Discovering the secret to Sandy's movement

Introduction

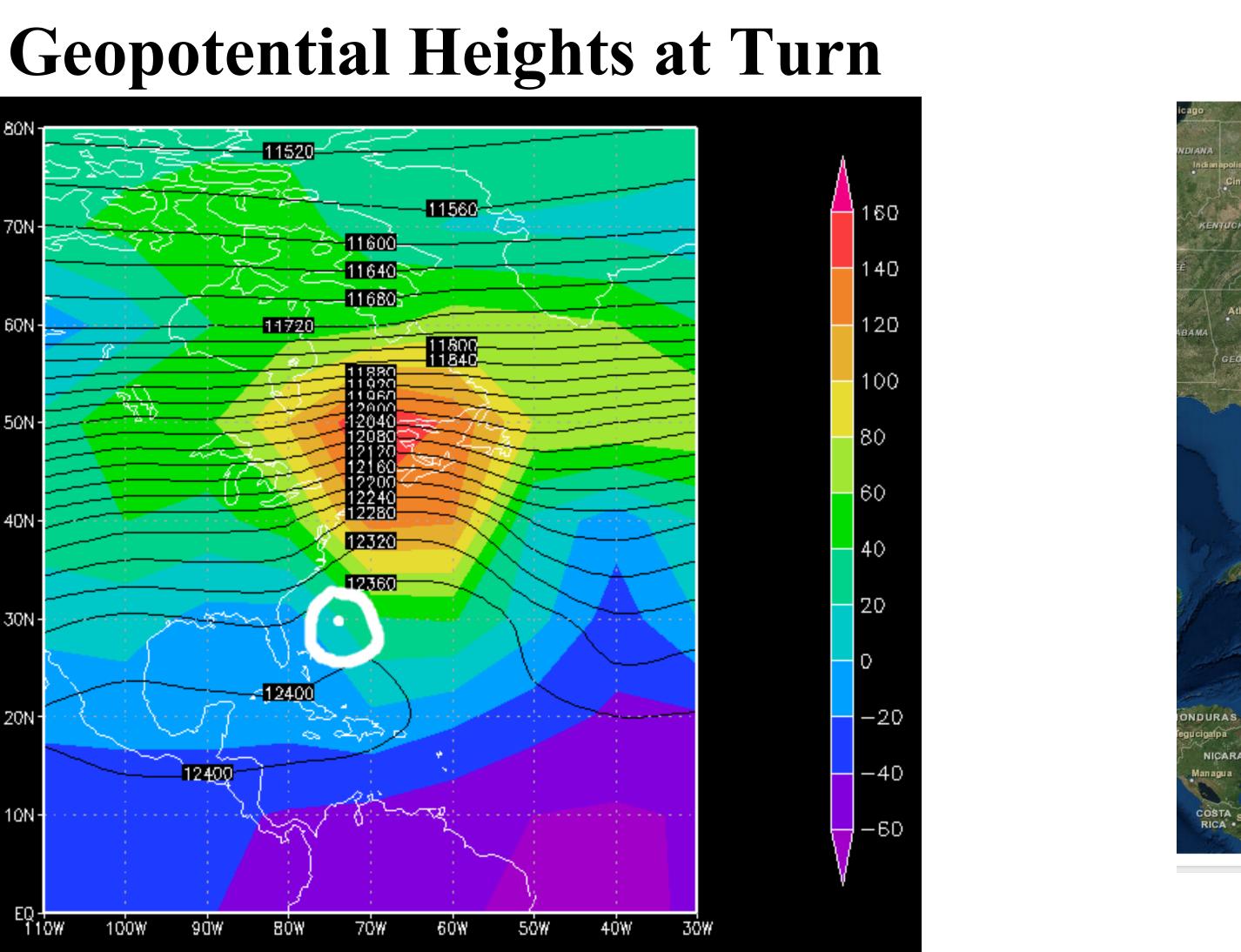
This project was divided into two parts. One part was on looking at the geopotential heights of hurricanes that were similar to Sandy. Another part involved experimentally removing latent heat release from a numerical simulation of Sandy with the Weather Research and Forecasting (WRF) model to see what would happen

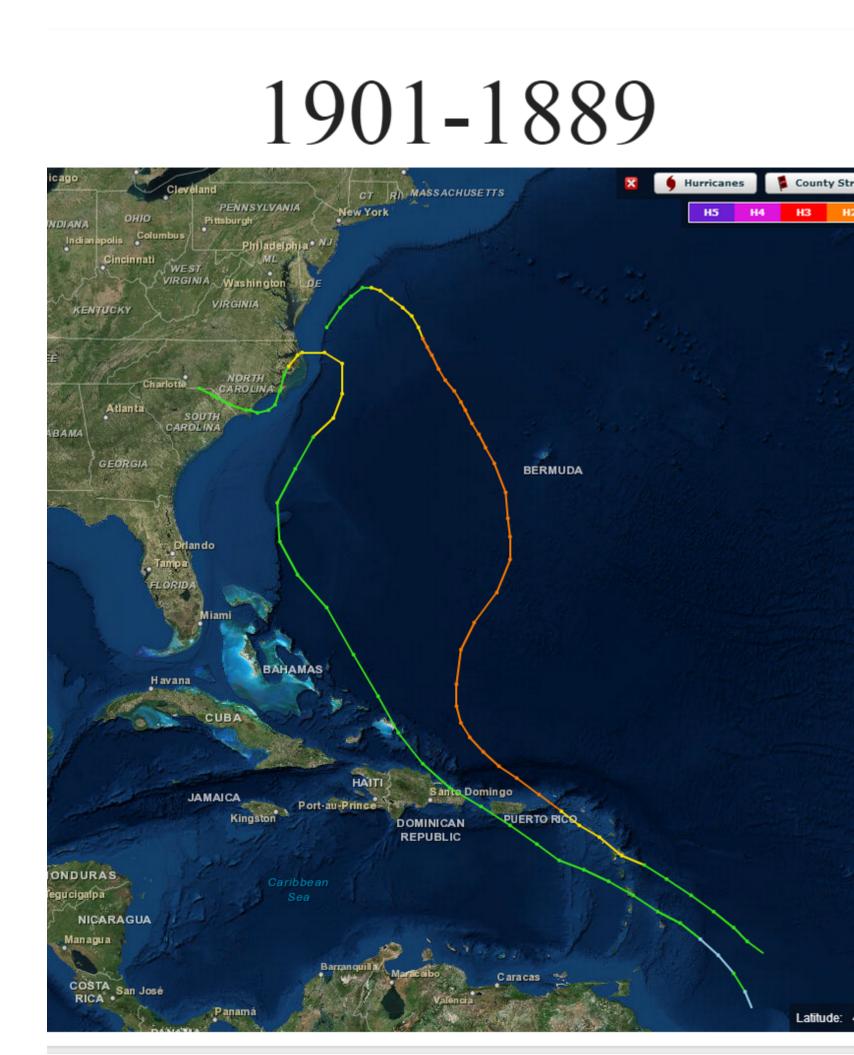
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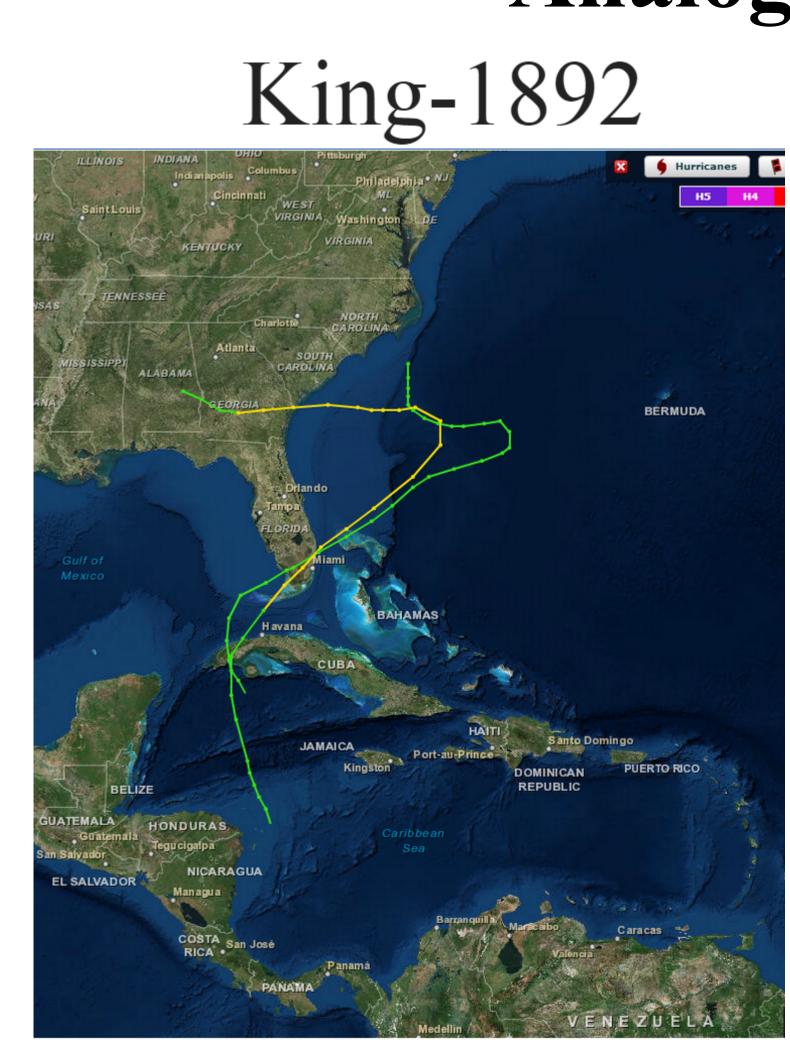
Observation

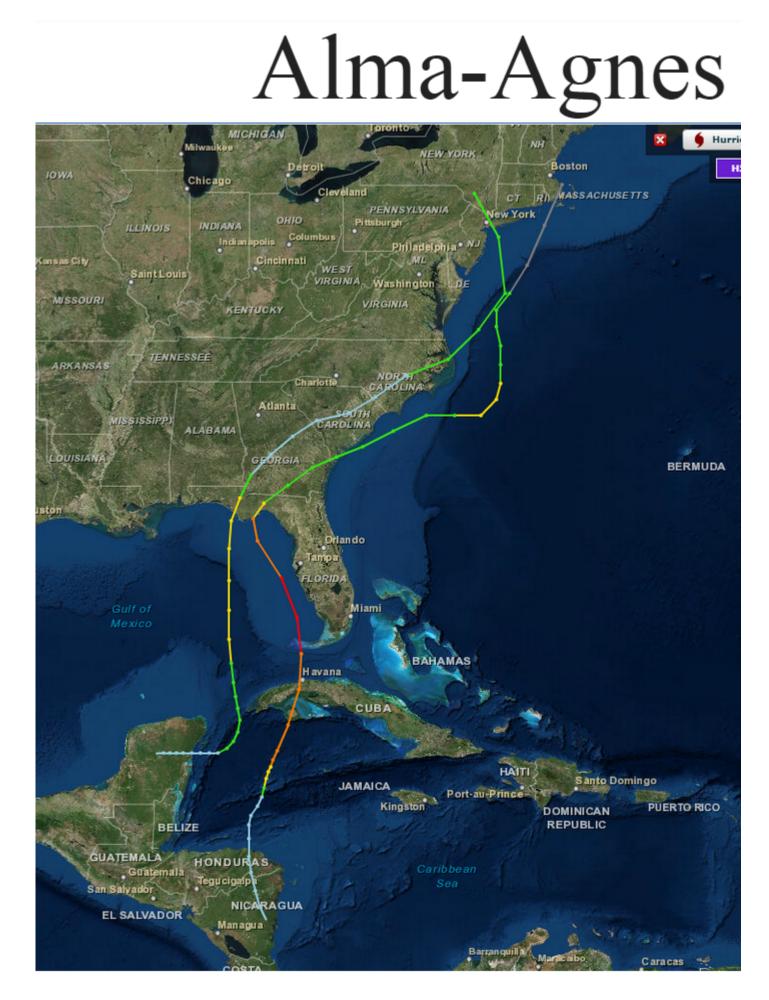
For Hurricane Sandy, as well as for Hurricanes that took a similar path, there was a trough over the southeast US during their left turns. Additionally there was a ridge in southeastern Canada and Greenland.

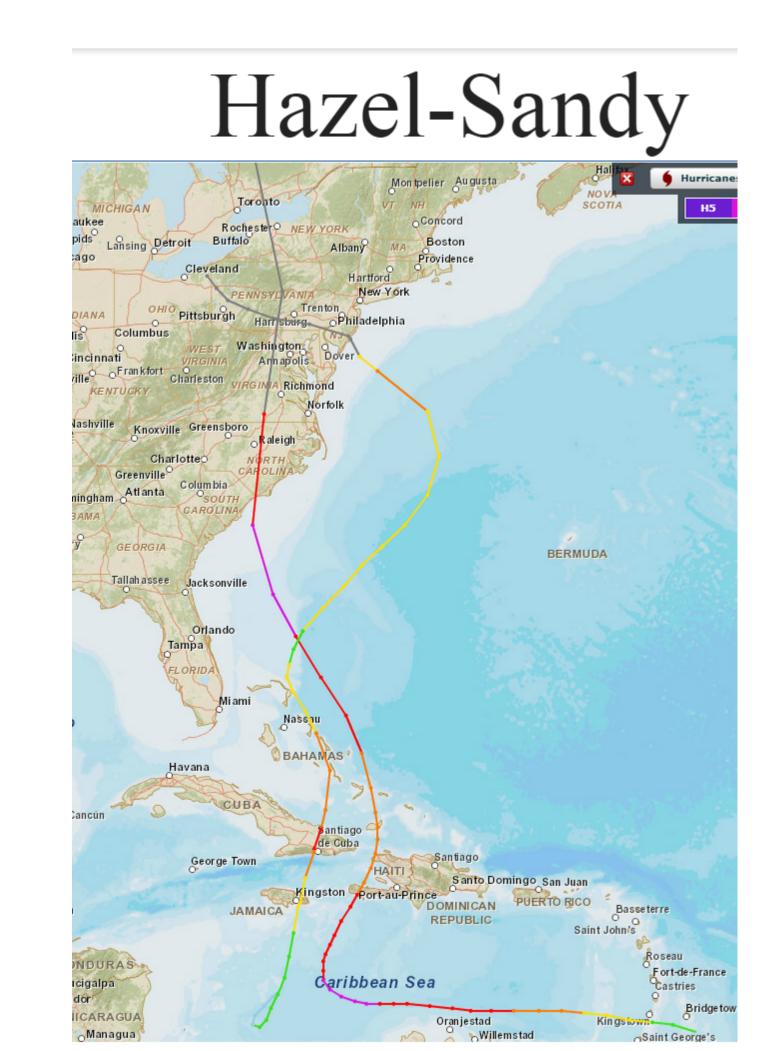
Analogous Pairs







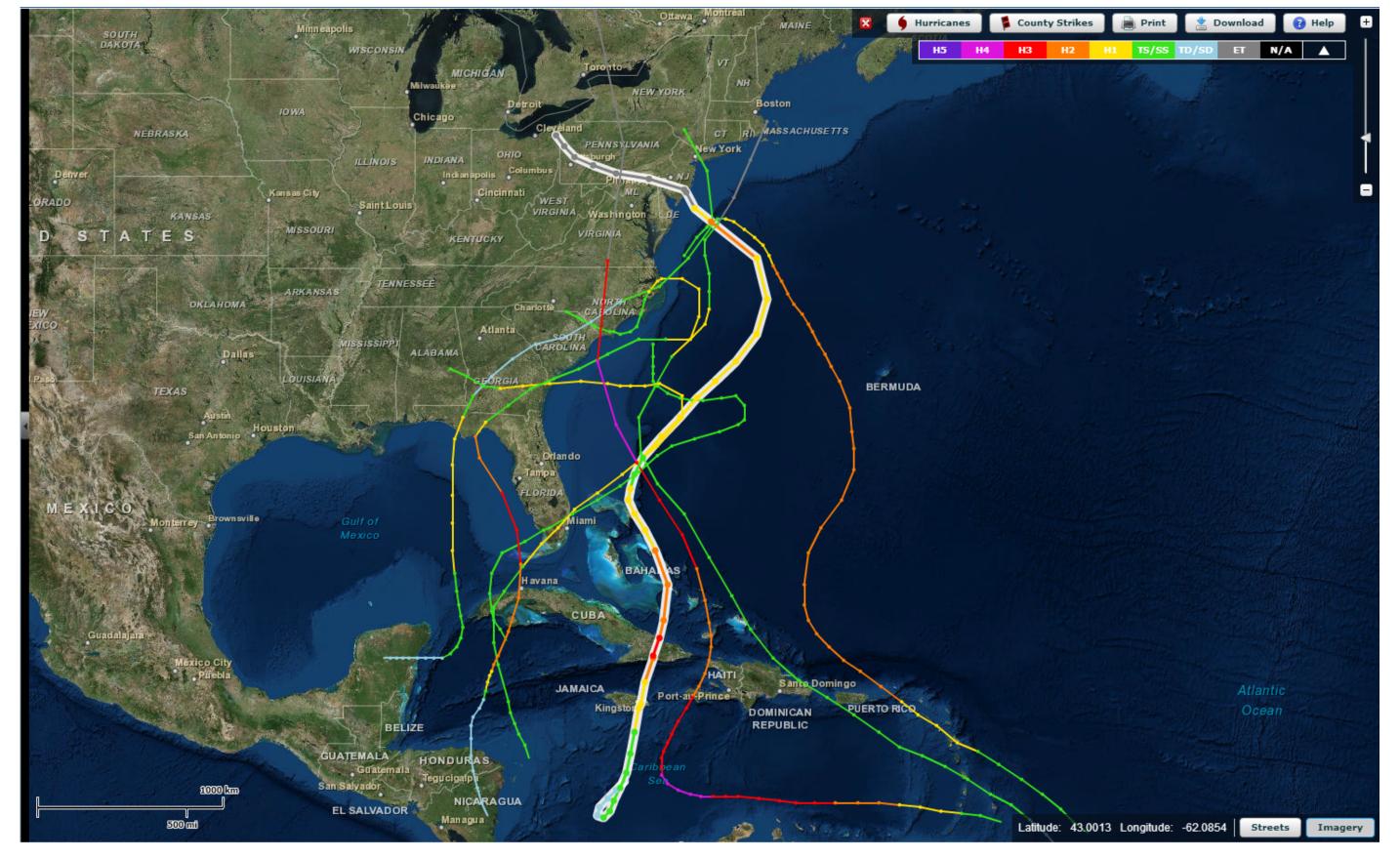




Conclusions

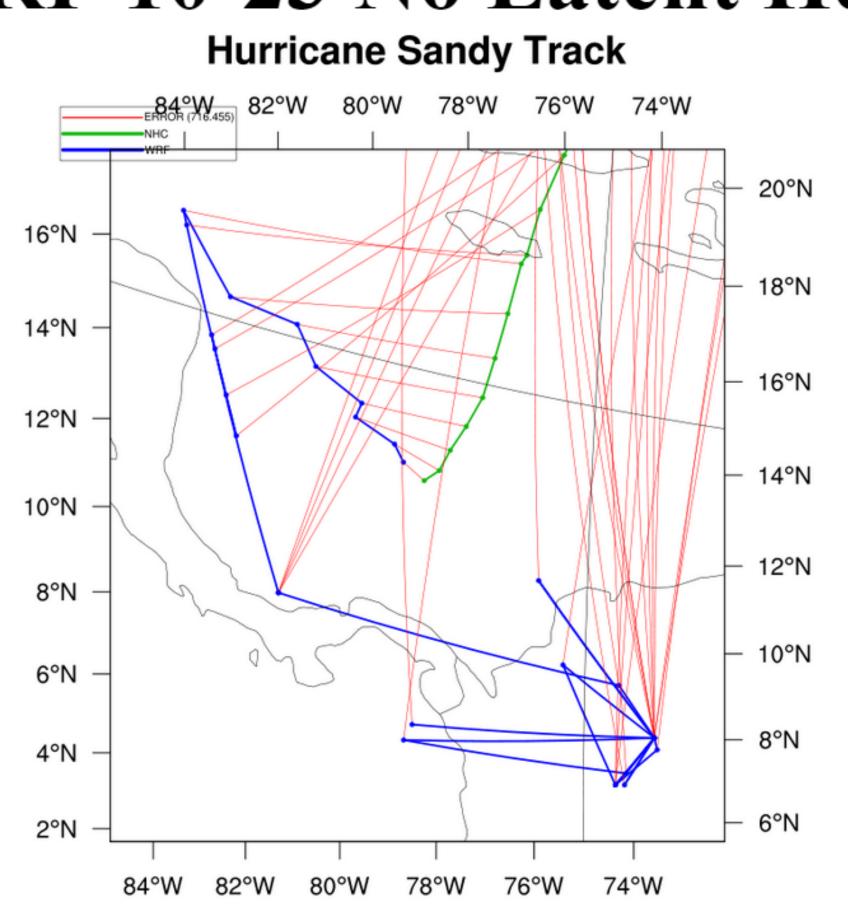
- Sandy was steered by a blocking pattern that allowed it to move opposite the direction of normal tropical storms.
- Without latent heat, the hurricane dies out relatively quickly when the model was initiated early in Sandy's life. However, when the WRF model was initiated when Sandy was near land, Sandy could survive without latent heating, but follows different tracks depending on the initial time.
- Future investigations will see if Sandy helped cause the concurrent high pressure ridge over Newfoundland.

All Analgoies

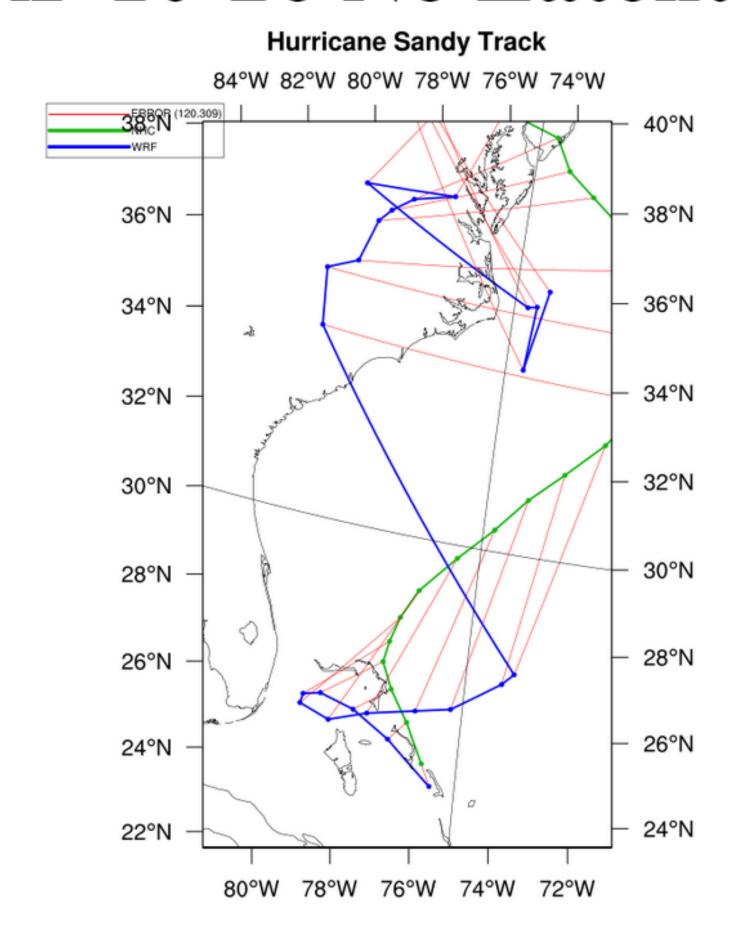


Sandy runs with WRF Model

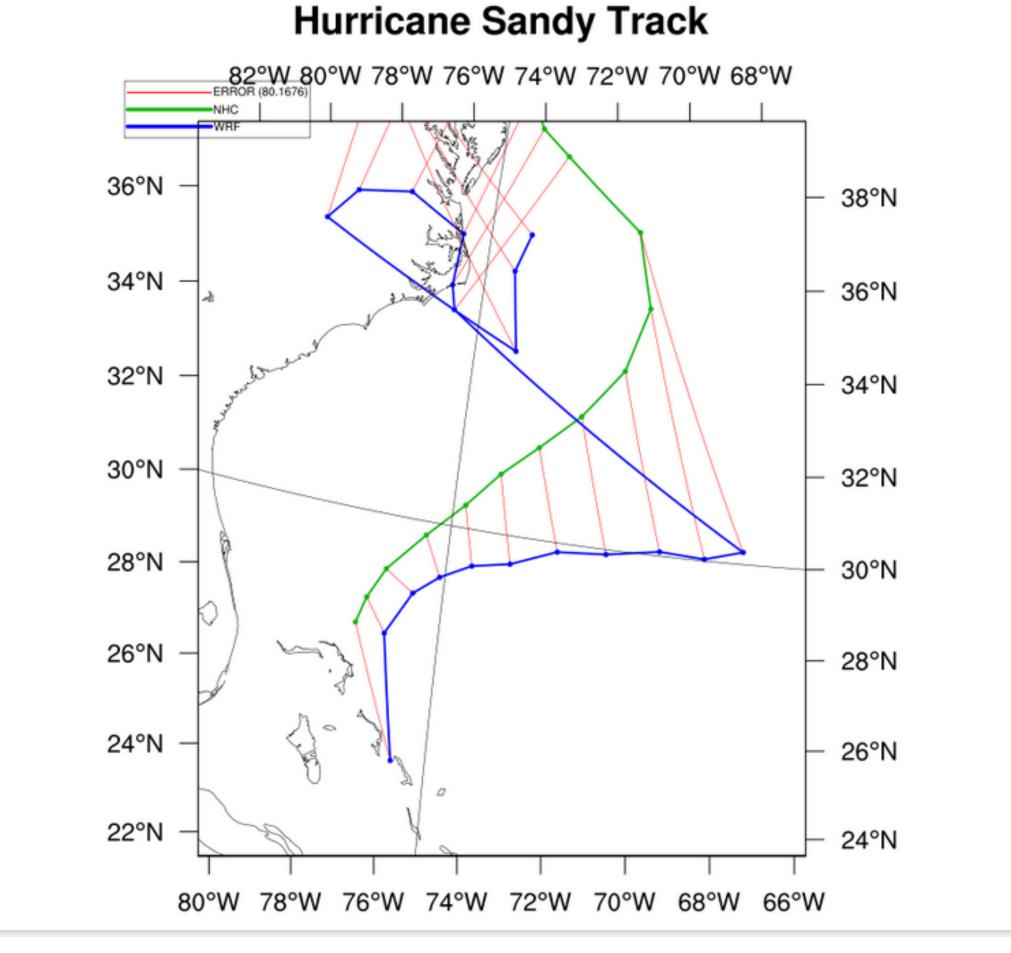
WRF 10-23 No Latent Heat



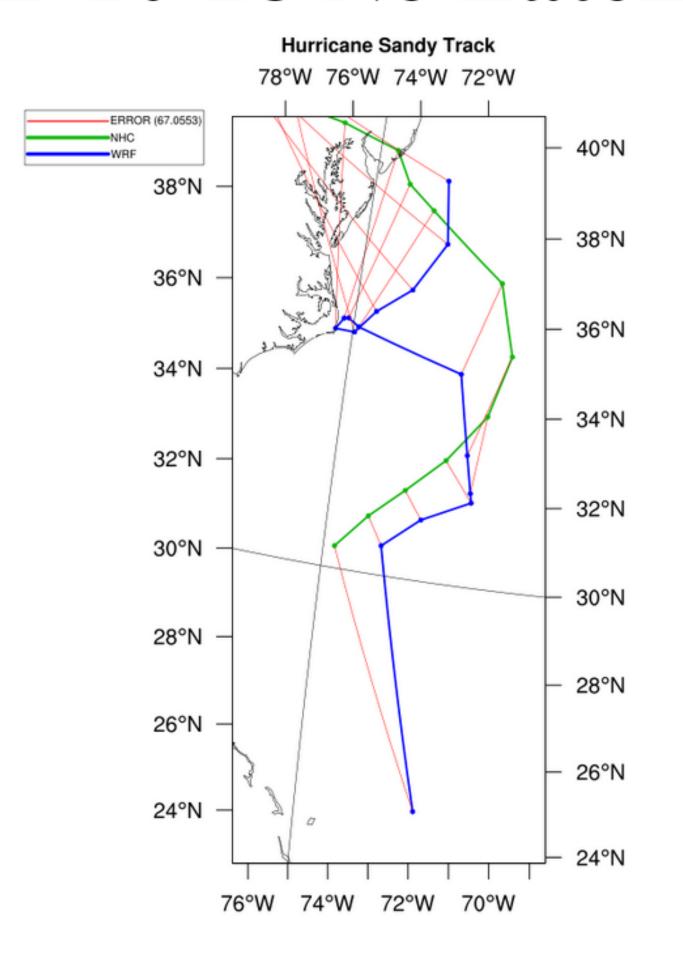




WRF 10-26 No Latent Heat WRF 10-27 No Latent Heat



WRF 10-28 No Latent Heat



WRF 10-27 Comparison

