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