

MISSOULA FIRE WEATHER OFFICE 2004

Location

The National Weather Service Office in Missoula is located at the Aerial Fire Depot, 5765 Highway 10 West, 1/4 mile west of the Missoula International Airport. The mailing address is:

**National Weather Service
P.O. Box 9350
Missoula, MT 59807**

Phone Numbers

Fire Weather desk: (406) 329-4716
Office: (406) 329-4715/4840
FAX: (406) 329-4842

Contacts

Administrative

Bruce Bauck
Meteorologist in Charge
bruce.bauck@noaa.gov

Marty Whitmore
Fire Wx Program Manager
marty.whitmore@noaa.gov

Crystal Lake
Fire Weather Assistant
crystal.lake@noaa.gov

IMETs

Bob Nester
Incident Meteorologist
robert.nester@noaa.gov

Internet Address

<http://www.wrh.noaa.gov/Missoula>

Operational Hours

Twenty-four hour service is provided for routine and special fire weather products.

Training Provided

Missoula Fire Weather Forecasters are available for training courses, workshops, seminars and other meetings requiring meteorological expertise. Training includes local and Regional courses such as S-290 and S-390, as well as pre-season refreshers for Hotshot crews, Smokejumpers, general firefighters and lookout personnel, etc. Per diem and travel costs will be paid for by the requesting agency, as outlined in the National Agreement for Meteorological Services. Please give as much advance notification as possible to ensure the availability of a forecaster.

All Training requests should go through the Fire Weather Program Manager, Marty Whitmore.

e-mail Marty.Whitmore@noaa.gov
and cc: Crystal.Lake@noaa.gov
or
phone 406-329-4715

Routine Product Issuance Times

General Forecast

March - June	Morning	M-F	0900	(Weekends if needed)
July - September	Morning	Daily	0900	
	Afternoon	Daily	1500	
October - November	Mornings	M-F	0900	(Weekends if needed)

Note: Mixing Height/Mixing Winds are incorporated in the General Forecast during the spring and fall burning seasons. In November, the General Forecast is terminated and a Smoke Management Forecast is issued at 0900 each day through November 30.

Fire Weather Briefings

The NWS Missoula Office will offer fire weather briefings at the office, for local land managers, as well as a conference call for those managers at a distance. The conference call briefings will primarily be held during fire season, however the timing and frequency as well as start and end dates of this service will be determined by fire activity.

Briefings will include an informational package containing data such as satellite, radar, weather observations, etc. This information will be accessible to participants via NWS Missoula's internet homepage prior to each conference call.

Red Flag Criteria

One, or a combination of the following conditions, in conjunction with High, Very High, or Extreme Fire Dangers, will be considered for Red Flag events.

1. Scattered dry thunderstorms. (A lightning storm accompanied by less than a wetting rain, 0.10 inch precipitation or less, often with very gusty winds).
2. Increased thunderstorm activity, wet or dry, during an extremely dry period.
3. A combination of low RH's and increasing strong or gusty surface winds, or abrupt change in direction due to the approach and passage of a cold front, squall line, or other weather phenomena other than isolated thunderstorms. See the Red Flag Decision Chart below.
4. Anytime the forecaster foresees a change in weather that would result in a significant increase in fire danger.

Red Flag Decision Chart

Missoula's Fire Weather Forecasters utilize a Red Flag Decision Chart as a "first look" at the need for a Red Flag Warning based on increasing wind and low RH. Typically Red Flag Warnings are issued when fire danger is rated "HIGH" or greater. However, there may be exceptions. This chart is by no means an absolute.

Winds are sustained 10-minute average (RAWS).

RED FLAG DECISION CHART

		RELATIVE HUMIDITY							
		40%	35%	30%	25%	20%	15%	10%	5%
WIND MPH	5	NO	NO	NO	NO	Poss	Poss	Prob	YES
	10	NO	NO	NO	Poss	Poss	Prob	YES	YES
	15	NO	NO	Poss	Poss	Prob	YES	YES	YES
	20	NO	Poss	Poss	Prob	YES	YES	YES	YES
	25	Poss	Poss	Prob	YES	YES	YES	YES	YES
	30	Poss	Prob	YES	YES	YES	YES	YES	YES

Poss = Possible

Prob = Probable

Example Red Flag Warning

WWUS8i KMSO DDHHMM
RFWMSO

RED FLAG WARNING
NATIONAL WEATHER SERVICE MISSOULA MT
1116 AM MDT TUE AUG 10 2003

MTZ104>107-DDHHMM-

...RED FLAG WARNING FOR STRONG NORTHWEST WINDS THROUGH THIS EVENING IN
NORTHWEST MONTANA.

FIRE WEATHER ZONES INCLUDED IN THIS WARNING ARE: 104...105...106...107
(Optional)

DISCUSSION: NORTHWEST WINDS 20 TO 30 MPH WILL DEVELOP BY NOON...AND
PERSIST THROUGH THIS EVENING ACROSS NORTHWEST MONTANA. THE WINDS ARE THE
RESULT OF A STRONG COLD FRONT MOVING THROUGH THE AREA...ALONG WITH AN
UPPER JET DIVING OUT OF BRITISH COLUMBIA.

THE JET WILL MOVE EAST OF THE AREA THIS EVENING...AND THE SURFACE PRESSURE
GRADIENT WILL BEGIN TO RELAX.

NFDRS Forecasts

The NWS Missoula Office will provide numerical forecasts in support of the National Fire Danger Rating System (NFDRS) on a daily basis from late spring until the end of wildfire season.

Afternoon observations (1400 LDT) should be sent from the field to WIMS by 1415 LDT. These observations will generally be received in the Forecast Office by 1445 LDT.

The forecasts will then be sent to WIMS by 1600 MDT. Forecasted NFDRS indices should be available by 1615 MDT.

These forecasts are for expected conditions 24 hours from the current day's observation (1400 LDT tomorrow).

Following is an explanation of codes used in NFDRS Forecasts:

FCST,STATION#,YYMMDD,13,WX,TEMP,RH,,,,WIND,,TX,TN,Rhx,RHn,PD1,PD2,WETFLAG

SAMPLE:

FCST,101037,030425,13,2,57,37,,,,,11,,56,40,75,42,4,0,N
FCST,100708,030425,13,2,56,49,,,,,07,,55,42,83,48,0,0,N
FCST,240119,030425,13,2,46,77,,,,,11,,55,33,98,58,0,0,N
FCST,240223,030425,13,2,47,78,,,,,14,,55,30,100,59,0,0,N
FCST,241308,030425,13,2,47,69,,,,,07,,54,34,94,56,0,2,N
FCST,241211,030425,13,2,55,59,,,,,09,,62,41,84,46,0,0,N
FCST,241513,030425,13,2,56,53,,,,,08,,63,41,77,45,0,0,N
FCST,242907,030425,13,2,52,56,,,,,09,,60,36,78,51,0,0,N
FCST,245405,030425,13,2,46,70,,,,,10,,55,32,79,59,0,0,N
FCST,243206,030425,13,2,46,84,,,,,08,,51,30,90,63,0,0,N

FCST: Indicates individual site forecasts.

STATION#: NFDRS site number

YYMMDD: Date

13: Valid Forecast Time (Always 13 to indicate 1300 LST)

WX: Weather valid at 1300 LST tomorrow.

Valid entries are:

0 clear

1 scattered clouds (1/8 to 4/8)

2 broken clouds (5/8 to 7/8)

3 overcast clouds (more than 7/8)

4 foggy

5 drizzle

6 raining

7 snowing or sleet

8 showers (in sight or at the station)

9 thunderstorm

(Categories 5, 6, 7 sets most NFDRS indices to 0. ERC is the exception)

TEMP: Temperature in degrees F valid at 1300 LST

RH: Relative humidity in percent valid at 1300 LST

WIND: Wind speed in mph valid at 1300 LST

TX: Maximum temperature from 1300 LST to 1300 LST tomorrow

TN: Minimum temperature from 1300 LST to 1300 LST tomorrow

Rhx: Maximum RH from 1300 LST to 1300 LST tomorrow

Rhn: Minimum RH from 1300 LST to 1300 LST tomorrow

PD1: Precipitation duration in hours 1300 LST to 0500 LST

PD2: Precipitation duration in hours 0500 LST to 1300 LST

WETFLAG Y or N: Indicates whether fuels will be wet at 1300 LST.

FIRE WEATHER PLANNING FORECAST EXAMPLE

FNUS5i KMSO DDHMM
FWFMSO

FIRE WEATHER PLANNING FORECAST FOR WESTERN MONTANA AND
NORTH CENTRAL IDAHO
NATIONAL WEATHER SERVICE MISSOULA MT
900 AM MDT TUE AUG 10 2003

...HEADLINE AS NECESSARY

DISCUSSION...THIS WOULD BE A SHORT...NON-TECHNICAL DESCRIPTION OF
THE WEATHER PATTERN AND FEATURES OVER THE NEXT COUPLE DAYS. IT
WILL FOCUS ON THE MAIN WEATHER CONCERNS IN THE SHORT TERM.

EXTENDED...OCCASIONALLY THE DISCUSSION MAY INCLUDE INFORMATION ON
THE MEDIUM RANGE (DAYS 3-7). IN THESE CASES...A SEPARATE LABELED
PARAGRAPH LIKE THIS WILL BE ADDED.

MT104>108-272200- (UGC/FIPS CODING)
KOOTENAI-FLATHEAD/GLACIER PARK-WEST LOLO
SALISH AND KOOTENAI RESERVATION-EAST LOLO-
900 AM MDT TUE AUG 10 2003

RED FLAG WARNING/FIRE WEATHER WATCH HEADLINE (as needed in each
appropriate zone grouping)

TODAY...

WEATHER.....MOSTLY CLOUDY. SCATTERED SHOWERS AND ISOLATED
THUNDERSTORMS.
MAX TEMPERATURE.....44-49...EXCEPT 33-42 MIDSLOPE TO RIDGETOP.
24 HR TREND.....AROUND 5 DEGREES COOLER.
MIN HUMIDITY.....44-55 PERCENT.
24 HR TREND.....LITTLE CHANGE.
SLOPE/VALLEY WIND.....SOUTHWEST WINDS 10-15 MPH.
RIDGETOP WIND.....WEST WINDS AROUND 15 MPH.
LAL.....2.
CWR (> 0.10 INCH).....20 PERCENT.
HAINES INDEX.....2 VERY LOW.
MIXING HEIGHT.....GREATER THAN 7500 FT MSL.
MIXING WINDS.....WEST 20 MPH.

TONIGHT...

WEATHER.....PARTLY CLOUDY. SCATTERED SHOWERS THIS
EVENING...DECREASING TO ISOLATED SHOWERS
AFTER MIDNIGHT.
MIN TEMPERATURE.....20-30.
24 HR TREND.....LITTLE CHANGE.
MAX HUMIDITY.....65-75 PERCENT.
24 HR TREND.....AROUND 15 PERCENT DRIER.
SLOPE/VALLEY WIND.....WEST WINDS 5-10 MPH.
RIDGETOP WIND.....WEST WINDS AROUND 10 MPH.
LAL.....1.
CWR (> 0.10 INCH).....10 PERCENT.
HAINES INDEX.....2 VERY LOW

TOMORROW...

WEATHER.....MOSTLY SUNNY.
MAX TEMPERATURE.....52-61...EXCEPT 41-53 MIDSLOPE TO RIDGETOP.
MIN HUMIDITY.....35-45 PERCENT.
SLOPE/VALLEY WIND.....UPSLOPE/UPVALLEY 4-8 MPH.
RIDGETOP WIND.....WEST WINDS AROUND 5 MPH.
LAL.....1.
CWR (> 0.10 INCH).....0 PERCENT.
HAINES INDEX.....3 VERY LOW.
MIXING HEIGHT.....GREATER THAN 10000 FT MSL.
MIXING WINDS.....WEST 10 MPH.

.FORECAST DAYS 3 THROUGH 7...
.MONDAY...MOSTLY CLEAR. LOWS 24-34. HIGHS 53-63. DIURNAL TERRAIN
WINDS TO 10 MPH.
.TUESDAY...MOSTLY CLEAR. LOWS 28-38. HIGHS 57-67. SOUTHWEST WINDS
5-15 MPH.
.WEDNESDAY...PARTLY CLOUDY. CHANCE OF SHOWERS. LOWS
31-41. HIGHS 51-61. DIURNAL TERRAIN WINDS TO 10 MPH.
.THURSDAY...MOSTLY CLOUDY THEN BECOMING PARTLY CLOUDY. CHANCE OF
SHOWERS. LOWS 28-38. HIGHS 45-55.
.FRIDAY...PARTLY CLOUDY. CHANCE OF SHOWERS. LOWS 25-35. HIGHS 49-59.

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Forecast for next geographical descriptor and fire weather zone
group.

.OUTLOOK...DAYS 8 THROUGH 10...THE UNSETTLED WEATHER WILL CONTINUE
THROUGH NEXT WEEKEND WITH SHOWERS AND COOL TEMPERATURES.

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Forecast Zone Descriptions

ZONE 102: PALOUSE/NEZ PERCE RESERVATION/HELL'S CANYON REGION

The northern boundary follows the southern portion of the Coeur d'Alene Indian Reservation and the Latah/Clearwater County lines. The eastern boundary originates at the intersection of the Little North Fork of the Clearwater (near the Clearwater County line) and the Clearwater/Nezperce National Forest boundary and runs south along the Forest boundary past Grangeville to the main Salmon River at Island Bar and continues south and west along the Idaho County border. The western boundary runs along the Snake River from the Coeur d'Alene Reservation to the Adams County line.

ZONE 103: CLEARWATER/NEZ PERCE NATIONAL FOREST

This zone encompasses the entire combined Clearwater and Nezperce National Forests as well as the Gospel Hump and portions of the Selway Bitterroot Wilderness. Also included is the Floodwood State Forest in the vicinity of the Little North Fork of the Clearwater at the northern border of Clearwater County.

ZONE 104: KOOTENAI NATIONAL FOREST/TALLEY LAKE DISTRICT

The western and northern boundaries follow political lines along the Idaho-Montana and Canadian borders. The eastern boundary follows the Kootenai National Forest boundary south to route 93 to the Flathead National Forest boundary, north of Whitefish, east of Columbia Falls and heading south along the Forest boundary to the Lake County line. The southern boundary follows the Lake County line and Flathead National Forest boundary to the intersection of route 2 which continues south along Forest boundaries to the State border. The State protected lands on the Fisher River District are also included within this zone.

ZONE 105: FLATHEAD NATIONAL FOREST/GLACIER PARK/BOB MARSHALL AND MISSION MOUNTAIN WILDERNESS

This zone starts at the intersection of the Kootenai/Flathead National Forests at the Canadian border running east and including Glacier National Park. The eastern boundary follows the Park border and intersects with the Continental Divide and runs south to the Flathead National Forest boundary. The southern boundary borders the Bob Marshall and Mission Mountain Wilderness lines. The western boundary follows the Mission Mountains and Swan range along the Forest boundary to north of Whitefish and west to route 93 to the Kootenai/Flathead National Forest boundary. This zone includes the Stillwater State Forest.

ZONE 106: WESTERN LOLO NATIONAL FOREST

This zone includes the Nine Mile, Superior, Plains/Thompson Falls and western portions of the Missoula District on the Lolo National Forest. It is bounded by the Idaho-Montana border (Bitterroot Mountains) and extends northeast along the Kootenai/Lolo National Forest boundary. Moving south, this zone follows the Salish & Kootenai Indian Reservation and Lolo National Forest interface to west of Evaro tracing the Forest boundary to Huson. Crossing I-90, this zone continues south along the Forest boundary until the intersection of route 12 and continues southwestward to the State border.

ZONE 107: SALISH & KOOTENAI INDIAN RESERVATION

This zone is bounded by the Lolo National Forest on the west and south and the Flathead National Forest on the east and north.

ZONE 108: EASTERN LOLO NATIONAL FOREST /WELCOME CREEK AND SCAPEGOAT WILDERNESSES

This zone includes all of the Lolo National Forest east of Missoula and south of route 12, bounded by the Bitterroot National Forest. It also contains the Scapegoat and most of the Welcome Creek Wildernesses. The eastern boundary starts at the tri-section of the Bob Marshall Wilderness, Continental Divide and Scapegoat Wilderness and continues southeast to the Wilderness/Lincoln District boundary. This line continues south along the Helena National Forest boundary to the intersection with the Deerlodge/Beaverhead National Forest. The southern boundary runs west from this boundary to Deer Lodge then north along Interstate 90 to the intersection with the Philipsburg District line. State protection areas include Missoula, Clearwater, Garrison, and Anaconda.

ZONE 109:**BITTERROOT NATIONAL FOREST**

This zone includes the entire Bitterroot National Forest (in both Idaho and Montana) as well as the Frank Church River of No Return Wilderness and portions of the Selway-Bitterroot Wilderness. The Stevensville District represents the northern boundary for this zone which is approximately along the Ravalli County line.

ZONE 110:**DEERLODGE/ WESTERN BEAVERHEAD NATIONAL FOREST**

The western boundary runs between Lemhi Pass northward along the Idaho-Montana border to the intersection of the Ravalli and Beaverhead County lines. This boundary continues along the Forest boundary via the Anaconda-Pintlar range and Sapphire Divide past Skalkaho Pass and across Rock Creek into the Welcome Creek Wilderness. This boundary cuts north across the John Long Mountains and intersects with Interstate 90. This zone includes the eastern-most section of this wilderness area (Lolo National Forest) which is managed by the Philipsburg District. The northern border follows Interstate 90 to Deerlodge, cuts east and runs along the Forest boundary, across the divide, and intersects with Interstate 15. The eastern boundary runs southerly and follows Interstate 15 through Butte and Dillon then along Route 41 to Clark Canyon Reservoir. The southern boundary extends west along Horse Prairie Creek to Lemhi Pass.

ZONE 111:**EASTERN BEAVERHEAD NATIONAL FOREST**

The southern boundary follows the Idaho-Montana border from Lemhi Pass along the Continental Divide (Centennial Mountains included) to Reynolds Pass. The eastern zone line continues along the Beaverhead/Gallatin National Forest boundary to north of Ennis where the Gallatin boundary intersects the Madison County line. The zone then follows the Madison County line to east of Whitehall and along the Deerlodge/Helena Forest boundary until Interstate 15 is intersected. The west boundary is identical to the east boundary of the Deerlodge/western Beaverhead National Forest zone.

Agencies Served

USDA Forest Service	Lolo NF, Kootenai NF, Flathead NF, Beaverhead/Deerlodge NF's, Helena NF, Nezperce/Clearwater NF's, Bitterroot NF, Northern Rockies Coordination Center (NRCC)
Bureau of Land Mgmt	BLM-Idaho, BLM-Montana
Bureau of Indian Affairs	Nez Perce Tribe of Idaho Confederated Salish and Kootenai Tribe
Fish & Wildlife Service	FWS-Montana, FWS-Idaho
National Park Service	Glacier NP
Counties (Montana)	Beaverhead, Deer Lodge, Flathead, Granite, Lake, Lincoln, Mineral, Missoula, Powell, Ravalli, Sanders, Silverbow, Glacier
Counties (Idaho)	Clearwater, Idaho, Lewis, Nez Perce, Latah
State of Montana	Department of Natural Resources and Conservation
State of Idaho	Idaho Department of Lands

Weather Stations

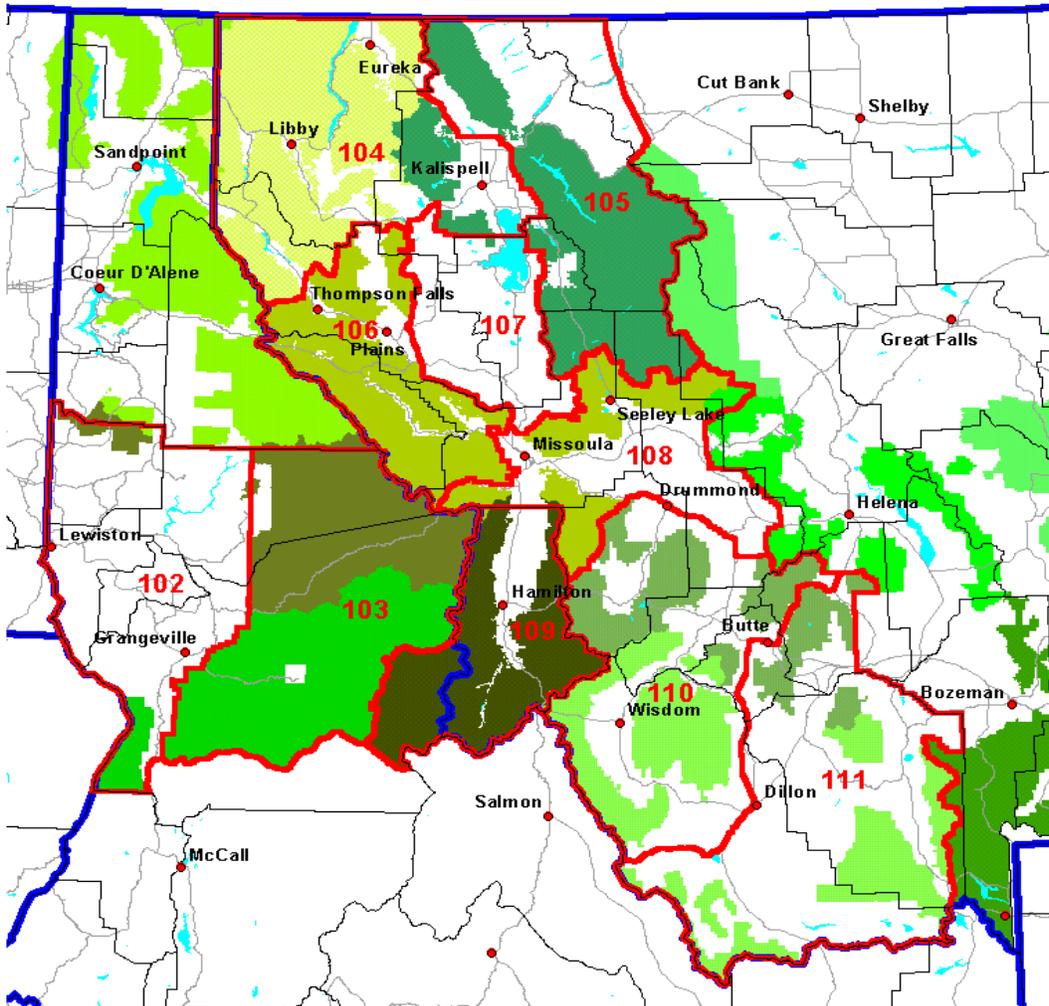
Zone	Station	WIMS #	County	Lat	Long	Elev	Site	Aspect
102	Potlatch	100603	Latah	46:98	116:98	2500	Valley	Flat
102	Dent	100714	Clearwater	46:62	116:22	1700	Valley	N-E
102	Pierce	100711	Clearwater	46:50	115:83	3085	Valley	Flat
102	Slate Creek	101037	Idaho	45:63	116:28	1568	Valley	W
102	Pittsburg Lndg	101100	Idaho	45:63	116:46	1357		
102	Shock	100606	Latah	46:98	116:63	3700	Slope	S
102	Rudo	109796	Clearwater	46:50	115:99	2386		
103	Kelly Creek	100708	Clearwater	46:66	115:16	2737	Valley	NE-SW
103	Eagle		Clearwater	46:80	115:54	5700		
103	Powell	101031	Idaho	46:51	114:69	3409	Valley	W-E
103	Fenn	101013	Idaho	46:06	115:53	1520	Valley	NW-SE
109	Hells Half Sadl	101019	Ravalli	45:65	114:63	8100		
103	Moose Creek	101028	Idaho	46:07	114:55	2460	Valley	NW-SE
103	Red River	101045	Idaho	45:71	115:33	4600	Slope	S
103	Tess Portable	100791	Idaho	45:60	116:13	7291	Valley	Flat
103	Roundtop	101049	Idaho	46:58	114:50	6500	Ridge	S
104	Libby	240107	Lincoln	48:38	115:57	2070	Valley	Flat
104	Eureka	240110	Lincoln	48:90	115:02	2800	Valley	Flat
104	Troy	240112	Lincoln	48:47	115:92	1950	Valley	Flat
104	BC Baldy	240119	Lincoln	48:63	115:58	4300	Slope	SW
104	Trout Creek	241210	Sanders	47:87	115:62	2350	Valley	Flat
104	Boorman			48.13	114.72	3963		
104	Yaak Up Ford	240120	Lincoln	48:92	115:66	3000		
105	Spotted Br RS	240214	Flathead	47:92	113:52	3725	Valley	S
105	Hungry Horse	240217	Flathead	48:38	114:06	3225	Valley	S
105	Cyclone	240223	Flathead	48:72	114:34	5300	Ridge	
105	Condon WC	241502	Missoula	47:54	113:72	3684	Valley	S
105	Spotted Bear 2	240213	Flathead	47:90	113:43	7225	Ridge	
105	St. Mary	240303	Glacier	48:73	113:43	4560		
105	West Glacier	240207	Flathead	48:51	113:99	3200	Valley	NE-SW
105	Polebridge	240210	Flathead	48:78	114:28	3500	Valley	NW-SE
105	Belly River	240301	Glacier	48:93	113:71	4700	Valley	N-S
105	Stillwater	240221	Flathead	48:54	114:56	3116	Valley	NW-S
106	Lolo Portable 1	241599	Lolo	47.93	114.04	6080		

106	Thompson F	241209	Sanders	47:58	115:28	2460	Valley	S
106	St. Regis	241302	Mineral	47:31	115:11	2680	Valley	S
106	Nine Mile	241507	Missoula	47:07	114:40	3300	Valley	SW
106	Pardee	241308	Mineral	47:27	114:92	4640	Slope	SW
106	Plains 1	241206	Sanders	47:72	115:27	2510	Valley	S
107	Hot Springs	241211	Sanders	47:61	114:66	2960	Valley	N-S
107	Jette	241404	Lake	47:76	114:23	3600	Valley	Flat
108	Seeley Lake	241508	Missoula	47:18	113:45	4235	Valley	Flat
108	Missoula	241513	Missoula	46:85	114:05	3200	Valley	Flat
108	Stinkwater	241518	Missoula	46:85	113:39	5428	Ridge	
108	Point Six	241519	Missoula	47:04	113:98	7400	Ridge	
109	Gird Point	242911	Ravalli	46:19	113:92	6950	Ridge	W
109	West Fork	242907	Ravalli	45:82	114:26	5200	Ridge	SW
109	Tepee Point	242910	Ravalli	45:93	113:74	6629		
109	Stevensville	242904	Ravalli	46:51	114:09	3365	Valley	N-S
109	Little Rock Cr	242916	Ravalli	46:04	114:26	5507	M-Slp	E
109	Smith Creek	242912	Ravalli	46:44	114:23	5650	Ridge	SE
109	Saw Mill Cr	242991	Ravalli	46:45	113:89	5200		E
109	Saw Mill Cr	242902	Ravalli	46:03	114:06	7282	Ridge	
110	Phillipsburg	243002	Granite	46:32	113:30	5280	Valley	Flat
110	Wise River	245405	Beaverhead	45:78	112:93	5704	Valley	W-E-S
111	Brenner	245409	Beaverhead	44:96	113:21	6350	Valley	Flat
111	Red Rock	245410	Beaverhead	44:68	111:83	6690	Valley	W-E
111	Antelope	245412	Beaverhead	44:68	112:54	6795	Valley	W-E
111	Ennis	245501	Madison	45:12	111:26	4939	Valley	N-S
111	Whitehall	243204	Jefferson	45:53	112:09	4360	Valley	Flat
111	Galena	243206	Jefferson	46:22	112:22	6860	Ridge	
	FireLab Portable			46.64	114.85	7318		

Last Updated March 2004

Fire Weather District

The Missoula Fire Weather District includes zones 102 through 111 in north-central Idaho and western Montana. See map below.



Last Updated March 2004