

**HAFS Coordination Meeting**  
**August 18, 2021, 2-3 pm ET**  
**Agenda/Minutes/Chat**

**Participants:** Kyle Ahern, Gus Alaka, Curtis Alexander, Maria Aristizabel, Jian-Wen Bao, Li Bi, Mrinal Biswas, Jacob Carley, Xiaomin Chen, Rocky Dunlap, Lew Gramer, Matthew Green, Andrew Hazelton, Tara Jensen, Evan Kalina, Hyun-Sook Kim, Bin Liu, Frank Marks, Avichal Mehra, Matthew Morin, Louisa Nance, Linlin Pan, Jonathan Poterjoy, William Ramstrom, Daniel Rosen, JungHoon Shin, John Steffen, Vijay Tallapragada, Biju Thomas, Sikchya Upadhayay, Weiguo Wang, Yonghui Weng, Fanglin Yang, Xuejin Zhang, Zhan Zhang, Lin Zhu.

**Agenda:**

2:00-2:02 pm: Welcome

2:02-2:35 pm HAFS Data Assimilation

2:02-2:12 pm: GSI-based Relocation - Jason Sippel

2:12 - 2:15 pm: Q&A

2:15-2:30 pm: FV3-CAM DA - Curtis Alexander & Jacob Carley

2:30-2:35 pm: Q&A

2:35-2:57 pm HAFS Infrastructure and METplus

2:35-2:45 pm: HAFS Coupling Infrastructure - Daniel Rosen

2:45-2:50 pm: Q&A

2:50-2:55 pm: HAFS METplus - Tara Jensen

2:55-2:57 pm: Q&A

2:57-2:59 pm: Wrap-up

3:00 pm: Adjourn

## Minutes:

### Preliminary results on GSI-based Relocation - Jason Sippel

- GSI relocation is functionally working.
- Warmstarted 13L, sampled pseudo obs out to 600 km from center and translated location to account for error in 6 h tracker position.
- 50 km ROI looks superior to 150 km ROI.
- Hydrometeor relocation needs to be resolved.
- Needs to be combined with real data to assess impact.

### DA and RRFs - Jacob Carley & Curtis Alexander

- RRFsv1 configured at 3km, Hybrid 3DEnVar Algorithm, 9 member ensembles; targeted implementation for FY23Q4.
- Coldstarted real time testing with passively use of GDAS EnKF members, no cloud analysis or radar DA yet.
- Promising results - geopotential height bias improved with DA, wind RMSE bias also slightly better.
- Ongoing efforts are to establish cycling strategy, semi coupled land analysis using lowest model level temperature and moisture increments applied to the soil states.
- Plan to establish 3km, 36 member hybrid 3DEnVar retro/real time parallel by FY21Q4.
- A possible solution to data latency is overlapping window.

Q. (Bin): Have you considered GSI instead of JEDI? GSI is very slow in terms of IO and IC, and could be the bottleneck.

A: Certainly need further coordination to work that out.

### HAFS Infrastructure - Daniel Rosen

- Wave Coupling in HAFS is configurable in one-way or two-way atmosphere-ocean and atmosphere-wave coupling.
- Ocean data is available from OISST, MOM6, GHRSSST, RTOFS, HYCOM; Atmosphere data is available from ERA5, ECMWF, FGS, CFSR.
- All supported data configurations are integrated into the HAFS workflow in CMEPS mediator.
- HAFS Community developments have been merged into UFS Community. HAFS regression tests are now part of UFS development testing.
- HAFS Community HYCOM developments have diverged from NRL repository UFSATM Global-Nest Coupling. Support for global coupling within the USFATM Global-Nest configuration is in progress.

### HAFS METplus - Tara Jensen

- Integrated GFDL Tracker into METplus, TC tracking completed, TC genesis and ET are in progress.
- Ongoing development is METexpress MET-TC App.

- Upcoming Development: support for E-Decks for Probability of Genesis, support for SHIPS diagnostics files and plotting MET-TC output via METviewer UI and Scorecards.

Q. Is the METexpress compatible with HAFS?

A: Will need to assess further.

**Chat:**

Zhan Zhang - NOAA Federal 2:16 PM

there will be a problem to relocate some big TCs like Sandy if the relocation method is storm size dependent

[Ans: Want to make the relocation independent of storm size](#)

Zhan Zhang - NOAA Federal 2:29 PM

@Jacob with overlapping window, is it possible some of the obs. may be assimilated multiple times?

[Ans: Overlapping window method is configured for obs. so we eliminate that possibility.](#)

Jonathan Poterjoy - NOAA Affiliate 2:30 PM

Hi Jacob, has your group considered replacing E3DVar with a pure EnKF DA strategy once the cycling EnKF DA capability is available?

[Ans: Not considered yet, the hybrid not ready, mixing ENKF with ensemble DA capability not there yet.](#)

Frank Marks - NOAA Federal 2:30 PM

I hope that any relocation is taking in account the uncertainty in NHC provided positions. In weak systems that could be as much as 50-100 km. In the past no initial position uncertainty was considered.

Frank Marks - NOAA Federal 2:36 PM

internet issues

Frank Marks - NOAA Federal 2:38 PM

@Sikchya my internet is really flakey today. My question or comment was directed at Jason Sippel and in particular Zhan Zhang's point about relocation

Zhan Zhang - NOAA Federal 2:43 PM

@Franks Good point. The flow-dependent ensemble may partially address the issue. the proper way to account for the TC position uncertainty is to run ensemble forecasts.