HAFS Coupling Infrastructure Updates
August 18, 2021

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Collaboration with (in alphabetical order)
Lew Gramer, Andrew Hazelton, Evan Kalina, Hyun-Sook Kim,
Bin Liu, Jessica Meixner, Samuel Trahan
Wave Coupling in HAFS: supported configurations

- **(a)** One-way interaction: ATM -> WAV
- **(b)** Two-way interaction: ATM <-> WAV
- **(c)** Two-way interaction: ATM <-> OCN and one-way interaction: ATM -> WAV
- **(d)** Two-way interaction: ATM <-> OCN and ATM <-> WAV
HAFS Workflow with WW3 and HYCOM Coupling

In Development

Support various configurable one-way or two-way atmosphere-ocean and atmosphere-wave coupling
Data ocean: now available

- OISST, Optimal Interpolation SST - (global, daily)
- MOM6 - (regional, 3-hourly)
- GHRSST - subsetted to reduce data memory footprint (daily)
- RTOFS—currently not supported due to issue in the global HYCOM 1/12 tri-polar grid

Data atmosphere: ERA5 updated to use same fields as fully-coupled configuration

- ECMWF, ERA5 reanalysis - (global, hourly)
- GEFS & CFSR - CDEPS implementation does not support publicly available datasets

All supported data configurations are integrated with the workflow (thanks to Evan and Sam). Testing is still ongoing.
UFS Community Sync (Aug 5, 2021)

- HAFS Community developments have been merged into UFS Community
- HAFS Regression Tests are now part of UFS development testing
  - hafs_regional_atm, hafs_regional_atm_ocn, hafs_regional_docn, hafs_regional_docn_oisst, hafs_regional_datm_cdeps
HAFS Coupling - Work In Progress

HYCOM Authoritative Model (NRL) Sync

- HAFS Community HYCOM developments have diverged from NRL repository

UFSATM Global-Nest Coupling

- Current UFSATM Global-Nest coupling to HYCOM is limited to UFSATM regional nest coupling
- Support for global coupling within the USFATM Global-Nest configuration is in progress