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HMT-WEST 2011 FIELD SEASON

Main Objective for HMT-West 2011 Season:

- To better understand the temporal and spatial variability of the Sierra Nevada barrier jet as well as it's impact on the magnitude and distribution of precipitation.
 - Instrumentation will include a wide variety of remote sensing and insitu-sampling of precipitation
 - Coordination with CalWater activities

Examples of Instrumentation for HMT-West 2011

S-band precipitation profiler



Optical disdrometer



Impact disdrometer

Snow-level radar



C-band scanning radar



Heated tipping bucket gauge



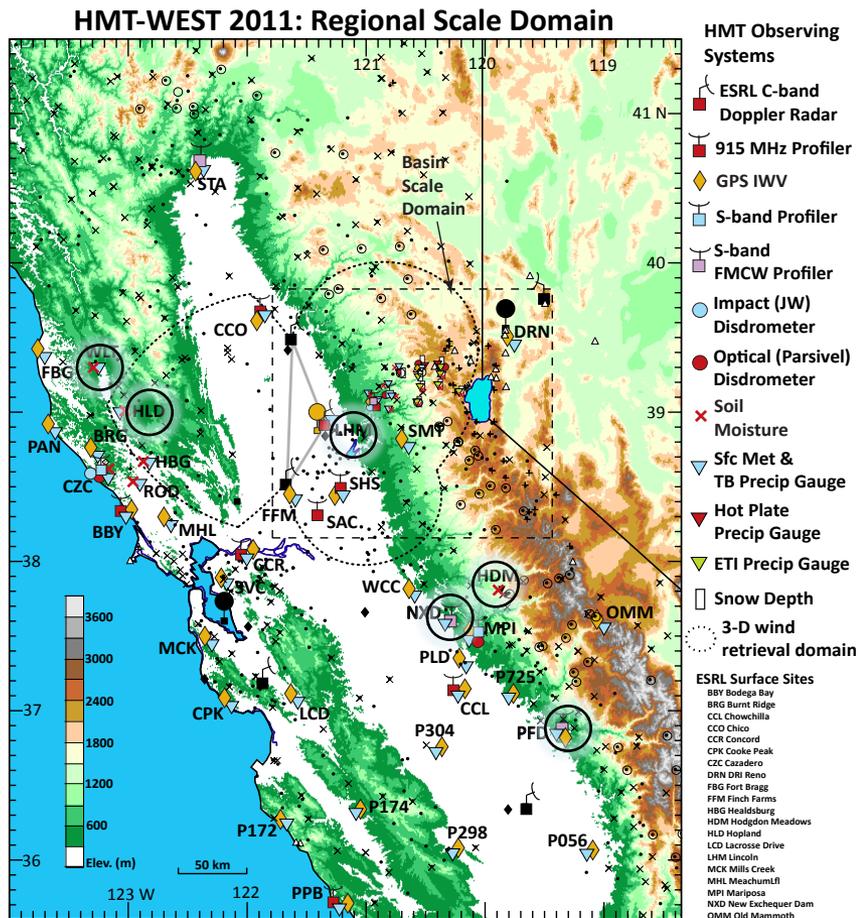
Surface Meteorology



915 MHz wind profiler



Regional Scale Domain



- Focus of observations will be the American River Basin but will also cover a large region of the coastal mountains, central valley, and central Sierra
- MPI is a joint HMT-CalWater site

- New sites for 2011
- LHS site removed

Operational & Long-Term Observing Systems

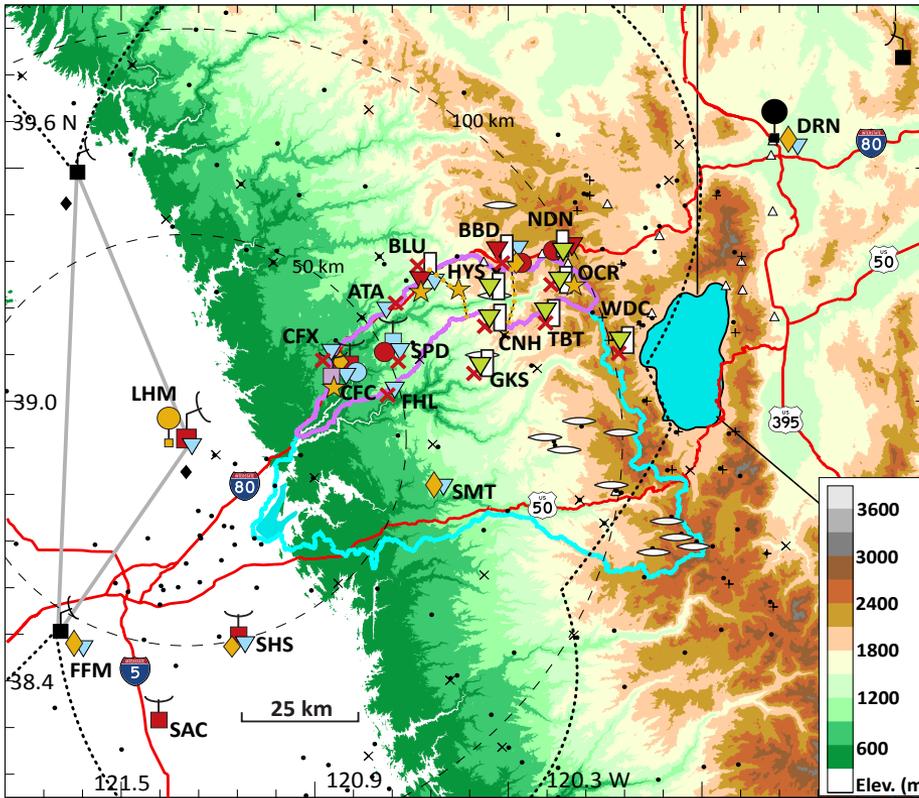
- NWS WSR-88D
- NWS Rawinsonde
- GPS-Met IWV
- WRCC Surface Network
- SNOTEL Precip. Gauge & Snow Pillow
- RAWS Precip. Gauge
- ALERT Precip. Gauge
- ALERT Snow Pillow

Basin Scale Domain

HMT-WEST 2011: Basin Scale Domain

ESRL Surface Sites

- ATA Alta
- BBD Big Bend
- BLU Blue Canyon
- CFC Colfax
- CFX Colfax
- CNH Canada Hill
- DRN Desert Research Institute, Reno
- FFM Finch Farms
- FHL Forest Hill
- GKS Greek Store
- HYS Huysink
- LHM Lincoln
- NDN Norden
- OCR Onion Creek
- SAC Sacramento
- SHS Sloughouse
- SMT Slate Mountain
- SPD Sugar Pine
- TBT Talbot
- WDC Ward Creek



HMT Observing Systems

- ESRL C-band Doppler Radar (SKYWATER)
- 915 MHz Profiler
- GPS IWV
- S-band Profiler
- S-band FMCW Profiler
- Impact (JW) Disdrometer
- Optical (Parsivel) Disdrometer
- Soil Moisture
- Sfc Met & TB Precip Gauge
- Hot Plate Precip Gauge
- ETI Precip Gauge
- Stream Level Logger
- Hi-Resolution Temperature Transects
- Snow Depth
- 3-D Multiple Doppler wind retrieval domain
- Range rings from SKYWATER

- American River Basin
- North Fork, American River Basin

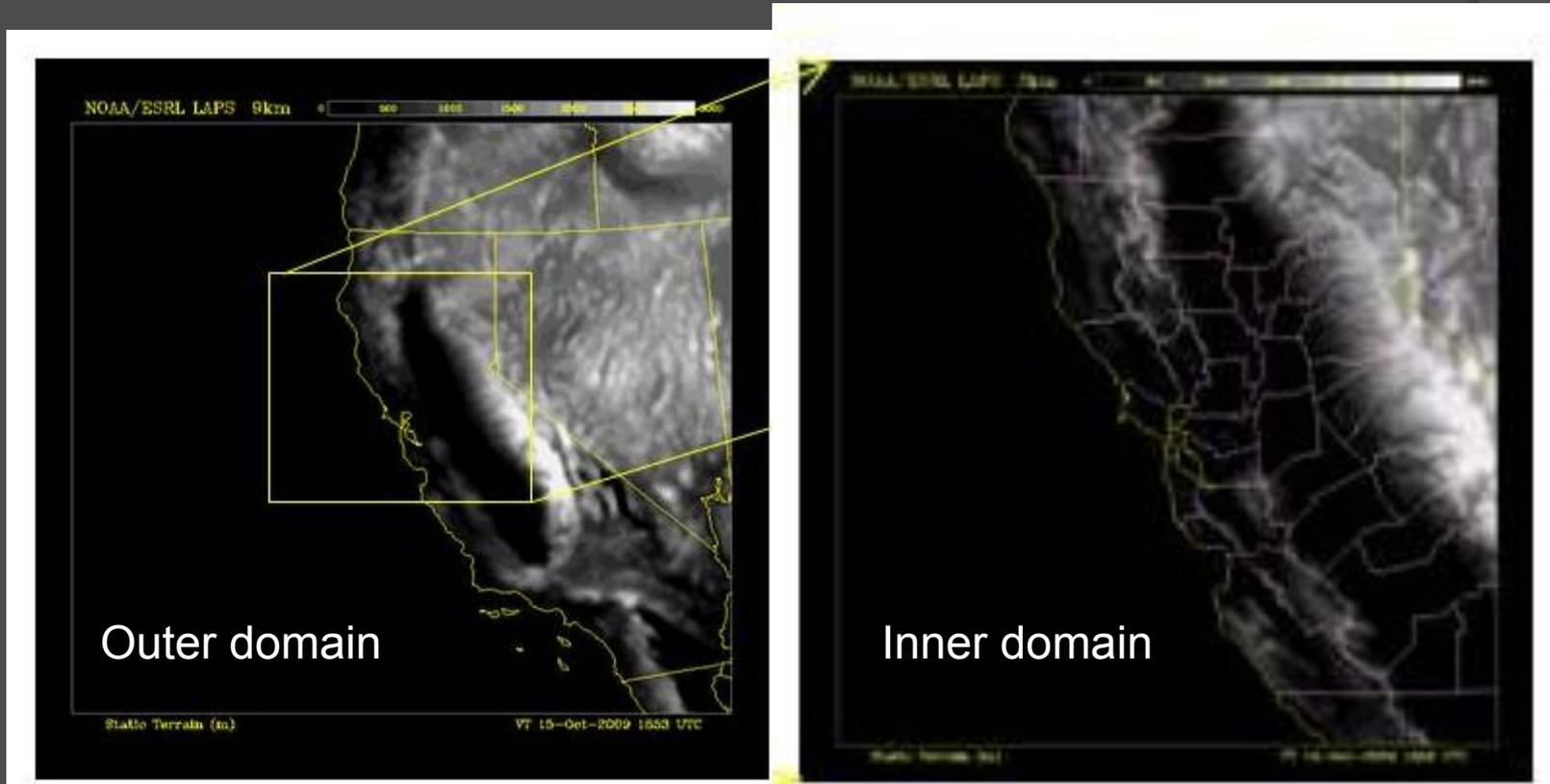
- ### Operational and Long Term Observing Systems
- NWS WSR-88D
 - NWS Rawinsonde
 - GPS-Met IWV
 - ALERT Precip. Gauge
 - ALERT Snow Pillow
 - SNOTEL Precip. Gauge and Snow Pillow
 - RAWS Precip. Gauge
 - WRCC Surface Network

- Basin network identical to HMT-West 2010 except for LHM (addition) and TRK (subtraction)
- SPD is a joint CalWater-HMT site

HMT-West 2011 Field Operations

- 1 December 2010 – 15 March 2011
- Daily conference calls and forecasts
 - determine need and duration of IOPs
- IOPs include radar and supplemental sonde launches at LHM
 - Sonde launch schedule 3-4X/day
- Additional sonde launches at Oakland and Reno?
- Coordination with CalWater field program

QPF WRF ENSEMBLE: EXPERIMENT DESIGN for HMT-West 2011



Nested domain:

- Outer/inner nest grid spacing 9 and 3 km, respectively.
- 6-h cycles, 120hr forecasts for the outer nest and 12hr forecasts for the inner nest
- 9 members
- Mixed models, physics & perturbed boundary conditions from NCEP Global Ensemble
- 2011 season simulations identical to 2010 except initial condition perturbations?