Preliminary GSI-based relocation results

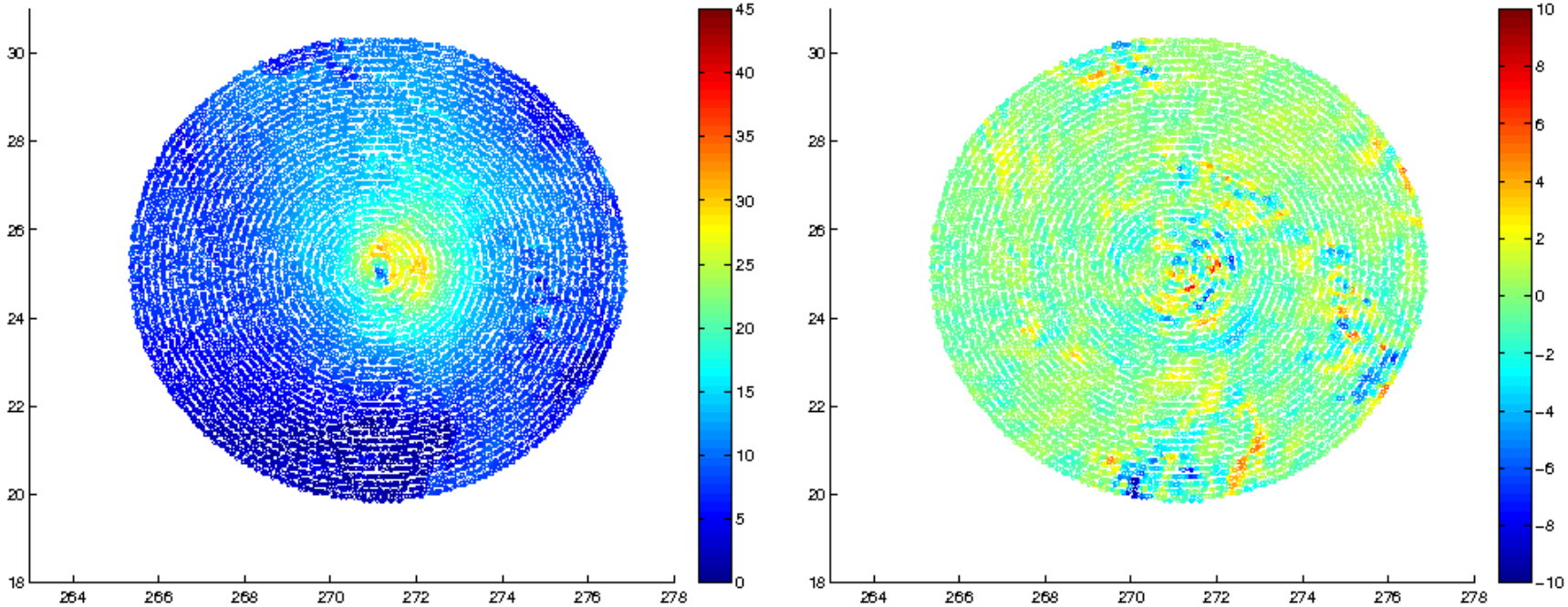
Overview

- Ran 13L from 082600-082700 warm-started from 082518
- Phase 3 (e.g., HAFA) configuration
- Sampled pseudo-obs (u/v/T/q) out to 600 km from center and translated location to account for error in 6-h tracker position
- Assimilate pseudo-obs in GSI as a pre-processing step

GSI Details

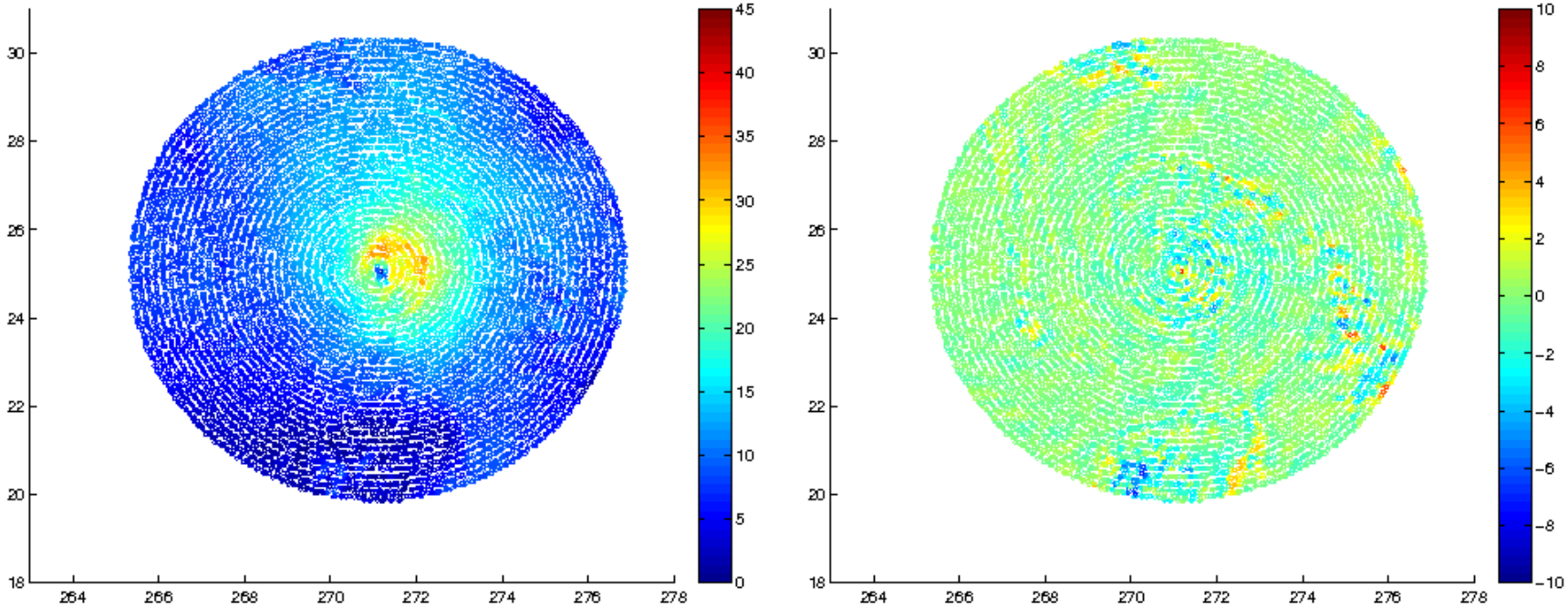
- Pseudo-obs. thinned to 10-km grid horizontal, 25 hpa vertical
- Land mask applied for altitude > 250m
- GDAS used for flow-dependent covariance
- Horizontal ROI of 50 and 150 km tried, vertical ROI of 10 model levels
- Obs assimilated as 138/238 (e.g., acft)
- QC essentially turned off, all obs (400k+) assimilated

Obs-minus-analysis (spd 950-1000 hPa)



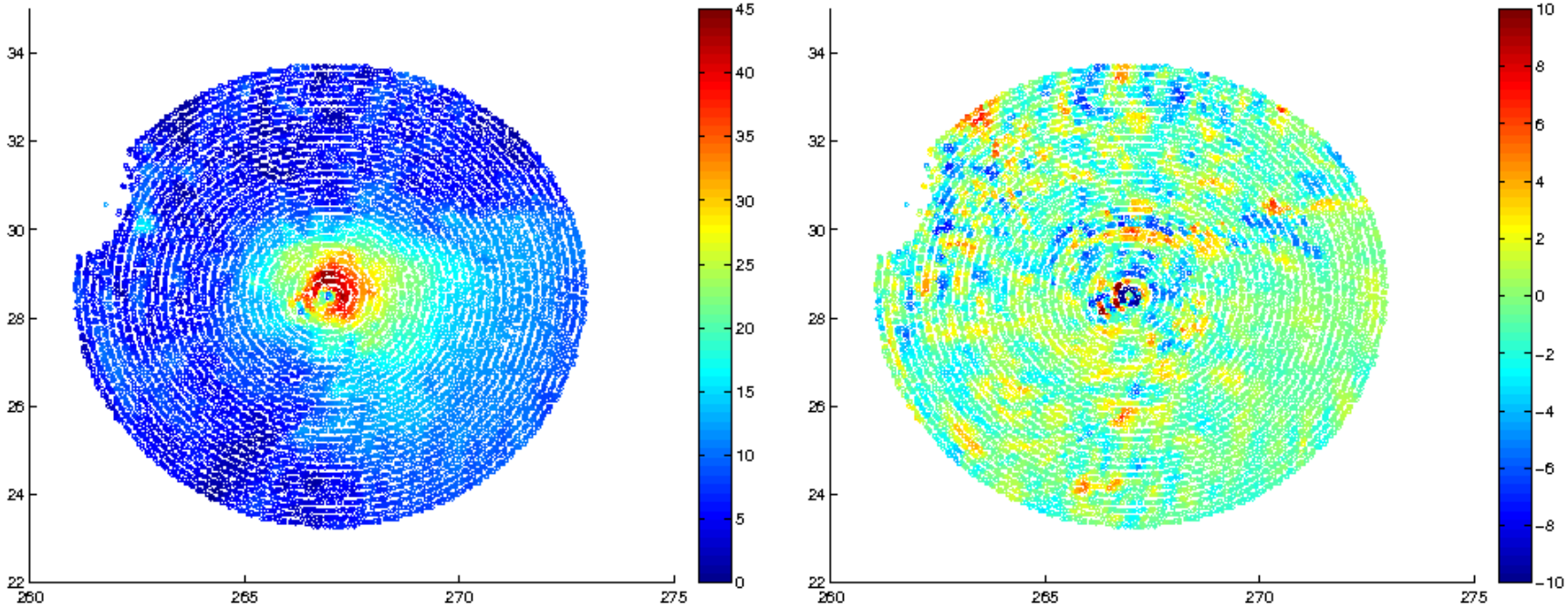
ROI = 150 km, 2020082600

Obs-minus-analysis (spd 950-1000 hPa)



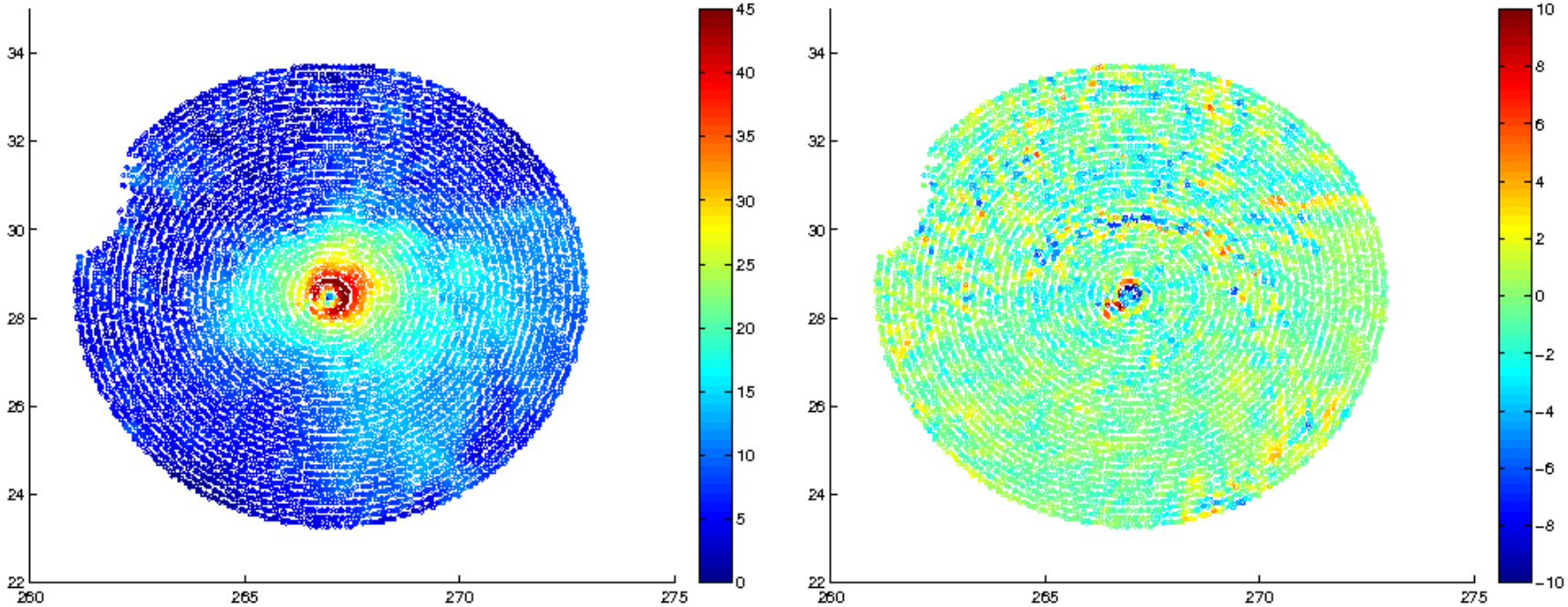
ROI = 50 km, 2020082600

Obs-minus-analysis (spd 950-1000 hPa)



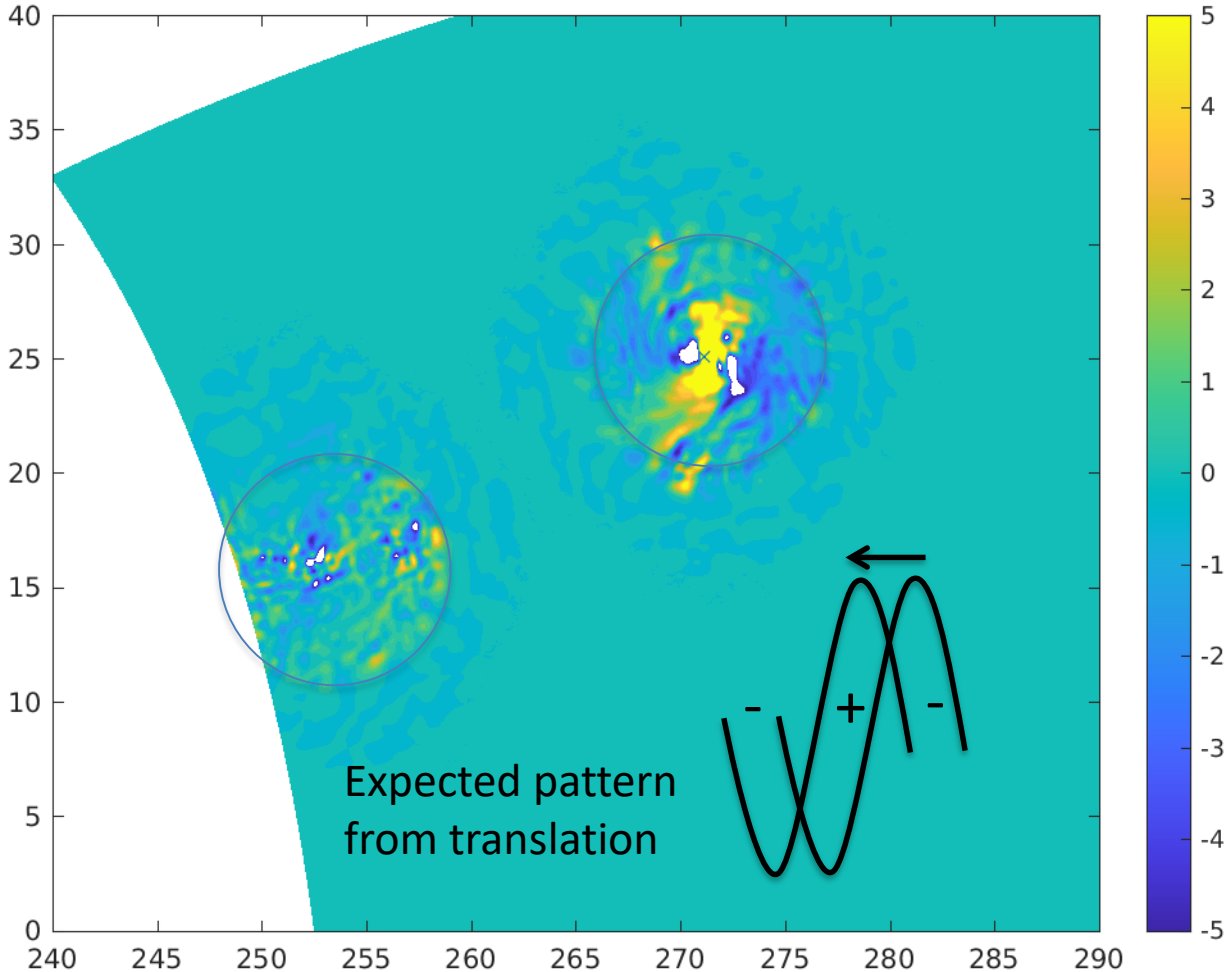
ROI = 150 km, 2020082600

Obs-minus-analysis (spd 950-1000 hPa)



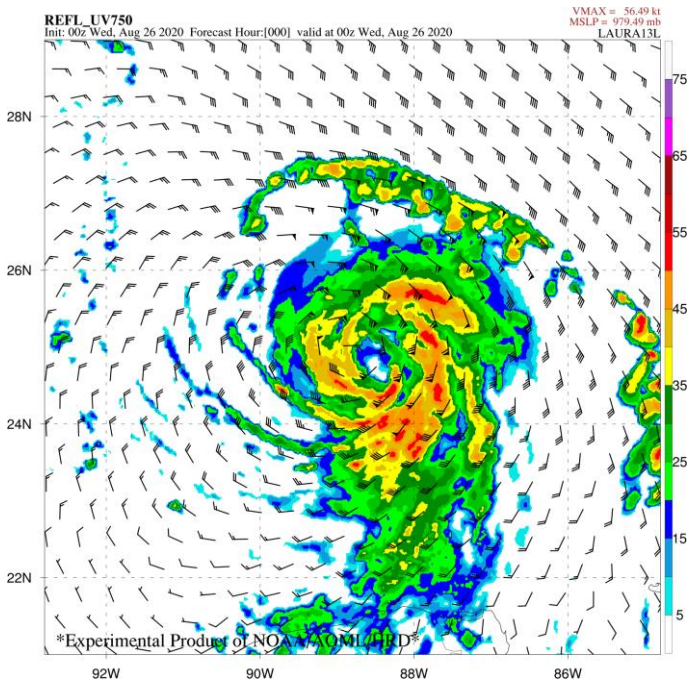
ROI = 50 km, 2020082600

Example v increments

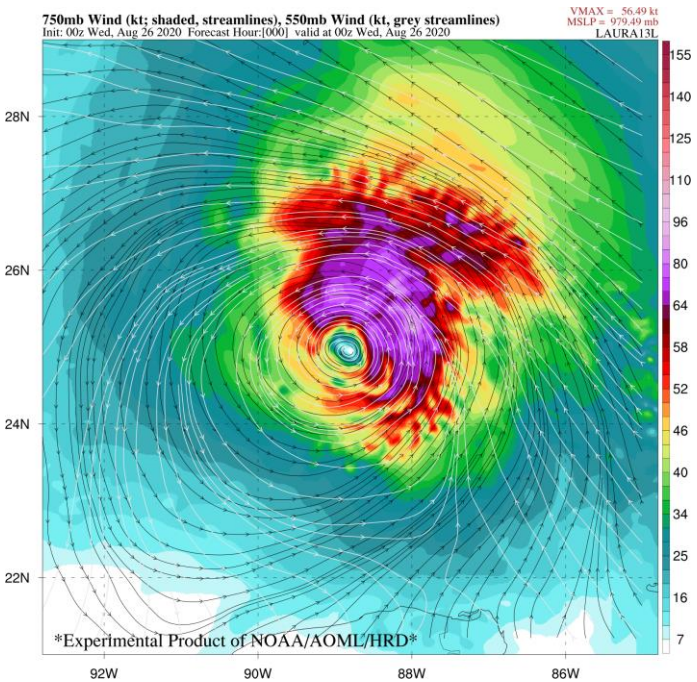


Analysis (50 km ROI)

Hydrometeors do not update well

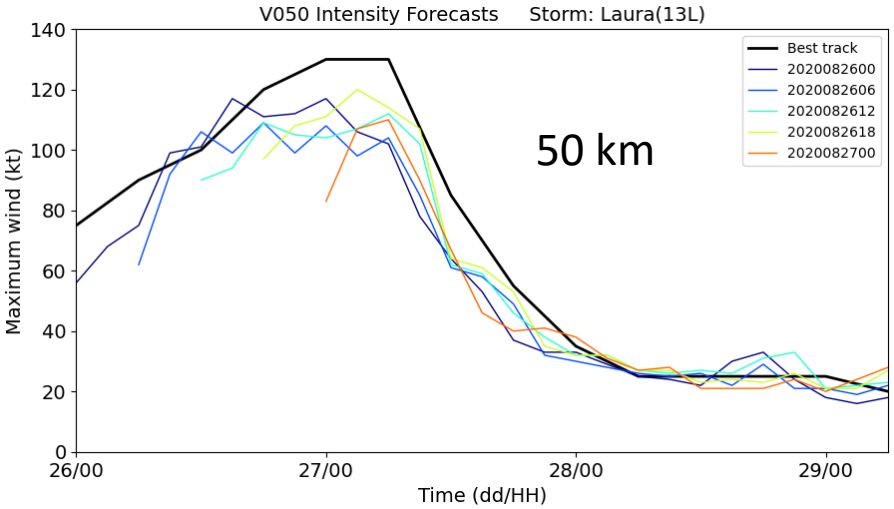


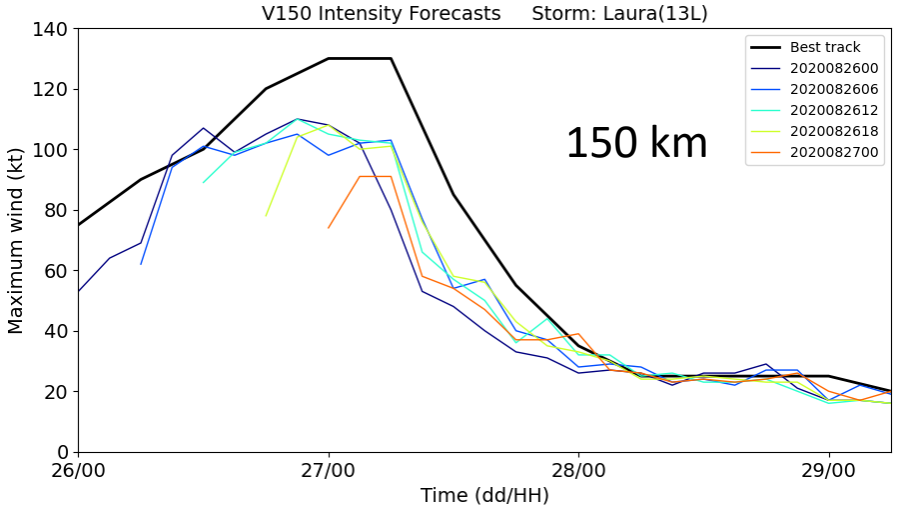
Wind field looks reasonable



Forecast – 50 vs 150 km ROI

- Intended to see how well relocation cycles
- No real data included
  - No update to environment
  - No update to vortex
  - Not comparable with other expts





Prelim Summary

- GSI relocation functionally working
- 50-km ROI looks superior to 150-km ROI
- No real issues with false gradients noted
- Hydrometeor relocation needs to be resolved (easier with HAFS ensemble than with GDAS)
- Needs to be combined with real data to assess impact