Geophysical Research Abstracts,
Vol. 11, EGU2009-7929, 2009
EGU General Assembly 2009


# The HEPEX Ensemble Representations of Rainfall Observation and Analysis Uncertainty Test-bed

T. Bellerby
University of Hull, Geography, Hull, United Kingdom (t.j.bellerby@hull.ac.uk, +44 1482 466340)

An ensemble description of observation and analysis uncertainty consists of a family of rainfall fields, each displaying realistic patterns of spatiotemporal variability while remaining consistent with available measurements. These representations provide obvious advantages for assessing the propagation of rainfall measurement uncertainty though non-linear distributed hydrological models. Such information is expected to be an important contribution to the development of hydrologic ensemble data assimilation techniques. Stochastic rainfall simulations conditioned upon synoptic gauge observations have been investigated for some time while more recent work has yielded techniques capable of generating ensemble radar or satellite precipitation products. Further development is required to refine these techniques for operational application and to create hybrid ensemble methodologies capable of combining information from highly disparate sources.

The HEPEX Ensemble Representations of Rainfall Observation and Analysis Uncertainty Test-bed has been set up to coordinate the development and evaluation of ensemble rainfall products. It aims to address the following key scientific questions:

• How do rainfall observation and analysis uncertainties translate into uncertainties in runoff and other hydrological variables, including hydrologic model state variables?

• How does rainfall observation and analysis uncertainty impact on hydrological model calibrations?

• What is the best mathematical representation of the spatiotemporal structure of rainfall measurement and analysis uncertainty?

• How best can an ensemble rainfall product be conditioned upon multiple disparate data sources?

This presentation will review the aims and objectives of the “Ensemble Observations” Test-bed, drawing from recent research to highlight the current state of the art and identifying challenges to be met.