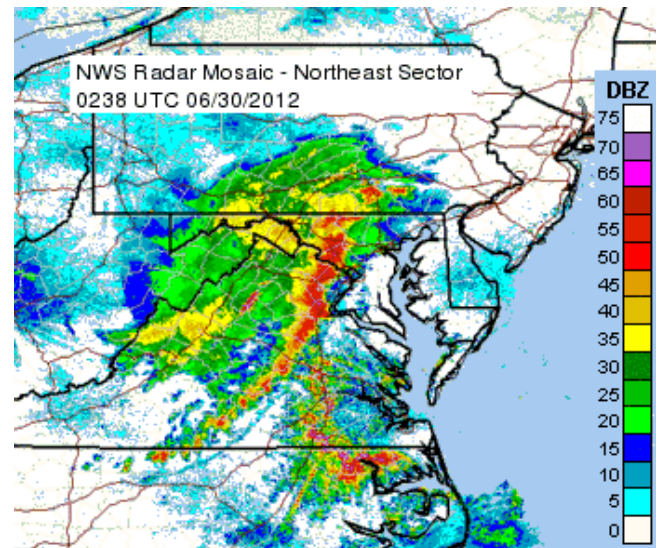
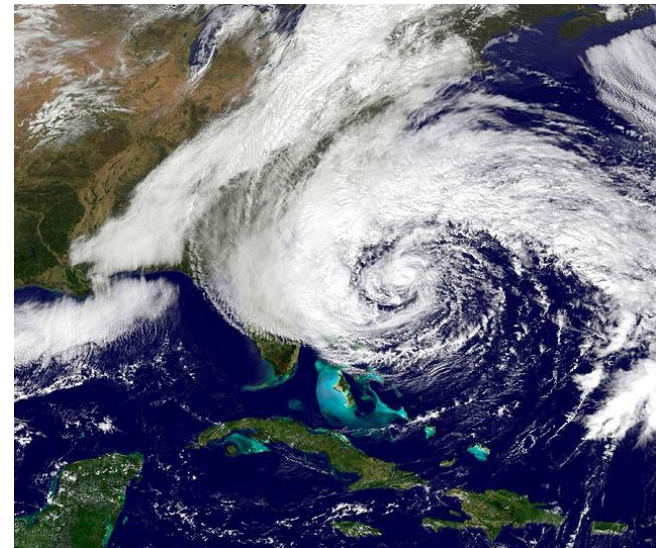


Case study overview



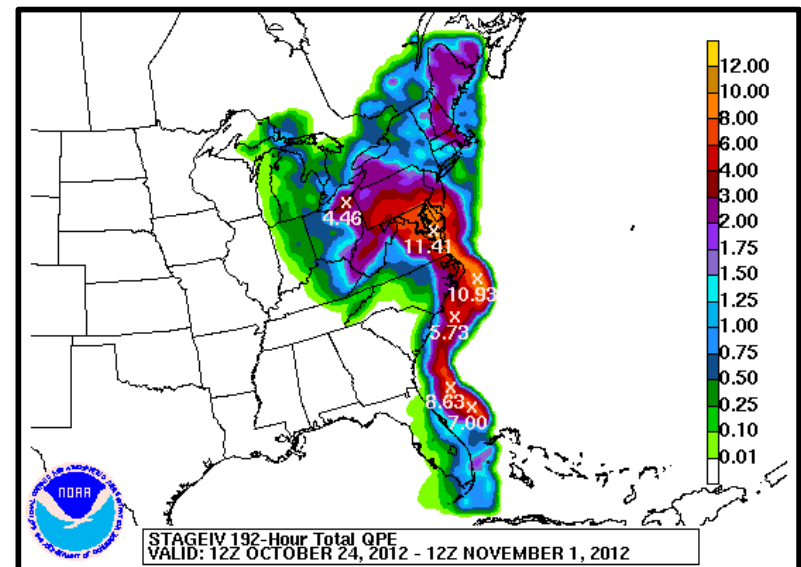
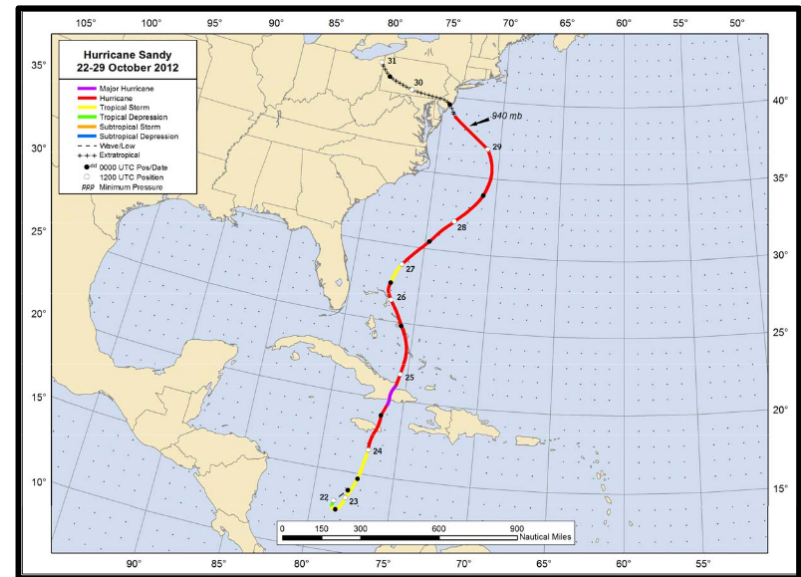
What cases are provided?

- Three cases with full datasets are provided in the current inventory:
 - Hurricane Sandy (Initialized on 27 Oct. 2012)
 - 40-km domain centered over East Coast (6-h forecast)
 - Snow case across the mid-Atlantic region (Initialized on 23 Jan. 2016)
 - 30-km CONUS domain (24-h forecast)
 - Derecho event over the Eastern CONUS (Initialized on 29 June 2012)
 - 12-km parent domain with 3-km nest over N. Indiana/S. Michigan (24-h forecast)

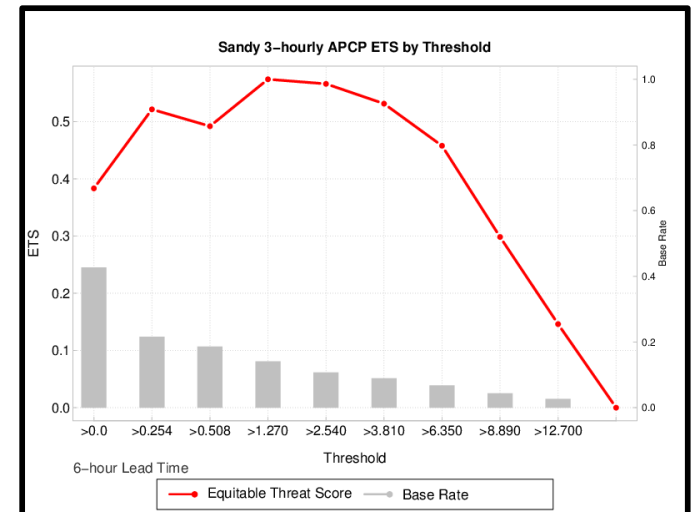
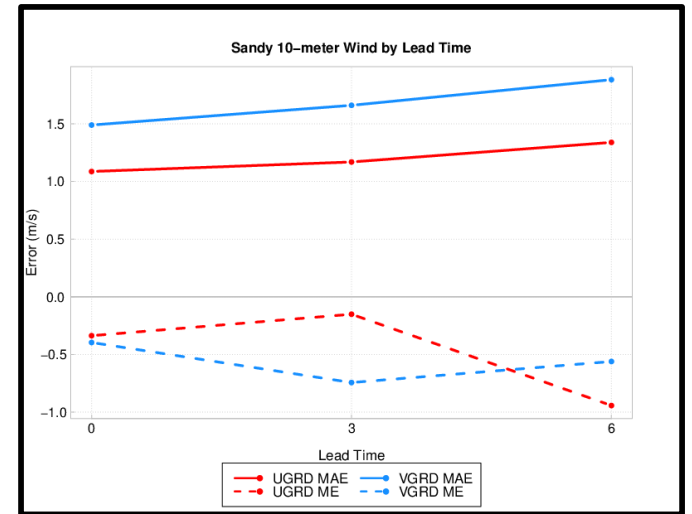
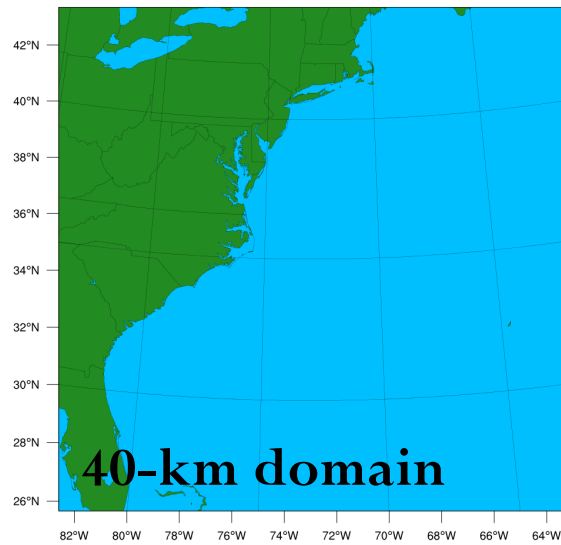
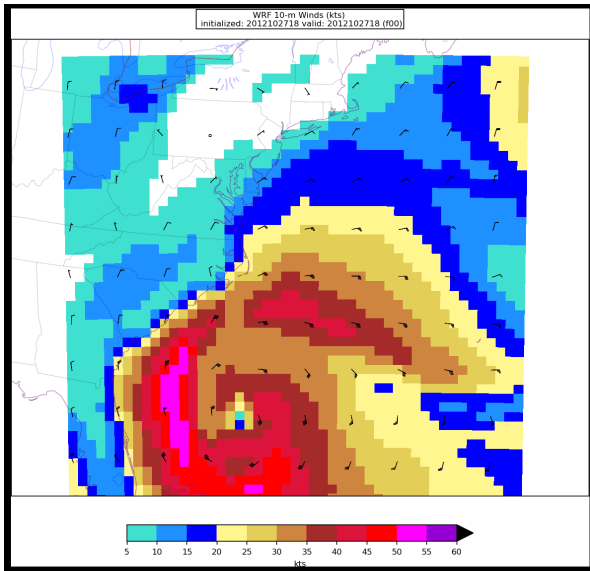
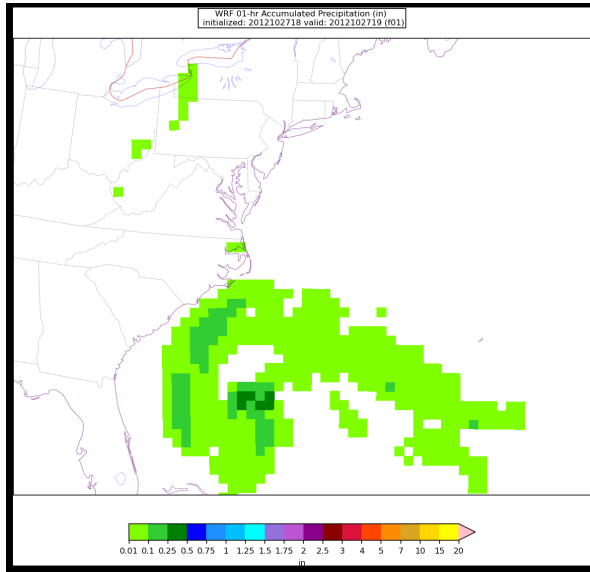


Hurricane Sandy Background

- Most deadly and destructive hurricane during the 2012 Atlantic hurricane season
 - 233 direct/indirect fatalities across 8 countries, spanning from the Caribbean to Canada and caused \$70 billion in damages
 - After impacting Caribbean, Sandy curved northwest and came onshore in New Jersey with hurricane force winds (no longer tropical)

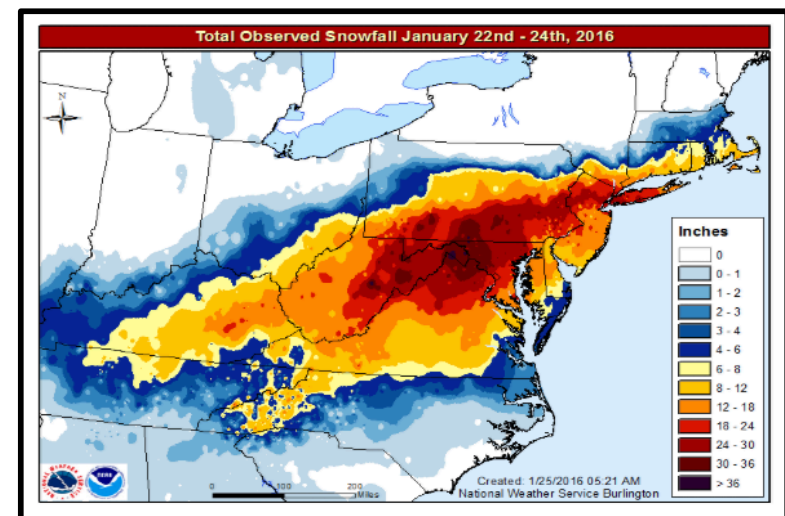
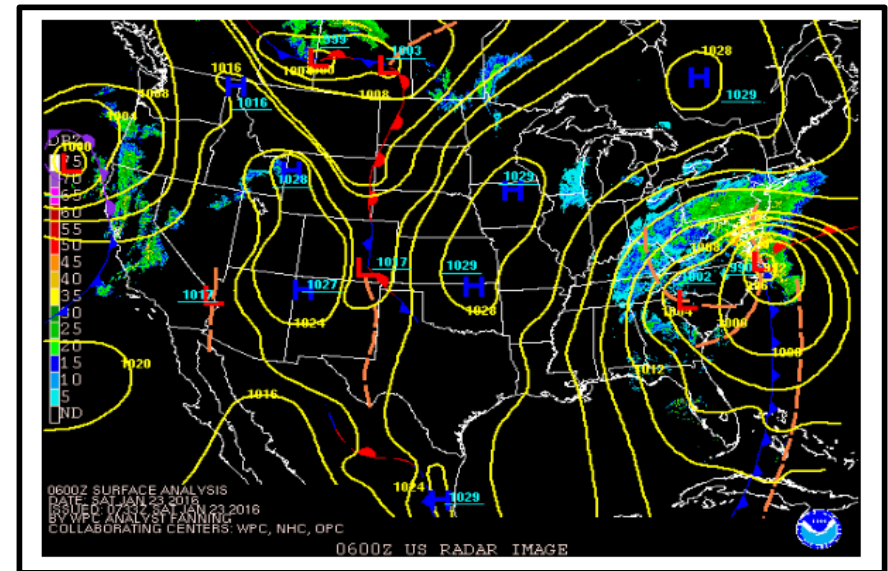


Sandy Output

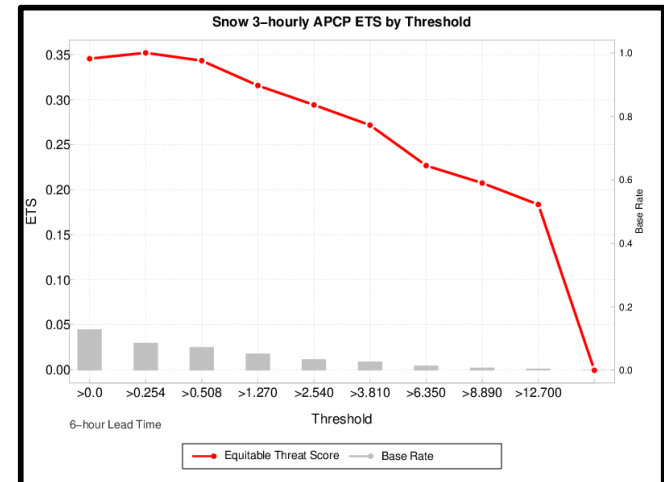
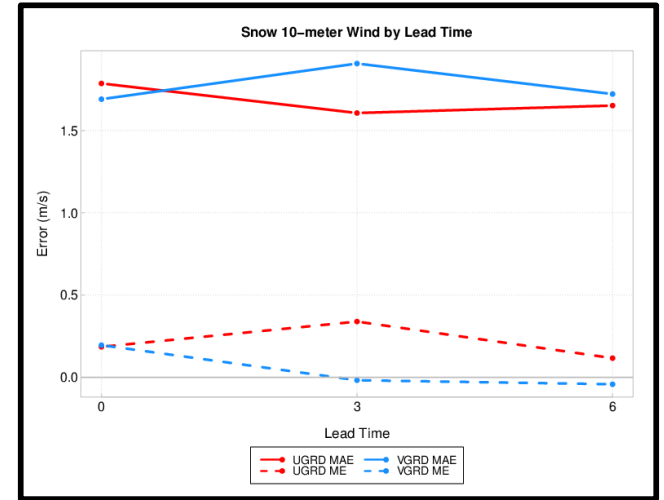
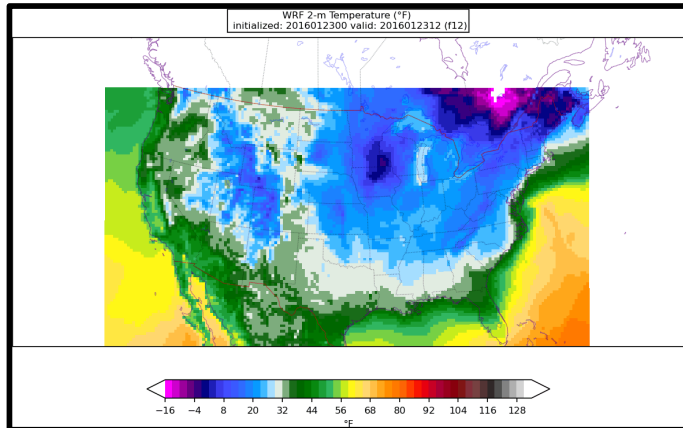
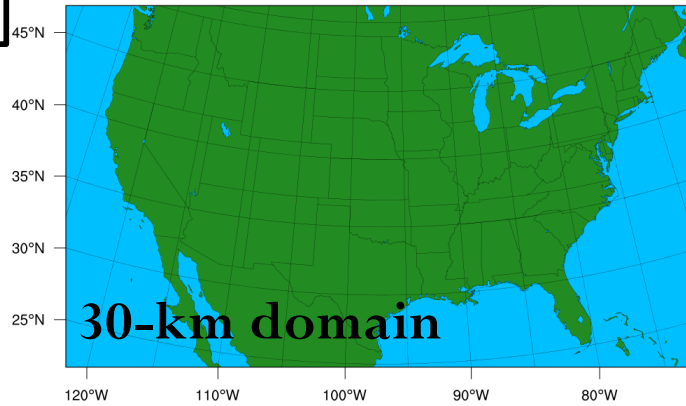
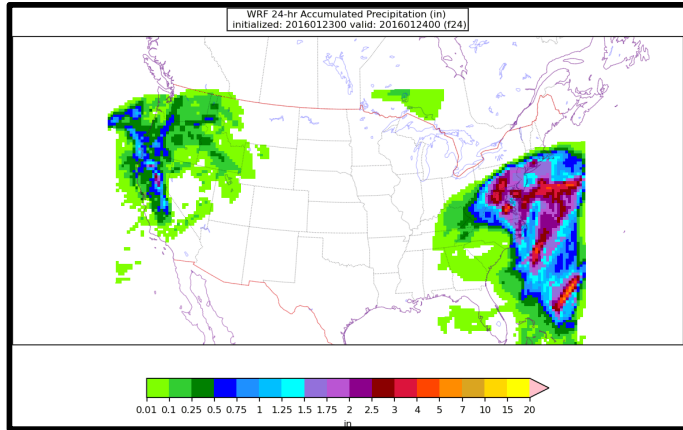


Snow Storm Background

- Classic set-up for a major winter storm
 - Developed near the Gulf Coast and strengthened rapidly as it moved slowly up the coast
 - Produced significant amounts of snow, sleet, and freezing rain
 - Maximum amounts of snow in the range of 30-42"

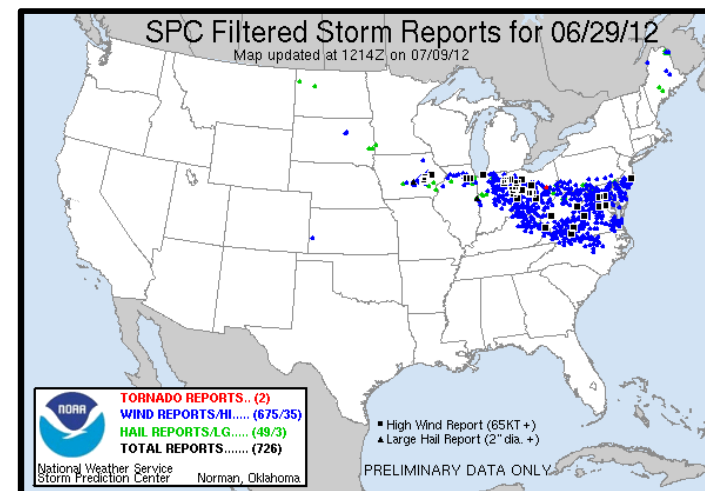
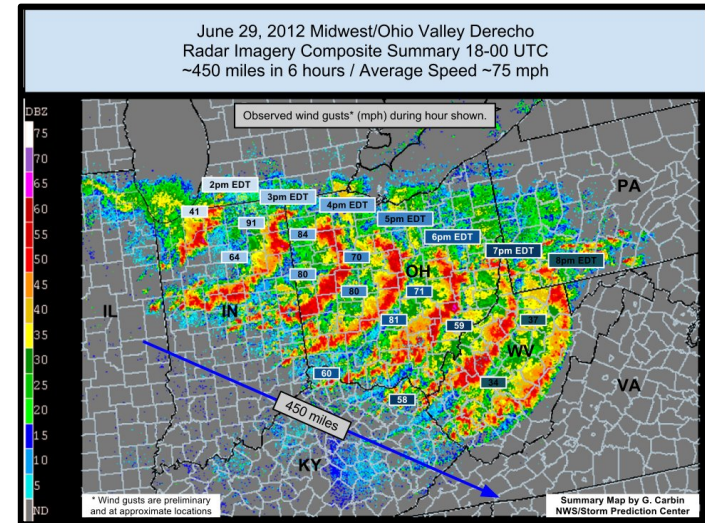


Snow Storm Output



Derecho Background

- Progressive derecho originated in Midwest, moved ESE across the Ohio Valley into the Mid-Atlantic
 - Traversed over 700 miles over 10 states
 - 13 deaths directly associated with storm
 - 4 million lost power
- Operational forecast guidance:
 - GFS and NAM did not provide much forecast assistance more than 24 hours out from the event
 - HRRR model forecast an MCS to move through impacted area on morning of 29 June 2012 → *however, previous performance by HRRR did not allow for much confidence in forecast*



Derecho Output

