

Major Snowstorm in New Mexico, southeast Colorado and southern Plains 19-20 December 2011

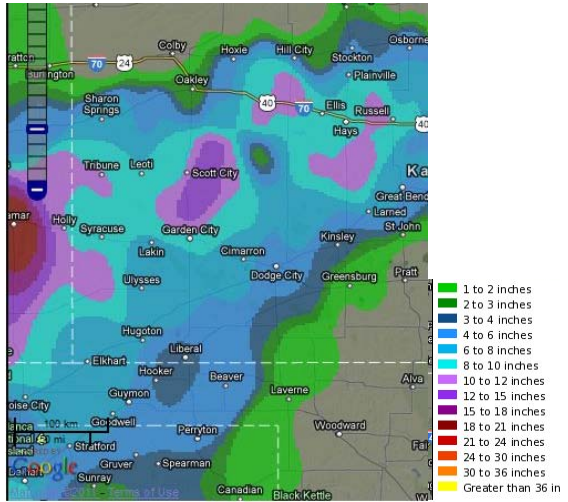
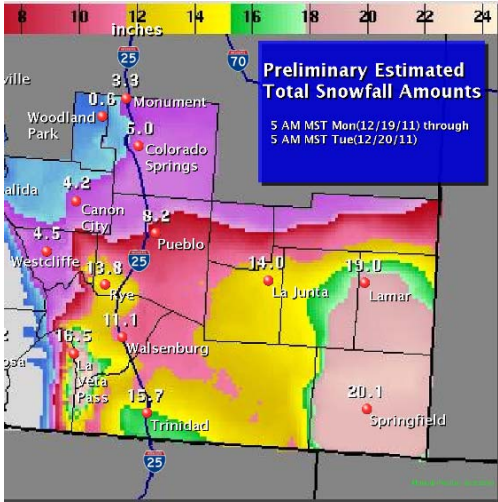
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Meteorological Overview. A cutoff upper low moved northeastward from the Southwest United States across the southern Plains on 19-20 December 2011, before drifting northeastward and weakening as it moved toward the Midwest and Northeast United States. This upper low was associated with a significant snowstorm accompanied by blizzard conditions in parts of the south central and Southwest United States.

Winter Storm and Blizzard Warnings were issued from central and northern New Mexico, southeastern Colorado, the panhandles of Texas and Oklahoma and for much of central and western Kansas. Heavy snow was accompanied by strong winds which created blizzard conditions in some locations. Clayton, NM, in the northeast corner of the state, reported 17.7 inches on the 19-20th. Lamar, CO received 19.0 inches (48 cm) of snow on December 20th and set a new record as the highest one-day snowfall total for any day in December. Total snowfall across southeast Colorado into western Kansas is shown in Figs. 1a and b, showing widespread areas of greater than 12 inches (30 cm of snow) with drifts of 2 to 4 feet. On the eastern fringes of the heavy snow swath, a wintry mixture of rain, sleet, and snow occurred in portions of central and south central Kansas creating some slick and slushy spots on roads. The slow-moving low pressure system also produced copious rainfall amounts of generally 1.5 to 2.5 inches across much of south central and southeastern Kansas.

Surface analyses superimposed on satellite images on December 19 show the distinct comma-shaped swirl of clouds associated with the developing storm, as an area of surface low pressure consolidated over the panhandle of northern Texas to the south of a sprawling area of high pressure moving eastward from the northern Rockies toward the Northern Plains states (Figs. 2a and 2b). The snowstorm was associated with a classic cut-off low that drifted eastward across the Southwest United States (Fig. 3) before lifting northeastward toward the Southern Plains. As the system lifted northeastward, it encountered milder temperatures, and became more of a rain producer as it moved eastward from Kansas in the Mississippi Valley in the Midwest. Visible satellite images the following day showed the limited extent of the snowfall from northeast New Mexico and southeast Colorado into the panhandles of Texas and Oklahoma across western and central Kansas (Fig. 4).

Societal Impacts: For southeastern Colorado, northeastern New Mexico and western Kansas, this was a debilitating snowstorm with high winds, low visibility and blowing snow, stranding motorists at the start of the long Christmas holiday season. Roads were closed in the regions and the primary impact of the storm was to transportation. Unofficial reports stated that at least six people lost their lives in traffic accidents associated with icy roads and low visibility.



Figs. 1a and b. Total snowfall in Southeast Colorado and western Kansas.

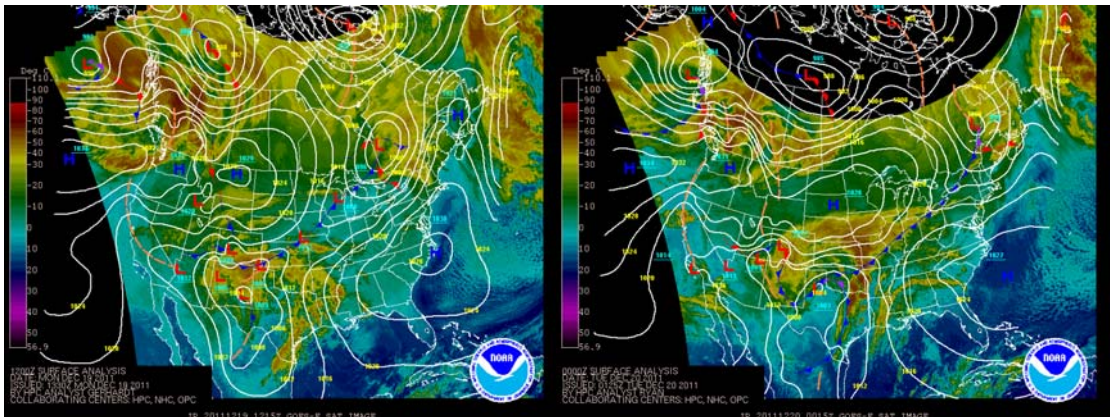


Fig. 2a and b. HPC surface analysis at 1200 UTC 19 December 2011 and 0000 UTC 20 December superimposed on infrared satellite image.

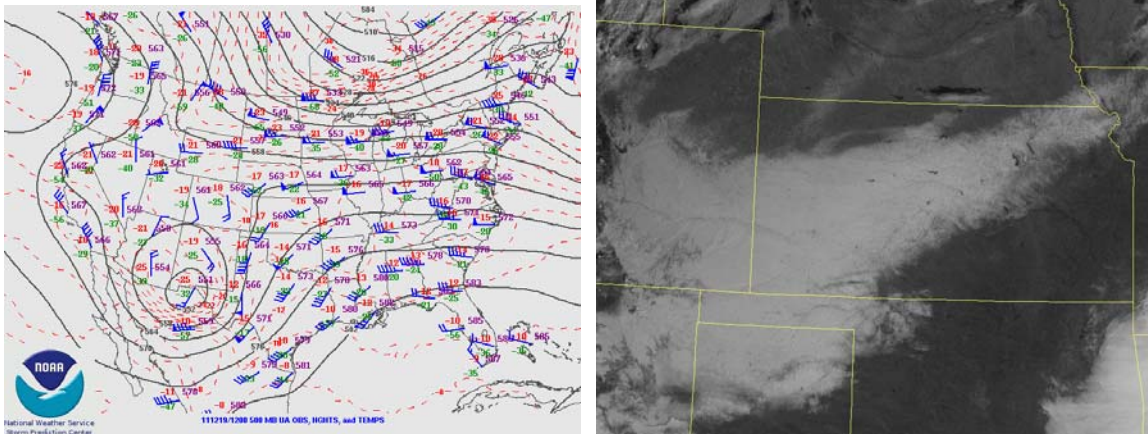


Fig. 3. SPC 500 mb analysis at 1200 UTC 19 December 2011. Fig. 4 Visible Satellite image showing snowfall.

