

Case Study of a Dry Intrusion (Dry Eye) Event on the Pioneer Fire on the Boise NF (ID - USA) on August 12, 2016 (Poster 386)

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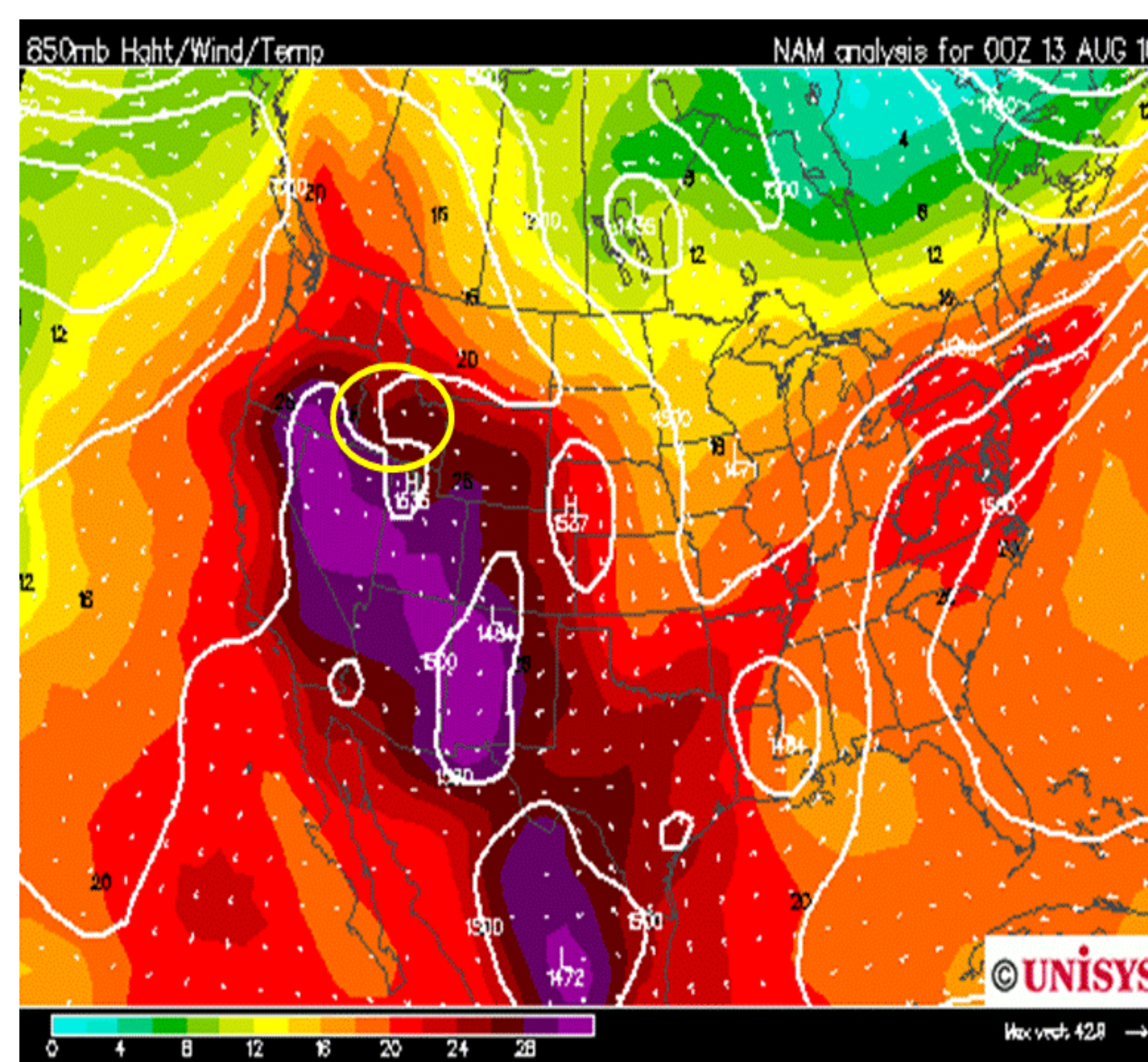
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Mesoscale Meteorological Extremes: Understanding, Prediction, and Projection

Introduction

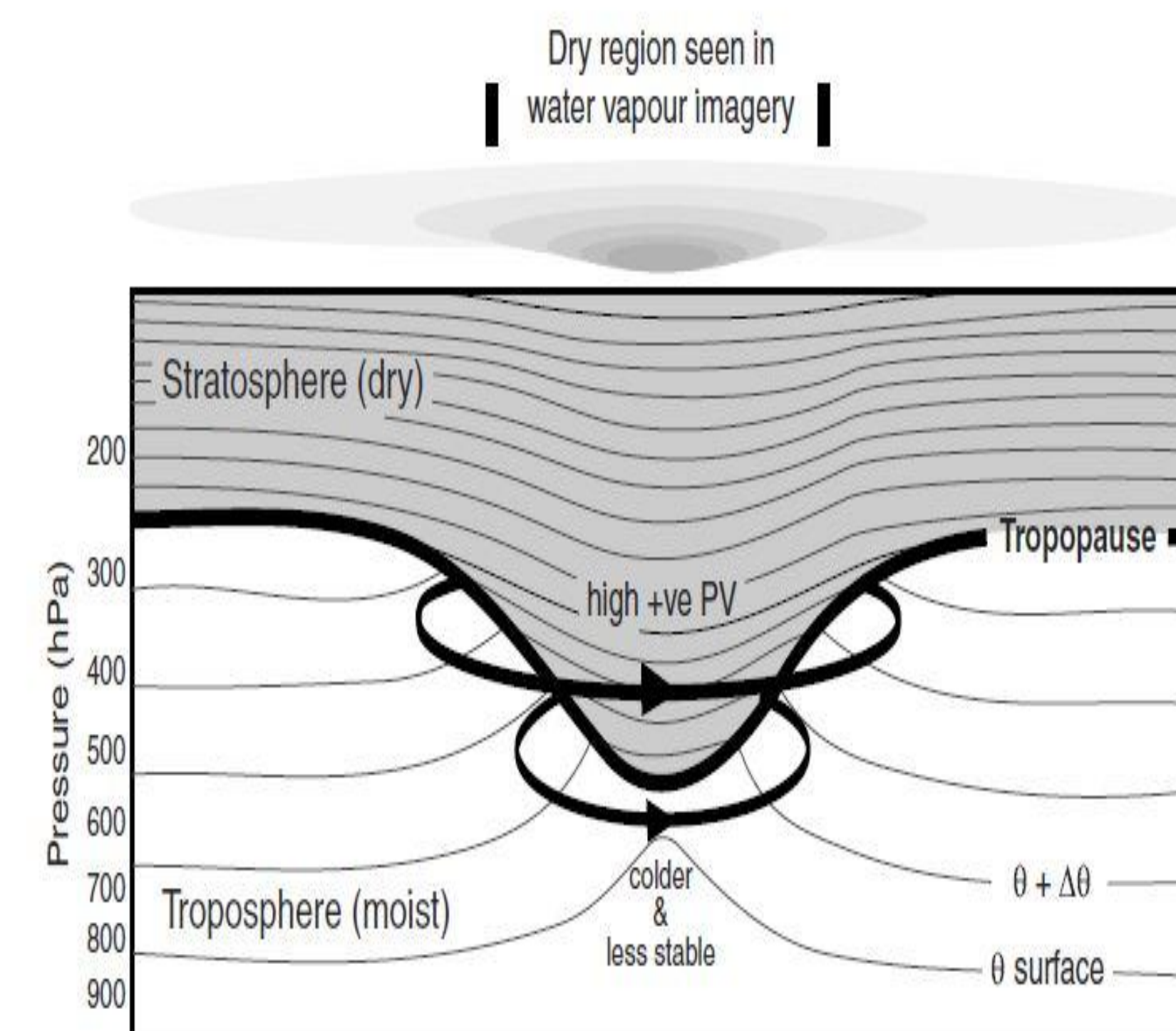
The Pioneer Fire Incident Meteorologist (IMET) recorded an August 12, 2016, WVI animation of a “dry eye” at the Pioneer Fire on August 12, over a 9-hour span that began along the WA/OR border at 1730Z (1130 MDT) then moved directly over the Pioneer Fire at 0230Z (2030Z).

The dry eye darkened (strengthened) over the fire suggesting a hot and dry air mass above the fire which enhanced the dry eye darkening.

Fire Weather



Weather Upper Air Archive Map, 00Z 2016 August 13. NAM 850-mb Heights and Temperatures (°C). Yellow circle is over Southern ID. UNISYS

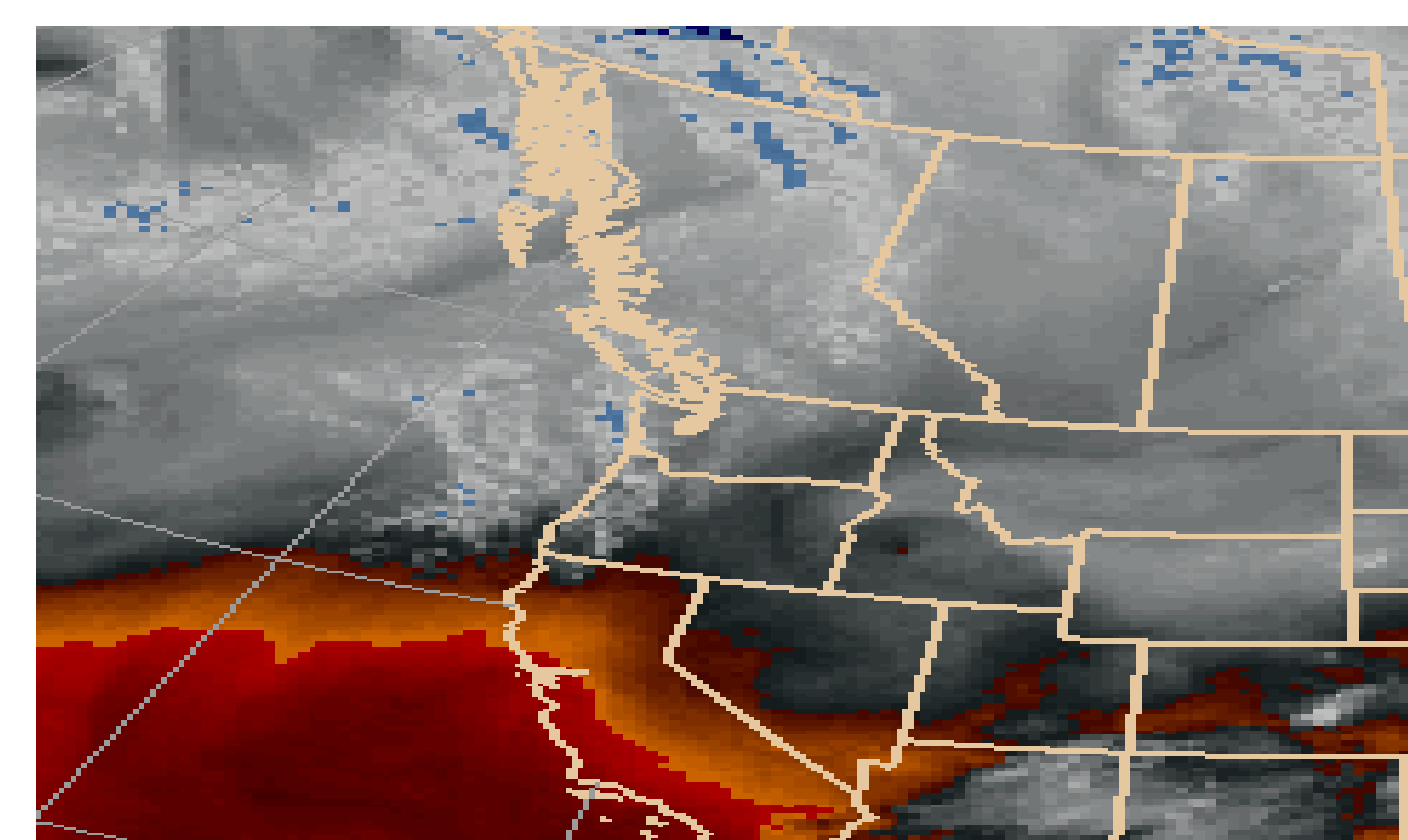
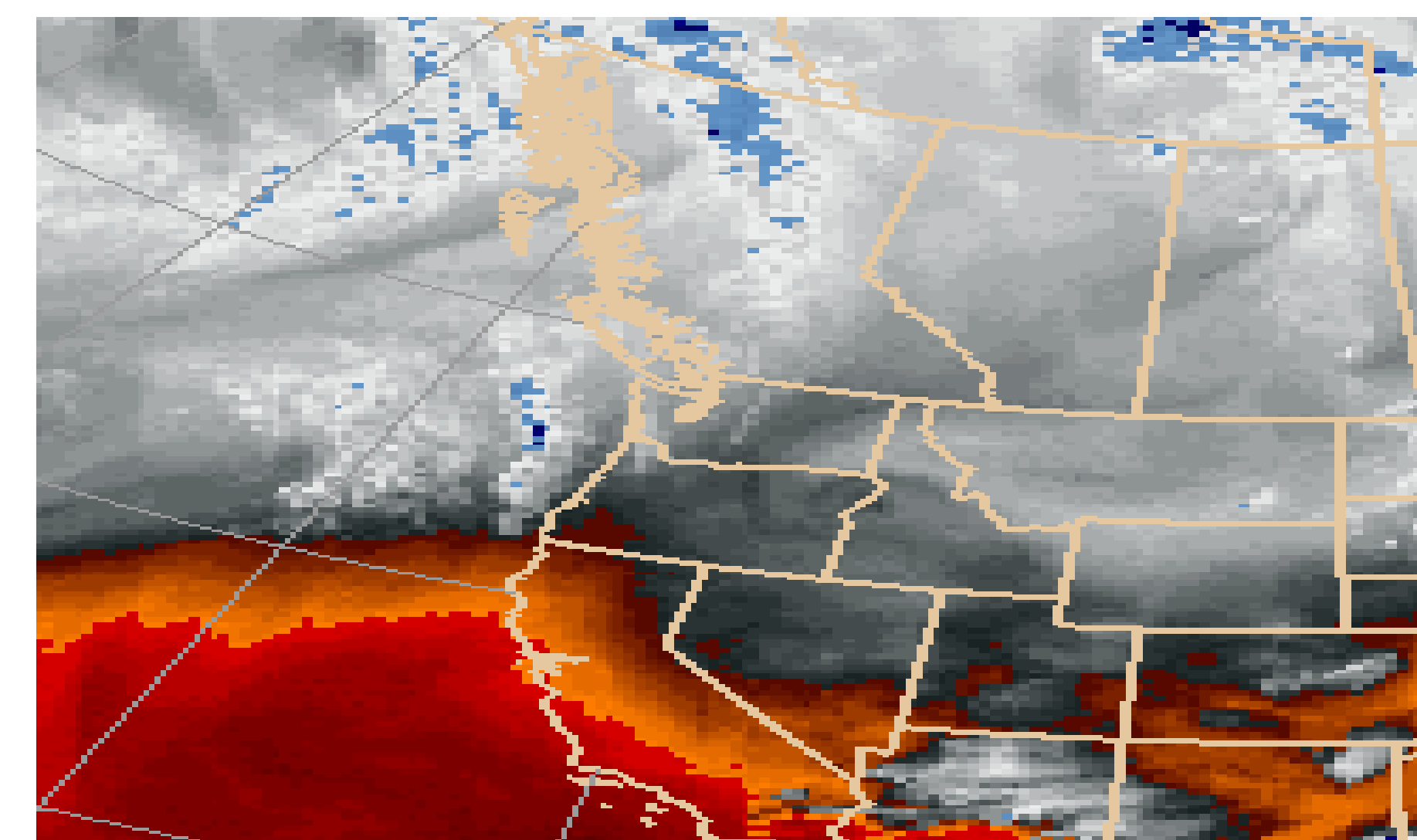


Dry eye - idealized conceptual model of an isolated tropopause depression (Thorpe 1985) from Roberts (2000)

Fire Weather



Plume dominated column over Pioneer Fire on 12 August 2016 at 2236. Inciweb



Enhanced satellite WVI of dry eye circulation on Aug 12, 2016. (top) over WA-ID-OR border at 1700 MDT, and (bottom) over the Pioneer Fire in ID at 1900 MDT (Brent Wachter NWS)

Fire Weather Fire Behavior Nexus

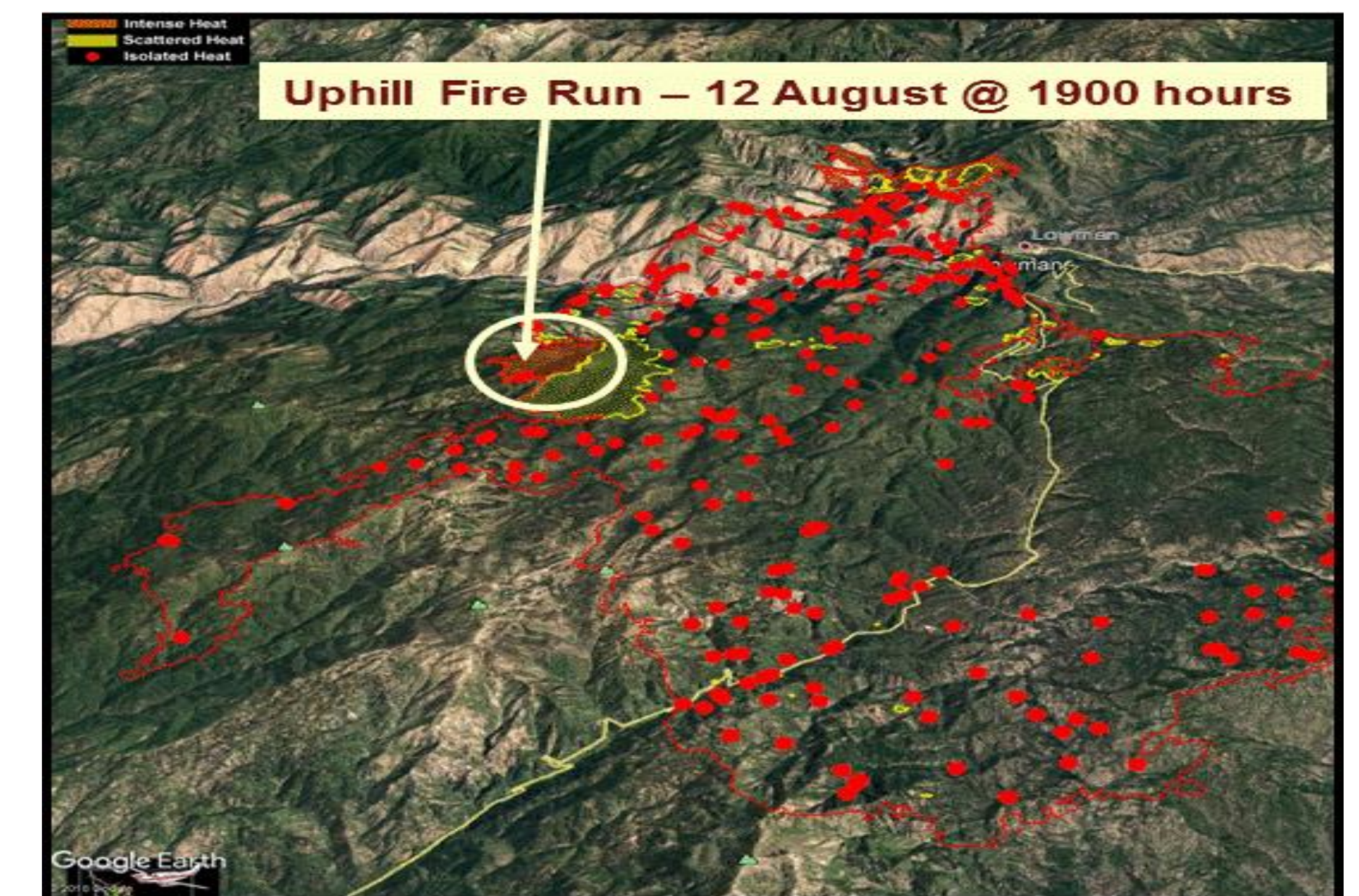


Image displaying the Pioneer Fire perimeter and IR hot spots August 12, 2016 morning. Uphill fire run at 1900 hours MDT is red shaded area within the yellow circle, accounting for about 1000 acres burned in a matter of a few hours (Paul Churchill USFS DIVS B).

Conclusion

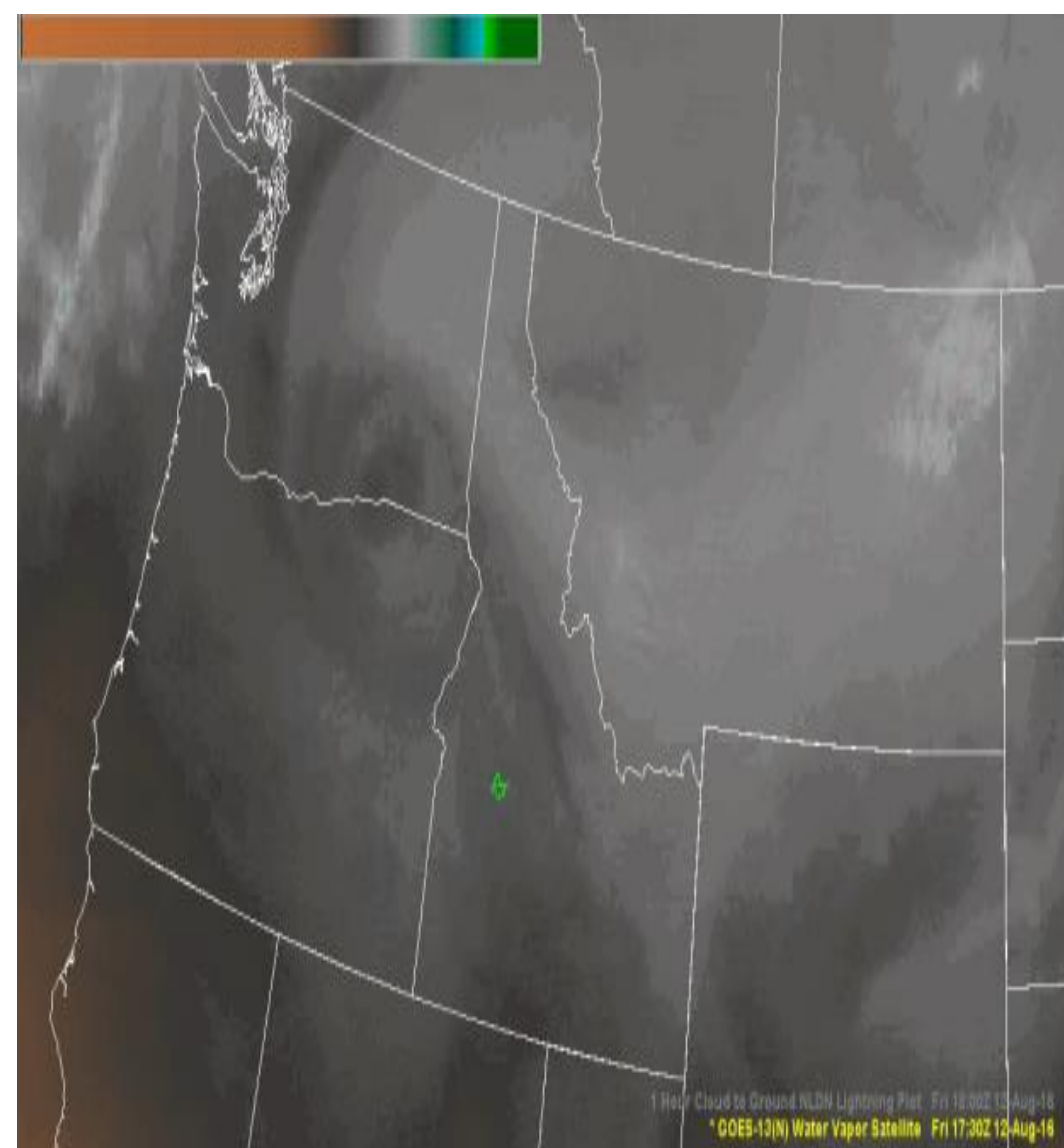
Contributing atmospheric structures associated with dry eyes and other upper level circulation features are many times predictable hours and even days in advance of the events. Creating operational indices and tools for fire weather forecasters and fire behavior analysts to identify these conditions and communicate to wildland fire managers when and where the potential exists for extreme fire behavior is essential.

References

Mary Wister NWS; UNISYS, Roberts (2000); Wachter (NWS); P. Churchill (USFS-DIVS B)

Acknowledgements

Valerie Meyers, Mary Wister, Paul Churchill, John Saltenberger, Brent Wachter, Paul Werth, and Graham Mills for their many valuable contributions and insights



Satellite WVI of dry eye feature centered over the WA-OR border early afternoon August 12, 2016. Green star is the location of the Pioneer Fire in ID (M. Wister, NWS Pendleton, OR)