NOAA Backgrounder

NOAA PROVIDES CRITICAL SUPPORT TO WILDFIRE MANAGEMENT

NOAA experts play a vital role in efforts to combat wildfires that rage across the United States each year. NOAA National Weather Service meteorologists provide site-specific forecasting for wildfires of all sizes—from half an acre to many thousand acres. NOAA satellite experts provide a lifesaving bird's eye view of the devastating blazes. NOAA is part of the Department of Commerce.

Once a fire starts, up-to-date weather information becomes especially critical. Weather and fuels are key ingredients in fire behavior. Accurate forecasts of wind direction and speed strongly influence fire strategy and help incident commanders make the best possible decisions to control wildfires. The forecasters are specially trained in mesoscale and microscale meteorology and employ a variety of special tools to prepare the forecast that contributes to the safety of all personnel involved in the management of fires. Routine fire weather forecasts are issued every day during the fire season with special site-specific forecasts prepared on demand.

Since 1914, NWS meteorologists have worked closely with fire behavior analysts from the U.S. Department of Agriculture's Forest Service, the Department of Interior's Bureau of Land Management, and other federal, state and local fire control agencies who are responsible for suppressing fires.

In The NWS Storm Prediction Center

Before a fire starts, forecasters predict where dry thunderstorms and fire weather conditions may occur today and tomorrow throughout the contiguous 48 states, highlighting areas where hot temperatures, low humidity and high winds combined with dry fuels will create critical fire weather conditions. This provides a national scale picture of critical fire weather patterns and helps fire officials plan ahead and focus their resources.

In The NWS Forecast Office

Forecasters issue a variety of products on the local scale to support fire agency planning and suppression efforts such as routine fire weather area (zone) forecasts, point and area forecasts to support the National Fire Danger Rating System, watches and warnings for

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A WORD ABOUT NOAA. . .

The National Oceanic and Atmospheric Administration (NOAA) conducts research and gathers data about the global oceans, atmosphere, space, and sun, and applies this knowledge to science and service that touch the lives of all Americans.

NOAA warns of dangerous weather, charts our seas and skies, guides our use and protection of ocean and coastal resources, and conducts research to improve our understanding and stewardship of the environment which sustains us all.

A Commerce Department agency, NOAA provides these services through five major organizations: the National Weather Service, the National Ocean Service, the National Marine Fisheries Service, the National Environmental Satellite, Data and Information Service, and Office of Oceanic and Atmospheric Research; and numerous special program units. In addition, NOAA research and operational activities are supported by the Nation's seventh uniformed service, the NOAA Corps, a commissioned officer corps of men and women who operate NOAA ships and aircraft, and serve in scientific and administrative posts.

For further information: NOAA Office of Public Affairs, 14th Street and Constitution Avenue NW, Room 6013, Washington, D.C. 20230. Phone: (202) 482-6090.

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critical fire weather events, and site-specific forecasts for wildland fires. Weather phenomenon of interest include cold fronts, dry thunderstorms, erratic winds, and very dry and hot environments.

Offices near active fires sometimes give weather briefings to the operational fire management team. These briefings help to plan where to place crews and how to fight the fire. Forecasters draw upon various sources of meteorological information such as computer-produced weather models, local weather observations, and more.

The local NWS office also provides specific meteorological information support to NWS' special cadre of Incident Meteorologists, also known as "IMETs", who may be deployed to a fire location.

At the Fire

The NWS has a small group of experienced fire weather forecasters (more than 50 certified nationwide) known as Incident Meteorologists. The IMETs can be and are being sent to remote locations throughout the U.S. to support wildfire operations. IMETs are there for fire crew safety and tactical support to the fire management team. They provide weather forecasts to the land management fire behavior analysts. The IMETs receive special training in microscale forecasting, fire behavior and fire operations, which makes these fire weather forecasters a key member of the fire management team.

Key NOAA Fire Weather Tools

Incident Meteorologists use special equipment in preparing critical information for wildfire suppression and prescribed burning projects. One of these tools is the Advanced Technology Meteorological Units (ATMUs) which enables forecasters to operate at the fire command centers, providing close meteorological support to the suppression efforts.

These IMETS can deploy rapidly with the ATMU to provide critical fire weather forecasting support. The forecaster sets up the portable unit near the fire command centers and provides critical information that helps managers decide where to move fire crews, learn about incoming weather, etc.

Forecasters use laptop computers to access information from local NWS field offices. They can receive the latest information about surface and upper air observations, as well as Doppler weather radar and weather satellite data to make specialized forecasts.

Every year, IMETS are deployed to support hundreds of fires nationwide. Forecasters help the on-scene fire management teams to obtain and interpret weather information, train fire personnel on how weather may affect their operations during critical fire situations, and ensure the safety of fire fighters.

Using NOAA satellites, fire-weather forecasters and other emergency workers throughout the Western Hemisphere can rapidly detect and monitor forest fires. The geostationary Wildfire Automated Biomass Burning Algorithm or ABBA—the most complex satellite fire detection method available—allows for early detection of rapidly growing fires, especially in remote areas, and half-hourly monitoring to indicate if the fire is intensifying or not. The technique, used by NOAA's NWS Storm Prediction Center, automatically detects wildfires in environmental satellite imagery using information from NOAA's Geostationary Operational Environmental Satellites, or GOES, orbiting some 23,000 miles above the equator.

ABBA uses NOAA's geostationary satellites to detect and monitor forest fires every half-hour. NOAA's Storm Prediction Center in Norman, Okla., combines the images taken from the two GOES every half hour, for a total of 96 images in 24 hours, and produces one new image. This single image shows all wildfires detected at a 4-kilometer resolution. This imagery data helps forecasters know where the wildfires are located even in open country where there are no visible large smoke plumes or people. In addition, the SPC meteorologists can overlay geographic information and zoom in on particular "hot spots" that are detected. This information can then be combined with other weather data to produce daily fire weather forecasts.

This Internet-based product is available to firefighters and the general public in near real-time. Animations of fire product imagery for the past 24 hours are available online at http://cimss.ssec.wisc.edu/goes/burn/wfabba.html.

Information on the Internet

Updated forecast information is also available on the home pages of local NWS offices. You can access the various home pages through http://www.noaa.gov/fireweather. These pages are organized by geographic regions of the country.