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Spring/Summer 2007

http://www.weather.gov/

National Weather Service - Elko
The Great Basin Spotter Newsletter

For the best view of the pictures and articles in our newsletter go to:

http://www.weather.gov/elko

click on the OUTREACH link on the left, and then click on the NEWSLETTER link.

Eureka, NV Tornado June 2006

Storm Damage Elko, NV Sep 2006

Ruby Valley , NV Wind damage Nov 2006

Kevin Baker (above)
Meteorologist In Charge
Of Elko NV WFO
NOAA National Weather Service

Spotter Training and Reminders

By Jeff Savadel Warning Coordination Meteorologist

Storm spotters play a critical role in the warning process at National Weather Service forecast offices. Their reports often determine if a warning will be issued and are also valuable in adding credibility to ongoing warnings. As a reminder, we ask you to call us 24/7 at **775-778-6720** or toll-free at **866-326-5364** if you observe:

Tornadoes (Make sure you see rotation)
Wind of 50+ mph or any wind-related damage
Hail ½"+
Flash flooding and/or rainfall rates of 1/2"+ per hour

If ever in doubt, err on the side of caution and call with your report.

Also, in support of the wildland fire fighting community WFO Elko will issue short-term weather forecasts to identify immediate hazards to fire fighters. The primary hazard in our region is strong outflow winds from thunderstorms. We ask that you report any strong wind gusts associated with outflow boundaries, ideally with measured wind speed and direction. Forecasters can often see outflow boundaries on radar that are close to the radar location in Battle Mountain, but in areas such as White Pine county and northern Nye county, these outflow boundaries are too shallow to be detected by radar. Your help reporting these types of features could have a tremendous impact on our operations and help protect the fire fighters.

Lastly, current spotters are urged to get training every 2 years. If it has been a while since you've had your training please contact me (Jeffrey.savadel@noaa.gov - 775-778-6716) and we can try to get some refresher training completed. Thanks to all spotters for their help in supporting the NWS mission to save and protect lives and property

Meteorologist In Charge says: Thank you!

I wish to thank all of our weather spotters and observers for their continued support and contributions. Your weather observations and information helps us supply the Nation with climate data and are included in our daily Regional Temperature and Precipitation summaries or Local Storm Reports. They are also relayed to the media and other customers. We appreciate you and your spirit of volunteerism!

Forecasting Fire Weather

Article courtesy of NOAA Celebration Web site Highlights

http://celebrating200years.noaa.gov/

The NOAA National Weather Service's Incident Meteorologists include a group of about 70 scientists specially trained to go to wildfires and other incidents and provide weather briefings and forecasts to incident responders and command staff. Forecasts ensure the safety of operations, allowing responders to take into account one of the most changeable aspects of any incident—the weather.

Above: Fire encircles a hill off Bullion Road, west of Elko . Photo courtesy of The Associated Press Aug 22, 2006

The History of the IMET Program

The catastrophic fires of 1910 that raged across Idaho, Montana, and Washington, were a turning point in how the nation dealt with wildland fires. Prior to 1910, there was no real concerted effort to manage or control the nation's forests or fight forest fires. The death and devastation left behind by the 1910 wildfires made people take notice, and the U.S. Forest Service was soon tasked with managing the nation's forests and fighting forest fires. Forest Service employees soon realized that the weather was a major factor in how and when fires could be fought, and so they turned to the experts at the U.S. Weather Bureau, the predecessor to the National Weather Service.

"Mobile" Fire Weather Units

The Weather Bureau started doing forecasts specifically for the fire weather community in 1914. In 1916, the first "mobile" weather unit was deployed to a fire. This mobile unit consisted of a forecaster and a team of horses carrying his weather equipment to the field to support firefighters. It soon became apparent that having a forecaster at the incident was a big plus for both planning and safety.

In the 1930s, the first mobile fire weather vans were created. Automobiles had proven reliable and could carry more equipment farther and with less upkeep than a team of horses. Fire weather "vehicles" were used all the way into the 1970s, with upgrades of vehicles and radios as they became available.

IMETs preparing to travel to a fire camp, circa 1920.

IMETs preparing a Fire Weather Forecast for a wildfire incident, circa 1930.

The Boise Interagency Fire Center

IMET **Chuck Syverson briefs a wildland fire manager from a National Weather Service mobile unit in 1965.**

In 1965, the Forest Service and the Bureau of Land Management developed the Boise Interagency Fire Center (BIFC) to better coordinate firefighting efforts in the Great Basin area of the U.S. Shortly thereafter, the Weather Service joined the group and created a "Staff Meteorologist" position to support decision making at the BIFC and to streamline the IMET program nationwide.

In 1993, the BIFC changed its name to the National Interagency Fire Center (NIFC), to better reflect the national scope of its mission.

The Air Transportable Meteorological Unit

In the 1980s, the Weather Service realized that there were better ways to support the IMET program. While fire weather vans had worked in the past, there were problems with this system. Only a handful of vans were available, meaning that only a few IMETs were available for dispatch. Weather support on an incident was critical, and while the demand for IMETs was increasing, the supply of IMETs and weather vans was staying the same. Also, incidents were taking place in increasingly remote areas of the country. Not only did the Weather Service need more IMETs, it also needed to be able to get these IMETs and their equipment to remote areas quickly.

IMET Carl Gorski prepares to track a Pilot Balloon (PIBAL) at a fire incident as a Fire Behavior Analyst prepares to launch the PIBAL.

The first step in addressing these issues was to scale down the size of the equipment, so it could be more easily transported. Thus, the first Air Transportable Meteorological Unit (ATMU) was born. The ATMU was a trailer filled with needed equipment, which could be towed or flown into incident areas. The only drawback to this approach was that the trailers were expensive, and they were just barely able to be transported via helicopter.

Advanced Technology Meteorological Unit

In the early 1990s, technology had advanced enough that the first laptop computers were used in the field, bringing equipment down to a more manageable size. Also, equipment for satellite communications had "shrunken" to a size that was practical for use in a mobile weather unit.

Last Chance Fire by Elko National Weather Service 8/2006

This marked the creation of the new Advanced Technology Meteorological Unit. For the first time, IMETs were able to travel literally anywhere that a vehicle or helicopter could take them and, equally important, all the equipment needed to run a small "weather office" could come along for the ride.

The IMET Program Today

Today, the main incidents IMETs cover are wildfires, though IMETs have responded to other types of incidents such as oil and chemical spills and terrorism response drills. IMETs were on the scene when the *New Clarissa* tanker spilled oil off the coast of Oregon, helped in recovering debris from the Space Shuttle Columbia in Texas, and provided forecasts for emergency responders in the event of a terrorist attack at the 2004 Democratic and Republican National Conventions. Most recently, the IMET program has assisted with forecast and warning support for the Federal Emergency Management Agency after the Greensburg, Kansas EF5 tornado in May 2007.

Tools of the Trade

Today, IMETs have the ability to set up "mini-Weather Forecast Offices" at any site across the nation. In 2007, satellite communications were upgraded to use a two-way system that consists of a small, portable satellite dish, about the size of a laptop, with a receiver and a transmitter. This allows IMETs to download weather data from the Internet nearly anywhere in the world. The new All Hazards Meteorological Response System (AMRS) now weighs in at around 50 pounds, a far cry from the old days of horses or vans.

Laptops used by IMETs have also been upgraded. IMETs in the field now use a software package that mimics the software used in Weather Forecast Offices. IMETs use one program to look at model data, satellite data, radar data, sounder data, lightning data, and surface and upper air observation data. This allows IMETs to work with data in real time, thus shaving precious minutes off any weather alerts that may affect an incident.

IMET Chuck Redman from the NOAA National Weather Service forecast office in Boise, Idaho, setting up the FireRAWS equipment near a wildfire.

NOAA forecaster Troy Lindquist of the NOAA National Weather Service forecast office in Grand Junction, Colorado, uses a theodolite to align the angle a weather balloon takes after being launched.

The ATMU was also changed in 2002. The new ATMU—now called the "Atmospheric *Theodolite* Meteorological Unit"—fits in one case and consists of the theodolite and Pilot Balloon equipment used by IMETs to launch and measure weather on site. These balloons allow IMETs to take upper air observations at an incident, in order to determine what the winds at the location might do later in the day.

A special unit within the Bureau of Land Management dispatches, sites, and maintains the Remote Automated Weather System (RAWS). RAWS provides IMETs with crucial information, including temperature, humidity, and wind speed and direction. However, unlike earlier systems, RAWS has better computing capabilities; can take readings on fuel moisture and precipitation; and can radio its observations to a satellite, after which the observations can be downloaded and added to the RAWS network.

Training

IMETs are National Weather Service meteorologists who have completed specialized, intensive training. Before being selected as an IMET trainee, each meteorologist must have completed training on synoptic and meso-scale forecasting, radar and satellite interpretation, NOAA policy, and other topics needed to become qualified as a "journeyman forecaster."

IMET article continued from page 4

IMET certification requires the completion of several more fire-weather specific courses and several on-site training dispatches. Trainees learn about everything from the Incident Command System to how a fire reacts to certain weather, fuel, and topographic conditions. Trainees must also learn about micro- and meso-scale forecasting for fire weather. Trainees must also prove that they can perform all the duties required of them during an incident. This "proof" comes during trainee dispatches to wildfires, under the tutelage of a certified IMET.

Once a trainee has completed all of these tasks, he or she is then certified as an IMET. By the time a trainee becomes certified, he or she will have completed, at a minimum, over 225 hours of fire weather and behavior training as well as on-the-job training.

In order to remain certified, all IMETs must take 25 hours of refresher training each year or go to an incident every 18 months.

Future Directions

The IMET program has a long history of excellence in incident response. The IMETs are a unique group, uniquely qualified and knowledgeable, able to respond to any incident, anywhere in the U.S. In the coming years, the program will continue to evolve. The use of fine grids of data, embedded within larger National Weather Service forecast grids, will allow IMETs to provide responders with greater detail about the weather and allow for better forecasting of where a hazard will move next. Improving technology will also allow IMETs to deliver information to responders more quickly.

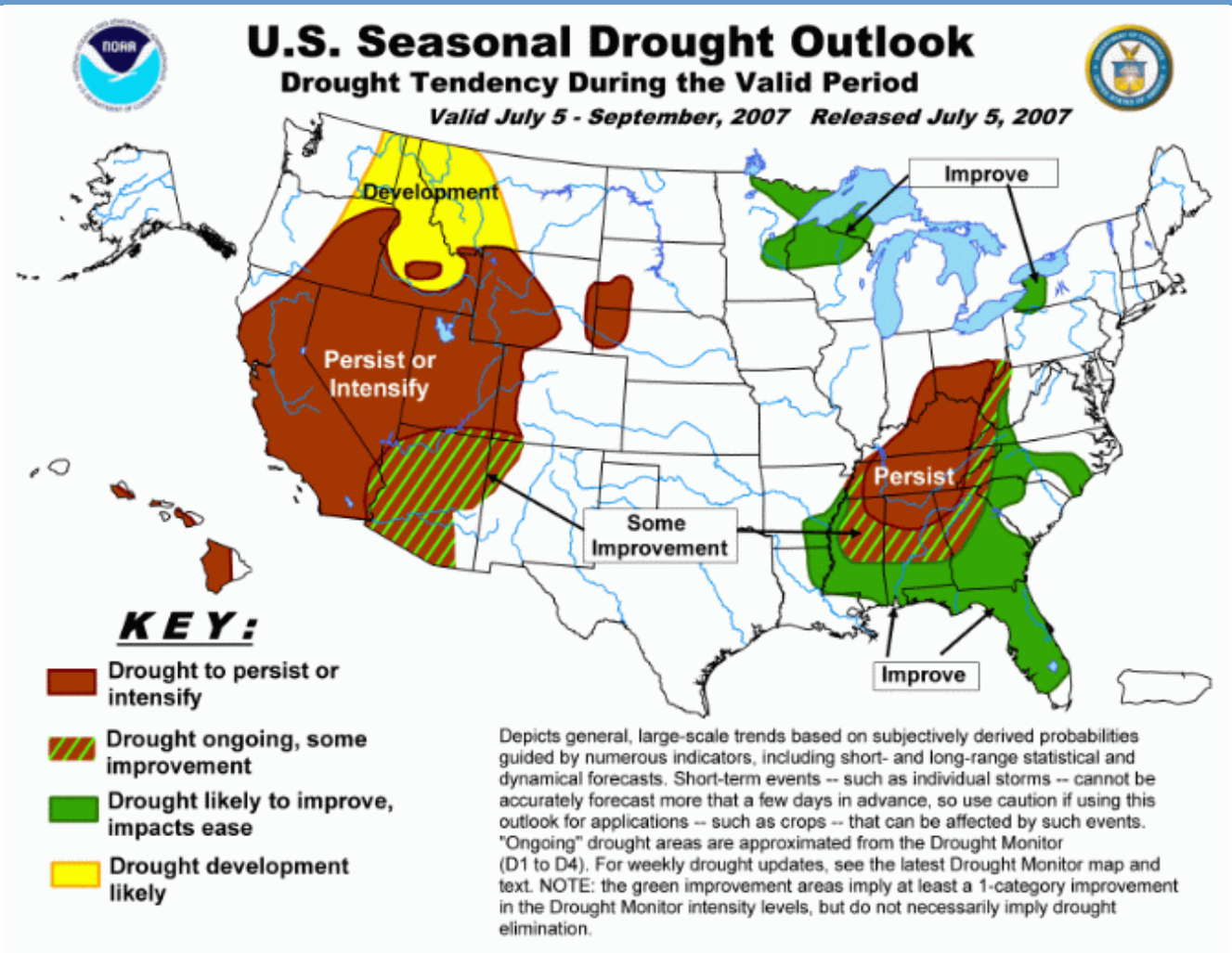
After the September 11th terrorist attacks, the world changed in many ways, including increased emphasis on response to terrorism and other hazards. IMETs have always responded to incidents other than wildfires. As we move ahead, the role of IMETs in all-hazards response will only increase.

Steven Ippoliti "Ippi" ***(****at left) is the NOAA National Weather Service local IMET trainee for Elko county. Steven is a Meteorologist who transferred to the Elko, Nevada office from Texas in December of 2005 and is the Elko NWS office Fire Weather focal point.*

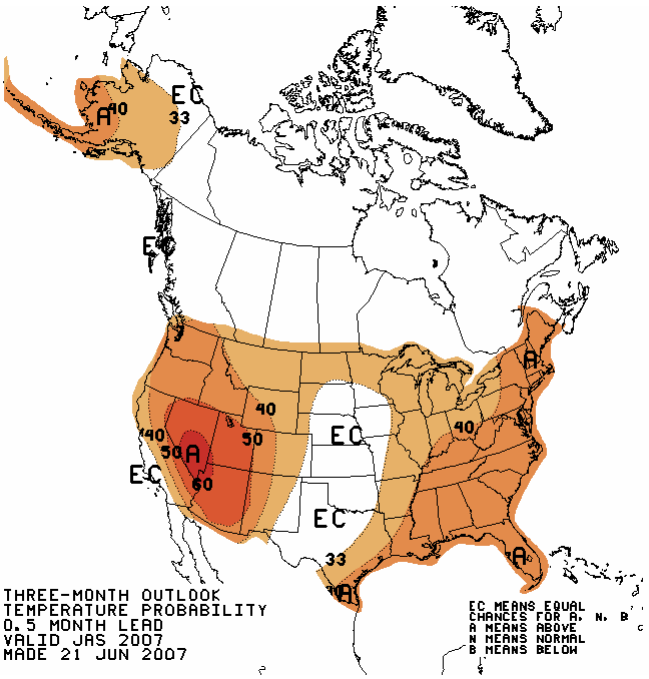
A weather briefing at fire camp.

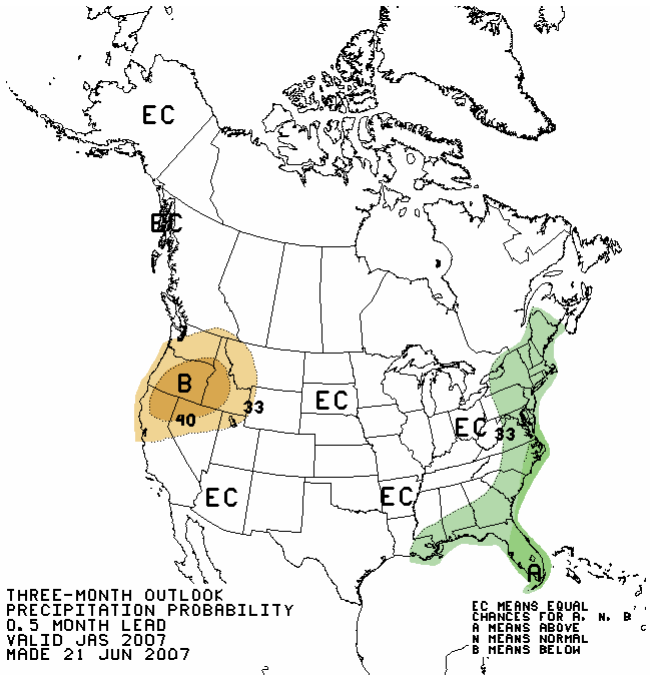
Several Elko Daily Free Press headlines in the Summer of 2006

Interagency fire weather meeting at Elko NWS 10/2006



OFFICIAL Forecasts Jul-Aug-Sep 2007





Mike Couch (OPL) with celebrating 200 years poster

This year NOAA is celebrating 200 years of science, service and stewardship provided to the American public, from the founding of the US Coast and Geodetic Survey by Thomas Jefferson to our present-day activities. For more information go to http://celebrating200years.noaa.gov/

NOAA Weather Radio Becomes NOAA All Hazards Radio

By Michael Couch Observing Program Leader

In June of 2004, an agreement was signed between the Department of Homeland Security (DHS) and the National Oceanic and Atmospheric Administration (NOAA). With this agreement, DHS has the authority to prepare an alert or warning message that can be sent to the National Weather Service (NWS) for immediate broadcast over NOAA Weather Radio (NWR) to specific areas or regions.

Also in that time frame, came the activation of numerous new Specific Area Message Encoder/ Emergency Alert System (SAME/EAS) event codes. These event codes included such non-weather related emergencies as AMBER (Child Abduction) alerts, along with radiological, earthquake, landslide and volcano warnings. Numerous civil emergency and law enforcement codes were activated as well. A complete list of EAS event codes can be found at http://www.weather.gov/os/eas_codes.shtml.

History

NOAA Weather Radio began back in the 1950s, with a total of 2 stations. Over the course of the 1970s, the number of radio stations grew to over 300 as more land and marine stations were added. The NWS currently operates over 900 transmitters across the United States and American Territories. The broadcasts for these stations originate from 121 NWS Offices and cover over 97% of United States territory. A complete list of transmitters and coverage maps can be found at http://www.weather.gov/nwr/nwrbro.htm.

For over 30 years, NOAA Weather Radio was just that, a group of radio stations that transmitted nothing but weather information. The policy of "only weather" began to change in the 1980s as civil emergency messages began to be broadcast on NWR. These emergency messages were sent for such things as chemical spills and train derailments. Over the last 5 years, drastic changes have been made to the original NWR. These changes have taken advantage of a previously untapped outlet for getting important non-weather information to the public.

Though the role of NOAA Weather Radio has evolved into NOAA All Hazards Radio the dedication of NWS personnel to provide timely and accurate weather information has not changed. Weather is still the primary focus of the radio broadcasts, and this information is broadcast 24/7, 365 days a year. However, when circumstances warrant, the National Weather Service stands ready to assist the Department of Homeland Security, as well as state and local governments in providing emergency information to the public.

Above: Ray Martin, Meteorologist Intern, releases a weather balloon during the upgrade.

Left: Troy Marshall Hydro-Meteorological Technician

Radiosondes began to be used by investigators during the 1920s and 1930s .

Radiosonde Replacement System Upgrade (RRS) by Delyne Kirkham

In June 2007 the Elko NOAA National Weather Service underwent a Radiosonde Replacement System upgrade (RRS) for our Upper Air program. Several of our staff were trained and certified for the new system. These include: Observing Program Leader Mike Couch, Forecaster Jon McGee, Meteorologist Intern Ray Martin, Meteorologist Intern Gavin Phillips, and Hydro-Meteorological Technician Troy Marshall.

The RRS tracking and receiving equipment tracks the radiosonde that is carried into the upper atmosphere by a weather balloon. As it travels upward it transmits continuous measurements of temperature, humidity, wind speed, wind direction and air pressure. When the balloon bursts, the radiosonde falls back to Earth by parachute.

The new radiosonde utilizes GPS technology which our old system did not have. This makes tracking easier and more efficient.

Ninety-two NOAA National Weather Service sites simultaneously send these instruments around the world into the upper atmosphere twice a day.

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