

Ohio Valley to Northeast Winter Storm 24-25 January, 2015

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Meteorological Overview: This storm system, while it did not pan out to be a blockbuster snow storm, underwent impressive rapid intensification through 24-25 January and delivered 4-8 inches of snow from the Ohio valley to New England (Figure 2). Initially, the snow began in the Ohio valley on 23 January as a deep 500 hPa trough was moving from the Plains eastwardly toward the East Coast. During the early hours of 24 January, snow began moving from the Ohio valley into the Northeast in response to the energy associated with the trough moving over the East Coast. By 1200 UTC, a surface low became defined off the Delmarva coast at 991 hPa. When this surface low formed, it caused wrap-around precipitation mostly in the form of snow to be confined near the Northeast coastline. As the surface low moved northward, the precipitation followed and a band of snow moved northward from the Northeast into New England. By the end of the day on 24 January, snow was falling mainly in eastern Maine. In addition to the snow, ice was also observed in the higher elevations of the Appalachians in West Virginia and Virginia.

During the early morning hours of 25 January, the 500 hPa trough had moved over Nova Scotia and was negatively tilted. This assisted the surface low to undergo rapid intensification. This process is often referred to as bombogenesis where a surface low pressure drops 24 hPa in 24 hours. By 0900 UTC, the low pressure had dropped 31 hPa of pressure and was recorded as 960 hPa over the province of Nova Scotia. As this low moved northward over eastern Canada, snow quickly tapered off in northern Maine by 1200 UTC on 25 January.

As shown in Figure 1, the main axis of snow fell just northwest and along the I-95 corridor from Philadelphia into New York City, in addition to coastal New England. In fact, this system delivered 4.4 inches of snow to Boston on 24 January just days before a much higher impact blizzard.

Impacts: Fortunately, timing lined up fairly well for this storm. Because it happened over a Saturday/Sunday period, this storm had minimal impacts on schools and traveling. However, this storm did bring enough snow to the Northeast and New England regions to increase the impacts of the blizzard that would affect those regions on 26-28 January.

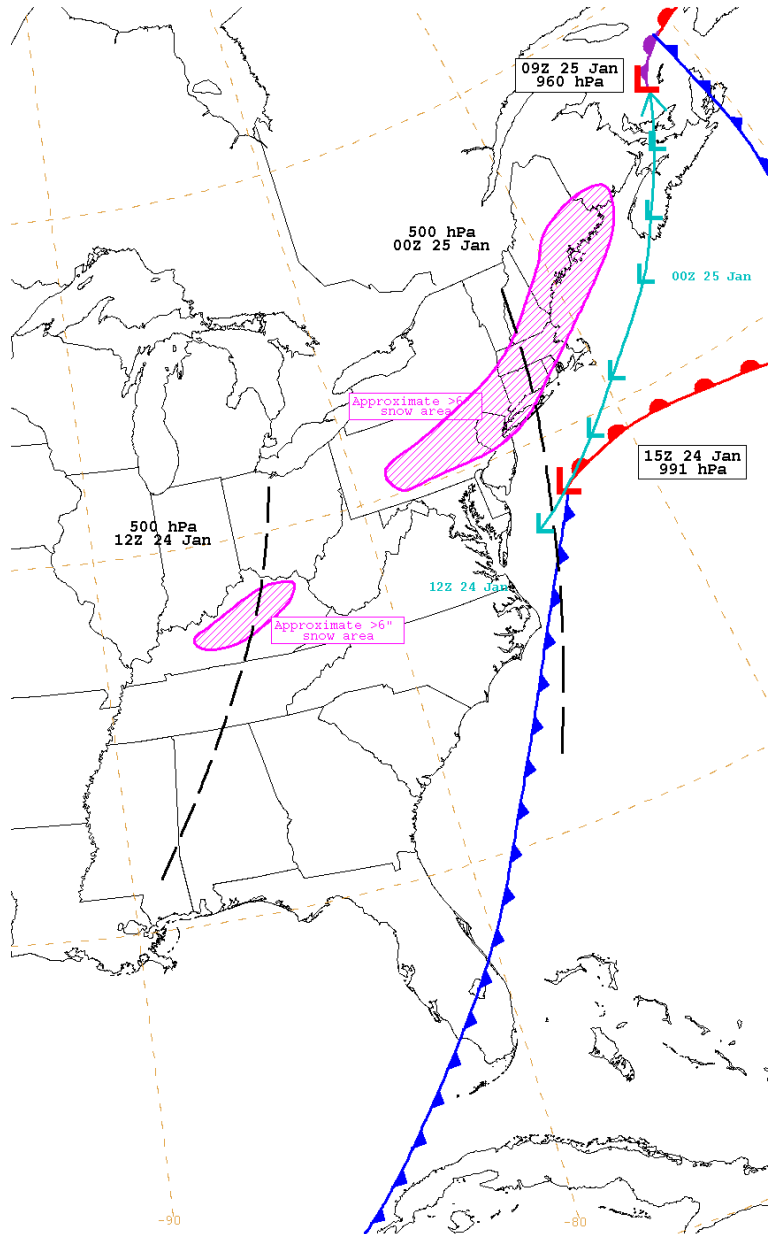


Figure 1: Surface low tracks (blue), 500 hPa trough (black), and approximate area of greater than 6 inches of snow (pink). The surface frontal analysis at 1500 UTC 24 January and 0900 UTC 25 January is also shown.

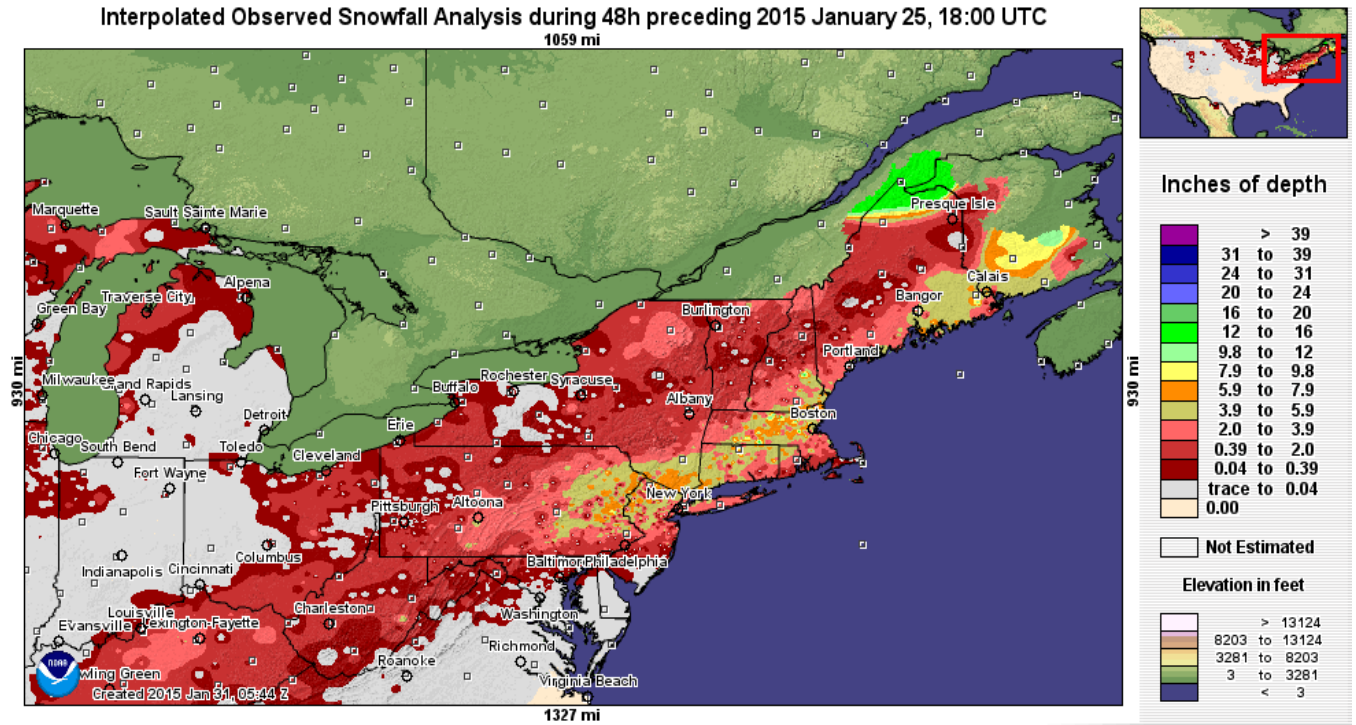


Figure 2: Total observed snowfall for the 48-hour period from 1200 UTC on 23 January to 1200 UTC on 25 January (NOHRSC).