New England Winter Storm
February 5th-6th, 2016
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Meteorological Overview:

A quick moving winter storm brought a swath of accumulating snow to portions of the northeastern U.S. on Friday 5 February 2015 (Fig.1). Shortwave energy exiting the Lower Mississippi Valley on Thursday 4 February 2015, initiated the event as it crossed the Mid-Atlantic states and helped deepen a surface low along a frontal boundary stalled off the Eastern Seaboard early Friday (Fig. 2). The strengthening surface low and sharpening shortwave steadily lifted northeastward from the North Carolina coast to Nova Scotia on Friday, while heavy precipitation focused in an axis of strong 850-700mb frontogenesis that set up along coastal areas from central New Jersey to eastern Maine (Fig. 3). The combination of upper divergence within the right entrance region of a 300mb jet and modest 850mb moisture transport further enhanced precipitation, and although temperatures across the Northeast ranged from the upper 40's to lower 50's just one day prior to the event, dynamic cooling in addition to strong cold advection on the back side of the system lowered temperatures quickly enough to support snow or to change rain over to snow during the event (Fig. 4). The storm and associated heavy snowfall quickly lifted farther into the Canadian maritimes Friday evening, but not before leaving widespread snowfall accumulations greater than 4 inches across the Northeast, with a narrow axis of accumulations approaching or exceeding a foot extending from Long Island to Downeast Maine (Fig. 5).

Impacts:

Although this early February winter storm was not necessarily a blockbuster event for the Northeast, it managed to cause hundreds of flight delays and cancellations at some of the Nation's busiest airports, including LaGuardia, Boston Logan, and JFK. The storm also led to widespread school closings across the region, and rain changing to snow during the morning rush hour made for a messy morning commute for locations from eastern Pennsylvania to New York Friday morning. Also, over 100,000 residents were left without power where the heavy wet snow fell on trees and powerlines. This was the first big snowfall event of the season for locations from Boston and northward, while locations south of Boston had just received significant accumulations from the Mid-Atlantic blizzard just a few weeks prior to the event (see event review from "Historic Eastern U.S. Winter Storm").

Images:

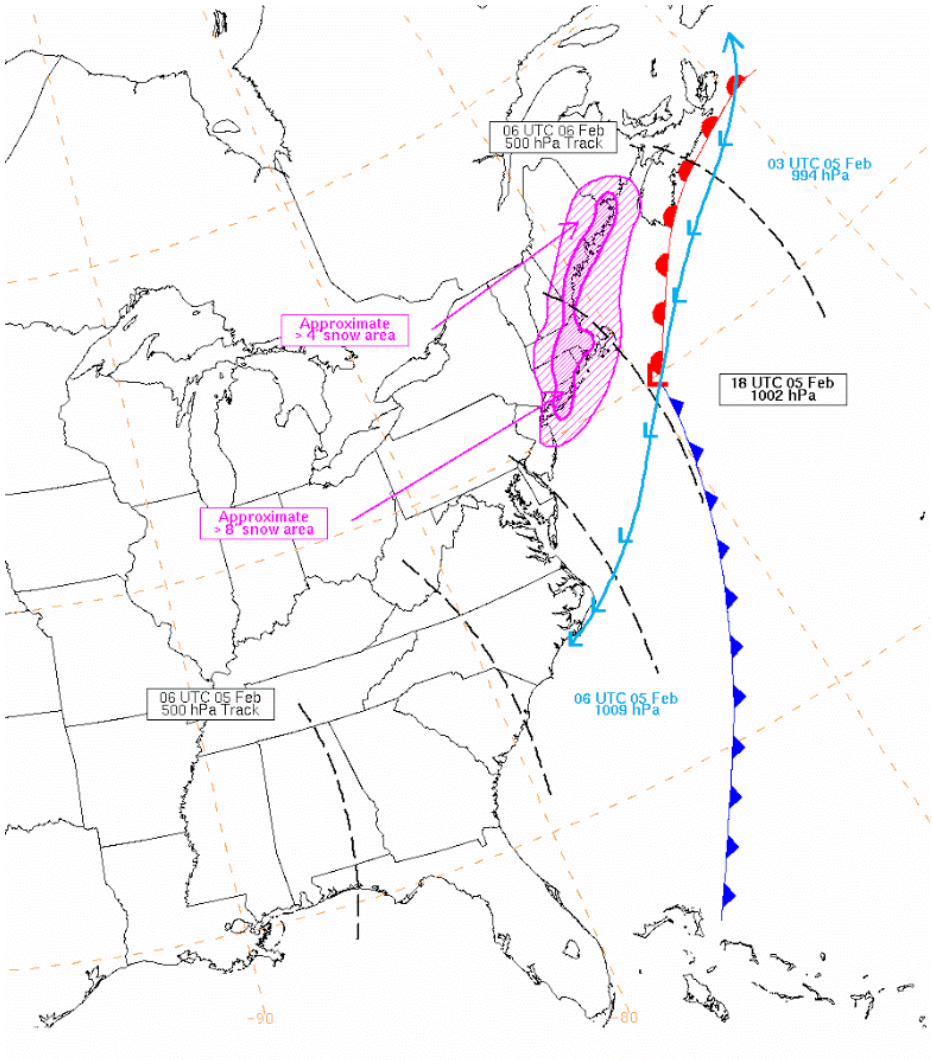
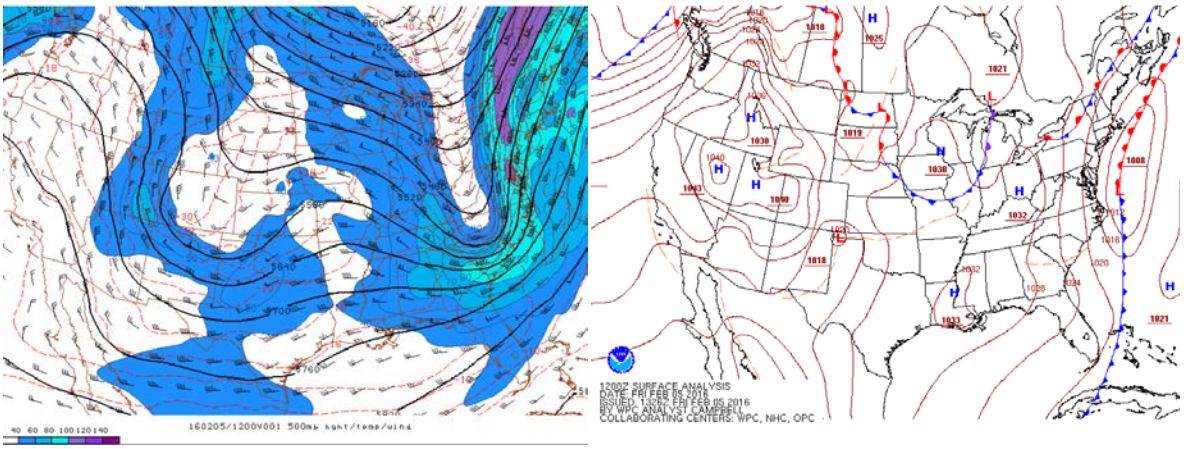


Figure 1: Summary of the New England winter storm (5-6 February, 2016) depicting the surface low track every 3 hours (cyan), the 500 hPa shortwave every 6 hours (dashed black line), approximate areas of greater than 4 and 8 inches of snow (magenta), and select surface analysis during the event (18 UTC 05 February, 2016).



a. b.

Figure 2: (a.) 500 hPa heights *(dm)*, temperature *(°C)* and wind *(kts)* , and (b.) surface analysis from 12 UTC 5 February, 2016 *(images courtesy of SPC and WPC)*.

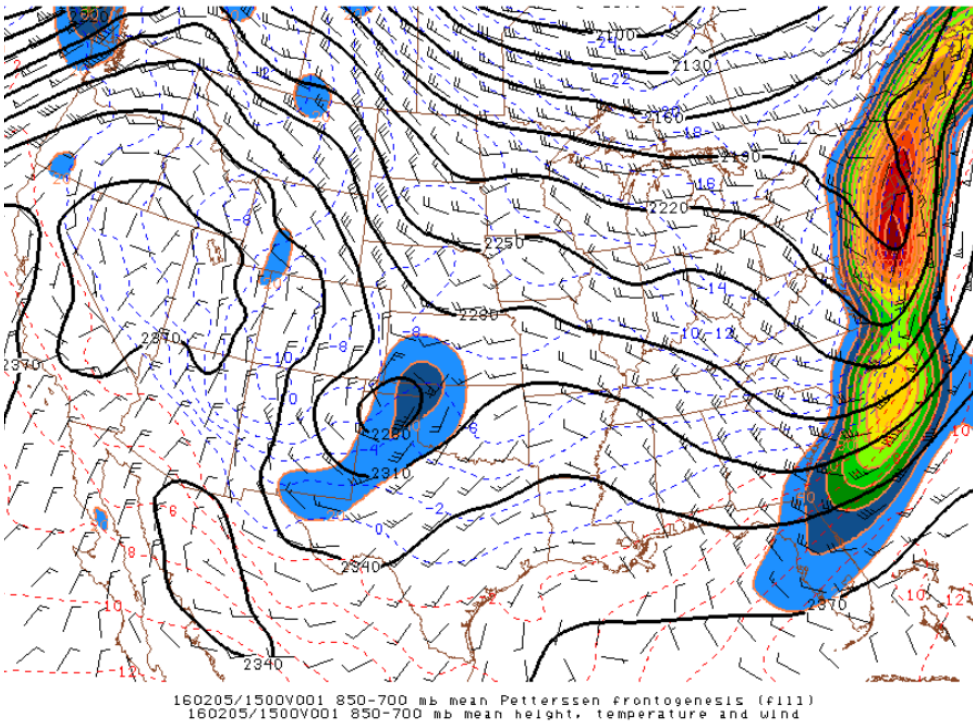


Figure 3: 850-700 hPa mean Petterssen Frontogenesis, mean height (dm), temperature (*°C)*, and wind (kts) from 15 UTC 5 February, 2016 *(image courtesy of SPC)*.

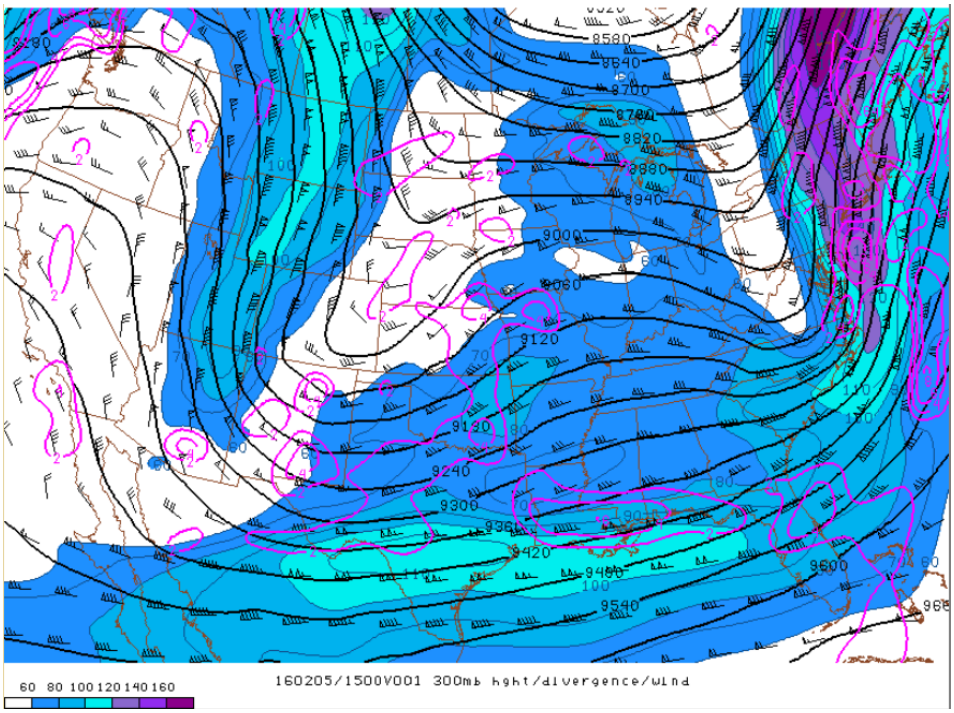


Figure 4: 300 hPa heights (dm), divergence (s^{-1}), and wind (kts) from 15 UTC 5 February, 2016 *(image courtesy SPC)*.

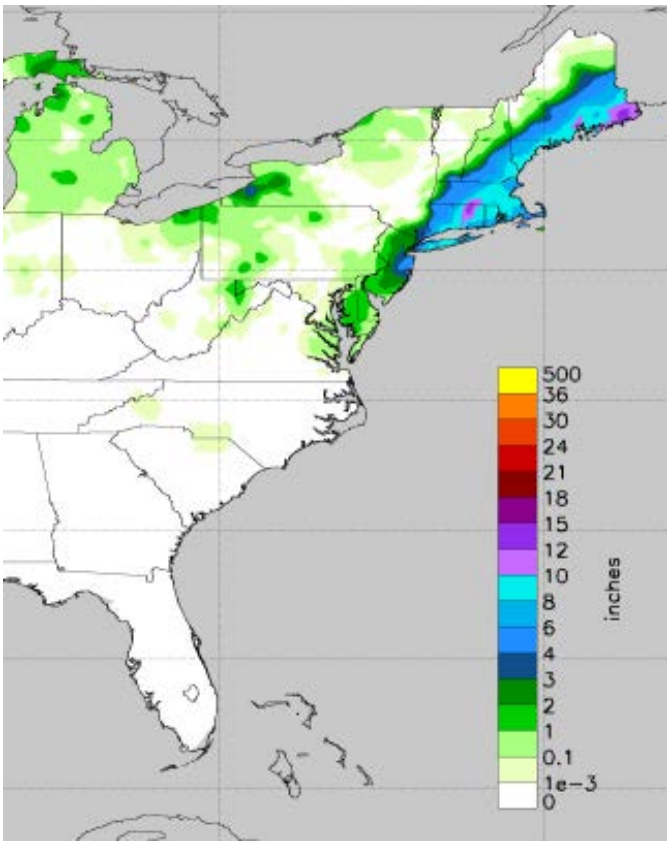


Figure 5: Snowfall analysis for 48 hours preceding 12 UTC 6 February, 2016 *(image provided by NOHRSC)*.