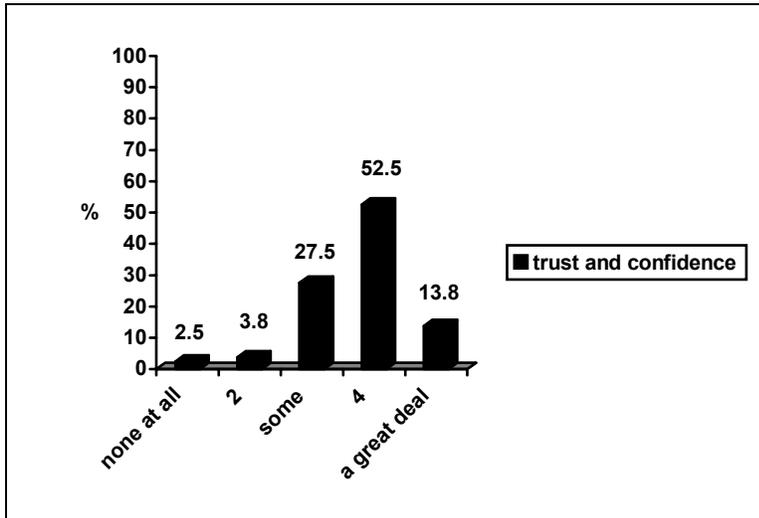
Figure F2-16. Ratings of trust and confidence in Predictive Services information—federal FMOs/assistants.

Are Respondents Relying on and Taking Action Based on Predictive Services?

Reliance on products and services—About two-fifths (44.4%, *Figure F2-17*) indicated that they *did* rely on the products and services in making important decisions (selected a 4 or 5, where 5 was very true). Less than one-fourth (22.6%, *Figure F2-17*) indicated that they relied on other sources more heavily than the products and services provided by Predictive Services (chose a 4 or 5, where 5=very true).
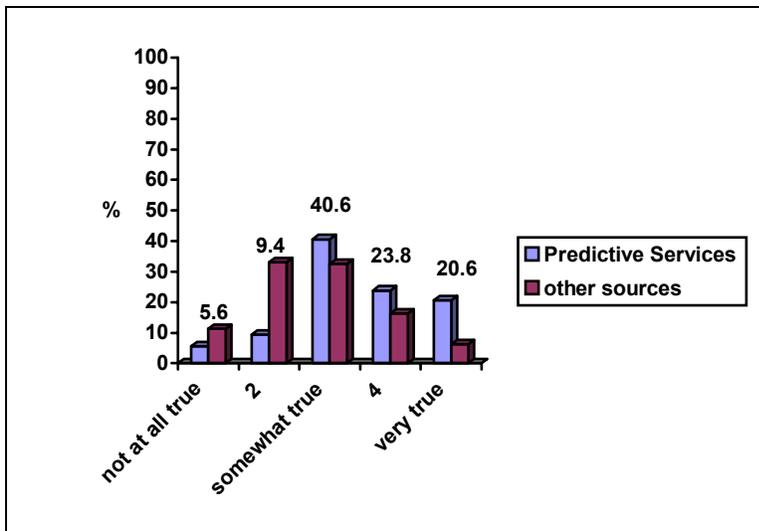
* The proportion of respondents in each category is shown for reliance on Predictive Services.

Figure F2-17. Reliance on Predictive Services and reliance other sources—federal FMOs/assistants.

Reliance on other sources was investigated further. Respondents were asked to comment when they provided ratings of 4 or 5, indicating they relied on other sources, resulting in the following comments:

NWS websites
Fuels information
NWS Fire weather forecasts; GACC dispatch notes; NICC Sit Report; Local live/dead fuel moistures
NWS Fire WX forecasters; Farmers almanac
National Weather Service, Division of Forestry meteorologist, online weather services
Local NFDRS
spot weather forecasts/IMETS
NWS, They Said
local weather stations across the forest
Very true. Nothing replaces site specific information as true measure of existing conditions and probable short term outlook.
weather service
The long range predictive capability is still very poor so I seldom place much stock in the predictions.
Forests generate their own NFDRS indices based on local input values and Wx stations - Predictive Services utilizes different Wx stations and values than are used locally - provides conflict and confusion for some folks.
Local knowledge
The RAWS network maintained by AFS; the FAA WX cams; NWS forecasts, radar, satellites, etc; AK SNOTEL sites; MODIS imagery;
National Weather Service; RAWS sites
Local Interagency products
NWS - zone fire wx forecasts & red flag warnings
For example the fuels information is more regional, so I use this for big picture and rely on local data for decisions.
I also look at NWS websites to read meteorologist's discussions on forecast models and to look at their forecasts. I like to check out both.
ERCs, farsite, site specific weather, etc
I use multiple sites for multiple reasons
I rely on a range of information, predictive services is just a piece of the puzzle.
Local conditions and measurements for fuel moistures, weather obs, and local trends from our permanent fuel moisture transects.
I rely heavily on the daily fire weather forecasts from the National weather Service.
Self and other forest personnel.
local media forecasts, observed weather
I use all resources available to me, including the weather channel!
Radar and weather maps from the weather service.
National Weather Service for local forecast trends.
I use NWS products for short term issues and use their moderate range forecasts in conjunction with Predictive Services. NWS forecasts are updated more regularly and have a finer resolution on their scale. Predictive Services forecasts are great for a geographic scale but don't do as well in a fast changing environment. Their generally is more discussion on the NWS forecasts for their weather zones.
only have one year of product and track record so far

Degree of reliance on Predictive Services was also queried. About one-tenth indicated little to no reliance on Predictive Services information (11.9% chose a rating of 1 or 2, where 1=none at all when asked "How much do you rely on the information provided by Predictive Services to assist in decision-making?"). Another two-fifths (41.3%) indicated some reliance, and nearly half indicated reliance (46.9% chose a 4 or 5 rating, where 5=a great deal).

The likelihood of taking action based on Predictive Services information was examined. Nearly half were likely to take action based on Predictive Services information (45.7% chose a 4 or 5 rating, where 5=very likely, *Figure F2-18*).
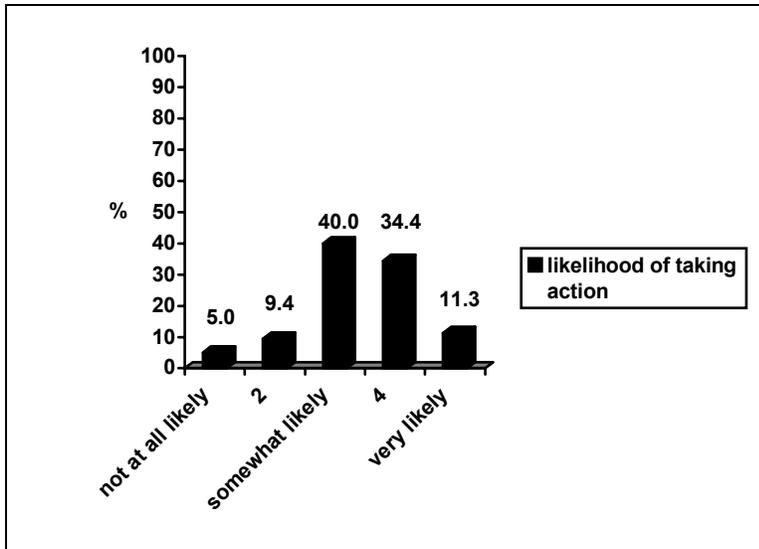
Figure F2-18. Likelihood of taking action based on Predictive Services information received, or gathered from a website—federal FMOs/assistants.

Did Respondents offer Insights into Reliance and Barriers?

Perceived overlap—Respondents were asked how true or untrue it was that there is overlap in the type of information that can be obtained from Predictive Services and other sources (rated on a scale from 1 to 5, 1=not at all true, 3=somewhat true, 5=very true). While about one-third (30.7%) indicated there was not overlap (chose ratings of 1 or 2), nearly half (48.8%) felt this was somewhat true, and one-fifth indicated it was true to very true (20.0% chose ratings of 4 or 5; .6% did not answer this item.)

Respondents provided the following comments regarding perceived overlap with other sources:

local fire weather forecasts, national fire danger, drought sites
NWS
I use predictive services to successfully manage the entire fire program but especially the
  Wildland Fire Use Program
Reno Weather; Local commercial forecasts
Get better info faster by observing what fires are actually doing than if relying on many of
  P.S. products. Many P.S. products not useful for our area.
NOAA/NWS
National Weather Service and online weather sources

Sure there would be an overlap…mainly just says that Predictive Services uses many sources to gather information in order to provide the user with the best available information so we can do our jobs effectively.

I use information to help but not drive decision process. All products found on Predictive site can be obtained elsewhere, but it is good place for one-stop shopping roll-up.

I often call local weather service. consult with FBA and IMET

The NFDRS information provided by Predictive Services does not match up with our Fire Danger Rating Areas and selected weather station network. Consequently, the NFDRS information processed and displayed by Pred Services does not provide me with reliable information.

Different GACCS or NICC, The national Weather Service., CDF

National Weather Service; Weather Channel; NOAA

National Weather Service, NFDRS

NWS websites.

National weather service forecasts

The predictive services information is specifically oriented to our fire management needs

Intellicast, Unisys, Weather TAP, Weather Underground, Climate Prediction etc.

I talk consistently with our ODF partners and they also gain knowledge from that side of the equation which pretty much corresponds with our information but they sometimes gain other pertinent information with incoming storms/east wind events and wind speeds/and fuels moisture contents.

Would be great if there was a tutorial that identified the available web sites and walked you through them.

I would classify the information as more of a consolidation than overlap.

Also cross check with NWS

Daily fire danger and weekly planning.

General weather provides some of the same info, but predictive services provides everything I need in one quick product location and they are available by phone for additional one on one follow up.

other national weather web sites, NOAA, etc

I prefer to analyze various intel sources to get a better picture of probabilities. I use the NWs with our predictive services, plus watching Weather Channel regularly

I don't know if I call it overlap. I use many different websites to evaluate current and expected fire indices and potential long term behavior. I use RAWS information from Boise NWS site. I also use the Atlantic Tropical Weather Center site maintained by Eric Blake from the National Hurricane Center (www.atwc.org) not only for hurricane information, but for his fine display of links to satellite imagery, and other predictive data. We also subscribe to Weatherbank with our own custom page that allows us to view 48 hrs worth of archived radar imagery specific to our site.

I tend to find that predictive services info overlaps with NWS and our own NFDRS and fuels assessments.

The information directly obtained from Predictive Services is directly applicable to my job and decisions I must make, whereas other sources may have bits and pieces of information I need only.

It is almost embarrassing to listen to NOAA then PS cover the same stuff; especially when there are conflicts in forecasts. That scenario makes it impossible to plan for fire events.

Some topics are also available from NWS.

Desert Research Station, NWS sites, State Water Boards etc

NWS, spot weather forecasts.

NOAA weather service

I go to the National Weather Service for fire briefings and outlooks. This is my source for
    most short term decisions.

Beliefs about Predictive Services among those who had data gathering and reporting duties—
The respondents with data gathering and reporting duties related to Predictive Services were
asked: "How likely is it that you will gather and report data to Predictive Services?" About two-
fifths indicated that they were likely to gather and report data (41.4% chose a 4 or 5 on the 5
point scale, where 1=not at all likely, 5=very likely; 5.1% did not provide a response; *Figure F2-
19*).
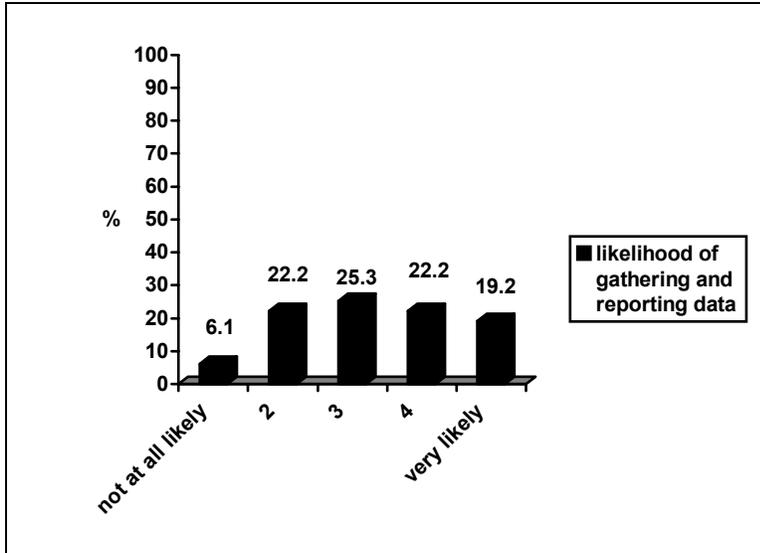
Figure F2-19. Likelihood of gathering and reporting data to Predictive Services—federal
FMOs/assistants with data gathering and reporting duties.

Respondents were somewhat mixed when rating agreement that they had the resources to
gather field data for reporting (*M*=3.2, sd=1.1, *n*=98, rated on a 1 to 5 scale where 1=strongly
disagree and 5=strongly agree; *Figure F2-20;* 1.0% did not answer this item).
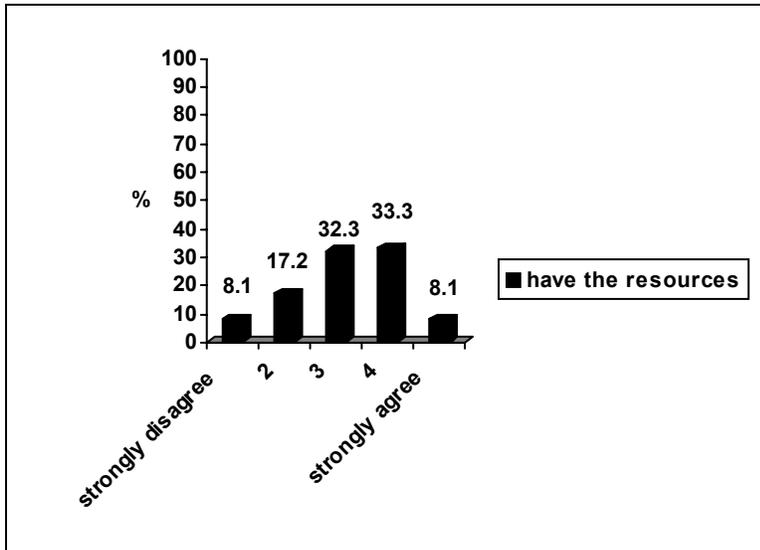
Figure F2-20. Degree of agreement or disagreement with "I have the resources (e.g., time/skills/personnel) to gather field data for Predictive Services reporting" —federal FMOs/assistants with data gathering and reporting duties.

This subgroup was also asked to rate five items focused on positive impacts of reporting, and negative effects of not reporting. Federal FMOS/assistants were most likely to agree with "My consistent upward reporting of data (e.g., 1300 obs for RAWS) increases the reliability and quality of Predictive Services products and services" (M=4.0, sd=1.0, n=98; *Figure F2-21*; 1.0% did not answer). They were also most likely to agree with "My consistent upward reporting of data (e.g., 1300 obs for RAWS) increases the reliability and quality of products and services provided by groups and agencies that use the data from Predictive Services to generate their own products" (M=3.9, sd=1.0, n=98; *Figure F2-21;* 1.0% did not answer).
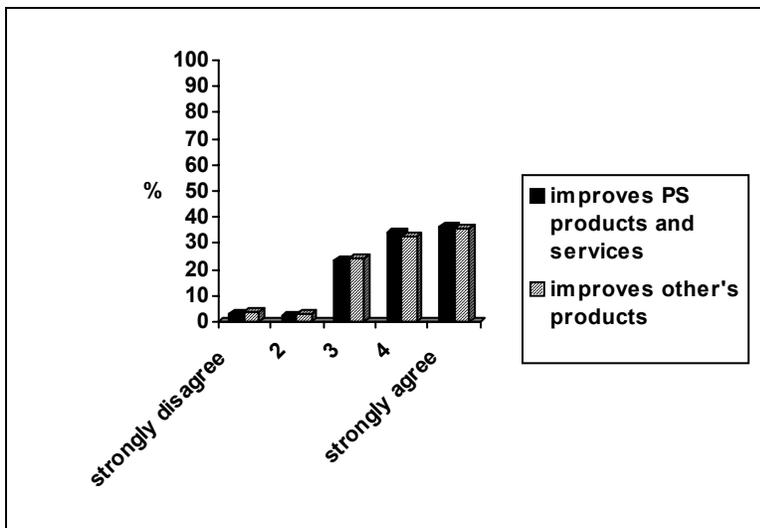
**Figure F2-21.** Degree of agreement or disagreement with positive outcomes of reporting data—federal FMOs/assistants with data gathering and reporting duties.

Responses indicate that the majority agreed there are adverse outcomes when/if data is not gathered and reported. This was assessed through two items "If I don't collect and report Predictive Services data, it could affect my unit's ability to make sound decisions to manage fire" (*M*=3.9, sd=1.1, *n*=98; *Figure F2-22;* 1.0% did not answer); and "If I don't collect and report Predictive Services data it could adversely impact firefighter or public safety" (*M*=3.9, sd=1.1, *n*=97; *Figure F2-22;* 2.0% did not answer).
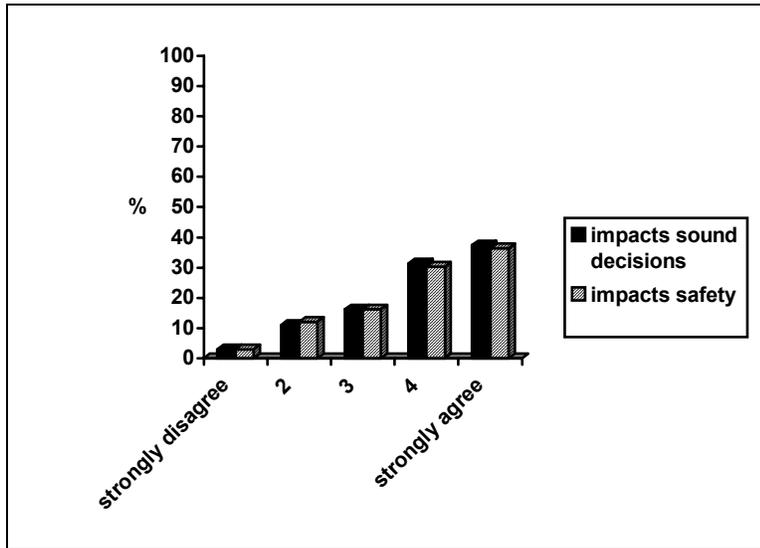
Figure F2-22. Degree of agreement or disagreement with adverse impacts of not collecting and reporting data—federal FMOs/assistants with data gathering and reporting duties.

Ratings of ability and impact of applying Predictive Services information—General ability to access and apply the information from Predictive Services, as well as its utility in job performance, was queried (using a 5-point Likert scale where 1=strongly disagree and 5=strongly agree). Federal FMOs/assistants were in agreement with "I can access and apply Predictive Services information as part of my job duties" (*M*=4.1, sd=.8, *n*=153). However, they were in less agreement with "Predictive Services information helps me perform my job with greater precision" (*M*=2.7, sd=.9, *n*=149).

Two general items examined perceived impacts of inaccuracies of Predictive Services information. The first was "Inaccurate Predictive Services information would decrease my ability to predict fire behavior." Rated on a 1 to 5 scale, where 1=strongly disagree and 5 was strongly agree, the average was 3.4 (*M*, sd=1.2, *n*=150; *Figure F2-23*). About one-tenth did not answer this item (5.0% selected 'don't know', and 1.3% did not select any answer). The second was "Inaccurate Predictive Services information used in my decision making may adversely impact firefighter or public safety." Again, the average was at the mid-range of the scale (*M*=3.5, sd=1.2, *n*=152; *Figure F2-23*). A few failed to indicate degree of agreement or disagreement with this item (3.8% marked 'don't know' and 1.3% did not select any answer).
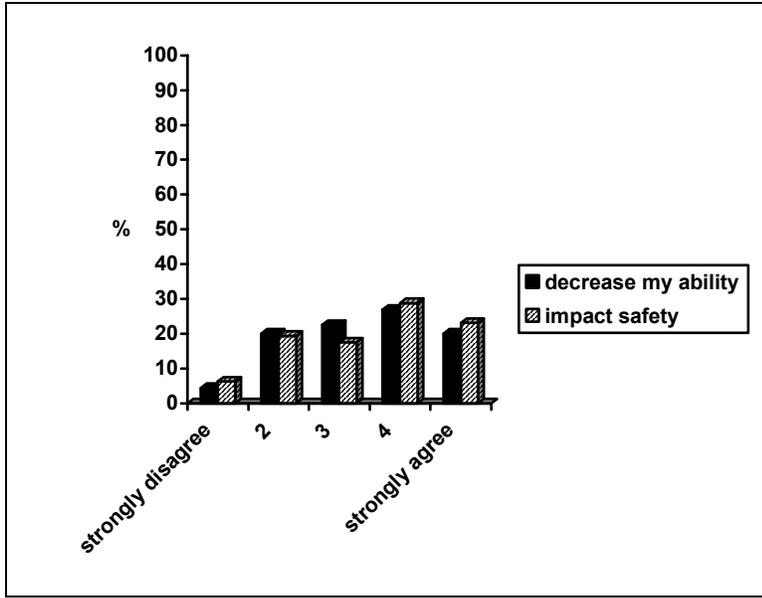
Figure F2-23. Impacts of inaccurate reporting of Predictive Services information—federal FMOs/assistants.

Barriers to use of products and services—There were various reasons why respondents did NOT use the products and services offered by Predictive Services, although no one overwhelming reason or set of reasons emerged among the 16 offered as potential barriers (*table F2-5*). The most frequent reasons provided included: needing information that is site specific, not having thought about using the products and services, and not having time to use the products. A lack of trust was not frequently cited.

Table F2-5. Reasons why they had not used the products and services offered by Predictive Services—federal FMOs/assistants.

Reason	Percent
I never thought about it.	18.8
My current management practices don't require the types of information provided by Predictive Services	3.8
I don't know how to use these products	10.6
I need information that is site specific	21.9
I am not mandated to use these products	8.8
I don't have the time to use these products	15.6
I don't know where to get advice about using these products	8.1
I don't know where to get the technology to use these products	3.1
I don't have the technology I need to use these products	3.1
I don't trust the products and services	9.4
I don't want to use these products	3.1
I don't think these products support my agency's current practices	1.3
Agency directives/guidelines instruct me to use other information	1.3
I don't have the money to use these products	1.3
I don't trust the advice I get about using these products	3.1
I don't trust information that is generated by multiple agencies	1.3

As a follow-up to the above items, we invited respondents to explain why they might not want to use the products, resulting in the following comments:

Many of the products are extraneous to my needs. A few products are fairly valuable.
SoCal GACC Intel is awful compared to other GACCs, It is embarrassing that it is not
   updated in a timely manner, is often inaccurate, and the links often do not work.
   Somebody down there needs to WAKE UP!
PSA's were not delineated based upon local Fire Danger Rating Areas.
PNW Predictive Services products are great - using 'their' assigned values and definitions;
   problem is there is a wide disparity between values and definitions used by local agencies.
   PSA NFDRS indices do not ' jive with locally used values - Wx station selection, FDRA
   geography, Wx Zones differ between PS and local application. 'PS's values are..., but local
   values are...'(different, all be it correct - but different. Need more common ground -
   everyone should have some common ground (selection of representative values).
They really don't provide any information I don't already have available from watching the
   certain TV channels, going back and forth to work, and looking out the window.
I would restate I 'will not allow' myself and my organization to become dependent on
   technology to substitute 'in the field' observations and interactions, or technology being a
   tool to release the firefighter from the responsibility to interact with their environment any
   less than if they never had the technology in the first place.
Many of the WX products are just repackaged NWS products, others are nationally
   mandated that don't apply or work in AK, such as any forecast greater than 3 days,
   especially the spring forecast of fire potential for the season.
I believe that used in conjunction with experience everything can be useful, however I
   consider products such as the Haynes Index a minor tool in the box. I mean to say that if
   aggressive initial attack is not successful then atmospheric stability is important, otherwise
   it is another of the sensory overloads that occur with those with lesser experience.
I get so busy in day to day chasing around that I forget these services are there and when I
   do think about it , I never have the time it takes to really dive in and look at all the services
   there. There is so much information out there on the web that it is overwhelming to the
   average joe that is running 100 miles an hour to do the district fmo job. It would be helpful
   to have someone come out to the forest/district and walk us through all the info there and
   how to utilize the site better. I'm from the old school of learning and need some hands on
   time with someone who knows what's going on. I don't have the time to surf the web to
   develop that learning curve.
Remotely gathered data does not always provide a complete picture for a sub geographic
   area.
Local influences/knowledge.
predictive service outputs cover a very broad area and lump a lot of RAWS stations
   together....not site specific enough

How can Existing as well as New Products and Services be Improved or Designed?

How fire danger/fire information is used to support decision-making—Respondents were asked
to indicate how they use fire danger/fire information to support decisions made regarding fire
management. About two-thirds of respondents used fire danger and fire information to make
decisions about public use restrictions (65.0%), and for resource allocation (63.8%); while more
than three-fourths use this type of information for severity requests (81.3%), and to make
decisions about resource staffing (83.8%).

Respondents were asked to indicate other uses of fire danger/fire information, resulting in the
following comments:

RxF Approvals
fire use implementation
personal use
Resource availability off unit or available nationally
Dispatch (Response) Levels
Supplement our on-the-ground observations
Off-unit incident support
prescribed fire go/no-go
RX project prioritization
prescribed fire planning
Support Media Releases indicating severity of fire danger.
Potential RX burn resource allocation
Wildland Fire Use decisions
documentation
go/no go support of park fire decisions
emergency preparedness funding
prescribed fire planning
For information when traveling to other geographic areas on fire assignments

Tolerance for errors and inaccuracies—Respondents were asked to rate their tolerance for false alarms and inaccurate reporting (rated on a scale from 1 to 5, where 1=low tolerance and 5=high tolerance). While respondents did not indicate a high tolerance for false alarms or inaccurate reporting, they were somewhat more tolerant of false alarms pertaining to fire danger (M=2.9, sd=1.0, n=160; *Figure F2-24*), than they were of inaccurate reporting of high fire potential (M=2.4, sd=1.0, n=160; *Figure F2-24*).
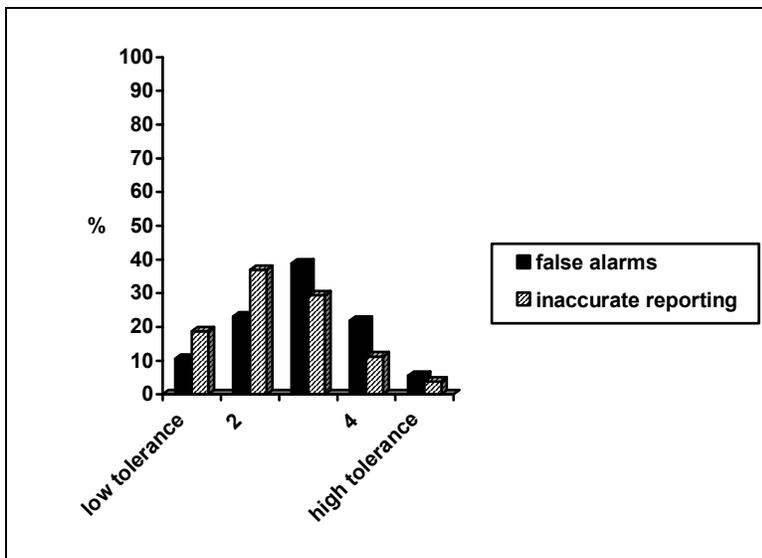
Figure F2-24. Tolerance for false alarms and inaccurate reporting—federal FMOs/assistants.

In order to capture overall preferences for approaches to errors ("Although it is understood that accurate and reliable reporting of fire danger and high fire potential are desirable, margins of error are involved in predictions. In these cases, do you prefer that…"), respondents chose between two statements:

"Statements of danger or risk be issued with a greater margin of error allowing for an early response, knowing that this may lead to unnecessary alarms and response (Better safe than sorry)" —66.9 percent chose this statement as their preference.

"Statements of danger or risk should only be given with certainty, knowing that this may allow a few dangerous events to emerge that were not anticipated (Don't cry wolf)." —32.5 percent chose this statement as their preference.

One (.6%) did not choose either statement as their preferred approach.

Audience identification— According to the federal FMOs/assistants, the primary audiences for Predictive Services' products should include: local and district fire managers (90.6%), regional and state fire managers (85.6%), national fire managers (70.0%), to a lesser extent non-fire land managers (32.5%), and the public (26.9%; note that respondents could select multiple audience types, so responses do not sum to 100%).

Respondents were invited to specify other primary audiences, resulting in the following comments:

> Not sure considering my opinion of the products.
> line officers
> National/State/Local Security/Public Safety Agencies
> I think we need to keep all agencies and the public well informed. Hunting seasons in the fall are always a topic of discussion with public use restrictions implemented on federal lands. The media needs to be well informed and the maps and conditions available through predictive services are a huge help in making our points as land managers. It also supports us in keeping our employee's attention to safety when we have these products telling us we can expect fire activity to increase.
> Primary focus should be field going personnel first (the firefighters), then the managers

Preferred information formats—Respondents were asked to indicate their preferences for the style and format of information presented. For each of 11 formats presented, a rating from 1 to 5 was requested (1=not at all useful, 5=very useful). Based upon the proportion of respondents assigning ratings of 4 or 5 to each format, the formats most to least useful were: satellite maps (74.4%), information presented in regional or national maps (67.5%), brief executive summaries of data (67.5%), radar maps (63.8%), brief annotations that accompany data presentations (58.8%), data in table form (50.0%), data in text form (43.2%), web-based ArcIMS maps with user-defined layers and scales (43.2%), bar charts or figures that summarize data (43.1%), data in spreadsheet form (38.1%), and non-web-based Geo database files (21.9%).

Other styles or formats of information offered by respondents, or comments surrounding this issue, included:

> Photos, I am a visual person.
> have a little on line predictive services presentation daily, sort of like watching the weather man on TV
> Pager notification of weather events
> Automated radio sites such as the weather alarm set up on RAWS.
> graphs
> Cannot think of one at this time. I believe you all display data in multiple methods that is useful to individuals depending upon their preference.

Live fire behavior and weather forecasts (maps included) from the GACCs on the web with a question and answer web link for that day.

Respondents were also asked to indicate what, if any information they would like to see in summary or synthesis form, resulting in the following comments (for this item the 'don't know' and 'not applicable' responses have been excluded):

Weather and fire behavior forecasts related more to prescribed burning than wildfire suppression and danger rating.
A list of what services are available.
Wx summaries need to reflect what is going on out in the field
fire danger could be somewhat better explained
Already is....
its already there, historical weather data.
Narrative of important weather features, jet stream, frontal systems ect
Products available, intended use, how to use, where to access.
poison oal potential on fires
Historic trends.
Currently satisfied with information. My situation allows me/Agency to be flexible as we have a Suppression Contract with the state. State will usually let my Agency know if they need more I.A resources on board for those EXtreme/and or Red Flag days.
More site specific problem fire behavior reporting.
Days since last rain and RH/fuel moisture
Always provide best information for public and firefighter safety concerns.
you guys/gals do a good job with this.
Weekly danger ratings
National/Regional fire danger maps in easy to read color schemes updated daily and automatically as conditions change
I get plenty
The need for these services to support the field. That is the original intent of predictive services caused by the need for safer conditions for firefighters.
How well predictive services data is utilized by fire managers and ideas that would enhance the user ability to send feed back and comments.
Better idea of where no-burn air quality conditions are occurring, on a state or air district level. This would help us identify potential downwind smoke impacts.
Varies, just try to keep it simple as we have lots of demands on our time.
Like as is
Enough summaries
This is a good idea, but some information needs there own form.
Outlooks on what might be expected for that point of year given the current large fire situation -- LTAN and Farsite type products.

Improving existing products and services—Respondents were asked to complete the sentence "The information and services provided by Predictive Services would be more useful to me if…", resulting in the following open-ended remarks:

I knew more about them, if I found the info accurate for my area, had some training in the services, and had a relationship with they people in the program.
the state of the fuels in an area was given more consideration.
Our internet access was better, had less down time and could access it from my end easier.
I think it is very useful now

I took more time to study it.

if I had a paper guide book showing me what is available

It were easier to access. The biggest problem is finding where you have all of this information. Sometimes, it is sne to me, but knowledge about how and where to access is the BIGGEST problem. I mainly rely on GACC websites, NWS fire weather forecasts, NFDRS, RAWS station sites, Dispatch news and notes, NICC Sit report, and my own info gathering, fuels sticks, RH, local observations. Predictive services must be able to be out in the forefront and easily accessed. I think most people don't know where to go to access this information. And the information is good information!

they are updated on a timely basis.

I could talk to the people who develop the info.

the staff were not so busy working on strategic type products.

I had a chip in my head to download the information while on an incident.

I could access it from one site...This might be possible, but right now I use several sites to access the data I use...

I was trained in their use and had the ability to use them more often to keep up to date

They were more responsive to giving services on a local basis. The requests we've made were filled with a broad brush and wasn't anything more than the local news station provides daily.

it would send me a reminder to use it daily during fire season.

all agencies did a better job of maintaining their local RAWS stations. 'Garbage in = Garbage out'

it was necessary to do my job.

I had a fuller understanding of their use and applicability. I would benefit from learning how others in similar positions use this information and these services.

it were more consistent, and validated by local units.

I accessed it more often

more organized pre-season meetings that give people chances to face-to-face.

I had more hours in a day, days in a week.

They actually did some work! SoCal GACC has fallen asleep at the switch, no timely updates, inaccurate info, and behind the other GACCs in products!

their respective forecast would coincide with our staffing cycles.

I had more fire employees so we could spend more time checking it out.

it was posted with the daily fire weather forecast.

Some of the products were easier to read such as wind maps etc.

I knew more about the products provided and simple, low tech ways to access them.

a wider audience were informed of its existence. I am motivated to share the information from the Northwest GACC predictive services pages, but not all agencies (state, county) know of or how to use predictive services-supplied information.

It were updated more often

if it were easier to find on the GACC pages.

they were more accurate

It was more site specific.

incorporate more logistics information in the services and streamline the initial access to weather and behavior products.

I had more time to explore all the products. I use some of the products all of the time.

it could be more specific on a smaller scale than geographic/compact area size now.

included narrative of the movement of weather systems within predictive area

I was fully informed on the services available, how to access them, and how to use them. An annual Guidebook to Predictive Services Products would be useful. I don't know what I

don't know... I do not think I am aware of all the predictive services that are available to me.

if they were collected and compiled by dispatch and sent out daily

They corresponded to local Fire Danger Rating Areas and the weather station network associated with them that was analyzed at the local level.

my confidence level was higher in the accuracy of the products. My moonlighting job is as a fire behavior analyst, so I very well understand the predicament we are in trying to make projections for anything longer than about 3 days out.

a person had more time in a day to use them.

If it was more accurate.

written in plain English - no up 5 down 2

more thought was put into RAWS groupings.

...I had a better sense of the rationale for the Wx station selection used for the PSA's.

I had high speed access to the internet

They were cross checked for accuracy by field personnel.

I knew more about it.

Along with the potential danger they tell me when and where the lightning was going to occur. I can tell that it the conditions are out there just can't tell how much or where to place resources.

I ever heard of it !

their maps and displays were more legible and if each map had a legend describing the particular parameters that the map was displaying.

all the GACC Predictive Services used a standard web page that is consistent across the country. So when traveling to fires and using local predictive services - it will be easier to locate the info

works good now.

it was consolidated into one area for all agencies to use.

I had the ability to access the site with a wireless connection. I would then be able to get info at the incident instead of having to return to my office to get it.

they match with our daily field obs.

Fine the way it is.

It is useful to me, so that I can monitor the local conditions, and the National conditions, so that I can support/update resources who are currently staffing and or dispatched into other areas (adjoining states,& or other Regions) for support.

Predictive Services is only one of the tools in the toolbox. We consult a variety of information prior to making decisions on resource allocation, etc. Local conditions often vary widely from predictions. We use your information with a degree of caution.

the links and web addresses didn't keep changing, continually requiring me to add/delete my favorites.

They focused on local needs and did not have to conform so much to national standards for the same format, etc. I use the CFFDRS indices generated by them, and read the daily report, but that is about it.

I didn't have to spend so much time answering unproductive e-mail and getting more work piled on due to downsizing and outsourcing

We could get national consensus on the tools to use and how the data is arrived at as well as a feedback mechanism.

I had more time to study and understand/interpret them.

I knew more about how to access it.

it provided yearly services (outlooks) for each GACC.

I knew anything about them. Never heard of Predictive Services

they were more science and less politically based.

I had more time to spend to digest all the information that you provide to use already.

I had more time to peruse the information. This is an issue driven by lack of depth in my agency/organization, not a Predictive Services issue.

does not change and will continue to service Fire Management.

I had forecast from only 1 weather service officer rather then 4, or a better way to average them.

We all (Fire/Emergency/Safety managers) had more time to really dig-in and use the information available, but we are wearing to many hats theses days and tend to just work on what is biting us at the moment

it could be more site specific.

more people had access to the information. I think the general public needs to be aware of the dangers of fire. Like people that go from western Washington and why they can not have a campfire during the summer in eastern Washington to make their smores.

it were site specific

I was on the computer daily.

there was a way to bundle that info that is applicable to my particular area so that I can access it quickly and efficiently.

there were better coordination with the National Weather Service in terms of product relevance.

it was the only website that provided fire information. I already have a system to obtain all information I need to function in my current position. Some comes from your site, most comes from a variety of sites.

They are adequate for me at present.

I had more training and experience and knew what I was looking for

they are timely, accurate, simple and easy to access.

I had more time to look at it

I had more time to access it.

they were site specific and/or sometimes less general.

Alert E-mail go out when a change in levels that might prompt firefighter danger. This would have me go to the GAC site and look at the data.

we had more on-line tutorials or other interactive training aids to teach us how to interpret and use the data.

if I had all the time in the world to peruse through and leisurely look at and really learn what each product is telling me.

there was a better conduit for expectations and needs between the fire managers and PS personnel

I was not so overloaded already with computerized information. My biggest suggestion is to keep pages and links simple and straightforward to use.

spot weather forecasts were completed and a message sent to person requesting so know it is ready.

'predictive' products and 'historical' products were separated. Many of the products produced are not predictive at all. That is o.k. because it is useful for info. sharing but they seem to be mixed together.

I had time to sort through all the information that was out there. Would be good to be consistent between GACCs, even though the issues and information might be different, consistent deliver (web sites) would make it easy for the folks that travel and need to find something quickly. Information is no good if people can't get it quickly.

I had more time to go further in-depth exploring the possibilities.

someone would come out and give us a little hands on training to the products and services that are out there. I would really want 1 stop shopping for all the info. that I need on a daily basis during fire season.

specific information about the products available and there interpretation was provided in either training sessions or on-line descriptions and reminders. particularly at the start of fire season focusing on what is new.

I had the time to provide better feedback regarding accuracy of their products relative to my unit.

more accurate and timely information were not readily available locally

I understood exactly what benefit the different services would provide me in my current job.

I had more time to utilize the full gammet of their numerous products.

it were better coordinated with the NOAA offices.

I had enough time and knowledge to use all the info available. Keep up the good work.

we had more remote weather stations at key locations to better document local weather conditions and to make more accurate local weather/fire danger predictions.

I wish I had more time to spend on it. As an Incident Commander on a national team, I will always take time to visit the GACC predictive services site for the incident. Historic large fire history and weather data would also be helpful. Trigger points or watchouts related to the alignment of temperature, relative humidity, wind speed would be helpful.

Although I try to access the predictive service web site on a regular bases during high fire danger. I think it may be helpful if somehow I could be alerted by email when there is a significant weather event that may be forecasted. This would likely gain my attention to go to the web page for specifics; that information may have an effect on my decisions. I other words it would trigger me to use the web site more often and become more familiar with it capabilities.

Useful as it is.

These services should be directed towards the safety of the firefighter in the field. These products have value to the public, state office and national office but the emphasis should be to support the field.

I had more knowledge of the limitations of the data, and its accuracy.

I had better awareness/access to the web site.

I have not suggestions. Products are fine and understandable.

it was more accessible or I allocated more time to it.

I was still in my job as a Forest Fire Management Officer

There was greater consistency between GACCs and if the web delivery systems were of better quality. Access due to firewalls on GACCs hosted by different agencies are a problem - Of the GACCs I work with the worst quality products are at the Southern California GACC and the customer service support to the site is very poor. The best are at the PNWCG. All the others fall in between. The national site is really very good and getting better. Some of the links, such as to real time fire data are kind of inconsistent, since we don't have control over them. I am not very fond of the color coded ratings, since they are composite, but I know that the field likes them.

I had a something to read which summarized the program, products, etc.

the products were a bit more localized. The current PSA's are large areas that do well for representing fire danger across the GACC, but don't do as well for predicting fire danger in the PSA. The averaging of several weather stations dilutes the fire danger in some areas and overstates it in other areas. It seems that Predictive Services is providing information for the Geographic Area managers and not as much for the local units.

individual RAWS stations information was available

there were a more structured and funded organization that tied in the weather to the state of the fuels. Work better with NWS -- we lost out in some areas by not developing a closer relationship with them. Predictive Services is missing the LTAN capability and products which would be one of the most useful things in a fire bust situation.

Respondents were also asked to consider the existing products and services, and comment on how they could be modified to better meet their needs, leading to the following comments (answers of 'don't know' or 'no comment' have been excluded):

I would need to be better acquainted with the products before I could answer
Incorporate fuels information for the geographic area into products.
My needs are being met
Regional and local levels are what I'm interested in.
more subregional products with more detail relating to specific sites
Ensure that things are consistent.
more visual products. They are helpful for briefings etc.,
I need a better understanding of how to use them.
Improve understanding at the local level and aggregate products up to regional level,
    opposed to current top down approach.
more informational training
DO THEIR JOB! UPDATE MORE OFTEN! PROVIDE ACCURATE INFO!
Not sure......other than posting the predictive services info with the daily fire weather.
Easier reading.
Agency administrators should be included in the training on how to use the information
    supplied by predictive services, such as, ERC, Drought Indexes, etc. It is hard for fire
    managers to stress the importance of this information if it is not mandated from high levels.
easier to locate and good links between sites
Make them more site specific.
Doing good job already. Need snapshots, Need to adjust when area is in severity and focus
    on that area.
have local dispatch collect and send out daily.
Collaborate with local interagency units to match PSAs with Fire Danger Rating Areas and
    weather station networks.
More accurate from a climatological standpoint. Need better weather data also.
Some products need to be more printer friendly. Would like to see a operating guide similar
    to NWS Fire Wx Annual Operating Plan. Would like PS to provide PS awareness training
    for local fire managers - PS needs more exposure to be fully accepted by the fire
    management leadership community.
What they provide now I can get from other sources. If it was more specific (see two
    previous answers) then we could talk.
never heard of them
Use data which is relevant to fire managers.
The news and notes should be updated in a more timely fashion, especially team
    rotation/commitments.
It is up to me to incorporate what I feel is a necessity for better decisions combined with on
    site obs.
So far am satisfied.... with the products that are offered.
More ground-truthing of large scale planning products.
In reference to 6c. the quality should be high across all areas, but the format does not have
    to be similar at each geographic area. We are a huge country and there are regional
    differences in what information is needed and how it is best presented.
Better representation of the ground based RAWS and fuels make up would be a good start.
    The placement of the current RAWS stations are a better indication of units with better
    budgets than proper location and placement.

During the fire season, the monthly outlook could be changed to a 30 day outlook and be updated weekly (a monthly outlook has reduced value toward the end of the outlook period)

Better way to have one daily forecast per Forest or Zone rather then break Forest up by weather service offices.

I don't have any suggestions for this, other than maintain ease of use.

I am very happy with the products generated by EACC Predictive Services and rely on them greatly.

letting people have access to the information. Even many fire people do not have access because they do not internet access at work to do their jobs. I think this puts many lives in jeopardy.

If Predictive Services provided a joint product that covered wx and predictions.

user friendly

keep information up to date.

At the present I am satisfied with the products I use.

less general more specific, smaller units.

I am pleased with current services.

Having a dedicated FBAN in predictive services would be useful. It is quite apparent when FBAN's are brought into your offices every two weeks on fire assignments. These products are the most important products for the field. They need to be consistent with forecast methods and be available to answer questions.

train us up and don't do web based training--not everyone learns that way.

Give updates to new services and how to interpret, when changes are made in formats again provide notice, consider presentations at regional fire meetings or trainings describing products and usefulness.

I don't have enough time today to think this one through-but I am sure I have an issue, given the time!

Keep the web info current or make it not available if it is not being kept current.

Possibly tailor a section to cover the requirements of fire managers for severity requests. A one-stop site with drought, 30 day forecast, etc.

They meet my needs

Quicker loading of web pages, easier formats, less verbose (get to the point).

More up to date, improved consistency, better availability and better coverage of areas within GACCs.

I think they work great the way they are now.

Need to have more localized predictions within a PSA.

Make it easier to provide specific Fire danger/fire potential information for local areas - be able to track 3 day average ERC levels, etc.

Deal less with weather predictions, more with the fuels/fire danger/what will happen given the current situation tied in more with staffing recommendations at a smaller scale

Products or services that should be added to what Predictive Services provides—Respondents were asked to explain which products and services should be added to Predictive Services and why, resulting in the following comments:

hard to say what is needed when I don't currently use the products often

Better fuels condition maps or products.

Provide services that the field units need or save the government some money and get rid of this function.

It would be great if we had more detailed reporting on specific resources assigned out of our area to adjust for initial attack.

I like the experimental products. I don't base management decisions on them but I like to see us use the latest technology and science.

RAWS monitoring and oversight of maintenance and management.

I would say Yes, but I would rather they actually do something accurate with current products.

potential and percent for season ending events

Should add Live Fuel Moisture sampling results (graphically) obtained from local units throughout the Geographic Areas. Local units could enter data as they collect it . . . Predictive Services can display it graphically in a consistent format.

Long term drought, 30-60-90 day projections are 'nice' but give us something we can use such as when, where, and what type of lightning we can expect.

Include GACC unit NFDRA Plans

Actually we are outside any fire danger rating/predictive area. We lie in the Central Valley of CA, which is excluded. We extrapolate the information from nearby areas. It would be nice if it included and were meant for us.

A comment or feedback site and perhaps an overview of what each service can help with in the decision process for folks with lesser experience levels.

Specific to the Southern Area. More on Rx Fire/smoke management

I'm sure that there are many new tech products out there, so I recommend that you folks stay on top of 'what's new' and pass it on to us.

I like the graphic weather predictions from the Weather Service. Great for seeing trends.

Working on RX Fire predictive information

Can't think of any at this time. They seem to do a good job and provide more than adequate services. Keep up the good work.

Improve the fuel moisture reporting. This is a shared obligation/responsibility with agencies and PS

While answering the previous question indicating my desire for consistency, I don't want to overlook the importance of GACC's maintaining special information more particular to their local area. For example in Georgia and Florida many fire programs rely heavily on a daily dispersion index vs. Haines. Consistent, but pertinent to different areas is the key.

A greater emphasis needs to be placed on 'fire behavior' prediction products and tools. Predictive services does a great job with fire danger forecasting products but this does not paint a clear picture to firefighters in terms of fire behavior. I have completed analysis that shows fire danger levels often under predicts potential fire behavior. I believe most firefighters do not know how to use fire danger (what it means) and confuse it with fire behavior or they do not use it at all.

I would need to use it more in order to answer this question. We need better tech transfer so word gets to us at the district level of all these different sites and services. I got on it last year for the first time and liked it a lot.

The need for additional prescribed fire support - spring and fall exists, in part due to contingency planning

Previously mentioned items would be beneficial to incident management teams.

I think that additional products should be added but NOT til the ones we have are working well in all GACCs. The products in California a really very poor and seem to be a low priority to GACC management. There seems to be little interest in posting anything except what is usable to the USFS. DOI and the state need to do redundant work for things such severity requests or for areas of the state outside of USFS jurisdiction such as the desert and east side. The interagency nature of predictive services is much better in the other GACCs. The interests of the meteorologists tends to flavor what gets posted. The seasonal evaluations become out of date so fast that they can't really be used.

Predictive Services provides the daily forecast of what is predicted to happen (i.e. dry lightning, winds, etc) but it's hard to tell what actually did happen. A Geographic area map with rough polygons of where a weather event did occur would be helpful to know what areas of the GACC may have actual activity. If a dry lightning storm is predicted it would be nice to know where the dry lightning actually occurred.

See previous comment on LTAN capabilities -- what are the potential scenarios given the current fire situation and the climatology/expected weather. Also: less emphasis on being meteorologists; more emphasis on value added products that combine weather and fuels in ALL geographic areas.

Were There Additional Comments?

As is customary in such surveys, we invited respondents to offer any comments about Predictive Services, or any comments about the survey, resulting in the following remarks:

I am somewhat new if my position as Zone FMO and would probably use the products more if I had more knowledge about them, their uses and accuracy for my area

More consistency of products across regions or GACC level. More fuels related products.

I think they do a great service and good job

it's good program that provides fire managers with data that is not available on general weather sites.

predictive services is a good thing that more people need training in. I feel it has increased firefighter safety and we as an interagency group should fund more.

I have been very pleased by the continuing push to get out better and better fire products. Good Job!

Thanks for your interest in improving services.

Useful products need to be used more.

Good product; wish I had the time to dive deeper into it.

SoOps Intel is awful! Someone needs to put the hammer down on whomever is in that office! DO YOUR JOB!

Predictive services provides useful information to field-level fire managers to supplement site specific conditions being observed.

Predictive Services is a good idea and product that should continue.

Thank for the service and I will continue to use your produces in the future.

thank you for the opportunity to provide comments.

Keep up the good work

It provides an excellent service to me.

Please understand that it is not whether technology is useful or not, it is my opinion that there is a tendency for people to take this info and make management decisions over the judgments of the individuals that are in the field and charged with the responsibility to do the job. Like anything, if used appropriately, this can be a good supplemental tool, but not a tool to substitute our responsibilities to get out and interact and learn about the fire environment.

Try to consolidate and use a committee to oversee new entries. I believe that some of the new generation of folks are inundated with so many pieces of information that it is easy to see them overlook a key piece of information.

Generally speaking, quality information and services are provided to me, which I value highly and utilize frequently.

I think that Predictive Services are doing a really great job, though I want to stress that ultimately it is the person on the ground that has to correctly interpret his/her observation and make the right decision

I am very impressed and pleased with the products we get in the NW GACC.

I think overall Predictive Services is doing a great job. Focus this year on training and educating folks on what is out there and how to use it correctly to help them do their jobs.

The information that is available now via web sources has greatly enhanced my ability to stay up-to-speed on the fire situation and to gather critical information in making good decisions on new fire starts and in regards to firefighter and public safety.

like I said, you provide a useful service. thanks

I think that predictive services provides an excellent product. Something that is truly need by fire managers. Keep up the good work.

I hate surveys! You all do a great job!!! Keep it up! The work that you do is being utilized and it does matter how well you forecast your products. Thanks!

I think I expressed all my concerns in other areas of this survey.

a lot of the products produced by predictive services are unnecessary or irrelevant. The money spent to support many of the programs and/or products in predictive services could be spent more effectively elsewhere

In a time of budget cuts-if I were 'King' I'd have to fall back on NOAA products and ask PS to go away-engines and supervisors on the ground versus GS 12/13 at the GACCS!

Alaska needs a full-time interagency long-term fire behavior analyst at the GACC to complete our regional Predictive Services team.

I think they do a pretty good job with the products they produce. The weather products are understandably hard to make accurate due to the difficulty in predicting weather.

If they/the services were 'less transparent' I would use the services more

Overall, predictive services have greatly improved since South Canyon, when the idea was first conceived. I am still concerned with the double forecasting issue - where we are getting redundant forecast products from the NWS and the predictive services folks and they contradict one another. I believe that the predictive services should focus on derivative products and we should cease forecasting or reinterpreting wx service data and forecasts at the predictive services units. This is confusing to the field and potentially hazardous.

As I understand it, the national office, and perhaps one or two other geographic areas have the organizational structure needed to really make Predictive Services useful, which is meteorologists and fuels people working together. If we want just meteorological experience we could go to the NWS; still seems to be some hard feeling there and confusion about what PS is all about? Could probably do better with more people who aren't meteorologists in PS. What are the skills needed to be a PS employee and how are they developed? Right now it seems like about the only avenue is to be a former NWS meteorologist. How about developmental positions, e.g., multi-grade PS positions? Have they thought about what kind of people they would bring in an developmental structure they would use to create a self-sustaining organization rather than depending on getting more meteorologists in with a NWS background? Missing the boat big time in not developing more LTAN capabilities and products. These would be very useful to geographic areas.

Appendix F3: National Weather Service Meteorologists—Federal Respondents

National Weather Service Meteorologists (NWS meteorologists) were grouped into one category (*n*=153).

Who Were the Federal NWS Meteorologists?

The majority was male (90.2%), mostly between 35 to 44 years old (*Figure F3-1*).
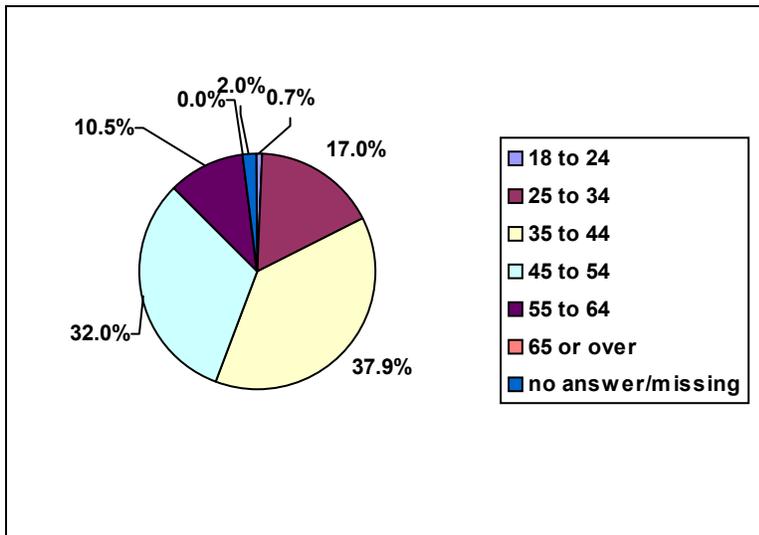
Figure F3-1. Age—federal NWS meteorologists.

Educational background / degree or equivalent—Educational attainment was fairly high among the majority in this subgroup, with nearly all (98.0%) reporting a bachelor's degree or higher education (*Figure F3-2*).
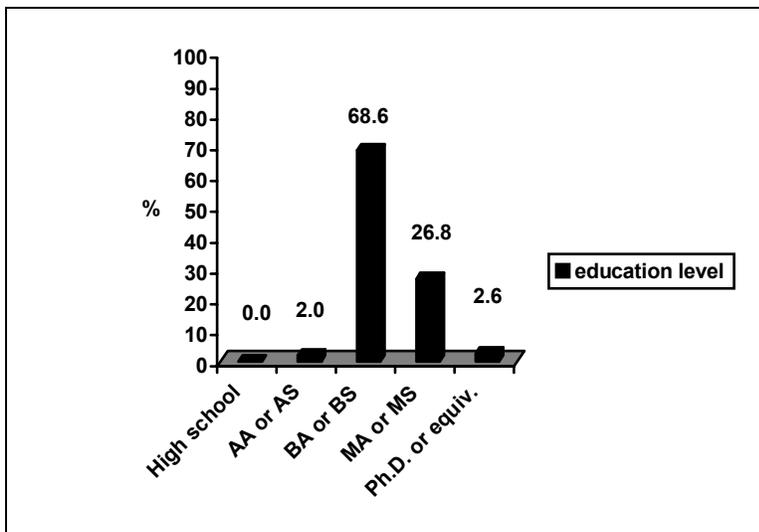
Figure F3-2. Educational attainment—federal NWS meteorologists.

Respondents reported degrees in the following subjects (these are on an individual basis so when lines contain multiple subjects they reflect an individual's response):

Agricultural meteorology (2 respondents)
Atmospheric sciences (18 respondents)
Broadcast journalism
Chemical physics
Earth and atmospheric sciences (10 respondents)
Geology; meteorology (2 respondents)
Geography (3 respondents)
Management
Mathematics education
Math-physics; meteorology
Math and meteorology (2 respondents)
Meteorology (67 respondents)
Meteorological engineering
Science

Home office Geographic Area location—Respondents came from across the United States, with their home offices falling within the various Geographic Areas (GAs) shown below *(Figure F3-3)*.
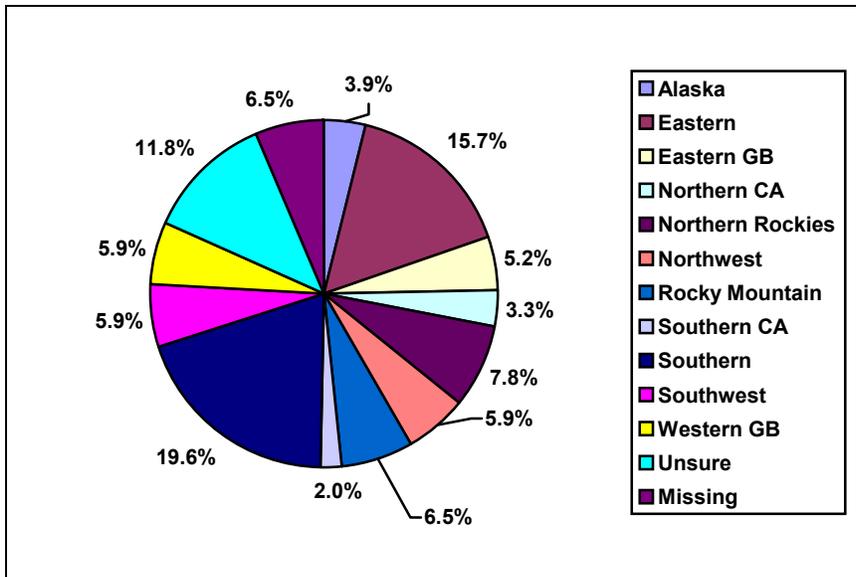
Figure F3-3. GAs—federal NWS meteorologists.

Level of geographic responsibility and scope of duties—Respondents' level of geographic responsibility varied. About one-eighth reported their duties linked to their local unit (including forest, district, reserve, etc. at 15.7%). Responsibilities for the remainder were at the national (4.6%), regional (26.8%), state (28.1%), county (15.7%), or national and international (1.3%) level.

The majority of respondents (71.9%) indicated that their work was specific to multiple agencies, while some (28.1%) had duties specific to their agency only.

The number of years reported in the current position of employment averaged 11.3 years (sd=7.7, *n*=96). Median responses for number of people supervised included 2.0 on a routine basis, zero on a seasonal basis, and zero on an incident/project basis.

Almost one-half of the federal NWS meteorologists (45.8%) had job responsibilities that included gathering and reporting data that is utilized by Predictive Services such as: situation reports, ICS-209's, NFDRS/WIMS, etc. Among the respondents with data gathering and reporting duties (*n*=75), the duties were assigned as one of their primary responsibilities (52.0%), or when others with this routine responsibility were away from the office (9.3%). About one-third (30.7%) were assigned the duties as part of a group that fulfills that responsibility. A few respondents (8.0%) did not specify their responsibilities.

What are their Levels of Experience with Predictive Services?

Frequency of access and information acquisition—The frequency of accessing and obtaining information from Predictive Services was examined under two conditions, during fire season and outside of fire season. Frequency of access was greatest during fire season (*table F3-1*).

Table F3-1. Frequency of accessing and obtaining information from Predictive Services— federal NWS meteorologists.

Frequency	During Fire Season %	Outside Fire Season %
Daily	27.5	2.0
Weekly	28.1	11.1
Monthly	5.9	24.2
Quarterly	2.0	6.5
Rarely	24.8	34.0
Not at all	11.8	22.2

Specific circumstances for access/acquisition—In addition to frequency, respondents provided information regarding specific situations when they access or obtain information from Predictive Services. Nearly one-half reported accessing Predictive Services during fire season (58.8%), and about one-third during a fire incident (38.6%). Other situations were reported including when a prescribed burn is being planned (18.3%) and when a prescribed burn is taking place (15.7%). About one-fourth indicated none of the above situations applied to them (28.8%).

Respondents listed additional situations when they access/obtain information from Predictive Services including:

    near or at red flag criteria
    fire activity in area
    during incidents, season, and prescribed burns
    routine daily forecasts as NWS forecaster
    when considering fire weather watches/Red Flags
    During hazardous weather situations.
    while working the fire weather forecast desk
    when ever a fire weather issue arises affecting them
    For fuels information
    daily dryness levels
    occasionally when teaching fire weather courses

pre-season predictions
potential Red Flag events
To coordinate forecast information and check on the need for conference calls
during critical fire weather situations and when I am working a Fire weather shift
Raws data
occasionally when a prescribed burn is taking place...if we are given enough notice.
When needed to obtain information
spring fire weather outlook prior to fire season
training and planning
During drought to keep a pulse on its affect with fire
end of fire season
large scale fire events
routine weather, and warnings
Periodically throughout the year
Routine Fire Weather Forecasting or SPOT forecasting
assessing fuels conditions for fire weather watch/red flag warnings.
during heightened fire danger situations
to improve customer service

Use of specific websites and services—Respondents were asked to indicate which Predictive Services websites they had visited/which GACC services they had used, revealing that a majority had been to the National Interagency Coordination Center (NICC–51.6%). The Geographic Area Coordination Center sites from most to least mentioned were the Southern (22.9%), Southwest (20.3%), Northern Rockies (19.6%), Rocky Mountain (17.6%), Northwest (17.0%), Eastern Great Basin (15.0%), Eastern (15.0%), Western Great Basin (14.4%), Northern California (12.4%), Southern California (10.5%), and the Alaska site (8.5%; responses do not sum to 100% because respondents could select multiple sites). Over one-half had visited one or two sites, while others reported multiple sites (as many as all 12). A few (3.3%) were not sure which if any sites they had visited, or indicated they had not visited any of the listed sites/used any of the GACC services (12.4%).

Familiarity with the products and services—Federal NWS meteorologists were asked to indicate how true or untrue the following statement was "I am unfamiliar with Predictive Services products and services." About one-fourth indicated this statement was true (*Figure F3-4,* 22.2% selected a rating of 4, or 5, where 5=very true).
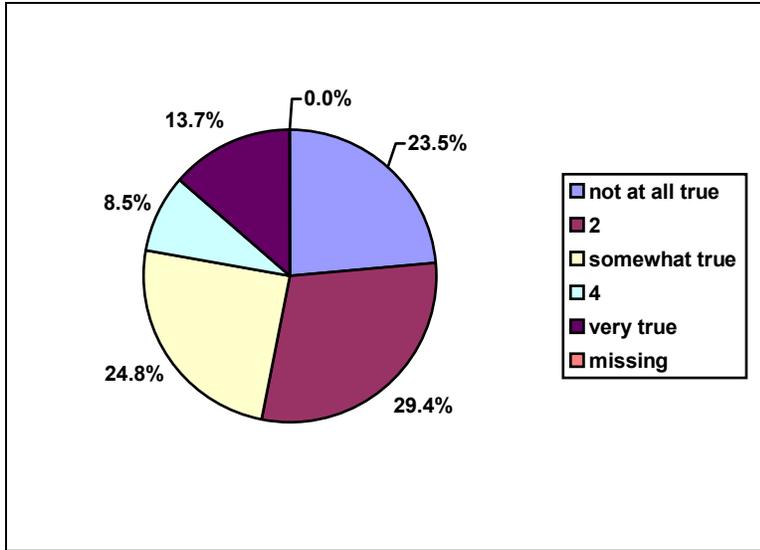
Figure F3-4. Unfamiliar with Predictive Services products and services—federal NWS meteorologists.

Nearly half of the respondents were interested in Predictive Services products and services (*Figure F3-5*, 42.9% selected a 4 or 5, where 5=very true in response to "I am interested…; another 34.6% marked 'somewhat true').
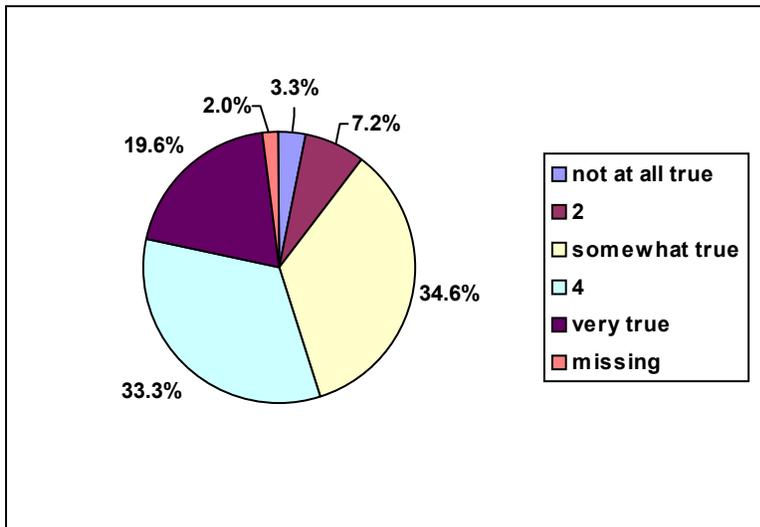
Figure F3-5. Interest in Predictive Services products and services—federal NWS meteorologists.

Respondents were asked their familiarity with Predictive Services' products on the web, the briefings, and the emails. They were more familiar with the web products (*Figure F3-6*, M=3.2, sd=1.2, n=149), and the briefings (i.e., national, geographic, situational, or meteorological, M=2.8, sd=1.2, n=148), than with the emails (these contain current projections and/or information about Predictive Services, M=2.2, sd=1.2, n=137).
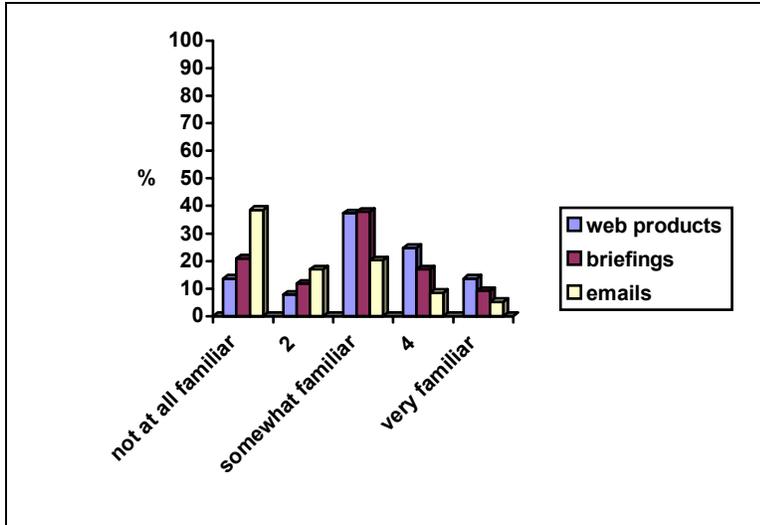
Figure F3-6. Familiarity with Predictive Services products on the web, briefings, and emails—federal NWS meteorologists.

What are their Opinions of the Products and Services?

Ratings of Predictive Services information—Respondents tended to agree that Predictive Services information was accessible (*M*=3.6, sd= .9, *n*=117, *Figure F3-7*, 23.5% marked 'don't know').
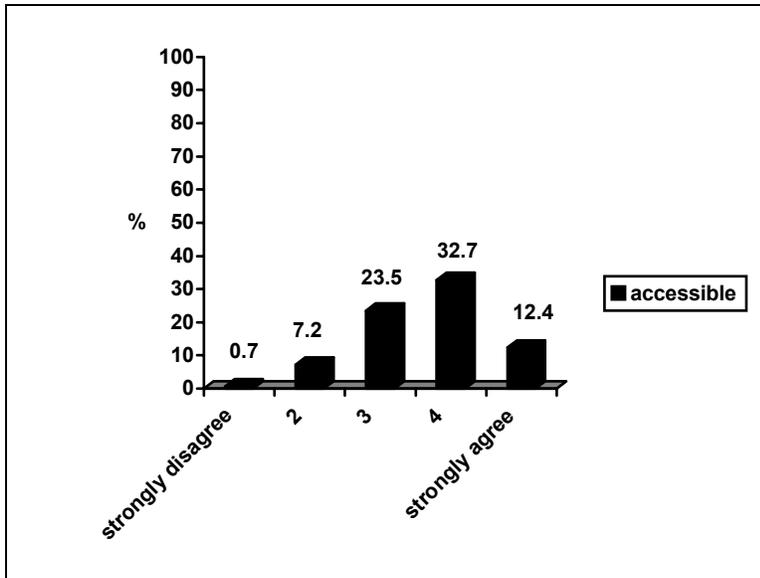
Figure F3-7. Ratings of accessibility of Predictive Services information—federal NWS meteorologists.

While a majority agreed that Predictive Services information was timely, about one-third disagreed with this as an attribute (*M*=3.2, sd=1.7, *n*=146, *Figure F3-8*, 3.9% marked 'don't know').
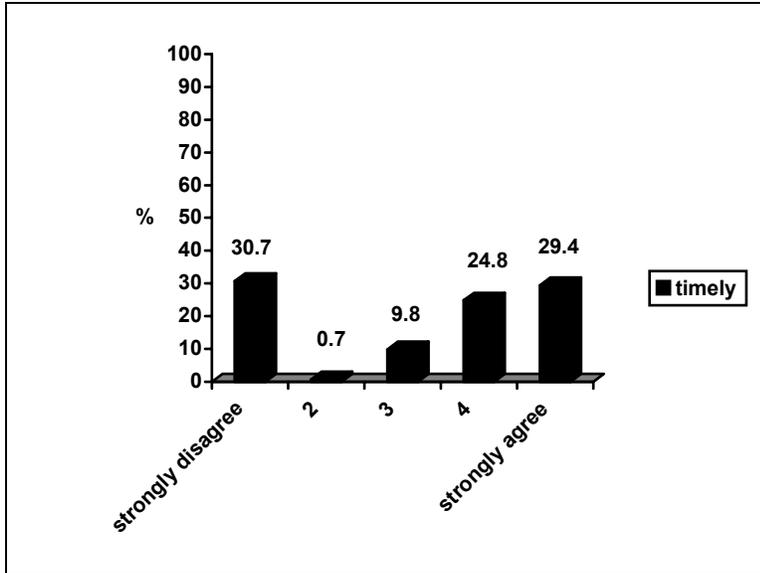
Figure F3-8. Ratings of timeliness of Predictive Services information—federal NWS meteorologists.

A majority agreed that Predictive Services information was relevant (M=3.4, sd=1.7, n=130; *Figure F3-9*; 15.0% marked 'don't know').
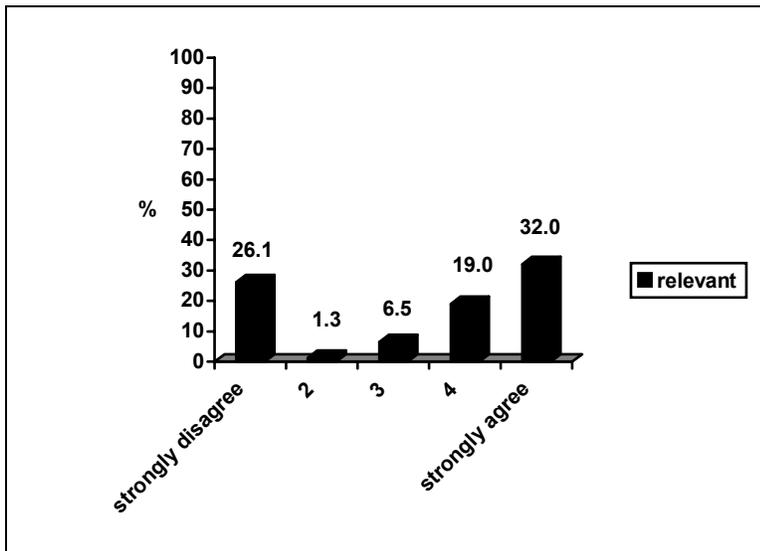
Figure F3-9. Ratings of relevance of Predictive Services information—federal NWS meteorologists.

Over one-half agreed that Predictive Services information was accurate (*M*=3.2, sd=1.7, *n*=144; *Figure F3-10*; 5.2% marked 'don't know').
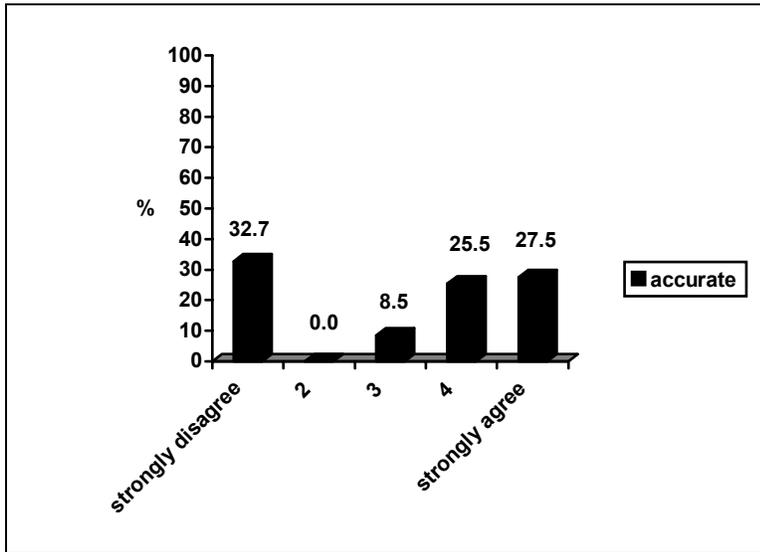
Figure F3-10. Ratings of accuracy of Predictive Services information—federal NWS meteorologists.

A majority also agreed that Predictive Services information was complete (M=3.2, sd=1.6, *n*=144, *Figure F3-11*, 5.2% marked 'don't know').
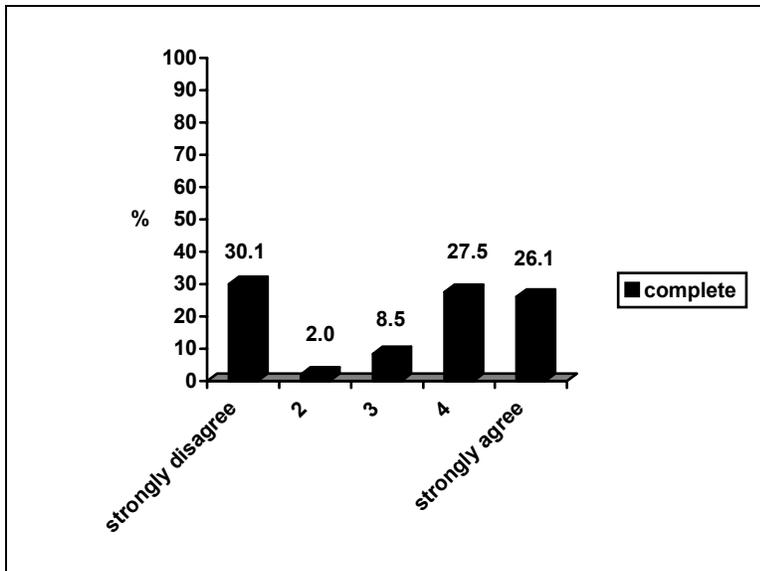
Figure F3-11. Ratings of completeness of Predictive Services information—federal NWS meteorologists.

A majority agreed that Predictive Services information was easy to understand (*M*=3.5, sd=1.6, *n*=134, *Figure F3-12*, 11.1% marked 'don't know').
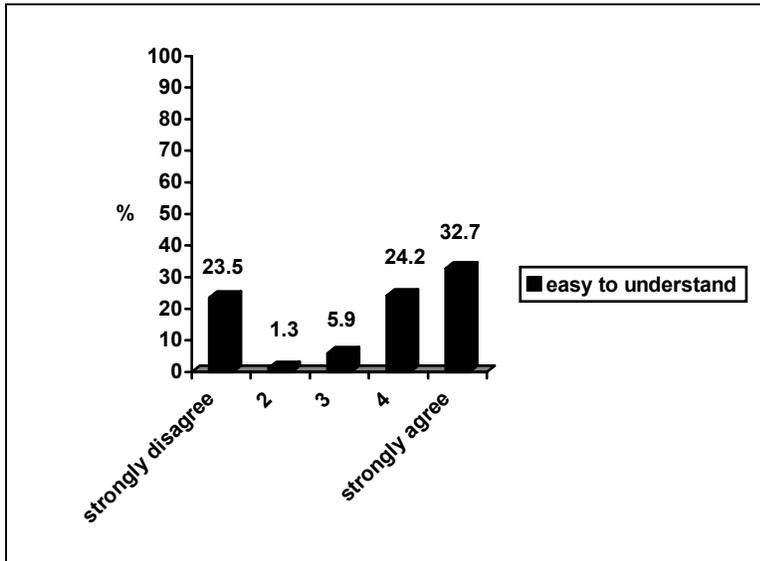
Figure F3-12. Ratings of ease of understanding of Predictive Services information—federal NWS meteorologists.

Similarity and importance of similarity of GACC sites—NWS meteorologists rated how true the following statement was "The Predictive Services products and services available through the GACCs (you selected – based on which GACCs they had been to) are similar in format, quality, and the range of products and services offered. One-tenth perceived the products and services as similar (*Figure F3-13*).
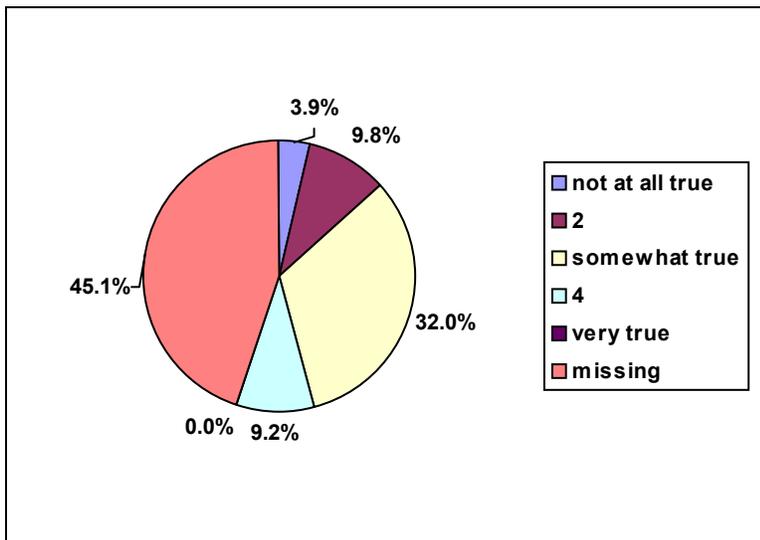
Figure F3-13. Products and services available through the GACCs you selected are similar—federal NWS meteorologists.

Respondents were invited to comment on their responses regarding similarity across GACCs. Comments included these:

Do not use.

Seem to be moving toward more standardization - used to be no similarities at all

We use a different fire danger rating system up here in Alaska. Look and feel are somewhat unique.

Some categories are very similar, and others are not.

I've noticed that different GACCs have different presentation styles for their data. This is probably tailored to the needs of each GACC's customers.

NICC and GACCs have different responsibilities, as such their services vary.

One of the more useful items that I find on the gacc pages in the news and notes that the SW gacc has on their page. EGB attempts to do it but on a rather limited and poor basis. Useful for possible IMET dispatches and situational awareness for the NWS for after the fire weather forecaster has left for the day.

I do not see much consistency between GACCs. The SW GACC has the best info and CA GACCs have the worst.

The GACCs have been making a concerted effort to standardize a lot of products, but aren't quite there yet.

The general format has been consolidated, but there are some items some GACCs offer that others don't. Occasionally, the name of the links or products are slightly different from GACC to GACC making it harder to find what you are looking for.

Some of the GACCs are quite advanced with their level of service, like the Southwest GACC. Others are not at that level.

They vary by GACC.

Only visit one site so I can not make a comparison.

I haven't looked at other GACCs in about a year...but back then their web pages and products offered were very different. It may be different now.

Similar range of services but format and presentation vary significantly.

I have noticed that Southern GACC has more weather and climate information on their web site that the other GACCs.

RMGACC has more user friendly and updated fuels map. Both GACCs are working to improve providing fuels to NWS.

They are all different and difficult to find info on

Consistency has improved somewhat the last year.

I access the Eastern GACC websites regularly but the Southern GACCs only on occasion.

Difficult to evaluate completely because NICC and the Northwest GACC have such different responsibilities.

The situation reports are similar, the fuels, fire weather and fire intelligence information on the web is very different from GACC to GACC.

not sure

I have only used the products and services from SWCC.

I have not used one of the two websites for a few years, so they may have become more similar.

Mainly use Alaska products, observations

The general format has generally become more consistent but products still differ.

Primarily visit NICC site as I am mostly interested in National Situation for potential dispatches. Will visit local GACC web pages when I need local information.

I am able to use the products produced by the NWS to thoroughly brief me and provide the info I need to make critical operational decisions.

> Each GACC seems to have its own format...can find some things on one that I can't easily locate on another. NWS pages are like this as well...
>
> The primary thing we look at is the fuels maps which eastern great basin and rocky mountain areas have for us. Northern Rockies does not have these maps available for Yellowstone N.P. Quite frequently the fuels specialists or FMO's responsible for and area go weeks without updating their fuels status which leads one to believe they have little interest in the quality and or accuracy of the fire weather watches and red flag warnings issued by the NWS.
>
> It's hard to answer that question...since I use these products mainly when on an incident, which is not all that often for IMETs not in the western U.S.
>
> Formats both temporally and visually have been different but understand that they will be streamlined this year.

While about one-fourth indicated that similarity of Predictive Services' products and services in format and quality across GACCs was unimportant (22.3% assigned a 1=not at all important, or a 2), about one-fourth indicated that it was somewhat important (26.1%), and nearly half indicated that it was important (43.8% assigned a 4 or 5=very important; 7.8%, did not answer this item).

Satisfaction with Predictive Services contacts—About one-third of respondents (35.3%) had contacted Predictive Services to report a problem with a product or service. Two-thirds of these (63.0%) selected a 4 or 5 on the scale indicating they were responsive (scale was 1 to 5, 1=not at all responsive, 5=very responsive). About one-fifth (16.3%) had contacted Predictive Services to suggest a new product or service. Using the same responsiveness scale as for reporting a problem, about two-thirds (60.0%) rated Predictive Services as responsive to their suggestion.

Use and utility of products and services—Products and services available through Predictive Services were examined. The 39 specific listings included some products and services that are generated elsewhere, or that are available only on some sites, but not all. Respondents were asked first to indicate if they had not used each product, and then for those that they had used, to rate each according to its usefulness to them on a scale from 1 to 5, where 1=not at all useful and 5=very useful.

The first set of product ratings (*table F3-2*) are those that are shown on Predictive Services sites, but are produced through other agencies.

Table F3-2. Use and utility of Predictive Services products and services provided by other agencies/groups—federal NWS meteorologists.

Product or Service	% Not Used	Usefulness *M*	SD, N
National fire weather outlook	22.9	3.33	1.0; 112
Red flag warnings	30.1	4.09	1.0; 99
Drought information	24.2	3.67	.8; 109
Haines index	34.0	3.39	1.1; 94
7-day precipitation maps	47.7	3.04	.9; 73
7 and 14-day precipitation percent of normal	47.7	3.11	1.0; 73
12-hour forecast maps	45.8	3.14	1.0; 73
MODIS active fire maps	27.5	3.87	1.0; 101
7 and 14-day average maximum temperature departure from normal	48.4	3.01	1.0; 72
7-day average maximum temperature maps	49.0	2.96	1.0; 71
Wind maps	48.4	3.36	1.1; 72
Observed fire danger images	37.3	3.74	.9; 89
ROMAN real time fire weather and information report	24.8	4.43	.9; 107
Upper air soundings	37.3	4.35	1.1; 89

A set of products and services is produced by Predictive Services and is available on a limited scale (*table F3-3,* less than national, typically on a local and regional level). These products and services are offered on a limited scale to meet specific regional needs and interests.

Table F3-3. Use and utility of Predictive Services products and services provided by Predictive Services on a limited scale—federal NWS meteorologists.

Product or Service	% Not Used	Usefulness *M*	SD, N
Interagency situation reports	24.8	3.96	1.0; 108
Daily fire weather/danger outlook	23.5	3.62	1.0; 111
Prescribed fire reports	43.1	3.83	1.0; 80
Smoke program reports	51.6	2.92	.9; 64
Online briefings	58.8	3.41	.9; 54

This last set of products is available on a national scale and is created by Predictive Services, sometimes in collaboration with other entities (*table F3-4).*

Table F3-4. Use and utility of Predictive Services products and services provided by Predictive Services on a national scale—federal NWS meteorologists.

Product or Service	% Not Used	% With 4 or 5 Rating[1]	Usefulness *M*	SD, N
Incident Management Situation Reports	21.6	73.2	4.14	.9; 112
Weekly fire weather/danger outlook	25.5	54.0	3.50	.9; 107
Seasonal fire weather/danger outlook	30.7	32.3	3.06	1.0; 96
Monthly fire weather/danger outlook	35.9	29.7	3.12	.9; 91
10-day fire weather/danger outlook	37.3	33.7	3.27	.9; 89
Live fuel moisture	20.9	80.2	3.86	.9; 114
Dead fuel moisture	21.6	67.3	3.82	.9; 113
7-day large fire potential	35.3	49.0	3.45	.9; 92
Fire news and notes	39.2	51.7	3.56	1.0; 85
ERC and fuels charts	37.3	62.9	3.69	1.2; 89
Links to other services/websites	37.9	44.8	3.44	1.0; 87
Multi-season fire weather maps	45.1	31.5	3.03	1.0; 73
Interagency RAWS program	27.5	72.1	4.16	1.0; 104
Reference links	46.4	38.9	3.25	1.0; 72
Training	55.6	37.8	3.34	1.1; 61
State of the fuels program	46.4	52.7	3.57	1.0; 72
Technological guidance and transfer	58.2	40.8	3.28	1.1; 54
Predictive service forms	68.6	18.0	2.87	1.0; 39
Regional monsoon update	71.9	25.0	2.75	1.2; 36

[1] This column considers only those who rated the product and is not based on all federal NWS meteorologists.

Respondents were invited to specify any other products or services they had used, resulting in the following remarks:

> the primary use of predictive services data is fuels conditions for red flag warnings issued by my office. all of the base meteorological information comes from or is available from my agency. I do not have to rely on their meteorological information to issue the fire weather forecasts, spot forecasts, smoke management forecasts and red flag warnings. I need to get accurate fuels conditions without having to call dozens of individuals, which is why the NWS asked for the red flag fuels maps. Again the updating of these maps in a timely manner has been highly disappointing considering the apparent importance of fire weather watches and red flag warnings issued by my office.
>
> I would like to find CBT for NFDRS Training for Meteorologists

Overall satisfaction—Responses indicate that Predictive Services had neither met nor failed to meet most expectations (*M*=3.0, sd= .8, *n*=131, *Figure F3-14*), and respondents were neither satisfied nor dissatisfied (*M*=3.3, sd= .9, *n*=133, *Figure F3-15*).
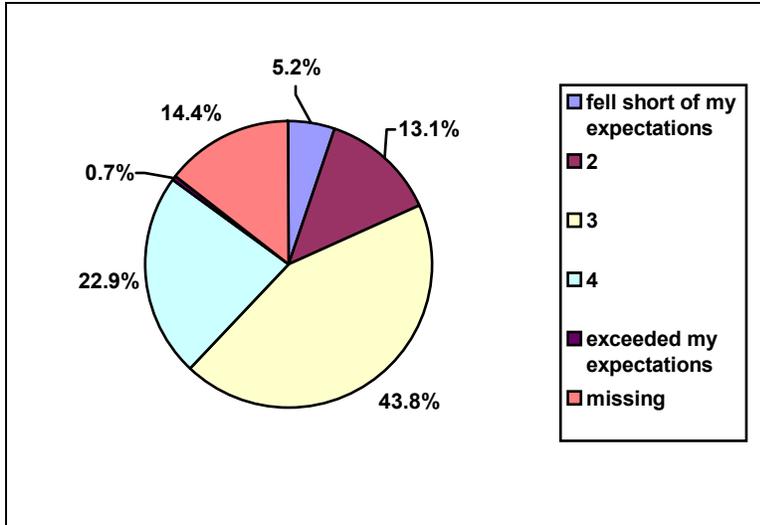
Figure F3-14. Ratings of degree to which Predictive Services met expectations—federal NWS meteorologists.
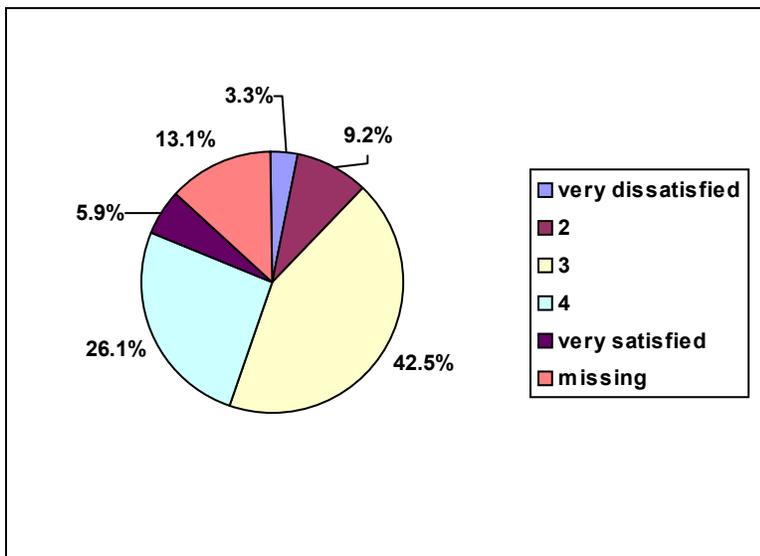
Figure F3-15. Ratings of satisfaction with Predictive Services products and services— federal NWS meteorologists.

Trust and confidence in the information—A majority expressed some, to a great deal of trust and confidence in Predictive Services information (*Figure F3-16*, *M*=3.5, sd=1.0, *n*=136; 11.1% did not answer this item.)
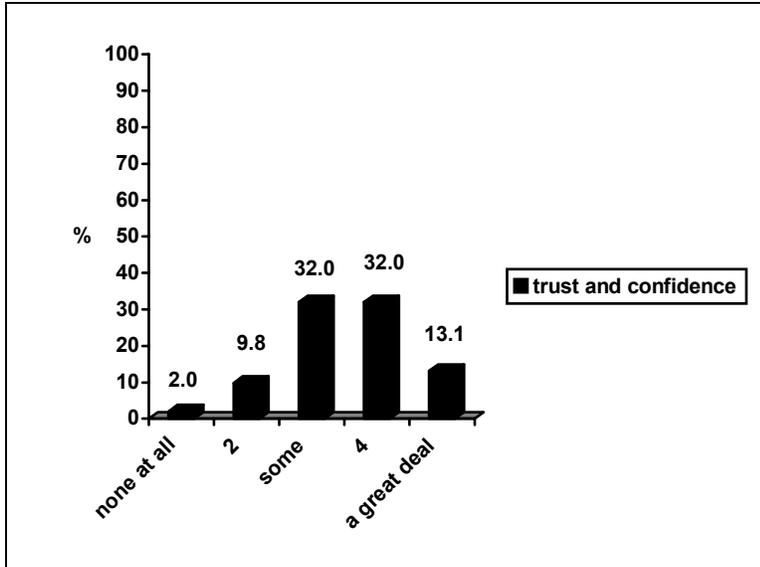
Figure F3-16. Ratings of trust and confidence in Predictive Services information— federal NWS meteorologists.

Are Respondents Relying on and Taking Action Based on Predictive Services?

Reliance on products and services—About one-fifth (17.6%, *Figure F3-17*) indicated that they *did* rely on the products and services in making important decisions (selected a 4 or 5, where 5 was very true). Over half (54.2%, *Figure F3-17*) indicated that they relied on other sources more heavily than the products and services provided by Predictive Services (chose a 4 or 5, where 5=very true).
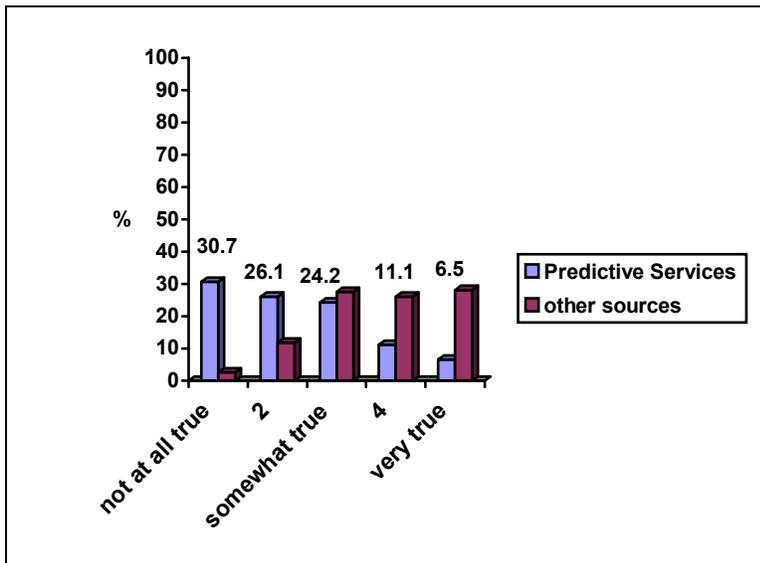
* The proportion of respondents in each category is shown for reliance on Predictive Services.

Figure F3-17. Reliance on Predictive Services and reliance other sources—federal NWS meteorologists.

Reliance on other sources was investigated further. Respondents were asked to comment when they provided ratings of 4 or 5, indicating they relied on other sources, resulting in the following comments:

Forecasting, so use current observations and model guidance on NWS system.
National Weather Service (10 respondents)
tough question to answer - obviously all my weather info comes from NWS - use PS pages to gage fuels
local traditional fire weather partners.
Northern plains GACC, SPC, local observations and meteorological model data.
I have plenty of data to use from within my own agency.
I use NWS products more, but they each serve slightly different niches.
Climate Prediction Center, Storm Prediction Center, National Weather Service
Mainly because I work for the National Weather Service...I am more familiar with NWS products.
Local Forest and State resources
Still like to call the local district personally that to rely on their web pages to see if fuels are critical or not for a possible Red flag event.
I rely on NOAA CPC since they are the long term weather forecast experts.
As a National Weather Service employee we use our products more, but in conjunction with GACC products.
For fuel conditions I depend on local agencies for that information
fire.ak.blm.gov; firewx.arh.noaa.gov; raws.wrh.noaa.gov/roman
For weather and drought conditions I rely on NOAA products.
Am more familiar with products from other sources, especially those that do not come off the Internet
Coordinate Red Flag events with local dispatch centers.
When the GACC detailed report is incomplete or out of date, we need to look for another source. As our Red Flag Warning issuance depends on this information, at these times we would have to rely on other sources more heavily than the Predictive Services detailed report.
The National Weather Service provides a continuous national product that is coordinated between offices and regions. Their products are more timely, accurate and available.
NWS forecasts and assessments by state and Federal forest service officials
I rely mainly on data obtained from NOAA/NWS sources.
National and Local NWS websites
NWS SPC, CPC
local nws
NWS data and gridded forecast data.
Local foresters
Climate Prediction Center; Hydrometeorological Prediction Center; Storm Prediction Center"
National Weather Service Products
I rely on information gleaned from my local contacts...mostly DNR in addition to what the predictive services provide.
Oklahoma Mesonet and other state level sources.
NWS AWIPS, many web sites
National Weather Service Products and Services.
I rely on National Weather Service Products and direct communications with the forest customers in my area of responsibility.
Primary sources for fire weather forecasts are internal.
nws spots, planning forecasts and RFWs

Wildland fire assessment system web page for fuel moisture and fire danger information.
weather data and fuel data from the Wildland Fire Assessment System, and via the NWS
computer system.
I personally rely on fire danger products from the Wildland fire assessment system a bit
more than predictive services products. However there are more pertinent products to my
area (Region III and New Mexico) which I rely on from the predictive services.

Degree of reliance on Predictive Services was also queried. About two-fifths indicated little to no
reliance on Predictive Services information (43.1% chose a rating of 1 or 2, where 1=none at all
when asked "How much do you rely on the information provided by Predictive Services to assist
in decision-making?"). Another one-fourth (28.8%) indicated some reliance, and nearly one-
fourth indicated reliance (22.8% chose a 4 or 5 rating, where 5=a great deal; 5.2% did not
answer this item.)

The likelihood of taking action based on Predictive Services information was examined. About
one-fourth were likely to take action based on Predictive Services information (28.1% chose a 4
or 5 rating, where 5=very likely, *Figure F3-18,* 5.9% did not answer this item).
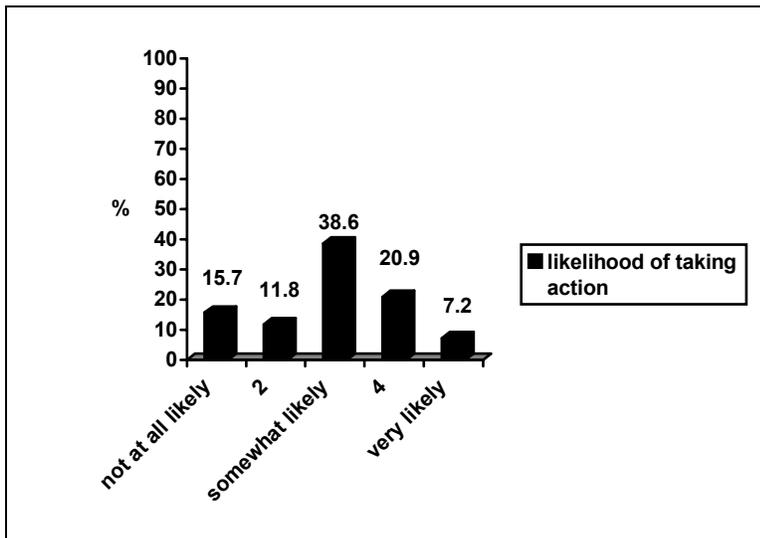
Figure F3-18. Likelihood of taking action based on Predictive Services information received, or
gathered from a website—federal NWS meteorologists.

Did Respondents offer Insights into Reliance and Barriers?

Perceived overlap—Respondents were asked how true or untrue it was that there is overlap in
the type of information that can be obtained from Predictive Services and other sources (rated
on a scale from 1 to 5, 1=not at all true, 3=somewhat true, 5=very true). While about one-fifth
(19.6%) indicated there was not overlap (chose ratings of 1 or 2), nearly half (43.8%) felt this
was somewhat true, and about one-fourth indicated it was true to very true (28.8% chose ratings
of 4 or 5; 7.8% did not answer this item.)

Respondents provided the following comments regarding perceived overlap with other sources:

National Weather Service weather forecasts.
NWS and traditional fire weather partners.

have not used…rely on GACC for services.

National Weather Service, NIFC, local weather observation networks (such as AWS), local fire agencies, etc...

Fire weather information is much more extensive from the National Weather Service.

NWS forecasts

It varies by area. In CA there is a lot of overlap and duplication with NOAA. The PACNW has developed many new tools with little or no overlap.

fire.ak.blm.gov

There is a lot of overlap between what NWS provides and what the GACC provides. GACC information is formatted differently, more tailored to the larger land management area jurisdictions (GACCs).

SPC/NCEP products

NWS and PS. Both have their areas of great and needed impact. NWS more short term and smaller scale. PS more mid term and outlooks over broader scales.

Yes, and no. When evaluating the fire danger, there is often multiple sources (the GACC detailed situation report, and the information on the WFAS page) which often may not agree. Frequently, the GACC situation report is not complete or not updated, and information must be acquired elsewhere.

GACCs provide better one stop shopping for fuels status. Very important since we service two GACCs and six districts. Going to each district was time consuming but this method is still available.

National Weather Service Products are much more reliable, TIMELY, and accessible. Their websites are kept up to date and they are available 24/7.

Specifically, NOAA web sites. This used to be more true, it appears that predictive services lately (in the last couple of years) has tried to reduce duplication of NOAA services.

local NWS offices

National Weather Service

Local State Offices...fuels conditions mostly. However I find Region 6 GACC to have better format layout.

National Weather Service Products

National Weather Service Forecasts

The 'dryness' and 'weather triggers' information on the 7 day outlook has a definite overlap with the NWS Red Flag program. I like the concept, but their is potential for an inconsistent message and confusion.

I don't use this information enough to know.

Weather Information can be obtained elsewhere. I rely on predictive services more so for intelligence on new and existing fires and for fire behavior and danger indices.

Fire Weather Planning Forecast from NWS and Daily Weather Forecast from GACC. But this is due to user request.

unsure/don't remember

Fuels information is critical to the decision on whether or not to issue a Fire Wx Watch or Red Flag Warning; For example, there are numerous sites to get Fire Weather Forecasts, and calls can be made directly to FMOs for fuels info. However, I think it is important for Predictive Services to be a '1-stop shopping' site for all Fire-related products."

The National Weather Service provides some limited overlap. But, probably not enough that anyone outside of Predictive Services or the NWS personnel would notice.

Predictive services does provide meteorological information both in near and long term. NWS does the same HOWEVER the packaging is a bit different. Some of the predictive service products are designed to fit certain customer needs. NWS products are also designed to fit certain customer needs. Thus perhaps apples to oranges. Nevertheless a little bit of an overlap.

Beliefs about Predictive Services among those who had data gathering and reporting duties—
The respondents with data gathering and reporting duties related to Predictive Services were asked: "How likely is it that you will gather and report data to Predictive Services?" About half indicated that they were likely to gather and report data (53.3% chose a 4 or 5 on the 5 point scale, where 1=not at all likely, 5=very likely; 14.7% did not provide a response; *Figure F3-19*).
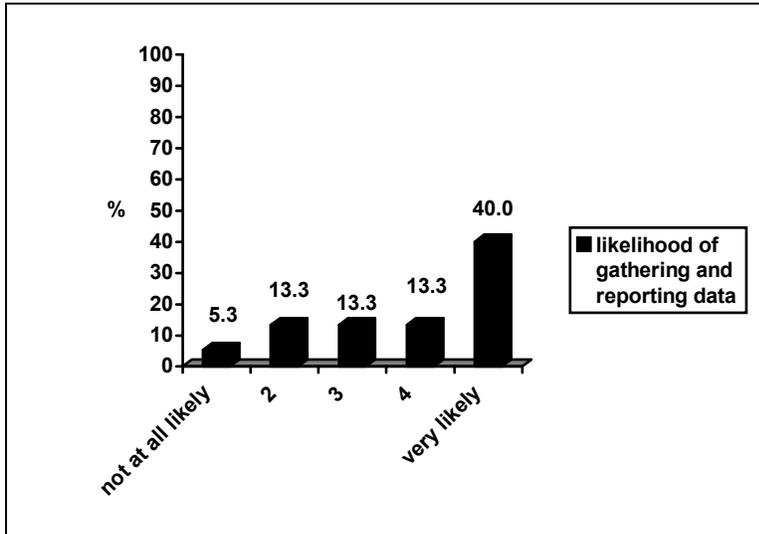

Figure F3-19. Likelihood of gathering and reporting data to Predictive Services—federal NWS meteorologists with data gathering and reporting duties.

Respondents provided mixed ratings regarding having the resources to gather field data for reporting (*M*=3.5, sd=1.3, *n*=60, rated on a 1 to 5 scale where 1=strongly disagree and 5=strongly agree; *Figure F3-20*; 20.0% did not answer this item).
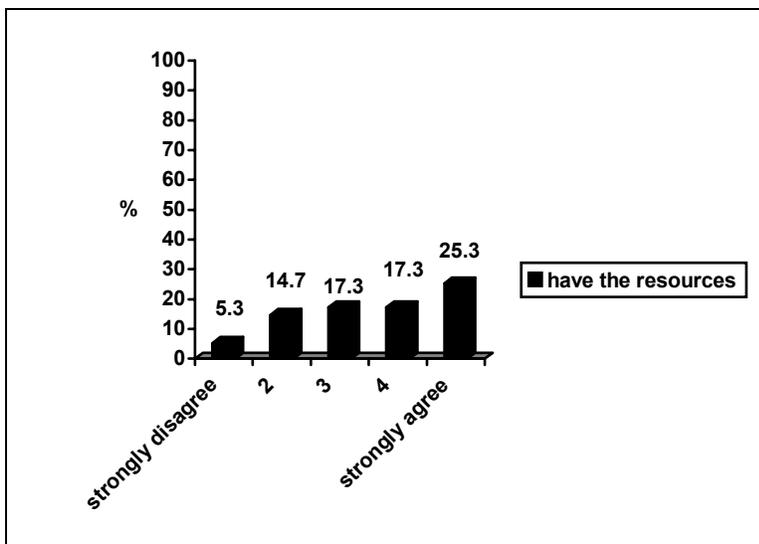
Figure F3-20. Degree of agreement or disagreement with "I have the resources (e.g., time/skills/personnel) to gather field data for Predictive Services reporting" —federal NWS meteorologists with data gathering and reporting duties.

This subgroup was also asked to rate five items focused on positive impact of reporting, and negative effects of not reporting. Federal NWS meteorologists were likely to agree with "My consistent upward reporting of data (e.g., 1300 obs for RAWS) increases the reliability and quality of Predictive Services products and services" (*M*=4.1, sd=.9, *n*=55; *Figure F3-21*; 26.7% did not answer). They were also likely to agree with "My consistent upward reporting of data (e.g., 1300 obs for RAWS) increases the reliability and quality of products and services provided by groups and agencies that use the data from Predictive Services to generate their own products" (*M*=4.2, sd=.9, *n*=54; *Figure F3-21;* 28.0% did not answer).
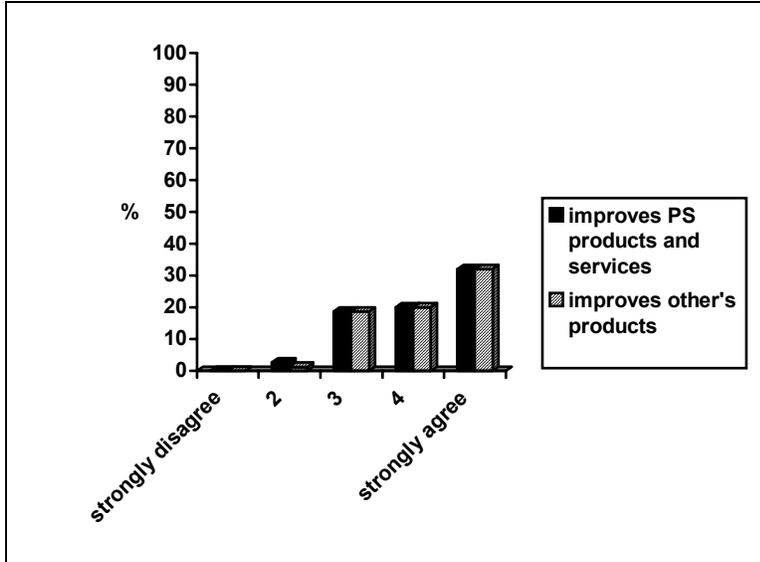
Figure F3-21. Degree of agreement or disagreement with positive outcomes of reporting data—federal NWS meteorologists with data gathering and reporting duties.

Responses indicate that the majority somewhat to strongly agreed there are adverse outcomes when/if data is not gathered and reported. This was assessed through two items "If I don't collect and report Predictive Services data, it could affect my unit's ability to make sound decisions to manage fire" (*M*=3.8, sd=1.1, *n*=56; *Figure F3-22;* 25.3% did not answer); and "If I don't collect and report Predictive Services data it could adversely impact firefighter or public safety" (*M*=3.9, sd=1.1, *n*=58; *Figure F3-22;* 22.7% did not answer).
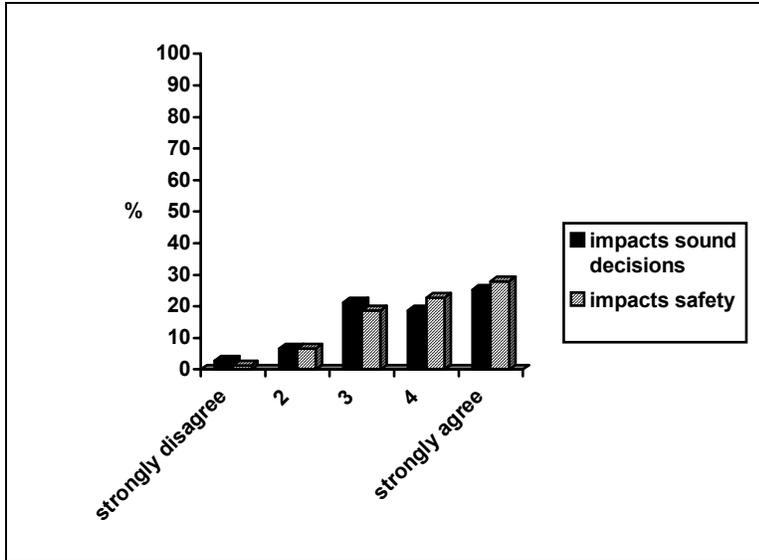
Figure F3-22. Degree of agreement or disagreement with adverse impacts of not collecting and reporting data—federal NWS meteorologists with data gathering and reporting duties.

Ratings of ability and impact of applying Predictive Services information—General ability to access and apply the information from Predictive Services, as well as its utility in job performance, was queried (using a 5-point Likert scale where 1=strongly disagree and 5=strongly agree). Federal NWS meteorologists were somewhat in agreement with "I can access and apply Predictive Services information as part of my job duties" (*M*=3.7, sd=1.0, *n*=114). However, they were in less agreement with "Predictive Services information helps me perform my job with greater precision" (*M*=2.2, sd=.9, *n*=109).

Two general items examined perceived impacts of inaccuracies of Predictive Services information. The first was "Inaccurate Predictive Services information would decrease my ability to predict fire behavior." Rated on a 1 to 5 scale, where 1=strongly disagree and 5 was strongly agree, the average was 3.1 (*M*, sd=1.2, *n*=96; *Figure F3-23*). About one-fourth did not answer this item (28.1% selected 'don't know', and 9.2% did not select any answer). The second was "Inaccurate Predictive Services information used in my decision making may adversely impact firefighter or public safety." Again, the average was at the mid-range of the scale (*M*=3.4, sd=1.2, *n*=99; *Figure F3-23*). About one-third also failed to indicate degree of agreement or disagreement with this item (24.8% marked 'don't know' and 10.5% did not select any answer).
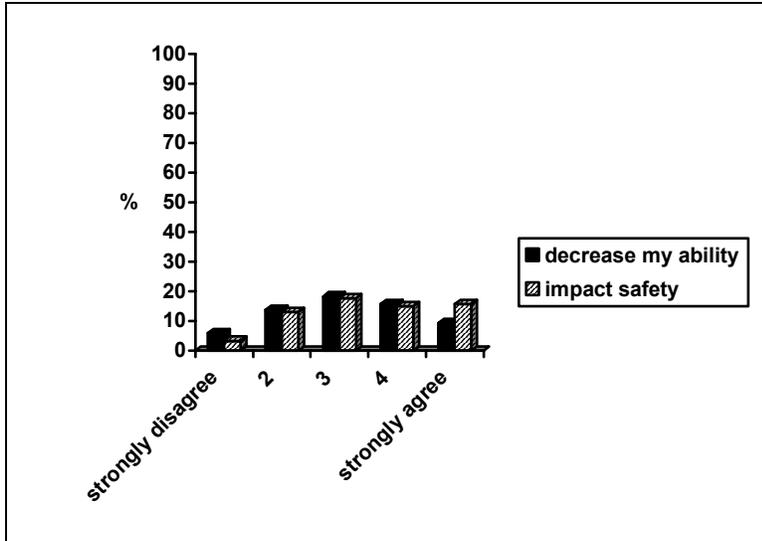
Figure F3-23. Impacts of inaccurate reporting of Predictive Services information—federal NWS meteorologists.

Barriers to use of products and services—There were various reasons why respondents did NOT use the products and services offered by Predictive Services, although no one overwhelming reason or set of reasons emerged among the 16 offered as potential barriers (*table F3-5*). The most frequent reason provided was not having thought about using the products and services. A lack of trust was not frequently cited.

Table F3-5. Reasons why they had not used the products and services offered by Predictive Services—federal NWS meteorologists.

Reason	Percent
I never thought about it.	25.5
My current management practices don't require the types of information provided by Predictive Services	15.7
I don't know how to use these products	7.2
I need information that is site specific	9.2
I am not mandated to use these products	17.0
I don't have the time to use these products	7.8
I don't know where to get advice about using these products	4.6
I don't know where to get the technology to use these products	4.6
I don't have the technology I need to use these products	.7
I don't trust the products and services	3.3
I don't want to use these products	5.2
I don't think these products support my agency's current practices	7.2
Agency directives/guidelines instruct me to use other information	2.6
I don't have the money to use these products	.7
I don't trust the advice I get about using these products	1.3
I don't trust information that is generated by multiple agencies	.7

As a follow-up to the above items, we invited respondents to explain why they might not want to use the products, resulting in the following comments:

Some products are available from my agency.

These answers may seem like I am bashing PS. Believe their work is good when they stick to fuels and fire danger. They have shown little skill in longer term outlooks and they do not verify many of their products.

Most of my forecasting is very local, so I very rarely reference input, other than model data, from outside.

I do think some of these products would be useful to WFO forecasters. I didn't know about many of these products and services. I have repeatedly asked the Northern Rockies GACC Meteorologist(s) to provide us information on what they are doing, and to take the time to visit with the forecasters with the WFO's in the area they serve. Give the staff a presentation of what they are doing and what information is available. We have one way communication, they called us a total of 4 times in 4 years! For the first two years, we didn't have a phone number or email to contact the person.

Its not that they are good or bad. I just do not need them for my job. Although I do look at some stuff just out of curiosity.

I get the information from other sources (or in my case I generate the information that Predictive Services is promoting).

Need to know more about product offered. I would like high resolution satellite imagery.

Many of the products are duplication of NWS services. Two federal agencies should not be duplicating each other.

The trust is not there because the products and services have not met scientific scrutiny. Just because NICC says they are good doesn't mean it is so.

A lot of the info is available in other formats in other places, but I will start to revisit their site. You need to advertise your sites more.

This survey is the first I even heard of these products. What are they? How are they available? Online?

Not enough familiarity with the service.

Not applicable - I should not have been asked to complete this survey.

Use other sources.

I am not aware of all services provided by the predictive services unit.

Since the primary responsibility of my agency is forecasting the weather, and our computer system makes all of the needed meteorological data available to me, and my training in meteorology and fire weather at least equal to the gacc meteorologists, I do not rely on their meteorological information. (personal details on career deleted to keep anonymous)

I find plenty of services that predictive services provides useful. However there is no policy in place that I have to use it. Our policy is to use NFDRS to decipher fuel conditions and fire danger.

How can Existing as well as New Products and Services be Improved or Designed?

How fire danger/fire information is used to support decision-making—Respondents were asked to indicate how they use fire danger/fire information to support decisions made regarding fire management. Very few of the respondents used fire danger and fire information to make decisions in decision support about public use restrictions (4.6%), for resource allocation (7.2%), for severity requests (7.8%), and about resource staffing (15.7%).

Respondents were asked to indicate other uses of fire danger/fire information, resulting in the following comments:

Fire Weather Decisions
Weather Forecasts decisions
in watch warning decision making process

fire weather decisions
Issuance of Red Flag Warnings
Red Flag issuance decisions (4 respondents)
fire weather forecasting/red flag decisions
Whether the NWS puts out a Fire Weather watch or red flag warning which is NOT an predictive service product
use fuel info for Red Flags
provides valuable input into Red Flag warning decisions
To determine if contact will be needed with the different forestry agencies in Southern Louisiana and Southeast Texas.
Issuing Red Flag Warnings (6 respondents)
whether to issue an RFW or Fire Danger Statement
Assist in the making of a Spot Forecast
issuance of Red Flag/Fire Weather Watches and Warnings (4 respondents)
Reporting to NWS and NOAA management
fulfilling requests for information
meteorological forecasting
outlooks occasionally used to brief staff or fire weather customers
forecasts
Situational Awareness for Fire Wx Forecasts
Decisions on issuing Red Flags
guidance for spot forecast requests
Issuance of hazardous weather outlooks and press briefings
fire weather forecasts
fuels information is used to determine the course of action taken by my office in issuing red flag warnings.
Fire Weather Forecasts
Fuels and fire danger potential.

Tolerance for errors and inaccuracies—Respondents were asked to rate their tolerance for false alarms and inaccurate reporting (rated on a scale from 1 to 5, where 1=low tolerance and 5=high tolerance). While respondents did not indicate a high tolerance for false alarms or inaccurate reporting, they were somewhat more tolerant of false alarms pertaining to fire danger (M=3.0, sd=.9, n=142; *Figure F3-24;* 7.2% did not answer), than they were of inaccurate reporting of high fire potential (M=2.7, sd=.9, n=143; *Figure F3-24;* 6.5% did not answer).
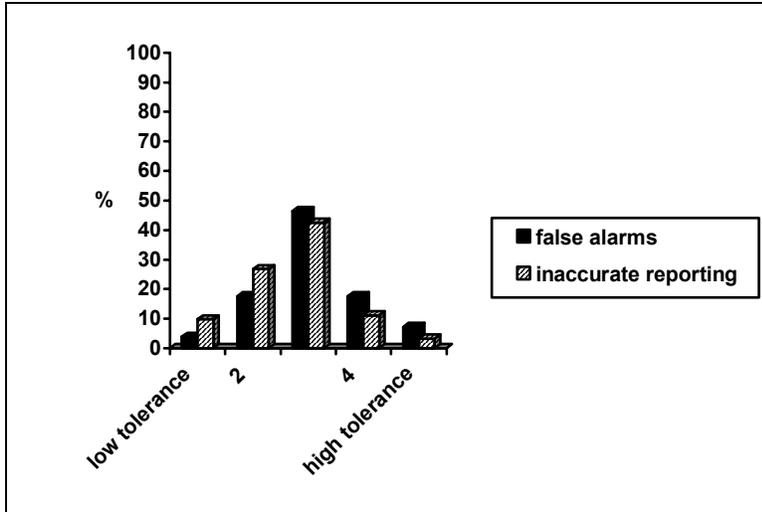
Figure F3-24. Tolerance for false alarms and inaccurate reporting—federal MWS meteorologists.

In order to capture overall preferences for approaches to errors ("Although it is understood that accurate and reliable reporting of fire danger and high fire potential are desirable, margins of error are involved in predictions. In these cases, do you prefer that…"), respondents chose between two statements:

"Statements of danger or risk be issued with a greater margin of error allowing for an early response, knowing that this may lead to unnecessary alarms and response (Better safe than sorry)" —67.3 percent chose this statement as their preference.

"Statements of danger or risk should only be given with certainty, knowing that this may allow a few dangerous events to emerge that were not anticipated (Don't cry wolf)." —24.8 percent chose this statement as their preference.

A few (7.8%) did not choose either statement as their preferred approach.

Audience identification— According to the federal NWS meteorologists, the primary audiences for Predictive Services' products should include: local and district fire managers (58.8%), regional and state fire managers (73.9%), national fire managers (58.2%), and to a lesser extent non-fire land managers (27.5%), and the public (11.8%; note that respondents could select multiple audience types, so responses do not sum to 100%).

Respondents were invited to specify other primary audiences, resulting in the following comments:

NOAA, DOD, DHS
FBAN, NIFC, Meteorologists
additional agencies involved in fire/fire weather
whomever wants them.
National Weather Service (10 respondents)
Fire Weather Meteorologist
If not a duplication of another federal agency work.
I think that you have done an outstanding job with the web page.

Forecasters
weather forecasters
LAW ENFORCEMENT OFFICIALS
Meteorologists
not sure the NWS should be considered 'primary'
NOAA
IMETS
NWS Meteorologists (4 respondents)

Preferred information formats—Respondents were asked to indicate their preferences for the style and format of presenting information. For each of 11 formats presented, a rating from 1 to 5 was requested (1=not at all useful, 5=very useful). Based upon the proportion of respondents assigning ratings of 4 or 5 to each format, the formats most to least useful were: information presented in regional or national maps (62.1%), satellite maps (47.1%), web-based ArcIMS maps with user-defined layers and scales (46.4%), data in table form (45.7%), radar maps (41.9%), brief annotations that accompany data presentations (41.8%), bar charts or figures that summarize data (39.3%), brief executive summaries of data (32.1%), data in text form (30.1%), data in spreadsheet form (28.7%), and non-web-based Geo database files (15.7%).

Other styles or formats of information offered by respondents, or comments surrounding this issue, included:

Bringing it all together. GIS, Digital, topography (Google Earth), real time weather, fuels, etc. This is one of those things to shoot for in the future.
Maps are very helpful to develop an overview of the subject.
Weekly phone briefings
LDS starts earlier, ends later, and always includes Canadian data. This system has to be very reliable and NEVER down.

Respondents were also asked to indicate what, if any information they would like to see in summary or synthesis form, resulting in the following comments (for this item the don't know and not applicable responses have been excluded):

Fuel conditions.
Current incidents? What's going on across the region from a fuels, weather, resource, prescribed, wildfire perspective. What Teams are out, what Teams are on order, etc.
More graphics.
Graphic of current fires with acreage and coverage on a topo map, updated daily.
program plans
Current fuel info
Areas of higher fire danger and why is it.
What does above normal fire potential mean? What is 'normal fire potential'?
Daily fuels information.
Summary of what was going on locally and regionally
would need to know more about the info available
Would very much like to see summaries of fires when over (Esmeralda, Wilson Complex, Chance, Sherman, etc, etc).
perhaps a monthly, seasonal, or quarterly summary of fire events by some regional definition and how weather/forecasts impacted operations

Brief synopsis of the fire danger situation...any kind of fires and acres burned...fuel moisture
  measurements.
It's in pretty good shape. I'd have to get back into fire season to give ya specifics.
Information specific for Hawaii.
Short and long term precipitation deficits, one and ten hour fuel deficits, anticipated relative
  humidities and boundary layer winds.
This may already be in summary form...but basically the highlighted areas of greatest fire
  growth potential.
fuels status/fire danger during off-season. In-season synopsis real good for fuels.
daily regional synopsis

Improving existing products and services—Respondents were asked to complete the sentence
"The information and services provided by Predictive Services would be more useful to me if…",
resulting in the following open-ended remarks:

...they focused less on reinventing NOAA products and focused more on the ramification of
  predicted weather on fuels. Also more useful if their products were ensemble and showed
  ranges of possible outcomes and less deterministic.
was linked to the NWS website, perhaps it already is!
I knew what time to expect updates and all useful info (in my mind) was kept to 1 or 2
  webpages. Perhaps an ability to customize a page with only the info you need/want.
all information is coordinated with my forecast staff during a daily briefing.
I didn't already get the information I needed from other forest service and BLM locations.
more one-stop-shopping products were available on their web site, and explanations of
  information on each graphic were available for better understanding.
more detailed to the cwa but understand the geographical constraints.
there was a better connection to NWS planning. I am in headquarters management position
  so I deal with program planning.
It included evaluations on model initialization and performance
I had access to the services provided by predictive services. i.e., websites.
...we knew more about all the products and services offered. There were a few products
  listed that I didn't even know existed.
...the meteorologist took more steps towards outreach. I know that has occurred in other
  GACC's, but not the Northern Rockies. We shouldn't be duplicating products and
  services. That is a waste of time, and the person could be doing other things like meeting
  with the users and partners. I really think this was a good program to start up, but the
  cooperation and coordination are things I had hoped to see and they did not materialize.
  The web site addresses originally given to me (after several requests) no longer even
  work. I think the issue was more with the people than with the overall program. I hope
  that the new replacement (s?) in Missoula will make a greater effort to partner with the
  WFO's and use the phone and email us more often. Our contact information is in the Fire
  Weather Operating Plan. All people listed in the plan should be included in the information
  that is distributed. One of the things that has come up after Hurricane Katrina is 'social
  capital.' That is knowing your stakeholders on a personal and professional level so that
  when things go bad, you have a good relationship in place and in turn have a well planned
  and coordinated response. The NWS and the GACC does not have that, and we need to
  change that.
I needed them.
it was tailored to my (our local organization's) needs.'
web site navigation were simpler, and some of the products had better graphics.
I know more about them, how to use them, and if I am trained appropriately in their use.

They already are useful. Timely, accurate information in an easy to use format is what you
    should strive for. You're already doing a good job there.
Examples of how and what to use the data for were provided. Also, limitations of the data
    should be provided.
they focused more on fire behavior conditions than weather.
it not a duplication of NWS services and geared more toward fuels and fire behavior
it was a little more timely.
...it incorporated more fuel moisture predictions and did not focus on duplicating what NOAA
    or the private sector already do. Predictive Services should be focused on improving fire
    management decisions and not on predicting the weather.
Were issued on a more regular basis. Have in the (sic) went to look for daily products just
    before wildfire season...didn't find any. Then once wildfire season arrived I wasn't in the
    habit of looking at the site.
I had a defined fire weather program. We are only a backup site for an office that has a
    program. It is extremely rare that we will ever need to use any of these services, as we
    currently do not have routine responsibility to provide such forecasts.
I knew more about the sources and assumptions used in creating the products.
I looked at it more often.
It was able to summarize all of the fuel state and fire activity information in one map.
I am not really a user of their services... more of a partner in provision of services.
there wasn't redundant(or sometimes conflicting) information from closely related
    government web sites. Organization of information should be a priority.
it was available on the NWS AWIPS system.
the critical fuels page were current.
The monthly and seasonal outlooks were updated more frequently, and the live fuel
    moisture displayed in a graph format to show the trends.
there was an easier way to access it.
...their mission and specific responsibilities were more clearly defined, and the set of
    responsibilities was consistent among the different GACCs.
I knew more about it. The RAWS data just comes in automatically and goes into our
    system.
Northern Rockies predictive services would do their daily fire behavior forecast through the
    entire growing season, not just July, August and September.
Better update of fuels statue via the web. Red Flag Warning program depends on fuels
    status and weather. The land agencies have trouble keeping NWS up to date on fuels, so
    we can make the meteorological decision for a fire warning.
they had current and timely information that would be of use.
I knew where the information is located.
it was consistently kept up to date and timely.
the information I used was delivered to my email.
they were localized
I could get more timely updates on current fuels information, more frequently than once or
    twice a month.
I was not a meteorologist.
I knew more about them!
our customers provided me with more lead time to issuing a spot forecast.
it was consistent across Regions
I have advanced information on updates.
I had a better understanding of how the information is used. This would help the NWS
    provide Predictive Services with better information to help them service their users.

If it were accurate. Sometimes I get the feeling that the season potential is overdone. The people doing the outlooks need to be more detached so that they can be honest brokers. By being part of the staff, there is two great a possibility for coercion of data in order to justify resources. The NWS is much better able to be an honest broker for potential than predictive services.

if I knew what it was.

I knew more about where they were located and how to use them.

some of the information was explained how it can help me in my job, and how they can be integrated with National Weather Service products to provide users with the best possible information.

they were updated more frequently.

I knew what they were or where they could be found.

it was different from what I have available to me through the system at my work.

...I knew all of the products that were available for me to use. I have received information about some of the products that are available on the Predictive Services web site, but was not aware that such a vast array of products existed. I need to check out the web site again.

...there were a more efficient flow of information through workshops (whether their in-house or through telecomms/internet) and routine coordination meetings. Only so much can be accomplished on a one-hour-per-month Regional Teleconference.

Its about as useful for me as it can be at this time.

Was previously unaware of service

I knew where to find them.

they would keep their web-site up. Otherwise it is extremely useful!!!!

I were given a briefing about what Predictive Services offers.

I knew more about it and was provided informational training on P.S. by my agency.

if I knew more about them.

they really had an idea of the weather and fire problems of our area.

As a NWS employee, I can get the weather forecasts elsewhere. I'm looking for fire status information or fuels information. For these purposes, the current services meet by needs.

I took the time to see what is available.

they were better advertised and more visible to me.

I wasn't already putting out a forecast.

there were more timely and accurate fuels information.

I knew more about them.

..someone would brief me on the services they provide (informational training)

I knew what it was.

I knew what they were and how to use them.

its availability were more widely advertised.

Site specific for the Florida Keys.

it was updated more often...but this is a loaded question.

I was involved in fire resource allocation and not weather forecasting.

the current website was more user friendly and intuitive

there were more consistency from one GACC website to the next, and if there were more graphically-oriented products (e.g., fuels map)

Predictive Services remain proactive in 'advertising' their services on the web.

the information was updated in a more reliable and updated in a timely manner...especially when fuels are changing to critically dry or are becoming moist and are no longer critical. This is the primary input I need to know if issuing a fire weather watch or red flag warning is needed. This information can have a direct impact on how the fire community that uses

my fire weather services judges the services provided by me and other forecasters in my office.

it provided information that I couldn't get from another source.

I accessed it more often. It is very useful and helpful information in my opinion...I just don't access the Predictive Services page that often, because it doesn't directly impact my job that often.

they would provide a weekly fuels assessment during portions of the off-season. Primarily September/October and November during the Fall. February, March, April...sometimes May during the Spring. This would especially be useful for forecasters that don't have fuels knowledge and need to decide whether to issue a Red Flag Warning/Fire Weather Watch. Many times...they formulate the weather and fuels decision at 3 to 6 am in the morning before any land agency managers are working. Especially during the off-season. As far as the spatial scale...perhaps by PSA and/or NWS fire weather zone. Having differences in zones sometimes provides a problem.

I had more time to learn about them. I am trying.

I was more knowledgeable about what they offered and if the same information was in the same spot at each GACC PS web site

a link was provided on how to receive it

Respondents were also asked to consider the existing products and services, and comment on how they could be modified to better meet their needs, leading to the following comments (answers of don't know or no comment have been excluded):

1) Integrate NOAA Weather with your fuels. Give the big picture...how will the current forecast effect fuel conditions in the future? 2) Use ensemble forecasts from NOAA to do ensemble fuels forecasts. Give ranges of possibilities instead of a deterministic forecast...especially in the longer time periods.

In the digital world, new and updated data is key. Especially when new incidents are happening. Data needs to be updated rapidly. The 7 day fire potential is a great product (best)?

The products are good the way they are.

consistency is a key. Using two different GACCs and having widely diverse formats and service makes life difficult.

I do not have a clear understanding if they are needed or not.

Routine updates of live fuel moisture on their web site would be beneficial for forecast services.

more detail to cwa

Better use of NWS Digital Data

The fuels information you provide is critical to us. Any way to streamline/simplify would be useful.

I am not familiar with them. I require particular training in these subjects.

As mentioned before, uses and limitations of the data should be provided.

Stay better informed on local district and forest issues related to weather.

More fuels and fire behavior and no duplication of services by other federal agency. Too much confusion and not effective use of federal funds.

I would like to see more timely reports of fires (IA - 'Burning bits') on the EGB web site and also a more timely reporting of the fuel conditions. I still rely on what the agency is telling me on a phone call than what is on their page.

More frequent updates to the assessments are needed since the assessments are usually wrong.

The current products meet our needs well.

More support for Alaska and OCONUS in general

Better summarizing of fire behavior and fuels information into one daily document. similar to the way avalanche information is provided.

Graph Live Fuel Moisture like dead fuel moisture (100 and 1000 hours).

Establish consistency in requirements from GACCs.

Given the limited need and training I have at this time, I cannot offer any suggestions.

Better consistency of fuels updates. Make it mandatory that each district keeps their fuel status up to date and posted.

they could have similar websites so everyone across the country knew where to go on the page.

The ones I use are just fine.

Be accurate

Unknown what products exist now.

Fine as is.

More geographically-specific information in the products; the Eastern GACC covers a LARGE area.

increased communication is always helpful but everyone is limited on human resources

Keep them timely and up-to-date.

unfamiliar with most products

The Predictive Service Areas were developed independently from the NWS. Consequently the main fuels monitoring is done on a different scale than the NWS's fire weather zones. This makes it tough to issue Red Flags by zone.

better fuels info.

They meet my needs.

I think that a local or Regional approach is best. We know our area.

NWS currently provides spot forecasts for day to day planning of prescribed burning. Fire Managers need longer range forecasts to help them plan for potential burning opportunities. For example, If I am a regional fire manager and have 10 burns that need to be completed, and all 10 burns are located in 10 different geographic areas, what is the probability that I will be to pull off any give burn 2, 5,10 days from now. In other words, I have resources to complete only one of the 10 burns, and based on the forecast weather conditions, which burn is most favorable for completion.

Website needs to be improved so a person can find what they need quickly.

I have been very pleased with the products I have used. They have been very helpful.

Arduous without RAWS data.

Things will always change to due technology and new user ideas, but I feel that the services are fine now.

archived database of FWI maps

More consistency from GACC to GACC

have products specifically for National Weather Service personnel.

For my uses...I have not yet seen an area where they could be improved drastically.

Besides being more consistent across GACCs...I don't have any big modifications that I can think of now.

No changes needed

Products or services that should be added to what Predictive Services provides—Respondents were asked to explain which products and services should be added to Predictive Services and why, resulting in the following comments:

More fuel maps and fuels forecasts.

There must be something, although I cant think off the top of my head. Make it one stop shopping for fire info.

I don't want to see duplicated products between the NWS and the GACC. I also don't think that the GACC forecasts should be briefed to the general public (land management and fire agencies, no problem). That is a NWS role, and to have another agency doing this could lead to conflicts and confusion. Focus efforts on areas that are not currently being done...especially with fuel modeling and ERC's. Those are really important in red flag decision making. As another service...hit the road and have some windshield time. Go to your state and federal land management offices, go to the NWS offices, visit with volunteer fire departments. I have gone to several state and federal level fire offices (BIA especially) and no one knows about predictive services. Or they are confused about what you are doing. We are always hearing about VFD's or the BIA trying to hold a S-290 course. You should be one of their resources for that.

More timely and reliable live fuel moistures...and more field reports of them.

More fuels information which is updated

Critical fuel moisture predictions in the 2-10 day period.

Daily fire activity report which would include detailed fire behavior on prescribed/initial attack and project fires

More correlation information comparing existing climate and drought conditions to historical fire season records.

Am not familiar at this time to give a valid answer.

Ventilation and dispersal forecasts for smoke management applications.

I would like to see a days since wetting or significant rain product similar to what the southern GACC provides be included on the Northern Rockies GACC web site.

links to the NWS

Unknown what products are currently available.

Not sure, most of the service we need is perceived as non-routine

I haven't thought of any. Canadian Indices are most useful up here.

Need higher resolution maps for KBDI and Fire Danger. Current national maps are very crude. Not enough NFDRS stations. Need to use other meso-networks (ASOS, COOP, IFLOWs, etc.) and make better use of computing ability to generate regional KBDI and Fire Danger Maps.

I need to monitor these products more carefully in real time before providing an intelligent response.

lightening activity potential for AK

All Gaccs should provide the fuels status maps to support the issuance of red flag warnings.

Already mentioned...fuels status/fire danger during portions of the off-season period.

smoke management information daily fire danger zoomable maps

Were There Additional Comments?

As is customary in such surveys, we invited respondents to offer any comments about Predictive Services, or any comments about the survey, resulting in the following remarks:

Be the one stop shopping for integrating ALL fire services. Weather, fuels, resource, etc.

I appreciate their support with assessing red flag situations and providing fuels guidance to forecasters.

Predictive Services is great, great staff and we look forward to better synergy with NWS digital products

Thanks for the products you do create! I think you could probably get out to meet your customers more and advertise all the products you do have available to use. I'm sure we would use more products for reference and decision making if we knew they existed.

I don't want to sound critical without being constructive. I really think the communications need to be improved. Email is the best way to reach a large amount of people, and in 4 years of having a predictive services in the northern Rockies, there has been no email received at our office. I realized the first year was really a spin up period and trying to define the roles, products and services. Those things should have been taken to the partners and end users, and that hasn't been done. I have a friend at the RMCC who did a lot of traveling the first year and went to many NWS offices as well as rural fire depts and government agencies. He made use of those contacts he had in the past to try and develop a relationship. That wasn't really done well in the NRCC. Let's have the NWS and GACC predictive services work together and complement each other instead of feeling as though we are in competition with one another. I think we both have a critical role to play in the fire weather community.

The initial question I did not answer here was because it did not specify if I use some or all of their products. Some we use and some we don't, but I couldn't answer the way the question was posed. Personally I think predictive services is an invaluable member of the interagency wildfire fighting team. Being from NOAA NWS, we rely on them for the fuels information for issuing Red Flag Warnings. Sometimes that info is a little difficult to track down.

I need to know more about predictive services products to see how to apply those in my work.

Survey took longer than expected to complete.

The Red flag warning program is a NWS function NOT and PS function. I feel in the last few years the NW GACC has been putting out awesome products and its a joy to work with those folks.

The questions were a bit difficult to answer for someone who is not directly part of a land management agency, i.e. the National Weather Service.

Much of the information asked about in the survey is provided by other agencies (as the source agencies). It seems important that sources of information be properly identified to avoid redundancy of effort.

The survey was more specific to users in the field then and those that use predictive services. Thus, there were some questions that I couldn't answer.

Predictive Services are a duplication of services within the government. A service provided by the weather service already. This duplication wastes taxpayers money, just like unnecessary pork in congress does.

I would like to see continued effort to strengthen the relationship between the National Weather Service and Predictive Services, not only from the Regional levels, but also at the National level. Let's reduce duplication of weather prediction services as much as possible, and build a more complimentary relationship.

thanks for asking - this survey should provide valuable data for the OFCM Joint Action Group!

Good services. Would like more regular and routine communication between GACC and NWS. GACC forecasters offer very, very useful forecast information that can aid in NWS forecasts.

I puzzled as to why I was asked to take a survey on something I never even knew existed.

Predictive services provide valuable training and guidance for a NWS fire weather program that is a constant work in progress

I hope I answered relevantly/correctly on all that applied to me as a fire weather forecaster. At our office...we get all of our meteorological forecast products through our own

database/suite of products. Basically, I use your observations/fire danger forecasts/Incident Reports to apply situational awareness in our forecasts to the fire weather community.

It seems like the questions did not match the 'hat' I was requested to select.

I think it can be a solid program once folks define and are comfortable with the roles. There should not be overlap with NWS services.

Research! Would like to see some links to research, works in progress, studies about Fire Weather, Fire Behavior, Fire Danger and other fire related science. A link to pictures from the latest incidents are also nice. These can be incorporated in power point presentations for training purposes. Residence course training opportunities are listed on the GACC web pages, but it would also be nice to add links to web based training or self study courses that are also available.

This survey was really geared towards users, and in the NWS, it has been my impression that we are more contributors to the data on the websites than users. We are already aware of the fire weather situation in our area, though some of the drought reports are useful. The situation reports were not really applicable, since the office I was at previously (location removed) had very little in the way of fire weather.

Initially there was a highly antagonistic relationship between the GACC mets and the NWS. This relationship played a large part in my deciding to give up being the fire weather program leader in my office and to give up being an IMET. Since I have had less communication with the GACC mets over the past 18 months, I cannot directly assess the nature of this working relationship. I would say it is improving though from other feedback I have received. I believe there is a strong need for meteorologists in GACCS as I have had IMET assignments to provide this type of services before there were GACC mets. I do not think the function of the GACC mets should be in direct competition to the forecasting services provided by the NWS, and there is a strong need for a good working relationship which shows a higher level of respect for the effort given by the NWS to provide services to the fire, and emergency response community.

I think that the Predictive Services for my area does a very satisfactory job. I honestly have not utilized the data enough to comment with thorough knowledge on this subject though.

Appendix F4: Incident Management Team Members—Federal Respondents

Federal incident management team members were grouped into one category (*n*=79). These respondents came from the Forest Service (62.0%), Bureau of Land Management (16.5%), National Park Service (10.1%), Fish and Wildlife Service (6.3%), Bureau of Indian Affairs (3.8%), and NOAA (1.3%).

Who Were the Incident Management Team Members?

The majority was male (70.9%), mostly between 45 to 54 years old (*Figure F4-1*).
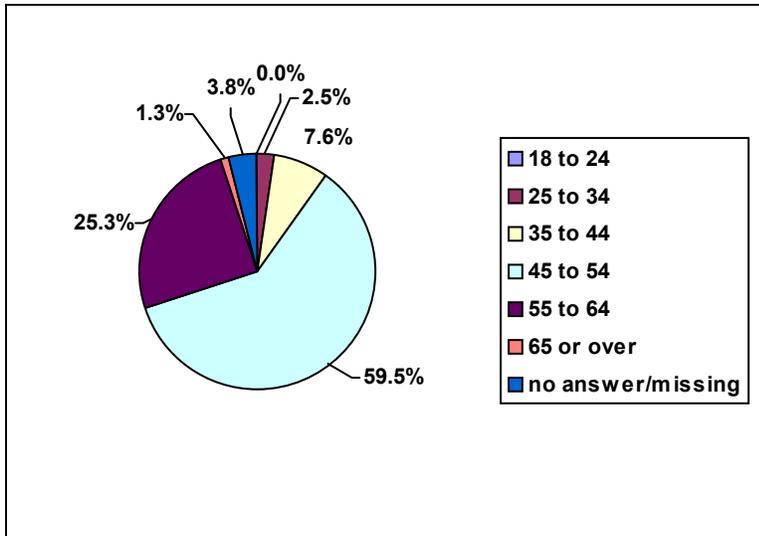
Figure F4-1. Age—federal incident management team members.

Educational background / degree or equivalent—Educational attainment was fairly high among the majority in this subgroup, with the majority reporting a bachelor's degree or higher education (*Figure F4-2*).
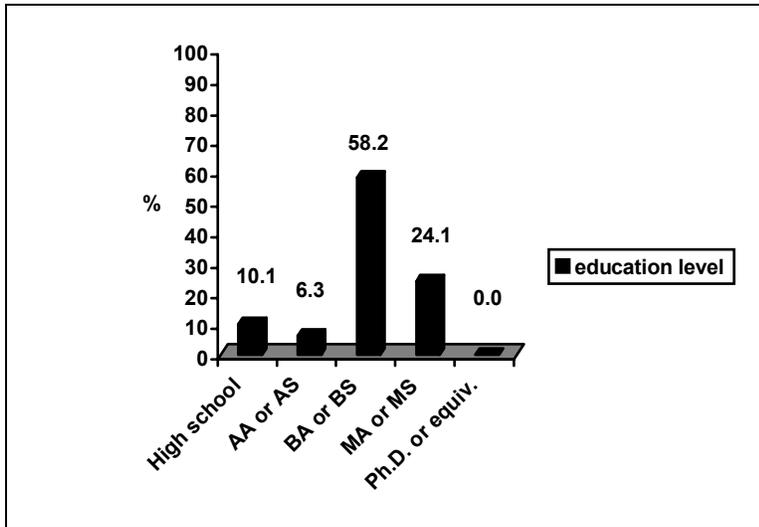
Figure F4-2. Educational attainment—federal incident management team members.

Respondents reported degrees in the following subjects (these are on an individual basis so when lines contain multiple subjects they reflect an individual's response):

Agriculture (2 respondents)
Atmospheric science
Biology
Business
Education
Environmental assessment and policy
Environmental education
Fisheries and wildlife
Forest and range ecology
Forest and range management (3 respondents)
Forest management (8 respondents)
Forest management, outdoor recreation planning (2 respondents)
Forest science (2 respondents)
Forest sivilculture
Forestry (7respondents)
Forestry management and international studies
Geography
Human ecology
International relations
Landscape architecture
Liberal arts
Natural resource conservation-fire emphasis, geography/history
Natural resources
Political science (2 respondents)
Psychology
Public administration
Recreation and park management
Recreation/wilderness planning and management

Renewable resources
Science (2 respondents)
Social sciences
Watershed management/forestry
Wildland recreation
Wildlife ecology
Wildlife management

Home office Geographic Area location—Respondents came from across the United States, with their home offices falling within the various Geographic Areas (GAs) shown below *(Figure F4-3)*.
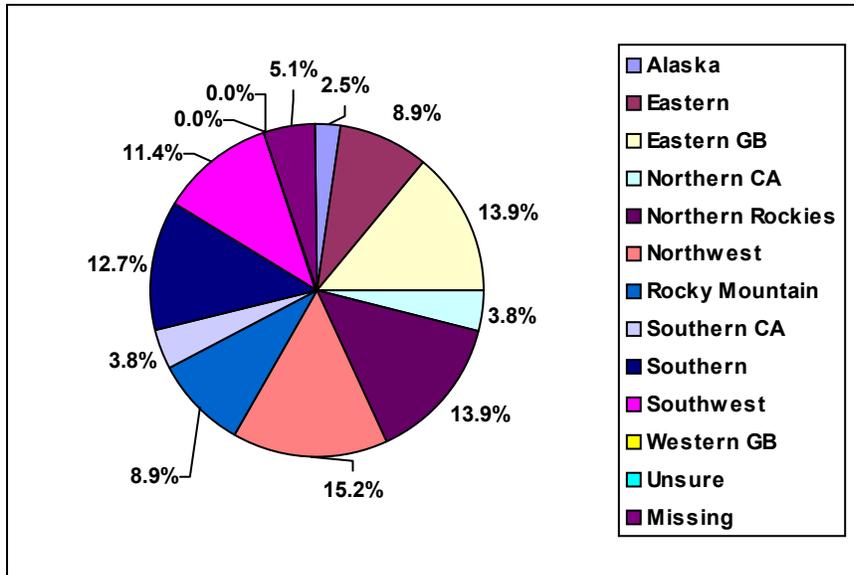
Figure F4-3. GAs—federal incident management team members.

Level of geographic responsibility and scope of duties—Respondents' level of geographic responsibility varied. About one-fifth reported their duties linked to their local unit (including forest, district, reserve, etc. at 20.3%). Responsibilities for another fourth were at the national (27.8%), regional (20.3%), national and international (2.5%), or incident specific (29.1%) level.

The majority of respondents (78.5%) indicated that their work was specific to multiple agencies, while some (21.5%) had duties specific to their agency only.

The number of years reported in the current position of employment averaged 12.7 years (sd=9.1, *n*=53). Median responses for number of people supervised included one on a routine basis, zero on a seasonal basis, and five on an incident/project basis.

Over one-half of the federal incident management team members (58.2%) had job responsibilities that included gathering and reporting data that is utilized by Predictive Services such as: situation reports, ICS-209s, NFDRS/WIMS, etc. Among the respondents with data gathering and reporting duties (*n*=46), the duties were assigned as part of a group that fulfills that responsibility (37%), or as one of their primary responsibilities (34.8%). About one-fourth had data gathering and reporting duties when others with this routine responsibility were away from the office (23.9%).

What are their Levels of Experience with Predictive Services?

Frequency of access and information acquisition—The frequency of accessing and obtaining information from Predictive Services was examined under two conditions, during fire season and outside of fire season. Frequency of access was greatest during fire season (*table F4-1*).

Table F4-1. Frequency of accessing and obtaining information from Predictive Services—federal incident management team members.

Frequency	During Fire Season %	Outside Fire Season %
Daily	40.5	3.8
Weekly	25.3	20.3
Monthly	2.5	20.3
Quarterly	2.5	5.1
Rarely	12.7	26.6
Not at all	16.5	24.1

Specific circumstances for access/acquisition—In addition to frequency, respondents provided information regarding specific situations when they access or obtain information from Predictive Services. Nearly two-thirds reported accessing Predictive Services during fire season (65.8%), and during a fire incident (65.8%). Other situations were reported including when a prescribed burn is being planned (26.6%) and when a prescribed burn is taking place (25.3%). About one-fifth indicated none of the above situations applied to them (19.0%).

Respondents listed additional situations when they access/obtain information from Predictive Services including:

    search and rescue operations, routine aviation operations
    All Risk Incidents
    I don't....other people I supervise access the info.
    When a tropical depression, storm, or hurricane threatens.
    Tropical Cyclones approaching landfall
    training
    When traveling

Use of specific websites and services—Respondents were asked to indicate which Predictive Services websites they had visited/which GACC services they had used, revealing that a majority had been to/used the National Interagency Coordination Center (NICC–65.8%). The Geographic Area Coordination Center sites from most to least mentioned were Northern Rockies (39.2%), Southwest (30.4%), Eastern Great Basin (26.6%), Southern (24.1%), Northwest (24.1%), Western Great Basin (24.1%), Rocky Mountain (22.8%), Alaska (16.5%), Northern California (15.2%), Southern California (12.7%), and the Eastern site (12.7%; responses do not sum to 100% because respondents could select multiple sites). Nearly one-half had visited one or two sites, while others reported multiple sites (as many as all 12). A few (5.1%) were not sure which if any sites they had visited, while six (7.6%) indicated they had not visited any of the listed sites/used any of the GACC services.

Familiarity with the products and services—Federal incident management team members were asked to indicate how true or untrue the following statement was "I am unfamiliar with Predictive

Services products and services." About one-fourth indicated this statement was true (*Figure F4-4,* 24.1% selected a rating of 4, or 5, where 5=very true).
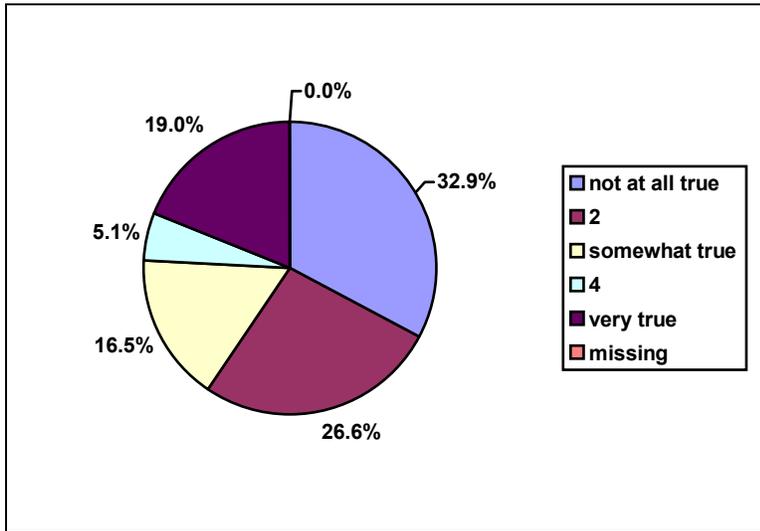
Figure F4-4. Unfamiliar with Predictive Services products and services—federal incident management team members

The majority of respondents were interested in Predictive Services products and services (*Figure F4-5*, 58.2% selected a 4 or 5, where 5=very true in response to "I am interested…; another 27.8% marked 'somewhat true').
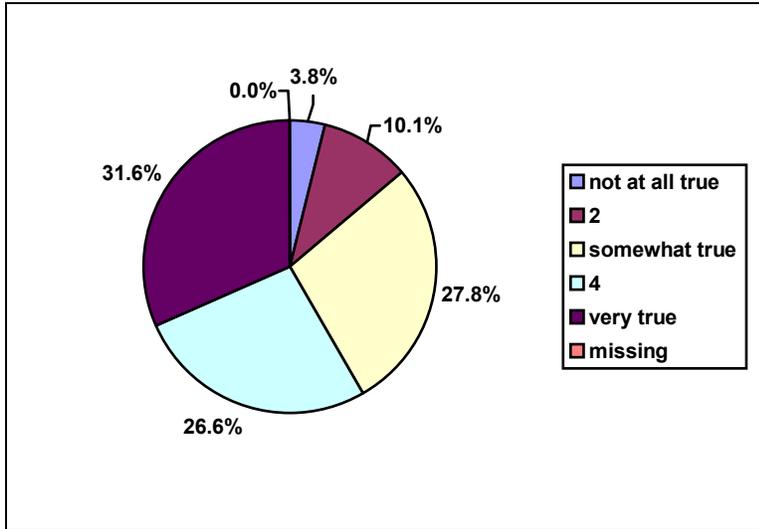
Figure F4-5. Interest in Predictive Services products and services—federal incident management team members.

Respondents were asked their familiarity with Predictive Services' products on the web, the briefings, and the emails**.** They were more familiar with the web products (*Figure F4-6*, M=2.9, sd=1.3, n=78), and the briefings (i.e., national, geographic, situational, or meteorological, M=3.1, sd=1.4, n=78), than with the emails (these contain current projections and/or information about Predictive Services, M=2.3, sd=1.3, n=77).
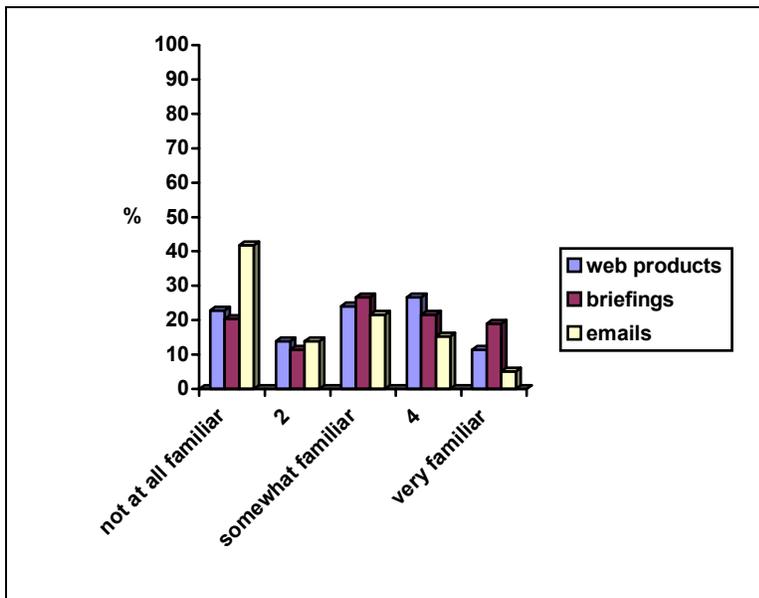
Figure F4-6. Familiarity with Predictive Services products on the web, briefings, and emails— federal incident management team members.

What are their Opinions of the Products and Services?

Ratings of Predictive Services information—Respondents tended to agree that Predictive Services information was accessible (*M*=3.7, sd= .9, *n*=62, *Figure F4-7*, 19.0% marked 'don't know').
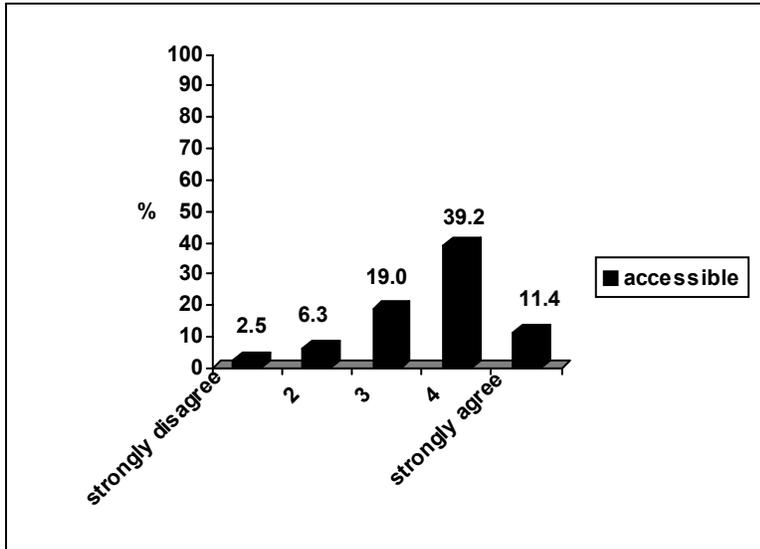
Figure F4-7. Ratings of accessibility of Predictive Services information—federal incident management team members

While a majority agreed that Predictive Services information was timely, about one-fourth disagreed with this as an attribute (*M*=3.6, sd=1.6, *n*=71, *Figure F4-8*, 7.6% marked 'don't know').
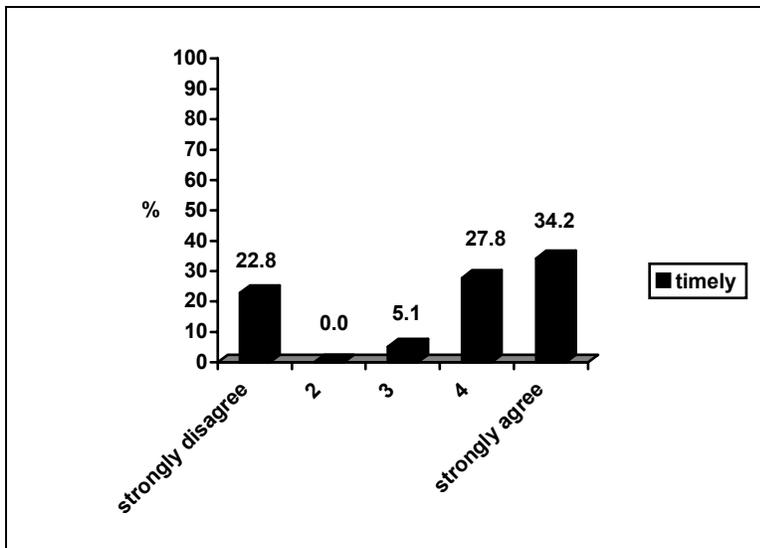
Figure F4-8. Ratings of timeliness of Predictive Services information—federal incident management team members.

A majority agreed that Predictive Services information was relevant (*M*=3.5, sd=1.6, *n*=64, *Figure F4-9*, 15.2% marked 'don't know').
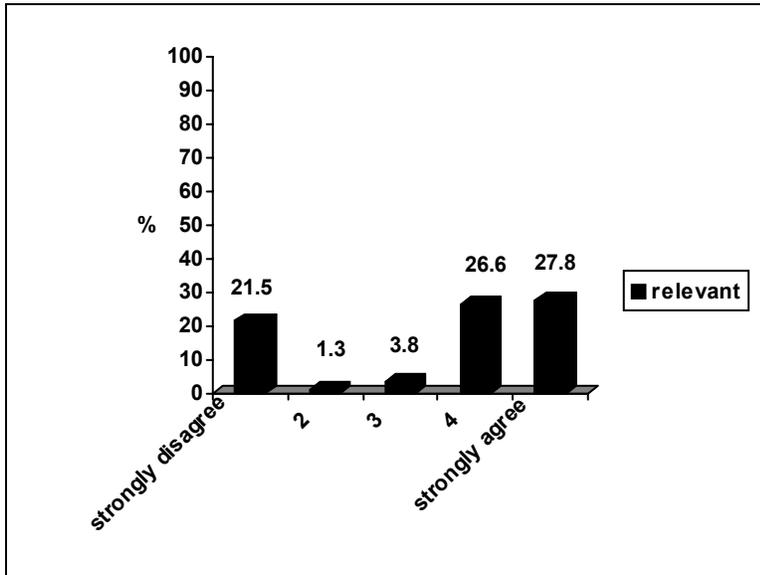
Figure F4-9. Ratings of relevance of Predictive Services information—federal incident management team members.

More than one-half agreed that Predictive Services information was accurate (*M*=3.4, sd=1.6, *n*=69, *Figure F4-10*, 10.1% marked 'don't know').
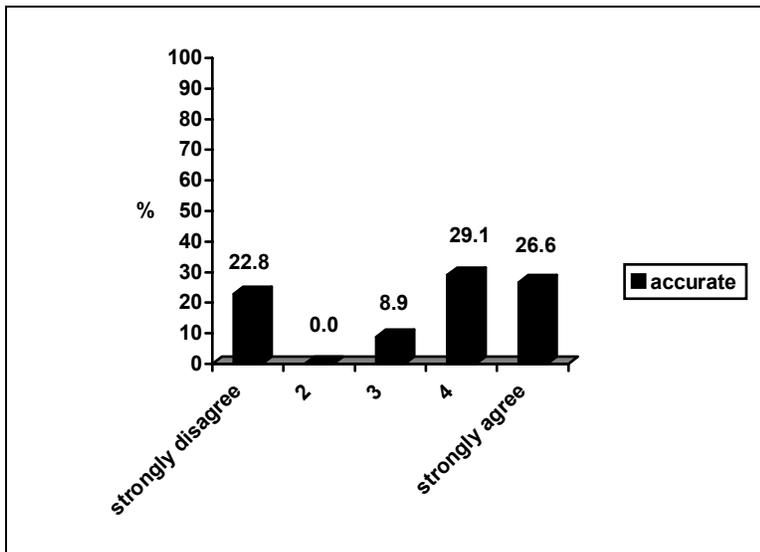
Figure F4-10. Ratings of accuracy of Predictive Services information—federal incident management team members.

A majority also agreed that Predictive Services information was complete (*M*=3.5, sd=1.6, *n*=69, *Figure F4-11*, 8.9% marked 'don't know').
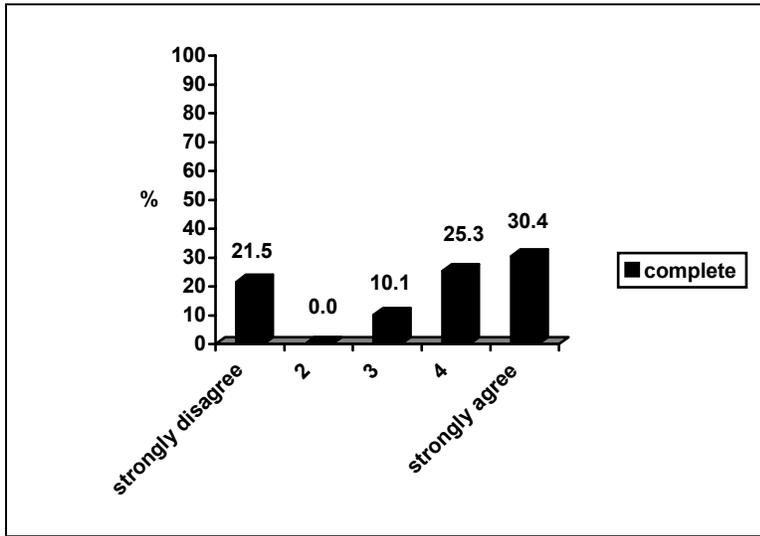
Figure F4-11. Ratings of completeness of Predictive Services information—federal incident management team members.

A majority agreed that Predictive Services information was easy to understand (*M*=3.5, sd=1.5, *n*=67, *Figure F4-12*, 12.7% marked 'don't know').
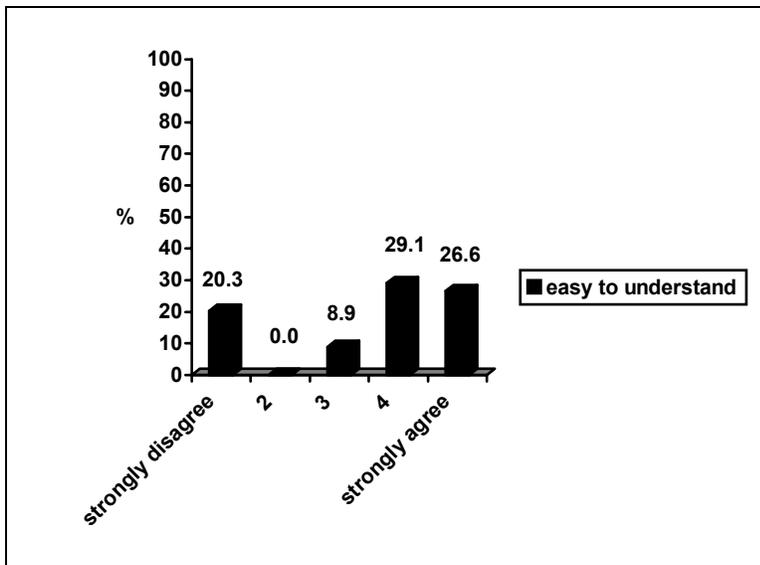
Figure F4-12. Ratings of ease of understanding of Predictive Services information—federal incident management team members.

Similarity and importance of similarity of GACC sites—Federal incident management team members rated how true the following statement was "The Predictive Services products and services available through the GACCs (you selected – based on which GACCs they had been to) are similar in format, quality, and the range of products and services offered. One-third perceived the products and services as similar (*Figure F4-13*).
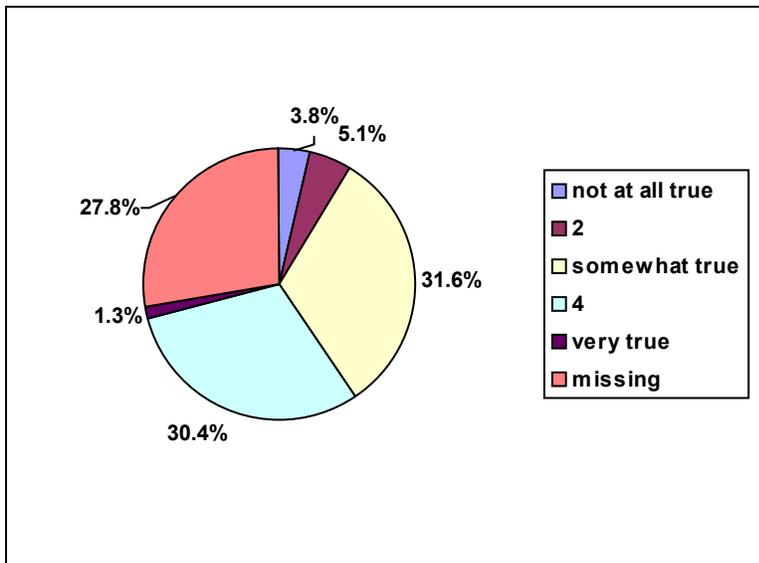
Figure F4-13. Products and services available through the GACCs you selected are similar—federal incident management team members.

Respondents were invited to comment on their responses regarding similarity across GACCs. Comments included these:

Not all are created equal. Some have FBA's others not. Some have individuals with great experience, others are lacking. Some GACCs use the data and other don not. People are people!

totally different format, at least last year...

The content of Predictive Service products is excellent and very helpful to assess many levels of detail, from the incident level to regional and national level.

The format for all the GACC's is very similar. There are features in some that I think all GACC's should adopt.

Eastern Areas tend to have larger regional trend data and not as specific as western forests.

All of the products that I have accessed are quality products no matter what GACC the product was from.

can always find what I need when needed.

Most of the GACC Predictive Service product are similar enough to navigate to find the desired information.

They seem to be for the most part true, i.e. each GACC knows their particular area and the application of Wx parameters therein

Some GACC'S have easier links and some GACC's especially under BLM primary go off line more readily. The easiest GACC is Southern California at present

There are appropriate differences between national and regional

Fire behavior predictions, drought indices etc. seem to meet my needs, both at the nat'l level and as an incident commander, though not identical in format.

Can't remember exact similarities but must be similar because I've always found what I wanted.

with the closing of the BLM sites, access has been difficult for me

I have been able to access the information needed in all the GACC's noted.

I work in various dispatch offices as well as on IMT's in the summer, so I have occasion to
  move around and look at the different sites. Standardization is a good thing as far as
  where different categories of things are located on these sites, so that I don't have to
  figure it out all over again when I go from the Great Basin to the Southwest, for example.
Some are easier to navigate than others. Alaska is very complete and easy to navigate.
The format has been standardized, but individual managers and preparers of that info
  varies...
Sites have different information. It is difficult to go from one site to the other and find the
  same information in the same location. Some sites are organized better than others.
They seem to have unique web content pages and format
They are now

While one-tenth indicated that similarity of Predictive Services' products and services in format
and quality across GACCs was unimportant (10.1% assigned a 1=not at all important, or a 2),
about one-fourth indicated that it was somewhat important (24.1%), and a majority indicated that
it was important (63.3% assigned a 4 or 5=very important; 2.5%, did not answer this item).

Satisfaction with Predictive Services contacts—About one-tenth of respondents (12.7%) had
contacted Predictive Services to report a problem with a product or service. Nearly three-fourths
of these (70.0%) selected a 4 or 5 on the scale indicating they were responsive (scale was 1 to
5, 1=not at all responsive, 5=very responsive). Seven respondents (8.9%) had contacted
Predictive Services to suggest a new product or service. Using the same responsiveness scale
as for reporting a problem, the majority (71.5%) rated Predictive Services as responsive to their
suggestion.

Use and utility of products and services—Products and services available through Predictive
Services were examined. The 39 specific listings included some products and services that are
generated elsewhere, or that are available only on some sites, but not all. Respondents were
asked first to indicate if they had not used each product, and then for those that they had used,
to rate each according to its usefulness to them on a scale from 1 to 5, where 1=not at all useful
and 5=very useful.

The first set of product ratings (*table F4-2*) are those that are shown on Predictive Services
sites, but are produced through other agencies.

Table F4-2. Use and utility of Predictive Services products and services provided by other agencies/groups—federal incident management team members.

Product or Service	% Not Used	Usefulness M	SD, N
National fire weather outlook	13.9	3.70	1.1; 66
Red flag warnings	15.2	4.41	.9; 66
Drought information	16.5	3.88	1.0; 64
Haines index	21.5	4.07	1.1; 60
7-day precipitation maps	27.8	3.92	.9; 53
7 and 14-day precipitation percent of normal	26.6	3.53	1.2; 53
12-hour forecast maps	25.3	4.14	.8; 56
MODIS active fire maps	27.8	3.58	1.0; 52
7 and 14-day average maximum temperature departure from normal	27.8	3.47	1.1; 51
7-day average maximum temperature maps	29.1	3.63	1.1; 51
Wind maps	36.7	3.91	.8; 44
Observed fire danger images	48.1	3.78	.9; 37
ROMAN real time fire weather and information report	54.4	3.84	1.2; 31
Upper air soundings	68.4	2.87	1.0; 23

A set of products and services is produced by Predictive Services and is available on a limited scale (*table F4-3,* less than national, typically on a local and regional level). These products and services are offered on a limited scale to meet specific regional needs and interests.

Table F4-3. Use and utility of Predictive Services products and services provided by Predictive Services on a limited scale—federal incident management team members.

Product or Service	% Not Used	Usefulness M	SD, N
Interagency situation reports	13.9	4.16	1.0; 67
Daily fire weather/danger outlook	13.9	4.24	.8; 66
Prescribed fire reports	50.6	3.30	.9; 37
Smoke program reports	50.6	3.23	1.1; 35
Online briefings	45.6	3.56	1.0; 41

This last set of products is available on a national scale and is created by Predictive Services, sometimes in collaboration with other entities (*table F4-4).*

Table F4-4. Use and utility of Predictive Services products and services provided by Predictive Services on a national scale—federal incident management team members.

Product or Service	% Not Used	% With 4 or 5 Rating[1]	Usefulness M	SD, N
Incident Management Situation Reports	15.2	93.6	4.49	.7; 63
Weekly fire weather/danger outlook	16.5	69.8	3.97	.9; 63
Seasonal fire weather/danger outlook	15.2	39.7	3.17	1.1; 63
Monthly fire weather/danger outlook	22.8	44.7	3.30	1.1; 56
10-day fire weather/danger outlook	21.5	56.9	3.69	1.1; 58
Live fuel moisture	24.1	80.7	4.16	.8; 57
Dead fuel moisture	25.3	76.3	4.11	1.0; 55
7-day large fire potential	21.5	57.9	3.81	1.0; 57
Fire news and notes	32.9	51.9	3.60	1.0; 52
ERC and fuels charts	26.6	72.7	4.02	1.0; 55
Links to other services/websites	31.6	48.1	3.54	.9; 52
Multi-season fire weather maps	26.6	33.3	3.06	1.2; 54
Interagency RAWS program	40.5	66.7	4.07	1.0; 45
Reference links	41.8	50.0	3.55	1.0; 44
Training	50.6	48.6	3.43	1.0; 37
State of the fuels program	65.8	12.5	2.67	.9; 24
Technological guidance and transfer	62.0	42.8	3.32	.9; 28
Predictive service forms	55.7	33.4	3.27	1.0; 33
Regional monsoon update	58.2	41.9	3.26	1.2; 31

[1] This column considers only those who rated the product and is not based on all federal incident management team members.

Overall satisfaction—Responses indicate that Predictive Services had neither met nor failed to meet most expectations (M=3.4, sd= .8, n=69, *Figure F4-14*), and respondents were somewhat satisfied (the majority marked 4 or 5 on the scale, M=3.6, sd= .9, n=69, *Figure F4-15*).
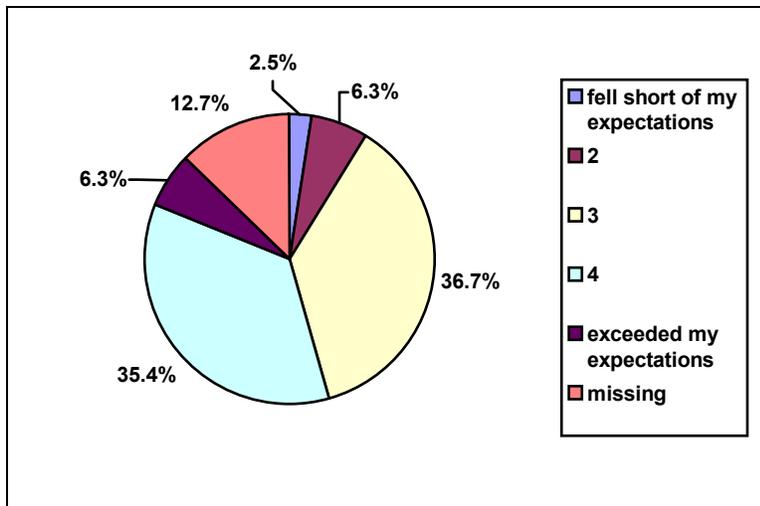
Figure F4-14. Ratings of degree to which Predictive Services met expectations—federal incident management team members.
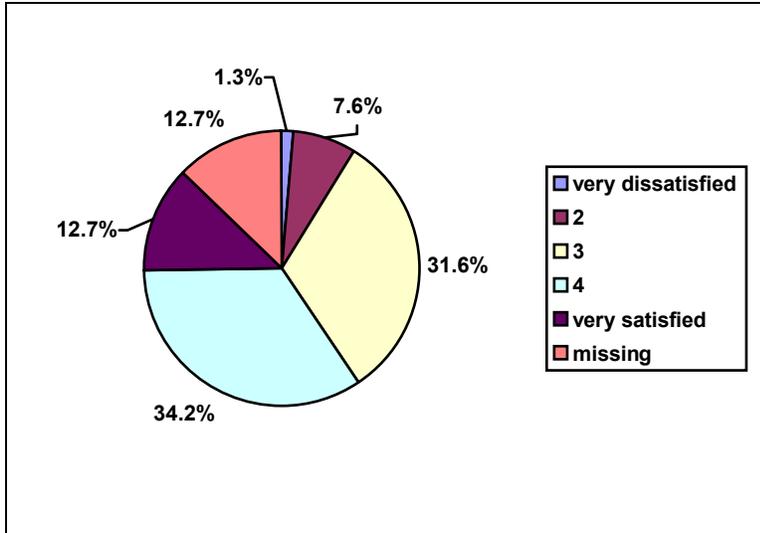
Figure F4-15. Ratings of satisfaction with Predictive Services products and services—federal incident management team members.

Trust and confidence in the information—A majority expressed some, to a great deal of trust and confidence in Predictive Services information (*Figure F4-16*, *M*=3.5, sd=1.2, *n*=73; 7.6%, did not answer this item.)
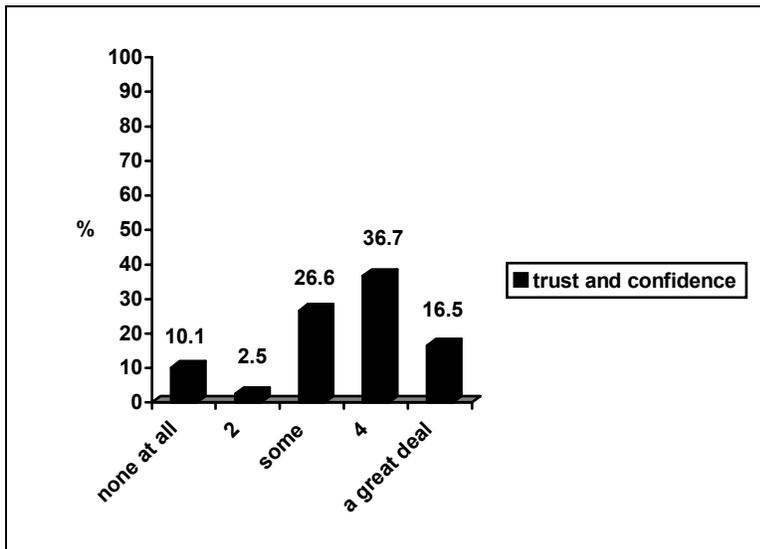
Figure F4-16. Ratings of trust and confidence in Predictive Services information—federal incident management team members.

Are Respondents Relying on and Taking Action Based on Predictive Services?

Reliance on products and services—About one-third (35.4%, *Figure F4-17*) indicated that they *did* rely on the products and services in making important decisions (selected a 4 or 5, where 5 was very true). About one-fourth (22.8%, *Figure F4-17*) indicated that they relied on other sources more heavily than the products and services provided by Predictive Services (chose a 4 or 5, where 5=very true).
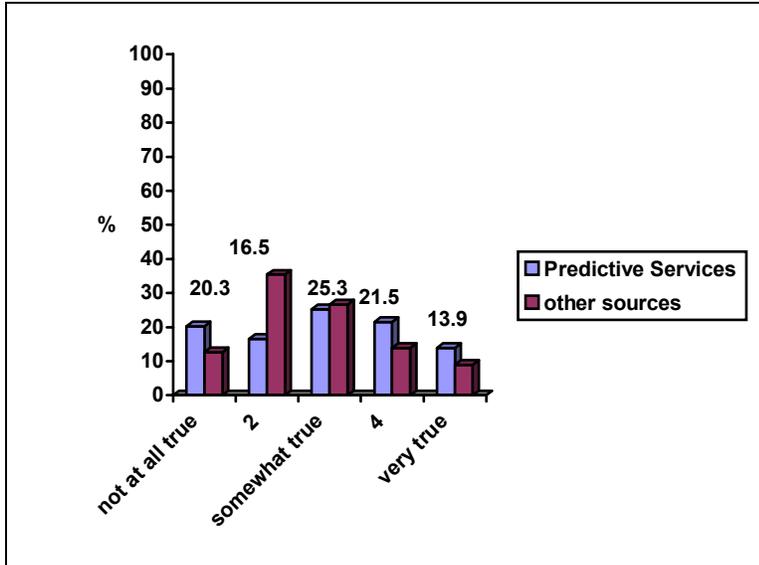
* The proportion of respondents in each category is shown for reliance on Predictive Services.

Figure F4-17. Reliance on Predictive Services and reliance other sources—federal incident management team members.

Reliance on other sources was investigated further. Respondents were asked to comment when they provided ratings of 4 or 5, indicating they relied on other sources, resulting in the following comments:

FBan and other fire weather folks on an incident

National Weather Service products and sources of data (FX-Net, AWIPS, etc.)

Team meteorologist, FBAN, LTAN

National Weather service in general with specific local area sites with dopler info, drought info, and current weather info. BLM lightning occurrence mapping. Intellicast.Local area University sites and camera sites.

I depend upon the site specific info for the incident provided by local agency.

National Hurricane Center

I am not familiarity with Predictive Services

Since I have worked on ICS staffs who provide the info I need, I do not usually collect info and don't know what the resources they rely on are.

It's hit or miss if you can get the same data on a NWS web page that you can find on a Predictive Services page. I do like the Predictive Services pages because the info that is there is tailored to my use (incident-specific) and organized accordingly.

NIFC, Geomap, weather channel

Depends upon the question and the need to visit multiple sources...typically all the info I need for day to day is within Pred. Services content...

The team relies heavily on 'on the ground conditions'. The FBAN uses all available resources in predictive planning.

Degree of reliance on Predictive Services was also queried. About one-third indicated little to no reliance on Predictive Services information (30.4% chose a rating of 1 or 2, where 1=none at all when asked "How much do you rely on the information provided by Predictive Services to assist in decision-making?"). Another one-third (30.4%) indicated some reliance, and about one-third indicated reliance (36.7% chose a 4 or 5 rating, where 5=a great deal; only 2.5% did not answer this item.)

The likelihood of taking action based on Predictive Services information was examined. Nearly two-fifths were likely to take action based on Predictive Services information (39.3% chose a 4 or 5 rating, where 5=very likely, *Figure F4-18,* 2.5% did not answer this item).
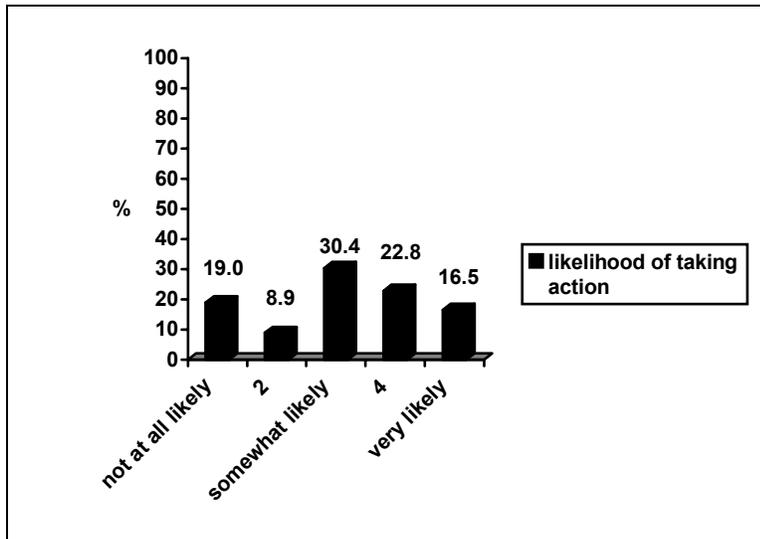
Figure F4-18. Likelihood of taking action based on Predictive Services information received, or gathered from a website—federal incident management team members.

Did Respondents offer Insights into Reliance and Barriers?

Perceived overlap—Respondents were asked how true or untrue it was that there is overlap in the type of information that can be obtained from Predictive Services and other sources (rated on a scale from 1 to 5, 1=not at all true, 3=somewhat true, 5=very true). While about one-fourth (22.8%) indicated there was not overlap (chose ratings of 1 or 2), nearly half (49.4%) felt this was somewhat true, and about one-fifth indicated it was true to very true (19.0% chose ratings of 4 or 5; 8.9% did not answer this item.)

Respondents provided the following comments regarding perceived overlap with other sources:

The type of information needed for long term planning can be derived from many other sources, including web sites that have been in existence for years. Obviously the format of the data is somewhat tweaked by the predictive services folks to cater to the fire community, and consequently may be visually more appealing to the fire folks, but weather is weather.

Specific to incidents, the data from IMETs and FBAs is more accurate and timely on a daily basis. I use predictive Service data prior to assignments to see an idea of the potential of the incident.

The overlap of information is good, in most cases. It offers a reinforcement of important features in the overall situation.

I don't see any overlap as a concern, rather as a way to get information from more than one source.

local contract and federal agencies/sources

The overlap is not a problem. The more sources for information, the better.

I have been a Fire Behavior Analyst and have graduate courses in Meteorology, and with all due respect to the Predictive Services group, I don't consider them as helpful or necessary as others might. The National Wx Service can give an adequate prediction if we partnered up with them.

I go right to NOAA on some things

Forecasts...NWS....though I prefer the direct access the GACCs/NICC provide me.

NOAA(NWS), USGS, local RAWS.

Obviously the main other source is NOAA/NWS. It has been interesting to observe which parts of the predictive pie have been carved up into whose turf. Generally speaking it seems like NWS takes care of the short-term forecasting and Predictive Services' bread and butter is the more long-term analysis and forecasting. However, I place a lot lower reliability on anything that tries to predict conditions very far into the future, based on experience, so I tend to think Predictive Services is less of a vital need than Weather Service info for my daily job.

Overlap, in this case is a good thing. In the San Jacinto Mountains we use products from Los Angeles, San Diego and the Southern California GACC to make decisions based on how a weather event is advancing.

NIFC website, Geomap, Weather channel

The overlap is not necessarily a negative. Consistency is however very important.

Daily WX

but don't mind

Beliefs about Predictive Services among those who had data gathering and reporting duties—
The respondents with data gathering and reporting duties related to Predictive Services were asked: "How likely is it that you will gather and report data to Predictive Services?" About two-fifths indicated that they were likely to gather and report data (41.3% chose a 4 or 5 on the 5 point scale, where 1=not at all likely, 5=very likely; 4.3% did not provide a response; *Figure F4-19*).
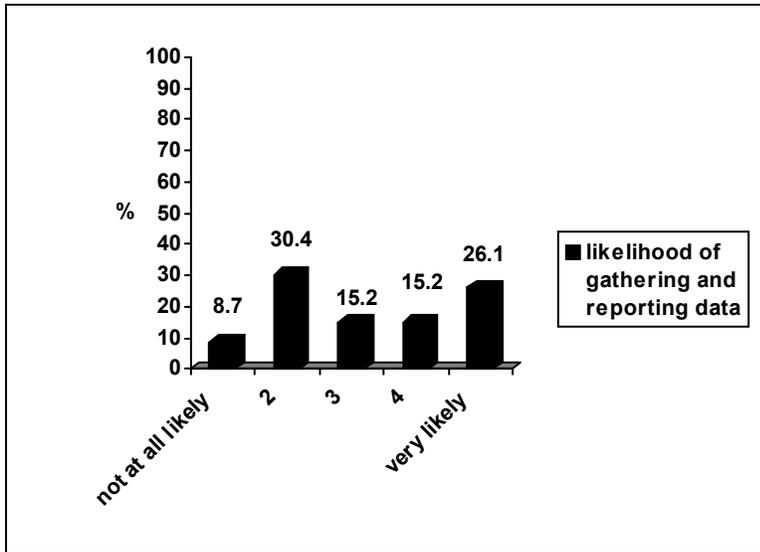
Figure F4-19. Likelihood of gathering and reporting data to Predictive Services—federal incident management team members with data gathering and reporting duties.

Respondents were somewhat mixed when rating agreement that they had the resources to gather field data for reporting (*M*=3.2, sd=1.2, *n*=44, rated on a 1 to 5 scale where 1=strongly disagree and 5=strongly agree; *Figure F4-20*; 4.3% did not answer this item).
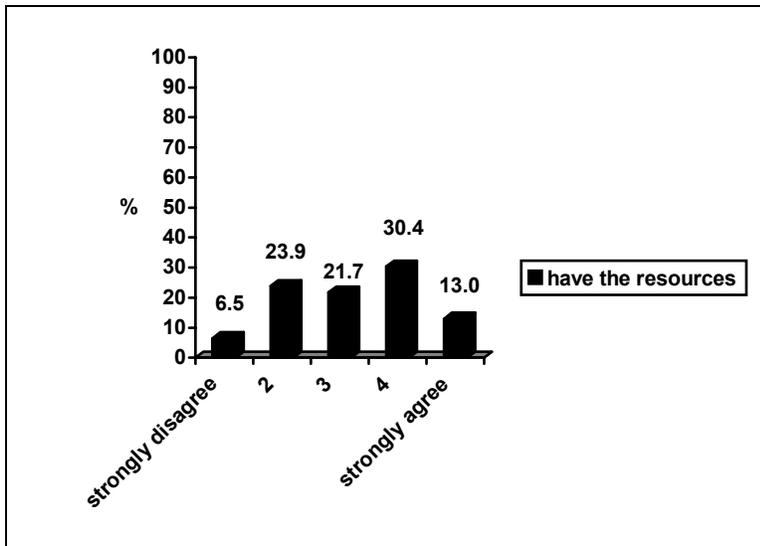
Figure F4-20. Degree of agreement or disagreement with "I have the resources (e.g., time/skills/personnel) to gather field data for Predictive Services reporting" —federal incident management team members with data gathering and reporting duties.

This subgroup was also asked to rate five items focused on positive impact of reporting, and negative effects of not reporting. Federal incident management team members were most likely to disagree with "My consistent upward reporting of data (e.g., 1300 obs for RAWS) increases the reliability and quality of Predictive Services products and services" (*M*=3.4, sd=1.1, *n*=43;

Figure F4-21; 6.5% did not answer). They were also most likely to disagree with "My consistent upward reporting of data (e.g., 1300 obs for RAWS) increases the reliability and quality of products and services provided by groups and agencies that use the data from Predictive Services to generate their own products" (*M*=3.5, sd=1.2, *n*=42; *Figure F4-21;* 8.7% did not answer).
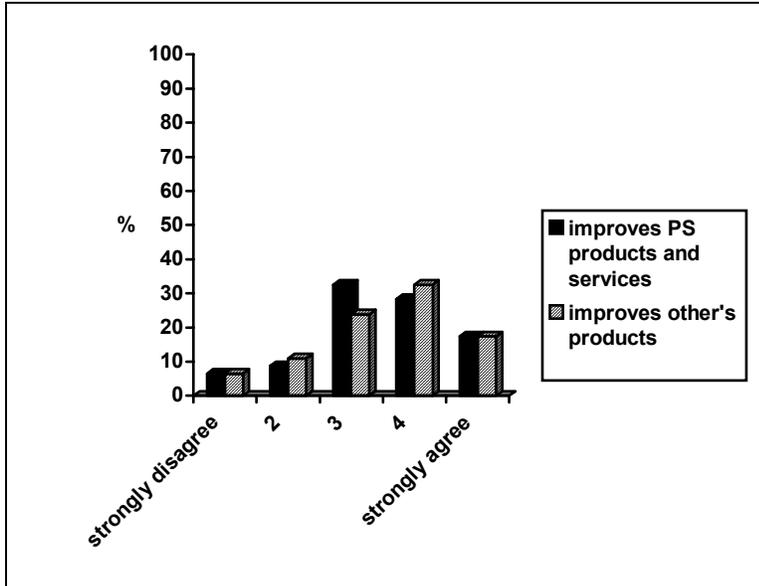
Figure F4-21. Degree of agreement or disagreement with positive outcomes of reporting data—federal incident management team members with data gathering and reporting duties.

Responses indicate a mixed perspective on whether or not there are adverse outcomes when/if data is not gathered and reported. This was assessed through two items "If I don't collect and report Predictive Services data, it could affect my unit's ability to make sound decisions to manage fire" (26.1% selected a 1 or 2 rating on the scale; *M*=3.4, sd=1.4, *n*=43; *Figure F4-22;* 6.5% did not answer); and "If I don't collect and report Predictive Services data it could adversely impact firefighter or public safety" (17.3% selected a 1 or 2 rating; *M*=3.6, sd=1.3, *n*=44; *Figure F4-22;* 4.3% did not answer).
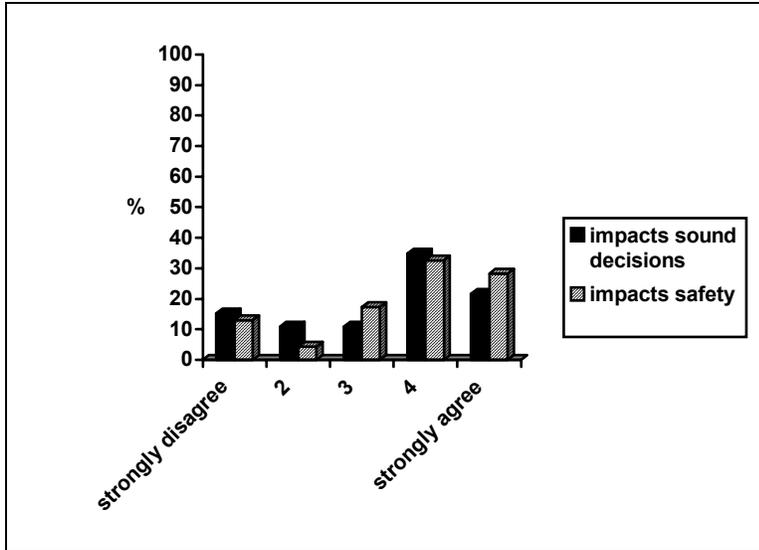
Figure F4-22. Degree of agreement or disagreement with adverse impacts of not collecting and reporting data—federal incident management team members with data gathering and reporting duties.

Ratings of ability and impact of applying Predictive Services information—General ability to access and apply the information from Predictive Services, as well as its utility in job performance, was queried (using a 5-point Likert scale where 1=strongly disagree and 5=strongly agree). Federal incident management team members were somewhat in agreement with "I can access and apply Predictive Services information as part of my job duties" (*M*=3.7, sd=1.0, *n*=64). However, they were in less agreement with "Predictive Services information helps me perform my job with greater precision" (*M*=2.6, sd=1.0, *n*=59).

Two general items examined perceived impacts of inaccuracies of Predictive Services information. The first was "Inaccurate Predictive Services information would decrease my ability to predict fire behavior." Rated on a 1 to 5 scale, where 1=strongly disagree and 5 was strongly agree, the average was 3.7 (*M*, sd=1.0, *n*=58; *Figure F4-23*). About one-fourth did not answer this item (20.3% selected 'don't know', and 6.3% did not select any answer). The second was "Inaccurate Predictive Services information used in my decision making may adversely impact firefighter or public safety." Again, the average was at the mid-range of the scale (*M*=3.9, sd=1.0, *n*=60; *Figure F4-23*). About one-fourth also failed to indicate degree of agreement or disagreement with this item (17.7% marked 'don't know' and 6.3% did not select any answer). However, respondents were more likely to agree that there would be an impact on safety than on prediction of fire behavior.
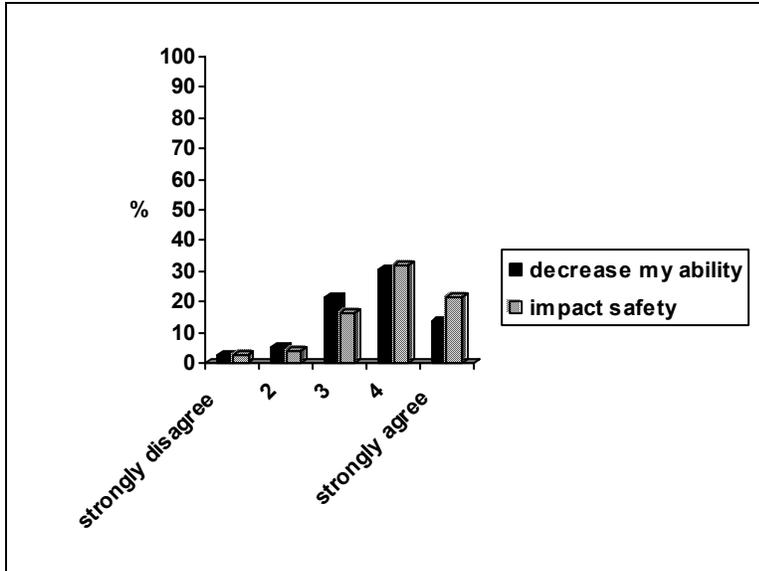
Figure F4-23. Impacts of inaccurate reporting of Predictive Services information—federal incident management team members.

Barriers to use of products and services—There were various reasons why respondents did NOT use the products and services offered by Predictive Services, although no one overwhelming reason or set of reasons emerged among the 16 offered as potential barriers (*table F4-5*). The most frequent reasons provided included needing information that is site specific, and not having thought about using the products and services. A lack of trust was not frequently cited.

Table F4-5. Reasons why they had not used the products and services offered by Predictive Services—federal incident management team members.

Reason	Percent
I never thought about it.	21.5
My current management practices don't require the types of information provided by Predictive Services	17.7
I don't know how to use these products	20.3
I need information that is site specific	22.8
I am not mandated to use these products	12.7
I don't have the time to use these products	7.6
I don't know where to get advice about using these products	12.7
I don't know where to get the technology to use these products	3.8
I don't have the technology I need to use these products	5.1
I don't trust the products and services	1.3
I don't want to use these products	1.3
I don't think these products support my agency's current practices	0
Agency directives/guidelines instruct me to use other information	1.3
I don't have the money to use these products	2.5
I don't trust the advice I get about using these products	2.5
I don't trust information that is generated by multiple agencies	0

As a follow-up to the above items, we invited respondents to explain why they might not want to use the products, resulting in the following comments:

>   It is not absolutely necessary to use many of these products in order to make informed, realistic, and successful management decisions on wildland fires (WFU, RX, Suppression) access can be difficult
>   Sometimes there are conflicts about the accuracy of the products and arguments between people within Predictive Services as well as between Predictive Services and other agencies (like the Weather Service). This can become confusing and often ends up like 'I'll go with who has been right the most often, lately'. Also, it seems like we pay a lot of money for Predictive Services when a) it's a seasonal need most places and b) many of the products are available elsewhere.

How can Existing as well as New Products and Services be Improved or Designed?

How fire danger/fire information is used to support decision-making—Respondents were asked to indicate how they use fire danger/fire information to support decisions made regarding fire management. About two-fifths of respondents used fire danger and fire information to make decisions in decision support about public use restrictions (43.0%), for resource allocation (54.4%), for severity requests (35.4%), and about resource staffing (54.4%).

Respondents were asked to indicate other uses of fire danger/fire information, resulting in the following comments:

>   incident management
>   public information and internal (w/in IMT) info
>   pre-positioning
>   I have never used Predictive services
>   As a T1&T2 IC, rely on FBAN/LTAN forecasts. Also, as an Nat'l MAC member. In day job, also review all agency severity requests for approval (or not!)....
>   fire information needs
>   rx fire
>   Timber sale contracts
>   weather predictions related to fire fighter safety
>   training delivery
>   Incident Information to the public
>   Am I going out. Discussion info w/public
>   Public safety

Tolerance for errors and inaccuracies—Respondents were asked to rate their tolerance for false alarms and inaccurate reporting (rated on a scale from 1 to 5, where 1=low tolerance and 5=high tolerance). While respondents did not indicate a high tolerance for false alarms or inaccurate reporting, they were somewhat more tolerant of false alarms pertaining to fire danger (M=2.9, sd=1.0, n=77; *Figure F4-24;* 2.5% did not answer), than they were of inaccurate reporting of high fire potential (M=2.4, sd=1.1, n=77; *Figure F4-24;* 2.5% did not answer).
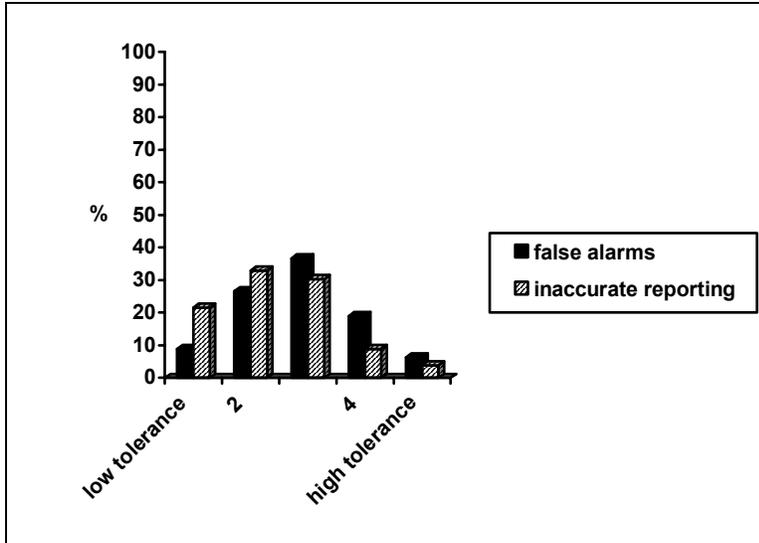
Figure F4-24. Tolerance for false alarms and inaccurate reporting—federal incident management team members

In order to capture overall preferences for approaches to errors ("Although it is understood that accurate and reliable reporting of fire danger and high fire potential are desirable, margins of error are involved in predictions. In these cases, do you prefer that…"), respondents chose between two statements:

"Statements of danger or risk be issued with a greater margin of error allowing for an early response, knowing that this may lead to unnecessary alarms and response (Better safe than sorry)" —78.5 percent chose this statement as their preference.

"Statements of danger or risk should only be given with certainty, knowing that this may allow a few dangerous events to emerge that were not anticipated (Don't cry wolf)." —19.0 percent chose this statement as their preference.

A few (2.5%) did not choose either statement as their preferred approach.

Audience identification—According to the federal incident management team members, the primary audiences for Predictive Services' products should include: local and district fire managers (89.9%), regional and state fire managers (86.1%), national fire managers (74.7%), and to a lesser extent non-fire land managers (50.6%), and the public (29.1%; note that respondents could select multiple audience types, so responses do not sum to 100%).

Respondents were invited to specify other primary audiences, resulting in the following comments:

    Incident Management Teams
    headquarters staff
    Line Officers
    Washington Office/Capitol Hill staffers
    administrators
    Dispatchers and IMT's
    Don't know. Don't know enough about Predictive Services to answer

primary firefighters

Preferred information formats—Respondents were asked to indicate their preferences for the style and format of information presented. For each of 11 formats presented, a rating from 1 to 5 was requested (1=not at all useful, 5=very useful). Based upon the proportion of respondents assigning ratings of 4 or 5 to each format, the formats most to least useful were: brief executive summaries of data (67.1%), information presented in regional or national maps (62.0%), satellite maps (62.0%), radar maps (55.7%), brief annotations that accompany data presentations (55.7%), data in table form (51.9%), bar charts or figures that summarize data (48.1%), data in text form (44.3%), web-based ArcIMS maps with user-defined layers and scales (38.0%), data in spreadsheet form (29.1%), and non-web-based Geo database files (15.2%).

Other styles or formats of information offered by respondents, or comments surrounding this issue, included:

nothing comes immediately to mind, but always looking for ideas. something county based that indicated local fire wardens RFD's. etc., local resource predictive sites. I am sure they would be very simple in nature but high in accuracy
Web based, autocalculated, mapped, and continuous, as long as it's accurate...
interactive maps
Powerpoint format to download and use for public meetings
Shapefiles instead of geodatabase for about three years.

Respondents were also asked to indicate what, if any information they would like to see in summary or synthesis form, resulting in the following comments (for this item the don't know and not applicable responses have been excluded):

weather trends
Where is the highest risk today, by what (fire, flood, hurricane),at what time, with a degree of accuracy that would support the concepts of pre-positioning and total mobility. Also note where there is little or NO risk so those area managers will quit hanging tight to resources they will likely not have any use for during the 'x' days.
Lightning
Injury, illness, or near miss trends for an event or an area. If everyone's on the complex is coming down with poison oak, spread the word to new folks being dispatched. That's intel, but not about direct fire risk.
OK as is.
The results of this survey.
Works for me as is...
zone level graphical forecasts to support written forecast
Total numbers of fires and areas

Improving existing products and services— Respondents were asked to complete the sentence "The information and services provided by Predictive Services would be more useful to me if…", resulting in the following open-ended remarks:

it didn't exist. Then, we could spend the money saved from that program on thinning and burning projects.
they were more site specific to large fire management
they stay as is.
I knew how to access it.

All of the GACC's had identical sites. I have most GACC's websites when dispatched to an incident to 'frontload' information regarding the incident. The Southern GACC has an outstanding order for incidents list. All GACC's should have the same information available.

it were in spreadsheet formats.

I am not a full time member of the Wildland Fire Community; but have served as Information Officer on Type 1 and Type 1 Incident Management Teams. I have not thought about ways to make your information more useful to me in performance of my duties.

remembered to use their services and know where those services are located

I remembered to use what's provided.

I had a recommendation to finish this sentence, sorry. I am happy.

Nothing your fault, it would be nice if our computer system wouldn't go out so often!.

it worked more closely with the National Weather service and did not appear to be an island unto itself. Maybe they work closer then I think, but it seems there is the Wx service and then there is Predictive Services, and there is unnecessary overlap and expenditure.

I didn't have to have password for lightning- as a Line Officer (not role on questionnaire) or on team I have to find someone with a password to get info

it was better marketed along w/ use applications.

I had a better grasp on everything that is available and how to get to it. (It's generally easy to use once I find it.)

I knew what you were talking about before I started answering this survey.

I was in a full time fire position.

...(for sitreps) if I had a linked map that showed where each incident was located...   if all fire equipment locations were being tracked on that same map...   if I could text message that same equipment, one or all, by selecting them from the screen...

I knew what they were about

Well, in my ignorant state.....what I get from Predictive Services meets my needs, particularly with some of the more recent changes at NICC briefings etc. So, not much help here.

I was aware of the service.

I made more of an effort to access more Predictive services info.

they provided information that could be used to educate the media and the public about fire.

no comment

I had more time to study it and evaluate data.

I could enter lat/long info and a distance radius for RAWS info.

they were accurate more often than not, and if some of the graphs and charts had some interpretation accompanying them that was in actual English.

I had a desk summary of what I could get and how to find it quickly.

I were involved in the fire program

News and Notes was always up to date and #2 there was 7 day coverage all year long. We are always fighting fire of Rx burning so we always need the products.

I always had internet service at ICP.

it were more timely in the fall-winter

I were trained to use it

I knew more about them and how to access them

I knew anything about it. Since I am a non-fire person in my normal position, it sounds like this may be helpful with the administration of the fire portion of service and timber sale contracts.

I had a automated weather map/current conditions/forecasted with constant updates like the weather channel currently provides on my desktop (computer).

I had a Dick Tracey Wrist Phone with WiFi capability...

I had more time to devote to better understanding how to use all of the many available
    products, and in a few cases if the products were more reliable.
I were the FBAN
was more familiar with the products available.
I knew what the services were
There was a summary or overview of all of the various products and services available. I
    sometimes just stumble into a new service or don't use some services frequently enough
    to be thoroughly familiar.
all field level fire management staff used the information on a regular basis to inform
    analytical decision making.
The NICC website was easier to locate things in similar to a GACC site.
I knew more about how to access the services. also the term National predictive services is
    not very descriptive was misleading. I didn't know what you were talking about until the
    last few questions.
I knew more about what was available and practical applications.
I could easily access the internet during this lawsuit.
if I had a high-speed internet connection
I was involved full-time in fire management.
the predictive services staff would periodically give a briefing with an overview of new
    products and services.

Respondents were also asked to consider the existing products and services, and comment on
how they could be modified to better meet their needs, leading to the following comments
(answers of don't know or no comment have been excluded):

Modification not necessary.
Fire summary page could list ERC, BI and ROS recorded for each incident.
Keep everything timely. Operate uniformly throughout the week during fire season.
See previous comments. This survey will go a long way. Provide with the day to day field
    managers need, and eliminate all the frivolous nice stuff. As an FBAN I always checked
    with Division Sups. to see if my service helped them. They were key to success of the
    mission. Info helpful to other positions was almost incidental by comparison.
I'm only moderately familiar - don't feel like I know enough to comment.
make sure that non-fire people know what you are providing.
Map or web based alerts (to individual's cell phones) for red flag or other conditions that
    occur in areas identified as important to the individual.   This would be similar to the storm
    alerts available from NWS, but for fire or severe weather conditions.
they meet my needs as is, at this time..
overall very good. Use them to get information to have talking points when doing
    information on fires
Tie to some of the USGS satellite imagery.
Very adequate.
Provide the same or better products and services with fewer people on the payroll.
Just make sure all products are current.
continue to strive for quality and consistency across all GACC's and NIC
Pointers for interpreting each product correctly, and for using them in combination with other
    products.
Get the daily situation report up earlier on weekends during fire season. Monday through
    Friday it is up by 0530. On weekends sometimes it is not up until 1000 or later.
I know very little about predictive services products, so cannot knowledgably answer this
    question.

Made to generate faster

Products or services that should be added to what Predictive Services provides—Respondents were asked to explain which products and services should be added to Predictive Services and why, resulting in the following comments:

A crystal ball

Outstanding resource orders for incidents. It would help in dispatching resources from one Region to another. The Southern GACC has this feature in the 'Intelligence' area of there site.

any good product coming up should be considered.

I say yes, but can not be all that definitive. Would like tighter information, if you will, that can assist in day to day decisions on an incident and on a Forest or BLM Field Unit. Basic wx comes from Weather Service and daily ERC and fuels moisture come from RAWS and systems that been in place a long time. Hard to decide what the addition of a Predictive Service Branch did for us for the investment

If there is a safety incident or after action report that deals with weather issues should be posted at least by GACC

Standard storm tracking maps and tidal surge predictions (detailed, and mapped).

Really don't know....too far removed from the ground......

weather map/forecast/current conditions on my desktop (computer).

Chuck Maxwell is currently working on some new predictive tools indicating historic large fire occurrence plotted on prevailing conditions graphics.

Provide cross-border information on along the US-Canadian border

Were There Additional Comments?

As is customary in such surveys, we invited respondents to offer any comments about Predictive Services, or any comments about the survey, resulting in the following remarks:

I believe Predictive Services can and is a valuable tool. I answered the questions as a PSC on an IMT. Unit Fire Management Officers could/should use the data more, and their response would be more valuable than mine.

I believe that this survey helps and should be done more often, users then really would be able to define what they can use and need.

I'd suggest that your approach to some of the questions appeared a tad bit self serving. No question Predictive Services does good work. Question is whether we need that part of the work that appears overlapping, general, or 'nice to do'

You're doing a very good job overall. Thanks.

Start the survey by listing what services you provide, to refresh my memory beforehand. I answered your questions not knowing what services you provide that I use....so you got really poor answers.....and I don't have time to go back and redo the answers.

Storm surge has the potential to kill more of our folks in one event than all previous fire fatalities combined. It will only take one event where an IMT/Camp doesn't evacuate in a timely manner, or doesn't recognize they are in an unsafe area, (which may be miles inland). It's a matter of distance, storm intensity, and elevation. Yet, we haven't taken it seriously. Evac times are very different in an existing storm disaster area that has damaged bridges and roads or has no power or traffic lights... Predictive services needs to evaluate and predict hazards that are non-fire, particularly during times and for locations where our employees are being deployed.

Not able to answer most of the questions because I am not familiar with your service

Just a clarification for my part of responses....my FBAN uses Predictive Services data; I use his/her eval's and recommendations to make decisions. My SITL inputs -ICS-209 data daily; I review and approve.

I learned about the availability and products of predictive services only by taking this survey. Thus, some of my answers were based on my new assumptions about Pred. Services, not on any experience. As an info officer on and IMT, I know I will now seek out this site and bookmark it.

I am glad that you are conducting this survey. It indicates that there is a willingness on at least some in Predictive Services to provide true customer service. That's a good thing.

Excellent and complete survey...Thanks for asking....

You need to define and list what is included in predictive services.

Appendix F5: Crew Supervisors or Other Suppression Personnel—Federal Respondents

Crew supervisors and other suppression personnel were grouped into one category (*n*=78). These respondents came from the Forest Service (67.9%), Bureau of Land Management (12.8%), Fish and Wildlife Service (7.7%), National Park Service (5.1%), tribal government (2.6%), Bureau of Indian Affairs (2.6%), and another federal agency or related group (1.3%).

Who Were the Crew Supervisors or Other Suppression Personnel?

The majority was male (83.3%), mostly between 35 to 44 years old (*Figure F5-1*).
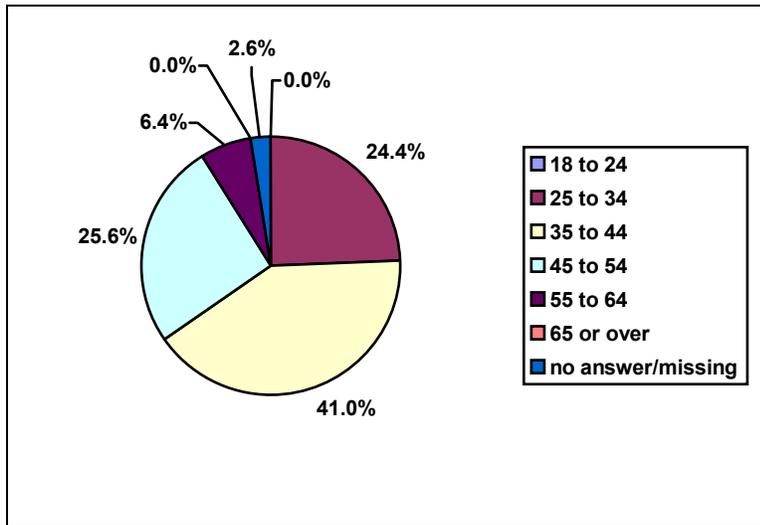
Figure F5-1. Age—federal crew supervisors and other suppression personnel.

Educational background / degree or equivalent—Educational attainment was fairly high among the majority in this subgroup, with about half reporting a bachelor's degree or higher education (*Figure F5-2*).
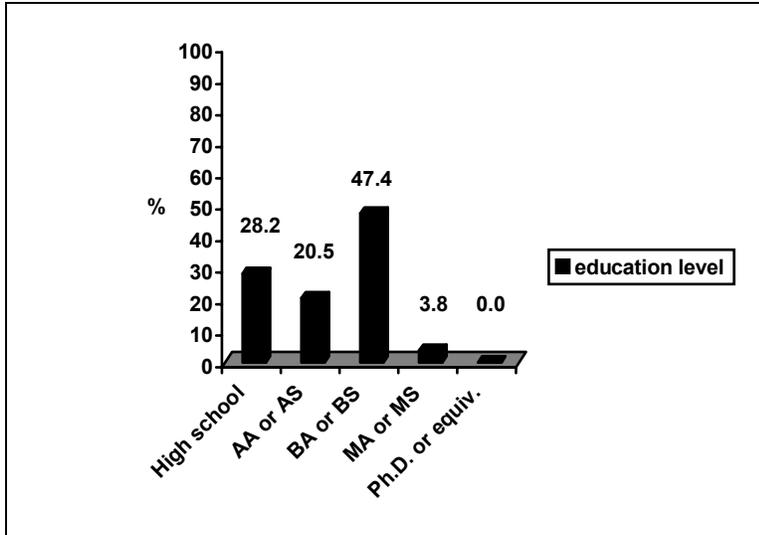
Figure F5-2. Educational attainment—federal crew supervisors and other suppression personnel.

Respondents reported degrees in the following subjects (these are on an individual basis so when lines contain multiple subjects they reflect an individual's response):

Biology
Business
Business administration
City and regional planning
Computer systems engineering
Environmental health
Environmental studies
Environmental studies/geography
Fire
Fire science
Fire technology
Forest hydrology
Forest management (4 respondents)
Forestry-fire science
Forestry (3 respondents)
Forestry and fisheries
Forestry technician
General science
General studies
Geography
Geology; Secondary education-earth science and geography
History (2 respondents)
Humanities and fine arts
Liberal arts
Liberal arts/ farriery
Natural resource management
Natural resources
Physical education

Physical education/health
Political science (2 respondents)
Psychology
Range and forest management
Recreation resource management
Resource conservation and communications
Technical fire management
Wildlife biology
Wildlife science (2 respondents)
Zoology

Home office Geographic Area location—Respondents came from across the United States, with their home offices falling within the various Geographic Areas (GA) shown below *(Figure F5-3)*.
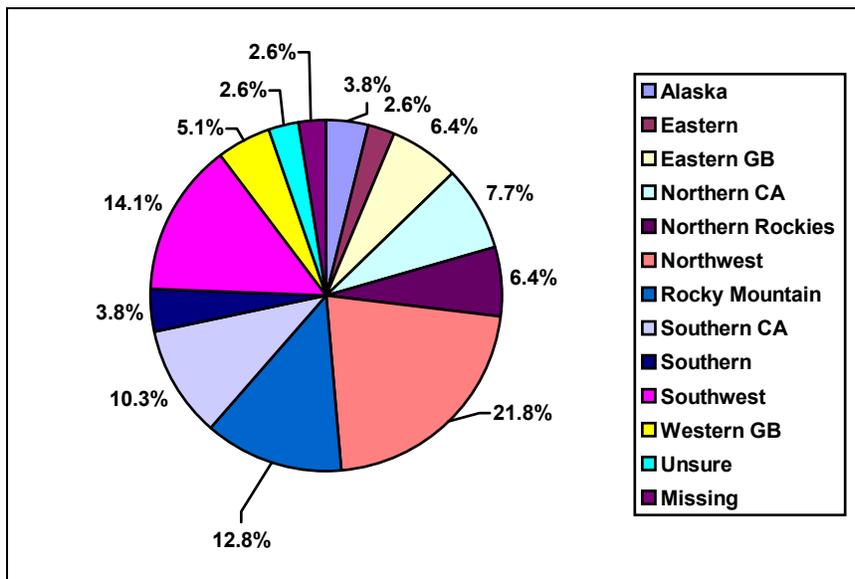
Figure F5-3. GAs—federal crew supervisors and other suppression personnel.

Level of geographic responsibility and scope of duties—Respondents' level of geographic responsibility varied. About one-fifth reported their duties were incident specific (20.5%), or linked to their local unit (including forest, district, reserve, etc. at 30.8%). Responsibilities for another third were at the national (37.2%), or national and international (11.5%) level.

The majority of respondents (64.1%) indicated that their work was specific to multiple agencies, while some (34.6%) had duties specific to their agency only. One respondent did not answer.

The number of years reported in the current position of employment averaged 6.8 years (sd=5.2, *n*=55). Median responses for number of people supervised included five on a routine basis, 14.5 on a seasonal basis, and 18.5 on an incident/project basis.

Almost one-third of the crew supervisors and other suppression personnel respondents (32.1%) had job responsibilities that included gathering and reporting data that is utilized by Predictive Services such as: situation reports, ICS-209s, NFDRS/WIMS, etc. Among the respondents with data gathering and reporting duties (*n*=27), the duties are assigned as one of their primary responsibilities (37.0%), or assigned as part of a group that fulfills that responsibility (33.3%).

Fewer (22.2%) held this set of duties when others with this routine responsibility were away from the office. This group of respondents is small, so while we report all responses from them, readers should exercise caution in programmatic decisions or other issues that might be addressed with this data.

What are their Levels of Experience with Predictive Services?

Frequency of access and information acquisition—The frequency of accessing and obtaining information from Predictive Services was examined under two conditions, during fire season and outside of fire season. Frequency of access was greatest during fire season (*table F5-1*).

Table F5-1. Frequency of accessing and obtaining information from Predictive Services—federal crew supervisors and other suppression personnel.

Frequency	During Fire Season %	Outside Fire Season %
Daily	39.7	5.1
Weekly	21.8	24.4
Monthly	3.8	20.5
Quarterly	1.3	7.7
Rarely	16.7	20.5
Not at all	16.7	20.5

Specific circumstances for access/acquisition—In addition to frequency, respondents provided information regarding specific situations when they access or obtain information from Predictive Services. Nearly three-fourths reported accessing Predictive Services during fire season (70.5%), and about one-third during a fire incident (34.6%). Other situations were reported including when a prescribed burn is being planned (39.7%) and when a prescribed burn is taking place (30.8%). About one-fifth indicated none of the above situations applied to them (20.5%).

Respondents listed additional situations when they access/obtain information from Predictive Services including:

    before fire season just to be heads up on what areas are ready to burn and how intensely
        and also to train others with that info
    Fire Planning Software (Farsite, RERAP)
    I have never heard of 'National Predictive Services'
    entering into fire season for various geographic areas
    Since I do not seem to have a clue what Predictive Services is, how nows (sic) f I've used it.
        for all I know, I could everyday, since I receive constant fire related updates

Use of specific websites and services—Respondents were asked to indicate which Predictive Services websites they had visited or which GACC services they had used, revealing that a majority had been to/used the National Interagency Coordination Center (NICC–69.2%). The Geographic Area Coordination Center sites from most to least mentioned were the Southwest (44.9%), Northwest (41.0%), Western Great Basin (38.5%), Northern Rockies (35.9%), Eastern Great Basin (34.6%), Rocky Mountain (33.3%), Southern California (26.9%), Northern California (25.6%), Alaska (24.4%), Southern (19.2%), and the Eastern site (14.1%; responses do not sum to 100% because respondents could select multiple sites). Over one-third had visited one or two sites, while others reported multiple sites (as many as all 12). A few (11.5%) were not sure

which if any sites they had visited, while one (1.3%) indicated they had not visited any of the listed sites, or used any of the GACC services.

Familiarity with the products and services—Crew supervisors and other suppression personnel respondents were asked to indicate how true or untrue the following statement was "I am unfamiliar with Predictive Services products and services." About one-fifth indicated this statement was true (*Figure F5-4,* 19.3% selected a rating of 4, or 5, where 5=very true).
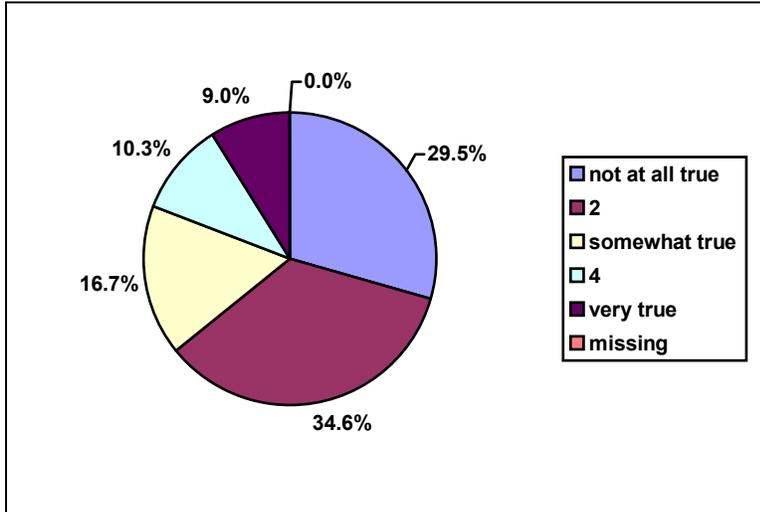
Figure F5-4. Unfamiliar with Predictive Services products and services—federal crew supervisors and other suppression personnel.

The majority of respondents were interested in Predictive Services products and services (*Figure F5-5*, 60.3% selected a 4 or 5, where 5=very true in response to "I am interested…; another 29.5% marked 'somewhat true').
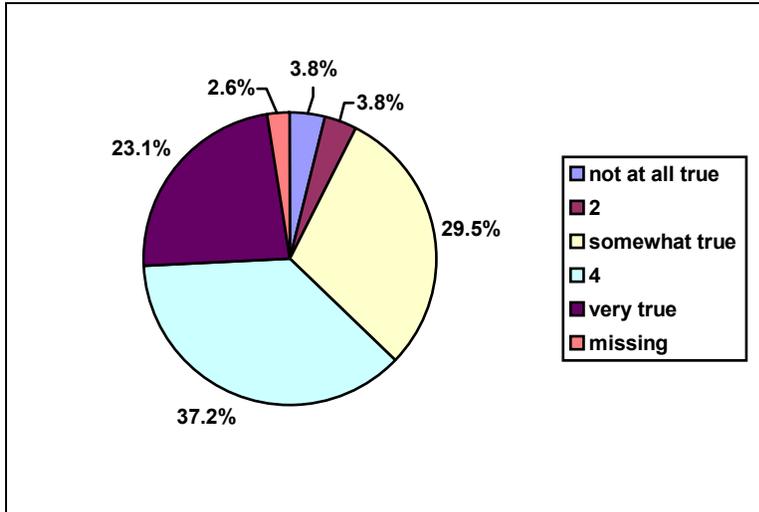
Figure F5-5. Interest in Predictive Services products and services—federal crew supervisors and other suppression personnel.

Respondents were asked their familiarity with Predictive Services' products on the web, the briefings, and the emails**.** They were more familiar with the web products (*Figure F5-6*, M=2.9, sd=1.3, n=74), and the briefings (i.e., national, geographic, situational, or meteorological, M=3.3, sd=1.3, n=74), than with the emails (these contain current projections and/or information about Predictive Services, M=2.4, sd=1.4, n=73).
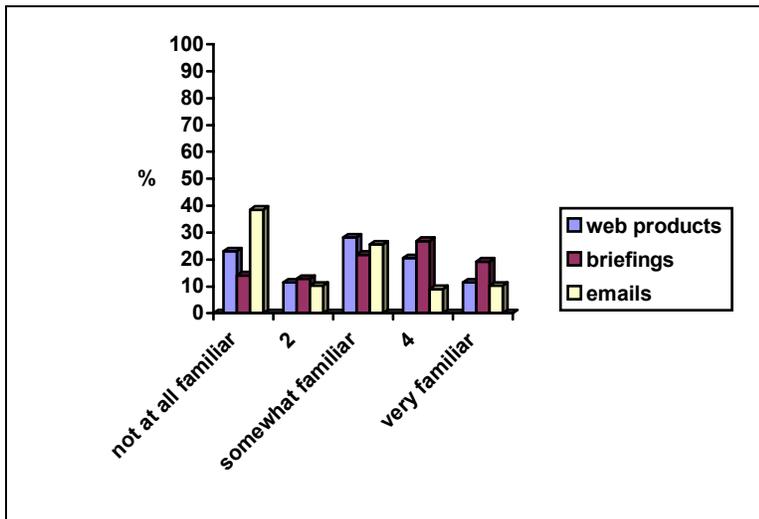
Figure F5-6. Familiarity with Predictive Services products on the web, briefings, and emails— federal crew supervisors and other suppression personnel.

What are their Opinions of the Products and Services?

Ratings of Predictive Services information—Respondents tended to agree that Predictive Services information was accessible (*M*=3.6, sd= .9, *n*=61, *Figure F5-7*, 19.2% marked 'don't know' and 2.6% did not respond).
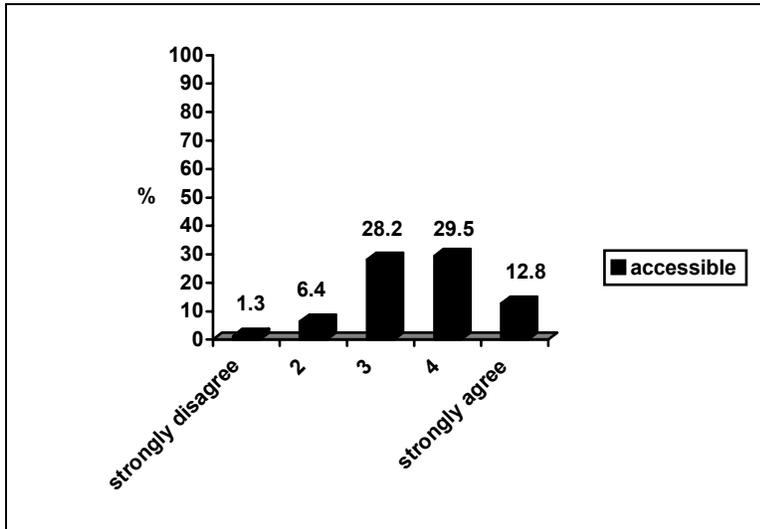
Figure F5-7. Ratings of accessibility of Predictive Services information—federal crew supervisors and other suppression personnel.

While a majority agreed that Predictive Services information was timely, almost one-quarter disagreed with this as an attribute (*M*=3.4, sd=1.5, *n*=69, *Figure F5-8*, 9.0% marked 'don't know' and 2.6% did not respond).
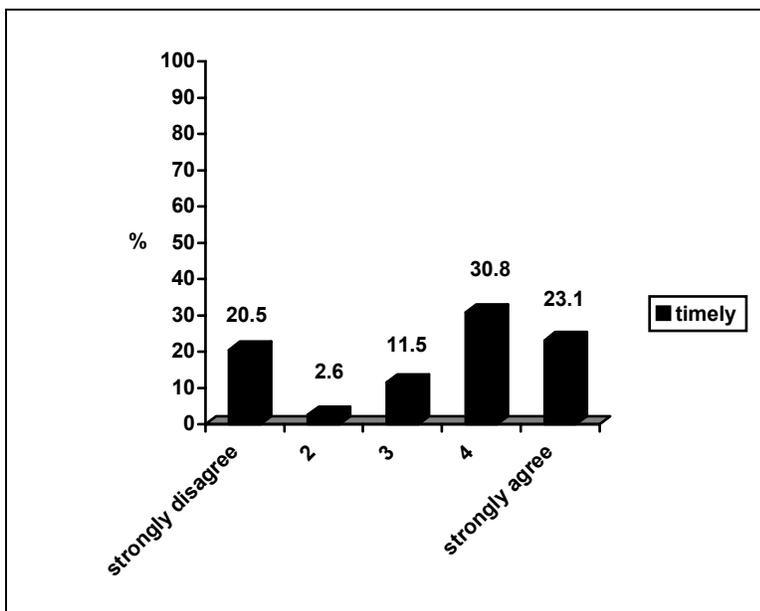
Figure F5-8. Ratings of timeliness of Predictive Services information—federal crew supervisors and other suppression personnel.

A majority agreed that Predictive Services information was relevant (*M*=3.6, sd=1.6, *n*=66, *Figure F5-9*, 11.5% marked 'don't know' and 3.8% did not respond).
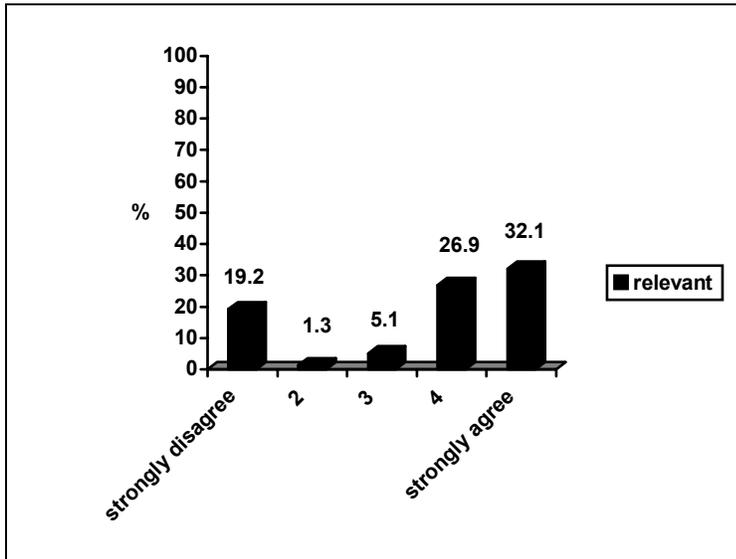
Figure F5-9. Ratings of relevance of Predictive Services information—federal crew supervisors and other suppression personnel.

Over one-half agreed that Predictive Services information was accurate (*M*=3.5, sd=1.5, *n*=72, *Figure F5-10*, 3.8% marked 'don't know' and 3.8% did not respond).
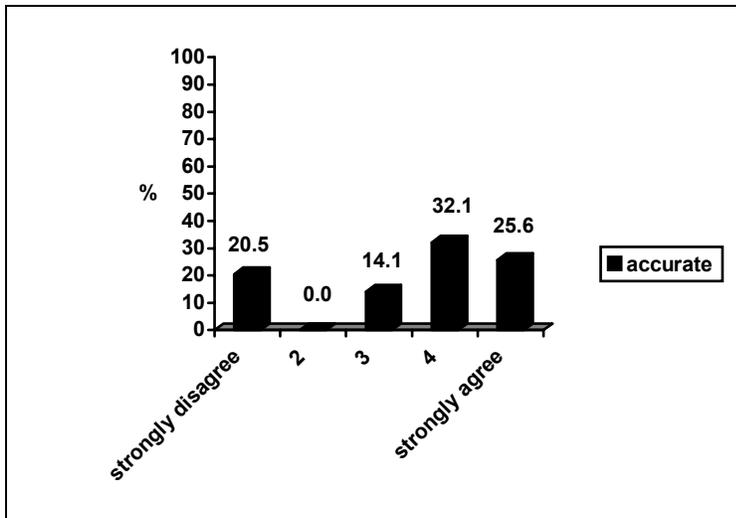
Figure F5-10. Ratings of accuracy of Predictive Services information—federal crew supervisors and other suppression personnel.

A majority also agreed that Predictive Services information was complete (*M*=3.5, sd=1.6, *n*=73, *Figure F5-11*, 3.8% marked 'don't know' and 2.6% did not respond).
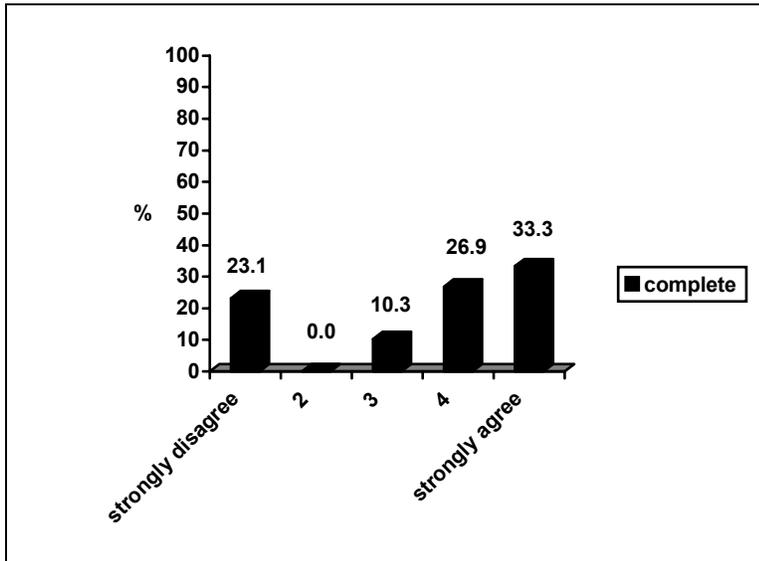
Figure F5-11. Ratings of completeness of Predictive Services information—federal crew supervisors and other suppression personnel.

A majority agreed that Predictive Services information was easy to understand (*M*=3.6, sd=1.6, *n*=68, *Figure F5-12*, 10.3% marked 'don't know' and 2.6% did not respond).
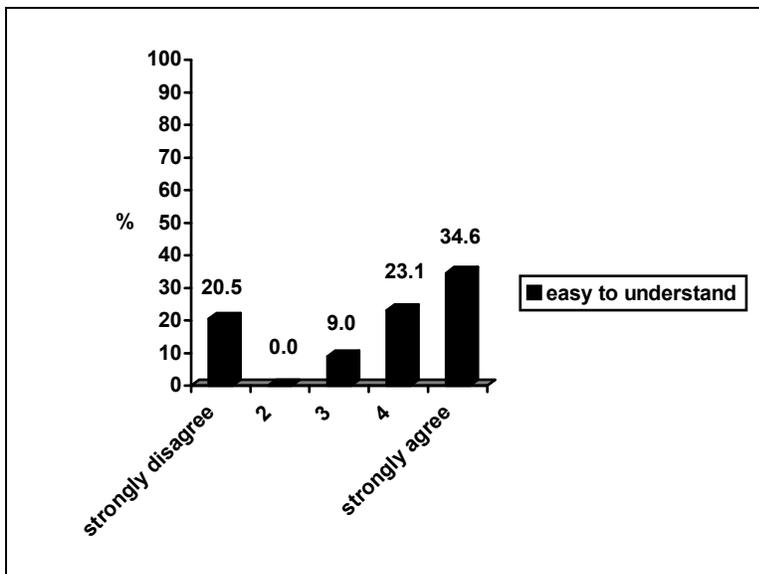
Figure F5-12. Ratings of ease of understanding of Predictive Services information—federal crew supervisors and other suppression personnel.

Similarity and importance of similarity of GACC sites—Crew supervisors and other suppression personnel respondents rated how true the following statement was "The Predictive Services products and services available through the GACCs (you selected) are similar in format, quality,

and the range of products and services offered." One-fifth perceived the products and services as similar (*Figure F5-13*).
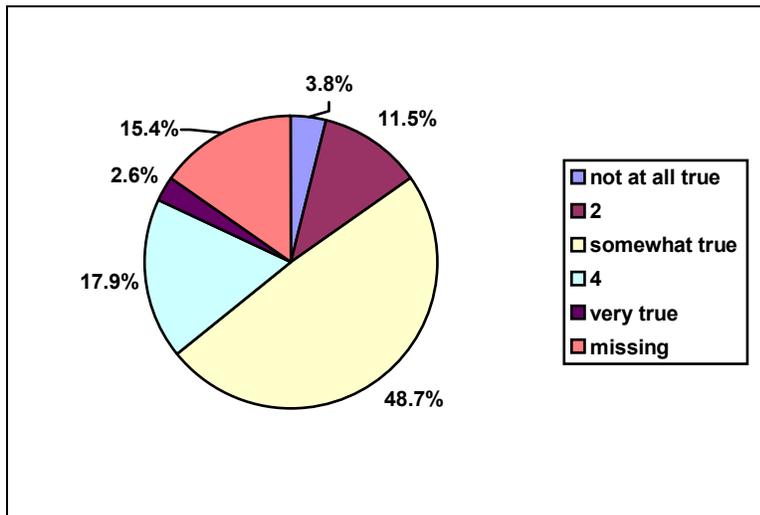
Figure F5-13. Products and services available through the GACCs you selected are similar— federal crew supervisors and other suppression personnel.

While about one-tenth indicated that similarity of Predictive Services' products and services in format and quality across GACCs was unimportant (10.2% assigned a 1=not at all important, or a 2), about one-fifth indicated that it was somewhat important (20.5%), and a majority indicated that it was important (60.2% assigned a 4 or 5=very important; 9.0%, did not answer this item).

Respondents were invited to comment on their responses regarding similarity across GACCs. Comments included these:

All need to be the same format

The R5 GACCS are by far the worst in updating info, resources, etc. R3 has usually been the leader in this area. One thing that R3 does well is update resource stuff so wives and girlfriends know where there others are. It tends to help out on the home front when crews are on the road a lot.

I'm not that familiar with the service

I also utilize the WRCC website for Snotel, and Long Lead weather info.

All GACCs are obviously working towards a standard format. The quality of each is generally similar

Northwest GACC has R-6 info

Format is somewhat different for all GACCs but information is usually given in the same manner (reports, forms, etc.)

very few are the same and always seem to be in some form of construction. some are not user friendly and have in accurate information

The services on the web have always been easy to use. Because we travel so much it is easy to go to different GACC sites and pull the info we need for the area we are headed to.

In the last few years, the predictive services products available have become a lot more consistent and easier to find.

Southwest GACC allows you to see where their resources are and what rotation they are in for assignment. Southern/Northern Cal. GACC does not. They state it is do to CDF being

afraid arsonist will use this info. I disagree and prefer the Southwest method and site navigation.

I search for very specific info. I can get that at a couple sites.

Five years ago there was a great deal of difference and it took some search time to find exactly what I felt I needed. I appreciate that they are becoming more standardized.

It would be nice if all the GACC pages were set up the same. For example to find what incidents crews are on

Not sure.

Since I have no idea what Predictive Services does, I cannot answer the last question. Is this a new program?

One is more Nationally oriented and the other it seems regional.

The information I obtain from p.s. is fairly accurate.

The various GACCs provide a variety of levels of information on resource status. For example you can't even check on IHC status in EGBCC whereas the information on Sit 300 is excellent and the RMACC site is often wrong or out of date.

I can navigate around the sites and find what I want. The sites are all somewhat the same but not identical.

I have never compared them, sorry

California is a joke, and never works. Most websites are now using the same format and it makes it much easier to locate what you are looking for. California, Alaska, and some other BLM sites seem to have problems.

From what I can remember they are pretty much similar

For the most part you find the same sort of information on all sites with minimal difference

Some of the pages contain information that is very up to date while others have information that is very old and useless.

From what I have seen, they are just a little bit different, but provide very similar information.

They are close with mostly differences in maps and formats.

Satisfaction with Predictive Services contacts—A couple of respondents (2.6%) had contacted Predictive Services to report a problem with a product or service. These individuals rated Predictive Services as neither responsive nor unresponsive to their problem(s). A couple (2.6%) had contacted Predictive Services to suggest a new product or service. Using a 1 to 5 scale where 1=not at all responsive and 5=very responsive, one of the respondents selected a '2'; the other rated Predictive Services as '4'.

Use and utility of products and services—Products and services available through Predictive Services were examined. The 39 specific listings included some products and services that are generated elsewhere, or that are available only on some sites, but not all. Respondents were asked first to indicate if they had not used each product, and then for those that they had used, to rate each according to its usefulness to them on a scale from 1 to 5, where 1=not at all useful and 5=very useful.

The first set of product ratings (*table F5-2*) are those that are shown on Predictive Services sites, but are produced through other agencies.

Table F5-2. Use and utility of Predictive Services products and services provided by other agencies/groups—federal crew supervisors and other suppression personnel.

Product or Service	% Not Used	Usefulness M	SD, N
National fire weather outlook	10.3	3.71	1.1; 66
Red flag warnings	12.8	4.30	.9; 66
Drought information	11.5	3.85	1.0; 66
Haines index	15.4	4.02	.9; 63
7-day precipitation maps	17.9	3.37	1.0; 57
7 and 14-day precipitation percent of normal	21.8	3.25	1.0; 57
12-hour forecast maps	19.2	3.71	1.0; 58
MODIS active fire maps	33.3	3.35	1.1; 49
7 and 14-day average maximum temperature departure from normal	19.2	3.22	1.0; 58
7-day average maximum temperature maps	23.1	3.38	1.1; 56
Wind maps	33.3	3.73	1.1; 48
Observed fire danger images	39.7	3.29	1.0; 42
ROMAN real time fire weather and information report	42.3	3.83	1.0; 41
Upper air soundings	67.9	2.90	1.2; 20

A set of products and services is produced by Predictive Services and is available on a limited scale (*table F5-3,* less than national, typically on a local and regional level). These products and services are offered on a limited scale to meet specific regional needs and interests.

Table F5-3. Use and utility of Predictive Services products and services provided by Predictive Services on a limited scale—federal crew supervisors and other suppression personnel.

Product or Service	% Not Used	Usefulness M	SD, N
Interagency situation reports	12.8	4.28	.9; 64
Daily fire weather/danger outlook	12.8	4.11	1.0; 66
Prescribed fire reports	39.7	3.14	1.0; 42
Smoke program reports	42.3	3.05	1.0; 40
Online briefings	50.0	3.06	1.0; 34

This last set of products is available on a national scale and is created by Predictive Services, sometimes in collaboration with other entities (*table F5-4).*

Table F5-4. Use and utility of Predictive Services products and services provided by Predictive Services on a national scale—federal crew supervisors and other suppression personnel.

Product or Service	% Not Used	% With 4 or 5 Rating[1]	Usefulness X	SD, N
Incident Management Situation Reports	10.3	79.4	4.25	1.0; 68
Weekly fire weather/danger outlook	12.8	68.2	3.88	1.0; 66
Seasonal fire weather/danger outlook	11.5	36.4	3.09	1.2; 66
Monthly fire weather/danger outlook	15.4	33.4	3.08	1.0; 60
10-day fire weather/danger outlook	14.1	39.1	3.27	1.1; 64
Live fuel moisture	15.4	73.0	4.00	.9; 63
Dead fuel moisture	14.1	74.6	3.98	.9; 63
7-day large fire potential	15.4	45.1	3.42	1.0; 62
Fire news and notes	26.9	49.0	3.47	.9; 53
ERC and fuels charts	16.7	63.9	3.69	1.2; 61
Links to other services/websites	37.2	50.0	3.50	1.0; 44
Multi-season fire weather maps	28.2	32.7	2.92	1.1; 52
Interagency RAWS program	30.8	67.3	3.78	1.1; 49
Reference links	42.3	33.3	3.23	1.0; 39
Training	47.4	41.6	3.33	1.1; 36
State of the fuels program	65.4	19.1	2.76	1.0; 21
Technological guidance and transfer	62.8	34.7	3.13	1.1; 23
Predictive service forms	62.8	20.8	3.04	1.0; 24
Regional monsoon update	53.8	18.8	2.69	1.1; 32

[1]This column considers only those who rated the product and is not based on all federal respondents.

Respondents were invited to specify any other products or services they had used, resulting in the following remarks:

> 30-day % of average precip

Overall satisfaction—Responses indicate that Predictive Services had neither met nor failed to meet most expectations (*M*=3.2, sd= .8, *n*=69, *Figure F5-14*, 11.5% did not reply to this item), and respondents were somewhat satisfied (the majority marked 4 or 5 on the scale, *M*=3.4, sd= .8, *n*=69, *Figure F5-15*, 11.5% did not reply to this item).
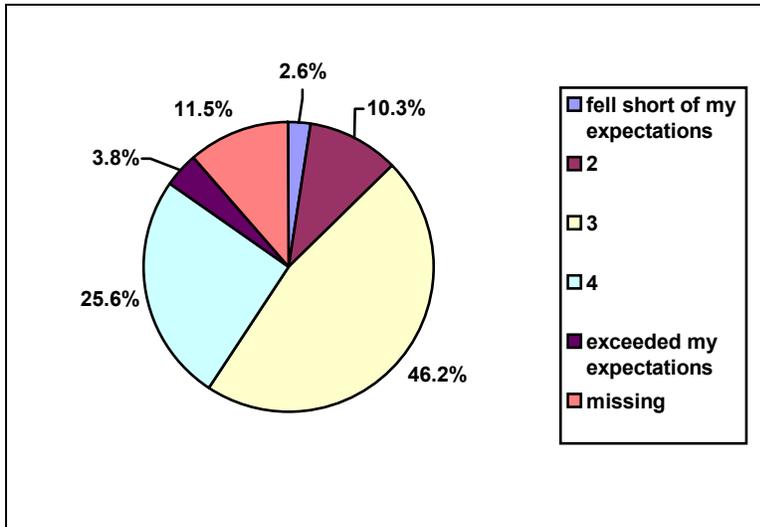
Figure F5-14. Ratings of degree to which Predictive Services met expectations—federal crew supervisors and other suppression personnel.
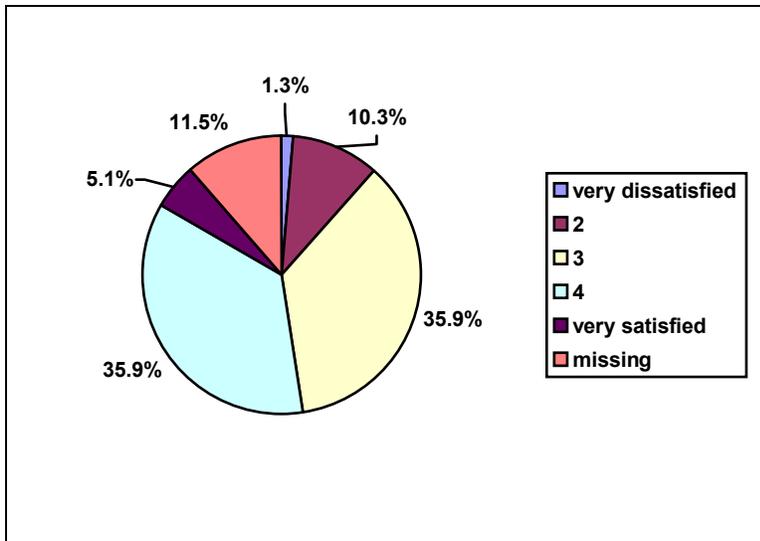
Figure F5-15. Ratings of satisfaction with Predictive Services products and services—federal crew supervisors and other suppression personnel.

Trust and confidence in the information—A majority expressed some, to a great deal of trust and confidence in Predictive Services information (*Figure F5-16*, *M*=3.3, sd=1.0, *n*=72; 7.7%, did not answer this item.)
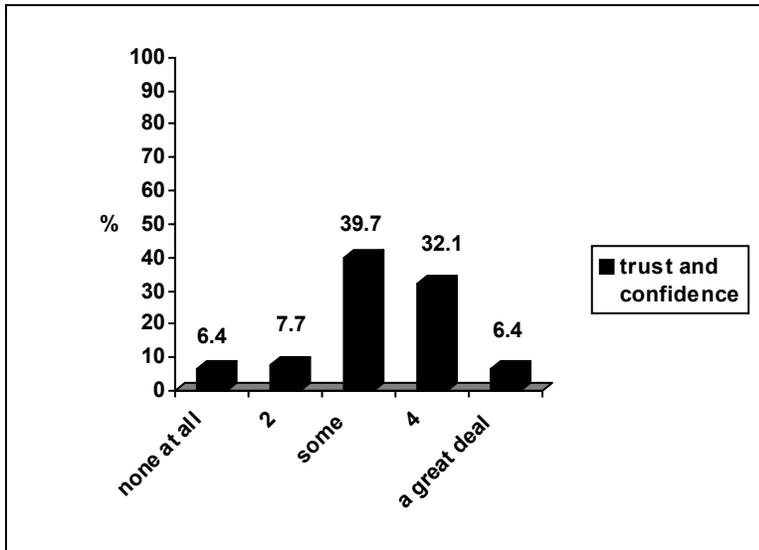
Figure F5-16. Ratings of trust and confidence in Predictive Services information—federal crew supervisors and other suppression personnel.

Are Respondents Relying on and Taking Action Based on Predictive Services?

Reliance on products and services— Almost one-fifth (19.2%, *Figure F5-17*) indicated that they *did* rely on the products and services in making important decisions (selected a 4 or 5, where 5 was very true). About one-fifth (20.5%, *Figure F5-17*) indicated that they relied on other sources more heavily than the products and services provided by Predictive Services (chose a 4 or 5, where 5=very true).
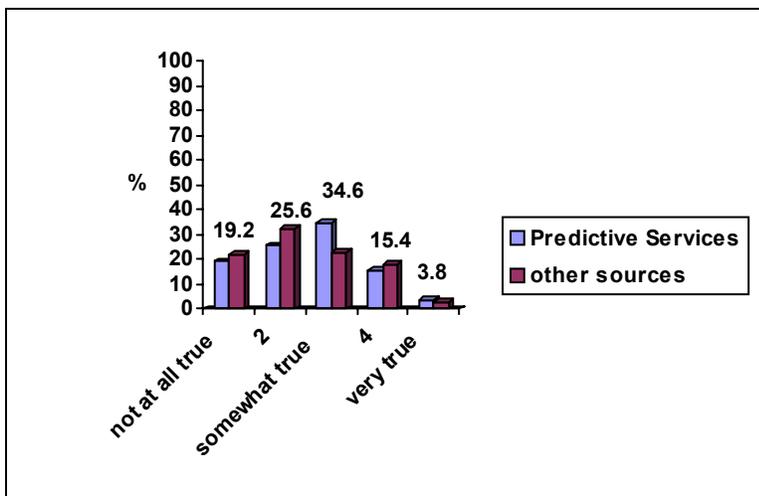
* The proportion of respondents in each category is shown for reliance on Predictive Services.

Figure F5-17. Reliance on Predictive Services and reliance other sources—federal crew supervisors and other suppression personnel.

Reliance on other sources was investigated further. Respondents were asked to comment when they provided ratings of 4 or 5, indicating they relied on other sources, resulting in the following comments:

> To say I 'rely' on any predictive service is stretching it.
> local weather forecasts and observations
> I am gone from home most of the summer. So most info needed is received from IMT's
> www.wildlandfire.com (links and news)
> NIFC, National Weather Service
> I rely on the incident briefings, infrared image data, maps, and personal communication with
>   the chain of command.
> Most info comes from either IMT briefings or radio briefings
> My main sources are NWCC, the daily sit report and various weather sites
> local fire knowledge, on-site weather and fire behavior observations, I.A.P. weather forecast

Degree of reliance on Predictive Services was also queried. About one-third indicated little to no reliance on Predictive Services information (33.3% chose a rating of 1 or 2, where 1=none at all when asked "How much do you rely on the information provided by Predictive Services to assist in decision-making?"). Another one-third (35.9%) indicated some reliance, and one-fourth indicated reliance (24.3% chose a 4 or 5 rating, where 5=a great deal; only 6.4% did not answer this item.)

The likelihood of taking action based on Predictive Services information was examined. Nearly one-fourth were likely to take action based on Predictive Services information (23.0% chose a 4 or 5 rating, where 5=very likely, *Figure F5-18,* 3.8% did not answer this item).
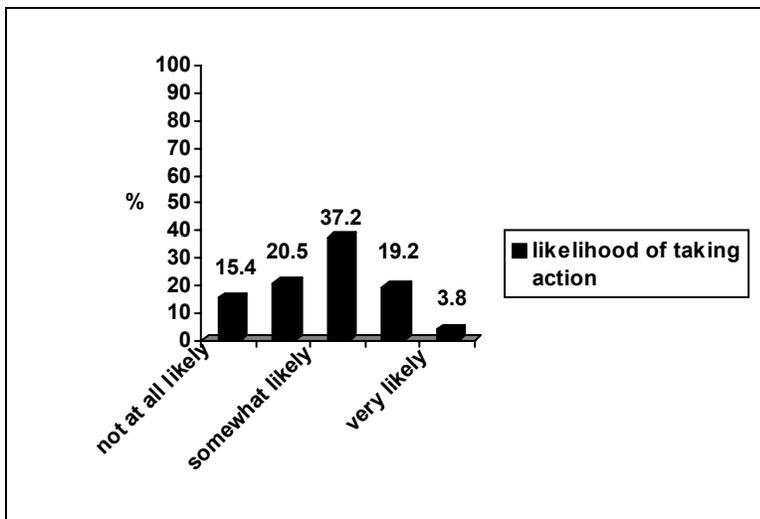
Figure F5-18. Likelihood of taking action based on Predictive Services information received, or gathered from a website—federal crew supervisors and other suppression personnel.

Did Respondents offer Insights into Reliance and Barriers?

Perceived overlap—Respondents were asked how true or untrue it was that there is overlap in the type of information that can be obtained from Predictive Services and other sources (rated on a scale from 1 to 5, 1=not at all true, 3=somewhat true, 5=very true). While about one-third

(33.4%) indicated there was not overlap (chose ratings of 1 or 2), half (50.0%) felt this was somewhat true, and about one-tenth indicated it was true to very true (11.5% chose ratings of 4 or 5; 5.1% did not answer this item.)

Respondents provided the following comments regarding perceived overlap with other sources:

> WRCC
> We normally only use the national services, sometimes we will look at the Weather Channel when we don't have access like when we are on the road.
> I don't know but it is a government agency!
> I often go to the NIFC sit. report and various sites for weather
> Western Regional Climate Center, Local News Wx, historical data, various universities such as U of Colorado Boulder, U of Alaska, etc.
> There are a great many web sites out there that are independent of the national predictive services that provide good information, but not as good, it' (sic) not one stop shopping.

Beliefs about Predictive Services among those who had data gathering and reporting duties—
The respondents with data gathering and reporting duties related to Predictive Services were asked: "How likely is it that you will gather and report data to Predictive Services?" About one-tenth indicated that they were likely to gather and report data (11.1% chose a 4 or 5 on the 5 point scale, where 1=not at all likely, 5=very likely; 11.1% did not provide a response; *Figure F5-19*).
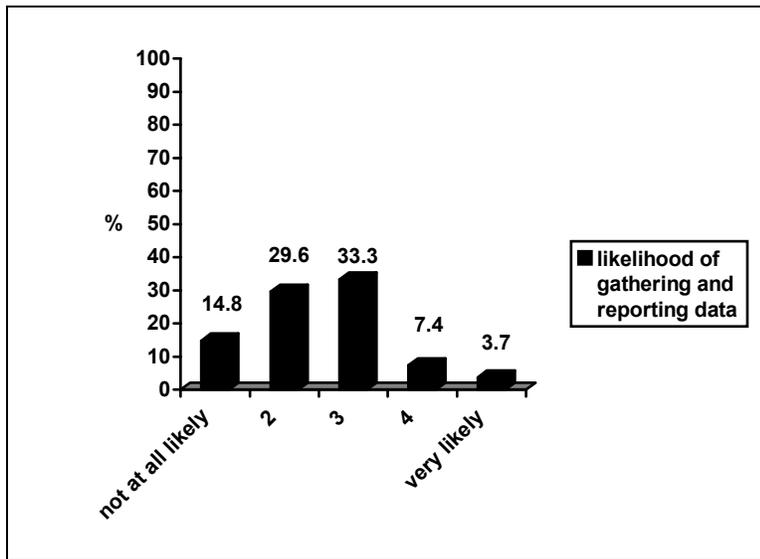
Figure F5-19. Likelihood of gathering and reporting data to Predictive Services—federal crew supervisors and other suppression personnel with data gathering and reporting duties.

Respondents were somewhat mixed when rating agreement that they had the resources to gather field data for reporting (*M*=2.7, sd=1.0, *n*=27, rated on a 1 to 5 scale where 1=strongly disagree and 5=strongly agree; *Figure F5-20;* 11.1 % did not answer this item).
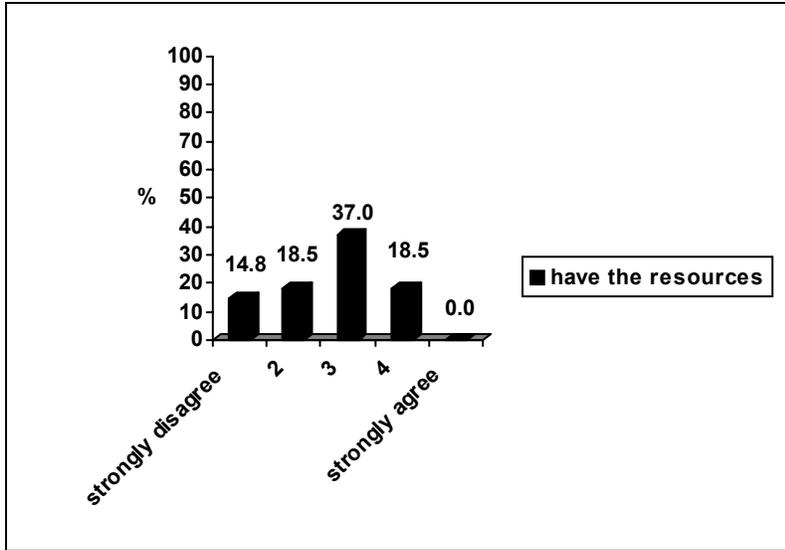
Figure F5-20. Degree of agreement or disagreement with "I have the resources (e.g., time/skills/personnel) to gather field data for Predictive Services reporting" —federal crew supervisors and other suppression personnel with data gathering and reporting duties.

This subgroup was also asked to rate five items focused on positive impact of reporting, and negative effects of not reporting. Crew supervisors and other suppression personnel respondents neither agreed nor disagreed "My consistent upward reporting of data (e.g., 1300 obs for RAWS) increases the reliability and quality of Predictive Services products and services" (*M*=2.7, sd=1.1, *n*=27; *Figure F5-21*; 14.8% did not answer). They were also mixed in ratings of "My consistent upward reporting of data (e.g., 1300 obs for RAWS) increases the reliability and quality of products and services provided by groups and agencies that use the data from Predictive Services to generate their own products" (*M*=2.8, sd=1.0, *n*=27; *Figure F5-21;* 14.8% did not answer).
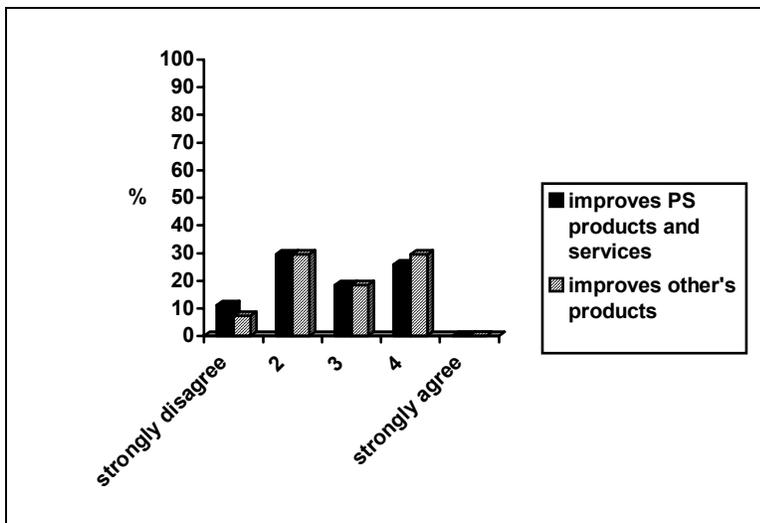
Figure F5-21. Degree of agreement or disagreement with positive outcomes of reporting data—federal crew supervisors and other suppression personnel with data gathering and reporting duties.

Responses indicate that the majority disagreed there are adverse outcomes when/if data is not gathered and reported. This was assessed through two items "If I don't collect and report Predictive Services data, it could affect my unit's ability to make sound decisions to manage fire" (48.1% selected a 1 or 2 rating on the scale; *M*=2.6, sd=1.1, *n*=27; *Figure F5-22;* 14.8% did not answer); and "If I don't collect and report Predictive Services data it could adversely impact firefighter or public safety" (48.1% selected a 1 or 2 rating; *M*=2.7, sd=1.0, *n*=27; *Figure F5-22;* 14.8% did not answer).
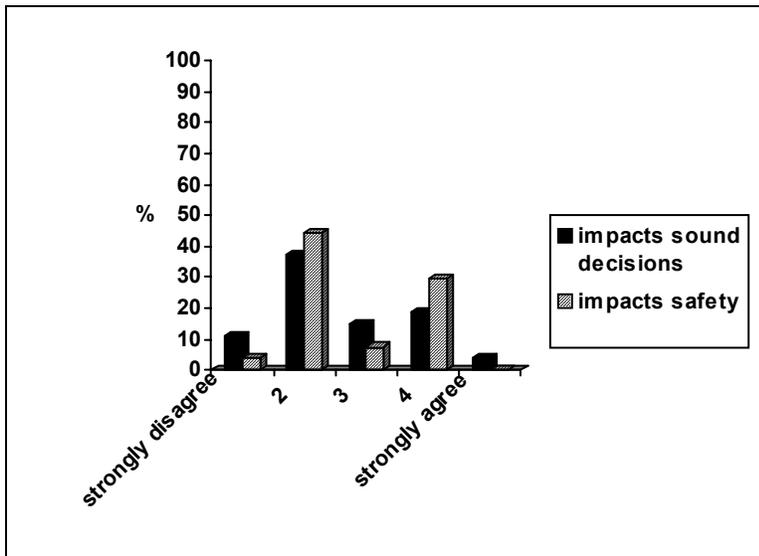
Figure F5-22. Degree of agreement or disagreement with adverse impacts of not collecting and reporting data—federal crew supervisors and other suppression personnel with data gathering and reporting duties.

Ratings of ability and impact of applying Predictive Services information—General ability to access and apply the information from Predictive Services, as well as its utility in job performance, was queried (using a 5-point Likert scale where 1=strongly disagree and 5=strongly agree). Federal crew supervisors and other suppression personnel were somewhat in agreement with "I can access and apply Predictive Services information as part of my job duties" (*M*=3.3, sd=1.0, *n*=58). However, they were in less agreement with "Predictive Services information helps me perform my job with greater precision" (*M*=2.3, sd=1.0, *n*=50).

Two general items examined perceived impacts of inaccuracies of Predictive Services information. The first was "Inaccurate Predictive Services information would decrease my ability to predict fire behavior." Rated on a 1 to 5 scale, where 1=strongly disagree and 5 was strongly agree, the average was 3.0 (*M*, sd=1.1, *n*=56; *Figure F5-23*). About one-fourth did not answer this item (20.5% selected 'don't know', and 7.7% did not select any answer). The second was "Inaccurate Predictive Services information used in my decision making may adversely impact firefighter or public safety." Again, the average was at the mid-range of the scale (*M*=3.0, sd=1.2, *n*=57; *Figure F5-23*). More than one-fourth also failed to indicate degree of agreement or disagreement with this item (17.9% marked 'don't know', and 9.0% did not select any answer).
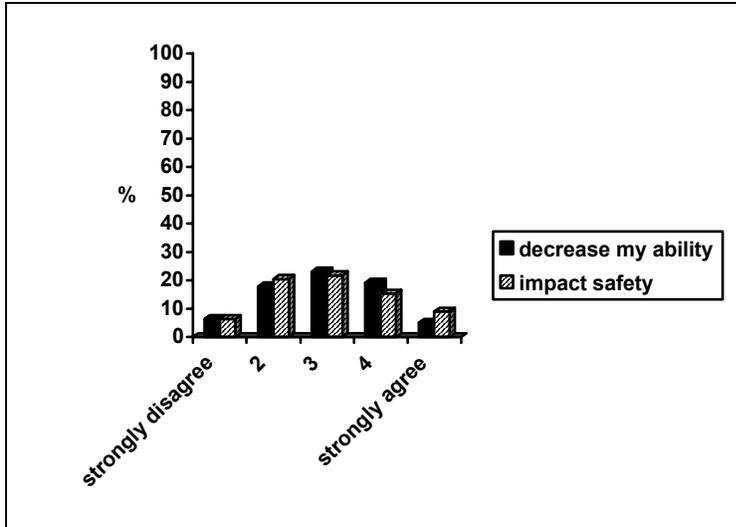
Figure F5-23. Impacts of inaccurate reporting of Predictive Services information—federal crew supervisors and other suppression personnel.

Barriers to use of products and services—There were various reasons why respondents did NOT use the products and services offered by Predictive Services, although no one overwhelming reason or set of reasons emerged among the 16 offered as potential barriers (*table F5-5*). The most frequent reason provided was not having thought about using the products and services. A lack of trust was not frequently cited.

Table F5-5. Reasons why they had not used the products and services offered by Predictive Services—federal crew supervisors and other suppression personnel.

Reason	Percent
I never thought about it.	23.1
My current management practices don't require the types of information provided by Predictive Services	12.8
I don't know how to use these products	10.3
I need information that is site specific	17.9
I am not mandated to use these products	9.0
I don't have the time to use these products	15.4
I don't know where to get advice about using these products	6.4
I don't know where to get the technology to use these products	11.5
I don't have the technology I need to use these products	9.0
I don't trust the products and services	2.6
I don't want to use these products	1.3
I don't think these products support my agency's current practices	1.3
Agency directives/guidelines instruct me to use other information	0
I don't have the money to use these products	2.6
I don't trust the advice I get about using these products	1.3
I don't trust information that is generated by multiple agencies	3.8

As a follow-up to the above items, we invited respondents to explain why they might not want to use the products, resulting in the following comments:

Maybe I missed it but what exactly is predictive services

Short forecast are much more likely to be accurate. It's a guessing game call it what it really
is.
I only participated in prescribed burning last year and did not access Predictive Services.
don't use them as much anymore as I am not in fire.
Out in the field I rely on the area to provide the information

How can Existing as well as New Products and Services be Improved or Designed?

How fire danger/fire information is used to support decision-making—Respondents were asked
to indicate how they use fire danger/fire information to support decisions made regarding fire
management. About one-fifth of respondents used fire danger and fire information to make
decisions in decision support about public use restrictions (19.2%), while others used the
information for decisions about resource allocation (26.9%), for severity requests (23.1%), and
about resource staffing (41.0%).

Respondents were asked to indicate other uses of fire danger/fire information, resulting in the
following comments:

Hotshot crew preparedness
crew management, briefings, training, TDGS. AAR. maintaining mine and crews SA
Prescribed fire staffing levels
brief crew, decision to ignite prescribed fire
purely informational
Crew briefing
Fire mapping, infrared detection
Pre Assignment preparedness.
preparedness
Crew briefings and awareness
my job doesn't entail those decisions
Expected fire behavior potential and tactics
crew readiness
crew preparedness
Movement of National Shared Resources
Just to maybe look ahead, helps to get our minds in the game.

Tolerance for errors and inaccuracies—Respondents were asked to rate their tolerance for false
alarms and inaccurate reporting (rated on a scale from 1 to 5, where 1=low tolerance and
5=high tolerance). While respondents did not indicate a high tolerance for false alarms or
inaccurate reporting, they were somewhat more tolerant of false alarms pertaining to fire danger
(M=3.0, sd=1.0, n=76; *Figure F5-24;* 2.6% did not answer), than they were of inaccurate
reporting of high fire potential (M=2.7, sd=1.0, n=76; *Figure F5-24;* 2.6% did not answer).
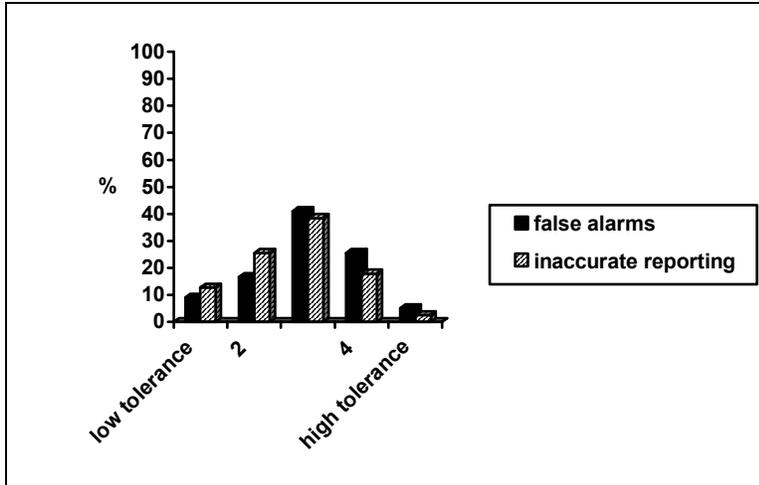
Figure F5-24. Tolerance for false alarms and inaccurate reporting—federal crew supervisors and other suppression personnel.

In order to capture overall preferences for approaches to errors ("Although it is understood that accurate and reliable reporting of fire danger and high fire potential are desirable, margins of error are involved in predictions. In these cases, do you prefer that…"), respondents chose between two statements:

"Statements of danger or risk be issued with a greater margin of error allowing for an early response, knowing that this may lead to unnecessary alarms and response (Better safe than sorry)" —71.8 percent chose this statement as their preference.

"Statements of danger or risk should only be given with certainty, knowing that this may allow a few dangerous events to emerge that were not anticipated (Don't cry wolf)." —21.8 percent chose this statement as their preference.

A few (6.4%) did not choose either statement as their preferred approach.

Audience identification— According to the federal crew supervisors and other suppression personnel respondents, the primary audiences for Predictive Services' products should include: local and district fire managers (78.2%), regional and state fire managers (71.8%), national fire managers (70.5%), and to a lesser extent non-fire land managers (26.9%), and the public (33.3%; note that respondents could select multiple audience types, so responses do not sum to 100%).

Respondents were invited to specify other primary audiences, resulting in the following comments:

Hotshot Crews
I am totally unaware of your specific products. I go to the national wildland fire website for all fire related information including weather
all in supervisory fire positions, not just managers
Winter snow safety programs e.g. ski area/hi-way avalanche programs and avalanche centers
I don't know what PS has available.

on the ground firefighting supervisors

Preferred information formats—Respondents were asked to indicate their preferences for the style and format of presenting information. For each of 11 formats presented, a rating from 1 to 5 was requested (1=not at all useful, 5=very useful). Based upon the proportion of respondents assigning ratings of 4 or 5 to each format, the formats most to least useful were: information presented in regional or national maps (56.4%), satellite maps (51.3%), radar maps (47.4%), data in table form (44.9%), brief executive summaries of data (42.3%), brief annotations that accompany data presentations (38.3%), data in spreadsheet form (35.9%), data in text form (34.6%), bar charts or figures that summarize data (32.1%), web-based ArcIMS maps with user-defined layers and scales (32.0%), and non-web-based Geo database files (10.3%).

Other styles or formats of information offered by respondents, or comments surrounding this issue, included:

Any visuals

Respondents were also asked to indicate what, if any information they would like to see in summary or synthesis form, resulting in the following comments (for this item the don't know and not applicable responses have been excluded):

Planning implications, some national planners/coordinators need black and white guidance to propel them into action. They lack the vision and guts needed to take risks and act in advance.
Don't know what you mean
Snowfall and precip. data
resource locations/assignments
This questionnaire to be shorter
Resources assigned and where.
Shorten detailed weather/fire behavior forecasts beyond 48 hours.
nothing more
nothing additional.
Fuels, ERC
Maybe a report to reflect how accurate you were for the calendar year...

Improving existing products and services—Respondents were asked to complete the sentence "The information and services provided by Predictive Services would be more useful to me if…", resulting in the following open-ended remarks:

national resources were more accurately tracked.
they were more timely and user friendly.
I had some knowledge of what they were and where they could be found
if all the GACCS were more consistent. I don't know if this is the right place but the pocket cards are seldom taken too seriously due to it seems like we are always off the charts on the high end no matter where we are or which season it is. Like I said earlier better tracking of resources in GACCS would help with crew morale, cohesion etc. Sometimes with a crew that can be as important as being dialed in with fire behavior, weather etc.
it was related to potential courses of action that are warranted for the predicted events. It does not seem that anyone is willing to initiate action based on the products produced until the actual event occurs. Listing potential actions before hand will put pressure on people to act earlier, before they are looking at 'I told you so's' on the screen.

I knew what you were talking about more specifically. If I missed it 'sorry'

The GACC provided timely updates. Often the material has not been updated. Once the materials useful lifespan has run its course, even post fire/fuels season, then show nothing.

I had more training in their use to better interpret the data.

I had a better understanding of Predictive Services.

there was more accurate 'on the ground' representation of what actual fire potential will be. Many times the Large Fire Potential charts truly misrepresent (usually by over estimating) the fire potential in an area. The green, yellow and red system with dryness and instability as the two critical factors is an interesting method, but often does not represent actual conditions encountered

I knew how to use them

it were easier to see how this information benefits me locally

my job duties required more long term planning.

I were home to receive it.

were on a mailing list.

Some how you could be more accurate.

the local weather service offices continue to provide one on one support for weather products. The level of trust in a forecast product is directly related to the personal conversations I have had with the forecasters. They do a great job in Boise of getting to know their customers, and updating them on new developments in between official forecasts.

we had access to forest(s) staffing, resource location/availability/rotation for assignment.

I was in a management position.

I knew it existed.

there was one website where one could go for all fire information.

I had them on hand daily in fire season.

my agency would make technology funds available to allow me to purchase equipment to access the information via a wireless or satellite access system using my laptop while in the field.

I had a 0600 hr. PST forecast report, but other than that it works for me.

it is useful

the fire and weather forecasts were more accurate.

I had more time

I was better at using the information. I am pleased with the products available.

were management

I ever used them.

they were more user friendly and I had more time to experiment with the various sources of information.

I knew what it was. This is the first time I have heard the term.

I had access in the field and was site specific... eg: spot weather

nothing. It seems pretty useful to me already. But, I don't know all the services. At least I think I don't.

I have no problem you do a good job.

I had wireless broadband internet which I will never get because of security issues. If I had that I could access information while out on assignment. Dialup is too slow to access adequate info.

I where to find them and how to use them

If I took the time to utilize all the services available on a daily basis.

In my opinion, we are given an overload of information. At my level, I am interested in national/regional SIT Reports, fuel moisture data, drought info. and not a barrage of info beyond 48 hours.

I were still heavily involved in the fire program

it took into account the field going personnel's observations and input.

Seems good to me. I think there is a good saturation of info out there.

the maps were legible.

all agencies websites were updated, similarly formatted, and actually worked, ie., CA, AK, other BLM sites.

I new where to find it for any area

30-day assessments were issued 2x each month and seasonal assessments were updated every month to improve accuracy of those predictions.

it was emailed to me directly

it were more all inclusive.

There was more access in the field

if they sharpen there pencil, and get a little closer to the line, I understand it's predictive, but let's face it we want information that will help make timely decisions, this is a valuable tool, and we need to keep it, just sharpen that pencil.

they applied to the local field level and were input and correctable by field personnel (not people sitting in office parks like NIFC)

Predictive Services would be more useful to me if knew more about it. I'm sure I've used many of the service's products and did not know it. So it may actually be more useful to me than I realize.

I could more easily access them while assigned to incidents or in travel status. This though is an issue with current agency technology and not predictive services.

I knew before the survey that Predictive services was responsible for the information I use to brief my crew on weather and fuel condition.

Respondents were also asked to consider the existing products and services, and comment on how they could be modified to better meet their needs, leading to the following comments (answers of don't know or no comment have been excluded):

I don't know what the existing products and services are

Put them on one page, why go looking around at each region. One national map page with icons for increasing fire danger, red flags, large incidents, resource flow indicators, emerging events, fading events, special fire danger announcements.

Of the ones I have used, I think they are fine.

Keep predictive services up to date on the web all year, especially in regions that can experience extended drought and seasonal drying in the winter months (e.g. Southwest GACC)

The products that we use on-line meet our needs.

Sit 300

Just site specific weather and the National Situation Report.

easier access to the fire weather indices.

My current needs focus more on the short term potentials. Perhaps a 'package' deal that would give you access to daily/weekly WX, fuel moistures, sit report, etc? Kind of a one stop click - my only problem with the products is finding what I need amongst the plethora of options.

until we get faster internet it really doesn't matter

The ones I use so far meet my needs just fine. If I was more familiar with the other ones, I might have more to go on.

I like the accuracy of the Sit 300 and the notes pages in the SWCC site.

they are good

On a day to day basis it is a good product. Beyond a month in length predictive services are week in assessment.

get more information out about where to get this information

no modification needed.

Nothing that P. S. can add just at the local office to utilize

We just need to be reminded that it's there and use it, it's too valuable to not use it.

Consistent and unified websites (much progress made recently it seems, but still more to go). Fewer links to click to find anything. You've got information, but you need to organize it better. Remember, design by committee does not work; web tech specialists and IT folks are NOT synomonous with web designers (the government ignores this, but at least they ignore it consistently (except for the NPS who understands interpretation, education and public versus government audiences)).

Be consistent nationally.

Products or services that should be added to what Predictive Services provides—Respondents were asked to explain which products and services should be added to Predictive Services and why, resulting in the following comments:

A prediction of flow rates and direction for resource mobilization over time. Show where to expect certain types of resources to going to or coming out of. Potential indicators for locations that are ripe for pre-positioning or at the other end, where can resources be pulled from with reasonable confidence.

Focus on long-term drought more. In the past decade, many of the forest lands have been in an on-going drought, and it, along with dead fuel loading, has played a large role in the unprecedented fire activity we have witnessed.

As stated before, add access to resource location/availability ie., Southwest Sit300...

Daily Red Flag Warning area map.

easier access to the fire weather indices at 1500 hrs.

live web cams

Let people know that it exists.

Last year I tried to find info on monsoon and had difficulty. A weekly monsoon update would be useful not only for the southwest, but northern GACC's as well as the entry of the monsoon to the SW usually kicks off the fire season in the Great Basin.

I just don't know what, there's always room to improve

Be able to make changes as Technology improves.

Were There Additional Comments?

As is customary in such surveys, we invited respondents to offer any comments about Predictive Services, or any comments about the survey, resulting in the following remarks:

I greatly appreciate you asking the CONSUMER what they want/need. Thank you!

I just completed a survey on something I'm not familiar with at all

Not being a computer wizard I think it still very easy to obtain the info that you want. A heck of a info source to educate yourself, peers and firefighters

Good job. It's getting better and more standardized each year

The reason I did not respond to this e-mail earlier, on my mail it was not clear who it was from, and I don't open e-mail that I'm unsure of. Thanks.

maybe some sort of cell phone web based weather program. Something a web enabled phone could surf & get in an easy format.

I utilize predictive services extensively - but didn't quite realize the huge number of services provided. I find the quality provided overall to be excellent. Occasionally the timeliness suffers. Overall I am impressed with all the data provided to us, and find a majority of the information extremely important.

I am wondering if predictive Services is a new program or an existing one with a new name.

At first wasn't quite sure what the questions were about. Maybe a little brief description of what Predictive Services is about to get their heads in the correct format. Plus, not sure of all the different items provided by Predictive Services.

Make all GACC format the same with the same info

I think it is a very useful tool and should continue in the future

Good survey, keep doing what you are doing, every one can use these tools, just keep improving......good job....

Appendix F6: Administration/Operations/Aviation—Federal Respondents

Administration, operations, and aviation personnel (admin/ops/aviation) were grouped into one category (*n*=66). While it would have been ideal to separate out aviation, the low number of respondents did not support a separate analysis. These respondents came from the Forest Service (60.6%), Bureau of Land Management (18.2%), Bureau of Indian Affairs (7.6%), Fish and Wildlife Service (7.6%), National Park Service (3.0%), a federal interagency group (1.5%), and an unnamed federal agency (1.5%).

Who Were the Admin/Ops/Aviation Respondents?

The majority was male (66.7%), mostly between 45 to 54 years old (*Figure F6-1*).
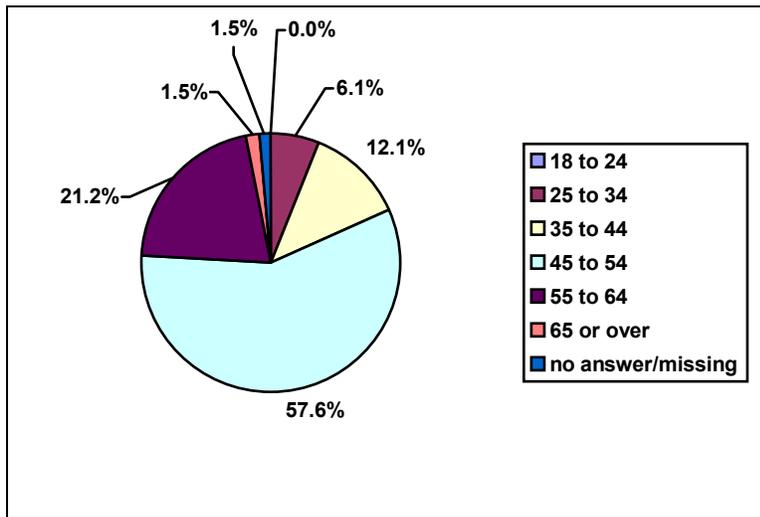
Figure F6-1. Age—federal admin/ops/aviation respondents.

Educational background / degree or equivalent—Educational attainment was fairly high among the majority in this subgroup, with more than one-fourth reporting graduate education (*Figure F6-2).*
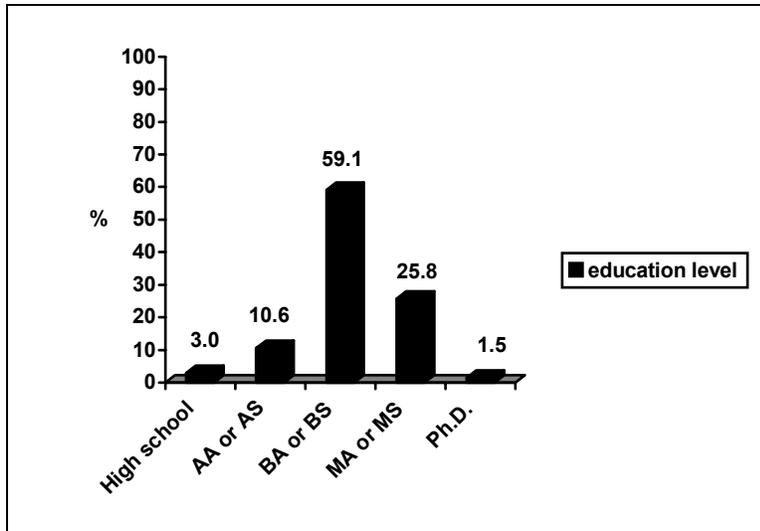
Figure F6-2. Educational attainment—federal admin/ops/aviation respondents.

Respondents reported degrees in the following subjects (these are on an individual basis so when lines contain multiple subjects they reflect an individual's response):

Administration of justice
Botany
Business management
Computer science
Education/biology
Environmental and resource sciences
Environmental management
Exercise science
Fire management
Forest ecology
Forest management (6 respondents)
Forest resources (2 respondents)
Forest science
Forestry (8 respondents)
Forestry, outdoor recreational resource management
Forestry and urban studies
Forestry, business
Forestry, natural resources management, communications
Forestry/ natural resources
History
Liberal arts
Liberal studies
Public administration
Meteorology

Natural resources
Organizational communications
Outdoor recreation planning
Public health
Safety
Technical fire management
Watershed management-forestry
Wildlife biology
Wildlife ecology
Wildlife management
Zoology

Home office Geographic Area location—Respondents came from across the United States, with their home offices falling within the various Geographic Areas (GAs) shown below *(Figure F6-3)*.
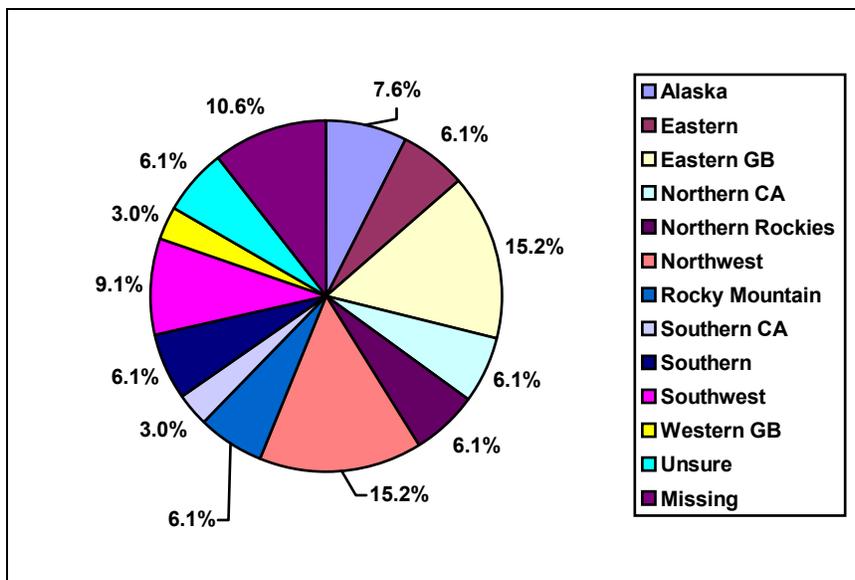
Figure F6-3. GAs—federal admin/ops/aviation respondents.

Level of geographic responsibility and scope of duties—Respondents' level of geographic responsibility varied. A few reported their duties were incident specific (3.0%), while about one-third indicated duties linked to their local unit (including forest, district, reserve, etc. at 30.3%). A few had duties that focused on the state level (7.6% respectively), and almost one-third (30.3%) had regional-level responsibilities. Responsibilities for another fourth were at the national (25.8%), or national and international (3.0%) level.

The majority of respondents (53.0%) indicated that their work was specific to their agency only, while some (47.0%) had duties specific to multiple agencies.

The number of years reported in the current position of employment averaged 6.8 years (sd=6.5, *n*=41). Median responses for number of people supervised included three on a routine basis, and none on a seasonal or incident/project basis.

Almost one-fourth (24.2%) of the admin/ops/aviation respondents had job responsibilities that included gathering and reporting data that is used by Predictive Services such as: situation

reports, ICS-209s, NFDRS/WIMS, etc. Among the respondents with data gathering and reporting duties (*n*=16), the duties are assigned as one of their primary responsibilities (31.3%), or assigned as part of a group that fulfills that responsibility (37.5%). Fewer (25.0%) held this set of duties when others with this routine responsibility were away from the office. This group of respondents is very small, so while we report all responses from them, readers should exercise caution in programmatic decisions or other issues that might be addressed with this data.

What are their Levels of Experience with Predictive Services?

Frequency of access and information acquisition—The frequency of accessing and obtaining information from Predictive Services was examined under two conditions, during fire season and outside of fire season. Frequency of access was greatest during fire season (*table F6-1*).

Table F6-1. Frequency of accessing and obtaining information from Predictive Services—federal admin/ops/aviation respondents.

Frequency	During Fire Season %	Outside Fire Season %
Daily	40.9	3.0
Weekly	22.7	21.2
Monthly	1.5	13.6
Quarterly	0	9.1
Rarely	7.6	19.7
Not at all	27.3	33.3

Specific circumstances for access/acquisition—In addition to frequency, respondents provided information regarding specific situations when they access or obtain information from Predictive Services. More than half reported accessing Predictive Services during fire season (57.6%), and almost a majority during a fire incident (48.5%). More than one-tenth listed other situations including when a prescribed burn is being planned (12.1%) and when a prescribed burn is taking place (18.2%). About one-fourth indicated none of the above situations applied to them (28.8%).

Respondents listed additional situations when they access/obtain information from Predictive Services including:

If available, cloud forecasts for R6 would be useful. Usually use NWS website for information.
in anticipation of a fire season to determine potential fire areas
Geographic Area MAC Group meetings
Severity Requests and Justifications
When unusually high activity occurs out of season
Floods
seasonal predictions
Fire planning projects
National Office data calls
When my husband's type 2 IMT is on call or assigned to a fire
Severity

Use of specific websites and services—Respondents were asked to indicate which Predictive Services websites they had visited, or which GACC services they had used (e.g., briefings),

revealing that a majority had been to/used the National Interagency Coordination Center (NICC–63.6%). The Geographic Area Coordination Center sites from most to least mentioned were the Southwest (27.3%), Northwest (25.8%), Rocky Mountain (25.8%), Southern (24.2%), Northern Rockies (22.7%), Western Great Basin (21.2%), Alaska (19.7%), Eastern Great Basin (18.2%), Northern California (16.7%), Southern California (15.2%), and the Eastern site (13.6%; responses do not sum to 100% because respondents could select multiple sites). The majority had visited/used one or two sites, while others reported multiple sites (as many as all 12). About one-tenth (9.1%) were not sure which if any sites they had visited, or indicated they had not visited any of the listed sites (13.6%).

Familiarity with the products and services—Federal admin/ops/aviation respondents were asked to indicate how true or untrue the following statement was "I am unfamiliar with Predictive Services products and services." More than one-fourth indicated this statement was true (*Figure F6-4,* 28.8% selected a rating of 4, or 5, where 5=very true).
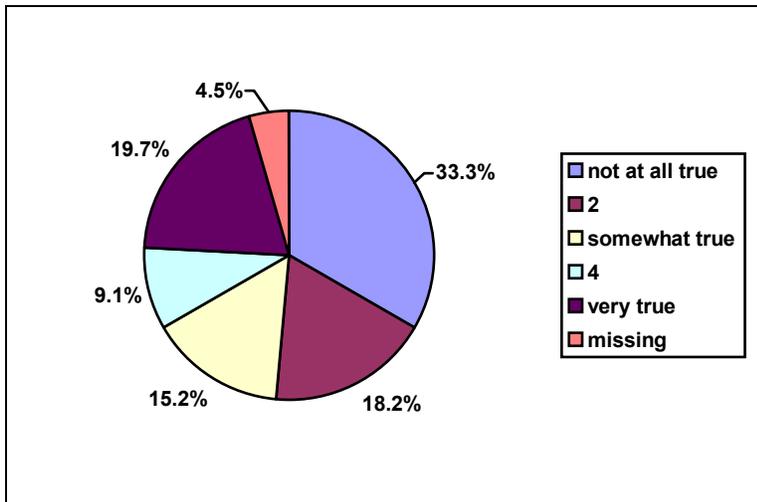
Figure F6-4. Unfamiliar with Predictive Services products and services—federal admin/ops/aviation respondents.

The majority of respondents were interested in Predictive Services products and services (*Figure F6-5*, 54.6% selected a 4 or 5, where 5=very true in response to "I am interested in Predictive Services products and services."
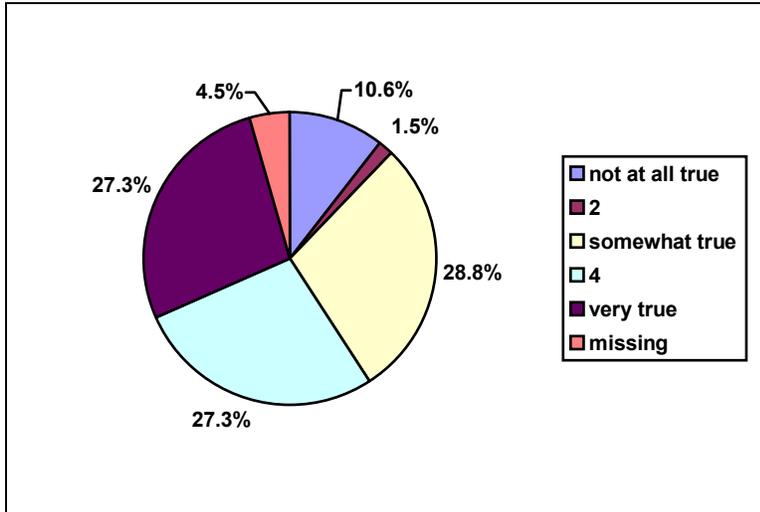
Figure F6-5. Interest in Predictive Services products and services—federal admin/ops/aviation respondents.

Respondents were asked their familiarity with Predictive Services' products on the web, the briefings, and the emails**.** They were more familiar with the web products (*Figure F6-6*, M=2.8, sd=1.4, n=63), and the briefings (i.e., national, geographic, situational, or meteorological, M=3.2, sd=1.5, n=61), than with the emails (these contain current projections and/or information about Predictive Services, M=2.6, sd=1.6, n=62).
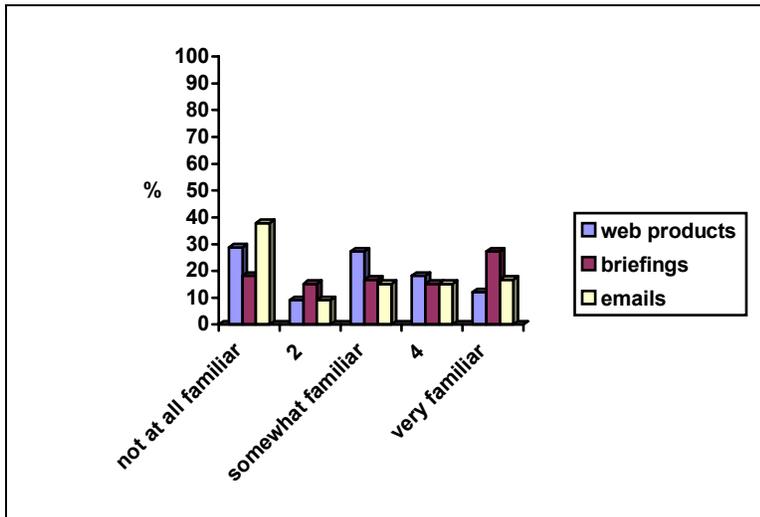
Figure F6-6. Familiarity with Predictive Services products on the web, briefings, and emails—federal admin/ops/aviation respondents.

What are their Opinions of the Products and Services?

Ratings of Predictive Services information—Respondents tended to agree that Predictive Services information was accessible (*M*=3.6, sd= .9, *n*=45, *Figure F6-7*, 30.3% marked 'don't know' and 1.5% did not respond).
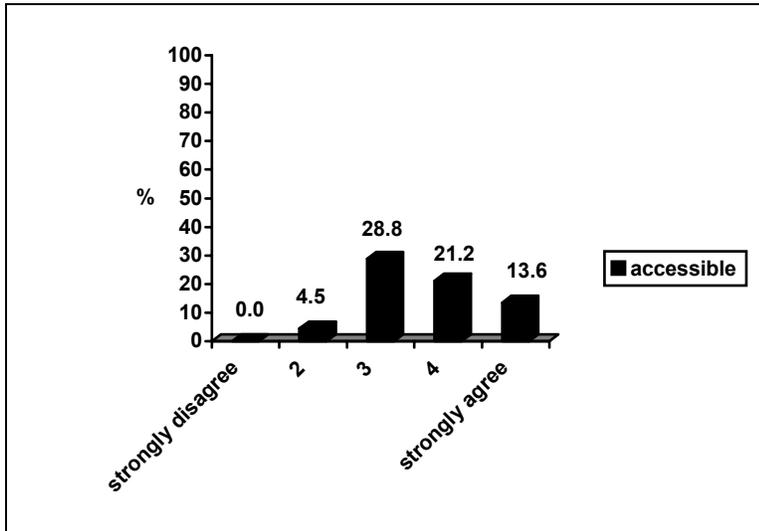
Figure F6-7. Ratings of accessibility of Predictive Services information—federal admin/ops/aviation respondents.

While a majority agreed that Predictive Services information was timely (either agreed or strongly agreed), almost one-third disagreed with this as an attribute (*M*=3.1, sd=1.7, *n*=56, *Figure F6-8*, 13.6% marked 'don't know' and 1.5% did not respond).
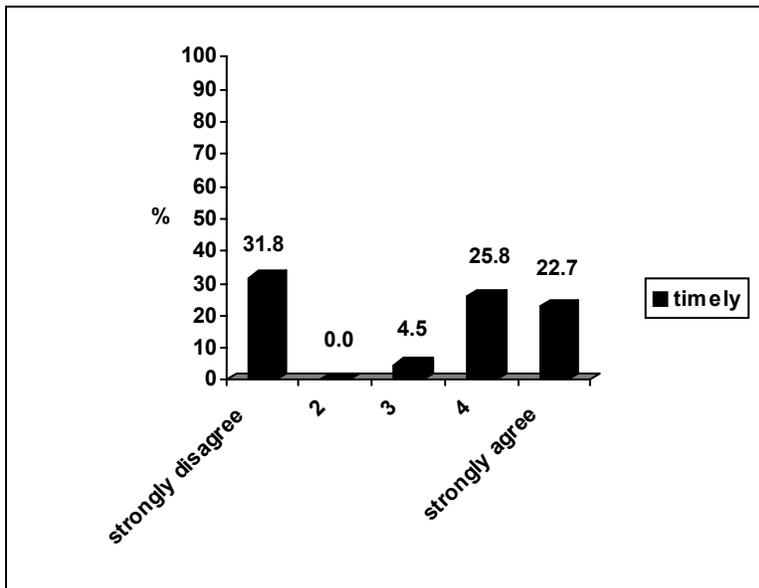
Figure F6-8. Ratings of timeliness of Predictive Services information—federal admin/ops/aviation respondents.

More than one-third agreed that Predictive Services information was relevant (either agreed or strongly agreed; *M*=2.9, sd=1.8, *n*=48, *Figure F6-9*, 25.8% marked 'don't know' and 1.5% did not respond).
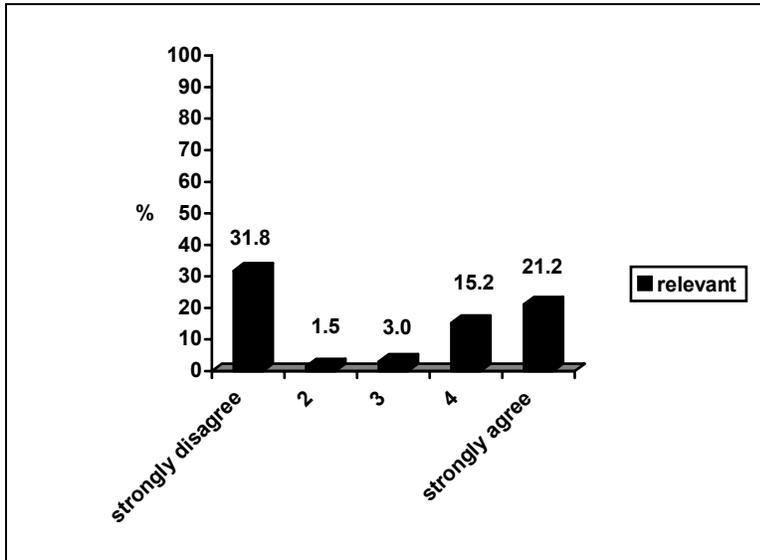
Figure F6-9. Ratings of relevance of Predictive Services information—federal admin/ops/aviation respondents.

Almost one-half agreed that Predictive Services information was accurate (*M*=3.1, sd=1.7, *n*=59, *Figure F6-10*, 9.1% marked 'don't know' and 1.5% did not respond).
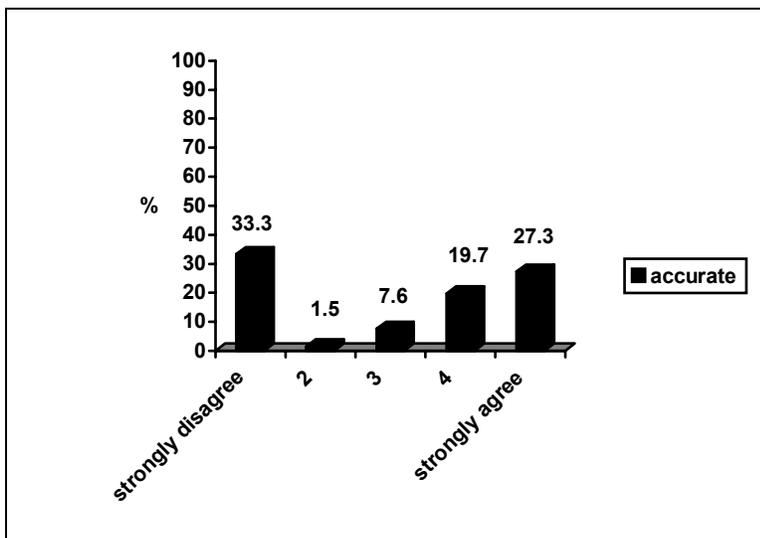
Figure F6-10. Ratings of accuracy of Predictive Services information—federal admin/ops/aviation respondents.

A near majority also agreed that Predictive Services information was complete (*M*=3.2, sd=1.8, *n*=59, *Figure F6-11*, 9.1% marked 'don't know' and 1.5% did not respond).
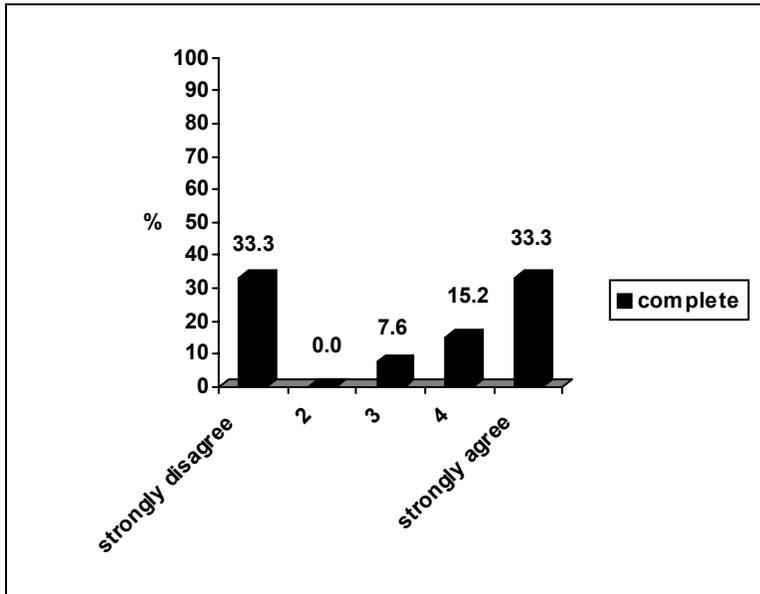
Figure F6-11. Ratings of completeness of Predictive Services information—federal admin/ops/aviation respondents.

A near majority agreed that Predictive Services information was easy to understand (*M*=3.1, sd=1.7, *n*=56, *Figure F6-12*, 13.6% marked 'don't know' and 1.5% did not respond).
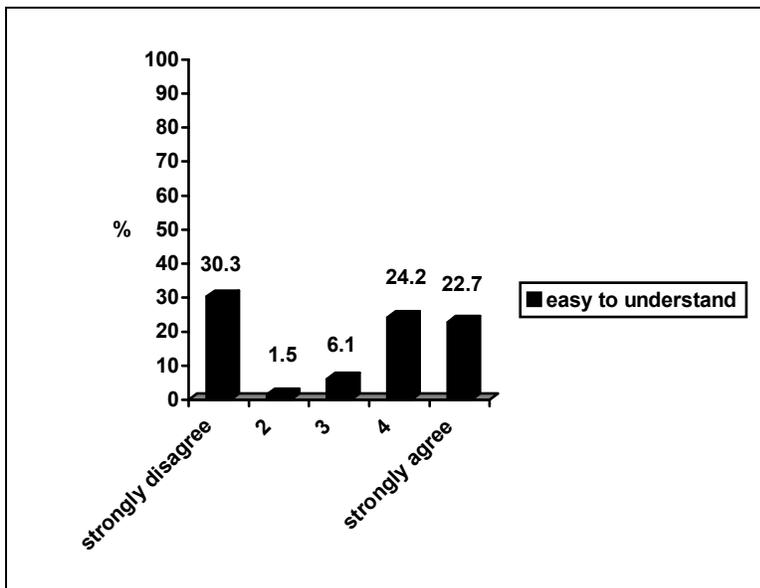
Figure F6-12. Ratings of ease of understanding of Predictive Services information—federal admin/ops/aviation respondents.

Similarity and importance of similarity of GACC sites—Admin/ops/aviation respondents rated how true the following statement was "The Predictive Services products and services available

through the GACCs (you selected – based on which GACCs they had been to) are similar in format, quality, and the range of products and services offered." Most perceived the products and services as similar (*Figure F6-13*).
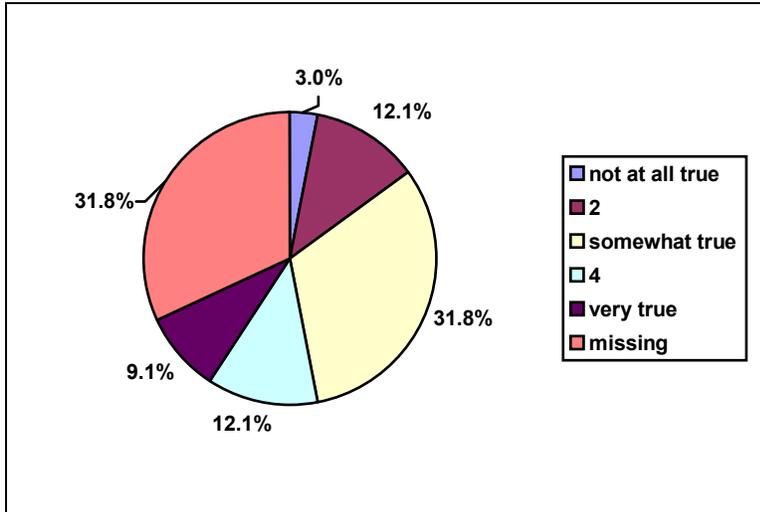
Figure F6-13. Products and services available through the GACCs you selected are similar—federal admin/ops/aviation respondents.

Respondents were invited to comment on their responses regarding similarity across GACCs. Comments included these:

slight differences
It has been a while and I do not really remember.
Standardize all portals to look the same
Product vary considerable from GACC to GACC. Standardization would help.
There has been a migration this past year for all the GACCs to have the same format.
timeliness, currency of information, and some types of data are not intuitive in order to find. However, I can usually find what I need without a search device. Format should be standardized. RAWS generated information needs to come from maintained RAWS stations but that's a different issue; but it does affect overall data if bad data is input into the supporting infrastructure applications.
Specifics of content can vary, but overall, products consistently provide useful information for a basis for decision making.
Send me info on Nat'l Predictive Service
Aren't exactly the same layout but give the same info
I'm really not sure what predictive services are offered. I generally check these sites for the situation report and what resources are mobilized.
Don't know.
Some GACCs include an aviation resources summary, some don't. Not all GACCs include 'unable to fill' resources order summaries. Both of these are very helpful
There is some variation in format and delivery of information but generally speaking there are many similarities.
There is lack of consistency pertaining to 'Fire Weather Advisory and Alerts' - not Predictive Services fault.
I don't know.

> I have used the Rocky Mt. GACC PS more than in CA.
> some websites, like SW GACC are very informative, others like CA GACCs aren't
> don't know
> Not aware of these services
> Frankly I go to the National Weather Service site for all of my needs rather than Predictive Services
> Seems like they were very different a few years ago but now they are much more similar and easier to navigate.
> standardizing the site across GACCs would be great

While about one-fifth indicated that similarity of Predictive Services' products and services in format and quality across GACCs was unimportant (6.1% assigned a 1=not at all important, or a 2), about one-fourth indicated that it was somewhat important (16.7%), and a majority indicated that it was important (62.1% assigned a 4 or 5=very important; 15.2%, did not answer this item).

Satisfaction with Predictive Services contacts—About one-fifth of respondents (19.7%) had contacted Predictive Services to report a problem with a product or service. The majority of these (84.6%) selected a 4 or 5 on the scale indicating they were responsive (scale was 1 to 5, 1=not at all responsive, 5=very responsive). Almost one-fifth (16.7%) had contacted Predictive Services to suggest a new product or service. Using the same responsiveness scale as for reporting a problem, the vast majority (81.9%) rated Predictive Services as responsive to their suggestion.

Use and utility of products and services—Products and services available through Predictive Services were examined. The 39 specific listings included some products and services that are generated elsewhere, or that are available only on some sites, but not all. Respondents were asked first to indicate if they had not used each product, and then for those that they had used, to rate each according to its usefulness to them on a scale from 1 to 5, where 1=not at all useful and 5=very useful.

The first set of product ratings (*table F6-2*) are those that are shown on Predictive Services sites, but are produced through other agencies.

Table F6-2. Use and utility of Predictive Services products and services provided by other agencies/groups—federal admin/ops/aviation respondents.

Product or Service	% Not Used	Usefulness M	SD, N
National fire weather outlook	18.2	3.93	.9; 46
Red flag warnings	16.7	4.36	.7; 50
Drought information	21.2	3.80	1.1; 46
Haines index	21.2	3.78	1.2; 46
7-day precipitation maps	24.2	3.64	1.0; 44
7 and 14-day precipitation percent of normal	27.3	3.40	1.2; 42
12-hour forecast maps	27.3	3.64	.9; 42
MODIS active fire maps	31.8	3.53	1.0; 40
7 and 14-day average maximum temperature departure from normal	27.3	3.43	1.2; 42
7-day average maximum temperature maps	24.2	3.51	.9; 41
Wind maps	27.3	3.74	1.0; 42
Observed fire danger images	42.4	3.48	1.0; 31
ROMAN real time fire weather and information report	51.5	3.67	1.3; 27
Upper air soundings	62.1	2.84	1.0; 19

A set of products and services is produced by Predictive Services and is available on a limited scale (*table F6-3,* less than national, typically on a local and regional level). These products and services are offered on a limited scale to meet specific regional needs and interests.

Table F6-3. Use and utility of Predictive Services products and services provided by Predictive Services on a limited scale—federal admin/ops/aviation respondents.

Product or Service	% Not Used	Usefulness M	SD, N
Interagency situation reports	19.7	4.15	.9; 48
Daily fire weather/danger outlook	19.7	4.23	.8; 47
Prescribed fire reports	40.9	3.39	.9; 33
Smoke program reports	40.9	3.26	1.2; 34
Online briefings	39.4	3.35	1.0; 34

This last set of products is available on a national scale and is created by Predictive Services, sometimes in collaboration with other entities (*table F6-4).* We also report the percentage of those who provided 4 or 5 ratings for each of these products (indicating ratings of useful or very useful.)

Table F6-4. Use and utility of Predictive Services products and services provided by Predictive Services on a national scale—federal admin/ops/aviation respondents.

Product or Service	% Not Used	% With 4 or 5 Rating[1]	Usefulness *M*	SD, N
Incident Management Situation Reports	13.6	78.5	4.25	.9; 51
Weekly fire weather/danger outlook	19.7	80.8	4.11	.8; 47
Seasonal fire weather/danger outlook	21.2	60.0	3.52	1.1; 46
Monthly fire weather/danger outlook	21.2	52.1	3.48	1.1; 46
10-day fire weather/danger outlook	21.2	64.4	3.69	1.1; 45
Live fuel moisture	22.7	67.4	3.96	1.0; 46
Dead fuel moisture	24.2	71.2	3.93	1.0; 45
7-day large fire potential	22.7	72.1	3.81	.8; 43
Fire news and notes	22.7	32.6	3.22	1.0; 46
ERC and fuels charts	28.8	73.8	4.02	.9; 42
Links to other services/websites	34.8	44.8	3.37	1.0; 38
Multi-season fire weather maps	30.3	38.5	3.18	1.2; 39
Interagency RAWS program	40.9	67.7	3.74	1.1; 34
Reference links	36.4	34.3	3.17	1.0; 35
Training	56.1	50.0	3.42	1.2; 24
State of the fuels program	56.1	39.1	3.04	1.4; 23
Technological guidance and transfer	57.6	36.4	3.27	1.1; 22
Predictive service forms	56.1	16.7	2.63	1.2; 24
Regional monsoon update	59.1	50.0	3.32	1.2; 22

[1] This column considers only those who rated the product and is not based on all federal admin/ops/aviation respondents.

Respondents were invited to specify any other products or services they had used, resulting in the following remarks:

> need intelligence /information to help explain anomalies in areal climate / need greater emphasis on effects of long-term and short-term global (oceanic and atmospheric) warming / need to put science trust into global warming finding and educate people/ users as to effects of climatology on fuels, vegetative areas and areas modified for industrialization (developed vis-à-vis natural state.)
> Need national and GACC area lightning maps and info

Overall satisfaction—Responses indicate that Predictive Services had neither met nor failed to meet most expectations (*M*=3.3, sd= .8, *n*=49, *Figure F6-14*, 25.8% did not reply to this item), and respondents were somewhat satisfied (the majority marked 4 or 5 on the scale, *M*=3.5, sd= .9, *n*=49, *Figure F6-15*, 25.8% did not reply to this item).
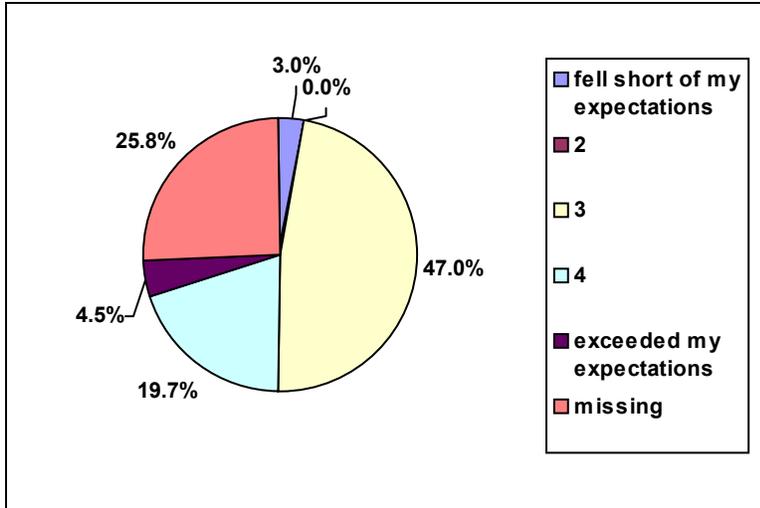
Figure F6-14. Ratings of degree to which Predictive Services met expectations—federal admin/ops/aviation respondents.
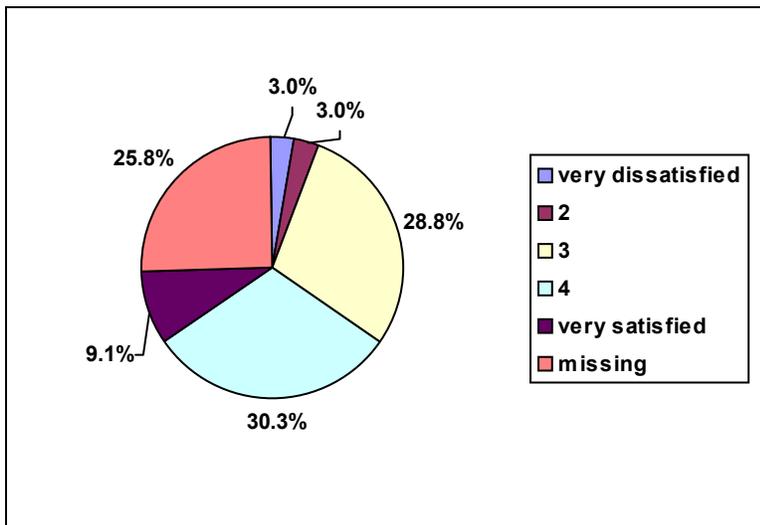
Figure F6-15. Ratings of satisfaction with Predictive Services products and services—federal admin/ops/aviation respondents.

Trust and confidence in the information—A majority expressed some, to a great deal of trust and confidence in Predictive Services information (*Figure F6-16*, *M*=3.4, sd=1.1, *n*=54; 18.2%, did not answer this item.)
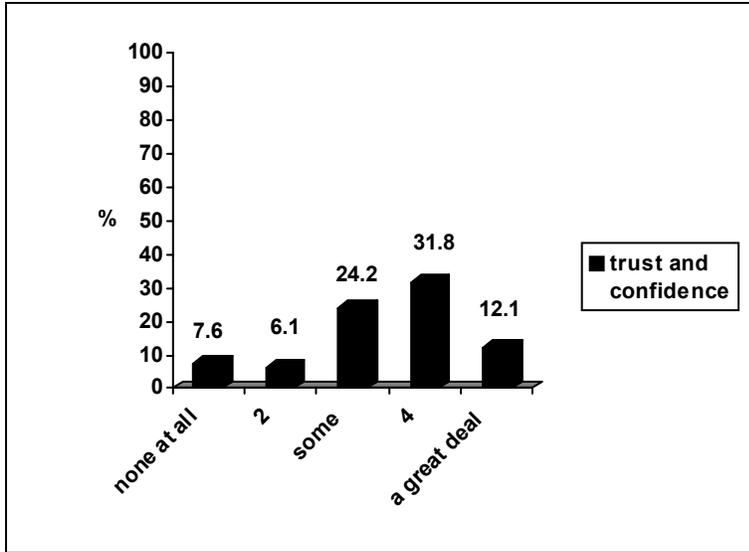
Figure F6-16. Ratings of trust and confidence in Predictive Services information—federal admin/ops/aviation respondents.

Are Respondents Relying on and Taking Action Based on Predictive Services?

Reliance on products and services—Almost one-third (30.3%, *Figure F6-17,* 3.0% did not provide a response) indicated that they *did* rely on the products and services in making important decisions (selected a 4 or 5, where 5 was very true). About one-tenth (13.6%, *Figure F6-17,* 7.6% did not provide a response) indicated that they relied on other sources more heavily than the products and services provided by Predictive Services (chose a 4 or 5, where 5=very true).
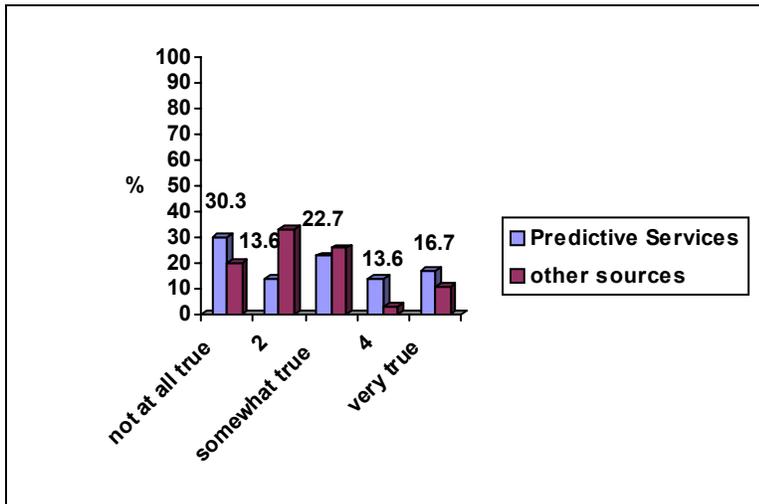
* The proportion of respondents in each category is shown for reliance on Predictive Services.

Figure F6-17. Reliance on Predictive Services and reliance other sources—federal admin/ops/aviation respondents.

Reliance on other sources was investigated further. Respondents were asked to comment when they provided ratings of 4 or 5, indicating they relied on other sources, resulting in the following comments:

> Rarely use predictive services for information. Not in a fire related position, usually looking for flight related information.
> NWS (2 respondents)
> I am completely unfamiliar with your services. Not sure what they are or what they are used for. Therefore, I use only other products, but cannot say which ones because I don't know what yours are.
> Forest Dispatch
> I rely on the raw data from our RAWS stations. This used to be called weather, now it's predictive services so I'm not sure how to answer this.
> I don't have any idea what predictive services offers.
> Various

Degree of reliance on Predictive Services was also queried. About one-third indicated little to no reliance on Predictive Services information (33.3% chose a rating of 1 or 2, where 1=none at all when asked "How much do you rely on the information provided by Predictive Services to assist in decision-making?"). About one-fifth (19.7%) indicated some reliance, and more than one-third indicated reliance (37.9% chose a 4 or 5 rating, where 5=a great deal; 9.1% did not answer this item.)

The likelihood of taking action based on Predictive Services information was examined. About one-third was likely to take action based on Predictive Services information (34.9% chose a 4 or 5 rating, where 5=very likely, *Figure F6-18,* 16.7% did not answer this item).
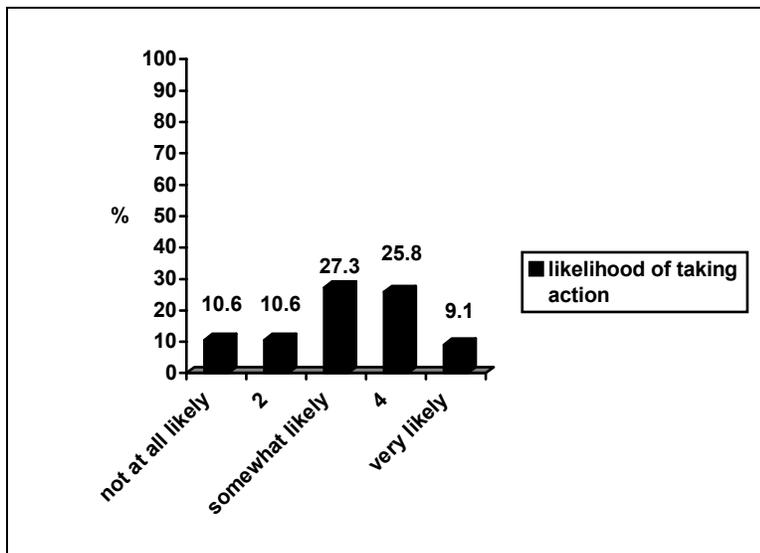
Figure F6-18. Likelihood of taking action based on Predictive Services information received, or gathered from a website—federal admin/ops/aviation respondents.

Did Respondents offer Insights into Reliance and Barriers?

Perceived overlap—Respondents were asked how true or untrue it was that there is overlap in the type of information that can be obtained from Predictive Services and other sources (rated

on a scale from 1 to 5, 1=not at all true, 3=somewhat true, 5=very true). While about one-third (34.9%) indicated there was not overlap (chose ratings of 1 or 2), more than one-third (34.8%) felt this was somewhat true, and about one-tenth indicated it was true to very true (12.1% chose ratings of 4 or 5; 18.2%, did not answer this item.)

Respondents provided the following comments regarding perceived overlap with other sources:

> Receive most of my information from NWS
> NWS is still one of the best ways to get daily information - daily fire weather forecasts. We are in an age of information overload - more information is not necessarily better or more useful...
> Sometimes weather forecasts can overlap with Weather Service forecasts. Actual fire severity risk assessments are unique.
> Before 'predictive services' I could find all of the information that I needed, and I still can. There is far more information on predictive services pages than is necessary for me now or when I was an FMO, and I know it's more than firefighters need.
> I don't feel it's a bad thing to have overlap from different sources. It can confirm what to expect.
> I don't know. I don't directly use predictive services, but my people do and provide me with recommended actions based on these services.
> I don't know. I have staff that accesses this information and relays the important and relevant items to me.
> local weather forecasts
> SPC forecasts, NWS forecasts, NOAA websites -- all figure in my decisions - I rely mostly on predictive services
> I can't really say since I don't use the site

Beliefs about Predictive Services among those who had data gathering and reporting duties—
The respondents with data gathering and reporting duties related to Predictive Services were asked: "How likely is it that you will gather and report data to Predictive Services?" Almost one-fourth (*n*=15) indicated that they were likely to gather and report data (26.7% chose a 4 or 5 on the 5 point scale, where 1=not at all likely, 5=very likely; 6.7% did not provide a response; *Figure F6-19*).
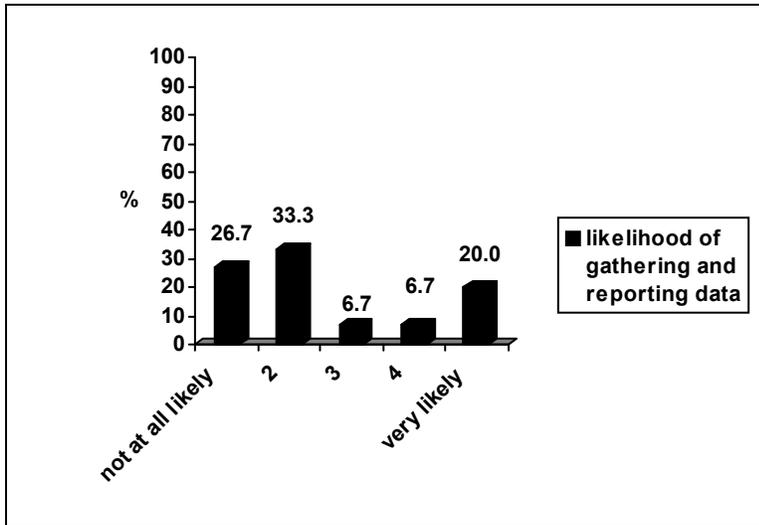
Figure F6-19. Likelihood of gathering and reporting data to Predictive Services—federal admin/ops/aviation with data gathering and reporting duties.

Respondents were somewhat mixed when rating agreement that they had the resources to gather field data for reporting (*M*=2.5, sd=1.0, *n*=14, rated on a 1 to 5 scale where 1=strongly disagree and 5=strongly agree; *Figure F6-20;* 6.7% did not answer this item).
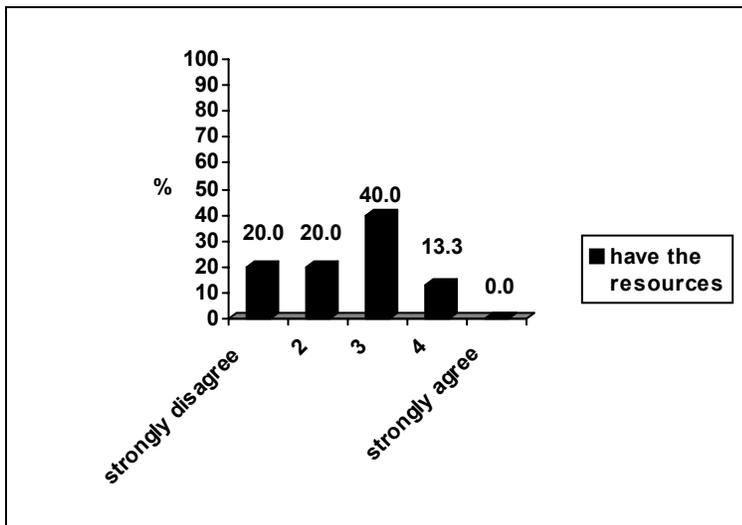
Figure F6-20. Degree of agreement or disagreement with "I have the resources (e.g., time/skills/personnel) to gather field data for Predictive Services reporting"—federal admin/ops/aviation with data gathering and reporting duties.

This subgroup was also asked to rate five items focused on positive impact of reporting, and negative effects of not reporting. Admin/ops/aviation respondents were likely to disagree with "My consistent upward reporting of data (e.g., 1300 obs for RAWS) increases the reliability and quality of Predictive Services products and services" (*M*=2.6, sd=1.3, *n*=14; *Figure F6-21*). They were also likely to disagree with "My consistent upward reporting of data (e.g., 1300 obs for

RAWS) increases the reliability and quality of products and services provided by groups and agencies that use the data from Predictive Services to generate their own products" (*M*=2.6, sd=1.3, *n*=14; *Figure F6-21*).
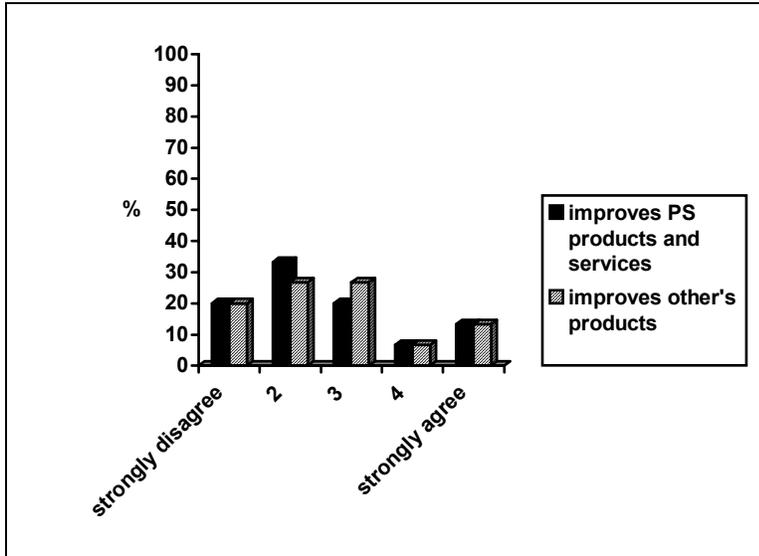
Figure F6-21. Degree of agreement or disagreement with positive outcomes of reporting data—federal admin/ops/aviation with data gathering and reporting duties.

Responses indicate that the majority disagreed there are adverse outcomes when/if data is not gathered and reported. This was assessed through two items "If I don't collect and report Predictive Services data, it could affect my unit's ability to make sound decisions to manage fire" (60.0% selected a 1 or 2 rating on the scale; *M*=2.4, sd=1.6, *n*=14; *Figure F6-22*); and "If I don't collect and report Predictive Services data it could adversely impact firefighter or public safety" (53.3% selected a 1 or 2 rating; *M*=2.6, sd=1.6, *n*=14; *Figure F6-22*).
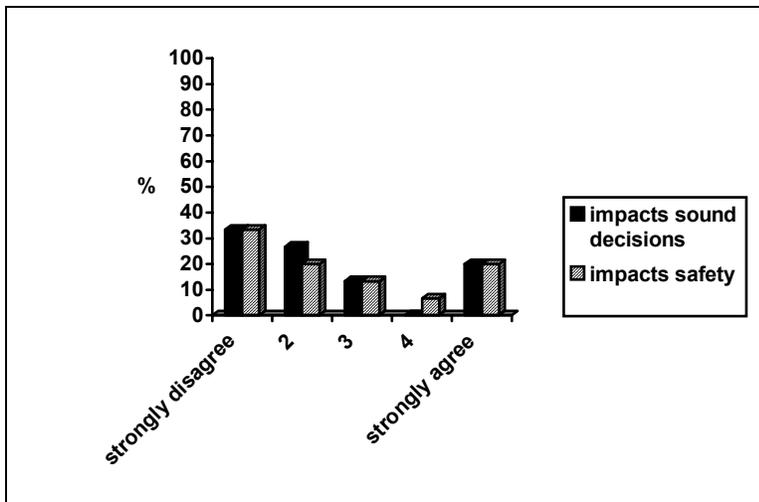
Figure F6-22. Degree of agreement or disagreement with adverse impacts of not collecting and reporting data—federal admin/ops/aviation with data gathering and reporting duties.

Ratings of ability and impact of applying Predictive Services information—General ability to access and apply the information from Predictive Services, as well as its utility in job performance, was queried (using a 5-point Likert scale where 1=strongly disagree and 5=strongly agree). Federal admin/ops/aviation respondents were somewhat in agreement with "I can access and apply Predictive Services information as part of my job duties" (*M*=3.5, sd=1.1, *n*=49). However, they were in less agreement with "Predictive Services information helps me perform my job with greater precision" (*M*=2.4, sd=1.0, *n*=43).

Two general items examined perceived impacts of inaccuracies of Predictive Services information. The first was "Inaccurate Predictive Services information would decrease my ability to predict fire behavior." Rated on a 1 to 5 scale, where 1=strongly disagree and 5 was strongly agree, the average was 3.2 (*M*, sd=1.2, *n*=45; *Figure F6-23*). About one-third did not answer this item (18.2% selected 'don't know' and 13.6% did not select any answer). The second was "Inaccurate Predictive Services information used in my decision making may adversely impact firefighter or public safety." Again, the average was at the mid-range of the scale (*M*=3.4, sd=1.2, *n*=47; *Figure F6-23*). More than one-fourth also failed to indicate degree of agreement or disagreement with this item (15.2% marked 'don't know', and 13.6% did not select any answer). However, respondents were more likely to agree that there would be an impact on safety than an impact on prediction of fire behavior.
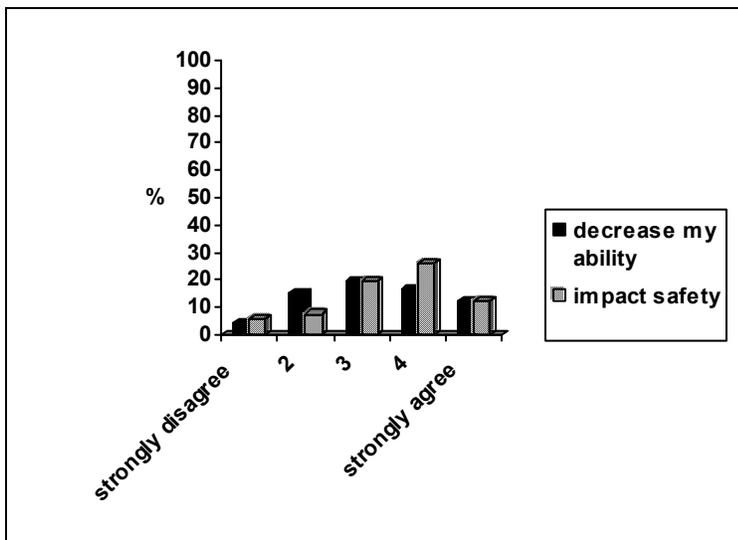
Figure F6-23. Impacts of inaccurate reporting of Predictive Services information—federal admin/ops/aviation respondents.

Barriers to use of products and services—There were various reasons why respondents did NOT use the products and services offered by Predictive Services, although no one overwhelming reason or set of reasons emerged among the 16 offered as potential barriers (*table F6-5*). The most frequent reason provided was not having thought about using the products and services. A lack of trust was not frequently cited.

Table F6-5. Reasons why they had not used the products and services offered by Predictive Services—federal admin/ops/aviation respondents.

Reason	Percent
I never thought about it.	30.3
My current management practices don't require the types of information provided by Predictive Services	13.6
I don't know how to use these products	16.7
I need information that is site specific	10.6
I am not mandated to use these products	3.0
I don't have the time to use these products	4.5
I don't know where to get advice about using these products	9.1
I don't know where to get the technology to use these products	4.5
I don't have the technology I need to use these products	1.5
I don't trust the products and services	1.5
I don't want to use these products	0
I don't think these products support my agency's current practices	0
Agency directives/guidelines instruct me to use other information	0
I don't have the money to use these products	0
I don't trust the advice I get about using these products	0
I don't trust information that is generated by multiple agencies	0

As a follow-up to the above items, we invited respondents to explain why they might not want to use the products, resulting in the following comments:

Many products offered don't apply to aviation positions outside of the fire community. Zonal weather forecasts are helpful, but available from other sources,

Once again - I think you really need to take a hard look at the various types of information and determine your target audience and the products they would use. PS's need to be more user friendly - still of the mind set of 'we know best'

Generally, I use and trust the products. I think they can be improved by providing more advance notice of potential problems as much as 30 days ahead of time. This will allow for preparedness actions to help reduce potential of catastrophic fires.

As a forester, former firefighter / smokejumper / and now subject matter expert in fire communications - these skills help immensely with my opportunities to educate public, media, representatives, etc. It is intrinsic that communicators of predictive services type information have experience in wildland fire in order to deliver more credible information. Not all Public Affairs Specialist know too much about fire. I know in my career that having field and research experience, as well as access to predictive services Subject matter experts is a boon for my job success. We do need to verbalize and share more often the relationship of climatic data to predictive services and how these factor into the interpretation of forecasts.

I am not sure what the products are and how they would serve my current position. I do not have any fire responsibilities. I am not responsible for making any fire related or drought related decisions.

As mentioned earlier, people that work for me use PS to provide me info. I don't access directly.

I did not recognize the name 'predictive services' so didn't link in my mind where the reports I view come from. I use many of these indirectly thru briefings and planning activities. My staff actually works directly with your services and I am briefed or review plans, etc.

I am a Line Officer and I need this info to make sure my fire staff and employees are safe.

As a fire planner, I am still learning what info is available and how to utilize it for fire planning

I have 'unjoined' my Incident Team, returning to my other program job and will not likely use
your services
I get some of them when they are a part of other products. As a manager in the field I plain
don't know anything about the organization and what they do

How can Existing as well as New Products and Services be Improved or Designed?

How fire danger/fire information is used to support decision-making—Respondents were asked
to indicate how they use fire danger/fire information to support decisions made regarding fire
management. The majority or near majority of respondents used fire danger and fire information
to make decisions in decision support about public use restrictions (40.9%), for resource
allocation (53.0%), for severity requests (56.1%), and about resource staffing (57.6%).

Respondents were asked to indicate other uses of fire danger/fire information, resulting in the
following comments:

Create my own...
Educating media and wildland fire journalists / they need to understand how fires are related
to ecological disturbances including climate and organic features.
timber sale contract operations
Infor provided to me from others using PS.
Firefighter Health & Safety
national programmatic decisions
fire planning
fuel treatment priorities

Tolerance for errors and inaccuracies—Respondents were asked to rate their tolerance for false
alarms and inaccurate reporting (rated on a scale from 1 to 5, where 1=low tolerance and
5=high tolerance). While respondents did not indicate a high tolerance for false alarms or
inaccurate reporting, they were somewhat more tolerant of false alarms pertaining to fire danger
(*M*=2.7, sd=1.0, *n*=61; *Figure F6-24*), than they were of inaccurate reporting of high fire potential
(M=2.4, sd=1.0, *n*=61; *Figure F6-24*).
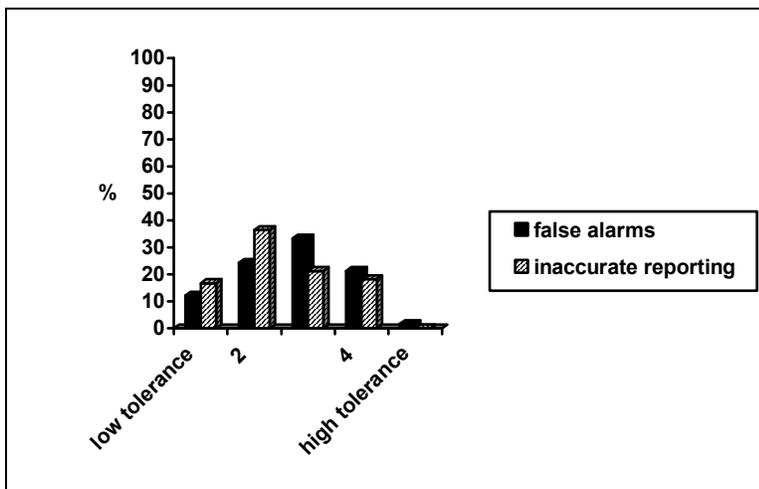
Figure F6-24. Tolerance for false alarms and inaccurate reporting—federal admin/ops/aviation
respondents.

In order to capture overall preferences for approaches to errors ("Although it is understood that accurate and reliable reporting of fire danger and high fire potential are desirable, margins of error are involved in predictions. In these cases, do you prefer that…"), respondents chose between two statements:

"Statements of danger or risk be issued with a greater margin of error allowing for an early response, knowing that this may lead to unnecessary alarms and response (Better safe than sorry)" —69.7 percent chose this statement as their preference.

"Statements of danger or risk should only be given with certainty, knowing that this may allow a few dangerous events to emerge that were not anticipated (Don't cry wolf)." —22.7 percent chose this statement as their preference.

A few (7.6%) did not choose either statement as their preferred approach.

Audience identification—According to the federal admin/aviation/ops respondents, the primary audiences for Predictive Services' products should include: local and district fire managers (83.3%), regional and state fire managers (80.3%), national fire managers (71.2%), and to a lesser extent non-fire land managers (33.3%), and the public (30.3%; note that respondents could select multiple audience types, so responses do not sum to 100%).

Respondents were invited to specify other primary audiences, resulting in the following comments:

> aviation managers
> media that report on environmental issues; they often misinterpret key issues due to
> ignorance of what predictive services can provide. There is an education gap.
> Natural Resource Managers
> On the ground forces
> Agency Leadership

Preferred information formats—Respondents were asked to indicate their preferences for the style and format of presenting information. For each of 11 formats presented, a rating from 1 to 5 was requested (1=not at all useful, 5=very useful). Based upon the proportion of respondents assigning ratings of 4 or 5 to each format, the formats most to least useful were: information presented in regional or national maps (54.6%), satellite maps (51.5%), brief executive summaries of data (51.5%), radar maps (42.5%), bar charts or figures that summarize data (37.8%), data in table form (34.8%), web-based ArcIMS maps with user-defined layers and scales (31.9%), brief annotations that accompany data presentations (30.3%), data in text form (25.8%), data in spreadsheet form (25.8%), and non-web-based Geo database files (13.6%).

Other styles or formats of information offered by respondents, or comments surrounding this issue, included:

> Again - so much information it's hard to really determine what else I would even consider
> suggesting....
> Powerpoint in Word.
> google earth or other 3d displays
> Web based maps similar to the NWS spot weather maps.

Respondents were also asked to indicate what, if any information they would like to see in summary or synthesis form, resulting in the following comments (for this item the don't know and not applicable responses have been excluded):

Seasonal assessments
A prediction of how fuel types might react within high potential areas.
Trends on expected fire danger based on current and expected weather and fire data.
Perhaps more climate, global warming related analogies....?
Routine projects of severity risks in multiple fuel types.
What resources are being requested.
It's there now amid all of the other information. Summarized short term (1 week) regionally and a real short long term guess. The most important is the detailed local 1-3 day.
consistent reporting of acres burned by both agency ownership and protection responsibility
broad scale national predictions, along with indications of how accurate past predictions have been -- build credibility in our predictions
I am always interested in totals of various kinds of resources committed but would like to know relative capacity; e.g. if 200 fed crews are committed, how many more might be available in the system? How many more helicopters are out there? etc., etc.
Anything to better support the fire fighter on the ground.

Improving existing products and services—Respondents were asked to complete the sentence "The information and services provided by Predictive Services would be more useful to me if…", resulting in the following open-ended remarks:

I could have an accurate cloud cover forecast for Oregon and Washington from May through mid-Sept.
I could navigate the site to get to aviation info quicker
I was more involved in fire than I am now.
They integrated themselves with the local field units - they rely too much on modeling and not 'real world'. NWS and PSvs still seem to say the same thing and tug back and forth between the 2 of them
it provides a long range look into fire conditions that will allow for better preparatory actions.
They kept their operations open beyond their normal fire season. Fire seasons extend beyond the normal fire seasons for geographic area and the GACC services stop operational services. When you look for predictive services information, you don't have good data to make sound judgments.
it was more easily accessible, and if it could be extrapolated back in time to initial records, sounding, etc - and if we have had more theoretical information on prehistoric (pre-recorded) data. We are just interpreting now what is simply a moment in time. The information and processing of the data is a great scientific achievement but I am all for expanding the historical and research data and its accessibility.
they were relevant to the scope of my work
The data generated by Predictive Services was available in a shapefile format with limited attribution so that we could use it with our corporate data.
I knew about it and how to access it...
I was in a direct fire management roll.
I knew more about it.
I could trust forecasts over seven days out.
leave as is
I could subscribe to the service and have it sent to my email.
they remain at the local level.

There would be a representative to present updates and perspectives at annual State pre-season readiness meetings

they included Burn Indexes along with ERC as the BLM lands depend more on those values.

I had any idea what information and service they offered. I had never heard of predictive service before this survey. I or my staff probably use this information, but I have no idea what is associated with National Predictive Services.

It was interactive - i.e. I could query for firefamily plus raws station specific data. More interactive

I was more familiar with them and knew which I could/should be using as a unit (overall) manager and agency administrator.

There were more consistency with GACC info, and if there was direct access to status reports of specific aviation resources

all the geographic areas would agree to a set of standard reporting products and then be able to provide specific products based on Geographic or local needs.

there could be national consistency with integrating the 'Fire Weather Advisories and Alerts' into the national Fire Advisory/alert system for a more timely dissemination of the important information.

I knew they existed

if it were more dependable to look at conditions 24-72 hours away.

I knew what PS is?

I could access them wireless from my truck.

I got a periodic email to give updates.

I received training on how to use them.

we supplied broad scale data to indicate how accurate and useful the data was in forming national decisions

we trained are new fire workforce on how to use this information and where to find it.

I had a job that required that I knew of and used the products.

it remains current/up to the minute

I knew more about the suite of products for PS.

web site was made more user friendly and one click away

I knew who they were.

I knew what they were.

the information was presented in terms of prescribed fire opportunities in addition to wildland fire risk.

if...I had a different job! Unfortunately with my current job (FPA), I don't get to apply these products in a tactical manner. Most of my answers relating to use of your specific products relates back to my time on the Payette National Forest as Asst. Fire Staff.

I had more time to learn how to access and use the products.

I had some basic training on how to use each of the products.

timely, accurate and easily understandable.

I was constantly in need of them. but I need them regardless.

Eastern Area needs an additional MET to support the sole MET we have. We resource order an FBAN as needed and will resource order an addtl MET if necessary. Statistically, the Eastern Area has 20% of the fire starts across the country.

they were coordinated with the severity request due dates set by the national office.

Respondents were also asked to consider the existing products and services, and comment on how they could be modified to better meet their needs, leading to the following comments (answers of don't know or no comment have been excluded):

I am unfamiliar with the products and services offered, so can't make a suggestion to make
them better.

more timely

Standardize, simplify and make improvements that are REALLY improvements, not just
window dressing.

Need to accept the field unit FMO's as the local experts and not rely so heavily on their
'predictive models' to drive decisions that really should be made at a local level - too much
weight in the corner of PSvs for Regional and National decisions are being made through
these models

Components might be added that points to recommended actions within specific areas
based on worse case scenarios. At present, most products do not provide a good idea of
what if the worse conditions develop.

Keep the products current and up to date on the web.

I do not have adequate time at this point to provide the level of feedback I feel is essential. I
need time to offer some qualitative feedback on this question; however I want to complete
this survey and send off now rather than save it and perhaps lose track of my messages.
DO NOTE that our Predictive Services Does an Excellent Job. I applaud their
achievements and advancements. They provide an essential and intrinsic service and
products.

Concentrate on the short range and don't spend the time and money on all of the long range
products. Most aren't accurate anyway and until we can predict ignition (lightning), all of
the dire predictions of dry weather don't mean much.

leave as is

They must stay at the local level to be effective. A national system that is, one size fits all
will not work.

I'm not sure what existing products and services come from predictive services.

Clearly written up, more detailed maps,

Make the links easier to find on the NIFC website.

products are fine

They are adequate for my needs.

to help in prescribed burns. I know some research exists.

broad scale, year round, predictive services meso-scale products are needed - -sometimes
for national needs on short time lines =

keep up the good work

I would like to see a PS Brief on products available. Probably already one, I just haven't
seen it.

Interactive web based maps similar to the NWS spot weather program

Products or services that should be added to what Predictive Services provides—Respondents
were asked to explain which products and services should be added to Predictive Services and
why, resulting in the following comments:

Cloud cover forecasts

Define their roles and responsibilities and how they will separate themselves from the rest of
the pack....

Briefing which I attend at NIFC could be longer and include more elements / layers of data
that are used to build products. We have very excellent predictive services staff and
presenters; however, our governing board could gain more insight by knowing more about
how data elements truly relate and interrelate. I know briefing should be brief, however we
lose valuable learning opportunities when our predictive services staff are constrained with
the amount of time allowed for briefing. An extra 5-10 minutes per day or week could

provide intrinsic value not yet briefing facilitators; especially when we have political influencers who need the time to ask questions and ensure they understand what is being presented. Our predictive services staff are excellent communicators and should not be sold short by time constraints measured in minutes. This is my personal opinion. Our international audiences, often high ranking resource managers or ministers value this information. And as a global community with shared concerns we owe time for our PS Staff to represent not what occurs in US but what transcends all geo-political boundaries.

Internet Map Service with download capabilities for simplified data distribution.

Include Burn Index information

Large fire and WFU decision support. Rapid response to incidents. Business load predictions based on weather and fuel condition forecasts.

National and GACC area real-time lightning maps. Also assigned and unable to fill aviation resources.

prescribe burning weather models.

e-mail address for all interagency personnel that work in Predictive Services so if you had a question you could just e-mail them.

Hurricane probability. It seems that our IMT are getting committed to hurricanes in the southeast. You should link some info to this.

Prescribed fire outlook maps

Live fuel moisture information, Smoke management predictions

Were There Additional Comments?

As is customary in such surveys, we invited respondents to offer any comments about Predictive Services, or any comments about the survey, resulting in the following remarks:

I may not have contributed much to this survey as I use predictive services very little on a fire assignment and mostly from curiosity.

I like the web based questionnaire.

PSvcs still seems like it is trying to define itself as being different from NWS rather than trying to work together.

Need to make sure the direction is coming from our line officers and agency admin to ensure we are not trying to build a better mouse trap - grass roots ROMAN may be good but if you don't have line support - should it die on the vine?

When it comes to funding I still have a strong commitment to putting more 'boots on the ground' - my choice will be for firefighters how many PSvc's personnel do we need in each GACC?

With budget cuts looming we need to take a hard look at our scarce resources - I prefer production"

Thank you for the freedom to express my professional opinions and personal views.

Overall, the program is highly effective and very valuable.

Predictive Services is a good and viable program that I think has had a bit of difficulty in distributing some of the information they generate due to the continuously changing nature of the information

I had a difficult time during the survey in that what I have always called 'the weather' is now part of predictive services. I use the weather extensively. I don't use much of the rest of predictive services due to the inherent inaccuracy of long term weather prediction. There have been too many unexpected rainy summers, or no ignition, or unpredicted wet springs after dry winters, or no August rains in Alaska to end the season to believe the long term forecasts. I think far too much money is being spent on what are somewhat educated guesses.

There should have been more opportunity in the survey to say I don't know. There seems to be a lot Predictive Services is doing that I am unaware of. I never knew such a group existed. They seem to suffer from lack of identity.

see QFFR and incorporate recommendations for Predictive Services

Predictive Services provides a great service and a great product that is beneficial to firefighters. I would like to see it used more often even by those firefighters at the unit level who are the front liners during fires and prescribed burns and often left out of the loop unless the information is provided by their Fire Management staff.

I have not heard of Predictive Services before this survey.

I'll be happy to discuss my needs with predictive services folks at some future time --

Make sure all who work in these GACC understand all the reports that are under there ownership. So they can share with us who have to give input at forest levels on these reports.

I am a manager at the Forest Level responsible for the Fire Program and frequently as acting Forest Supervisor. I do not work full time in fire and have never had an introduction to the programs you offer. I get the information I need from the NWS web site. You need to find a way to get the word out and sending a brochure or generic e-mail introduction won't do it.

I think there ought to be a simplified version of products for non-fire behavior specialists.

Good, thank you

Program has steadily improved over the years...keep going!

A top down approach for management of this program will not work. The priority for this service is the firefighter on the ground, not national reporting.

Appendix F7: Fuels Specialists—Federal Respondents

Federal fuels specialists were grouped into one category (*n*=59). These respondents came from the Forest Service (39.0%), National Park Service (20.3%), Fish and Wildlife Service (15.3%), Bureau of Land Management (11.9%), Bureau of Indian Affairs (8.5%), tribal governments (1.7%), a federal interagency group (1.7%), and another federal agency (1.7%).

Who Were the Federal Fuels Specialists?

The majority was male (74.6%), mostly between 45 to 54 years old (*Figure F7-1*).
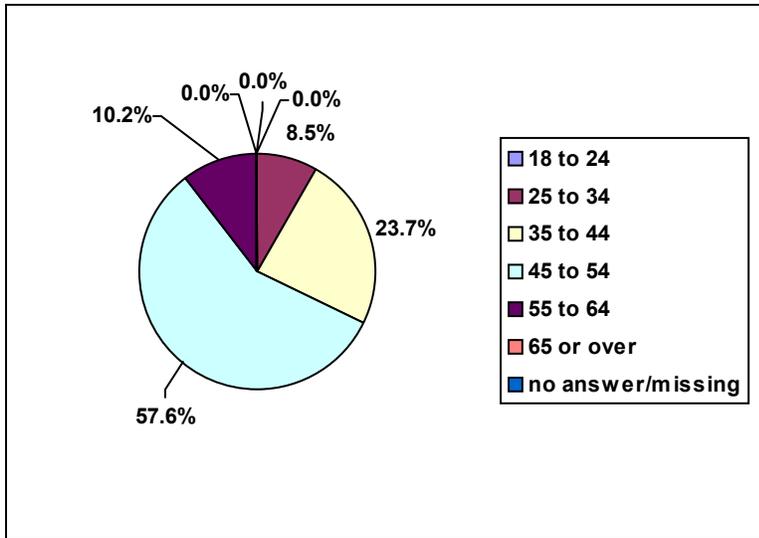
Figure F7-1. Age—federal fuels specialists.

Educational background / degree or equivalent—Educational attainment showed about one-fifth had completed graduate education (*Figure F7-2*).
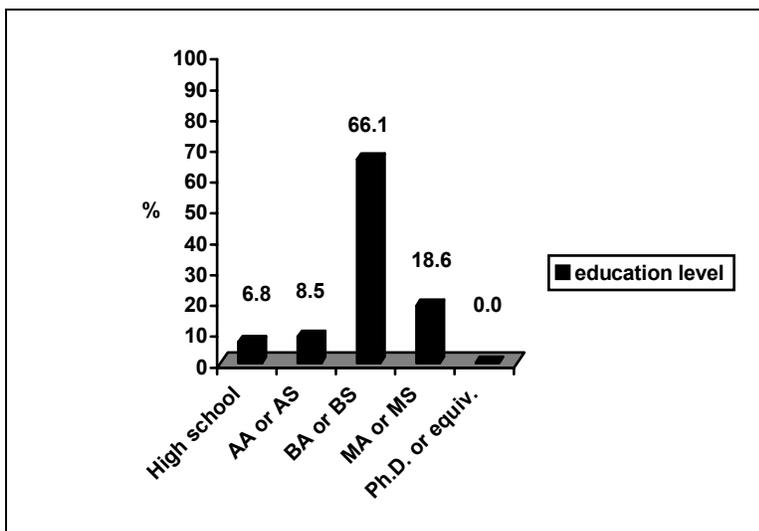
Figure F7-2. Educational attainment—federal fuels specialists.

Respondents reported degrees in the following subjects (these are on an individual basis so when lines contain multiple subjects they reflect an individual's response):

    Biology
    Communication; natural resource management
    Ecology
    Environmental science
    Fire
    Fire ecology; wildlife biology
    Forestry/fire science (2 respondents)
    Forest resource management; forest engineering
    Forest technologies & wildland fire science
    Forestry (9 respondents)
    Forestry; management and administration
    Geography
    Geology
    Journalism/biology/anthropology
    Natural resources management (11 respondents)
    Natural science
    Outdoor recreation, natural resource management (2 respondents)
    Renewable natural resources
    Wildlife management; biology

Home office Geographic Area location—Respondents came from across the United States, with their home offices falling within the various Geographic Areas (GAs) shown below *(Figure F7-3).*
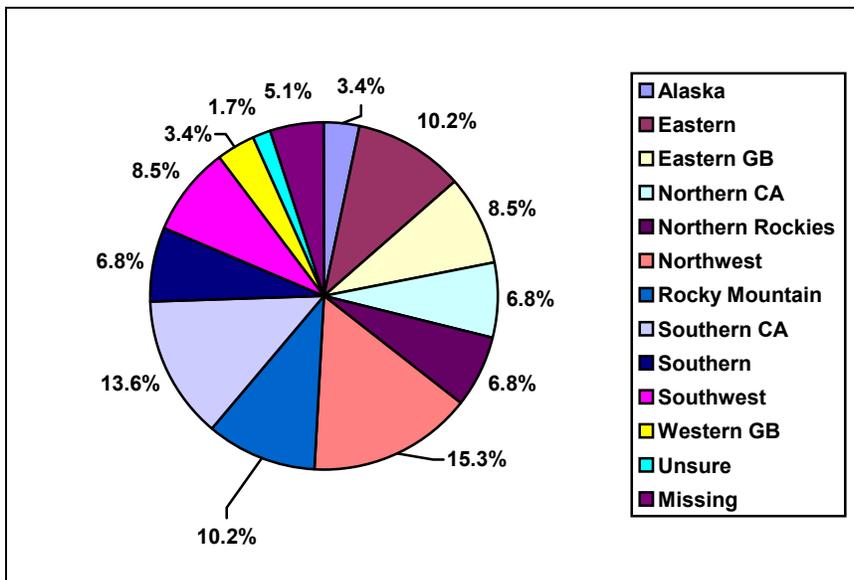
Figure F7-3. GAs—federal fuels specialists.

Level of geographic responsibility and scope of duties—Respondents' level of geographic responsibility varied. About one-half reported their duties linked to their local unit (including forest, district, reserve, etc. at 54.2%). Responsibilities for the remainder were at the national (15.5%), regional (16.9%), state (10.2%), or national and international (3.4%) level.

The majority of respondents (57.6%) had duties specific to their agency only, while some (42.4%) indicated that their work was specific to multiple agencies.

The number of years reported in the current position of employment averaged 4.8 years (sd=5.1, n=33). Median responses for number of people supervised included zero on a routine basis, zero on a seasonal basis, and six on an incident/project basis.

More than one-half of the federal fuels specialists (54.2%) had job responsibilities that included gathering and reporting data that is utilized by Predictive Services such as: situation reports, ICS-209's, NFDRS/WIMS, etc. Among the respondents with data gathering and reporting duties (n=34), the duties are assigned as one of their primary responsibilities (47.1%), or as part of a group that fulfills that function (32.4%). Fewer (11.8%) were assigned the duties when others with routine responsibility are away.

What are their Levels of Experience with Predictive Services?

Frequency of access and information acquisition—The frequency of accessing and obtaining information from Predictive Services was examined under two conditions, during fire season and outside of fire season. Frequency of access was greatest during fire season (*table F7-1*).

Table F7-1. Frequency of accessing and obtaining information from Predictive Services—federal fuels specialists.

Frequency	During Fire Season %	Outside Fire Season %
Daily	57.6	10.2
Weekly	28.8	32.2
Monthly	0	32.2
Quarterly	3.4	5.1
Rarely	3.4	11.9
Not at all	6.8	8.5

Specific circumstances for access/acquisition—In addition to frequency, respondents provided information regarding specific situations when they access or obtain information from Predictive Services. More than three-fourths reported accessing Predictive Services during fire season (79.7%), and about two-thirds during a fire incident (67.8%). Other situations were reported including when a prescribed burn is being planned (71.2%) and when a prescribed burn is taking place (59.3%). About one-tenth indicated none of the above situations applied to them (8.5%).

Respondents listed additional situations when they access/obtain information from Predictive Services including:

    long range planning
    Always something in the being planned mode
    pre-planning early and late fire season
    planning for fuels treatment
    Prevention Team mobilization

Use of specific websites and services—Respondents were asked to indicate which Predictive Services websites they had visited or GACC services they had used, revealing that a majority had been to/used the National Interagency Coordination Center (NICC–67.8%). The Geographic Area Coordination Center sites from most to least mentioned were the Southwest (35.6%), Northwest (33.9%), Rocky Mountain (30.5%), Northern Rockies (27.1%), Southern California (25.4%), Western Great Basin (23.7%), Northern California (23.7%), Eastern Great Basin (22.0%), Eastern (16.9%), Southern (11.9%), and the Alaska site (11.9%; responses do not sum to 100% because respondents could select multiple sites). Nearly one-half had visited one or two sites, while others reported multiple sites (as many as all 12). Two respondents (3.4%) indicated they had not visited any of the listed sites/used any of the services.

Familiarity with the products and services—Federal fuels specialists were asked to indicate how true or untrue the following statement was "I am unfamiliar with Predictive Services products and services." About one-fifth indicated this statement was true (*Figure F7-4,* 17.0% selected a rating of 4, or 5, where 5=very true).
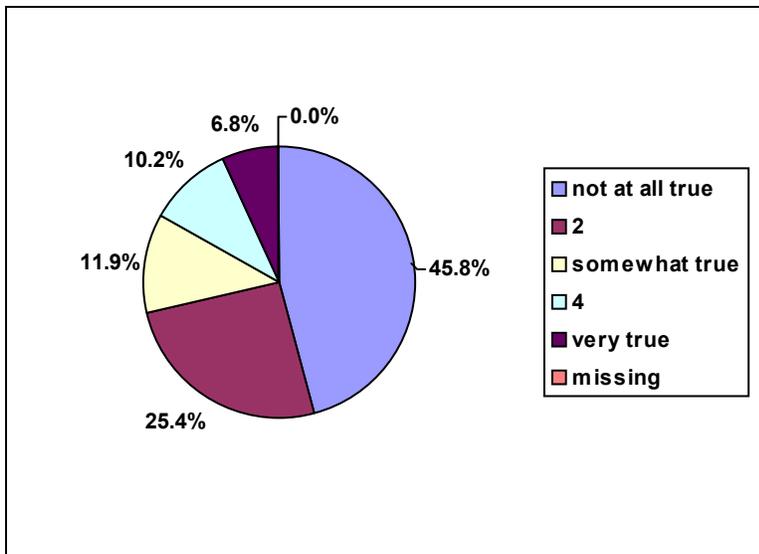
Figure F7-4. Unfamiliar with Predictive Services products and services—federal fuels specialists.

The majority of respondents were interested in Predictive Services products and services (*Figure F7-5*, 81.4% selected a 4 or 5, where 5=very true in response to "I am interested…; another 15.3% marked 'somewhat true').
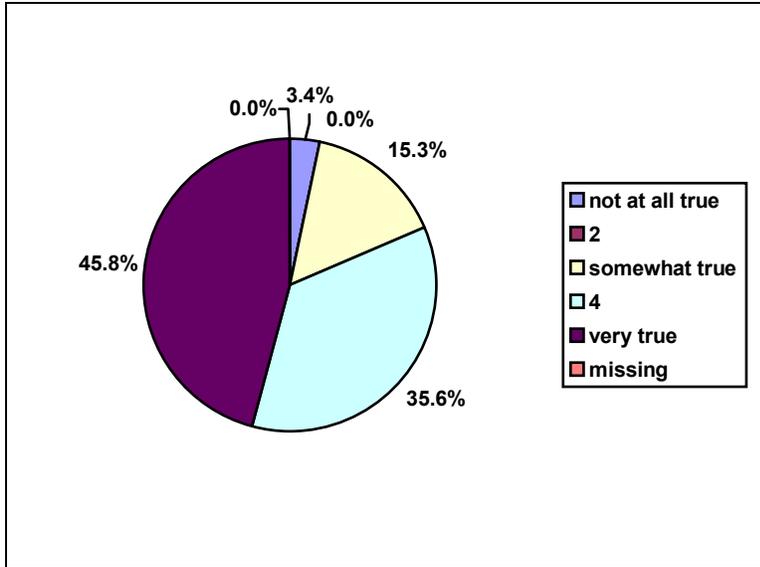
Figure F7-5. Interest in Predictive Services products and services—federal fuels specialists.

Respondents were asked their familiarity with Predictive Services' products on the web, the briefings, and the emails. They were more familiar with the web products (*Figure F7-6*, *M*=3.6, sd=1.1, *n*=59), and the briefings (i.e., national, geographic, situational, or meteorological, *M*=3.6, sd=1.1, *n*=59), than with the emails (these contain current projections and/or information about Predictive Services, *M*=2.8, sd=1.4, *n*=59).
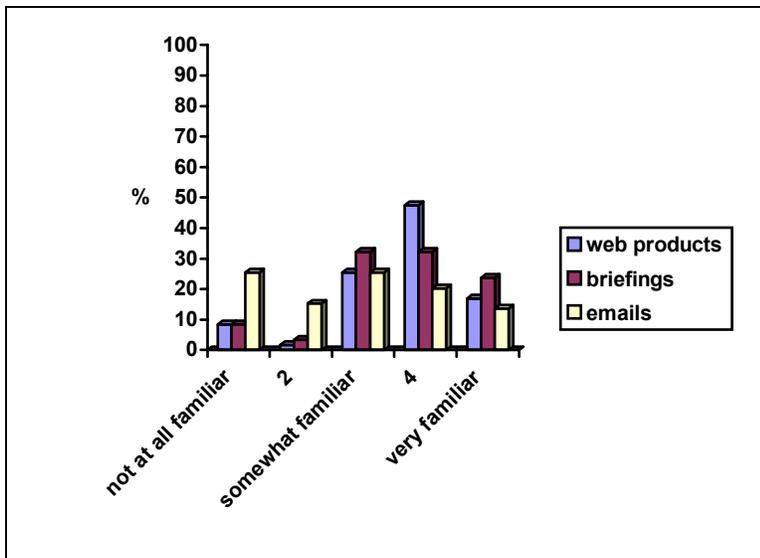
Figure F7-6. Familiarity with Predictive Services products on the web, briefings, and emails— federal fuels specialists.

What are their Opinions of the Products and Services?

Ratings of Predictive Services information—Respondents tended to agree that Predictive Services information was accessible (*M*=3.8, sd= 1.0, *n*=54, *Figure F7-7*, 8.5% marked 'don't know').
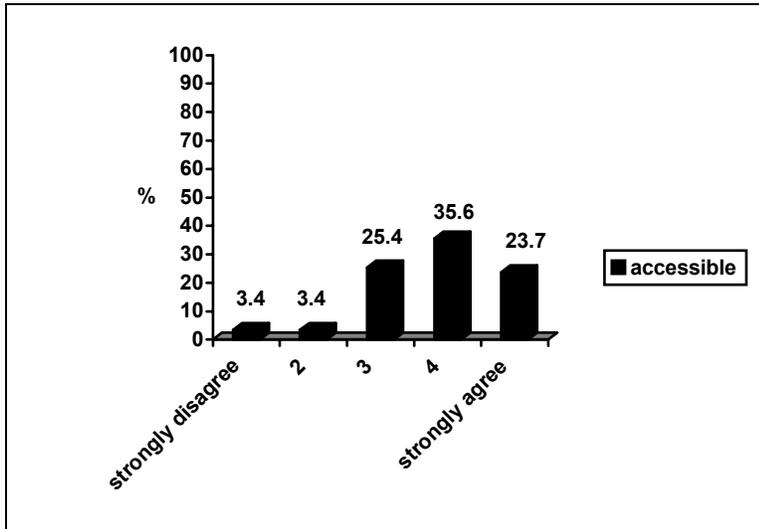
Figure F7-7. Ratings of accessibility of Predictive Services information—federal fuels specialists.

While a majority agreed that Predictive Services information was timely, about one-eighth disagreed with this as an attribute (*M*=3.9, sd=1.3, *n*=53, *Figure F7-8*, 10.2% marked 'don't know').
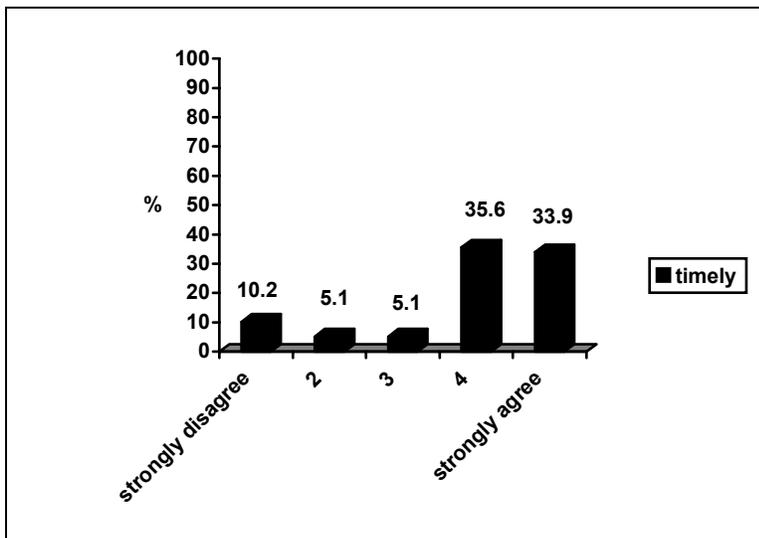
Figure F7-8. Ratings of timeliness of Predictive Services information—federal fuels specialists.

A majority agreed that Predictive Services information was relevant (*M*=3.9, sd=1.3, *n*=52, *Figure F7-9*, 11.9% marked 'don't know').
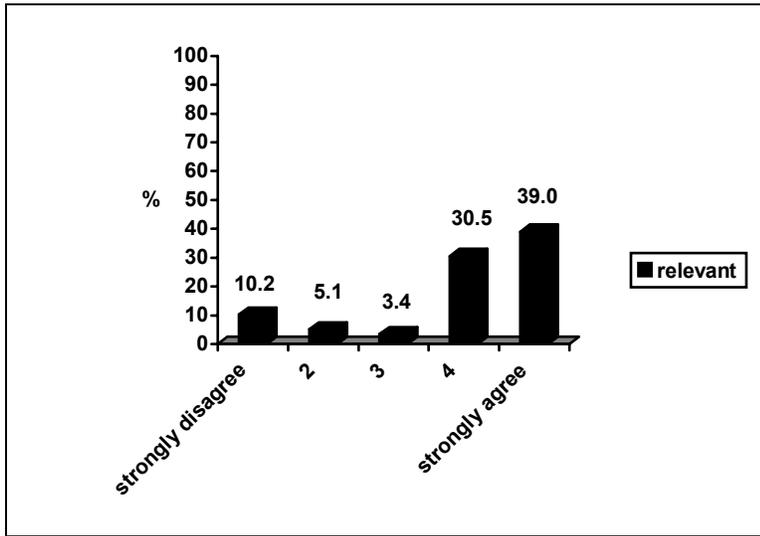
Figure F7-9. Ratings of relevance of Predictive Services information—federal fuels specialists.

More than three-fourths agreed that Predictive Services information was accurate (*M*=3.9, sd=1.3, *n*=59, *Figure F7-10*).
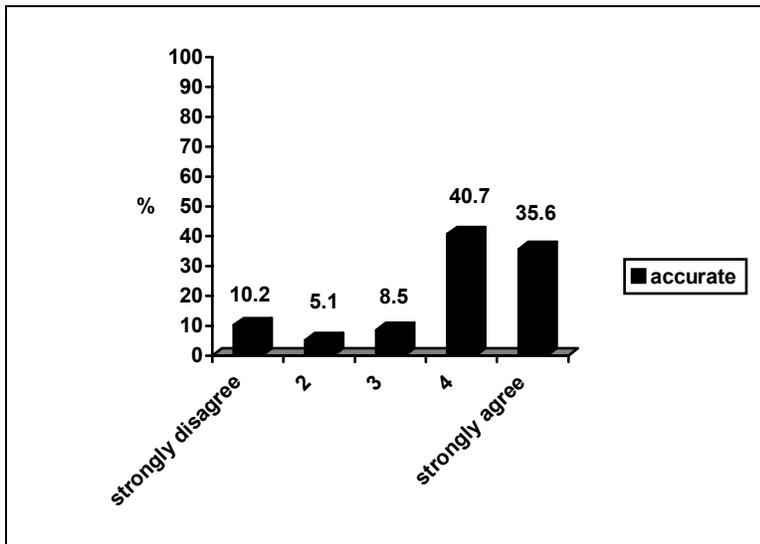
Figure F7-10. Ratings of accuracy of Predictive Services information—federal fuels specialists.

A majority also agreed that Predictive Services information was complete (*M*=3.8, sd=1.3, *n*=55, *Figure F7-11*, 6.8% marked 'don't know').
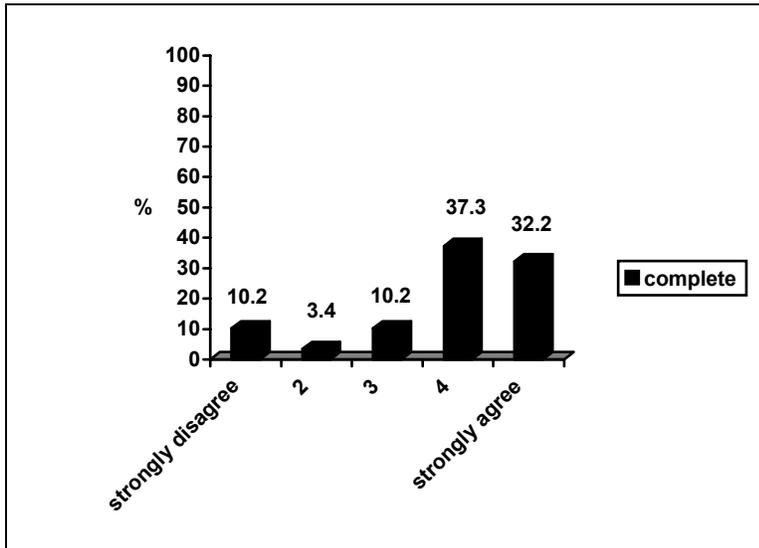
Figure F7-11. Ratings of completeness of Predictive Services information—federal fuels specialists.

A majority also agreed that Predictive Services information was easy to understand (*M*=3.9, sd=1.3, *n*=54, *Figure F7-12*, 8.5% marked 'don't know').
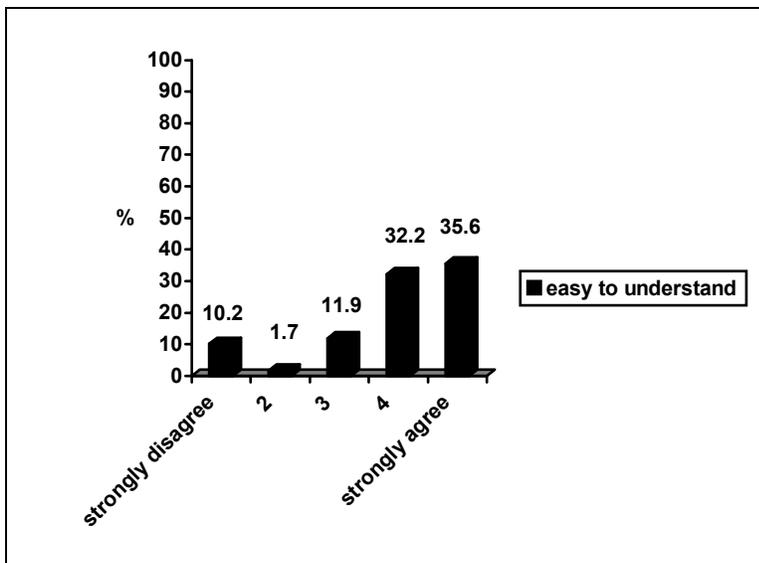
Figure F7-12. Ratings of ease of understanding of Predictive Services information—federal fuels specialists.

Similarity and importance of similarity of GACC sites—Federal fuels specialists rated how true the following statement was "The Predictive Services products and services available through the GACCs (you selected – based on which GACCs they had been to) are similar in format,

quality, and the range of products and services offered. One-fourth perceived the products and services as similar (*Figure F7-13*).
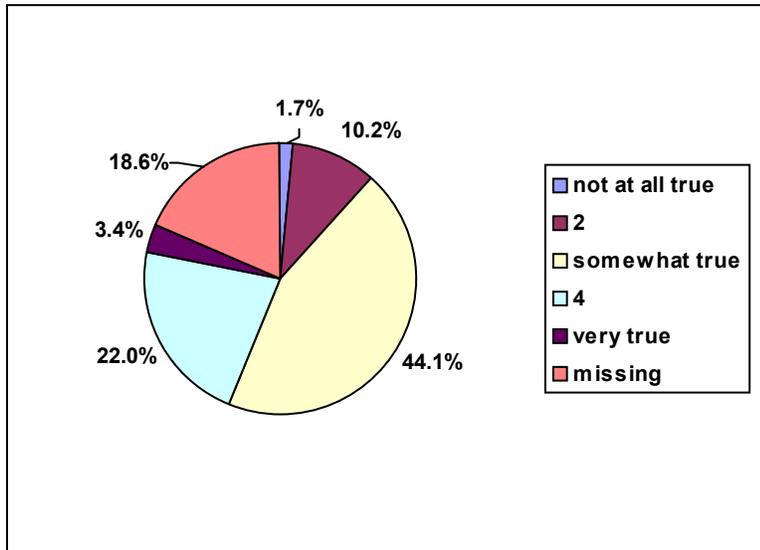
Figure F7-13. Products and services available through the GACCs you selected are similar—federal fuels specialists.

Respondents were invited to comment on their responses regarding similarity across GACCs. Comments included these:

All seem to have somewhat different format but most have the same menu of products (specific to their areas)

The three selected have the same types of info available generally. The locations, formats, etc. vary a little, but the info is pretty much consistent.

The data I have found to be similar but the arrangement differs in some instances. different items may be included in different GACC's

The Southern California GACC seems to be behind on it's offerings considering its prominence in the fire community

Bottom line is the pretty much the same, but presentation of the data is varied

I try and look at situations coming our way to the SW and am also on a National Fire Use Team.

not all info is in the same format

not sure as I have never compared them

Southern California GACG needs improvement, updating more regular

Very general - got the same - if not more info from reading the daily NWS fire forecast than from predictive services.

The formats are different so where you find information can be in different places making it difficult to find quickly

General products are similar, specific products for area vary greatly.

Sites are similar in format. Quality of products produced ranges wildly from very useful to not at all useful. Contact with folks on the ground and incorporating their suggestions clearly is the dividing line for usefulness.

navigating information among different GACC's is easy and consistent

Although similar there are still differences in the interface and the actual products offered

The Southwest GACC is my favorite. The California GACCs my least favorite
I see some consistency.
Southwest GACC I believe has the best
When I have used the products all very helpful and common between GACCs
Weather Trends, Spot Forecasts
time frame of availability differ
Too much standardization is not good. When gov't says this is the way things have to be innovation stops and things don't progress from there. Example: I fly a 1957 airplane. The engine has 1957 technology. FAA does not allow enhancements to that engine without major--major amounts of paperwork and approvals. That's what happens when we have regulations, whether by legislation or just by policy. Also, some competition when allowed and encouraged will bring that innovation.
Northwest GACC has very good all risk information where our North and Southzone GACC did not

While less than one-tenth indicated that similarity of Predictive Services' products and services in format and quality across GACCs was unimportant (6.8% assigned a 1=not at all important, or a 2), about one-fourth indicated that it was somewhat important (28.8%), and a majority indicated that it was important (59.3% assigned a 4 or 5=very important; 5.1%, did not answer this item).

Satisfaction with Predictive Services contacts—About one-fourth of respondents (27.1%) had contacted Predictive Services to report a problem with a product or service. Over one-third of these (37.5%) selected a 4 or 5 on the scale indicating they were responsive (scale was 1 to 5, 1=not at all responsive, 5=very responsive). A few respondents (16.9%) had contacted Predictive Services to suggest a new product or service. Using the same responsiveness scale as for reporting a problem, three (30.0%) rated Predictive Services as responsive to their suggestion.

Use and utility of products and services—Products and services available through Predictive Services were examined. The 39 specific listings included some products and services that are generated elsewhere, or that are available only on some sites, but not all. Respondents were asked first to indicate if they had not used each product, and then for those that they had used, to rate each according to its usefulness to them on a scale from 1 to 5, where 1=not at all useful and 5=very useful.

The first set of product ratings (*table F7-2*) are those that are shown on Predictive Services sites, but are produced through other agencies.

Table F7-2. Use and utility of Predictive Services products and services provided by other agencies/groups—federal fuels specialists.

Product or Service	% Not Used	Usefulness M	SD, N
National fire weather outlook	6.8	3.67	.9; 55
Red flag warnings	6.8	4.50	.7; 52
Drought information	5.1	4.16	.9; 55
Haines index	10.2	3.79	1.1; 53
7-day precipitation maps	10.2	3.53	.9; 53
7 and 14-day precipitation percent of normal	13.6	3.47	.9; 51
12-hour forecast maps	18.6	3.87	1.0; 47
MODIS active fire maps	23.7	3.60	1.1; 43
7 and 14-day average maximum temperature departure from normal	16.9	3.41	1.0; 49
7-day average maximum temperature maps	15.3	3.22	1.1; 50
Wind maps	13.6	4.02	1.0; 51
Observed fire danger images	33.9	3.61	.8; 36
ROMAN real time fire weather and information report	22.0	4.32	1.0; 44
Upper air soundings	42.4	3.55	1.2; 31

A set of products and services is produced by Predictive Services and is available on a limited scale (*table F7-3,* less than national, typically on a local and regional level). These products and services are offered on a limited scale to meet specific regional needs and interests.

Table F7-3. Use and utility of Predictive Services products and services provided by Predictive Services on a limited scale—federal fuels specialists.

Product or Service	% Not Used	Usefulness M	SD, N
Interagency situation reports	3.4	4.02	1.0; 57
Daily fire weather/danger outlook	5.1	4.14	.9; 56
Prescribed fire reports	16.9	3.53	1.2; 45
Smoke program reports	18.6	3.51	1.1; 47
Online briefings	39.0	3.70	1.0; 33

This last set of products is available on a national scale and is created by Predictive Services, sometimes in collaboration with other entities (*table F7-4).*

Table F7-4. Use and utility of Predictive Services products and services provided by Predictive Services on a national scale—federal fuels specialists.

Product or Service	% Not Used	% With 4 or 5 Rating[1]	Usefulness *M*	SD, N
Incident Management Situation Reports	5.1	76.8	4.09	1.0; 56
Weekly fire weather/danger outlook	6.8	72.7	3.91	.8; 55
Seasonal fire weather/danger outlook	5.1	48.1	3.39	1.0; 54
Monthly fire weather/danger outlook	5.1	42.8	3.36	.9; 56
10-day fire weather/danger outlook	6.8	61.8	3.62	.8; 55
Live fuel moisture	13.6	64.7	4.02	1.0; 51
Dead fuel moisture	11.9	62.7	4.00	1.0; 51
7-day large fire potential	8.5	68.5	3.85	.8; 54
Fire news and notes	18.6	42.2	3.33	1.0; 45
ERC and fuels charts	10.2	81.1	4.15	.9; 53
Links to other services/websites	22.0	54.8	3.67	.8; 42
Multi-season fire weather maps	22.0	42.2	3.11	1.2; 45
Interagency RAWS program	18.6	64.4	4.00	1.0; 45
Reference links	22.0	53.5	3.58	1.0; 43
Training	45.8	58.6	3.69	1.0; 29
State of the fuels program	44.1	56.7	3.70	.9; 30
Technological guidance and transfer	40.7	50.0	3.47	1.0; 32
Predictive service forms	49.2	44.4	3.44	1.0; 27
Regional monsoon update	50.8	46.5	3.43	1.1; 28

[1] This column considers only those who rated the product and is not based on all federal fuels specialists.

Respondents were invited to specify any other products or services they had used, resulting in the following remarks:

> RAWS data is not available for our working area. Closest RAWS stations are located in different micro climates
> long term smoke transport and impacts

Overall satisfaction—Responses indicate that Predictive Services had neither met nor failed to meet most expectations (*M*=3.3, sd= .9, *n*=56, *Figure F7-14*), and respondents were somewhat satisfied (about one-half marked 4 or 5 on the scale, *M*=3.5, sd= .9, *n*=56, *Figure F7-15*).
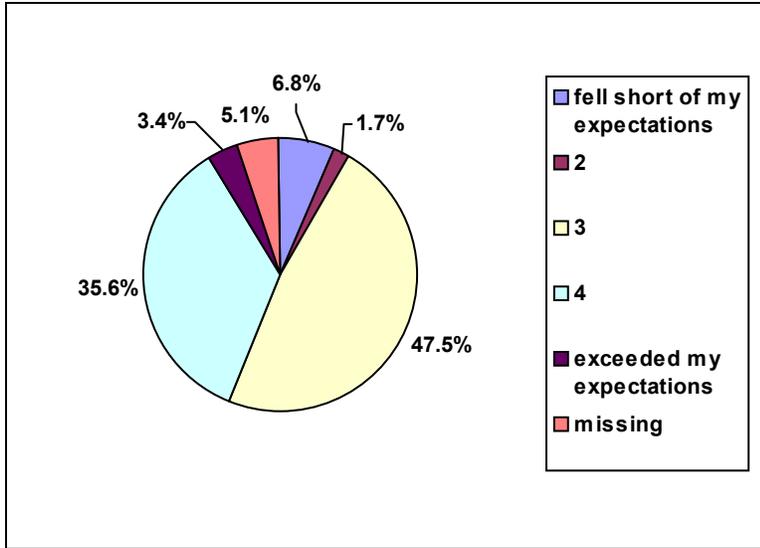
Figure F7-14. Ratings of degree to which Predictive Services met expectations—federal fuels specialists.
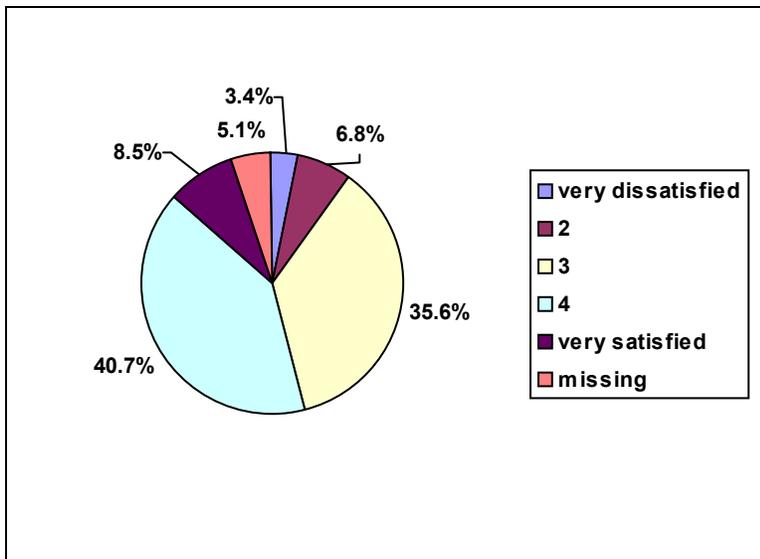
Figure F7-15. Ratings of satisfaction with Predictive Services products and services—federal fuels specialists.

Trust and confidence in the information—The vast majority expressed some, to a great deal of trust and confidence in Predictive Services information (*Figure F7-16*, *M*=3.5, sd=.8, *n*=57; 3.4%, did not answer this item.)
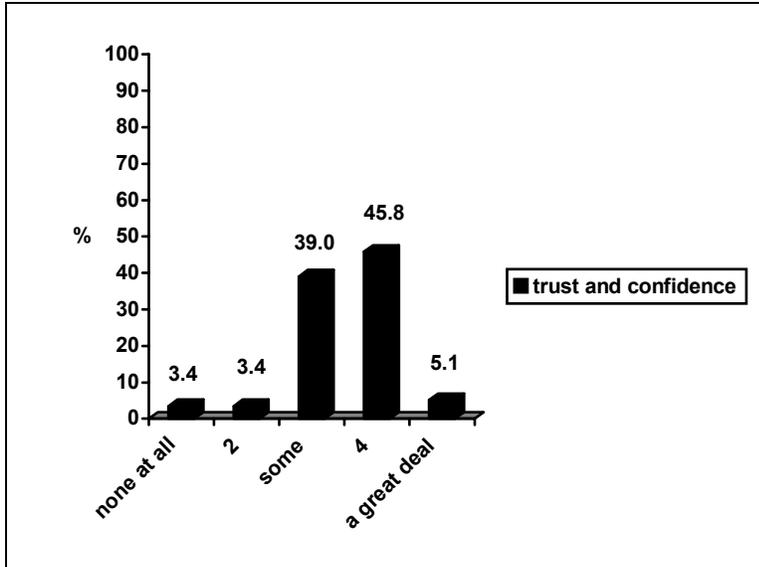
Figure F7-16. Ratings of trust and confidence in Predictive Services information—federal fuels specialists.

Are Respondents Relying on and Taking Action Based on Predictive Services?

Reliance on products and services—About two-fifths (38.6%, *Figure F7-17*) indicated that they *did* rely on the products and services in making important decisions (selected a 4 or 5, where 5 was very true). About one-fourth (23.8%, *Figure F7-17*) indicated that they relied on other sources more heavily than the products and services provided by Predictive Services (chose a 4 or 5, where 5=very true).
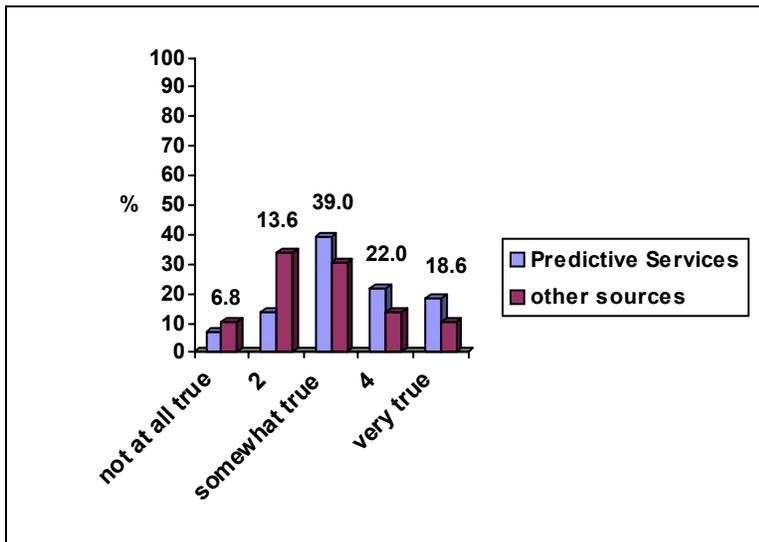
* The proportion of respondents in each category is shown for reliance on Predictive Services.

Figure F7-17. Reliance on Predictive Services and reliance other sources—federal fuels specialists.

Reliance on other sources was investigated further. Respondents were asked to comment when they provided ratings of 4 or 5, indicating they relied on other sources, resulting in the following comments:

NWS (5 respondents)

Weather info and predictions from the weather service but I like to look at the national and regional long term fuels info

I rely on the NWS and local unit data

Local Fire Indices obtained from RAWS and Local zone forecasts for specific areas managed.

Farmer's Almanac

I rely and communicate very much with the NWS pre and during a prescribed burn.

I do use the detailed situation report for the GACC. For other information, fire weather, fuels, etc., I use the National Weather Service and generated NFDRS products. Our predictive services at EGBCC has the ability to put out useful information, but do not incorporate suggestions from the field, rendering their products mostly useless. I do use the fuels status tables, but these are generated by the field. I have no idea how the PSA's were developed, but they are useless and all field going personnel that are aware of them tend to agree. Incorporate field intelligence!

National Weather Service Homepages, satellite imagery and local knowledge

We are required to obtain a spot weather forecast from NOAA

Absolutely, all predictive services does is rewrite products already produced from others ie CPC or from the fire labs. I don't believe that they have had an independent thought and for the funding expended keeping individuals on the ground funded is far more important than having GS-12's and GS-13's discussing information already provided by the US Weather service or the Weather Channel. At least they are more accurate.

Degree of reliance on Predictive Services was also queried. About one-fifth indicated little to no reliance on Predictive Services information (18.7% chose a rating of 1 or 2, where 1=none at all when asked "How much do you rely on the information provided by Predictive Services to assist in decision-making?"). Another two-fifths (39.0%) indicated some reliance, and the remaining two-fifths indicated reliance (42.4% chose a 4 or 5 rating, where 5=a great deal).

The likelihood of taking action based on Predictive Services information was examined. About two-fifths were likely to take action based on Predictive Services information (40.7% chose a 4 or 5 rating, where 5=very likely, *Figure F7-18,* 3.4% did not answer this item).
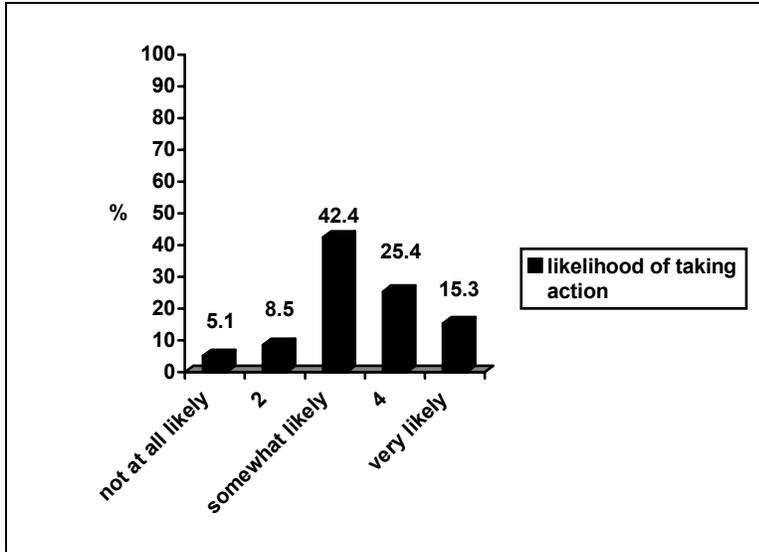
Figure F7-18. Likelihood of taking action based on Predictive Services information received, or gathered from a website—federal fuels specialists.

Did Respondents offer Insights into Reliance and Barriers?

Perceived overlap—Respondents were asked how true or untrue it was that there is overlap in the type of information that can be obtained from Predictive Services and other sources (rated on a scale from 1 to 5, 1=not at all true, 3=somewhat true, 5=very true). While about one-eighth (15.3%) indicated there was not overlap (chose ratings of 1 or 2), nearly half (49.2%) felt this was somewhat true, and about one-third indicated it was true to very true (32.2% chose ratings of 4 or 5; 3.4% did not answer this item.)

Respondents provided the following comments regarding perceived overlap with other sources:

NWS (2 respondents)
various other web pages have similar info, but not usually as accurate or specific
overlap is better than shortfalls
NWS forecasts/outlooks
The NWS. I do not see a clear distinction between what the NWS does and the Predictive Services people do. Is there some sort of competition? Can you figure out what the redundancies are and re-arrange duties?
general weather forecasts are not as accurate as spot weather forecasts.
I also consult NOAA and other weather websites during RX season
ROMAN, NWS, Storm Prediction Center
National Weather Service
I rarely use predictive services. Every time I have it has been incorrect or untimely.
Predictive Services offer more detailed information than is available from the Weather Service in regards to Fire Forecasts
gridded winds are only available through southzone ucsb is only for southern CA

Beliefs about Predictive Services among those who had data gathering and reporting duties—
The respondents with data gathering and reporting duties related to Predictive Services were asked: "How likely is it that you will gather and report data to Predictive Services?" About two-

fifths indicated that they were likely to gather and report data (38.2% chose a 4 or 5 on the 5 point scale, where 1=not at all likely, 5=very likely; 2.9% did not provide a response; *Figure F7-19*).
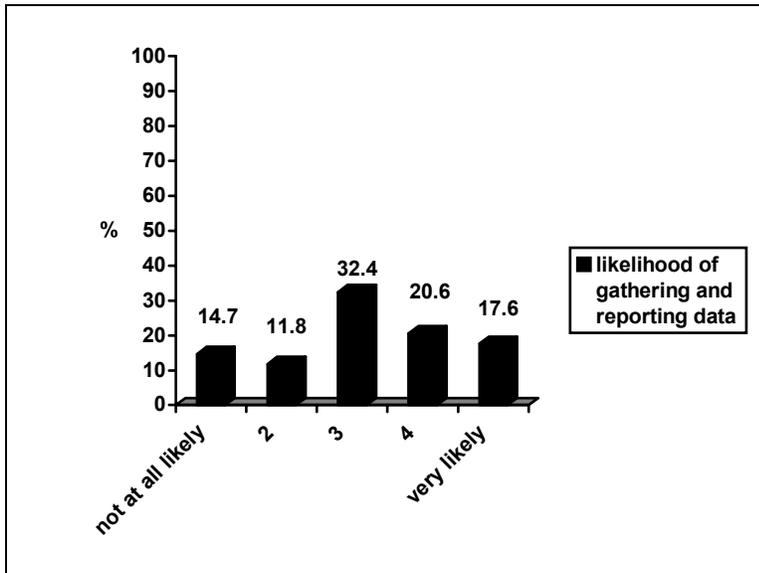
Figure F7-19. Likelihood of gathering and reporting data to Predictive Services—federal fuels specialists with data gathering and reporting duties.

Respondents were somewhat mixed when rating agreement that they had the resources to gather field data for reporting (*M*=2.9, sd=1.1, *n*=33, rated on a 1 to 5 scale where 1=strongly disagree and 5=strongly agree; *Figure F7-20*; 2.9% did not answer this item).
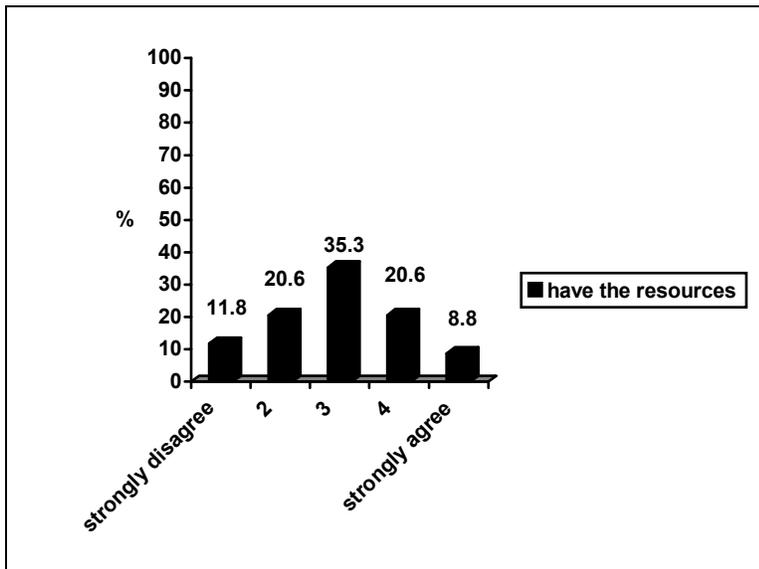
Figure F7-20. Degree of agreement or disagreement with "I have the resources (e.g., time/skills/personnel) to gather field data for Predictive Services reporting" —federal fuels specialists with data gathering and reporting duties.

This subgroup was also asked to rate five items focused on positive impact of reporting, and negative effects of not reporting. Federal fuels specialists were most likely to agree with "My consistent upward reporting of data (e.g., 1300 obs for RAWS) increases the reliability and quality of Predictive Services products and services" (M=3.9, sd=1.1, n=33; *Figure F7-21*; 2.9% did not answer). They were also most likely to agree with "My consistent upward reporting of data (e.g., 1300 obs for RAWS) increases the reliability and quality of products and services provided by groups and agencies that use the data from Predictive Services to generate their own products" (M=4.0, sd=1.0, n=33; *Figure F7-21;* 2.9% did not answer).
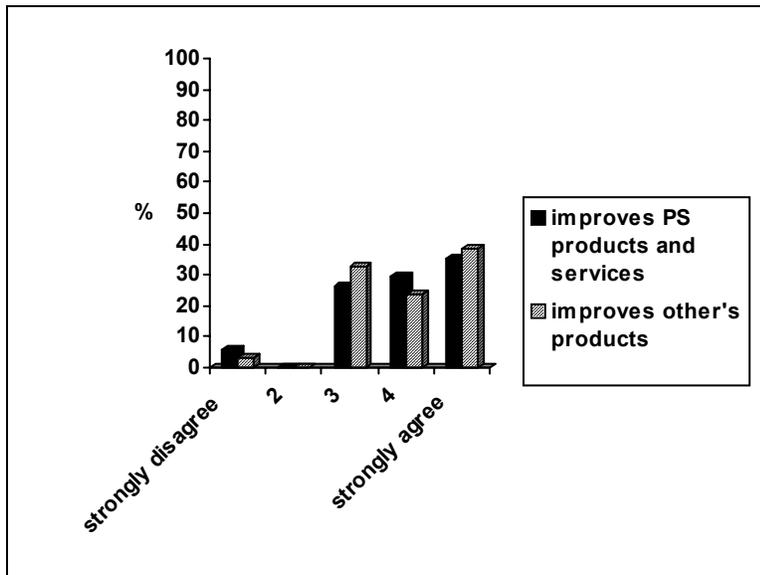
Figure F7-21. Degree of agreement or disagreement with positive outcomes of reporting data— federal fuels specialists with data gathering and reporting duties.

Responses indicate that the majority agreed there are adverse outcomes when/if data is not gathered and reported. This was assessed through two items "If I don't collect and report Predictive Services data, it could affect my unit's ability to make sound decisions to manage fire" (M=4.0, sd=1.1, n=33; *Figure F7-22;* 2.9% did not answer); and "If I don't collect and report Predictive Services data it could adversely impact firefighter or public safety" (M=4.1, sd=.9, n=32; *Figure F7-22;* 5.9% did not answer).
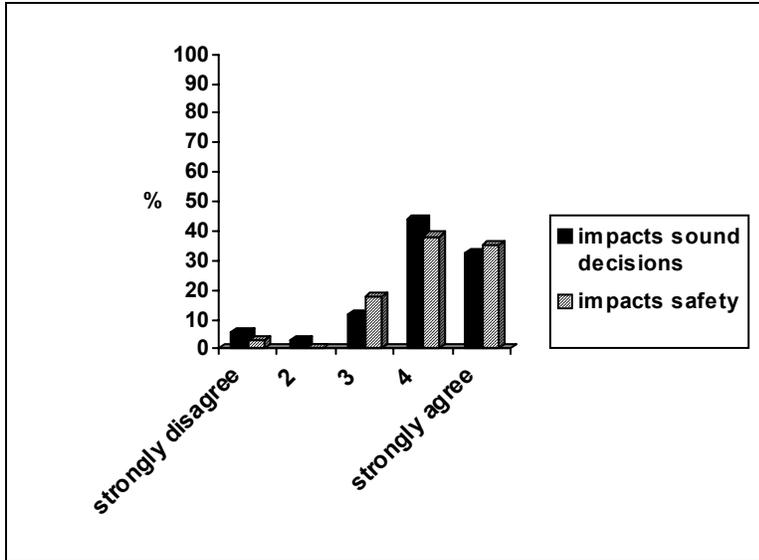
Figure F7-22. Degree of agreement or disagreement with adverse impacts of not collecting and reporting data—federal fuels specialists with data gathering and reporting duties.

Ratings of ability and impact of applying Predictive Services information—General ability to access and apply the information from Predictive Services, as well as its utility in job performance, was queried (using a 5-point Likert scale where 1=strongly disagree and 5=strongly agree). Federal fuels specialists were somewhat in agreement with "I can access and apply Predictive Services information as part of my job duties" (M=3.9, sd=.9, n=56). However, they were in less agreement with "Predictive Services information helps me perform my job with greater precision" (M=2.5, sd=.9, n=52).

Two general items examined perceived impacts of inaccuracies of Predictive Services information. The first was "Inaccurate Predictive Services information would decrease my ability to predict fire behavior." Rated on a 1 to 5 scale, where 1=strongly disagree and 5 was strongly agree, the average was 3.4 (M, sd=1.1, n=57; *Figure F7-23*). Two respondents did not answer this item (3.4% selected 'don't know'). The second was "Inaccurate Predictive Services information used in my decision making may adversely impact firefighter or public safety." Again, the average was at the mid-range of the scale (M=3.4, sd=1.0, n=57; *Figure F7-23*). Two respondents also failed to indicate degree of agreement or disagreement with this item (3.4% marked 'don't know').
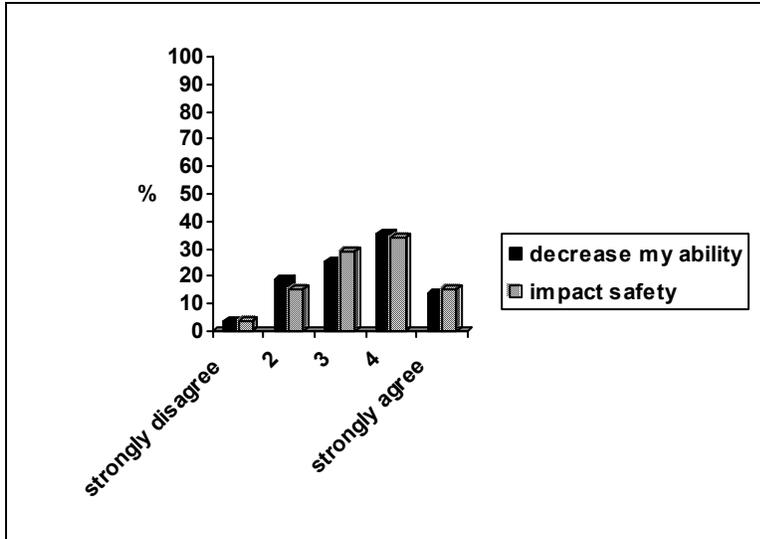
Figure F7-23. Impacts of inaccurate reporting of Predictive Services information—federal fuels specialists.

Barriers to use of products and services—There were various reasons why respondents did NOT use the products and services offered by Predictive Services, although no one overwhelming reason or set of reasons emerged among the 16 offered as potential barriers (*table F7-5*). The most frequent reason provided was not having thought about using the products and services. A lack of trust was mentioned by a few as a barrier to use.

Table F7-5. Reasons why they had not used the products and services offered by Predictive Services—federal fuels specialists.

Reason	Percent
I never thought about it.	22.0
My current management practices don't require the types of information provided by Predictive Services	3.4
I don't know how to use these products	11.9
I need information that is site specific	18.6
I am not mandated to use these products	6.8
I don't have the time to use these products	16.9
I don't know where to get advice about using these products	5.1
I don't know where to get the technology to use these products	1.7
I don't have the technology I need to use these products	5.1
I don't trust the products and services	6.8
I don't want to use these products	6.8
I don't think these products support my agency's current practices	3.4
Agency directives/guidelines instruct me to use other information	1.7
I don't have the money to use these products	0
I don't trust the advice I get about using these products	1.7
I don't trust information that is generated by multiple agencies	1.7

As a follow-up to the above items, we invited respondents to explain why they might not want to use the products, resulting in the following comments:

Wierd question. A lot of stuff that predictive services provides is available real time elsewhere... So I am using the same information, but may be getting (often real time) from different sources.

Personnel (suppression and RX) are nuts if they do not use Predictive Services.

This information is not distributed or communicated widely. I do not know what products are out there or how they can be used. I am sure that I could use the information if I was familiar with it and where to get it.

The vast majority of the products (as in 5a) are available elsewhere. I do use them daily during fire season, but derive them from the source. Most of my comments throughout are directed at EGBCC Predictive Services. I do feel that other GACC Predictive Service groups are generating very useful information developed through coordination of local on-the-ground experience. EGBCC does not use input from the user group, though many have tried and had useful information dismissed. I DO discuss this with other dispatch centers and the problem is well recognized across the area.

have really slow internet connection at work

Again, they are repackaged from sources that I trust. Predictive services doesn't have the skill on the ground nor the experience to be making predictions to site specific situations or to geographic situations. It is a waste of funding especially when it comes to keeping on the ground people and engines employed.

These products have no applicability to my current job.

other products of similar nature more specific to area are easier and more accurate to use at times. Often I use a combination of several products and take the average or realize a range

How can Existing as well as New Products and Services be Improved or Designed?

How fire danger/fire information is used to support decision-making—Respondents were asked to indicate how they use fire danger/fire information to support decisions made regarding fire management. About half of respondents used fire danger and fire information to make decisions in decision support about public use restrictions (45.8%), for resource allocation (45.8%), for severity requests (57.6%), and about resource staffing (62.7%).

Respondents were asked to indicate other uses of fire danger/fire information, resulting in the following comments:

Prescribed burns
Prescribed Burning/Go-No Go
WFU
general knowledge of what is happening
prescribed fire planning
conduct or not to conduct prescribed burns
development of NFDRS operating plan
Rx Fire Go-No Go
Prescribed Fire
comparison with fire behavior & ops
Rx burn info to the Tribes

Tolerance for errors and inaccuracies—Respondents were asked to rate their tolerance for false alarms and inaccurate reporting (rated on a scale from 1 to 5, where 1=low tolerance and 5=high tolerance). While respondents did not indicate a high tolerance for false alarms or inaccurate reporting, they were somewhat more tolerant of false alarms pertaining to fire danger

(*M*=3.0, sd=1.0, *n*=58; *Figure F7-24;* 1.7% did not answer), than they were of inaccurate reporting of high fire potential (*M*=2.7, sd=1.0, *n*=58; *Figure F7-24;* 1.7% did not answer).
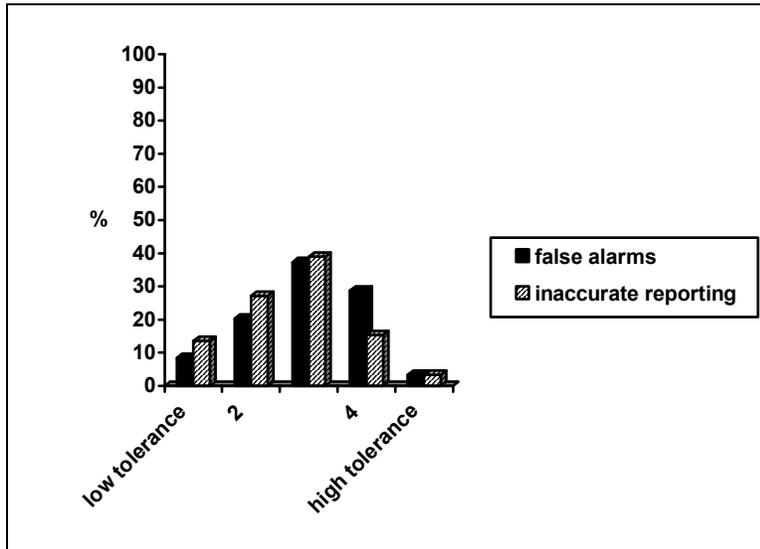
Figure F7-24. Tolerance for false alarms and inaccurate reporting—federal fuels specialists.

In order to capture overall preferences for approaches to errors ("Although it is understood that accurate and reliable reporting of fire danger and high fire potential are desirable, margins of error are involved in predictions. In these cases, do you prefer that…"), respondents chose between two statements:

"Statements of danger or risk be issued with a greater margin of error allowing for an early response, knowing that this may lead to unnecessary alarms and response (Better safe than sorry)" —78.0 percent chose this statement as their preference.

"Statements of danger or risk should only be given with certainty, knowing that this may allow a few dangerous events to emerge that were not anticipated (Don't cry wolf)." —20.3 percent chose this statement as their preference.

One respondent (1.7%) did not choose either statement as their preferred approach.

Audience identification—According to the federal fuels specialists, the primary audiences for Predictive Services' products should include: local and district fire managers (93.2%), regional and state fire managers (86.4%), national fire managers (69.5%), and to a lesser extent non-fire land managers (25.4%), and the public (23.7%; note that respondents could select multiple audience types, so responses do not sum to 100%).

Respondents were invited to specify other primary audiences, resulting in the following comments:

    Cooperators, Partners and Collaborators
    Prescribed Fire Managers
    no one its not listened to or used

Preferred information formats—Respondents were asked to indicate their preferences for the style and format of presenting information. For each of 11 formats presented, a rating from 1 to 5 was requested (1=not at all useful, 5=very useful). Based upon the proportion of respondents assigning ratings of 4 or 5 to each format, the formats most to least useful were: satellite maps (64.4%), information presented in regional or national maps (61.0%), brief annotations that accompany data presentations (57.6%), brief executive summaries of data (55.9%), web-based ArcIMS maps with user-defined layers and scales (54.2%), radar maps (52.5%), data in table form (50.8%), data in spreadsheet form (40.6%), bar charts or figures that summarize data (39.0%), data in text form (37.3%), and non-web-based Geo database files (23.8%).

Other styles or formats of information offered by respondents, or comments surrounding this issue, included:

List serve alerts for weather events or other user specified reports. Sometimes difficult to keep search for info but if you can set up a subscription that sends you the info or tells you an update is available it is much easier.

Respondents were also asked to indicate what, if any information they would like to see in summary or synthesis form, resulting in the following comments (for this item the don't know and not applicable responses have been excluded):

On a map, particular problem fire areas for the next 24-72 hours.
critical weather information - temp, rh, winds, cloud cover, chance of thunderstorm induced winds
7 day large fire needs to be printable.
Nothing that isn't already in that form.
Weather/fire potential summary is good with large fire potential chart.
Past years, maybe at a five year increment to capture changes not yet seen in the long term.
Summary of products and briefing on how prepared and how to use
Wind & weather trends
weekly national display of fire severity areas of concern
sorry, too little too late, to many Q/A that seem to repeat early in this survey

Improving existing products and services— Respondents were asked to complete the sentence "The information and services provided by Predictive Services would be more useful to me if…", resulting in the following open-ended remarks:

I used them more frequently.
weather forecasting beyond the next 48 hours was more reliable.'
I had more time to practice using it and compare the accuracy of the products to the conditions actually encountered.
The Raws data more accurately reflected local weather/climate conditions. and I had more time to learn about the products and how to use them in more situations.
SoCal GACC would update News & Notes more often and accurately
not sure at this point
I had the time to understand all the components you present.
someone could figure out how to improve the accuracy of long range forecasting!
I knew more about all of the services that are available so I can understand why specific forecasts were made.
My computer was faster.

Live Fuel Moistures were input by dispatch zone by fuel type measured.

There was less information. There are so many different products that I have to pick and choose what I actually use.

the info is not true

sometimes they need to be of a regional or zone level even though the national look is a good start, a look at the predicted fire and fuels situation is helpful for local decision making

I utilized it more often.

I knew more about them.

I had an internet connection out in the field.

their products were available outside the 'normal' fire season (i.e. the shoulders!).

there was a clearer intend on what they are to be used for and how to use them properly. (interpretation of products)

it were updat3ed more often

I could get a product in a timely fashion. I have asked for services from the GACC and has taken several weeks for the info to come back. Once I got the info, it was extremely brief and old to say the least. i get better info from the local wx office than getting any product from the service.

I knew more about it

the formats for all of the sites were similar.

the information was disseminated in a more pre-active manner. I do not know where to access the on-line information. I have never been privy to a briefing. During RX fire, I would not know who to contact or how to utilize this information at this point. The predictive services people have been in place for 4-5 years now and I really do not know what they do or how the products they provide apply to my decisions.

no comment. I primarily use the spot weather forecast for my prescribed fire program. We submit on line (easily done), and typically get the forecast back within 0.5 hours (quick enough). I am sure the folks are coming as close as they can with the predictions, so what else can I ask for?

I had more time to devote to going over all the products and clearly understand the outputs. I this day and age of info overload it is hard to do.

they used input from area specialists. We do the analysis of fire business, know our fire problems and where weather, fuels and topography correlate to produce large fire growth, this information is dismissed by our local group.

it assisted more with fire use decisions specifically.

I knew that spot weather reports were for my exact location.

I didn't have to answer surveys

If there was a greater emphasis on accuracy, quality and consistent RAWS data over large blocks of time. RAWS may be key!!!

Products also included information/decision support related specifically to Rx fire. Most products are geared to wildfire. For example outlooks are geared towards what the fire danger will be when mangers may want to know probability of suitable Rx windows opening up.

smoke forecasts were year around

I was smarter.

the three day forecasts were more accurate.

I knew what they are.

more user friendly

I had a job that needed them.

If we got Smoke Forecasts year round

I had more time to use them and if I knew how to apply the information to my job.

there were greater coordination across GACCs.

I had more time to look at it.

Like on the NIFC page, I would like to see less key strokes to get to those items I use. I would like to see the ability to organize my log-on like you can with msnbc or yahoo, etc. where the products that I use all the time are right there and only one click away, and not hide in different categories and multiple clicks or behind banners that I've seen hundreds of times.

prevention folks knew how to use it.

regional GACCs need to be more consistent, with data and information. We shouldn't have to shop for that.

Respondents were also asked to consider the existing products and services, and comment on how they could be modified to better meet their needs, leading to the following comments (answers of don't know or no comment have been excluded):

Not sure, I think they are fairly easy to access and use currently.

SoCal GACC should upgrade there spot forecast capability, specifically make it web accessible like the NWS. Quit falling asleep at the switch on News & Notes and Intel in general. (SoOps again)

I use what I use in your program. I am not intimately familiar with all of your services to tell you what to modify.

I think BlueSky and Rains is helping with what I need...

continue improving accuracy of forecasts

n/a; I am very satisfied with the data.

Reference them to the audiences that use them. E.g., Firefighter info, D.o. info, gacc info, national info...

Send out an advertisement e-mail explaining what is available, and where to find it.

I don't have an opinion really, generally I can find indices and products that work for me. Having them all in one location allowing for one stop shopping works best.

Simplified and incorporated with other regional info (i.e. NWS)

Timely fashion

Unable to come up with anything at this time.

Better services regarding the shoulder seasons for RX fire and fire use. Better information on Smoke Management concerns and possible mitigations.

Use the fuels scenarios and RAWS data that we suggest.

More money to manage RAWS.

make them for 56kbps modem because it takes such a long time to load web pages

California GACC's home pages are non-descript and cumbersome to navigate. A more efficient arrangement of the page would be helpful

more user friendly and quit changing formats

They seem ok to me now that the format has been standardized on GACC sites

More wind information, more information about severe fire weather events (chinooks), better way to track/get data on winds.

better uniformity

Find a way to get some information to the prevention folks and train them on how to use the information.

Products or services that should be added to what Predictive Services provides— Respondents were asked to explain which products and services should be added to Predictive Services and why, resulting in the following comments:

I would suggest gearing down the info that is put out.

Prescribed fire and smoke management assistance products.

Actual live fuel moisture (live and Dead), taken from various sites.

I haven't gotten one that I would consider worth reading or passing onto the line officer.

With technology changing so rapidly I can see services updating.

More accessible briefings, better dissemination of information, better explanation of products, more interface with field and regional folks. Provide an opportunity to all folks that could use this information on a daily basis. Since the GACC that I work with most is predominantly one agency, the rest of the agencies are left out! Need to focus on all agencies and managers/FMOs and not just one.

Smoke modeling predictions short and long term.

It would be helpful to have a GIS database for the GACC that included vegetation, weather/climate, topographical information and fire history information for all agencies.

Decision support for Rx fire. Products need to be suitable for both Rx fire and Wildfire support

Open access to BLM's lightning data

Since I don't use predictive services I can't really say.

Better/more access to historical fire weather trends and data (RAWS not always in appropriate locations, functioning, have long records, etc.).

Target prevention folks with your information

gridded winds to plot and run in Farsite.

Were There Additional Comments?

As is customary in such surveys, we invited respondents to offer any comments about Predictive Services, or any comments about the survey, resulting in the following remarks:

The skepticism I have about predictive services is the same as weather forecasting-- it is difficult to have confidence in predictions beyond the next 48 hours.

Thank You for allowing me to participate. My name and opinion and duty station is not secret, you can use it and follow up if you so desire.

This has been stated before, but there are almost too many products available. Slim them down to the really important ones.

They provide a very useful and important service.

I am concerned that the predictive services personnel have been in place for 4 plus years and there is little knowledge at the field level what they do. What services do they provide and how can that help me in my daily decisions regarding both wildland fire and prescribed fire. Also, how can these positions put it all together for the managers; such as NFDRS, weather, live fuels, fuel loading and others so that we can get one briefing that alleviates going to multiple sources.

Again, most comments are directed specifically to EGBCC Group. I think predictive services can provide valuable information, but it needs to be useful information, not just some 'cool to do' output.

Thanks for providing a very valuable service. A tough survey to answer as I waffle between information overload and wanting more specific information and sure you get the same mixed messages from users. Keep up the good work.

Predictive services has fallen short of the anticipated successes that it was originally designed for. We cannot continue to expend funding on such ventures when we don't have enough money to operate aircraft, engines etc which is our real mission. It was nice to have experiment and now it is not.

I really tried not to complete this. It has no applicability to me, my job is totally weather
  independent, but you kept bugging me. I hope I didn't mess up your results.
I think some consolidation and streamlining of staff is warranted

Appendix F8: Fire Behavior Analysts/Long Term Analysts/Fire Danger Analysts— Federal Respondents

Federal fire behavior analysts/long term analysts/fire danger analysts were grouped into one category (*n*=47; FBANs/LTANs/analysts). These respondents came from the Forest Service (51.1%), Bureau of Land Management (21.3%), National Park Service (14.9%), Bureau of Indian Affairs (10.6%), and Fish and Wildlife Service (2.1%).

Who Were the Federal FBANs/LTANs/Analysts?

The majority was male (89.4%), mostly between 45 to 54 years old (*Figure F8-1*).
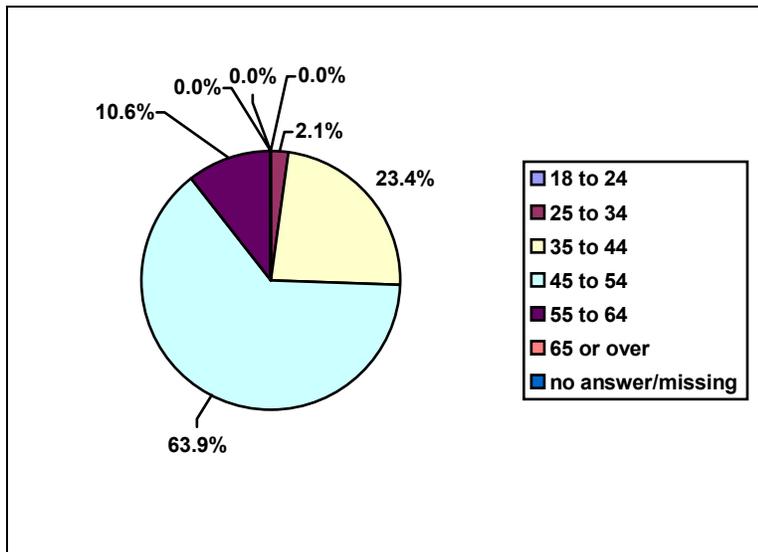
Figure F8-1. Age—federal FBANs/LTANs/analysts.

Educational background / degree or equivalent—Educational attainment was fairly high among the majority in this subgroup, with about one-third reporting graduate education (*Figure F8-2*).
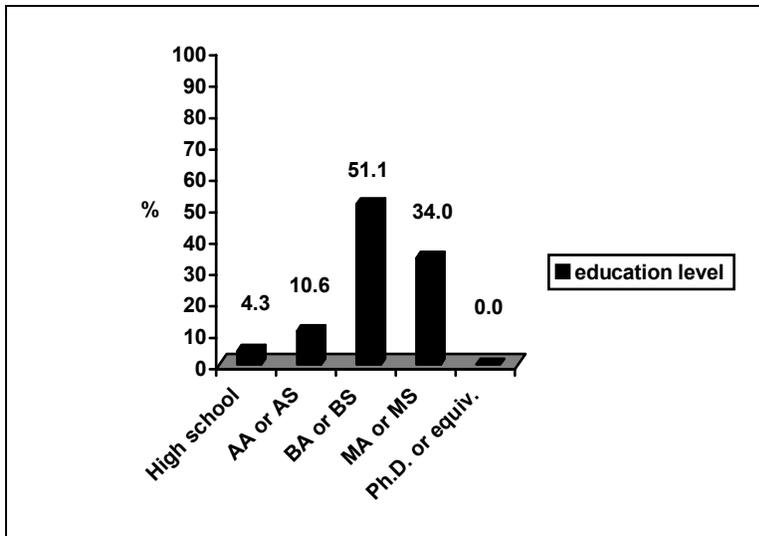
Figure F8-2. Educational attainment—federal FBANs/LTANs/analysts.

Respondents reported degrees in the following subjects (these are on an individual basis so when lines contain multiple subjects they reflect an individual's response):

Biology (3 respondents)
Business management
Forest ecology
Forest engineering tech
Forest management (4 respondents)
Forest protection and siviculture (fire science)
forest resources-fire ecology
forestry (fire) (3 respondents)
forestry; environmental and natural resource sciences
Forestry (7 respondents)
Forestry; geography
Forestry resources (2 respondents)
Geography
Geology
Natural resource management
Natural resources-wildland fire management
Physics; forest management
Psychology
Recreation and parks management
Resource conservation

Home office Geographic Area location—Respondents came from across the United States, with their home offices falling within the various Geographic Areas (GAs) shown below *(Figure F8-3)*.
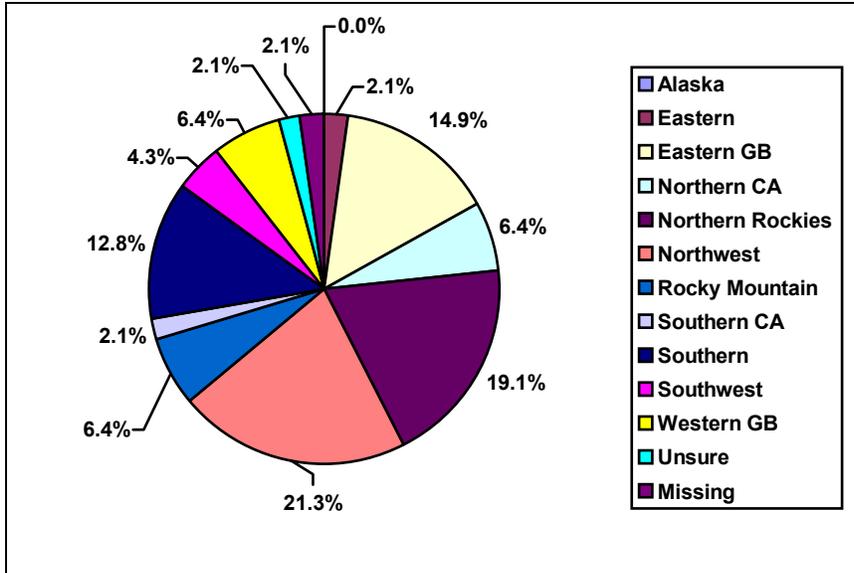
Figure F8-3. GAs—federal FBANs/LTANs/analysts.

Level of geographic responsibility and scope of duties—Respondents' level of geographic responsibility varied. About one-third reported their duties linked to their local unit (including forest, district, reserve, etc. at 31.9%). Responsibilities for the others were at the site specific (27.7%), national (23.4%), regional (14.9%), or national and international (2.1%) level.

The majority of respondents (78.7%) indicated that their work was specific to multiple agencies, while the remainder (21.3%) had duties specific to their agency only.

The number of years reported in the current position of employment averaged 7.8 years (sd=6.6, *n*=26). Median responses for number of people supervised included zero on a routine basis, zero on a seasonal basis, and one on an incident/project basis.

Almost two-thirds of the federal FBANS/LTANS/analysts (61.7%) had job responsibilities that included gathering and reporting data that is utilized by Predictive Services such as: situation reports, ICS-209's, NFDRS/WIMS, etc. Among the respondents with data gathering and reporting duties (*n*=29), the duties are assigned as one of their primary responsibilities (43.3%), or when others with this routine responsibility were away from the office (23.3%). About one-third (30.0%) were assigned the duties as part of a group that fulfills that responsibility. This group of respondents is small, so while we report all responses from them, readers should exercise caution in programmatic decisions or other issues that might be addressed with this data.

What are their Levels of Experience with Predictive Services?

Frequency of access and information acquisition—The frequency of accessing and obtaining information from Predictive Services was examined under two conditions, during fire season and outside of fire season. Frequency of access was greatest during fire season (*table F8-1*).

Table F8-1. Frequency of accessing and obtaining information from Predictive Services—federal FBANs/LTANs/analysts.

Frequency	During Fire Season %	Outside Fire Season %
Daily	46.8	6.4
Weekly	38.3	31.9
Monthly	8.5	29.8
Quarterly	0	12.8
Rarely	6.4	14.9
Not at all	0	4.3

Specific circumstances for access/acquisition—In addition to frequency, respondents provided information regarding specific situations when they access or obtain information from Predictive Services. Nearly seven-eighths reported accessing Predictive Services during fire season (85.1%), and about three-fourths during a fire incident (76.6%). Other situations were reported including when a prescribed burn is being planned (44.7%) and when a prescribed burn is taking place (44.7%). One respondent indicated none of the above situations applied to them (2.1%).

Respondents listed additional situations when they access/obtain information from Predictive Services including:

    When trying to identify burn windows.
    pre-season for staffing needs
    SEVERITY REQUESTS
    sending resource to assignments out of the local area
    before departing for an incident
    long range outlooks
    All year long, most GACCS
    for weekly State Director's status report on the developing fire season
    Pre-season, also prior to an out of area assignment
    Evaluate severity needs
    Hurricane or other 'all risk' incidents
    special projects and special requests

Use of specific websites and services—Respondents were asked to indicate which Predictive Services websites they had visited/GACC services they had used, revealing that a majority had been to/used the National Interagency Coordination Center (NICC–76.6%). The Geographic Area Coordination Center sites from most to least mentioned were the Southwest (63.8%), Northern Rockies (63.8%), Rocky Mountain (53.2%), Northwest (48.9%), Western Great Basin (48.9%), Eastern Great Basin (44.7%), Southern (31.9%), Alaska (29.8%), Southern California (27.7%), Northern California (25.5%), and the Eastern site(12.8%; responses do not sum to 100% because respondents could select multiple sites). About one-fifth had visited one or two sites, while others reported multiple sites (as many as all 12). One (2.1%) was not sure which if any sites they had visited/GACCs they had used.

Familiarity with the products and services—Federal FBANs/LTANs/analysts were asked to indicate how true or untrue the following statement was "I am unfamiliar with Predictive Services products and services." About one-eighth indicated this statement was true (*Figure F8-4,* 14.9% selected a rating of 4, or 5, where 5=very true).
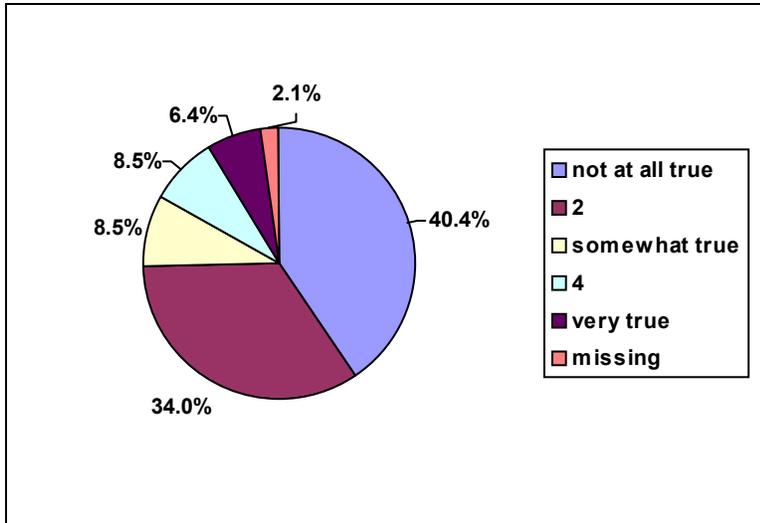
Figure F8-4. Unfamiliar with Predictive Services products and services—federal FBANs/LTANs/analysts.

The majority of respondents were interested in Predictive Services products and services (*Figure F8-5*, 89.3% selected a 4 or 5, where 5=very true in response to "I am interested…; another 6.4% marked 'somewhat true').
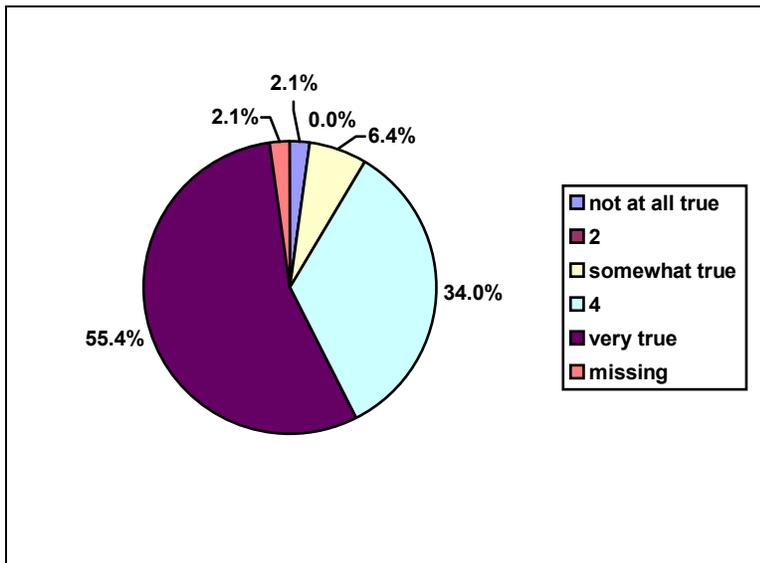
Figure F8-5. Interest in Predictive Services products and services—federal FBANs/LTANs/analysts.

Respondents were asked their familiarity with Predictive Services' products on the web, the briefings, and the emails. They were more familiar with the web products (*Figure F8-6*, *M*=4.1, sd=.7, *n*=47), and the briefings (i.e., national, geographic, situational, or meteorological, *M*=4.2, sd=.8, *n*=47), than with the emails (these contain current projections and/or information about Predictive Services, *M*=3.4, sd=1.3, *n*=47).
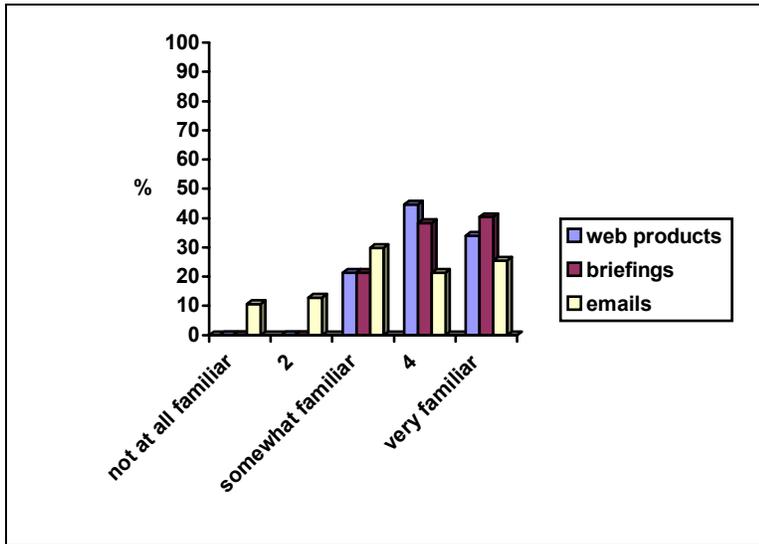
Figure F8-6. Familiarity with Predictive Services products on the web, briefings, and emails—federal FBANs/LTANs/analysts.

What are their Opinions of the Products and Services?

Ratings of Predictive Services information—Respondents tended to agree that Predictive Services information was accessible (*M*=4.0, sd= .9, *n*=47, *Figure F8-7*).
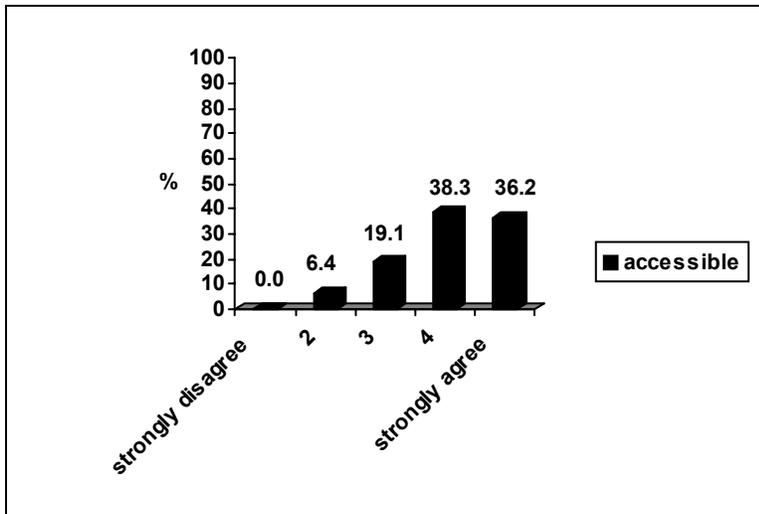
Figure F8-7. Ratings of accessibility of Predictive Services information—federal FBANs/LTANs/analysts.

While a majority agreed that Predictive Services information was timely, one respondent disagreed with this as an attribute (*M*=4.1, sd=.9, *n*=39, *Figure F8-8*, 17.0% marked 'don't know').
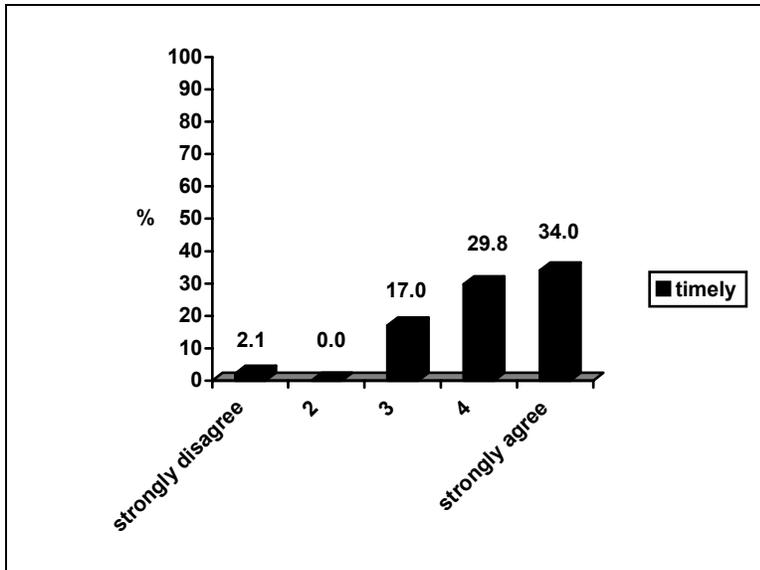
Figure F8-8. Ratings of timeliness of Predictive Services information—federal FBANs/LTANs/analysts.

A majority agreed that Predictive Services information was relevant (*M*=4.3, sd=1.0, *n*=33, *Figure F8-9*, 29.8% marked 'don't know').
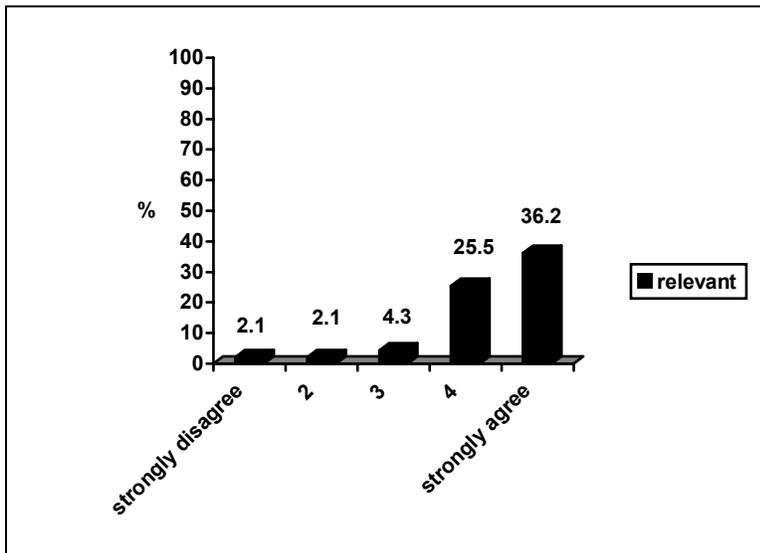
Figure F8-9. Ratings of relevance of Predictive Services information—federal FBANs/LTANs/analysts.

Nearly three-fourths agreed that Predictive Services information was accurate (*M*=4.2, sd=1.0, *n*=39, *Figure F8-10*, 17.0% marked 'don't know').
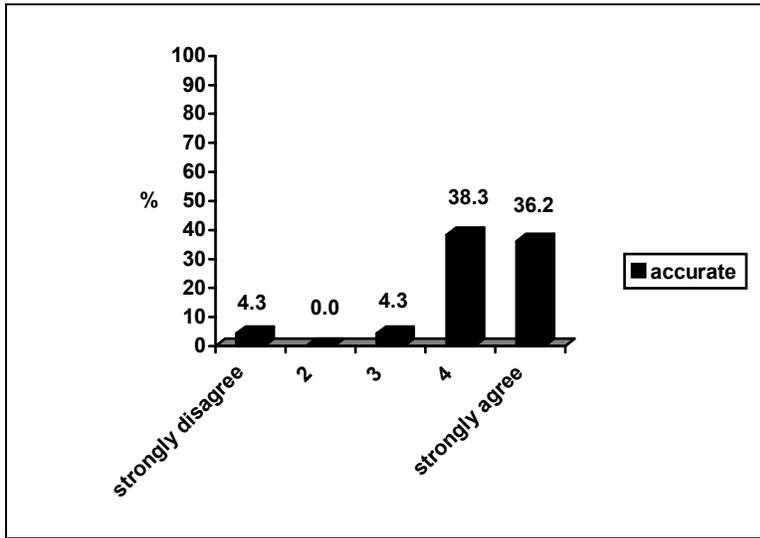
Figure F8-10. Ratings of accuracy of Predictive Services information—federal FBANs/LTANs/analysts.

A majority also agreed that Predictive Services information was complete (*M*=4.2, sd=1.1, *n*=37, *Figure F8-11*, 19.1% marked 'don't know').
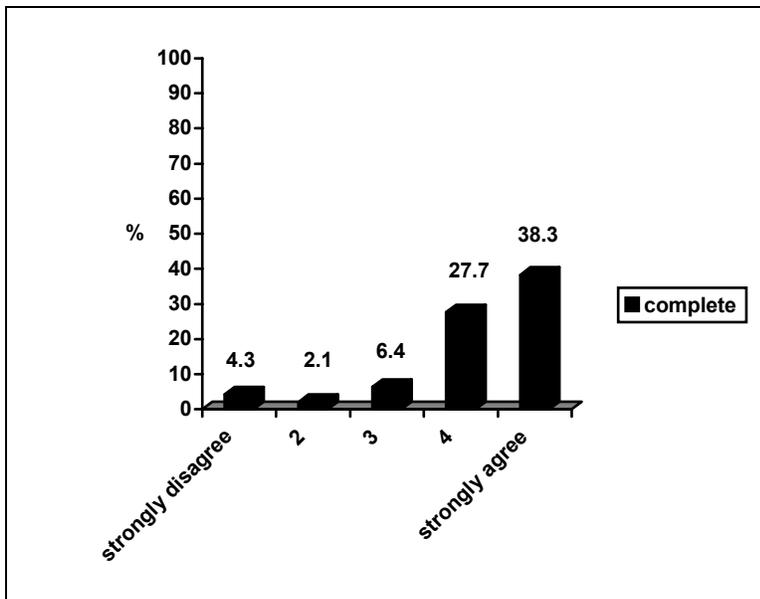
Figure F8-11. Ratings of completeness of Predictive Services information—federal FBANs/LTANs/analysts.

A majority agreed that Predictive Services information was easy to understand (M=4.4, sd=.7, n=36, *Figure F8-12*, 23.4% marked 'don't know').
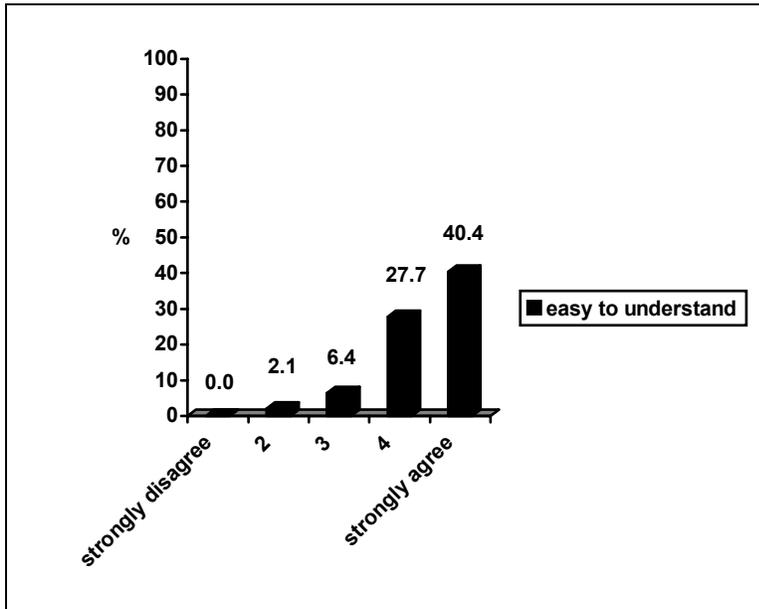
Figure F8-12. Ratings of ease of understanding of Predictive Services information—federal FBANs/LTANs/analysts.

Similarity and importance of similarity of GACC sites—Federal FBANs/LTANs/analysts rated how true the following statement was "The Predictive Services products and services available through the GACCs (you selected – based on which GACCs they had been to) are similar in format, quality, and the range of products and services offered. Over one-fourth perceived the products and services as similar (*Figure F8-13*).
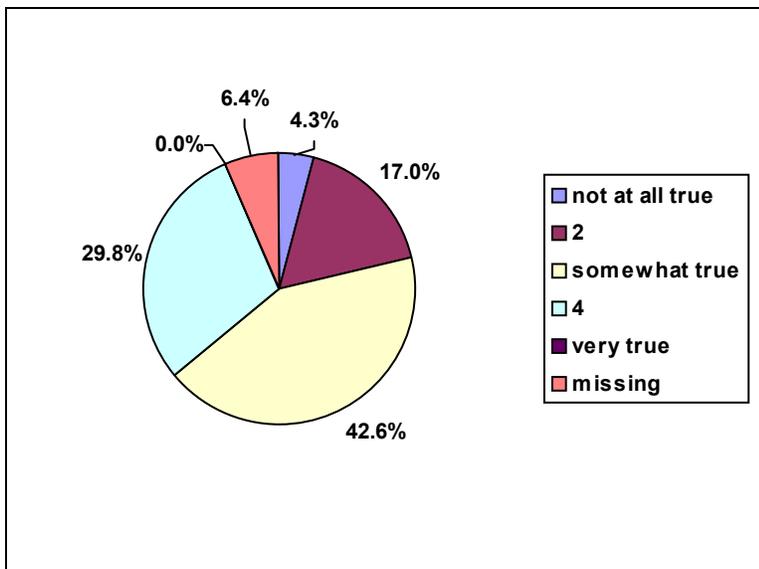
Figure F8-13. Products and services available through the GACCs you selected are similar— federal FBANs/LTANs/analysts.

Respondents were invited to comment on their responses regarding similarity across GACCs. Comments included these:

I have not visited some of the sites in a few years, depending on when I was last in that GA on assignment. Things many have changed, and my knowledge may not be current.

Some predictive services GACC specific, provide more information than others. Example would be atmospheric freezing level in mountainous terrain which helps an analyst determine possible smoke column maximum heights and possible strengths of in flows and out flows.

I have found a wide variance in products on GACC to another.

Usually look at Fire Weather Forecasts. Some go out 7-10 days, others only 3-5 days, so there's no consistent format for those forecasts between offices.

There has been improvement lately, but these sites have not been similar enough to efficiently find the same product or type of product in each area

It is enough information to get general ideas on potentials and predictions for my type of planning purposes.

My use of products has been for general information for the most part. I have not compared their utility.

This has changed greatly over the last year. They are becoming more similar but still have a ways to go.

Significant variety and organization of the materials and how they are presented.

some regional GAACs have more and more specific information, as they should

There are a wide range of formats and information available at each GACC. As an FBAN on a type 1 team I have to learn each GACC's differences for each big fire in that area.

A few of the GACCS (i.e. CA) do a really bad job and are not worth the trouble of looking for

A few things are common, but many things are different, depending on what the GACC user group requests on a regular basis.

Comparing them is somewhat difficult due to the fact that a few are very indepth in their planning tools (NW & SW)while others are geared more toward daily planning activities and initial attack.

format is different as well as quality

Slight differences -- not significant though

My seeking information from the various GACCs tends to be on an incident by incident basis (except for WGBCC and EGBCC), and has spanned 2 - 3 years, so formats and range of products may have changed over time.

I don't remember

The consistency in format between GACCs seems to be getting better.

Seems as if some gaccs have a little different organization of their information. I feel as if at times I have to hack around their webs to find some information.

There seems to be some variety in how the sites are set up. I like how the SWGACC is organized. It does seem like all the same information is at the others, but you've got to find it.

Most are same format that I have seen

There is a wide variety of products and confidence I have in those products. This is improving, however, the improvement is slow. There is certain GACC's I have a low confidence in output products.

Only slight differences. Individualism is a plus as information not on one may be on another

consistency is continuing to improve.

Basic content seems similar

While only two respondents indicated that similarity of Predictive Services' products and services in format and quality across GACCs was unimportant (4.2% assigned a 1=not at all important, or a 2), about one-tenth indicated that it was somewhat important (10.6%), and a majority indicated that it was important (82.9% assigned a 4 or 5=very important; 2.1% did not answer this item).

Satisfaction with Predictive Services contacts—Over one-third of respondents (40.4%) had contacted Predictive Services to report a problem with a product or service. More than two-thirds of these (68.4%) selected a 4 or 5 on the scale indicating they were responsive (scale was 1 to 5, 1=not at all responsive, 5=very responsive). One-fifth (21.3%) had contacted Predictive Services to suggest a new product or service. Using the same responsiveness scale as for reporting a problem, three-fourths rated Predictive Services as responsive to their suggestion.

Use and utility of products and services—Products and services available through Predictive Services were examined. The 39 specific listings included some products and services that are generated elsewhere, or that are available only on some sites, but not all. Respondents were asked first to indicate if they had not used each product, and then for those that they had used, to rate each according to its usefulness to them on a scale from 1 to 5, where 1=not at all useful and 5=very useful.

The first set of product ratings (*table F8-2*) are those that are shown on Predictive Services sites, but are produced through other agencies.

Table F8-2. Use and utility of Predictive Services products and services provided by other agencies/groups—federal FBANs/LTANs/analysts.

Product or Service	% Not Used	Usefulness M	SD, N
National fire weather outlook	8.5	3.73	.9; 41
Red flag warnings	4.3	4.49	.8; 45
Drought information	0	4.32	.9; 47
Haines index	4.3	3.89	1.0; 45
7-day precipitation maps	8.5	3.63	1.0; 40
7 and 14-day precipitation percent of normal	14.9	3.70	1.0; 40
12-hour forecast maps	19.1	3.86	.9; 36
MODIS active fire maps	12.8	3.51	1.1; 41
7 and 14-day average maximum temperature departure from normal	14.9	3.53	.9; 40
7-day average maximum temperature maps	14.9	3.38	.9; 39
Wind maps	10.6	3.95	1.0; 42
Observed fire danger images	12.8	3.68	.9; 41
ROMAN real time fire weather and information report	10.6	4.43	.9; 42
Upper air soundings	27.7	3.53	1.1; 34

A set of products and services is produced by Predictive Services and is available on a limited scale (*table F8-3,* less than national, typically on a local and regional level). These products and services are offered on a limited scale to meet specific regional needs and interests.

Table F8-3. Use and utility of Predictive Services products and services provided by Predictive Services on a limited scale—federal FBANs/LTANs/analysts.

Product or Service	% Not Used	Usefulness M	SD, N
Interagency situation reports	4.3	3.95	.9; 44
Daily fire weather/danger outlook	8.5	4.14	.8; 43
Prescribed fire reports	29.8	3.36	1.1; 33
Smoke program reports	31.9	3.50	1.0; 32
Online briefings	29.8	3.91	1.0; 32

This last set of products is available on a national scale and is created by Predictive Services, sometimes in collaboration with other entities (*table F8-4*).

Table F8-4. Use and utility of Predictive Services products and services provided by Predictive Services on a national scale—federal FBANs/LTANs/analysts.

Product or Service	% Not Used	% With 4 or 5 Rating[1]	Usefulness M	SD, N
Incident Management Situation Reports	2.1	71.1	4.02	.8; 45
Weekly fire weather/danger outlook	4.3	73.3	4.00	.9; 45
Seasonal fire weather/danger outlook	4.3	59.1	3.64	1.1; 44
Monthly fire weather/danger outlook	4.3	60.4	3.65	1.0; 43
10-day fire weather/danger outlook	4.3	59.1	3.75	1.0; 44
Live fuel moisture	2.1	82.6	4.13	1.0; 46
Dead fuel moisture	4.3	80.0	4.09	1.1; 45
7-day large fire potential	12.8	63.4	3.80	.9; 41
Fire news and notes	23.4	33.4	3.33	1.0; 36
ERC and fuels charts	2.1	80.4	4.09	1.1; 46
Links to other services/websites	10.6	69.0	3.88	.8; 42
Multi-season fire weather maps	23.4	45.7	3.31	1.1; 35
Interagency RAWS program	14.9	82.0	4.28	.9; 39
Reference links	21.3	70.3	3.86	.8; 37
Training	38.3	44.8	3.38	.9; 29
State of the fuels program	40.4	44.4	3.33	1.2; 27
Technological guidance and transfer	34.0	71.0	3.84	.8; 31
Predictive service forms	31.9	36.6	3.23	.8; 30
Regional monsoon update	34.0	40.0	3.33	1.2; 30

[1] This column considers only those who rated the product and is not based on all federal FBANs/LTANs/analysts.

Respondents were invited to specify any other products or services they had used, resulting in the following remarks:

Fire Behavior Forecast Maps

Overall satisfaction—Responses indicate that Predictive Services had met most expectations (*M*=3.4, sd= .8, *n*=47, *Figure F8-14*), and respondents were satisfied (the majority marked 4 or 5 on the scale, *M*=3.6, sd= 1.0, *n*=47, *Figure F8-15*).
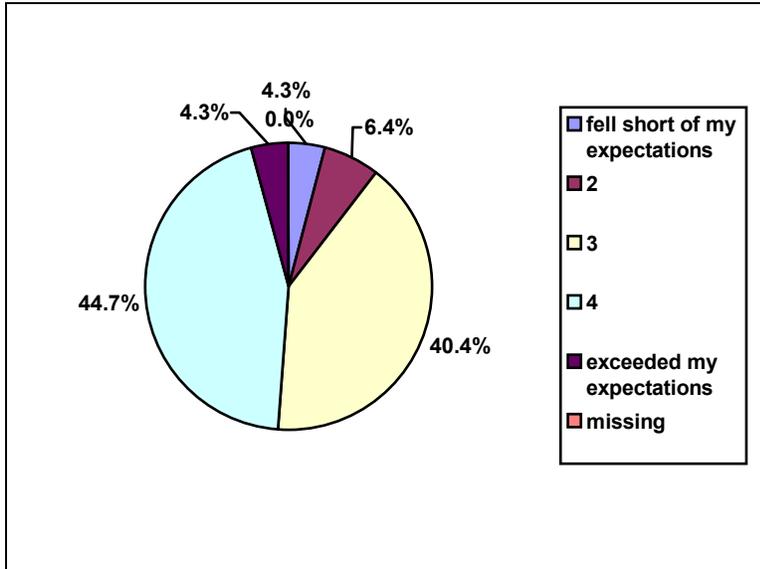
Figure F8-14. Ratings of degree to which Predictive Services met expectations—federal FBANs/LTANs/analysts.
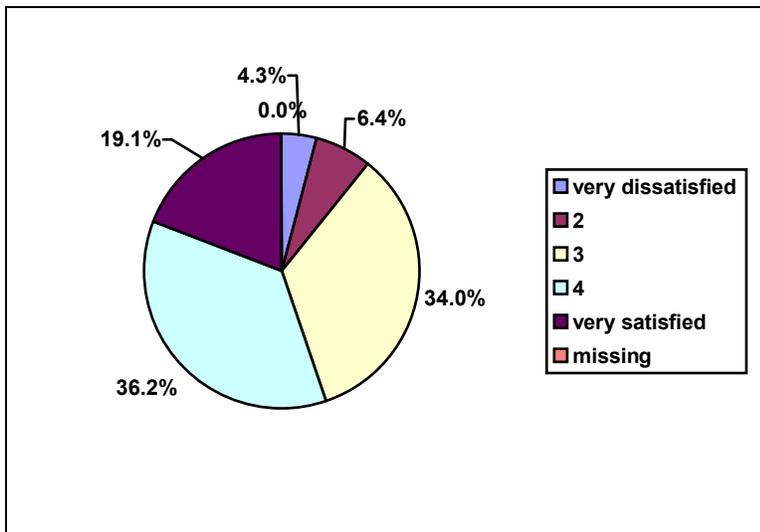
Figure F8-15. Ratings of satisfaction with Predictive Services products and services—federal FBANs/LTANs/analysts.

Trust and confidence in the information—A majority expressed some, to a great deal of trust and confidence in Predictive Services information (*Figure F8-16*, *M*=3.7, sd=.8, *n*=47).
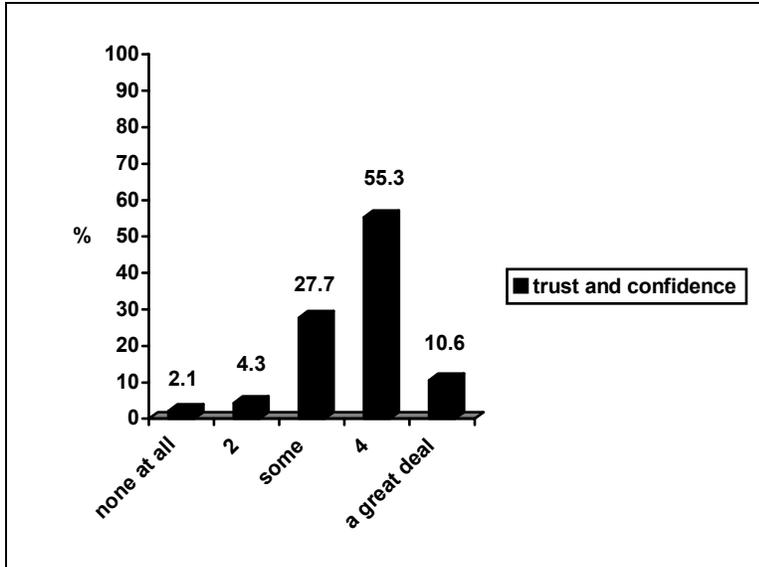
Figure F8-16. Ratings of trust and confidence in Predictive Services information—federal FBANs/LTANs/analysts.

Are Respondents Relying on and Taking Action Based on Predictive Services?

Reliance on products and services—About one-half (46.8%, *Figure F8-17*) indicated that they *did* rely on the products and services in making important decisions (selected a 4 or 5, where 5 was very true). About one-third (34.1%, *Figure F8-17*) indicated that they relied on other sources more heavily than the products and services provided by Predictive Services (chose a 4 or 5, where 5=very true).
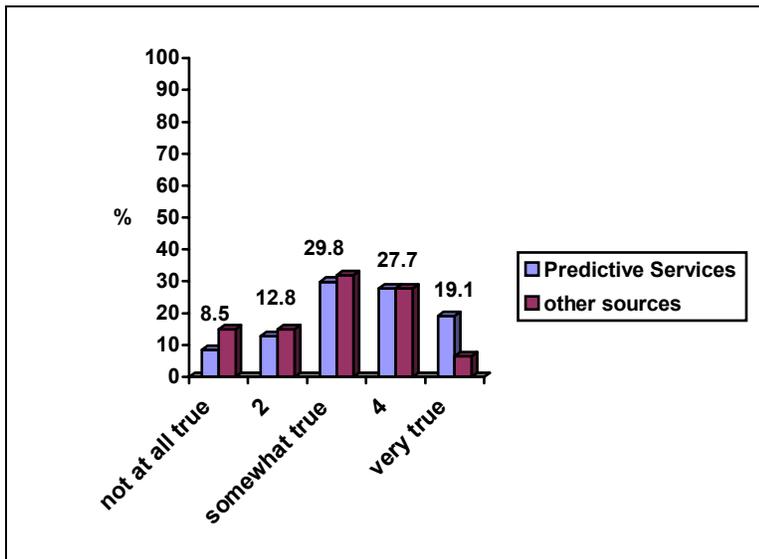
* The proportion of respondents in each category is shown for reliance on Predictive Services.

Figure F8-17. Reliance on Predictive Services and reliance other sources—federal FBANs/LTANs/analysts.

Reliance on other sources was investigated further. Respondents were asked to comment when they provided ratings of 4 or 5, indicating they relied on other sources, resulting in the following comments:

> short term - NWS
> Every FBAN has their way of getting information, I usually get incident specific information from different internet site. I get long range information from predictive services. They have the time to put long range predictions together, your
> NATIONAL WEATHER SERVICE AND PREDICTIVE SERVICES PROVIDE SIMILAR BUT SIGNIFICANTLY DIFFERENT INFORMATION. I RELY ON THEM BOTH.
> National Weather Service and internet university weather pages
> CEFA, WFAS, BlueSky, drought monitor, national drought mitigation center, WRCC
> Better quality of information.
> Fire Behavior Predictions and National Weather Service Products
> Only when I have to.
> Drought Monitor, Climate Prediction Center, Western Regional Climate Center, KCFAST
> National Weather Service
> Sometimes rely on incident meteorologist or local fuel information
> The WFAS, NDVI websites. Local validation of fuels and fire behavior through monitoring.
> I usually look at predictive information such as fire season assessments
> KCCC Wx obs
> Currently, my GACC's suit of products is not helpful and I have to produce products myself or 'detail' individuals to produce those products.
> Who do you trust? I tend to look a a varied of products depending on the problem that I am working on

Degree of reliance on Predictive Services was also queried. About one-tenth indicated little to no reliance on Predictive Services information (10.6% chose a rating of 1 or 2, where 1=none at all when asked "How much do you rely on the information provided by Predictive Services to assist in decision-making?"). Another one-third (38.3%) indicated some reliance, and over half indicated reliance (51.0% chose a 4 or 5 rating, where 5=a great deal).

The likelihood of taking action based on Predictive Services information was examined. Nearly half were likely to take action based on Predictive Services information (42.6% chose a 4 or 5 rating, where 5=very likely, *Figure F8-18*).
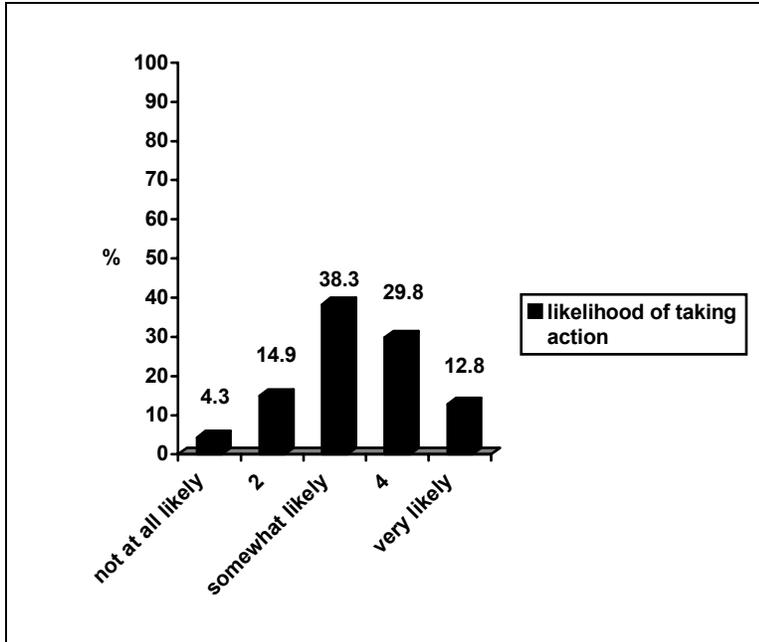
Figure F8-18. Likelihood of taking action based on Predictive Services information received, or gathered from a website—federal FBANs/LTANs/analysts.

Did Respondents offer Insights into Reliance and Barriers?

Perceived overlap—Respondents were asked how true or untrue it was that there is overlap in the type of information that can be obtained from Predictive Services and other sources (rated on a scale from 1 to 5, 1=not at all true, 3=somewhat true, 5=very true). While about one-fourth (23.4%) indicated there was not overlap (chose ratings of 1 or 2), more than one-third (36.2%) felt this was somewhat true, and about one-third indicated it was true to very true (38.3% chose ratings of 4 or 5; 2.1% did not answer this item.)

Respondents provided the following comments regarding perceived overlap with other sources:

NWS, DRI
Western Climate Center and some University based weather services.
I get most of my fire behavior information from other internet sites.
current and long range weather products
Other agencies/ companies offering weather forecast information (weather.com, NWS general forecasts, other websites)
PS has some unique products, such as 7-day fire potential outlooks, but many tools on their sites are created and or posted elsewhere such as fire danger maps, greenness, FPI, fuel moisture, and experimental gridded fire danger maps. Drought map products are also located elsewhere, such as NCDC, Drought Monitor... This overlap is not necessarily wrong or wasteful. I see it as information sharing. Still, I would encourage a hard look with sites like WFAS to see if access efficiencies can be gained.
National Weather Service, Local Fuels Specialist
I am still at trainee level in my duties and functions; I do not have the basis to answer these questions.
Imets, weather service

Some is available from other modeling and prediction sites although the predictive services
site reproduces the same information. It is what else I need to go with the information that
determines which sites I use.

Some of the weather related information is carried on by NWS ROMAN and university sites

there is some overlap with local or national websites Roman, NWS, local units, WFAS, but
this is good!

The NWS general fire WX forecasts are crap and flat dangerous. Great for boating, bad for
firefighters. Generalization of forecasters was a poor idea, with a high level of apathy,
unless it's a spot forecast. The work and support of our predictive services staffs (plural
gaccs) has been outstanding. I always look forward to having a 'smoke' issue or RX need.
As you can see I've had a few bad forecasts from NWS.

NOAA/NWS, States, some counties

This occurs mostly in the actual weather forecasts, graphics and images. Every once in a
while they may have conflicting information but I attribute that to the ability of the PSC's
and Weather websites to access the information at varying times.

Other sites are out there if you search for them. I still heavily rely on my local NOAA Fire
Weather Meteorologist.

National Weather Service, WIMS, previous fire reports.....there are many places where the
data can be accessed in order to perform similar types of assessments and products.

weather service/western regional Climate center has some of the same products as well as
using FFPlus for historical perspective

Many of the 'products' on the web are rooted in the same data, but are present from slightly
different perspectives. This overlap is good and gets the user to thinking about the data,
rather than blindly trusting all the info on the web.

Beliefs about Predictive Services among those who had data gathering and reporting duties—
The respondents with data gathering and reporting duties related to Predictive Services were
asked: "How likely is it that you will gather and report data to Predictive Services?" Half
indicated that they were likely to gather and report data (50.0% chose a 4 or 5 on the 5 point
scale, where 1=not at all likely, 5=very likely; 3.3% did not provide a response; *Figure F8-19*).
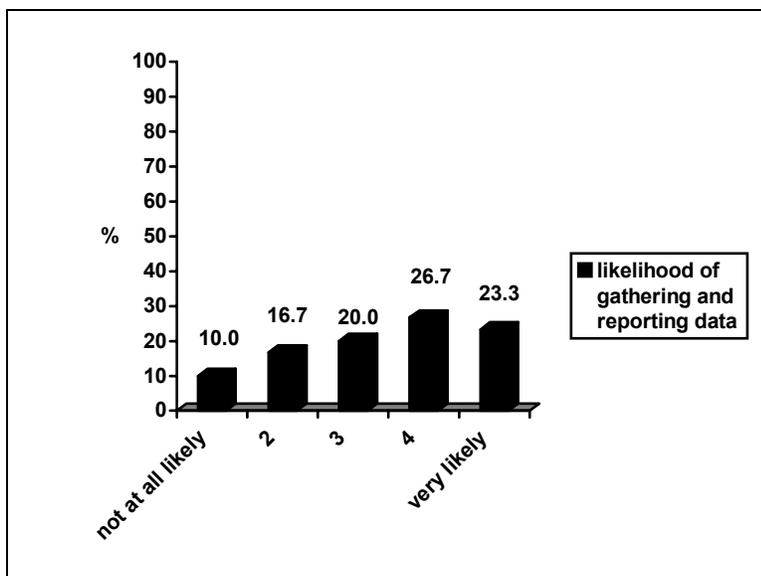
Figure F8-19. Likelihood of gathering and reporting data to Predictive Services—federal
FBANs/LTANs/analysts with data gathering and reporting duties.

Respondents tended to agree that they had the resources to gather field data for reporting (*M*=3.3, sd=1.1, *n*=29, rated on a 1 to 5 scale where 1=strongly disagree and 5=strongly agree; *Figure F8-20*; 3.3% did not answer this item).
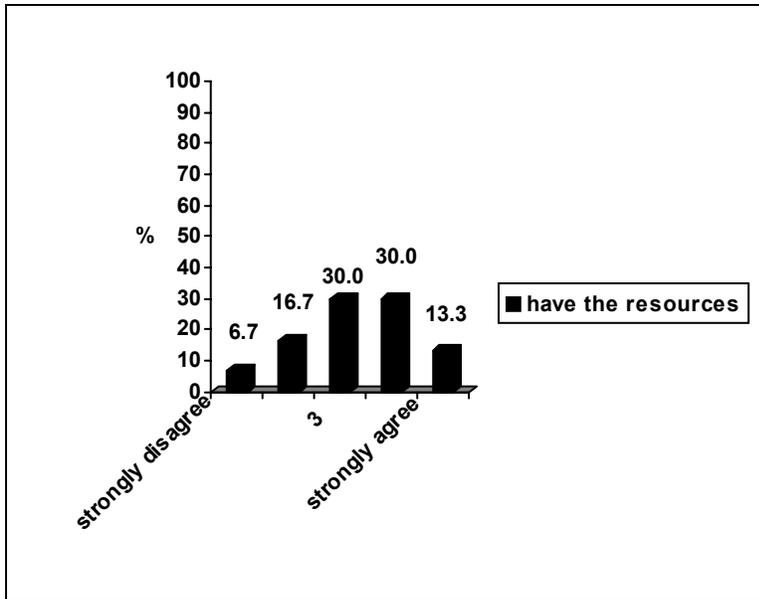
Figure F8-20. Degree of agreement or disagreement with "I have the resources (e.g., time/skills/personnel) to gather field data for Predictive Services reporting" —federal FBANs/LTANs/analysts with data gathering and reporting duties.

This subgroup was also asked to rate five items focused on positive impact of reporting, and negative effects of not reporting. Federal FBANs/LTANs/analysts were most likely to agree with "My consistent upward reporting of data (e.g., 1300 obs for RAWS) increases the reliability and quality of Predictive Services products and services" (*M*=4.1, sd=1.1, *n*=29; *Figure F8-21*; 3.3% did not answer). They were also most likely to agree with "My consistent upward reporting of data (e.g., 1300 obs for RAWS) increases the reliability and quality of products and services provided by groups and agencies that use the data from Predictive Services to generate their own products" (*M*=4.0, sd=1.1, *n*=29; *Figure F8-21;* 3.3% did not answer).
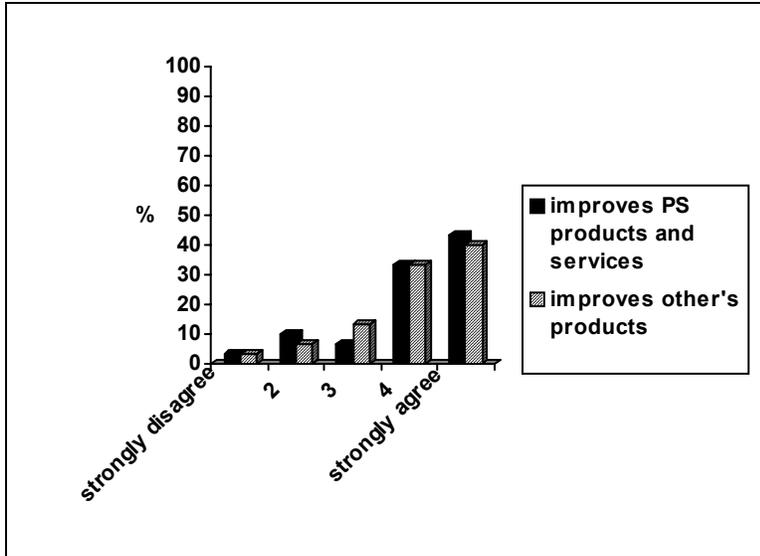
Figure F8-21. Degree of agreement or disagreement with positive outcomes of reporting data—federal FBANs/LTANs/analysts with data gathering and reporting duties.

Responses indicate that the majority agreed there are adverse outcomes when/if data is not gathered and reported. This was assessed through two items "If I don't collect and report Predictive Services data, it could affect my unit's ability to make sound decisions to manage fire" (13.3% selected a 1 or 2 rating on the scale; M=3.9, sd=1.3, n=29; *Figure F8-22;* 3.3% did not answer); and "If I don't collect and report Predictive Services data it could adversely impact firefighter or public safety" (10.0% selected a 1 or 2 rating; M=4.0, sd=1.2, n=29; *Figure F8-22;* 3.3% did not answer).
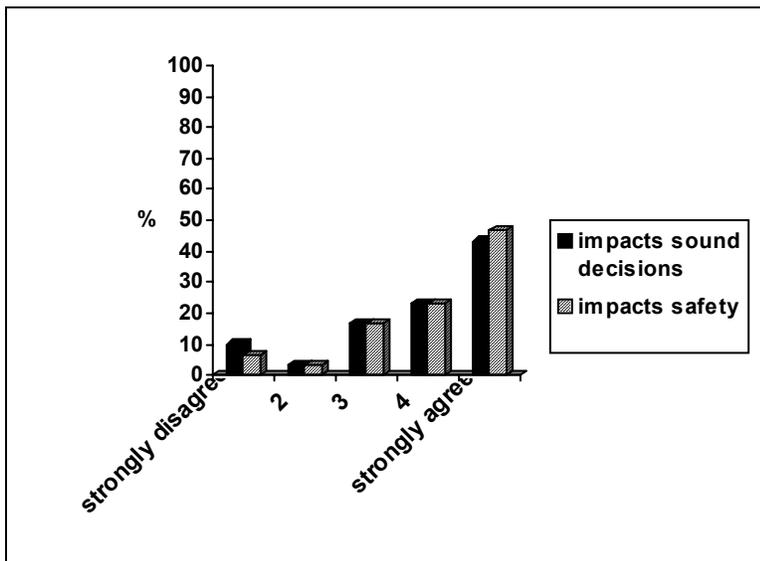
Figure F8-22. Degree of agreement or disagreement with adverse impacts of not collecting and reporting data—federal FBANs/LTANs/analysts with data gathering and reporting duties.

Ratings of ability and impact of applying Predictive Services information—General ability to access and apply the information from Predictive Services, as well as its utility in job performance, was queried (using a 5-point Likert scale where 1=strongly disagree and 5=strongly agree). Federal FBANs/LTANs/analysts were somewhat in agreement with "I can access and apply Predictive Services information as part of my job duties" (*M*=4.0, sd=1.0, *n*=46). However, they were in less agreement with "Predictive Services information helps me perform my job with greater precision" (*M*=2.7, sd=.9, *n*=45).

Two general items examined perceived impacts of inaccuracies of Predictive Services information. The first was "Inaccurate Predictive Services information would decrease my ability to predict fire behavior." Rated on a 1 to 5 scale, where 1=strongly disagree and 5 was strongly agree, the average was 3.3 (*M*, sd=1.2, *n*=47; *Figure F8-23*). The second was "Inaccurate Predictive Services information used in my decision making may adversely impact firefighter or public safety." Again, the average was at the mid-range of the scale (*M*=3.6, sd=1.1, *n*=46; *Figure F8-23*). One respondent failed to indicate degree of agreement or disagreement with this item (2.1% marked 'don't know'). However, respondents were more likely to agree that there would be an impact on safety than on prediction of fire behavior.
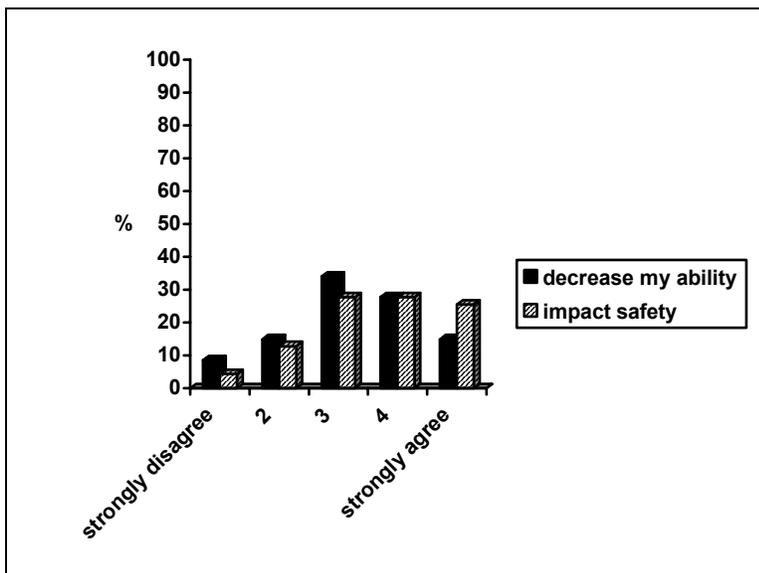
Figure F8-23. Impacts of inaccurate reporting of Predictive Services information—federal FBANs/LTANs/analysts.

Barriers to use of products and services—There were various reasons why respondents did NOT use the products and services offered by Predictive Services, although no one overwhelming reason or set of reasons emerged among the 16 offered as potential barriers (*table F8-5*). The most frequent reasons provided were not having thought about using the products and services and needing information that is site specific. A lack of trust was not frequently cited.

Table F8-5. Reasons why they had not used the products and services offered by Predictive Services—federal FBANs/LTANs/analysts.

Reason	Percent
I never thought about it.	21.3
My current management practices don't require the types of information provided by Predictive Services	4.3
I don't know how to use these products	12.8
I need information that is site specific	19.1
I am not mandated to use these products	4.3
I don't have the time to use these products	8.5
I don't know where to get advice about using these products	6.4
I don't know where to get the technology to use these products	4.3
I don't have the technology I need to use these products	4.3
I don't trust the products and services	8.5
I don't want to use these products	10.6
I don't think these products support my agency's current practices	0
Agency directives/guidelines instruct me to use other information	2.1
I don't have the money to use these products	0
I don't trust the advice I get about using these products	4.3
I don't trust information that is generated by multiple agencies	2.1

As a follow-up to the above items, we invited respondents to explain why they might not want to use the products, resulting in the following comments:

> Access to the internet is limited or non existent for many of our Agencies due to litigation. It is an ongoing problem for many programs to obtain needed information for making fire management decisions
> need two year out forecast
> I use some but not all of the products but none of the selections above really fit that category.
> Information is generic, local knowledge is specific to the area and of much higher quality.
> I use about every product there is.
> I must be a luddite to have checked this... these products are critical to this local managers needs.
> Many of the products provided are simply not that useful when I'm working as an LTAN. They are aimed at programmatic support rather than individual incident support.
> my understanding of predictive services is that it is not the national weather service and we must use nws for site specific wx that effects fire behavior.
> The current products on my GACC's page are of very little use because of the format of the products. The weekly/daily outlook product is only in text format and should be developed into a map type format so information can be displayed geographically. Also, I have low confidence in the fuels portion of the GACC products. The GACC mets are using experimental products(such as the DRI ERC map) to determine 'dry areas'. This is not accurate. Also, they are using KBDI based on CPC data and not information from agency maintained RAWS.

How can Existing as well as New Products and Services be Improved or Designed?

How fire danger/fire information is used to support decision-making—Respondents were asked to indicate how they use fire danger/fire information to support decisions made regarding fire management. About one-third of respondents used fire danger and fire information to make

decisions in decision support about public use restrictions (36.2%), for resource allocation (46.8%), for severity requests (59.6%), and about resource staffing (51.5%).

Respondents were asked to indicate other uses of fire danger/fire information, resulting in the following comments:

prescribed burn planning.
in preparation of fire behavior forecasts for incidents
emergency incidents
Pre-assignment understanding of conditions influencing fire behavior
strategic fuels treatment planning
I would not utilize predictive services information
firefighter, public safety
when sending resources off unit
tactical info support
long term assessments
What I need to be telling the MAC Group about present and potential fire behavior in a
    GACC situation
I don't make decisions; I provide decision support
fire behavior forecasts
integrate it in daily fire behavior briefings, 2 - 3 day outlook
develop long term assessments
only as it pertains for providing information for the specific incident I am working on
predicting short and long term fire behavior and growth.
I use the information as supporting documentation within my fire behavior reports or close
    out packages
long term fire assessment
Overall trends
advice to others

Tolerance for errors and inaccuracies—Respondents were asked to rate their tolerance for false alarms and inaccurate reporting (rated on a scale from 1 to 5, where 1=low tolerance and 5=high tolerance). While respondents did not indicate a high tolerance for false alarms or inaccurate reporting, they were somewhat more tolerant of false alarms pertaining to fire danger (*M*=3.0, sd=.9, *n*=47; *Figure F8-24*), than they were of inaccurate reporting of high fire potential (*M*=2.7, sd=.9, *n*=47; *Figure F8-24*).
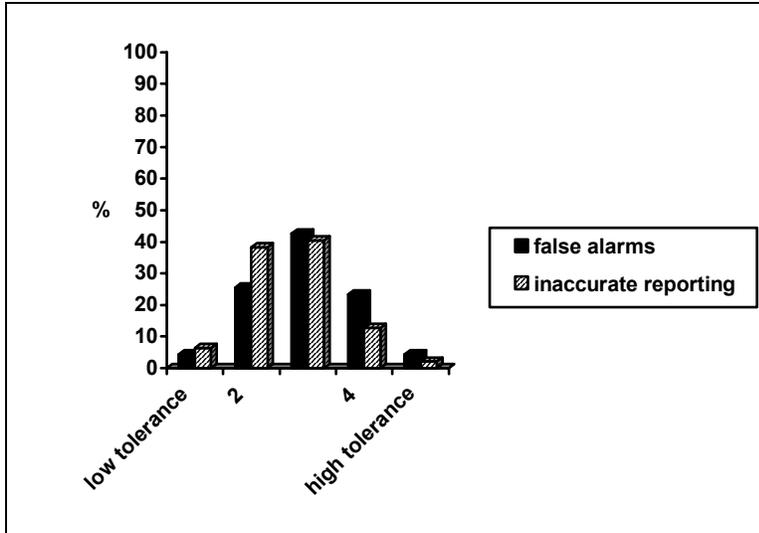
Figure F8-24. Tolerance for false alarms and inaccurate reporting—federal FBANs/LTANs/analysts.

In order to capture overall preferences for approaches to errors ("Although it is understood that accurate and reliable reporting of fire danger and high fire potential are desirable, margins of error are involved in predictions. In these cases, do you prefer that…"), respondents chose between two statements:

"Statements of danger or risk be issued with a greater margin of error allowing for an early response, knowing that this may lead to unnecessary alarms and response (Better safe than sorry)" —66.0 percent chose this statement as their preference.

"Statements of danger or risk should only be given with certainty, knowing that this may allow a few dangerous events to emerge that were not anticipated (Don't cry wolf)." —34.0 percent chose this statement as their preference.

Audience identification—According to the federal FBANS/LTANS/analysts, the primary audiences for Predictive Services' products should include: local and district fire managers (91.5%), regional and state fire managers (85.1%), national fire managers (74.5%), and to a lesser extent non-fire land managers (42.6%), and the public (36.2%; note that respondents could select multiple audience types, so responses do not sum to 100%).

Respondents were invited to specify other primary audiences, resulting in the following comments:

    Fire Teams, IMETs and FBANS
    NWS
    Field Firefighters!
    FBAN/LTAN
    Congress

Preferred information formats—Respondents were asked to indicate their preferences for the style and format of presenting information. For each of 11 formats presented, a rating from 1 to 5 was requested (1=not at all useful, 5=very useful). Based upon the proportion of respondents

assigning ratings of 4 or 5 to each format, the formats most to least useful were: information presented in regional or national maps (68.0%), satellite maps (65.9%), data in spreadsheet form (59.6%), radar maps (59.5%), brief executive summaries of data (57.5%), brief annotations that accompany data presentations (57.4%), data in table form (55.3%), bar charts or figures that summarize data (51.0%), web-based ArcIMS maps with user-defined layers and scales (46.8%), data in text form (42.6%), and non-web-based Geo database files (25.5%).

Other styles or formats of information offered by respondents, or comments surrounding this issue, included:

>   a personal briefing would be great, but impractical.
>   Multi-purpose, graphical representations of expected fire behavior, one-stop-shop FWX/FB
>   maps
>   State or GACC maps, preferably interactive (zoom, + choices on outputs).

Respondents were also asked to indicate what, if any information they would like to see in summary or synthesis form, resulting in the following comments (for this item the don't know and not applicable responses have been excluded):

>   historical data to support fire behavior models
>   seasonal trends.
>   I prefer maps of current and projected conditions/situations.
>   Again, how is the information useful and under what limitations must you interpret the
>   information or data.
>   Drought and long range information
>   local and regional live fuel moistures.
>   This survey.
>   Current and expected fire behavior pays no heed to GACC or interagency politics. This can
>   be very basic to both firefighter and public safety if politics is interfering with the flow of
>   good information both directions (to the MAC groups and to the field firefighters).
>   State of the Fuels program.
>   A big one form me would an alert system for approaching weather fronts during the height of
>   the summer season. Also, when a unit is under a heavy fire load can predictive services
>   get to that area to help collect and report the field data.
>   I like maps like the Haines that show visually the area's values and the neighbor's value
>   which may affect you as well.
>   each geo area current and expected fire behavior

Improving existing products and services—Respondents were asked to complete the sentence "The information and services provided by Predictive Services would be more useful to me if…", resulting in the following open-ended remarks:

>   ...all products (like NDVI) were updated daily.
>   the RAWS data outputs better reflected on-the-ground conditions. There has been ERC
>   'Creep' throughout the Western US that is not proofed. Predictive Services needs to take
>   a larger role in making sure that the data that they use to make their predictions is
>   accurate. GIGO - 'Garbage In, Garbage Out!'
>   I had more training on their specific interpretations and multiple uses.
>   They would visit fire incidents and provide input to FBANS on there products as well have
>   receive feedback.

they provided a two year out forecast to be used in outyear planning and budget
 submission.
I had more time to review it, and it was the only information around.
i remembered to use it.
I had the time to look at all of the products that were available. As it is, I look at only a few
 things that I am most interested in but look at more when the fire situation or weather
 events require more in-depth knowledge.
they advertised what services are available and trained personnel on how to use and
 interpret products.
it was a consistent package from one area's page to the next; their was a strong connection
 between these national/regional products/services and locally generated fire danger
 operating plans and fire weather operating agreements.
Predictive services information is not useful to me. We have local specialists that provide
 needed information to make quality fire management decisions.
they're accompanied by limitations and constraints.
they were in the building with me. I am happy with the service.
all the information was consistent and easily available
I knew more about them or more experience in applying them to my job.
it was always correct.
navigation to specific areas was consistent between geographic areas and changes on the
 site identified.
it were maintained on a year-round basis (for prescribed burning, fuels treatments, etc) and
 if the product content and format were more consistent on a national basis.
it was fully supported at the national level, with the direct transfer of knowledge and insight
 to the local unit level.
it was very short, concise, and to the point....a 'one stop shop' for busy people regarding
 current and expected fire behavior.
I had more time to read it.
if a good (.pdf) guide to all information available and updates was annually available.
I was more directly involved in day-to-day fire program management. What I've seen of their
 products appear quite useful to local/regional fire managers for strategic planning and
 medium-range (weekly to monthly) tactical planning.
"if it was one stop shopping. what is predicted can only be close to reality.
did anyone predict the fire season that would occur in Oklahoma? seems the wildland fire
 community has been surprised by it. otherwise the nation would not have laid off all the
 pse's this winter due to yet again declining budgets."
I looked at the web site more often. I would like to see more actual station information
 summaries for rating areas, greater Yellowstone, bitterroot range, bighorn range, red
 desert, high plains, etc. kind of assessments. The assessments would be on a regional,
 not site specific basis and better portray fire danger and resource allocation needs. A
 change in the local staff in RMACC had some effects on quality control. It now appeared
 that things are on line. Predictive services should solicit local input of geographic areas
 getting higher fire work loads.
 long term weather forecasts were updated more often and throughout the year.
it were more site specific.
for some products I could access the raw data easily form the site to conduct my own
 analysis.
you really knew what next month's weather was going to be...
I had explored the whole site before needing the information
more accurate and timely (we should have seasonal outlooks by now!!)

"those products followed the SWCC example of the type of products produced and the timeliness of production. The daily outlook should include a map of wx parameters across the GACC, a discussion of past, current, and future weather parameters.

The weekly outlook should include a past, present and future weather discussion, graphs of forecasted NFDRS indices by PSA and map illustrating critical areas. Also, a discussion of fuel conditions by PSA on the weekly outlook. "

information was kept up to date

the predictions were more accurate

Respondents were also asked to consider the existing products and services, and comment on how they could be modified to better meet their needs, leading to the following comments (answers of don't know or no comment have been excluded):

They would be more accurate if better data was used.

Good to go for now.

SPONSOR RAWS AND NFDRS TRAINING

Not sure. They're ok with me the way they are now.

Keep it simple in terms of product display and the array of products. Stay focused on PS. Don't crowd the page with too many links, especially to off-site products.

Products are not site specific to meet the local need.

Most of my needs are being met now.

I would not change them.

Make the information easier to find

More intuitive access to the products.

before modification takes place, there is a need to assure base data is collected in a fashion that will help us explain what may occur in nature. by improving those data collection methods forecasts and predictions will improve

GACC's need to take this more seriously. The fire behavior portion of Predictive Services, if not all of Predictive Services, needs to be supervised by operational fire managers not dispatchers.

It would be nice to have clear links to regional data from the national sites, particularly for fuel moisture and fire danger ratings.

Too much information overload

As stated earlier regional feedback from particular parts of areas experiencing high fire workloads should be included in the site, i.e. crazy mountains, Missouri breaks, greater Yellowstone area etc.. Data from the field has to be good and should state methodology used to obtain data. when red flag warnings develop, the field does not usually get the word. Also, units across state lines don't always get good weather coverage, so receiving GACC wide accurate weather information may be important.

Long term weather/fire potential forecasts are not updated and maintained

If one could access the data directly from the site, such as the ERC, fuel moisture graphs etc if one could right click and download the FireFamily plus data base used in the construction of these materials

They're pretty good now...

Maybe more Geo area fuels info, fire behavior observations, rules of thumb

I am concerned the 7-day product is too 'watered down' and doesn't provide enough information. It is almost too automated. There should be a general discussion about the future weather conditions. I still prefer the past way SWCC has produced the weekly outlook than the 7-day product. I could see a combination of the two. This could be a twice a week update, with a weather discussion, fuels discussion, and ffplus style graphs by PSA along with the standard 7-day chart.

Monthly projections are useless 6-10 days after release, yet left for the entire month. They should be updated when it is apparent that something different has or is happening

Products or services that should be added to what Predictive Services provides—Respondents were asked to explain which products and services should be added to Predictive Services and why, resulting in the following comments:

I think they got it covered well, but you can get the short term information on various websites, the long tern information that predictive services offer is good.

two year out forecast

To answer No here is to deny change happens. PS should continue to survey the regional/national scale needs and provide or develop tools as necessary. Tools on the horizon include the SGI Seasonal Greenness Index being developed by Matt Jolly. National and regional maps will be available for posting. The role of PS and FCAMMS also needs to be examined for potential sources of products to provide and to avoid overlap.

Live fuel moistures would be very helpful.

Future technology transfer as it becomes available.

Year-round coverage of fire behavior including actual coverage and photos regarding observed fire behavior on both Rx and wildland fires.

Might have a link or page showing the lightning strikes for an area using the BLM system. Getting a password from the BLM for this service is very difficult.

The services should not be a clearing house of information technology. The services should focus on fuels, fire behavior, prescribed fire weather/fuel moistures and seasonal severity. Large fire growth potential assessments are another good product. The service should concentrate on products, fbans, ltans, fire use managers, fuels specialists use for seasonal applications.

Maybe utilize regional GACC fuels and conditions into NICC services and products

I would like to see more improvement on the current suite of products across the GACC's before movement is made to create new products.

Better bi-weekly outlooks that are updated daily when there is activity

Were There Additional Comments?

As is customary in such surveys, we invited respondents to offer any comments about Predictive Services, or any comments about the survey, resulting in the following remarks:

This comment is for question 2 g. I do not use my GACC's predictive services products for decision making because what products are available are not useful and/or I have no confidence in the products. I have been to other GACC's and the products are very useful and I have complete confidence in the information and have used it to make important decisions.

I rely heavily on their products and find myself defending their weather forecasts all the time. I trust their work, so I say 'keep up the good work.'

I wonder if all your respondents understand the terms fire danger and fire potential as you intend them. Could be a source of confusion on a couple of questions. PS needs to be vigilant and careful about the scale (national, regional) of the information being presented in its products. There is still a role out there for the local development and application of many of these tools by the local manager for local use. PS should employ more fuels analysts positions.

I do not need predictive service and the NWS providing the same service especially when they don't agree. Predictive services may meet the need of national managers but they fail to meet the needs of the local units.

As stated previously I'm satisfied with the service.

As an LTAN/FBAN when dialing in to view maps the down load can be lengthy for those products that utilize topo or sat. backgrounds. Maybe have a clean version for those instances.

There needs to be a national curriculum and format for GACC fire behavior analysts and products that is the result of the good work you are doing with this survey. Remember that all the gibberish regarding data, fire danger, even fire weather means nothing to either busy field firefighter or busy MAC Group members both of whom need to focus primarily on just one thing: BASE ALL ACTIONS ON THE CURRENT AND EXPECTED BEHAVIOR OF THE FIRE!!

Overall, I think a good service is provided. If I need something and can't find it on line, I can make a call and get it. Good job. We've come a long way say I started out an a fire behavior analyst 16 years ago.

All in all, we get good products, but, don't stop looking for ways to improve!!

Doesn't seem very useful to me except for severity write-ups and long term assessments

I will be using the predictive services more this year so can give better input next year.

Appendix F9: Support Services—Federal Respondents

Federal support services were grouped into one category (*n*=46). These respondents came from the Forest Service (80.4%), Bureau of Land Management (13.0%), Bureau of Indian Affairs (2.2%), National Park Service (2.2%), and a federal interagency group (2.2%).

Who Were the Support Services Respondents?

The majority was female (71.7%), mostly between 45 to 54 years old (*Figure F9-1*).
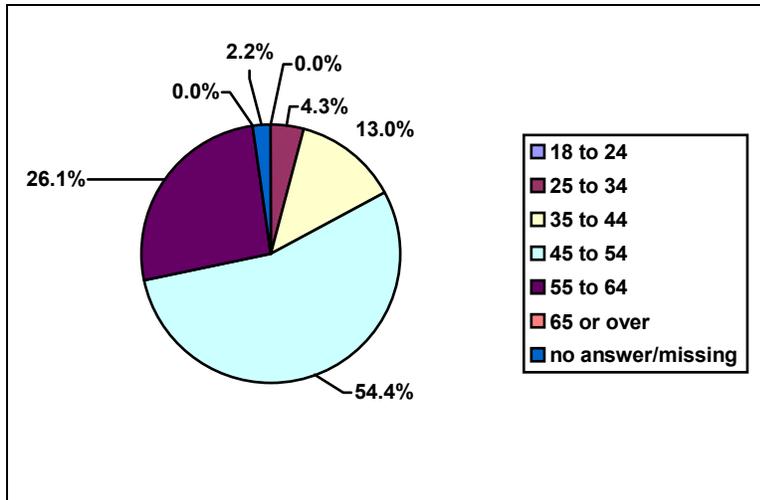
Figure F9-1. Age—federal support services.

Educational background / degree or equivalent—Educational attainment was fairly high among the majority in this subgroup, with about one-fifth reporting some graduate education (*Figure F9-2*).
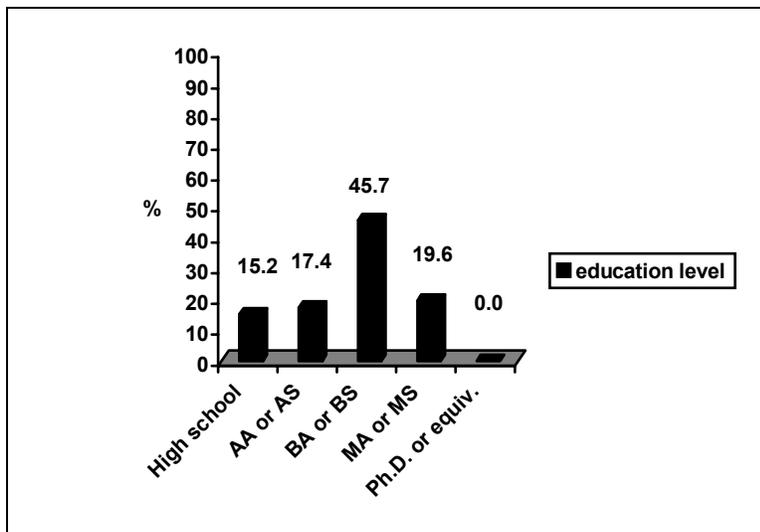
Figure F9-2. Educational attainment—federal support services.

Respondents reported degrees in the following subjects (these are on an individual basis so when lines contain multiple subjects they reflect an individual's response):

Adolescent and child psychology
Business administration/biology
Computer science/accounting
Computer science
Education
English
Forest management
Forest resource management
Forestry (2 respondents)
Forestry and natural resources
General studies
Geotechnical engineering
History
Internet technology
Landscape architecture/resource planning
Library and information studies
Mathematics (2 respondents)
Natural resources (2 respondents)
Political science & anthropology
Psychology
Public affairs
Resource recreation management
Wildlife biology, environmental science
Wildlife biology

Home office Geographic Area location—Respondents came from across the United States, with their home offices falling within the various Geographic Areas (GAs) shown below *(Figure F9-3)*.
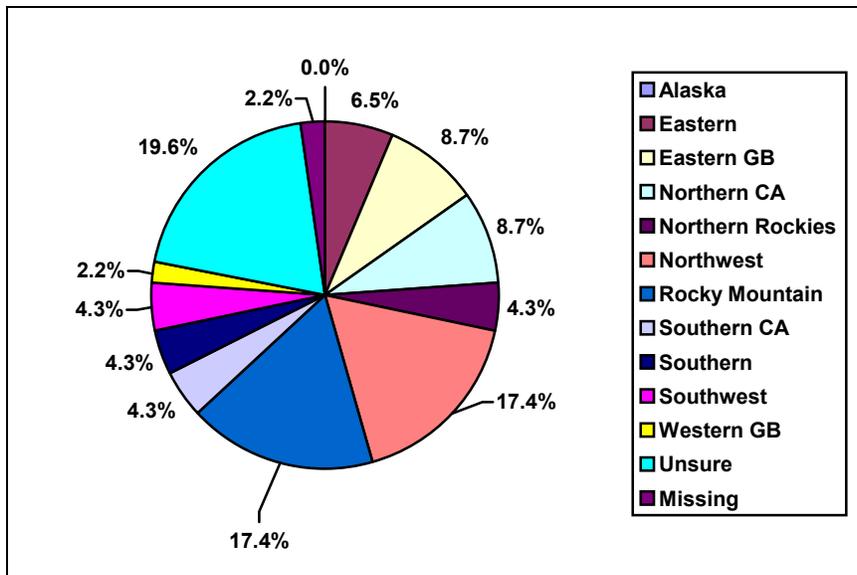
Figure F9-3. GAs—federal support services.

Level of geographic responsibility and scope of duties—Respondents' level of geographic responsibility varied. Over one-half reported their duties linked to their local unit (including forest, district, reserve, etc. at 60.9%). Responsibilities for another fifth were at the national (19.6%), regional (10.9%), county (2.2%), or incident specific (4.3%) level.

The majority of respondents (69.6%) had duties specific to their agency only, while some (30.4%) indicated that their work was specific to multiple agencies.

The number of years reported in the current position of employment averaged 12.2 years (sd=9.9, *n*=36). Median responses for number of people supervised included zero on a routine basis, zero on a seasonal basis, and zero on an incident/project basis.

Only two (4.3%) of the federal support services respondents had job responsibilities that included gathering and reporting data that is utilized by Predictive Services such as: situation reports, ICS-209's, NFDRS/WIMS, etc. Among the respondents with data gathering and reporting duties (*n*=2), the duties are assigned as one of their primary responsibilities for one person. The other did not respond to this item.

What are their Levels of Experience with Predictive Services?

Frequency of access and information acquisition—The frequency of accessing and obtaining information from Predictive Services was examined under two conditions, during fire season and outside of fire season. Frequency of access was greatest during fire season (*table F9-1*), though the majority do not access Predictive Services information at all.

Table F9-1. Frequency of accessing and obtaining information from Predictive Services— federal support services.

Frequency	During Fire Season %	Outside Fire Season %
Daily	15.2	0
Weekly	8.7	2.2
Monthly	2.2	10.9
Quarterly	0	8.7
Rarely	13.0	13.0
Not at all	54.3	56.5

Specific circumstances for access/acquisition—In addition to frequency, respondents provided information regarding specific situations when they access or obtain information from Predictive Services. Nearly one-fourth reported accessing Predictive Services during fire season (23.9%), and about one-eighth during a fire incident (15.2%). Other situations were reported including when a prescribed burn is being planned (4.3%) and when a prescribed burn is taking place (2.2%). About two-thirds indicated none of the above situations applied to them (65.2%).

Respondents listed additional situations when they access/obtain information from Predictive Services including:

    fire season assessments and projections
    Natural disasters, etc., where we are involved

Use of specific websites and services—Respondents were asked to indicate which Predictive Services websites they had visited/which GACC services they had used, revealing that about one-third had been to/used the National Interagency Coordination Center (NICC–34.8%). The Geographic Area Coordination Center sites from most to least mentioned were Rocky Mountain (13.0%), Northwest (10.9%), the Southwest (8.7%), Southern California (8.7%), Northern California (8.7%), Southern (6.5%), Eastern Great Basin (4.3%), Northern Rockies (2.2%), Eastern (2.2%), and Alaska (2.2%). No one had been to/used the Western Great Basin site (responses do not sum to 100% because respondents could select multiple sites). About one-fourth had visited one or two sites, while others reported multiple sites (as many as 6). A few (13.0%) were not sure which if any sites they had visited, while over two-fifths (43.5%) indicated they had not visited any of the listed sites/used any of the GACC services.

Familiarity with the products and services—Federal support services were asked to indicate how true or untrue the following statement was "I am unfamiliar with Predictive Services products and services." Nearly three-fourths indicated this statement was true (*Figure F9-4,* 71.7% selected a rating of 4, or 5, where 5=very true).
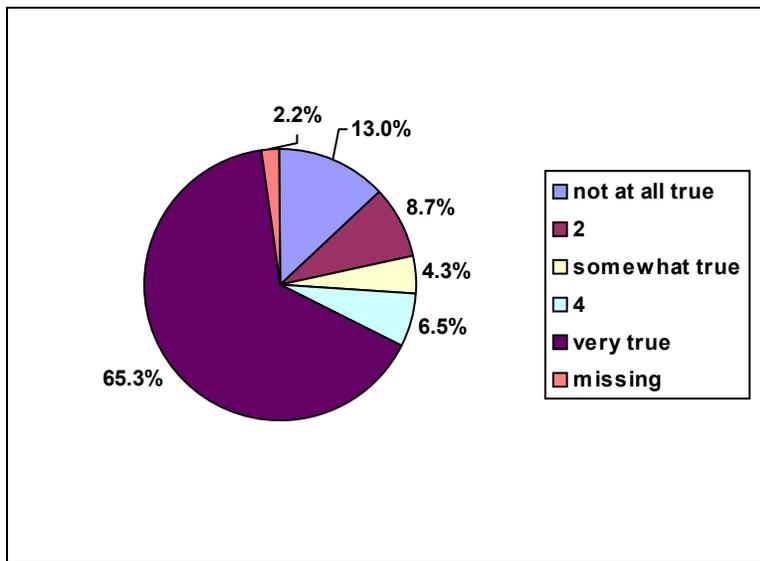
Figure F9-4. Unfamiliar with Predictive Services products and services—federal support services.

Few respondents were interested in Predictive Services products and services (*Figure F9-5*, 17.3% selected a 4 or 5, where 5=very true in response to "I am interested…; another 23.9% marked 'somewhat true').
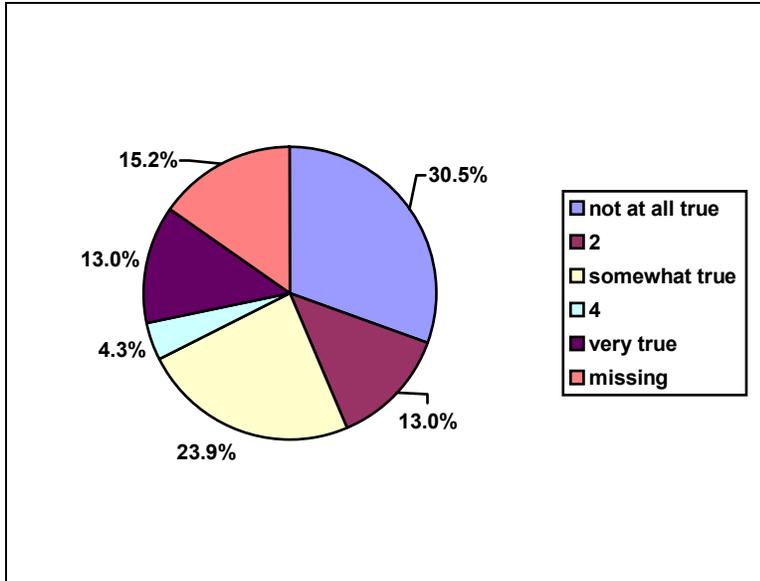
Figure F9-5. Interest in Predictive Services products and services—federal support services.

Respondents were asked their familiarity with Predictive Services' products on the web, the briefings, and the emails. They were more familiar with the web products (*Figure F9-6*, M=1.8, sd=1.4, n=32), and the briefings (i.e., national, geographic, situational, or meteorological, M=1.9, sd=1.5, n=33), than with the emails (these contain current projections and/or information about Predictive Services, M=1.6, sd=1.1, n=34). However, these differences are minor and the real noteworthy finding here is the overall lack of familiarity with these various products.
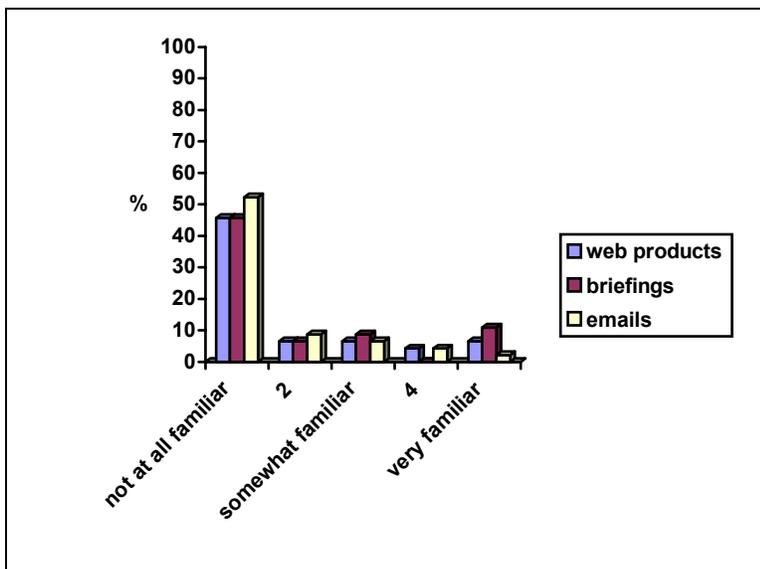
Figure F9-6. Familiarity with Predictive Services products on the web, briefings, and emails— federal support services.

What are their Opinions of the Products and Services?

Ratings of Predictive Services information—Respondents had a slight tendency to agree that Predictive Services information was accessible (*M*=3.5, sd=1.1, *n*=12, *Figure F9-7*, 71.7% marked 'don't know').
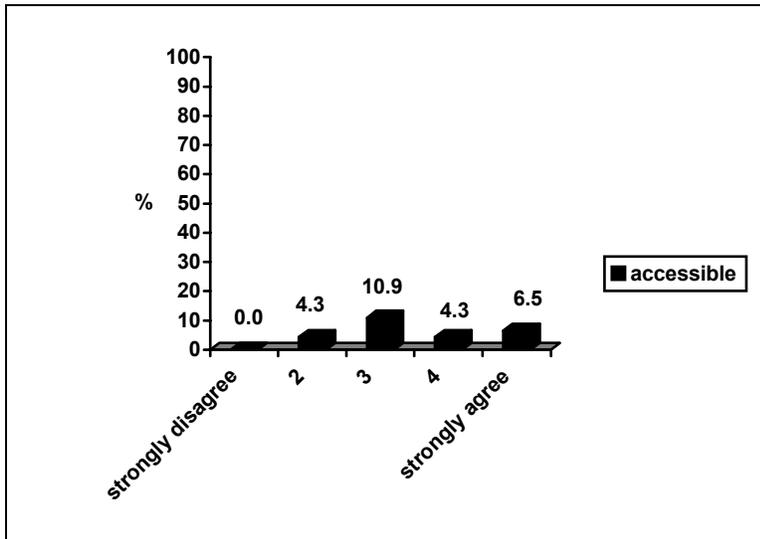
Figure F9-7. Ratings of accessibility of Predictive Services information—federal support services.

While one-tenth agreed that Predictive Services information was timely (either agreed or strongly agreed), about three-fourths disagreed with this as an attribute (*M*=1.4, sd=1.0, *n*=40, *Figure F9-8*, 10.9% marked 'don't know').
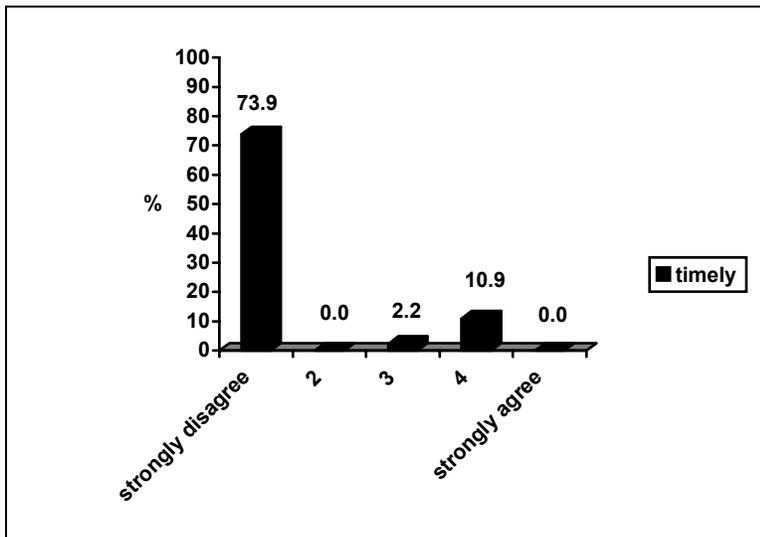
Figure F9-8. Ratings of timeliness of Predictive Services information—federal support services.

One-fifth agreed that Predictive Services information was relevant, most felt it was not (*M*=1.6, sd=1.3, *n*=41, *Figure F9-9*, 8.7% marked 'don't know').
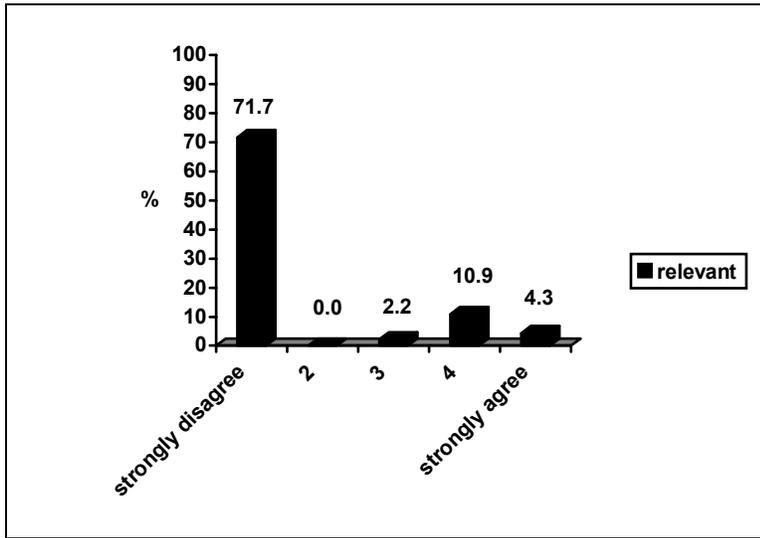
Figure F9-9. Ratings of relevance of Predictive Services information—federal support services.

Nearly one-fifth agreed that Predictive Services information was accurate, most felt it was not (*M*=1.7, sd=1.4, *n*=43, *Figure F9-10*, 4.3% marked 'don't know').
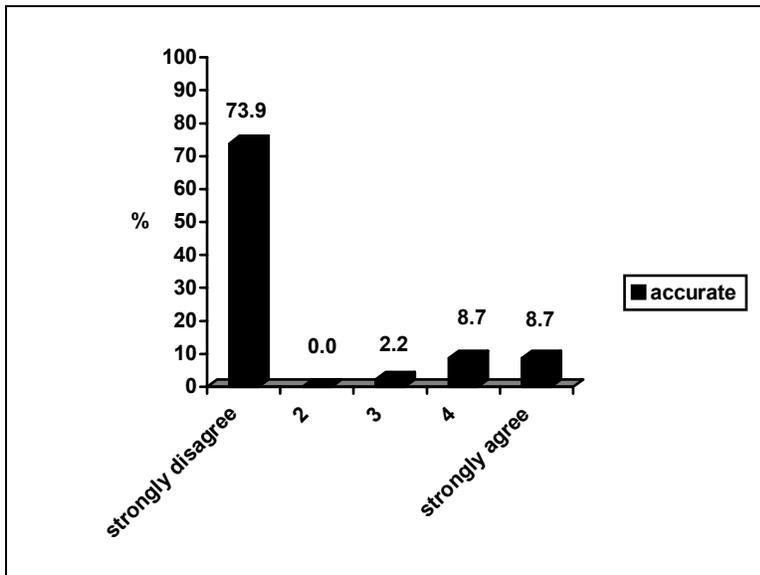
Figure F9-10. Ratings of accuracy of Predictive Services information—federal support services.

About one-fifth agreed that Predictive Services information was complete, most felt it was not (*M*=1.7, sd=1.4, *n*=43, *Figure F9-11*, 4.3% marked 'don't know').
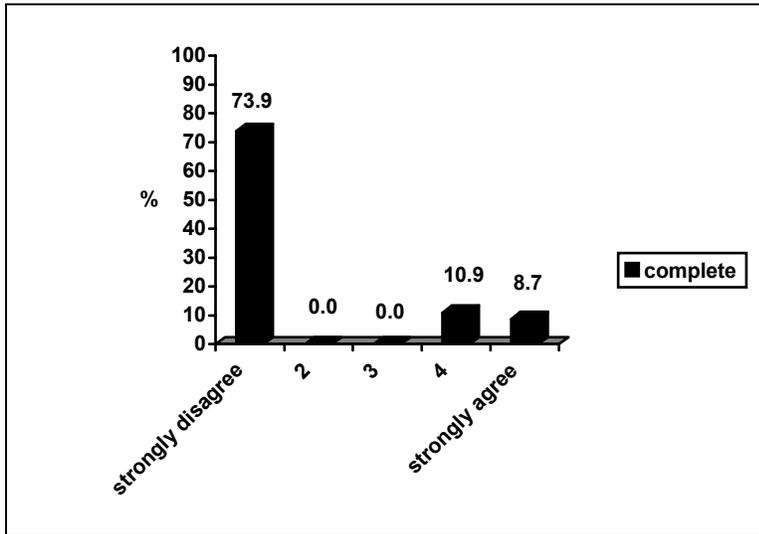
Figure F9-11. Ratings of completeness of Predictive Services information—federal support services.

About one-fifth agreed that Predictive Services information was easy to understand, while the majority felt it was not (*M*=1.8, sd=1.4, *n*=42, *Figure F9-12*, 4.3% marked 'don't know').
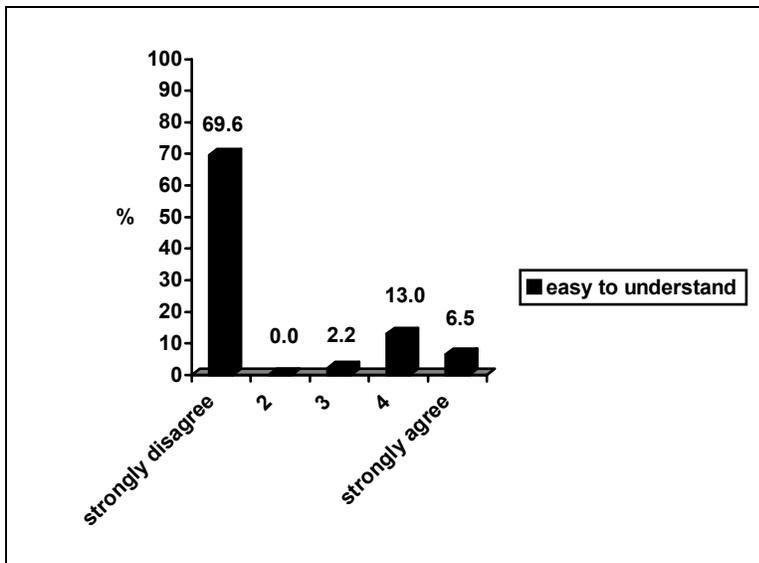
Figure F9-12. Ratings of ease of understanding of Predictive Services information—federal support services.

Similarity and importance of similarity of GACC sites—Federal support services rated how true the following statement was "The Predictive Services products and services available through the GACCs (you selected – based on which GACCs they had been to) are similar in format, quality, and the range of products and services offered. One-tenth perceived the products and services as similar, while the majority did not answer this question (*Figure F9-13*).
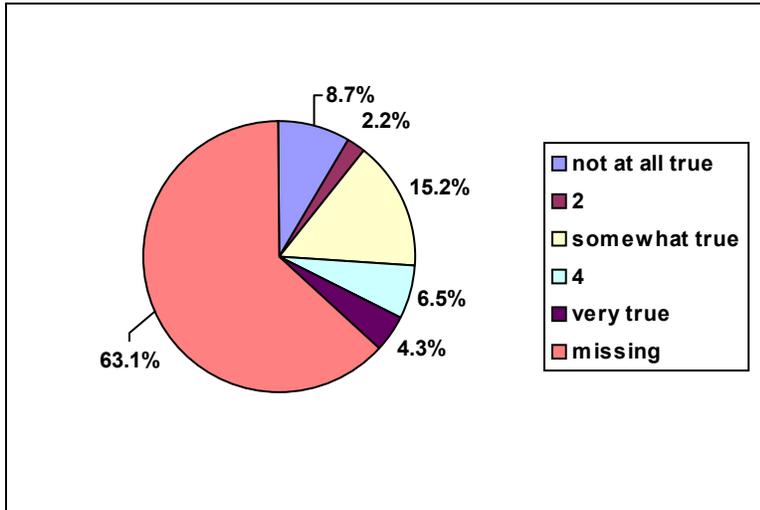
Figure F9-13. Products and services available through the GACCs you selected are similar—federal support services.

Respondents were invited to comment on their responses regarding similarity across GACCs. Comments included these:

new templates offers consistency throughout the web sites with specifics thoroughly addressed as needed/required
I have not had a need to access these products.
The seem similar in format to me. It was easy to get access.
I have only checked the site a few times and did not remember the sites being the same.
I do not use either products or services
Daily briefings at NICC: special requests for weather and fire activity projections
I assume that the information would be true, knowing where it's coming from.
I don't know what Predictive Services is. Maybe I know them by a different name????
Usually, there is some slightly different info, due to the scope of responsibility of those offices.
My GACC knowledge is very limited.

While about one-fourth indicated that similarity of Predictive Services' products and services in format and quality across GACCs was unimportant (26.1% assigned a 1=not at all important, or a 2), about one-fifth indicated that it was somewhat important (19.6%), and about one-fifth indicated that it was important (17.4% assigned a 4 or 5=very important; 37.0%, did not answer this item).

Satisfaction with Predictive Services contacts—None of the respondents had contacted Predictive Services to report a problem with a product or service. One respondent (2.2%) had contacted Predictive Services to suggest a new product or service. The respondent did not rate the responsiveness of Predictive Services to their suggestion.

Use and utility of products and services—Products and services available through Predictive Services were examined. The 39 specific listings included some products and services that are generated elsewhere, or that are available only on some sites, but not all. Respondents were

asked first to indicate if they had not used each product, and then for those that they had used, to rate each according to its usefulness to them on a scale from 1 to 5, where 1=not at all useful and 5=very useful.

The first set of product ratings *(table F9-2)* are those that are shown on Predictive Services sites, but are produced through other agencies.

Table F9-2. Use and utility of Predictive Services products and services provided by other agencies/groups—federal support services.

Product or Service	% Not Used	Usefulness *M*	SD, N
National fire weather outlook	43.5	3.60	.9; 15
Red flag warnings	50.0	4.00	1.0; 15
Drought information	56.5	3.64	.9; 11
Haines index	60.9	3.70	.8; 10
7-day precipitation maps	63.0	3.38	1.1; 8
7 and 14-day precipitation percent of normal	58.7	3.22	1.0; 9
12-hour forecast maps	63.0	3.63	1.2; 8
MODIS active fire maps	58.7	3.36	1.0; 11
7 and 14-day average maximum temperature departure from normal	63.0	3.38	.9; 8
7-day average maximum temperature maps	63.0	3.25	.9; 8
Wind maps	65.2	3.43	.8; 7
Observed fire danger images	63.0	2.67	1.0; 9
ROMAN real time fire weather and information report	71.7	3.00	.8; 4
Upper air soundings	76.1	2.33	.6; 3

A set of products and services is produced by Predictive Services and is available on a limited scale (*table F9-3,* less than national, typically on a local and regional level). These products and services are offered on a limited scale to meet specific regional needs and interests.

Table F9-3. Use and utility of Predictive Services products and services provided by Predictive Services on a limited scale—federal support services.

Product or Service	% Not Used	Usefulness *M*	SD, N
Interagency situation reports	50.0	4.36	.8; 14
Daily fire weather/danger outlook	50.0	4.07	.8; 14
Prescribed fire reports	58.7	3.36	1.2; 11
Smoke program reports	71.7	3.00	.8; 4
Online briefings	69.6	3.17	1.5; 6

This last set of products is available on a national scale and is created by Predictive Services, sometimes in collaboration with other entities (*table F9-4).*

Table F9-4. Use and utility of Predictive Services products and services provided by Predictive Services on a national scale—federal support services.

Product or Service	% Not Used	% With 4 or 5 Rating[1]	Usefulness M	SD, N
Incident Management Situation Reports	47.8	68.8	4.06	1.0; 16
Weekly fire weather/danger outlook	54.3	58.3	3.75	1.1; 12
Seasonal fire weather/danger outlook	56.5	36.4	3.18	1.0; 11
Monthly fire weather/danger outlook	58.7	40.0	3.20	1.0; 10
10-day fire weather/danger outlook	56.5	54.8	3.55	1.0; 11
Live fuel moisture	60.9	55.5	3.67	1.0; 9
Dead fuel moisture	60.9	44.4	3.44	.9; 9
7-day large fire potential	58.7	60.0	3.70	1.2; 10
Fire news and notes	52.2	35.7	3.43	1.0; 14
ERC and fuels charts	65.2	57.2	3.71	1.1; 7
Links to other services/websites	56.5	33.3	3.58	.9; 12
Multi-season fire weather maps	60.9	44.4	3.22	1.1; 9
Interagency RAWS program	71.7	40.0	3.60	1.3; 5
Reference links	63.0	33.3	3.44	1.2; 9
Training	63.0	11.1	3.00	.9; 9
State of the fuels program	76.1	0	2.67	.6; 3
Technological guidance and transfer	76.1	0	2.67	.6; 3
Predictive service forms	69.6	0	2.50	.5; 6
Regional monsoon update	71.7	20.0	2.60	1.5; 5

[1] This column considers only those who rated the product and is not based on all federal support services respondents.

Overall satisfaction—Responses indicate that Predictive Services had neither met nor failed to meet most expectations (*M*=2.6, sd=1.1, *n*=21, *Figure F9-14*), and respondents provided mixed satisfaction ratings (one-tenth marked 4 or 5 on the scale, *M*=2.9, sd=1.4, *n*=18, *Figure F9-15*).
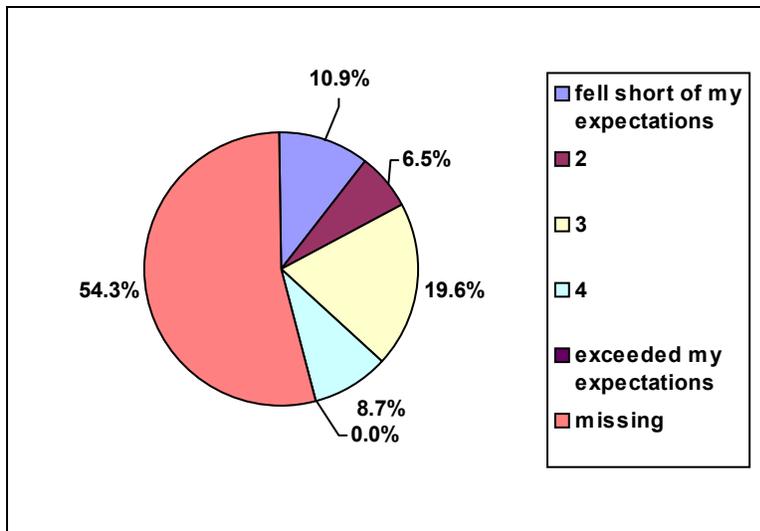
Figure F9-14. Ratings of degree to which Predictive Services met expectations—federal support services.
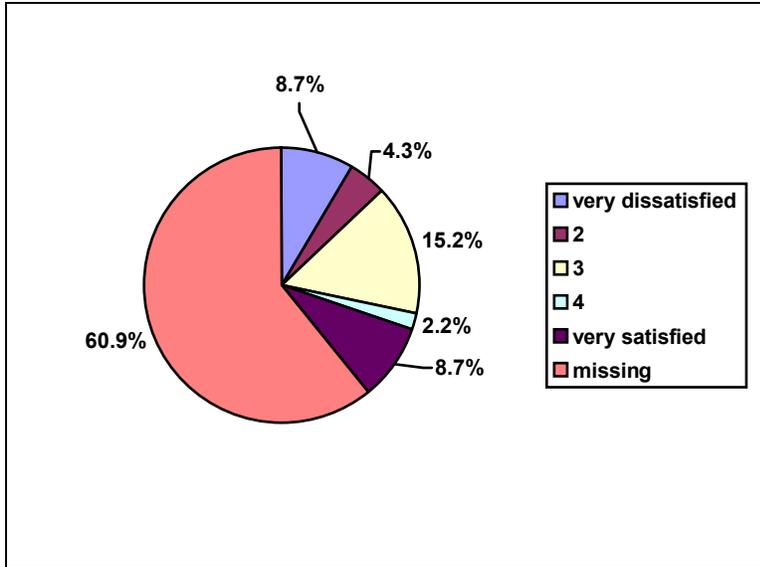
Figure F9-15. Ratings of satisfaction with Predictive Services products and services—federal support services.

Trust and confidence in the information—About one-third expressed some, to a great deal of trust and confidence in Predictive Services information (*Figure F9-16*, M=2.4, sd=1.6, n=32; 30.4%, did not answer this item.)
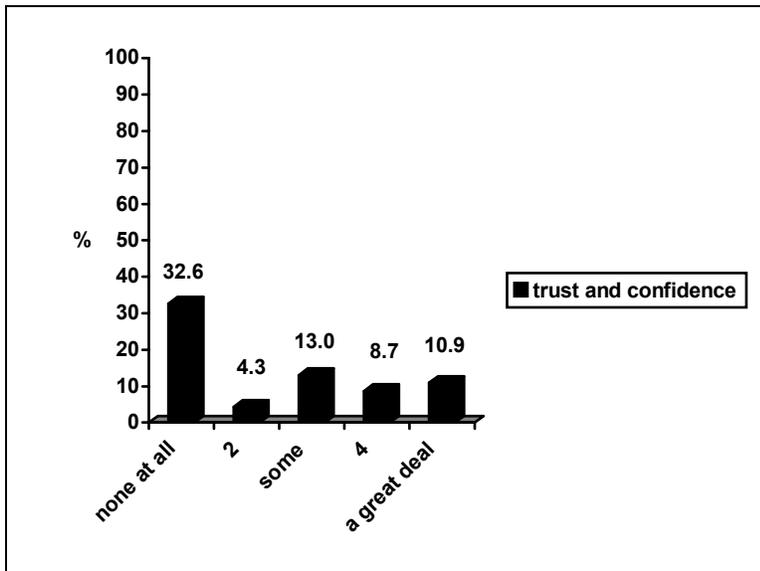
Figure F9-16. Ratings of trust and confidence in Predictive Services information—federal support services.

Are Respondents Relying on and Taking Action Based on Predictive Services?

Reliance on products and services—Two respondents (4.4%, *Figure F9-17*) indicated that they *did* rely on the products and services in making important decisions (selected a 4 or 5, where 5 was very true). About two-fifths (19.5%, *Figure F9-17*) indicated that they relied on other

sources more heavily than the products and services provided by Predictive Services (chose a 4 or 5, where 5=very true).
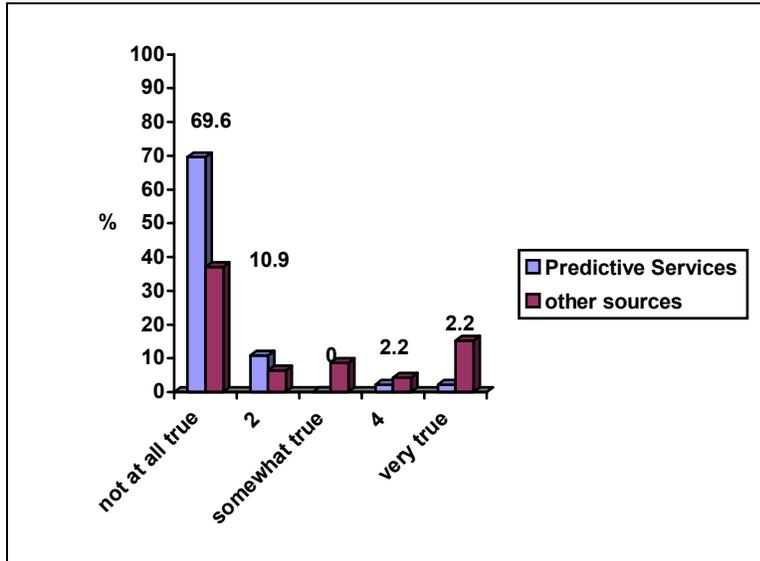
* The proportion of respondents in each category is shown for reliance on Predictive Services.

Figure F9-17. Reliance on Predictive Services and reliance other sources—federal support services.

Reliance on other sources was investigated further. Respondents were asked to comment when they provided ratings of 4 or 5, indicating they relied on other sources, resulting in the following comments:

    If I cannot find some one in fire management to ask I will look on the web for the answer.
    I don't use any products or services in this area
    I tried to delete my answer since I don't know what this is......
    I don't know anything about the products offered through predictive services
    Computer sources, Software VDDs, manuals, training and instinct.

Degree of reliance on Predictive Services was also queried. Over one-half indicated little to no reliance on Predictive Services information (56.5% chose a rating of 1 or 2, where 1=none at all when asked "How much do you rely on the information provided by Predictive Services to assist in decision-making?"). Another one-tenth (10.9%) indicated some reliance, and less than one-tenth indicated reliance (6.5% chose a 4 or 5 rating, where 5=a great deal; 26.1% did not answer this item.)

The likelihood of taking action based on Predictive Services information was examined. Two respondents were likely to take action based on Predictive Services information (4.4% chose a 4 or 5 rating, where 5=very likely, *Figure F9-18,* 34.8% did not answer this item).
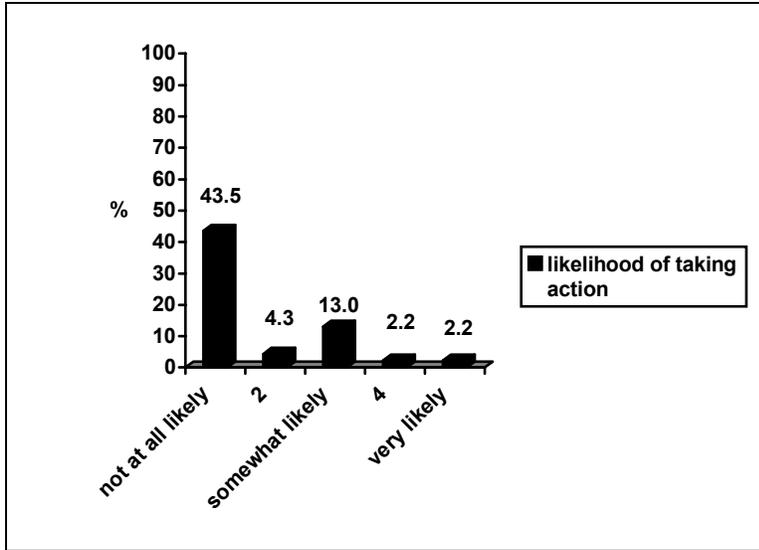
Figure F9-18. Likelihood of taking action based on Predictive Services information received, or gathered from a website—federal support services.

Did Respondents offer Insights into Reliance and Barriers?

Perceived overlap—Respondents were asked how true or untrue it was that there is overlap in the type of information that can be obtained from Predictive Services and other sources (rated on a scale from 1 to 5, 1=not at all true, 3=somewhat true, 5=very true). While over one-half (56.5%) indicated there was not overlap (chose ratings of 1 or 2), about one-eighth (15.2%) felt this was somewhat true; 28.3% did not answer this item.)

Respondents provided the following comments regarding perceived overlap with other sources:

    Your service gives out excellent information than other weather services.
    When I need information on a fire I usually just ask some one in fire management.

Beliefs about Predictive Services among those who had data gathering and reporting duties—
Although two respondents had data gathering and reporting duties, only 1 had this as a primary responsibility. Neither of these respondents was likely to gather and report data. Both of these respondents strongly disagreed that they had the resources to gather field data for Predictive Services reporting. The positive impacts of reporting were strongly disagreed with by the one respondent providing answers to these two items. Similarly, negative impacts were not agreed with. However, given this very small number of respondents, and the fact that only one chose to provide answers to most of these questions, it is best to recognize that these duties are quite atypical among this job function category.

Ratings of ability and impact of applying Predictive Services information—General ability to access and apply the information from Predictive Services, as well as its utility in job performance, was queried (using a 5-point Likert scale where 1=strongly disagree and 5=strongly agree). Federal support services respondents were somewhat neutral when rating "I can access and apply Predictive Services information as part of my job duties" (M=3.3, sd=1.4, n=12). They tended to disagree with "Predictive Services information helps me perform my job with greater precision" (M=2.6, sd=1.1, n=8).

Two general items examined perceived impacts of inaccuracies of Predictive Services information. The first was "Inaccurate Predictive Services information would decrease my ability to predict fire behavior." Rated on a 1 to 5 scale, where 1=strongly disagree and 5 was strongly agree, the average was 3.3 (*M*, sd=1.4, *n*=7; *Figure F9-19*). Over three-fourths did not answer this item (47.8% selected 'don't know' and 37.0% did not select any answer). The second was "Inaccurate Predictive Services information used in my decision making may adversely impact firefighter or public safety." Again, the average was at the mid-range of the scale (*M*=2.8, sd=1.2, *n*=9; *Figure F9-19*). Over three-fourths also failed to indicate degree of agreement or disagreement with this item (43.5% marked 'don't know', and 37.0% did not select any answer).
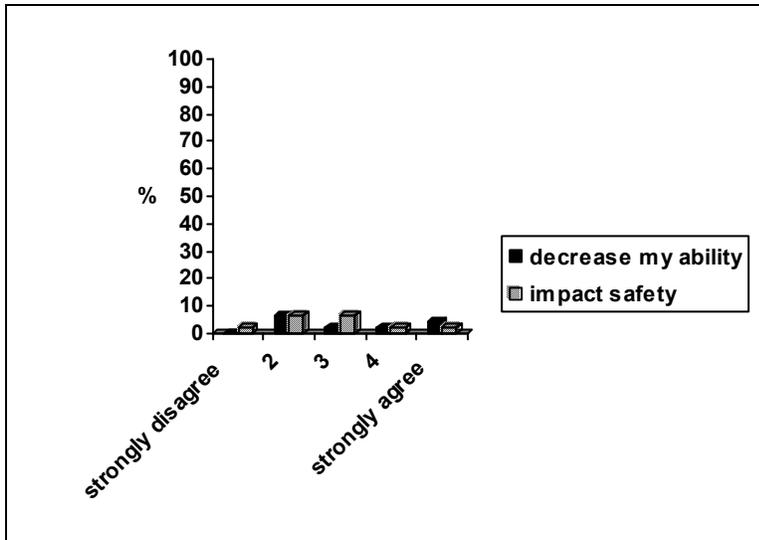
Figure F9-19. Impacts of inaccurate reporting of Predictive Services information—federal support services.

Barriers to use of products and services—There were various reasons why respondents did NOT use the products and services offered by Predictive Services, although no one overwhelming reason or set of reasons emerged among the 16 offered as potential barriers (*table F9-5*). The most frequent reasons provided were current management practices not requiring the type of information offered by Predictive Services, and not having thought about using the products and services. A lack of trust was not cited.

Table F9-5. Reasons why they had not used the products and services offered by Predictive Services—federal support services.

Reason	Percent
I never thought about it.	28.3
My current management practices don't require the types of information provided by Predictive Services	30.4
I don't know how to use these products	8.7
I need information that is site specific	6.5
I am not mandated to use these products	4.3
I don't have the time to use these products	4.3
I don't know where to get advice about using these products	4.3
I don't know where to get the technology to use these products	2.2
I don't have the technology I need to use these products	2.2
I don't trust the products and services	0
I don't want to use these products	0
I don't think these products support my agency's current practices	0
Agency directives/guidelines instruct me to use other information	0
I don't have the money to use these products	4.3
I don't trust the advice I get about using these products	0
I don't trust information that is generated by multiple agencies	0

As a follow-up to the above items, we invited respondents to explain why they might not want to use the products, resulting in the following comments:

> Until I received this survey, I had not heard of predictive services.
> I am responsible for Potable Water, Waste Water, Hazardous Waste, Hazardous Spills, Abandon Mines, Hazardous Chemical Management. My work in fire information has been very limited to answering phones about a specific fire in the community.

How can Existing as well as New Products and Services be Improved or Designed?

How fire danger/fire information is used to support decision-making—Respondents were asked to indicate how they use fire danger/fire information to support decisions made regarding fire management. One tenth or fewer used fire danger and fire information for decision support about public use restrictions (15.2%), for resource allocation (6.5%), for severity requests (10.9%), and for decisions about resource staffing (15.2%).

Respondents were asked to indicate other uses of fire danger/fire information, resulting in the following comments:

> determining availability of my staff (engineering and recreation) and prioritizing my work to meet emergency needs
> management of national suppression funds

Tolerance for errors and inaccuracies—Respondents were asked to rated their tolerance for false alarms and inaccurate reporting (rated on a scale from 1 to 5, where 1=low tolerance and 5=high tolerance). Respondents did not indicate a high tolerance for false alarms or inaccurate reporting (*M*=2.4, sd=1.2, *n*=28; *Figure F9-20;* 39.1% did not answer; and *M*=2.2, sd=1.1, *n*=28; 39.1% did not answer).
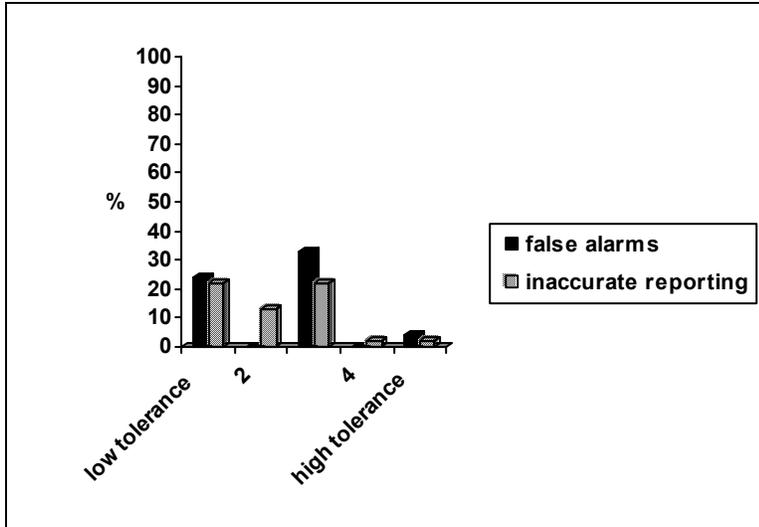
Figure F9-20. Tolerance for false alarms and inaccurate reporting—federal support services.

In order to capture overall preferences for approaches to errors ("Although it is understood that accurate and reliable reporting of fire danger and high fire potential are desirable, margins of error are involved in predictions. In these cases, do you prefer that…"), respondents chose between two statements:

"Statements of danger or risk be issued with a greater margin of error allowing for an early response, knowing that this may lead to unnecessary alarms and response (Better safe than sorry)" —43.5 percent chose this statement as their preference.

"Statements of danger or risk should only be given with certainty, knowing that this may allow a few dangerous events to emerge that were not anticipated (Don't cry wolf)." —17.4 percent chose this statement as their preference.

More than one-third (39.1%) did not choose either statement as their preferred approach.

Audience identification—According to the federal support services, the primary audiences for Predictive Services' products should include: local and district fire managers (43.5%), regional and state fire managers (43.5%), national fire managers (45.7%), and to a lesser extent non-fire land managers (21.7%), and the public (21.7%; note that respondents could select multiple audience types, so responses do not sum to 100%).

Respondents were invited to specify other primary audiences, resulting in the following comments:

　　I would guess fire managers at all levels of gov't.

Preferred information formats—Respondents were asked to indicate their preferences for the style and format of presenting information. For each of 11 formats presented, a rating from 1 to 5 was requested (1=not at all useful, 5=very useful). Based upon the proportion of respondents assigning ratings of 4 or 5 to each format, the formats most to least useful were: information presented in regional or national maps (26.1%), brief executive summaries of data (21.7%), brief annotations that accompany data presentations (21.7%), satellite maps (19.5%), data in

table form (19.5%), data in spreadsheet form (19.5%), web-based ArcIMS maps with user-defined layers and scales (17.4%), radar maps (15.2%), data in text form (15.2%), bar charts or figures that summarize data (13.0%), and non-web-based Geo database files (4.3%).

Other styles or formats of information offered by respondents, or comments surrounding this issue, included:

Google Earth

Respondents were also asked to indicate what, if any information they would like to see in summary or synthesis form, resulting in the following comments (for this item the don't know and not applicable responses have been excluded):

Lightning, red flag warnings, wind events.
Predictions of flash floods
summary, easier to get info needed
YOUR SURVEY NEEDS SOME WORK

Improving existing products and services— Respondents were asked to complete the sentence "The information and services provided by Predictive Services would be more useful to me if…", resulting in the following open-ended remarks:

my job was in the fuels or fire program.
I knew what it was and what it offered and was easy to use and access.
I were more actively involved in the fire management program on my forest.
it two tiered - one for technical specialists and one for management.
they became more spatial.
I knew where it was and how to use it. I need to be educated.
it automatically came to my email address.
This statement does not apply to what I do on a day to day job. So, I really cannot tell you
     how it could be more useful.
I took the time to learn more about the information and services provided by Predictive
     Services.
I knew who and what you are.
I had ever seen or used them.
I had a better understanding of what they are.
I had more time to fully understand the range of products being offered
I am sorry but I have no idea what this is. I have nothing to do with fire and fire related
     activities as it applies to my job.
I knew what it is about and what is offered.
I knew what they were
I used them in my daily work. My job does not require me to use these services
I can apply it directly to my interactions with the public / forest users. I am an information
     assistant / frontliner.
I had anything to do with fire.
I knew more about them, and their potential applications
my position had anything to do with fire
I was working in the fire department or if I was working on a fire.
I KNEW WHAT THEY WERE PERHAPS.
I were more involved in fire than as an environmental coordinator.
I had a different job!

I knew more about them.
I was making staffing decisions.

Respondents were also asked to consider the existing products and services, and comment on how they could be modified to better meet their needs, leading to the following comments (answers of don't know or no comment have been excluded):

the National and State Situation Reports can be a bit redundant.
I'm not familiar enough with your products and services to offer any input on this question.
By posting some of the products on spatial internet server.
Even though I think there is great potential for me to use any type of Predictive Service, I don't know enough to answer this question.
As long as the sites are user friendly and easy to get around, I have no problems.
I THINK YOU NEED TO TARGET YOUR AUDIENCE MORE SPECIFICALLY

Products or services that should be added to what Predictive Services provides—No suggestions for new products or services were offered.

Were There Additional Comments?

As is customary in such surveys, we invited respondents to offer any comments about Predictive Services, or any comments about the survey, resulting in the following remarks:

I have no idea what the National Predictive services are.
I'm not really sure how I ended up on your mailing list.
You are asking the wrong person.
Since I have not used or see your services I could not answer your questions.
Staff has been very helpful in responding to special information requests
I believe you are surveying the wrong person.
What a waste of money! Who is Predictive Services? Private, Public? Poorly designed survey.
I am unsure as to why I received this survey. A lot of my answers were blanks due to the fact I am unsure of what predictive services are and my use of them.

Appendix F10: Dispatchers—Federal Respondents

Federal dispatchers were grouped into one category (*n*=41). These respondents came from the Forest Service (63.4%), Bureau of Land Management (14.6%), Bureau of Indian Affairs (12.2%), National Park Service (4.9%), Fish and Wildlife Service (2.4%), and federal interagency groups (2.4%).

Who Were the Federal Dispatchers?

The majority was female (51.2%), mostly between 45 to 54 years old (*Figure F10-1*).
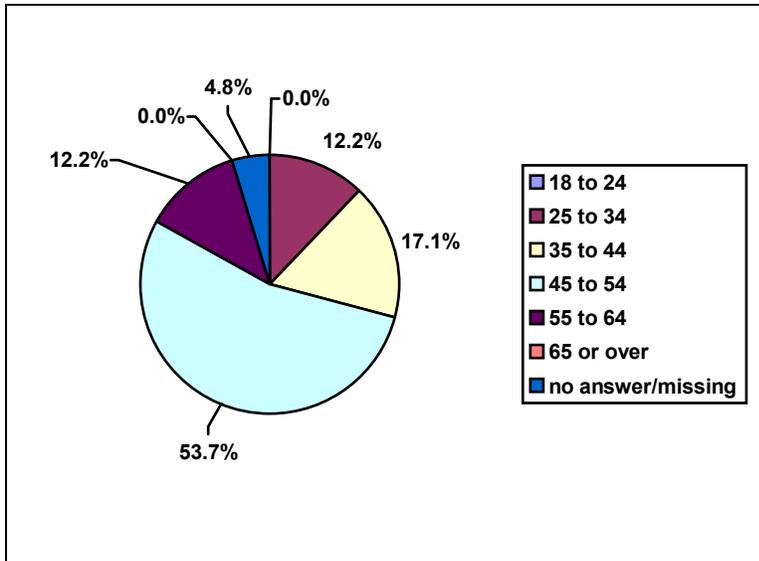
Figure F10-1. Age—federal dispatchers.

Educational background / degree or equivalent—Educational attainment was typically high school or a completed AA or AS degree (*Figure F10-2*).
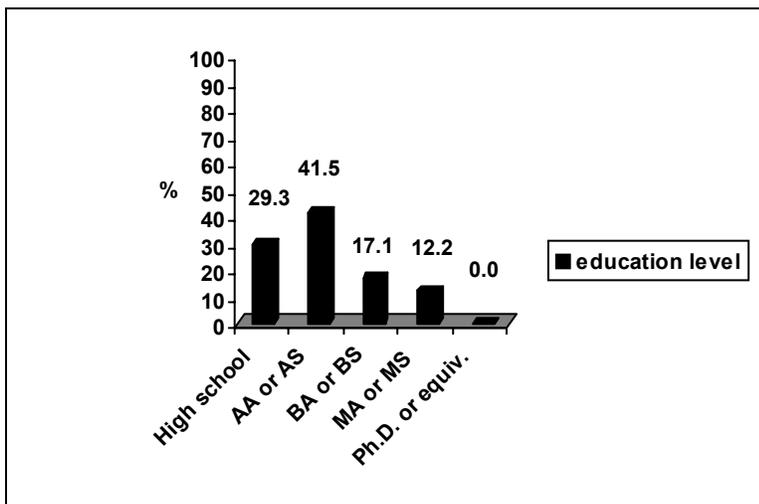
Figure F10-2. Educational attainment—federal dispatchers.

Respondents reported degrees in the following subjects (these are on an individual basis so when lines contain multiple subjects they reflect an individual's response):

    Accounting and data processing
    Business
    Business administration
    Education
    Elementary education
    English; accounting
    Environmental policy
    Fire ecology
    Fire technology
    Forest administration and management (2 respondents)
    Forestry (3 respondents)
    General science (2 respondents)
    General studies (2 respondents)
    Mathematics
    Paralegal
    Pre med
    Range/forest management
    Recreation administration

Home office Geographic Area location—Respondents came from across the United States, with their home offices falling within the various Geographic Areas (GAs) shown below *(Figure F10-3).*
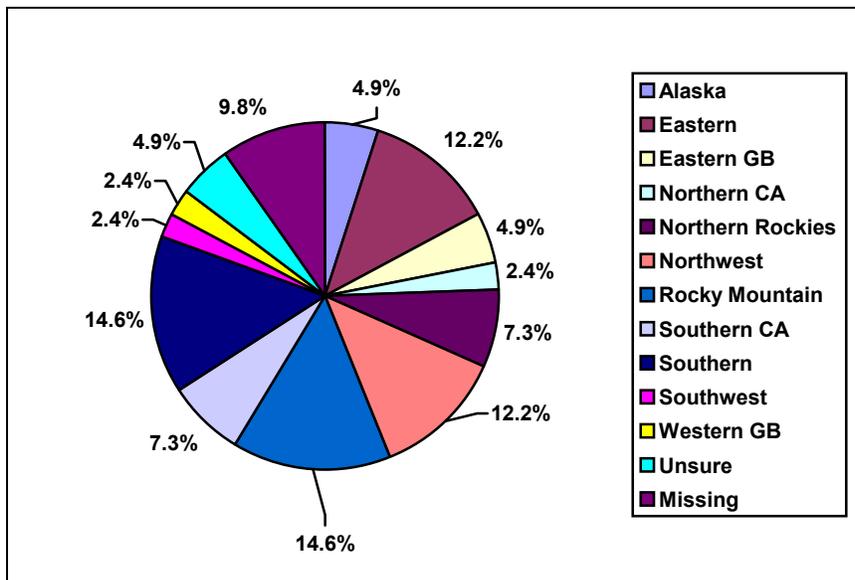
Figure F10-3. GAs—federal dispatchers.

Level of geographic responsibility and scope of duties—Respondents' level of geographic responsibility varied. About one-half reported their duties linked to their local unit (including forest, district, reserve, etc. at 56.1%). Responsibilities for the reaminder were at the national

(14.6%), regional (12.2%), state (12.2%), county (2.4%), or national and international (2.4%) level.

The majority of respondents (68.3%) indicated that their work was specific to multiple agencies, while some (26.8%) had duties specific to their agency only. Two respondents (4.9%) did not answer.

The number of years reported in the current position of employment averaged 9.3 years (sd=6.0, n=24). Median responses for number of people supervised included zero on a routine basis, zero on a seasonal basis, and zero on an incident/project basis.

Almost two-thirds of the federal dispatchers (61.0%) had job responsibilities that included gathering and reporting data that is utilized by Predictive Services such as: situation reports, ICS-209's, NFDRS/WIMS, etc. Among the respondents with data gathering and reporting duties (n=25), the duties are assigned as one of their primary responsibilities (31.7%), or when others with this routine responsibility were away from the office (17.1%). Fewer (12.2%) were assigned the duties as part of a group that fulfills that responsibility. This group of respondents is small, so while we report all responses from them, readers should exercise caution in programmatic decisions or other issues that might be addressed with this data.

What are their Levels of Experience with Predictive Services?

Frequency of access and information acquisition—The frequency of accessing and obtaining information from Predictive Services was examined under two conditions, during fire season and outside of fire season. Frequency of access was greatest during fire season (*table F10-1*).

Table F10-1. Frequency of accessing and obtaining information from Predictive Services—federal dispatchers.

Frequency	During Fire Season %	Outside Fire Season %
Daily	63.4	17.1
Weekly	9.8	26.8
Monthly	4.9	14.6
Quarterly	0	0
Rarely	9.8	24.4
Not at all	12.2	17.1

Specific circumstances for access/acquisition—In addition to frequency, respondents provided information regarding specific situations when they access or obtain information from Predictive Services. Nearly three-fourths reported accessing Predictive Services during fire season (73.2%), and about two-thirds during a fire incident (63.4%). Other situations were reported including when a prescribed burn is being planned (43.9%) and when a prescribed burn is taking place (39.0%). About one-eighth indicated none of the above situations applied to them (14.6%).

Respondents listed additional situations when they access/obtain information from Predictive Services including:

    Year end reports
    for intell sit/rep to various boards

Long Term predictions for drought and fuels, pre-fire season prognostications
Weather events
extreme weather in all seasons
Severity/Hurricanes
for weather
current weather conditions, existing trends, fuels, fuels assessments, all-risk info, situational
report needs

Use of specific websites and services—Respondents were asked to indicate which Predictive Services websites they had visited, or GACC services they had used, revealing that a majority had been to/used the National Interagency Coordination Center (NICC–56.1%). The Geographic Area Coordination Center sites from most to least mentioned were Rocky Mountain (29.3%), Southern (29.3%), the Southwest (29.3%), Eastern Great Basin (22.0%), Northern Rockies (19.5%), Northwest (17.1%), Southern California (14.6%), Western Great Basin (14.6%), Eastern (9.8%), Alaska (7.3%), and the Northern California site (7.3%; responses do not sum to 100% because respondents could select multiple sites). Over one-half had visited one or two sites, while others reported multiple sites (as many as all 12). A few (14.6%) were not sure which if any sites they had visited/used, while one (2.4%) indicated they had not visited any of the listed sites or used GACC services.

Familiarity with the products and services—Federal dispatchers were asked to indicate how true or untrue the following statement was "I am unfamiliar with Predictive Services products and services." About one-fourth indicated this statement was true (*Figure F10-4,* 24.4% selected a rating of 4, or 5, where 5=very true).
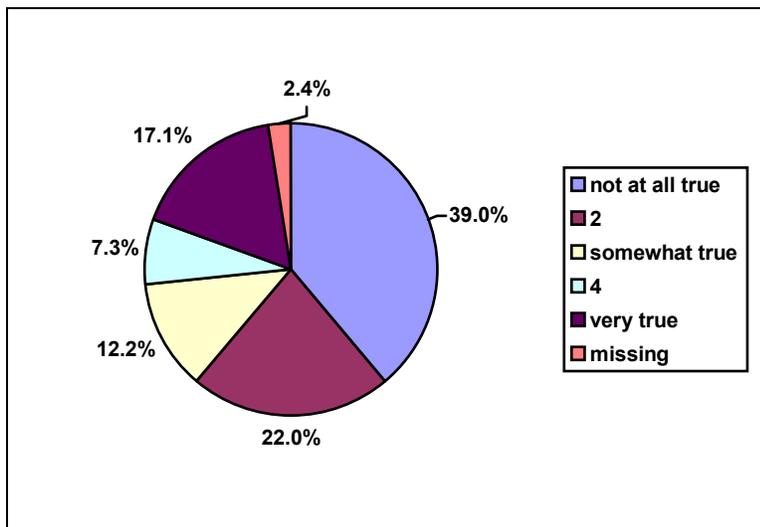
Figure F10-4. Unfamiliar with Predictive Services products and services—federal dispatchers.

The majority of respondents were interested in Predictive Services products and services (*Figure F10-5*, 65.8% selected a 4 or 5, where 5=very true in response to "I am interested…; another 19.5% marked 'somewhat true').
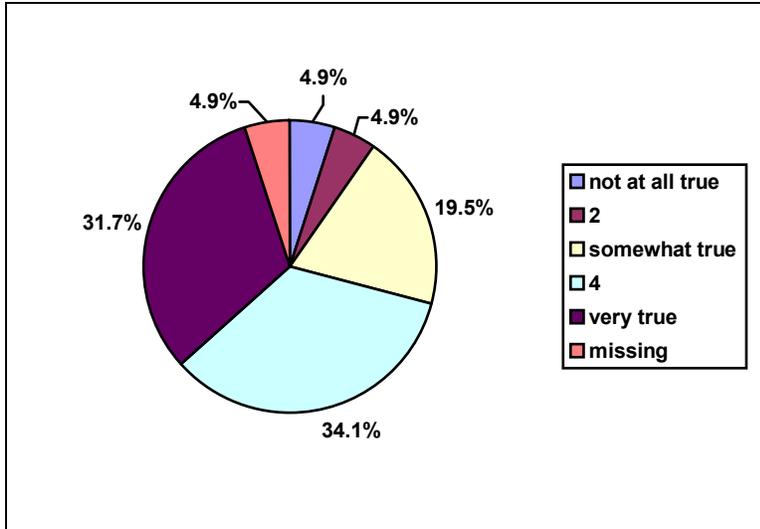
Figure F10-5. Interest in Predictive Services products and services—federal dispatchers.

Respondents were asked their familiarity with Predictive Services' products on the web, the briefings, and the emails. They were more familiar with the web products (*Figure F10-6*, *M*=3.2, sd=1.5, *n*=37), and the briefings (i.e., national, geographic, situational, or meteorological, *M*=3.4, sd=1.3, *n*=38), than with the emails (these contain current projections and/or information about Predictive Services, *M*=2.7, sd=1.5, *n*=34).
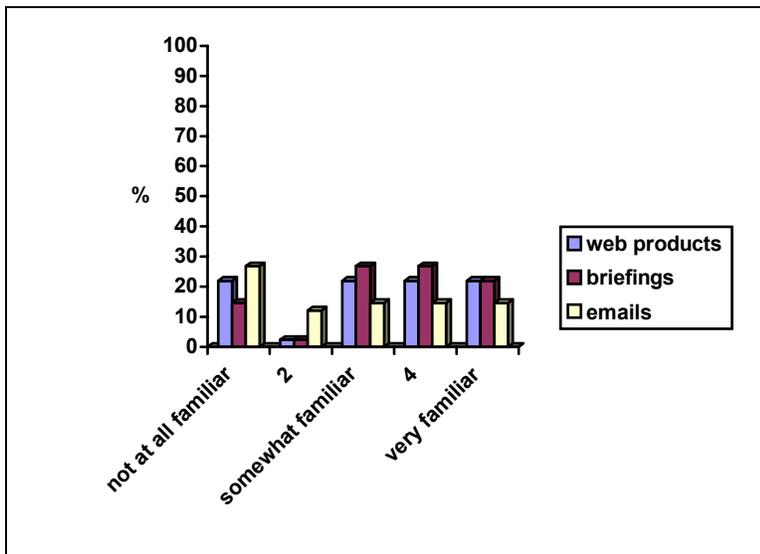
Figure F10-6. Familiarity with Predictive Services products on the web, briefings, and emails—federal dispatchers.

What are their Opinions of the Products and Services?

Ratings of Predictive Services information—Respondents tended to agree that Predictive Services information was accessible (*M*=3.8, sd= .9, *n*=34, *Figure F10-7*, 17.1% marked 'don't know').
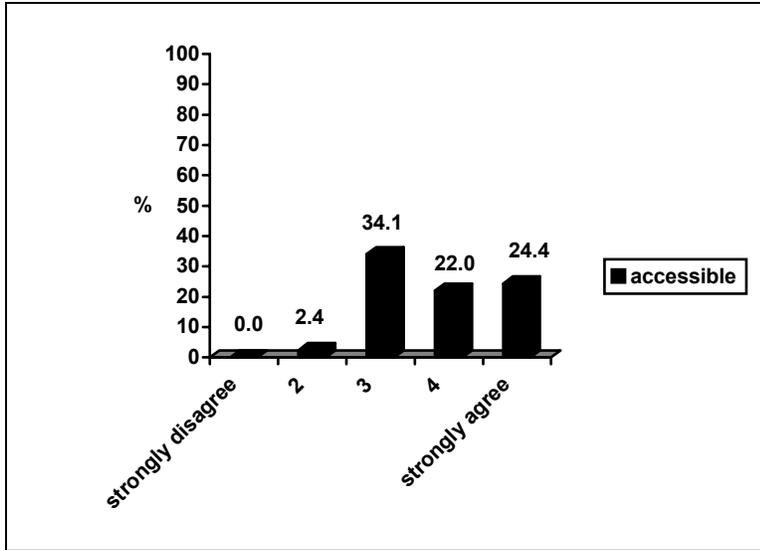
Figure F10-7. Ratings of accessibility of Predictive Services information—federal dispatchers.

While a majority agreed that Predictive Services information was timely (either agreed or strongly agreed), about one-fifth disagreed with this as an attribute (*M*=3.4, sd=1.5, *n*=34, *Figure F10-8*, 17.1% marked 'don't know').
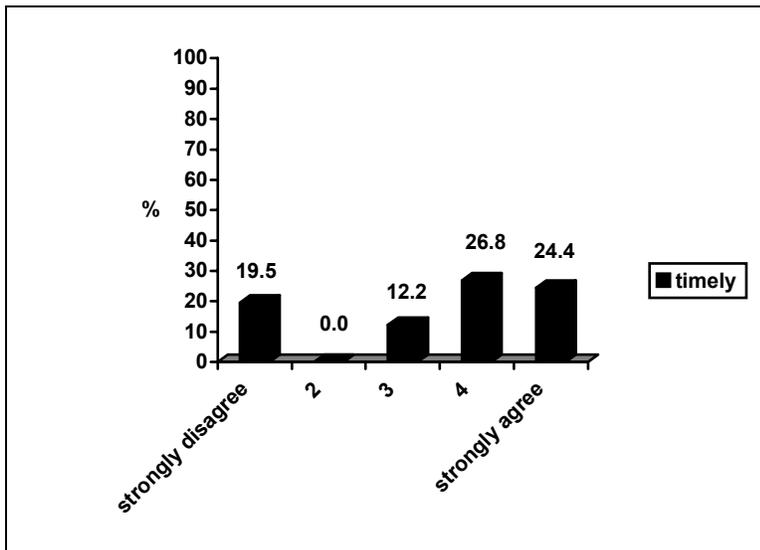
Figure F10-8. Ratings of timeliness of Predictive Services information—federal dispatchers.

A majority agreed that Predictive Services information was relevant (*M*=3.6, sd=1.6, *n*=32, *Figure F10-9*, 22.0% marked 'don't know').
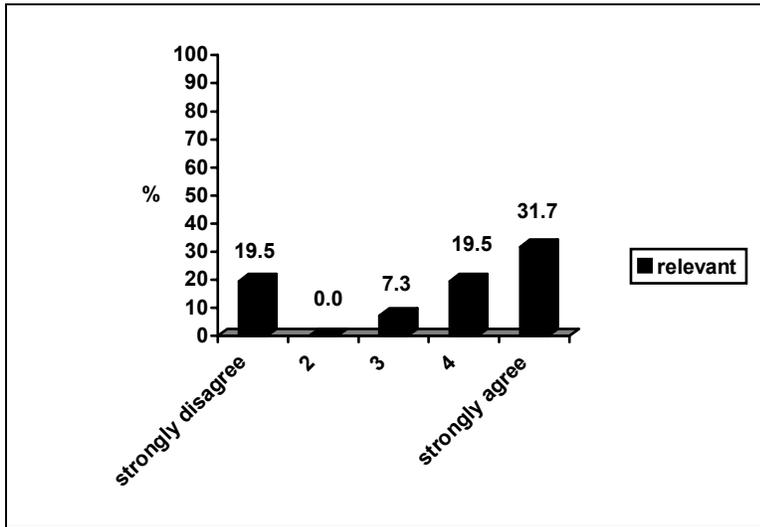
Figure F10-9. Ratings of relevance of Predictive Services information—federal dispatchers.

More than one-half agreed that Predictive Services information was accurate (*M*=3.2, sd=1.6, *n*=37, *Figure F10-10*, 9.8% marked 'don't know').
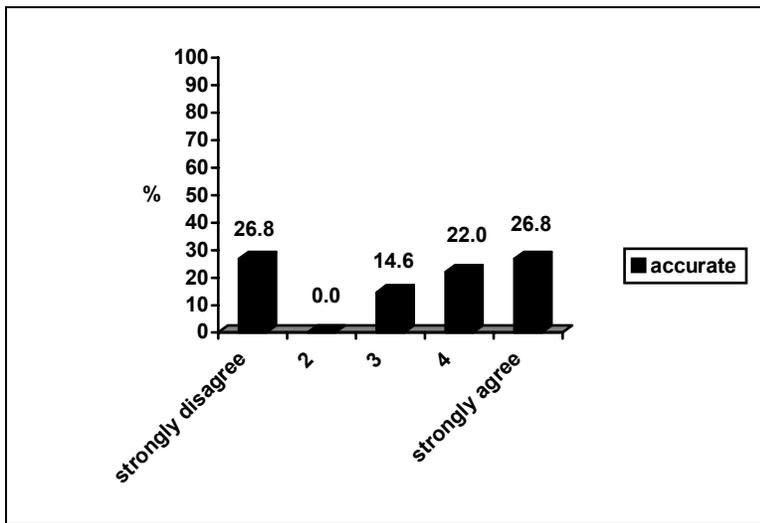
Figure F10-10. Ratings of accuracy of Predictive Services information—federal dispatchers.

A majority also agreed Predictive Services information was complete (*M*=3.5, sd=1.6, *n*=35, *Figure F10-11*, 14.6% marked 'don't know').
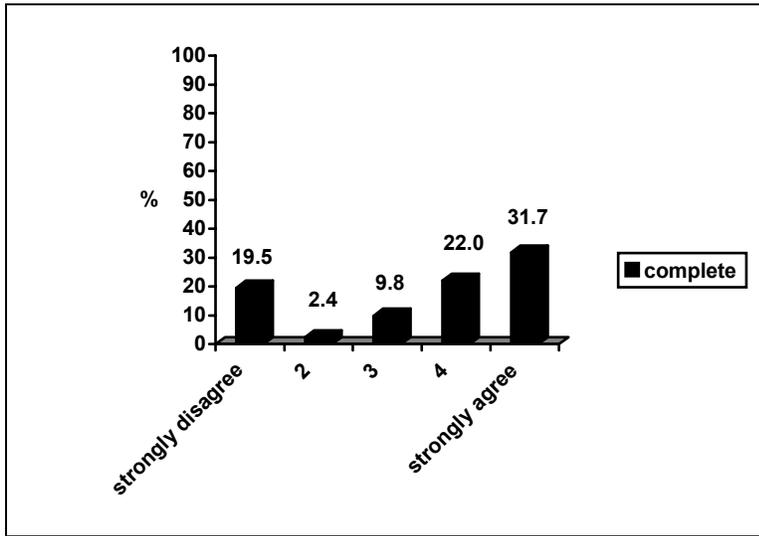
Figure F10-11. Ratings of completeness of Predictive Services information—federal dispatchers.

A majority agreed that Predictive Services information was easy to understand (*M*=3.7, sd=1.4, *n*=37, *Figure F10-12*, 9.8% marked 'don't know').
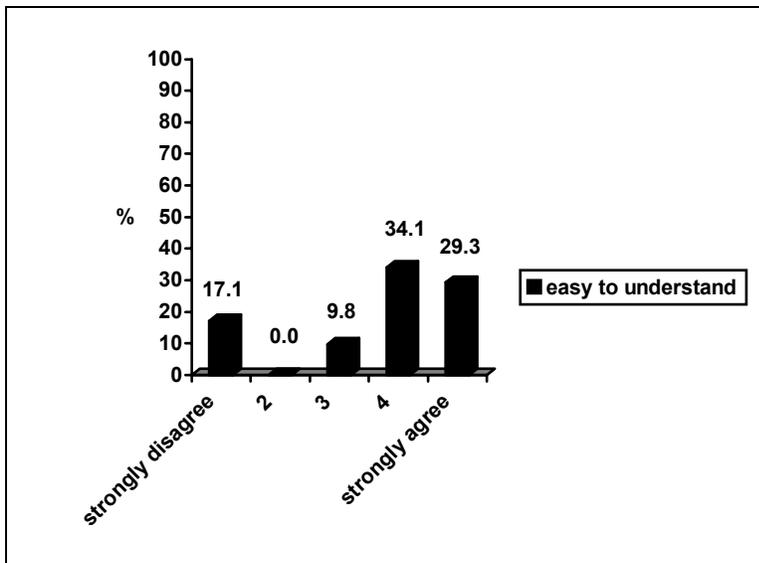
Figure F10-12. Ratings of ease of understanding of Predictive Services information—federal dispatchers.

Similarity and importance of similarity of GACC sites—Dispatchers rated how true the following statement was "The Predictive Services products and services available through the GACCs (you selected – based on which GACCs they had been to) are similar in format, quality, and the range of products and services offered. One-fourth perceived the products and services as similar (*Figure F10-13*).
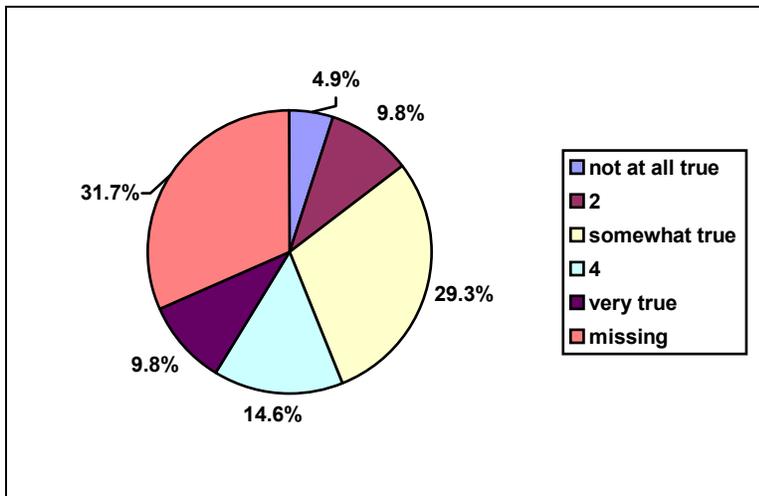
Figure F10-13. Products and services available through the GACCs you selected are similar—federal dispatchers.

Respondents were invited to comment on their responses regarding similarity across GACCs. Comments received included these:

   The current pages are very similar, however earlier versions varied greatly in the amount of information and ease of locating needed info
   Eastern Great Basin provides some better products.
   The info is there - just not in the same format all the time.
   New GACC web page format is making similar pages throughout the GACC's
   I thought in 2005 the formats were all going to be the same but the sites all look different. I believe the content is similar to all of them.
   Since my work involves weather predictions all year round, I was not sure what you meant by Predictive Services. You should define that in the beginning of the survey. I may have answered some of the earlier questions differently if I had known you were talking only about Fire Coordination Centers.
   I know what I am looking for...it may not be in the same area but I can usually find it fairly easy.
   I only have checked the one. I don't know how they compare.
   Sometimes, links take the user to very old pages or are pages that don't work at all. Web masters need to go through each link and click to see where it goes.
   This survey is very confusing. Maybe I'm accessing PS products and don't know it. If it's tied into NICC, then I probably use it, but don't realize it. As a result, I'm not sure how useful my survey answers are, as I keep going back and forth in my assumptions.
   I have not gone to the sites enough to know if they are similar or not.

While about one-eighth indicated that similarity of Predictive Services' products and services in format and quality across GACCs was unimportant (12.2% assigned a 1=not at all important, or a 2), about one-eighth indicated that it was somewhat important (14.6%), and a majority indicated that it was important (65.9% assigned a 4 or 5=very important; 7.3%, did not answer this item).

Satisfaction with Predictive Services contacts—About one-third of respondents (29.3%) had contacted Predictive Services to report a problem with a product or service. Three-fourths of these (75.0%) selected a 4 or 5 on the scale indicating they were responsive (scale was 1 to 5, 1=not at all responsive, 5=very responsive). One respondent (2.4%) had contacted Predictive Services to suggest a new product or service. Using the same responsiveness scale as for reporting a problem, none rated Predictive Services as responsive to their suggestion.

Use and utility of products and services—Products and services available through Predictive Services were examined. The 39 specific listings included some products and services that are generated elsewhere, or that are available only on some sites, but not all. Respondents were asked first to indicate if they had not used each product, and then for those that they had used, to rate each according to its usefulness to them on a scale from 1 to 5, where 1=not at all useful and 5=very useful.

The first set of product ratings (*table F10-2*) are those that are shown on Predictive Services sites, but are produced through other agencies.

Table F10-2. Use and utility of Predictive Services products and services provided by other agencies/groups—federal dispatchers.

Product or Service	% Not Used	Usefulness M	SD, N
National fire weather outlook	14.6	4.16	.8; 32
Red flag warnings	9.8	4.60	.7; 35
Drought information	24.4	4.17	.8; 29
Haines index	19.5	4.13	1.0; 30
7-day precipitation maps	22.0	3.67	1.0; 30
7 and 14-day precipitation percent of normal	24.4	3.45	1.1; 29
12-hour forecast maps	17.1	4.03	1.0; 32
MODIS active fire maps	31.7	3.54	1.2; 26
7 and 14-day average maximum temperature departure from normal	26.8	3.52	1.2; 27
7-day average maximum temperature maps	24.4	3.61	1.0; 28
Wind maps	22.0	3.83	.9; 30
Observed fire danger images	29.3	3.74	1.1; 27
ROMAN real time fire weather and information report	29.3	3.96	1.3; 27
Upper air soundings	68.3	2.91	1.1; 11

A set of products and services is produced by Predictive Services and is available on a limited scale (*table F10-3,* less than national, typically on a local and regional level). These products and services are offered on a limited scale to meet specific regional needs and interests.

Table F10-3. Use and utility of Predictive Services products and services provided by Predictive Services on a limited scale—federal dispatchers.

Product or Service	% Not Used	Usefulness M	SD, N
Interagency situation reports	9.8	4.26	1.0; 35
Daily fire weather/danger outlook	12.2	4.53	.7; 34
Prescribed fire reports	31.7	3.73	1.0; 26
Smoke program reports	34.1	3.20	1.2; 25
Online briefings	39.0	3.91	1.0; 23

This last set of products is available on a national scale and is created by Predictive Services, sometimes in collaboration with other entities (*table F10-4).*

Table F10-4. Use and utility of Predictive Services products and services provided by Predictive Services on a national scale—federal dispatchers.

Product or Service	% Not Used	% With 4 or 5 Rating[1]	Usefulness *M*	SD, N
Incident Management Situation Reports	9.8	80.0	4.31	1.0; 35
Weekly fire weather/danger outlook	14.6	81.8	4.21	.8; 33
Seasonal fire weather/danger outlook	17.1	53.2	3.50	1.2; 32
Monthly fire weather/danger outlook	22.0	50.0	3.33	1.3; 30
10-day fire weather/danger outlook	22.0	66.7	3.93	1.0; 30
Live fuel moisture	19.5	74.2	4.16	1.0; 31
Dead fuel moisture	24.4	72.4	4.10	1.0; 29
7-day large fire potential	19.5	67.7	3.94	1.2; 31
Fire news and notes	14.6	36.3	3.39	1.1; 33
ERC and fuels charts	29.3	61.5	3.85	1.0; 26
Links to other services/websites	14.6	48.4	3.61	1.0; 33
Multi-season fire weather maps	26.8	39.3	3.11	1.2; 28
Interagency RAWS program	31.7	61.6	3.88	1.2; 26
Reference links	29.3	51.8	3.63	1.0; 27
Training	41.5	54.6	3.68	1.2; 22
State of the fuels program	53.7	35.2	3.35	1.0; 17
Technological guidance and transfer	61.0	35.7	3.07	1.1; 14
Predictive service forms	39.0	60.9	3.78	1.1; 23
Regional monsoon update	65.9	58.3	3.67	1.2; 12

[1]This column considers only those who rated the product and is not based on all federal respondents.

A request for others sources and products used resulted in the following comments:

>   Crew Rotation List
>   It sure would have been useful if you started this survey by saying who PS was; right now I'm just guessing and assuming, and if I don't know, I may not answer.

Overall satisfaction—Responses indicate that Predictive Services had met most expectations (*M*=3.4, sd= .8, *n*=36, *Figure F10-14*), and respondents were somewhat satisfied (the majority marked 4 or 5 on the scale, *M*=3.6, sd= .8, *n*=35, *Figure F10-15*).
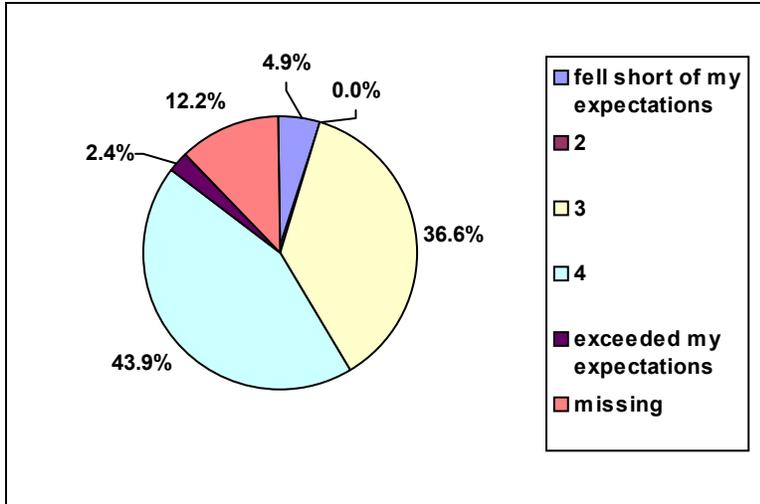
Figure F10-14. Ratings of degree to which Predictive Services met expectations—federal dispatchers.
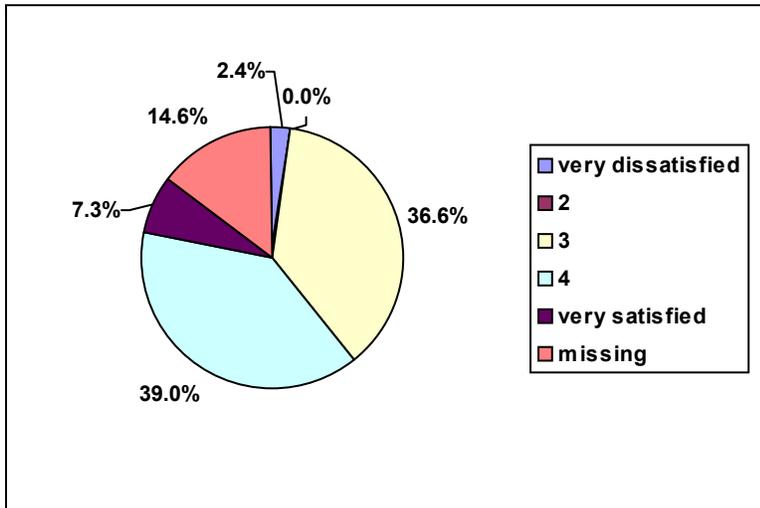
Figure F10-15. Ratings of satisfaction with Predictive Services products and services—federal dispatchers.

Trust and confidence in the information—A majority expressed some, to a great deal of trust and confidence in Predictive Services information (*Figure F10-16*, *M*=3.7, sd=.8, *n*=36; 12.2%, did not answer this item.)
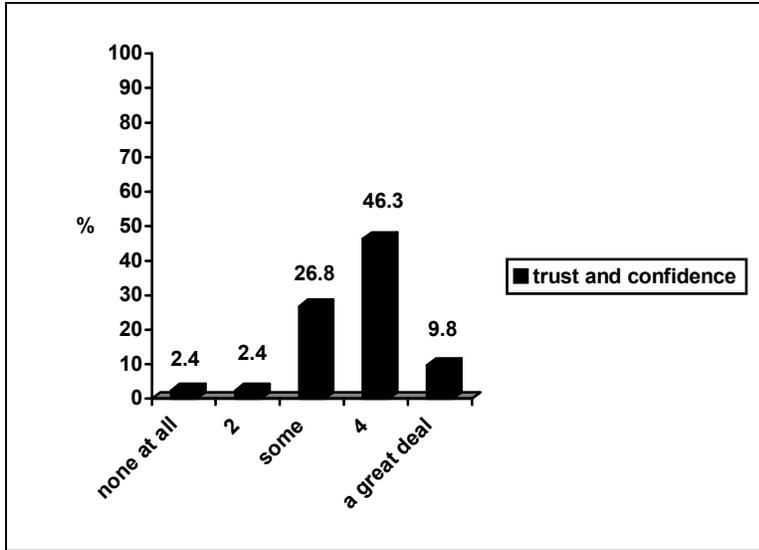
Figure F10-16. Ratings of trust and confidence in Predictive Services information—federal dispatchers.

Are Respondents Relying on and Taking Action Based on Predictive Services?

Reliance on products and services—About two-fifths (41.5%, *Figure F10-17*) indicated that they *did* rely on the products and services in making important decisions (selected a 4 or 5, where 5 was very true). Less than one-tenth (7.3%, *Figure F10-17*) indicated that they relied on other sources more heavily than the products and services provided by Predictive Services (chose a 4 or 5, where 5=very true).
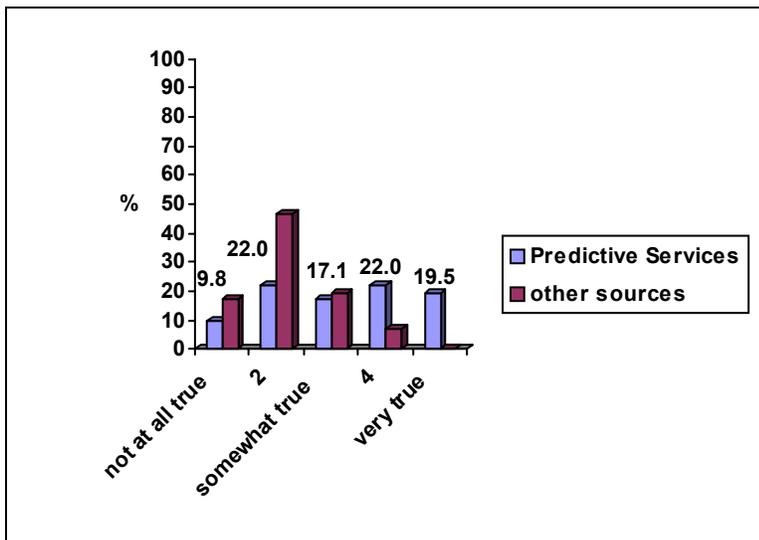
* The proportion of respondents in each category is shown for reliance on Predictive Services.

Figure F10-17. Reliance on Predictive Services and reliance other sources—federal dispatchers.

Reliance on other sources was investigated further. Respondents were asked to comment when they provided ratings of 4 or 5, indicating they relied on other sources, resulting in the following comments:

> Depends on the situation...Local weather or local NOAA has a better grasp on local factors, influences sometimes, especially in mountainous terrain.
> Local National Weather Service
> NWS
> Locally our daily WIMS forecasted & actual indices along with the Canadian Fire Indices & models.
> I use the stuff at NICC's website

Degree of reliance on Predictive Services was also queried. About one-fourth indicated little to no reliance on Predictive Services information (24.4% chose a rating of 1 or 2, where 1=none at all when asked "How much do you rely on the information provided by Predictive Services to assist in decision-making?"). Another one-fifth (19.5%) indicated some reliance, and nearly half indicated reliance (46.3% chose a 4 or 5 rating, where 5=a great deal; only 9.8% did not answer this item.)

The likelihood of taking action based on Predictive Services information was examined. Nearly half were likely to take action based on Predictive Services information (48.8% chose a 4 or 5 rating, where 5=very likely, *Figure F10-18,* 12.2% did not answer this item).
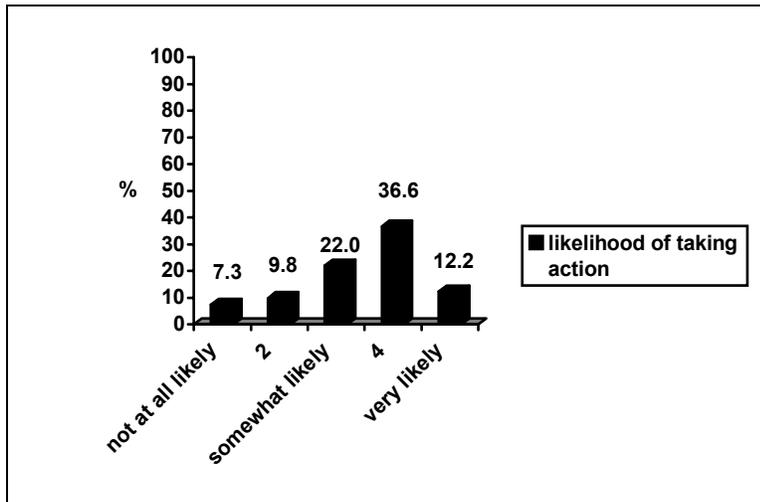
Figure F10-18. Likelihood of taking action based on Predictive Services information received, or gathered from a website—federal dispatchers.

Did Respondents offer Insights into Reliance and Barriers?

Perceived overlap—Respondents were asked how true or untrue it was that there is overlap in the type of information that can be obtained from Predictive Services and other sources (rated on a scale from 1 to 5, 1=not at all true, 3=somewhat true, 5=very true). While about one-third (29.2%) indicated there was not overlap (chose ratings of 1 or 2), more than half (51.2%) felt this was somewhat true, and about one-tenth indicated it was true to very true (9.8% chose ratings of 4 or 5; 9.8%, did not answer this item.)

Respondents provided the following comments regarding perceived overlap with other sources:

Spot Wx forecasts, daily fire weather forecasts, links to RAWS info
With regard to weather data, I can obtain elsewhere quicker and more efficiently at
   times...However I do compare and contrast the two.
Boise does weather that are similar to the one that we retrieve from Redding.
Local National Weather Service people are more familiar with the area and are more
   personable.
I use the AK Predictive Services to know which Native Crew is available on the rotation list -
   very critical & political in AK
Nat'l wx service....state smoke management forecasters....state fire season assessments
Can't say for sure, but I don't think so.
Clueless on what PS is, and if I use it.

Beliefs about Predictive Services among those who had data gathering and reporting duties—
The respondents with data gathering and reporting duties related to Predictive Services were
asked: "How likely is it that you will gather and report data to Predictive Services?" About half
indicated that they were likely to gather and report data (46.5% chose a 4 or 5 on the 5 point
scale, where 1=not at all likely, 5=very likely; 17.9% did not provide a response; *Figure F10-19*).
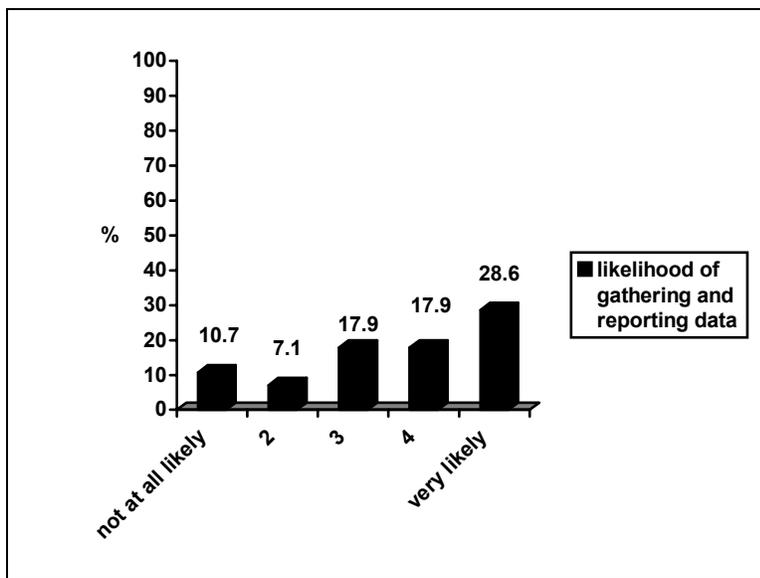
Figure F10-19. Likelihood of gathering and reporting data to Predictive Services—federal
dispatchers with data gathering and reporting duties.

Respondents were somewhat mixed when rating agreement that they had the resources to
gather field data for reporting (*M*=3.2, sd=1.3, *n*=26, rated on a 1 to 5 scale where 1=strongly
disagree and 5=strongly agree; *Figure F10-20*; 7.1% did not answer this item).
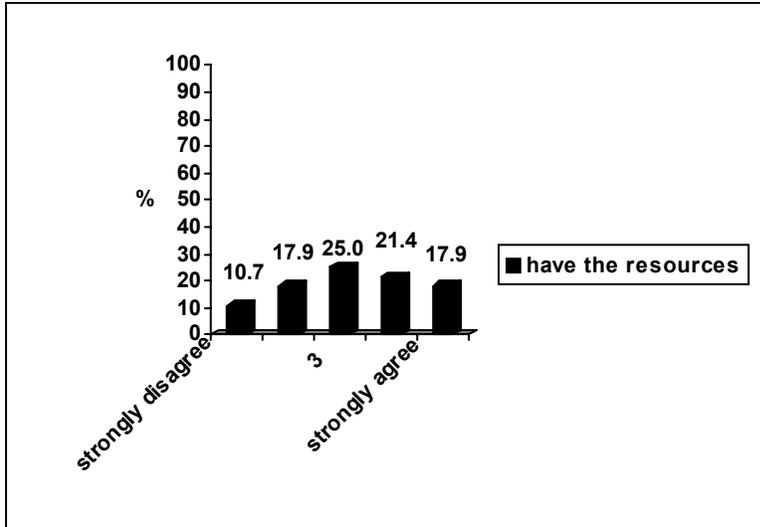
Figure F10-20. Degree of agreement or disagreement with "I have the resources (e.g., time/skills/personnel) to gather field data for Predictive Services reporting" —federal dispatchers with data gathering and reporting duties.

This subgroup was also asked to rate five items focused on positive impact of reporting, and negative effects of not reporting. Dispatchers were most likely to disagree with "My consistent upward reporting of data (e.g., 1300 obs for RAWS) increases the reliability and quality of Predictive Services products and services" (*M*=3.6, sd=1.2, *n*=25; *Figure F10-21*; 10.7% did not answer). They were also most likely to disagree with "My consistent upward reporting of data (e.g., 1300 obs for RAWS) increases the reliability and quality of products and services provided by groups and agencies that use the data from Predictive Services to generate their own products" (*M*=3.5, sd=1.2, *n*=24; *Figure F10-21;* 14.3% did not answer).
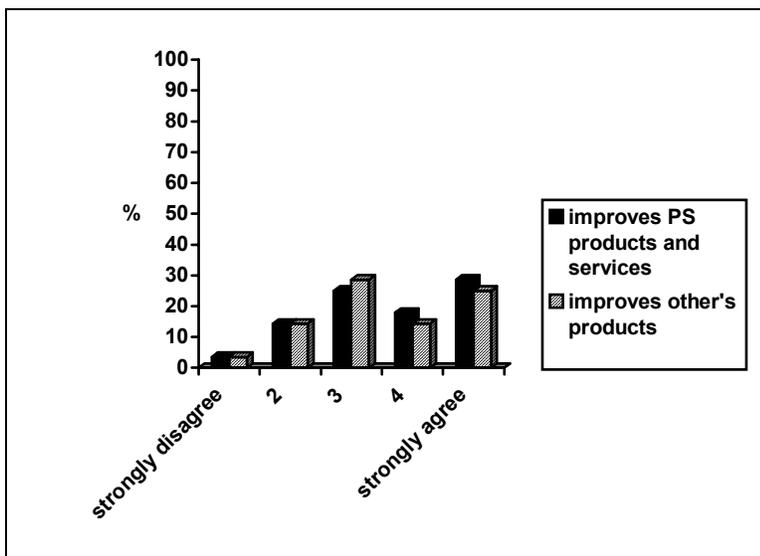
Figure F10-21. Degree of agreement or disagreement with positive outcomes of reporting data—federal dispatchers with data gathering and reporting duties.

Responses indicate that the majority agreed there are adverse outcomes when/if data is not gathered and reported. This was assessed through two items "If I don't collect and report Predictive Services data, it could affect my unit's ability to make sound decisions to manage fire" (17.8% selected a 1 or 2 rating on the scale; *M*=3.7, sd=1.3, *n*=24; *Figure F10-22;* 14.3% did not answer); and "If I don't collect and report Predictive Services data it could adversely impact firefighter or public safety" (21.4% selected a 1 or 2 rating; *M*=3.5, sd=1.4, *n*=24; *Figure F10-22;* 14.3% did not answer).
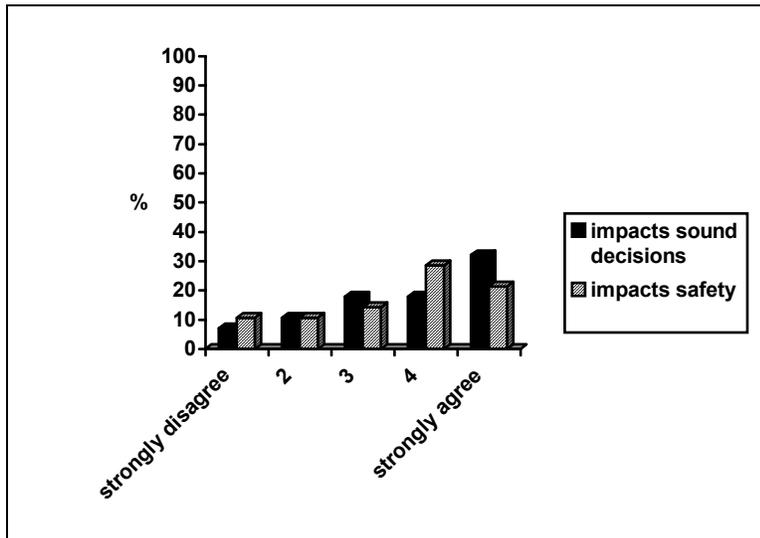
Figure F10-22. Degree of agreement or disagreement with adverse impacts of not collecting and reporting data—federal dispatchers with data gathering and reporting duties.

Ratings of ability and impact of applying Predictive Services information—General ability to access and apply the information from Predictive Services, as well as its utility in job performance, was queried (using a 5-point Likert scale where 1=strongly disagree and 5=strongly agree). Federal dispatchers were somewhat in agreement with "I can access and apply Predictive Services information as part of my job duties" (*M*=3.8, sd=1.0, *n*=32). However, they were in less agreement with "Predictive Services information helps me perform my job with greater precision" (*M*=2.7, sd=1.0, *n*=31).

Two general items examined perceived impacts of inaccuracies of Predictive Services information. The first was "Inaccurate Predictive Services information would decrease my ability to predict fire behavior." Rated on a 1 to 5 scale, where 1=strongly disagree and 5 was strongly agree, the average was 3.8 (*M*, sd=1.2, *n*=29; *Figure F10-23*). About one-fourth did not answer this item (19.5% selected 'don't know', and 9.8% did not select any answer). The second was "Inaccurate Predictive Services information used in my decision making may adversely impact firefighter or public safety." Again, the average indicated agreement (*M*=3.8, sd=1.2, *n*=32; *Figure F10-23*). About one-fourth also failed to indicate degree of agreement or disagreement with this item (12.2% marked 'don't know', and 9.8% did not select any answer).
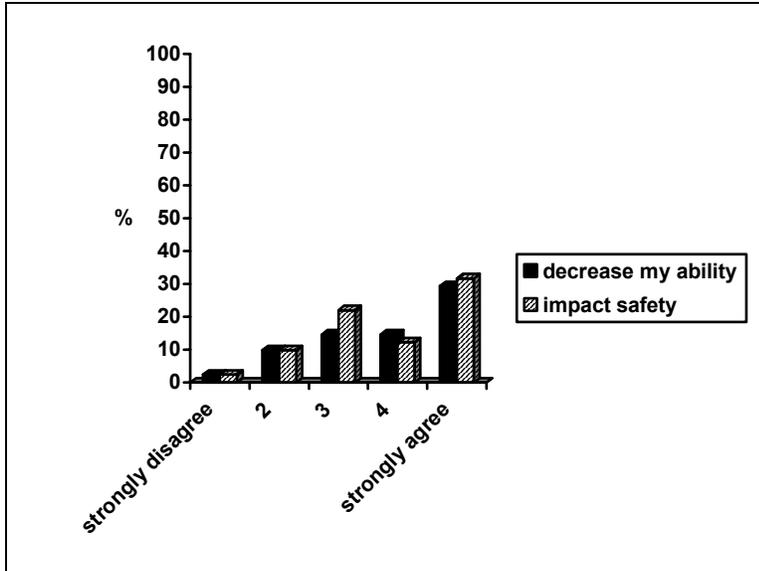
Figure F10-23. Impacts of inaccurate reporting of Predictive Services information—federal dispatchers.

Barriers to use of products and services—There were various reasons why respondents did NOT use the products and services offered by Predictive Services, although no one overwhelming reason or set of reasons emerged among the 16 offered as potential barriers (*table F10-5*). The most frequent reasons provided were not having thought about using the products and services, and not knowing how to use the products. A lack of trust was not frequently cited.

Table F10-5. Reasons why they had not used the products and services offered by Predictive Services—federal dispatchers.

Reason	Percent
I never thought about it.	29.3
My current management practices don't require the types of information provided by Predictive Services	9.8
I don't know how to use these products	24.4
I need information that is site specific	7.3
I am not mandated to use these products	4.9
I don't have the time to use these products	7.3
I don't know where to get advice about using these products	17.1
I don't know where to get the technology to use these products	14.6
I don't have the technology I need to use these products	9.8
I don't trust the products and services	4.9
I don't want to use these products	2.4
I don't think these products support my agency's current practices	0
Agency directives/guidelines instruct me to use other information	2.4
I don't have the money to use these products	0
I don't trust the advice I get about using these products	0
I don't trust information that is generated by multiple agencies	2.4

When asked to describe why they might not want to use the products and services, dispatchers made the following comments:

> Site specific is a problem that will never go away...We are getting the best info for what we are imputting. I don't know all the uses of predicted services and no one has showed me...Learn as you go method.
> The problem is one internet connection, and which is dial up. (Very slow)
> Generally, BIA limited internet access has discouraged using all of the available information at the site. This is due to the slow dial up connection to the internet.
> I might be using them, I might not; don't have a clue. Again, if this is something that's available through NICC, I probably use it when I need/want to.

How can Existing as well as New Products and Services be Improved or Designed?

How fire danger/fire information is used to support decision-making—Respondents were asked to indicate how they use fire danger/fire information to support decisions made regarding fire management. About half of respondents used fire danger and fire information to make decisions in decision support about public use restrictions (51.2%), for resource allocation (56.1%), for severity requests (43.9%), and about resource staffing (58.5%).

Dispatchers were asked to indicate other uses of fire danger/fire information, resulting in the following comments:

> predicting lightning
> communicating with the media
> Fire prevention education
> Pre-positioning of resources
> I use it to decide if I should put my name on the board as available

Tolerance for errors and inaccuracies—Respondents were asked to rate their tolerance for false alarms and inaccurate reporting (rated on a scale from 1 to 5, where 1=low tolerance and 5=high tolerance). While respondents did not indicate a high tolerance for false alarms or inaccurate reporting, they were somewhat more tolerant of false alarms pertaining to fire danger (M=2.7, sd=1.2, n=37; *Figure F10-24;* 9.8% did not answer), than they were of inaccurate reporting of high fire potential (M=2.5, sd=1.2, n=37; *Figure F10-24;* 9.8% did not answer).
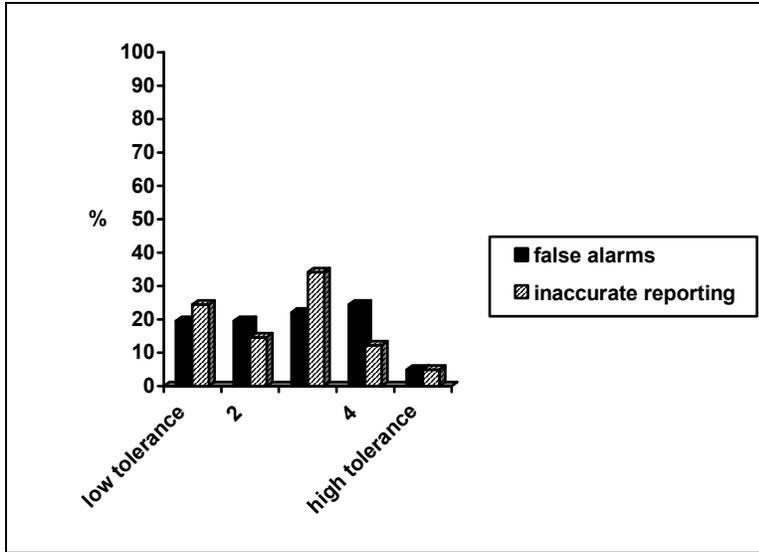
Figure F10-24. Tolerance for false alarms and inaccurate reporting—federal dispatchers.

In order to capture overall preferences for approaches to errors ("Although it is understood that accurate and reliable reporting of fire danger and high fire potential are desirable, margins of error are involved in predictions. In these cases, do you prefer that…"), respondents chose between two statements:

"Statements of danger or risk be issued with a greater margin of error allowing for an early response, knowing that this may lead to unnecessary alarms and response (Better safe than sorry)" —63.4 percent chose this statement as their preference.

"Statements of danger or risk should only be given with certainty, knowing that this may allow a few dangerous events to emerge that were not anticipated (Don't cry wolf)." —22.0 percent chose this statement as their preference.

A few (14.6%) did not choose either statement as their preferred approach.

Audience identification— According to the federal dispatchers, the primary audiences for Predictive Services' products should include: local and district fire managers (80.5%), regional and state fire managers (75.6%), national fire managers (65.9%), and to a lesser extent non-fire land managers (39.0%), and the public (34.1%; note that respondents could select multiple audience types, so responses do not sum to 100%).

Respondents were asked to specify other primary audiences, resulting in the following comments:

District specific products
on the ground firefighters

Preferred information formats—Respondents were asked to indicate their preferences for the style and format of presenting information. For each of 11 formats presented, a rating from 1 to 5 was requested (1=not at all useful, 5=very useful). Based upon the proportion of respondents assigning ratings of 4 or 5 to each format, the formats most to least useful were: radar maps

(56.1%), information presented in regional or national maps (53.6%), brief executive summaries of data (51.3%), satellite maps (51.2%), data in table form (43.9%), data in text form (43.9%), brief annotations that accompany data presentations (43.9%), web-based ArcIMS maps with user-defined layers and scales (39.1%), data in spreadsheet form (31.7%), bar charts or figures that summarize data (26.8%), and non-web-based Geo database files (21.9%).

Other styles or formats of information offered by respondents, or comments surrounding this issue, included:

    Verbal and/or direct E-mail notification.

Respondents were also asked to indicate what, if any information they would like to see in summary or synthesis form, however, respondents were not able to offer up any suggestions.

Improving existing products and services—Dispatchers were asked to complete the sentence "The information and services provided by Predictive Services would be more useful to me if..", resulting in the following open-ended remarks:

    At this time the product is satisfactory and meets my needs.
    we could compensate for elevation, slope, aspect and geographical location...All of these
        factors are uncontrollable yet constant. Many local forecasts for our area say expect this
        and this but if you are in our mountain counties then look out or you may get this or
        that....When you go to extremes in topography things tend to get grey when forecasting.
    the margin of error was less
    It was more timely, more accurate, and more specific to my local area.
    I think it would be a bit easier for me if the services were in the same place. Also a one stop
        guide would be a big help. As a IA dispatcher the info is very important in my job to
        ensure the safety of our on the ground fire people.
    Doesn't apply to me - I like the services I receive
    People from the weather office should contact dispatch offices to get a better picture as to
        what is actually happening in their area. Get feedback.
    more folks within my unit would check them out
    I would just use it more.
    there was music to go along with the site viewing.
    If I had more internet connection with hi speed, at least one with hi speed.
    my job does not use this type of service.
    I used the services more.
    I knew more about them.
    it was site specific, but we take care of that thru WIMS & Canadian Fire Forecast !
    I knew what you were talking about.
    the information was user friendly and explained better
    some of the charts and maps had clearer explanations as to what they truly represent
    I could trust that outputs were not manipulated by managers in hopes of gaining enhanced
        budget and/or resources
    I'm sorry I don't think I have used the Predictive Services
    Was presented in more readable, picture/graph or summary format. Had a report writing
        feature. Described what the various products could do. Was more easily accessible--ie
        lightening maps.
    if they were accessible year round...rather than stating the season is over....some seasons
        last a lot longer than others

information and links to information are current and checked, better response to contacts to
   web master.
I had a clue who you are.
I knew anything about them.

Respondents were also asked to consider the existing products and services, and comment on
how they could be modified to better meet their needs, leading to the following comments:

More input from the ground level besides RAWS
Easier access.
To have the same format and be in the same place
They could use a larger staff during and after fire season to complete products
sometimes the fonts are very small and hard to read
Consolidated on one web site? Maybe it's already there?
I can not think of anything that needs to be modified.
OK as it is now.
easily accessed and viewed from web based systems. Ability to map and attach
   documentation for incidents and response--similar to a WildCad record.
Don't know anything about the products so I cannot make any suggestions.

Products or services that should be added to what Predictive Services provides—Respondents
were asked to explain which products and services should be added to Predictive Services and
why, resulting in the following comments:

Anything that is relative that anyone feels would be a benefit...Anything to help fire
   managers.
Population density, ownership and other social features might be good. For natural
   resource assessment, some integration of a product like google earth.

Were There Additional Comments?

As is customary in such surveys, we invited respondents to offer any additional comments about
Predictive Services, or any comments about the survey, resulting in the following remarks:

I think overall you are doing fine....You could provide more if the management gave you
   more. However with time, budget and lack of resources this cannot be easily
   accomplished.
I hope this helps,,,
This survey has sparked my interest. I will have to find out more information about Predictive
   Services.

Appendix F11: Multi-Agency Coordinators—Federal Respondents

Federal multi-agency coordinators were grouped into one category (*n*=22). These respondents came from the Forest Service (40.9%), Bureau of Land Management (36.4%), Bureau of Indian Affairs (9.1%), Fish and Wildlife Service (9.1%), and the National Park Service (4.5%).

Who Were the Federal Multi-Agency Coordinators?

The majority was male (81.8%), mostly between 45 to 54 years old (*Figure F11-1*).
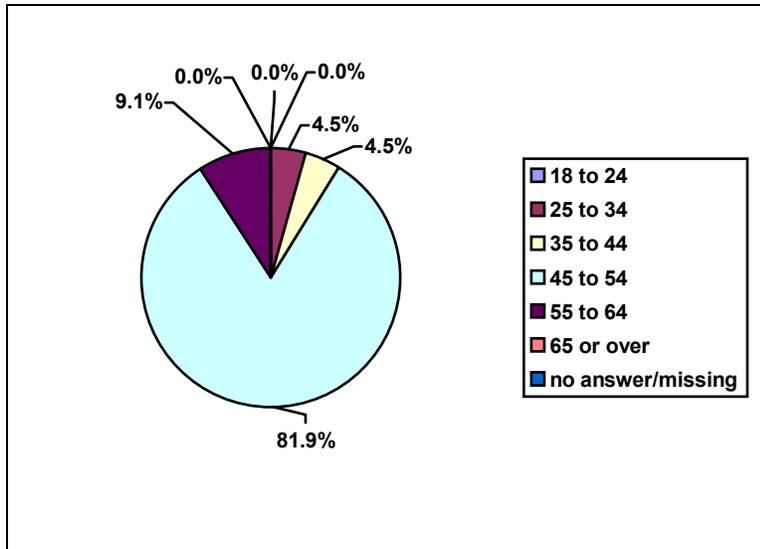
Figure F11-1. Age—federal multi-agency coordinators.

Educational background / degree or equivalent—Educational attainment showed that more than one-eighth reported some graduate education (*Figure F6-2).*
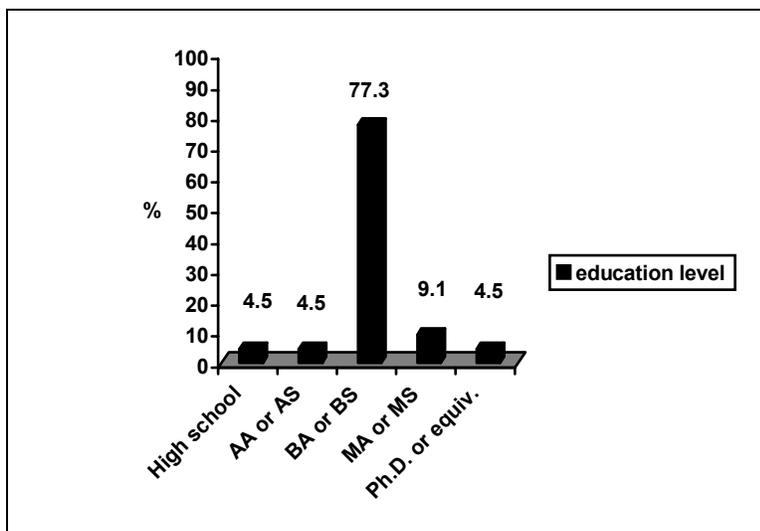
Figure F11-2. Educational attainment—federal multi-agency coordinators.

Respondents reported degrees in the following subjects (these are on an individual basis so when lines contain multiple subjects they reflect an individual's response):

    Environmental planning
    Environmental science
    Forest management
    Forest recreation
    Forest resource management
    Forestry (5 respondents)
    Forestry/fire management
    History/recreational planning
    Juris doctorate
    Police science and administration
    Studio art
    Wildlife biology

Home office Geographic Area location—Respondents came from across the United States, with their home offices falling within the various Geographic Areas (GAs) shown below *(Figure F11-3).*
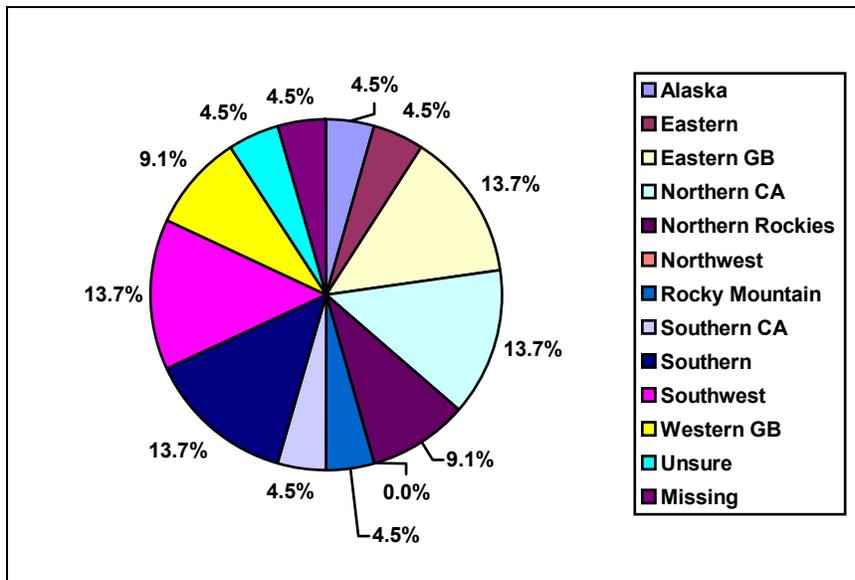
Figure F11-3. GAs—federal multi-agency coordinators.

Level of geographic responsibility and scope of duties—Respondents' level of geographic responsibility varied. One reported their duties linked to their local unit (including forest, district, reserve, etc. at 4.5%). Responsibilities for the others were at the national (4.5%), regional (68.2%), state (4.5%), or national and international (18.2%) level.

The majority of respondents (77.3%) indicated that their work was specific to multiple agencies, while some (22.7%) had duties specific to their agency only.

The number of years reported in the current position of employment averaged 4.5 years (sd=3.6, *n*=15). Median responses for number of people supervised included six on a routine basis, three on a seasonal basis, and one on an incident/project basis.

Over one-third of the federal multi-agency coordinators (36.4%) had job responsibilities that included gathering and reporting data that is utilized by Predictive Services such as: situation reports, ICS-209's, NFDRS/WIMS, etc. Among the respondents with data gathering and reporting duties (*n*=8), the duties are assigned as one of their primary responsibilities (50.0%), or when others with this routine responsibility were away from the office (25.0%). None were assigned the duties as part of a group that fulfills that responsibility. Two respondents (25.0%) did not answer. This group of respondents is very small, so while we report all responses from them, readers should exercise caution in programmatic decisions or other issues that might be addressed with this data.

What are their Levels of Experience with Predictive Services?

Frequency of access and information acquisition—The frequency of accessing and obtaining information from Predictive Services was examined under two conditions, during fire season and outside of fire season. Frequency of access was greatest during fire season (*table F11-1*).

Table F11-1. Frequency of accessing and obtaining information from Predictive Services—federal multi-agency coordinators.

Frequency	During Fire Season %	Outside Fire Season %
Daily	81.8	22.7
Weekly	9.1	40.9
Monthly	4.5	22.7
Quarterly	0	0
Rarely	4.5	13.6
Not at all	0	0

Specific circumstances for access/acquisition—In addition to frequency, respondents provided information regarding specific situations when they access or obtain information from Predictive Services. Over three-fourths reported accessing Predictive Services during fire season (77.3%), and about two-thirds during a fire incident (63.6%). Other situations were reported including when a prescribed burn is being planned (31.8%) and when a prescribed burn is taking place (31.8%). One indicated none of the above situations applied to them (4.5%).

Respondents listed additional situations when they access/obtain information from Predictive Services including:

during multiple fire incidents in more than one Geographic Areas.
all risk incidents
Hurricane Season (3 respondents)
High levels of national activity: competition developing between GAs.
for preparedness planning

Use of specific websites and services—Respondents were asked to indicate which Predictive Services websites they had visited/GACC services they had used, revealing that a majority had been to/used the National Interagency Coordination Center (NICC–81.8%). The Geographic Area Coordination Center sites from most to least mentioned were the Eastern Great Basin (59.1%), Southwest (54.5%), Northern Rockies (54.5%), Northwest (54.5%), Southern (50.0%), Western Great Basin (50.0%), Rocky Mountain (40.9%), Alaska (40.9%), Northern California (36.4%), Southern California (27.3%), and the Eastern site (18.2%; responses do not sum to

100% because respondents could select multiple sites). Over one-fourth had visited/used one or two sites, while others reported multiple sites (as many as all 12).

Familiarity with the products and services—Federal multi-agency coordinators were asked to indicate how true or untrue the following statement was "I am unfamiliar with Predictive Services products and services." About one-eighth indicated this statement was true (*Figure F11-4,* 13.6% selected a rating of 4, or 5, where 5=very true).
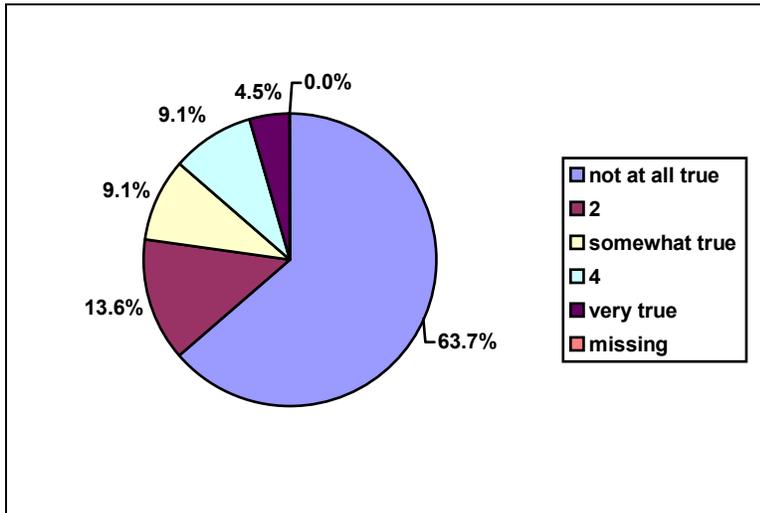
Figure F11-4. Unfamiliar with Predictive Services products and services—federal multi-agency coordinators.

The majority of respondents were interested in Predictive Services products and services (*Figure F11-5*, 90.9% selected a 4 or 5, where 5=very true in response to "I am interested…; another 9.1% marked 'somewhat true').
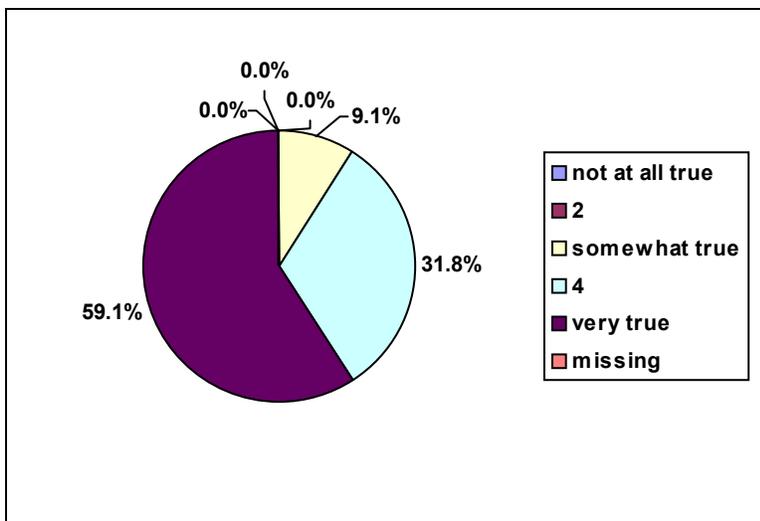
Figure F11-5. Interest in Predictive Services products and services—federal multi-agency coordinators.

Respondents were asked their familiarity with Predictive Services' products on the web, the briefings, and the emails. They were more familiar with the web products (*Figure F11-6*, *M*=4.2, sd=1.0, *n*=22), and the briefings (i.e., national, geographic, situational, or meteorological, *M*=4.4, sd=1.0, *n*=22), than with the emails (these contain current projections and/or information about Predictive Services, *M*=3.8, sd=1.1, *n*=22); although these differences are small.
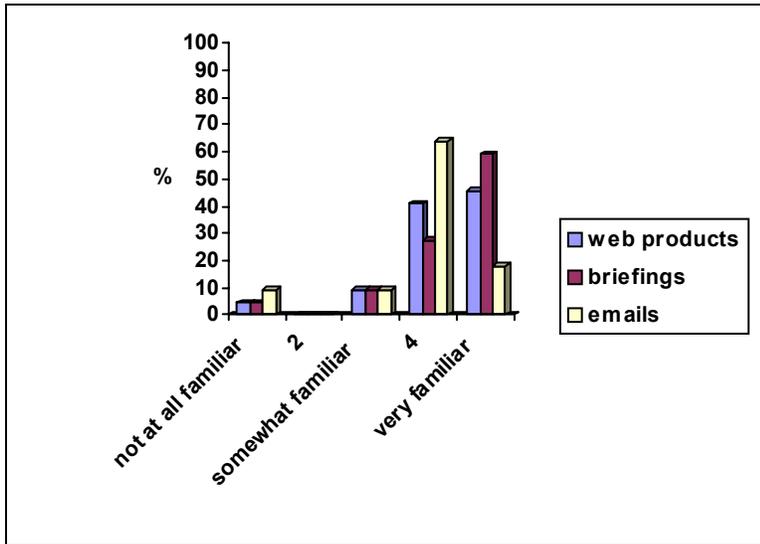
Figure F11-6. Familiarity with Predictive Services products on the web, briefings, and emails—federal multi-agency coordinators.

What are their Opinions of the Products and Services?

Ratings of Predictive Services information—Respondents tended to agree that Predictive Services information was accessible (*M*=4.1, sd= .7, *n*=22, *Figure F11-7*).
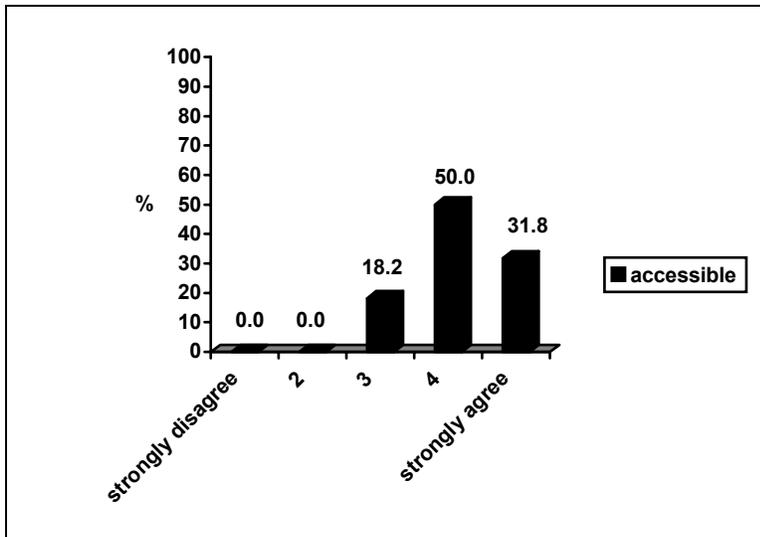
Figure F11-7. Ratings of accessibility of Predictive Services information—federal multi-agency coordinators.

While a majority agreed that Predictive Services information was timely, about one-fifth disagreed with this as an attribute (*M*=4.3, sd=.7, *n*=16, *Figure F11-8*, 27.3% marked 'don't know').
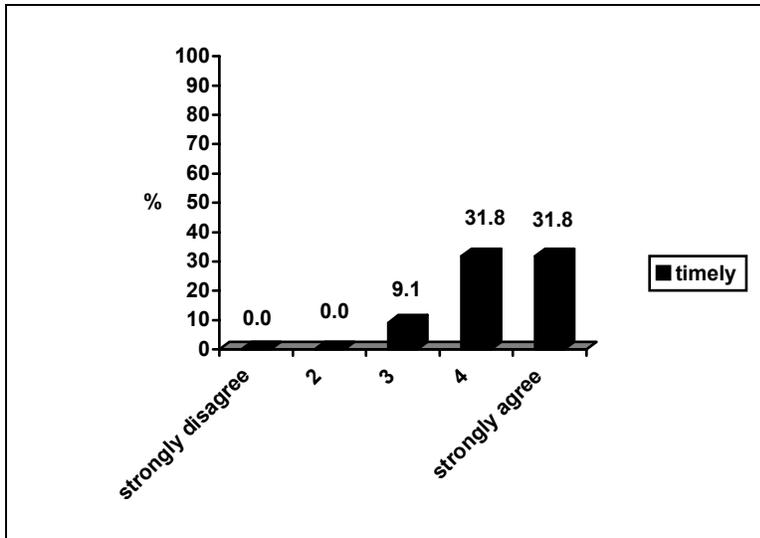
Figure F11-8. Ratings of timeliness of Predictive Services information—federal multi-agency coordinators.

A majority agreed that Predictive Services information was relevant (*M*=4.6, sd=.5, *n*=12, *Figure F11-9*, 45.5% marked 'don't know').
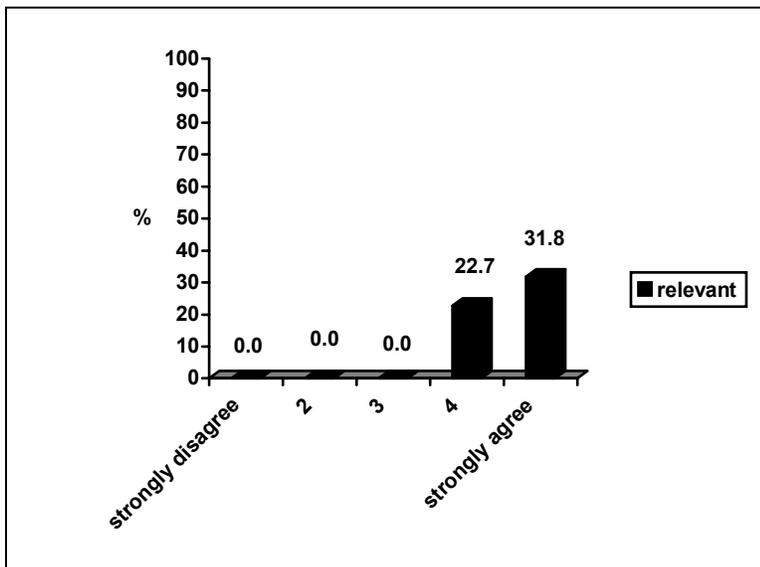
Figure F11-9. Ratings of relevance of Predictive Services information—federal multi-agency coordinators.

The vast majority agreed that Predictive Services information was accurate (*M*=4.3, sd=.9, *n*=19, *Figure F11-10*, 9.1% marked 'don't know').
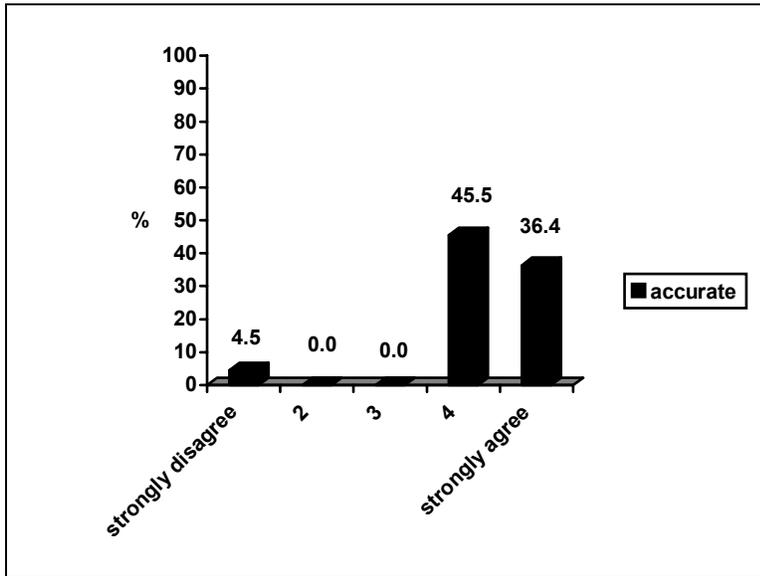
Figure F11-10. Ratings of accuracy of Predictive Services information—federal multi-agency coordinators.

A majority also agreed that Predictive Services information was complete (*M*=4.5, sd=.5, *n*=19, *Figure F11-11*, 13.6% marked 'don't know').
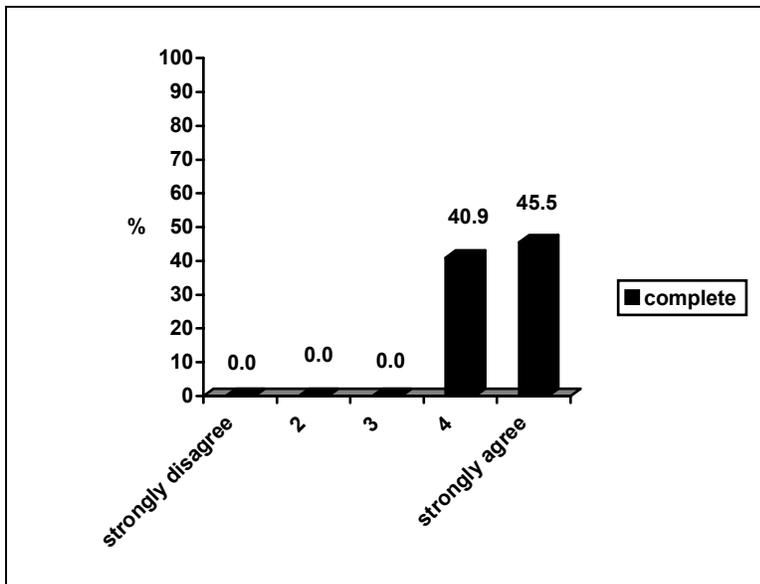
Figure F11-11. Ratings of completeness of Predictive Services information—federal multi-agency coordinators.

A majority agreed that Predictive Services information was easy to understand (*M*=4.6, sd=.6, *n*=19, *Figure F11-12*, 13.6% marked 'don't know').
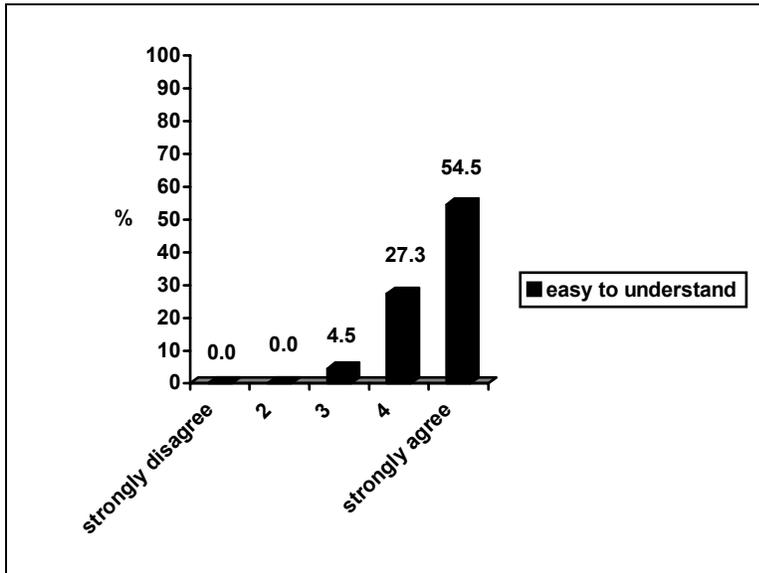
Figure F11-12. Ratings of ease of understanding of Predictive Services information—federal multi-agency coordinators.

Similarity and importance of similarity of GACC sites—Federal multi-agency coordinators rated how true the following statement was "The Predictive Services products and services available through the GACCs (you selected – based on which GACCs they had been to) are similar in format, quality, and the range of products and services offered. One-third perceived the products and services as similar (*Figure F11-13*).
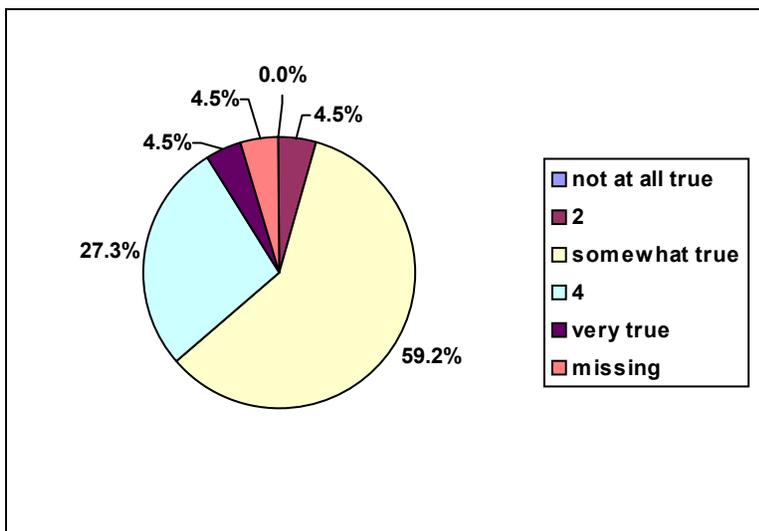
Figure F11-13. Products and services available through the GACCs you selected are similar— federal multi-agency coordinators.

Respondents were invited to comment on their responses regarding similarity across GACCs. Comments included these:

> The information is basically the same, it's just presented in a variety of formats. The differences seem to reflect the needs of the field user in the local GACC. In different areas different products and indices are emphasized depending the needs of the local GACC
> as I recall, I was looking for similar info and could find it in each case
> Standardization of products and website layout has improved, but not enough, yet.
> All of the GACC have different home pages which make it difficult to find the information. The weather service forecasts, red flag warnings and other related data are all different. Would like some consistency for ease in gathering information.
> Consistency between GACCs is not very important to me. Only that the information I use in my GACC is what I need, which it is. GACCs are different and how information is produced should be governed by what is needed in that GACC not by a national standard.
> I know that the formatting of the information available on GACC Predictive Services websites has recently been standardized.
> Its obvious that some GACC's have more manpower/time to devote to their products however, all are coming along pretty well.
> I have easily found the information I am looking for on other GACC pages.
> There's not much consistency among the sites, that's why I like to balance one against the other.
> no time to access others don't know

While about one-tenth indicated that similarity of Predictive Services' products and services in format and quality across GACCs was unimportant (9.1% assigned a 1=not at all important, or a 2), about one-fourth indicated that it was somewhat important (22.7%), and a majority indicated that it was important (68.2% assigned a 4 or 5=very important).

Satisfaction with Predictive Services contacts—More than one-half of respondents (59.1%) had contacted Predictive Services to report a problem with a product or service. All of these (100.0%) selected a 4 or 5 on the scale indicating they were responsive (scale was 1 to 5, 1=not at all responsive, 5=very responsive). The majority of respondents (68.2%) had contacted Predictive Services to suggest a new product or service. Using the same responsiveness scale as for reporting a problem, nearly three-fourths (73.3%) rated Predictive Services as responsive to their suggestion.

Use and utility of products and services—Products and services available through Predictive Services were examined. The 39 specific listings included some products and services that are generated elsewhere, or that are available only on some sites, but not all. Respondents were asked first to indicate if they had not used each product, and then for those that they had used, to rate each according to its usefulness to them on a scale from 1 to 5, where 1=not at all useful and 5=very useful.

The first set of product ratings (*table F11-2*) are those that are shown on Predictive Services sites, but are produced through other agencies.

Table F11-2. Use and utility of Predictive Services products and services provided by other agencies/groups—federal multi-agency coordinators.

Product or Service	% Not Used	Usefulness M	SD, N
National fire weather outlook	0	3.24	1.2; 21
Red flag warnings	0	4.36	.8; 22
Drought information	0	3.90	.9; 21
Haines index	4.5	3.67	1.1; 21
7-day precipitation maps	9.1	3.55	1.1; 20
7 and 14-day precipitation percent of normal	13.6	3.58	1.1; 19
12-hour forecast maps	9.1	3.90	1.2; 20
MODIS active fire maps	18.2	3.72	1.0; 18
7 and 14-day average maximum temperature departure from normal	13.6	3.47	1.1; 19
7-day average maximum temperature maps	18.2	3.33	1.1; 18
Wind maps	13.6	4.00	1.1; 19
Observed fire danger images	31.8	3.73	1.0; 15
ROMAN real time fire weather and information report	31.8	4.07	1.2; 15
Upper air soundings	45.5	2.83	1.2; 12

A set of products and services is produced by Predictive Services and is available on a limited scale (*table F11-3,* less than national, typically on a local and regional level). These products and services are offered on a limited scale to meet specific regional needs and interests.

Table F11-3. Use and utility of Predictive Services products and services provided by Predictive Services on a limited scale—federal multi-agency coordinators.

Product or Service	% Not Used	Usefulness M	SD, N
Interagency situation reports	9.1	4.10	.9; 20
Daily fire weather/danger outlook	0	4.32	.8; 22
Prescribed fire reports	31.8	3.07	1.0; 15
Smoke program reports	36.4	3.00	1.2; 12
Online briefings	22.7	3.59	1.0; 17

This last set of products is available on a national scale and is created by Predictive Services, sometimes in collaboration with other entities (*table F11-4).*

Table F11-4. Use and utility of Predictive Services products and services provided by Predictive Services on a national scale—federal multi-agency coordinators.

Product or Service	% Not Used	% With 4 or 5 Rating[1]	Usefulness M	SD, N
Incident Management Situation Reports	4.5	85.7	4.48	.8; 21
Weekly fire weather/danger outlook	0	81.9	4.18	.7; 22
Seasonal fire weather/danger outlook	0	38.0	3.29	1.1; 21
Monthly fire weather/danger outlook	4.5	47.6	3.57	1.2; 21
10-day fire weather/danger outlook	4.5	76.2	3.95	1.0; 21
Live fuel moisture	9.1	80.0	4.15	.9; 20
Dead fuel moisture	9.1	84.2	4.26	.7; 19
7-day large fire potential	4.5	81.0	4.05	.8; 21
Fire news and notes	27.3	43.8	3.44	1.2; 16
ERC and fuels charts	9.1	85.0	4.30	1.0; 20
Links to other services/websites	9.1	50.0	3.65	1.0; 20
Multi-season fire weather maps	9.1	30.0	3.00	1.0; 20
Interagency RAWS program	13.6	68.4	4.05	1.0; 19
Reference links	13.6	47.4	3.58	1.1; 19
Training	36.4	64.3	3.71	1.1; 14
State of the fuels program	36.4	35.7	3.14	1.0; 14
Technological guidance and transfer	45.5	66.7	3.92	1.2; 12
Predictive service forms	27.3	31.3	3.19	1.2; 16
Regional monsoon update	50.0	36.4	3.09	1.5; 11

[1] This column considers only those who rated the product and is not based on all federal respondents.

Overall satisfaction—Responses indicate that Predictive Services had met most expectations (M=3.6, sd= .9, n=22, *Figure F11-14*), and the vast majority was satisfied (M=3.8, sd= .9, n=22, *Figure F11-15*).
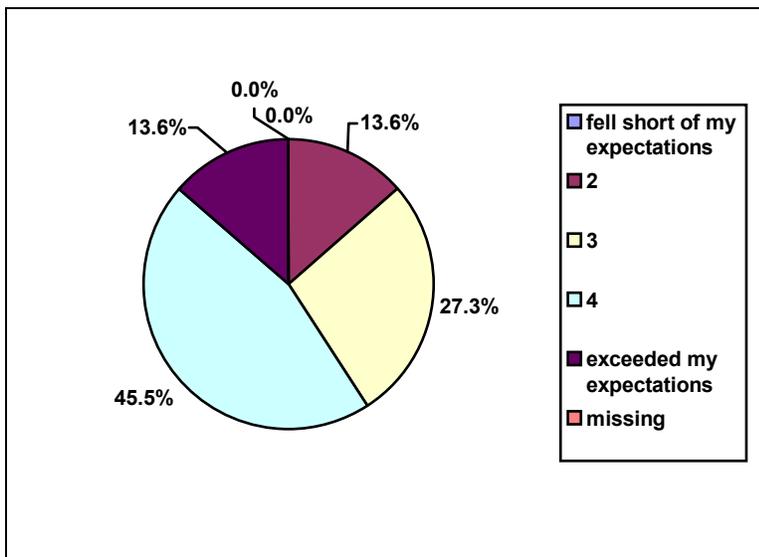
Figure F11-14. Ratings of degree to which Predictive Services met expectations—federal multi-agency coordinators.
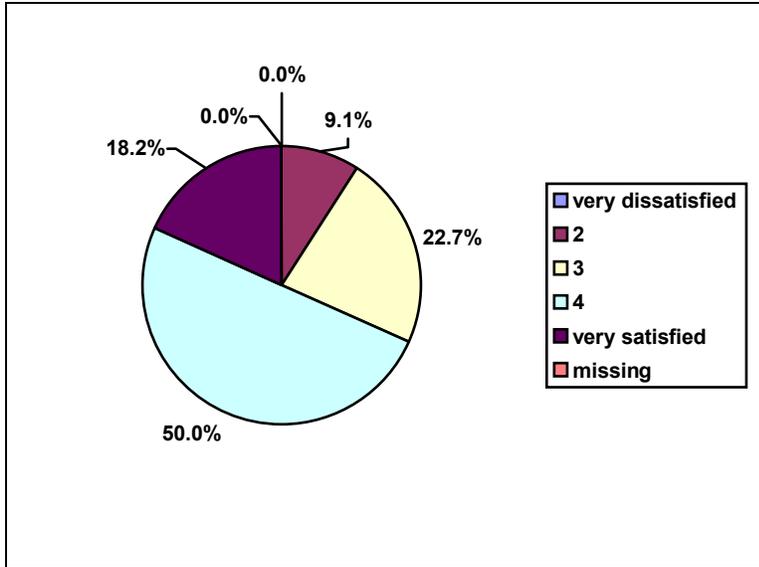
Figure F11-15. Ratings of satisfaction with Predictive Services products and services—federal multi-agency coordinators.

Trust and confidence in the information—A majority expressed some, to a great deal of trust and confidence in Predictive Services information (*Figure F11-16*, *M*=4.1, sd=.8, *n*=22).
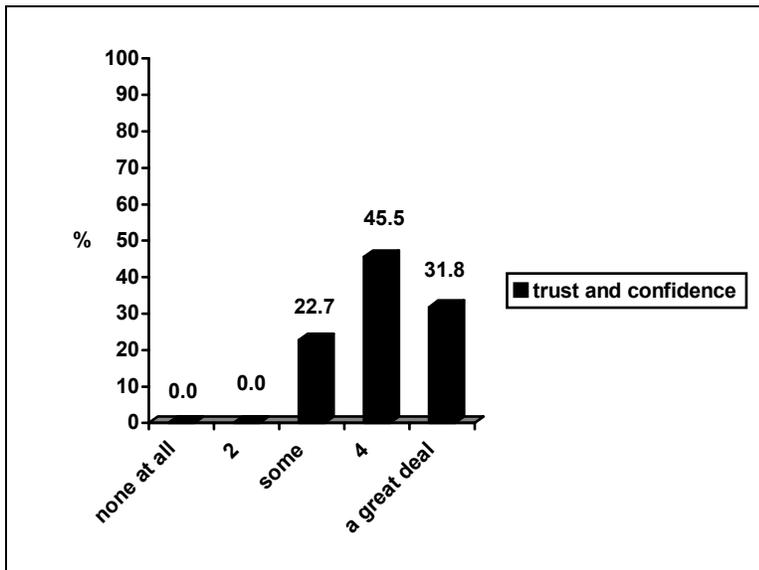
Figure F11-16. Ratings of trust and confidence in Predictive Services information—federal multi-agency coordinators.

Are Respondents Relying on and Taking Action Based on Predictive Services?

Reliance on products and services—About three-fourths (77.2%, *Figure F11-17*) indicated that they *did* rely on the products and services in making important decisions (selected a 4 or 5, where 5 was very true). One respondent (4.5%, *Figure F11-17*) indicated that they relied on

other sources more heavily than the products and services provided by Predictive Services (chose a 4 or 5, where 5=very true).
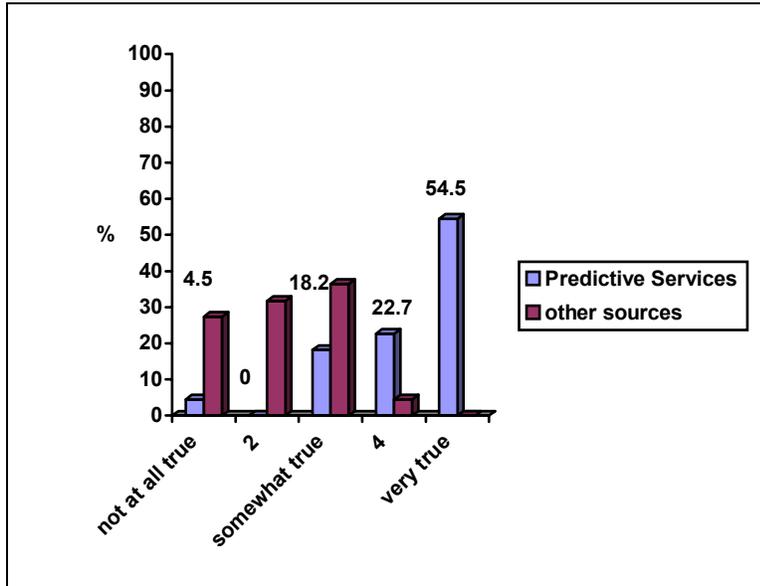
* The proportion of respondents in each category is shown for reliance on Predictive Services.

Figure F11-17. Reliance on Predictive Services and reliance other sources—federal multi-agency coordinators.

Reliance on other sources was investigated further. Respondents were asked to comment when they provided ratings of 4 or 5, indicating they relied on other sources, resulting in the following comments:

Most are currently links on the PS websites that I find most useful
National Weather Service

Degree of reliance on Predictive Services was also queried. One respondent indicated little to no reliance on Predictive Services information (4.5% chose a rating of 1 or 2, where 1=none at all when asked "How much do you rely on the information provided by Predictive Services to assist in decision-making?"). Another one-tenth (9.1%) indicated some reliance, and over three-fourths indicated reliance (86.4% chose a 4 or 5 rating, where 5=a great deal).

The likelihood of taking action based on Predictive Services information was examined. Over three-fourths were likely to take action based on Predictive Services information (81.8% chose a 4 or 5 rating, where 5=very likely, *Figure F11-18*).
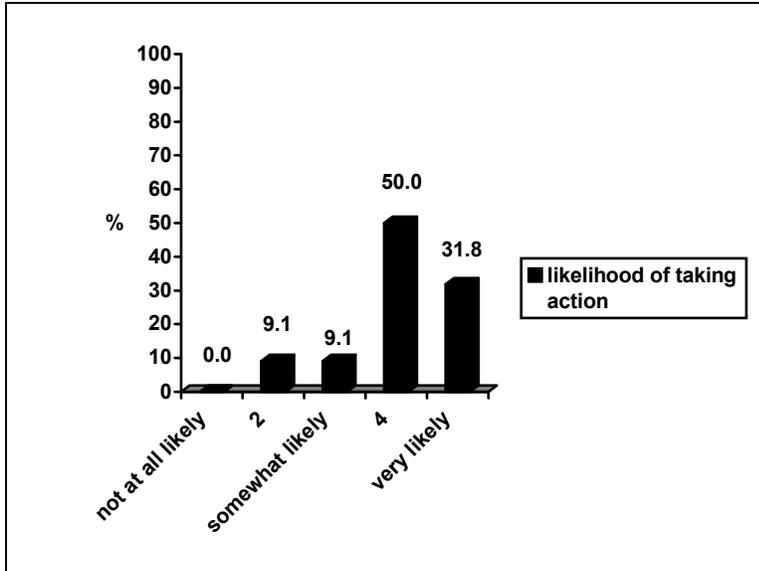
Figure F11-18. Likelihood of taking action based on Predictive Services information received, or gathered from a website—federal multi-agency coordinators.

Did Respondents offer Insights into Reliance and Barriers?

Perceived overlap—Respondents were asked how true or untrue it was that there is overlap in the type of information that can be obtained from Predictive Services and other sources (rated on a scale from 1 to 5, 1=not at all true, 3=somewhat true, 5=very true). While about one-fourth (27.3%) indicated there was not overlap (chose ratings of 1 or 2), about one-third (31.8%) felt this was somewhat true, and about two-fifths indicated it was true to very true (40.9% chose ratings of 4 or 5).

Respondents provided the following comments regarding perceived overlap with other sources:

The Weather Channel provides good weather data.
Lots of redundancy between PS, NWS, and commercial wx websites and sources.
other weather sites on the web, call and talk to people in the effected area. Look at satellite images.
National Weather Service
Certainly there is overlap. All the information they use is public information. What is important is how they gather and package the information.
Other weather forecasts and weather information, such as sat images.
A variety of Web tools dealing with weather, satellite photos, research papers, natural resource studies
National Weather Service along with some private sites.

Beliefs about Predictive Services among those who had data gathering and reporting duties— The respondents with data gathering and reporting duties related to Predictive Services were asked: "How likely is it that you will gather and report data to Predictive Services?" (Again, the reader should note that the number of respondents in this group is extremely small, therefore caution should be exercised in drawing programmatic conclusions from these data.) About one-third indicated that they were likely to gather and report data (37.5% chose a 4 or 5 on the 5

point scale, where 1=not at all likely, 5=very likely; 50.0% did not provide a response; *Figure F11-19*).
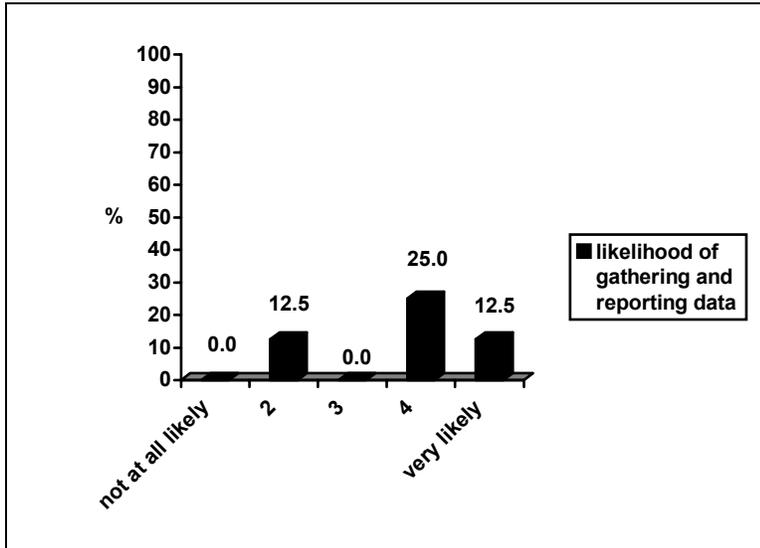
Figure F11-19. Likelihood of gathering and reporting data to Predictive Services—federal multi-agency coordinators with data gathering and reporting duties.

Respondents were somewhat mixed when rating agreement that they had the resources to gather field data for reporting (*M*=2.8, sd=1.3, *n*=6, rated on a 1 to 5 scale where 1=strongly disagree and 5=strongly agree; *Figure F11-20*; 25.0% did not answer this item).
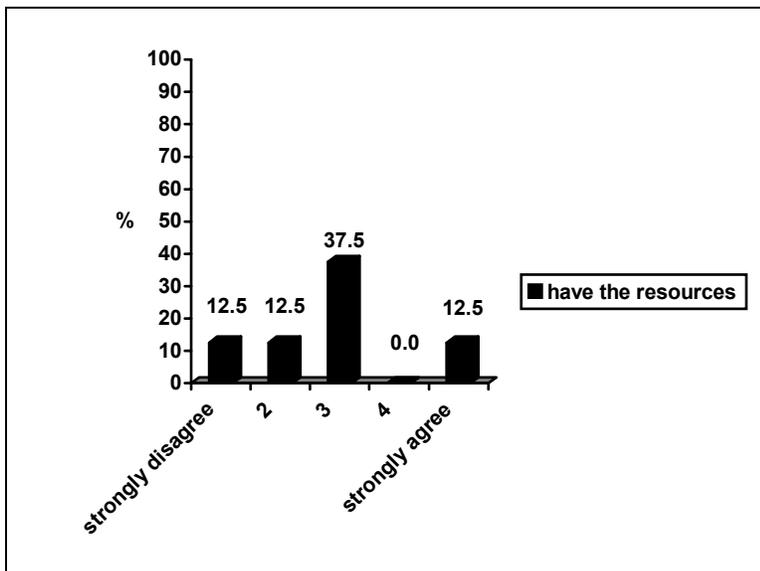
Figure F11-20. Degree of agreement or disagreement with "I have the resources (e.g., time/skills/personnel) to gather field data for Predictive Services reporting" —federal multi-agency coordinators with data gathering and reporting duties.

This subgroup was also asked to rate five items focused on positive impact of reporting, and negative effects of not reporting. Federal multi-agency coordinators were most likely to agree with "My consistent upward reporting of data (e.g., 1300 obs for RAWS) increases the reliability and quality of Predictive Services products and services" (*M*=4.0, sd=.9, *n*=6; *Figure F11-21*; 25.0% did not answer). They also agreed with "My consistent upward reporting of data (e.g., 1300 obs for RAWS) increases the reliability and quality of products and services provided by groups and agencies that use the data from Predictive Services to generate their own products" (*M*=3.8, sd=.9, *n*=6; *Figure F11-21;* 25.0% did not answer).
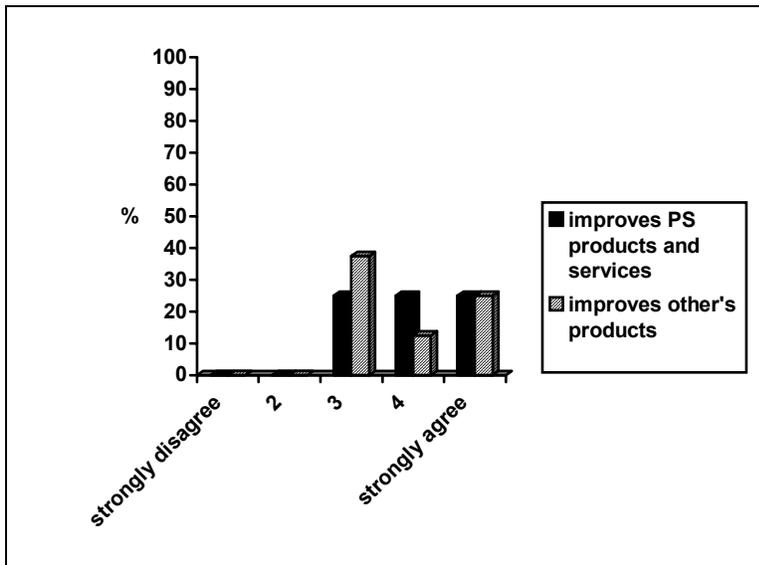
Figure F11-21. Degree of agreement or disagreement with positive outcomes of reporting data—federal multi-agency coordinators with data gathering and reporting duties.

Responses indicate that the majority agreed there are adverse outcomes when/if data is not gathered and reported. This was assessed through two items "If I don't collect and report Predictive Services data, it could affect my unit's ability to make sound decisions to manage fire" (*M*=4.0, sd=.9, *n*=6; *Figure F11-22;* 25.0% did not answer); and "If I don't collect and report Predictive Services data it could adversely impact firefighter or public safety" (*M*=4.0, sd=.9, *n*=6; *Figure F11-22;* 25.0% did not answer).
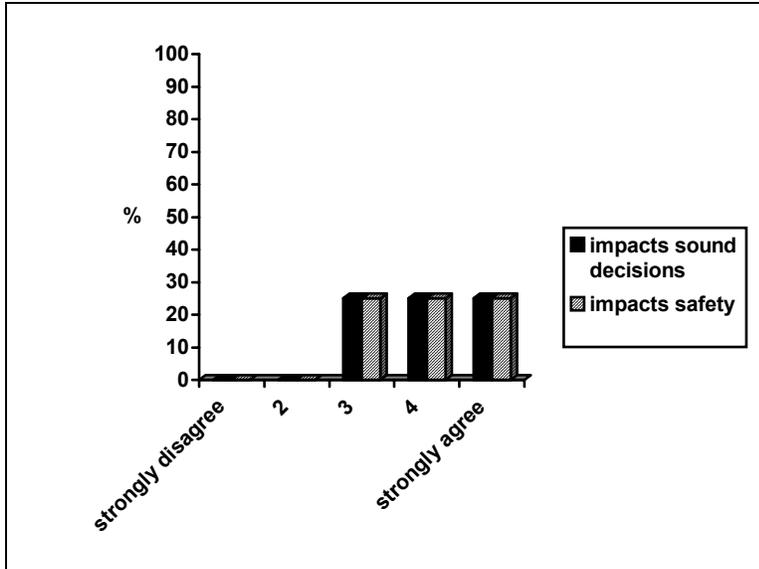
Figure F11-22. Degree of agreement or disagreement with adverse impacts of not collecting and reporting data—federal multi-agency coordinators with data gathering and reporting duties.

Ratings of ability and impact of applying Predictive Services information—General ability to access and apply the information from Predictive Services, as well as its utility in job performance, was queried (using a 5-point Likert scale where 1=strongly disagree and 5=strongly agree). Federal respondents were somewhat in agreement with "I can access and apply Predictive Services information as part of my job duties" (*M*=4.2, sd=.8, *n*=22). However, they were in less agreement with "Predictive Services information helps me perform my job with greater precision" (*M*=3.2, sd=.7, *n*=22).

Two general items examined perceived impacts of inaccuracies of Predictive Services information. The first was "Inaccurate Predictive Services information would decrease my ability to predict fire behavior." Rated on a 1 to 5 scale, where 1=strongly disagree and 5 was strongly agree, the average was 3.6 (*M*, sd=1.0, *n*=21; *Figure F11-23*). One did not answer this item (4.5% selected 'don't know'). The second was "Inaccurate Predictive Services information used in my decision making may adversely impact firefighter or public safety." Again, the average was at the mid-range of the scale (*M*=3.7, sd=1.2, *n*=22; *Figure F11-23*).
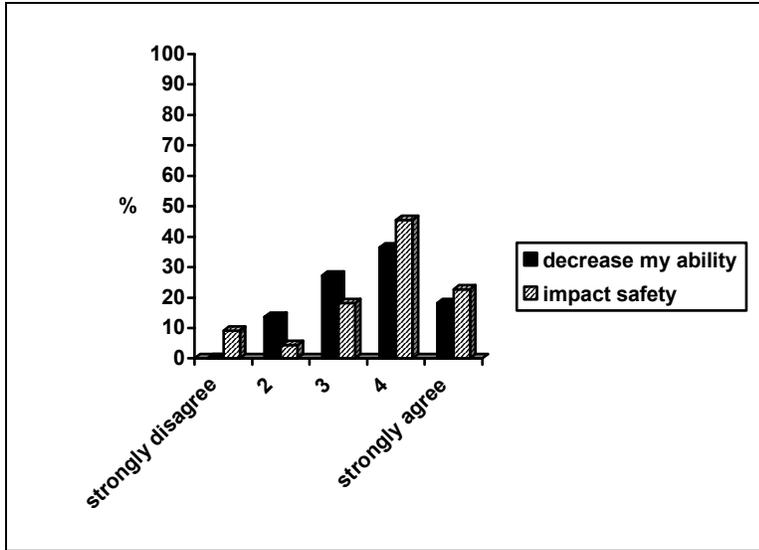
Figure F11-23. Impacts of inaccurate reporting of Predictive Services information—federal multi-agency coordinators.

Barriers to use of products and services—There were various reasons why respondents did NOT use the products and services offered by Predictive Services, although no one overwhelming reason or set of reasons emerged among the 16 offered as potential barriers (*table F11-5*). The most frequent reason provided was not having thought about using the products and services. A lack of trust was not frequently cited.

Table F11-5. Reasons why they had not used the products and services offered by Predictive Services—federal multi-agency coordinators.

Reason	Percent
I never thought about it.	13.6
My current management practices don't require the types of information provided by Predictive Services	4.5
I don't know how to use these products	9.1
I need information that is site specific	0
I am not mandated to use these products	4.5
I don't have the time to use these products	9.1
I don't know where to get advice about using these products	0
I don't know where to get the technology to use these products	0
I don't have the technology I need to use these products	4.5
I don't trust the products and services	4.5
I don't want to use these products	4.5
I don't think these products support my agency's current practices	0
Agency directives/guidelines instruct me to use other information	0
I don't have the money to use these products	0
I don't trust the advice I get about using these products	0
I don't trust information that is generated by multiple agencies	0

As a follow-up to the above items, we invited respondents to explain why they might not want to use the products, resulting in the following comments:

People use products that they can understand and relate to. . .

How can Existing as well as New Products and Services be Improved or Designed?

How fire danger/fire information is used to support decision-making—Respondents were asked to indicate how they use fire danger/fire information to support decisions made regarding fire management. About one-fourth of respondents used fire danger and fire information to make decisions in decision support about public use restrictions (22.7%), while the majority used this information to make decisions about resource allocation (90.9), for severity requests (72.7%), and for decisions about resource staffing (77.3%).

Respondents were asked to indicate other uses of fire danger/fire information, resulting in the following comments:

    prioritization of fires and resources, long-term planning
    Pre-positioning
    setting draw down for resources

Tolerance for errors and inaccuracies—Respondents were asked to rate their tolerance for false alarms and inaccurate reporting (rated on a scale from 1 to 5, where 1=low tolerance and 5=high tolerance). While respondents did not indicate a high tolerance for false alarms or inaccurate reporting, they were somewhat more tolerant of false alarms pertaining to fire danger (*M*=3.1, sd=1.0, *n*=22; *Figure F11-24*), than they were of inaccurate reporting of high fire potential (M=2.7, sd=1.0, *n*=22; *Figure F11-24*).
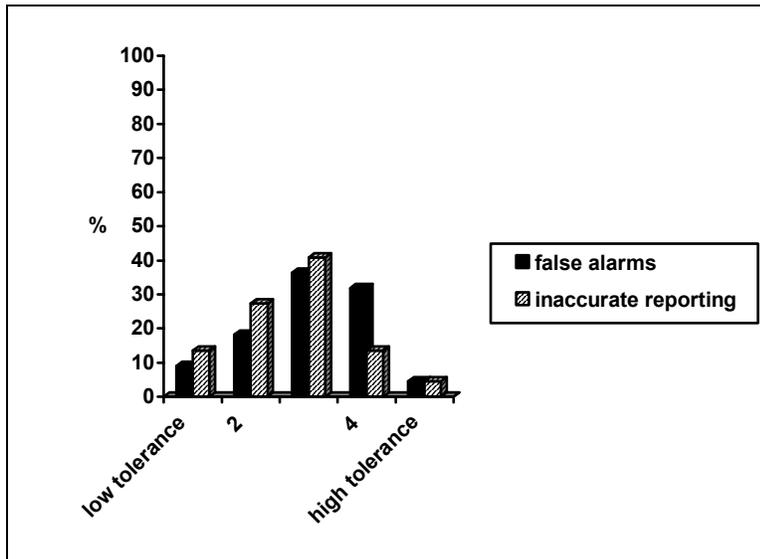
Figure F11-24. Tolerance for false alarms and inaccurate reporting—federal multi-agency coordinators.

In order to capture overall preferences for approaches to errors ("Although it is understood that accurate and reliable reporting of fire danger and high fire potential are desirable, margins of error are involved in predictions. In these cases, do you prefer that…"), respondents chose between two statements:

"Statements of danger or risk be issued with a greater margin of error allowing for an early response, knowing that this may lead to unnecessary alarms and response (Better safe than sorry)" —63.6 percent chose this statement as their preference.

"Statements of danger or risk should only be given with certainty, knowing that this may allow a few dangerous events to emerge that were not anticipated (Don't cry wolf)." —31.8 percent chose this statement as their preference.

One (4.5%) did not choose either statement as their preferred approach.

Audience identification—According to the federal multi-agency coordinators, the primary audiences for Predictive Services' products should include: local and district fire managers (90.9%), regional and state fire managers (95.5%), national fire managers (77.3%), and to a lesser extent non-fire land managers (31.8%), and the public (22.7%; note that respondents could select multiple audience types, so responses do not sum to 100%).

Respondents were invited to specify other primary audiences, resulting in the following comments:

Fire Fighters on the ground at the fire
including the firefighter in the field

Preferred information formats—Respondents were asked to indicate their preferences for the style and format of presenting information. For each of 11 formats presented, a rating from 1 to 5 was requested (1=not at all useful, 5=very useful). Based upon the proportion of respondents assigning ratings of 4 or 5 to each format, the formats most to least useful were: information presented in regional or national maps (86.4%), brief executive summaries of data (77.3%), satellite maps (72.7%), radar maps (63.7%), brief annotations that accompany data presentations (45.5%), data in text form (40.9%), bar charts or figures that summarize data (40.9%), data in table form (36.4%), web-based ArcIMS maps with user-defined layers and scales (36.4%), data in spreadsheet form (22.7%), and non-web-based Geo database files (22.7%).

Other styles or formats of information offered by respondents, or comments surrounding this issue, included:

Subgeographic area maps (statewide) with concise narratives have been extremely helpful.

Respondents were also asked to indicate what, if any information they would like to see in summary or synthesis form, resulting in the following comments (for this item the don't know and not applicable responses have been excluded):

General statements of how the weather is changing over short and mid range time scales. In English is preferable.
A lightning map that can be queried for probability of ignition and other fire danger and fire behavior indices.
Just keep up the good work. Most if not all products are pretty good. Users may not have time to look at all of them however and get used to them so its important to do these evaluations probably to help you folks prioritize your efforts.

Improving existing products and services— Respondents were asked to complete the sentence "The information and services provided by Predictive Services would be more useful to me if…", resulting in the following open-ended remarks:

right now they are meeting my specific needs

they maintain current chain of command by Predictive Services working for the MAC group instead of switching to work directly for GACC.

I didn't have to navigate to 11 GACC websites to get comparable products for different areas.

they didn't try to include so much about fire behavior/possibilities. Don't say we will have a terrible fire day/season based on weather and fuels only.

I had to gather this type of information myself. I rely on staff to pull together information that forms the basis of decisions I'm making

a greater array of products were available

it was consistent nationally and streamlined to be less complex and overwhelming. sometimes, PS feels like a barrage of maps, stats, graphs, etc. It can be too much to digest. Needs to be geared towards supporting fire management decision-making and priority setting at local, regional, and nat'l levels.

it was consistent across boundaries. Also if the edges matched with predictions.

...we also had the inclusion of input from a fuels specialist/fire behavior analyst at the geographic area level.

...the National Weather Service knew how to give consistently decent information. We are mandated to use the NWS, but, they are not very good at fire weather forecasting, by and large.

they were always completely true. Predictive Services programs are excellent but still under development. The programs should be liberally funded, as every dollar invested results in significant savings of funds, of property and potential of life.

It was accompanied by 'confidence levels'. Some are but not all. Some is derived from models using not that many years of data.

they posted approved fire severity requests on their websites.

I knew more about the products and could see where the products would help my FMO's at the agency level.

It were flexible enough to allow responsiveness to individual requests and non standard products. We never know what we will be asked for next and would like to be able to respond to the requests.

it was truly unique from other information available.

I had greater confidence in the products.

I'm ok with the current Predictive Services Products

weather models had greater accuracy more than 3 days out.

Respondents were also asked to consider the existing products and services, and comment on how they could be modified to better meet their needs, leading to the following comments (answers of don't know or no comment have been excluded):

They are currently serving MAC extremely well and should be commended for their timely responses to all Fire Managers.

I think that upper mgmt relies too heavily on this data at times (GACC and National levels). It tends to cause micro-management. The more it gets to the local user, the better.

Simple, streamlined, consistent.

EGBCC has done a good job to all of my requests so far. They have responded timely and made appropriate changes. Best thing for improvement would be standardization of

processes and products. Do not need people that have a ego to prove, just what's good accurate information, not attitude.

We would definitely benefit by having someone with fuels expertise as part of the predictive services team, to bring together the intelligence and the weather information along with the fuels perspective for better products overall.

continued verification of products, working with local fire and fuels personnel

The more Regional the better

Return our agency people to the fire weather forecasting business. Let the Weather Service go back to agricultural forecasts.

Further development and testing.

There is a good toolbox now. Providing a higher confidence to some of the existing predictive products or maybe a follow-up if conditions develop differently might help. Most are pretty good now, but the fire potential product, could use some fine tuning so that the Mets use them similarly maybe. Another addition may be a caution to the user (toggle) as a season develops which would signify that the fuels are not quite there yet to justify the higher level.

I recommend surveying the field units directly to find out what products they would actually use to accomplish work. It needs to be more than pretty pictures.

The more important question to ask, is it something that should be considered from a private contractor rather then as a govt operation.

I think they are fine in their current format.

No modifications necessary

Products or services that should be added to what Predictive Services provides— Respondents were asked to explain which products and services should be added to Predictive Services and why, resulting in the following comments:

I would like to see trend data based on historical resource mobilization for different levels of activity in a given Geographic Area, and for similar environmental conditions, in order to compare and contrast with current activity levels (and to forecast potential resource needs).

Not necessarily added, but just constant upgrading of what they already have to keep up with the changing technology.

The Predictive Services folks should be encouraged to pursue their own inspirations.

I don't think it's a question of which should be added rather.....which should be removed to save more time for those which may be more important. If the information is found elsewhere, and its good, don't duplicate, just add a link and continue to look into advancing some questionable products that have potential to be even better.

I don't think the field uses predictive services as much as I would like. This is a huge investment and I don't think we are getting enough bang for the buck at the field level.

RX products to try and forecast windows a few days out.

I'm sure there are new technologies. That's why we pay our predictive services individuals to do the advanced research on those new products.

not at this time. Refining and validating products before they move on.

Were There Additional Comments?

Eastern Area should have an additional Meteorologist. With only one Meteorologist and such a large and diverse land area (20 States) the workload if fare to great to fully meet the needs of the field and provide them the diverse products and expertise they are looking for

The Southern Area Predictive Services is a very professional group of individuals that continues day after day to provide excellent products to our customers in Region 4(USFWS).

Good work being done by professionals. I am glad that they are a part of the organization. I have not met one yet who did not provide any info I needed.

Products should be approximately uniform nationwide, but allow for regional variation and complexity.

Budgets are tight and declining. We're struggling to hire firefighters We can't add money to levels of current PS funding. We need to get the PS job done with current or declining budget levels.

I have been mostly happy with the products I have received out of EGBCC, some of the info from other GACC's has not met my need. Again creating standards would be helpful.

Thanks for the work that you have put into this survey.

Many different levels of PS folks out there and users. Also a lot of different levels of experience in those people. Next survey you might want to get an indication of the number of years a person has in the profession, not just their position.

As a GACC level manager I look to predictive services to summarize all of the available information into a meaningful Area wide report on fire potential in detail a couple of days out, fairly detailed a week out and broad trends beyond that.

I believe the usefulness of predictive services products will only improve with time. We all are interested in more accurate predictions and forecasts based on historical models....the unfortunate reality in this regard is that, in the big picture...we have but a tiny amount of historical data to work with.

Appendix F12: Fire Researchers—Federal Respondents

Federal fire researchers were grouped into one category (*n*=21). These respondents came from the Forest Service (66.7%), National Park Service (19.0%), Fish and Wildlife Service (9.5%), and Bureau of Land Management (4.8%).

Who Were the Federal Fire Researchers?

The majority was male (61.9%), between 35 and 54 years old (*Figure F12-1*).
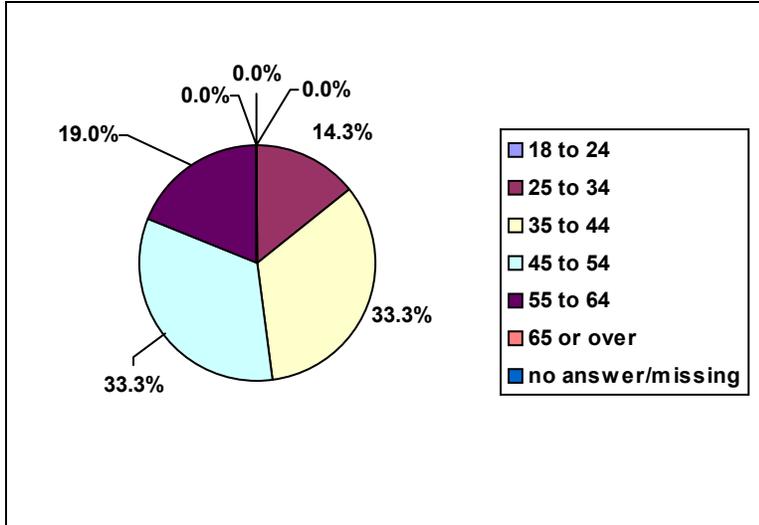
Figure F12-1. Age—federal fire researchers.

Educational background / degree or equivalent—Educational attainment was fairly high among the majority in this subgroup, with almost three-fourths reporting a master's degree or higher education (*Figure F12-2*).
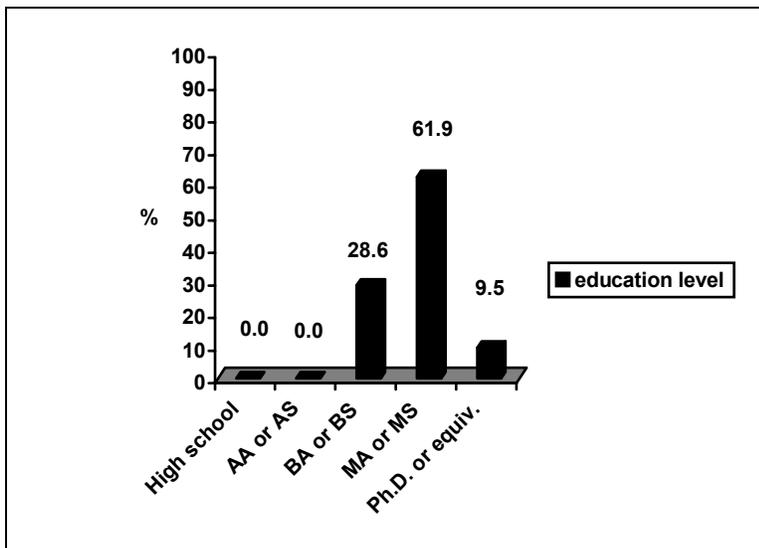
Figure F12-2. Educational attainment—federal fire researchers.

Respondents reported degrees in the following subjects (these are on an individual basis so when lines contain multiple subjects they reflect an individual's response):

    Climate science
    Engineer
    English
    Fish and wildlife management
    Forest entomology
    Forest resource management/fire ecology
    Forestry-fire science
    Forestry (3 respondents)
    Interdisciplinary: ecology, anthropology, natural resources
    Meteorology
    Natural resources, earth science, environmental studies
    Recreation resources
    Resource ecology
    Wildland fire science

Home office Geographic Area location—Respondents came from across the United States, with their home offices falling within the various Geographic Areas (GAs) shown below *(Figure F12-3).*
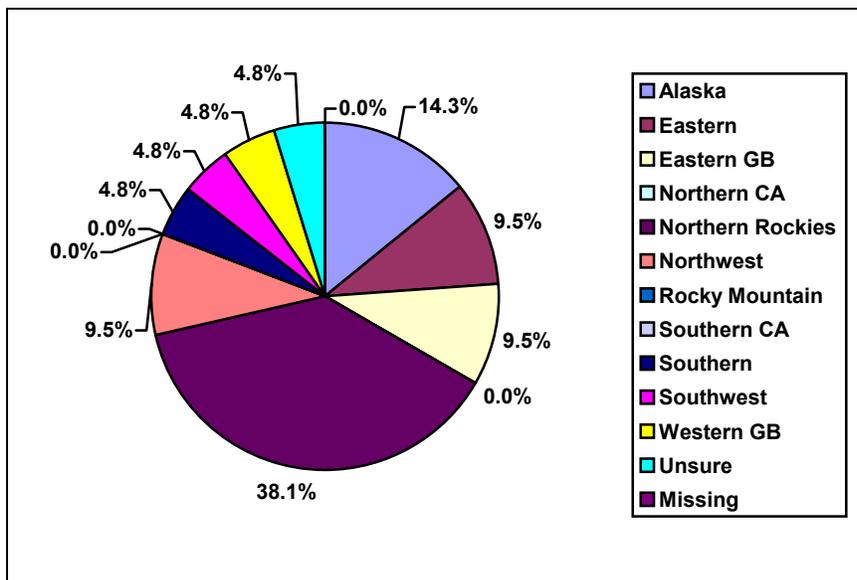
Figure F12-3. GAs—federal fire researchers.

Level of geographic responsibility and scope of duties—Respondents' level of geographic responsibility varied. About one-fifth reported their duties linked to their local unit (including forest, district, reserve, etc. at 19.0%). Responsibilities for another two-fifths were at the national (42.9%), regional (19.0%), or national and international (19.0%) level.

The majority of respondents (76.2%) indicated that their work was specific to multiple agencies, while the remainder (23.8%) had duties specific to their agency only.

The number of years reported in the current position of employment averaged 6.7 years (sd=5.9, *n*=16). Median responses for number of people supervised included zero on a routine basis, zero on a seasonal basis, and zero on an incident/project basis.

One-third of the federal fire researchers (33.3%) had job responsibilities that included gathering and reporting data that is utilized by Predictive Services such as: situation reports, ICS-209's, NFDRS/WIMS, etc. Among the respondents with data gathering and reporting duties (*n*=7), the duties are assigned as part of a group that fulfills that responsibility (42.9%), while about one-third had this as one of their primary responsibilities (28.6%, another 28.6% did not answer this question). This group of respondents is very small, so while we report all responses from them, readers should exercise caution in programmatic decisions or other issues that might be addressed with this data.

What are their Levels of Experience with Predictive Services?

Frequency of access and information acquisition—The frequency of accessing and obtaining information from Predictive Services was examined under two conditions, during fire season and outside of fire season. Frequency of access was greatest during fire season (*table F12-1*).

Table F12-1. Frequency of accessing and obtaining information from Predictive Services—federal fire researchers.

Frequency	During Fire Season %	Outside Fire Season %
Daily	23.8	0
Weekly	38.1	9.5
Monthly	9.5	28.6
Quarterly	0	23.8
Rarely	4.8	14.3
Not at all	23.8	23.8

Specific circumstances for access/acquisition—In addition to frequency, respondents provided information regarding specific situations when they access or obtain information from Predictive Services. Nearly two-thirds reported accessing Predictive Services during fire season (66.7%), and about two-fifths during a fire incident (42.9%). Other situations were reported including when a prescribed burn is being planned (14.3%) and when a prescribed burn is taking place (9.5%). About one-fourth indicated none of the above situations applied to them (23.8%).

Respondents listed additional situations when they access/obtain information from Predictive Services including:

    When needed for specific research
    for research purposes
    research support
    when fire activity is notable
    projecting fire season
    historic data

Use of specific websites and services—Respondents were asked to indicate which Predictive Services websites they had visited, or which GACC services they had used, revealing that a majority had been to/used the National Interagency Coordination Center (NICC–71.4%). The

Geographic Area Coordination Center sites from most to least mentioned were the Southwest (52.4%), Northern Rockies (52.4%), Southern (28.6%), Northwest (28.6%), Alaska (28.6%), Western Great Basin (23.8%), Rocky Mountain (19.0%), Eastern Great Basin (14.3%), Southern California (14.3%), Eastern (14.3%), and the Northern California site (14.3%; responses do not sum to 100% because respondents could select multiple sites). About one-third had visited one or two sites, while others reported multiple sites (as many as all 12). One-fifth (19.0%) indicated they had not visited any of the listed sites/used the GACCs.

Familiarity with the products and services—Federal fire researchers were asked to indicate how true or untrue the following statement was "I am unfamiliar with Predictive Services products and services." About one-third indicated this statement was true (*Figure F12-4,* 33.4% selected a rating of 4, or 5, where 5=very true).
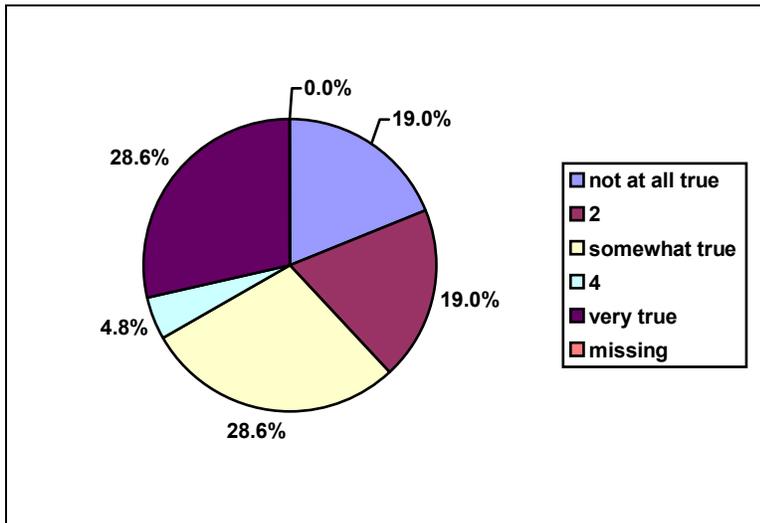
Figure F12-4. Unfamiliar with Predictive Services products and services—federal fire researchers.

The majority of respondents were interested in Predictive Services products and services (*Figure F12-5*, 52.4% selected a 4 or 5, where 5=very true in response to "I am interested…; another 33.3% marked 'somewhat true').
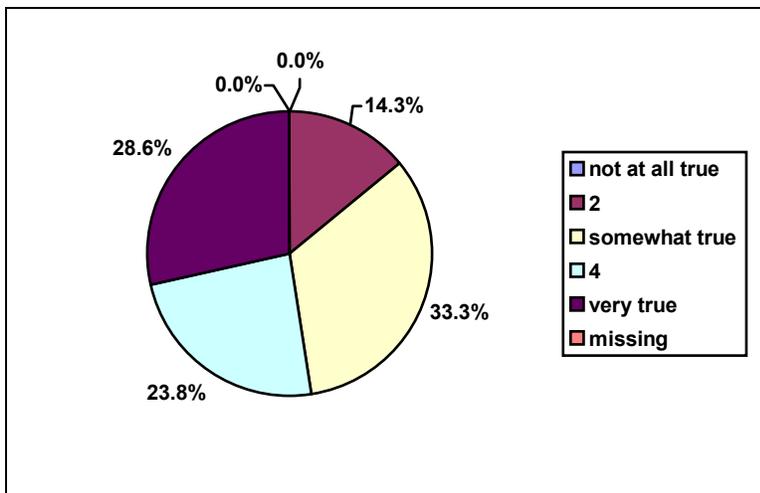
Figure F12-5. Interest in Predictive Services products and services—federal fire researchers.

Respondents were asked their familiarity with Predictive Services' products on the web, the briefings, and the emails**.** They were more familiar with the web products (*Figure F12-6*, *M*=3.0, sd=1.4, *n*=19), and the briefings (i.e., national, geographic, situational, or meteorological, *M*=3.2, sd=1.3, *n*=20), than with the emails (these contain current projections and/or information about Predictive Services, *M*=2.1, sd=1.3, *n*=18).
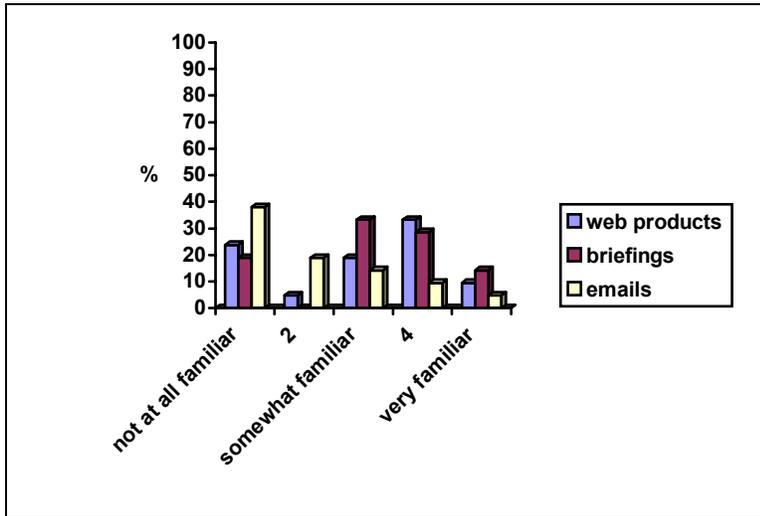
Figure F12-6. Familiarity with Predictive Services products on the web, briefings, and emails— federal fire researchers.

What are their Opinions of the Products and Services?

Ratings of Predictive Services information—Respondents tended to agree that Predictive Services information was accessible (*M*=3.7, sd= 1.0, *n*=15, *Figure F12-7*, 28.6% marked 'don't know').
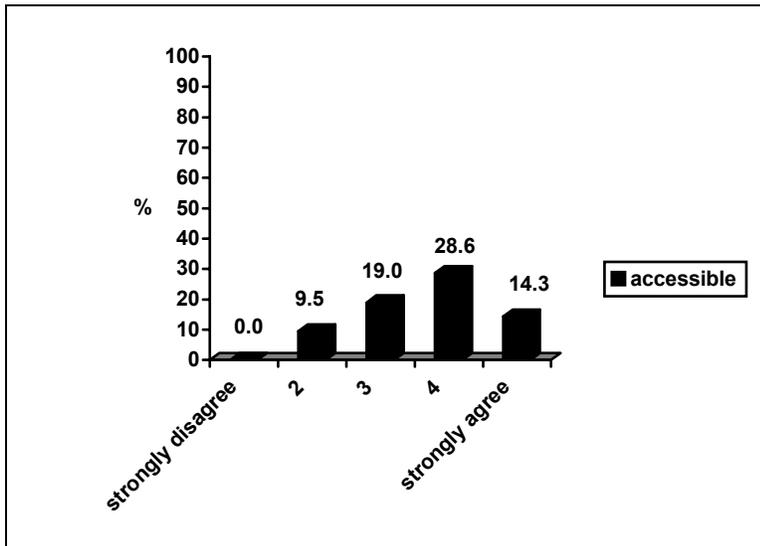
Figure F12-7. Ratings of accessibility of Predictive Services information—federal fire researchers.

While a majority agreed that Predictive Services information was timely, over one-fourth disagreed with this as an attribute (*M*=3.2, sd=1.6, *n*=19, *Figure F12-8*, 9.5% marked 'don't know').
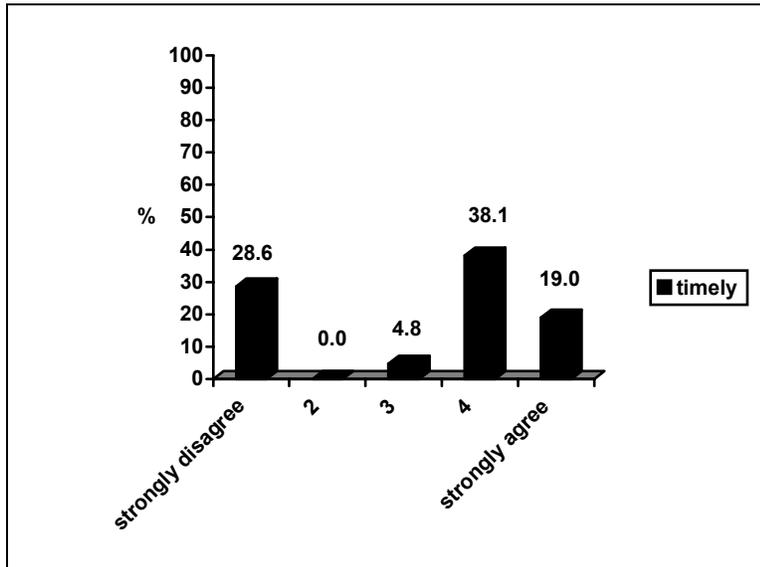
Figure F12-8. Ratings of timeliness of Predictive Services information—federal fire researchers.

A majority agreed that Predictive Services information was relevant (*M*=3.4, sd=1.8, *n*=18, *Figure F12-9*, 14.3% marked 'don't know').
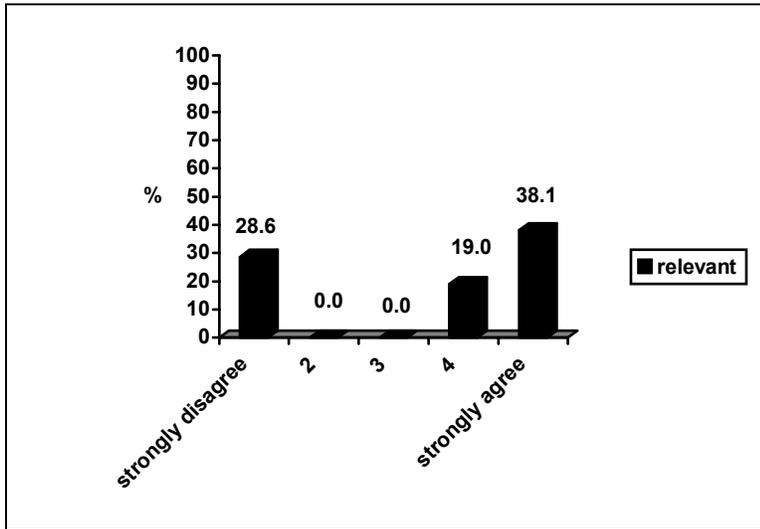
Figure F12-9. Ratings of relevance of Predictive Services information—federal fire researchers.

Over one-half agreed that Predictive Services information was accurate (*M*=3.4, sd=1.6, *n*=19, *Figure F12-10*, 9.5% did not respond).
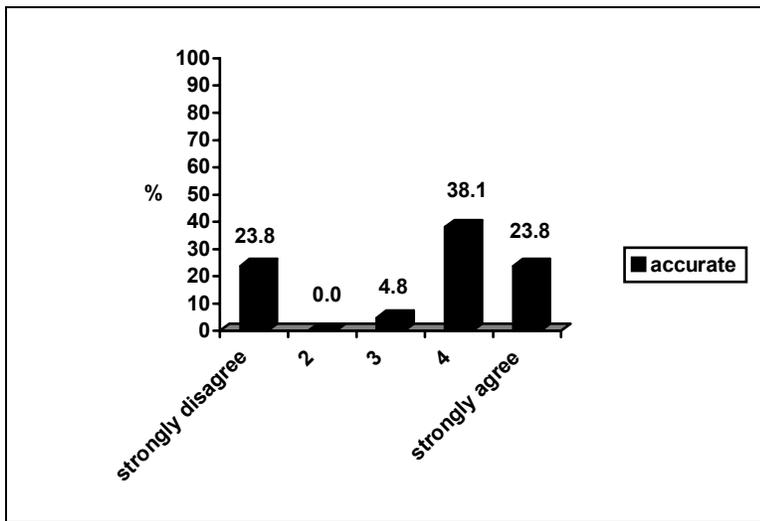
Figure F12-10. Ratings of accuracy of Predictive Services information—federal fire researchers

A majority also agreed that Predictive Services information was complete (*M*=3.3, sd=1.7, *n*=21, *Figure F12-11*).
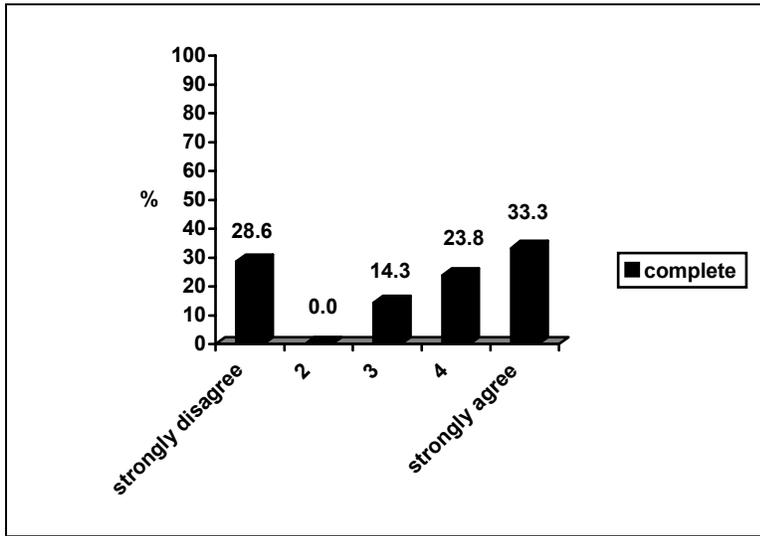
Figure F12-11. Ratings of completeness of Predictive Services information—federal fire researchers.

A majority agreed that Predictive Services information was easy to understand (*M*=3.2, sd=1.7, *n*=21, *Figure F12-12*).
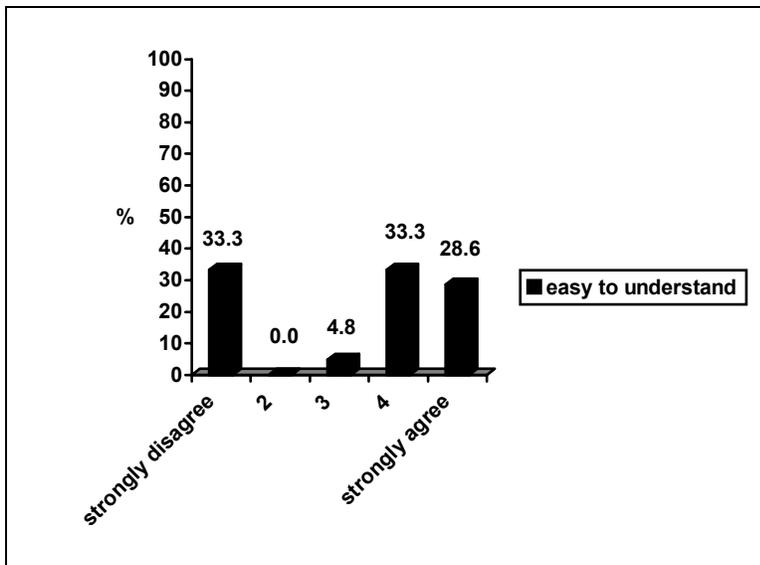
Figure F12-12. Ratings of ease of understanding of Predictive Services information—federal fire researchers.

Similarity and importance of similarity of GACC sites—Federal fire researchers rated how true the following statement was "The Predictive Services products and services available through the GACCs (you selected – based on which GACCs they had been to) are similar in format, quality, and the range of products and services offered. One-fifth perceived the products and services as similar (*Figure F12-13*).
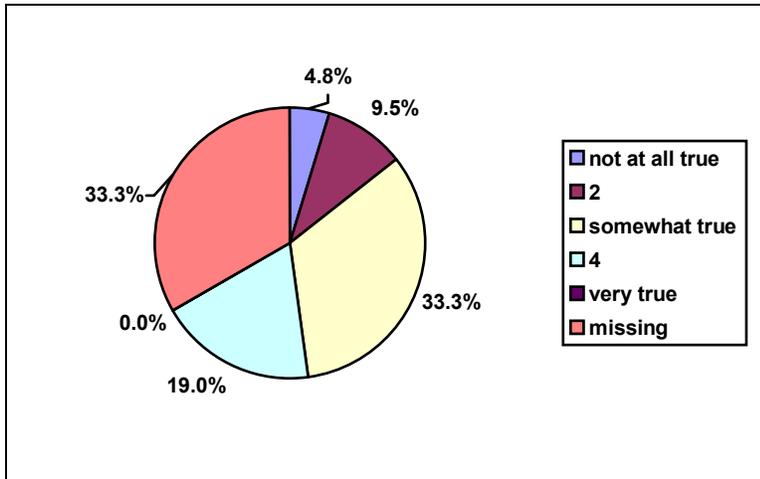
Figure F12-13. Products and services available through the GACCs you selected are similar—federal fire researchers.

While about one-fourth indicated that similarity of Predictive Services' products and services in format and quality across GACCs was unimportant (28.6% assigned a 1=not at all important, or a 2), about one-fourth indicated that it was somewhat important (23.8%), and over one-third indicated that it was important (38.1% assigned a 4 or 5=very important; 9.5%, did not answer this item).

Respondents were invited to comment on their responses regarding similarity across GACCs. Comments included these:

> I am only familiar with GACCs products
> I don't think it is important for all the websites to match. Frankly, I prefer there to be differences that capture the local/regional variations.
> Have not viewed some of these for 6 months or so. My sense of 'similarness' may not be accurate.
> The GACCs seem to have a wide range of types of products easily available through their websites. This is a subjective statement of what appears to be the case by interacting with the various websites, and may not reflect the underlying realities of the situation.
> GACCs seem to be operating with little similarity with regard to the products produced or look and feel of their websites. For Agency personnel and especially the general public this does not make much sense.
> They could be more standardized, but a general familiarity will get you through different GACC pages.
> I haven't looked at the other GACCs web pages recently

Satisfaction with Predictive Services contacts—Only one respondent (4.8%) had contacted Predictive Services to report a problem with a product or service. This respondent rated Predictive Services as a '4' (where 5=very responsive). Three respondents (14.3%) had contacted Predictive Services to suggest a new product or service. One did not provide a rating while the others rated Predictive Services as responsive (33.3%), or very responsive (33.3%) to their suggestion.

Use and utility of products and services—Products and services available through Predictive Services were examined. The 39 specific listings included some products and services that are generated elsewhere, or that are available only on some sites, but not all. Respondents were asked first to indicate if they had not used each product, and then for those that they had used, to rate each according to its usefulness to them on a scale from 1 to 5, where 1=not at all useful and 5=very useful.

The first set of product ratings (*table F12-2*) are those that are shown on Predictive Services sites, but are produced through other agencies.

Table F12-2. Use and utility of Predictive Services products and services provided by other agencies/groups—federal fire researchers.

Product or Service	% Not Used	Usefulness M	SD, N
National fire weather outlook	28.6	3.50	.9; 14
Red flag warnings	38.1	4.64	.7; 11
Drought information	33.3	4.23	.7; 13
Haines index	42.9	4.09	.9; 11
7-day precipitation maps	47.6	3.90	1.0; 10
7 and 14-day precipitation percent of normal	38.1	3.67	1.1; 12
12-hour forecast maps	38.1	4.00	.9; 12
MODIS active fire maps	33.3	4.15	1.0; 13
7 and 14-day average maximum temperature departure from normal	38.1	3.58	1.0; 12
7-day average maximum temperature maps	42.9	3.91	.9; 11
Wind maps	47.6	3.90	1.0; 10
Observed fire danger images	52.4	3.75	.9; 8
ROMAN real time fire weather and information report	66.7	4.67	.5; 6
Upper air soundings	66.7	3.83	.8; 6

A set of products and services is produced by Predictive Services and is available on a limited scale (*table F12-3,* less than national, typically on a local and regional level). These products and services are offered on a limited scale to meet specific regional needs and interests.

Table F12-3. Use and utility of Predictive Services products and services provided by Predictive Services on a limited scale—federal fire researchers.

Product or Service	% Not Used	Usefulness M	SD, N
Interagency situation reports	28.6	4.29	.6; 14
Daily fire weather/danger outlook	38.1	4.25	1.1; 12
Prescribed fire reports	61.9	3.86	1.2; 7
Smoke program reports	61.9	3.43	1.1; 7
Online briefings	66.7	4.33	.8; 6

This last set of products is available on a national scale and is created by Predictive Services, sometimes in collaboration with other entities (*table F12-4).*

Table F12-4. Use and utility of Predictive Services products and services provided by Predictive Services on a national scale—federal fire researchers.

Product or Service	% Not Used	% With 4 or 5 Rating[1]	Usefulness M	SD, N
Incident Management Situation Reports	23.8	85.7	4.29	.9; 14
Weekly fire weather/danger outlook	33.3	92.3	4.38	.9; 13
Seasonal fire weather/danger outlook	38.1	25.0	3.00	1.2; 12
Monthly fire weather/danger outlook	38.1	41.7	3.25	1.1; 12
10-day fire weather/danger outlook	33.3	61.6	3.69	.9; 13
Live fuel moisture	38.1	75.0	4.08	.8; 12
Dead fuel moisture	38.1	75.0	4.08	.8; 12
7-day large fire potential	38.1	66.7	3.83	.9; 12
Fire news and notes	61.9	42.9	3.29	1.1; 7
ERC and fuels charts	42.9	80.0	4.10	.7; 10
Links to other services/websites	47.6	80.0	4.10	.7; 10
Multi-season fire weather maps	52.4	33.3	3.33	1.1; 9
Interagency RAWS program	38.1	90.9	4.73	.6; 11
Reference links	57.1	62.5	3.88	.8; 8
Training	66.7	66.6	4.00	.9; 6
State of the fuels program	71.4	100.0	4.40	.5; 5
Technological guidance and transfer	66.7	66.7	4.17	1.0; 6
Predictive service forms	71.4	60.0	3.60	1.1; 5
Regional monsoon update	76.2	75.0	3.75	1.3; 4

[1] This column considers only those who rated the product and is not based on all federal respondents.

Overall satisfaction—Responses indicate that Predictive Services had neither met nor failed to meet most expectations (*M*=3.2, sd= .8, *n*=15, *Figure F12-14*), and respondents were somewhat satisfied (about one-third marked 4 or 5 on the scale, *M*=3.4, sd= .9, *n*=15, *Figure F12-15*).
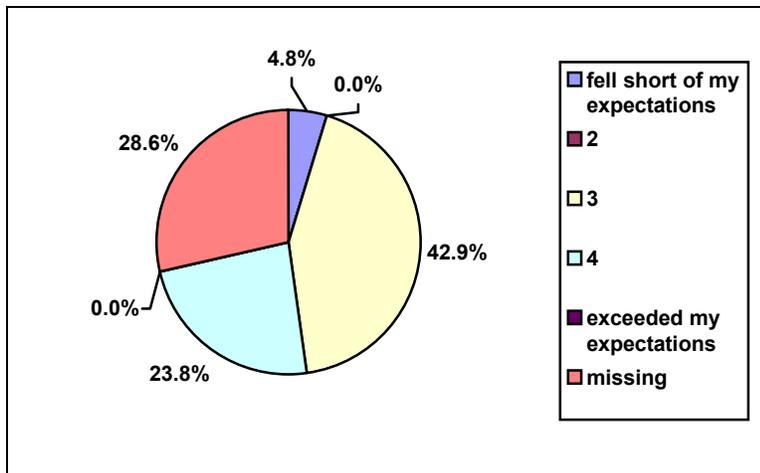
Figure F12-14. Ratings of degree to which Predictive Services met expectations—federal fire researchers.
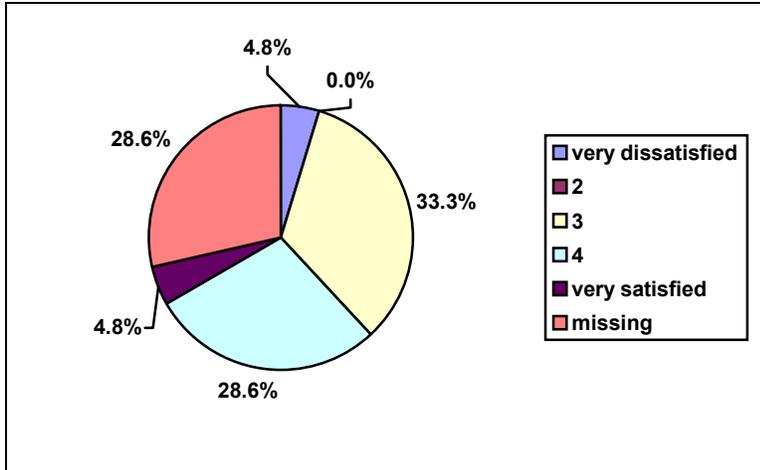
Figure F12-15. Ratings of satisfaction with Predictive Services products and services—federal fire researchers.

Trust and confidence in the information—A majority expressed some, to a great deal of trust and confidence in Predictive Services information (*Figure F12-16*, *M*=3.4, sd=1.2, *n*=17; 19.0%, did not answer this item.)
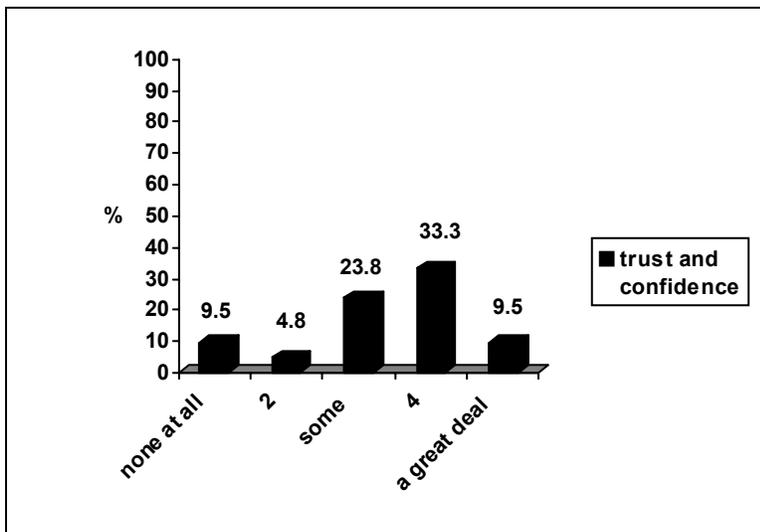

Figure F12-16. Ratings of trust and confidence in Predictive Services information—federal fire researchers.

Are Respondents Relying on and Taking Action Based on Predictive Services?

Reliance on products and services—About one-tenth (9.5%, *Figure F12-17*) indicated that they *did* rely on the products and services in making important decisions (selected a 4 or 5, where 5 was very true). One-third (33.3%, *Figure F12-17*) indicated that they relied on other sources more heavily than the products and services provided by Predictive Services (chose a 4 or 5, where 5=very true).
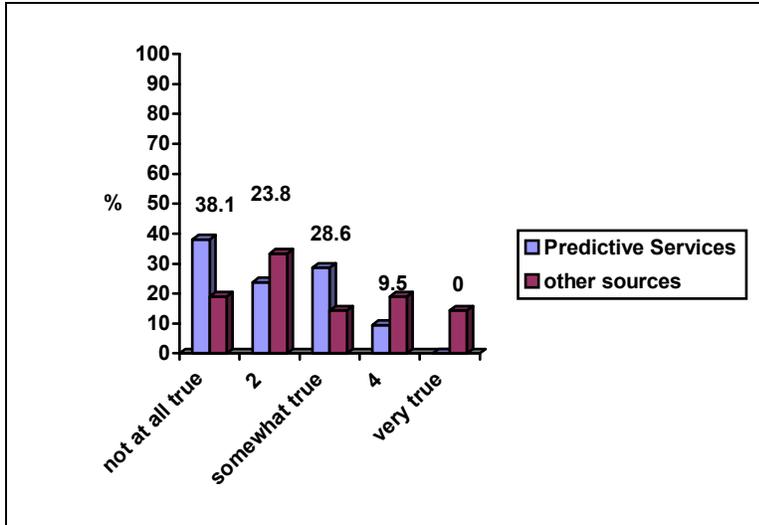
* The proportion of respondents in each category is shown for reliance on Predictive Services.

Figure F12-17. Reliance on Predictive Services and reliance other sources—federal fire researchers.

Reliance on other sources was investigated further. Respondents were asked to comment when they provided ratings of 4 or 5, indicating they relied on other sources, resulting in the following comments:

> Web based Federal and private meteorological forecast/data providers.
> "Research databases, etc...
> While I use Predictive Services information, I primarily use other information in my work. However, there are specific datasets that are most easily or only available through Predictive Services."
> much non-technical information comes through the public media
> these are not sources that necessarily provide the types of information provided by predictive services

Degree of reliance on Predictive Services was also queried. About one-half indicated little to no reliance on Predictive Services information (47.6% chose a rating of 1 or 2, where 1=none at all when asked "How much do you rely on the information provided by Predictive Services to assist in decision-making?"). Another one-fourth (28.6%) indicated some reliance, and about one-eighth indicated reliance (14.3% chose a 4 or 5 rating, where 5=a great deal). (Only 9.5% did not answer this item.)

The likelihood of taking action based on Predictive Services information was examined. Only about one-tenth were likely to take action based on Predictive Services information (9.5% chose a 4 or 5 rating, where 5=very likely, *Figure F12-18,* 9.5% did not answer this item).
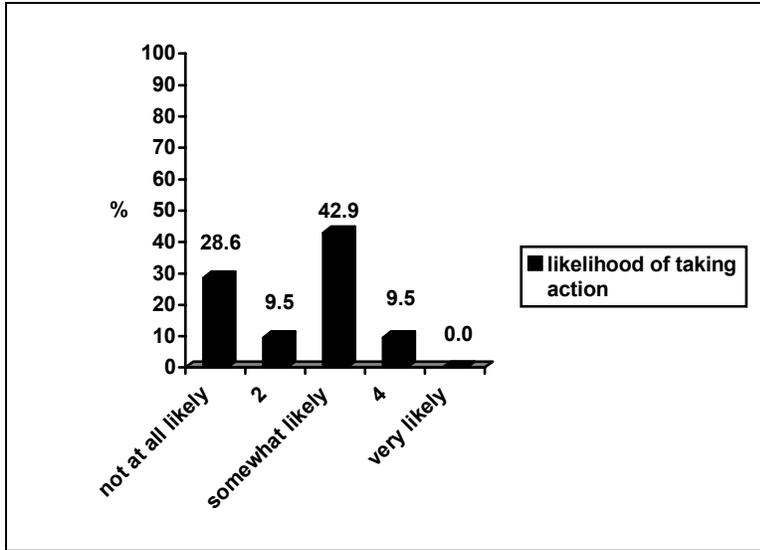
Figure F12-18. Likelihood of taking action based on Predictive Services information received, or gathered from a website—federal fire researchers.

Did Respondents offer Insights into Reliance and Barriers?

Perceived overlap—Respondents were asked how true or untrue it was that there is overlap in the type of information that can be obtained from Predictive Services and other sources (rated on a scale from 1 to 5, 1=not at all true, 3=somewhat true, 5=very true). While about one-fourth (28.6%) indicated there was not overlap (chose ratings of 1 or 2), more than half (52.4%) felt this was somewhat true, and about one-tenth indicated it was true to very true (9.5% chose ratings of 4 or 5; only 9.5% did not answer this item.)

Respondents provided the following comment regarding perceived overlap with other sources:

  The niche is not all that clear.

Beliefs about Predictive Services among those who had data gathering and reporting duties— The respondents with data gathering and reporting duties related to Predictive Services were asked: "How likely is it that you will gather and report data to Predictive Services?" About one-fourth indicated that they were likely to gather and report data (28.6% chose a 4 or 5 on the 5 point scale, where 1=not at all likely, 5=very likely; 14.3% did not provide a response; *Figure F12-19*).
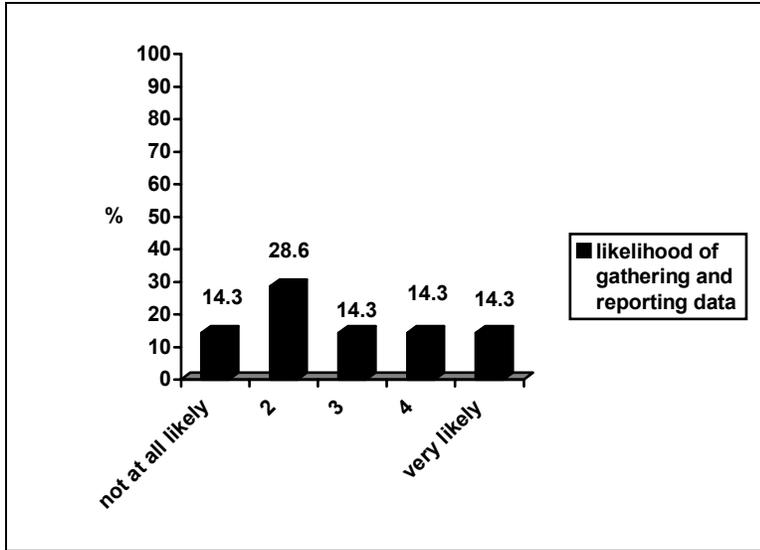
Figure F12-19. Likelihood of gathering and reporting data to Predictive Services—federal fire researchers with data gathering and reporting duties.

Respondents neither agreed nor disagreed when rating agreement that they had the resources to gather field data for reporting (M=3.2, sd=.4, n=6, rated on a 1 to 5 scale where 1=strongly disagree and 5=strongly agree; *Figure F12-20;* 14.3% did not answer this item).
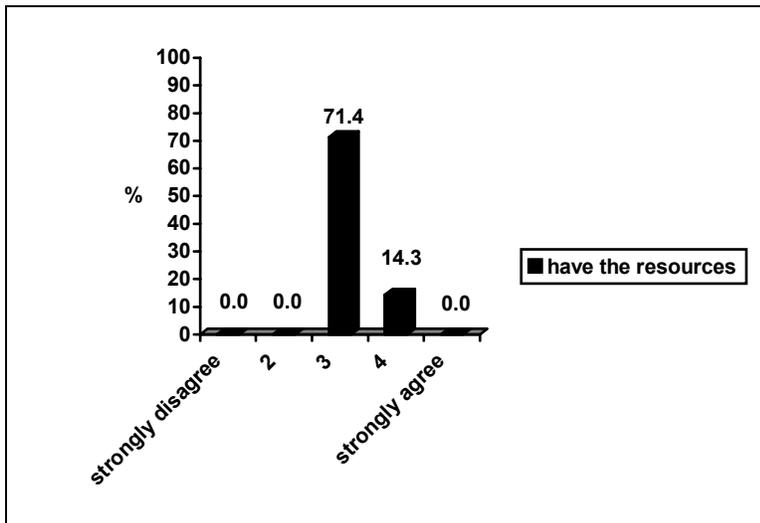

Figure F12-20. Degree of agreement or disagreement with "I have the resources (e.g., time/skills/personnel) to gather field data for Predictive Services reporting" —federal fire researchers with data gathering and reporting duties.

This subgroup was also asked to rate five items focused on positive impact of reporting, and negative effects of not reporting. Federal fire researchers were neutral regarding "My consistent upward reporting of data (e.g., 1300 obs for RAWS) increases the reliability and quality of Predictive Services products and services" (M=3.2, sd=.8, n=6; *Figure F12-21*; 14.3% did not answer). They were also fairly neutral on "My consistent upward reporting of data (e.g., 1300 obs for RAWS) increases the reliability and quality of products and services provided by groups

and agencies that use the data from Predictive Services to generate their own products"
(*M*=3.3, sd=1.0, *n*=6; *Figure F12-21;* 14.3% did not answer).
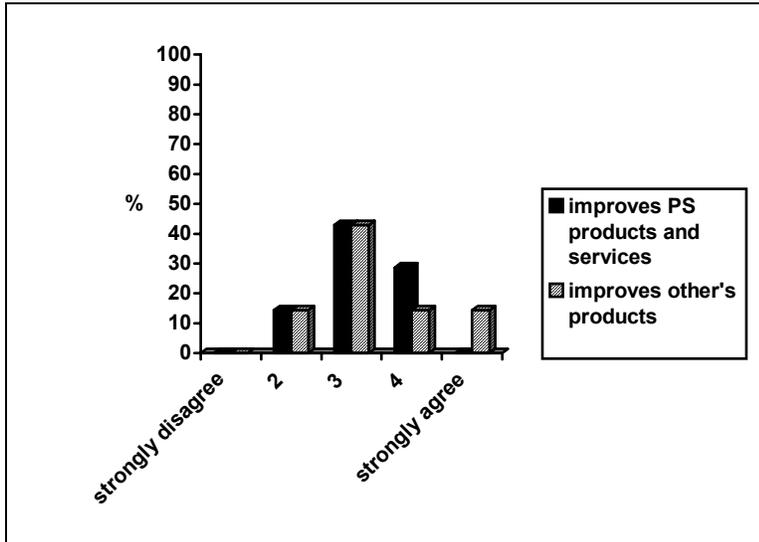
**Figure F12-21.** Degree of agreement or disagreement with positive outcomes of reporting
data—federal fire researchers with data gathering and reporting duties.

Responses indicate that they neither agreed nor disagreed there are adverse outcomes when/if
data is not gathered and reported. This was assessed through two items "If I don't collect and
report Predictive Services data, it could affect my unit's ability to make sound decisions to
manage fire" (28.6% selected a 1 or 2 rating on the scale; *M*=2.5, sd=.8, *n*=6; *Figure F12-22;*
14.3% did not answer); and "If I don't collect and report Predictive Services data it could
adversely impact firefighter or public safety" (28.6% selected a 1 or 2 rating; *M*=2.7, sd=1.0,
n=6; *Figure F12-22;* 14.3% did not answer).
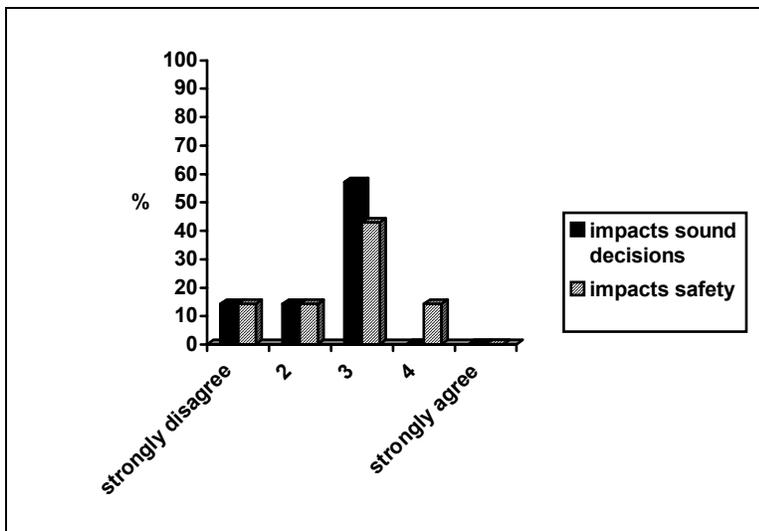
Figure F12-22. Degree of agreement or disagreement with adverse impacts of not collecting
and reporting data—federal fire researchers with data gathering and reporting duties.

Ratings of ability and impact of applying Predictive Services information—General ability to access and apply the information from Predictive Services, as well as its utility in job performance, was queried (using a 5-point Likert scale where 1=strongly disagree and 5=strongly agree). Federal respondents were somewhat in agreement with "I can access and apply Predictive Services information as part of my job duties" (*M*=4.0, sd=.7, *n*=15). However, they were in less agreement with "Predictive Services information helps me perform my job with greater precision" (*M*=2.6, sd=.8, *n*=12).

Two general items examined perceived impacts of inaccuracies of Predictive Services information. The first was "Inaccurate Predictive Services information would decrease my ability to predict fire behavior." Rated on a 1 to 5 scale, where 1=strongly disagree and 5 was strongly agree, the average was 3.6 (*M*, sd=.9, *n*=13; *Figure F12-23*). About two-fifths did not answer this item (28.6% selected 'don't know', and 9.5% did not select any answer). The second was "Inaccurate Predictive Services information used in my decision making may adversely impact firefighter or public safety." Again, the average was at the mid-range of the scale (*M*=3.2, sd=1.3, *n*=15; *Figure F12-23*). About two-fifths also failed to indicate degree of agreement or disagreement with this item (28.6% marked 'don't know', and 9.5% did not select any answer).
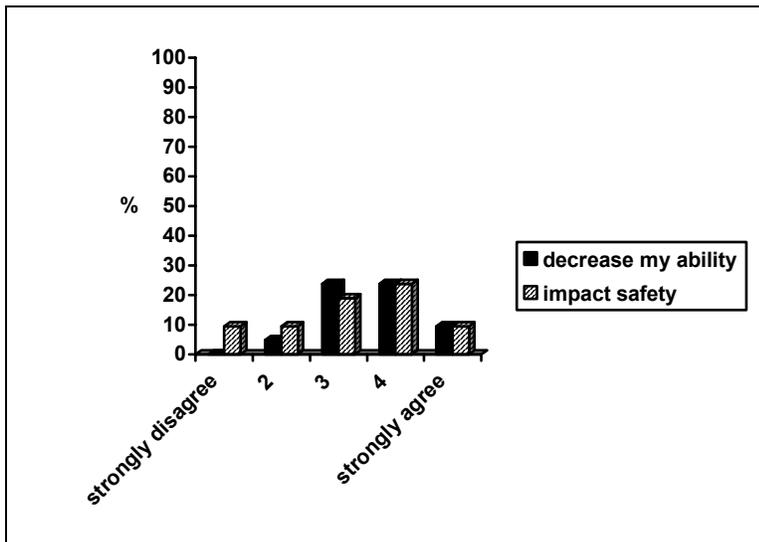
Figure F12-23. Impacts of inaccurate reporting of Predictive Services information—federal fire researchers.

Barriers to use of products and services—There were various reasons why respondents did NOT use the products and services offered by Predictive Services, although no one overwhelming reason or set of reasons emerged among the 16 offered as potential barriers (*table F12-5*). The most frequent reasons provided were that current management practices didn't require the type of information provided, and not having thought about using the products and services. A lack of trust was not cited.

Table F12-5. Reasons why they had not used the products and services offered by Predictive Services—federal fire researchers.

Reason	Percent
I never thought about it.	23.8
My current management practices don't require the types of information provided by Predictive Services	28.6
I don't know how to use these products	14.3
I need information that is site specific	4.8
I am not mandated to use these products	9.5
I don't have the time to use these products	4.8
I don't know where to get advice about using these products	14.3
I don't know where to get the technology to use these products	4.8
I don't have the technology I need to use these products	0
I don't trust the products and services	0
I don't want to use these products	0
I don't think these products support my agency's current practices	0
Agency directives/guidelines instruct me to use other information	0
I don't have the money to use these products	0
I don't trust the advice I get about using these products	0
I don't trust information that is generated by multiple agencies	0

As a follow-up to the above items, we invited respondents to explain why they might not want to use the products, resulting in the following comment:

> I'm involved in national administration of the fire research program. Please don't interpret my answers to radio button choices as a lack of interest or value of ps products - I'm a bit removed from the operations side of the world

How can Existing as well as New Products and Services be Improved or Designed?

How fire danger/fire information is used to support decision-making—Respondents were asked to indicate how they use fire danger/fire information to support decisions made regarding fire management. About one-fifth of respondents used fire danger and fire information to make decisions in decision support about public use restrictions (19.0%), for resource allocation (33.3%), for severity requests (19.0%), and about resource staffing (19.0%).

Respondents were asked to indicate other uses of fire danger/fire information, resulting in the following comments:

> Information to help with fire potential/fuels assessments
> I don't use this information to make decisions about my work
> Rx fire planning
> general situational awareness at the national level with emphasis on areas of high activity

Tolerance for errors and inaccuracies—Respondents were asked to rate their tolerance for false alarms and inaccurate reporting (rated on a scale from 1 to 5, where 1=low tolerance and 5=high tolerance). Respondents did not indicate a high tolerance for false alarms or inaccurate reporting (*M*=2.7, sd=.9, *n*=17; *Figure F12-24;* 19.0% did not answer; *M*=2.6, sd=.9, *n*=17; 19.0% did not answer).
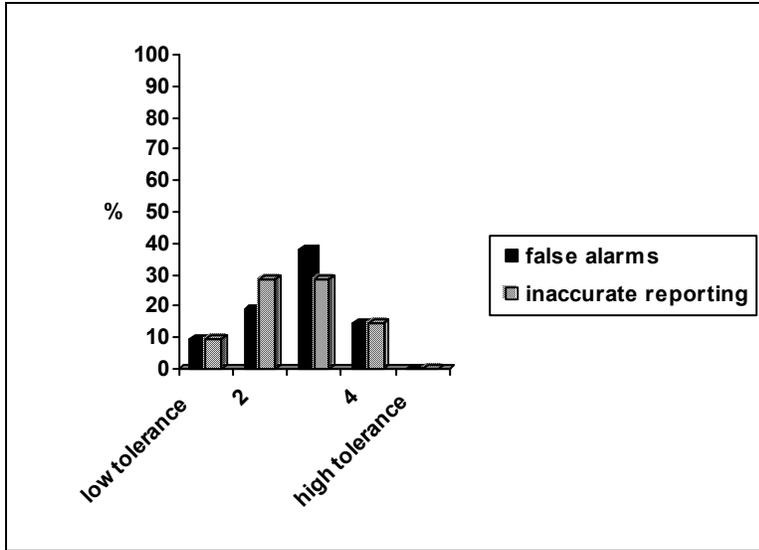
Figure F12-24. Tolerance for false alarms and inaccurate reporting—federal fire researchers.

In order to capture overall preferences for approaches to errors ("Although it is understood that accurate and reliable reporting of fire danger and high fire potential are desirable, margins of error are involved in predictions. In these cases, do you prefer that…"), respondents chose between two statements:

"Statements of danger or risk be issued with a greater margin of error allowing for an early response, knowing that this may lead to unnecessary alarms and response (Better safe than sorry)" —52.4 percent chose this statement as their preference.

"Statements of danger or risk should only be given with certainty, knowing that this may allow a few dangerous events to emerge that were not anticipated (Don't cry wolf)." —38.1 percent chose this statement as their preference.

A few (9.5%) did not choose either statement as their preferred approach.

Audience identification— According to the federal fire researchers, the primary audiences for Predictive Services' products should include: local and district fire managers (85.7%), regional and state fire managers (85.7%), national fire managers (61.9%), and to a lesser extent non-fire land managers (38.1%), and the public (28.6%; note that respondents could select multiple audience types, so responses do not sum to 100%).

Respondents were invited to specify other primary audiences, resulting in the following comment:

   Counties

Preferred information formats—Respondents were asked to indicate their preferences for the style and format of presenting information. For each of 11 formats presented, a rating from 1 to 5 was requested (1=not at all useful, 5=very useful). Based upon the proportion of respondents assigning ratings of 4 or 5 to each format, the formats most to least useful were: information presented in regional or national maps (61.9%), data in table form (54.4%), brief executive

summaries of data (52.4%), satellite maps (52.3%), brief annotations that accompany data presentations (52.3%), bar charts or figures that summarize data (47.6%), radar maps (38.1%), data in text form (38.0%), data in spreadsheet form (38.0%), web-based ArcIMS maps with user-defined layers and scales (28.5%), and non-web-based Geo database files (19.1%).

Other styles or formats of information offered by respondents, or comments surrounding this issue, included:

Graphic trends.

Respondents were also asked to indicate what, if any information they would like to see in summary or synthesis form, resulting in the following comments (for this item the don't know and not applicable responses have been excluded):

Summary info is good, but include clear text, explanation without jargon so non-fire public, managers or fire folks early in their training can understand meaning and implications of text and graphs.
I will check the site and see how user friendly it is from a novice viewpoint.
Forecast discussions are particularly useful.
I like summaries with narrative and figures - pick out the key points in the narrative and let maps and figures tell the stories as well

Improving existing products and services—Respondents were asked to complete the sentence "The information and services provided by Predictive Services would be more useful to me if…", resulting in the following open-ended remarks:

Outdated information is removed rather than left on a web page. Mark that page as unavailable rather than leave outdated infor online.
I knew what they were.
I knew more about the information and tools that are provided by Predictive Services.
they provided a weekly (or more often if the situation warrants) email update report or alert to check the website with a link.
It was linked to official web sites
I knew where to find them and how to interpret the information.
they were provided in a more real time manner.
it included better accuracy in documenting perimeters of large fire incidents.
there were confidence levels associated with the outlooks.
the 209 and other fire information reports were faster reporting, more accurate, and more complete.
I had a better idea of what was out there and how to use it.
1) Improve access - esp at the GACCs, consider more in the daily (during fire season) sit report; 2) More consistency in products and access at the GACC level; 3) integrate ps products into formal decision process
it were more site-specific and more accurately reflected non-suppression (fire use, Rx) incidents.
all of the links worked.
These services simply do not seem to apply to the work I do.
I knew more about them

Respondents were also asked to consider the existing products and services, and comment on how they could be modified to better meet their needs, leading to the following comments (answers of don't know or no comment have been excluded):

> More uniformity between service area so if I need to browse from one area to another, I can easily find my favorite items, like fuel moisture, ERC graphs.
> I'm not sure what all the existing products and services are that Predictive Services offers, thus I cannot offer any suggestions for modification.
> Sorry, I am not familiar with the products.
> I can't answer this in all honesty because I am unfamiliar with your products or how to interpret them.
> Better access to fire perimeter data. Links to smoke trajectory predictions.
> Confidence levels
> web training to explain product use.
> access and consistency among GACCs and National level
> More accurate updates on smaller, non-suppression incidents.
> I use them for my interest, not for my job requirements. They are fine.

Products or services that should be added to what Predictive Services provides—Respondents were asked to explain which products and services should be added to Predictive Services and why, resulting in the following comments:

> There is always room for improvement and new technology. The present products are great, but I would not want to indicate to hold the system static. No current additional needs.
> a clear link to expected resource requirements with expected (or significant) fire potential changes
> easy access to archived data for research
> I believe that consideration should be given to centralized projection of fire spread to support decision making at the local, GACC and National levels - perhaps at the incident level as well.
> I may have just missed it, but a more comprehensive fire use report would be nice. I feel everything in Predictive Services is much too suppression-centric, and within my line of work and the NPS, fire use is much more important.
> More RAWS in Alaska

Were There Additional Comments?

As is customary in such surveys, we invited respondents to offer any comments about Predictive Services, or any comments about the survey, resulting in the following remarks:

> Make information useful (clearly understandable) to public and non-fire land managers as well.
> Perhaps next season, I will be better informed of the Predictive Services and possibly apply them. However, it may not be something that I will be involved with as a GS-5 Bio Tech.
> It would have been beneficial to have had some information about Predictive Services and the types of information and services they provide before I began the survey. My survey responses would have been more accurate if I would have had this information. Lacking this information, I'm not exactly sure what I was evaluating in this survey.
> I would like to be able to sort the incident reports by agency and by fire number. It makes it much simpler to find the reports about active fires that we manage.
> This was a well formatted and easy survey participate in.

I believe Predictive Services fills a vital, mission-critical role that should be fully supported and, where possible, expanded.

Some of my answers indicate that I do not much use ps products in my day to day job. That is because I'm involved with fire research at the national level and don't have much to do with fire operations right now. I do appreciate predictive services and believe that the program should emphasize standards across GACCs and a high level of integration of current science results

A little too long and comprehensive for someone in my position. I would have preferred some self-limiting questions that allowed one to jump over many of the questions if you obviously weren't a heavy user of Predictive Services. But for those who do use it extensively, I think it was an insightful survey.

I think you are doing well, considering you didn't exist 4-5 years ago. It was hard for me to answer some of the questions, because I view for interest. A N/A option would have been good.

Again, this does not appear to apply to my work. I went through the survey in the hope that I would quit getting email about it.

Appendix F13: Fire Use Team Members— Federal Respondents

Federal fire use team members were grouped into one category (*n*=17). These respondents came from the National Park Service (41.2%), Forest Service (29.4%), Fish and Wildlife Service (17.6%), Bureau of Land Management (5.9%), and Bureau of Indian Affairs (5.9%).

Who Were the Federal Fire Use Team Members?

The majority was male (76.5%), mostly between 45 to 54 years old (*Figure F13-1*).
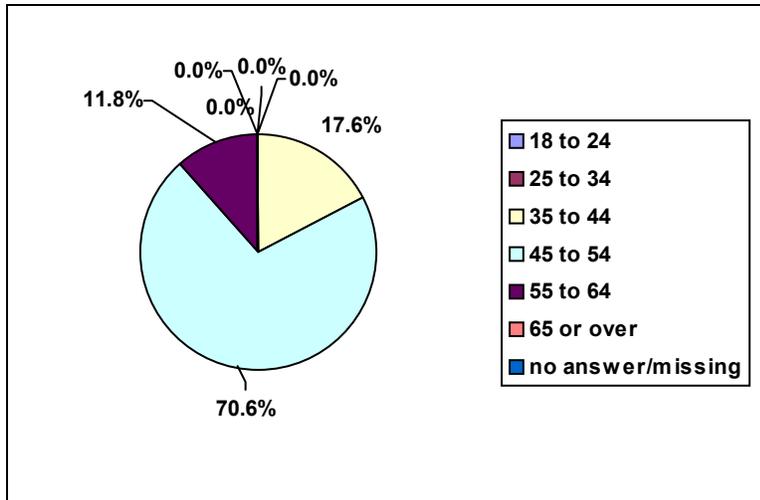
Figure F13-1. Age—federal fire use team members.

Educational background / degree or equivalent—Educational attainment revealed nearly three-fourths with a bachelor's degree or higher education (*Figure F13-2*).
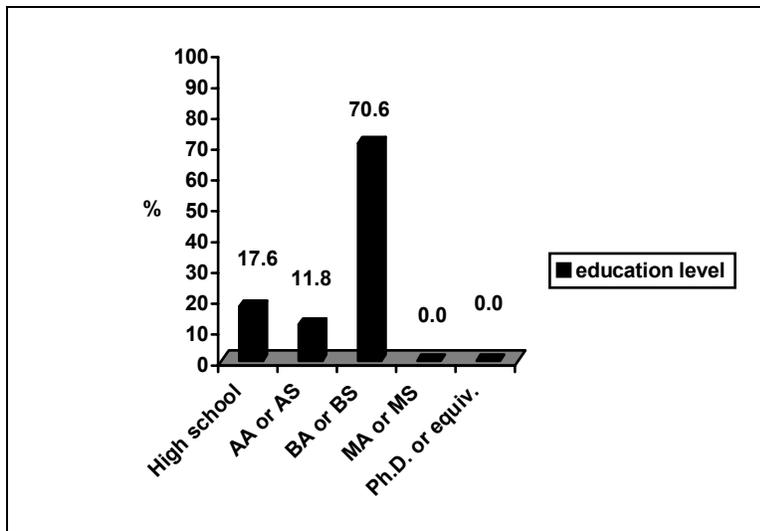
Figure F13-2. Educational attainment—federal fire use team members.

Respondents reported degrees in the following subjects (these are on an individual basis so when lines contain multiple subjects they reflect an individual's response):

    Agriculture
    Biology (3 respondents)
    Education
    Fire science
    Forestry
    Geography
    Natural resources management (2 respondents)
    Park management/fire sciences
    Tech. fire management/resources

Home office Geographic Area location—Respondents came from across the United States, with their home offices falling within the various Geographic Areas (GAs) shown below *(Figure F13-3).*
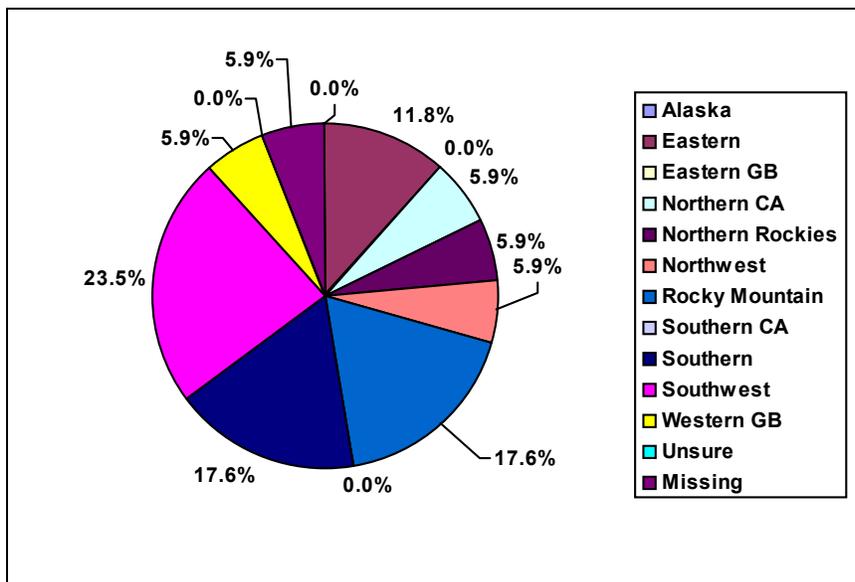
Figure F13-3. GAs—federal fire use team members.

Level of geographic responsibility and scope of duties—Respondents' level of geographic responsibility varied. About one-third reported their duties linked to their local unit (including forest, district, reserve, etc. at 35.3%). Responsibilities for the remainder were at the national (29.4%), regional (11.8%), state (5.9%), national and international (5.9%), or incident specific (11.8%) level.

The majority of respondents (58.8%) indicated that their work was specific to multiple agencies, while some (41.2%) had duties specific to their agency only.

The number of years reported in the current position of employment averaged 8.3 years (sd=8.9, *n*=10). Median responses for number of people supervised included zero on a routine basis, zero on a seasonal basis, and zero on an incident/project basis.

More than one-half of the federal fire use team members (52.9%) had job responsibilities that included gathering and reporting data that is utilized by Predictive Services such as: situation reports, ICS-209's, NFDRS/WIMS, etc. Among the respondents with data gathering and reporting duties (*n*=9), the duties are assigned as one of their primary responsibilities (55.6%), or were assigned the duties as part of a group that fulfills that responsibility (44.4%). This group of respondents is very small, so while we report all responses from them, readers should exercise caution in programmatic decisions or other issues that might be addressed with this data.

What are their Levels of Experience with Predictive Services?

Frequency of access and information acquisition—The frequency of accessing and obtaining information from Predictive Services was examined under two conditions, during fire season and outside of fire season. Frequency of access was greatest during fire season (*table F13-1*).

Table F13-1. Frequency of accessing and obtaining information from Predictive Services—federal fire use team members.

Frequency	During Fire Season %	Outside Fire Season %
Daily	41.2	0
Weekly	23.5	23.5
Monthly	5.9	23.5
Quarterly	0	11.8
Rarely	11.8	23.5
Not at all	17.6	17.6

Specific circumstances for access/acquisition—In addition to frequency, respondents provided information regarding specific situations when they access or obtain information from Predictive Services. Nearly three-fourths reported accessing Predictive Services during fire season (70.6%), and the same number during a fire incident (70.6%). Other situations were reported including when a prescribed burn is being planned (47.1%) and when a prescribed burn is taking place (47.1%). Nearly one-fifth indicated none of the above situations applied to them (17.6%).

Respondents listed additional situations when they access/obtain information from Predictive Services including:

> Extended management with WFU event.
> winter - to begin assessing local fire potential, etc
> All risk
> Other Fire Staff may be obtaining information from Predictive Services and sharing it.

Use of specific websites and services—Respondents were asked to indicate which Predictive Services websites they had visited/GACC services used, revealing that a majority had been to/used the National Interagency Coordination Center (NICC–70.6%). The Geographic Area Coordination Center sites from most to least mentioned were the Southwest (64.7%), Rocky Mountain (47.1%), Northern Rockies (41.2%), Western Great Basin (35.3%), Eastern Great Basin (29.4%), Southern (23.5%), Southern California (23.5%), Alaska (23.5%), Northern California (23.5%), Northwest (17.6%), and the Eastern site (11.8%; responses do not sum to 100% because respondents could select multiple sites). About one-third had visited one or two

sites, while others reported multiple sites (as many as all 12). Two (11.8%) indicated they had not visited any of the listed sites/used any of the GACC services.

Familiarity with the products and services—Federal fire use team members were asked to indicate how true or untrue the following statement was "I am unfamiliar with Predictive Services products and services." About one-third indicated this statement was true (*Figure F13-4,* 29.4% selected a rating of 4, or 5, where 5=very true).
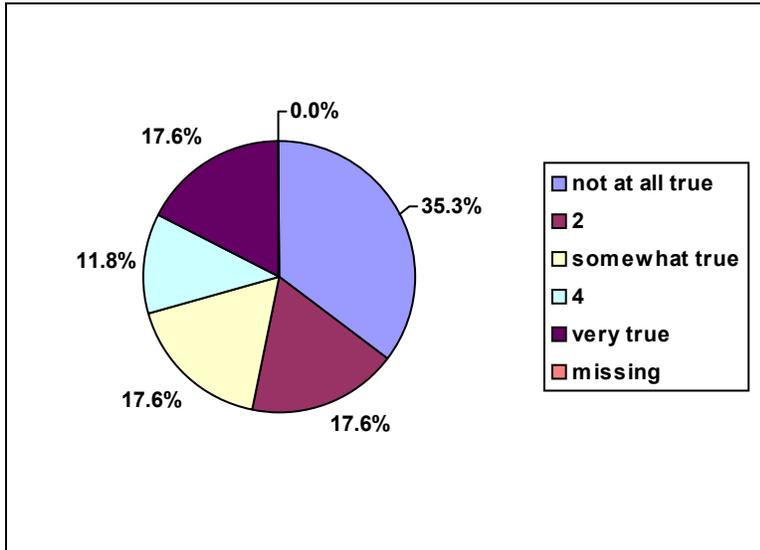

Figure F13-4. Unfamiliar with Predictive Services products and services—federal fire use team members.

The majority of respondents were interested in Predictive Services products and services (*Figure F13-5*, 64.7% selected a 4 or 5, where 5=very true in response to "I am interested…; another 23.5% marked 'somewhat true').
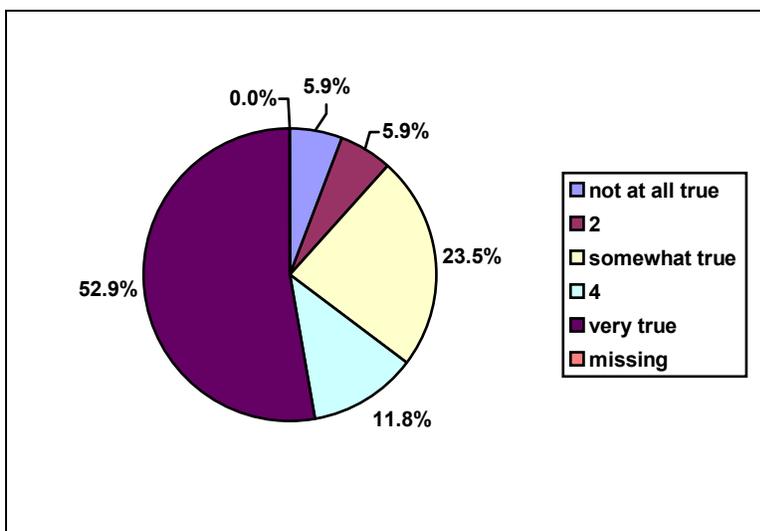
Figure F13-5. Interest in Predictive Services products and services—federal fire use team members.

Respondents were asked their familiarity with Predictive Services' products on the web, the briefings, and the emails. They were more familiar with the web products (*Figure F13-6*, *M*=3.4, sd=1.4, *n*=16), and the briefings (i.e., national, geographic, situational, or meteorological, *M*=3.4, sd=1.4, *n*=16), than with the emails (these contain current projections and/or information about Predictive Services, *M*=2.9, sd=1.4, *n*=16).
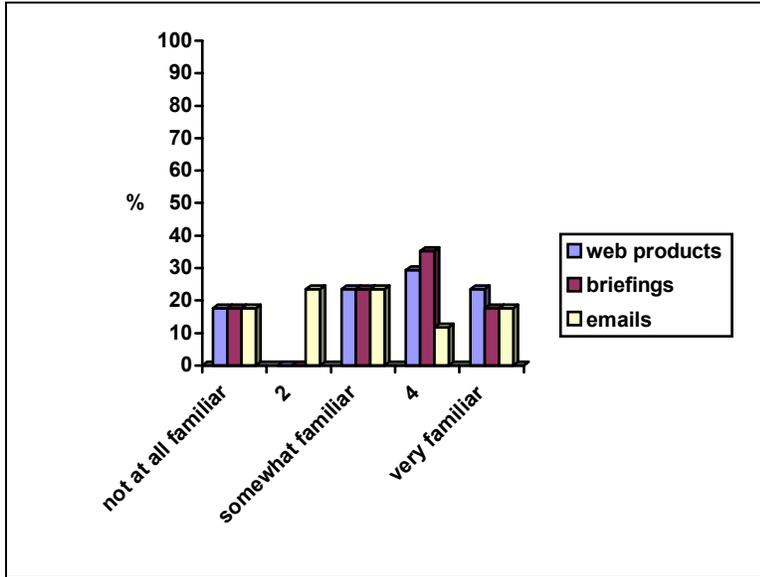
Figure F13-6. Familiarity with Predictive Services products on the web, briefings, and emails—federal fire use team members.

What are their Opinions of the Products and Services?

Ratings of Predictive Services information—Respondents tended to agree that Predictive Services information was accessible (*M*=4.3, sd= .6, *n*=13, *Figure F13-7*, 23.5% marked 'don't know').
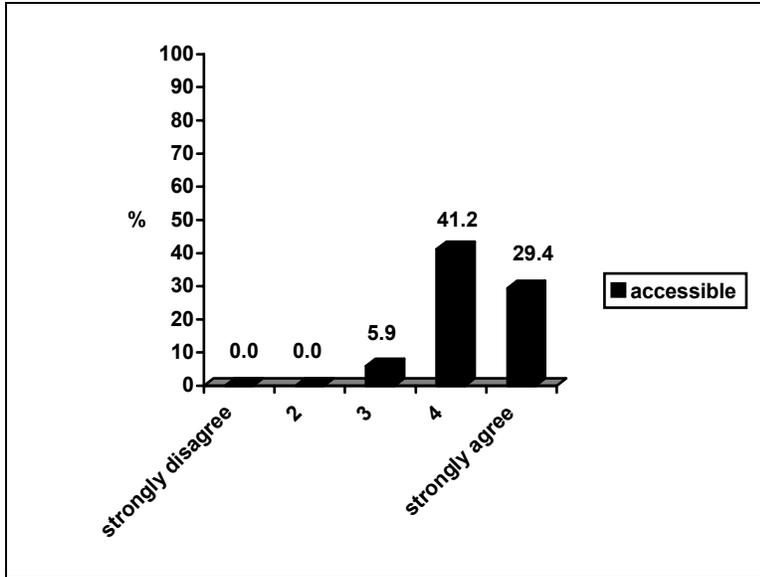
Figure F13-7. Ratings of accessibility of Predictive Services information—federal fire use team members.

While a majority agreed that Predictive Services information was timely, about one-fifth disagreed with this as an attribute (*M*=3.0, sd=1.9, *n*=11, *Figure F13-8*, 35.3% marked 'don't know').
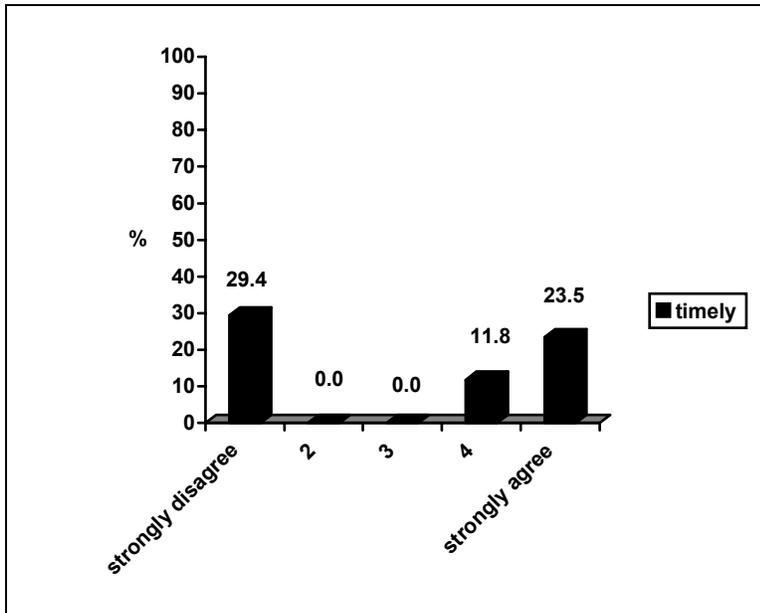
Figure F13-8. Ratings of timeliness of Predictive Services information—federal fire use team members.

A majority agreed that Predictive Services information was relevant (*M*=3.0, sd=1.9, *n*=9, *Figure F13-9*, 47.1% marked 'don't know').
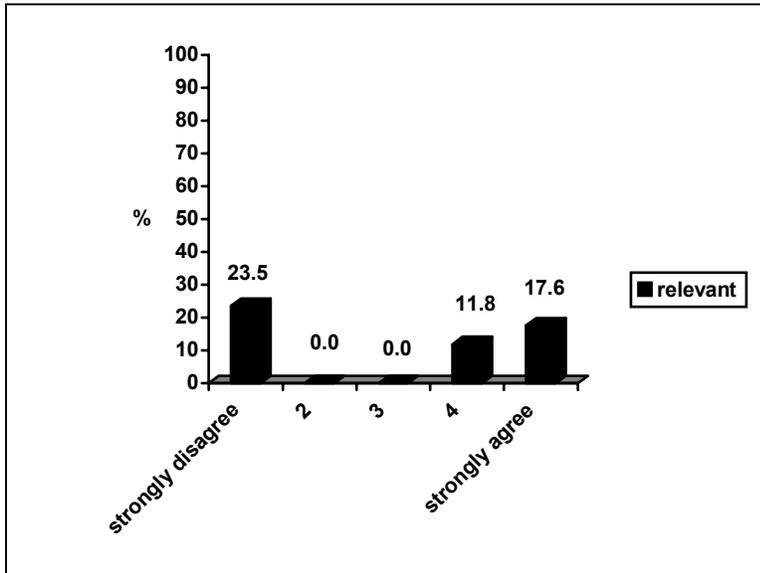
Figure F13-9. Ratings of relevance of Predictive Services information—federal fire use team members.

Over one-half agreed that Predictive Services information was accurate (*M*=3.3, sd=1.8, *n*=14, *Figure F13-10*, 17.6% marked 'don't know').
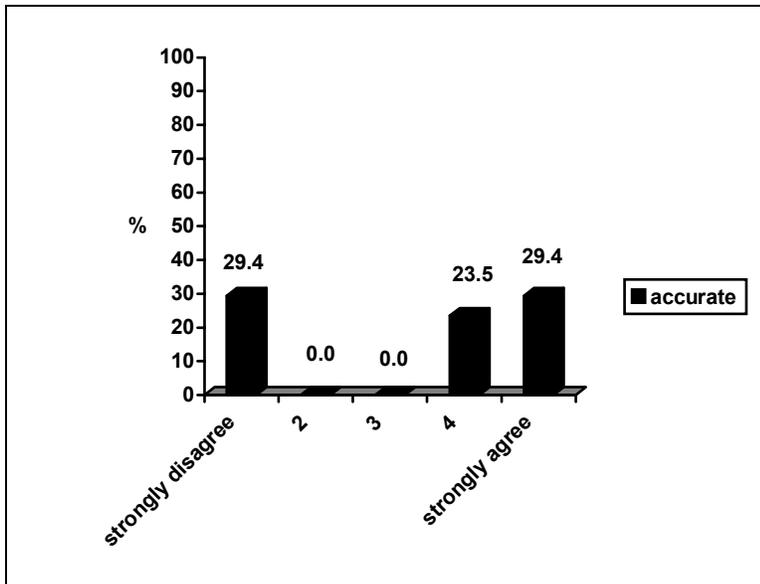
Figure F13-10. Ratings of accuracy of Predictive Services information—federal fire use team members.

A majority also agreed that Predictive Services information was complete (*M*=3.2, sd=1.9, *n*=12, *Figure F13-11*, 29.4% marked 'don't know').
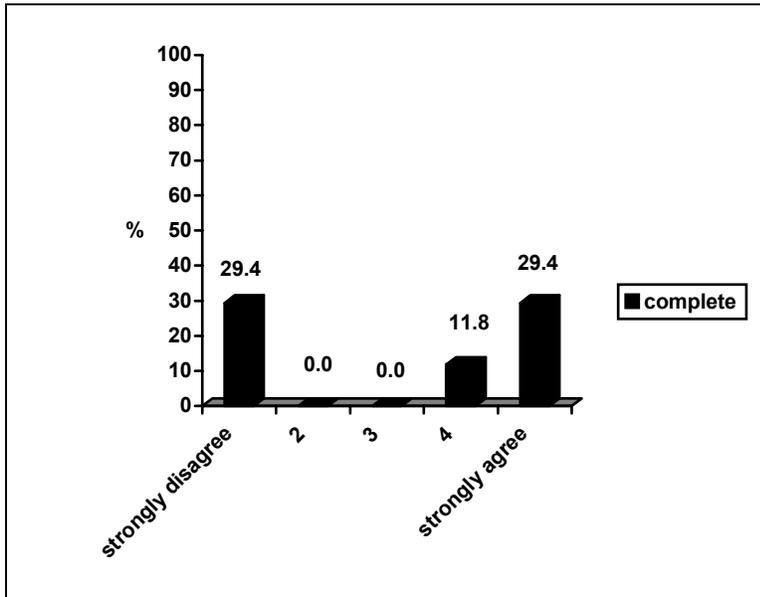
Figure F13-11. Ratings of completeness of Predictive Services information—federal fire use team members.

A majority agreed that Predictive Services information was easy to understand (*M*=3.7, sd=1.9, *n*=13, *Figure F13-12*, 23.5% marked 'don't know').
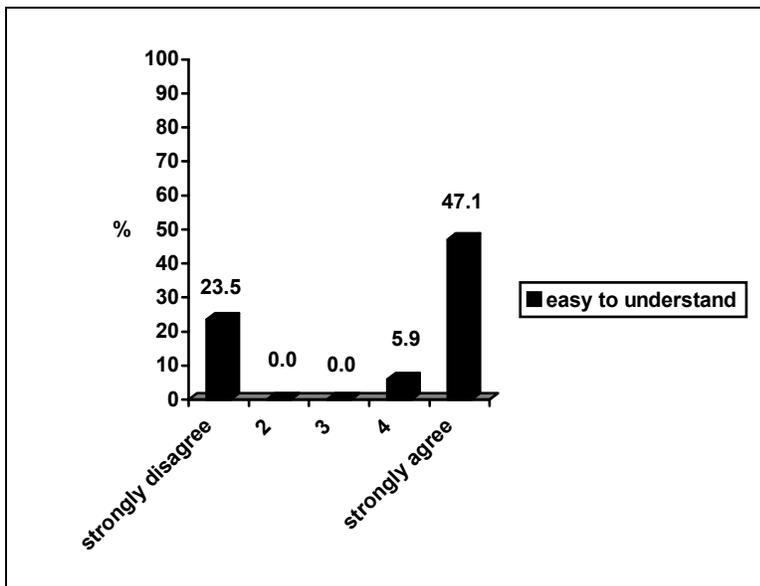
Figure F13-12. Ratings of ease of understanding of Predictive Services information—federal fire use team members.

Similarity and importance of similarity of GACC sites—Federal fire use team members rated how true the following statement was "The Predictive Services products and services available

through the GACCs (you selected – based on which GACCs they had been to) are similar in format, quality, and the range of products and services offered. Nearly one-fifth perceived the products and services as similar (*Figure F13-13*).
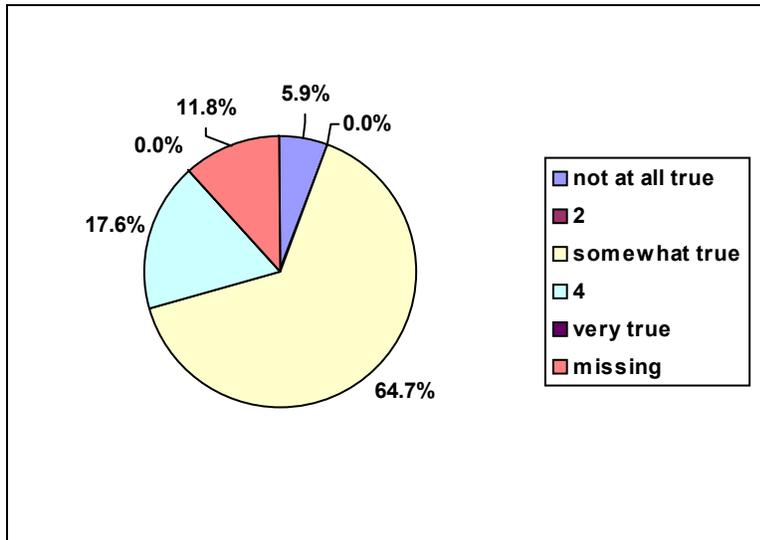

Figure F13-13. Products and services available through the GACCs you selected are similar—federal fire use team members.

Respondents were invited to comment on their responses regarding similarity across GACCs. Comments included these:

> There are some differences, but not major.
> With the recent reorganizing of the predictive services web sites, they all look similar and it is much easier to find products and assessments.
> Within the past year, it seems that there have been additional efforts to standardize the look and where information resides in GACC webpages.
> In my recollection, the look is the same, the information applies to the area of interest.
> Southwest area has more information
> Ease of use varies, some have information that are specific to their area. Some more developed than others.
> I'm not familiar with Predictive Services affiliated with GACC web sites
> Same info just displayed differently

While about one-eighth indicated that similarity of Predictive Services' products and services in format and quality across GACCs was unimportant (11.8% assigned a 1=not at all important, or a 2), about one-third indicated that it was somewhat important (29.4%), and a majority indicated that it was important (58.8% assigned a 4 or 5=very important).

Satisfaction with Predictive Services contacts—About one-third of respondents (29.4%) had contacted Predictive Services to report a problem with a product or service. All of these (100.0%) selected a 4 or 5 on the scale indicating they were responsive (scale was 1 to 5, 1=not at all responsive, 5=very responsive). Four respondents (23.5%) had contacted Predictive Services to suggest a new product or service. Using the same responsiveness scale as for reporting a problem, three (75.0%) rated Predictive Services as responsive to their suggestion.

Use and utility of products and services—Products and services available through Predictive Services were examined. The 39 specific listings included some products and services that are generated elsewhere, or that are available only on some sites, but not all. Respondents were asked first to indicate if they had not used each product, and then for those that they had used, to rate each according to its usefulness to them on a scale from 1 to 5, where 1=not at all useful and 5=very useful.

The first set of product ratings (*table F13-2*) are those that are shown on Predictive Services sites, but are produced through other agencies.

Table F13-2. Use and utility of Predictive Services products and services provided by other agencies/groups—federal fire use team members.

Product or Service	% Not Used	Usefulness M	SD, N
National fire weather outlook	11.8	3.67	.9; 15
Red flag warnings	5.9	4.13	.9; 16
Drought information	17.6	4.21	.9; 14
Haines index	29.4	4.17	.8; 12
7-day precipitation maps	35.3	3.27	1.3; 11
7 and 14-day precipitation percent of normal	35.3	3.27	1.0; 11
12-hour forecast maps	41.2	4.10	.7; 10
MODIS active fire maps	29.4	3.83	.8; 12
7 and 14-day average maximum temperature departure from normal	35.3	3.55	1.0; 11
7-day average maximum temperature maps	35.3	3.36	1.1; 11
Wind maps	41.2	4.25	.7; 8
Observed fire danger images	47.1	4.11	.6; 9
ROMAN real time fire weather and information report	35.3	4.27	.8; 11
Upper air soundings	76.5	3.75	1.0; 4

A set of products and services is produced by Predictive Services and is available on a limited scale (*table F13-3,* less than national, typically on a local and regional level). These products and services are offered on a limited scale to meet specific regional needs and interests.

Table F13-3. Use and utility of Predictive Services products and services provided by Predictive Services on a limited scale—federal fire use team members.

Product or Service	% Not Used	Usefulness M	SD, N
Interagency situation reports	17.6	4.07	.9; 14
Daily fire weather/danger outlook	17.6	4.29	.7; 14
Prescribed fire reports	41.2	3.50	.9; 10
Smoke program reports	35.3	3.64	.7; 11
Online briefings	52.9	3.88	1.0; 8

This last set of products is available on a national scale and is created by Predictive Services, sometimes in collaboration with other entities (*table F13-4).*

Table F13-4. Use and utility of Predictive Services products and services provided by Predictive Services on a national scale—federal fire use team members.

Product or Service	% Not Used	% With 4 or 5 Rating[1]	Usefulness M	SD, N
Incident Management Situation Reports	17.6	85.7	4.21	.7; 14
Weekly fire weather/danger outlook	23.5	76.9	3.92	.6; 13
Seasonal fire weather/danger outlook	11.8	40.0	3.47	1.1; 15
Monthly fire weather/danger outlook	23.5	46.2	3.23	1.2; 13
10-day fire weather/danger outlook	29.4	41.7	3.50	1.1; 12
Live fuel moisture	35.3	81.9	4.18	.8; 11
Dead fuel moisture	35.3	72.8	4.18	.9; 11
7-day large fire potential	41.2	55.5	3.78	.8; 9
Fire news and notes	23.5	53.9	3.69	1.3; 13
ERC and fuels charts	29.4	91.6	4.25	.6; 12
Links to other services/websites	23.5	46.2	3.46	1.0; 13
Multi-season fire weather maps	29.4	50.0	3.50	.8; 12
Interagency RAWS program	35.3	72.8	4.00	.8; 11
Reference links	41.2	40.0	3.30	.7; 10
Training	52.9	50.0	3.50	.9; 8
State of the fuels program	70.6	80.0	4.20	.8; 5
Technological guidance and transfer	52.9	50.0	3.50	.5; 8
Predictive service forms	58.8	42.9	3.14	.9; 7
Regional monsoon update	52.9	75.0	4.13	.8; 8

[1] This column considers only those who rated the product and is not based on all federal respondents.

Overall satisfaction—Responses indicate that Predictive Services met most expectations (*M*=3.6, sd= .8, *n*=15, *Figure F13-14*), and respondents were satisfied (the majority marked 4 or 5 on the scale, *M*=3.9, sd= .8, *n*=15, *Figure F13-15*).
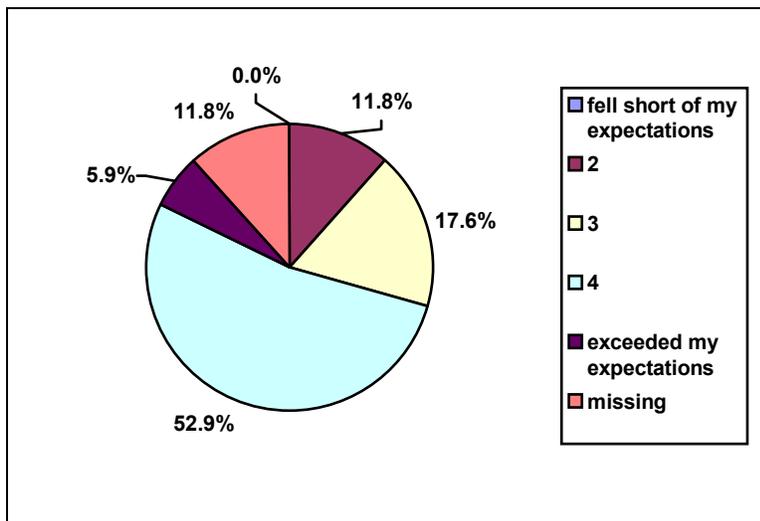

Figure F13-14. Ratings of degree to which Predictive Services met expectations—federal fire use team members.
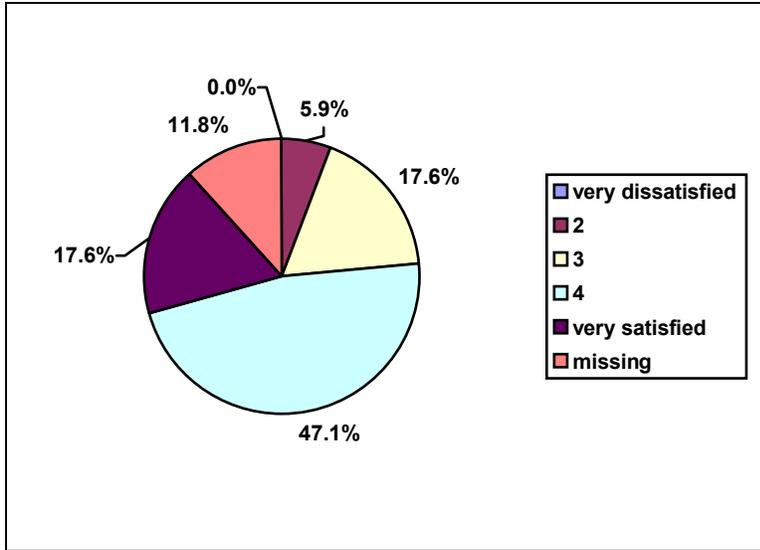
Figure F13-15. Ratings of satisfaction with Predictive Services products and services—federal fire use team members.

Trust and confidence in the information—A majority expressed some, to a great deal of trust and confidence in Predictive Services information (*Figure F13-16*, M=3.8, sd=1.2, n=16; 5.9%, did not answer this item.)
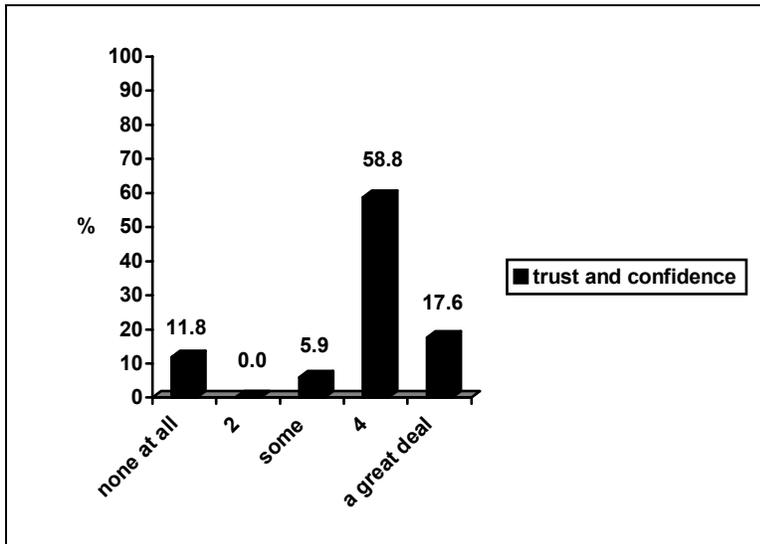

Figure F13-16. Ratings of trust and confidence in Predictive Services information—federal fire use team members.

Are Respondents Relying on and Taking Action Based on Predictive Services?

Reliance on products and services—More than one-half (52.9%, *Figure F13-17*) indicated that they *did* rely on the products and services in making important decisions (selected a 4 or 5, where 5 was very true). One respondent (5.9%, *Figure F13-17*) indicated that they relied on

other sources more heavily than the products and services provided by Predictive Services (chose a 4 or 5, where 5=very true).
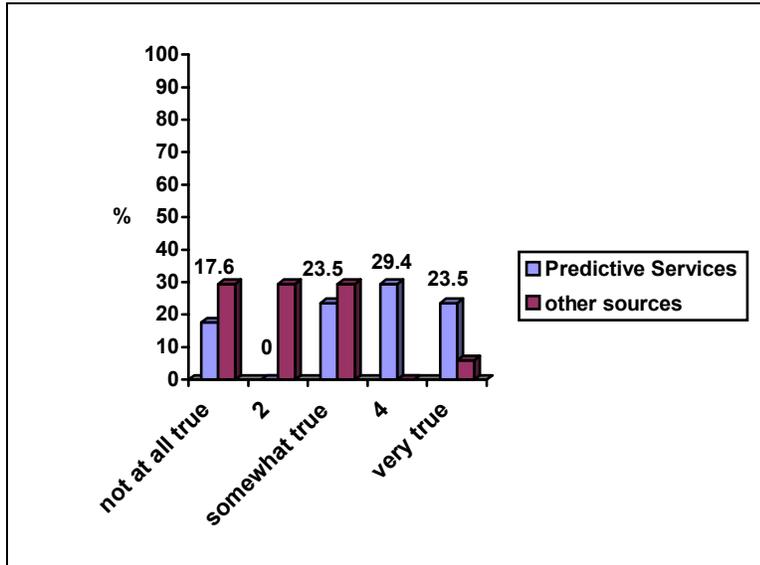
* The proportion of respondents in each category is shown for reliance on Predictive Services.

Figure F13-17. Reliance on Predictive Services and reliance other sources—federal fire use team members.

Degree of reliance on Predictive Services was also queried. About one-fifth indicated little to no reliance on Predictive Services information (17.6% chose a rating of 1 or 2, where 1=none at all when asked "How much do you rely on the information provided by Predictive Services to assist in decision-making?"). Another one-fourth (23.5%) indicated some reliance, and over half indicated reliance (52.9% chose a 4 or 5 rating, where 5=a great deal; only 5.9% did not answer this item.)

The likelihood of taking action based on Predictive Services information was examined. Nearly half were likely to take action based on Predictive Services information (47.0% chose a 4 or 5 rating, where 5=very likely, *Figure F13-18*).
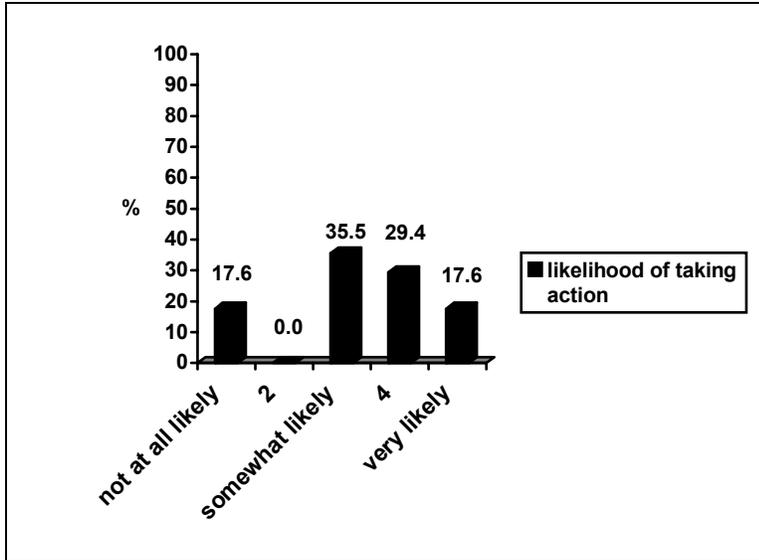
Figure F13-18. Likelihood of taking action based on Predictive Services information received, or gathered from a website—federal fire use team members.

Did Respondents offer Insights into Reliance and Barriers?

Perceived overlap—Respondents were asked how true or untrue it was that there is overlap in the type of information that can be obtained from Predictive Services and other sources (rated on a scale from 1 to 5, 1=not at all true, 3=somewhat true, 5=very true). While about one-half (52.9%) indicated there was not overlap (chose ratings of 1 or 2), more than one-third (35.3%) felt this was somewhat true, and about one respondent indicated it was true to very true (5.9% chose ratings of 4 or 5; 5.9% did not answer this item.)

Respondents provided the following comments regarding perceived overlap with other sources:

As a LTAN & FBAN, I frequently need to tailor my information for a specific geographic site, so while there is usually general information available for the geographic area, it is my job to find the best/most representative information for the task at hand.
There some overlap but predictive services provides more area specific conditions and forecasts that others do not provide
I strongly disagree, though basic information may be available from other sources, Predictive services personnel know what the information is being used for and have a good understanding of the importance that the quality of the information and their predictions need to be. This information used for fuels work to incident management and at all times where field safety is critical and needs additional support.
A lot of information is geared toward a 'regional area' and not specific to the local level where specific information is required to make an informed decision.

Beliefs about Predictive Services among those who had data gathering and reporting duties—
The respondents with data gathering and reporting duties related to Predictive Services were asked: "How likely is it that you will gather and report data to Predictive Services?" About two-fifths indicated that they were likely to gather and report data (44.4% chose a 4 or 5 on the 5 point scale, where 1=not at all likely, 5=very likely; 11.1% did not provide a response; *Figure F13-19*).
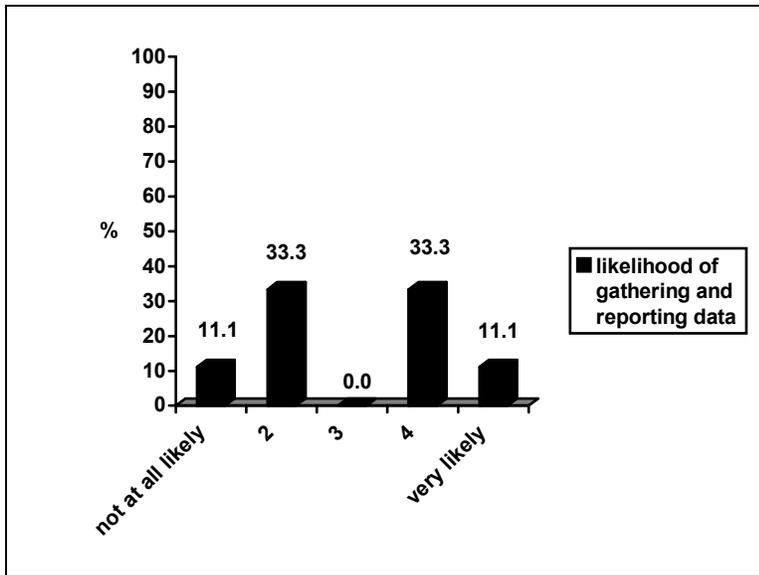
Figure F13-19. Likelihood of gathering and reporting data to Predictive Services—federal fire use team members with data gathering and reporting duties.

Respondents were likely to disagree that they had the resources to gather field data for reporting (*M*=2.8, sd=1.0, *n*=8, rated on a 1 to 5 scale where 1=strongly disagree and 5=strongly agree; *Figure F13-20*; 11.1% did not answer this item).
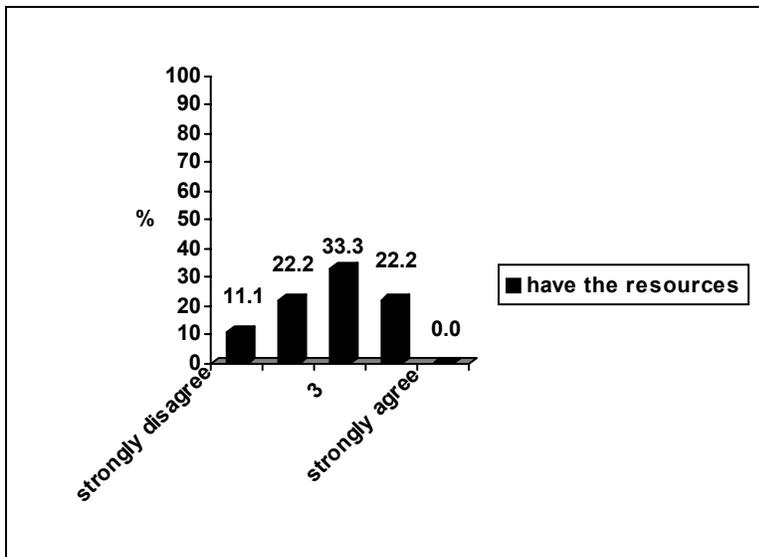

Figure F13-20. Degree of agreement or disagreement with "I have the resources (e.g., time/skills/personnel) to gather field data for Predictive Services reporting" —federal fire use team members with data gathering and reporting duties.

This subgroup was also asked to rate five items focused on positive impact of reporting, and negative effects of not reporting. Federal fire use team members agreed with "My consistent upward reporting of data (e.g., 1300 obs for RAWS) increases the reliability and quality of

Predictive Services products and services" (*M*=4.3, sd=.7, *n*=8; *Figure F13-21*; 11.1% did not answer). They were also in agreement with "My consistent upward reporting of data (e.g., 1300 obs for RAWS) increases the reliability and quality of products and services provided by groups and agencies that use the data from Predictive Services to generate their own products" (*M*=4.3, sd=.7, *n*=8; *Figure F13-21;* 11.1% did not answer).
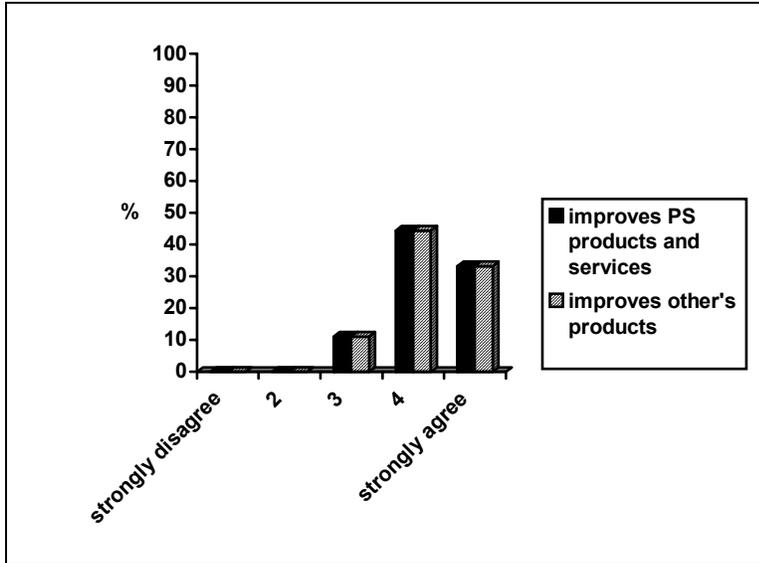

Figure F13-21. Degree of agreement or disagreement with positive outcomes of reporting data—federal fire use team members with data gathering and reporting duties.

Responses indicate that the majority agreed there are adverse outcomes when/if data is not gathered and reported. This was assessed through two items "If I don't collect and report Predictive Services data, it could affect my unit's ability to make sound decisions to manage fire" (*M*=3.9, sd=.8, *n*=8; *Figure F13-22;* 11.1% did not answer); and "If I don't collect and report Predictive Services data it could adversely impact firefighter or public safety" (*M*=4.0, sd=.9, *n*=8; *Figure F13-22;* 11.1% did not answer).
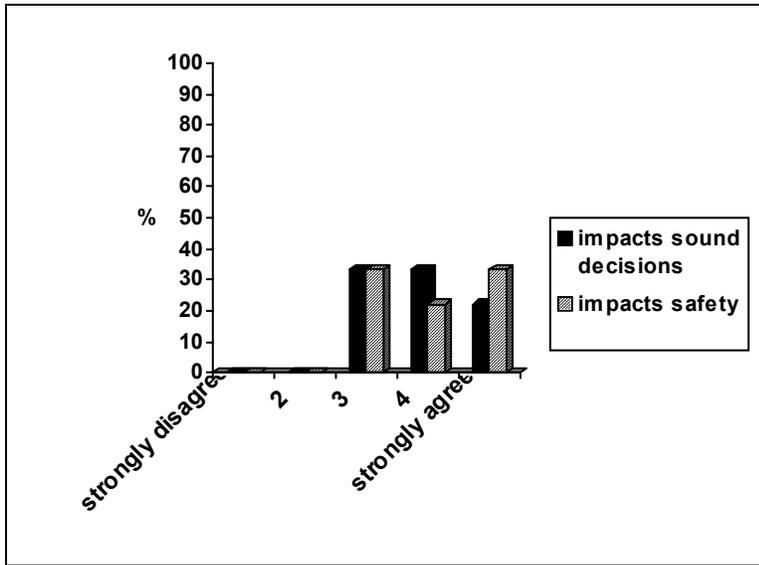
Figure F13-22. Degree of agreement or disagreement with adverse impacts of not collecting and reporting data—federal fire use team members with data gathering and reporting duties.

Ratings of ability and impact of applying Predictive Services information—General ability to access and apply the information from Predictive Services, as well as its utility in job performance, was queried (using a 5-point Likert scale where 1=strongly disagree and 5=strongly agree). Federal respondents were somewhat in agreement with "I can access and apply Predictive Services information as part of my job duties" (*M*=3.8, sd=1.1, *n*=14). However, they were in less agreement with "Predictive Services information helps me perform my job with greater precision" (*M*=3.0, sd=.8, *n*=11).

Two general items examined perceived impacts of inaccuracies of Predictive Services information. The first was "Inaccurate Predictive Services information would decrease my ability to predict fire behavior." Rated on a 1 to 5 scale, where 1=strongly disagree and 5 was strongly agree, the average was 3.6 (*M*, sd=1.2, *n*=11; *Figure F13-23*). Over one-third did not answer this item (35.3% selected 'don't know'). The second was "Inaccurate Predictive Services information used in my decision making may adversely impact firefighter or public safety." Again, the average was at the mid-range of the scale (*M*=3.4, sd=1.2, *n*=12; *Figure F13-23*). Nearly one-third also failed to indicate degree of agreement or disagreement with this item (29.4% marked 'don't know').
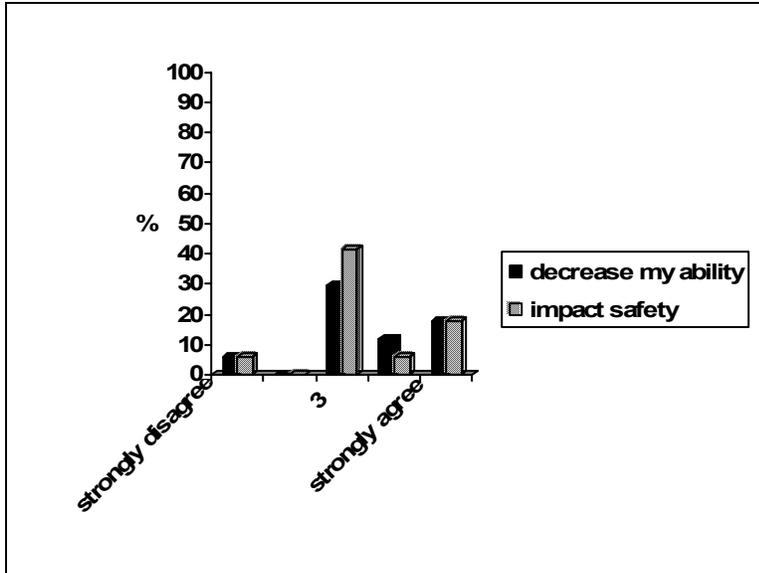
Figure F13-23. Impacts of inaccurate reporting of Predictive Services information—federal fire use team members.

Barriers to use of products and services—There were various reasons why respondents did NOT use the products and services offered by Predictive Services, although no one overwhelming reason or set of reasons emerged among the 16 offered as potential barriers (*table F13-5*). The most frequent reason provided was not having thought about using the products and services. A lack of trust was not cited.

Table F13-5. Reasons why they had not used the products and services offered by Predictive Services—federal fire use team members.

Reason	Percent
I never thought about it.	23.5
My current management practices don't require the types of information provided by Predictive Services	17.6
I don't know how to use these products	11.8
I need information that is site specific	17.6
I am not mandated to use these products	0
I don't have the time to use these products	5.9
I don't know where to get advice about using these products	17.6
I don't know where to get the technology to use these products	0
I don't have the technology I need to use these products	11.8
I don't trust the products and services	0
I don't want to use these products	0
I don't think these products support my agency's current practices	0
Agency directives/guidelines instruct me to use other information	0
I don't have the money to use these products	0
I don't trust the advice I get about using these products	0
I don't trust information that is generated by multiple agencies	0

As a follow-up to the above items, we invited respondents to explain why they might not want to use the products, resulting in the following comments:

Quite the opposite, I am required to utilize predictive services information as the best source for needed information. Additionally, I can call up and ask for very specific information for a decision or to determine trends.

There are times I need weather for example that is real time and site specific. These services provide a general overview.

How can Existing as well as New Products and Services be Improved or Designed?
How fire danger/fire information is used to support decision-making—Respondents were asked to indicate how they use fire danger/fire information to support decisions made regarding fire management. About two-fifths of respondents used fire danger and fire information to make decisions in decision support about public use restrictions (41.2%), while a majority used this type of information for resource allocation (64.7%), for severity requests (52.9%), and for decisions about resource staffing (58.8%).

Respondents were asked to indicate other uses of fire danger/fire information, resulting in the following comments:

WFIP/WFSA planning documents
Line Officer Briefings
How ready should I be to load and go. General interest.
personal - I live in the WUI
prescribed fire

Tolerance for errors and inaccuracies—Respondents were asked to rate their tolerance for false alarms and inaccurate reporting (rated on a scale from 1 to 5, where 1=low tolerance and 5=high tolerance). While respondents did not indicate a high tolerance for false alarms or inaccurate reporting, they were somewhat more tolerant of false alarms pertaining to fire danger (M=2.8, sd=.9, n=17; *Figure F13-24*), than they were of inaccurate reporting of high fire potential (M=2.5, sd=.9, n=17; *Figure F13-24*).
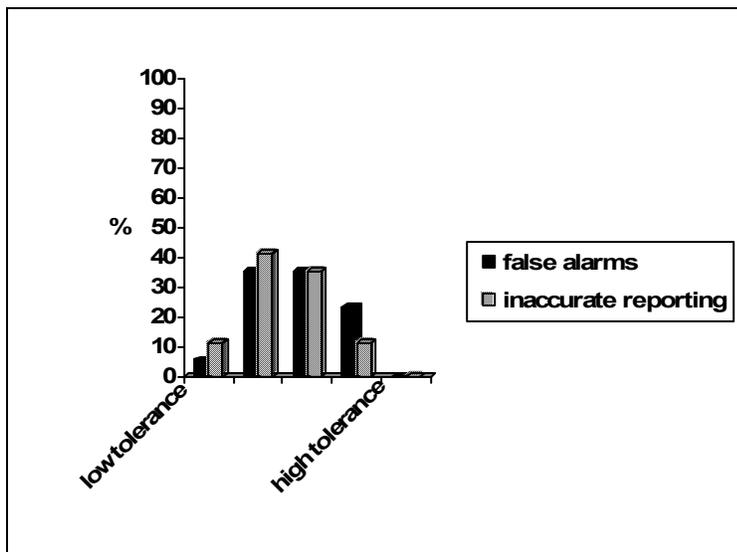

Figure F13-24. Tolerance for false alarms and inaccurate reporting—federal fire use team members.

In order to capture overall preferences for approaches to errors ("Although it is understood that accurate and reliable reporting of fire danger and high fire potential are desirable, margins of error are involved in predictions. In these cases, do you prefer that…"), respondents chose between two statements:

"Statements of danger or risk be issued with a greater margin of error allowing for an early response, knowing that this may lead to unnecessary alarms and response (Better safe than sorry)" —82.4 percent chose this statement as their preference.

"Statements of danger or risk should only be given with certainty, knowing that this may allow a few dangerous events to emerge that were not anticipated (Don't cry wolf)." —11.8 percent chose this statement as their preference.

One respondent (5.9%) did not choose either statement as their preferred approach.

Audience identification— According to the federal fire use team members, the primary audiences for Predictive Services' products should include: local and district fire managers (88.2%), regional and state fire managers (82.4%), national fire managers (64.7%), and to a lesser extent non-fire land managers (29.4%), and the public (47.1%; note that respondents could select multiple audience types, so responses do not sum to 100%).

Respondents were invited to specify other primary audiences, resulting in the following comment:

Agency line officers. They are accountable for their programs.

Preferred information formats—Respondents were asked to indicate their preferences for the style and format of presenting information. For each of 11 formats presented, a rating from 1 to 5 was requested (1=not at all useful, 5=very useful). Based upon the proportion of respondents assigning ratings of 4 or 5 to each format, the formats most to least useful were: brief annotations that accompany data presentations (58.8%), satellite maps (53.0%), information presented in regional or national maps (52.9%), brief executive summaries of data (52.9%), bar charts or figures that summarize data (52.9%), radar maps (47.1%), data in spreadsheet form (47.0%), web-based ArcIMS maps with user-defined layers and scales (41.2%), data in table form (41.1%), non-web-based Geo database files (35.2%), and data in text form (11.8%).

Other styles or formats of information offered by respondents, or comments surrounding this issue, included:

Easily downloadable PPT format that could be used for line officer briefings.
Thousand of people are arcview users. they like shapefiles. geoDB are also large-sized.
    We sometimes rely on 56k or less connection speeds. Faster is gooder (sic).
I cannot comment until I have access information.

Respondents were also asked to indicate what, if any information they would like to see in summary or synthesis form, resulting in the following comments (for this item the don't know and not applicable responses have been excluded):

I like what is currently available about the current situation and outlooks.

Keep it simple...as a former user of the Eastern GB manager's summary I liked that format. Some, such as SW Area, seemed too busy.

I need to look at what the information is prior to commenting on it.

Areas of major uncertainty, greenness.

Improving existing products and services— Respondents were asked to complete the sentence "The information and services provided by Predictive Services would be more useful to me if…", resulting in the following open-ended remarks:

It was tailored to our geographic area not the national office

If it was easier to figure out where the specific products are -- or how to access them. Stuff is added without users being notified.

if they continued to standardize the web sites to facilitate finding of information. Time is a precious item that is usually in short supply on an incident, so anything they can do to speed up the access of the information would be appreciated.

my primary job was fire management.

I had more information about the data behind it and the analysis procedures that went into it...for example, I learned through training that Palmer drought stations tend to be in valley bottoms, which gives it a bias. There are probably inherent biases in some of the other products, and if it is known what those are, a clickable link to a note about that would be helpful. It also think associated a range of certainly or probability with a product is very valuable. When I have done spot weather forecasts, this is an important question and I often call the forecaster to ask this question if it is not provided already.

The information that is provided states the level of certainty the forecaster has in the model/product.

there was greater consistency from GACC to GACC. Our region encompasses 4 GACCs.

they flew out of the web page registered with coordinators for GIS usage.

I knew more about it.

there was a periodic assessment that showed what was predicted versus what really happened.

They would down load RAWS data weather files and fire occurrence and post them so I could use them into FFP. Time is everything.

I knew what they offered and how I would use it?

I had better internet speed. The problem is on our end, not the server end.

I knew what they were, they were simple to access and use, and I knew how to interpret and apply them.

Respondents were also asked to consider the existing products and services, and comment on how they could be modified to better meet their needs, leading to the following comments (answers of don't know or no comment have been excluded):

National office stay out of the daily supervision and let the mMETS provide services that are germane to the geographic area and the site specific products we require

Good national/regional level products. Could use more maps.

I think the push for standardization is key for saving the precious resource of time.

There is probably a need to provide smoke management outlook forecast, particularly to deal with regional haze issues.

already answered

I need to know more about the products.

Perhaps more on Greenness - departure from average and relative greenness.

This requires a conversation! not a sound bite.

very happy with products.

Products or services that should be added to what Predictive Services provides— Respondents were asked to explain which products and services should be added to Predictive Services and why, resulting in the following comments:

I am unable to specify because i am unaware of all the types of products that could be provided

Predictive Services is going to need to provide individual incident long term fire behavior and risk analysis to longer term fire incidents. There are not enough LTANs to do this, and it is more effective to have predictive services do much of this work.

I do not have any products in mind, but the group should be open to new ideas, and when a new product show consistent predictive ability, they should make it available. Strive to continually improve.

Regional assessments of wildland fire use potential, which might be based primarily on a subset of data already available, but analyzed specifically with this end in mind.

as a map provider, any data I can provide overlaying my incident/locale is a great help

Perhaps a 'level of confidence' - indicate areas where you really can't make predictions for whatever reason.

It would be nice if soil moisture were shown on a national map or by state.

Were There Additional Comments?

As is customary in such surveys, we invited respondents to offer any comments about Predictive Services, or any comments about the survey, resulting in the following remarks:

Overall I am pleased with the products and services. I would continue to strive for standardization, and new products that have good predictive potential.

It is important to keep telling everyone you can the importance of your job in shaping the outlook of fire managers and their planning for upcoming and on-going situations.

(name removed) has been an outstanding asset to the predictive services team. He was approachable and recognized how important is support role was in the Pacific Northwest. He will be hard to replace.

Each year it gets better. Smoke management data I assume will be next and that could be very useful.

The reason I kept discarding the survey e-mail is because I figured predictive services was just more junk mail.

Appendix F14: Non-NWS Meteorologists—Federal Respondents

Federal meteorologists, not in the National Weather Service were grouped into one category (*n*=11, non-NWS meteorologists). These respondents came from the Forest Service (36.4%), Bureau of Land Management (27.3%), National Park Service (18.2%), Fish and Wildlife Service (9.1%), and a federal interagency group (9.1%).

Who Were the Federal Non-NWS Meteorologists?

The majority was male (90.9%), mostly between 35 to 44 years old (*Figure F14-1*).
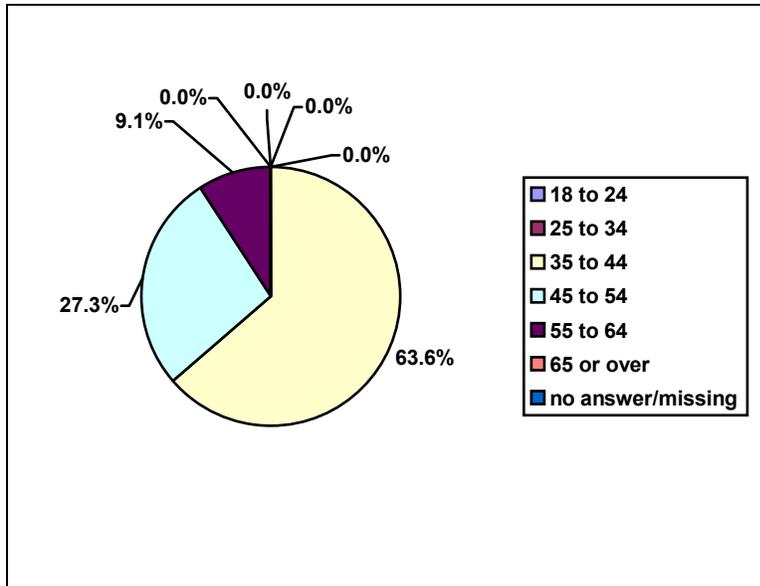
Figure F14-1. Age—federal non NWS meterologists.

Educational background / degree or equivalent—Educational attainment was fairly high among the majority in this subgroup, with about half reporting a master's degree or higher education (*Figure F14-2*).
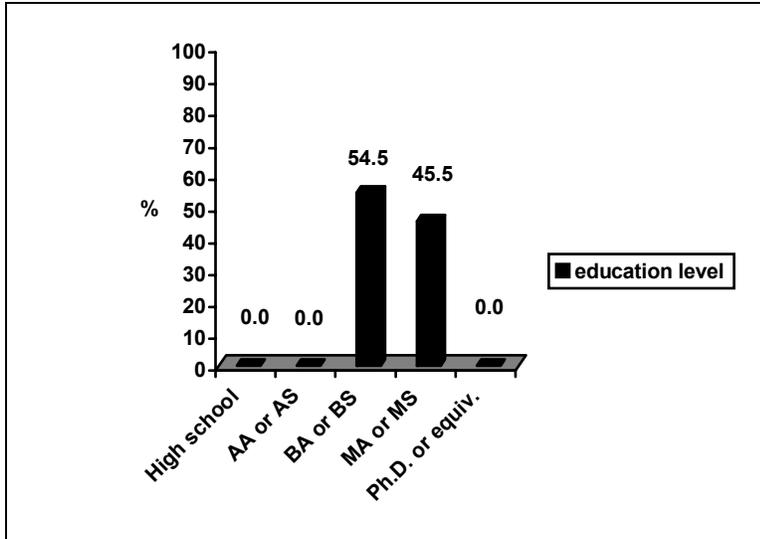
Figure F14-2. Educational attainment—federal non NWS meterologists.

Respondents reported degrees in the following subjects (these are on an individual basis so when lines contain multiple subjects they reflect an individual's response):

Atmospheric Science
Environmental management
Meteorology (3 respondents)
Meteorology and environmental engineering

Home office Geographic Area location—Respondents came from across the United States, with their home offices falling within the various Geographic Areas (GAs) shown below *(Figure F14-3).*
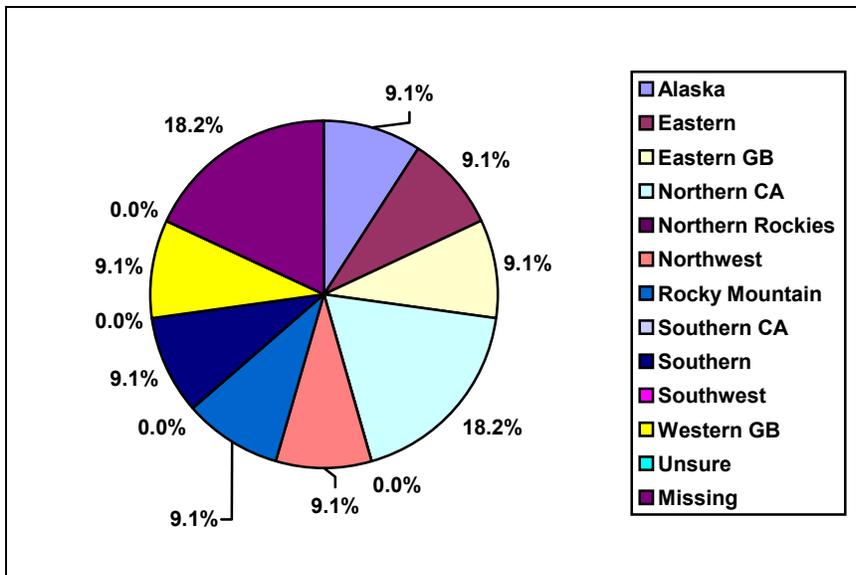
Figure F14-3. GAs—federal non-NWS meteorologists

Level of geographic responsibility and scope of duties—Respondents' level of geographic responsibility varied. Responsibilities for two-thirds were at the regional (63.6%) level with the remainder at the state (18.2%), or national and international (18.2%) level.

The majority of respondents (81.8%) indicated that their work was specific to multiple agencies, while some (18.2%) had duties specific to their agency only.

The number of years reported in the current position of employment averaged 7.1 years (sd=7.1, n=7). Median responses for number of people supervised included zero on a routine basis, zero on a seasonal basis, and zero on an incident/project basis.

Five out of the 11 respondents in this subgroup had job responsibilities that included gathering and reporting data that is utilized by Predictive Services such as: situation reports, ICS-209's, NFDRS/WIMS, etc. Among the respondents with data gathering and reporting duties (n=5), the duties are assigned as one of their primary responsibilities (80.0%; 20.0% or 1 person did not indicate their assignment. This group of respondents is very small, so while we report all responses from them, readers should exercise caution in programmatic decisions or other issues that might be addressed with this data.

What are their Levels of Experience with Predictive Services?

Frequency of access and information acquisition—The frequency of accessing and obtaining information from Predictive Services was examined under two conditions, during fire season and outside of fire season. Frequency of access was greatest during fire season (*table F14-1*).

Table F14-1. Frequency of accessing and obtaining information from Predictive Services—federal non NWS meteorologists.

Frequency	During Fire Season %	Outside Fire Season %
Daily	72.7	54.5
Weekly	9.1	18.2
Monthly	9.1	9.1
Quarterly	0	0
Rarely	0	9.1
Not at all	9.1	9.1

Specific circumstances for access/acquisition—In addition to frequency, respondents provided information regarding specific situations when they access or obtain information from Predictive Services. Nearly three-fourths reported accessing Predictive Services during fire season (72.7%), and about three-fourths during a fire incident (72.7%). Other situations were reported including when a prescribed burn is being planned (36.4%) and when a prescribed burn is taking place (45.5%).

Respondents listed additional situations when they access/obtain information from Predictive Services including:

    off-season for planning purposes and research
    all fire (WFU, Rx Fire and wildfire)
    during WFU and as needed

Use of specific websites and services—Respondents were asked to indicate which Predictive Services websites they had visited, or GACC services they had used, revealing that a majority had been to/used the National Interagency Coordination Center (NICC–63.6%). The Geographic Area Coordination Center sites from most to least mentioned were the Southwest (72.7%), Northwest (63.6%), Southern California (63.6%), Northern California (63.6%), Western Great Basin (54.5%), Rocky Mountain (45.5%), Eastern Great Basin (45.5%), Southern (36.4%), Eastern (36.4%), Northern Rockies (27.3%), and the Alaska site (27.3%; responses do not sum to 100% because respondents could select multiple sites). Over one-fifth had visited one or two sites, while others reported multiple sites (as many as all 12). One (9.1%) indicated they had not visited any of the listed sites/used any of the GACC services.

Familiarity with the products and services—Federal non-NWS meteorologists were asked to indicate how true or untrue the following statement was "I am unfamiliar with Predictive Services products and services." None indicated this statement was true (*Figure F14-4,* none selected a rating of 4, or 5, where 5=very true).
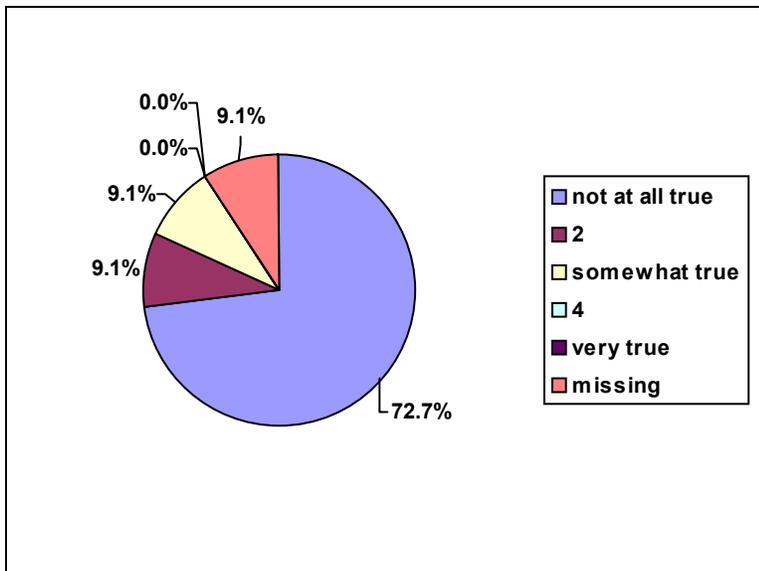

Figure F14-4. Unfamiliar with Predictive Services products and services—federal non-NWS meteorologists.

The majority of respondents were interested in Predictive Services products and services (*Figure F14-5*, 63.6% selected a 4 or 5, where 5=very true in response to "I am interested…; another 18.2% marked 'somewhat true').
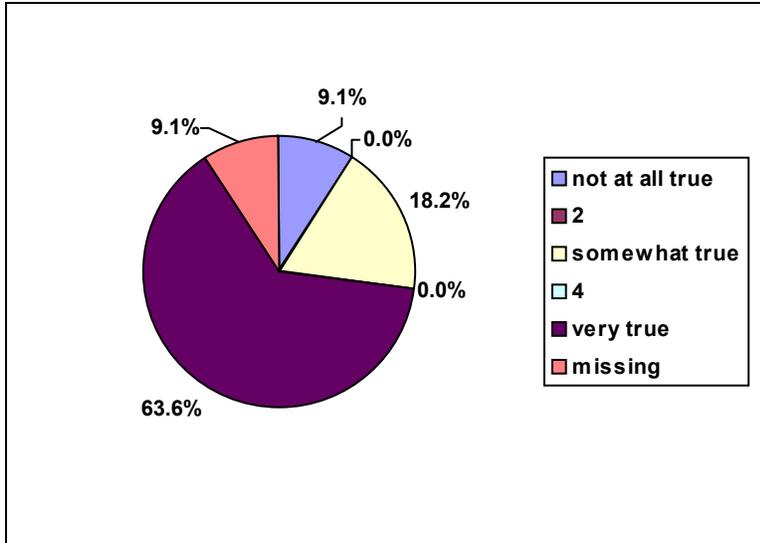
Figure F14-5. Interest in Predictive Services products and services—federal non-NWS meteorologists.

Respondents were asked their familiarity with Predictive Services' products on the web, the briefings, and the emails**.** They were more familiar with the web products (*Figure F14-6*, *M*=4.7, sd=.7, *n*=10), and the briefings (i.e., national, geographic, situational, or meteorological, *M*=4.3, sd=1.1, *n*=10), than with the emails (these contain current projections and/or information about Predictive Services, *M*=4.0, sd=1.5, *n*=10).
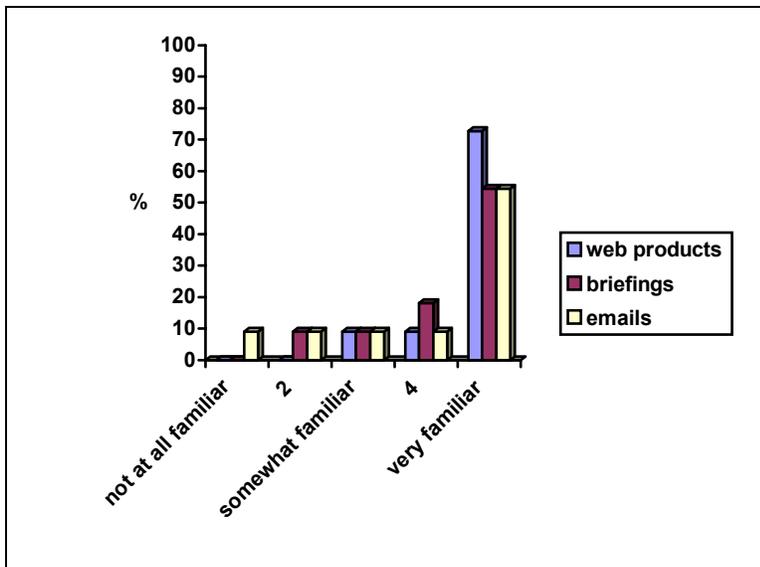
Figure F14-6. Familiarity with Predictive Services products on the web, briefings, and emails— federal non-NWS meteorologists.

What are their Opinions of the Products and Services?

Ratings of Predictive Services information—Respondents tended to agree that Predictive Services information was accessible (M=4.4, sd= .5, n=10, *Figure F14-7*, 9.1% marked 'don't know').
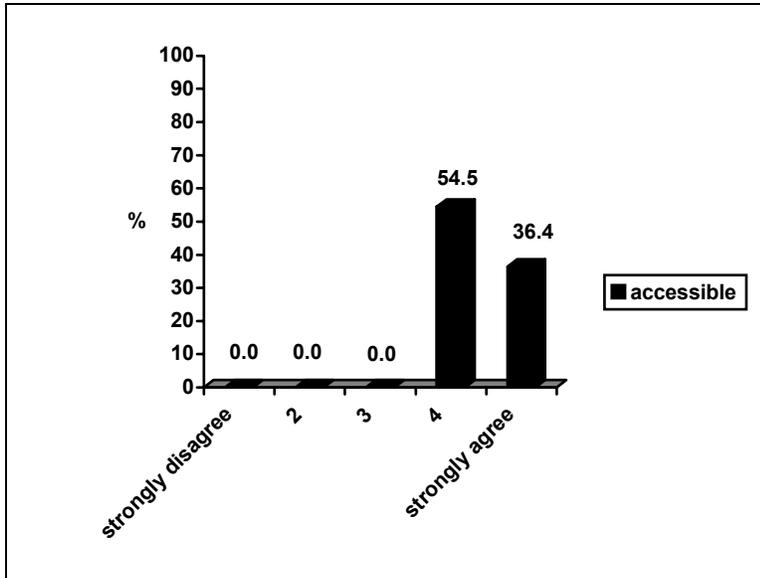

Figure F14-7. Ratings of accessibility of Predictive Services information—federal non-NWS meteorologists.

Respondents were mixed on ratings of timeliness of Predictive Services information (M=3.2, sd=1.8, n=6, *Figure F14-8*, 36.4% marked 'don't know').
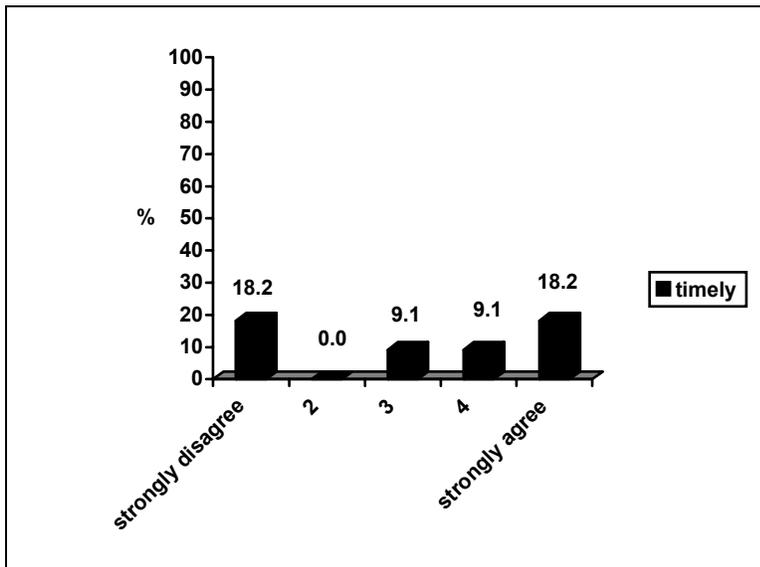

Figure F14-8. Ratings of timeliness of Predictive Services information—federal non-NWS meteorologists

A majority agreed that Predictive Services information was relevant (*M*=3.4, sd=2.2, *n*=5, *Figure F14-9*, 54.5% marked 'don't know').
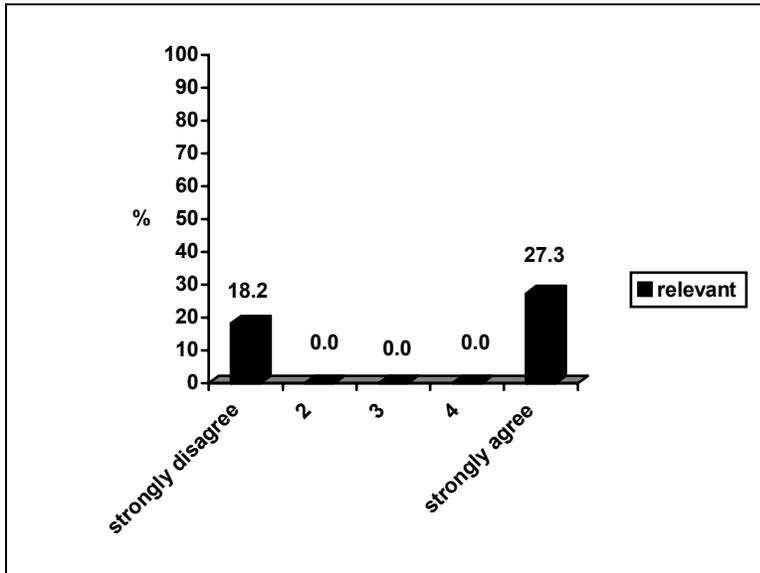

Figure F14-9. Ratings of relevance of Predictive Services information—federal non-NWS meteorologists

Over one-half agreed that Predictive Services information was accurate (*M*=3.9, sd=1.8, *n*=8, *Figure F14-10*, 27.3% marked 'don't know').
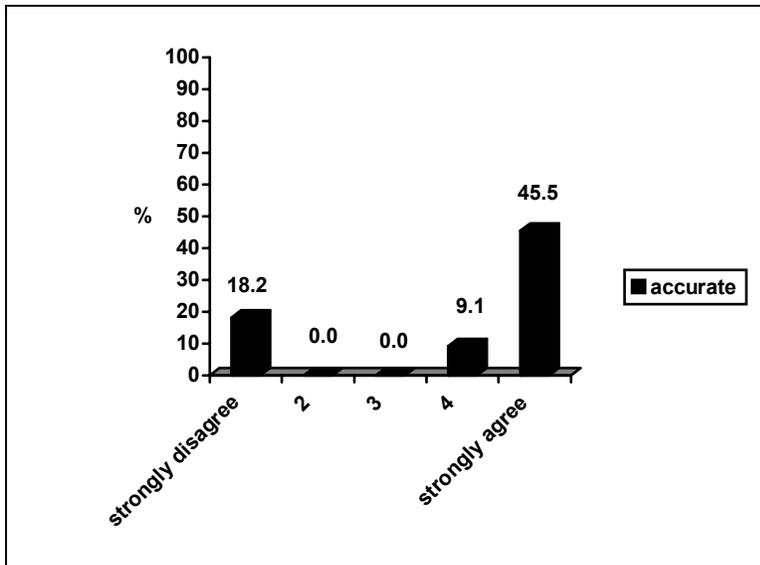

Figure F14-10. Ratings of accuracy of Predictive Services information—federal non-NWS meteorologists.

A near majority agreed that Predictive Services information was complete (*M*=3.7, sd=1.9, *n*=7, *Figure F14-11*, 36.4% marked 'don't know').
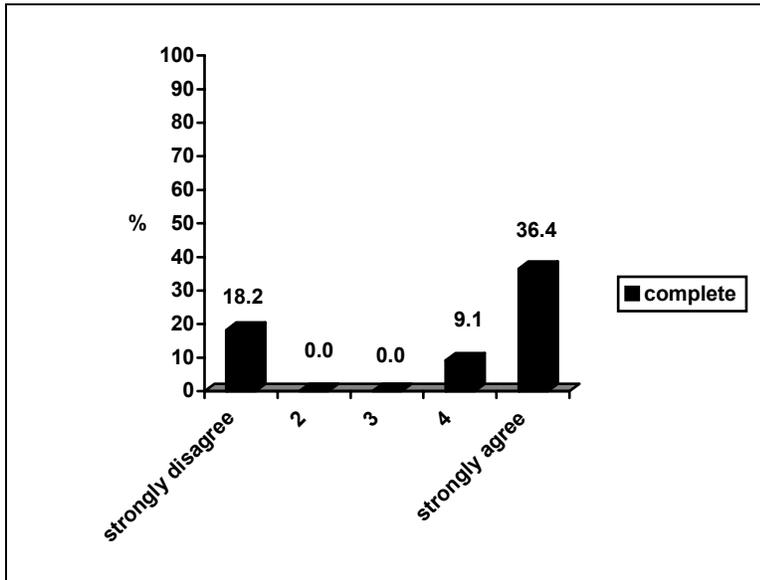

Figure F14-11. Ratings of completeness of Predictive Services information—federal non-NWS meteorologists.

A majority agreed that Predictive Services information was easy to understand (*M*=4.1, sd=1.5, *n*=7, *Figure F14-12*, 36.4% marked 'don't know').
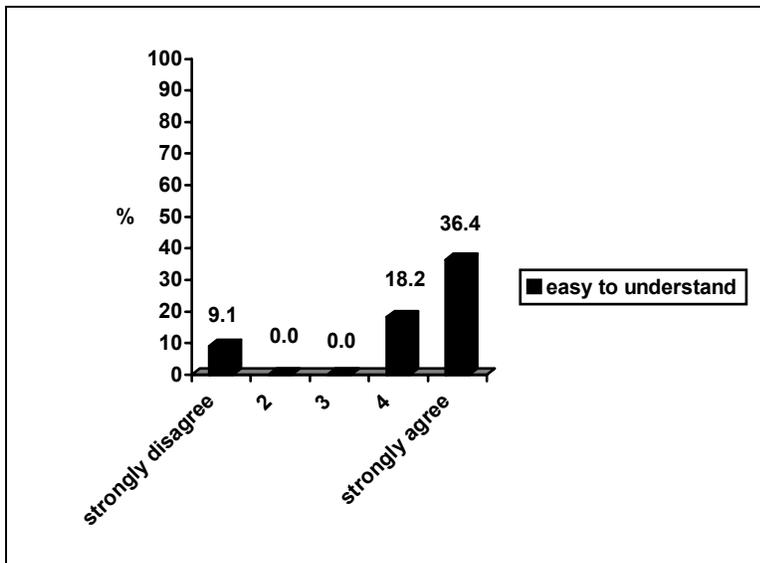

Figure F14-12. Ratings of ease of understanding of Predictive Services information—federal non-NWS meteorologists.

Similarity and importance of similarity of GACC sites—Federal non-NWS meteorologists rated how true the following statement was "The Predictive Services products and services available through the GACCs (you selected – based on which GACCs they had been to) are similar in

format, quality, and the range of products and services offered. About one-third perceived the products and services as similar (*Figure F14-13*).
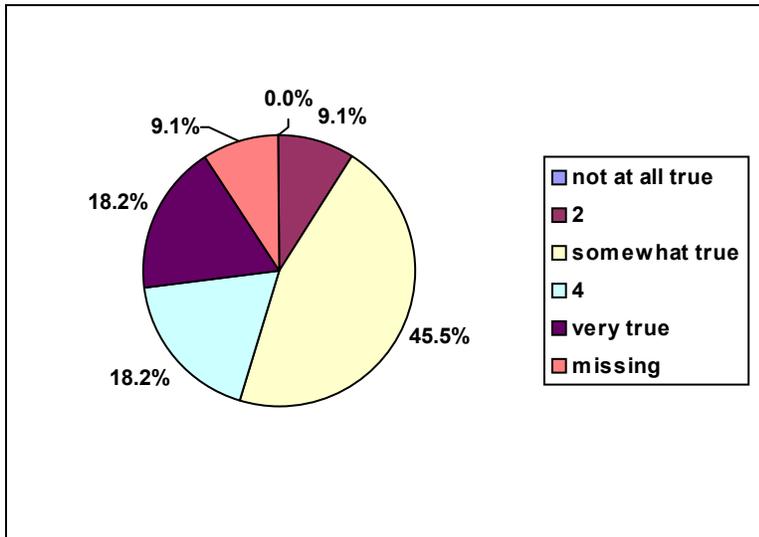

Figure F14-13. Products and services available through the GACCs you selected are similar—federal non-NWS meteorologists.

Respondents were invited to comment on their responses regarding similarity across GACCs. Comments included these:

    Some GACCs are quite innovative and offer new and different products, but generally those products spread to all of the other GACCS as soon as they're proven reliable and what the customer wants.
    Some sites have yet to adopt the standard format.
    as time has passed the products are becoming more similar, but were quite different in the past.

While no one indicated that similarity of Predictive Services' products and services in format and quality across GACCs was unimportant (none assigned a 1=not at all important, or a 2), about one-fourth indicated that it was somewhat important (27.3%), and a majority indicated that it was important (54.6% assigned a 4 or 5=very important; 18.2%, did not answer this item).

Satisfaction with Predictive Services contacts—About three-fourths of respondents (72.7%) had contacted Predictive Services to report a problem with a product or service. All of these (100.0%) selected a 4 or 5 on the scale indicating they were responsive (scale was 1 to 5, 1=not at all responsive, 5=very responsive). Eight respondents (72.7%) had contacted Predictive Services to suggest a new product or service. Using the same responsiveness scale as for reporting a problem, the majority (87.5%) rated Predictive Services as responsive to their suggestion.

Use and utility of products and services— Products and services available through Predictive Services were examined. The 39 specific listings included some products and services that are generated elsewhere, or that are available only on some sites, but not all. Respondents were asked first to indicate if they had not used each product, and then for those that they had used,

to rate each according to its usefulness to them on a scale from 1 to 5, where 1=not at all useful and 5=very useful.

The first set of product ratings (*table F14-2*) are those that are shown on Predictive Services sites, but are produced through other agencies.

Table F14-2. Use and utility of Predictive Services products and services provided by other agencies/groups—federal non-NWS meteorologists.

Product or Service	% Not Used	Usefulness M	SD, N
National fire weather outlook	18.2	2.50	.9; 8
Red flag warnings	18.2	4.25	1.0; 8
Drought information	9.1	3.44	.7; 9
Haines index	27.3	2.57	1.1; 7
7-day precipitation maps	27.3	2.86	.9; 7
7 and 14-day precipitation percent of normal	9.1	3.22	1.0; 9
12-hour forecast maps	18.2	4.00	.8; 7
MODIS active fire maps	18.2	3.38	1.3; 8
7 and 14-day average maximum temperature departure from normal	9.1	2.67	.7; 9
7-day average maximum temperature maps	18.2	2.75	.7; 8
Wind maps	18.2	4.38	.7; 8
Observed fire danger images	18.2	3.88	1.0; 8
ROMAN real time fire weather and information report	18.2	5.00	.0; 8
Upper air soundings	9.1	4.33	.9; 9

A set of products and services is produced by Predictive Services and is available on a limited scale (*table F14-3,* less than national, typically on a local and regional level). These products and services are offered on a limited scale to meet specific regional needs and interests.

Table F14-3. Use and utility of Predictive Services products and services provided by Predictive Services on a limited scale—federal non-NWS meteorologists.

Product or Service	% Not Used	Usefulness M	SD, N
Interagency situation reports	9.1	4.00	1.0; 9
Daily fire weather/danger outlook	27.3	4.38	.9; 8
Prescribed fire reports	9.1	3.33	1.2; 9
Smoke program reports	36.4	4.00	.6; 6
Online briefings	36.4	3.00	1.3; 6

This last set of products is available on a national scale and is created by Predictive Services, sometimes in collaboration with other entities (*table F14-4).*

Table F14-4. Use and utility of Predictive Services products and services provided by Predictive Services on a national scale—federal non-NWS meteorologists.

Product or Service	% Not Used	% With a 4 or 5 Rating[1]	Usefulness M	SD, N
Incident Management Situation Reports	18.2	71.5	4.00	.8; 7
Weekly fire weather/danger outlook	18.2	75.0	4.13	1.1; 8
Seasonal fire weather/danger outlook	9.1	33.3	2.89	1.1; 9
Monthly fire weather/danger outlook	9.1	37.5	3.00	.9; 8
10-day fire weather/danger outlook	27.3	50.0	3.83	1.3; 6
Live fuel moisture	27.3	71.5	3.86	1.1; 7
Dead fuel moisture	27.3	85.7	4.43	.8; 7
7-day large fire potential	18.2	75.0	4.38	.9; 8
Fire news and notes	18.2	37.5	3.25	.7; 8
ERC and fuels charts	9.1	55.5	3.56	1.4; 9
Links to other services/websites	18.2	37.5	3.50	1.1; 8
Multi-season fire weather maps	36.4	16.7	2.33	1.0; 6
Interagency RAWS program	9.1	77.8	4.44	1.1; 9
Reference links	18.2	37.5	3.38	1.3; 8
Training	27.3	71.4	3.86	.7; 7
State of the fuels program	27.3	71.5	3.71	1.4; 7
Technological guidance and transfer	27.3	85.7	4.14	.7; 7
Predictive service forms	27.3	42.9	3.57	1.1; 7
Regional monsoon update	36.4	80.0	3.80	1.1; 5

[1] This column considers only those who rated the product and is not based on all federal respondents.

Overall satisfaction—Responses indicate that Predictive Services had met most expectations (M=3.9, sd=.7, n=10, *Figure F14-14*), and respondents were somewhat satisfied (the majority marked 4 or 5 on the scale, M=3.8, sd=.6, n=10, *Figure F14-15*).
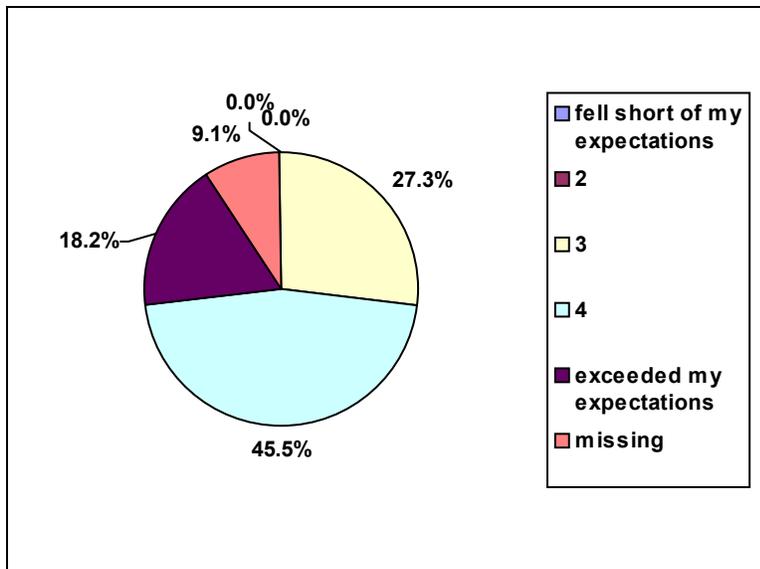

Figure F14-14. Ratings of degree to which Predictive Services met expectations—federal non-NWS meteorologists.
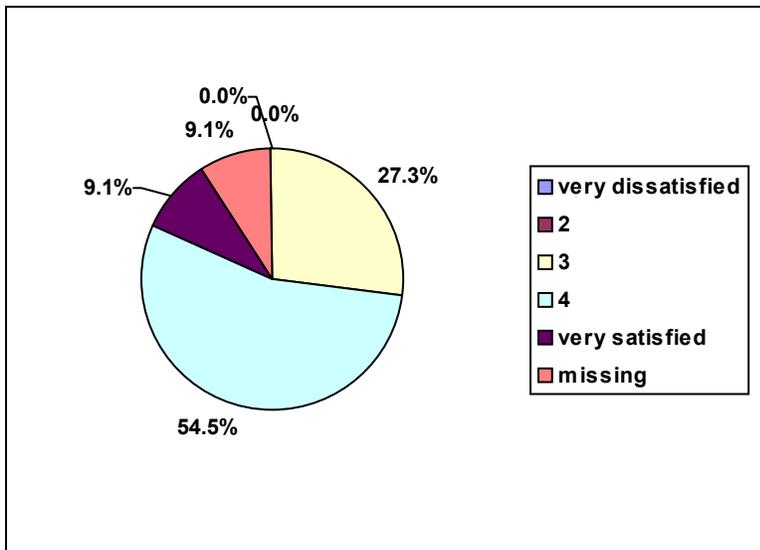
Figure F14-15. Ratings of satisfaction with Predictive Services products and services—federal non-NWS meteorologists.

Trust and confidence in the information—A majority expressed some, to a great deal of trust and confidence in Predictive Services information (*Figure F14-16*, *M*=4.5, sd=.7, *n*=10; 9.1%, did not answer this item.)
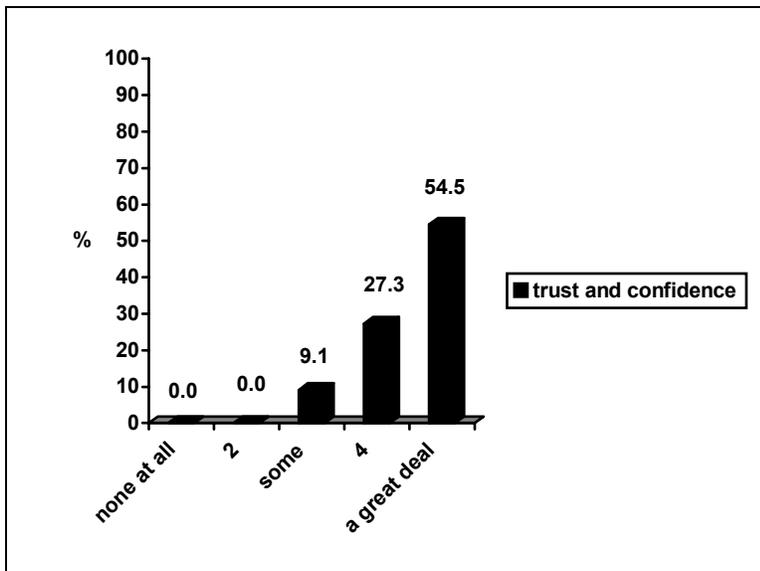

Figure F14-16. Ratings of trust and confidence in Predictive Services information—federal non-NWS meteorologists.

Are Respondents Relying on and Taking Action Based on Predictive Services?

Reliance on products and services—About three-fourths (72.8%, *Figure F14-17*) indicated that they *did* rely on the products and services in making important decisions (selected a 4 or 5, where 5 was very true). Less than one-tenth (9.1%, *Figure F14-17*) indicated that they relied on

other sources more heavily than the products and services provided by Predictive Services (chose a 4 or 5, where 5=very true).
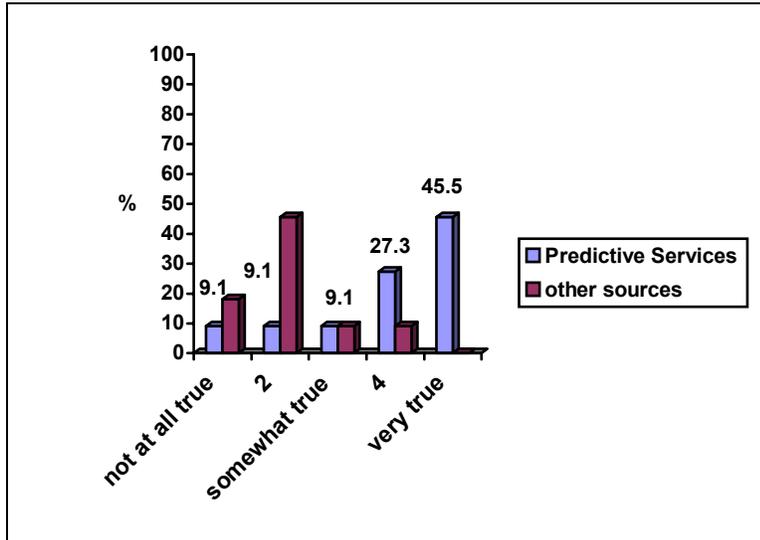
* The proportion of respondents in each category is shown for reliance on Predictive Services.

Figure F14-17. Reliance on Predictive Services and reliance other sources—federal non-NWS meteorologists.

Reliance on other sources was investigated further. Respondents were asked to comment when they provided ratings of 4 or 5, indicating they relied on other sources, resulting in the following comments:

> I answered a '2' just because there are some products/services that PS doesn't provide. NWS, and other NOAA sites

Degree of reliance on Predictive Services was also queried. About one-tenth indicated little to no reliance on Predictive Services information (9.1% chose a rating of 1 or 2, where 1=none at all when asked "How much do you rely on the information provided by Predictive Services to assist in decision-making?"). Another one-fifth (18.2%) indicated some reliance, and nearly three-fourths indicated reliance (72.8% chose a 4 or 5 rating, where 5=a great deal).

The likelihood of taking action based on Predictive Services information was examined. Over three-fourths were likely to take action based on Predictive Services information (81.8% chose a 4 or 5 rating, where 5=very likely, *Figure F14-18,* 9.1% did not answer this item).
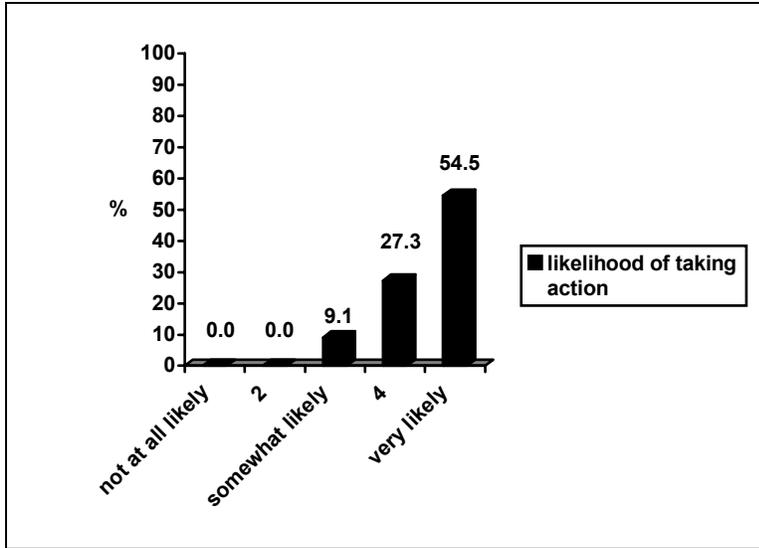
Figure F14-18. Likelihood of taking action based on Predictive Services information received, or gathered from a website—federal non-NWS meteorologists.

Did Respondents offer Insights into Reliance and Barriers?

Perceived overlap—Respondents were asked how true or untrue it was that there is overlap in the type of information that can be obtained from Predictive Services and other sources (rated on a scale from 1 to 5, 1=not at all true, 3=somewhat true, 5=very true). While about one-tenth (9.1%) indicated there was not overlap (chose ratings of 1 or 2), nearly half (45.5%) felt this was somewhat true, and about two-thirds indicated it was true to very true (36.4% chose ratings of 4 or 5; 9.1% did not answer this item.)

Respondents provided the following comments regarding perceived overlap with other sources:

> There is an overlap, but Predictive Services distributes a 'value added' product that is specifically targeted to the fire community and provides weather information in a format that is tuned to the firefighter and not full of techno-speak. This is vitally important, because not understanding weather information and making a bad decision because of it is worse than not getting it at all.
> NCEP, USAF, FSL
> Some NWS products cover the 3-7 day forecast period that Predictive Services covers.
> Daily products contain similar info compared to NWS products. PS products utilize more fuels info.

Beliefs about Predictive Services among those who had data gathering and reporting duties—
The respondents with data gathering and reporting duties related to Predictive Services were asked: "How likely is it that you will gather and report data to Predictive Services?" About two-thirds indicated that they were likely to gather and report data (60.0% chose a 4 or 5 on the 5 point scale, where 1=not at all likely, 5=very likely; 20.0% did not provide a response; *Figure F14-19*).
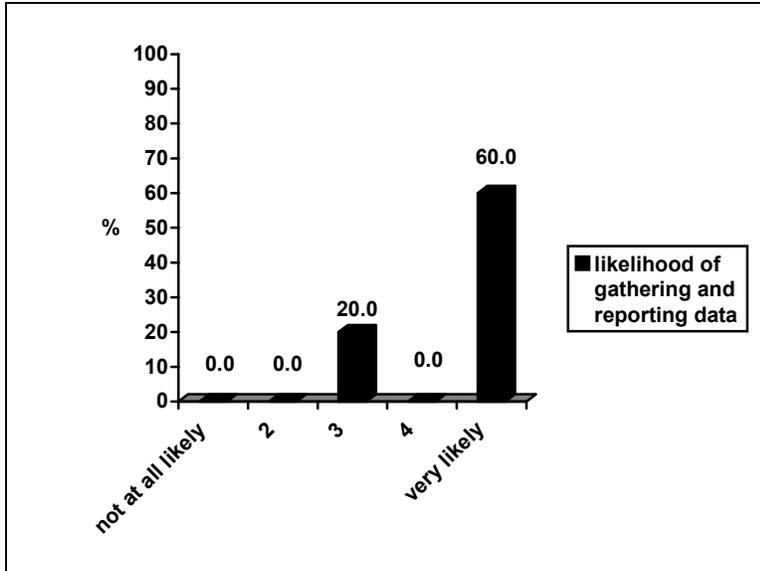
Figure F14-19. Likelihood of gathering and reporting data to Predictive Services—federal non-NWS meteorologists with data gathering and reporting duties.

Respondents agreed that they had the resources to gather field data for reporting (*M*=4.0, sd=.7, *n*=5, rated on a 1 to 5 scale where 1=strongly disagree and 5=strongly agree; *Figure F14-20*).
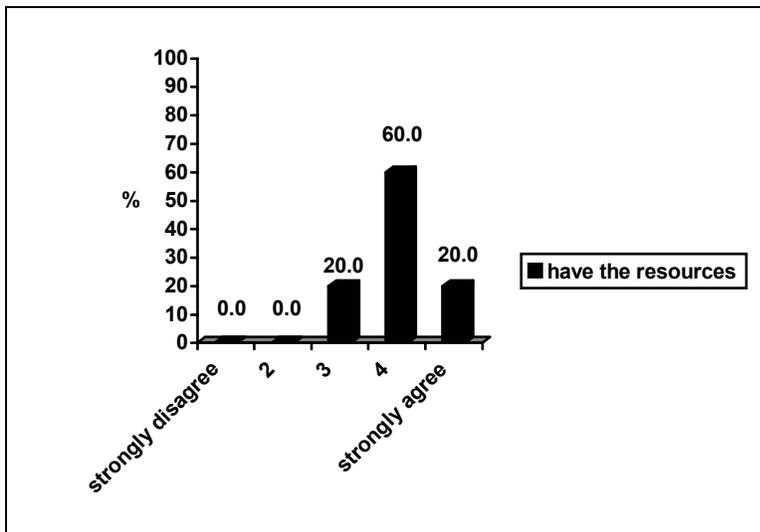

Figure F14-20. Degree of agreement or disagreement with "I have the resources (e.g., time/skills/personnel) to gather field data for Predictive Services reporting" —federal non-NWS meteorologists with data gathering and reporting duties.

This subgroup was also asked to rate five items focused on positive impact of reporting, and negative effects of not reporting. Federal meteorologists, not in NWS were most likely to agree with "My consistent upward reporting of data (e.g., 1300 obs for RAWS) increases the reliability and quality of Predictive Services products and services" (*M*=4.8, sd=.5, *n*=4; *Figure F14-21*; 20.0% did not answer). They also agreed with "My consistent upward reporting of data (e.g.,

1300 obs for RAWS) increases the reliability and quality of products and services provided by groups and agencies that use the data from Predictive Services to generate their own products" (*M*=4.4, sd=.5, *n*=5; *Figure F14-21*).
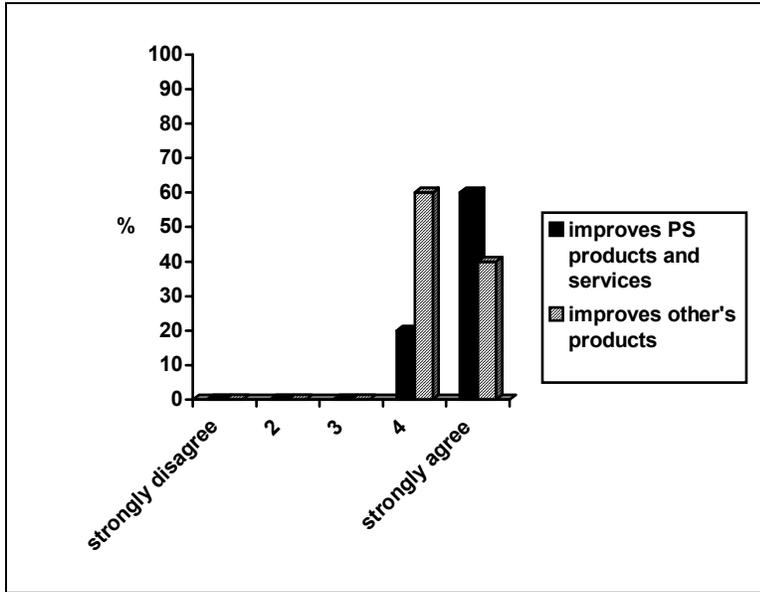

Figure F14-21. Degree of agreement or disagreement with positive outcomes of reporting data—federal non-NWS meteorologists with data gathering and reporting duties.

Responses indicate that respondents agreed there are adverse outcomes when/if data is not gathered and reported. This was assessed through two items "If I don't collect and report Predictive Services data, it could affect my unit's ability to make sound decisions to manage fire" (*M*=4.8, sd=.4, *n*=5; *Figure F14-22*); and "If I don't collect and report Predictive Services data it could adversely impact firefighter or public safety" (*M*=4.8, sd=.4, *n*=5; *Figure F14-22*).
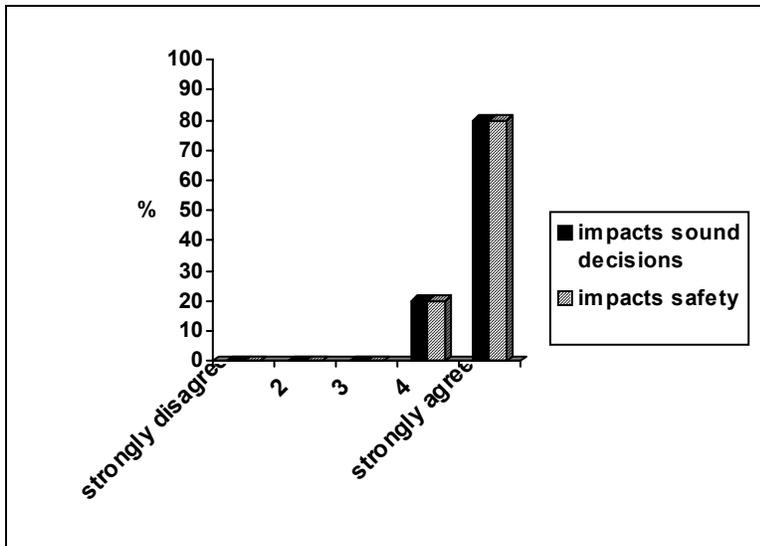

Figure F14-22. Degree of agreement or disagreement with adverse impacts of not collecting and reporting data—federal non-NWS meteorologists with data gathering and reporting duties.

Ratings of ability and impact of applying Predictive Services information—General ability to access and apply the information from Predictive Services, as well as its utility in job performance, was queried (using a 5-point Likert scale where 1=strongly disagree and 5=strongly agree). Respondents were in agreement with "I can access and apply Predictive Services information as part of my job duties" (*M*=4.3, sd=1.1, *n*=9). However, they were in less agreement with "Predictive Services information helps me perform my job with greater precision" (*M*=3.2, sd=1.0, *n*=10).

Two general items examined perceived impacts of inaccuracies of Predictive Services information. The first was "Inaccurate Predictive Services information would decrease my ability to predict fire behavior." Rated on a 1 to 5 scale, where 1=strongly disagree and 5 was strongly agree, the average was 4.0 (*M,* sd=1.4, *n*=8; *Figure F14-23*). About one-fourth did not answer this item (27.3% selected 'don't know'). The second was "Inaccurate Predictive Services information used in my decision making may adversely impact firefighter or public safety." Again, the majority indicated agreement (*M*=4.1, sd=1.0, *n*=10; *Figure F14-23*). About one-tenth also failed to indicate degree of agreement or disagreement with this item (9.1% marked 'don't know').
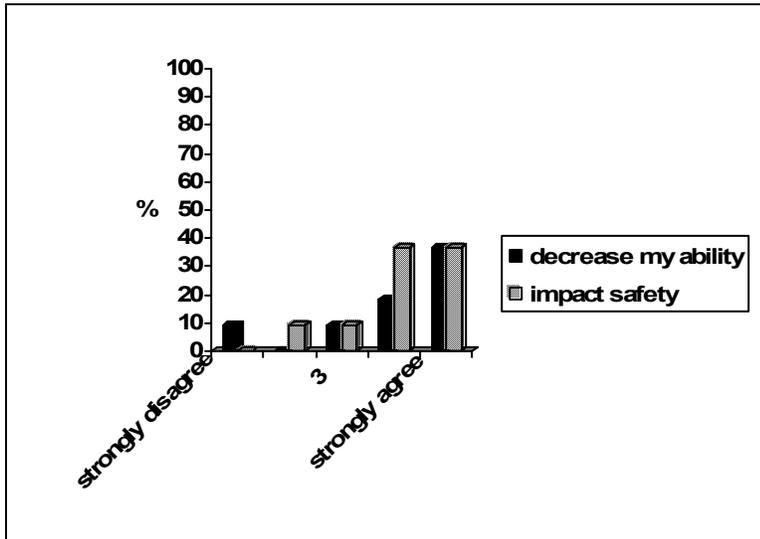

Figure F14-23. Impacts of inaccurate reporting of Predictive Services information—federal non-NWS meteorologists.

Barriers to use of products and services—There were a few reasons why respondents did NOT use the products and services offered by Predictive Services, although no one overwhelming reason or set of reasons emerged among the 16 offered as potential barriers (*table F14-5*).

Table F14-5. Reasons why they had not used the products and services offered by Predictive Services—federal non-NWS meteorologists.

Reason	Percent
I never thought about it.	0
My current management practices don't require the types of information provided by Predictive Services	9.1
I don't know how to use these products	9.1
I need information that is site specific	0
I am not mandated to use these products	9.1
I don't have the time to use these products	9.1
I don't know where to get advice about using these products	0
I don't know where to get the technology to use these products	0
I don't have the technology I need to use these products	0
I don't trust the products and services	9.1
I don't want to use these products	9.1
I don't think these products support my agency's current practices	0
Agency directives/guidelines instruct me to use other information	0
I don't have the money to use these products	0
I don't trust the advice I get about using these products	0
I don't trust information that is generated by multiple agencies	0

As a follow-up to the above items, we invited respondents to explain why they might not want to use the products, resulting in the following comments:

Not enough info at the site for good smoke management
Some of the long term information on my area has little use.

How can Existing as well as New Products and Services be Improved or Designed?

How fire danger/fire information is used to support decision-making—Respondents were asked to indicate how they use fire danger/fire information to support decisions made regarding fire management. About one-fourth of respondents used fire danger and fire information to make decisions in decision support about public use restrictions (27.3%), for resource allocation (45.5%), for severity requests (45.5%), and about resource staffing (45.5%).

Respondents were asked to indicate other uses of fire danger/fire information, resulting in the following comments:

advice or briefings I give resource managers
smoke management recommendations
smoke potential from fire activity or monitoring pre-deployment of equipment
I help produce this information

Tolerance for errors and inaccuracies—Respondents were asked to rate their tolerance for false alarms and inaccurate reporting (rated on a scale from 1 to 5, where 1=low tolerance and 5=high tolerance). While respondents did not indicate a high tolerance for false alarms or inaccurate reporting, they were somewhat more tolerant of false alarms pertaining to fire danger (M=2.7, sd=.6, n=11; *Figure F14-24*), than they were of inaccurate reporting of high fire potential (M=2.3, sd=.5, n=11; *Figure F14-24*).
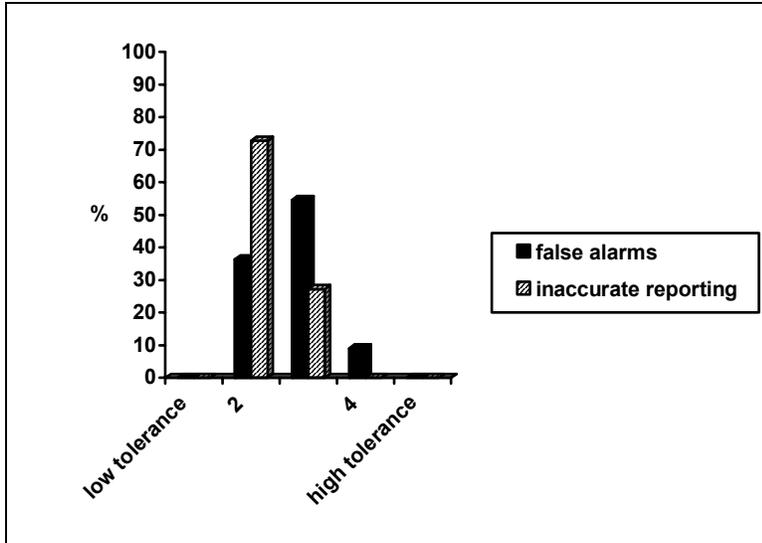
Figure F14-24. Tolerance for false alarms and inaccurate reporting—federal non-NWS meteorologists

In order to capture overall preferences for approaches to errors ("Although it is understood that accurate and reliable reporting of fire danger and high fire potential are desirable, margins of error are involved in predictions. In these cases, do you prefer that…"), respondents chose between two statements:

"Statements of danger or risk be issued with a greater margin of error allowing for an early response, knowing that this may lead to unnecessary alarms and response (Better safe than sorry)" —72.7 percent chose this statement as their preference.

"Statements of danger or risk should only be given with certainty, knowing that this may allow a few dangerous events to emerge that were not anticipated (Don't cry wolf)." —27.3 percent chose this statement as their preference.

Audience identification— According to the federal meteorologists, not in NWS, the primary audiences for Predictive Services' products should include: local and district fire managers (81.8%), regional and state fire managers (72.7%), national fire managers (72.7%), and to a lesser extent non-fire land managers (45.5%), and the public (18.2%; note that respondents could select multiple audience types, so responses do not sum to 100%).

Respondents were invited to specify other primary audiences, resulting in the following comments:

Dept Homeland Security
States

Preferred information formats—Respondents were asked to indicate their preferences for the style and format of presenting information. For each of 11 formats presented, a rating from 1 to 5 was requested (1=not at all useful, 5=very useful). Based upon the proportion of respondents assigning ratings of 4 or 5 to each format, the formats most to least useful were: information presented in regional or national maps (81.8%), web-based ArcIMS maps with user-defined layers and scales (72.7%), data in table form (63.7%), satellite maps (63.6%), brief executive

summaries of data (54.6%), radar maps (45.5%), data in text form (45.5%), brief annotations that accompany data presentations (45.5%), bar charts or figures that summarize data (45.5%), data in spreadsheet form (36.4%), and non-web-based Geo database files (27.3%).

Other styles or formats of information offered by respondents, or comments surrounding this issue, included:

800 number

Respondents were also asked to indicate what, if any information they would like to see in summary or synthesis form, resulting in the following comments (for this item the don't know and not applicable responses have been excluded):

Trends for the immediate future and any indication of long-term changes.
s statement about the smoke risk to human health, firefighter safety, public at large safety ignitions and ignition potential.
Fire potential products on a regional basis.
trends
More specific fire occurrence information, such as how many acres burned each day

Improving existing products and services— Respondents were asked to complete the sentence "The information and services provided by Predictive Services would be more useful to me if…", resulting in the following open-ended remarks:

they were fully regionalized. E.G. in northern CA, the criteria to elevate the 7-Day Lg. Fire potential to extreme levels should not necessarily be the same as in other GACCs.
...if there were an 800 number I could call for fire danger information. This would be useful when I was on the road or anywhere I didn't have access to a computer.
it included more interrelated info about smoke management
I knew something about what was offered. I don't know anything about their products.
Fire danger indices were calculated further into the future.
there was consistency among the GACCs in format and availability.
they provided more long term prediction of prescribed fire potential and WFU potential. It would also be useful if they had weekly, monthly, seasonal outlooks for wind direction and ventilation.
they tied together users from the local level on up to the national level.

Respondents were also asked to consider the existing products and services, and comment on how they could be modified to better meet their needs, leading to the following comments (answers of don't know or no comment have been excluded):

Allow me to get the same information for any latitude/longitude point I'm interested in.
More graphic products in addition to the tabular formats.
More consistency among GACCs, more graphical presentations.
Build them into fire danger operating plans at the local level

Products or services that should be added to what Predictive Services provides— Respondents were asked to explain which products and services should be added to Predictive Services and why, resulting in the following comments:

in northern CA a Daily graphic showing NWS Watches/ Warnings, areas with potential for lightning or high winds

A greeness index, presented graphically, so I could quickly see which areas have dense fuels and what their level of dryness is.

smoke related products re visibility, PM concentrations, long range slow, valley concentrations

Lightning forecasts and actual strike maps on top of ignition potential.

Fuels and weather outlooks during spring and fall burning seasons.

Comprehensive fuels condition information, better quality field observation data.

maybe each office has something we could all try producing to present the information in different ways.

Were There Additional Comments?

As is customary in such surveys, we invited respondents to offer any comments about Predictive Services, or any comments about the survey, resulting in the following remarks:

survey is a bit lengthy and slightly redundant, otherwise a good one.

This is one of the few government programs that more than pays for itself. A single Type 1 team deployment costs a minimum of $500,000 - $1,000,000. Every time PS information allows us to catch a fire early, the government saves at least that amount of money. That fact should be at the forefront of every public contact that PS makes.

This is a valuable program that is in its infancy. With time it will develop into a component of all fire and burning related decision making.