HAFS Coordination Meeting Summary
March 4, 2020 (2-3 pm ET)

<u>Participants:</u> Gopal, Henry Winterbottom, Xuejin Zhang, Levi, Andy Hazelton, Bill Ramstrong, Gus Alaka, Avichal Mehra, Bin Liu, Jili Dong, Zhan Zhang, Man Zhang, Evan Kalina, Tara Jensen, Ligia Bernardet, Mike Ek, Morris Bender, Tim Marchok, Youngsun Jung, Nysheema Lett, Sikchya Upadhayay.

<u>GFDL (HAFS Development updates - Tim Marchok and Morris Bender)</u>
- Hired two (2) software engineers starts in April and one in Jun - Lucas' projects on grid nesting and grid movement.
- Ongoing tests on HAFS for intensity forecast with 3 km resolution, yet not getting the desired improvements. Advection scheme may be negative due to issues in diffusivity.
- In case of Dorian, the impact is huge on track forecast but the sample size is fairly small to make that conclusion.
- Looking at convective parameterization degradation in the past, HAFS backtrack to have diffusion schemes improve the track forecast.
- Planning to show results of statistical analysis in next meeting.

Q. Is this 3 km global or nested and in which basin? 3 km global with nest in ATL.
Q. Are the track errors different in development and intensification phase? Has not looked into it.

<u>AOML/HRD ([HAFS Moving Nest and Physics Development, Tests & Evaluations at AOML](#)-Xuejin Zhang, Bill Ramstrong, Andy Hazelton)</u>
- Moving Nest Development
  - Integrating moving nest code into dynamic core, looking into how to connect with the model variables core
  - Considering testing configuration with dynamics only without physics and vertical remapping for stability
- Physics Development and evaluation
  - Transitioning several physics changes to CCPP
    - Km output for comparison with observations
    - Modifications to EDMF to improve calculation of N2 (P. Zhu, FIU)
  - Other PBL variables to be added
  - Testing modifications of schemes into new "suites" for further improvements to EDMF-TKE, GFDL microphysics

Q. Can you elaborate on vertical remapping? No code changes, FV3 calls the vertical remapping frequently before and after the nesting to eliminate errors in the vertical coordinate to stabilize the model.

<u>DTC ([DTC Update on Hurricane Supplemental Projects](#) - Evan Kalina, Man Zhang, Mike Ek, Tara Jensen)</u>

- HAFS Infrastructure
  - Crow Review Status
    - Integrated into broader UFS Workflows Workshop on April 28–30, 2020 at College Park, MD (NCWCP). Agenda and registration coming soon.
  - HAFS workflow requirements collection
    - Limited input from the community thus far via issue tracker in GitHub repository: github.com/NCAR/ufs_workflows_sandbox
    - Working on an anonymous survey with mixture of direct and open-ended questions to supplement the issue tracker
    - All community model users and developers are welcome to take this survey should be sent out next week
- HWRF Physics in CCPP
  - Finishing sanity check of a prototype (partial) HWRF physics suite on Hera with 3-km Regional FV3 via CCPP configuration, the f24h precipitation, LW/SW flux results look reasonable.
  - PBL code: HAFS changes compile fine and runs with the CCPP Single Column Model (SCM). Noah land code: initialization phase working in the new CCPP version. (Slight delay in finalizing incorporating Noah land code into CCPP, but should be finished in a few weeks.

GSD (HAFS Project Updates - Curtis Alexander)
- Working on defining the scope of UFS regional (SAR-FV3 system) for release by Aug 1.
- The first version will not include DA but will have option for 3 km domains including oceans.
- Working on Physics suite supported by CCPP
- Details of workflow is forthcoming.
- Plan to show HAFS with CAM results in the next meeting.