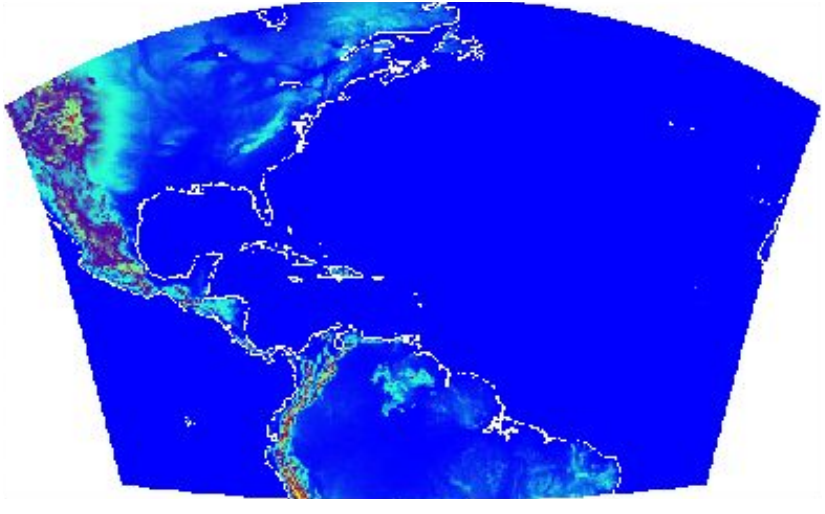
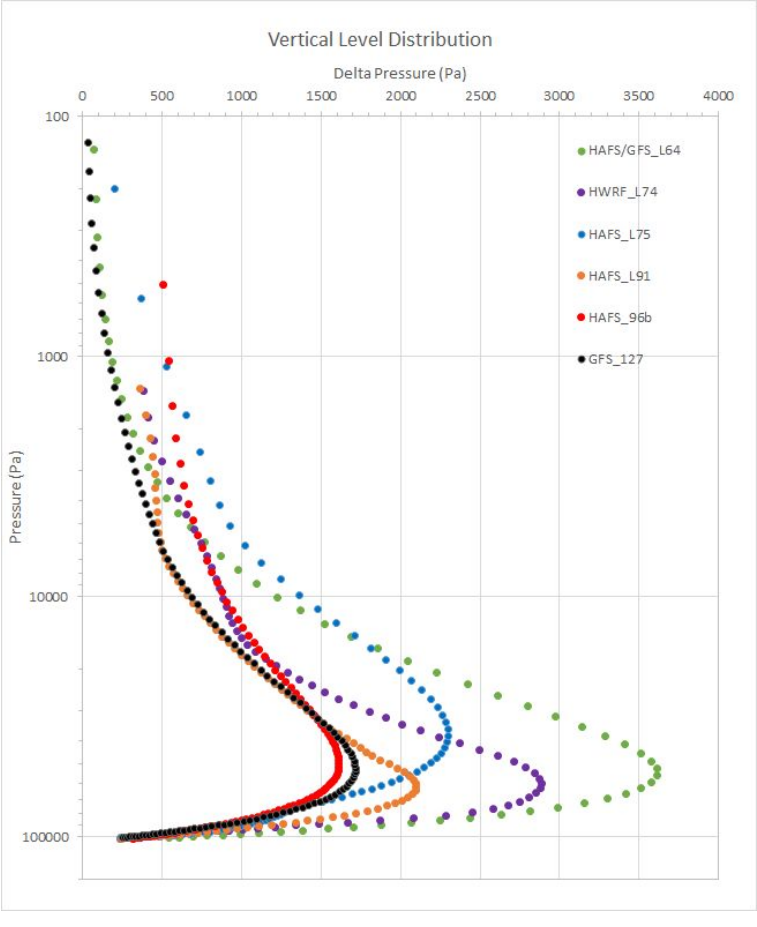
Updates of the HAFS.V0.1A HFIP Real-Time Experiment

EMC Hurricane Project Team
with collaborators from HRD, DTC, NESII, etc.
06/24/2020

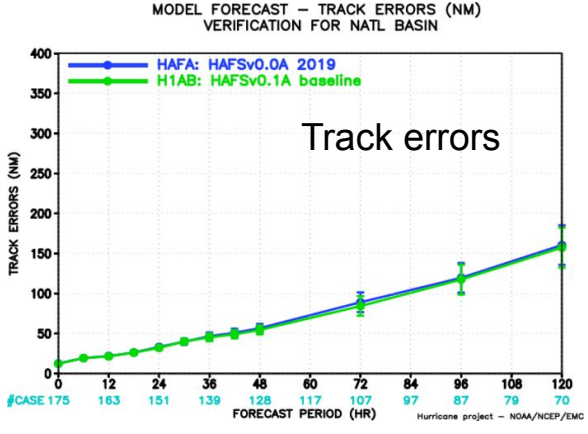
HAFS V0.1A Stand-Alone Regional and Ocean-Coupled Real-Time Experiment

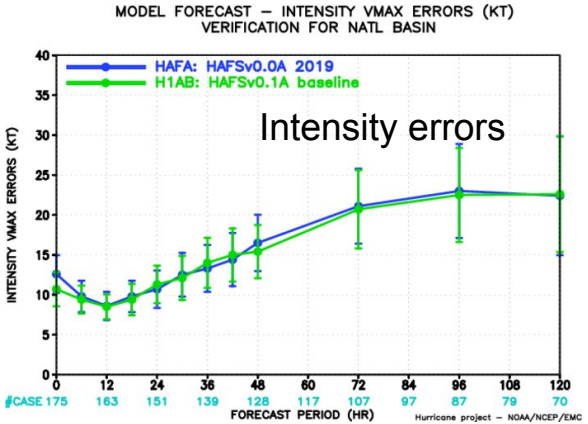
- The HAFS.v0.1A baseline configurations on top of HAFS.v0.0A
  - Modeling infrastructure, dynamics, and physics advancement
  - Slightly increased domain size and increased vertical levels from L64 to L75
  - Lateral boundary condition blending (with nrows_blend=10)
  - Turn off GWD parameterization
  - Reduce the radiation scheme time step from 3600s to 900s

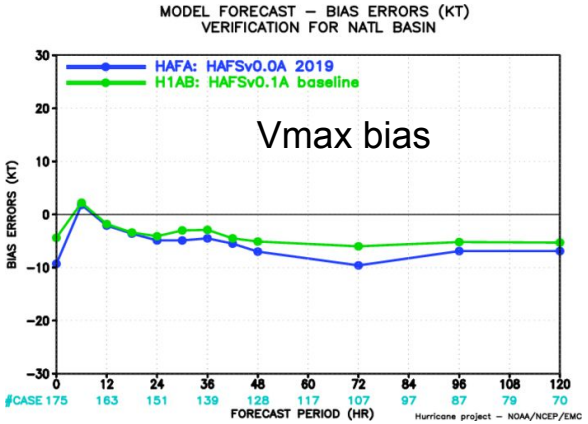


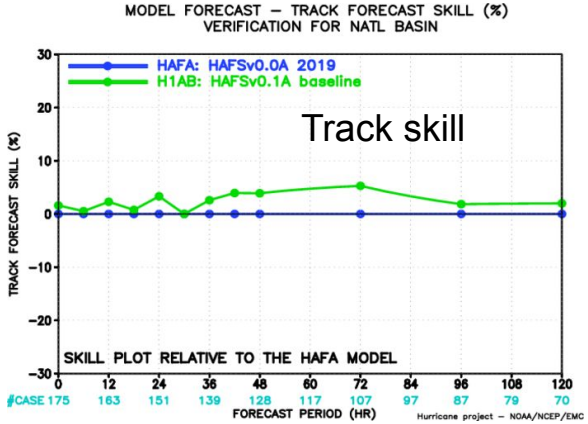


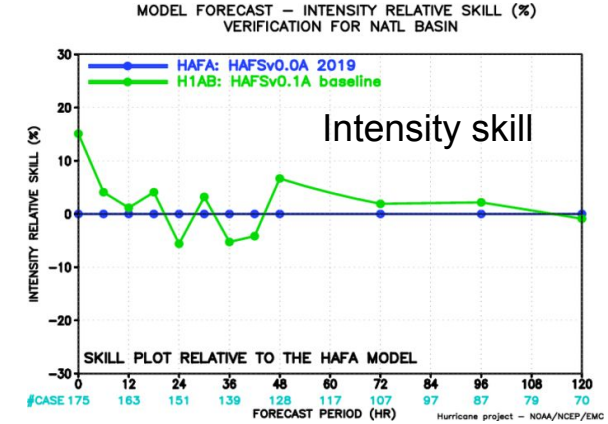
Performance of the HAFS V0.1A Baseline Configuration
(From a retrospective tests for some selected 2019 NATL storms)

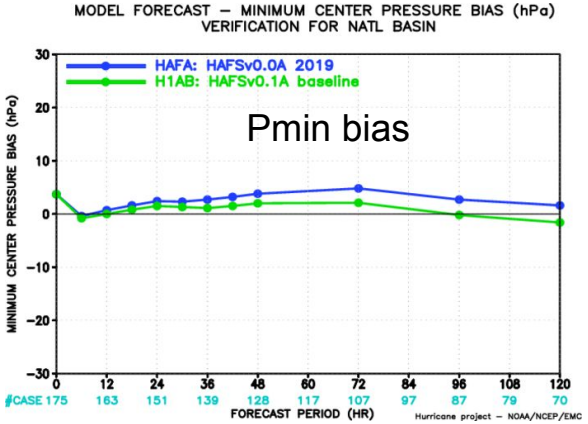












HAFS V0.1A Ongoing Development and Retrospective Tests

- Testing an alternative L91 vertical level/distribution (Lin)
- Testing different GWD related options (Chunxi, JungHoon)
- Testing hord=6 with shallow convection on together with high entrainment/detrainment rates, -5 positive definite tracer advection instead of monotonic tracer advection (Biju, JungHoon)
- Testing HAFS-HYCOM ocean coupling (Dan R., Hyun-Sook, Bin)
- Exploring GSI-based TC relocation and simple 3DVAR DA (Li, Henry, Bin)
- Exploring using the physics options from the HWRF CCPP suite