Developmental Testbed Center Updates

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HFIP Annual Meeting  2021 November 17
Overview of the DTC

**DTC purpose:** Facilitate the interaction and transition of NWP technology between research & operations

The DTC is a collaborative facility between NCAR & NOAA/GSL

Strong partnerships with operational partners & model developers is critical

**O2R:** Support operational NWP systems to the community

**R2O:**

- Partner with developers to get innovations into centralized code
- Perform diagnostics and **T&E on promising NWP innovations** for possible operational implementation

**Interaction between R&O:** Workshops, **visitor program**, newsletter

DTC activities funded by NOAA (including HFIP), Air Force, NSF, and NCAR
Evolving role of DTC

Currently providing support for both HWRF and HAFS

- Ramping down HWRF efforts over current period of performance
- Increasing involvement in HAFS code management and developer support
- Plans for transition of HAFS activities to EPIC
- Expanding role in testing and evaluation activities
HWRF code management

Centralized HWRF repository

- SVN & Git repositories house all HWRF components
- Automated build for entire system, end-to-end python scripts, tools for automation, source for components
- Support unified scripts that run all HWRF components
- Commit changes to trunk, conduct regression/consistency checks to ensure code integrity
  - Keep truck up to date - updated modules, bug fixes, library changes
    - Jet, Hera and Orion HPCs
  - H221 merge - tested using updated modules
- Strategy and timeline for removing support for HWRF/NMM from community WRF repository
  - Starting with WRF v4.4 release in Spring 2022
  - HWRF fork remains unchanged!
HWRF User Support

- HWRF and stand-alone GFDL Vortex Tracker migrated from helpdesk to community forums
  - As of 1 October 2021, DTC is no longer actively monitoring and answering requests from the **User forums** - community contributions encouraged!
  - HWRF v4.0a and GFDL Vortex Tracker V3.9a public releases still available on DTC website
    - Code, documentation, datasets

www.dtcenter.org/HurrWRF/users
https://dtcenter.org/forum/hwrf-support/users
https://dtcenter.org/forum/gfdl-vortex-tracker-support
HWRF Developer Support

- Streamlining the transition of new developments
  - Access to the unified HWRF code repository with experimental codes
    - Email (hwrf-access@ucar.edu) for collecting repository requests
  - Support for inter-developers collaboration
  - Training, assistance with developments
  - Oversight of code integration to avoid divergence

- DTC chairs bi-weekly HWRF/HAFS developer committee calls
  - Mondays @ 12 pm ET
  - Developer mailing list

- Specialized support for HWRF developers
  - Support forum for posting inquiries

www.dtcenter.org/HurrWRF/developers
https://dtcenter.org/forum/hwrf-support/developers
HAFS code management

- Drafted HAFS governance plan
  - Shared with developers during HWRF/HAFS Developers’ Committee meeting, incorporated feedback from community partners
  - Final version updated to GitHub HAFS code repository wiki:
- Created pull request and issue templates
HAFS workflow

- Contribute to workflow level regression testing on Orion and Hera
- Added script to hafs-community repository to verify regression test (RT) results
  - Better automation for HAFS RTs
- Ongoing work to add support for Thompson microphysics to HAFS workflow
- Addition of documentation to hafs-community using readthedocs underway
  - Consistent with other UFS applications
HAFS Developer support

- Added HAFS to HWRF Developers’ committee (now HAFS/HWRF Developers’ Committee) - Monday 12 ET, bi-weekly
  - Increased attendance and participation from a broader group of developers
- Providing support via GitHub Discussions
  - Platform based on feedback from developers
- Support for HAFS developers on development, code integration, code review
- Recent request for GitHub training specific to HAFS developers
  - DTC currently exploring how best to meet needs of developers for this training
DTC Visitor Program

Providing support for visitors to work w/ the DTC to test new forecasting & verification techniques, models & model components for NWP

Recently funded hurricane-related work:

**HWRF**
Testing Exponential-Random Cloud Overlap for HWRF Operations and Unifying RRTMG Radiation Codes in Operational Use at NOAA/EMC

Michael J. Iacono and John M. Henderson, Atmospheric and Environmental Research/Verisk Analytics

**HAFS**
Use GOES Data to Evaluate the Performance of Hurricane Analysis and Forecast System (HAFS)

Shaowu Bao, Coastal Carolina University

Research funded via DTC visitor program successfully contributing to HWRF/HAFS development, HFIP goals

https://dtcenter.org/visitor-program/announcement-opportunity
Questions/Comments?

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