

FY 2009 Annual Guidance Memorandum

Hydrology Program

(23 September 2008 update)

This Annual Guidance Memorandum provides direction for the Core Goal Teams as they formulate recommendations for projects to be funded by the Hydrology Program during FY 2009. The NOAA Hydrology Program Manager's priorities for each of the high priority core goals, as determined by the AHPS Review Committee (ARC), are listed. Of course, Team recommendations are not restricted to projects that directly support these objectives. Core Goal Teams should feel free to propose and justify the funding necessary to continue or initiate other critical activities.

In addition, the following core goals and associated program areas will continue to be funded: New Service Locations; Outreach; Training; Web Page Deployment; and Program Management. FY 2009 work plans in these areas will be developed by program area focal points and reviewed by the ARC.

Highest priority core goals and associated teams are:

- **Innovation Team**
 - *Core Goal: Improve hydrologic forecasts impacted by reservoirs and regulation*
 - Develop implementable approach to provide uncertainty information for hydrologic forecasts impacted by reservoirs and regulations
- **Experimental Ensemble Forecast System Team**
 - *Core Goal: Quantify the uncertainty of our forecast information*
 - Develop high level (conceptual) operational requirements for the Ensembles Product Generator component of the Experimental Ensemble Forecast System (XEFS) in CHPS
 - Test advanced hydrologic ensemble prediction techniques
- **Distributed Model Team**
 - *Core Goal: Provide, then improve, gridded water resource data production capability*
 - Develop a distributed hydrologic model gap analysis and implementation strategy based on the approved operations concept and the Strategic Science Plan.
 - Test distributed hydrologic modeling (both conceptual and physically-based) and automated data assimilation over mountainous terrain
- **Community Hydrologic Prediction System (CHPS) Acceleration Team (CAT)**
 - *Core Goal: Software refresh – enhance the usability and/or internal workings of existing software*
 - Complete the conversion of all required OHD modeling software from the NWSRFS environment to CHPS.
 - Begin the migration of CAT RFC operations to CHPS.
 - Define the requirements for non-CAT RFCs to migrate from NWSRFS to CHPS.

- **Hydrologic River Forecast Center Verification Requirements Team**
 - *Core Goal: Verify our forecast and uncertainty information*
 - Continue implementation of River Forecast Verification Plan.
 - Begin development of the National Baseline Verification System within the FEWS for CHPS environment.
- **Flood Inundation Mapping Team**
 - *Core Goal: Improve flood forecast inundation maps - Static Maps*
 - Implement, via the AHPS web portal, flood inundation mapping libraries in the Gulf Coast, Upper Midwest and other suitable demonstration sites.
 - Document process (criteria) to evaluate suitability of sites for static inundation mapping

High priority core goals and associated teams are:

- **Inputs and Forcings for Hydrologic Models Team**
 - *Core Goal: Improve the quality of physical inputs and forcings (e.g. QPE, QPF, temperature, snow, evapotranspiration, soil conditions, burn data, etc.)*
 - Integrate dual polarization radar precipitation estimates into AWIPS applications
 - Evaluate enhancements to dual polarization radar capabilities for hydrometeorological use
 - Identify MPE changes needed to provide forcings for CHPS
- **Integrated Water Resource Services (IWRSS) Team**
 - *Core Goal: Define and coordinate Hydrology Program requirements with other NOAA programs and federal water partners (conduct external projects)*
 - Deliver and evaluate soil moisture forecasts for Arizona to support the NOAA West IWRSS Demonstration
 - Support Hydrometeorological Testbed – Southeast (HMT-SE) startup activities
 - *Core Goal: Allow the hydrology community to more fully participate in research to operations*
 - Develop a tri-agency plan, in coordination with the USACE and USGS, to develop and demonstrate the provision of enhanced and integrated Integrated Water Resources Science and Services (IWRSS) water resource services.
- **RFC Archive Database and Maintenance Team**
 - *Core Goal: Archive information required to support the Hydrology Program now and in the future*
 - Document comprehensive RFC archiving requirements for both deterministic and probabilistic forecasting
- **Hydraulic Model Team**
 - *Core Goal: Improve the routing techniques used to connect forecast locations (includes coastal effects)- Hydraulic models*
 - Continue work on incorporation of HEC-RAS into the suite of available RFC hydraulic models.

- Develop plans, tools, and training for introduction of HEC-RAS into field operations.
- Investigate improved river-estuary-ocean interaction modeling techniques to improve river forecasts
- **Flash Flood Theme Team**
 - *Core Goal: Deliver improved flash flood and debris flow monitoring tools (site specific, FFMP, statistical distributed modeling, dam break, for example)*
 - Conduct field evaluation of the Distributed Hydrologic Model – Threshold Frequency technique
 - Evaluate flash flood guidance methodologies
 - *Core Goal: Improve forecast and warning services based on the effect of dam failures*
 - Develop concept of operations for supporting field operations for flash floods caused by dam breaks