

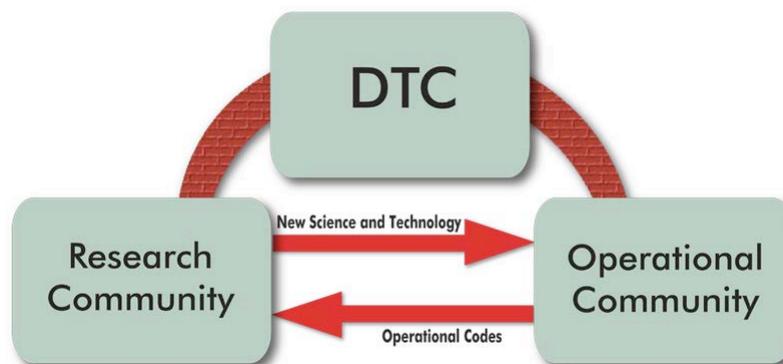
Developmental Testbed Center

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DTC strategies to promote O2R20



Code management

- Create and sustain a framework for NCEP and the research community to collaborate and keep code unified

User and developer support

- Software downloads, repository access (developers), documentation, tutorials & helpdesk

Visitor program

- Support research community to partner with DTC in R2O

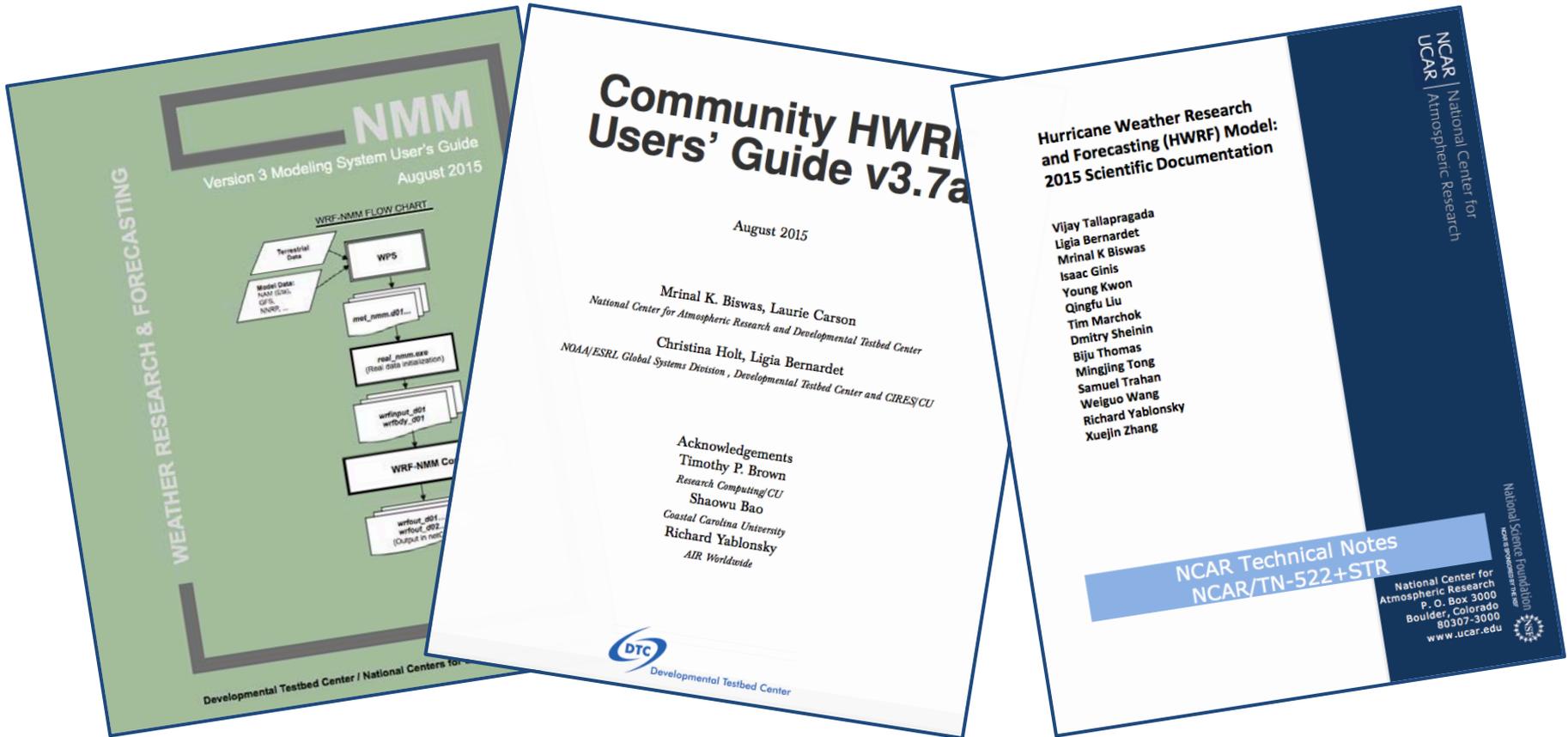
Independent testing & evaluation

- Diagnostics of current operational systems
- Test and evaluate innovations for potential operational implementation

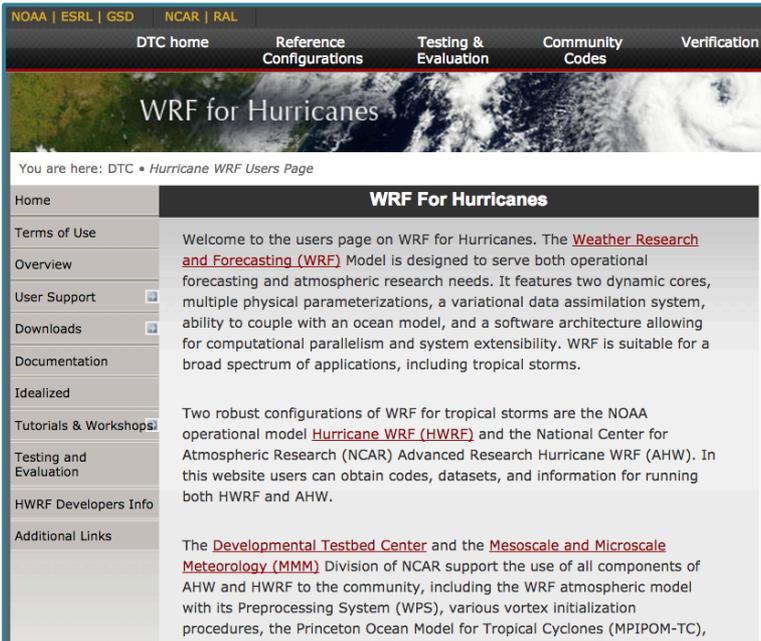
Current Software Systems

Software	Type	Developers	Repository	DTC's role
WRF	mesoscale model	NCAR, GSD	NCAR	Assist w/ rep maintenance & community contributions
UPP	post-processor	EMC	EMC Community	Maintain community repository (sync & portability) Community support
GSI-EnKF	data assimilation	EMC, NASA, GSD, NCAR, NESDIS	EMC Community	Chair DA Review Committee Maintain community repository (sync & portability) Assist w/ community contributions Community support
HWRF	tropical cyclone	EMC, HRD, URI, GFDL	Community (10 components)	Chair HWRF Developers Committee Transition ops capability to component repositories Repository maintenance Support for system run scripts Community support
MET	verification	NCAR	NCAR	Maintain repository and advance capability Community support

Extensive release documentation



Support to general community



User Webpage:

Code downloads, datasets, documentation, past tutorial materials

Helpdesk:

hwrf-help@ucar.edu

Recent HWRF Tutorials

College Park, MD

January 2014

Taipei, Taiwan

May 2014

Nanjing, China

December 2015

College Park, MD

January 2016

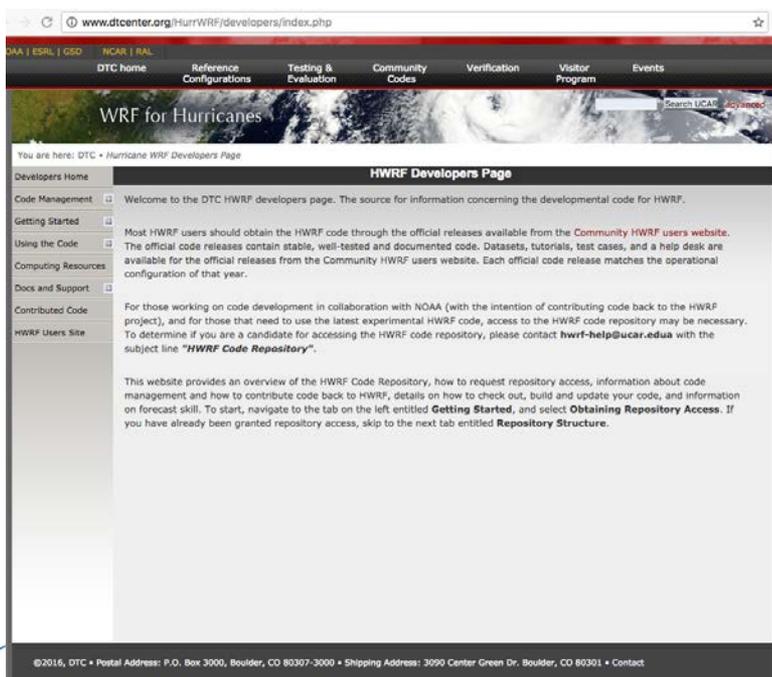
Lectures from HWRF developers on all aspects of the end-to-end system

Support to HWRF developers

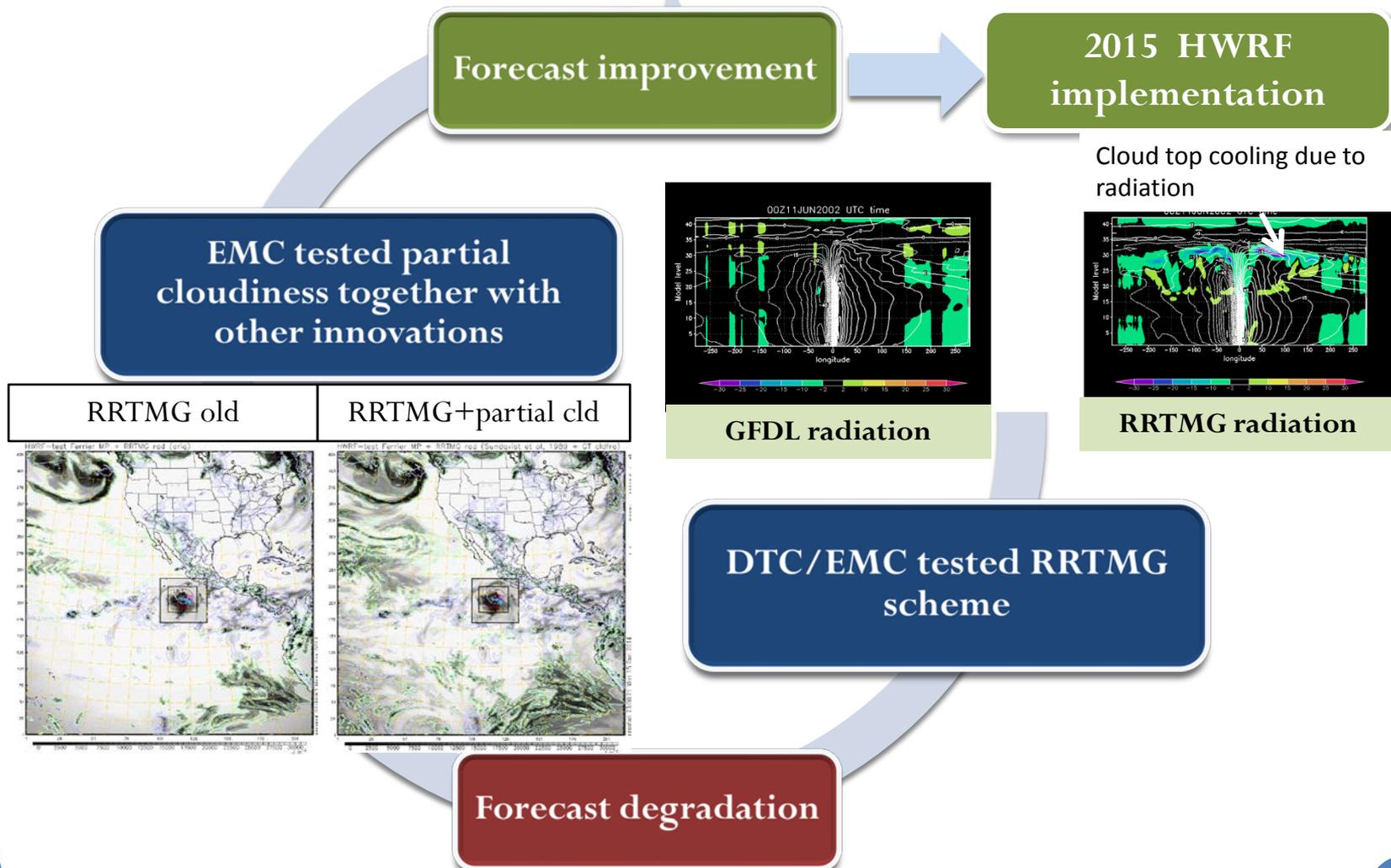
Motivation: access to code repository & timely support for developers to work in fast-paced, multi-institutional collaborative mode expedites code readiness

For HWRF developers (HFIP PIs), DTC/EMC provides:

- Access to the unified HWRF code repository hosted by DTC
- Access to the latest experimental codes
- Contrib repository: peer-to-peer sharing of codes
- Support to inter-developers collaboration
- Training in code management, development, automation
- Specialized in-person training
- Developer website
- Mailing lists
- Helpdesk



DTC's role in HWRF development: connecting the pieces



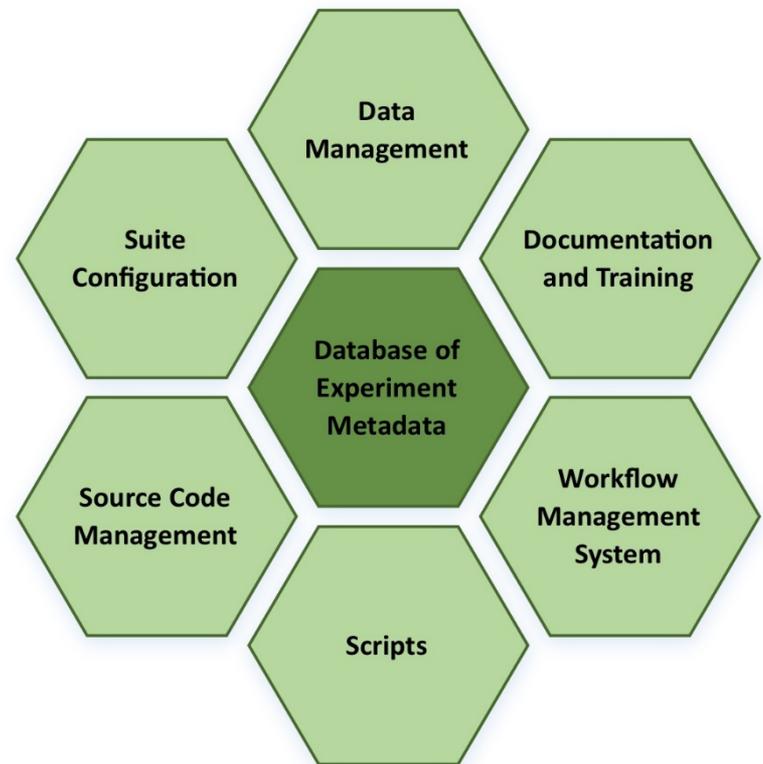
Lessons learned

- Free and open access to “community” code is essential for successful O2R and R2O; DTC does not support “proprietary” code
- Effective O2R2O requires a **strong partnership** and active participation of operational centers, academia, research laboratories, private sector and funding agencies
- Process is most effective and efficient when all groups are working from the same code repository – separate operational and community repositories require non-trivial amount of additional resources for maintenance
- Need incentives for academic community to embrace operationally relevant projects
 - Community systems that provide flexibility (options) for research and development
 - Funding opportunities to support operationally relevant research

Outlook: Supporting Next Generation Global Prediction System (NGGPS) as a Community Model through NITE (NWP IT Environment)

Creating a strong community for NGGPS will require easy access to a highly configurable modeling system that can be used for research. Operational configuration should be a subset of the community system

Source codes need to be accessible to all developers, with a well defined path for contributing innovations



Community access needed for effective O2R and R2O

- All source codes
- Datasets used in operations
- Scripts and workflows to run and evaluate the experiments
- HPC platforms, migrating toward cloud computing
- Database to record and retrieve experiment configurations, so NCEP/EMC is sure of their relevance
- Documentation, tutorials, and user/developer support

Thank you!

<http://www.dtcenter.org/>