2010 HMT FORECAST DEMONSTRATION PROJECT
Verification using the Model Evaluation Tools (MET)

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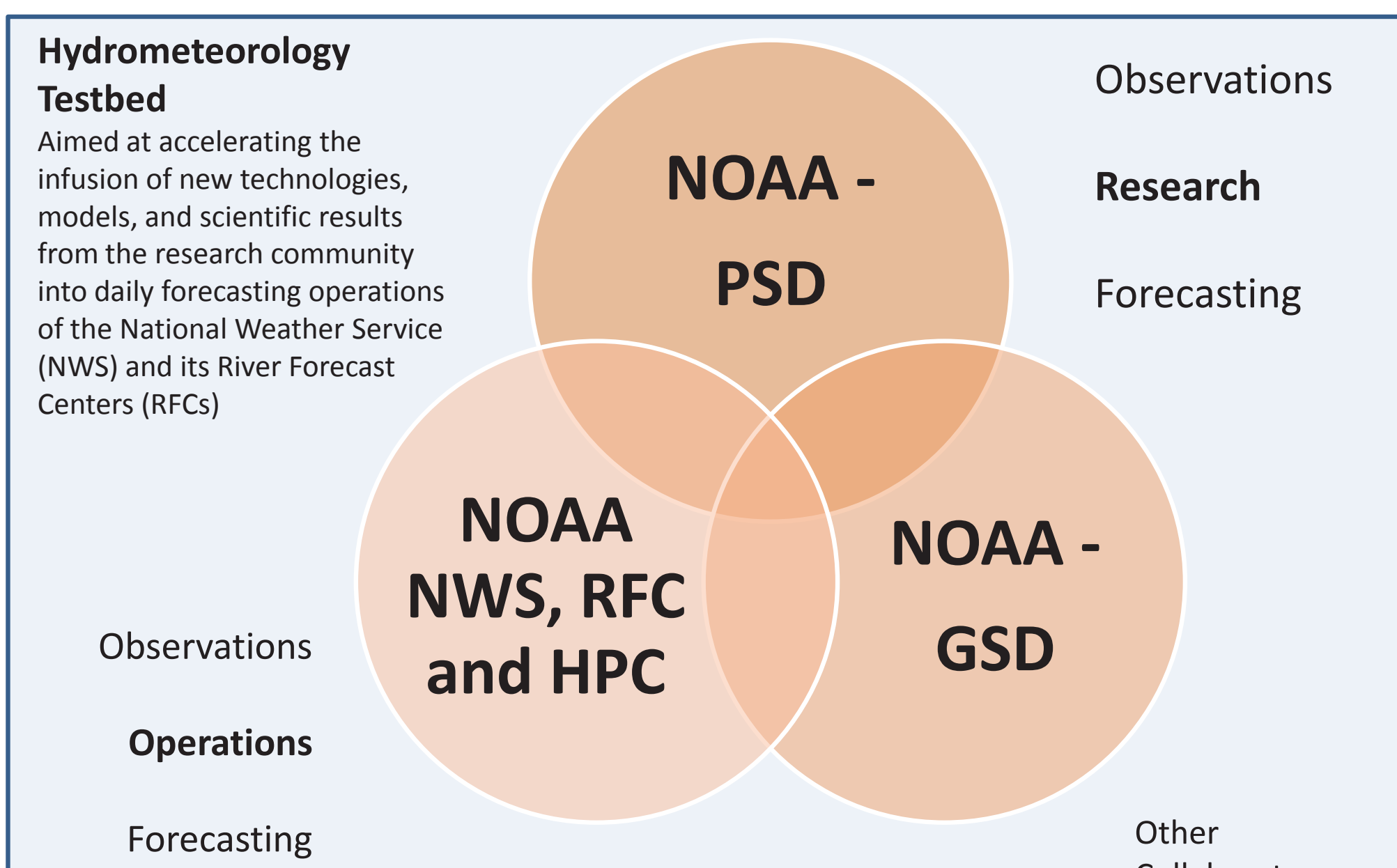
*National Center for Atmospheric Research (NCAR)
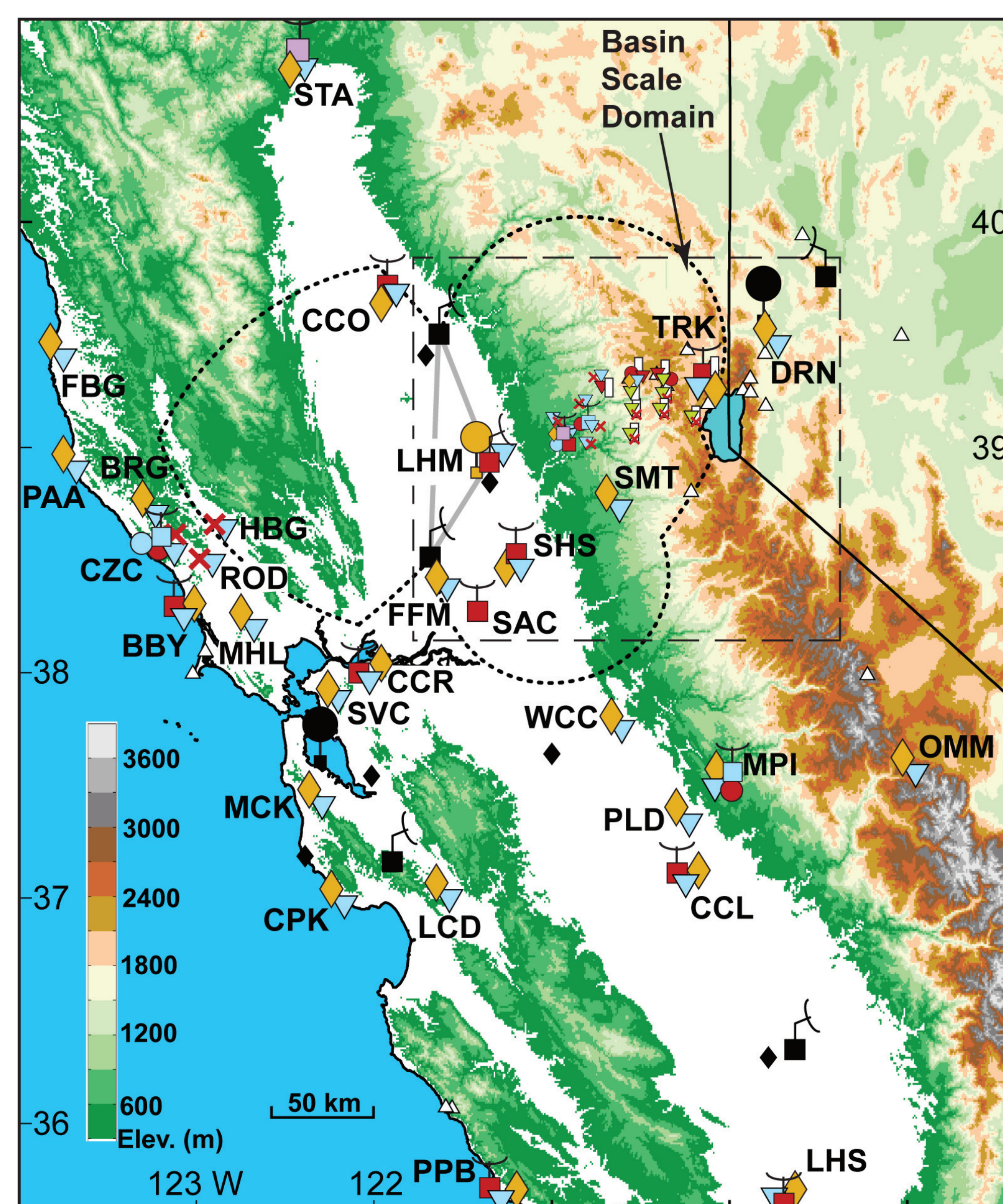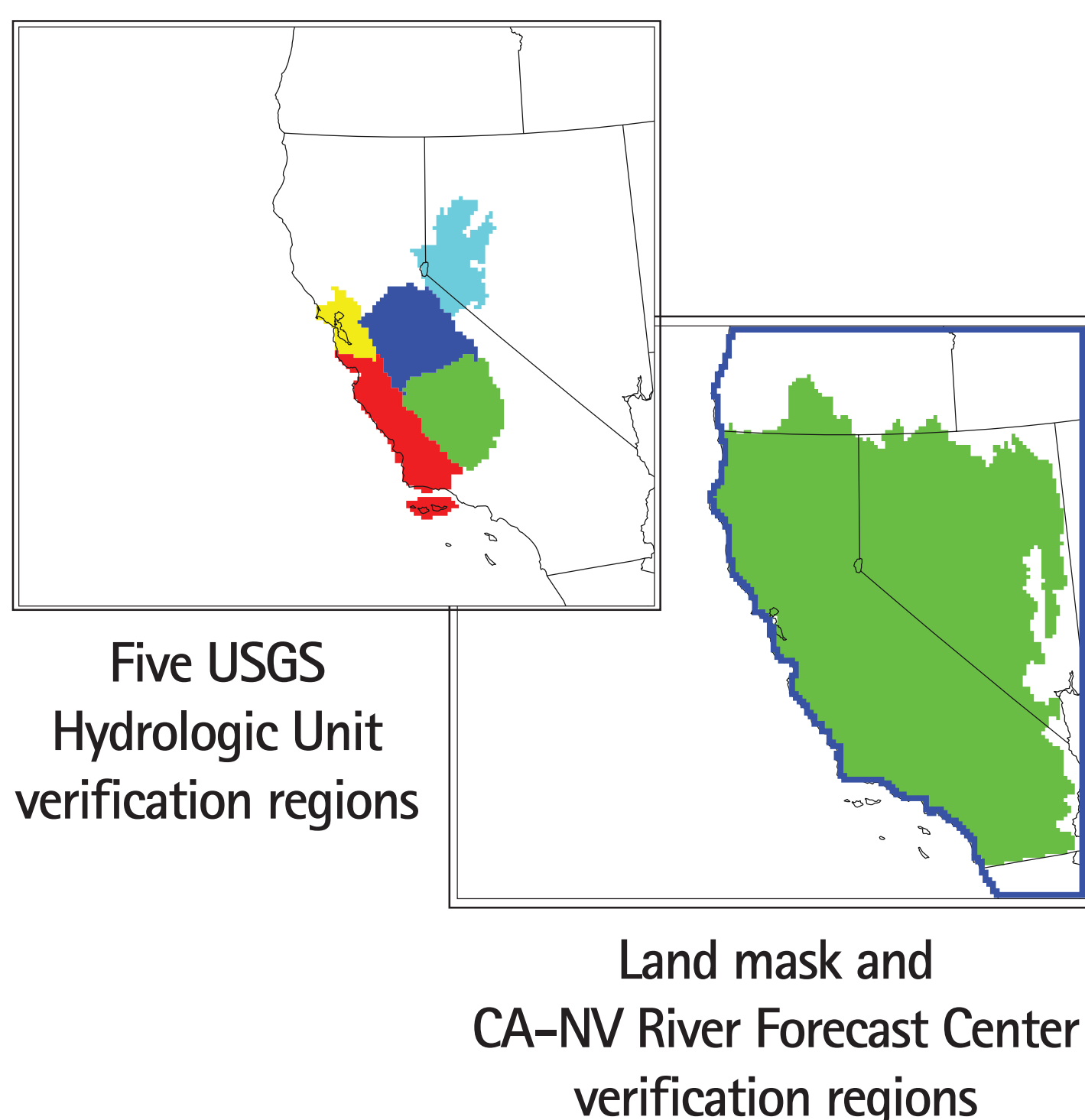**National Oceanic and Atmospheric Administration (NOAA)

2010 HMT-West

The 2010 Hydrometeorology Testbed (HMT)-West field campaign includes the production of an 8-member ensemble forecast based on the Weather Research and Forecasting (WRF) model, constructed by perturbing dynamic cores, microphysics, and lateral boundary conditions.

What is HMT?

Hydrometeorology Testbed
Aimed at accelerating the infusion of new technologies, models, and scientific results from the research community into daily forecasting operations of the National Weather Service (NWS) and its River Forecast Centers (RFCs)

- NOAA - PSD
- NOAA NWS, RFC and HPC
- NOAA - GSD
- Observations
- Research
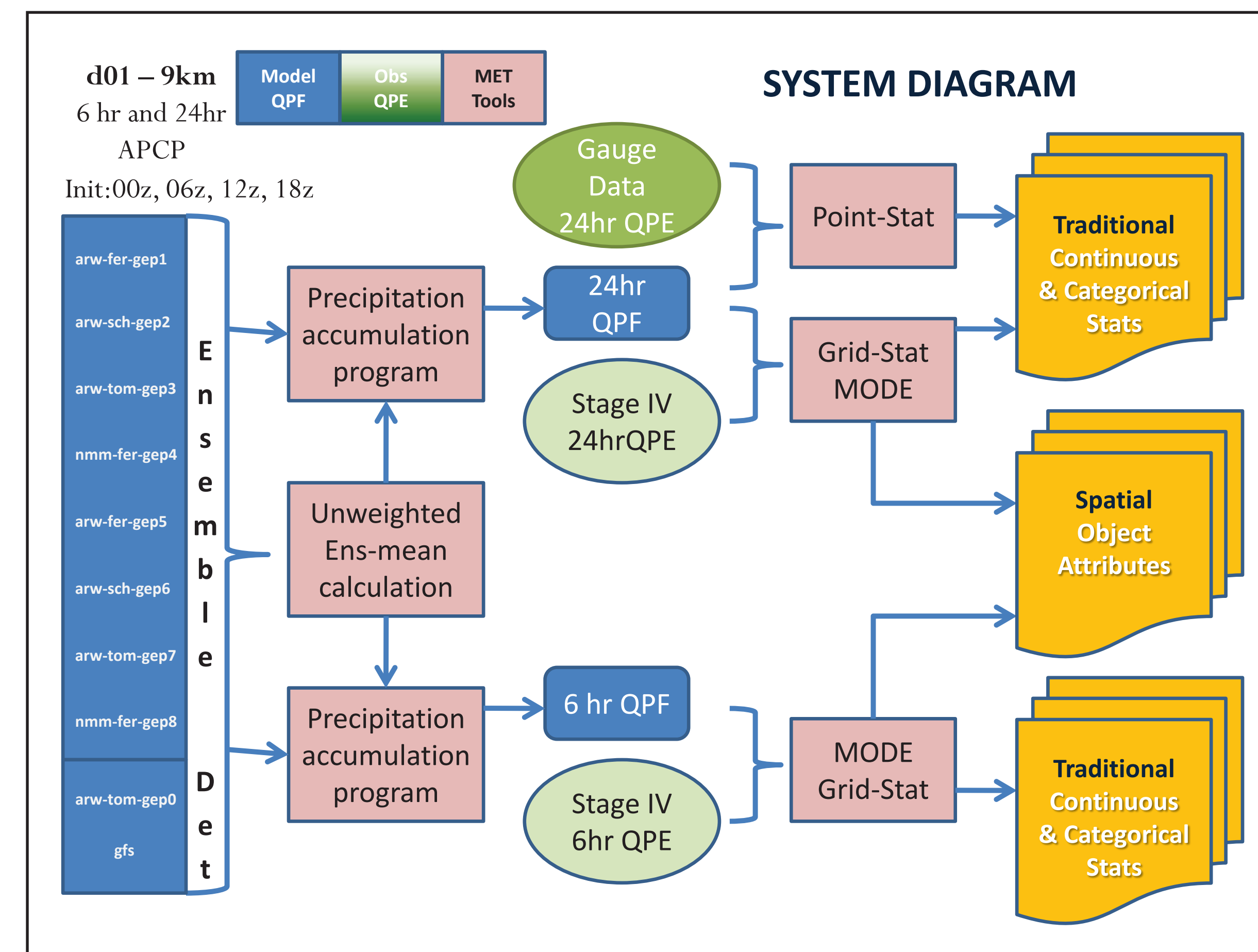- Forecasting
- Operations
- Other Collaborators

Model Regions

The HMT forecasts and 0.5 degree GFS are post-processed to a 169 by 154 Lambert Conformal 9-km domain over the Western United States. The forecasts are verified over 7 geographical regions.

Five USGS Hydrologic Unit verification regions

Land mask and CA-NV River Forecast Center verification regions

2010 HMT-West regional domain

MET Verification Method

SYSTEM DIAGRAM

d01 – 9km
6 hr and 24hr
APCP
Init:00z, 06z, 12z, 18z

The Developmental Testbed Center (DTC) has partnered with HMT to perform objective verification of its ensemble forecasts. The DTC has developed the MET verification package through the generous support of the U.S. Air Force Weather Agency and NOAA.

Object-Based Verification

The MET Method for Object-Based Diagnostic Evaluation (MODE) tool identifies objects in the QPF and StageIV fields for 6-hr and 24-hr accumulations. MODE measures the correspondence between the forecast and observation objects and dumps out a large number of summary metrics.
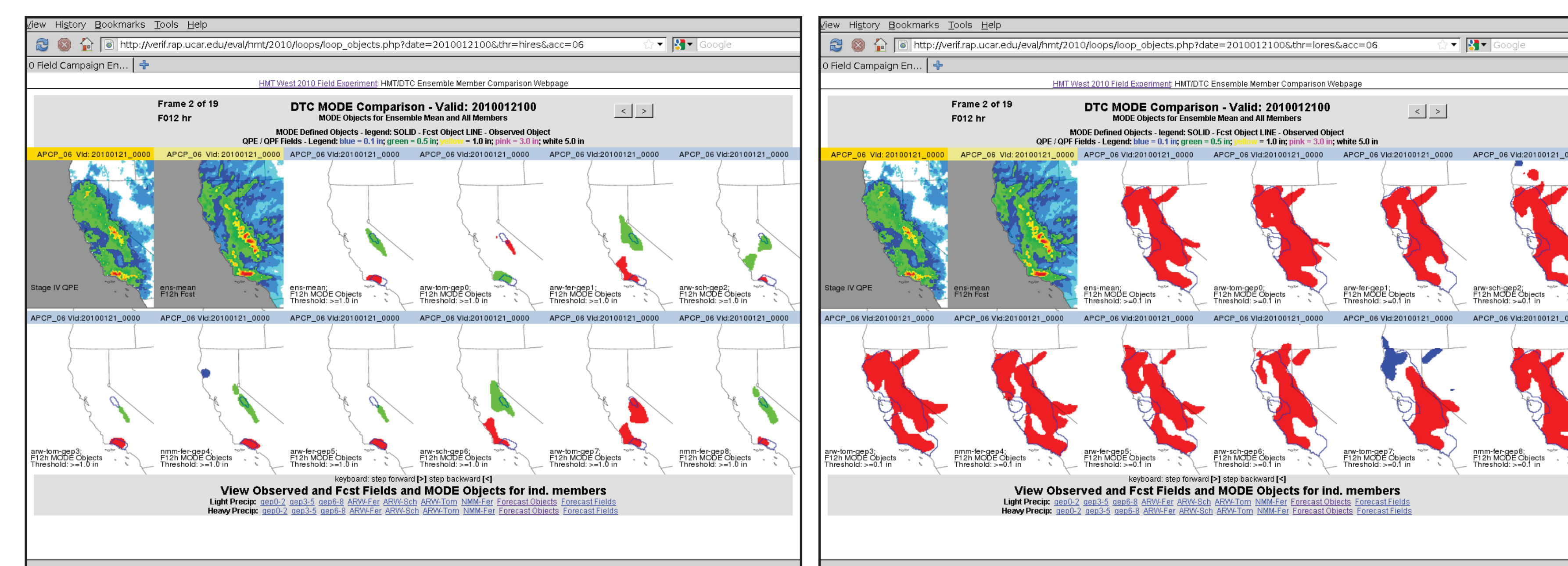
High and Low-resolution MODE objects – http://verif.rap.ucar.edu/eval/hmt/2010

Traditional Verification

The MET Grid-Stat tool computes traditional and neighborhood verification statistics when comparing QPF vs. StageIV for 6-hr and 24-hr accumulations. The MET Point-Stat tools computes traditional verification statistics when comparing QPF versus a network of rain gauges for 24-hr accumulations.

RUN PERFORMANCE for APCP_06 >=0.010" CSI
CONSTANT INIT TIME 2010030318 – Region: FULL Obs: Stage IV

RUN PERFORMANCE for APCP_06 >=0.010" FAR
CONSTANT INIT TIME 2010030318 – Region: FULL Obs: Stage IV

EVENT PERFORMANCE for APCP_06 >0.000" MAE
CONSTANT VALID TIME 2010012012V – Region: FULL Obs: Stage IV

EVENT PERFORMANCE for APCP_06 >0.000" RMSE
CONSTANT VALID TIME 2010012012V – Region: FULL Obs: Stage IV

30 DAY AGGREGATE for APCP_24 F24 GSS
OVER THRESHOLD – Ending: 20100314 – Region: FULL Obs: Gauge data

30 DAY AGGREGATE for APCP_24 F24 FBIAS
OVER THRESHOLD – Ending: 20100314 – Region: FULL Obs: Gauge data