Northeast U.S. Winter Storm
12-14 February, 2017
By: Sean Ryan, WPC Meteorologist

Meteorological Overview:

A classic coastal low pressure system produced a significant snowfall event across much of the Northeast U.S. from 12-14 February, 2017 (*Fig. 1*). The event began in a relatively typical fashion for Northeast U.S. coastal storms, as a mid/upper-level shortwave trough in the northern stream crossed the Great Lakes on 12 February and quickly amplified as it phased with additional southern stream energy. As the amplifying shortwave interacted with a preexisting surface front across the Mid-Atlantic region, a surface low developed along the front across the Delmarva region between 12 and 18 UTC on 12 February. By this time snow was already developing across portions of the northern Mid-Atlantic and southern New England, the result of strengthening low-level warm advection. The snow would continue to increase in coverage and intensity into the afternoon and evening of 12 February, particularly across New England.

The system then underwent rapid intensification over the next 24-36 hours as it moved northeastward off the Mid-Atlantic and Northeast U.S. coastline. The low deepened from 1005 hPa along the Mid-Atlantic coast at 18 UTC 12 December, to 968 hPa east of Maine at 18 UTC on 13 December, an incredible 37 hPa decrease in pressure over a 24-hour period. As the system reached its peak intensity on the morning of 13 February, the low track curved to the left for a period of 6-8 hours, which prolonged heavy snowfall across eastern Maine. Low/mid-level frontogenetic forcing also maximized across eastern New England early on 13 February, as a strengthening warm conveyor belt wrapped around the northwestern side of the cyclone, which further increased the intensity of snowfall. Additionally, high winds developed across much of the Mid-Atlantic and Northeast in response to the rapidly deepening low pressure system offshore, with wind gusts of 50-70 mph reported at many locations. By 00 UTC on 14 February, the surface low began to pull eastward away from New England more quickly, bringing the snow and wind to an end.

Impacts:

The storm produced very heavy snowfall amounts across New England, especially Maine, where totals exceeded two feet at many locations (*Fig. 2*). The highest snowfall total of 36 inches was reported near Jonesboro, Maine. Relatively lighter amounts of 1 to 2 feet were common across the rest of New England and across Upstate New York. Travel impacts from these heavy snowfall amounts were widespread, with numerous automobile accidents reported across the Northeast. Additionally, the intense wind gusts led to downed trees and power lines for some areas. Some trees fell on homes, and one man in Pennsylvania was killed when a large tree

branch came crashing through the windshield of his vehicle. Total property damage associated with the event was estimated at $3.9 million, the majority of which resulted from high winds.

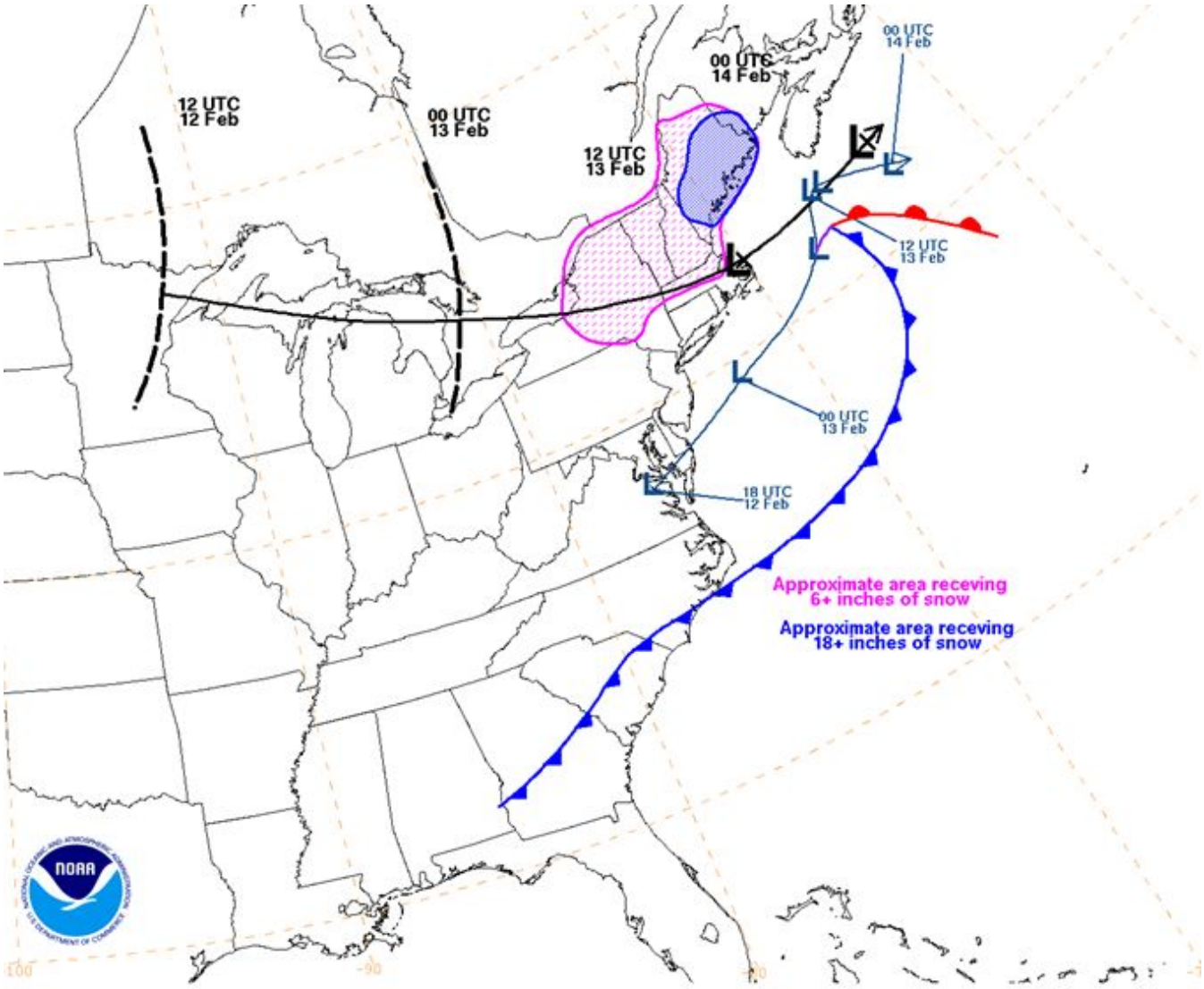

Figure 1: Approximate areas receiving greater than 6 inches (magenta) and 18 inches (blue) of snow, surface low track (teal), 500 hPa trough axis (black) from 12-14 February, 2017. Surface frontal positions are taken from the WPC surface analysis at 06 UTC on 13 February.

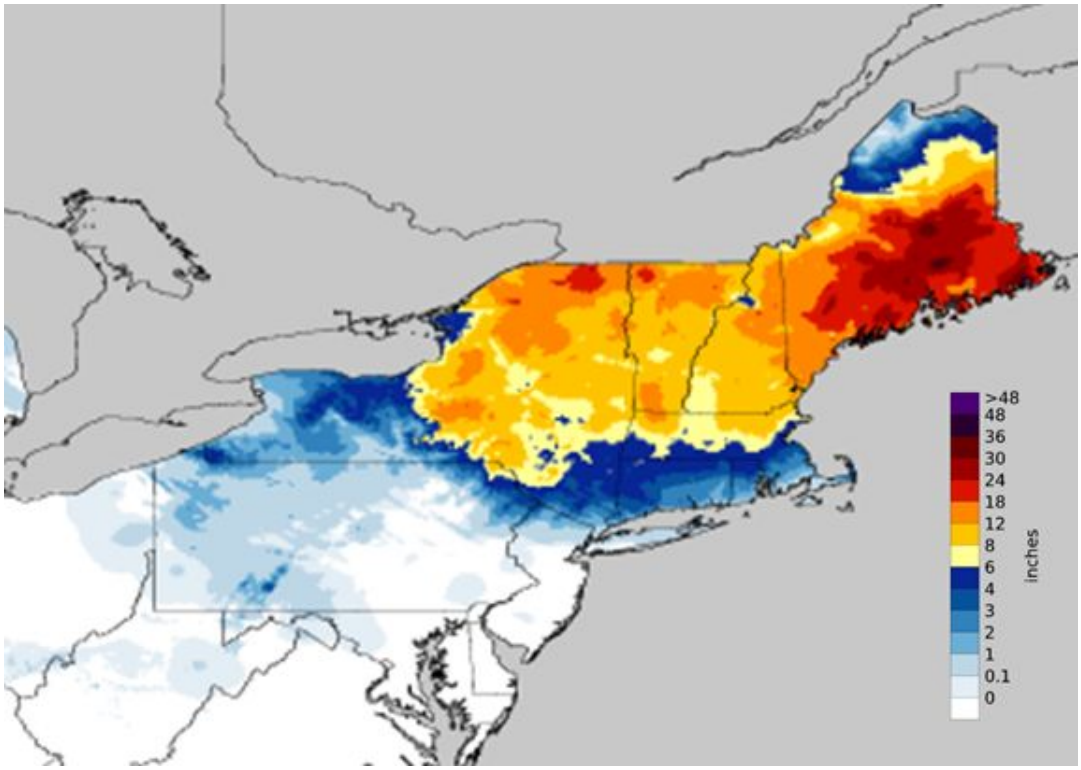

Figure 2: Total snowfall accumulation from 12-14 February, 2017. (NOHRSC)