

Preliminary 2005

**Seasonal Fire Weather / Fire Danger Outlook
for the Northwest Geographic Area**



**The 2004 Pot Peak Fire encounters heavy fuels and pushes a smoke column to 30,000 ft.
Wenatchee NF, Washington**

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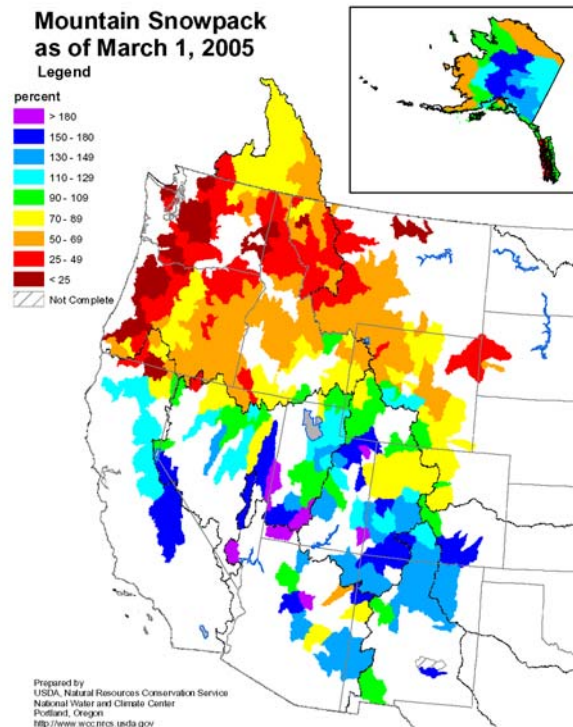
Executive Summary

The following report is a *preliminary* 2005 fire season severity assessment based upon seasonal precipitation patterns, drought, current snowpack data and long-range weather forecasts for the remainder of the spring and summer. The assessment will be updated in late May and a final version will be issued in late June when additional weather, fuel moisture and fire danger information becomes available.

Many weather factors can affect fire season severity in the Northwest Geographic Area. Known factors include winter precipitation, mountain snowpack, drought, snowmelt date, June rainfall, live and dead fuel moisture, and the amount of summer dry lightning. Because the preliminary assessment only considers a few of these factors (snowpack and drought), confidence in the analysis is moderate. If April through June are much wetter than usual (best case scenario), the threat of an above-average fire season will diminish significantly.

Winter 2004 - 2005 experienced a return of El Niño conditions in the tropical Pacific Ocean. This El Niño event was classified as weak, with sea surface temperature anomalies (SSTs) of around + 1°C. The last time an El Niño of this magnitude occurred was in 1994.

This year's winter weather pattern was typical of weak El Niño conditions. The jet stream split well off the west coast, directing storms toward California and northern British Columbia. High pressure aloft persisted over the Pacific Northwest and western Canada throughout the winter. Except for southern Oregon (which received heavy December snowfall) snowpacks throughout Washington and most of Oregon started late and at a slower-than-usual pace. Dry, mild weather in January and February plunged the snowpack percentages to near or record low values by March 1, challenging the previous low drought years of 1977 and 2001. The Oregon March 1 snowpack was 46% of normal and ranged from 79% in Lake County (south central Oregon) to only 21% of average on the Lower Columbia drainage (includes the Mt. Hood area). Washington's snowpack was even worse than Oregon's. Statewide it was only 30% of normal and ranged from 44% of average in the Spokane River Basin to a dismal 17% on the Cedar / Snoqualmie Basin. Most Washington river basins were in the 20-30% range. Preliminary April 1 snowpack snow water equivalent (SWE) indicated that Oregon snowpack remained at 44% while Washington's increased slightly to 36% of average. Every snowpack reporting station in Washington reported record low values.



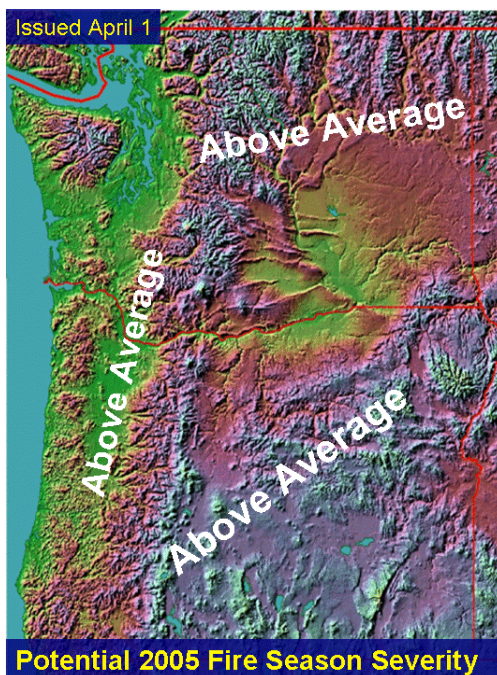
Long-range weather forecasts are based on indications that El Niño will either remain at the same strength or weaken slightly during the next few months. The outlook for April through June slightly favors warmer-than-normal conditions throughout the geographic area and equal chances of above, normal, or below-normal rainfall. Statistics indicate that spring has to be much wetter than normal to significantly lower the threat of large summer wildfires.

The outlook for July through September favors a normal warm, dry summer across the Pacific Northwest. Although lightning outlooks for the summer are not available, the Northwest historically receives two or three episodes of problem lightning every summer, with the first event around the middle of July.

Three possible scenarios for the 2005 fire season were developed based upon current conditions and combinations of spring and summer weather.

Best Case Scenario – *A major change in the weather pattern occurs, resulting in wet, cool weather throughout April, May and June. High pressure that has been over the Pacific Northwest during the winter gives way to a series of spring storms as the jet stream consolidates over the area. To mitigate the effects of drought and a historic low snowpack, rainfall would have to exceed 150% of normal over the next three months to significantly diminish the threat of an above-average fire season. A wet, warm spring could actually increase the threat of large rangeland fires due to increased grass growth. Cool, wet weather would also delay snowmelt at the mid and higher elevation into May and June. This delay would prevent dead and live fuel moistures from dropping below critical values until mid or late July. The threat of large, higher-elevation timber fires would only extend from late July through early September. The best chance for large fires would occur in the low and mid-elevation timberlands from the west slope of the Cascades into eastern Washington and eastern Oregon. If summer thunderstorms produce wet rather than dry lightning, the risk of large fires could drop into the average or below-average categories. This scenario has a **low probability of occurrence** given current conditions and long-range weather forecasts. Climatology (1970-2004 rainfall data) indicates there is less than a 15% chance that April through June would be wet enough to significantly diminish the threat of a severe fire season.*

Worst Case Scenario – *High pressure continues to dominate Washington and Oregon through early June, with unseasonably warm and dry weather. Storms are either deflected north into Canada, or are too weak to produce much rain over the area. Hot, dry weather develops after mid-June and continues into mid-September as high pressure becomes even stronger over the Pacific Northwest. Summer thunderstorms would have limited moisture and three or four episodes of dry lightning could be expected. Mountain snowpack in this scenario would melt rapidly, with little or no snow remaining by mid-May, even at the higher elevations. Snowmelt would occur four to six weeks earlier than usual. Large dead*



*fuels (1,000 hr) would be unusually low, reaching critical values by late June. The threat of large fires would extend from late June through September, and likely into October west of the Cascades. Drought conditions would continue to worsen with severe to extreme drought in areas both east and west of the Cascades. Large timber fires would be likely, even at higher elevations. Washington and Oregon would likely have a severe fire season, similar to 1994 and 2001. Resource demands would be heavy. This scenario has a **low to moderate probability of occurrence**. Climatology (1970-2004 rainfall data) indicates that after a dry winter, there is a 67% chance that the spring will be dry, but only a 30% chance that the summer will also be dry. However, during severe drought, above-average fire seasons in timber can even occur during wetter-than-usual summers.*

Most Likely Scenario – *Near-normal temperatures and rainfall will occur from April through June. July and August will be typically hot and dry. The record low mountain snowpack would melt a month earlier than usual.*

The only snow remaining in May would be in the higher elevations. Large dead (1,000 hr) fuels would be unusually low, reaching critical values in late June or early July. Spring moisture would result in increased rangeland grass growth. Severe drought conditions would extend across most of Oregon and Washington. Large timber fires would be possible, even at higher elevations. One to three episodes of dry lightning would be possible, with the first episode around July 18. *Washington and Oregon would experience a very active fire season, both east and west of the Cascades.* This scenario has a **moderate to high probability of occurrence.**

The table below lists the projected 2005 acres burned by agency and the probability of an above-average fire season based upon winter precipitation, Palmer drought indices and April 1 snowpack water equivalent (SWE).

Agency	2005 Fire Season	Probability of an Above Average Fire Season*	Projected 2005 Acres Burned	Threshold Acres Burned for an Above Average Fire Season*
USFS	Above Average	70%	120,000 acres	80,000 acres
BLM	Above Average	50%	123,000 acres	90,000 acres
BIA	Above Average	70%	33,000 acres	20,000 acres
ODF	Above Average	75%	27,000 acres	11,000 acres
WADNR	Above Average	55%	24,000 acres	10,500 acres

* Threshold for upper third of fire season acres burned 1970 - 2004

Summary and Management Implications:

The Pacific Northwest is primed for an above-average fire season due to a dry winter and record low or near record low snowpack. Long-range weather forecasts favor warmer temperatures and near to below normal precipitation through spring and summer. To counteract the low snowpack and long-term drought, April through June would have to be exceptionally wet (best case scenario) to significantly diminish the threat of large fires. Moderate amounts of spring rain are essential for large range fires; however, if the spring is dry, fire problems would be concentrated in timber. Listed below are the fire management implications for the most likely scenario in an above-average 2005 fire season:

- **A very active to severe fire season in Oregon and Washington, both east and west of the Cascades**
- **A longer than usual fire season starting early and extending later into the fall**
- **An elevated risk of long-duration, high-elevation timber fires on both sides of the Cascades**
- **Higher-elevation fires featuring limited access and extreme terrain**
- **The need for firefighting resources for a longer period of time**
- **Higher-than-normal demand for resources of all types**
- **The possibility of an active fire season in the Northern Great Basin and Northern Rocky Mountain Geographic Areas, which may result in stiff competition for resources**
- **Longer mop-up required in heavy fuels**
- **An increase in the fatigue factor for all suppression resources, with implications for firefighter safety**
- **An increased threat of extreme fire behavior, including crown fires, long-range spotting, and plume-dominated fires**