

NATIONAL WEATHER SERVICE



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Mar. 3, 1992

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Here is a rewrite of the Rattlesnake weather info you showed me.

The summer weather pattern in the West normally has strong high pressure, both surface and aloft, over the eastern Pacific just west of California. There is often a large, though weak, low pressure trough aloft over the western U.S. interior. During hot weather in California, an elongated area of surface low pressure forms in the Central Valley. It is this surface thermal trough, which is the result of hot air rising out of the interior valley, that is commonly known as the "thermal low" or "heat low". A fairly tight pressure gradient exists in the lower atmosphere between the cooler, relatively dense air from the Pacific High and the hot buoyant air of the thermal low inland. This combination produces a consistent onshore (west to northwest) surface wind pattern during the warmest months.

During the day, heat rising up and out of the hot Central Valley takes on the form of first upslope, then easterly upcanyon winds in the Grindstone (and other) drainages of the Coast range's eastern face. These warm upslope/upcanyon winds are typically strong enough to keep the westerly gradient wind flow aloft during the day. Late in the day however, as the eastern slopes of the coast range become shaded and therefore cooler, the gradient wind begins to drop to the surface on the shaded upper reaches of the eastern-facing canyons. It then works its way down toward lower elevations, in other words, a downslope/downcanyon wind.

The above description is a common scenario in California's coast range during the summer. There are of course, times when the process is accentuated due the combination of a deeper-than-usual coastal marine layer and/or an especially strong thermal low inland. In these cases the reversal of the flow from upcanyon to downcanyon is more sudden, with stronger downcanyon wind speeds than normal. This was the case during the Rattlesnake fire.

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