



**NATIONAL WEATHER SERVICE  
WEATHER FORECAST OFFICE  
PHOENIX, ARIZONA**



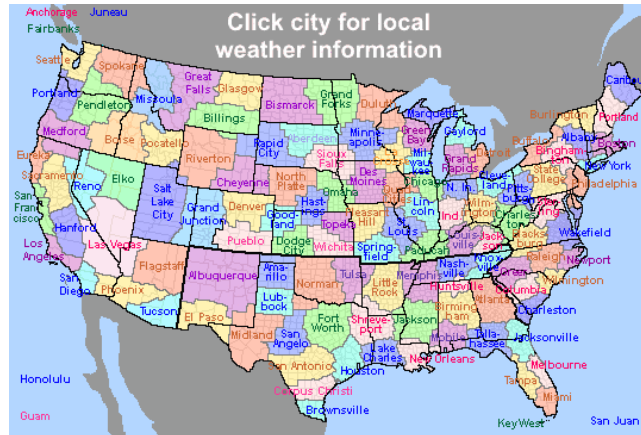
**PRODUCT GUIDE  
APRIL 2009**

## NWS ORGANIZATION AND MISSION



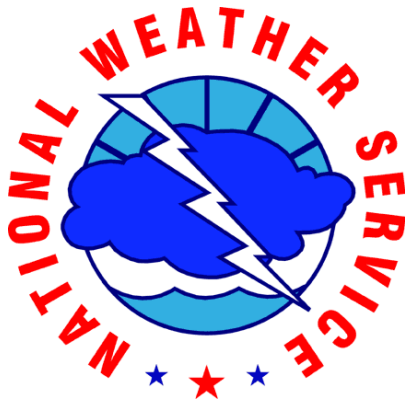
The National Weather Service (NWS) is part of the United States Federal Government under the Department of Commerce (DOC) and the National Oceanic and Atmospheric Administration (NOAA). The NWS consists of several national research and support centers, and over 122 regional Weather Forecast Offices (WFO), including offices in Alaska, Hawaii, Guam, and Puerto Rico.

### WEATHER FORECAST OFFICES



[HTTP://WWW.WEATHER.GOV](http://www.weather.gov)

## NATIONAL WEATHER SERVICE MISSION STATEMENT



" The NWS provides weather, hydrologic, and climate forecasts and warnings for the United States, its territories, adjacent waters and ocean areas, for the **protection of life and property** and the **enhancement of the national economy**. NWS data and products form a national information database and infrastructure which can be used by other governmental agencies, the private sector, the public, and the global community. "

## ARIZONA COUNTY WARNING AREAS



Each regional NWS WFO is assigned a geographic area of responsibility, known as a County Warning Area (CWA). The state of Arizona is divided among four CWAs, with offices in Tucson, Phoenix, Flagstaff, and Las Vegas, NV.

The Phoenix WFO CWA includes southern Gila, northern Pinal, Maricopa, La Paz, and Yuma counties in Arizona; and Imperial and eastern Riverside counties in California, including Joshua Tree National Park.

### CENTRAL AZ

Phoenix, AZ WFO

(602) 275-0073

### NORTHEAST AZ

Flagstaff, AZ WFO

(928) 556-9161

### SOUTHEAST AZ

Tucson, AZ WFO

(520) 670-6526

### NORTHWEST AZ

Las Vegas, NV WFO

(702) 263-9744

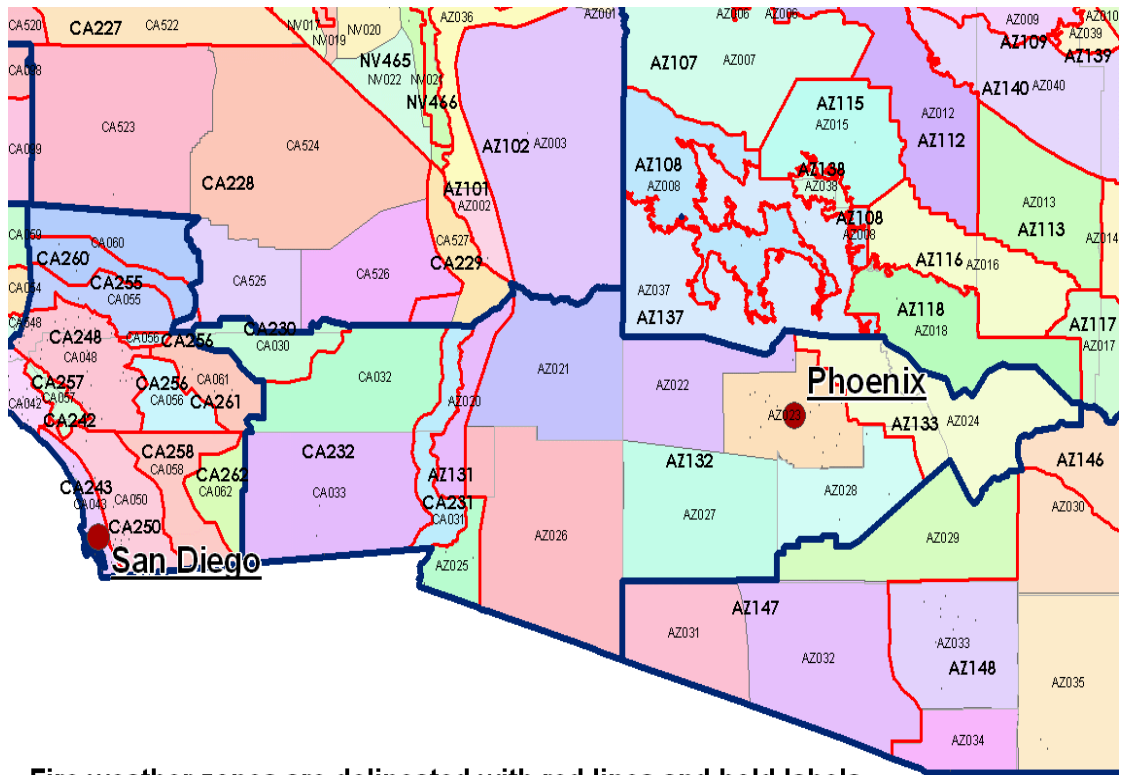


## PUBLIC FORECAST ZONES



Many forecast products issued by the National Weather Service referred to specific forecast zones within the CWA. The forecast zone boundaries often separate areas that are climatologically different. In some cases, a specific zone is assigned to a major metropolitan area (for example, the Phoenix Area is Zone 23).

Specific products that may refer to zones include the Zone Forecast Product (ZFPPSR), Non-precipitation Warnings (NPWPSR), and Short-term Forecasts (NOWPSR).



Fire weather zones are delineated with red lines and bold labels.

Public weather zones are delineated by colors and smaller labels.

## OFFICE LAYOUT AND WORK STATIONS



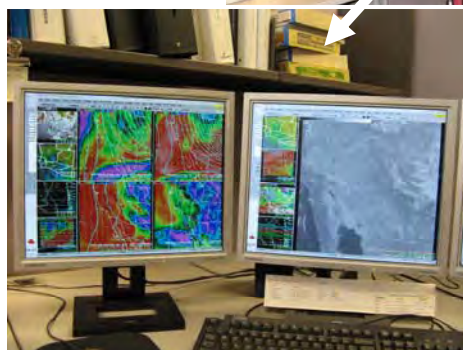
The Phoenix WFO is staffed 24/7 365 days a year and is divided into three operational areas: 1) Forecasts/Warnings, 2) Aviation/Fire Weather, and 3) Public Service.

All products and services provided by NWS meteorologists are generated using a multi-screen computer workstation, comprised of the D2D and IFPS (Interactive Forecast Preparation System) displays. The D2D is used to display all meteorological observations and computer model data, while the IFPS is used to *graphically* generate most forecast and warning products.

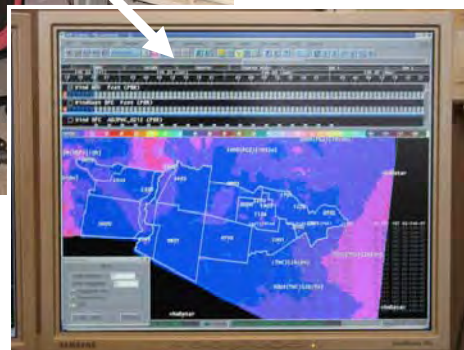
### FORECASTER WORKSTATION



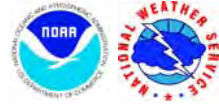
D2D DISPLAY



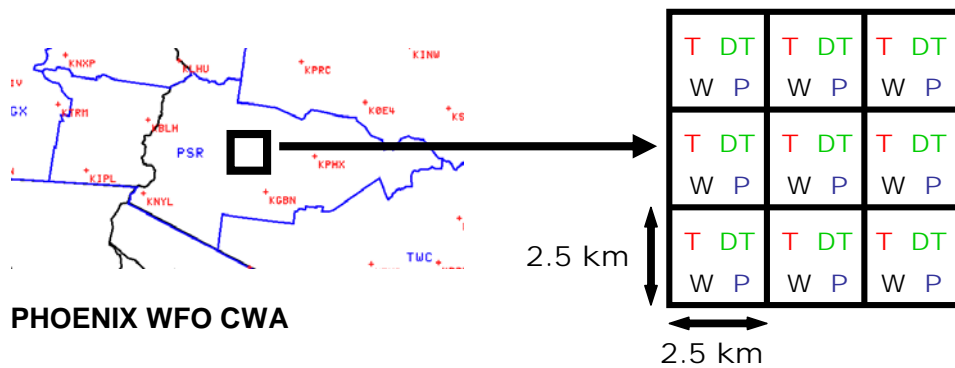
IFPS DISPLAY



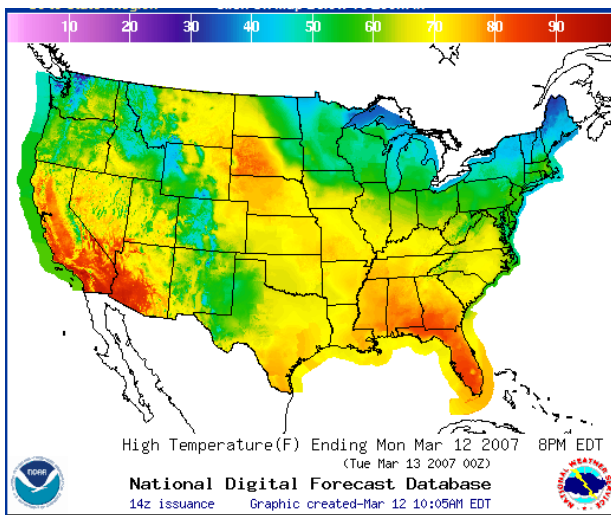
## GRAPHIC-BASED FORECAST PRODUCTS



Most NWS forecast products and services are now generated graphically. The Phoenix WFO CWA is digitally divided into a 2.5 km by 2.5 km grid. Specific values for weather forecast variables, such as temperature (T), dew point (DT), wind (W), and probability of precipitation (P) are assigned to each grid box. This is accomplished by drawing a picture using the IFPS at each workstation.



### NATIONAL DIGITAL FORECAST DATABASE



Graphic digital forecasts are available nationwide by accessing the National Digital Forecast Database (NDFD). More detailed information at the regional and local level can be obtained by clicking on the area of interest from the national map. Please see pages 9 and 10 for descriptions of important text-based products not included in the NDFD.

[HTTP://WWW.WEATHER.GOV/FORECASTS/GRAPHICAL/SECTORS](http://www.weather.gov/forecasts/graphical/sectors)

## WATCHES, WARNINGS, AND ADVISORIES



### WATCH

A watch is issued when the risk of a hazardous weather or hydrologic event has increased significantly, *but* its occurrence, location, and/or timing is still uncertain. It is intended to provide enough lead time so that those who need to set their plans in motion can do so.

### WARNING

A warning is issued when a hazardous weather or hydrologic event is occurring, is imminent, or has a very high probability of occurring. A warning is used for conditions posing a threat to life or property.

### ADVISORY

An advisory highlights weather conditions that are less serious than a warning. They are for events that may cause significant inconvenience, and if caution is not exercised, it could lead to situations that may threaten life and/or property.



The Storm Prediction Center (SPC) in Norman, OK, issues a **Severe Thunderstorm Watch** or a **Tornado Watch** when conditions are favorable for the development of severe thunderstorms and/or tornadoes in and close to the watch area. SPC is a national center; as such, it provides these products to the entire nation on an as-needed basis. Forecasters at local offices collaborate with SPC forecasters before these products are issued.

**Important:** Local offices, including WFO Phoenix, issue severe thunderstorm and tornado warnings. Warnings are short-fused products that target more precise locations for a much shorter period of time, and are based primarily on radar data and spotter reports.



## TEXT-BASED PRODUCTS



## PUBLIC FORECAST PRODUCTS

**Area Forecast Discussion ( PHXAFDPSR)** – The Area Forecast Discussion provides the latest technical reasoning employed by the meteorologist(s) to generate the current forecast. It includes short term and long term discussions, as well as an aviation discussion (fire weather and climate discussions may be present, depending on the situation and time of year). Issued four times daily, typically no later than 3 AM, 10 AM, 3 PM, and 10 PM.

**Zone Forecast Product (PHXZFPPSR)** – The Zone Forecast Product is a detailed forecast information for Days 1-7 over the 13 designated public zones across the Phoenix WFO CWA. Routinely issued twice daily, typically no later than 3 AM and 3 PM. Updates may occur at any time.

**Point Forecast Matrix (PHXPFMPSR)** - The Point Forecast Matrix is a site specific forecast for sites throughout the forecast area. It provides a forecast in tabular style format out to 7 days.

**State Forecast Table (PHXSFTPSR)** - The Tabular State Forecast Product provides a 7 day forecast of daily predominant daytime weather from 6am to 6pm, forecast high and low temperatures and probability of precipitation for selected cities throughout the forecast area.

**Short Term Forecast (PHXNOWPSR)** – The Short Term Forecast (also referred to as a NOWCast) provides near-term forecasts in the 1-4 hour period for specific events. This product is event-based and is not routinely issued.

**Hazardous Weather Outlook (PHXHWOPSR)** – The Hazardous Weather Outlook is used to alert users (media, emergency management and the public) of potential winter weather, severe weather, fire weather, non-precipitation or flood hazards that may occur within the next 7 days. It is designed to be a “heads up” to expected hazardous weather and its potential impact. This product is event-based and is not routinely issued.



## CLIMATE AND OBSERVATIONAL DATA PRODUCTS

**Temperature and Precipitation Summary (PHXRTPPSR, PHXRTPAZ)** – The Temperature and Precipitation Summary provides updated observations of maximum and minimum temperatures and precipitation at numerous sites around the forecast areas. Data are collected from a combination of volunteer observation sites and automated weather observation stations. This product is disseminated twice daily, at 9:00 AM and 6:00 PM.

**Preliminary Climate Report (PHXCLIPSR)** - The Preliminary Climate Report gives detailed daily weather statistics for Phoenix Sky Harbor International Airport, including temperature, precipitation, degree days, wind, humidity, sunrise/sunset, and record temperature data. This product is routinely issued three times daily, at 4:00 PM, 5:00 PM, and around 1:30 AM (for the previous days statistics).

**Monthly Climate Report (PHXCLMPSR)** - The Monthly Climate Report gives an overview of the past month's weather in Phoenix, AZ from the Phoenix Sky Harbor International Airport. It includes temperature, precipitation, degree days, pressure, and wind data. Normal values and departures from normal are also included. This product is issued at the beginning of each month, for the prior month's data.

**Preliminary Local Climatological Data (PHXCF6PSR)** – Provides a daily and monthly summary of weather statistics at Phoenix Sky Harbor, in tabular format. Data that are included are temperature, precipitation, and wind.

**Regional Weather Roundup (PHXRWRPHX)** – An hourly summary of the latest observations from around the region.

**Record Event Report (PHXRERPSR)** – The Record Event Report is sent out when any record is tied or broken at a site where the NWS has sufficient climatological records to establish a record (at least 30 years). This would include record highs/lows and record rainfall. A Record Event Report will state what type of record has been broken, what the old record was, and what the new record is.

**Local Storm Report (PHXLSRPSR)** - The Local Storm Report product relays information on severe or other significant storm events to the media, emergency managers, and other NWS offices.

## MISCELLANEOUS TEXT PRODUCTS

**Public Information Statement (PHXPNSPSR)** – The Public Information Statement is a text product which is issued to inform the public about important information which may or may not be weather related. This information can range from interesting weather tidbits to a notification of a change to specific products.

**Radar Free Text Message (PHXFTMIWA, PHXFTMYUX)** - The Radar Free Text Message notifies users of planned or sudden outages in radar data. Often times, additional information, such as the reason for the outage, is provided.

**Air Quality Advisory (PHXAQAPSR)** – The Air Quality Alert, issued by the Arizona Department of Environmental Quality, is issued when environmental conditions may lead to hazardous concentrations of pollutants in the lower atmosphere.

**Civil Emergency Message (PHXCEMPSR)** – The Civil Emergency Message is initiated by local, state, county or law enforcement officials to inform the public of avalanches, toxic and or chemical releases, air pollution events, a nuclear accident or any weather events related public impacts such as evacuations due to flooding.



\*All products can be accessed from our website at <http://weather.gov/phoenix>. Most routine products are accessible from the front page of our website. Other products can be accessed using the FIP header (e.g., PHXPNSPSR), or by clicking on “Local Forecasts” on the left-hand side of the webpage. Other products that are critical (such as warnings, watches, etc.) may show up on the clickable map.

## SEVERE WEATHER PRODUCTS

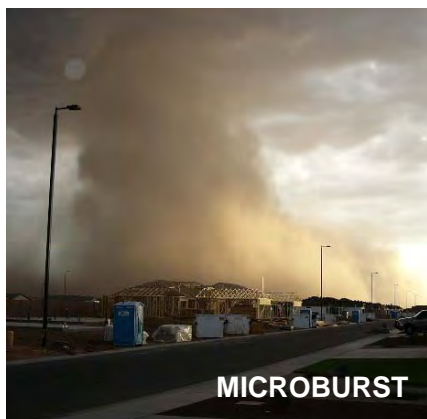
**Tornado or Severe Thunderstorm Watch (PHXSEL)** – A Tornado (Severe Thunderstorm) Watch, issued by the Storm Prediction Center in Norman, Oklahoma, means that the environment is favorable for the production of thunderstorms capable of producing tornadoes (severe winds or hail). Typically, a watch is issued 1-4 hours ahead of a potential event.

**Severe Thunderstorm Warning (PHXSVRPSR)** – A Severe Thunderstorm Warning is issued when a thunderstorm capable of producing 1 inch or greater hail, or 58 mph or greater wind, is detected by radar, or reported by spotters. A warning means that a threat of severe weather is imminent or occurring.

**Tornado Warning (PHXTORPSR)** - A Tornado Warning is issued when a thunderstorm capable of producing a tornado is detected by radar, or reported by spotters. A warning means that the threat of a tornado is imminent or occurring.

**Severe Weather Statement (PHXSVSPSR)** – A Severe Weather Statement is issued as a follow-up statement to either a Tornado Warning or Severe Thunderstorm Warning. Often times, additional information about the thunderstorm is provided, such as spotter reports, or additional threats or hazards that may have developed after warning issuance.

**Special Weather Statement (PHXSPSPSR)** – The Special Weather Statement (SPS) is sometimes used to augment the current forecast and highlight significant short-term weather that is not already covered in an advisory, watch, or warning product. An example would be a line of strong, but not severe, thunderstorms.



## HYDROLOGY PRODUCTS

**Flash Flood Watch (PHXFFAPSR)** – The Flash Flood Watch is issued when the threat for widespread flash flooding exists from heavy rainfall over a short time period. Typically, a watch is issued approximately 24-36 hours ahead of an event.

**Flash Flood Warning (PHXFFWPSR)** – The Flash Flood Warning is issued when the threat for widespread flash flooding is imminent or occurring. Typically, warnings are valid for under 6 hours. This product is issued as a polygon warning.

**Flash Flood Statement (PHXFFSPSR)** – The Flash Flood Statement is issued to follow up or cancel any Flash Flood Warnings that are in effect, and to provide the most updated information possible of the flash flooding threat.

**Flood Warning (PHXFLWPSR)** - The Flood Warning is issued when significant overland flooding, or flooding of washes and rivers, is expected over an extended period of time.

**Urban and Small Stream Flood Advisory (PHXFLSPSR)** – The Urban and Small Stream Flood Advisory is issued when flooding is a threat to urban areas or small streams, but the effects are not expected to be life threatening (i.e., “nuisance” flooding).

**Hydrologic Outlook (PHXESFPSR)** – The Hydrologic Outlook is a long range probabilistic outlook from the Service Hydrologist and various other federal agencies. It normally is issued for the water supply outlook and snow pack conditions.



## AVIATION WEATHER PRODUCTS

**Terminal Aerodrome Forecast (PHXTAFPHX, PHXTAFIWA, PHXTAFBLH, PHXTAFIPL)** – The Terminal Aerodrome Forecast (TAF) is used by the general aviation community and by the commercial airline industry as a planning tool for upcoming flights. The TAF forecasts wind, visibility, weather, obstructions to visibility, and sky conditions within 5 nautical miles of the airport, out to 24 hours. Non-convective low-level wind shear will also be forecast if significant. WFO Phoenix issues TAFs for the airports at Phoenix Sky Harbor, Phoenix Mesa Gateway, Blythe, CA, and Imperial, CA, four times daily. For more aviation information, visit <http://aviationweather.gov/>.

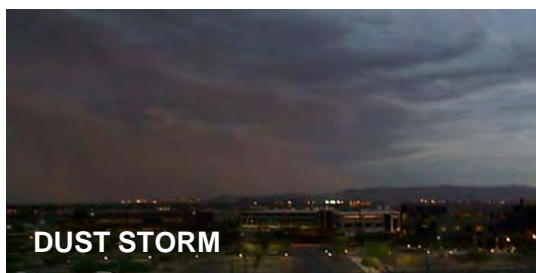
**Airport Weather Warnings (PHXAWWPHX)** – Airport Weather Warnings are issued for wind gusts greater than 35 kts at Phoenix Sky Harbor Airport. This product is used internally by airport personnel to alert ground crews of high winds.

## VISIBILITY PRODUCTS

**Dust Storm Warning (PHXNPWPSR)** – A Dust Storm Warning is issued when widespread areas of blowing dust cause visibility to drop to under one quarter of a mile. Dust storms can occur with widespread winds, or may be associated with thunderstorm outflow.

**Blowing Dust Advisory (PHXNPWPSR)** – A Blowing Dust Advisory is issued when areas of blowing dust cause visibility to be reduced to under one mile, but greater than one quarter of a mile. Typically, Blowing Dust Advisories are issued for widespread winds that may produce localized areas of blowing dust.

**Dense Fog Advisory (PHXNPWPSR)** - The Dense Fog Advisory is issued when widespread visibilities are at or below one quarter of a mile for an extended period of time.



## WIND, HEAT, AND COLD PRODUCTS

**Wind Advisory (PHXNPWPSR)** – A wind advisory is issued when sustained speeds of at least 30 MPH or gusts of at least 40 MPH are expected.

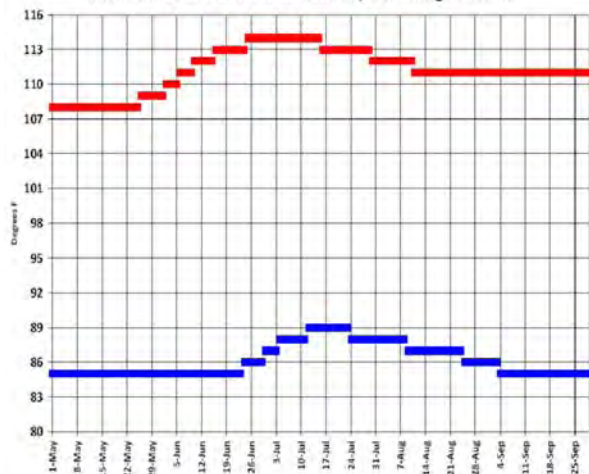
**High Wind Watch, High Wind Warning (PHXNPWPSR)** – A High Wind Watch (High Wind Warning) is issued when sustained winds of 40 MPH or greater and gusts of 58 MPH or greater are possible (imminent or occurring).

**Excessive Heat Watch, Excessive Heat Warning (PHXNPWPSR)**- An Excessive Heat Watch (Excessive Heat Warning) is issued when well-above normal temperatures that may be hazardous to health are possible (imminent or occurring). These products are typically issued between May 1<sup>st</sup> and September 30<sup>th</sup>. Criteria for issuing the products (shown below) also changes with the time of year, and is based on locally developed thresholds for maximum and minimum temperatures.

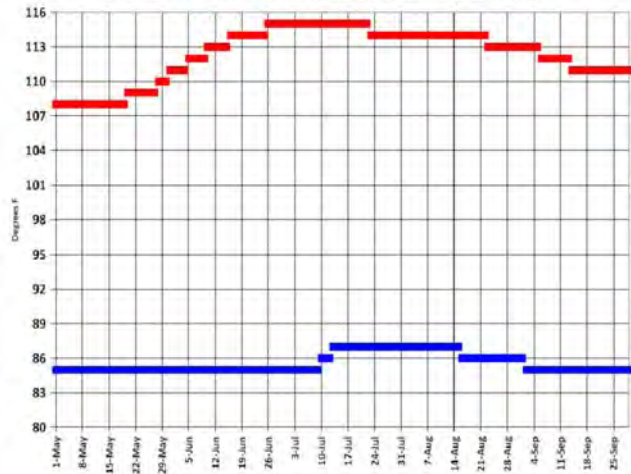
**Freeze Warning (PHXNPWPSR)** – A Freeze Warning is issued when widespread temperatures (more than half of a single public forecast zone) are expected to remain at or below 28° F for four or more hours overnight. Freeze Warnings are typically issued between 12 to 48 hours of the onset of the freeze event.

**Hard Freeze Warning (PHXNPWPSR)** - The Hard Freeze Warning is issued when more than half of the points in a single public forecast zone are expected to remain at or below 20°F for four or more hours.

Phoenix Excessive Heat Watch/Warning Criteria



Yuma Excessive Heat Watch/Warning Criteria

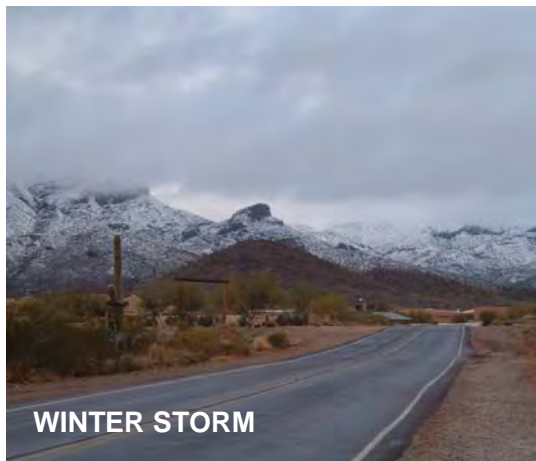


## WINTER WEATHER PRODUCTS

**Winter Weather Advisory (PHXWSWPSR)** – Winter weather event having one or more hazards (i.e., snow, snow and blowing snow, snow and ice, snow and sleet, or snow, ice and sleet) meeting or exceeding locally defined 12 and/or 24 hour advisory criteria for at least one of the precipitation elements, but remaining below warning criteria. For snow events, a Winter Weather Advisory is issued when 2 to 5 inches in 12 hours above 5000 feet, 1 inch in 12 hours below 5000 feet, or any accumulating snow on the lower desert floor are expected. However, criteria may change depending on the time of season and pre-existing conditions.

**Winter Storm Watch, Winter Storm Warning (PHXWSWPSR)** – A Winter Storm Watch (Winter Storm Warning) is issued whenever a combination of hazardous winter weather (typically heavy snow and strong winds) is expected (imminent or occurring). It is important to note that WFO Phoenix and its surrounding offices have different criteria for issuing winter storm warnings. For snow events, a Winter Storm Watch or Warning is issued when 6 to 12 inches above 5000 feet, or 2 to 4 inches below 5000 feet are expected or occurring. However, criteria may change depending on the time of season and pre-existing conditions.

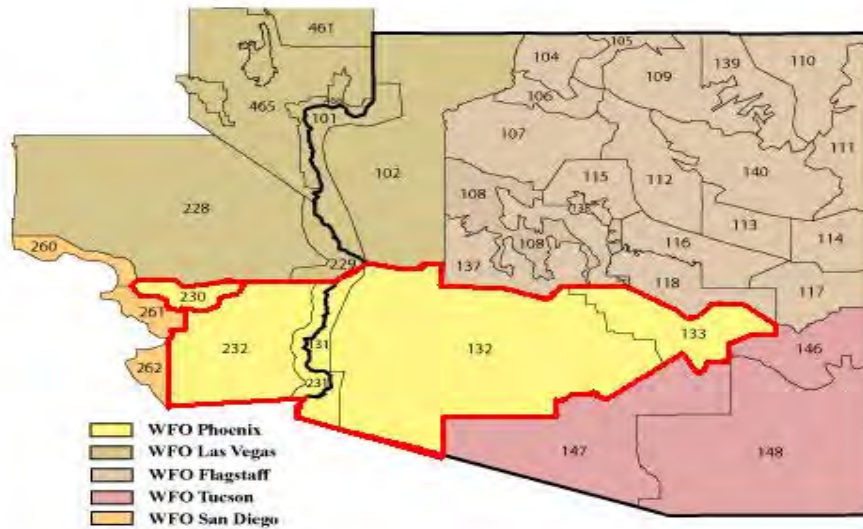
**Blizzard Warning (PHXWSWPSR)** – A Blizzard Warning is issued when sustained winds or frequent gusts of 35 MPH or more with visibility frequently below one quarter of a mile in snow or blowing snow for a period of at least 3 hours is imminent or occurring.



## FIRE WEATHER

In recent years, the National Weather Service has become more active in assisting users in the fire weather community with forecasts and weather information. WFO Phoenix provides a wide variety of fire weather forecasts, watches, warnings, and other products. A highly-trained incident meteorologist (IMET) is also on staff at WFO Phoenix and may be dispatched to wildfires or other hazardous incidents.

Fire weather products typically refer to designated fire weather zones (shown below), and are separate from the public forecast zones.





## FIRE WEATHER PRODUCTS

**Fire Weather Watch, Red Flag Warning (PHXRFWPSR)** – The Fire Weather Watch and Red Flag Warning is issued for dangerous fire weather conditions for a combination of low relative humidity, strong winds and dry fuels. This warning is issued with coordination from state fire weather officials. Criteria are determined locally for the issuance of a watch or warning. At WFO Phoenix, a minimum relative humidity of 15% or lower, sustained winds of 20 MPH or gusts to 35 mph, and dry fuel conditions, occurring for three (six) hours or more, are required for the issuance of a Fire Weather Watch or Red Flag Warning in Arizona (California).

Fire Weather Watches and Red Flag Warnings are based on individual fire weather zones (which in some cases, are different than the public forecast zones). On some occasions, watches or warnings will reference a specific part of a zone. Information about specific locations that may experience hazardous fire weather conditions can be found in the product text, the fire weather Area Forecast Discussion, or the Hazardous Weather Outlook.

**Fire Weather Forecast (PHXFWFPSR)** – The Fire Weather Forecast is issued at least once daily (twice during peak fire season in the summer), at around 5:30 AM (and 3:30 PM during peak fire season). The forecast is specifically tailored to the needs of the fire weather community, and includes forecasts for each fire weather zone. A brief discussion is also provided.

**Fire Weather Matrix (PHXFWMPSR)** – The Fire Weather Matrix produces a forecast of weather trends for individual fire weather points in a specialized format.

**Spot Forecast (PHXFWSPSR)** – Fire weather agencies may request specialized spot forecast requests for prescribed burns or wildfires. NWS meteorologists provide specific requested information for the location in a timely matter to assist agencies in fire management.



## NEW HAIL CRITERIA FOR SEVERE THUNDERSTORM WARNINGS

Beginning April 1, 2009, the National Weather Service will adopt new hail size criteria required for the issuance of a Severe Thunderstorm Warning. The previous hail size criteria was  $\frac{3}{4}$  inch, while the new size will be 1 inch. The new criteria was adopted after feedback from users across the country, and should reduce the total number of Severe Thunderstorm Warnings issued across the country. Storms capable of producing hail less than one inch hail can still be dangerous, and will be addressed using the Special Weather Statement product.



---

## ADDITIONAL WEATHER RESOURCES

NWS Western Region  
<http://www.wrh.noaa.gov>

Storm Prediction Center (SPC)  
<http://www.spc.noaa.gov>

Tropical Prediction Center (SPC)  
<http://www.nhc.noaa.gov>

Hydrometeorological Prediction Center (HPC)  
<http://www.hpc.ncep.noaa.gov>

Aviation Weather Center (SPC)  
<http://www.aviationweather.gov>

Climate Prediction Center (CPC)  
<http://www.cpc.noaa.gov>

National Climatic Data Center (NCDC)  
<http://www.ncdc.noaa.gov>

National Severe Storms Lab (NSSL)  
<http://www.nssl.noaa.gov>

# PHOENIX WFO INTERNET WEBSITE



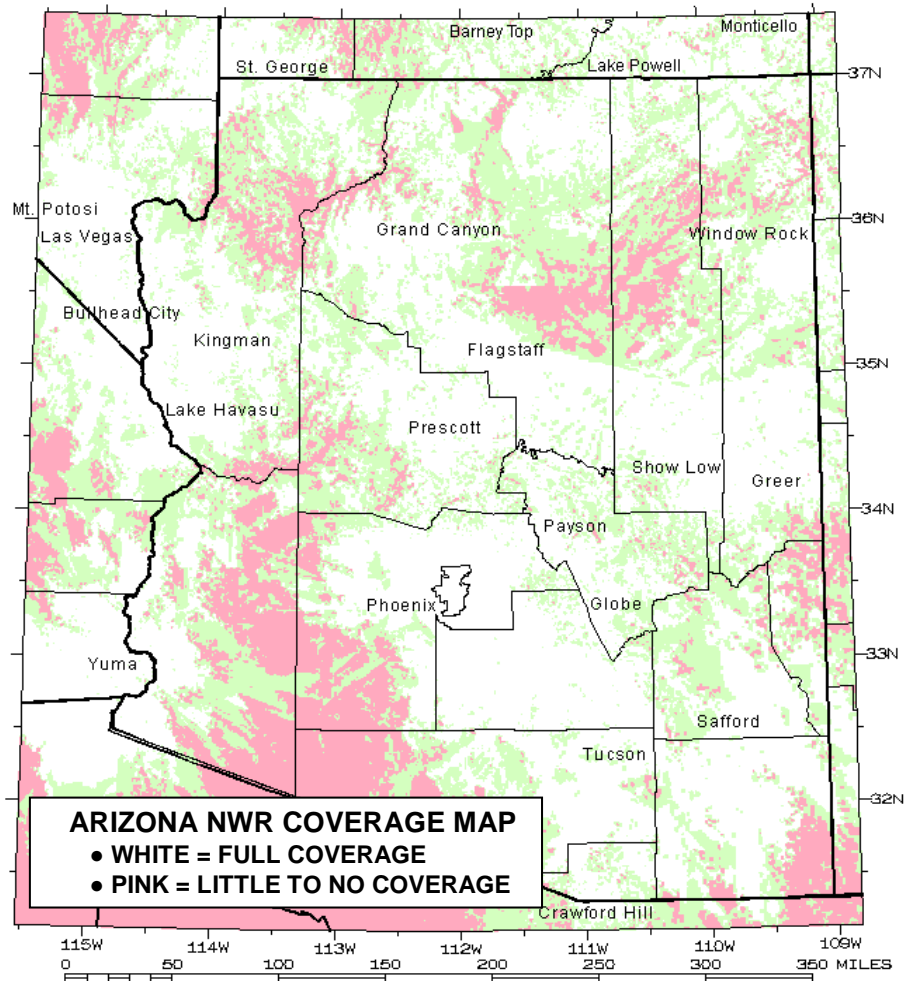
[HTTP://WWW.WEATHER.GOV/PHOENIX](http://www.weather.gov/phoenix)

All NWS products and services are available and updated continuously on the Phoenix WFO website. Please contact the Phoenix weather forecast office with any website content or navigation questions.

The screenshot shows the Phoenix WFO website interface with several red annotations and arrows:

- News:** Points to the "Current News" link in the top navigation bar.
- Hazards:** Points to the "Current Hazards" link in the left sidebar.
- Observations:** Points to the "Observations" link in the left sidebar.
- Forecasts:** Points to the "Forecasts" link in the left sidebar.
- Discussion:** Points to the "Area Discussion" link in the left sidebar.
- Climate Information:** Points to the "Climate" link in the left sidebar.
- Hydrology:** Points to the "Hydrology" link in the left sidebar.
- Zone Forecasts:** Points to the "Phoenix Zones" link in the left sidebar.
- Recent Hi/Lo/Precip Storm reports:** Points to the "Current Local Storm Reports" link in the left sidebar.
- Misc. Information:** Points to the "Weather Safety" link in the left sidebar.
- Radar:** Points to the "National Radar Display Sites" link in the bottom section.
- Current Conditions:** Points to the "Current Conditions" link in the top right.
- CLICKABLE FORECAST MAP:** Points to the central map area.
- Hazards Key:** Points to the legend on the right side of the map.
- Digital Forecasts:** Points to the "Featured Products" section.
- Satellite:** Points to the "Latest Radar And Satellite Images" section.

# NOAA WEATHER RADIO ALL HAZARDS



[HTTP://WWW.WEATHER.GOV/NWR](http://www.weather.gov/nwr)

**Phoenix (South Mountain): 162.550 MHz**

**Globe (Signal Peak): 162.500 MHz**

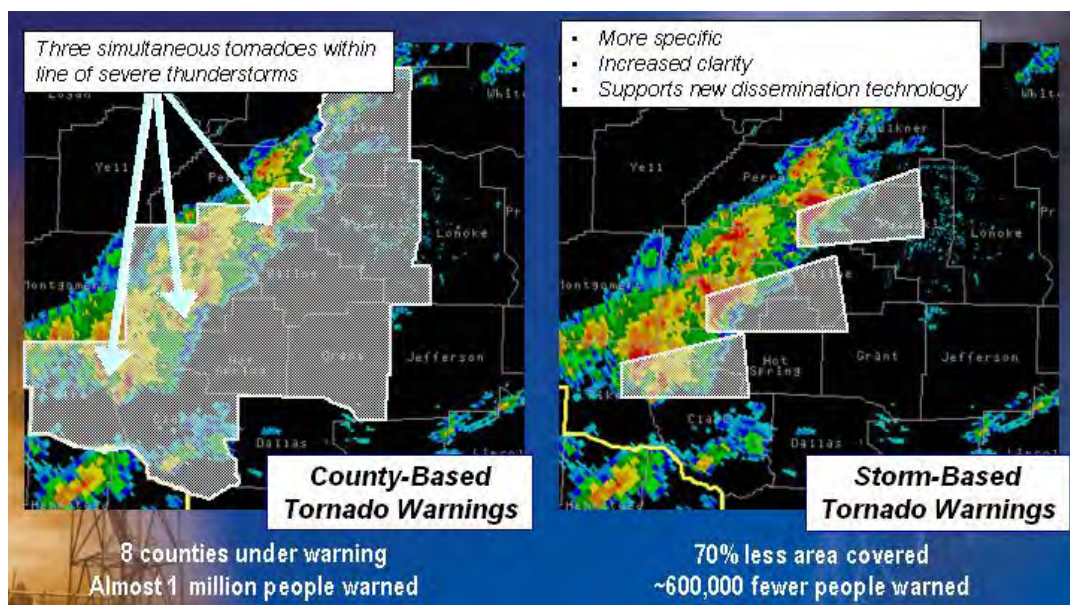
**Yuma: 162.550 MHz**

## NWS STORM BASED WARNINGS



Effective October 1, 2007, the Phoenix WFO began issuing storm based warnings for tornadoes, severe thunderstorms, and flash floods. Storm-based warnings are more geographically specific than county-wide warnings.

This system significantly impacts the state of Arizona. Maricopa County is slightly larger in area than the state of New Jersey. However, severe monsoon thunderstorms can be very limited in aerial coverage. For example, a storm-based warning issued for an isolated thunderstorm near Gila Bend would NOT unnecessarily alert millions of people in the Phoenix area. Warnings take the shape of a polygon, with each vertex assigned a latitude/longitude pair. This data can be used with graphical interface software to better alert users to the impending danger.



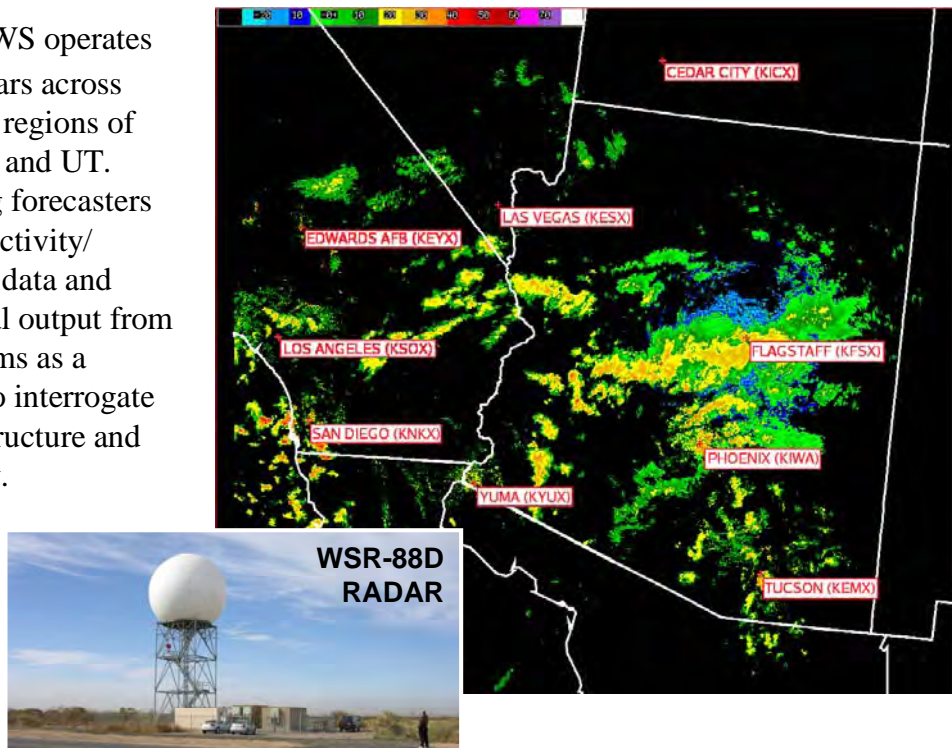
**STORM BASED WARNINGS EXAMPLE**

## WSR-88D RADAR AND SPOTTERS



During potential severe weather situations, NWS warning forecasters rely heavily on two data sources when deciding whether or not to issue a severe weather warning or advisory. These sources include the WSR-88D Radar and specially trained spotters.

The NWS operates nine radars across AZ, and regions of CA, NV and UT. Warning forecasters use reflectivity/velocity data and graphical output from algorithms as a means to interrogate storm structure and intensity.

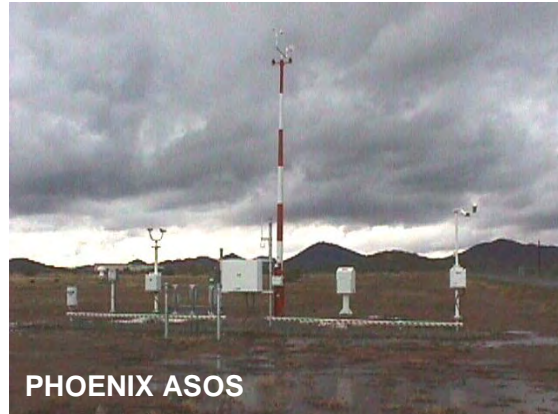


Although the remote sensing capabilities of radars allow forecasters to observe a large volume of the atmosphere, it is imperative to receive “ground-truth” reports from severe weather spotters to verify what impacts are occurring on the ground. Severe weather spotters include specially trained emergency managers, law enforcement officials, HAM radio operators, and members of the general public.

## PHOENIX, AZ CLIMATE STATISTICS



The official NWS climate surface observation station for Phoenix is currently located at Sky Harbor International Airport. The Phoenix climate record began August 1895, when observations were recorded manually by hand. Today, observations are taken by the Automated Surface Observing System (ASOS).



Climate statistics used by the NWS are calculated using 30-year intervals. Current climate averages are calculated from 1971-2000. In 2011, new averages will be calculated using data from 1981-2010.

## ADDITIONAL CLIMATE RESOURCES

NWS Phoenix, AZ WFO: 602-275-0073

<http://www.weather.gov/climate/index.php?wfo=psr>

National Climatic Data Center (NCDC): 828-271-4800

<http://www.ncdc.noaa.gov>

Western Regional Climate Center: 775-674-7010

<http://www.wrcc.dri.edu/>

Arizona State Climatologist: 480-965-6265

<http://www.public.asu.edu/~aunj/index.html>

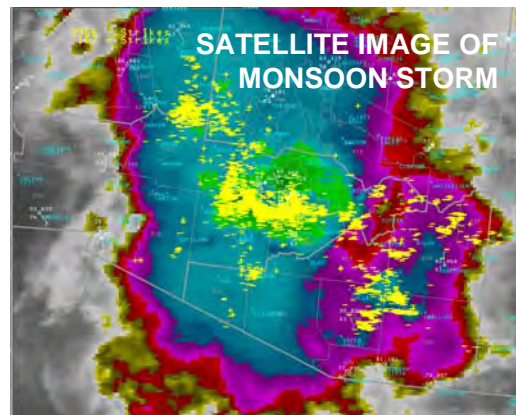


## ARIZONA MONSOON



The Arizona monsoon is part of a much broader phenomena known as the North American Monsoon. The North American Monsoon is an atmospheric circulation most often characterized by a marked increase in convective activity and precipitation, beginning in mid-to-late June over northwest Mexico and in early July over Arizona, with a marked decrease in convective activity and precipitation over Arizona by early or mid-September.

The monsoon is a seasonal wind. A low-level wind reversal occurs over the Gulf of California, with northwesterly flow during the winter months and south-southeasterly flow during the summer. Mid-to upper-tropospheric winds are from the west most of the year, but are often from the east or southeast over southern Arizona during the July-August period.



Prior to 2008, the official monsoon start-date in Phoenix was defined as the first of three consecutive days when the daily *average* surface dew point temperature was 55°F or greater at the Phoenix Sky Harbor ASOS site. A much more subjective process was followed when determining the official monsoon end-date. This process included evaluation of a decline in statewide precipitation, prevailing low and middle-tropospheric wind regimes, surface dew point, and time of year.

Beginning in 2008, official monsoon start and end dates were set to specific calendar dates in order to define the climatological monsoon season for the entire state of Arizona. The season is now defined as June 15 through September 30. This change was made to take advantage of modern meteorological data sources, facilitate inter-annual monsoon season comparisons, and to facilitate raising public awareness of severe weather events across Arizona.



## ADDITIONAL ONLINE RESOURCES



National Oceanic and Atmospheric Administration (NOAA)

<http://www.noaa.gov>

National Centers for Environmental Prediction (NCEP)

<http://www.ncep.noaa.gov>

Hydrometeorological Prediction Center (HPC)

<http://www.hpc.ncep.gov>

Aviation Weather Center (AWC)

<http://www.aviationweather.gov>

Albuquerque Center Weather Service Unit (CWSU)

<http://www.srh.noaa.gov/zab>

Colorado Basin River Forecast Center (CBRFC)

<http://www.cbrfc.noaa.gov>

National Operational Hydrologic Remote Sensing Center (NOHRSC)

<http://www.nohrsc.nws.gov>

Warning Decision Training Branch (WDTB)

<http://www.wdtb.noaa.gov>

National Weather Service Training Center (NWSTC)

<http://www.nwstc.noaa.gov>

NEXRAD Radar Operations Center (ROC)

<http://www.roc.noaa.gov>

National Environmental Satellite, Data, and Information Service (NESDIS)

<http://www.nesdis.noaa.gov>