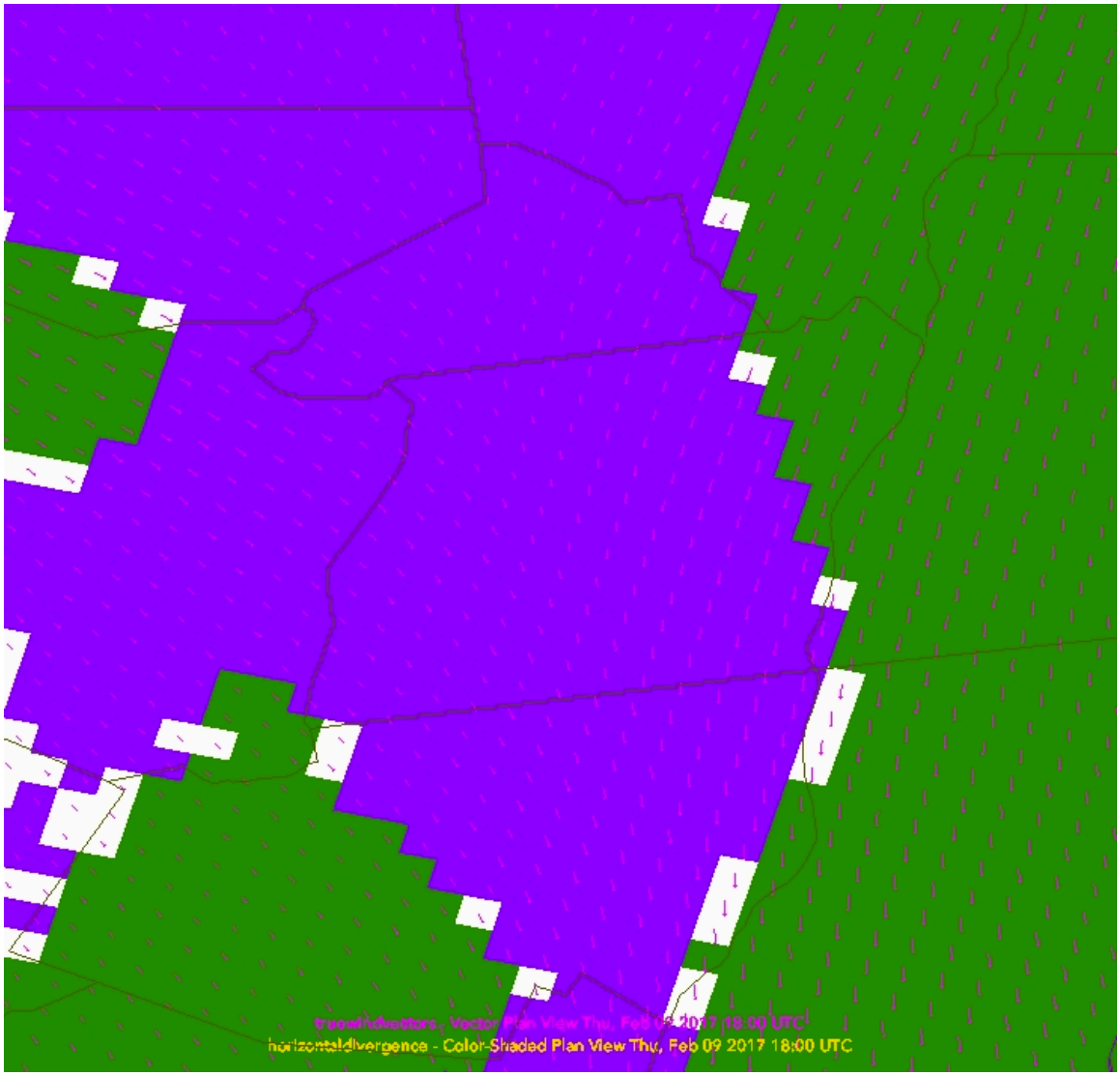
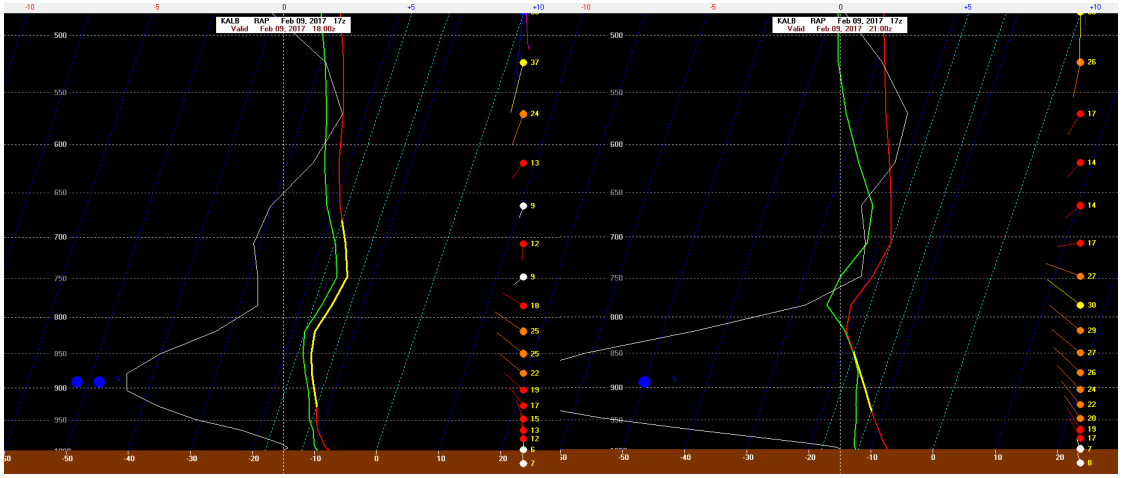
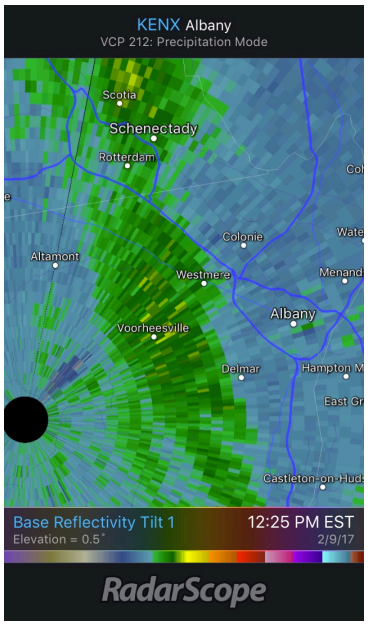
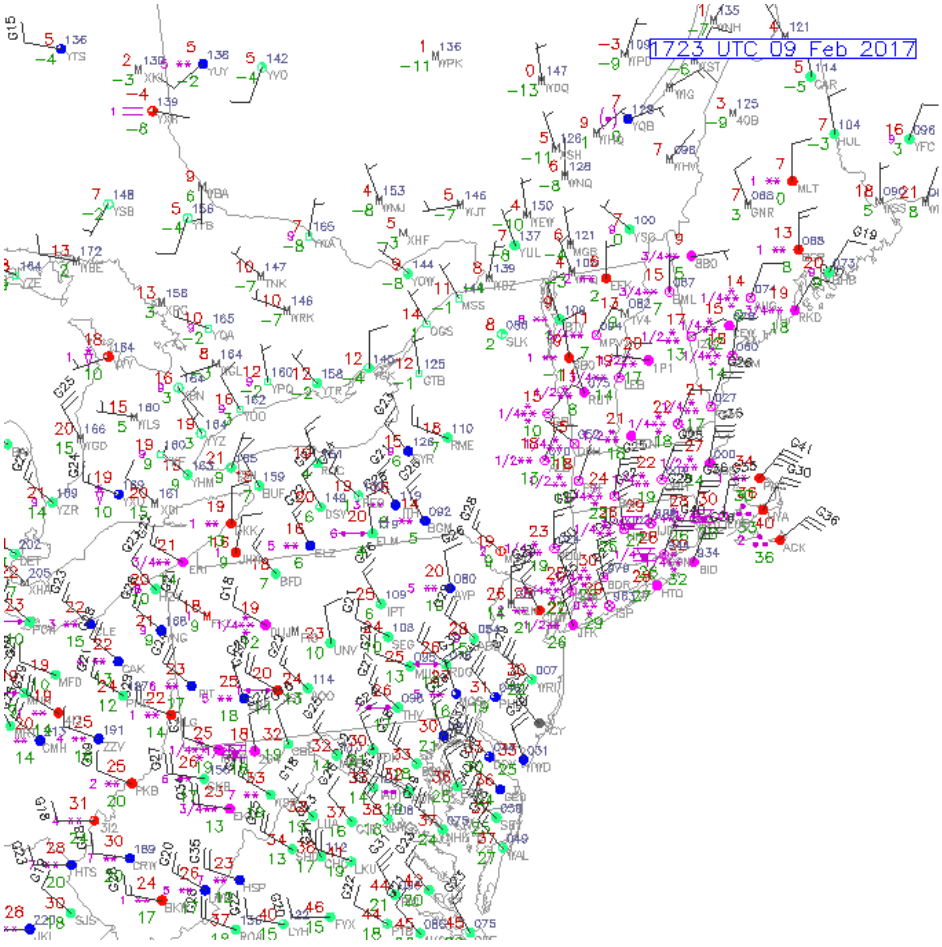


950 hPa convergence from 1300 UTC HRRR run, verifying at 1800 UTC (Kevin Tyle)

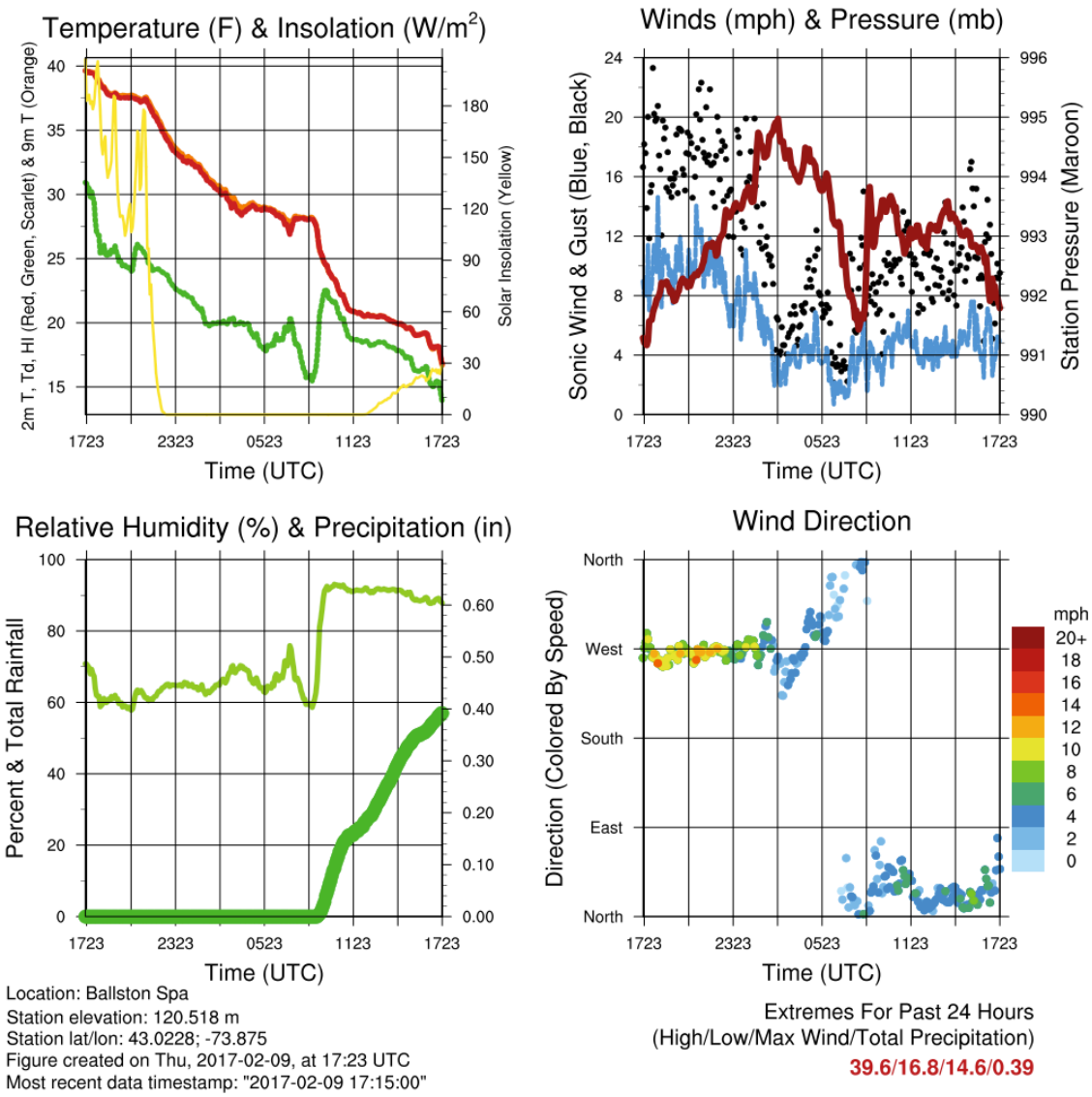

BUFKIT soundings from 1700 UTC run of the RAP, verifying at 1800 UTC (left) and 2100 UTC (right)…(Kevin Tyle)



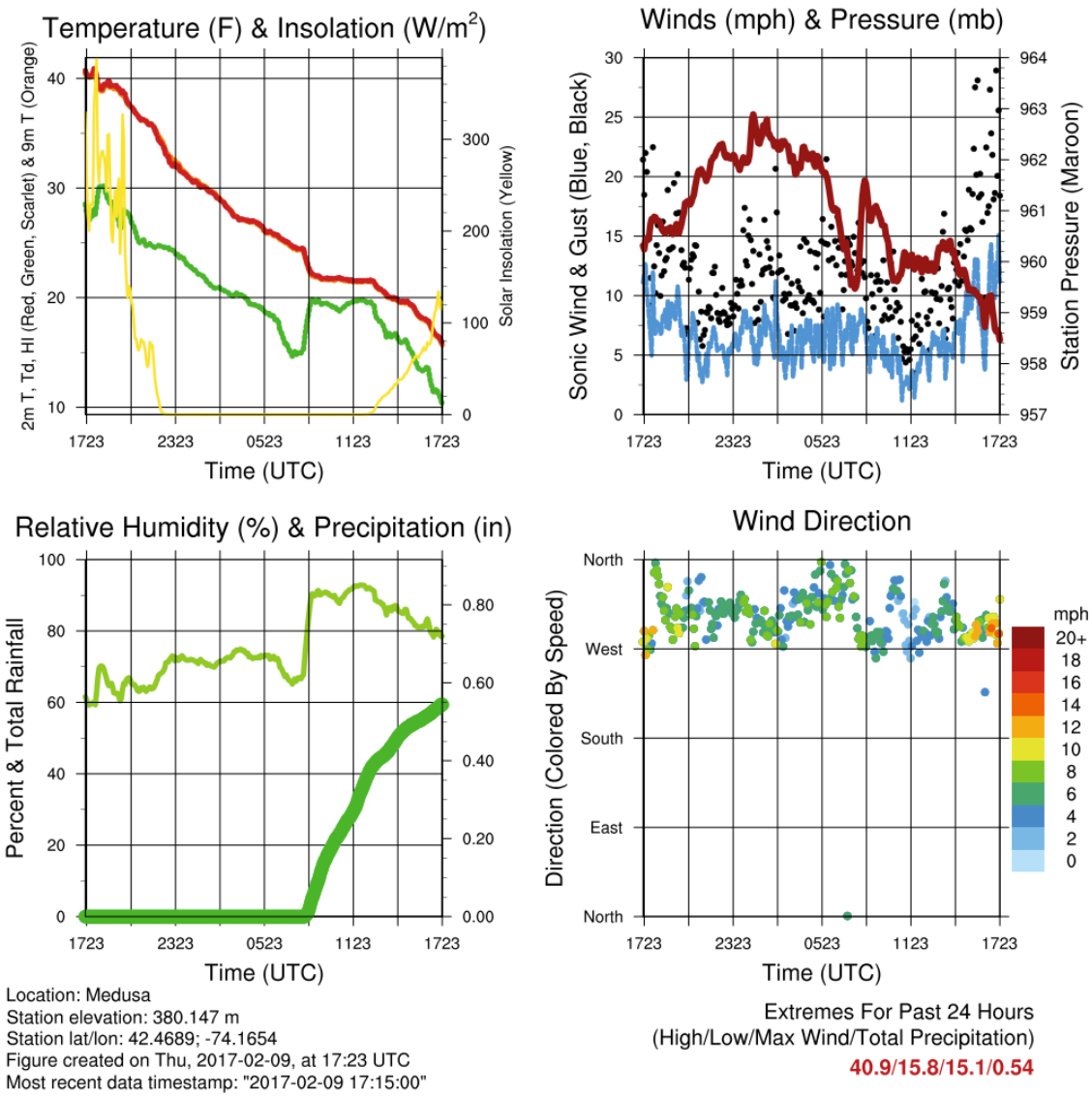
Radarscope image at 12:25 PM 9 Feb 2017, displaying the Mohawk-Hudson Convergence Band (Lance Bosart)



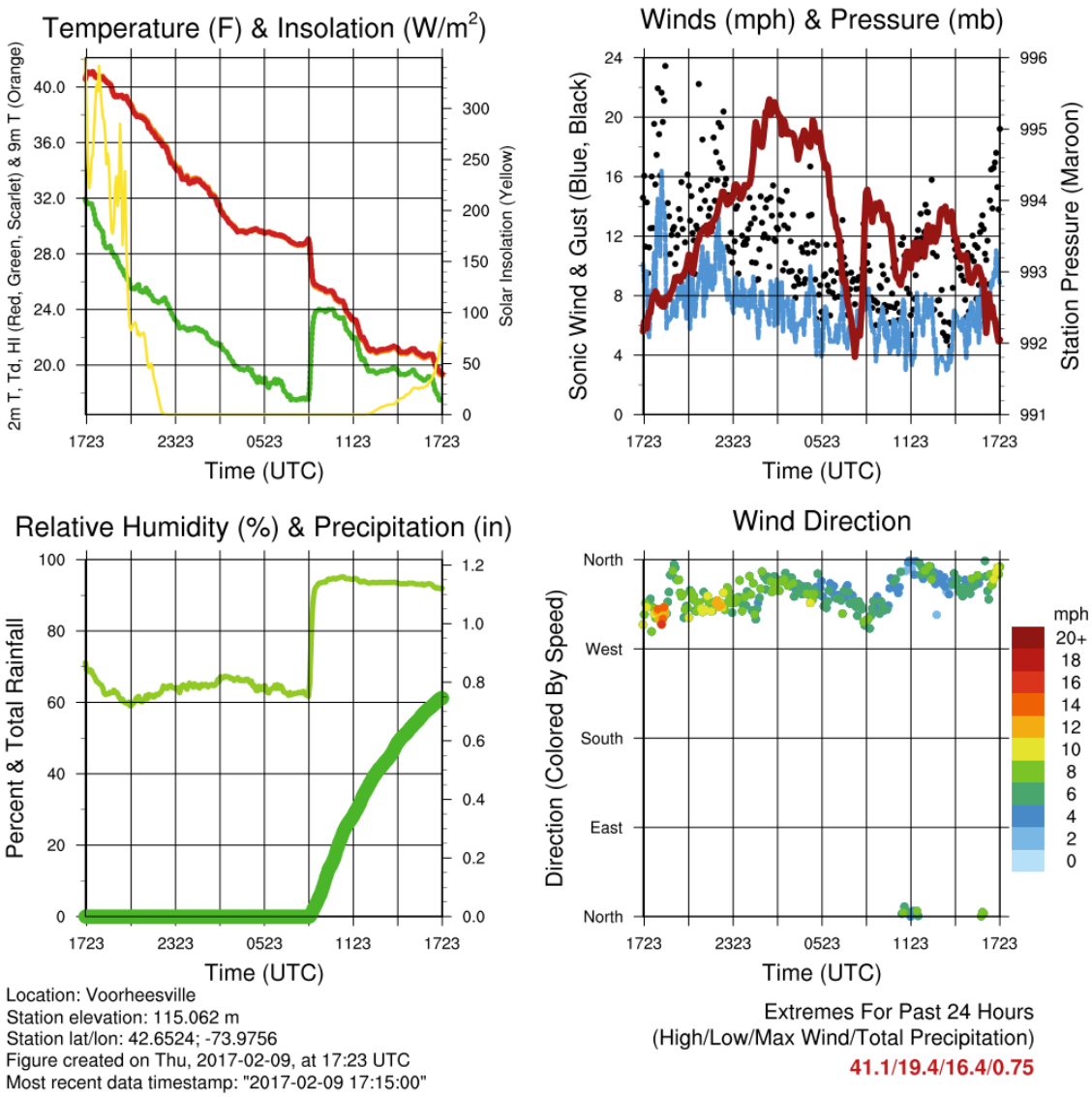
UCAR Surface analysis at 1723 UTC 9 Feb 2017 (Lance Bosart)



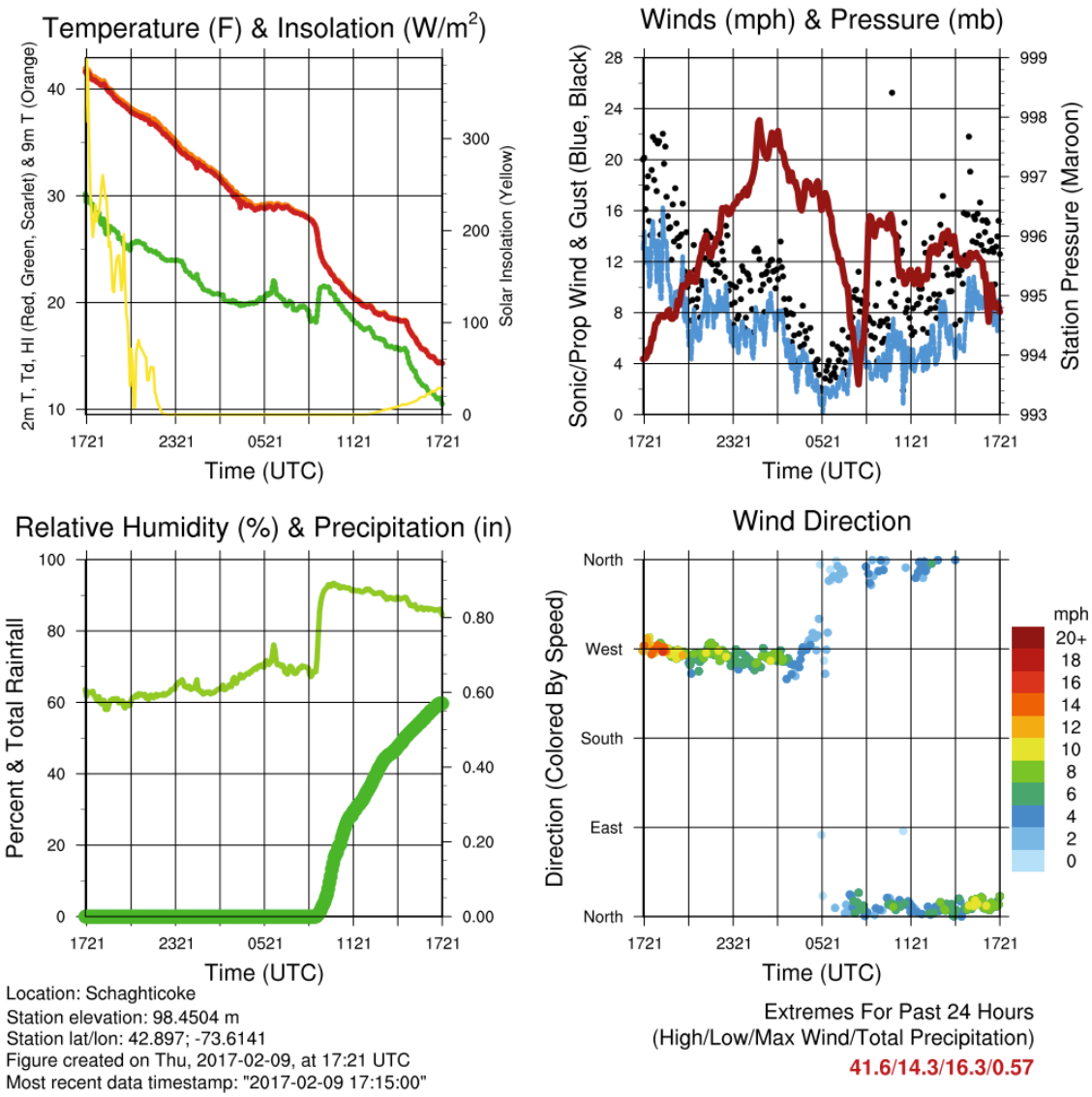
Assorted NYS Mesonet data for the Ballston Spa station (Nick Bassill)



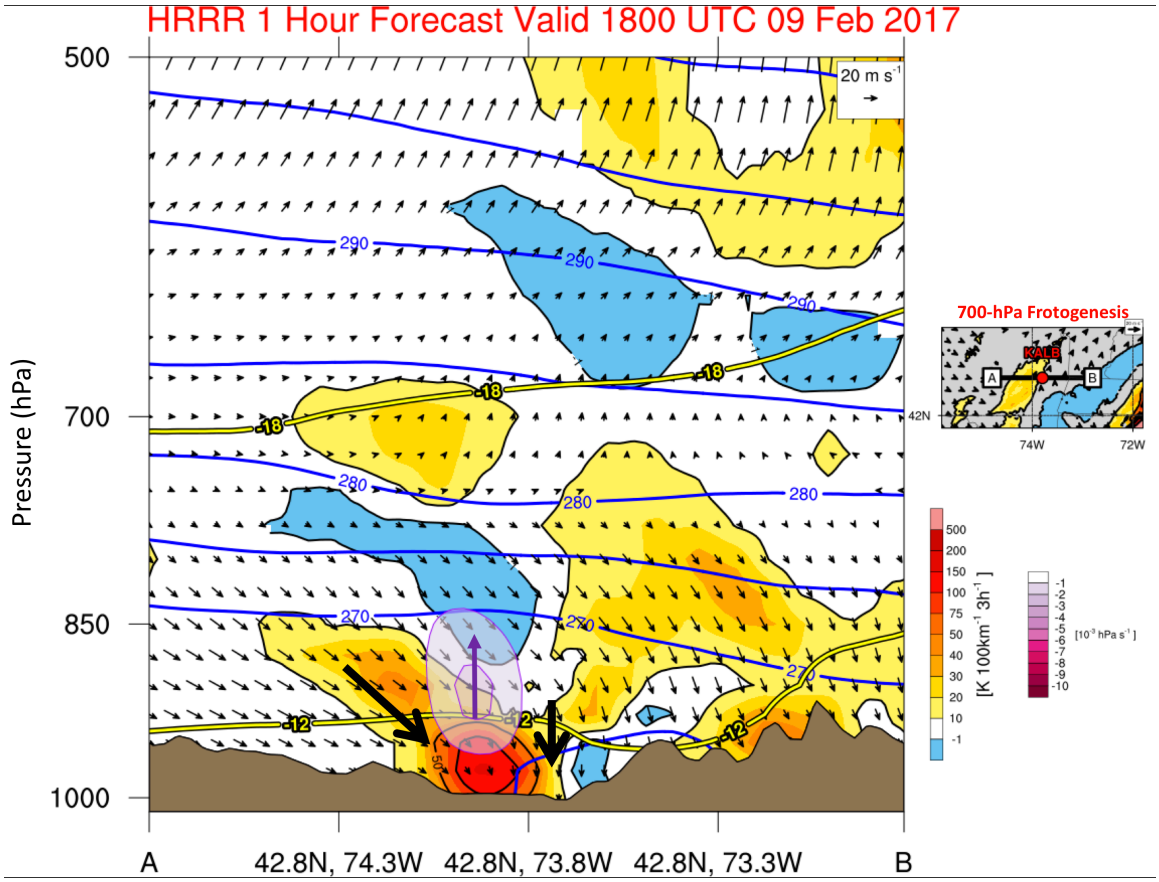
Assorted NYS Mesonet data for the Medusa station (Nick Bassill)



Assorted NYS Mesonet data for the Voorheesville station (Nick Bassill)



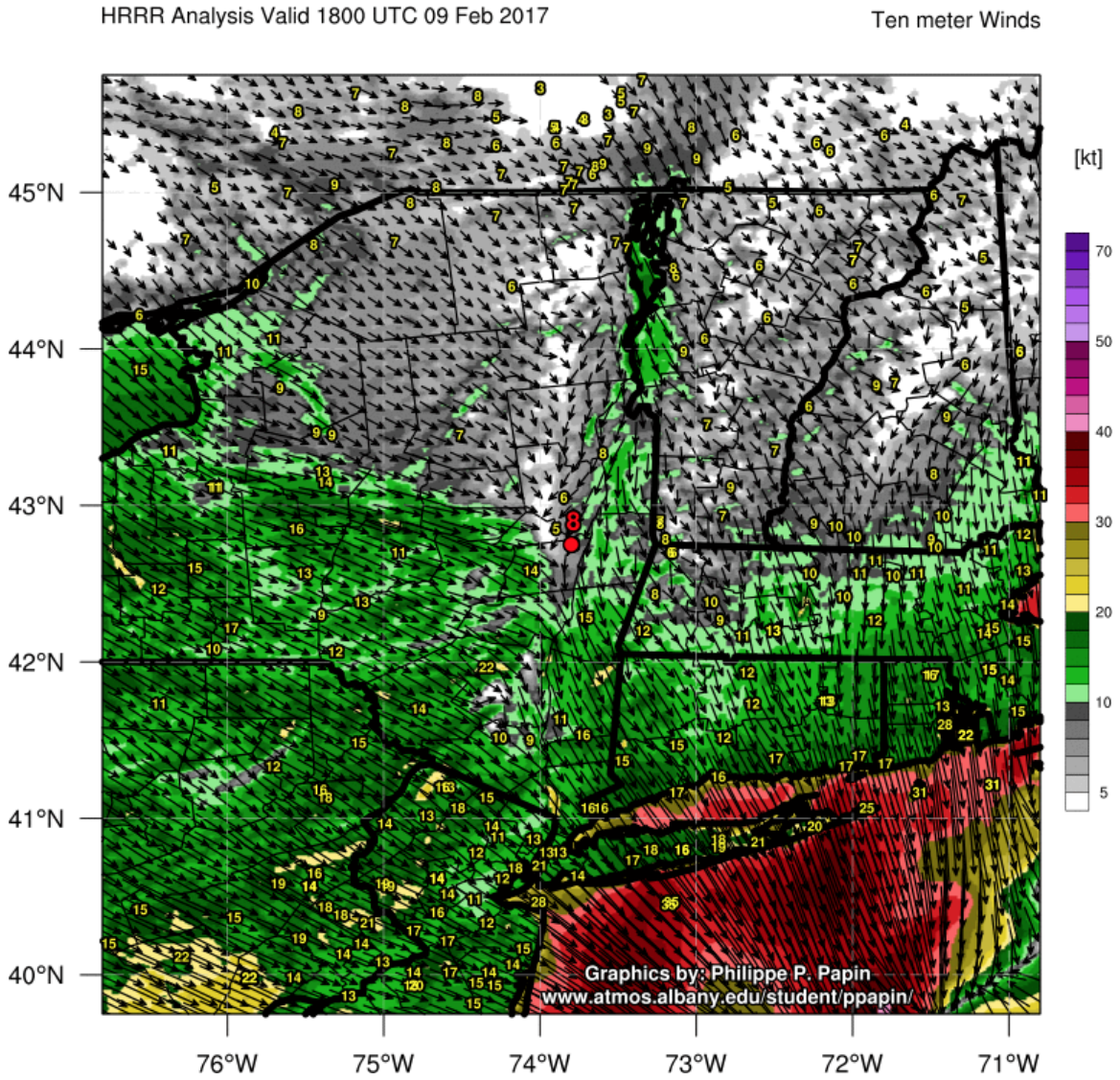
Assorted NYS Mesonet data for the Schaghticoke station (Nick Bassill)



Plot produced by Philippe Papin. His text from the email explains things…
Here is a vertical cross-section across the Hudson river valley (center point is KALB).

Warm shaded colors are frontogenesis (K 100km^-1 3hr), Purple shading is ascent (10^-3 hPa s^-1), and winds are in vectors (kt). The -12C and -18C isotherms are also outlined in yellow.

It is pretty obvious the HRRR is picking up on the local frontogenesis generated by the confluence of surface flow. In addition, note that nearly all of the vertical motion it produces is in the dendritic growth zone (DGZ; -12 to -18C area). Thus, this MHC event has been particularly effective at generating high snowfall rates because of where it is producing its vertical motion. I'd hypothesize that the most impressive MHC events feature relatively cold temperatures near the surface so that low-level ascent can tap into the best temperatures for ice crystal growth.



HRRR 10m wind analysis at 1800 UTC 09 Feb 2017 (Philippe Papin)