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Public Information Statement 24-05
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From: Avichal Mehra
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 NCEP/Environmental Modeling Center

Subject: Soliciting Public Comments on the Proposed Upgrades of Hurricane Analysis and Forecast System (HAFS) Version-2 through March 11, 2024

The Environmental Modeling Center (EMC) is proposing to upgrade the two configurations of Hurricane Analysis and Forecast Systems (HAFS), HAFS-A (HFSA) and HAFS-B (HFSB), in early Summer of 2024. The NWS is seeking comments on this proposed change through March 11, 2024.

The full list of potential changes for HAFS version-2 (HAFSv2) upgrades is described below.

System/Infrastructure Upgrades:

- Latest version of Unified Forecast System (UFS)
- Increase horizontal resolution of the inner nest from 2 km to 1.8 km (HFSA only)
- Model runtime efficiency
- New capabilities in workflow.

Data Assimilation Improvements:

- Ingest high resolution, meso-sector Atmospheric Motion Vectors
- Wave-zero DA increment implementation
- Adaptive Scale Dependent Localization (SDL) capability
- Assimilate hydrometeor variables
- Bug fixes.

Vortex Initialization Improvement:

- Hydrometeor relocation capability.

Post-process:

- Upgraded GFDL Tracker.

Model Physics Advancements:

- Thompson (HFSA only)
- Turbulent Kinetic Energy based Eddy-Diffusivity Mass-Flux.

Planetary Boundary Layer (TKE-EDMF PBL), tc_pbl option tuning (HFSB only):
- Prognostic sigma in Scale-aware Simplified Arakawa-Schubert (SA-SAS) convection (HFSB only).

Ocean/Wave Coupling:

- Modular Ocean Model version 6 (MOM6) ocean model coupling (HFSA only).

Expected benefits from this upgrade include improved track and intensity forecast skill for tropical cyclones in all world ocean basins for HFSA and in the North Atlantic, eastern North Pacific, and central North Pacific basins for HFSB. There are also expected reductions in intensity bias and storm size errors.

The NWS will evaluate all comments to determine whether to proceed with this upgrade.

There will be no additional variables added in HAFSv2. There will be no variables removed in HAFSv2.

HFSA and HFSB data are currently distributed on NOMADS, and HAFSv2 will be as well.

If these upgrades and product changes are approved, a Service Change Notice will be issued giving 30 days of notice of the implementation date.

Send comments on this proposal to:

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