

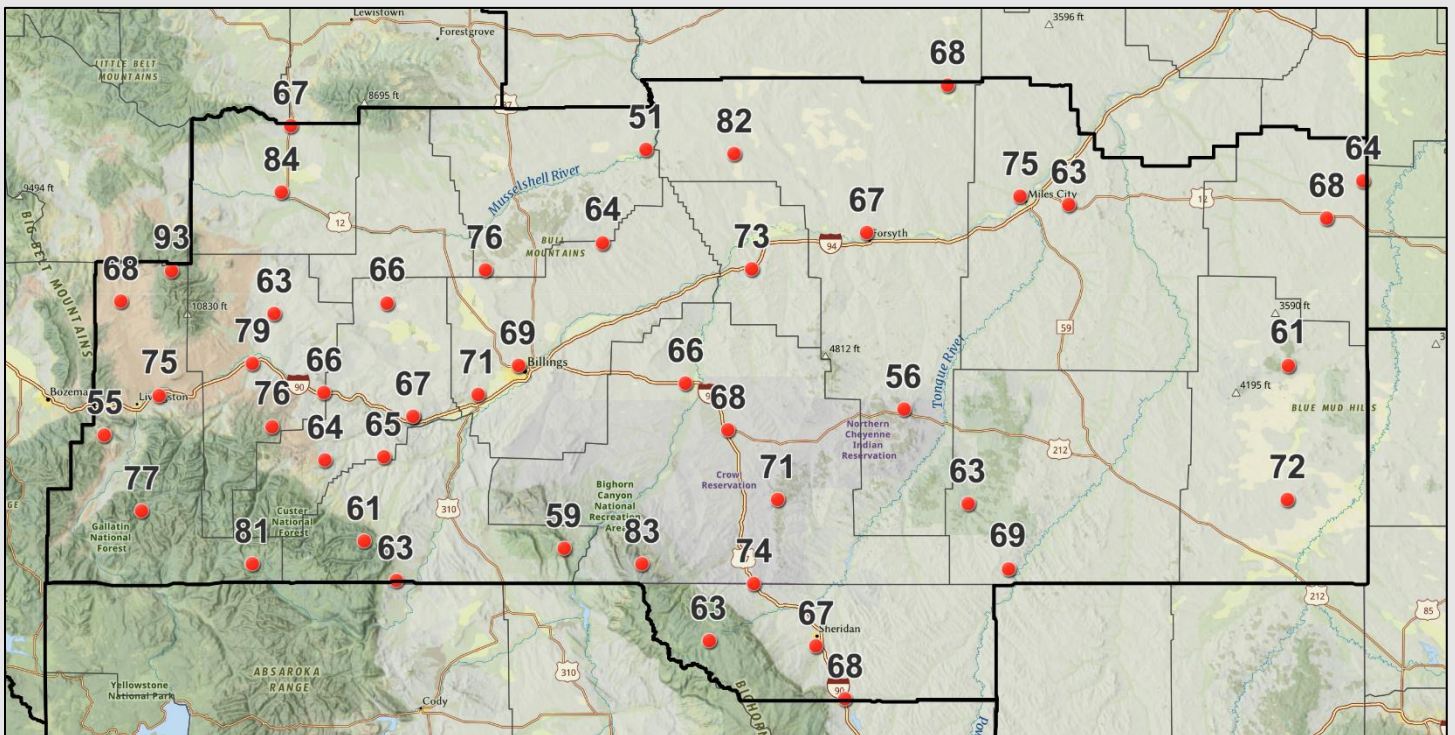
Strong Winds

Wednesday January 13, 2021

National Weather Service – Billings, MT

Periods of gusty winds are common in the winter in the northern high plains, particularly along the eastern slopes of the mountains. Locations such as Livingston, Big Timber and Harlowton are well-known for having frequent high gusts. On January 13, 2021, a particularly strong wind event impacted the region, with strong winds not only along the foothills but also across the lower elevations of southeast Montana. Winds were associated with a cold frontal passage and lasted for several hours.

WIND REPORTS: Westerly wind gusts of 60 to 80 mph were common, and gusts exceeded 90 mph at some mountain sites. The peak gust observed was 93 mph in the Crazy Mountains at an elevation of 7300 feet. Below is a map of peak wind gusts as measured by numerous weather stations across the region.

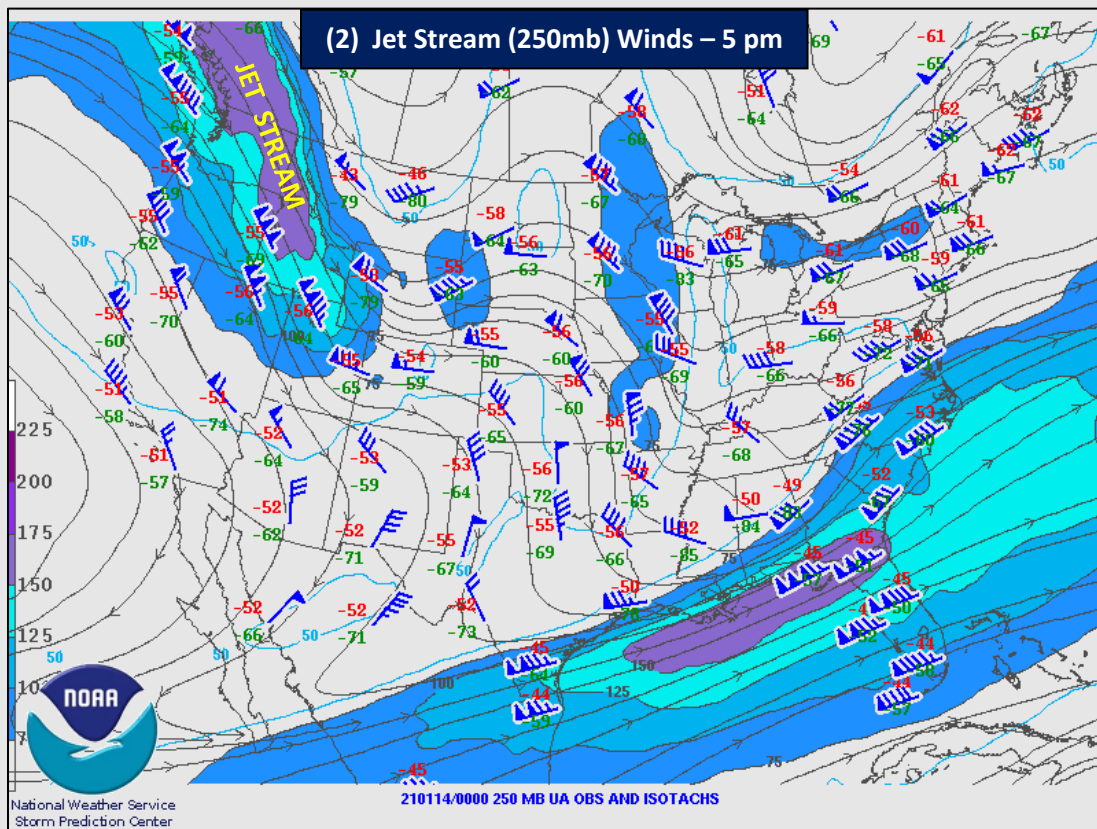
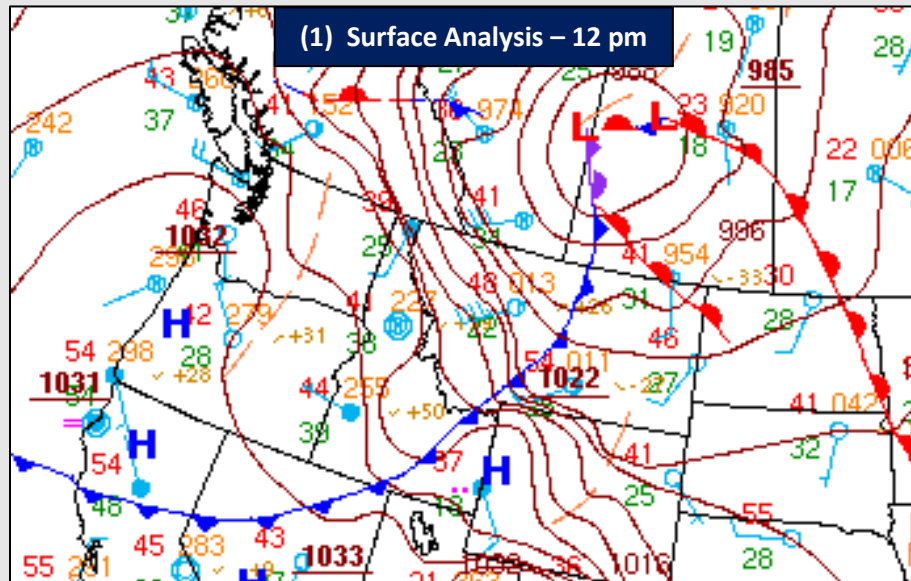


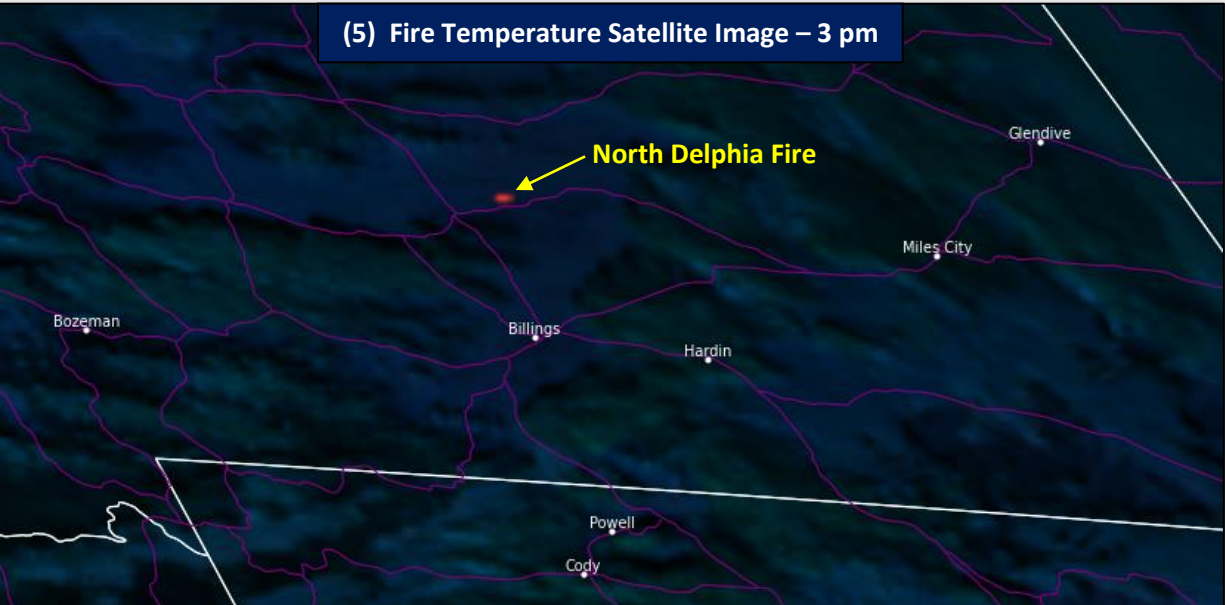
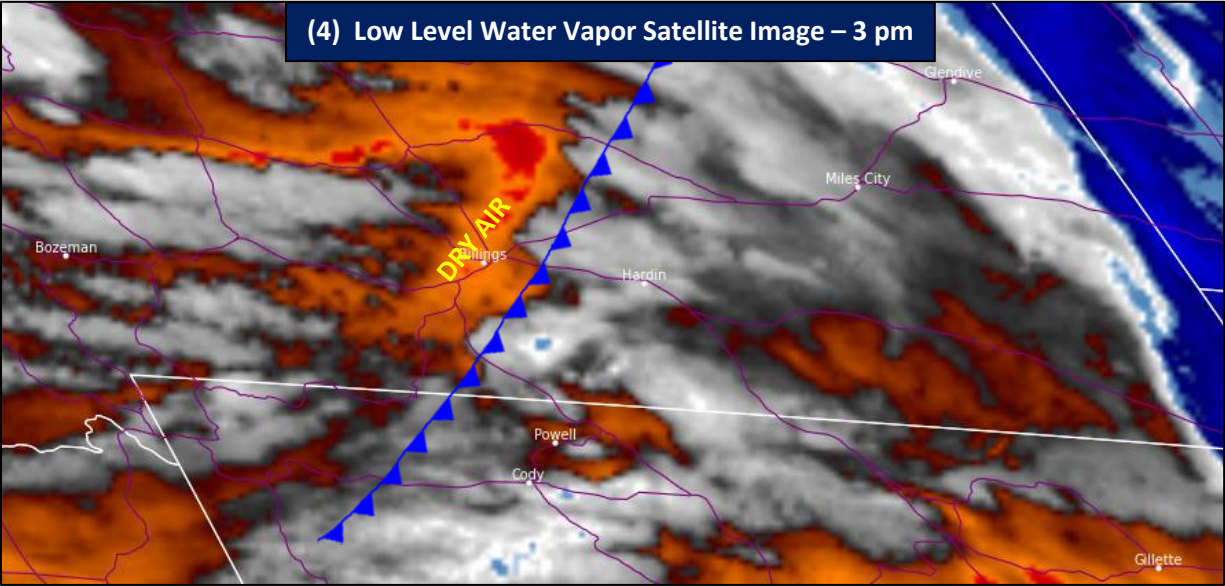
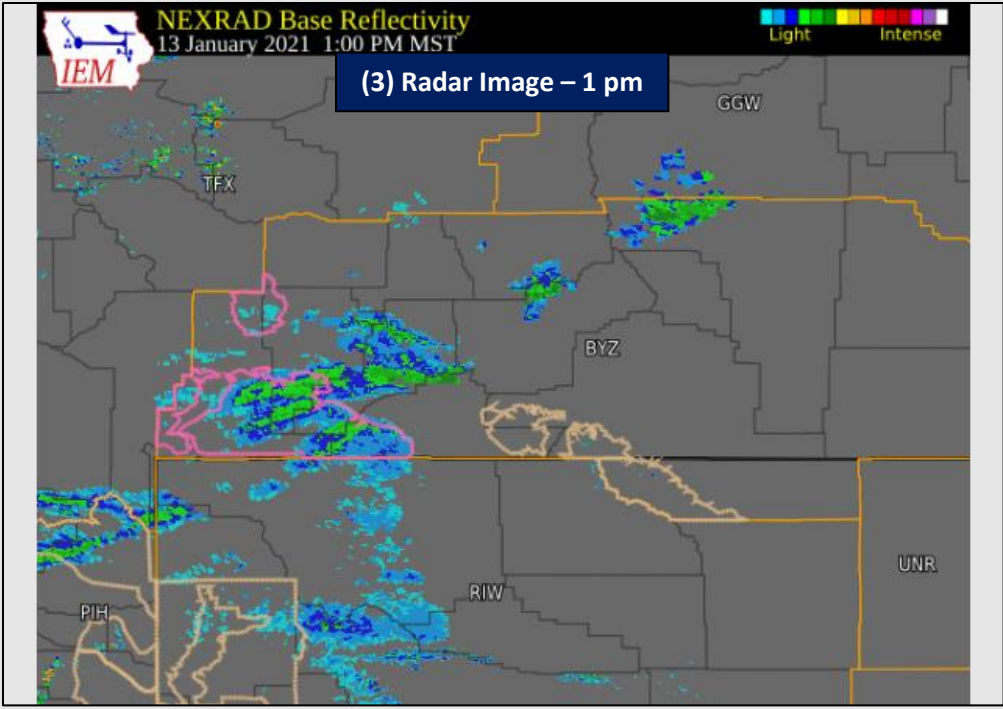
WIND IMPACTS: The following is a list of impacts from the period of strong wind gusts.

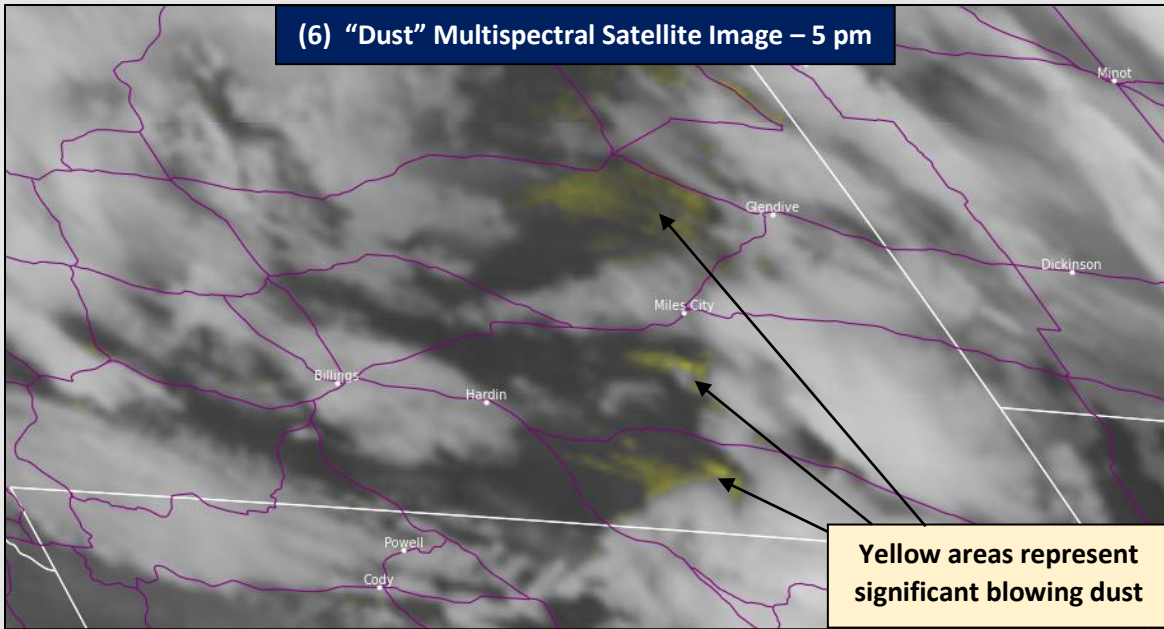
- Many large trees blown down
- Many power lines downed
- Several semis blown over
- Frequent reports of near zero visibility in blowing dust, resulting in severe driving conditions
- Scattered property damage, mostly minor
- Several grass fires – most notably the North Delphia Fire east of Roundup which burned three primary residences and several other outbuildings
- Montana Department of Transportation reported 35-40 incidents statewide and a high volume of calls (~1000)

METEOROLOGY & SATELLITE IMAGERY: Strong winds began along the western foothills (not an unusual occurrence) in the pre-frontal hours Tuesday night. The arrival of a Pacific cold front (Figure 1) during the day on Wednesday the 13th was followed by a period of subsidence (descending air) and very strong winds across the lower elevations. Aloft, a strong northwesterly oriented jet stream (Figure 2) was driving through the northern Rockies, and strong winds existed at mountain top level. The cold front also produced light shower activity (Figure 3) which enhanced the gustiness of the surface winds. The combination of all of these ingredients resulted in the strong winds.

In addition to the wind, intense drying occurred in the wake of the front (Figure 4) and resulted in the development and rapid spread of a few grass fires. A 3 pm satellite image (Figure 5) shows the hot spot associated with the North Delphia Fire just east of Roundup. Blowing dust was also widespread, and could be seen on satellite imagery (Figure 6) in eastern Montana in the late afternoon.







WIND RECORDS: The peak wind gusts at Billings (69 mph) and Miles City (75 mph) were each records for January. Sheridan (67 mph) reported its 4th highest January gust. The following day (January 14th) Miles City reported a peak gust of 66 mph, which ranks 2nd for January. Peak winds at these locations are measured at the local airports.

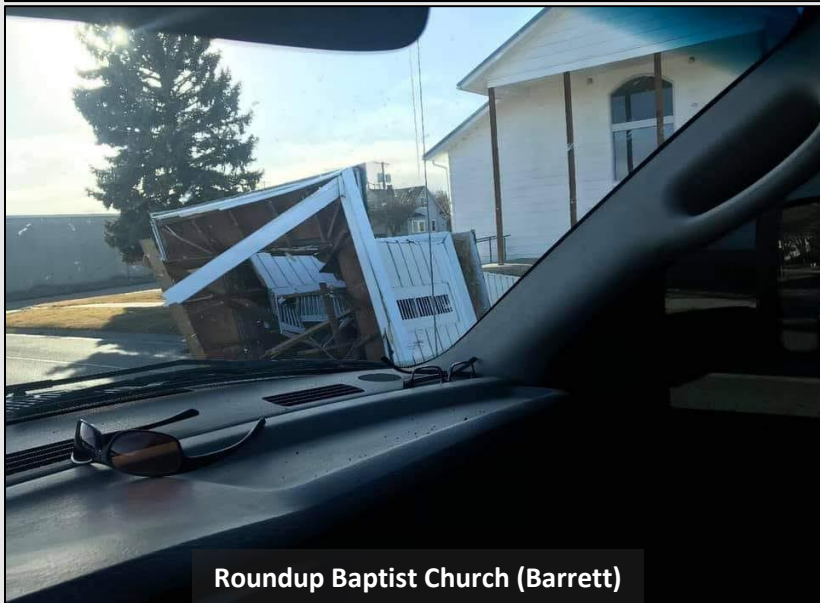
PHOTOS: Here is a sampling of the numerous photos we received. Thanks to everyone for sharing



View from Billings rims (Anthony)



Big Timber (Dennis-Phares)



Roundup Baptist Church (Barrett)



I-90 near Livingston (Dawn)