NATIONAL WEATHER SERVICE WESTERN REGION SUPPLEMENT 4-2005
APPLICABLE TO NWSI 10-401
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Operations and Services
Products and Services to Support Fire and Other Incidents, NWSPD 10-4
Fire Weather Services Product Specification, NWSI 10-401

WESTERN REGION FORECAST OFFICE FIRE WEATHER SERVICES

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SUMMARY OF REVISIONS: The directive supersedes NWS Western Region Supplement 4-2005, dated January 12, 2014.

The following revisions were made to this supplement:

1. Removal of requirements to send monthly Red Flag Warning statistics to WRH.

Signed 09/10/18
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Director, Western Region

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1. Introduction: The Western Region (WR) Fire Weather Program provides critical impact-based decision support services (IDSS) to fire suppression, land management and emergency management agencies at all government levels. During periods of high wildfire danger, fire weather may be the most important program at a WR Weather Forecast Office (WFO). The Meteorologist-in-Charge (MIC) should ensure that WFO operations adequately address this importance.

Because of the variety of customers and to allow local flexibility, it is imperative that each WFO thoroughly assess and work closely with their fire weather users to determine appropriate application of national and regional guidance. Standardization of fire weather products and services (both content and format) from several WFOs across the jurisdiction of a Geographic Area Coordination Center (GACC) should be done as much as possible and reflected in the local NWS-Fire Agency Annual Operating Plan (AOP).

2. NWS WR Fire Weather Information: NWS WR fire weather information is continuously evolving with technology and user needs to provide the best IDSS to our partners as possible. It is important that fire weather information is consistent with other WFO forecast information.

2.1 Core Grids and Related Applications: Provision of NWS fire weather information in digital and graphic format is important to fire weather users. This information is used in a variety of ways by fire agencies for decision support, including "point and click" forecast and guidance information, web graphics and Geographic Information System (GIS) compatible files. It is critical that Graphical Forecast Editor (GFE) fire weather elements are kept updated and collaborated. At a minimum, fire weather forecast elements will meet the inter-WFO collaboration thresholds outlined in NWSI 10-201. When all parties agree, AOP collaboration requirements may be tighter and assigned to fire weather elements without national standards.

2.2 Fire Weather Watch and Red Flag Warning (RFW): All WR RFW statements are issued using the format outlined in NWSI 10-401, Section 3. RFW headline format and dissemination requirements are also stated in NWSI 10-401. Local RFW issuance criteria must be clearly defined in the AOP.

At times during the local fire weather off/low season, weather and fuel dryness can meet AOP Red Flag criteria. Examples of this include dry vegetation combined with Chinook Winds in eastern Montana in late winter and early spring, or a spring offshore wind event in southern California following a dry winter. Per interagency agreement listed in the AOP, WFOs may issue RFWs for these events with no other fire weather products issued.

At user request and as documented in the AOP, WR WFOs may use GFE-produced web-based graphics to help relay RFW information. Showing expected locations of lightning on receptive fuels, or a web page illustrating locations of forecast strongest winds during a Santa Ana Wind event in southern California are two examples. WFOs utilizing "graphic RFWs" should also issue a brief complimentary text RFW to alert users to availability of the graphic(s). A web link must be included as a text bullet in the RFW to provide convenient access to critical information contained in the graphic:

PLEASE GO TO **HTTP://WWW.WRH.NOAA.GOV/WFO/FIRE2/GRAPHIC NAME** FOR THE LATEST MAP OF THE AFFECTED AREA.

2.3 Site-Specific (Spot) Forecast (FWS): The spot forecast, although issued primarily for fire agency support, is also applied to all-hazard and marine incidents. The WFO Fire Weather Program Manager, Warning Coordination Meteorologist (WCM) and MIC work together to ensure NWS spot forecast assistance and capability is known to all local first response and emergency management agencies. Spot forecasts will follow the policies and format described in NWSI 10-401, Section 4.

All fire agency personnel are trained in methodologies to reduce 20 foot winds to eye-level values, dependent on observation site variables as defined in various fire behavior courses. Spot forecasts are issued with 20-foot wind forecasts as outlined in NWSI 10-401, Section 4, but other elements may also be made available based on local needs.

Frequent spot forecast requests, especially during Red Flag and/or large wildfire events, may result in the need for more than one person to help edit, review and quality control forecasts prior to dissemination. Forecasters should try to anticipate the number of spot requests they may encounter on shift. If needed, additional staff should be made available to assist with spot workload. Forecasters should not rely solely on the AWIPS spot request alarm or phone calls from a customer; and should check the spot request web page periodically. Spot requests should be logged and monitored to ensure none are missed.

2.4 Fire Weather Planning Forecast (FWF): In WR, narrative style planning forecasts as described in NWSI 10-401, Section 5 are issued.

a. Issuance Times. During fire season, the FWF is issued twice daily. During the off season, and depending on customer request, the FWF may be issued once per day, usually with a reduced number of forecast elements.

b. Headlines. In addition to required Fire Weather Watch and Red Flag Warning headlines, headlines for critical fire weather events that do not reach red flag criteria are encouraged for fire weather customers. However, because of possible confusion when fire weather forecasts are read over agency radio broadcasts, the phrase, “Near Red Flag Conditions” will not be used; rather, describe the actual weather element(s) that may be problematic for fire agencies. For example, “GUSTY NORTH WINDS AND LOW HUMIDITY THURSDAY MORNING” is a useful headline for FWF users.

c. Extended Period. During high fire season, the FWF 3-5 (optional 7) day extended forecast period should be well coordinated between WFO(s) and the GACC Predictive Service Unit (PSU) to provide a consistent weather message to users. Fire agencies make expensive resource positioning decisions based on extended forecasts and good coordination for this period should occur.

d. Fire weather forecasts, watches, and warnings should be internally consistent with other NWS products/messaging and externally coordinated with core partners.

2.5 Area Forecast Discussion (AFD): The AFD is frequently read by fire weather users. As outlined in NWSI 10-503, Section 2.3.4 a fire weather section may be added to the narrative portion of the AFD. The fire weather AFD section can be used to help disseminate content of the FWF discussion and relay forecast uncertainty and insight not available elsewhere. Listing RFW issuances in the watch/warning portion of the AFD is mandatory.

2.6 Other Services: The NWS provides a variety of fire weather planning tools to fire agencies via the web. This information includes the Weather Activity Planner, Fire Weather Point Forecast Matrix, Hourly Weather Graphics, FARSITE weather support and a GIS service. WR WFOs should encourage their fire weather customers to utilize these user-driven information sources as appropriate. The fire weather web tools should be publicized in the AOPs.

Live webinars, recorded online fire weather video briefings, Weather Story graphics and heads-up emails from NWS offices are very popular with local fire weather customers. WR offices are encouraged to utilize these aspects of IDSS to assist their fire weather partners. The availability of these and other IDSS should be included in the AOP.

3. Verification: Verification of fire weather forecasts is part of the national verification program as outlined in NWSI 10-1601. Additional verification may be performed with local agreement and documented in the AOP. All verification data listed below is included in WFO Fire Weather Annual Reports.

3.1 Fire Weather Watch and Red Flag Warning (RFW): Fire Weather Watch – track the total number of watches issued, lead time to event, and the number of watches that were followed by Red Flag Warnings; converted to percentage.

Red Flag Warnings – False Alarm Rate (FAR), Probability of Detection (POD), Critical Success Index (CSI) and Lead Time are calculated for Red Flag warnings as defined in NWSI 10-1601. Annual goals for Red Flag Warning FAR, POD, CSI and Lead Time are provided by the National Fire Weather Operations Coordinator (NFWOC). If required by local customers and documented in the AOP, separate verification statistics can be maintained for warnings issued due to lightning events versus warnings issued for other events such as wind, low humidity and instability.

3.2 Spot Forecast (FWS): Observations are used to verify spot forecasts as needed. Forecaster evaluation as defined by the need to update a spot forecast is also a qualitative method of verification.

3.3 Fire Weather Planning Forecast (FWF): National Digital Forecast Database (NDFD) verification is used for FWF verification. WFOs may perform local verification depending on office and customer needs. Any local verification should be documented in the AOP with results summarized in the Annual Fire Weather Report.

3.4 National Fire Danger Rating System (NFDRS) Forecast (FWM): WFOs can perform NFDRS verification locally as determined by office and customer needs. Any special verification should be documented in the AOP with results summarized in the Annual Fire Weather Report.

4. Annual Operating Plan (AOP): AOPs normally represent a statewide or GACC-wide area and thus comprise the fire weather responsibility of several WFOs. AOPs are made available on the GACC websites no later than the beginning of the local fire season. As much as possible, major changes to AOPs should be avoided during high fire season.

5. Annual Reports: WR WFO Fire Weather Program Annual Reports are submitted to the WR Fire Weather Program Manager no later than January 15th following the previous fire season. In addition to minimum Annual Report content outlined in NWSI 10-404, WR offices will provide the number of Fire Weather Watches that were followed by a Red Flag Warning. All non-fire related Incident Meteorologist (IMET) dispatches, such as those to an Emergency Operations Center (EOC), Federal Emergency Management Agency (FEMA) Joint Field Office (JFO), hazardous materials (HAZMAT) incident, etc. should be included in the annual report.

WFOs should coordinate with fire weather customers to determine the need for other information included in Annual Reports, such as monthly fire season weather summaries and cooperative projects with fire agencies. This type of information can be quite useful to not only the NWS fire weather program and fire agencies, but also to emergency managers, climatologists, universities and the media. Joint Predictive Services and NWS Annual Reports are permissible. Annual Reports are posted to WR WFO fire weather web pages.

6. Customer Service and Outreach: Due to the high potential for private property loss and public safety threat, wildfire in the urban-wildland interface is one of the greatest hazards across WR. The fire weather program is therefore an integral part of WR WFO outreach and Weather Ready Nation (WRN) preparedness activities. The WFO management team must be actively involved in the local fire weather program.

The WCM should assist and advise the WFO Fire Weather Program Leader with outreach to local fire weather customers. Local fire weather customers should be invited to spotter training, open houses and other outreach activities.

Coordination with GACCs, area IMETs and other disseminators of critical weather information is also necessary during initial and extended fire outbreaks within the WFO County Warning Area (CWA). This ensures the provision of coordinated, consistent information to Incident Management Teams in the area.

As with other high impact events, procedures should be in place at each WFO to provide efficient and coordinated information to the media and emergency managers during major fire outbreaks, especially near large metropolitan areas and/or recreation areas. The NWS may be asked to assist at a Joint Information Center (JIC) or EOC to provide information to the media and state or federal representatives. Affected WFOs should fulfill these requests in coordination with the WR Regional Operations Center (WR ROC). Major wildfire events may require submission of one or more High Impact Event (HIE) reports to the WR ROC.

6.1 Customer Meetings: As outlined in NWSI 10-403, WR WFOs should meet at least annually with GACC and other fire agency staff during the local off season to discuss lessons learned from the previous fire season and to plan operational adjustments for the upcoming fire season. Meetings may be face-to-face or virtual. Any changes to fire weather services and improvements in coordination should be included in the AOP for the upcoming season.

If a WFO is located near the GACC, additional meetings are encouraged for familiarization between agencies, to exchange ideas for product and service improvement, to prepare for AOP meetings and other purposes. Similar meetings with local fire weather customers including interagency dispatch, coordinator groups and land managers are strongly encouraged. A joint presentation to local customers by WFO and Predictive Services Unit representatives to review products and services from each organization reduces confusion and promotes cooperation. Organizing a visit by WFO staff to a local prescribed burn as staffing and time permit should be considered.

6.2 Pre-Season and End of Season Notification: WFOs may send a brief pre-season message to fire agency managers in the CWA. If used, this message should provide a summary of NWS fire weather operations for the upcoming high season, highlighting any changes.

Similarly, an end of season message may be sent to customers providing the proposed date at which a WFO will switch to low season fire weather services, with a reminder that spot forecasts are always available. The message should encourage off-season visits and communication to improve services and customer response for next year.

7. WFO Training: MICs, Science and Operations Officers (SOOs) and Fire Weather Program Leaders should ensure adequate fire weather training is provided to and taken by the forecast staff and IMETs as outlined in NWSI 10-405.

7.1 Pre-Season: Pre-season fire weather seminars are encouraged at WFOs. Seminars may include a review of fire weather forecast problems in the local area, any operations changes for upcoming high season and any other updated procedures. A presentation to the staff from a local fire customer is encouraged. Any seminars should be followed by a review/refresher exercise of one-on-one training for appropriate staff, including Weather Event Simulator (WES) cases.

8. Fire Weather Service Back-Up: A WFO may need to request service back-up for their fire weather program as discussed in WR Supplement 18-2003. WFO service back-up plans for fire weather will be documented. When service back-up is required in high season, and

depending on communications capability, either the WFO requiring back-up or the WFO assuming responsibility will notify the GACC and/or interagency dispatch centers by telephone of the situation. Customers will also be notified when operations return to normal.

a. In order to facilitate easy exchange of specific fire weather program information, each WFO will post an electronic version of their local Fire Weather information to their Google site.

b. Service back-up for Spot Forecasts: For short term problems, faxing of completed NWS Spot Forecast Request Form D-1 will be the primary means of providing spot forecast service back-up. For longer outages, the office providing service back-up will complete the spot forecast request.

9. Incident Meteorologist (IMET) Services: On-site IMET forecasting is one of the most critical and valuable services provided by the NWS. IMET services are managed as a national NOAA/NWS resource.

9.1 Availability: WR MICs are expected to make every effort to deploy an IMET when requested. IMETs will maintain status of their availability for dispatch on the National IMET Google Site.

9.2 All Hazards Meteorological Response System (AMRS) Replenishment: Prior to the local fire season, the IMET(s) at a WFO will ensure operability of all components of the AMRS unit(s). Any deficiencies will be reported to the MIC for resolution prior to a dispatch of the AMRS unit(s). Some specialized AMRS parts must be procured with assistance from the NFWOC. If an AMRS problem occurs at an incident, simple AMRS parts and supplies can be ordered by incident officials. Further information, including an equipment checklist, is in the IMET Handbook.

9.3 Safety and Personal Protective Equipment: Personal safety is the highest priority in all aspects of IMET response, including travel to and from an incident. IMETs are not required to perform activities that are classified as "hazardous" (i.e., a visit to the fire line is considered voluntary). Complete information on hazard pay can be found in NWSI 10-402, Section 7.2.1.

A pair of boots is provided once to all IMETs or IMET trainees at the IMET Continuity of Excellence workshop or prior to their first training dispatch. Camping equipment and fire-retardant clothing can be purchased through the GSA "Wildland Fire Equipment Catalog" or supplied at an incident. If IMET equipment purchases are made using WFO funds, the items remain property of the government. IMETs may also use personal camping equipment for dispatches.

9.4 Reimbursable IMET Expenses: IMET reimbursement procedures are outlined in the IMET Reimbursement Handbook updated annually and posted on the IMET Google Site.

APPENDIX A

Suggested WFO Annual Fire Weather Program Checklist

Preseason

- ✓ MIC, or other designated management team member, participates along with the WFO Fire Weather Program Leader at Annual Operating Plan (AOP) meeting(s) and adjusts office program accordingly.
- ✓ Update Fire Weather Station Duty Manual and all references/procedures as needed.
- ✓ Ensure link to AOP is posted on office fire weather web page.
- ✓ WFO Fire Weather Program Leader and WCM/MIC visit local fire customers, especially interagency dispatch offices.
- ✓ WFO Fire Weather Program Leader/SOO present review/refresh seminar to staff. Fire customer representative presents seminar on local fire problems and importance of program.
- ✓ Staff completes annual fire weather review exercise.
- ✓ Test dissemination and service back-up.
- ✓ IMET reviews AMRS set-up and ensures operability. Cell phone tested. All incident supplies replenished. IMET updates their availability on the appropriate website.

Post Season

- ✓ Complete and publish Annual Report by January 15. Provide link to report on WFO fire weather web page.