

Northeast U.S. Winter Storm

8-10 February, 2015

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Meteorological Overview:

On 8 February a broad upper-level trough extended from the Upper Midwest to the Northeast. A series of shortwave troughs embedded within the broader scale trough promoted the development of a string of weak surface lows that moved east along a slow moving arctic front that extended from New England to the Midwest. North of the front, strong high pressure was centered over eastern Canada. Temperatures across the Great Lakes and Northeast ranged from the 0s to 30s Fahrenheit, while south of the boundary, a relatively warm air mass was in place with temperatures in the 50s and 60s across the Ohio valley and Mid-Atlantic States. During the day, light to moderate snow developed across much of New York and New England. Snow continued across this region through the overnight hours into 9 February. Shortwave troughs converging over the Great Lakes and upper Ohio valley promoted the development of a more defined surface low that moved from the upper Great Lakes into the upper Ohio valley (*Fig. 1*). The persistence of widespread light to moderate snow across the Northeast was supported in part by ample moisture and low level warm advection ahead of the low. Meanwhile, locally heavy snows developed across portions of eastern Massachusetts. The high pressure centered to the north across eastern Canada, along with low pressure approaching from the west, allowed for the development of a coastal front along the Massachusetts coast. As strong northeasterly winds drew Atlantic moisture into the region, the enhanced convergence afforded by the front, along with low to mid-level frontogenesis, contributed to the development of persistent bands of heavy snow from near Boston south along the South Shore. By late on 9 February, the coastal front began dissipate and snows began to diminish along the coast. As drier air spread across the region, snows began to taper off across much of the Northeast by early on 10 February.

Impacts:

For the 72 hour period ending 12 UTC on 10 February, snow accumulations of 6 inches or more were recorded across much of Upstate New York and New England. A foot or more was reported across portions of central New York to central and southern New England (*Fig. 2*). On 9 February, 14.8 inches was reported in Boston, tying the record daily maximum snowfall for that date. The heaviest totals for the event centered along the Massachusetts coast south of Boston, where over two feet were reported. Rockland, MA reported the highest total with 29 inches. This event occurred on the heels of other significant snowfall events. Boston established a record for the most snow recorded in a 30 day period (71.8 inches). This raised snow depths to around 3 feet across portions of the eastern Massachusetts. The report of 37 inches in Milton, MA was the city's largest reported snow depth since weather records began. Further to the north, observed snow depths were even greater. On 9 February, Bangor, ME tied its all-time record snow depth, previously set in 1969, at 53 inches. Following the reports of collapsing roofs in the Boston area due to the weight of the snow, homeowners and business owners were encouraged to remove the accumulated snow from their roofs. Travel disruptions due to the storm were widespread across the Northeast. In Boston, the Massachusetts Bay Transportation Authority suspended subway, trolley and commuter rail service late 9 February through the

following day. In Quincy, MA nearly 50 commuters had to be evacuated from a disabled train after being stranded for approximately 2 hours. More the 2000 commercial flights were canceled on 9 February. Most of those flights were scheduled to depart from, or arrive into Boston and New York City airports (USA Today). In Massachusetts, a state of emergency was declared and 500 National Guardsmen were deployed to assist with snow removal efforts. Massachusetts environmental officials gave cities and towns that had no place to put the accumulated snow permission to dump some of the snow into the ocean and other bodies of water, if necessary (Associated Press).

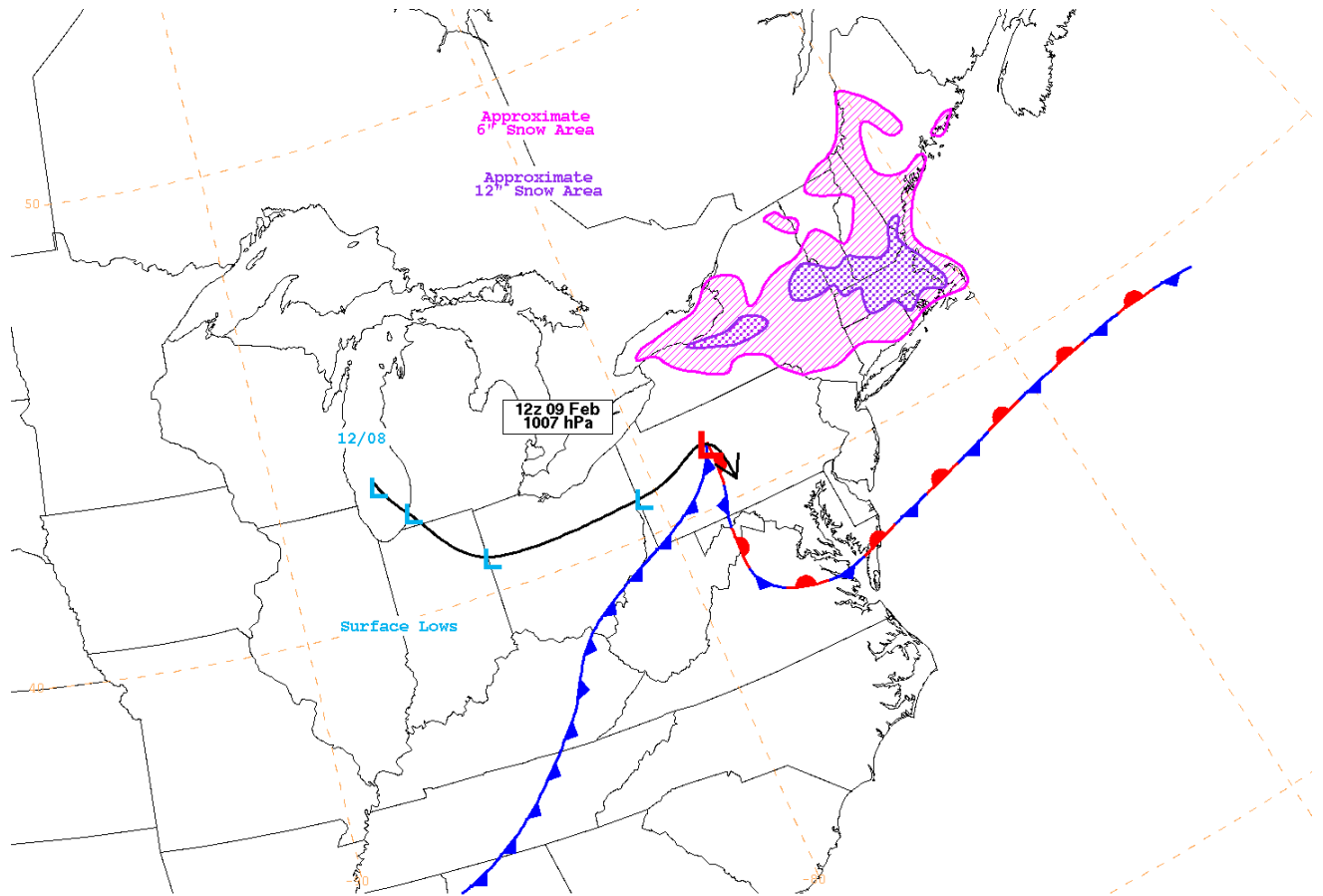


Fig 1: Surface low (blue) track, area of snow (magenta).

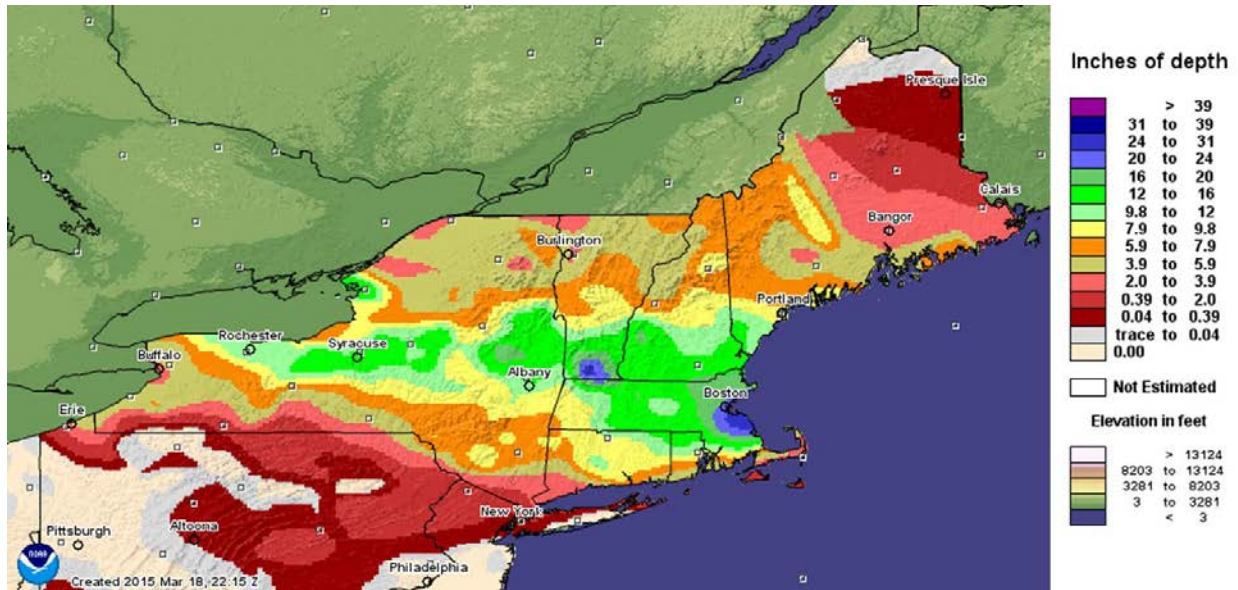


Fig 2: Total observed snowfall (interpolated) during 72h preceding 12 UTC on 10 February, 2015 (NOHRSC)