2009
Eastern Great Basin Annual Operating Plan
for
Fire Weather
and
Predictive Services

April 2009

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EASTERN GREAT BASIN
ANNUAL OPERATING PLAN 2009

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INTRODUCTION

This document serves as the Interagency Annual Operating Plan (AOP) for Fire Weather and Predictive Services for the Eastern Great Basin Geographic Area (EGB). The general relationship between the National Weather Service (NWS) and the interagency fire management community is set forth in the National Interagency Agreement for Meteorological Services. This AOP provides specific procedural and policy information regarding the delivery of meteorological services to the fire management community within the EGB as allowed under the umbrella of the National Agreement.

References include:

- National Weather Service NWSI 10-4: Fire Weather Services
  (www.nws.noaa.gov/directives/010/010.htm)
- Interagency Agreement for Meteorological Services (National MOA or "National Agreement")
  (http://www.myfirecommunity.net/NeighborhoodPosts.aspx?ID=531&Topic=2407&Category=1)
- Great Basin Mobilization Guide
  (http://gacc.nifc.gov/egbc/administrative/policy_reports/policy_reports.htm)
- National Interagency Mobilization Guide
  (http://www.nifc.gov/news/mobguide/index.html)

I. SIGNIFICANT CHANGES SINCE LAST YEAR

- Updated Predictive Services Areas (PSAs) across the state of Utah. See Appendix B.
- Expansion of Experimental Lightning Probability/Fuel Dryness Graphic. See page 16.
- Change in RFW wind criteria for SLC WFO south-central Utah zones. See Appendix B

II. ORGANIZATIONAL DIRECTORY

Cooperating federal and state land management agencies in the Eastern Great Basin include:

Bureau of Land Management
Bureau of Indian Affairs
US Fish and Wildlife Service
Idaho Department of Lands
USDA Forest Service
National Park Service
Utah Forestry, Fire, and State Lands

Fire weather products and services are provided by Eastern Great Basin Predictive Services and the following NWS offices:

Boise, ID
Las Vegas, NV
Salt Lake City, UT
Flagstaff, AZ
Pocatello, ID
Grand Junction, CO
Riverton, WY

Additional administrative support is provided by:

NWS Central Region
NWS Western Region
National Interagency Fire Center

Contact information for Predictive Services and the NWS offices can be found in Appendix A. Service areas are depicted in Appendix B. NOTE: All phone numbers are unlisted and should not be given to the general public.

III. NATIONAL WEATHER SERVICE -- SERVICES AND RESPONSIBILITIES
IV.

A. Basic Services

Basic services constitute the collective suite of operational fire weather forecast products and professional services provided by the NWS. Any changes to these forecast services or implementation of new operational forecast products and/or services will be coordinated with the EGB Predictive Services Unit (PSU) (Reference NWSI 10-403) and with local land management officials within the County Warning Forecast Area (CWFA) of the NWS office that is proposing the changes. Any non-operational forecast products will be clearly labeled as "Experimental" or "Prototype".

1. Planning Forecasts (FWF

Planning forecasts (or preparedness forecasts) are issued by all NWS WFOs offices serving the EGB. These forecasts provide general, zone-based information used in daily planning and preparedness.

a. Issuance Times During Fire Season

Two forecasts will be issued daily – a morning forecast issued no later than 0730 local time and an afternoon forecast issued by 1530 local time – 7 days a week during the fire season. Twice per day fire weather forecast requirements will normally run from the first Monday in May to the last Friday in October, with sub-regional variations dependent on weather, elevation and latitude. Local start and stop dates shall be coordinated between the NWS offices and fire weather customers, including the geographic area Predictive Services Units. Modifications to these start and stop dates are enumerated in Appendix B, National Weather Service Offices.

b. Issuance Outside Fire Season

Some NWS offices issue fire weather planning forecasts year-round. However, all NWS offices will issue spot forecasts upon request at any time of year.

c. Forecast Updates

Forecasts will be updated for the first 48 hour time period when: 1) A Fire Weather Watch or a Red Flag Warning is issued, cancelled, or updated; 2) when any of the amendment criteria in Table 1 are met over a meteorologically significant area; or 3) typographic or formatting errors that confuse the intended meaning are detected.

Table 1. Fire Weather Forecast and Associated Digital Data Amendment Criteria

Fire Weather Forecast and Associated Digital Data Amendment Guidelines	
Forecast	**AMEND WHEN…**
Thunderstorms are not in the forecast…	Thunderstorms occurring or are imminent prior to the next routine planning forecast issuance.
Wind Speed of 15 mph or greater…	Speed exceeds forecast by 10 mph or more.
Average minimum RH is 16% to 40%…	Differs by 10% or more.
Average minimum RH is 15% or less…	Differs by 5% or more.

The NWS forecaster should notify all impacted Dispatch and Communications Centers when the forecast has been updated. The forecaster should also notify the Meteorologist or the Coordinator on Duty (COD) at the GACC. When notifying the GACC, do not use voicemail during normal business hours (published in Appendix B). During non-business hours (i.e., overnight), no special notification is necessary.

d. Access

Forecasts are transmitted automatically to the Internet. Forecasts can be accessed through the various NWS offices that serve the Eastern Great Basin, the EGB PSU web site, and WIMS. Links can be found in Appendix B.

e. Content and Format

Forecasts will conform to the national standard narrative format, per NWSI 10-401. Morning forecasts will focus on the following 36 hours (3 operational periods). Afternoon forecasts will focus on the following 48 hours (4 operational periods). General extended outlooks will cover, at a minimum, the next 5 calendar days.

Each forecast will begin with pertinent headlines and a brief, non-technical weather discussion highlighting significant weather events or critical fire weather patterns. Headlines are required for Red Flag Warnings and Fire Weather Watches and are encouraged for other significant fire weather elements that do not meet Red Flag criteria. Affected zone segments of the planning forecast must also include the appropriate headline.

Forecasts for the first 36 or 48 hours will contain the elements shown in Tables 2 and 3 below for each zone or zone grouping, listed in the order they will appear. Format examples and descriptions of forecast elements can be found in the appendices.

Table 2. Planning Forecast (FWF) Elements

Forecast Element and Order	Requirement	Remarks
Headline(s)	National	As appropriate
Sky/Weather	National	
Temperature and locally optional 24-hour trend	National	In complex terrain, temperature and relative humidity should be forecast at discrete elevations (e.g., 3000-ft, 5000-ft, 8000-ft, etc) or at generally accepted locations (i.e., valley bottom and mid-slope). These should be coordinated with the local land management agencies and Predictive Services.
Humidity and locally optional 24-hour trend	National	
Wind – 20-ft RAWS standard (slope/valley)	National	Wind speed must conform to the NWCG standard of 20-foot, 10-minute average wind.
Wind – Ridgetop (as appropriate)	National	
Chance Wetting Rain (0.10 inch)	Eastern Great Basin	
Lightning Activity Level (LAL)	Eastern Great Basin	As defined in Table 3.
Haines Index	Eastern Great Basin	
Mean Mixing Height	Optional	
Mean Transport Wind	Optional	
Ventilation Index (kt-ft)	Optional	
Clearing Index	Optional	
Extended forecast to day 7	National	One extended forecast at end of planning forecast or each zone depending on local agreement.

Table 3. Lightning Activity Level Definitions

Lightning Activity Level Definitions		
AL	**Areal Coverage Description**	**Area Coverage**
1	No lightning.	
2	Isolated wet or dry thunderstorms.	Less than 15% coverage.
3	Widely scattered wet thunderstorms.	15% to 24% coverage
4	Scattered wet thunderstorms.	25% to 54% coverage
5	Numerous wet thunderstorms.	55% to 100% coverage
6	Widely Scattered or greater dry thunderstorms.	15% or greater coverage

2. Spot forecasts

Spot forecasts are site-specific forecast products issued for wildfires, prescribed burns, aerial spraying, HAZMAT incidents, search and rescue, and other land management activities. Spot forecasts are available by request, 24-hours a day, 365 days a year. They are available to any federal, state, county or municipal agency as described in NWSI 10-401.

The priority for spot forecast issuances and updates is described in NWS Western Region Supplement 14-2003, Prioritizing Products and Workload Activities for Western Region Forecast Offices.

Site-specific forecasts are considered one-time requests. Updates will be issued when:

i. The forecaster determines that the current spot forecast does not adequately represent current or expected weather conditions, or;
ii. Land management personnel communicate to the forecaster that the current forecast is unrepresentative of conditions at the site, or;
iii. A typographical or formatting error is detected and could confuse the intended meaning.

Updates will be disseminated to users in the same manner as the original spot forecast. If the update is initiated by the NWS, a follow-up phone call will be made to inform the user (i.e., the original requestor) that an update has been issued. If the update is requested by the user, a contact point number will be provided.

a. Content and Format

Spot forecasts may contain the following elements as requested by the user. (Table 4).

Table 4. Spot Forecast Elements

Forecast Element	Requirement	Remark
Headline	National	Required if watch or warning is in effect when spot is issued.
Discussion	National	
Sky/Weather	National	
Temperature	National	
Relative Humidity	National	
20-ft, 10-minute average winds	National	
Transport winds, mixing height, LAL, Haines Index, Chance of wetting rain, etc.	By Request	Request made via NWS Spot web interface or on Spot Forecast Request Form D-1

The valid time will be determined at the time of the request. Most spots contain three periods, usually “TODAY”, “TONIGHT”, and “TOMORROW” but users will indicate the period(s) for which a forecast is needed in their request.

b. Procedures for Requesting Spot Forecasts

Internet-based NWS Spot is the standard for requesting and retrieving spot forecasts and should be used when available. It is accessible via web sites of the NWS offices that serve the EGB and on the EGB Predictive Services web site, found in Appendix B.

When Internet access is not available, spot forecasts may be requested and disseminated via fax - using spot forecast request form D-1 (NWSI-401). Spot forecasts should be available within 60 minutes of the time the NWS office receives the request. If a spot forecast is not returned within 60 minutes, the requestor should contact the NWS office immediately. Spot forecasts should be requested no more than 24 hours in advance. Beyond this time, planning information should be used, including the fire weather planning forecast, weather activity planner and fire weather point forecast matrix. For large burn plans, please coordinate multiple spot forecast requests with your local NWS office. It is strongly recommended that the requestor indicate the time he or she needs the forecast returned. If not specified in a spot forecast request, the NWS assumes the forecast is needed immediately.

The requestor must provide information about the location (latitude/longitude), slope aspect, drainage name, fuel type(s), top and bottom elevations of fire or project (if appropriate), size of fire or project, ignition time (if appropriate), and a contact name(s) and telephone number(s) of the responsible land management personnel. It is critically important that each spot forecast request also include quality, representative observations at, or near, the site or from a nearby representative RAWS station. A detailed description of the observation location relative to the project (if not at the site) should be provided. The description should include, at a minimum, distance and direction from the project or fire site, station elevation and aspect.

c. Spot Forecast Feedback Requirement

Good communication between fire managers and the NWS is critical for quality spot forecast services. Land management personnel should provide feedback to the NWS forecasters about the quality and accuracy of the spot forecast. Feedback should also be relayed to GACC meteorologists. Responsibility for providing fire line observations for the verification of forecast accuracy rests with the land management agencies, and is to be provided via the online spot request form.

d. FARSITE support.

NWS offices in Boise, Pocatello, Salt Lake City, Flagstaff, Riverton and Las Vegas will automatically provide FARSITE wind and weather files when a wild land fire spot forecast is requested. Links to the files will be available on the WFO's fire weather web page for retrieval as needed. FARSITE weather data can also be requested independently from a spot forecast by calling the WFO. Latitude and longitude of the fire or incident is required to generate FARSITE forecast files.

3. Red Flag Warnings and Fire Weather Watches

The Red Flag Warning and Fire Weather Watch program is designed to provide land management officials with advanced notice of weather conditions that, when coupled with critical fuel conditions, can lead to extreme fire behavior or heightened potential for large fire starts. <u>It is implicit that firefighter and public safety are of the utmost importance.</u> Identification of Red Flag events is a shared, collaborative responsibility between land management officials and NWS fire weather forecasters. Land management officials must identify critical fuels conditions. Weather forecasters must identify weather conditions that will contribute to extreme fire behavior or heightened large fire potential.

A Red Flag Warning shall be issued when Red Flag weather criteria (defined below) are forecast to occur within the next 24-hours or are already occurring, and are coupled with critical fuel conditions.

A Fire Weather Watch shall be issued when there is a high potential for Red Flag weather criteria to be met in the 12-96 hour time frame. The watch may be issued for all, or selected, portions within a fire weather zone or region.

a. Criteria

Standardized criteria for issuance of Red Flag Warnings and Fire Weather Watches in the EGB are a combination of weather and critical fuel conditions. These warnings can be issued for either dry and windy conditions, or when an elevated threat of fire causing lighting is expected given that the fuels are critical. These criteria can also be combined.

The criteria for wind and relative humidity is standard across EGB:

Wind gusts ≥ 30 mph for any 3+ hours in UT west deserts, south central UT and Snake River Plain in ID **OR** wind gusts ≥ 25 mph for any 3+ hours in ID mountains, western WY, central and eastern UT **AND** Relative Humidity is ≤ 15 percent.

The criteria for lighting varies across EGB:

The Salt Lake City, Grand Junction, Riverton and Las Vegas WFOs will use the following criteria:

Dry thunderstorms with areal coverage of widely scattered or greater (≥ 15%) in a Fire Weather Zone.

The Boise WFO will use the following criteria:

Scattered thunderstorm coverage of ≥ 25% when the EGBCC deems fuels will be 'very dry' according to the 7-Day Significant Fire Potential Outlook. (Brown blocks) Haines 6 for the West Central Idaho Mountain zones: 400, 401, 402, 403, and 404.

The Pocatello WFO will use the following criteria:

Wet or dry thunderstorms with areal coverage of widely scattered or greater (≥ 15%) in a Fire Weather Zone.

These criteria assume the following:

i. In the absence of local (CWFA) agreements, fuels conditions must be listed as CRITICAL on the Fuels Status Table/Map. Fuel status should be updated and maintained at least weekly.
ii. The mid-point of a forecast wind speed range is the breakpoint for watch/warning issuance. Additionally, forecast ranges should not exceed 10 mph.
iii. Wind gust speed must be from NWCG compliant RAWS stations (20-foot) or a NWS/FAA ASOS station (10 meter). Wind gust speed measurements from other observation platforms will be used upon agreement between NWS and land management agencies.

b. Product Format and Content

A Red Flag Warning/Fire Weather Watch statement (RFW) will be used for issuing, updating, and canceling all Red Flag Warnings and Fire Weather Watches. This message will include:

i. Headline that includes a description of the watch or warning, a description of the area (i.e., counties, agency administrative unit, etc.), and the time period for which the watch or warning is valid;
ii. List of fire weather zones impacted, and;
iii. Short discussion detailing the causes and nature of the event.

c. Procedures and Access

When Red Flag Warnings and Fire Weather Watches are issued, they will be headlined in both the fire weather planning forecast and any subsequent spot forecasts. In the planning forecast, the headline shall appear at the beginning, before the discussion section, and at the beginning of each zone or zone grouping affected by the warning or watch. The headline will be in the same descriptive format as on the RFW product itself. If issuance of a Red Flag Warning or Fire Weather Watch requires an update of the planning forecast, the NWS office will notify the affected dispatch centers and the EGB PSU as soon as possible during business hours. Red Flag Warnings and Fire Weather Watches will remain in effect through the expiration time noted in the planning forecast, or until canceled or updated.

Red Flag Warnings and Fire Weather Watches can be accessed through the various NWS offices that serve the EGB, the EGB PSU web site, and WIMS. Links can be found in Appendix B.

4. National Fire Danger Ratings System (NFDRS) Forecasts

The National Weather Service will provide National Fire Danger Ratings System (NFDRS) forecasts valid at 1300 LST (1400 LDT) the next day after issuance. These forecasts are used to prepare the NFDRS fire danger indices for the next day.

a. Criteria for Issuance

NWS will issue NFDRS forecasts daily when NFDRS-compliant observations are received. NFDRS observations must be complete and available in WIMS by 1350 LST (1450 LDT) to be received by NWS in time to produce a forecast. Stations that do not have valid observations in WIMS on time will not receive an NFDRS weather forecast and, thus, will not receive forecast fire danger indices for the next day.

b. Content and Format

The content and format shall comply with NWSI 10-4. Each NFDRS forecast shall also include the 24 min and max temperature and relative humidity forecast and shall not include the 10 hr fuel

moisture forecast. A wet flag of 'yes' should only be forecast if the forecaster is certain that precipitation will be of sufficient duration and amount to keep fuels wet or when expectation is that fuels will be snow covered. The actual NWS NFDRS forecast product is used only by WIMS and is not viewable directly by fire management personnel.

c. Procedures

Each WFO will produce individual NFDRS station or zone forecasts. Valid observations must appear on the 1400 LST (1500 LDT) observation collective or forecasts will not be generated. Forecasts shall be in the form of a *point (station-specific) forecast*.

5. Participation in Interagency Groups

a. Local Outreach Meetings

NWS offices should participate in at least one outreach meeting per year, usually prior to the start of the next fire season with local fire management units. These meetings can be used to strengthen the customer relationship, present new or changes to services and address local concerns. GACC meteorologists should be notified of these meetings and strongly encouraged to participate. Similarly, fire agencies should advise the GACC of fire weather meetings they are planning.

b. GACC Meetings

NWS WFOs and local Interagency Dispatch Centers within the EGB should send a representative to the annual AOP meeting (if scheduled). Proxy representation is acceptable. A GACC-wide fall review meeting can be used to review the previous season, discuss what worked and what did not and identify issues to be addressed for the next Annual Operating Plan.

B. RAWS Monitoring

Meteorologists should monitor the RAWS network for suspect or erroneous data, using sound meteorological judgment to determine if data is not representative of conditions. When an observation is identified as unrepresentative, forecasters should notify the EGB Predictive Services meteorologist to initiate maintenance or repair of the station in question.

C. Special Services

NWS will provide and maintain a cadre of trained Incident Meteorologists (IMETs). A sufficient number of IMETs should be available to support multiple incidents from May through September. Information regarding the dispatch of IMETs, both within and outside the EGB, can be found in the Great Basin Mobilization Guide.

D. Forecaster Training

The NWS recognizes the need for specialized training in fire weather meteorology for forecasters. Any NWS meteorologist producing fire weather products shall have met the requirements set forth in NWSI 10-405.

II. PREDICTIVE SERVICES/LAND AGENCIES – SERVICES AND RESPONSIBILITIES

The EGB Predictive Services Unit resides at the Eastern Great Basin Coordination Center. The interagency coordination centers' primary mission is to provide resource support for the functional areas of overhead, crews, aircraft, supplies and equipment to the field for wildland fire and other emergency operations.

The PSU will provide daily, medium-range, and long-range fire weather, fire danger, and resource outlooks for use in tactical and strategic planning. These outlooks will complement short-term forecast products provided by the NWS.

A. Operational Support and Predictive Services

Predictive Services will produce a suite of products tailored to the tactical and strategic mission of the land management agencies within the EGB. While the main area of responsibility is at the geographic area level, Predictive Services will provide services to sub-units of the geographic area, such as dispatch centers and local administrative units. Contributions will also be made to the national level Predictive Services program. All products will be available on the EGB PSU web page.

1. Daily Fire Weather Map

The Daily Fire Weather Map is a text-and-graphics product which summarizes expected fire weather conditions for the next 24-hours. Fire behavior forecasts will be included when a Fire Behavior Analyst is assigned to Predictive Services at either or both of the coordination centers. This typically occurs when the Great Basin MAC is convened.

The Daily Fire Weather Map will be issued every day – Monday through Friday and on weekends during critical fire periods beginning mid May and continuing through mid October. Seasonal start and stop dates may vary based on fire business needs and large fire potential. Updates will be made when it appears that observed or expected conditions are significantly different than those contained in the product.

2. 7-Day Significant Fire Potential Outlook

The 7-Day Significant Fire Potential Outlook addresses the probability of new large fires for each Predictive Services Area (PSA) across the EGB for each of the next 7 days. The outlook will identify significant fire potential in a 3-category scale based on ERCs and 100-hour fuel moisture forecasts. Fire triggers (i.e., lightning, wind, etc.) will be incorporated to refine the potential on individual days. A map of PSAs within EGB is included in Appendix B.

The outlook will be issued every morning – Monday through Friday and on weekends during critical fire periods - by 0930 MST/MDT, beginning mid May and continuing through October 31. Seasonal start and stop dates may vary based on fire business needs and large fire potential. Updates will be made when it appears that observed or expected conditions are significantly different than those contained in the product.

7-Day Outlooks will be archived each day for the 2009 fire season. More information on the 7-Day Outlook can be found on the EGB PSU website.

3. Monthly Fire Potential Outlook

The Monthly Fire Potential Outlook is a broader, more general assessment of weather, climate, and fuels conditions across the area. It incorporates climate trends, potential weather, and fuels condition and trends to make long-term predictions of impacts on fire business. Outlooks will focus on potential for large fire activity and time frames that will impact resource availability and mobilization relative to normal fire business for the time of year.

The Monthly outlook will be issued no later than 2 business days prior to the start of the month for which it is valid. Monthly outlooks will be produced by both the Predictive Services National Office and the EGB PSU, following the same general format.

4. Seasonal Fire Potential Outlook

The EGB Seasonal Outlook is similar to the Monthly, except for a longer time period. This outlook attempts to predict the overall character of the upcoming fire season relative to a normal season (based on 5 to 10 year historical averages). The Seasonal is issued in the late winter or early spring prior to the onset of the fire season, and is updated at irregular intervals as needed, with a first update issued around mid-May. These times are not fixed, depending heavily on such factors as winter snowpack, onset and progress of snow melt, weather trends, fuels condition and trends, etc.

The Predictive Services National Office also issues a running 3 month outlook, with input from EGB PSU, which is a fire potential trend forecast.

5. Fuels Status for Red Flags Table and Map

Fuels Status for Red Flags table and map will be produced primarily to provide NWS forecasters with a snapshot of fuels conditions that would require a red flag warning or fire weather watch if weather conditions that would meet the red flag criteria (Section III.A.3) are expected or are imminent. These do not replace the NFDRS observed and forecast indices for fire danger. Instead, the fuels status table and map highlight areas where fuels conditions would support large fire growth or extreme fire behavior as determined by fuels and fire specialists on the ground. The tabular and graphical information also do not preclude coordination between the NWS forecasters and the local land management agencies they serve.

The table will be updated regularly (preferably every 7-10 days) or immediately if fuels become critical by land management fuels specialists (or other designee). The map will automatically update to reflect what is displayed by the tabular data and will indicate when it was last updated.

B. Remote Automated Weather Stations (RAWS)

Predictive Services will monitor the RAWS network within the EGB. This will include identifying unrepresentative observations or inoperative equipment and ensuring the data record is complete and accurate for input into WIMS and NFDRS. Predictive Services will relay information regarding the network to, address issues and concerns with, and offer recommendations for improvements to the network to the USDA Forest Service Regional RAWS coordinator and to the BLM-NIFC RAWS Program manager, as appropriate. Predictive Services will attempt to notify appropriate NWS offices of outages and restoration of services in a timely fashion, as time and human resources allow.

C. Land Management Liaison

Predictive Services meteorologists will act as a liaison on issues regarding weather, climate, and fuels between the land management agency partners in the EGB and service providers in these areas, including the NWS, private sector providers, and the research community.

D. Monitoring, Feedback, and Improvement of Fire Weather Information

Land management agencies will monitor all sources of fire weather information to ensure quality, consistency, and applicability. When significant issues arise, Predictive Services will address the issue with the service provider to enhance awareness and to work toward an appropriate solution. Items of significance include, but are not limited to:

1. General forecast consistency between County Warning and Forecast Areas (CWFAs), dispatch zones, and land management administrative units.
2. Red Flag Warning and Fire Weather Watch consistency with established criteria, timeliness of issuance, coordination and applicability.
3. NFDRS forecast consistency with station climate histories.
4. Quality of fireline observations and spot forecast feedback from the field.
5. Overall adherence to policy and procedure, especially as set forth in the AOP.
6. Feedback from the field on the quality of all forecast products, especially Red Flag Warnings and Watches and Spot forecasts.

It is imperative that field personnel provide timely feedback to the NWS about products and services. This information will be used to gauge the quality and validity of products and services, make improvements and to resolve any conflicts or discrepancies between products issued. Feedback should be provided as soon as possible so that action can be taken immediately. Feedback may be positive or negative but it should always be constructive and intended to provide information that will help improve products and services. Comments can be submitted through Predictive Services or directly to the NWS (with a copy to Predictive Services).

E. Technology and Data Transfer

Predictive Services will work to integrate advanced technology into analytical and prediction systems for use in fire management planning and operations. This will include regional numerical modeling, weather and fuels data assimilation and dissemination, and continued research and development in fire meteorology.

Where fire management computer systems, such as WIMS, are available, access will be granted to NWS for the purpose of obtaining and providing mission critical information, such as weather observations and forecasts.

F. Fire Weather Observations

Weather observations will be provided by the land agencies to the NWS to ensure sufficient information is available to produce quality forecast products. RAWS observations will comply with NWCG standards for quality and timeliness. RAWS will be sited and maintained in accordance with the NWCG PMS 426-3, “National Fire Danger Rating System Weather Station Standards.”

Weather observations at or near the fire or project site are highly recommended when requesting a spot forecast. If this is not possible, observations from a nearby, representative RAWS site may be substituted. Fireline observations are strongly preferred. Agency personnel should provide observations containing, at a minimum: temperature, humidity, wind speed and direction, and weather and sky condition that complies with guidance provided in NFES 2140, “Weather Station Handbook – an Interagency Guide for Wildland Managers.” Keep in mind that the quality of the observation, or how representative it is of conditions at the fire or project site, will affect the precision a forecaster can provide in a spot weather forecast.

For large or complex planned projects requiring spot forecasts, such as prescribed burns, aerial spraying, rehabilitation, etc., it is strongly recommended that observations be taken for a minimum of seven (7) days, 24 hours a day, prior to commencement of the project. This will provide forecasters with a history of diurnal variations of weather, temperature, humidity, and wind at or near the project site. For smaller, less complex projects, such as pile burns, observations should be collected for a minimum of two (2) days.

G. Incident Response

The NWS is the provider of Incident Meteorologists (IMETs). Predictive Services meteorologists can respond to incidents when the NWS cannot provide a certified IMET within 24-hours of request receipt

by the National Fire Weather Operations Coordinator (NFWOC). In these instances, and when requested by incident command staff, Predictive Services meteorologists will provide forecast support as a Technical Specialist until the arrival of a certified NWS IMET. Technical Specialists will not be used as a substitute for NWS IMETs. Forecast support will revert to the NWS IMET after a reasonable transition period.

VI. JOINT RESPONSIBILITIES

A. Briefings

Predictive Services or NWS meteorologists may be asked to provide briefings to agency decision-makers. These briefings generally occur during peak periods of the fire season or when a Multi-Agency Coordination (MAC) Group has been convened. The briefings usually include a short-term weather discussion of critical weather patterns and a longer-term discussion of trends during the next several days. The briefings provide tactical (operational) and strategic (planning) information for land managers.

Briefing schedules vary with planning and staffing levels, fire activity, and management priorities. Predictive Services will provide briefing schedules and conference bridge phone numbers, as needed.

B. Coordination Calls

GACC-wide weather and fuels coordination calls shall be held during the 2009 fire season. Attendees shall include EGB Predictive Services, a representative from each NWS office and dispatched IMETS when available. Coordination calls will begin on a weekly basis on 3 June and continue each Wednesday. Calls will be held daily during periods of critical fire activity. Calls will take place at 1130 a.m. MDT on the EGB conference call bridge (which will be sent via e-mail).

C. Training

Training for weather sections of S-190, S-290, and other fire weather courses can be provided at customer request. Requests can be made at any time of year to any of the NWS offices in the Great Basin. Requests will generally be met unless there are scheduling or staffing conflicts at the NWS office. In these cases, the requesting person or agency should provide alternate dates. If this is not possible, the NWS will assist in locating another trainer from another NWS office, or as necessity dictates, from the GACC. Reimbursement for NWS instructor travel costs is required for all training requests.

Cross-training between NWS and GACC meteorologists is encouraged. NWS forecasters can detail at the GACC to gain an understanding of the decision support role Predictive Services fills in fire operations. GACC meteorologists can shadow NWS forecasters to view the forecast preparation process utilizing technologies available at NWS offices. Scheduling of cross-training visits should be arranged as far in advance as possible to reduce impacts on operations. However, because of the rapidly-changing nature of fire operations, the best opportunity may come with short notice. Flexibility is necessary.

D. Verification of Fire Weather Products

Predictive Services and NWS meteorologists will cooperatively develop, perform, and report verification results of prepared fire weather products. These will include, but are not limited to: Red Flag Warnings and Fire Weather Watches; NFDRS point forecasts; 7 Day fire weather/fire potential outlooks. Data sources used in verification must be well-sited, representative of conditions being verified, and reliable. Data sources not listed explicitly in the AOP will be determined on a case by case basis by both NWS and Predictive Services meteorologists. Verification of Fire Weather Watches/Red Flag Warnings should generally occur within a few days of an event or a period of events. NWS and Predictive

Services should discuss verification results at least annually at the end of the season to ensure consistent verification methods are used and to share lessons learned from each event.

E. Establishing or Modifying Forecast Zone Boundaries

Forecast zone boundaries shall be established and/or modified jointly by the NWS and the land management agencies with administrative responsibility for the affected lands. Predictive Services meteorologists should be included in negotiations. Existing zone boundaries may be modified to avoid splitting land management administrative boundaries between multiple NWS forecast areas. Changes must be agreed upon at least 120 days prior to implementation.

F. Experimental Lightning Probability/Fuel Dryness Graphic

In 2008, meteorologists from WFO Salt Lake City, the Eastern Great Basin GACC, and the Storm Prediction Center developed a new forecast graphic for the fire weather community. This collaborated product combined a lightning probability forecast from the NWS SPC with a wildland fuel dryness forecast from the EGBCC, and could be easily provided on the internet. Based on positive feedback received thus far, this experimental combined lightning potential / fuel moisture graphic will be provided across the EGB area by participating WFOs for the 2009 fire season for further evaluation by users and NWS forecasters. The goal of this experimental graphic is to develop an easy to use objective tool that will assist in fire management decision support throughout WR, and is a combined effort by the NWS and federal fire agencies. The experimental graphic will be tested with fire weather users from approximately June 1 to October 1, 2009. This experimental graphic will be available to customers from all EGB WFO fire weather web pages. The pages will also be available via a link from all GACC web pages. For more detailed information about this new graphic, please go to: NWS WR Technical Attachment "Lite", "**A New Tool for Fire Management Decision Support**.

VII. EFFECTIVE DATES FOR THE ANNUAL OPERATING PLAN

The effective period for this Annual Operating Plan shall be from 1 May 2009 to 31 April 2010. The AOP shall be deemed official when all signatories have accepted and signed the document. Updates or amendments may be added upon agreement of all signatories.

VIII. SIGNATORIES

Dated signature on file

_____

Christie Neill
Chair, Great Basin Coordinating Group
National Park Service
Pacific West Assistant Regional FMO

Date: _____

Dated signature on file

_____

Roger Lamoni
Fire Weather Program Manager
National Weather Service Western Region

Date: _____

Appendix A: Organizational Directory and Contact Information

Eastern Great Basin Coordination Center – Predictive Services
5500 W Amelia Earhart Dr, Ste 270
Salt Lake City, UT 84116

Web Site Address: http://gacc.nifc.gov/egbc

Name	Position	E-Mail
Edward Delgado	Program Manager	Edward_Delgado@blm.gov
Shelby Sharples	Meteorologist	Shelby_Sharples@blm.gov
Gina Dingman	Intelligence Coord.	GinaLDingman@fs.fed.gov
Dave Hart	Center Manager	Dave_Hart@blm.gov

Boise Weather Forecast Office
NIFC – National Weather Service
3833 S. Development Ave., Bldg 3807
Boise, ID 83705-5354

Web Site Address: http://www.wrh.noaa.gov/firewx/?wfo=boi

Name	Position	E-Mail
Chuck Redman	Program Leader/IMET	Chuck.Redman@noaa.gov
Coleen Decker	Fire Weather Forecaster/IMET	Coleen.Decker@noaa.gov
John Jannuzzi	Meteorologist-in-Charge	John.Jannuzzi@noaa.gov

Flagstaff Weather Forecast Office
P.O. Box 16057
Bellemont, AZ 86015-6057

Web Site Address: http://www.wrh.noaa.gov/firewx/?wfo=fgz

Name	Position	E-Mail
Robert Bohlin	Program Leader	Robert.Bohlin@noaa.gov
Mark Stubblefield	Fire Weather Forecaster/IMET	Mark.Stubblefield@noaa.gov
Brian Klimowski	Meteorologist-in-Charge	Brian.Klimowski@noaa.gov

Grand Junction Weather Forecast Office
792 Eagle Drive
Grand Junction, CO 81506-8648

Web Site Address: http://www.crh.noaa.gov/gjt/?n=firewx

Name	Position	E-Mail
Chris Cuoco	Program Leader	Christopher.Cuoco@noaa.gov
Mike Chamberlain	Asst. Program Leader/IMET	Mike.Chamberlain@noaa.gov
Joe Ramey	Fire Weather Forecaster/IMET	Joe.Ramey@noaa.gov
Doug Crowley	Meteorologist-in-Charge	Doug.Crowley@noaa.gov

Las Vegas Forecast Office
7851 Industrial Road
Las Vegas, NV 89139

Web Site Address: http://www.wrh.noaa.gov/firewx/?wfo=vef

Name	Position	E-Mail
Jim Harrison	Program Leader/IMET	Jim.Harrison@noaa.gov
Mike Staudenmaier	Meteorologist-in-Charge	Micheal.Staudenmaier@noaa.gov
Faith Borden	Warning Coordination Meteorologist	Faith.Borden@noaa.gov

Pocatello Weather Forecast Office
1945 Beechcraft Avenue
Pocatello, ID 83204-7446

Web Site Address: http://www.wrh.noaa.gov/firewx/?wfo=pih

Name	Position	E-Mail
Bob Survick	Program Leader/IMET	Robert.Survick@noaa.gov
Jack Messick	Asst. Program Leader/IMET	Jack.Messick@noaa.gov
Rick Dittmann	Meteorologist-in-Charge	Rick.Dittmann@noaa.gov

Riverton Weather Forecast Office
12744 West Highway 26
Riverton, WY 82501

Web Site Address: http://www.crh.noaa.gov/riw/firewx/

Name	Position	E-Mail
Dave Lipson	Program Leader/IMET	David.Lipson@noaa.gov
Todd Baker	Program Leader/IMET	Todd.W.Baker@noaa.gov
Andy Church	Program Leader/IMET	Andrew.Church@noaa.gov
Kevin Lynott	Meteorologist-in-Charge	Kevin.Lynott@noaa.gov

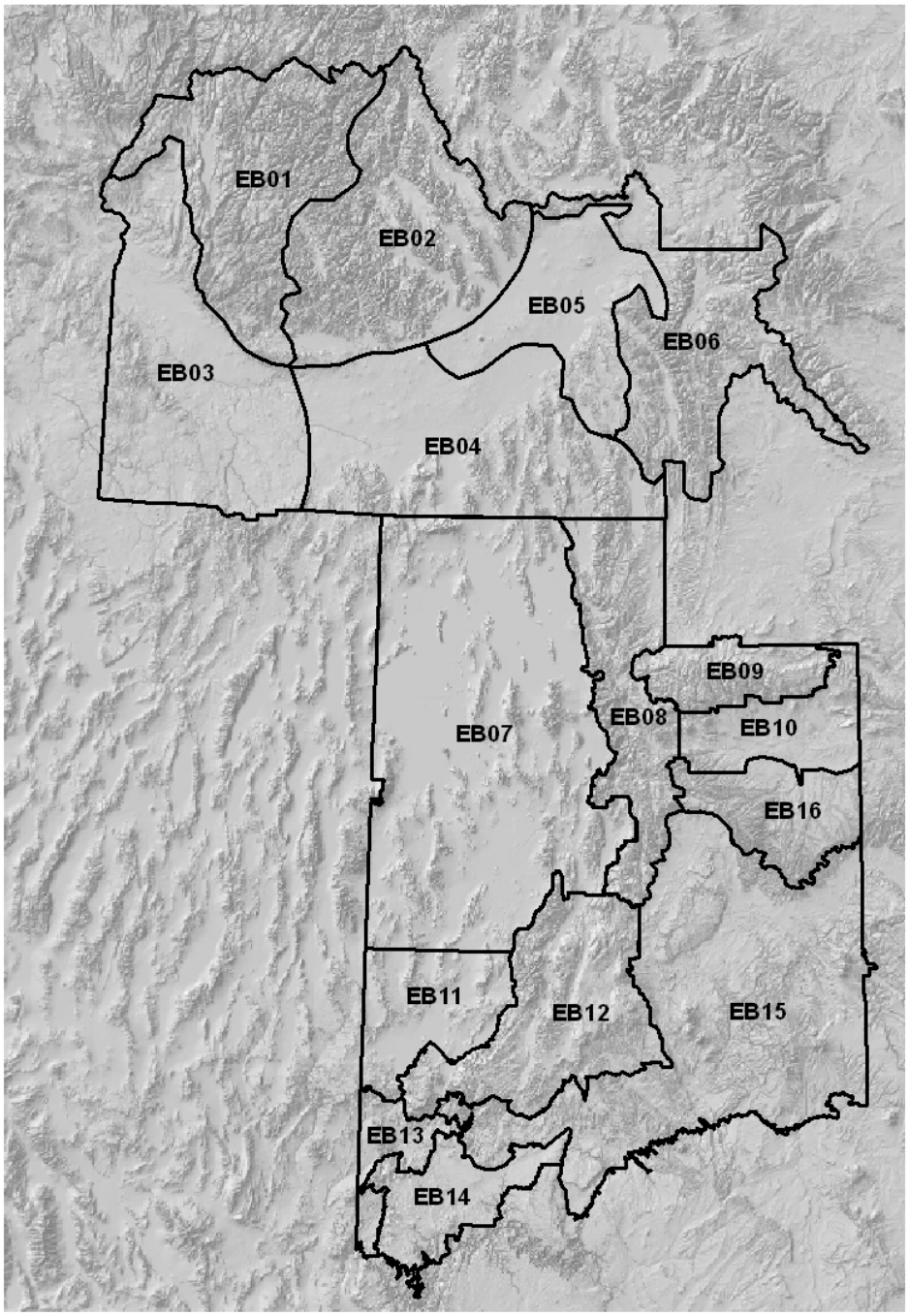
Salt Lake City Weather Forecast Office
2242 West North Temple
Salt Lake City, UT 84116

Web Site Address: http://www.wrh.noaa.gov/firewx/?wfo=slc

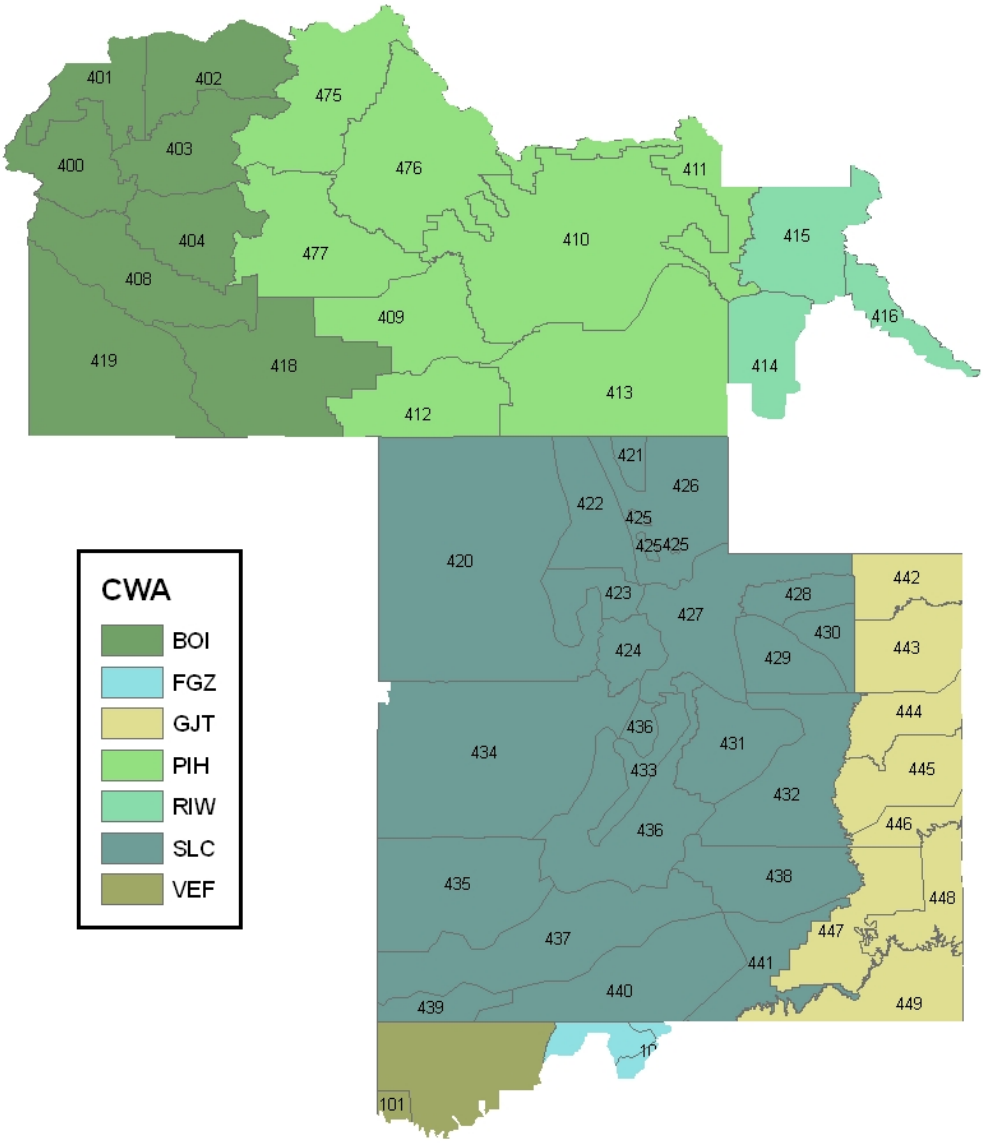
Name	Position	E-Mail
Mark Struthwolf	Program Leader / IMET	Mark.Struthwolf@noaa.gov
Larry Dunn	Meteorologist-in-Charge	Larry.Dunn@noaa.gov
Kevin Barjenbruch	Warning Coordination Meteorologist	Kevin.Barjenbruch@noaa.gov

Appendix B:

EGB PSAs



Eastern Great Basin
Fire Weather Zones/County Warning Areas
April, 2009



NWS BOISE WEATHER FORECAST OFFICE

1. CHANGES FOR THE 2009 SEASON

No specific changes.

2. HOURS OF OPERATION

Pre-fire season routine product issuance will begin Monday, April 20th.
Fire Weather Zone Forecast will be issued Monday through Friday by 1530 MDT.

Starting dates for the full compliment of fire weather products (including NFDRS forecasts and twice-daily zone forecasts) will depend on variables such as fuel dryness and customer needs.

Staff meteorologists are available any time, 24 hours a day, 7 days a week. The fire weather desk is staffed from 830 am to 430 pm.

3. STAFF AND CONTACT INFORMATION - See Appendix A.

4. FIRE WEATHER SERVICES

A. Description of the Boise Fire Weather District within the Eastern Great Basin:

West Central Idaho Mountains...
- Zone 400 – Northern Boise BLM
- Zone 401 – Western Payette NF and SITPA
- Zone 402 – Eastern Payette NF
- Zone 403 – Northern Boise NF
- Zone 404 – Southern Boise NF

Southwest Idaho
- Zone 408 – Treasure Valley
- Zone 418 – Shoshone BLM
- Zone 419 – Owyhee Mountains

B. Basic Meteorological Services

Internet Briefing: During fire season, a daily internet briefing will be offered each day at 0930 MDT for all agencies. During pre-fire season and low fire activity periods if there is not sufficient interest in a daily briefing, it will be held on Mondays and Thursdays at 0930 MDT. This briefing will include a general discussion of weather conditions and forecasts for the current day, as well a brief discussion of the extended period. Model data, satellite loops, and other items of interest will be addressed for the forecast period. During the briefing, the appropriate maps will be available at:

http://www.wrh.noaa.gov/boi/firewx/firewxbriefindex.php

The briefing will usually be about 10 minutes but may be longer during active fire periods.

Spot Forecasts: Requests for spot forecasts will be received via the Boise Fire Weather homepage found at: http://spot.nws.noaa.gov/cgi-bin/spot/spotmon?site=boi

C. Product Schedule

Morning fire weather forecast	By 0730 MDT
Internet briefing	At 0930 MDT
Afternoon fire weather forecast	By 1530 MDT
NFDRS point forecast for stations in Mountain time zone	By 1545 MDT
NFDRS point forecast for stations in Pacific time zone	By 1630 MDT
Fire Weather Watch / Red Flag Warnings	Event-Driven
Spot forecasts	On request

D. Red Flag Events

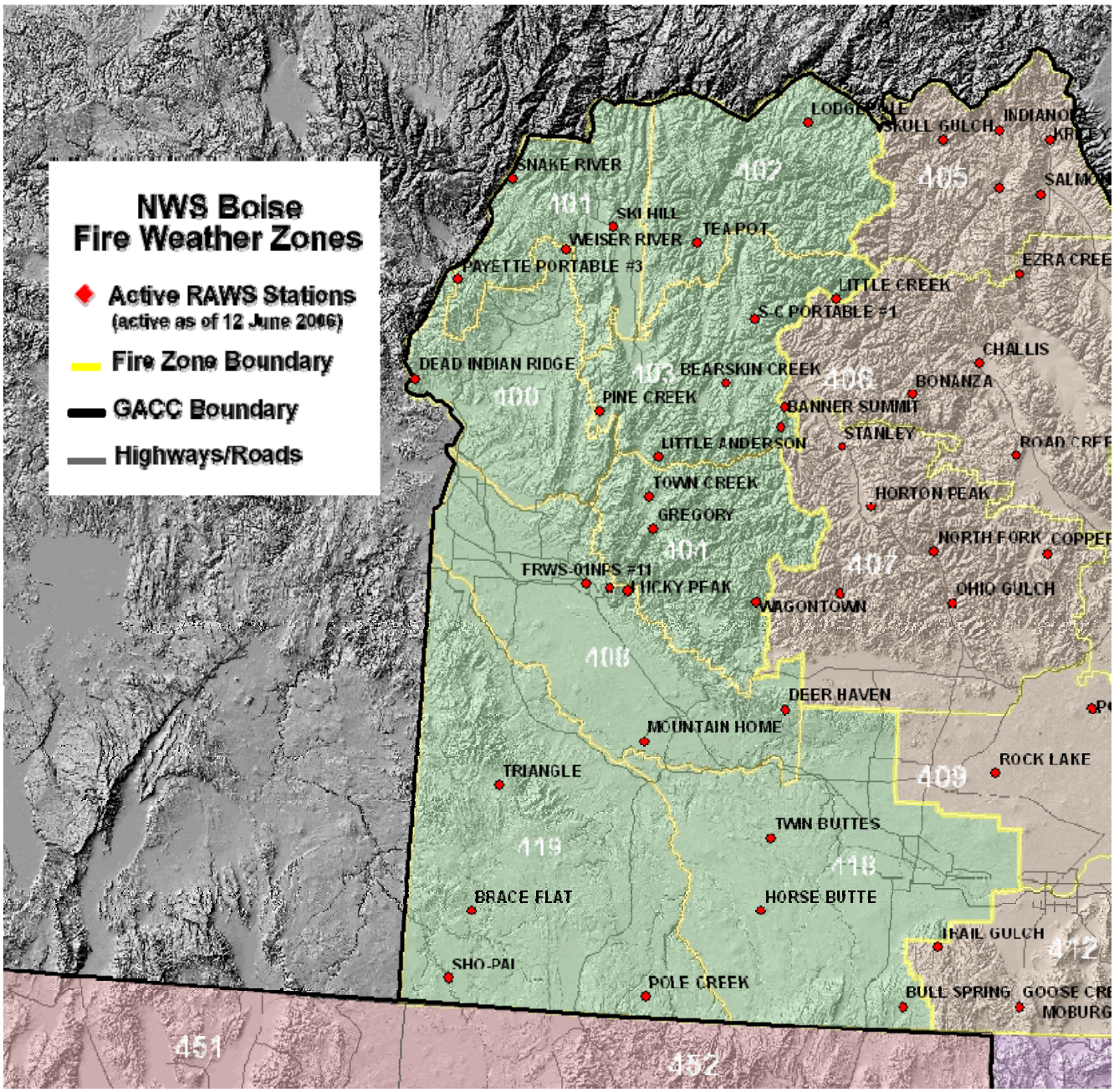
Interagency Coordination: Before the issuance of a Red Flag Warning, there will be coordination with the affected agencies and neighboring NWS fire weather offices in order to assess fuel conditions and general fire danger.

Dissemination of Fire Weather Watches and Red Flag Warnings: Each issuance, update or cancellation of a Fire Weather Watch or Red Flag Warning will be relayed by telephone to the dispatch offices and GACCs affected by the watch or warning.

Criteria for Red Flag Warnings and Fire Weather Watches: Standard wind speed and gust criteria have been developed for the Great Basin. The following local criteria specific to the Boise CWFA has been developed:

- Scattered thunderstorm coverage of $\geq$ 25% when the EGBCC deems fuels will be very dry according to the 7-Day Significant Fire Potential Outlook. (Brown blocks)
- Haines 6 for the West Central Idaho Mountain zones: 400, 401, 402, 403, and 404.

Verification of Red Flag Warnings and Events: NWS Boise will locally archive all Fire Weather Watches and Red Flag Warnings automatically through VTEC coding. Red Flag events will be manually databased and compared to the issued watches and warnings. Statistically derived values of Probability of Detection (POD), False Alarm Rate (FAR), and Critical Success Index CSI) will be calculated as soon as possible. These scores will be available to the Boise MIC, NWS Western Region Headquarters, and local customers including the EGBCC meteorologists during post-season meetings from November through January.


NWS Boise
Fire Weather Zones
Active RAWS Stations
(active as of 12 June 2006)
Fire Zone Boundary
GACC Boundary
Highways/Roads
SNAKE RIVER
SKI HILL
WEISER RIVER
TEA POT
PAYETTE PORTABLE #3
LITTLE CREEK
S-C PORTABLE #1
DEAD INDIAN RIDGE
BEARSKIN CREEK
PINE CREEK
BANNER SUMMIT
LITTLE ANDERSON
STANLEY
CHALLIS
BONANZA
TOWN CREEK
GREGORY
HORTON PEAK
FRWS-01NPS #11
HICKY PEAK
WAGONTOWN
OHIO GULCH
DEER HAVEN
MOUNTAIN HOME
ROCK LAKE
TRIANGLE
TWIN BUTTES
BRACE FLAT
HORSE BUTTE
TRAIL GULCH
SHO-PAI
POLE CREEK
BULL SPRING
MOBURG
SKULL GULCH
EZRA CREE
ROAD CREE
NORTH FORK
100
101
102
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112
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118
451
452

FLAGSTAFF WEATHER FORECAST OFFICE

1. CHANGES FOR 2009

See Main section of AOP for overall program changes.

2. HOURS OF OPERATION

Staff meteorologists will be on duty and available at any time, 24 hours a day, 7 days a week.

Forecast issued twice a day NLT 0730 and 1530 MST. (during the fire season)

3. STAFF AND CONTACT INFORMATION

See Appendix A.

4. FIRE WEATHER SERVICES

A. Description of the Flagstaff Fire Weather District:

Arizona Fire Weather Zones…
Zone 104 – Kaibab Plateau, excluding the Kaibab NF
Zone 105 – Marble and Glenn Canyons north of Colorado River

See map at end of this section.

B. Basic Meteorological Services

Spot Forecasts: Requests for spot forecasts will be received via the Flagstaff Fire Weather homepage found at:

http://spot.nws.noaa.gov/cgi-bin/spot/spotmon?site=fgz

C. Product Schedule

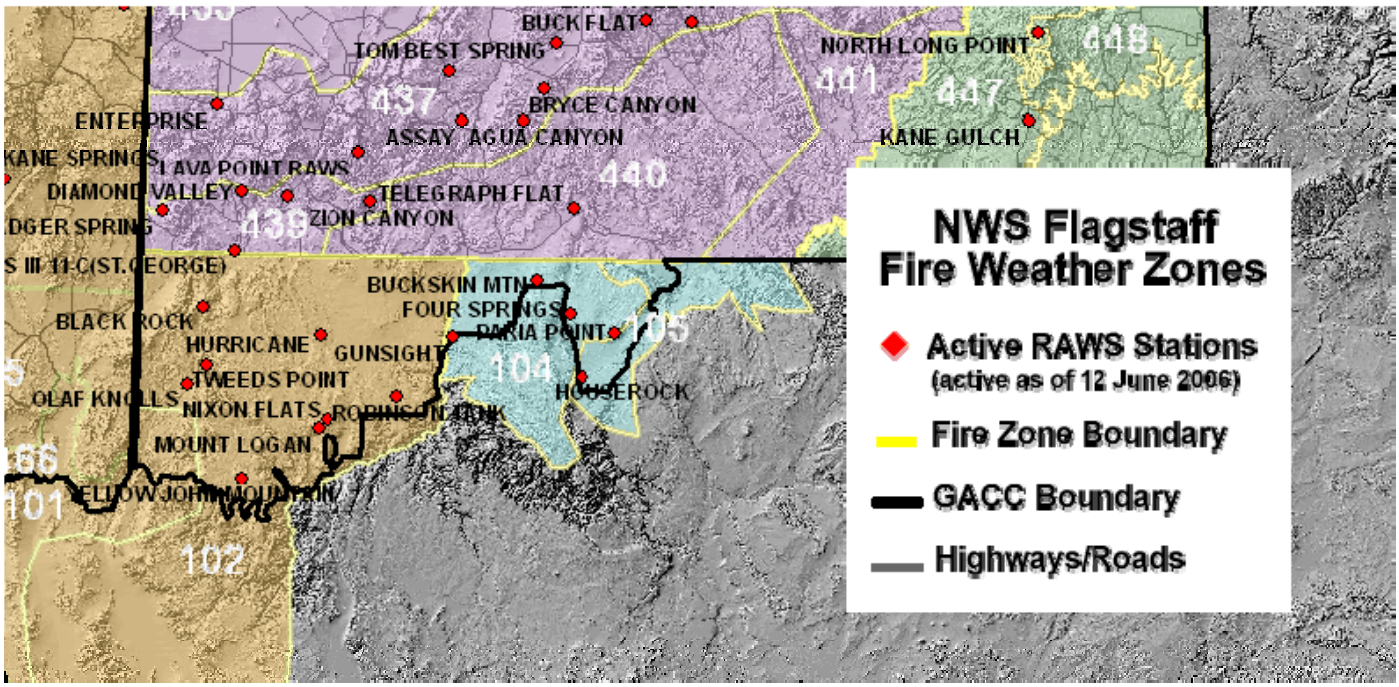
Morning fire weather forecast	NLT 0730 MST
Afternoon fire weather forecast	NLT 1530 MST
NFDRS trends forecast	NLT 1500 MST
Fire Weather Watch / Red Flag Warnings	Event-Driven
Spot forecasts	Upon request

D. Red Flag Events

Interagency Coordination: Before the issuance of a Red Flag Warning, there will be coordination with the affected agencies and neighboring NWS fire weather offices in order to assess fuel conditions and general fire danger.

Dissemination of Fire Weather Watches and Red Flag Warnings: Each issuance, update or cancellation of a Fire Weather Watch or Red Flag Warning will be relayed by telephone to the dispatch office(s) and GACC affected by the watch/warning.

Criteria for Red Flag Events: Standard criteria have been developed for the Great Basin and can be found starting on page 8. However, local criteria specific to an area may be used in addition to the standard criteria.


NWS Flagstaff
Fire Weather Zones
Active RAWS Stations
(active as of 12 June 2006)
Fire Zone Boundary
GACC Boundary
Highways/Roads
BUCK FLAT
TOM BEST SPRING
NORTH LONG POINT
BRYCE CANYON
ENTERPRISE
ASSAY
AGUA CANYON
KANE GULCH
KANE SPRINGS
LAVA POINT RAWS
DIAMOND VALLEY
TELEGRAPH FLAT
ZION CANYON
BLACK ROCK
BUCKSKIN MTN
FOUR SPRINGS
PARIA POINT
HURRICANE
GUNSIGHT
TWEEDS POINT
OLAF KNOLLS
NIXON FLATS
HOUSEROCK
MOUNT LOGAN
YELLOW JOHN MOUNTAIN
437
441
447
448
440
439
105
104
101
102

GRAND JUNCTION WEATHER FORECAST OFFICE

1. CHANGES FOR 2009: None.

2. HOURS OF OPERATION

Depending on variables such as fuel parameters and customer need, a dedicated fire weather forecast shift will be manned:

4/6 through 4/30: 0700-1600 MDT,
Forecast issued once a day NLT 1530 MDT for Colorado area.

5/4 through 10/30: 0700-1600 MDT.
Forecasts issued twice a day, NLT 0800 and 1530 MDT, for Utah and Colorado areas.

Staff fire weather meteorologists will be on duty and available at any time, 24 hours a day, 7 days a week, 365 day a year.

3. STAFF AND CONTACT INFORMATION

See Appendix A.

4. FIRE WEATHER SERVICES

A. Description of the Grand Junction Fire Weather District:

The following zone groupings will be used for all products except the Fire Weather Planning Forecast:

Northeast Utah...
Zone 442 through 444.

The following zone groupings will be used for the Grand Junction Fire Weather Forecast (FWF) only:

Northeast Utah (Uinta IFC)
Zone 428 – Western Uinta Mountains
Zone 429 – West Tavaputs Plateau and surrounding ranges
Zone 430 – Western Uinta Basin
Zone 442 – Eastern Uinta Mountains
Zone 443 – Eastern Uinta Basin
Zone 444 – Northern Roan and East Tavaputs Plateaus and surrounding ranges

The Fire Weather Planning Forecasts for southeast Utah, Zones 445, 446, 447, 448, and 449, are issued by NWS Salt Lake City.

B. Spot Forecasts

The Grand Junction office prepares spot weather forecasts for prescribed burns and wildfires as requested for locations within the office's forecast area. Even though FWF, warning, and watch responsibilities for eastern Utah are split between the Salt Lake City and Grand Junction offices, WFO Grand Junction retains the responsibility to issue spot forecasts for all of its eastern Utah forecast area, including all spots requested within zones: 442, 443, 444, 445, 446, 447, 448 and 449.

The primary means of requesting and disseminating spot forecasts is the NWS Spot Internet-based spot request and reply program, found at:

http://spot.nws.noaa.gov/cgi-bin/spot/spotmon?site=gjt

To ensure receipt by the fire weather forecaster, the requester should call the NWS after submitting each spot request. This call will serve two purposes: to confirm receipt of the request and provide an opportunity for the requester or the fire weather forecaster to ask questions. The forecaster will also be able to advise the requester of a possible delay in completing the forecast due to multiple spot requests. The fire weather forecaster will provide the same courtesy by calling the requesting agency after completing each spot forecast.

It is strongly recommended spot forecasts for prescribed burns NOT be requested between 1100 and 1500. This is a key fire weather and public forecast preparation period. Completion of spot forecasts for non-wildfires that are requested during this period will be delayed until after these key public and fire weather forecasts are completed.

At the beginning of a project, a nearby RAWS site may be used for the INITIAL spot request. Unless the RAWS site is physically located on the burn project, all further spot requests must include weather observations taken by on-site personnel or other on-site instrumentation.

C. Product Schedule

Morning fire weather forecast	NLT 0800 MDT
Afternoon fire weather forecast	NLT 1530 MDT
NFDRS trends forecast	NLT 1545 MDT
Fire Weather Watch / Red Flag Warnings	Event-Driven
Spot forecasts	Upon request

D. Red Flag Events

Northeast Utah Zones: WFO Grand Junction issued Red Flag Warnings and Fire Weather Watches for all of northern Utah including the following fire zones, include 3 zones within WFO Salt Lake City's forecast area:

Zone 428 – Western Uinta Mountains
Zone 429 – West Tavaputs Plateau and surrounding ranges
Zone 430 – Western Uinta Basin
Zone 442 – Eastern Uinta Mountains
Zone 443 – Eastern Uinta Basin
Zone 444 – Northern Roan and East Tavaputs Plateaus and surrounding ranges

Red Flag Warnings and Fire Weather Watches for southeast Utah, Zones 445, 446, 447, 448, and 449, are issued by NWS Salt Lake City, UT.

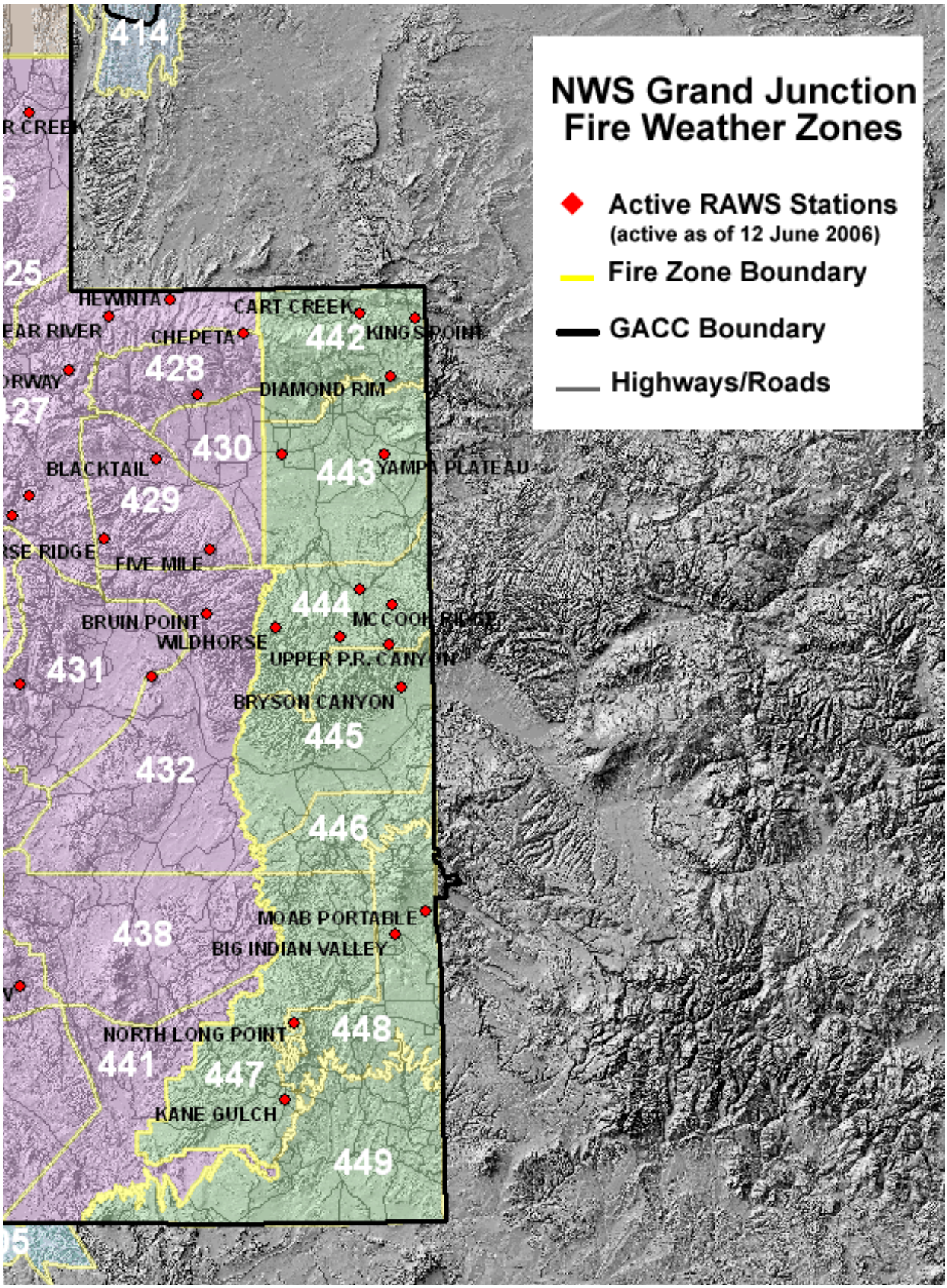
Interagency Coordination: Before the issuance of a Red Flag Warning, there will be coordination with the affected agencies and neighboring NWS fire weather offices to assess fuel conditions and general fire danger. Coordination of fuel conditions will be accomplished by accessing the GACC fuels page and from GACC/NWS conference calls.

E. Smoke Management Forecast

A Graphical Utah Clearing Index Forecast is available in the fire weather sections of the Grand Junction and Salt Lake City web pages.

F. Incident Meteorologists (IMETs)

The Grand Junction office has two certified IMETs available for dispatch to major forest fires and incidents. Dispatch for significant prescribed burn projects will only be possible when coordination with the fire weather program leader and WFO Meteorologist-in-Charge (MIC) is well in advance (i.e., months in advance) of the project and only when NWS manpower and resources permit.


NWS Grand Junction
Fire Weather Zones
Active RAWS Stations
(active as of 12 June 2006)
Fire Zone Boundary
GACC Boundary
Highways/Roads
414
HEWINTA
CART CREEK
CHEPETA
KINGS POINT
442
428
DIAMOND RIM
430
BLACKTAIL
443
YAMPA PLATEAU
429
FIVE MILE
444
BRUIN POINT
WILDHORSE
UPPER P.R. CANYON
431
BRYSON CANYON
445
432
446
MOAB PORTABLE
438
BIG INDIAN VALLEY
NORTH LONG POINT
448
441
447
KANE GULCH
449

LAS VEGAS WEATHER FORECAST OFFICE

1. CHANGES FOR 2009

See Main section of AOP for overall program changes.

2. HOURS OF OPERATION

Staff meteorologists are on duty at WFO Las Vegas 24 hours a day throughout the year.
Scheduled dates and times for the Fire Weather Planning Forecast and NFDRS forecasts are:

5/1 through 10/31:	Planning Forecast issued twice daily at 0700 and 1500 PDT. NFDRS forecast issued by 1530 PDT.
Off season:	Planning Forecast issued once daily at 0700 local time.

Depending on variables such as fuel parameters and customer need, seasonal Fire Weather dates may begin earlier in the season or continued later in the season.

3. STAFF AND CONTACT INFORMATION

See Appendix A.

4. FIRE WEATHER SERVICES

A. Description of the Las Vegas Fire Weather District (Eastern Great Basin Portion):

Arizona Fire Weather Zones whose northern portions fall within the Great Basin
Zone 101 – Lake Mead
Zone 102 – Northwest Plateau (Arizona Strip) and Northwest Deserts

See map at end of this section.

B. Basic Meteorological Services

Spot Forecasts: Requests for spot forecasts will be received via the Las Vegas Fire Weather homepage found at:
http://spot.nws.noaa.gov/cgi-bin/spot/spotmon?site=vef

C. Product Schedule

Morning fire weather planning forecast	NLT 0700 Pacific Time
Afternoon fire weather forecast	NLT 1530 Pacific Time
NFDRS trends forecast	NLT 1530 Pacific Time
Fire Weather Watch/Red Flag Warnings	Event-Driven
Spot forecasts	Upon request

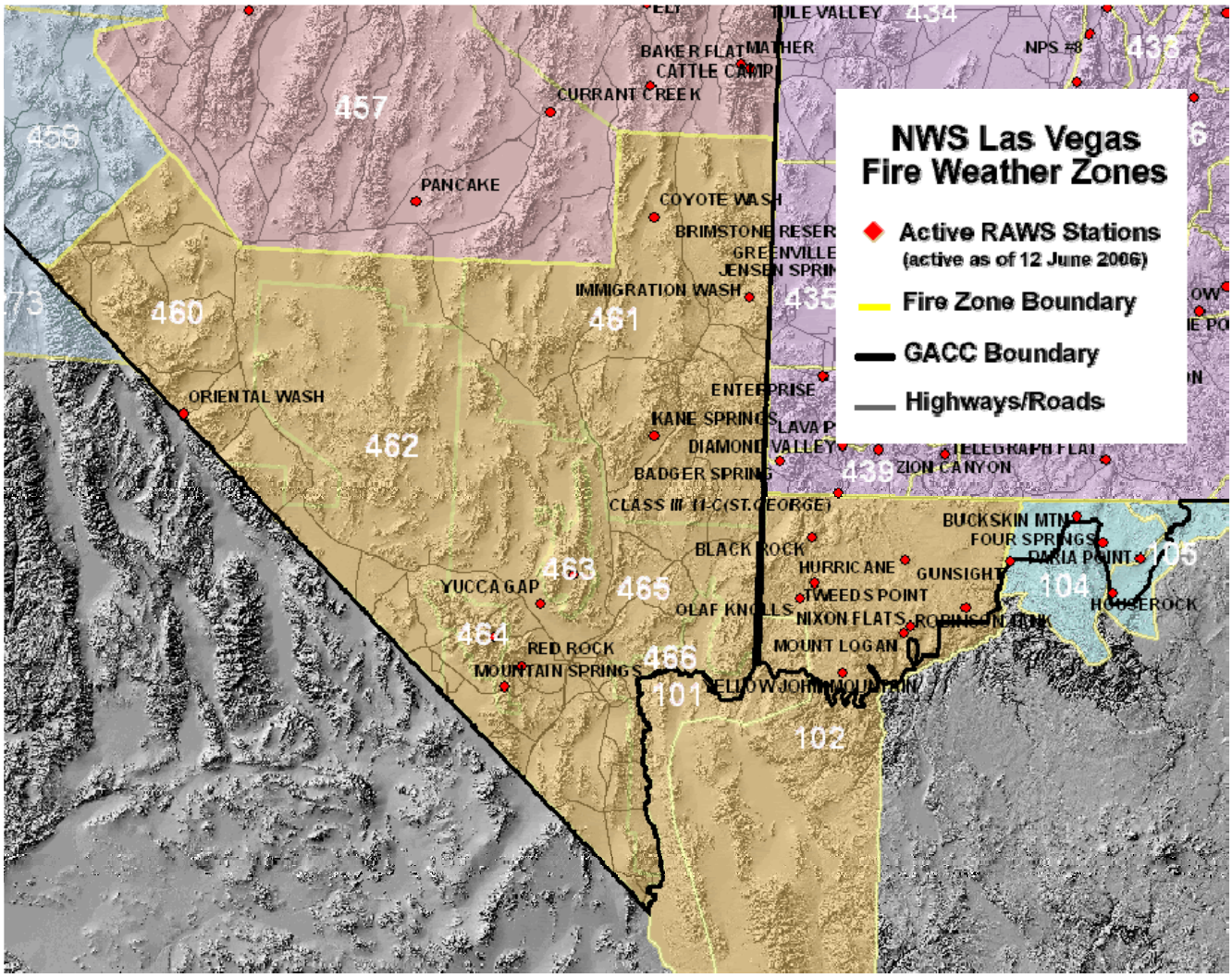
D. Red Flag Events

Interagency Coordination: Before the issuance of a Red Flag Warning, there will be coordination with the affected agencies and neighboring NWS offices in order to assess fuel conditions and general fire danger.

Dissemination of Fire Weather Watches and Red Flag Warnings: Each issuance, update or cancellation of a Fire Weather Watch or Red Flag Warning falling between normal narrative forecast

issuance times will be relayed by telephone to the dispatch office(s) and GACC affected by the watch/warning.

4560Criteria for Red Flag Events: Fuels are critical and sustained winds greater than or equal to 20 mph or gusts greater than or equal to 35 mph for 3+ hours and relative humidity less than or equal to 15% OR Dry Thunderstorms with areal coverage of widely scattered or greater (>15%) in a fire weather zone.



POCATELLO WEATHER FORECAST OFFICE

1. CHANGES FOR 2009

See Main section of AOP for overall program changes.

- For the 2009 Fire Season, WFO Pocatello will continue to issue Red Flag Warnings for thunderstorms even if precipitation is expected to exceed 0.10 inch of rain.

2. HOURS OF OPERATION

Staff meteorologists are on duty at WFO Pocatello 24 hours a day throughout the year. Concerns about current or developing weather conditions may be discussed anytime. Scheduled dates for issuance of the Fire Weather Planning Forecast and NFDRS forecasts are:

Second Monday in May:	Forecast issued once a day NLT 0700 MDT.
Third Monday in June through last Friday in October:	Forecast issued twice a day NLT 0700 and 1530 MDT.

Depending on variables such as fuel parameters and customer need, seasonal Fire Weather dates may begin earlier in the season or continue later in the season.

3. STAFF AND CONTACT INFORMATION

See Appendix A.

4. FIRE WEATHER SERVICES

A. Description of the Pocatello Fire Weather District:

East Central Idaho Mountains...

Zone 475 – East Salmon River Mountains/Salmon NF: includes the western half of the Salmon-Challis NF and portions of Idaho Falls BLM District.
Zone 476 – Lemhi and Lost River Range/Challis NF: includes the eastern half of the Salmon-Challis NF and portions of the Idaho Falls BLM District.
Zone 477 – Sawtooth Range/Northern Sawtooth NF: includes the Sawtooth NRA, and Camas Prairie.

Upper Snake River Plain...

Zone 409 – Middle Snake River Valley/Twin Falls BLM: Includes Twin Falls BLM District north of Snake River, Minidoka NWR, and Craters of The Moon NM.
Zone 410 – Upper Snake River Valley/Idaho Falls BLM: Includes Northeast portion of the Idaho Falls BLM District, Camas NWR, Idaho State Land Department – Cotton Protective District, southeastern Birch Creek and Little Lost River Valleys.

Upper Snake Highlands…

Zone 411 – Centennial Mountains and Snake River Range/Targhee NF: Caribou-Targhee NF north of Palisades Reservoir, excluding the eastern slopes of the Lemhi Mountain Range.

Southeast Idaho Highlands…

Zone 412 – Goose Creek and Raft River Valley/Southern Sawtooth NF: Includes the southern portion of the Sawtooth NF, and portions of the Twin Falls BLM District south of the Snake River.
Zone 413 – Caribou Range/Caribou NF: Caribou-Targhee NF south of Palisades Reservoir, portions of the Idaho Falls BLM District east of Snake River, Grays Lake NWR, and Bear Lake NWR.

B. Basic Meteorological Services

Spot Forecasts: Requests for spot forecasts will be received via the Pocatello Fire Weather homepage found at:

http://spot.nws.noaa.gov/cgi-bin/spot/spotmon?site=pih

C. Product Schedule

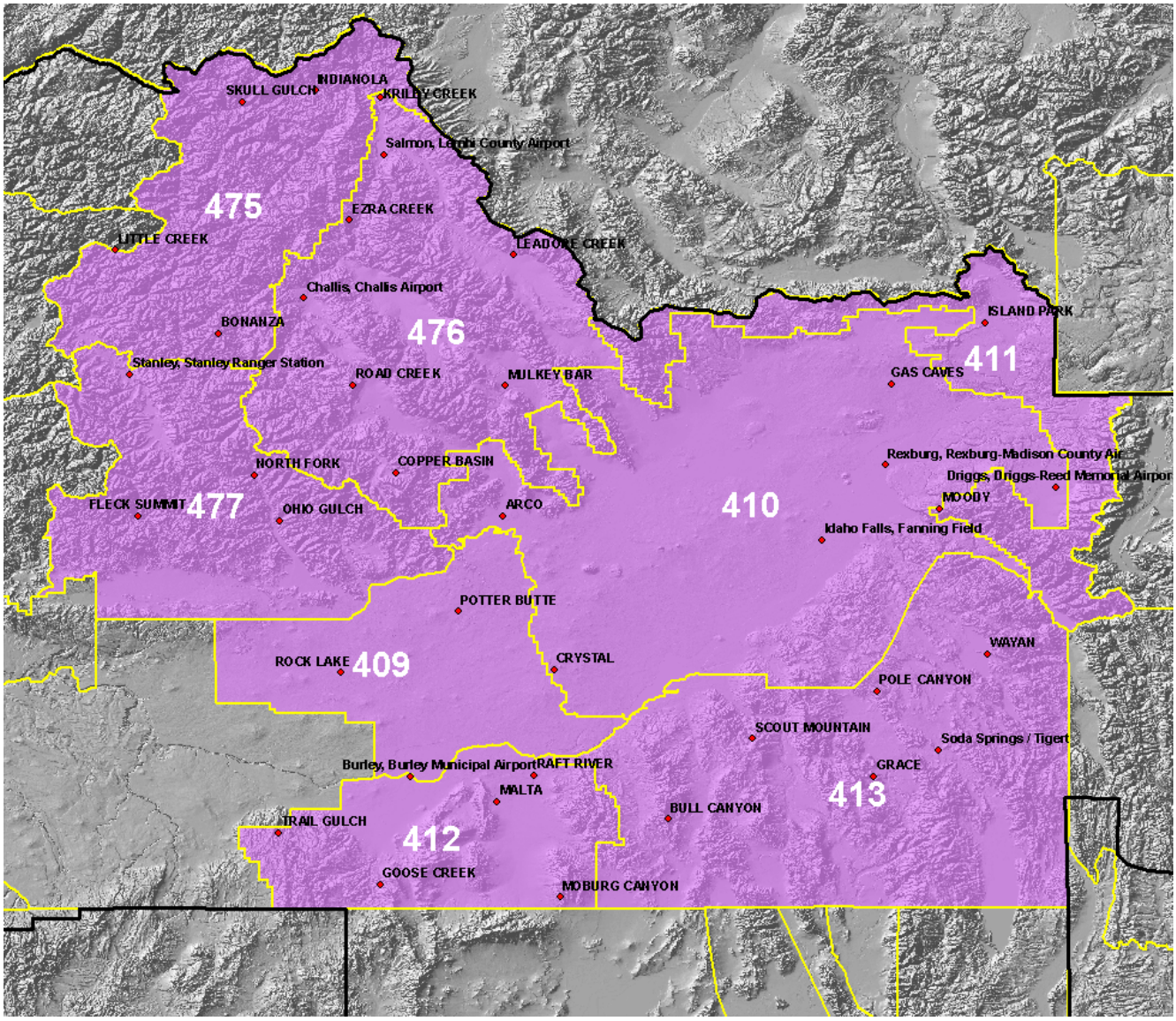
Morning fire weather forecast	NLT 0700 MDT
Internet briefing	At 0900 MDT
- Weekly in June (Monday)	
- Bi-weekly July (Monday and Thursday)	
- Daily in August and September	
- Bi-weekly in October (Monday and Thursday)	
Afternoon fire weather forecast	NLT 1530 MDT
NFDRS forecast	NLT 1545 MDT
Fire Weather Watch / Red Flag Warnings	Event-Driven
Spot forecasts	upon request

D. Red Flag Events

Interagency Coordination: Before the issuance of a Red Flag Warning, there will be coordination with the affected agencies in order to assess fuel conditions and general fire danger.

Dissemination of Fire Weather Watches and Red Flag Warnings: Each issuance, update or early cancellation of a Fire Weather Watch or Red Flag Warning will be relayed by telephone to the dispatch office(s) and GACC affected by the watch/warning. For Red Flag Warnings that run their stated valid time and expire between 600 pm and 600 am local time, a single notification call will be made to Eastern Great Basin Coordination Center Predictive Services who in turn will notify the appropriate on-call number.

Criteria for Red Flag Events: Standard criteria have been developed for the Eastern Great Basin and can be found in the main section of this operating plan.


SKULL GULCH
INDIANOLA
KRILLY CREEK
Salmon, Lemhi County Airport
475
EZRA CREEK
LITTLE CREEK
LEADORE CREEK
Challis, Challis Airport
BONANZA
476
ISLAND PARK
411
Stanley, Stanley Ranger Station
ROAD CREEK
MULKEY BAR
GAS CAVES
Rexburg, Rexburg-Madison County Air
Driggs, Driggs-Reed Memorial Airpor
NORTH FORK
COPPER BASIN
MOODY
FLECK SUMMIT
477
OHIO GULCH
ARCO
410
Idaho Falls, Fanning Field
POTTER BUTTE
WAYAN
ROCK LAKE
409
CRYSTAL
POLE CANYON
SCOUT MOUNTAIN
Soda Springs / Tigert
Burley, Burley Municipal Airport
RAFT RIVER
GRACE
MALTA
413
BULL CANYON
TRAIL GULCH
412
GOOSE CREEK
MOBURG CANYON

RIVERTON WEATHER FORECAST OFFICE

1. CHANGES FOR 2009

The weekly fire weather conference call will be hosted Tuesday mornings at 0900.

2. HOURS OF OPERATION

Depending on variables such as fuel parameters and customer need, seasonal Fire Weather Hours of Operation will be:
5/1 through 10/31
Forecast issued twice a day NLT 0700 and 1500 MDT.

Staff meteorologists will be on duty and available at any time, 24 hours a day, 7 days a week.

3. STAFF AND CONTACT INFORMATION

See Appendix A.

4. FIRE WEATHER SERVICES

A. Description of the Riverton Fire Weather District:

Great Basin Fire Weather Zones...
Zone 414 – Bridger-Teton NF and surrounding mountainous terrain in Lincoln as well as western Sublette Counties west of Highway 189/191
Zone 416 – Bridger-Teton NF and surrounding mountainous terrain in Sublette County east of Highway 189/191, and a small portion of Fremont County west of South Pass
Zone 415 – Bridger-Teton NF in extreme western Fremont County and southwest Park County, Teton County excluding the Targhee NF, extreme northwest Sublette County.

See map at end of this section.

B. Basic Meteorological Services

Spot Forecasts: Requests for spot forecasts will be received via the Riverton Fire Weather homepage found at:

http://spot.nws.noaa.gov/cgi-bin/spot/spotmon?site=riw

C. Product Schedule

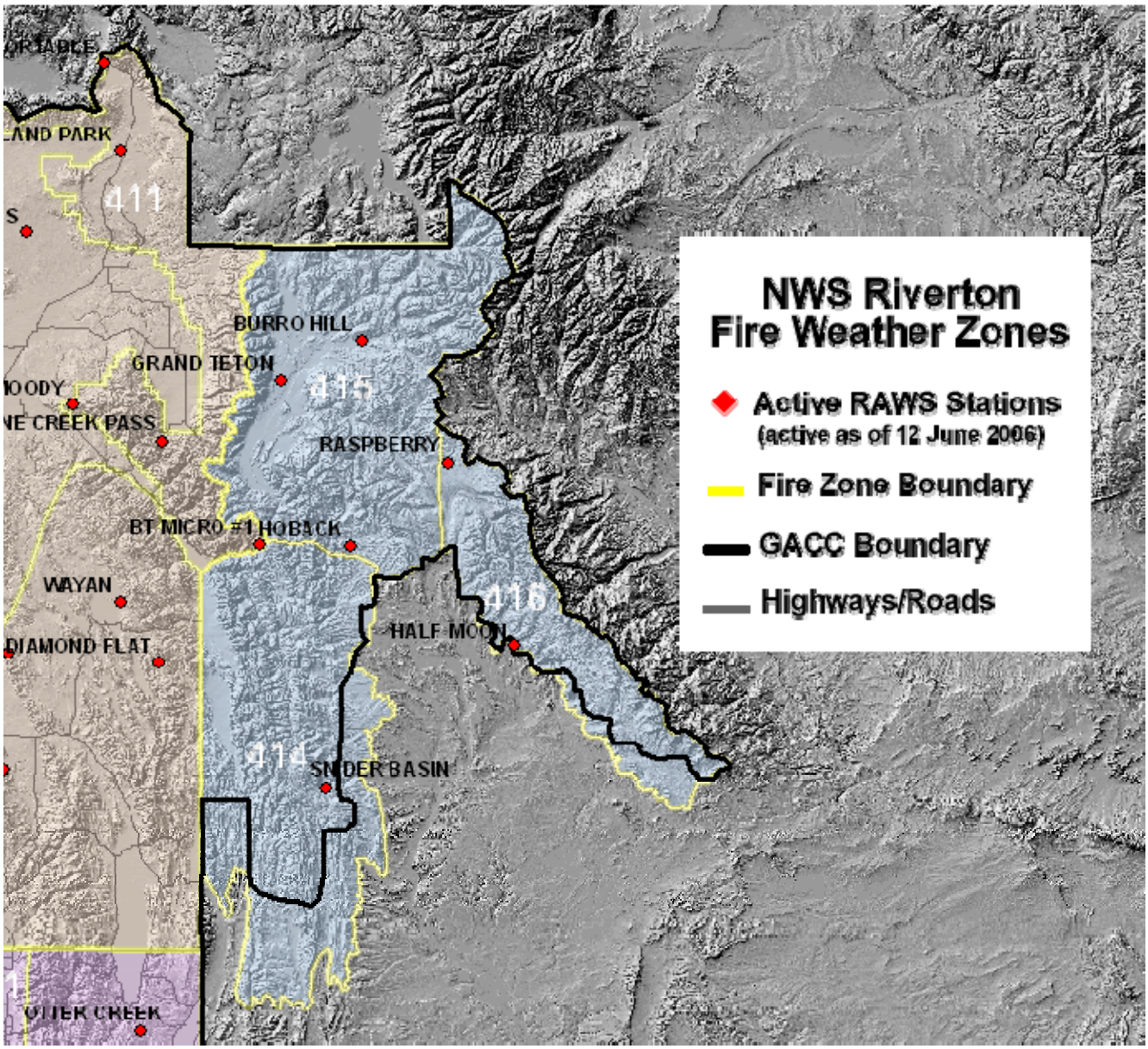
Morning fire weather forecast	NLT 0700 MDT
Afternoon fire weather forecast	NLT 1500 MDT
NFDRS trends forecast	NLT 1545 MDT
Fire Weather Watch / Red Flag Warnings	Event-Driven
Spot forecasts	Upon Request

D. Red Flag Events

Interagency Coordination: Before the issuance of a Red Flag Warning, there will be coordination with the affected agencies and neighboring NWS fire weather offices in order to assess fire weather conditions.

Dissemination of Fire Weather Watches and Red Flag Warnings: Each issuance, update or cancellation of a Fire Weather Watch or Red Flag Warning will be relayed by telephone to the dispatch office(s) and GACC affected by the watch/warning.

Criteria for Red Flag Events: Standard criteria have been developed for the Great Basin and can be found starting on page 8. However, local criteria specific to an area may be used in addition to the standard criteria. For Riverton, red flag criteria will include 25 mph sustained wind (20-foot, 10-minute average).



SALT LAKE CITY WEATHER FORECAST OFFICE

1. CHANGES FOR 2009

A) The wind criteria for RFWs in fire weather zones 440 and 441 has changed from >=25 to >=30 mph.

B) An All-In-One IMET page has been created and is accessible through the "Weather Tools" portion of the Fire Weather Section on the Salt Lake web page.

See Section 4-B (Basic Meteorological Services) for details.

2. HOURS OF OPERATION

Depending on variables such as fuel parameters and customer need, seasonal Fire Weather Hours of Operation will be:

5/4 through 10/30: 0800-1600 MDT,
Forecast issued twice daily, NLT 0700 and 1500 MDT.

Staff meteorologists will be on duty and available at any time, 24 hours a day, 7 days a week.

3. STAFF AND CONTACT INFORMATION

See Appendix A.

4. FIRE WEATHER SERVICES

A. Description of the Salt Lake City Fire Weather District:

The following zone groupings will be used for all products except the Fire Weather Forecast (FWF):

Northern Utah
Zone 420 – Great Salt Lake Desert and Mountains
Zone 421 – Cache Valley
Zone 422 – Northern Wasatch Front
Zone 423 – Salt Lake and Tooele Valleys
Zone 424 – Southern Wasatch Front
Zone 425 – Wasatch Mountain Valleys
Zone 426 – Wasatch Mountains north of Interstate 80
Zone 427 – Wasatch Mountains south of Interstate 80

Northeast Utah
Zone 428 – Western Uinta Mountains
Zone 429 – West Tavaputs Plateau and surrounding ranges
Zone 430 – Western Uinta Basin

East Central Utah
Zone 431 – Castle Valley
Zone 432 – San Rafael Swell and Desert

West Central Utah...
Zone 433 – San Pete and Sevier Valleys
Zone 434 – West Central Deserts and Mountains
Zone 436 – Central Utah Mountains
Zone 438 – Henry Mountains

Southern Utah
Zone 435 – Southwest Deserts and Mountains
Zone 437 – Southwest and South Central Mountains
Zone 439 – Utah's Dixie and Zion Canyon
Zone 440 – South Central Utah
Zone 441 – Glen Canyon National Recreation Area/Lake Powell

The following zone groupings will be used for the Salt Lake City Fire Weather Forecast (FWF) only:

Northern Utah (Northern Utah IFC)
Zone 420 – Great Salt Lake Desert and Mountains
Zone 421 – Cache Valley
Zone 422 – Northern Wasatch Front
Zone 423 – Salt Lake and Tooele Valleys
Zone 424 – Southern Wasatch Front
Zone 425 – Wasatch Mountain Valleys
Zone 426 – Wasatch Mountains north of Interstate 80
Zone 427 – Wasatch Mountains south of Interstate 80

East Central Utah (Moab IFC)
Zone 431 – Castle Valley
Zone 432 – San Rafael Swell and Desert
Zone 445 – Grand Flat, Roan and Book Cliffs
Zone 446 – Arches National Park and surrounding area
Zone 447 – Canyonlands National Park, Natural Bridges National Monument
Zone 448 – La Sal and Abajo Mountains
Zone 449 – Southern San Juan County

West Central Utah (Richfield IFC)
Zone 433 – San Pete and Sevier Valleys
Zone 434 – West Central Deserts and Mountains
Zone 436 – Central Utah Mountains
Zone 438 – Henry Mountains

Southwest Utah (Cedar City IFC)
Zone 435 – Southwest Deserts and Mountains
Zone 437 – Southwest and South Central Mountains
Zone 439 – Utah's Dixie and Zion Canyon
Zone 440 – South Central Utah
Zone 441 – Glen Canyon National Recreation Area/Lake Powell

See map at end of this section.

B. Basic Meteorological Services

The following services are provided to Land Management Agencies in the state of Utah:

GoToMeeting: During fire season, the GoToMeeting internet briefing will be offered twice weekly on Mondays and Thursday at 945 MDT for all agencies. In addition, event driven GoToMeetings may be provided. These event driven meetings will be scheduled via e-mail with a one day advance notice. This verbal and visual briefing will include a general discussion of weather conditions and forecasts for the current day, as well a brief discussion of the extended period. A pre-set group of images consisting of model data, satellite and radar loops, GFE forecasts and/or observations and other items of interest will be addressed for the forecast period.

Emergency Fire Weather Briefings: During emergency situations when a spot forecast will take too long, you should call us for weather information. Ask to speak with the Fire Weather Forecaster on-duty. If a Fire Weather Forecaster is not in the office, ask to speak with the Lead Forecaster on duty.

Routine Fire Weather Zone Forecasts: Disseminated via WIMS and our Internet Homepage twice a day from 5/4 through 10/30. Issuance times are 0700 MDT and 1500 MDT. Times vary according to the current weather situation/spot forecast workload though every effort is made to make the forecast available as soon as possible. The GACC Predictive Services Meteorologist or the Coordinator on Duty (COD) outside of the GACC operational hours will be notified of any updates.

Routine Smoke Management Forecasts: Disseminated via WIMS and our Internet Homepage once a day from 5/4 through 10/30. Issuance times will usually be from 1100-1200 MDT depending on our spot forecast workload. **Note:** With the recent increased emphasis on prescribed burning...we continue to try and make improvements to this product. Consult our homepage for the latest updates and improvements to this product. Outside the normal burning season, the Activity Planner and the Graphical Clearing Index or the Airshed Clearing Index Forecasts may be used.

Spot Forecasts:
Please utilize the web-based system on our homepage to request Spot Forecasts, found at:

http://spot.nws.noaa.gov/cgi-bin/spot/spotmon?site=slc

Fire Weather Watches/Red Flag Warnings: Low RH and Strong Winds: Normally issued via our Internet Homepage and WIMS with the Routine Forecast Package (NLT 0700 or 1500 MDT) and as a separate product. Coordination calls are made as needed to EGB GACC and/or Local Dispatch Centers to verify fuel conditions. FMOs, FBAs, and Burn Bosses should make every effort to call the Fire Weather Forecaster on-duty whenever there is any concern about critically dry fuels and severe fire behavior. Watches and warnings for non-lightning events will be based on the standard criteria set forth in this document, beginning on page 7.

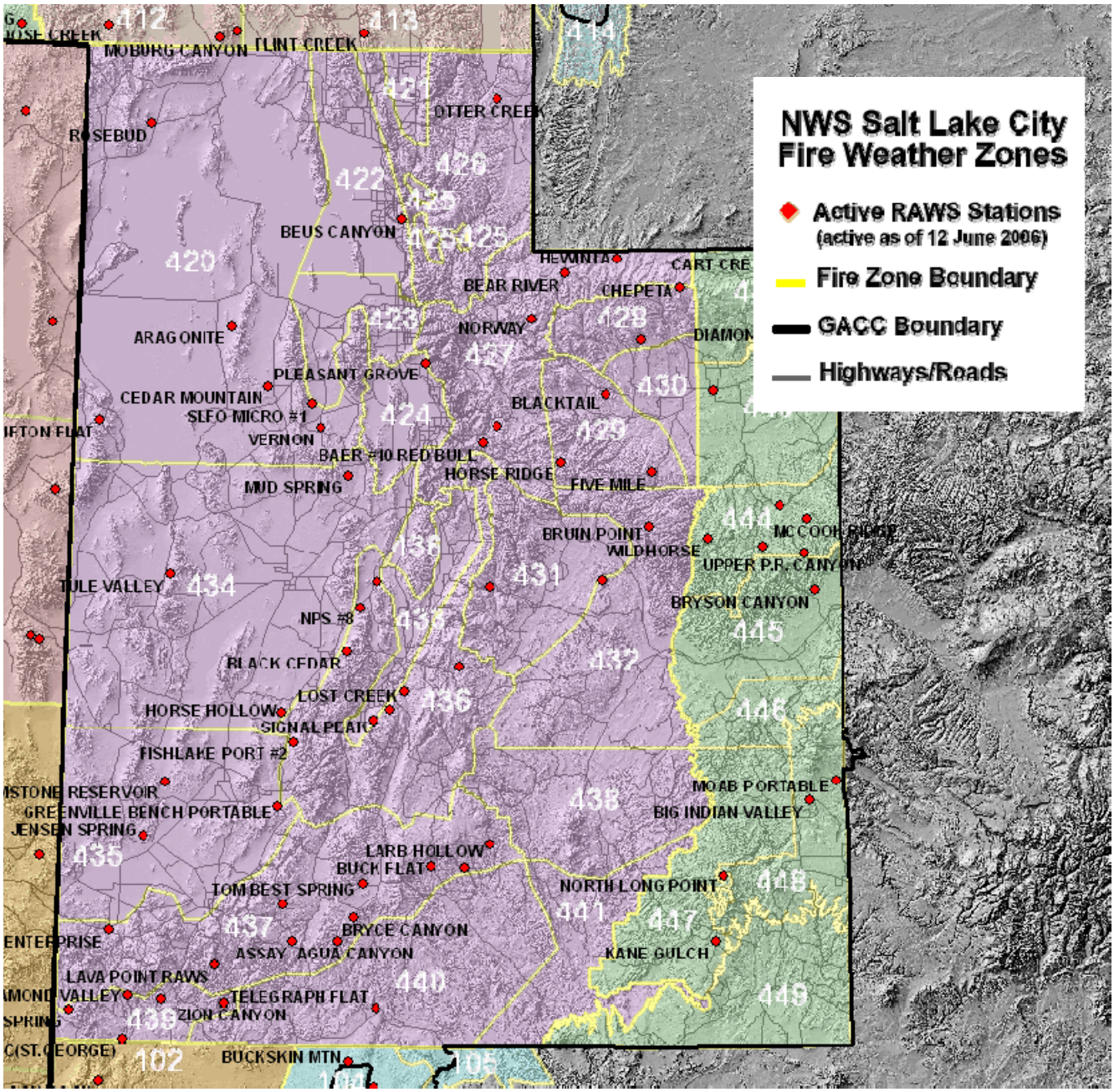
Fire Weather: The RFW for Dry Lightning will continue in 2009 and will be complimented by an experimental Fuel Dryness and Lightning Probability web graphic. See pg. 16

Gridded Forecast Products: The Fire Weather Point Forecast Matrix (PFM) are available and are accessible via a radio button along the top of the Fire Weather page. This product is a tabular forecast. This seven day forecast is detailed for the first 72 hours while the forecast information for days 4 through 7 contains fewer parameters and is of less temporal resolution.

Any suggestions on how to improve any forecast tools are very welcome; please email your suggestions or call the Fire Weather Program Leader, Mark Struthwolf.

C. Product Schedule

Morning fire weather forecast	NLT 0700 MDT
Afternoon fire weather forecast	NLT 1500 MDT
NFDRS trends forecast	NLT 1545 MDT
Fire Weather Watch / Red Flag Warnings	Event-Driven
Spot Forecasts	Upon request


NWS Salt Lake City
Fire Weather Zones
Active RAWS Stations
(active as of 12 June 2006)
Fire Zone Boundary
GACC Boundary
Highways/Roads
MOBURG CANYON
FLINT CREEK
OTTER CREEK
ROSEBUD
BEUS CANYON
HEVANTA
BEAR RIVER
CHEPETA
NORWAY
ARAGONITE
PLEASANT GROVE
CEDAR MOUNTAIN
SLEO MICRO #1
VERNON
BAER #10 RED BULL
BLACKTAIL
HORSE RIDGE
FIVE MILE
MUD SPRING
BRUIN POINT
WILDHORSE
UPPER P.R. CANYON
BRYSON CANYON
TULE VALLEY
NPS #8
BLACK CEDAR
LOST CREEK
HORSE HOLLOW
SIGNAL PLAIN
FISHLAKE PORT #2
GREENVILLE BENCH PORTABLE
JENSEN SPRING
MOAB PORTABLE
BIG INDIAN VALLEY
LARB HOLLOW
BUCK FLAT
TOM BEST SPRING
NORTH LONG POINT
BRYCE CANYON
ASSAY AGUA CANYON
KANE GULCH
LAVA POINT RAWS
TELEGRAPH FLAT
ZION CANYON
BUCKSKIN MTN