

Eastern Colorado to Central Plains Winter Storm – February 2-3, 2012

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Meteorological Overview: On February 2nd and 3rd of 2012, a strong southern stream disturbance resulted in a significant winter storm over the central Front Range of the Rocky Mountains and adjacent High Plains. The greatest snowfall amounts were concentrated in an area extending from near Laramie Wyoming to the Colorado foothills, and also east of Denver. There were a few isolated reports of snow in the three to four foot range in the Colorado foothills from this event, including 48 inches at Black Hawk, 46 inches at Pinecliffe, 37.7 inches at Jamestown, and 36 inches at Evergreen. Over the state of Nebraska, a band of lighter but still significant snowfall fell from North Platte eastward to near Omaha, with a localized enhanced area of snow just to the north of North Platte. Fig. 1 shows the snowfall amounts and areas affected by this winter storm. Winds gusted up to 40 mph over the open plains of eastern Colorado and into Nebraska.

Surface analyses at the height of the event on the evening of the 3rd were indicative of a classic upslope snow event with strong easterly winds on the northside of a strong surface low positioned over Oklahoma (Fig. 2). An inverted trough from the low over the central Plains acted as another forcing mechanism for the snow that fell over Kansas and especially south central Nebraska. Aloft at 500mb, a closed low was evident over eastern Colorado and the western parts of Kansas and Nebraska, aiding in mid level frontogenesis and ascent (Fig. 3).

Radar imagery around that time corresponds well to the position of the trough, and also with the upslope event in eastern Colorado. A ridge of Canadian high pressure over the northern Rockies and northern Plains was extending southward along the front range of the central Rockies, reinforcing the cold air advection. Farther to the east over the Middle Mississippi River Valley, temperatures were considerably warmer and rain was observed.

Impacts: This snowstorm had significant impacts on the areas affected. Interstate 70 was closed from Denver to the Kansas state line as heavy snow and strong winds prevented snow removal crews from keeping the road adequately clear of snow. About 600 flights were canceled in Denver as a result of the heavy snow in that region. In Nebraska, the Interstate 80 corridor was most affected with amounts ranging up to 20 inches, and most major roads remained open except in cases of accidents or downed trees and power lines. The wet and compact nature of the snow was enough to break large limbs and these frequently fell onto powerlines, causing over 15,000 people to lose power.

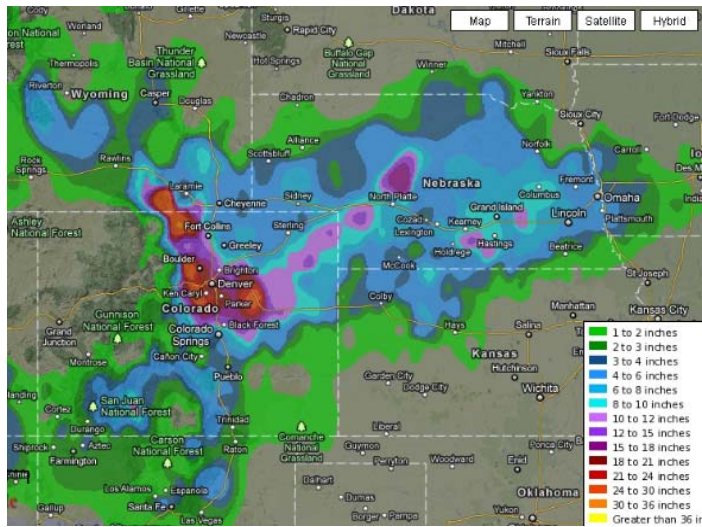


Figure 1: Snowfall accumulations across the Front Range of the Rockies and into the Central Plains on 2-3 February 2012.

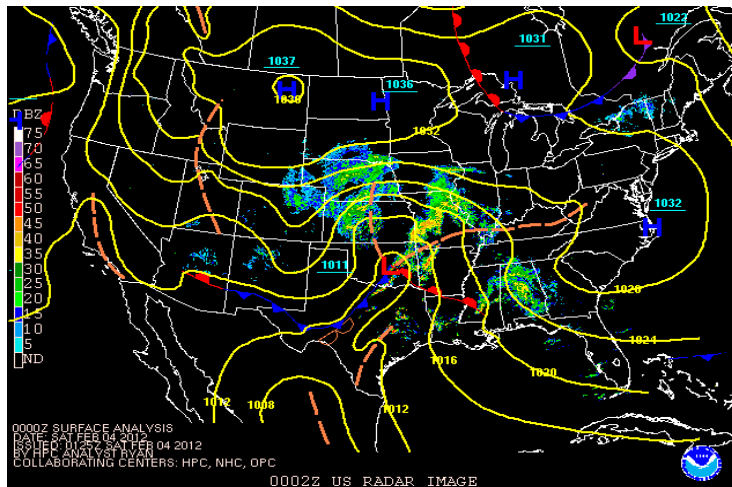


Figure 2: Radar imagery overlaid on 00 UTC February 4, 2012 surface analysis.

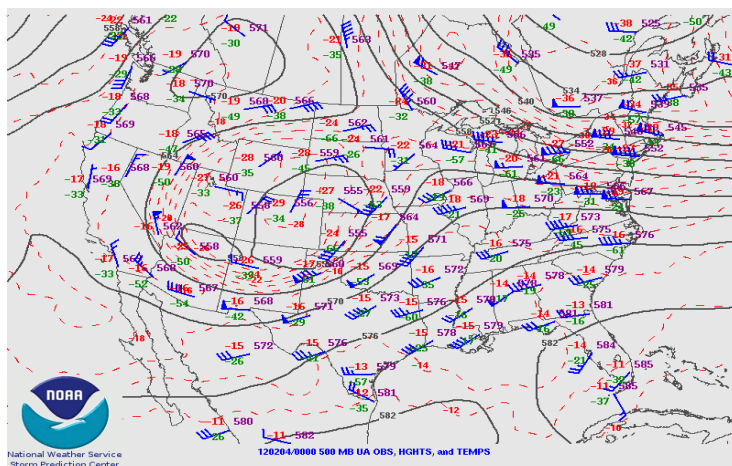


Figure 3: 500 mb observations and height analysis for 00 UTC February 4, 2012.