

Mid-Atlantic to Northeastern U.S. Thanksgiving Winter Storm 26-27 November, 2014

By: Allison Santorelli, WPC Meteorologist

Meteorological Overview: During the day of 25 November, 2014, an upper-level shortwave trough was progressing across the central U.S. pushing a cold front ahead of it through the eastern U.S. The frontal boundary stalled along the southeast coast and across central Florida, and by the evening hours, an area of low pressure developed in the eastern Gulf of Mexico. Overnight, the low progressed northeastward along the boundary, and the shortwave moved into the Mississippi valley. As the shortwave became negatively tilted across the southeast U.S. the following morning, this allowed the surface low pressure to begin to intensify and move up the Mid-Atlantic coastline.

By 1200 UTC on 26 November, a large area of precipitation was located across the Mid-Atlantic region to the north and west of the surface low. At this point, most of the precipitation was in the form of rain, except in the higher terrain of the Appalachians where temperatures were cold enough to support snow showers. However, as the low moved northward and further away from the coastline, cold air began filtering into the region from the northerly winds, and the rain quickly changed over to snow for portions of the inland Mid-Atlantic west of I-95.

The snow began pushing into the interior Northeast and New England by midday on 26 November, and increased in intensity as the low off the coast strengthened (figure 1). Plenty of moisture and cold air in place allowed heavy snow to accumulate from northeast Pennsylvania to eastern Maine. The heavy snow came to an end by the morning of 27 November across the entire Northeast, but not before dropping up to a foot or more of snow just before a major holiday. Generally, 6 to 12 inches of snow fell across portions of the Northeast with locally higher amounts found from eastern New York state to eastern Maine, as well as the higher terrain of the West Virginia panhandle where as much as 20 inches fell (figure 2). In the major cities along the I-95 corridor from Washington, D.C. to Boston, mainly a moderate to heavy rain or wintry mix fell, as temperatures remained too warm to support any significant snowfall. In fact, most of these cities saw no more than about an inch of snowfall out of the storm as the rain-snow line ran roughly along I-95.

Impacts: Given the convenient timing of the storm just before Thanksgiving and coinciding with what is typically one of the busiest travel days of the year, both air and road traffic quickly became a nightmare. Up and down the busy and congested I-95 corridor from Washington, D.C. to Maine, wet and snowy roadways led to numerous accidents, long backups, and closed roads. At least two people were killed in separate automobile accidents in Maine and Rhode Island. At airports all across the region, thousands of flights were cancelled, and many others delayed, leaving travelers stranded and frantically trying to book other flights. In addition, schools, businesses, and many state governments were closed on Wednesday, and close to half a million people lost power across the Northeast and New England.

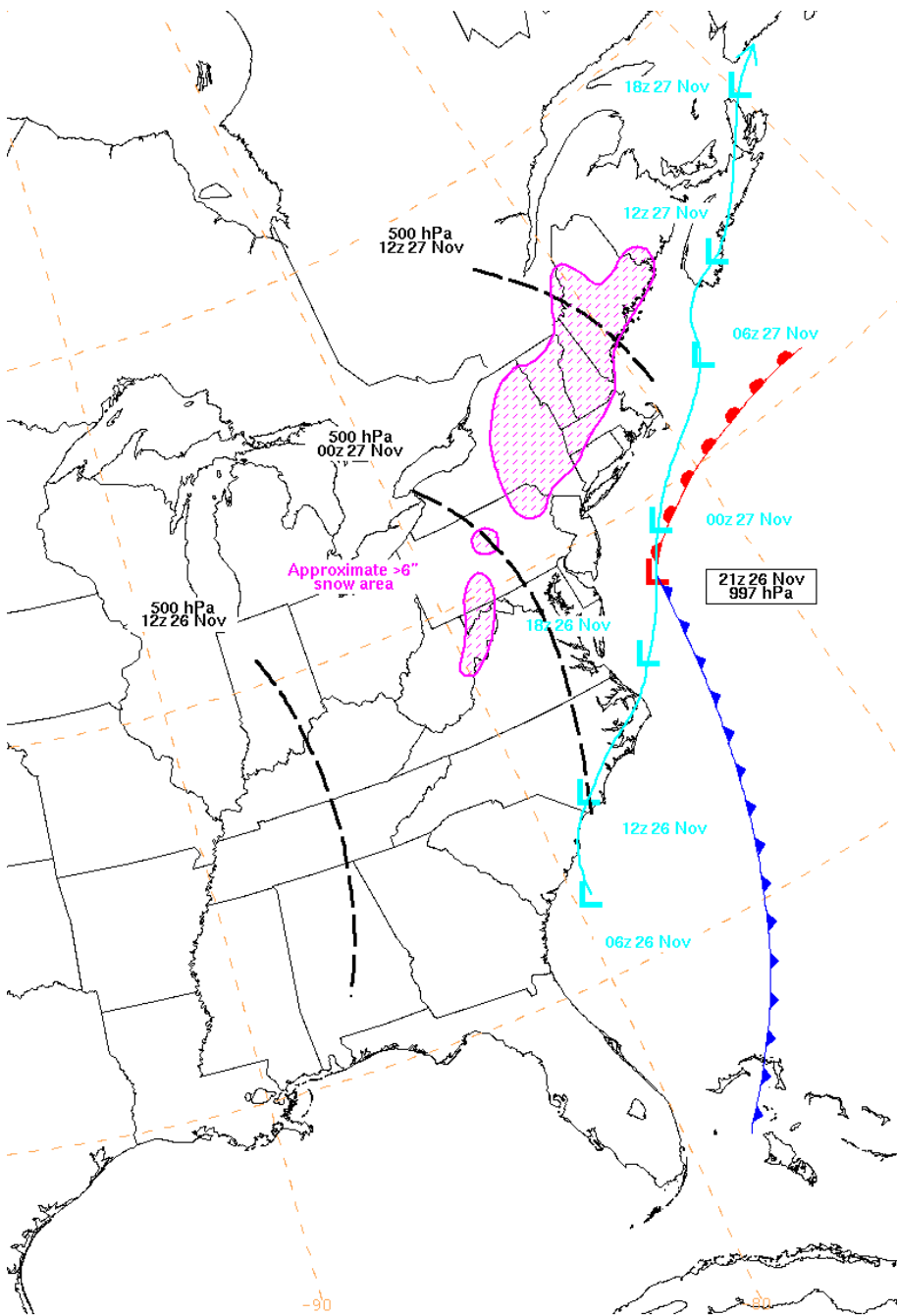


Figure 1: Surface low tracks (cyan), 500 hPa trough/shortwave (black), and approximate area of greater than 6 inches of snow (pink). The surface frontal analysis at 2100 UTC 26 November is also shown.

Total Observed Snowfall (Interpolated) during 48h preceding 2014 November 28, 0:00 UTC

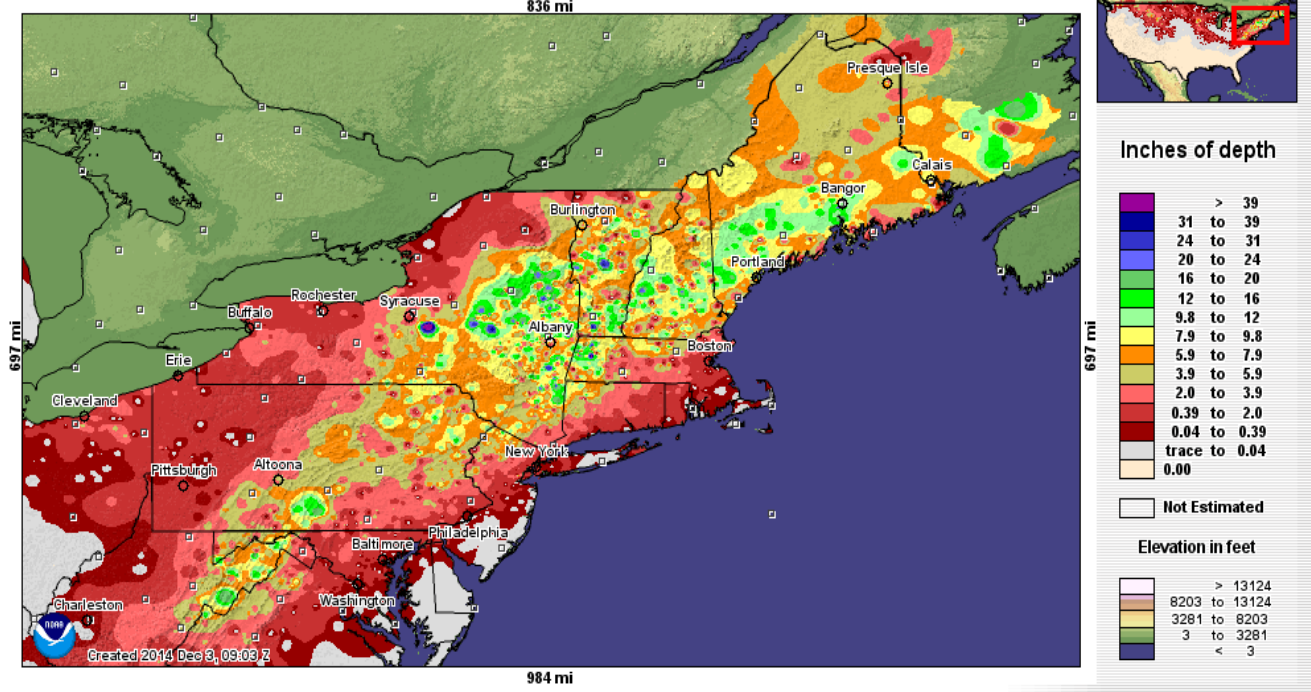


Figure 2: Total observed snowfall for the 48-hour period from 0000 UTC on 26 November to 0000 UTC on 28 November (courtesy of NOHRSC).