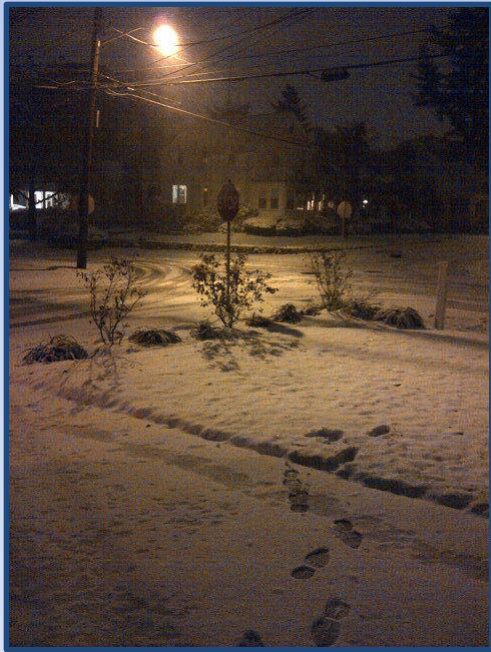


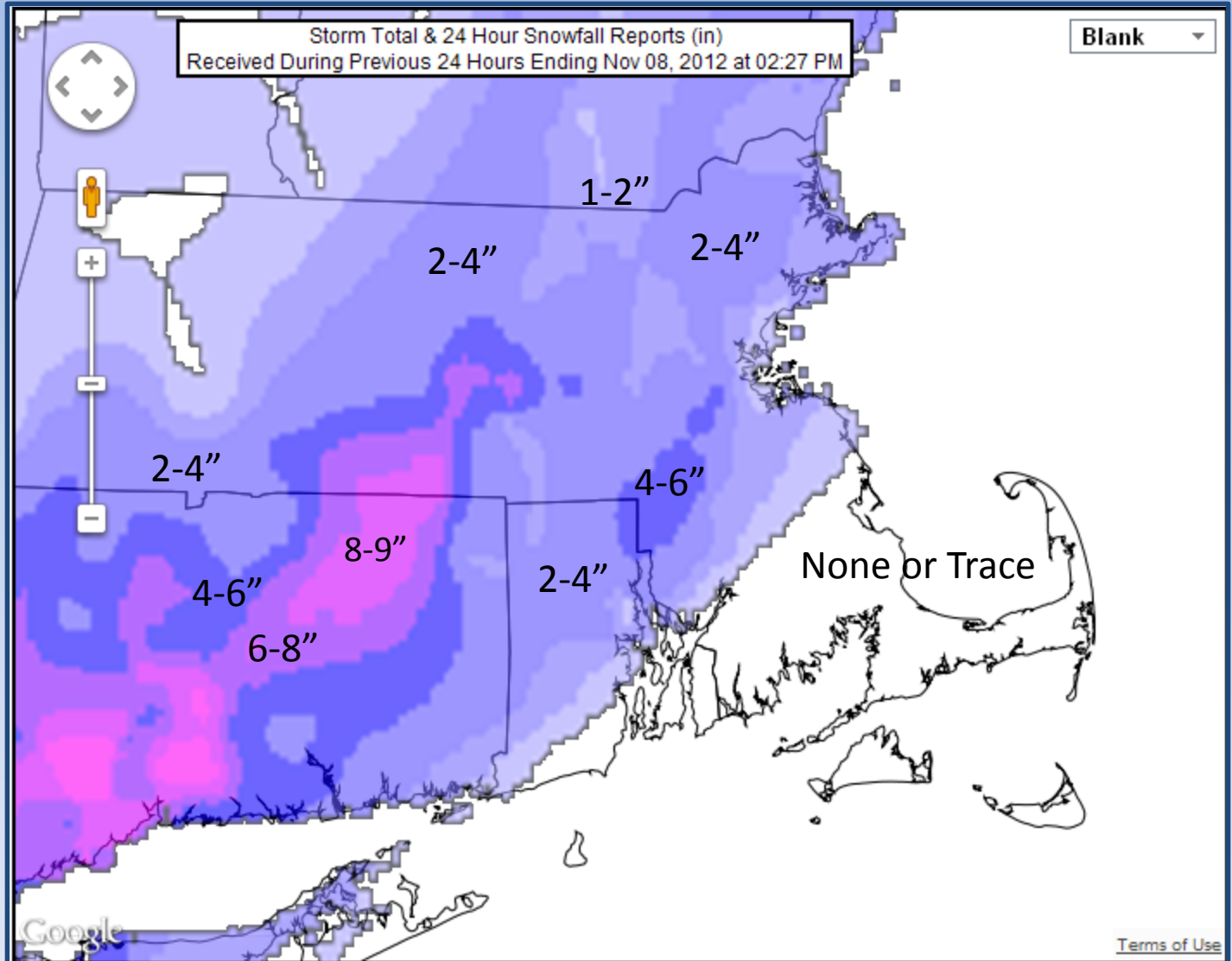
November 7-8, 2012  
Coastal Storm:  
*Using Dual-Pol to Assess  
Precipitation Type*



Joe DelliCarpini  
SOO WFO Boston



# What Happened



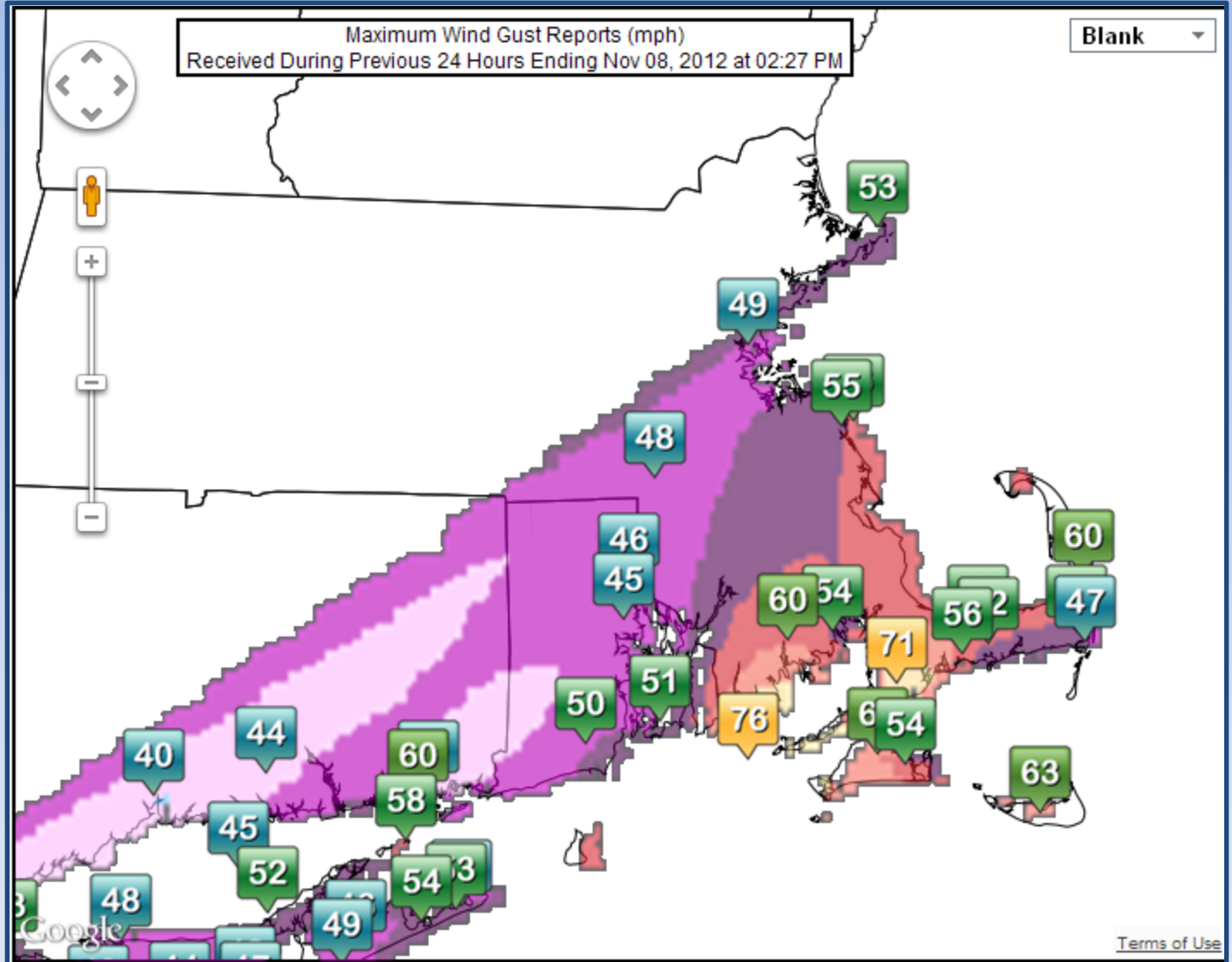
Max snowfall of 6-9" across northern CT and south central MA

2-4" along I-95 with pockets of 4-6" just NW of coastal front

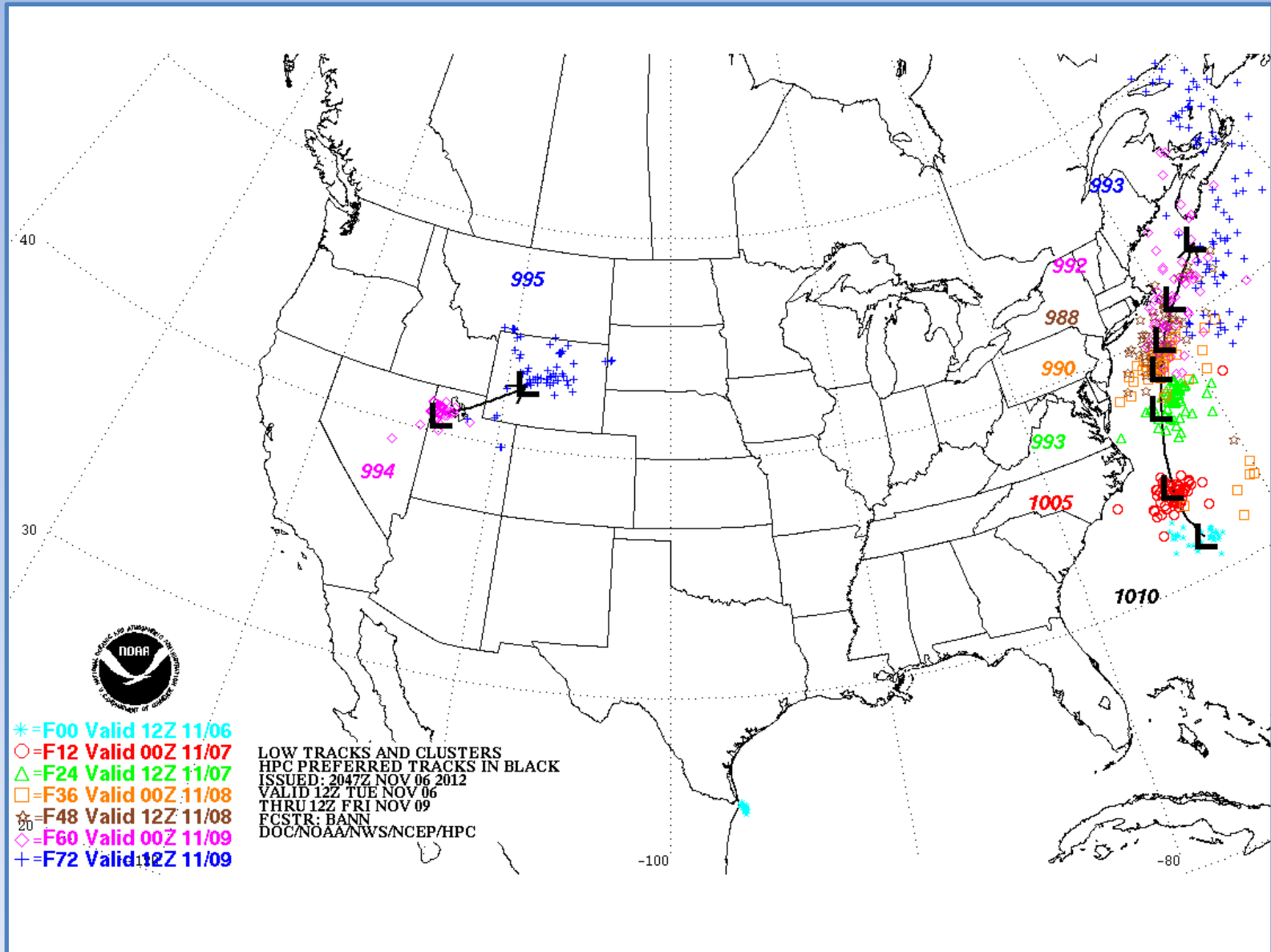
# What Happened

Wind gusts of 50-60 mph near the coast, over 70 mph on parts of the South Coast.

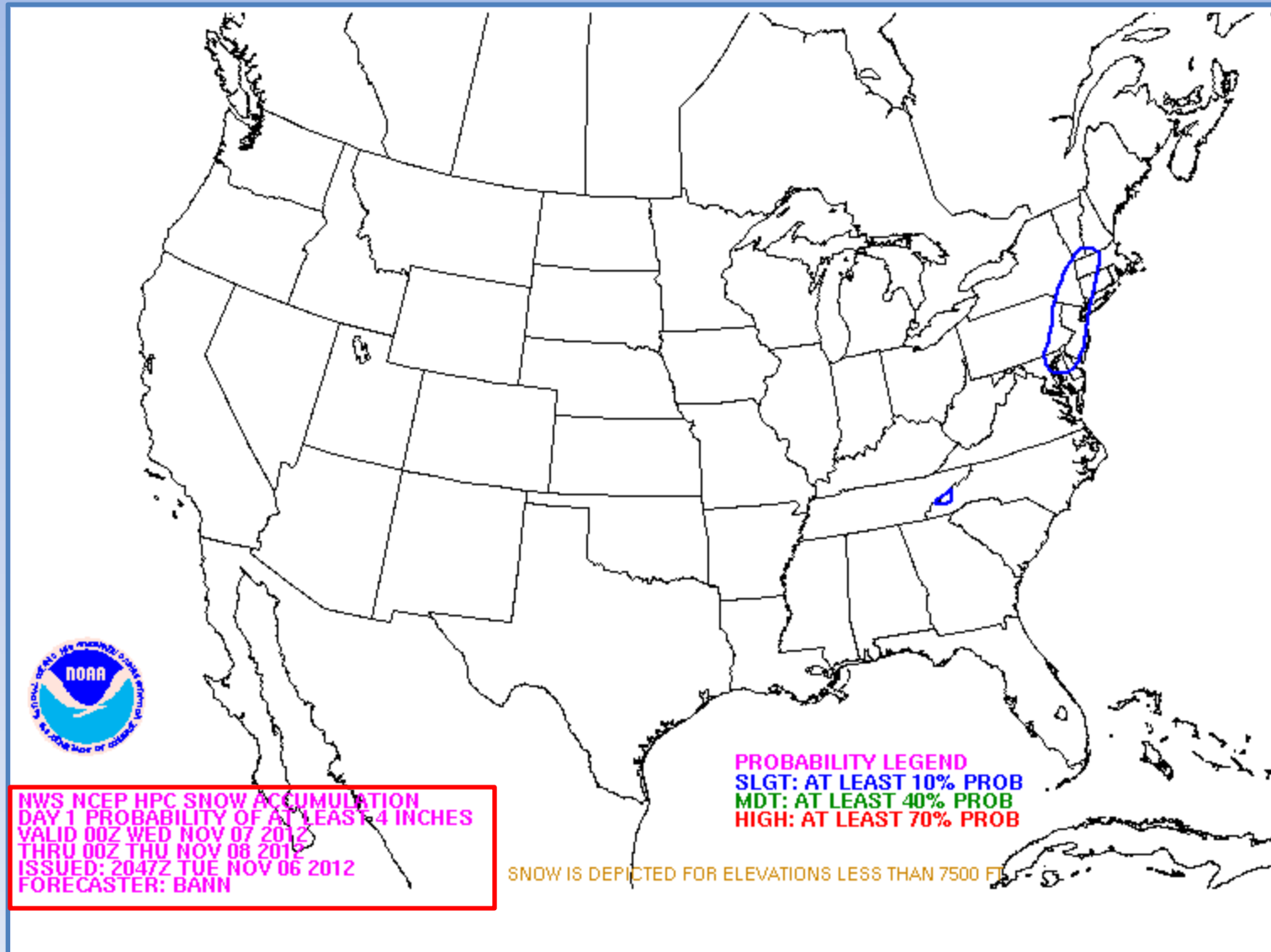
Gusts of 40-50 mph inland on the warm side of the coastal front.



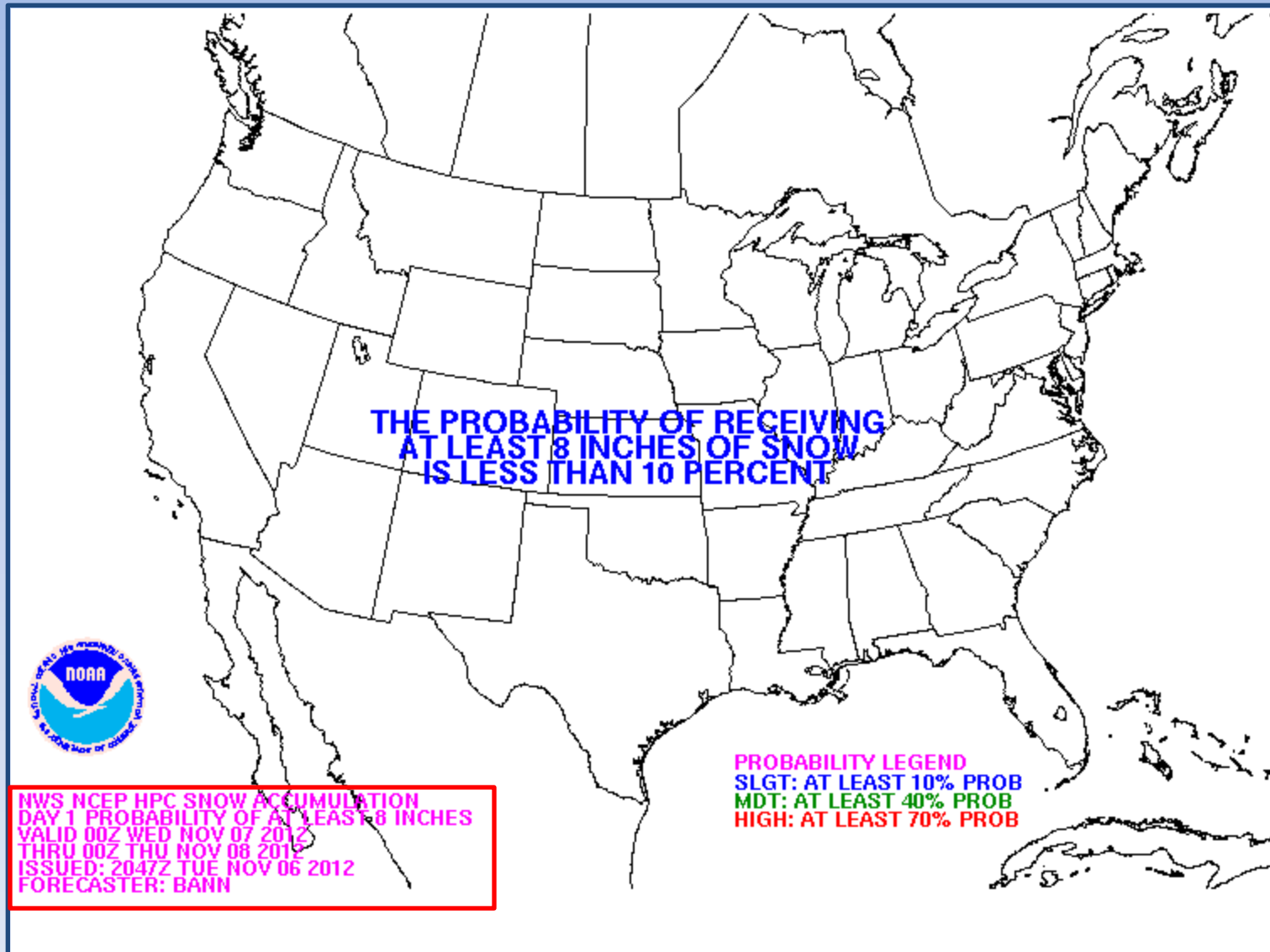
# Surface Low Track



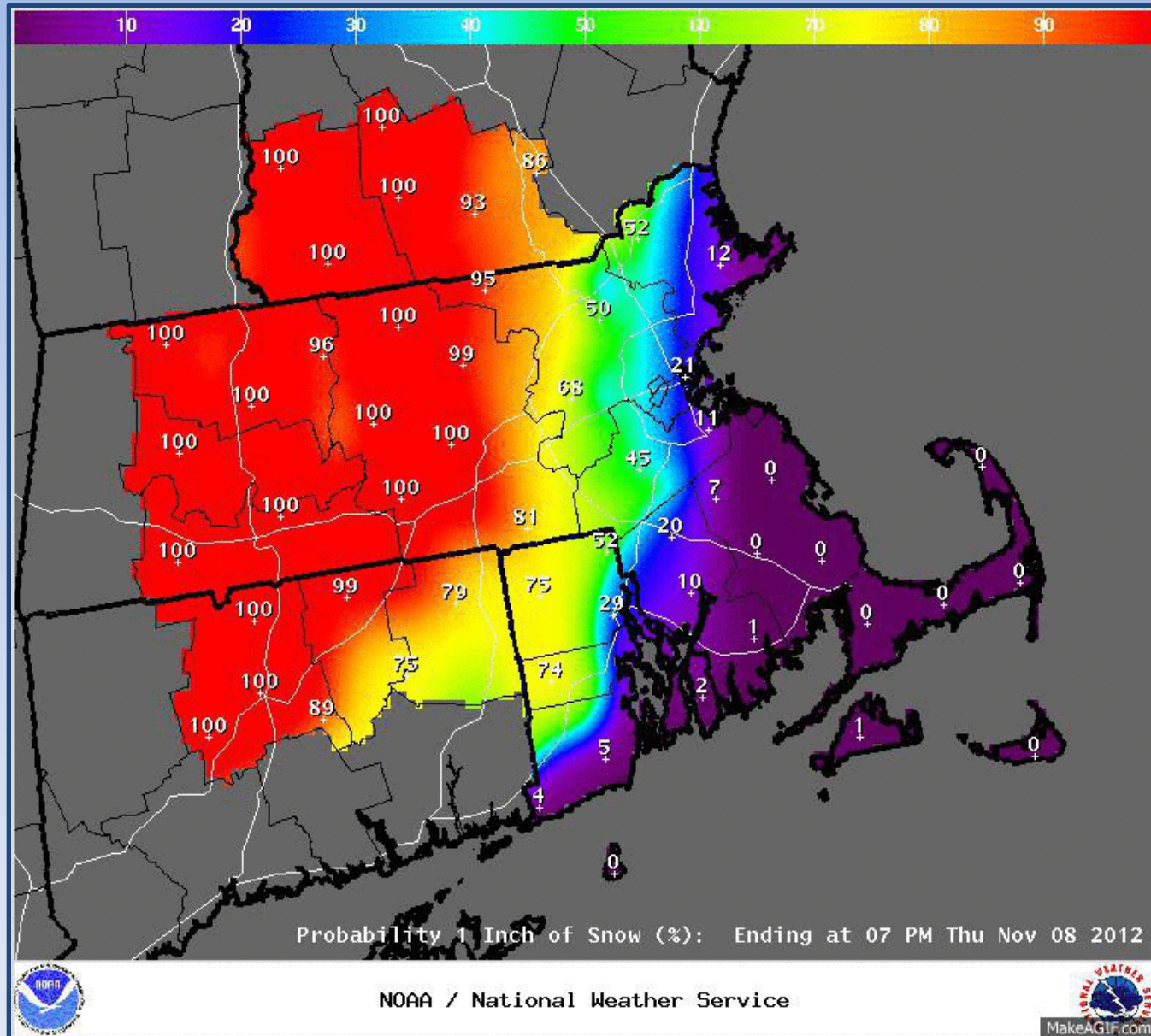
# HPC 4" Snowfall Probability



# HPC 8" Snowfall Probability



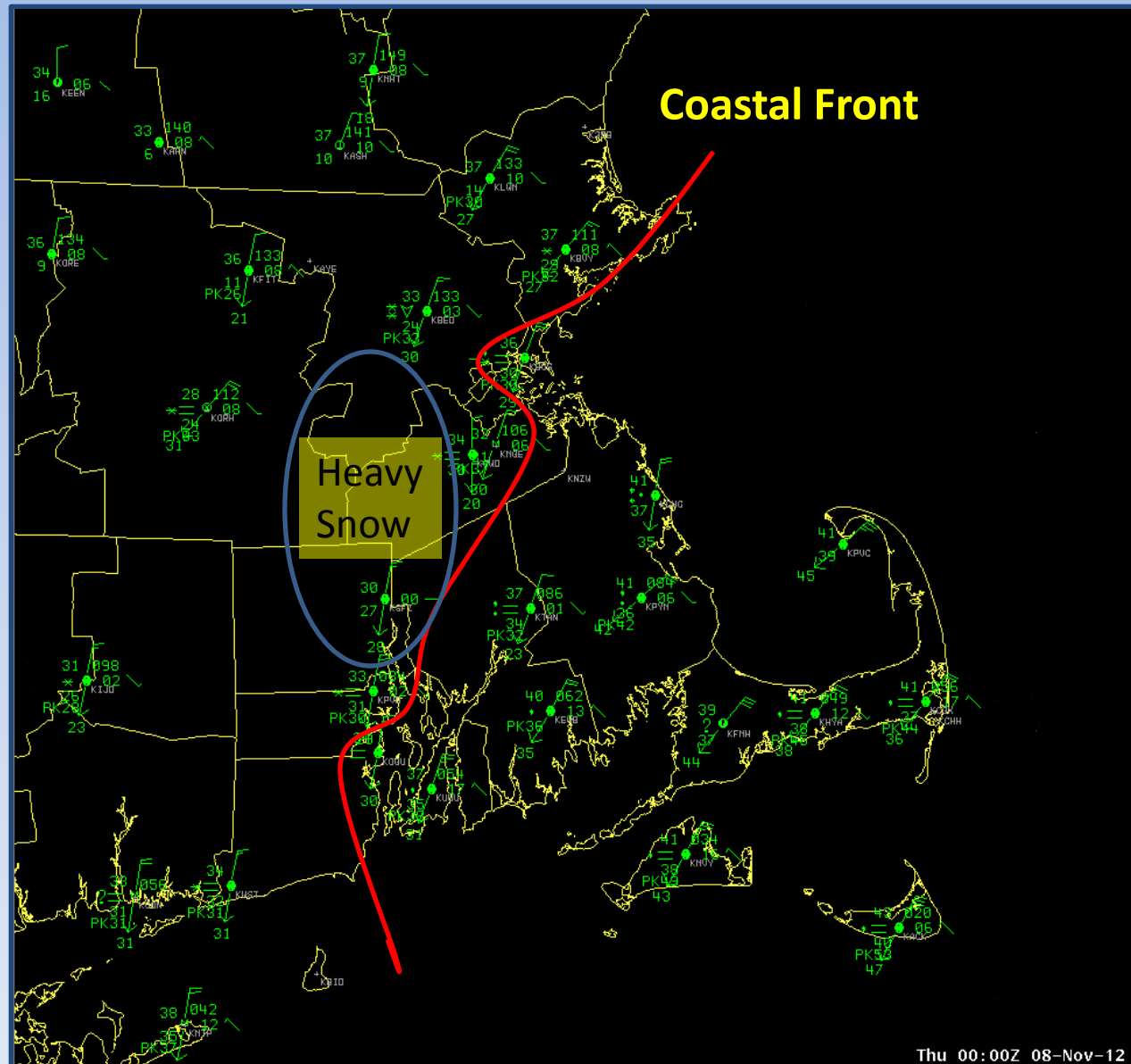
# BOX Snowfall Probabilities



# 00z Surface Plot

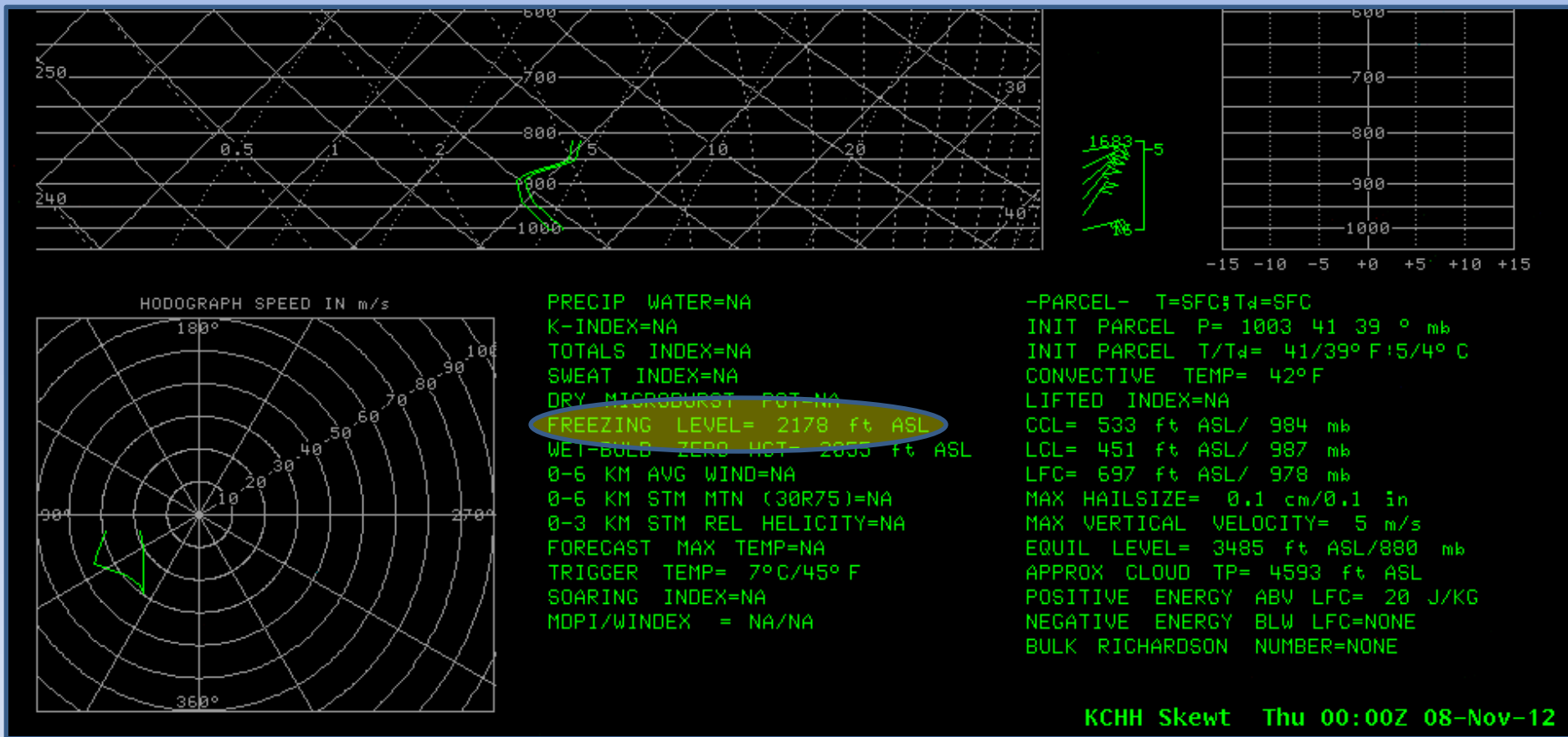
Temperatures in the 30s with snow west of the front; 40s with rain to the east.

Bands of heavy snow set up just west of the boundary across northern Rhode Island and interior eastern Massachusetts





# 00z Chatham, MA Sounding



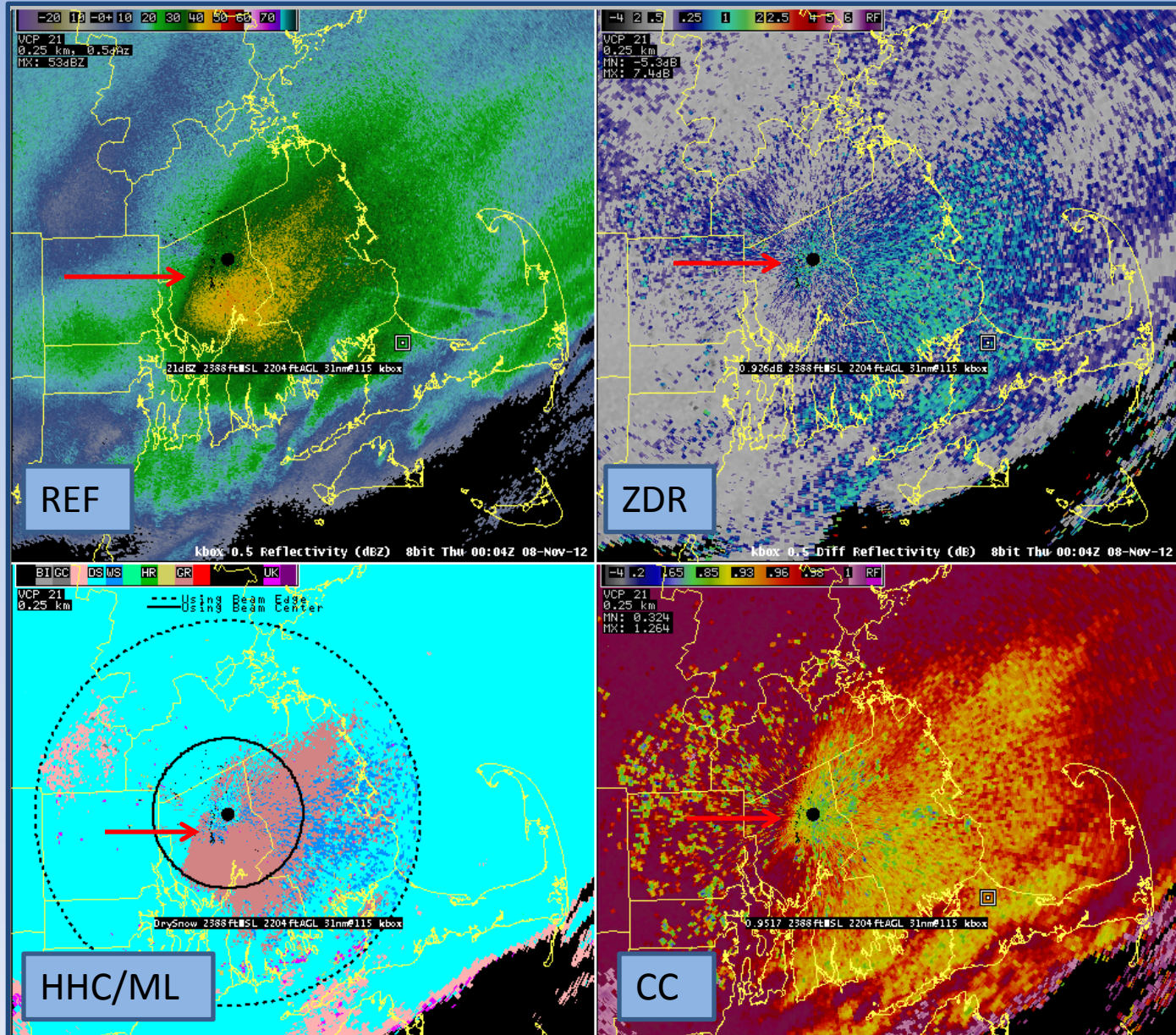
Partial sounding due to balloon break  
Freezing level 2,178 ft ASL

# KBOX 0.5 Dual-Pol 4 Panel: 0004Z

Rain/snow line clearly evident on all products

ML too low using beam center; closer using beam edge (Radar: 2,388 ft ASL CHH: 2,178ft ASL)

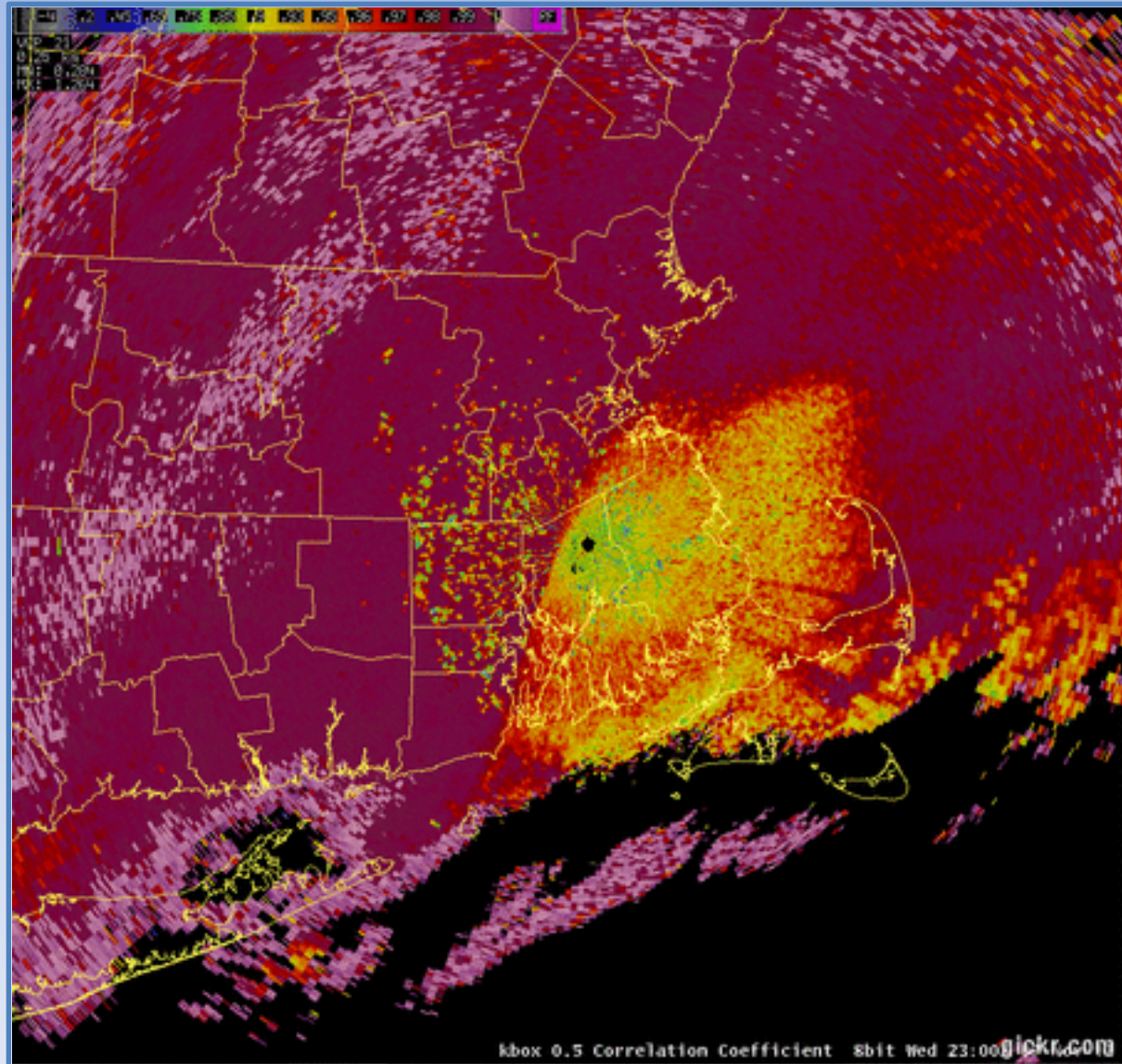
HHC was incorrect on Cape Cod (dry snow instead of rain) since the beam was sampling sub-freezing air



# KBOX 0.5 CC Loop: 23Z-02Z

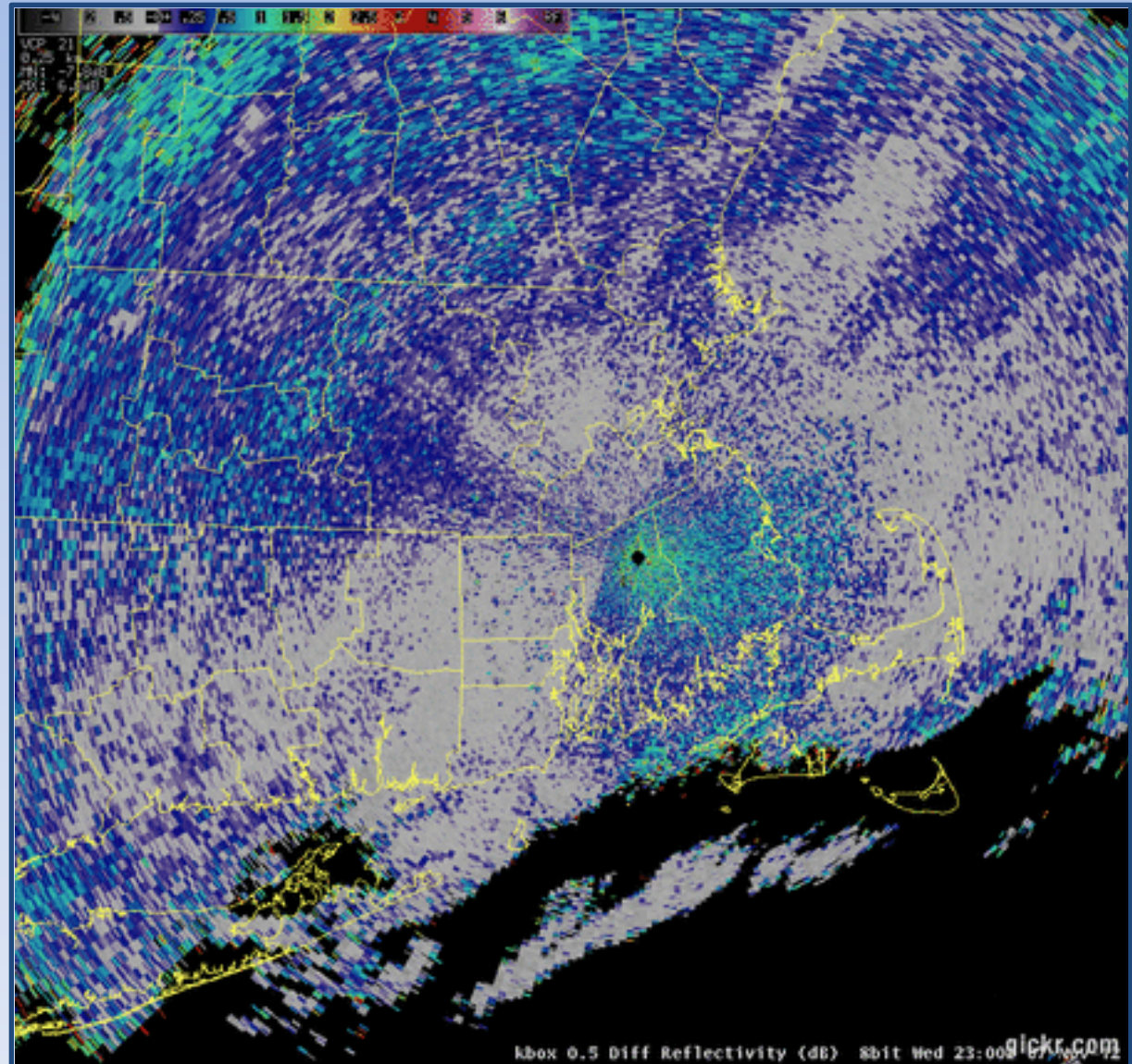
Higher CC values in cold air indicative of snow, while lower values south and east of RDA indicate rain or a rain/snow mix.

Note the slow southward shift of the boundary, especially near Narragansett Bay.



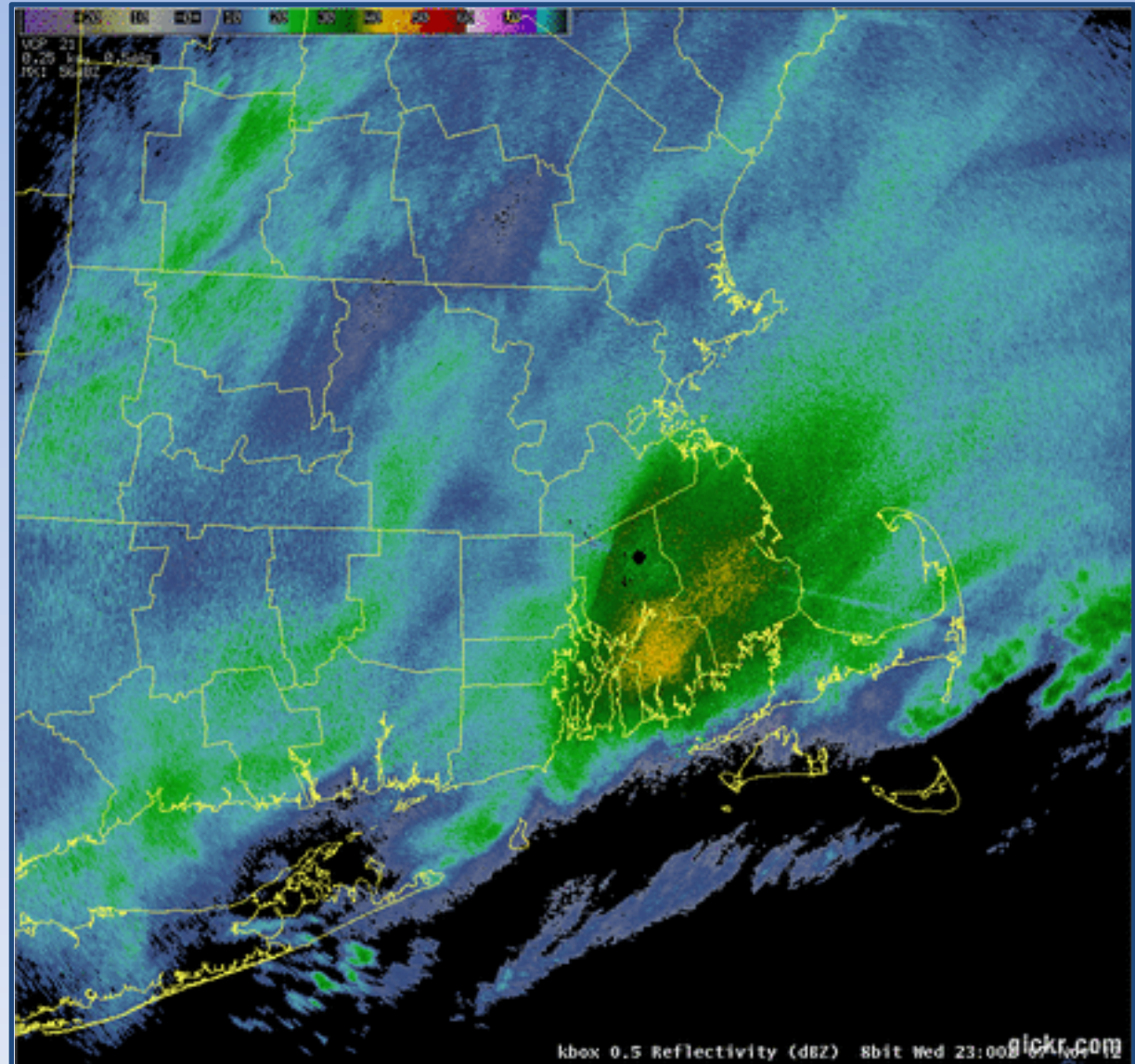
# KBOX 0.5 ZDR Loop: 23Z-02Z

Lower ZDR values (gray) indicative of snow, while higher values over Bristol and Plymouth Counties (blue and green) indicate rain or a rain/snow mix.



# KBOX 0.5 REF Loop: 23Z-02Z

**Note gradual southward progression of the rain/snow line, especially to the west of the RDA.**



# Summary

- Rely on base products (CC, ZDR in particular) as opposed to algorithms to determine precipitation type
  - Ensure Melting Layer (ML) is reasonable by using observed soundings
  - Hydrometeor Class product is affected by ML and may not be reliable
- Be aware of what height the radar is sampling
  - Not necessarily representative of what is happening at the ground!