Flash Flood Services	Short- to Long-term Forecasts	Graphical Dissemination of Hydrologic Information
$1,189,000	$930,000	$389,000
Team: Tom Donaldson* and Mary Mullusky, OCWWS/HSD; Janice Sylvestre, Dave Kitzmiller and Mark Glaudemans, OHD; Stephan Smith, OST/MDL; Ed Danaher, NCEP; Greg Smith, CBRFC; and George McKillop, ER/HSD	**Team:** Seann Reed*, OHD; Dave Brandon, CBRFC; Gregg Rishel, NERFC; Mary Mullusky and Kevin Lynott, OCWWS/HSD; and Pedro Restrepo, Mike Smith, and Edwin Welles, OHD; Rob Hartman, CNRFC; and Billy Olsen, ABRFC	**Team:** Reggina Garza*, SERFC; Tom Donaldson, OCWWS/HSD; Wendy Pearson, CR/HSD; Doug Marcy and Mark Kolowirth, NOS/CSC; Janice Sylvestre, OHD; Joe Ostrowski, MARFC; and David Welch, LMRFC

Deliverables:
• Qualitative Precipitation Estimate
  o Enhancement to the Multisensor Precipitation Estimator (MPE) to include Mountain Mapper functionality
  o National implementation of local analysis techniques for merging unbiased radar data with gage rainfall data
  o Increase MPE space/time resolution to 1 degree x 1 km and less than 1 hour precipitation refresh
  o Integrate satellite information into MPE calculations
• Hydraulic Modeling and Analysis Tools
  o Dam Analysis Tools (DamAT)
  o Clean up data used for Dam Break forecast to address WFO need for accurate emergency guidance during dam failure scenarios
• Statistical Distributed Modeling
• Flash Flood Monitoring and Prediction (FFMP)
  o Incorporate MPE with higher resolution temporal and special resolution
  o Add multiple monitoring time frames and thresholds
  o *Graphical flash flood products (stream specific and county specific)*
	• Ensemble science
	  o Support RFC ensemble activities
	  o Short-term ensemble R &D
	  o Post processor
	  o Data Assimilation
	  o Long term CPC adjustment
	• Short term ensemble software
	• Distributed hydrologic modeling science
	  o Snow modeling
	  o Large area runs of HL-RMS
	  o Parameterization
	  o Research tools
	• Distributed hydrologic modeling software
	• Verification
	  o Deterministic verification system
	  o Deterministic system implementation
	  o Probabilistic verification
	• Hydraulic river modeling
	  o Model enhancements
	  o Software tools
	• Potential evapotranspiration
		Deliverables:
		• Integrated NWS flood mapping application (FLDVIEW) to provide flood inundation capabilities to all RFCs for providing GIS based flood information
		• Simplified Hydraulic Routing Technique (SHRT) to provide water surface elevation for locations not requiring open channel hydraulic flow equations
		• *Evaluations of Flood Forecast Mapping*
		  o *Susquehanna*
		  o *Tar River*
		  o *Others?*
		• *GIS User Workshop*

• *Site Specific Model*
  o *software tools for model calibration*
  o *maintain model state variable*
• *National Flash Flood Guidance Verification*		

* Team Lead

Notes: $ figures in the 2nd row of a column are a draft of the suggested spending breakdown for FY05 based on the President's Budget (and briefed to the FIRC). They should be viewed as guidelines only. There are several indications that actual total amount available will be lower

Items in **bold** are changes that have been coordinated among the team leaders (money and/or deliverable swaps)
Items in *italics* are suggested additions of deliverables for the team consideration (for details see Peter G.)

Web Page Deployment	Training	Collaborative Research
$245,000	**$220,000**	$500,000
Team: Donna Page*, OHD; Frank Richards and Kevin Lynott, OCWWS/HSD; Michelle Schmidt, WR/HSD; and Laurie Hogan, ER/HSD	**Team:** Jeff Zimmerman*, OCWWS/HSD; Donna Page, OHD; Ken King, CR/HSD; and Dave Reed, LMRFC	**Team:** Pedro Restrepo*, OHD; Rob Hartman, CNRFC; Kevin Werner, WR/SSD; and Ken King, CR/HSD

Deliverables:
• Enhance Web pages by adding new AHPS forecast locations, updating maps, etc.
• Implement HydroGen in AWIPS
• Implement National Forecast Location Database
• Implement the first phase of the AHPS Product and Information Team (APIT) recommendations
	Deliverables:
	• COMET
	  Provide DOH Residence Courses
	  o Flash Flood Hydrology and QPE Workshop
	  o 1st Advanced Hydrologic Science Workshop
	  Provide Distance Learning
	  o Basic Hydrologic Science
	  o Workshop on Ensemble Hydrologic Forecasts
	• **Regional workshops to train WFO forecasters**
	• **River Hydraulics tutorials (web based)**
	• **HPC Visiting Forecaster**
		Deliverables:
		• Sustain university relationships begun in FY04
		• Expand research to deliver top consensus HIC priorities
		  o Short-Term Ensemble Forecasts
		  o Streamflow Regulation
		  o Probabilistic Verification
		  o Short-Medium-Long Range Ensemble Integration
		  o NWSRFS calibration process improvement
		• Address societal impacts, economic benefits and decision support tools
		• *Interagency efforts - NWS, USACOE, USGS, EPA (e.g. mudslides, ice, hydrologic/hydraulic models*

* Team Lead

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Implementation ($2,654K)			
New Service Locations	**Software Infrastructure and Integration**	**National and Regional Outreach**	**Program Management**
$1,545,000	$700,000	**$80,000**	$300,000
Team: Donna Page*, OHD; Robin Radlein, AP/HSD; and Dave Reed, LMRFC	**Team:** Jon Roe* and Janice Sylvestre, OHD*;* Larry Black, MBRFC; and Dave Brandon, CBRFC	**Team:** Tom Graziano* and Larry Wenzel, OCWWS/ HSD; Ben Weiger, SR/HSD; and Amanda Roberts, LMRFC	**Team Leads:** John Ingram*, OHD; Walter Scott OST; and Peter Gabrielsen, ER/HSD

Deliverables:
• Provide AHPS at 386 new locations
• Provide information for Alaska flight lines
• Conduct evaluation on national calibration requirements and approach
• Low flow impacts proposal (CR)
	Deliverables:
	• Streamflow Regulation: Necessary to implement AHPS at several locations
	• River Ensemble Processor (REP) software architecture: Allows integration of gridded meteorological data and externally developed modeling techniques
	• **Calibration System Enhancements**
	   o **CAP**
	   o **ICP**
	   o **IDMA**
	• **Unified MAT processing**
		Deliverables:
		• Regional workshops to educate our customers and partners about AHPS products and services
		• **Collaborative outreach with NSC**
		• **National Flood Awareness Week**
		• *AHPS advisory committee (interagency, university)*
			Deliverables:
			• Planning/Execution/Reporting
			• Agency/Departmental/Legislative Interface
			• HOSIP Management
			• Implement new Probabilistic Performance Measure
			• *Define goals and required resources for enhanced AHPS implementation*
			• *Standards for ESP products*

* Team Lead

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