

## **Experimental HPC Probabilistic Quantitative Precipitation Forecasts**

### **Part 1 – Mission Connection**

- a. Product Description – This product provides a probabilistic forecast of rainfall over the continental U.S. in six hour increments.
- b. Purpose – The probabilistic quantitative precipitation forecast (PQPF) guidance is used by forecasters and hydrologists to determine the probability of any rainfall amount at a given location. The PQPF can be used to assist forecasters in the issuance of flash flood and flood watches at a WFO or RFC. It can also be used at the RFC as input into probabilistic river forecasts.
- c. Audience - The target audience includes NWS forecasters and hydrologists. The product may also be useful to anyone interested in water management, commercial weather services, the academic community, and the agricultural community.
- d. Presentation Format – Six-hour forecasts through 72 hours are presented on the HPC webpage at the following URL:

[http://www.hpc.ncep.noaa.gov/pqpf\\_6hr/conus\\_hpc\\_pqpf\\_6hr.php](http://www.hpc.ncep.noaa.gov/pqpf_6hr/conus_hpc_pqpf_6hr.php)

- e. Feedback Method – Comments may be provided via email or by directly contacting:

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The comment/feedback period will extend from June 1, 2010 through November 30, 2010.

### **Part II – Technical Description**

- a. Format and Science Basis – The HPC produces 6-hour quantitative precipitation forecasts (QPFs) for forecast projection days one through three at 6-hour intervals (72-hour duration). High-resolution model runs constitute an ensemble from which uncertainty information is obtained to construct a probability distribution about the HPC QPF. A binormal probability distribution (density) function (PDF), which allows skewness, is constructed such that the mode is the HPC QPF and the variance is that of the ensemble. The skewness is based on the position of the HPC QPF in the ensemble distribution. This approach to estimating the three parameters for the binormal PDF is a variation on the method of moments.

The probabilistic QPF forecasts provide information in two different forms: probabilities of exceeding a threshold, and levels of precipitation amount associated with a given percentile in the distribution.

A more detailed description of this product can be found on the HPC web site at:

[http://www.hpc.ncep.noaa.gov/pqpf\\_6hr/about\\_pqpf\\_products.shtml](http://www.hpc.ncep.noaa.gov/pqpf_6hr/about_pqpf_products.shtml)

b. Product Availability - The product suite is updated synchronously with the HPC 6-h QPF: projection days 1—2 are release four times per day (preliminary products at 06 and 18 UTC, final products at 00 and 12 UTC); while, projection day 3 is release twice per day (00 and 12 UTC final products).

c. Additional Information – None.