

**2009**

**Seattle**

**Portland**

**Medford**

**Spokane**

**Pendleton**

**Boise**

**ODF Salem**

**NWCC  
Predictive  
Services**



# **Northwest Area Fire Weather Annual Operating Plan**



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## Introduction

- a. The Pacific Northwest Fire Weather Annual Operating Plan (AOP) constitutes an agreement between the Pacific Northwest Wildfire Coordinating Group (PNWCG), comprised of State, local government and Federal land management agencies charged with the protection of life, property and resources within the Pacific Northwest from threat of wildfire; and the National Weather Service (NWS), National Oceanic and Atmospheric Administration, U.S. Department of Commerce, charged with providing weather forecasts to the Nation for the protection of life and property.

The AOP provides specific procedural and policy information for the delivery of meteorological services to the fire management community in Pacific Northwest. It is the objective of the NWS and PNWCG to ensure that quality of service is maintained through a mutual analysis of services provided. The NWS and PNWCG work closely in all phases of the fire weather forecast and warning program to resolve concerns and avoid potential inconsistencies in products and services prior to delivery to fire agency customers. The goal of all agencies is to maximize firefighter and public safety through a coordinated delivery of consistent services.

Fire weather services are a critical building block to fire management agencies in decision-making because human lives and valuable natural resources are at risk. It is the role of the NWS to provide fire weather services and products to fire managers. It is the role of the fire management agencies to analyze and interpret fire weather forecasts into fire danger and fire potential predictions when making decisions essential to the success of fire management actions.

It is to the mutual advantage of PNWCG and NWS and in the public interest and for firefighter safety to coordinate efforts for weather services for fire management activities in the Pacific Northwest to minimize duplication of efforts and improve efficiency and effectiveness.

- b. The general relationship between the NWS and the interagency fire management community is set forth in the following reference documents:

*Interagency Agreement for Meteorological Services Among the Bureau of Land Management, Bureau of Indian Affairs, U.S. Fish and Wildlife Service, and National Park Service of the U.S. Dept. of Interior, the Forest Service of the U.S. Dept. of Agriculture, and the National Weather Service of the U.S. Dept. of Commerce (National MOA or National Agreement);*

*National Weather Service NWSI 10-4: Fire Weather Services;*

*2009 National Mobilization Guide; and*

*Pacific Northwest Mobilization Guide*

- c. The PNWCG is comprised of the following Federal and State fire agencies: State of Oregon, Department of Forestry; State of Washington, Department of Natural Resources; USDA Forest Service, Pacific Northwest Region; USDI, National Park Service, Pacific West Region; USDI, Fish and Wildlife Service, Pacific Region; USDI, Bureau of Indian Affairs, Portland Area Office; USDI, Bureau of Land Management, Oregon and Washington.

## NWS SERVICES AND RESPONSIBILITIES

The NWS will make best efforts to meet the PNWCG required Forecast and Service Performance Measures Standards as shown in Appendix B, recognizing the data sets from which the standards were established and the goal to continually improve forecasts.

The NWS will provide the PNWCG with fire weather services by forecasters who meet the Fire Weather Forecaster Proficiency and Currency Standards, as listed in NWS directive 10-405 (Appendix A) and as cooperatively developed by PNWCG and NWS (Appendix C). The NWS will provide the PNWCG with verification information pertaining to their fire weather products, using a consistent methodology between offices.

Collaborate with the fire agencies when proposing alterations to the fire weather program and services provided in the Pacific Northwest. NWS-developed proposals shall be provided to PNWCG for review, assessment, and comment prior to adoption and implementation. NWS shall consider any concerns expressed by PNWCG, especially as related to performance integrity, in its assessment of change proposals in the fire weather program and other services provided.

Weather training requested of the NWS by the fire community will be provided to the fire community in support of fire danger and fire behavior training. All requests for training in the Pacific Northwest will be met when at least three weeks notice has been given to the NWS. Training requests received by the NWS with less than three weeks notice shall be met to the maximum extent possible. All training applicable to a specific administrative area will be provided by a fire weather forecaster whose office forecasts for that administrative area to the maximum extent possible.

## WILDLAND FIRE AGENCY SERVICES AND RESPONSIBILITIES

Provide coordination and recommendations for interagency fire weather activities in Oregon and Washington through the PNWCG Fire Environment Working Team. By authority of the PNWCG, the Fire Environment Working Team is assigned the responsibility to administer and implement the provisions of this AOP. Continually review standards of performance for applicability and adequacy.

Provide weather observations seven days a week during fire season and coordinate and cooperate with the NWS in fire weather forecasting. The agencies will seek the advice

and counsel of the NWS regarding observational issues (e.g. moving remote automatic weather stations).

Recognize that other severe weather emergencies may require the services of the fire weather forecaster to assist in WFO operations.

## JOINT RESPONSIBILITIES

Work cooperatively as partners to maintain and improve fire weather services to assure full compliance with mutually established performance, reliability, priority, and time standards.

Recognize that lands for which the States are responsible for wildland fire protection in Oregon and Washington, and the lands for which the respective Federal Agencies are responsible, are intermingled or adjacent in some areas, and wildland fires on these intermingled or adjacent lands may present a threat to the lands of the other. Recognize the primary role of the States in administering smoke management plans in their respective states.

Prepare an Annual Operating Plan (AOP) that includes each WFO with fire weather areas of responsibility in Oregon and Washington as required in the National Fire Weather Agreement and fire and smoke management responsibilities (as appropriate) of DNR, ODF and NWCC Predictive Services. Fire weather zone and Predictive Service Area maps will be included in the AOP.

Development and maintenance of the AOP is a shared responsibility between the local land management program managers and the MICs of the servicing WFOs. At a minimum, the AOP will include the items listed in section VI. of the National Interagency Agreement for Meteorological and Other Technical Services. The AOP shall include a signatory page on which a representative from PNWCG and the NWS will sign.

Annually review the performance of the NWS in meeting the needs of the fire management community. This review will be used to help determine what program adjustments are needed and appropriate. The PNWCG Fire Environment Working Team and the NWS MICs from Boise, Medford, Pendleton, Portland, Seattle and Spokane shall conduct the review. The PNWCG and the NWS shall meet semi-annually in February and November. The February meeting will decide on changes in fire weather services for the upcoming fire weather season, which will be reflected in the AOP. The February meeting may be held as a conference call if all parties agree. The November meeting will evaluate the past season fire weather services from WFOs and recommend changes for the next fire season.

Respond to the other party's proposals within thirty (30) days, or advise the other party when the proposal will be addressed if the NWS or the Fire Environment Working Team are unable to meet or discuss the proposal within their respective groups in that time

frame. Except when necessary to meet emergency needs, significant proposals are expected to be discussed at the semi-annual meetings

Cooperate and coordinate plans for the weather-related training of fire personnel and fire weather forecasters to ensure that training needs are met.

## **New for the 2009 Fire Season**

Information about reimbursement procedures for training is now included in Appendix D.

### **NWS**

All WFOs in the western US switched to a more consistent fire weather page last summer. This page continues to provide access to all previous products and services, but should be more intuitive to the user. As part of this page, FARSITE data is now available from an interactive map identical to that used for the experimental digital Fire Weather Point Forecast Matrix. A user will be able to generate weather guidance for FARSITE at any time or place from this map.

### **Predictive Services**

In order to standardize products across geographic areas the format of the 7-day significant fire potential product was changed last season. Days with a high risk ( $\geq 20\%$  chance) of a significant fire due to mass ignitions will be highlighted in red. High risk days due to extreme burning conditions will be highlighted in orange. For more information about this product see the NWCC Fire Danger Rating Operations Plan:

<http://www.nwccweb.us/content/products/fwx/fdrop/FDROP.pdf>

# 2009

# Seattle Fire Weather Operating Plan

## **Changes for 2009:**

*New Fire Weather Watch/Red Flag Warning Criteria for a Very Dry and Unstable Air Mass amended for Fire Weather Zone 662.*

## **LOCATION**

The National Weather Service Forecast Office in Seattle is located at the NOAA Western Regional Center in northeast Seattle. The address is:

National Weather Service  
7600 Sandpoint Way N.E.  
Seattle, WA 98115-0070

## **HOURS OF OPERATION**

The National Weather Service Office in Seattle is open 24 hours a day, 7 days a week, every day of the year. During fire season, the Fire Weather desk is staffed by a certified and experienced Fire Weather forecaster between the hours of 7:00 a.m. and 5:00 p.m. In 2009, weekday fire desk staffing and twice-a-day Fire Weather Planning Forecasts will begin around May 23 (the Friday before Memorial Day). Weekend, 7-day-a-week Fire Weather desk staffing will begin on Saturday, June 28. The need for continuation of Fire Weather desk staffing will start being evaluated around the first or second week of October. The exact dates of Fire Weather desk staffing can be adjusted based on weather conditions and user requirements or requests.

After hours during fire season and during the off-season, Spot Forecast support or phone briefings will be handled by staff meteorologists, trained in fire weather forecasting, on a 24/7 basis. A Fire Weather forecaster can be made available with prior arrangements.

### **Certified Fire Weather Forecast Staff**

Brad Colman – Meteorologist in Charge  
Ted Buehner – Warning Coordination Meteorologist  
Kirby Cook – Science and Operations Officer  
Brent Bower - Service Hydrologist  
Jim Prange – Fire Weather Program Leader/IMET  
Andy Haner– Asst. Fire Weather Program Leader/IMET  
Carl Cerniglia – Asst. Fire Weather Program Leader/IMET  
Danny Mercer – Fire Weather Forecaster/Instructor  
Jeff Michalski – Fire Weather Forecaster

### **E-MAIL**

brad.colman@noaa.gov  
jim.prange@noaa.gov  
andrew.haner@noaa.gov  
carl.cerniglia@noaa.gov

### **INTERNET**

Our Internet home page can be found at:

<http://www.wrh.noaa.gov/sew/> or <http://www.weather.gov/seattle>

Click the fire weather link on the main menu to access fire weather products.

Statewide, Internet-based, fire weather briefings will be conducted routinely Monday through Friday at 9:00 a.m. during the fire season. Additional daily, weekend and holiday Internet briefings may be conducted during critical fire weather episodes as coordinated with the land management agencies. Contact this office for the appropriate telephone number and conference ID to participate in the conference calls.

Requests for spot forecasts can be made via our Internet web site at "<http://www.wrh.noaa.gov/firewx/?wfo=sew>". Click the "Spot Request" Button then "Submit a new Spot Request" and fill out the form. Instructions for completing the Spot Request Form are under the "ADMIN" button. Completed spot forecasts will be posted to the web server as soon as possible after the original request is received. This provides a one-stop-shopping method for requesting and obtaining spot forecasts. The Internet web site is the preferred format for requesting Spot Forecasts. Please notify the NWS Seattle if no spot forecast is received within a reasonable amount time. *If at all possible, spot*

*forecasts should be accompanied by an onsite weather observation. It should be understood that the quality of a spot forecast is highly dependent upon getting initial, accurate onsite weather conditions.*

## **FORECAST DISTRICT**

The Seattle Fire Weather Office has forecast responsibility for most state and federal land in Western Washington. The Portland Fire Weather Office handles the Gifford Pinchot National Forest south of a line from Mt. St. Helens to Mt. Adams to the Oregon border. The Seattle fire weather district is divided into 5 distinct areas or districts for fire weather forecasting. The areas are further divided into 13 separate fire weather zones. Each fire weather zone is comprised of fire weather stations that exhibit similar weather and/or weather changes. However, not all of the fire weather stations report on a regular basis.

## **FORECAST PRODUCTS**

### **1. FIRE WEATHER PLANNING FORECASTS**

During the "fire season", twice-daily Fire Weather Planning Forecasts are issued by 8:30 AM PT and 3:30 PM PT. NFDRS Zone Trend forecasts are issued daily with the afternoon Fire Weather Planning Forecast. A modified Fire Weather Planning Forecast will be issued Monday through Friday during the "off-season", normally from about mid-October to early- May. The off-season forecasts are available in WIMS and on the Internet by 9:00 AM PT.

### **2. FIRE WEATHER WATCHES AND RED FLAG WARNINGS**

Mission Connection: Fire Weather Watches and Red Flag Warnings will be issued when the combination of dry fuels and weather conditions support extreme fire danger and/or fire behavior. These conditions alert land management agencies to the potential for widespread new ignitions, overwhelming Initial Attack activities, control problems with existing fires, etc; any of which could pose a threat to life and property.

Fire Weather Watches and Red Flag Warnings will be issued during Fire Season in the Seattle Fire Weather District, ***when the Energy Release Component***, as described by the National Fire Danger Rating System, ***is equal to or greater than the 90th percentile value in the frequency distribution of historical ERCs***. Also, for the fire weather zones above 1500 feet msl, the *Northwest GACC Dryness Levels* will be considered when in the "***YELLOW OR BROWN***" under extreme or unusual weather conditions.

The conditions described below must either be occurring or forecast to occur within the next 72 hours. The table below shows the 90th percentile ERC values that will be used for each fire weather zone.

## 90th Percentile ERC

Zone 649:	17
Zone 650, 651, 653, 656, 657	25
Zone 652, 654, 655, 658, 659	31
Zone 661	34
Zone 662	73

### Strong East Winds and Low Humidity (Westside zones only)

- Nighttime hours (midnight to 7 am):

Duration: 5 hours

Wind Speed: 20 ft /10 min avg. wind greater than or equal to 10 mph (RAWS)  
- **OR** –  
30 ft /2 minute avg. wind greater than or equal to 12 mph (ASOS)

RH: less than or equal to 35%.

#### SUFFICIENTLY DRY FUELS

- Daytime hours (7 am to midnight):

Duration: 4 hours in an 8 hour block

Wind Speed: 20 ft/10 min average wind greater than 10 mph      - **OR** –  
30 ft /2 min average wind greater than 12 mph

RH: less than or equal to 30%, except less than or equal to 25% on the Gifford-Pinchot NF south of the Cowlitz River.

#### SUFFICIENTLY DRY FUELS

### Verifying Stations for East Wind episodes

Many fire weather stations in Western Washington do not show good exposure to strong east winds. Therefore, Red Flag Warnings for East Wind episodes will verify in the following zones when criteria are met at the following defined stations. A station is considered any NFDRS site. Additional METAR, DOT, DOE, etc., weather sites will also be queried to add additional wind, temperature and relative humidity data to enhance the verification process and document the East Wind Event.

Zone 649: Any two stations within the zone

Zone 650: Any single station within the zone **or** Quillayute ASOS

- Zone 651: At the Minot RAWS site – **or** –  
at both the Shelton and Hoquiam ASOS sites.
- Zone 652: Any two stations within the zone – **or** –  
at both the Ellis Mtn and Hurricane Ridge RAWS sites.
- Zone 653: Any two stations within the zone
- Zone 654: Any two stations within the zone (including Olympia ASOS)
- Zone 655: Any station within the zone – **or** –  
at both of the Shelton ASOS and Minot Peak RAWS sites.
- Zone 656: Any single station under 1500 feet within Whatcom, Skagit, or  
Snohomish County
- Zone 657: Any single station under 1500 feet within King or Pierce County
- Zone 658: Any single station within the zone – **and** –  
one of the following sites: Greenwater, Lester, Stampede Pass,  
and Kosmos Mountain
- Zone 659: Any two stations within the zone
- Zone 661: Any single station within the zone – **or** –  
*both* the Ellis Mtn. and Minot Peak RAWS sites.

**Strong West Winds and Low Humidity (Eastside zone 662 only)**

Duration: at least 4 hours

Wind Speed: 20 ft /10 minute average wind greater than or equal to 15 mph

RH: less than or equal to 25%.

**SUFFICIENTLY DRY FUELS**

Stehekin and Camp Four RAWS will be used to verify Red Flag Warnings in zone 662.

The conditions described above should be fairly widespread in both time and space across the fire weather zone - as opposed to an isolated incident or a diurnal occurrence that lasts for only a few hours.

**Lightning**

Dry lightning (LAL 6) occurs when the environment below the cloud base is so dry that passing thunderstorms produce little or no precipitation at the surface. A Fire Weather Watch or Red Flag Warning will be issued for the combination of sufficiently dry fuels and the occurrence of significant lightning, wet or dry, within a particular Fire Weather Zone, to cause a threat to life and property. The thunderstorm activity must be at least **scattered (25-54% aerial coverage) or greater** within a particular zone.

## **Very Dry and Unstable Air Mass**

***Western Washington Fire Weather Zones 649-661:*** Mid and High-level Haines of a 5 or 6, RH at 25% or less, **AND** sufficiently dry fuels.

***Eastern Washington Fire Weather Zone 662:*** High-level Haines of a 6, RH at 15% or less, **AND** sufficiently dry fuels.

The most current Quillayute and Spokane soundings will be used to produce the mid and high level Haines values used to issue and verify this Red Flag Warning event.

***Each potential Red Flag event will be coordinated with local land management agencies to ensure environmental conditions are sufficiently critical to justify the issuance of a watch or warning.***

### 3. SPOT FORECASTS

Mission Connection: WFO Seattle will issue spot forecasts in support of wildfire suppression and natural resource management. These forecasts aid the land management and fire control agencies in protecting life and property during wildland fires, hazardous fuels reduction, and rehabilitation and restoration of natural resources. Spot forecasts may also be issued for hazardous materials incidents, search and rescue missions and other threats to public safety. All spot forecasts should be accompanied by an onsite weather observation.

Issuance Criteria: Spot forecasts are non-routine products issued at the request of the user. WFO Seattle will provide spot forecast service upon request of any federal, state, tribal, or local official who represents the spot forecast is required to support a wildfire.

For non-wildfire purposes, resources permitting, WFO Seattle will provide spot forecast service under the following circumstances and conditions:

a. Upon request of any federal official who represents that the spot forecast is required under the terms of the Interagency Agreement for Meteorological Services (NWS Instruction 10-406).

b. Upon request of any state, tribal, or local official who represents that the spot forecast is required to carry out their wildland fire management responsibilities in coordination with any federal land management agency participating in the Interagency Agreement for Meteorological Services (NWS Instruction 10-406).

c. Upon request of any public safety official who represents the spot forecast is essential to public safety, e.g. due to the proximity of population centers or critical infrastructure. A “public safety official” is an employee or contract agent

of a government agency at any level (federal, state, local, tribal, etc.) charged with protecting the public from hazards including wildland fires of whatever origin and/or other hazards influenced by weather conditions such as hazardous material releases.

WFO Seattle will not provide spot forecasts to private citizens or commercial entities not acting as an agent of a government agency.

Information required by the fire weather forecaster from the requesting agency is found on WS Form D-1. Spot forecasts for wildfire suppression will take precedence over normal office routines.

## **AGENCIES SERVED**

The Seattle Fire Weather Office serves the following state and federal land management agencies:

**United States Forest Service** - Olympic National Forest, Mt. Baker-Snoqualmie National Forest, Gifford-Pinchot National Forest and Okanogan-Wenatchee National Forest

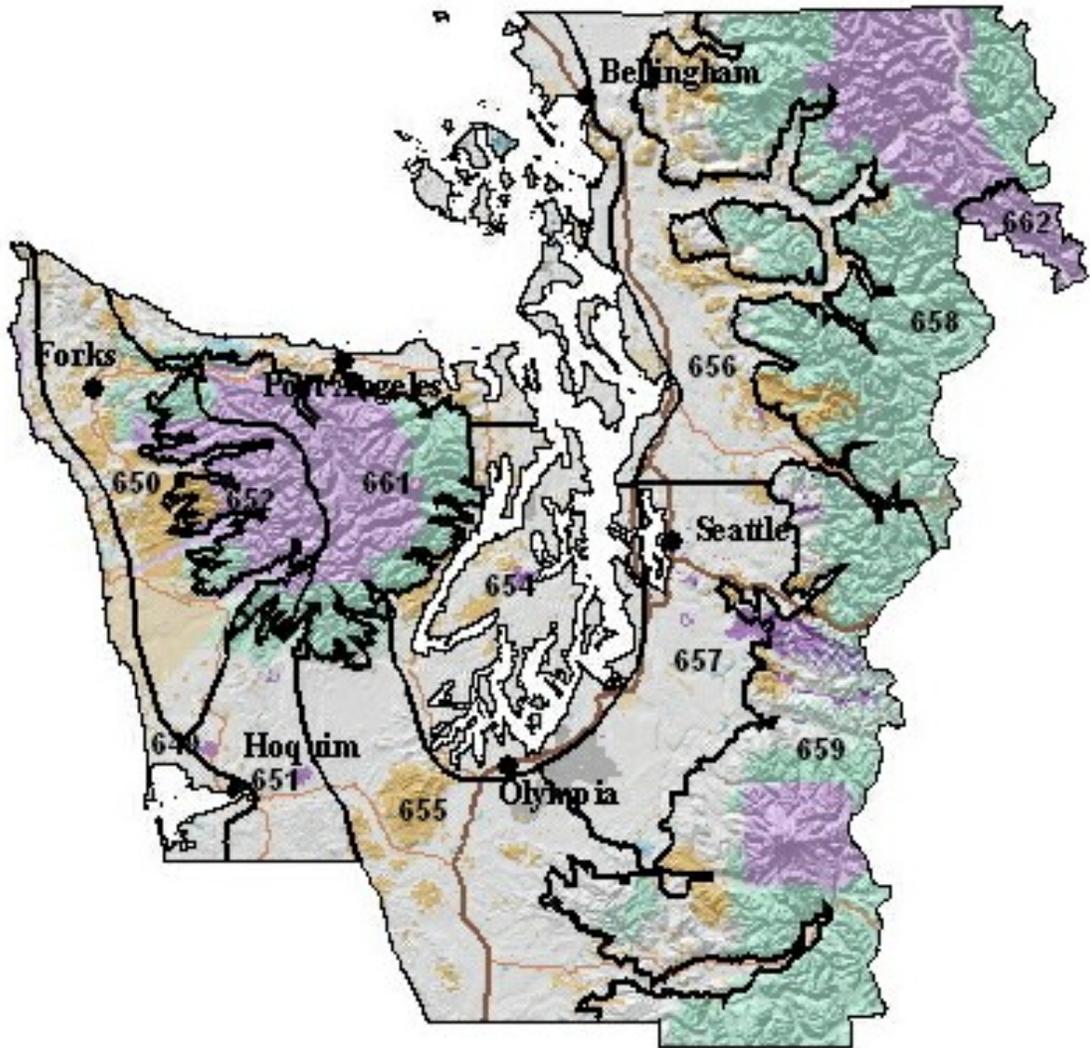
**National Park Service** - North Cascades National Park, Olympic National Park, Mt. Rainier National Park and San Juan Islands National Park

**Bureau of Indian Affairs** - Olympic Peninsula Agency and Puget Sound Agency

**Washington Department of Natural Resources** - Resource Protection Division and the Northwest, Olympic, South Puget Sound, and Pacific Cascade regions.

**United States Army** – Ft. Lewis Wildland Fire Program.

## Seattle Fire Weather Zones



**Appendix 1: Fire Weather Zone Descriptions**

**Appendix 2: NFDRS Fire Weather Station List**

## **Appendix 1**

### **FIRE WEATHER ZONE BOUNDARY DESCRIPTIONS**

**Zone 649 – The North and Central Coastal Strip:** The western boundary of fire weather zone 649 is the Pacific coastline in Clallam, Jefferson, and Grays Harbor counties. The eastern boundary includes all Federal, State and private land within 5 miles of the Pacific coastline in Clallam, Jefferson, and Grays Harbor Counties. It extends south along the eastern border of the Makah Indian Reservation and the east shore of Ozette Lake to the town of Quillayute in Clallam County. In Jefferson County, the eastern boundary crosses US Highway 101 approximately 5 miles east of the Hoh Indian Reservation, and then parallels the coast south until crossing US Highway 101 again along the border between Jefferson and Grays Harbor counties 5 miles inland from the coast. The eastern border continues south in Grays Harbor County until it crosses highway 101 at New London and US Highway 12 approximately 5 miles east of Aberdeen. The boundary then turns south, following US Highway 101 to the southern border of Grays Harbor County.

**Zone 650 – The North Coastal Lowlands:** Zone 650 includes all State, Federal and private land 5 miles inland from the coast to an elevation of 1500 ft on the western side of the Olympic Mountains in Clallam, Jefferson, and Grays Harbor Counties. The area includes the low elevation portion of the Calawah, Bogachiel, Hoh, Clearwater, Queets, Quinault, and the Humptulips River drainages below 1500 ft. The southern boundary begins where the Humptulips River crosses the southern boundary of Zone 652, stretching southwest along the Humptulips River until it intersects the eastern boundary of zone 649 in Grays Harbor County.

**Zone 651 – The Central Coastal Lowlands:** The western boundary of zone 651 follows the Humptulips River and the eastern boundary of zone 649 in Grays Harbor County. The 1,500-foot contour interval on the south side of the Olympic Mountains forms the northern border of zone 651. The county line between Grays Harbor County and Pacific County forms the southern boundary. The eastern border follows the West Fork of the Satsop River south across US Highway 12 near the town of Satsop, continuing south along the west side of the Lower Chehalis State Forest. Zone 651 is mostly State and Private land, but also includes Forest Service land below 1500 ft in the Humptulips and Wynochee River drainages.

**Zone 652 – The West Portion of the Olympic Mountains:** Zone 652 includes US Forest Service, National Park Service, and Washington State lands at or above 1500 feet located in the western half of Clallam and Jefferson counties, and the far northeast corner of Grays Harbor County. The area includes the Pacific Ranger District office on the west and southwest side of the Olympic National Forest. Zone 652 is the wetter, west side of the Olympic Peninsula that reflects a greater influence of marine air in both weather and fire danger. The area includes all private, federal and state lands at or above 1,500 feet drained by the Calawah, Sitkum, Bogachiel, Hoh, Clearwater, Queets, Quinault, and Humptulips rivers in Clallam, Jefferson, and Grays Harbor counties.

**Zone 661 – The East Portion of the Olympic Mountains:** Zone 661 includes private, federal and state land at or above 1,500 feet on the east side of the Olympic Peninsula. The area typically exhibits higher fire danger than zone 652 due to less rainfall, less influence of marine air, and a higher occurrence of lightning activity. The area includes lands at or above 1,500 feet drained by the Wynoochee, Satsop, North and South Fork Skokomish, Hamma Hamma, Duckabush, Dosewallips, Quilcene, Dungeness, and the Elwha rivers.

**Zone 653 – The Strait of Juan de Fuca, the San Juan Islands and the Northwest Interior Lowlands:** Zone 653 includes all lands below 1500 ft msl on the north side of the Olympic Peninsula from the town of Sekiu on the west to a point just south of Discovery Bay on the east. The boundary extends southeast across Admiralty Inlet, east across the northern tip of the Kitsap Peninsula and Puget Sound to Interstate 5 along the border between King and Snohomish Counties. The eastern boundary of zone 653 parallels I-5 north through Snohomish, Skagit and Whatcom counties to the Canadian border.

**Zone 654 – The Central and South Puget Sound Lowlands:** Zone 654 includes lowland areas below 1,500 feet near the central and southern portion of Puget Sound and Hood Canal. The eastern boundary parallels I-5 south through King and Pierce counties, west through Olympia in Thurston County, then northwest along U.S. Highway 101 to city of Shelton. The boundary continues northwest from Shelton to the southeast corner of the Olympic National Forest in Mason County, then follows the 1500 ft contour northeast along the Hood Canal in Mason and Jefferson Counties.

**Zone 655 – The Black Hills and the Southwest Interior Lowlands:** The eastern border of zone 655 follows the West Fork of the Satsop River south across US Highway 12 near the town of Satsop, continuing south along the west side of the Lower Chehalis State Forest to the town of Brooklyn in northeast corner of Pacific County. From Brooklyn the boundary extends southeast to the town of Pe El in the eastern portion of Lewis County and then continues southeast to the town of Vader in Lewis County. The border then runs east along the southern border of Lewis County to the 1,500-foot contour along the west slopes of the Cascades. The boundary follows the contour on the north and south sides of the Cowlitz river valley. It then continues north along the 1,500-foot contour to the boundary between Thurston and Lewis Counties. The zone boundary then extends east to the intersection of Pierce, Thurston, and Lewis Counties. It then follows the Pierce/Thurston County boundary northwest to the intersection of I-5 and then west along I-5 to US Highway 101. Zone 655 then extends northwest paralleling 101 to the southeast corner of the Olympic National Forest in Mason County. The area includes the Capitol State Forest and the Lower Chehalis State Forest.

**Zone 656 – The West Slopes of the North Cascades below 1,500 feet:**

Zone 656 includes all State and Private lands in Whatcom, Skagit, and Snohomish Counties east of I-5 below an elevation of 1500 feet. This includes the following river drainages...North, Middle and South Forks of the Nooksack River, Skagit River from town of Sedro Woolley to the town of Marblemount (including Lake Shannon and Baker

Lakes in the Baker River drainage), Sauk River from the confluence of the Sauk and Skagit Rivers south along SR 530 to the town of Darrington, the Stillaguamish River from Darrington to the town of Arlington, and the Skykomish River along US Highway 2 from the town of Monroe to six miles east of the town of Skykomish.

**Zone 657 – The West Slopes of the Central Cascades** *below 1,500 feet:*

Zone 657 includes land below 1500 ft east of I-5 in King and Pierce Counties. The southern border of the zone follows the border between Pierce and Thurston Counties. This area includes the following river valleys below 1500 ft that reach into the Cascade Mountains...North, Middle and South Fork of the Snoqualmie River, White River including Mud Mountain Lake, Puyallup River, and the Nisqually River to the town of Ashford.

**Zone 658 – The West Slopes of the North Cascades** *above 1,500 feet:*

Zone 658 includes Federal, State and Private lands at or above 1500 feet in Whatcom, Skagit, Snohomish, and the northeast portion of King County in the Skykomish River drainage. The area includes the North Cascades National Park and the Ross Lake National Recreational Area, and the Mt. Baker, Darrington, and Skykomish Ranger Districts of the Mt. Baker-Snoqualmie National Forest. The eastern boundary is the Cascade crest.

**Zone 659 – The West Slopes of the Central Cascades** *above 1,500 feet:*

Zone 659 includes Federal, State and Private lands at or above 1500 ft in King, Pierce, and Lewis Counties, and the extreme northern portion of Skamania County. This includes the North Bend and White River Ranger Districts of the Mt. Baker-Snoqualmie National Forest, Mt. Rainier National Park, and the Cowlitz Valley Ranger District of the Gifford Pinchot National Forest. The eastern boundary of this zone runs along the crest of the Cascades.

**Zone 662 – The East Portion of North Cascades National Park and the Lake Chelan National Recreational Area:**

Zone 662 includes federal lands managed by the North Cascades National Park east of the Cascade crest in Chelan County. This area includes the Lake Chelan National Recreational Area and the North Cascades National Park South Unit.

**Appendix 2**  
**2009 NWS Seattle NFDRS Station Index**

<b>ZONE</b>	<b>NAME</b>	<b>TYPE</b>	<b>NUMBER</b>	<b>OWNER</b>	<b>LAT</b>	<b>LON</b>	<b>ELEV</b>
<b>649</b>	Quillayute	Metar	450120	DNR	48.00	124.50	179
	Hoquiam	Metar	450314	DNR	46.93	123.90	14
	Black Knob	RAWS	450321	BIA	47.42	124.10	650
<b>650</b>	Ellis Mtn.	RAWS	450130	DNR	48.16	124.32	2305
	Forks	Manual	450105	DNR	47.96	124.38	303
<b>651</b>	Minot Peak	RAWS	450306	DNR	46.88	123.42	1768
<b>652</b>	Toms Creek	RAWS	450121	USFS	48.02	123.92	2400
	Owl Mtn.	RAWS	450211	DNR	47.77	123.97	3398
	Humptulips	RAWS	450312	USFS	47.37	123.47	2400
<b>661</b>	Hurricane Ridge	RAWS	450124	NPS	47.97	123.50	5000
	Cougar	RAWS	450117	USFS	47.92	123.12	3000
	Jefferson	RAWS	450911	USFS	47.55	123.17	2200
	Buck Knoll	RAWS	450131	DNR	48.01	123.18	1630
<b>653</b>	Bellingham	Metar	451411	DNR	48.80	122.50	157
	Everett	Metar	451614	DNR	47.90	122.30	604
	Whidbey NAS	Metar	450701	DNR	48.30	122.70	46
<b>654</b>	Bremerton	Metar	450801	DNR	47.50	122.60	350
	Quilcene	RAWS	450207	USFS	47.57	124.15	62
	Sea-Tac	Metar	451716	DNR	47.50	122.30	449
	Tacoma	Metar	451808	DNR	47.10	122.50	322
<b>655</b>	Olympia	Metar	451001	DNR	47.10	122.80	200
	Chehalis	RAWS	451103	DNR	46.60	122.90	245
<b>656</b>	Abbotsford	Metar	451402	DNR	48.80	122.30	200
	Sedro Woolley	Manual	451507	DNR	48.50	122.20	160
	Marblemount	RAWS	451504	NPS	48.54	121.44	357
<b>657</b>	Enumclaw	RAWS	451702	DNR	47.20	122.00	742
	Elbe	Manual	451803	DNR	46.80	122.30	1200
<b>658</b>	Kidney Creek	RAWS	451409	USFS	49.00	121.90	3000
	Hozomeen	RAWS	451412	NPS	48.98	121.07	1615
	Sumas Mtn.	RAWS	451415	DNR	48.90	122.23	3201

	Finney Creek	RAWS	451509	USFS	48.40	121.80	1900
	Gold Hill	RAWS	451613	USFS	48.20	121.50	3400
	Johnson Ridge	RAWS	451611	USFS	47.80	121.27	2000
<b>659</b>	Fire Training Acad.	RAWS	451721	USFS	47.45	121.66	1570
	Stampede Pass	Metar	451711	DNR	47.30	121.30	3967
	Lester	RAWS	451705	USFS	47.20	121.50	1615
	Greenwater	RAWS	451718	DNR	47.10	121.60	2400
	Ohanapecosh	RAWS	451119	NPS	46.73	121.57	1900
	Kosmos	RAWS	451105	DNR	46.60	122.20	2100
	Hagar Creek	RAWS	451115	USFS	46.57	121.63	3600
	Orr Creek	RAWS	451919	USFS	46.35	121.60	2550
<b>662</b>	Stehekin	RAWS	452121	NPS	48.35	120.72	1230

**2009**

**Portland Fire Weather**

**Operating Plan**

## PORTLAND FIRE WEATHER

***New for 2009:** NFDRS zone trend forecasts will be replaced by individual point forecast for each station.*

### LOCATION

National Weather Service Forecast Office  
5241 NE 122nd Avenue  
Portland, OR 97230-1089

### HOURS

The National Weather Service Office is open 24 hours a day, 7 days a week. The fire weather duty desk will be staffed with a **CERTIFIED** fire weather forecaster between the hours of 0600 and 1600 seven days a week during fire season, normally from Memorial Day through mid-October. The fire weather desk is staffed with a **CERTIFIED** fire weather forecaster from 0700 to 1500 Monday through Friday during Spring burning (mid to late March through Memorial Day), and also during the fall burning period (mid-October through early November).

### STAFF

Steve Todd	Meteorologist in Charge
Tyree Wilde	Warning Coordination Meteorologist
Scott Weishaar	Fire Weather Program Leader and IMET
Julia Ruthford	Fire Weather Program Leader and IMET
Clinton Rockey	Fire Weather Forecaster
Dave Willson	Lead Forecaster and Fire Weather Forecaster
Chris Collins	Fire Weather Forecaster
Shawn Weagle	Fire Weather Forecaster

### CONTACT

Internet: <http://www.wrh.noaa.gov/firewx/?wfo=pqr>

Email

[scott.weishaar@noaa.gov](mailto:scott.weishaar@noaa.gov)

[julia.ruthford@noaa.gov](mailto:julia.ruthford@noaa.gov)

## **FORECAST DISTRICT**

Portland services fire weather zones 601-608, 612, and 660. This area covers:

Northwest Oregon and Southwest Washington, North Oregon Cascades including the Columbia River Gorge (to about Hood River). South Washington Cascades and adjacent lowlands of Clark County. The Portland Office is also responsible for spot forecasts in the east districts of the Mt. Hood National Forest (Barlow District).

See the attached map for a graphic description of individual areas/zones of the Portland district.

## **AGENCIES SERVED**

U.S. Forest Service (USFS)  
U.S. Bureau of Land Management (BLM)  
Oregon Department of Forestry (ODF)  
Washington Department of Natural Resources (WDNR)  
Various urban and rural local fire districts

## **FORECAST SERVICES**

### **GENERAL FORECASTS**

*Fire Season:* Regularly scheduled general fire weather forecasts are issued twice per day by certified fire weather forecasters at 0900 and 1445.

*Prescribed Burning Season:* Regularly scheduled land management forecasts are issued by certified fire weather forecasters Monday through Friday at 0900 and 1430.

*Off-season:* A land management forecast is issued once per day (approximately 0500) November through early March by the general forecast staff.

The Portland office will include wind gusts when the 10-minute wind speed is 10 mph or greater.

“Dryness Levels” (as developed by the Northwest Coordination Center) for the NWS Portland forecast district will be included in the morning forecast. Refer to the NWCC Predictive Services web site for more information. [www.nwccweb.us](http://www.nwccweb.us)

## FORECAST SERVICES (CONT)

### SPOT FORECASTS

Detailed weather information beyond what is presented in the general forecast may be obtained with a spot forecast request. Spot forecasts may be requested by a telephone call to the fire weather forecaster or through the spot forecast request web page available on the Portland fire weather web page at:

<http://spot.nws.noaa.gov/cgi-bin/spot/spotmon?site=pqr>

Spot forecasts will be handled by certified spot weather forecasters. This may require that a qualified fire weather forecaster be called in on overtime. Overtime costs **ARE NOT** charged to the incident.

**Spot Forecasts for prescribed burning:** Spot forecast requests for prescribed fire are best initiated prior to 1100 on the planned day of the burn. Requests may also be entered into the spot forecast web page several days prior to planned ignition. In either case, ***A WEATHER OBSERVATION FROM THE BURN SITE WITHIN SIX HOURS OF PLANNED IGNITION IS REQUIRED.*** Spot forecasts will be valid 12 hours. The user must request updates beyond 12 hours. Spot forecasts will be updated for unforeseen events. The appropriate agency (dispatch office) will be notified of any updates.

**Spot Forecasts for wildfires:** Spot forecasts for wildfires may be requested at any time and will take priority over other station duties.

### TELEPHONE BRIEFINGS

**Daily internet conference call:** Portland fire weather conducts a daily weather briefing at 0940 PDT via a conference call from about early June through early October. Fire weather users are encouraged to participate. The forecaster hosting the briefing will verbally highlight current and forecast fire weather conditions with the help of an internet web page. Conference call participants can follow along with the discussion while viewing graphics displayed on the web page. Conference telephone numbers (and passcodes) can be obtained by contacting the Portland weather office. The URL for the briefing graphics is: <http://www.wrh.noaa.gov/pqr/fwb.php>. Graphics will be available by 0700 PDT.

**Unscheduled telephone briefings:** Verbal weather briefings can also be obtained at any time. A certified fire weather forecaster should be requested to conduct the briefing during fire weather hours. Otherwise, a briefing will be available from the general forecast staff.

## **RED FLAG WARNING/FIRE WEATHER WATCH**

Fuels must be critically dry and fire danger moderate to high before a Red Flag Warning or Fire Weather Watch is issued from the Portland office. Evaluations of fuel conditions will be made in accordance with current NFDRS values and in consultation with fire managers. Assuming these conditions are met, Fire Weather Watches and Red Flag Warnings are issued for the following events:

### **1. COMBINATION OF STRONG WIND AND LOW HUMIDITY**

Daytime: RH 25% or less **AND** 10-minute wind speed 10 mph or more for 4 hours.

Night: RH 35% or less **AND** 10-minute wind speed of 15 mph or more for 3 hours.

### **2. DRY AND UNSTABLE AIR MASS**

Haines 6, RH 25% or less, **AND** critical fuel conditions.

### **3. LIGHTNING**

Scattered thunderstorm coverage, critical fuels **AND** no appreciable change in fuel conditions after the event.

## **RED FLAG VERIFICATION**

Red Flag warnings will be verified using the following criteria:

### **1. COMBINATION OF STRONG WIND AND LOW HUMIDITY**

#### ***NIGHTTIME CRITERIA:***

**ZONES 601 AND 602:** Two stations (RAWS) must report 35% humidity or less **AND** 10-minute wind speed of 10 mph or more for three hours in an 8-hour time block. **Key RAWS:** Cedar Creek, Rockhouse1, and South Fork.

**ZONES 603 AND 612:** Rockhouse1 RAWS reporting 35% humidity or less **AND** 10-minute wind speed of 15 mph or more for four hours in an 8-hour block **AND** one other RAWS reporting 35% humidity or less **AND** 10-minute wind speed of 10 mph or more for two hours. **Key RAWS:** Rockhouse1, Goodwin Peak, High Point, and Cannibal Mountain.

**ZONE 604:** Two stations (airports) must report 30% humidity or less **AND** 2-minute wind speed of 15 mph or more for at least four hours in an 8-hour block.

Typically occurs in the north part of the valley. **Key STATIONS:** Troutdale, Portland, Vancouver, and Hillsboro.

**ZONES 605, 607, AND 660:** One station (RAWS) must report 35% humidity or less **AND** 10-minute wind speed of 10 mph or more for four hours in an 8-hour block, **AND** at least **TWO** other stations reporting 35% humidity or less **AND** 10-minute wind of 10 mph for at least **TWO** hours. **Key RAWS:** Horse Creek, Log Creek, Wanderer's Peak, Kosmos, Canyon Creek, Orr Creek, and Elk Rock. **NOTE:** Includes stations from zone 659.

**ZONES 606 AND 608:** One station (RAWS) must report 30% humidity or less **AND** 10-minute wind speed of 10 mph or more for at least four hours in an 8-hour block, **AND ONE** other station must report the same conditions for at least **ONE** hour. **Key RAWS:** Brush Creek, Trout Creek, Yellowstone, and Emigrant.

***DAYTIME CRITERIA (ALL ZONES):***

At least two stations within a zone must report 25% humidity or less **AND** wind-speed of 10 mph or more (except 15 mph in zone 604) for at least four hours in an 8-hour block.

Typically for east wind (offshore flow), but can occur in the Coast Range and central/south Willamette Valley with north to northeast wind. Can also occur in the Central Cascades and foothills with shallow marine surges (west to northwest wind).

**2. CRITICALLY DRY AND UNSTABLE AIR MASS (HAINES INDEX 6)**

At least **ONE** station within a zone must report 25% humidity or less and show a Haines value of 6 **AND** fuel conditions (Dryness Levels) are in the "BROWN", or "YELLOW" under extreme or unusual conditions.

**3. LIGHTNING IN COMBINATION WITH DRY FUELS**

**"Dry thunderstorm" Red Flag criteria is defined as follows: Abundant lightning in conjunction with sufficiently dry fuels.**

Abundant Lightning:

- 1) Number of lightning strikes that meet climatologically significant criteria, or
- 2) Areal coverage of lightning such as "Scattered" or  $\geq 25\%$

### Sufficiently Dry Fuels:

- 1) GACC dryness levels remaining out of the 'green' category on the day of and the day following a thunderstorm event, or
- 2) ERC or BI values meeting climatologically significant percentiles, or
- 3) Land management declaration

This is a very rare event which, climatologically, has the highest likelihood of occurrence in the south half of the Willamette N.F..

Dryness Levels **SHOULD** be in the "BROWN", and expected lightning frequency is such that multiple starts (5-7) are expected. (Typically "scattered" thunderstorm coverage). Under unusual or extreme conditions, a Red Flag Warning can also be issued when the Dryness Level is "YELLOW". Basically, "scattered" thunderstorms that do not produce enough precipitation to appreciably change the Dryness Levels (from "BROWN" or high "YELLOW").

## **NFDRS TREND FORECASTS**

A numerical trend forecast is prepared and disseminated to WIMS at about 1545 each afternoon from mid-May through early October. The trend forecasts are used to compute the expected NFDRS indices valid for the following day. The number of NFDRS indices forecast by the weather office depends only on the number of NFDRS observations input into WIMS by the fire agencies.

This fire season, zone trend NFDRS forecasts will be replaced by individual point forecasts for each NFDRS station in the forecast area. If observations are not entered into WIMS by 1500 however, a forecast will not be produced for that station.

## **INCIDENT METEOROLOGIST SERVICES**

Portland has two certified Incident Meteorologists (IMETs) on staff available for wildfire, HAZMAT, or other emergency dispatches. To request an IMET, contact the appropriate fire agency dispatch office.

## **OTHER SERVICES**

### **FIRE WEATHER TRAINING AND LECTURES**

An experienced fire weather forecaster will be available to help instruct the weather sections of standard fire behavior training courses offered by federal, state and local government fire agencies. This includes S-190 through S-590 and other courses. In addition, a forecaster will also be available for special speaking engagements. For

scheduling purposes, requests for an instructor or speaker should be made at least three weeks in advance.

To request an instructor contact Julia Ruthford at Portland NWS Forecast Office by email at [julia.ruthford@noaa.gov](mailto:julia.ruthford@noaa.gov).

### **NORTHWEST GACC SUMMER DETAIL**

The Portland office will detail an experienced fire weather forecaster to the Northwest Geographic Coordination Center (GACC) for 40 hours each week March through October. Duties will include publication of the regional fire weather operating plan, keeping GACC staff continuously advised of fire weather conditions and conducting daily “blast-up” weather coordination calls. Duties also include participation in case studies, fire weather and research projects under the direction of the NWCC fire weather program manager.

### **FORECAST VERIFICATION**

The purpose of verification is to improve the quality of forecasts and warnings issued from the Portland weather office. Weather conditions are recorded and archived on a routine basis during the fire season. These observations are studied and compared against the forecasts and warnings to identify any systematic bias or consistent errors. Verification will focus on Red Flag Warnings, but also include individual NFDRS station forecasts. Verification results are published in the Portland Fire Weather Annual Summary (available on the Portland fire weather internet page or via hard copy in late January or early February).

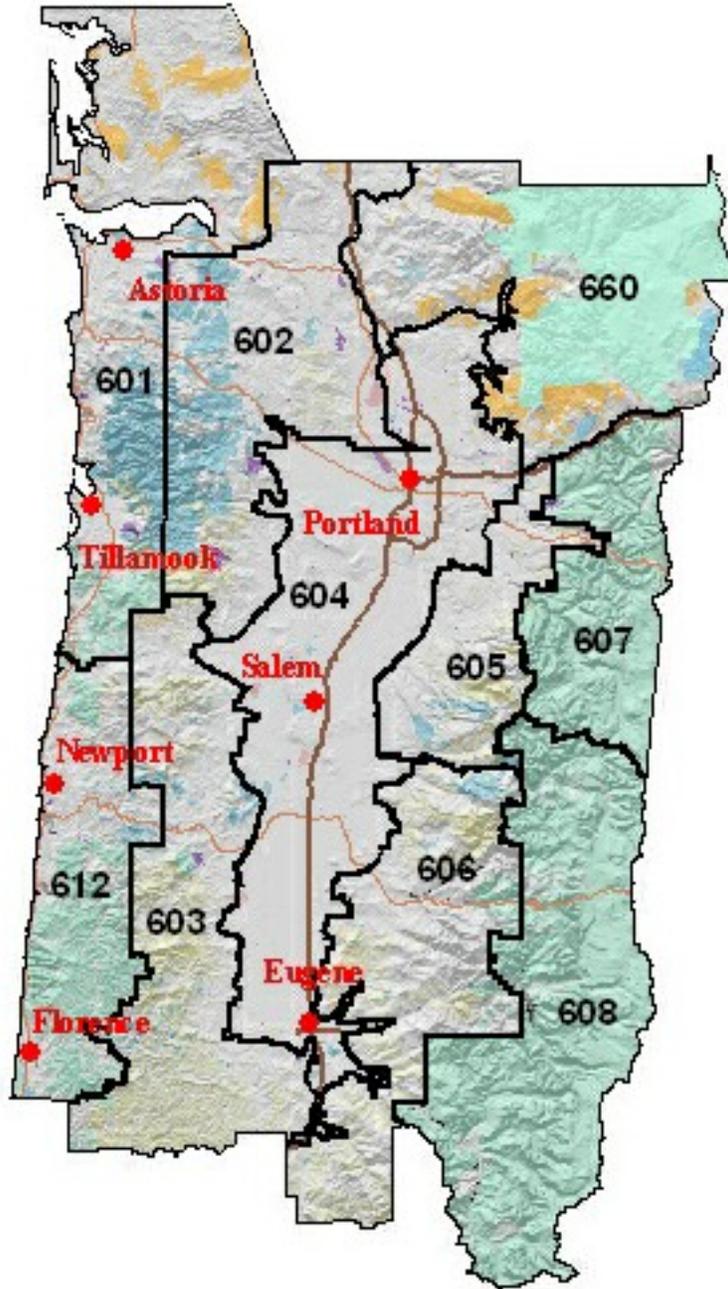
### **ANNUAL SUMMARY, ANNUAL OPERATING PLAN and MISC**

A summary of climatic statistics, forecast and warning verification, fire danger trends, spot forecast statistics, training rendered, dispatches, critical fire weather events and other noteworthy items is published each year.

An annual operating plan (this document) describing NWS office services, responsibilities, and procedures will be published each year prior to the fire season. The operating plan is available on the Portland fire weather internet page or via hard copy.

The fire weather program leaders also maintain the Portland Fire Weather Web page, provide internal NWS training and attend user agency annual conferences.

# Portland Fire Weather Zones



## **GEOGRAPHIC ZONE DESCRIPTIONS**

### **Zone 601 – North Oregon and South Washington Coast including Willapa Hills**

Represents the South Washington and North Oregon coastal strip including adjacent west slopes of the Oregon Coast Range and the Willapa Hills of Washington. This zone includes the north portion of the Siuslaw N.F., ODF, and WA DNR protected private land.

Extends east-west from the crest of the Oregon Coast Range to the Pacific Ocean. Extends north-south from the north boundary of Pacific County, WA to Oregon State Highway 22 along the eastern boundary of ODF regulated use area NW-2. The Washington section of this zone represents Pacific and Wahkiakum counties in their entirety.

### **Zone 612 – Central Oregon Coast**

Represents the Central Oregon coastal strip including adjacent west slopes of the Oregon Coast Range. Includes southern portions of the Siuslaw N.F. and ODF protected private land.

Extends east-west from the crest of the Oregon Coast Range to the Pacific Ocean. Extends north-south from Oregon State Highway 22 to the Umpqua River along the west edge of the Siuslaw National Forest including ODF regulated use area SL-2.

### **Zone 602 – North Coast Range**

Represents the east slopes of the North Oregon and South Washington Coast Range. Mostly private land under ODF and WA DNR protection.

Bounded on the west by Coast Range crest. Bounded on the east, in Oregon, by the west periphery of the Willamette Valley and Columbia River. Bounded on the east, in Washington, by the contour of the Willapa Hills/Coast Range. Extends north-south from the north boundary of Lewis County, WA to Oregon State Highway 22.

### **Zone 603 – Central Oregon Coast Range**

Represents the east slopes of the Central Oregon coast range. Mostly ODF protected private land.

Bounded on the west by the Coast Range crest. Bounded on the east by the western periphery of the Willamette Valley. The north boundary is along Oregon State Highway 22. The south boundary lies along Oregon State Highway 38.

**Zone 604 – Willamette Valley including Clark County Lowlands of Washington**

Bounded on the west and east, in Oregon, by the foothills of the Coast Range and Cascades. Bounded on the west and east, in Washington, by the Columbia River and South Washington Cascade foothills. Extends north-south from Lewis County, WA to just south of Cottage Grove Reservoir.

**Zone 605 – North Oregon Cascade Foothills**

Represents foothill elevations of the North Oregon Cascades. Mostly ODF protected private land.

Bounded by the east periphery of the Willamette Valley on the west and the National Forest boundary of the Mt. Hood and Willamette National Forests on the east. Extends from the Columbia River on the north to Oregon State Highway 22 (Santiam Highway) on the south.

**Zone 606 – Central Oregon Cascade Foothills**

Represents the foothill elevations of the Central Oregon Cascades. Mostly ODF protected private land.

Bounded by the east periphery of the Willamette Valley on the west (Interstate 5 south of Eugene) and the Willamette Forest boundary, and extreme north Umpqua Forest boundary on the east. Extends from Oregon State Highway 22 on the north to the Lane/Douglas county line on the south.

**Zone 607 – North Oregon Cascades**

Represents all of the Mt. Hood NF west of the Cascade Crest along with interior Cascade wilderness areas.

Bounded by the Columbia River on the north, the Cascade Crest on the east, and the Mt. Hood forest boundary on the south and west.

**Zone 608- Central Oregon Cascades**

Represents the Willamette NF in its entirety along with interior high Cascade wilderness areas.

Bounded by the Cascade Crest on the east and the Willamette Forest boundary on the south, west, and north.

**Zone 660 – South Washington Cascades and Foothills**

Represents the Wind River, Mt. Adams and St. Helens Ranger districts of the Gifford Pinchot NF as well as adjacent WDNR protected Cascade and Green Mountain foothills to the south and west. It excludes the Columbia River lowlands of Clark County, WA, which is part of zone 604.

Bounded on the east by the Gifford Pinchot east forest boundary (approximately the Cascade Crest). The southeast boundary follows the Columbia River west to the Clark County, WA line. Then, the boundary heads north to northwest following the contour of the Cascade foothills to the Lewis River, then west along the Lewis River to the Columbia River. The boundary follows the Columbia River north to Kelso, WA. The north boundary extends from Kelso, WA northeast following the contour of the Green Mountain/Cascade foothills to the Lewis County line, then east to the Cascade Crest, bisecting the Gifford Pinchot NF along the north boundary of the St. Helens and the Mt. Adams Ranger districts.

## PORTLAND FORECAST AREA NFDRS STATION LIST

### 601 COASTAL ZONES

STN #	NAME	COUNTY	T	AGENCY	LAT	LON	ELEV	ASPECT	T	R	S
450404	Willapa	Pacific	M	DNR	46.60	123.60	60	W-in valley	13N	8W	10
450407	Huckleberry	Pacific	R	DNR	46.50	123.40	2500	S-on mid-slope	12N	6W	22
350208	Tillamook	Tillamook	R	ODF	45.26	123.50	22	Flat	1S	9W	29
350215	Cedar Creek	Clatsop	R	USFS	45.21	123.77	2240	Ridgetop	4S	9W	22

### 602 COASTAL ZONES

451207	Castle Rock	Cowlitz	M	DNR	46.30	122.90	213	S-in valley	9N	2W	14
451209	Abernathy	Cowlitz	R	DNR	46.35	123.10	2000	Ridgetop	10N	3W	19
350216	South Fork	Tillamook	R	ODF	45.58	123.49	2120	S- on ridge	1N	7W	12
350308	Miller	Columbia	R	ODF	46.02	123.27	1090	S-in valley	6N	5W	11
350505	Rye Mountain	Tillamook	R	BLM	45.22	123.53	1960	S-on ridge	4S	7W	9

### 603 COASTAL ZONES

351710	Rockhouse1	Polk	R	ODF	44.93	123.47	2000	Mid-slope	7S	7W	
351811	Wilkinson Ridge	Benton	R	USFS	44.33	123.72	1370	W-on ridge	14S	9W	24
352542	Clay Creek	Lane	R	ODF	44.02	123.21	1600		19S	7W	29
352547	Village Creek	Lane	R	BLM	44.25	123.47	1500	SE-on ridge	16S	7W	1
352550	High Point	Lane	R	BLM	43.91	123.38	1935	N-on ridge	19S	6W	23

### 604 WILLAMETTE VALLEY

451306	Vancouver	Clark	M	DNR	45.70	122.70	210	Flat	2N	1E	28
451301	Larch Mtn.	Clark	R	DNR	45.72	122.35	1150	Ridge-top	3N	4E	29
351911	Stayton	Marion	R	ODF	44.75	122.87	507	S-in valley	9S	2W	36
351813	Finley	Benton	R	USFWS	44.42	123.33	330	Valley	13S	5W	20

### 605 CASCADE ZONES

350727	Horse Creek	Clackamas	R	BLM	44.94	122.40	2000	Ridge	7S	3E	23
350728	Eagle Creek	Clackamas	R	ODF	45.37	122.33	744	SW-mid-slope	2S	4E	28

### 606 CASCADE ZONES

352024	Yellowstone	Linn	R	BLM	44.60	122.42	3080	NE-in valley	11S	3E	22
352552	Trout Creek	Lane	R	BLM	44.11	122.58	2400	SW-on ridge	17S	2E	9
352553	Brush Creek	Lane	R	BLM	44.28	122.85	2300	N-on ridge	15S	1W	7

### 607 CASCADE ZONES

350718	Red Box	Clackamas	R	USFS	45.03	121.92	3250	SW-on mid-slope	6S	7E	23
350605	Locks	Multnomah	R	ODF	45.67	121.88	128	Valley	2N	7E	12
350725	Si Si Lookout	Clackamas	M	USFS	44.92	121.83	5617	SW-on ridge	7S	8E	33
350726	Wanderer's Peak	Clackamas	R	USFS	45.11	122.20	4350	S-on ridge	5S	5E	28

350811	Blue Ridge	Hood River	R	USFS	45.52	121.72	3780	S-on ridge	1S	9E	6
350604	Log Creek	Multnomah	R	USFS	45.51	121.90	2500	W-on mid-slope	1S	7E	12
350902	Clear Lake	Wasco	M	USFS	45.15	121.58	4458	W-on ridge	5S	10E	8
<b>608 CASCADE ZONES</b>											
352554	Pebble	Lane	R	USFS	44.23	121.98	3560	SW-on mid-slope	15S	7E	29
352557	Fields	Lane	R	USFS	43.73	122.28	3360	Flat- on ridge	22S	4E	11
352558	Emigrant	Lane	R	USFS	43.47	122.22	3840	S-on ridge	24S	5E	21
351909	Boulder Creek	Marion	R	USFS	44.98	122.00	3570	Flat-in valley	10S	7E	7
<b>612 COASTAL ZONES</b>											
351604	Cannibal	Lincoln	R	USFS	44.35	123.89	1946	Ridgetop	14S	10W	16
352545	Goodwin Peak	Lane	R	USFS	43.93	123.89	1826	Ridgetop	19S	10W	9
352559	Dunes	Lane	R	USFS	43.96	124.12	20	Mid-slope	18S	12W	34
<b>660 CASCADE ZONES</b>											
451208	Elk Rock	Cowlitz	R	USFS	46.35	122.60	2500	Ridgetop	10N	3E	35
451917	Trout Lake	Skamania	R	USFS	46.12	121.68	3600	NE-on mid-slope	7N	9E	8
451921	Canyon Creek	Skamania	R	USFS	45.92	122.17	2500	W-on ridge	5N	5E	8
451929	3 Corner Rock	Skamania	R	DNR	45.72	122.04	3000	Ridgetop	3N	6E	26

**2009**

**Medford Fire Weather**

**Operating Plan**

Medford Fire Weather  
2009 Annual Operating Plan

## **LOCATION**

4003 Cirrus Drive  
Medford, Oregon 97504

Medford Fire Weather is located at the Medford National Weather Service Office near the Rogue Valley Airport in Medford Oregon. The office maintains 2 advanced meteorological response units (AMRS) with 2 laptop computers with modems for on-site support of wildfires. Fire weather forecasts and other products are disseminated to state and federal agencies through AWIPS (NWS communications systems), WIMS and through our homepage.

The homepage address is: <http://www.wrh.noaa.gov/mfr>

## **HOURS**

24 hours a day, year round

Meteorologists are on duty 24 hours a day, 7 days a week. Additional forecasters will be brought in to staff for additional projects, severe weather, etc. However, under the provisions of the National Fire Weather Agreement, special service provided by the Medford office will be done on a reimbursable basis.

## **STAFF**

The Medford office is staffed with 13 full-time meteorologists. All forecasters participate in producing fire weather forecasts after each has completed the training, which includes correspondence course, computer-based Fire Weather Training Module, mesoscale analysis, climatological and terrain familiarization, and spot forecast training.

### Management staff

- John Lovegrove, Meteorologist in Charge
- Dennis Gettman, Science and Operations Officer (IMET)
- Ryan Sandler, Warning and Coordination Meteorologist

### Forecast staff

- Frederic Bunnag, Senior Meteorologist / Fire Weather Program Leader (IMET)
- Michael Johnson, Senior Meteorologist
- Michael Stavish, Senior Meteorologist
- Michael O'Brien, Senior Meteorologist
- Jay Stockton, Senior Meteorologist
- Connie Clarstrom, Meteorologist
- Rick Holtz, Meteorologist
- Brett Lütz, Meteorologist (IMET)

- Sven Nelaimischkies, Meteorologist (Webmaster)
- Mike Petrucelli, Meteorologist
- Dan Weygand, Meteorologist

## **FORECAST SERVICES**

### **FIRE WEATHER AND LAND MANAGEMENT FORECASTS**

The Land Management Forecast is issued during the off-season, usually from mid-October to around May. The forecast is available on the homepage once daily by 1500 local time. The frequency of the Land Management Forecast and the forecast elements will be increased as the fire season approaches. The Fire Weather Program manager will survey the user agencies throughout the off season to determine when extra forecasts are needed.

During the fire season, the Fire Weather Forecasts will be issued twice daily at 0700 and 1500 PDT. The forecast follows the national standard format introduced during the 2001 fire season. NFDRS zone trend forecasts for specific meteorological parameters are issued with the afternoon Fire Weather Forecast. When necessary, trend forecasts may be updated on the morning Fire Weather forecast on the following day.

The Medford Forecast Office will activate the Internet fire weather briefing around the middle of May and continue through the end of the fire season. The forecaster on duty will narrate the briefing and the briefing time will be determined according to agency needs. Every fire and land agency is encouraged to dial into the conference call and ask questions. The graphics for the briefing can be accessed via the Fire Weather Section of the homepage under the Fire Weather Briefing subsection. The dial-in phone number will be provided approximately one week before the briefing starts. Commencement time of this call will be coordinated with the fire agencies.

### **FIRE WEATHER WATCHES AND RED FLAG WARNINGS**

Fire Weather Watches and Red Flag Warnings will be issued when the following weather criteria are expected, in conjunction with certain fuel situations.

Fuel Situations that must be met are:

- High to extreme fire danger and dry fuels (dryness level brown or yellow as defined by the Geographic Coordination Center 7 day Fire Potential Outlook and user input)

Weather Criteria that must be met are:

- A. Thunderstorms with little or no precipitation.

- Lightning occurrence must be scattered or more in coverage.

B. Strong Winds with low humidity generally associated with the marine push or a dry cold front.

Zones 615, 618.

- Min RH < 30% AND 10 minute sustained wind 15 mph or peak winds to 30 mph.
  - Long Prairie RAWS and/or Flynn Prairie RAWS reporting above conditions for any 2 hours within the warning time frame.
  - Other onsite observations from Lookouts

Zones 616, 617, 619, 620, 621, 622, 623.

- Min RH < 15% AND 10 minute sustained wind 10 mph or peak winds to 20 mph.

Zones 616 and 617.

- Emigrant RAWS and/or North Banks RAWS or Roseburg METAR (KRBG) reporting above conditions for any 2 hours within the warning time frame.
- Other onsite observations from Lookouts.
- These two zones are to be verified as a block.

Zone 619.

- Two key stations reporting above conditions for any 2 hours within the warning time frame.
- Key stations: Bald Knob, Calvert Peak and Quail Prairie RAWS.

Zone 620.

- Two key stations reporting above conditions for any 2 hours within the warning time frame.
- Key stations: Illinois Valley, Provolt, Onion and Merlin RAWS
- Sexton Summit METAR (KSXT) may also be used but winds must be adjusted to 10 minute average.

Zone 622.

- Two key stations reporting above conditions for any 2 hours within the warning time frame.
- Key stations: Evans Valley, Star and Buckhorn RAWS

- Medford METAR (KMFR) may also be used but winds must be adjusted to 10 minute average.

Zones 621 and 623.

- Two key stations reporting above conditions for any 2 hours within the warning time frame.
- Key stations: Zim and Parker Mountains RAWS in Oregon, and Slater Butte and Crazy Peak RAWS in northern California.
- These two zones are to be verified as a block.

Zone 624.

- Min RH < 15% AND 10 minute sustained wind 15 mph or peak winds to 25 mph.
- Two key stations reporting above conditions for any 2 hours within the warning time frame.
- Key stations: Calimus, Chiloquin, Coffee Pot, Gerber, Strawberry and Summit.
- Kingsley Field Metar (KLMT) may also be used but winds must be adjusted to 10 minute average.

Zone 625.

- Min RH < 10% AND 10 minute sustained wind 20 mph.
- Min RH < 15% AND 10 minute sustained wind 25 mph.
- Min RH < 20% AND 10 minute sustained wind 30 mph.
- Two key stations reporting above conditions for any 2 hours within the warning time frame.
- Key stations: Fish Fin Rim, Rock Creek, Catnip and Wagontire RAWS (Zone 636).
- Lakeview AWOS Metar (KLKV) may also be used but winds must be adjusted to 10 minute average.

C. Offshore East Wind Event resulting in strong winds and low relative humidity at night (2200 to 0800)

Zones 616, 617.

- RH Recovery only to 30% AND 10 minute sustained wind 10 mph.
- North Bank RAWS, Sugarloaf and Emigrant RAWS (Zone 608 in Portland WFO) reporting the above conditions for any 2 hours within the warning time frame.
- Onsite observations from Lookouts.

Zones 618.

- RH Recovery only to 25% AND 10 minute sustained wind 15 mph or peak winds to 25 mph for any 2 hours within the warning time frame.
- Red Mound RAWS and / or Flynn Prairie RAWS reporting any 2 hours within the warning time frame.

Zones 619 and 620.

- RH Recovery only to 30% AND 10 minute sustained wind 15 mph or peak winds to 25 mph.

Zone 620.

- Onion RAWS or Sexton Summit METAR (KSXT) reporting above conditions for any 2 hours within the warning time frame.
- METAR wind at KSXT must be adjusted to a 10-minute average value.

Zone 619.

- Quail Prairie or Bald Knob RAWS reporting above conditions for any 2 hours within the warning time frame.
- In a situation when neither of the above RAWS reports the humidity and wind that met the criteria, the Red Flag Event is assumed to be occurring in zone 619 if zones on both sides of its border (618/620) are reporting Red Flag conditions.

Zones 621, 622, 623.

- RH Recovery only to 25% AND 10 minute sustained wind 10 mph.
- Two key stations reporting above conditions for any 2 hours within the warning time frame.  
Key stations: Evans Valley, Zim, Parker Mountain and Buckhorn.
- These three zones are to be verified as a block.

D. Very Dry and Unstable Airmass

- Haines Index forecast of 6 in conjunction with ongoing fire.
- When fuels are extremely dry and Haines Index 6 is forecast, forecasters will coordinate with the fire agencies, whether fuel conditions warrant the issuance of the Red Flag Warning.

All Red Flag Warnings will be coordinated with the affected agencies and neighboring fire weather offices, in order to assess fuel conditions and general fire danger, before the issuance of a Red Flag Warning. Each issuance, update or cancellation of a Fire Weather Watch or Red Flag Warning will also be relayed by telephone to the dispatch office(s) affected by the watch/warning.

## **SPOT FORECASTS**

Spot forecasts are available year-round to federal land management agencies upon requests for wildfires, prescribed fires, spray projects and other land management activities. Spot forecasts are available to state forestry agencies and local fire departments for wildfire suppression only. Information required by the forecasters is found on WS Form D-1, items 1-12. Spot forecasts may be requested by filling out pertinent information in the Fire Weather Spot section of the Medford Weather Forecast Office homepage. They may also be requested using the WS Form D-1 with the information faxed to the Medford office or relayed by phone.

We strongly encourage the fire agencies to call this office after submitting a spot request to ensure it was received properly. We will attempt to notify field personnel and/or the dispatch office whenever there is a significant change in the expected weather. However, spot forecasts will be updated only when new observations become available, and/or the update is requested by the users. The forecast will be valid for 12 hours after the proposed ignition time. Spot forecasts for wildfire suppression take precedence over normal office routines, except a tornado warning.

## **FIRE WEATHER ZONES**

### AREA 1...COAST (Zones 615 and 618)

This area extends from the Pacific Ocean to the foothills of the Coast Range, which rises to a crest of 2500 feet, about 10 to 20 miles inland.

- Zone 615: South-Central Oregon coast. This zone extends from southern border of the Siuslaw National Forest in southern Lane county through Coos County to Humbug Mtn State Park in northern Curry County...and inland from the coast to about 10 to 20 miles inland. Elevations range from near sea level to 2500 feet.
- Zone 618: Southern Oregon coast. This zone extends from Humbug Mtn State Park along the coast to the California state line, and inland for 10 miles. Elevations range from near sea level to 2800 feet.

### AREA 2...UMPQUA BASIN AND UMPQUA NF (Zones 616 and 617)

This is the area between the Coast Range of south-central Oregon in Coos and Douglas counties and the crest of the Cascade Mountain. The western portion of the area, mainly Zone 616 Umpqua Basin, extends from the Coast Range through the Umpqua valley to the foothills of the Cascade Mountain just east of Interstate 5, and varies in elevation with zone 616 ranging between 150 near Roseburg to almost 4000 feet in the Cascade foothills. The eastern portion, zone 617 which encompasses all of the Umpqua NF, rises from 1500 feet to 6000 feet with peaks reaching as high as 7400 feet in the Cascade Range.

### AREA 3...SOUTHWEST INTERIOR INCLUDING THE CASCADE AND THE SISKIYOU MOUNTAINS (Zones 619-623)

This area has complex terrain. The western boundary begins with the Coast Range, and includes the Kalmiopsis Wilderness Area where elevations range from 3000 to 5000 feet. The northern boundary is the Umpqua Divide which separates the Rogue Valley from the Umpqua Valley. The area's eastern boundary includes the Cascade Mountains, where elevations can reach 6500 feet with a few peaks over 8000 feet high. Crater Lake is in the very northeast corner of this area. The southern part of the area is bounded by the Siskiyou Mountain, where elevations can reach 7000 feet. Mount Ashland is in the southwest corner of this area.

Zone 619: Southern Oregon coastal mountains. Elevations range from 200 feet in coastal valleys to 4600 feet.

Zone 620: Western Rogue Basin including the Illinois Valley. Elevations range from 650 feet in western Rogue Valley to 5700 feet in the Siskiyou Mountain in southern Josephine County.

Zone 621: Siskiyou Mountains, including the Siskiyou Fire Zone of the Rogue River-Siskiyou NF. Elevation ranges from 1800 feet to 7000 feet.

Zone 622: Eastern Rogue Basin. Elevations range from 1200 feet in the valley to 5200 feet in the Cascade and Siskiyou Mountains.

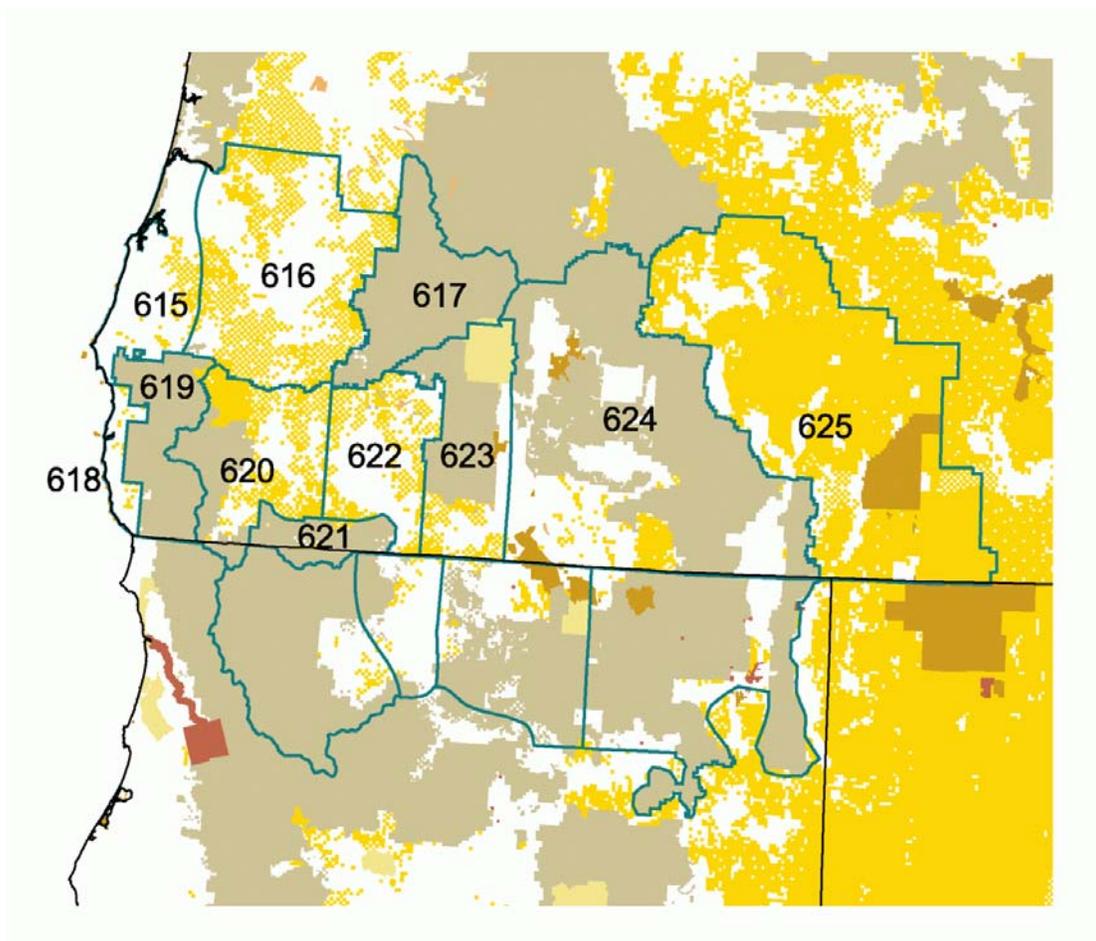
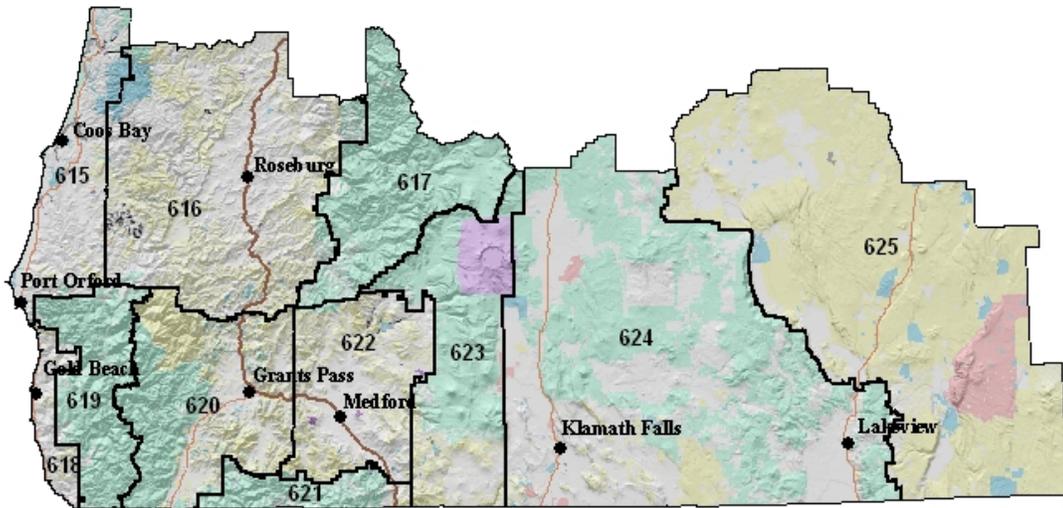
Zone 623: Southern Oregon Cascades including Crater Lake NP, the High Cascade Fire Zone of the Rogue River-Siskiyou NF and the Klamath District of the Fremont-Winema NF. Elevation ranges from 2400 feet to 8500 feet.

### AREA 4...EAST OF THE CASCADE MOUNTAIN (Zones 624 and 625)

This area extends from the eastern foothills of the Cascade Mountains, eastward through the Klamath Basin and the Fremont-Winema NF, to the south central Oregon desert. The eastern part of the area closely follows the border between Lake County and Harney County, is representative of high plateaus with desert-like climate and includes the Warner Valley which is the northwestern rim of the Great Basin.

Zone 624: Klamath Basin and the Fremont-Winema National Forest. Elevation ranges from around 4000 feet in the Klamath Basin to the higher peaks of 8200 feet.

Zone 625: South Central Oregon Desert including the Klamath-Lake District of the BLM and the Lakeview Unit of the State Forestry. Elevation ranges from 4200 feet to 7600 feet.



## 2009 NWS Medford NFDRS Station Index

ZONE	NAME	Type	NUMBER	OWNER	LAT	LON	ELEV
615	Long Prairie	R	352819	CFPA	42.95	-124.22	1180
615	Seven Mile Creek	R	352820	ODF	43.21	-124.32	506
616	Mt. Yoncalla	R	353043	BLM	43.64	-123.33	1799
616	Signal Tree	R	352816	BLM	43.01	-123.78	3294
616	Charlotte Ridge	R	353046	ODF	43.67	-123.94	1220
616	Silver Butte	R	353041	BLM	42.86	-123.38	3973
616	Burnt Mountain	R	353044	BLM	43.22	-123.84	2240
616	Devil's Playground	R	353047	BLM	43.72	-123.63	1550
616	North Bank	R	353048	BLM	43.36	-123.19	1913
617	Sugarloaf	R	352546	USFS	43.23	-122.40	3500
617	Cinnamon	R	353031	USFS	43.26	-122.15	4636
617	Grandad	R	353036	USFS	43.41	-122.57	2900
617	Toketee	R	353038	USFS	43.23	-122.39	3360
617	Buckeye	R	353040	USFS	43.04	-122.64	2400
618	Flynn Prairie	R	352922	ODF	42.40	-124.39	1625
618	Red Mound	R	352920	BLM	42.12	-124.30	1753
619	Bald Knob	R	352813	USFS	42.40	-124.04	3630
619	Quail Prairie	R	352915	USFS	42.24	-124.04	3033
619	Agness	R	352916	USFS	42.33	-124.02	150
620	Calvert Peak	R	352919	BLM	42.78	-123.73	3822
620	Merlin	R	353122	BLM	42.49	-123.40	1040
620	Onion Mountain	R	353114	USFS	42.28	-123.38	4438
620	Provolt	R	353120	BLM	42.28	-123.23	1176
620	Illinois Valley Airport	R	353115	BLM	42.11	-123.67	1389
621	Squaw Peak	R	353213	USFS	42.07	-123.01	4964
622	Buckhorn	R	353230	BLM	42.12	-122.56	2900
622	Evans Creek	R	353228	BLM	42.63	-123.06	3200
623	Parker	R	353344	BLM	42.11	-122.28	5250
623	Mt. Stella	R	353209	USFS	42.93	-122.43	4715
623	Zim	R	353227	USFS	42.70	-122.39	4106
623	Seldom Creek	R	353339	USFS	42.41	-122.19	4875
624	Klamath NWR	R		BLM	42.95	-121.58	4531

624	Timothy	R	353337	USFS	43.20	-121.37	6020
624	Summit	R	353421	USFS	42.20	-120.25	6147
624	Chiloquin	R	353310	USFS	42.58	-121.89	4517
624	Gerber Reservoir	R	353328	BLM	42.20	-121.14	4940
624	Hoyt	R	353343	USFS	42.97	-121.42	5445
624	Silver Lake	R	353412	USFS	43.12	-121.06	4381
624	Coffee Pot	R	353422	BLM	42.53	-120.64	5250
624	Strawberry	R	353423	USFS	42.20	-120.85	5590
624	Summer Lake	R	353429	USFS	42.72	-120.75	5400
624	Calimus	R	353307	USFS	42.63	-121.56	6622
625	Catnip	R	260109	USFS	41.93	-119.50	5740
625	Rock Creek	R	353424	FWS	42.55	-119.66	5640
625	Fish Fin Rim	R	353516	BLM	42.47	-119.18	4900
625	Poor Jug	R	353426	USFS	42.93	-120.11	4600
625	Fort Rock	R	353406	BLM	43.43	-120.84	4430

**2009**

**Spokane Fire Weather**

**Operating Plan**

## Spokane Fire Weather 2009

### **New for 2009:**

**New Fire Weather Interactive Web Page. This page includes a Farsite data page.**

### **LOCATION:**

National Weather Service Office  
2601 North Rambo Road  
Spokane, WA 99224-9164.

### **HOURS:**

Office hours at WFO Spokane for Fire Weather will be as follows: Daily 24 Hour forecast and briefing coverage.

The Fire Desk is staffed daily 0700-1500 Mid April - Early November

### **E-Mail:**

[john.livingston@noaa.gov](mailto:john.livingston@noaa.gov)  
[ronald.miller@noaa.gov](mailto:ronald.miller@noaa.gov)  
[kerry.jones@noaa.gov](mailto:kerry.jones@noaa.gov)  
[robert.tobin@noaa.gov](mailto:robert.tobin@noaa.gov)

### **STAFF:**

<u>Name</u>	<u>Position</u>
John Livingston	Meteorologist in Charge
Ron Miller	Science and Operations Officer
Kerry Jones	Warning Coordination Meteorologist
Bob Tobin	Fire Weather Program Leader/IMET
Todd Carter	ITO/IMET
Jeremy Wolf	Forecaster/IMET
John Fox	Senior Forecaster
Paul Bos	Senior Forecaster
Matt Fugazzi	Senior Forecaster
Greg Koch	Senior Forecaster
Jeffery Cote	Forecaster
Robin Fox	Forecaster
Mike Fries	Forecaster
Laurie Nisbet	Forecaster
Rocco Pelatti	Forecaster

Ellie Kelch                      Forecaster  
Steve Bodnar                    Forecaster

## **COMMUNICATIONS:**

All forecasts and spot forecasts are input into AWIPS (Advanced Weather Integrated Processing System), WIMS, and on Spokane's Internet home page. Users who do not have access to WIMS, or Internet can still have forecasts faxed to them.

Internet Address:

<http://www.wrh.noaa.gov/firewx/?wfo=otx>  
<http://www.wrh.noaa.gov/otx>  
<http://www.weather.gov/spokane>

## **WEATHER BRIEFINGS**

Internet based weather briefings are available from the Spokane office as needed. During peak fire season, normally mid June-October briefings will be daily at 0900 PDT. During Land Management season briefings are available by customer request and are usually held twice per week for planning purposes.

## **FORECAST DISTRICT:**

The Spokane Fire Weather Office has weather forecast responsibility for a large portion of protected lands in eastern Washington. Exceptions are the Blue Mountains area, the Yakama Indian Nation lands, the DOE Hanford Site, and portions of the Southeast Department of Natural Resources (DNR) land. These protected lands are the forecast responsibility of the National Weather Service Office Pendleton Fire Weather program.

Spokane Fire Weather's area of responsibility for Eastern Washington is divided into six districts for fire weather forecasting. In addition, these forecast districts are further subdivided into ten fire weather zones. See the map for general locations of districts and zones for eastern Washington. The weather zones are comprised of fire danger stations with similar weather and similar trends in weather changes.

WFO Spokane has forecast responsibility for the Central and Northern Idaho Panhandle. This district has one (1) zone (101) covering the Idaho Panhandle National Forests, Idaho State Lands, and Coeur d'Alene Indian Agency lands.

## **Agencies Served:**

Land management agencies served by the Spokane Fire Weather Office include:

USFS....	Colville NF Wenatchee NF Okanagan NF Idaho Panhandle NF
BLM....	Spokane District Coeur D Alene District
BIA....	Colville Indian Agency Spokane Indian Agency Coeur d' Alene Indian Agency
NWR...	Turnbull National Wildlife Refuge Columbia National Wildlife Refuge Priest River National Wildlife Refuge Lake Pend Oreille Wildlife Refuge
Washington DNR...	Northeast Area Resource Protection Division
Idaho...	Department of State Lands
Other Public Agencies...	Coulee Dam National Recreation Area Lake Chelan National Recreation Area

## **FORECAST SERVICES:**

### **Planning Forecasts**

The issuance of planning forecasts are seasonal. Routine issuance of the morning and afternoon planning forecasts seven days a week normally begins in early spring. For 2009 it will be around Monday April 13<sup>th</sup> continuing through late October or early November. Specific start and stop dates are coordinated with customer agencies. Morning forecasts will be available at 07:00 a.m., while afternoon forecasts will be available by 3:00 p.m.

Off-season Land management forecasts will be issued between 0900-1000 Monday through Friday through the winter months. These forecasts will begin the Monday following the end of fire season, typically late October or early November.

## Fire Weather Watches and Red Flag Warnings

General Fire Weather Watch and Red Flag Warning criteria continues to be under review. Until formal changes have been agreed upon by the Land Management agencies and the National Weather Service we will continue with the present criteria. Red Flag criteria for eastern Washington and Northern Idaho are as follows:

- **“dry thunderstorm” Red Flag criteria is defined as follows:**

### **Abundant lightning in conjunction with sufficiently dry fuels.**

“Abundant” and “Sufficient” are locally defined and verified by NWS offices and their fire agency customers using the following GACC AOP-wide guidelines:

#### Abundant Lightning:

- 1) Number of lightning strikes that meet climatologically significant criteria, or
- 2) Areal coverage of lightning such as “Scattered” or  $\geq 25\%$

#### Sufficiently Dry Fuels:

- 1) GACC dryness levels remaining out of the ‘green’ category on the day of and the day following a thunderstorm event, or
- 2) ERC or BI values meeting climatologically significant percentiles or
- 3) Land management declaration

- Sustained surface winds exceeding a 10 minute average of 15 mph combined with relative humidity less than:
  - 15% in the Columbia Basin (zone 673)
  - 25% in the mountainous areas
  - 20% in the lower valley zones

This is typically (but not always) associated with a dry cold front passage.

These conditions must be verified by at least 2 observation sites (RAWS, METAR, DOT, Agrimet etc) for 2 consecutive hours. **For Idaho Zone 101 the criteria will be at least 2 observations sites for any 3 hours in an 8 hour period.** When using observation sites other than RAWS sites wind speeds will be converted to 10 minute averages.

Special consideration will be given whenever very hot temperatures are combined with very low relative humidity.

- Haines Index of 6 when combined with low relative humidity, typically 15% or below.
- An unusually unstable atmosphere This would be associated with a strong thermal trough which typically forms along the east slopes of the Washington Cascades.

The issuance of Red Flag Warnings will take into account fuel conditions, and will be coordinated with land management agencies and other applicable fire weather offices. Typically when 1000 hour fuels are at or below 11%, 100 hour fuels are at or below 10% and Live Fuels at or below 120%. In 2009 the NWSFO Spokane will be utilizing the NWCC dryness levels as input into the decision making process for issuing fire weather watches and red flag warnings.

Red Flag Warning Verification Points: Any observation point in the Fire District can be used for verification. The following will be key stations for monitoring purposes.

Zone 673

- Douglas Raws, Escure Raws, Saddle Mountain Raws

Zone 676-677

- Camp Four Raws , Dry Creek Raws , Entiat Raws

Zone 686 Spokane County portion

- Wellpinit Raws , Midnight Mine Raws, Turnbull Wildlife Refuge Raws

Zones 680, 682, 685

- NCSB , Raws, Leecher Raws , Signal Peak Raws, Peoh Point Raws

Zone 684

- Nespelem Raws , Kramer Raws , Douglas Ingram Raws , Oroville Raws... **\*\*\*If Kramer Raws and Oroville Raws are used to meet red flag conditions at least one other RAWS in the fire zone will need to meet the criteria for at least one hour\*\*\***

Zones 686-687

- Kettle Falls Raws , Midnite Mine Raws , Gold Mountain Raws, Deer Mt. Raws

Zone 101

- Bonners Ferry Raws, Hoodoo Raws, Fish Hook Raws  
Magee Peak Raws , Line Creek Raws , Nuckols Raws  
Priest Lake Raws , Saddle Pass Raws

**\*\*\*For Idaho Zone 101 the criteria will be at least 2 observations sites for any 3 hours in an 8 hour period.\*\*\***

## Spot Forecasts

Official spot forecasts will be prepared and disseminated 24 hours a day. All prescribed fire spot forecast requests **MUST BE** accompanied by a recent weather observation that is representative of the burn site. More observations from the burn area will generally result in better spot forecasts. Feedback is imperative to increase the accuracy of spot forecasts. **In addition valid times for spot forecasts will be twelve hours from issuance.** If a fire has a longer duration, a new spot forecast should be requested.

“Spot forecasts are available year-round to all Federal, State and Local government entities for wildfire suppression, prescribed burns (for hazardous fuel reduction), search and rescue missions, HAZMAT incidents, or for any other land management activity that directly supports federal resources or the safety of civilians and forests. Spot forecasts cannot be provided to Local and State governments for non-fire/range management activities such as spray projects, road building, tree planting, recreational events, and prescribed burns (other than for hazardous fuel reduction) that do not have the potential to escape and threaten life and property.”

## Farsite Data:

For the 2009 fire season, NWS Spokane will offer automated 7-day FARSITE weather data support. FARSITE data is now available from an interactive map identical to that used for the experimental digital Fire Weather Point Forecast Matrix. Ant user will be able to generate weather guidance for FARSITE at any time or place from this map.

Weather:

ENGLISH

03 06 12 0700 1600 30 54 59 30 5620

03 07 63 0700 1600 27 44 84 63 5620

03 08 14 0700 1600 23 43 81 47 5620

etc., through seven days

Wind:

ENGLISH

03 06 0000 11 200 79

03 06 0300 12 200 84

03 06 0600 14 200 95

etc., through seven days

## NFDRS Trend Forecasts

A numerical zone trend forecast is prepared and disseminated to WIMS by 1540 local time each afternoon from early to mid May through early October. The trend forecasts are used to compute the expected NFDRS indices valid for the following day. The number of NFDRS indices forecast by the weather office depends only on the number of NFDRS observations input into WIMS by the fire agencies. If observations are not entered into WIMS by 1500, a forecast will not be produced for the zone(s).

## **IMETS (Incident Meteorologists)**

Spokane Fire Weather Office will have a minimum of two certified IMET'S on staff with at least one available at all times during the high summer fire season.

## **NON-FORECAST SERVICES:**

There are several duties that fall into the non-forecast services including, but not limited to teaching assignments, customer meetings, customer consultations, preparation of annual reports, preparation of annual operating plans, program management, research and in-house training of personnel.

There is a need for advanced notice for teaching assignments, customer meetings and consultations. The NWS-NWSEO Collective Bargaining Agreement provides rules for scheduling of bargaining unit employees. NWS management has limitations regarding modification of the work schedule after it has become "fixed" without paying overtime.

All requests for teaching assignments, customers meetings and consultations will be honored provided they are scheduled more than three weeks ahead of time, and they do not conflict with other Fire Weather commitments. NWS Spokane will make every effort to fulfill requests for teaching assignments, customer meetings and consultations that are scheduled with less than three weeks lead time, or conflict with other Fire Weather commitments. Shifts will be scheduled to complete the Annual Operating Plan and other Fire Weather commitments. Program management, research and training time will be provided to ALL employees based on the needs of the office.

Fire Weather Program Leader - The NWS Spokane Fire Weather Program Leader is Bob Tobin. High primary focus will be customer outreach, training, program development, IMET dispatches, and fire weather operational shifts.

Meeting Proficiency and Currency Standards - All forecasters will complete required proficiency prior to working alone on any real time Fire Weather products and services.

## **FORECAST VERIFICATION**

Routine verification will be made on Red Flag Warnings and Spot Forecast turnaround times. In addition selected NFDRS trend forecasts for temperature, relative humidity, and wind will be verified. Results of the verification will be published in the Fire Weather Annual Summary. The National Weather Service will work with local fire agencies and the Pacific Northwest Coordination Group to develop a baseline for product verification.

## **GEOGRAPHICAL AREA DESCRIPTIONS**

The National Weather Service Office in Spokane has fire weather forecast responsibility for protected lands in the northern and central part of eastern Washington and the northern and central Idaho Panhandle. Exceptions are the Blue Mountains area, the Yakama Indian Reservation, and portion of the Southeast Department of Natural Resources (DNR) protected lands. Forecasts for these areas are handled out of the National Weather Service office in Pendleton (see zone descriptions below).

WFO Spokane's eastern Washington fire weather area is divided into six districts. In addition, these forecast districts are further sub-divided into ten fire weather zones. See the map for general locations of districts and zones for eastern Washington. The fire weather zones are comprised of fire danger stations with similar weather and similar trends in weather changes.

### **South Central District:**

This district consists of two zones. Zone 676 lower elevations and Zone 680 higher elevations. The south central district covers those areas of the southern Washington Cascades north of the Yakama Indian Reservation to Mission Ridge. The district boundary also runs west to east from the Cascade crest to Interstate 82. This includes the Naches and Cle Elum Ranger Districts of the Wenatchee National Forest. This district has pronounced climate differences, from the marine air influence near the Cascade crest, to the dry arid climate of the valleys. This district has a relatively low frequency of lightning, and averages about 7-10 storm-days per season from June through September.

### **Central District:**

This district has two zones. Zone 677 lower elevations and Zone 682 are the two zones in this district. This district extends from Mission Ridge north to the Sawtooth Ridge, and from the Cascade crest east to the Columbia River. It includes the northern part of the Wenatchee NF. Lightning frequency averages around 10-15 storm-days per season. The summer climate is similar to the South Central District, but winds tend to be stronger and more persistent, and day to day weather changes are more pronounced. This district contains some of the highest fire hazard areas in the Pacific Northwest.

### **Northern District:**

This district has three zones. Zone 687 is the Okanogan Highland zone. Zone 684 lower elevations, mainly the Okanogan River Valley, and zone 685 higher elevations of the North Cascades. This district extends across the north part of eastern Washington from the Cascade crest to the Kettle River Ranger District on the east. It includes the Okanogan NF, the Republic Ranger district of the Colville NF, land under the protection of Northeast Department of Natural Resources, and the western and central parts of the Colville Indian Agency. The marine influence is minimal in this district compared to the south central and central districts due to its more continental location. Winds are

generally lighter than central and south central districts. Lightning activity though is greater, averaging about 15 storm-days per season.

#### **Northeast District:**

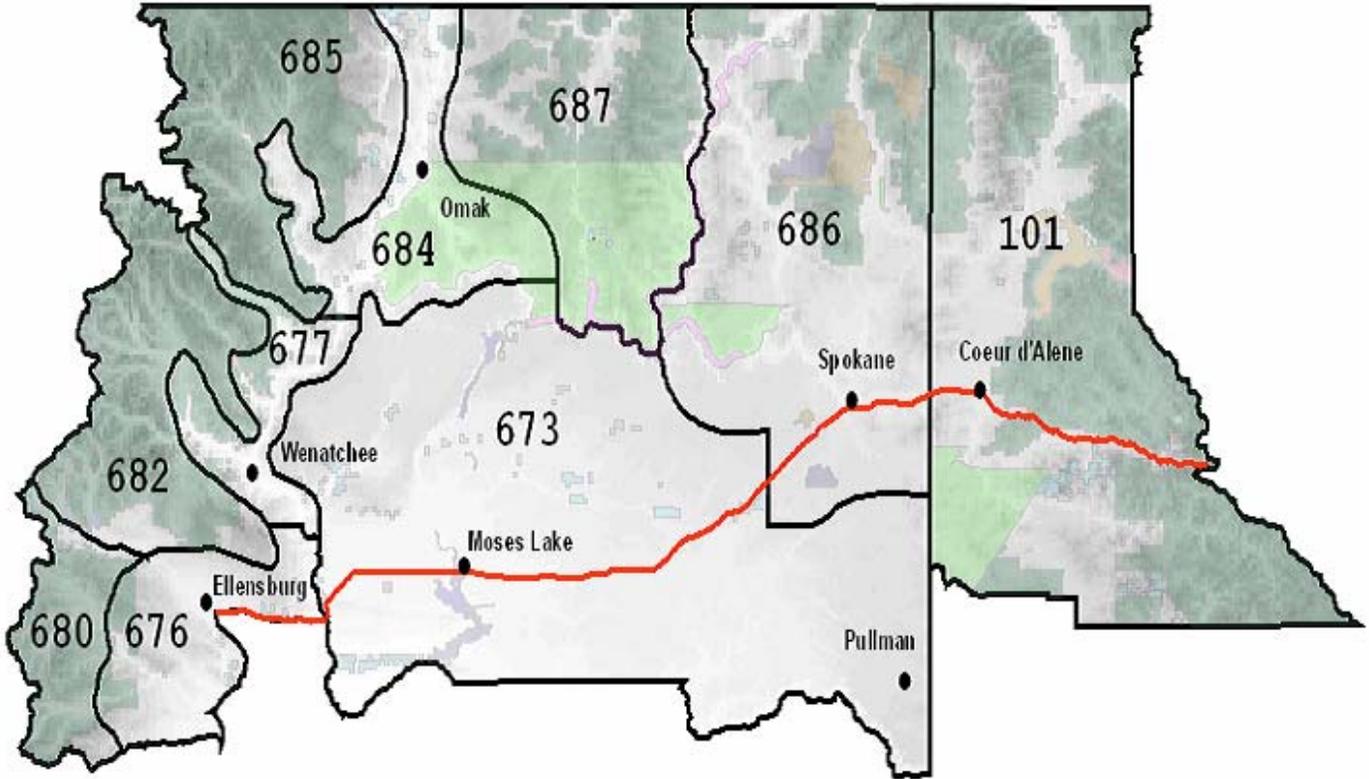
Zone 686. The northeast district extends from the Kettle River to the Idaho border, and south to the vicinity of Spokane. It covers the remainder of the Colville NF and Colville Indian Agency, as well as lands under the jurisdiction of Northeast DNR and the Spokane Indian Agency. This district is normally a bit wetter than the other districts since it extends into the western foothills of the Rocky Mountains. The southern portion around Spokane is the drier, windier section of this district. Lightning frequency is the greatest of any of the districts averaging 15-20 storm-days per season.

#### **Northern Columbia Basin District:**

Has one zone. Zone 673. Pendleton weather office has responsibility for a large portion of Washington State DNR Southeast Region lands, Yakama IA, and DOE Hanford. The southern boundary is I-90 for that part of the Yakima Firing Center in Kittitas County then follows county lines west to east across Grant, Adams, and Whitman Counties. The western part of the district boundary is the Columbia River at the Grant County line. The northern boundary is the same as previous years following the Columbia River to the eastern Ferry County then south across the northeast part of Lincoln County to Highway-2 near Davenport then east to the Spokane County line. Fuels in this district consist of mainly grass and sage. Zone 673 includes the Waterville Plateau which contains low ridges and coulees. Most of the district is at fairly low elevations between 900 and 3,000 ft...the exception being Badger Mountain near Waterville at 4,221 feet. Due to the relatively low elevations and locations, this is the warmest and driest district. Winds in some areas can be very strong. Lightning activity is the least of the districts, averaging about 6 storm-days per season.

#### **Northern and Central Idaho Panhandle District:**

This District is part of Region 1 and has one zone. Northern and Central Idaho Panhandle Zone 101 - Northern and Central Idaho Panhandle. This zone includes...Idaho Panhandle National Forests, Coeur d'Alene Indian Agency lands, and Idaho State protected lands in the following counties: Boundary, Bonner, Kootenai, Benewah, Shoshone, and the northern part of Latah county where a part of the St. Joe District resides. Zone 101 is broken into three (3) separate zones the Northern zone, Central zone and Southern zone. This area averages 12-15 thunderstorm days per season.



**Spokane Fire Weather Forecast Zones in Washington**

## 2009 NWS Spokane NFDRS Station Index

ZONE	NAME	Type	NUMBER	OWNER	LAT	LON	ELEV
673	Escure	R	453601	BLM	47.07	-117.98	1725
673	Columbia NWR	R	453102	FWS	46.87	-119.33	890
673	Spring Canyon	R	453002	NPS	47.93	-118.93	1340
673	Saddle Mtn	R	452701	FWS	46.69	-119.69	650
673	Douglas	R	452601	BLM	47.62	-119.90	2530
676	Ellensburg	M	452203	DNR	47.03	-120.54	1560
677	Dry Creek	R	452134	USFS	47.72	-120.53	3480
677	Camp 4	R	452132	USFS	48.02	-120.23	3773
677	Entiat	R	452136	USFS	47.67	-120.21	796
680	Peoh Point	R	452206	DNR	47.15	-120.95	4020
680	Sawmill Flats	R	452221	USFS	46.98	-121.08	3500
680	Sedge Ridge	R	452306	DNR	46.58	-120.90	4300
682	Viewpoint	R	452128	USFS	47.85	-120.87	3760
682	Swauk	R	452219	USFS	47.25	-120.67	3773
682	Alpine Lookout	M	452127	USFS	47.80	-120.85	6237
684	NCSB	R	452030	USFS	48.43	-120.14	1650
684	Oroville	R	452039	BLM	48.96	-119.49	1360
684	Nespelem	R	452009	BIA	48.21	-119.02	1782
684	Douglas Ingram Rdg	R	452035	USFS	48.12	-120.10	3460
684	Kramer	R	452040	BIA	48.27	-119.52	2720
685	83Monument	R	452036	USFS	49.00	-120.65	6500
685	Leecher	R	452020	USFS	48.25	-120.00	5019
685	First Butte	R	452006	USFS	48.62	-120.11	5500
685	Aeneas	R	452001	DNR	47.70	-119.60	5167
686	Turnbull Wildlife	R	453506	FWS	47.41	-117.53	2250
686	Midnite Mine	R	452913	BLM	47.94	-118.09	2693
686	Pal Moore Orchard	R	452915	USFS	48.39	-117.43	3120
686	Kettle Falls	R	452916	NPS	48.61	-118.12	1310
686	Tacoma Creek	R	453413	USFS	48.49	-117.43	3300
686	Little Pend Oreille	R	453416	FWS	48.27	-117.43	2020
686	Deer Mountain	R	453412	USFS	48.80	-117.45	3300
686	Wellpinit	R	452918	BIA	47.88	-118.10	2240
686	Spokane Airport	M	453505	NWS	47.60	-117.50	2365

687	Peony	R	452038	USFS	48.59	-119.21	3600
687	Brown Mountain Ochd	R	452514	USFS	48.54	-118.69	3210
687	Owl Mountain	R	452513	USFS	48.94	-118.30	4400
687	Lane Creek	R	452511	USFS	48.61	-118.28	4500
687	Gold Mountain	R	452510	BIA	48.18	-118.49	4636
687	Iron Mountain	R	452512	USFS	48.56	-118.62	4325
687	Lost Lake	R	452029	USFS	48.87	-119.06	3760
687	Peony	R	452038	USFS	48.59	-119.21	3600
101	Bonnors Ferry	R	100101	USFS	48.72	-116.35	2310
101	Magee Peak	R	100425	USFS	47.89	-116.31	4856
101	Fish Hook	R	100421	USFS	47.86	-115.91	4700
101	Hoodoo	R	100208	USFS	48.05	-116.84	2270
101	Lines Creek	R	100424	USFS	48.15	-116.29	5120
101	Nuckols	R	100423	USFS	47.54	-115.97	4000
101	Priest Lake	R	100204	USFS	48.60	-116.96	2600
101	Saddle Pass	R	100107	USFS	48.98	-116.79	5120

**2009**

**Pendleton Fire Weather**

**Operating Plan**

# PENDLETON FIRE WEATHER OPERATION PLAN 2009

## **LOCATION:**

National Weather Service Office  
2001 NW 56th Dr.  
Pendleton, OR 97801  
Office website: <http://weather.gov/pendleton>

## **NEW FOR 2009:**

Reorganized Red Flag Warning dissemination call list.  
Expanded Red Flag Warning threat grids on briefing page.

## **OFFICE HOURS:**

The Pendleton Fire Weather Program is committed to a program with staff trained to respond to fire weather needs 24 hours per day. Fire Weather shifts will be scheduled during the following times:

Land Management Season Shifts: 7:00 AM - 4:00 PM Monday - Friday.  
Beginning late March or early April - May and late September - October.

Fire Season Shifts: 7:00 AM - 4:00 PM 7 days a week  
Beginning late May or early June to late September.

The National Weather Service office in Pendleton is open 24 hours a day , 7 day a week and is fully staffed. **However, under the provisions of the National Agencies/NWS Agreement, special services provided by the Pendleton Fire Weather office will be done on a reimbursable basis.**

## **STAFF:**

<u>Name</u>	<u>Position</u>	
Mike Vescio	Meteorologist-in-Charge	<a href="mailto:michael.vescio@noaa.gov">michael.vescio@noaa.gov</a>
Dennis Hull	Warning Coordination Meteorologist	<a href="mailto:dennis.hull@noaa.gov">dennis.hull@noaa.gov</a>
Jon Mittelstadt	Science and Operation Officer	<a href="mailto:jon.mittelstadt@noaa.gov">jon.mittelstadt@noaa.gov</a>
Joe Solomon	Fire Weather Program leader	<a href="mailto:joe.solomon@noaa.gov">joe.solomon@noaa.gov</a>

All Senior and Journeyman Forecasters will train and be certified to issue all forecasts from the Fire Weather desk. However a **core group** of 4-6 forecasters will provide the majority of forecasts during the height of fire season.

<u>Name</u>	<u>Position</u>
<b><u>Joe Solomon</u></b>	Fire Weather Program Leader / Senior Forecaster / IMET
<b><u>Mary Smith</u></b>	Senior Forecaster
Roger Cloutier	Senior Forecaster
Vincent Papol	Senior Forecaster
<b><u>Gordon Hepburn</u></b>	Senior Forecaster
<b><u>Jon Bonk</u></b>	Journeyman Forecaster / IMET
<b><u>Robert Cramp</u></b>	Journeyman Forecaster
<b><u>Diann Coonfield</u></b>	Journeyman Forecaster
Alan Polan	Journeyman Forecaster
<b><u>George Perry</u></b>	Journeyman Forecaster
Diana koester	Journeyman Forecaster
Rachel Calder	Journeyman Forecaster

### **COMMUNICATIONS:**

All forecasts, including spot forecasts, are input into the National Weather Service communication system, WIMS and on Pendleton's Internet home page. Forecasts can also be faxed to customers who do not have access to these systems. Internet address is: <http://weather.gov/pendleton>

### **WEATHER BRIEFINGS:**

Internet based weather briefings will be held at 0930 PDT beginning in May. During Land Management season briefings will be held on Monday and Thursday. During peak fire season, normally mid June-September briefings will be held daily

### **AGENCIES SERVED:**

#### **USFS: United States Forest Service;**

Deschutes National Forest, Mt. Hood National Forest, Ochoco National Forest, Umatilla National Forest, Malheur National Forest, Wallowa-Whitman National Forest.

#### **BLM: Bureau of Land Management;**

Burns, Vale, Prineville, Spokane

#### **NPS: National Park Service & Scenic areas;**

John Day Fossil Beds National Monument, Whitman Mission National Historic Site, Columbia River Gorge Scenic Area

#### **BIA: Bureau of Indian Affairs;**

Umatilla Indian Agency, Warm Springs Indian Agency, Yakama Indian Agency

#### **USF&W: United States Fish and Wildlife;**

Hanford Reach National Monument & Saddle Mountain Refuge, Mid-Columbia Wildlife Refuge Complex (Cold Springs, McNary, McKay, Umatilla & Toppenish)

**ODF & DNR: State Forestry Departments;** Oregon Department of Forestry (Northeast Oregon District, Central Oregon District & Walker Range District), Washington Department of Natural Resources Southeast Division

County and Local Fire Jurisdictions in southeast Washington, central and northeast Oregon.

**Dispatch Centers;** Burns, Central Oregon, Central Washington, Northeast Oregon, Pendleton, Columbia Cascade, Hanford fire, Warm Springs BIA and Yakama BIA.

## **FORECAST SERVICES:**

### **Land Management and Fire Weather Planning Forecasts:**

Routine land management planning forecasts are issued seasonally in the early and late part of the burning season. They are available twice a day Monday through Friday by 0900 and 1530 PDT. Specific start and stop dates are coordinated with customer agencies. Routine fire weather planning forecasts are available twice daily during the heart of the fire season, usually from early June through late September. They will be issued by 0900 and 1530 PDT.

### **Spot forecasts/FARSITE/Special request Forecasts:**

Spot forecast and **FARSITE weather data** are available year round for wildfires, prescribed fires, or any other critical land management activities conducted by ALL land management agencies. The NWS will support non-federal, non-wildfire activities such as HAZMAT and search and rescue. We are urging land managers to customize spot forecast requests for the parameters that are needed and provide critical weather thresholds that may adversely impact the burn, such as wind, relative humidity, or burn period. This will allow the forecaster to concentrate on the specific data and time line needed rather than a host of parameters that may be of little interest. Spot forecasts take precedence over normal office duties. **As implemented in 2003, the Region 6 National Weather Service offices will: require at least one observation from the fire site for prescribed spot requests. In addition valid times for spot forecasts will be 12 hours from issuance.**

Information required by the fire weather forecaster from the requesting agency is found on our internet web site: <http://spot.nws.noaa.gov/cgi-bin/spot/spotmon?site=pdt> NWS form D-1, items 1-12, can be used for fax requests.

Feedback of how well the forecast verified is extremely valuable in order to provide more accurate subsequent forecasts. As such, the forecasters in Pendleton request all observations taken from the burn site be sent to our office. This may be accomplished through FAX or electronically.

### **NFDRS Forecasts**

A numerical forecast is prepared and disseminated to WIMS by 1540 each afternoon from June through September. The forecasts are used to compute the expected NFDRS indices valid for the following day. The number of NFDRS indices forecast by the weather office depends only on the number of NFDRS observations input into WIMS by the fire agencies. If observations are not entered into WIMS by 1500, a forecast will not be produced for that station.

## **Incident Meteorologist Services**

Pendleton has certified Incident Meteorologists (IMETS) on staff available for wildfire, HAZMAT, or other emergency dispatches. To request an IMET, contact the appropriate fire agency dispatch office.

## **NON-FORECAST SERVICES:**

There are several duties that fall into the non-forecast services, including but not limited to teaching assignments, customer meetings, customer consultations, preparation of annual reports, preparation of annual operating plans, program management, research and in-house training of personnel.

There is a need for advanced notice (**3 weeks**) for teaching assignments, customer meetings and consultations. The NWS-NWSEO Negotiated Agreement provides rules for scheduling of bargaining unit employees. NWS management has limitations regarding modification of the work schedule after it has become fixed without paying overtime.

All requests for teaching assignments, customers meetings and customer consultations will be honored provided they are scheduled more than three weeks ahead of time, and they do not conflict with other Fire Weather commitments. Every effort will be made to honor requests within three weeks pending schedule availability. For training requests, please contact Joe Solomon at NWFO Pendleton (541) 276-8134 or by e-mail [joe.solomon@noaa.gov](mailto:joe.solomon@noaa.gov)

## **FIRE WEATHER WATCHES AND RED FLAG WARNINGS:**

Specific Red Flag criteria differ for each situation and district. The following are criteria that would warrant the issuance of a Fire Weather Watch or Red Flag Warning in the Pendleton Fire Weather Districts:

### **Criteria:**

Fire Weather Watches or Red Flag Warnings are issued when the fuels will readily burn and weather conditions will promote extreme burning. The three steps below are forecaster guidelines for determining the need for a watch or warning.

1. Refer to GACC "Dryness Level" for initial fuel moisture evaluation. Levels should be at a (Yellow) or higher (Brown).
2. The forecaster is required to check with fire/land management agencies to ensure fuels are dry and considered critical enough to carry or spread fire.
3. Forecasters should have a high degree of confidence (60% for watch, 80% warning) that the weather event will occur.

Any one, or a combination of the following events combined with very dry fuels are criteria for the issuance of a Fire Weather Watch or a Red Flag Warning depending on the lead time:

- **LIGHTNING:** Abundant lightning (scattered thunderstorm coverage or greater) in conjunction with sufficiently dry fuels (fuels remain dry or critical during and

after a lightning event). Warnings not needed for isolated coverage.

- **DRY & UNSTABLE AIRMASS:** High elevation Haines Index of 6 in combination with RH of 15% or less over half or more of a zone.
- **WIND & LOW HUMIDITY:** Significant sustained winds combined with low relative humidity (this includes significant dry cold frontal passages) which meet the criteria as defined below simultaneously at two or more locations for two consecutive hours.

**Zone 609:** criteria is RH 20% or less **AND** wind speed 10 mph or greater at **TWO** RAWS sites (including Grayback) or other supplementary stations.

**Zone 610:** criteria is RH 15 % or less **AND** wind speed of 10 mph or greater at **TWO** RAWS sites (including Haystack) or other supplementary stations.

**Zone 611:** criteria is RH of 15 % or less **AND** wind speed of 10 mph or greater at **TWO** RAWS sites (including Timothy) or other supplementary stations.

**Zones 630, 631, 632, 633, 634, 635, 638, 675 & 681:** Refer to Table A below.

**Table A.** National Weather Service Pendleton Wind vs. RH Red Flag/Fire Weather Watch Criteria Table

Note: This is only one element in determining the necessity for a Red Flag Warning or Fire Weather Watch and shall not be the solitary justification.

**Columbia Basin ZONES 631 & 675**

		SUSTAINED 20 FT WIND OVER WIDESPREAD AREA (10 MINUTE AVERAGE in MPH)				
		10	15	20	25	30+
RH	30%					W
	25%				W	W
	20%			W	W	W
	15%		W	W	W	W
	10%		W	W	W	W

**The Central and Northeast Mountains ZONES 630...632-635...638 AND ZONE 681**

		SUSTAINED 20 FT WIND OVER WIDESPREAD AREA (10 MINUTE AVERAGE in MPH)				
		10	15	20	25	30
RH	30%					
	25%					W

	20%			W	W	W	W
	15%			W	W	W	W
	10%		W	W	W	W	W

**Central Oregon Zone 630 south of the Maury Mountains**

		SUSTAINED 20 FT WIND OVER WIDESPREAD AREA (10 MINUTE AVERAGE in MPH)			
		15	20	25	30+
RH	20%		W	W	W
	15%		W	W	W
	10%	W	W	W	W

**Red Flag Warning Dissemination:**

Red Flag Warnings and Fire Weather Watches shall be issued using the Red Flag Statement (PDXRFWPDT) and will also be headlined in the routine Fire Weather Forecast. All Red Flag Warnings and Fire Weather Watches will be cancelled using the Red Flag Statement (PDXRFWPDT) and the Fire Weather Forecast will include a headline stating such.

All Red Flag Warnings will be disseminated utilizing the National Warning System (NAWAS) network

All issuances of Red Flag events will be coordinated beforehand with the agencies included in the watch/warning area and with adjacent fire weather offices if the watch/warning is for a zone on a common district boundary. A priority calling list has been established in order to rapidly disseminate Fire Weather Watches/Red Flag Warnings, or other information of rapidly changing or hazardous weather conditions that do not necessarily meet Red Flag criteria, but will affect fire control or pose a safety threat a priority calling list has been established. **NWS Pendleton will contact the dispatch offices affected by warnings who will then contact other affected land management agencies in those zones.**

## **USER AGENCY RESPONSIBILITIES:**

There are several responsibilities of the user agencies including:

- Entering of 1300 PST NFDRS observations in WIMS.
- Site observations for Spot forecast requests. **A representative observation from the burn site is required for all prescribed fire spot forecast requests.**
- Quality Control of RAWS observations
- Timely maintenance of RAWS sites.

## **FORECAST VERIFICATION:**

Routine verification will be made on Red Flag Warnings and Spot Forecast turnaround times. In addition, NFDRS trend forecasts for temperature, relative humidity, and fuel moisture will be verified. Results of the verification will be published in the Fire Weather Annual Summary and placed on the offices homepage.

## **FIRE WEATHER FORECASTER PROFICIENCY & CURRENCY STANDARDS:**

Pendleton forecasters working the Land Management and Fire Weather shifts will meet the proficiency standards established by the National Weather Service. The National Weather Service and the Pacific Northwest Wildfire Coordination Group will review the progress in meeting the standards. Prior to each fire season, the Annual Operating Plan will provide a list of currently qualified forecasters and those expected to be qualified at each weather Forecast office who will be providing fire weather services during the upcoming year.

## **FORECAST DISTRICT:**

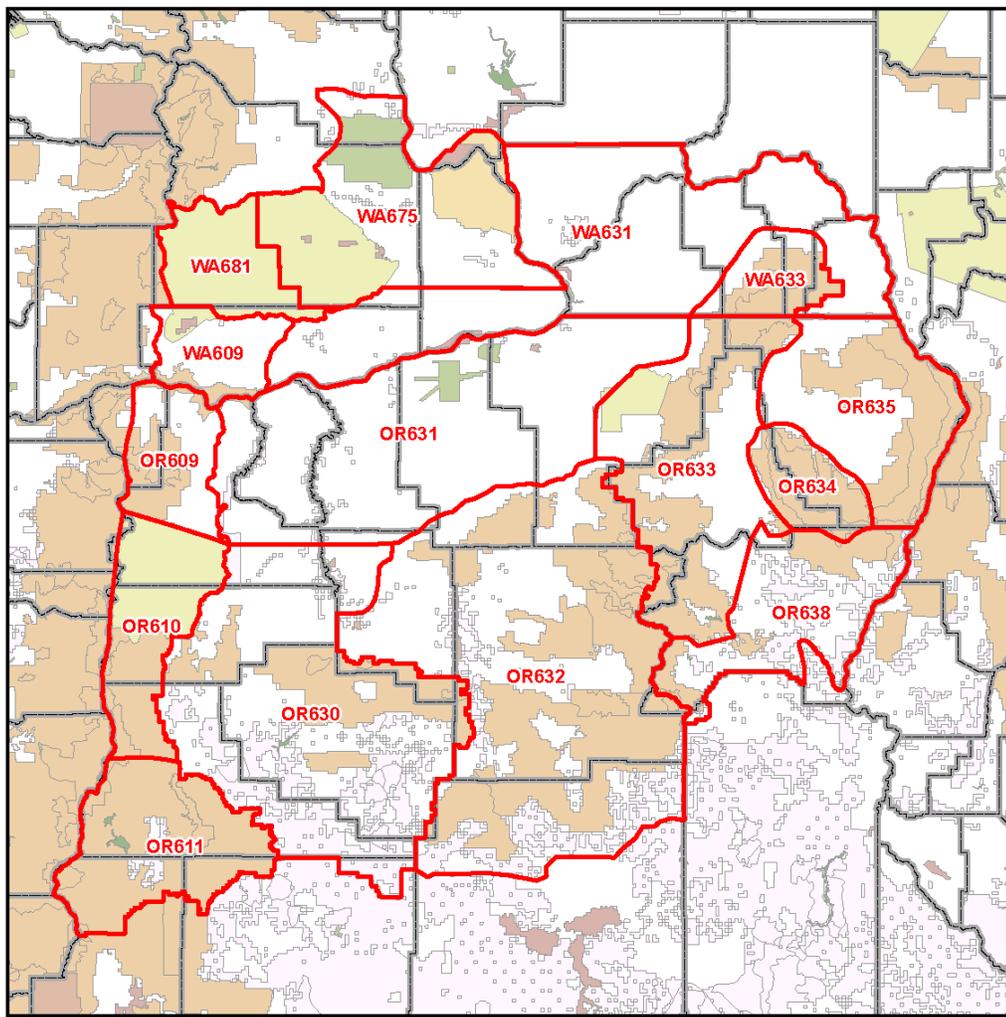
The Pendleton Fire Weather District currently covers the east slopes of the Cascades mountain range from the Deschutes National Forest to the alpine reaches of the Yakama Indian Reservation, central Oregon, the northeast quadrant of Oregon (including Baker county and Harney county north of highway 20), and Southeast Washington (Benton, Franklin, Klickitat, Yakima Walla Walla, Columbia, Garfield and Asotin counties). Please see the district map for specific outlines of the Fire Weather Zones.

## **GEOGRAPHICAL FORECAST ZONES (See Zone Map):**

The Pendleton Fire Weather forecast will be sectioned by Fire Weather Zone. OR609/WA609, OR631/WA631, and OR633/WA633 will typically be combined in a single zone forecast unless conditions warrant separating them. This will usually result in 12 separate zone forecasts. These zones are based on terrain, elevation, weather characteristics, and political boundaries. The zone names are as follows:

- OR609 – East slopes of the northern Oregon Cascades
- WA609– East slopes of the southern Washington Cascades
- OR610– East slopes of the central Oregon Cascades
- OR611 – Deschutes National Forest
- OR630– Central mountains of Oregon
- OR631 – Lower Columbia Basin of Oregon
- WA631– Lower Columbia Basin of Washington
- OR632– Southern Blue and Strawberry mountains
- OR633 – Northern Blue mountains of Oregon and Washington
- WA633 – Blue mountains of Washington
- OR634 – Eagle Caps
- OR635 – Wallowa County
- OR638 – Baker Valley
- WA675– Eastern Washington southern Columbia Basin
- WA681– Yakama Alpine

## Pendleton Fire Weather Zones



### Legend

- Fire Zones
- Counties
- Federal Lands**
- BIA
- BLM
- BOR
- DOD
- FS
- FWS
- NPS
- OTHER
- States

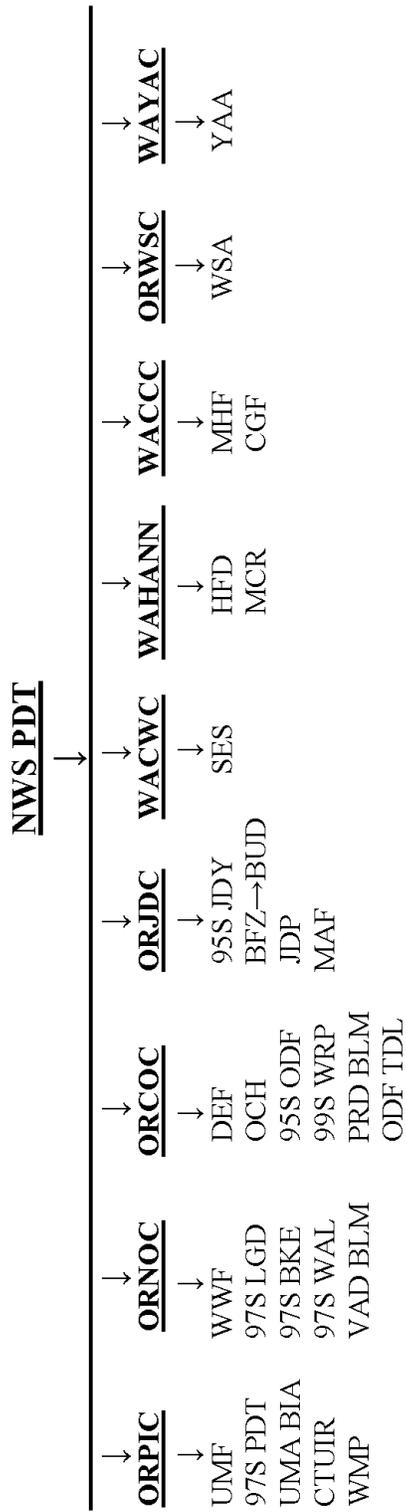


## Pendleton Fire Weather Station Index

Zone	Name	NFDRS	Type	Agency	Lat	Long	Elev	Slope/Aspect
WA 609	Goldendale	452403	Raws	DNR	45.8672	120.7230	1650	Flat knob-S
WA 609	The Dalles	452406	Metar	FAA	45.6190	121.1657	210	W-E valley
OR 609	Middle Mtn	350812	Raws	ODF	45.5794	121.5970	2500	N-S Ridge
OR 609	Pollywog	350912	Raws	USFS	45.4586	121.4464	3320	Low slope-S
OR 609	Wamic Mill	350913	Raws	USFS	45.2333	121.4500	3320	Upp slope-S
OR 609	Wasco Butte	350919	Raws	ODF	45.6167	121.3353	2345	Butte top
610	Sidwalter	350909	Manual	BIA	44.925	121.5347	3600	Butte top-Nw
610	Mt Wilson	350916	Raws	BIA	45.0397	121.6736	3780	Mid slope-Sw
610	Mutton Mtn	350917	Raws	BIA	44.9255	121.1978	4100	S-N Ridge
610	He He 1	350920	Raws	BIA	44.9559	121.4992	2689	Flat
610	Shitike Butte	352102	Manual	BIA	44.7449	121.6106	5000	Butte top
610	Eagle Butte	352106	Manual	BIA	44.8399	121.2338	3100	Butte top
610	Warm Spring	352108	Manual	BIA	44.7750	121.2541	1632	Valley
610	Metolius Arm	352110	Raws	BIA	44.6275	121.6147	3440	Butte-Sw
610	Colgate	352620	Raws	USFS	44.3156	121.6022	3280	Flat
611	Round Mtn	352605	Raws	USFS	43.7575	121.7102	5900	Butte top
611	Lava Butte	352618	Raws	USFS	43.9253	121.3429	4655	Butte top-S
611	Tepee Draw	352622	Raws	USFS	43.8322	121.0842	4740	Low slope-E
611	Black Rock	353342	Raws	USFS	43.527	121.8090	4880	Low slope-S
611	Cabin Lake	353402	Raws	USFS	43.4956	121.0597	4545	Flat
611	Tumalo Ridge	352621	Raws	ODF	44.0493	121.4001	4000	Ridge-Nw
630	Haystack	352107	Raws	USFS	44.4494	121.1297	3240	Flat
630	Brown's Well	353428	Raws	BLM	43.5628	121.2360	4500	Flat knob-Sw
630	Cold Springs	352701	Raws	USFS	44.3550	120.1335	4695	Flat
630	Salt Creek	352712	Raws	BLM	44.0467	120.6694	4200	Flat
630	Badger Creek	352711	Raws	USFS	44.0311	120.4083	5680	Mid slope-flat
630	Slide Mountain	352207	Raws	USFS	44.4622	120.2945	5700	Upp slope-Ne
630	Brer Rabbit	352208	Raws	USFS	44.333	119.770	5900	Valley-S
630	Board Hollow	350915	Raws	ODF	44.6038	120.6847	4200	Ridge-flat
WA631	Juniper Dunes	453201	Raws	BLM	46.3575	118.8683	950	Flat
WA631	Walla Walla	453302	Manual	NWS	46.0945	118.2858	1166	Flat
OR631	Patjens	351001	Raws	BLM	45.3219	120.9292	2230	Ridge-Sw
OR631	North Pole Rdg	350915	Raws	BLM	45.0329	120.5357	3500	Ridge-W
OR631	Umatilla NWR	351316	Raws	USFWL	45.9180	119.5675	270	Flat
OR631	Pendleton	351307	Manual	NWS	45.6975	118.8344	1482	Ridge-flat
632	Case	352329	Raws	USFS	44.9711	118.9297	3800	Ridge-flat
632	Tupper	351202	Raws	USFS	45.0667	119.4925	4200	Low slope-S
632	Board Creek	352330	Raws	BLM	44.5930	119.2770	5000	Ridge

632	Keeney 2	352332	Raws	USFS	44.6661	118.9219	5120	Ridge
632	Crow Flat	353515	Raws	USFS	43.8413	118.9521	5130	Valley-S
632	Allison	353501	Raws	USFS	43.9214	119.5964	5320	Valley-S
632	Fall Mountain	353524	Raws	USFS	44.2970	119.0370	5949	Sw-Ne Ridge
632	Antelope	353524	Raws	BLM	44.0384	118.4163	6460	N-S Ridge
632	Mitchell	352209	FTS	ODF	44.5819	120.1806	2550	Nw-Se Valley
632	Crane Prairie	352305	Raws	USFS	44.1601	118.4704	5373	Valley-S
OR633	Eden	351518	Raws	USFS	45.8763	117.6160	3500	Upp slope-S
WA633	Alder Ridge	453803	Raws	USFS	46.2685	117.4983	4550	Ridge-S
OR633	J Ridge	351414	Raws	USFS	45.1135	118.4051	5180	Upp slope-Se
OR633	Black Mtn Rdg	351319	Raws	USFS	45.5738	118.2385	4965	Ridge-Sw
OR633	Lagrande 1	351417	Raws	ODF	45.5508	118.0133	3079	Low slope-E
634	Point Prom 2	351419	Raws	USFS	45.3547	117.7044	6600	N-S Ridge
634	Minam	351416	Raws	USFS	45.3539	117.6328	3590	Se-Nw Valley
635	Roberts Butte	351520	Raws	USFS	45.6811	117.2067	4300	N-S Ridge
635	Harle Butte	351502	Raws	USFS	45.3282	116.8774	6071	Butte top-S
638	Elk Creek	352126	Raws	USFS	44.7577	117.9711	6576	Upp Slope
638	Blue Canyon	352416	Raws	BLM	44.6700	117.9336	4200	Low slope Sw
638	Sparta Butte	352418	Raws	USFS	44.8850	117.3383	4300	Mid slope-Sw
638	Flagstaff Hill	352123	Raws	BLM	44.8141	117.7289	3945	Hill Top-W
638	Morgan Mtn	352420	Raws	BLM	44.5014	117.2983	4200	N-S Ridge
638	Yellowpine	352124	Raws	USFS	44.5263	118.3230	4200	Low slope-E
675	Saddle Mtn	452701	Raws	USFWL	46.6944	119.6936	650	Flat
675	High Bridge	452318	Raws	BIA	46.0811	120.5440	2106	Mid slope-N
681	Signal Peak	452307	Raws	BIA	46.2269	121.1375	5052	Ridge-S
681	Mill Creek	452304	Raws	BIA	46.2625	120.8622	2928	Mid slope-flat
681	Teepee Creek	452317	Raws	BIA	46.1642	121.0331	2980	Mid slope-flat
681	Grayback	452404	Raws	DNR	45.9908	121.0838	3766	Ridge

Red Flag Warning dissemination call list to Dispatch Centers



Zone	ORPIC	ORNOC	ORCOC	ORJDC	CCC	WACWC	HANN	WSC	YAC
WA = Washington OR = Oregon									
WA 609					▲	▲	▲		
OR 609					▲				
610			▲					▲	
611			▲						
630			▲						
WA 631	▲					▲	▲		
OR 631	▲		▲				▲		
632	▲		▲	▲					
WA & OR 633	▲	▲							
634 & 635		▲							
638		▲							
675						▲	▲		▲
681									▲

▲ Indicates to call Dispatch Center(s) based on which zone(s) warning(s) issued for:

**2009**

**Boise Fire Weather  
Operating Plan**

**Fire Weather Zones OR636 and OR637**

## NATIONAL WEATHER SERVICE BOISE

### HOURS OF OPERATION

Pre-fire season routine product issuance will begin Monday, April 20<sup>th</sup>.

Fire Weather Zone Forecast will be issued Monday through Friday by 1530 MDT / 1430 PDT.

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.

### STAFF AND CONTACT INFORMATION –

#### Boise Weather Forecast Office

NIFC – National Weather Service

3833 S. Development Ave., Bldg 3807

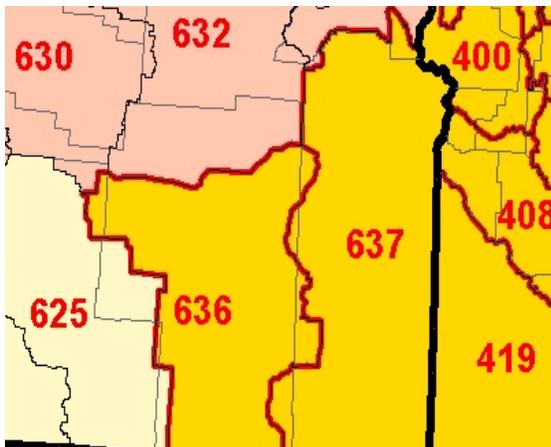
Boise, ID 83705-5354

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

<u>Name</u>	<u>Position</u>	<u>E-Mail</u>
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

### FIRE WEATHER SERVICES

#### Description of the Boise Fire Weather District within the PNWCC



Zone 636 - Burns BLM south of Highway 20

Zone 637 - Vale BLM

636	STN #	NAME	COUNTY	LAT	LON	ELEV	ASPECT	T	R	S
	353522	Bald Mtn	Harney	43.33	-118.24	5480	S-Mtn Top	23S	35E	22
	353520	Basque Hills	Harney	42.15	-118.59	5080	SW- Ridgeline	38S	32E	21
	353527	Little McCoy Creek	Harney	42.75	-118.56	5080	S- Midslope	33S	34E	4
	353526	Moon Hill	Harney	42.51	-118.40	6100	SW- Midslope	31S	32E	26
	353521	P Hill	Harney	42.82	-118.93	4860	S-Flat Hilltop	32S	32E	3
	353511	Riddle Mtn	Harney	43.10	-118.50	6352	S-Mtn Top	28S	34E	35
	353512	Wagontire	Harney	43.34	-119.88	6420	SW- Midslope	26S	24E	6
	353525	Foster Flat	Harney	42.97	-119.25	5000	Flat Lake Bed	30S	29E	14
	353517	Sage Hen	Harney	43.52	-119.29	4400	Flat Basin	24S	29E	6
<b>637</b>	<b>VALE BLM</b>									
	353612	Grassy Mtn	Malheur	42.63	-117.42	4000	NW- Midslope	34S	43E	12
	353613	Kelsay Butte	Malheur	43.90	-117.99	5187	SE- Saddle	19S	39E	19
	353614	Owyhee Ridge	Malheur	43.58	-117.23	4400	E- Knoll	23S	45E	9
	353616	Red Butte	Malheur	43.54	-117.84	4460	SE- Knoll	23S	40E	27

## BASIC METEOROLOGICAL SERVICES

**SPOT FORECASTS:** <http://spot.nws.noaa.gov/cgi-bin/spot/spotmon?site=boi>

Please reference LAT/LON when requesting spot forecasts.  
Follow-up phone calls are always encouraged and feedback is extremely useful.

### Schedule of Products

<u>Product:</u>	<u>Issuance time: (MDT)</u>
Morning planning forecast	0730
Internet briefing	0930
Afternoon planning forecast	1530
NFDRS point forecast - Vale BLM	1545
NFDRS point forecast - Burns BLM	1630
Fire Weather Watch / Red Flag Warnings	Event-Driven
Spot forecasts	Upon request

**RED FLAG EVENTS:** High to extreme fire danger and dry fuels (dryness level **brown** as defined by the Geographic Coordination Center 7 day Fire Potential Outlook and user input) in combination with the following weather conditions:

- Abundant lightning in conjunction with sufficiently dry fuels. Aerial coverage must be at least scattered ( $\geq 25\%$ ) in nature.
- Strong winds and low humidities: See matrix below for sustained criteria. In addition to sustained strong winds from the matrix, wind gusts of at least 35 mph combined with relative humidity 10% or less is considered Red Flag Criteria. Red Flag Criteria are considered to be met if conditions are observed at any 3 RAWS stations within a combined area of Fire Weather Zone 636 and 637 for at least 3 hours (not necessarily consecutive). Alternatively, if a RFW is issued separately for Fire Weather Zones 636 and 637, it is considered to verify if conditions are met at 3 RAWS stations in Zone 636 or 2 RAWS stations in Zone 637.

**SUSTAINED 20 FT WIND (10-MINUTE AVERAGE in MPH)**

	10 mph	15 mph	20 mph	25 mph	30 mph
25%					
20%					W
15%				W	W
10%			W	W	W

**Interagency Coordination:** Before the issuance of a Fire Weather Watch or 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) affected by the watch/warning.

**Verification of Red Flag Warnings and Events:** NWS Boise will archive all Fire Weather Watches and Red Flag Warnings. 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 PNWCC meteorologists during post-season meetings from November through January.

**2009**

**Oregon Department of  
Forestry**

**Salem Weather Center**

**Fire and Smoke  
Management  
Operating Plan**

# **OREGON DEPARTMENT OF FORESTRY'S SALEM WEATHER CENTER FIRE AND SMOKE MANAGEMENT SERVICES**

## **LOCATION**

Oregon Department of Forestry  
2600 State Street  
Salem, OR 97310

## **HOURS**

The Oregon Department of Forestry's Salem Weather Center office hours vary depending upon fire and prescribed fire activity. The office is open from 0630 - 1700, five days a week between about November 15-March 15 and July 1-September 30. During the spring and fall burning periods, the office is staffed from 0630 - 1700, seven days a week. Exact dates of five and seven day a week service vary and are responsive to user needs for smoke management and other fire danger rating services.

## **STAFF**

Jim Trost	Meteorology Manager
Jim Little	Meteorologist
Nick Yonker	Meteorologist
Teresa Vonn	Fire Analyst

## **CONTACT**

Internet:

<http://egov.oregon.gov/ODF/FIRE/fire.shtml>

Email:

[jtrost@odf.state.or.us](mailto:jtrost@odf.state.or.us)

[jlittle@odf.state.or.us](mailto:jlittle@odf.state.or.us)

[nyonker@odf.state.or.us](mailto:nyonker@odf.state.or.us)

[tvonn@odf.state.or.us](mailto:tvonn@odf.state.or.us)

## **FORECAST AREA**

The ODF Salem Weather Center provides services statewide, supporting prescribed burning/smoke management activities on nearly all private, state, county and federal forestland in Oregon. The fire weather zones that are serviced are described below in this operating plan. The Center also provides fire danger, fire severity and specialized weather (e.g. heavy rain or snow, debris flow) support to all ODF districts.

**Note that prescribed burning on all forestland in Oregon comes under the jurisdiction of ODF Smoke Management Plan. Prescribed burning must follow the requirements of the Smoke Management Plan, regardless of the party or agency that is responsible for the ownership or management of the land. Forecasts and service provided by the National Weather Service should only be used for fire management purposes and not for smoke management approval.**

## **AGENCIES SERVED**

Oregon Department of Forestry (ODF)  
Private forest land owners  
U.S. Bureau of Land Management (BLM)  
U.S. Forest Service (USFS)  
U.S. National Park Service (NPS)  
U.S. Fish and Wildlife Service (USFWS)  
Bureau of Indian Affairs (BIA)

## **FORECAST SERVICES**

### **GENERAL FORECASTS:**

*Fire Season:* ODF meteorologists provide smoke forecasts during major wildfire events statewide on a case-by-case basis. Wildfire smoke forecasts are issued as needed. Special fire severity statements are issued on an as needed basis.

*Prescribed Burning Season (which may overlap fire season):* Smoke management forecasts and prescribed burning instructions and advisories are issued daily by 1500. Updated forecasts are released on an as needed basis, normally by 0800. Forecasts, burning instructions and advisories provide detailed information on a zone by zone basis. Forecasts describe the expected weather in detail for the next day and provide three to five day outlooks in more general terms. Three separate forecasts are issued daily for different areas of the state:

1. Western Oregon and the Deschutes National Forest (Zones 601-623)
2. Northeast Oregon (Zones 630-635, the Malheur NF portion of 636, and 638)
3. South-Central Oregon (Zones 624 and 625)

*Open Burning Season:* Open burning forecasts in support of the Oregon Department of Environmental Quality's open burning program for the Willamette Valley are issued at 1600 between October 1 and June 15.

*Off-season:* Forecasters issue forecasts or special weather statements as needed in support of special prescribed burning requests and in support of the State of Oregon's Debris Flow Warning System during heavy rainfall events that may trigger debris flows.

## **SMOKE MANAGEMENT SPOT FORECASTS:**

Detailed weather information beyond what is presented in the general smoke management forecast may be obtained with a spot forecast request. Smoke management spot forecasts are normally handled through oral briefings by contacting the duty forecaster at the forecast desk phone number shown above.

## **TELEPHONE BRIEFINGS**

Telephone briefings may be provided by the ODF duty forecaster. These verbal weather briefings may be obtained at any time by calling the forecaster desk phone number shown above.

## **OTHER SERVICES**

### **SMOKE MANAGEMENT TRAINING AND LECTURES**

ODF forecasters are available to provide weather and smoke management training and program information at field locations. These sessions would generally have to occur during the seasons when prescribed burning is not occurring.

### **ANNUAL SUMMARY and ANNUAL OPERATING PLAN**

The Smoke Management Annual Report is published by the staff of the Center. It provides a summary of prescribed burning activities for all landowners/land managers throughout the state.

An annual operating plan (this document) describing Salem Weather Center services, responsibilities, and procedures will be published each year. The operating plan is available on the ODF internet page shown in the "Contact" section of this plan.

## **GEOGRAPHIC ZONES**

Forecast zones may be found at the following web site:

<http://egov.oregon.gov/ODF/FIRE/images/FWZ.pdf>

**2009**

**NWCC Predictive Services**

**Operating Plan**



## **NWCC Predictive Services**

### **New For 2009:**

- Experimental ***Fire Activity Forecast*** will be available on the NWCC Predictive Services web page.
- NWCC Predictive Service's Fire Behavior Service Center will continue operation in fire season 2009 if fire activity warrants.

### **Predictive Services Mission**

The Predictive Services Program supports the wildland fire community with information and decision support products. This typically includes a synthesis of fire danger, fire weather, fire intelligence, and fire management resource information.

### **Predictive Services Goals and Responsibilities**

Predictive Services provides decision support and tools which enable proactive, safe and cost effective fire management. Predictive services actively partners with state and federal wildland fire agencies, cooperating agencies, research, academia, and the private sector to ensure the relevance of predictive services' products and program.

### **LOCATION**

Northwest Interagency Coordination Center  
5420 NE Marine Drive  
Portland, OR 97218

### **OPERATING HOURS**

#### **FIRE SEASON**

0700-1700 PDT      7 days a week

#### **NON FIRE SEASON**

0700-1500 PDT      5 days a week

## **STAFF**

The NWCC Predictive Services program is interagency. It encompasses several meteorologists, a Fire Management Analyst and assistants, and a Geographic Information System (GIS) specialist and assistants from the different federal and state land management agencies.

### **METEOROLOGY**

John Saltenberger	Fire Weather Program Manager
Terry Marsha	Fire Weather Meteorologist
Julia Ruthford	NWS Fire Weather Meteorologist

### **INTELLIGENCE**

Dan O'Brien	Fire Management Analyst
Detailer	Intelligence Detailer
Detailer	Intelligence Detailer

### **GIS**

Kim Kelly	GIS specialist
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### **WORLD WIDE WEB**

<http://www.nwccweb.us/>

### **EMAIL**

[John\\_Saltenberger@blm.gov](mailto:John_Saltenberger@blm.gov)

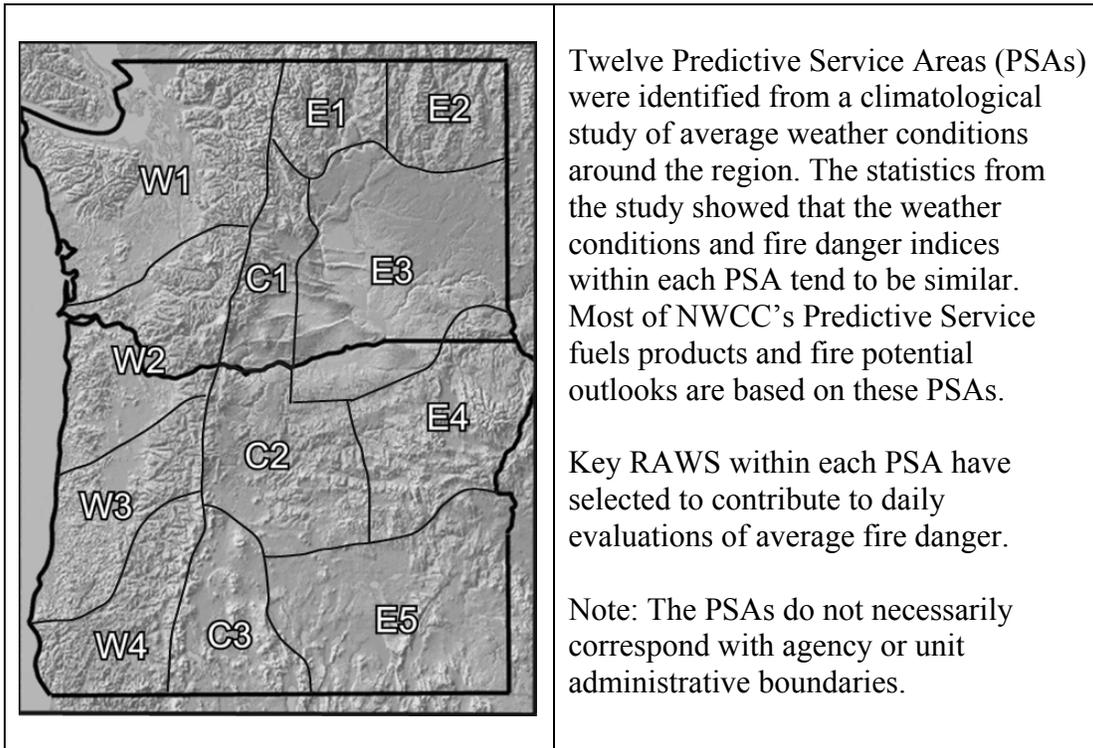
[Terry\\_Marsha@blm.gov](mailto:Terry_Marsha@blm.gov)

[Julia.Ruthford@noaa.gov](mailto:Julia.Ruthford@noaa.gov)

[dlobrien@blm.gov](mailto:dlobrien@blm.gov)

[Kim\\_Kelly@blm.gov](mailto:Kim_Kelly@blm.gov)

## PREDICTIVE SERVICE AREAS



## PRODUCTS and SERVICES

Predictive Services provides national and geographic area specific products designed to meet regional and national interagency needs such as GACC coordinators, Multi-Agency Coordination Groups, NWS forecasters, as well as local users. Predictive Services analyzes fire situational information, fuels conditions and fire danger, fire weather, and fire occurrence data in order to produce and disseminate fire potential and resources status decision support products. These products are produced so that fire managers can make timely and effective fire management decisions.

### A. **7-Day Significant Fire Potential**

The 7-Day Significant Fire Potential product combines projected fire weather, fire danger, fire potential and resource status information. Days with a high risk ( $\geq 20\%$  chance) of a significant fire due to mass ignitions are highlighted in red. High risk days due to extreme burning conditions are highlighted in orange.

Northwest: <http://www.nwccweb.us/content/products/fwx/guidance/dl.pdf>

National Map: <http://199.141.1.21/predictive/index.html>

## **B. Fire Activity Forecast**

The Fire Activity Forecast is a new experimental product from NWCC Predictive Services which will be available to view this season from the outlook section of the NWCC Predictive Services web page. This product summarizes anticipated fire load over the next five days by projecting:

- the number of new ignitions in each PSA
- the probability of new significant fires in each PSA

Additionally, climatological average number of new ignitions and probability of new significant fires will be provided as reference for the 6 to 10 day time frame in each PSA.

<http://www.nwccweb.us/predict/outlook.asp>

## **C. Monthly Wildland Fire Outlook**

The Monthly significant Fire Potential outlook identifies geographic regions across the US likely to expect above average, average, or below average significant fire load during the next month. Significant fires are defined as those severe enough to require mobilization of firefighting resources from outside the area the fire originates.

[http://www.nifc.gov/nicc/predictive/outlooks/monthly\\_outlook.jpg](http://www.nifc.gov/nicc/predictive/outlooks/monthly_outlook.jpg)

[http://www.nifc.gov/nicc/predictive/outlooks/monthly\\_seasonal\\_outlook.pdf](http://www.nifc.gov/nicc/predictive/outlooks/monthly_seasonal_outlook.pdf)

## **D. Seasonal Wildland Fire Outlook**

The Seasonal significant Fire Potential outlook identifies geographic regions across the US likely to expect above average, average, or below average significant fire load during the three months following the monthly outlook (above). Significant fires are defined as those severe enough to require mobilization of firefighting resources from outside the area the fire originates.

<http://www.nwccweb.us/predict/outlook.asp>

[http://www.nifc.gov/nicc/predictive/outlooks/seasonal\\_outlook.jpg](http://www.nifc.gov/nicc/predictive/outlooks/seasonal_outlook.jpg)

[http://www.nifc.gov/nicc/predictive/outlooks/monthly\\_seasonal\\_outlook.pdf](http://www.nifc.gov/nicc/predictive/outlooks/monthly_seasonal_outlook.pdf)

## **E. Regional Fire Behavior Advisories**

Predictive Services and Coordination staff are involved with the issuance of any fuels/fire behavior advisories covering a large percentage of their Geographic Area(s) so they can carefully consider both the content and intended audience of the messages.

## **F. Fuels and Fire Danger Information**

Links to fuels and fire danger related information used to evaluate fire potential are located here.

[http://www.nwccweb.us/predict/fire\\_fuel.asp](http://www.nwccweb.us/predict/fire_fuel.asp)

## **G. Intelligence**

Links to resource reports and summaries generated at NWCC as well as at NICC are located here:

<http://www.nwccweb.us/predict/intelligence.asp>

## **H. Fire Danger Rating Operating Plan and Supporting Documentation.**

A detailed explanation of NWCC Predictive Services' fire potential rating system is located here:

<http://www.nwccweb.us/content/products/fwx/fdrop/fdrop.pdf>

[http://www.nwccweb.us/content/products/fwx/publications/assessing\\_daily\\_fire\\_severity1.pdf](http://www.nwccweb.us/content/products/fwx/publications/assessing_daily_fire_severity1.pdf)

[http://www.nwccweb.us/content/products/fwx/publications/Assessing\\_Ignition\\_Triggers.doc](http://www.nwccweb.us/content/products/fwx/publications/Assessing_Ignition_Triggers.doc)

## **I. Weather**

Links to related fire weather information are located here:

<http://www.nwccweb.us/predict/weather.asp>

## **J. FBAN/LTAN Page**

Useful links for FBANs or LTANs working in the Pacific Northwest:

<http://www.nwccweb.us/predict/fban-ltan.asp>



## **APPENDIX A**

### **Links to Fire Weather Agreements and Documents**

#### **Interagency Agreement for Meteorological Services and other Technical Services**

<http://fire.boi.noaa.gov/files/Multi-Agency-Master-IMET-IIAA.pdf>

#### **NWS Fire Weather Services Directives**

- ✧ Product Specifications (NWS Instruction 10-401)  
<http://www.weather.gov/directives/sym/pd01004001curr.pdf>
- ✧ On-site Support (NWS Instruction 10-402)  
<http://www.weather.gov/directives/sym/pd01004002curr.pdf>
- ✧ Coordination and Outreach (NWS Instruction 10-403)  
<http://www.weather.gov/directives/sym/pd01004003curr.pdf>
- ✧ Annual Operating Plan and Report (NWS Instruction 10-404)  
<http://www.weather.gov/directives/sym/pd01004004curr.pdf>
- ✧ Training and Professional Development (NWS Instruction 10-405)  
<http://www.weather.gov/directives/sym/pd01004005curr.pdf>
- ✧ Interagency Agreement (NWS Instruction 10-406)  
<http://www.weather.gov/directives/sym/pd01004006curr.pdf>
- ✧ Zone Change Process (NWS Instruction 10-407)  
<http://www.weather.gov/directives/sym/pd01004007curr.pdf>
  
- ✧ Western Region Forecast Office Fire Weather Services (Western Region Supplement to 10-4)  
<http://www.weather.gov/directives/sym/pd01004001w042005curr.pdf>

#### **Electronic copy of the NWS D-1 spot forecast request form**

<http://www.wrh.noaa.gov/pdt/forecast/fireWeatherReports/spotRequestForm.pdf>

#### **National Mobilization Guide**

<http://www.nifc.gov/nicc/mobguide/index.html>

#### **Northwest Interagency Mobilization Guide**

[http://www.nwccweb.us/content/products/mobguide/2008\\_chapter10-40.pdf](http://www.nwccweb.us/content/products/mobguide/2008_chapter10-40.pdf)  
[http://www.nwccweb.us/content/products/mobguide/2008\\_chapter50homeless.pdf](http://www.nwccweb.us/content/products/mobguide/2008_chapter50homeless.pdf)  
[http://www.nwccweb.us/content/products/mobguide/2008\\_chapter60-90.pdf](http://www.nwccweb.us/content/products/mobguide/2008_chapter60-90.pdf)

## APPENDIX B

### Forecast and Service Performance Measures

#### A. NFDRS Forecast Accuracy Performance Measures

The following performance measures are suggested as baseline standards for improvement over persistence forecasts on an annual basis for zone averages or key stations within a fire weather zone.

The verification methodology will be consistent between all NWS offices (e.g. MAE, bias scores).

<u>Parameter</u>	<u>Suggested Annual Baseline Goals</u> <u>Improvement over persistence forecast</u>
Temperature:	35%
Relative Humidity:	25%
Wind speed:	10%

Wetting Rain: A "yes" or "no" field, correct 80% of the time as verified by the PD1 and PD2 forecast forecasts in NFDRS.

Lightning: A "yes" or "no" field, correct 70% of the time as verified by the LAL forecast. For verification purposes, an LAL forecast of 2 or more will be considered a "yes." This verification effort will be a collaborative effort between NWCC and NWS.

#### B. Spot Forecasts for Wildfires, Prescribed Fires and other activities

Forecasters will make an effort to ensure that potentially critical weather elements such as the time of inversion breakup, strong winds or other site specific phenomena are described in the forecasts.

Spot forecasts for wildfires will be issued as soon as possible, but at least within forty-five (45) minutes of request time. Wildfire verification will be based on relevant agency provided observations at the fire site (e.g. a forecast for a 7 p.m. temperature must be validated by a 7p.m. observation.) Suggested verification criteria are as follows:

Temperature:	MAE <=5 degrees Fahrenheit
Relative Humidity:	MAE of following values:
	RH 30%: <= 4%
	RH 30-50%: <= 7%
	RH > 50%: <=10%
Wind Speed:	MAE <= 3mph for user defined measurement height

Spot forecasts for prescribed fires and forecasts for other projects will be issued within sixty (60) minutes of the time of request unless the requesting individual agrees to the

issuance of the forecast at a later time. Verification criteria are the same as those for wildfire spot forecasts.

### **C. Red Flag Warning and Fire Weather Watch**

- Forecasters will be familiar with red flag criteria for their forecast area.
- The average lead-time on red flag warnings will be at least those contained in the Western Region supplement 4-2005 filed with NWS directive 10-401. Lead-time requirements may change as a result of agreements reached at the February and November semi-annual meetings.
- Fire weather watches will be issued 12 to 72 hours in advance of an expected event. Fire weather watches may be issued in the 0-12 hour time frame for critical lightning events.
- At least 60% of all red flag warnings should be preceded by a fire weather watch.
- Verification standards will be based on Probability of Detection (POD), False Alarm Ratio (FAR) and Critical Success Index (CSI) values. POD, FAR and CSI for red flag warnings and fire weather watches will be determined with the statistical significance of the numbers being considered. Specific verification criteria will continue to be jointly developed as needed and agreed upon by the NWS and PNWCG. Different criteria may exist for each WFO forecast area as agreed upon with PNWCG and local areas.

### **D. Briefings and Consultation**

Briefings and consultation shall be short, concise presentations that highlight the fire weather problems of the day and the extended period.

### **F. IMET Dispatches and All Hazards Meteorological Response System (AMRS) support**

All IMET and AMRS dispatch requests are met. The IMET should be en route within twelve (12) hours of request time. If IMET travel arrangements have not been finalized within 12 hours by the requesting agency, the IMET should be enroute as soon as travel arrangements have been finalized. Safety requirements will be considered in meeting these deadlines.

## **APPENDIX C**

### **Fire Weather Forecaster Proficiency and Currency**

#### **A. Proficiency**

1. Completion of fire weather forecaster training requirements NWS directive 10-405.
2. Work no less than five (5) shifts with a qualified fire weather forecaster, handling all duties of that shift including (but not limited to) the preparation and issuance of:
  - routine fire weather forecasts (pre-suppression).
  - spot forecasts
  - briefings
  - non-routine forecasts

As many training shifts as possible should be worked during the critical fire weather season.

3. WFO Fire Weather Program Leader and appropriate WFO Meteorologist-in-Charge concur and sign off on proficiency.

#### **B. Currency**

Annual refresher training will be conducted by the Science and Operations Officer and/or Fire Weather Program Manager at each WFO as required by Western Region supplement 4-2005 filed with NWS directive 10-401.

## APPENDIX D

### Reimbursement for NWS Provided Training

IMETs and other NWS staff are frequently requested to provide fire weather training for fire crews as part of such interagency fire behavior courses as S190 and S290. Policy guidelines for fulfilling these requests are outlined in NWSI 10-405.

Requests for training by NWS personnel are not made using resource orders. Rather, both the USDA Forest Service and Department of Interior utilize training request forms that can be used by the NWS to get reimbursement for travel costs associated with the provision of weather training. The USDA Forest Service uses a form called the (AD-672). The Department of Interior does not have a single, standard form. However, a template form (1681-3) is included below that can be presented to the DOI requestor. Please note that it is the responsibility of the requesting Agency to provide an appropriate Agreement document for training.

If the request for training comes via a state agency, the NWS must use a NOAA General Counsel template. Training requests from California, Oregon and Washington do not need to use this form as their requests are covered by the same agreement used for IMET dispatches for those states.

There are no standard forms for gaining travel expense reimbursements from local agencies or colleges. Requesting agencies should pre-pay all travel expenses for instructors who must travel to the course, or at a minimum cover lodging costs.

A secondary, more cumbersome option is for requesting agencies to reimburse the NWS by writing a check to the U.S. Department of Commerce for the amount of the travel voucher. If this is done however, the WFO must attach a "Gifts and Bequeaths Form" to the voucher prior to submission to their Finance Office. **Under no circumstances can the requesting entity personally reimburse the NWS instructor for travel costs.**

Training Reimbursement Forms for the USFS, DOI and States follow:



16. LEAVE FACTOR (3) (2) /		17. FICA FACTOR (3) (2) /		18. OVERHEAD FACTOR (3) (2) /							
<b>19. REQUESTING AGENCY APPROVAL</b>						<b>20. PERFORMING AGENCY APPROVAL</b>					
SIGNATURE				DATE		SIGNATURE			DATE		
TITLE						TITLE					
PERSON TO CONTACT		PHONE (Area Code and No.) ( ) -		FTS	COMM	PERSON TO CONTACT		PHONE (Area Code and No.) ( ) -		FTS	COMM

FORM AD-672 USDA (Revised 9/86)

## INSTRUCTIONS FOR FORM AD - 672 (Revised 9/86)

1. AGREEMENT NUMBER - Enter the Performing Agency's Agreement Number. Enter up to 25 Positions Alpha/Numeric, First 6 Positions must be

- 1 - 2 - Agency Code
- 3 - 4 - Fund Code
- 5 - 6 - Fiscal Year

2. FISCAL YEAR - Enter 4 Positions, e.g. 1984

3. ESTIMATED AMOUNT - Enter up to \$999,999,999.99 omit commas and decimal point.

4. AGENCY BILLING INDICATOR - Enter 1,2,3, or 4

1 - Requesting Agency is an agency serviced by NFC's MISC system

12. METHOD OF PAYMENT

BILLING FREQUENCY - Enter 0, 1, 2, 3, 4, or 5

- 0 - Immediately
- 1 - Monthly
- 2 - Quarterly
- 3 - Semi-annually
- 4 - Upon completion of work
- 5 - Upon demand

TYPE OF ACCOUNT

- 0 - Transfer of Appropriation Account
- 1 - Consolidated Working Fund

- 2 - Requesting Agency is a Government Agency, Bill SF 1081
- 3 - Requesting Agency is a Government Agency, Bill SF 1080
- 4 - Requesting Agency is other than Federal Government. Bill AD-631

5. TRANSACTION CODE - Enter 0, 1, 2, A, B, C

- 0 - Revenue - Government
- 1 - Refund - Government
- 2 - Reimbursement - Government
- A - Revenue - Public
- B - Refund - Public
- C - Reimbursement - Public

6. ACTION CODE - Enter 1,2,3, or 4

- 1 - Add New Agreement
- 2 - Change Existing Agreement
- 3 - Delete Existing Agreement

4 - Issue Bill for Method of Payment upon demand or upon completion of work

7. NAME AND ADDRESS OF REQUESTING AGENCY

- Name (32 positions)
- 1st Line Address (32 positions)
- 2nd Line Address (32 positions)
- City (21 positions)
- State (2 positions)
- Zip Code

8. NAME AND ADDRESS OF PERFORMING AGENCY - Same as item number seven.

9. SERVICES TO BE PERFORMED - Enter brief narrative.

10. LIST REFERENCES FOR CORRESPONDENCE - Enter reference data that the Requesting Agency requires for Correspondence or Billing (e.g. Requesting Agency Agreement Number) or authority for Agreement

(e.g. Public Law 97-212).

11. DURATION OF AGREEMENT

- EFFECTIVE DATE - Enter month, day, year.
- CONTINUING THROUGH - Enter month, day, year.

13. FINANCING (Requesting Agency- When NOT serviced by NFC) Complete this block only when the requesting agency does not participate in the Central Accounting System processed by the USDA's National Finance Center

14. FINANCING (Requesting Agency - When serviced by NFC) Complete this block only when the requesting agency does participate in the Central Accounting System processed by the USDA's National Finance Center.

Agency Code - Enter 2-digit NFC assigned agency code

Fund Code - Enter 2-digit NFC assigned fund code

Accounting Station - Enter assigned accounting station code.

**Accounting Classification Code - Enter accounting classification code**

of requesting agency

Object Class - Self Explanatory

Amount - Enter the estimated agreement amount allowable to each accounting classification

15. FINANCING (Performing Agency) - Enter agency code, accounting station, accounting classification code object class and amount stated in 14 above. Accounting codes used in this agreement cannot be duplicated in any other agreement number

16. LEAVE FACTOR - If leave is to be considered in billing the Requesting Agency for services, enter the leave factor. Enter 10.6% as 010/60 or 10/6

17. FICA FACTOR - If FICA taxes paid are to be considered in billing the Requesting Agency for services, enter the FICA factor. Enter 6.85% as 006/85 or 6/85

18. OVERHEAD FACTOR - If overhead is to be considered in billing the Requesting Agency for services, enter the overhead factor. Enter 18% as 018/00 or 18/0.

19. APPROVAL FOR REQUESTING AGENCY - Self explanatory.

**20. APPROVAL FOR PERFORMING AGENCY - Self explanatory.**



# UNITED STATES DEPARTMENT OF THE INTERIOR

INTER/INTRA-AGENCY AGREEMENT (IAA)



1. Period of Performance

START	END

Buyer has work performed for them by the Seller named in item 6b.

Seller to perform work as described herein for the agency named in item 6a.

SEE INSTRUCTIONS ON PAGE 2

2. Common Document Number (Agreement Number)	3. Check appropriate box <input type="checkbox"/> Original <input type="checkbox"/> Modification No.
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4. Under the authority of (Cite authorities):

<input type="checkbox"/> 43 U.S.C. 1701 et seq., (FLPMA)	<input type="checkbox"/> Working Capital Fund (WCF)
<input type="checkbox"/> Department of the Interior Appropriation Act for FY	<input type="checkbox"/> Other: _____
<input type="checkbox"/> 31 U.S.C. 1535 (the Economy Act)	

5. Description of Work (If more space is needed, attach additional sheets):

PROJECT TITLE: \_\_\_\_\_

Buyer	Seller
6a. Agency: Address: Address: Administrative POC Email:                      Phone                      Fax	6b. Agency: Address: Address: Administrative POC: Email:                      Phone                      Fax
Technical Point of Contact: Email:                      Phone                      Fax	Technical Point of Contact: Email:                      Phone                      Fax

ACCOUNT DATA		BUYER	SELLER
7. Agency Location Code	7a.	7b.	
8. BPN Number (DUNS #) FSN	8a.	8b.	
9. Treasury Account Symbol (TAS)	9a.	9b.	
10. Standard General Ledger	10a.	10b.	
11. Cost Structure/Account	11a.	11b.	
12. Business Event Type Code	12a.	12b.	
13. Requisition Number for Buyer/Project Account for Seller	13a.	13b.	
14. Contract Line Number for Buyer/ Proposal Number or other data for Seller	14a.	14b.	
15. Buyer provide Expiration of Funding Source (Date or indefinite)	15a.	15b. NOTE: Seller, ensure project completion by this date (Seller must not incur additional costs) See Block 15a	

16. Amount Obligated by Buyer	17. Bill To (Name and Address, including zip code of <b>Finance Office</b> ):
a. Initial or current obligation:      \$	Name: _____
b. Modification Amount (check one) <input type="checkbox"/> Increase <input type="checkbox"/> Decrease      \$	Address: _____
c. Total obligation:      \$	Address: _____

18. Billing for Federal Agencies and DOD will be processed via IPAC. (billing will be done  bi-weekly  monthly  quarterly  in advance)

Upon Approval, this agreement constitutes an obligation against Buyer requesting the work; or authority to proceed with work by Seller for the herein named agency in anticipation of reimbursement.

19. Approved for Buyer: _____ (Contracting Officer or other Authorized Signature) *other only for WCF	20. Approved by Seller: _____ (Seller's Authorizing Signature)
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19a. Name (Type):	20a. Name (Type):
19b. Title:	20b. Title:
19c. Date:	20c. Date:

## INSTRUCTIONS FOR INTER/INTRA-AGENCY AGREEMENT (IAA)

*NOTE: Information highlighted is to be completed by, or obtained from, the Seller Agency*

### IAA – BUYER TO HAVE WORK PERFORMED BY A PARTICIPATING (SELLER) AGENCY

**\*Note: Complete Items below for a single funding line – continuation page is required for multiple lines of funding**

**The Buyer executes this form, completes and obligates information under Buyer data elements.**

1. Enter the start and end date (period of performance) in which work will be completed.
2. Enter the Common Document Number (Inter/intra Agency Agreement number).
3. Check “Original” if first submission, “Modification” and enter modification number if modification.
4. Check 31 U.S.C. 1535” unless another specific legislative authority exists, in which case that authority is shown under “other”. If 31 U.S.C. 1535 is checked, an Economy Act Determination **must** be prepared by the project manager and approved by a warranted Contracting Officer with delegated authority.
5. Provide a Project Title and description of the work to be performed in accordance with Acquisition, Section 1510-17.5.
6. Enter the Buyer Agency office name, city, state, zip code, Buyer technical and administrative contact names and phone nos. with area code, also include fax and Email address.
- 6a. Enter the Seller Agency office name, city, State, Buyer technical and administrative contact names and phone nos. with area code, also include fax and Email address. These fields can be completed by the Seller if unknown to the Buyer.

**This data will be referenced on your Treasury IPAC bill**

- 7a. Provide your 8 digit Agency Location Code (ALC) assigned by Treasury.
- 8a. Type your Business Partner Network Number (DUNS No.) as registered in Federal Register, this is also referred to as the FSN for DOD.
  - 9a. Provide the Treasury Account Symbol (TAS) for this funding line.
  - 10a. Determine the Treasury Standard General Ledger accounts (SGL) for this funding request.
  - 11a. Enter the account cost structure for your Agency. This may include an office identifier, program and budget object class.
  - 12a. Provide the Business Event Type Code (BETC) for this action.
  - 13a. Type the Requisition Number referenced to support this Agreement.
  - 14a. Contract Line Number for this funding.
  - 15a. Provide the Fund Expiration date, or type ‘Indefinite’ (for no year funds).

**\*Items 9a – 14a are specific for each line of funding on the obligation document. See \* above.**

**7b-14b. Seller Agency completes these items.**

**This data will be used to cross-reference the IA with the Seller’s reimbursable account.**

16. For an original IA; enter the amount to complete items a, c, and d. For modification; complete items a, b, c, and d.
  - 16a. Enter the Initial or current obligation amount
  - 16b. Enter the Modification Amount
  - 16c. Check appropriate box to indicate if the funding is being increased or decreased by this action.
17. Enter the Buyer Agency, Bill To - Finance Office address, include office name, city, state, and zip code.

**Forward a copy of this draft Agreement for completion of the Seller Agency account data.**

**Obtain a signed, accepted copy of this Agreement from the Buyer Agency.**

**Ensure that the data elements in 7b-14b have been completed.**

18. Check the preferred billing schedule for the Buyer Agency and ensure that the term is acceptable for both Buyer and Seller.

19. IA must be signed by a warranted Contracting Officer with delegated authority.  
IA is not signed by the Buyer until approved in block 20 by the participating agency.

20. Signature of approving official for the participating agency.

**Send a fully executed copy of this Agreement to the Seller Agency after obligation is recorded in the Financial System via the IDEAS/PRISM system.**

### PARTICIPATING SELLER AGENCY TO SUPPORT THE BUYER AGENCY

**The Draft IAA is received for completion by the Seller Agency.**

**This data will be used to cross-reference the IAA with the Seller Agency’s reimbursable account in FFS or SAP.**

**State:**

AGREEMENT No. \_\_\_\_\_

THROUGH WHICH

[STATE: \_\_\_\_\_]

[Describe State Entity]

IS PURCHASING Fire Services From

National Oceanic and Atmospheric Administration (NOAA) National Weather Service (NWS)

1. NWS SERVICES & DURATION OF ACTIVITIES:

Services: (hydrometeorological on-site; training; other special service)

Start date: \_\_\_\_\_ End date: \_\_\_\_\_

2. AUTHORITY:

A. The Intergovernmental Cooperation Act, 31 U.S.C. §§ 6501-6508, authorizing NWS to conduct statistical and other studies and compilations, development projects, technical tests and evaluations, technical information, training activities, surveys, reports, and other similar services to a STATE or local government<sup>1</sup> when (1) a written request is made by the STATE or local government; and (2) The STATE or local government pays all identifiable NWS costs.

B. NWS program authority includes 15 U.S.C. § 313; 15 C.F.R. § 946.4; and NWS Instruction 10-405.

C. STATE authority (if desired): \_\_\_\_\_

3. TERMS:

STATE will pay NWS \$\_\_\_\_\_, (monthly, quarterly, in advance), to NWS's estimated cost for providing fire services. Cost adjustments must be made to reflect actual costs. Under Office of Management and Budget Circular A-97, STATE certifies that the services requested cannot be procured reasonably and expeditiously by ordinary business channels. Should disagreement arise on the interpretation of the provisions of this agreement that cannot be resolved at the operating level, the area(s) of disagreement shall be stated in writing by each party and presented to the other party for consideration.

<sup>1</sup> "STATE" means a State of the United States, the District of Columbia, a territory or possession of the United States, and an agency, instrumentality, or fiscal agent of a State. "Unit of general local government" means a county, city, town, village, or other general purpose political subdivision of a State. 31 U.S.C. § 6501.

If agreement on interpretation is not reached within thirty days, the parties shall forward the written presentation of the disagreement to respective higher officials for appropriate resolution.

4. NOAA CONTACT:

Name: \_\_\_\_\_  
Address: \_\_\_\_\_  
Phone: \_\_\_\_\_  
Email: \_\_\_\_\_

STATE CONTACT:

Name: \_\_\_\_\_  
Address: \_\_\_\_\_  
Phone: \_\_\_\_\_  
Email: \_\_\_\_\_

5. SIGNATORIES:

NOAA: \_\_\_\_\_  
Title: \_\_\_\_\_  
Date: \_\_\_\_\_

STATE: \_\_\_\_\_  
Title: \_\_\_\_\_  
Date: \_\_\_\_\_

Attachments:

- 1) STATE written request
- 2) NWS cost estimates
- 3) Services to be performed by NWS

\_\_\_\_\_  
\_\_\_\_\_

## **APPENDIX E – Incident Meteorologist Billing Points of Contact for Washington and Oregon**

### **USDA Forest Service:**

Elizabeth Martin  
USDA Forest Service; Incident Business  
101B Sun Avenue NW  
Albuquerque, NM 87109

### **National Park Service:**

Berkeley Yoshida  
National Park Service - West Region  
1111 Jackson Street, Suite 700  
Oakland, CA 94607

### **US Fish and Wildlife Service:**

Brett Fay  
US Fish and Wildlife Service - Region 1  
911 NE 11th Avenue  
Portland, OR 97232-4181

### **Bureau of Indian Affairs:**

Cory Winnie  
Bureau of Indian Affairs - Northwest Regional Office  
911 NE 11th Avenue  
Portland, Oregon, 97232-4169

### **Bureau of Land Management:**

Brenda Johnson  
BLM Budget Analyst - Fire and Aviation  
State Office/Regional Office  
P.O. Box 2965  
333 SW First Avenue  
Portland, OR 97208