HAFS EMC Updates
## 06/26/2019

EMC Hurricane Project Team

HAFS Code and Repository Update

- Switch to point the feature/HAFS branch of the UFS_UTILS repository (instead of gfs-workflow) for the common utilities (chgres, fre-nctools, orog).
- The CCPP framework and physics components of the forecast submodule (NEMSfv3gfs) have been updated to point the corresponding NCAR GitHub repositories.

HAFS Submodules
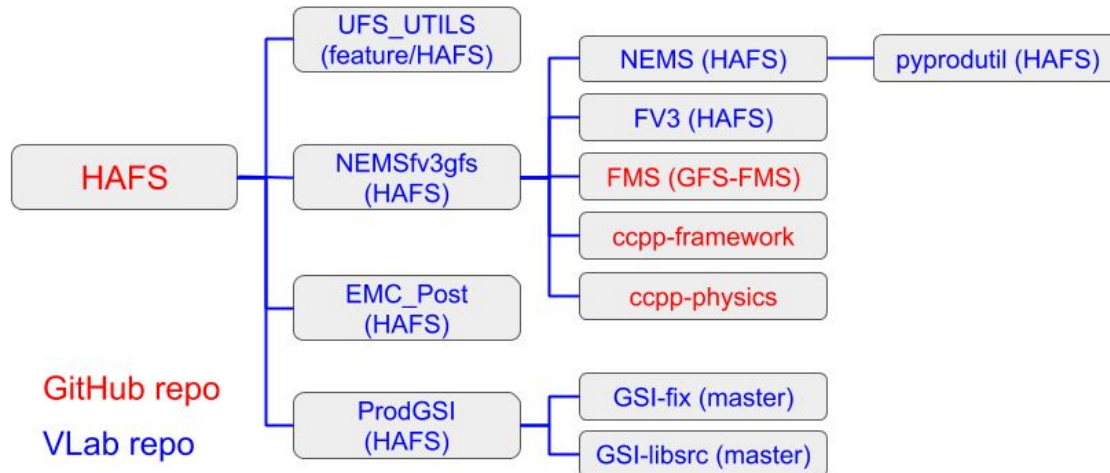
HAFS V0.A Real-Time Experiment Update

- ## HAFS V0.A (SAR)
  - Real time forecast runs successfully on jet
  - Currently running on xjet: launch on T+4:30 (00, 06, 12, 18Z); finish T+10:30
  - Real time reservation application submitted
  - Resource: 126 hours forecast takes 112 nodes and ~4 hours
  - Ingest grib2 files to create 3-hourly LBC (saving file transfer time and disk space)

- ## Preprocessing for LBC (chgres for grib2)
  - Modified to fit within HAFS (help from Lin and Zhan)
  - Read in global grib2 from FV3GFS to generate LBC
  - Convert from isobaric levels to hybrid levels
  - Forecast compared with LBC generated from nemsio for code validation
  - IC from nemsio (consistent with v0.B)

  nemsio ⟶ IC
  grib2 ⟶ BC

- ## Post (UPP)
  - Fix missing value handling issues for variables (u, v, t, q etc are ok):
    - dzdt, vvel (omega), CAPE/CIN, geopotential height on sfc, specific humidity on sfc, downward longwave radiation, latent/sensible heat flux, total precipitable water
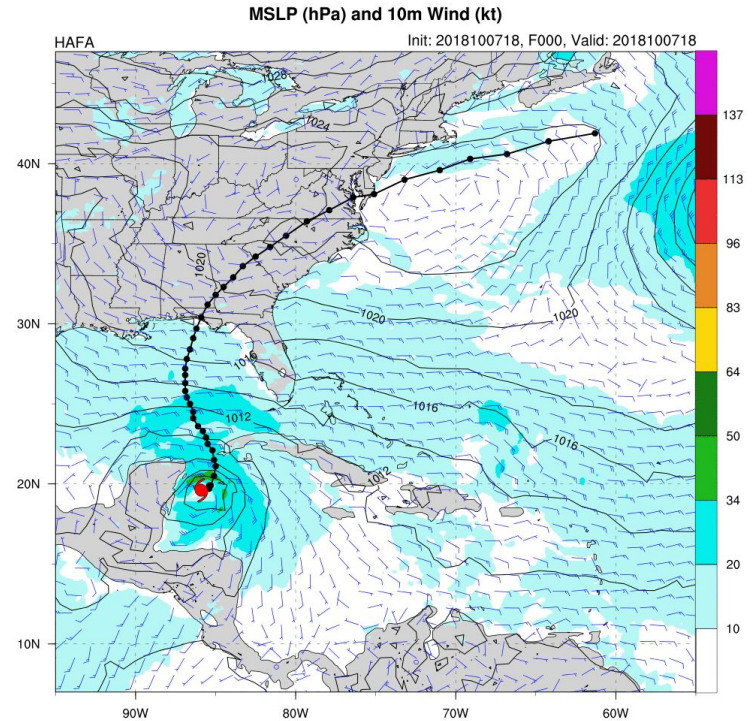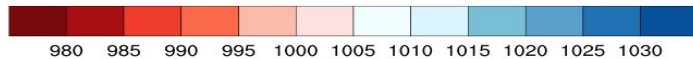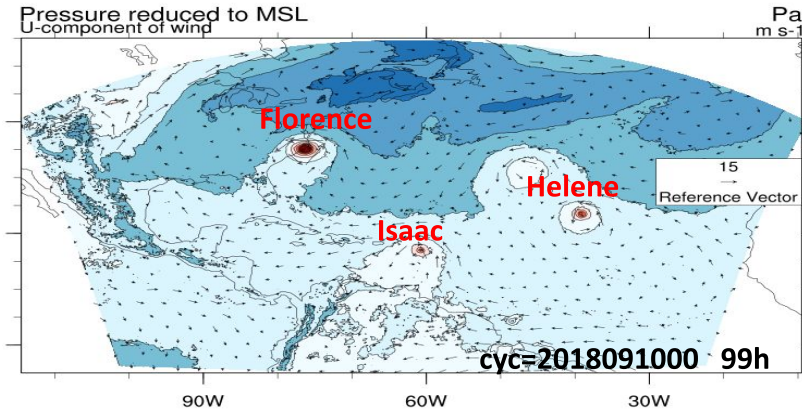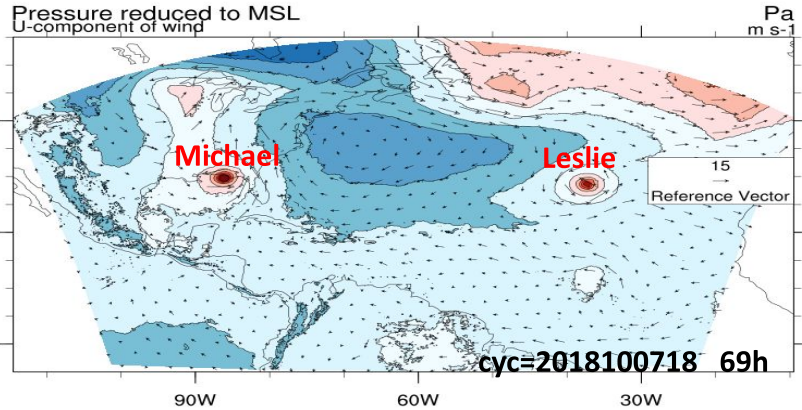
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HAFS V0.A Examples

(retrospective runs)

Plots from grib2 product

Hurricane Michael (2018)

cyc=2018100718 69h

cyc=2018091000 99h

https://www.emc.ncep.noaa.gov/gc_wmb/vxt/Keqin/hafa/home.php

Courtesy of Keqin

HAFS EMC Update

- Work in progress/planning
  - Finalizing configurations for HAFS v0.A and v0.B real-time experiments (EMC and HRD)
  - Creating a branch in HAFS repository for the code freeze and support for HAFS V0.A and V0.B experiments
  - Turning on and testing the real-time data transfer for HAFS/HWRF/HMON needed input files to Jet
    - Data transfer for HAFS input files is already on in testing mode
  - Planning and conducting HAFS-related physics scheme tests
  - Establishing Vortex Initialization capability for HAFS
  - Developing HAFS DA capabilities
  - Generating HAFS graphics and setup websites for display
- HSUP HPC allocations
  - Orion (MSU)
  - Hera (new Theia)