

Synergy Between HMT & GPM

1st NOAA GPM User's Workshop
College Park, MD ♦ August 18-19, 2010

There will be a symbiotic relationship between GPM and the Hydrometeorological Testbed.

Box 4.2 in “NOAA’s Role in Space-Based Global Precipitation Estimation and Application” (2007)

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Synergy

I. USWRP Program

- Fostering the development of testbeds
- Coordinating testbed efforts (e.g. Annual testbed workshops)
- Coordinating with NOAA and NASA to directly support PMM/GPM projects

II. NOAA's Steering Group on Precipitation Measurement from Space

- Monitor NOAA PI's on PMM Science Team
- “Working” the NOAA planning and budgeting process
- Developing broad-based NOAA GPM users/stakeholders

Synergy

I. Ground Validation

- Focused on the validation of GPM algorithms

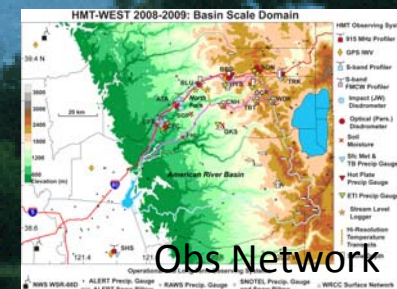
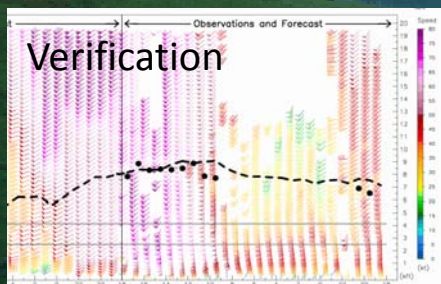
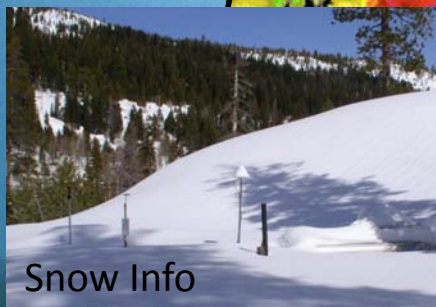
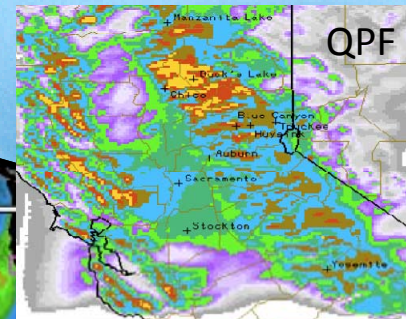
II. Observing Infrastructure

- HMT-SE (2013)
- Proposed: OLYMPEX (2014; w/HMT-NW)

III. Hydrologic Applications

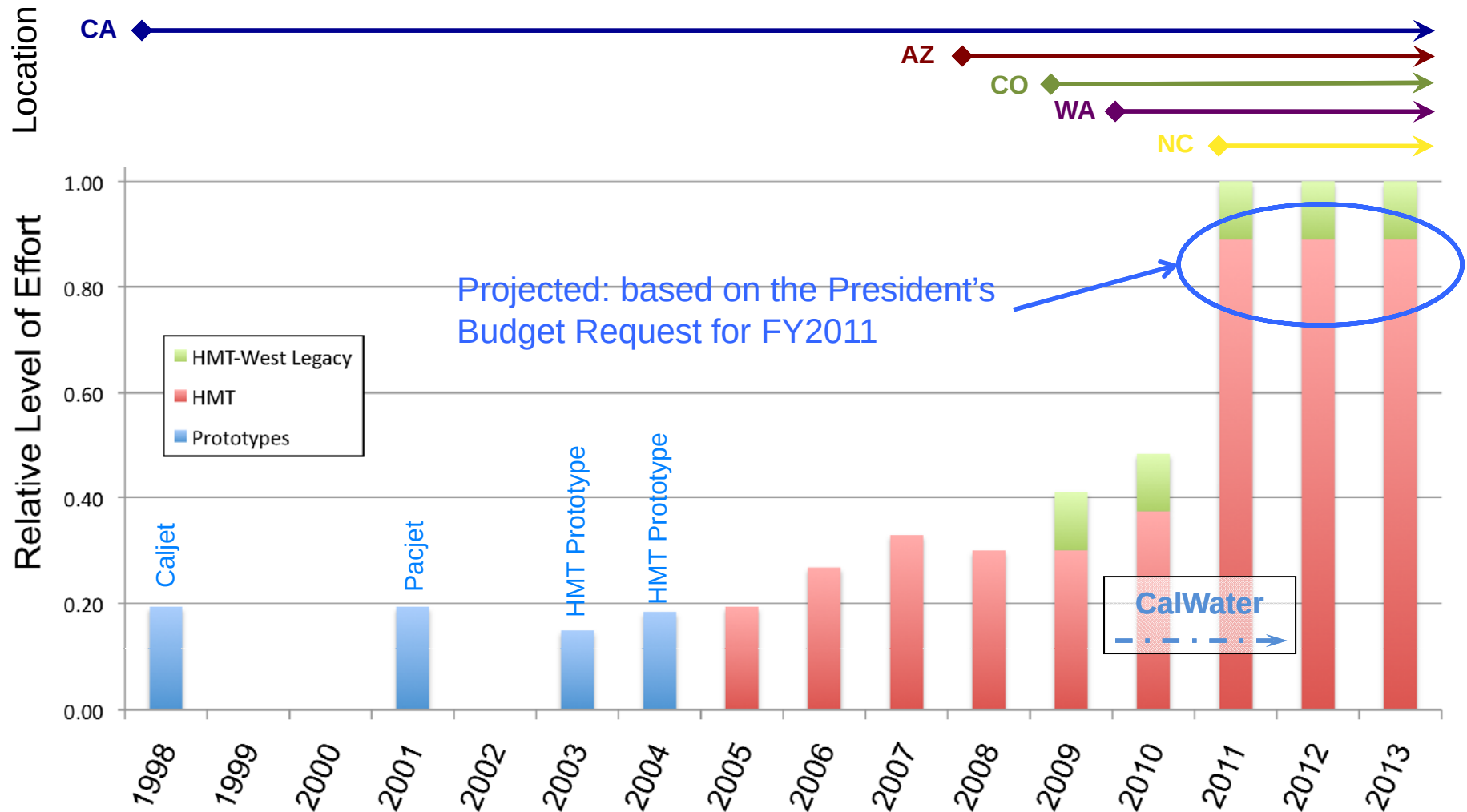
- Connecting research and operations (through national centers & field offices)
- A “place” to develop and test ideas, products, tools and devices

HMT is about Hydrologic Forcings

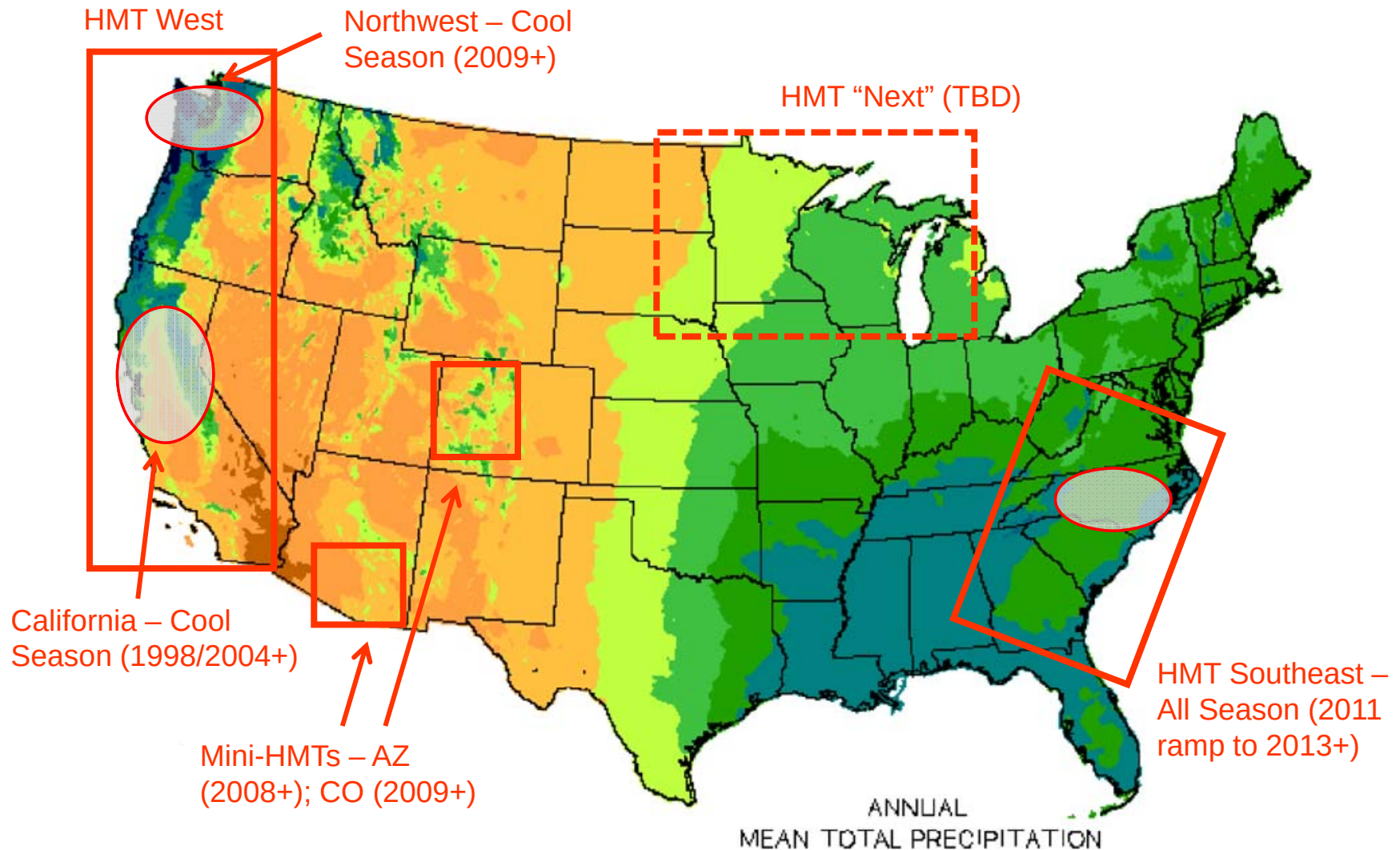


1st NOAA GPM User's Workshop
<http://hmt.noaa.gov/>

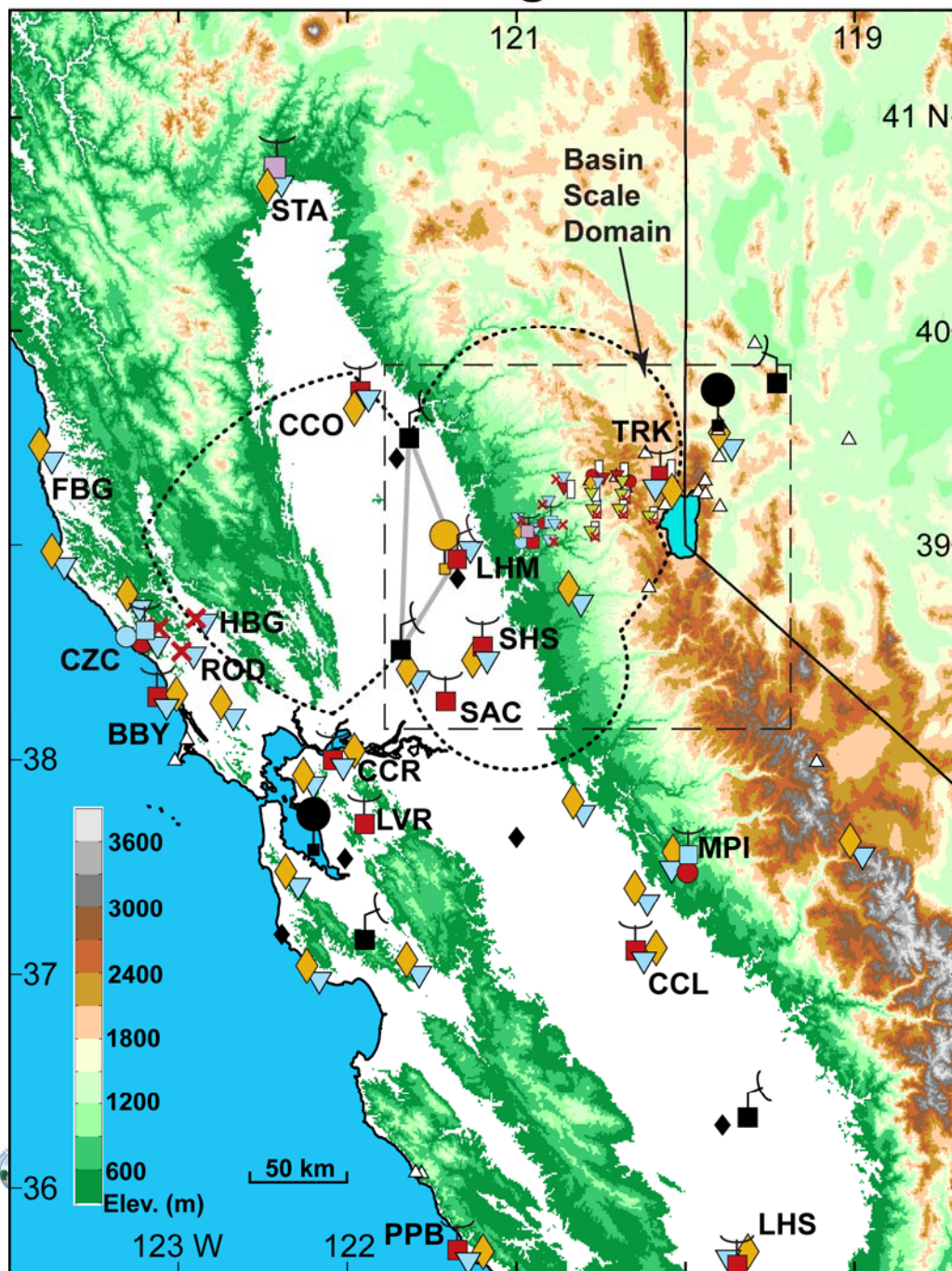
Timeline & Overall Effort



A National Testbed Strategy



HMT-WEST 2010: Regional Scale Domain



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

- Snow Depth

- 3-D Multiple Doppler wind retrieval domain

- Operational & Long-Term Observing Systems

- NWS WSR-88D

- NWS Rawinsonde

- GPS-Met IWV

- WRCC Surface Network

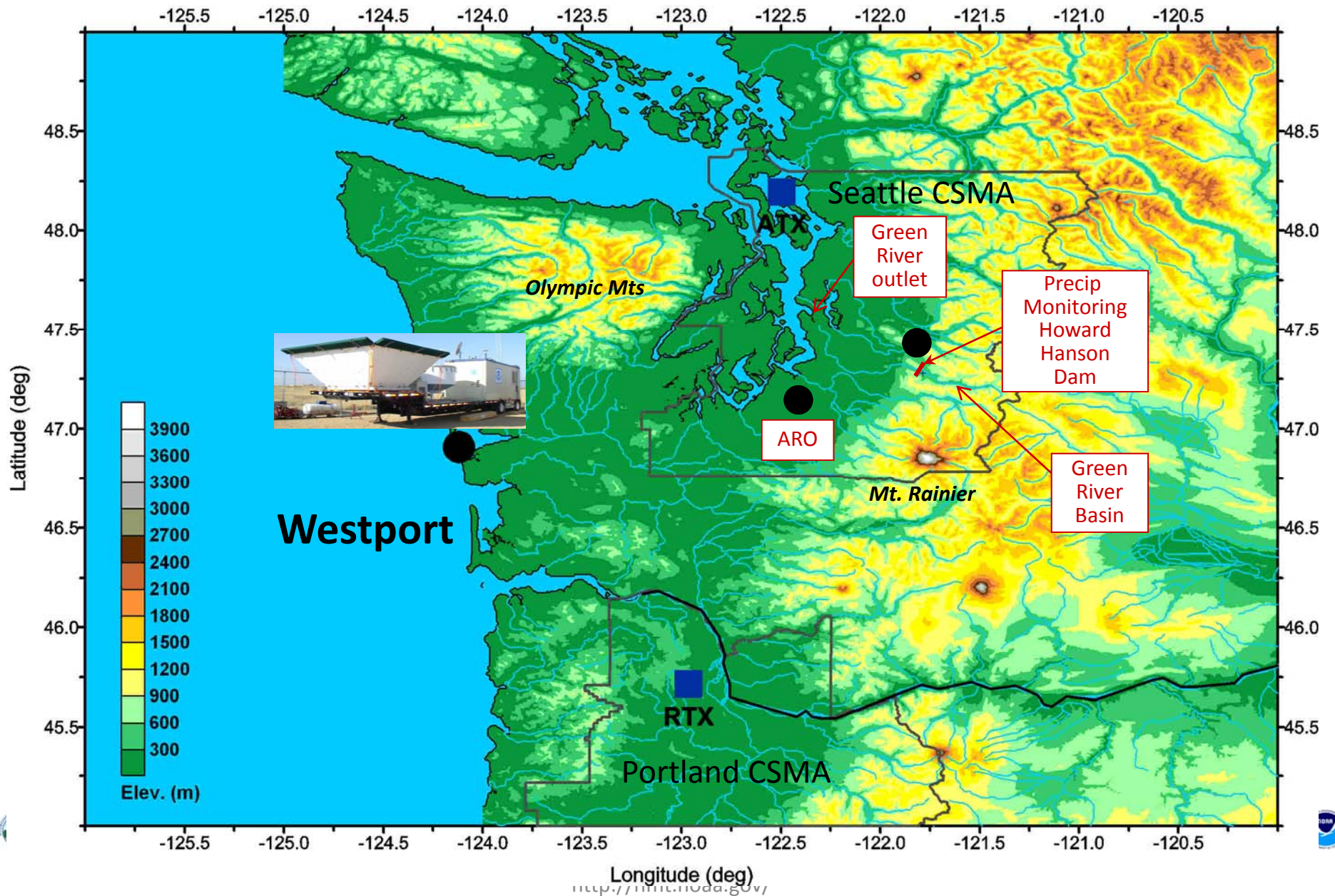
BBY, CCO; CCL:
Since 1998

CZD:
Since 2001 (1998)

BLU:
Since 2004



Washington Mobile Atmospheric River Monitoring System Deployment – 1 Nov/09



HMT-Southeast

- Guiding documents being developed
 - science plan
 - implementation plan
- New challenge for HMT – all season phenomena
 - *Warm season focus*, but...
 - Land-falling tropical (named) storms
 - Cool season phenomena
- Geographic scope:
 - Centered on the Piedmont in NC (*see map*)
- Priorities & Requirements
 - HMT is driven by NOAA priorities
 - Workshops identified ~47 requirements
 - GPM-2013/2014

- Nature & scope of observations
 - Profiling sites
 - Surface sites
 - Scanning radar
 - Mobile balloon systems
- Modeling
 - Regional
 - Large scale
 - Coupled



Domain

Comparable to HMT-W Regional-Scale Map
Comparable to HMT-W Basin-Scale Map

For Reference

American River Basin

~1830 mi²

North Fork: ~338 mi²

Cool Season (Nov-Mar)

Tar-Pamlico River Basin

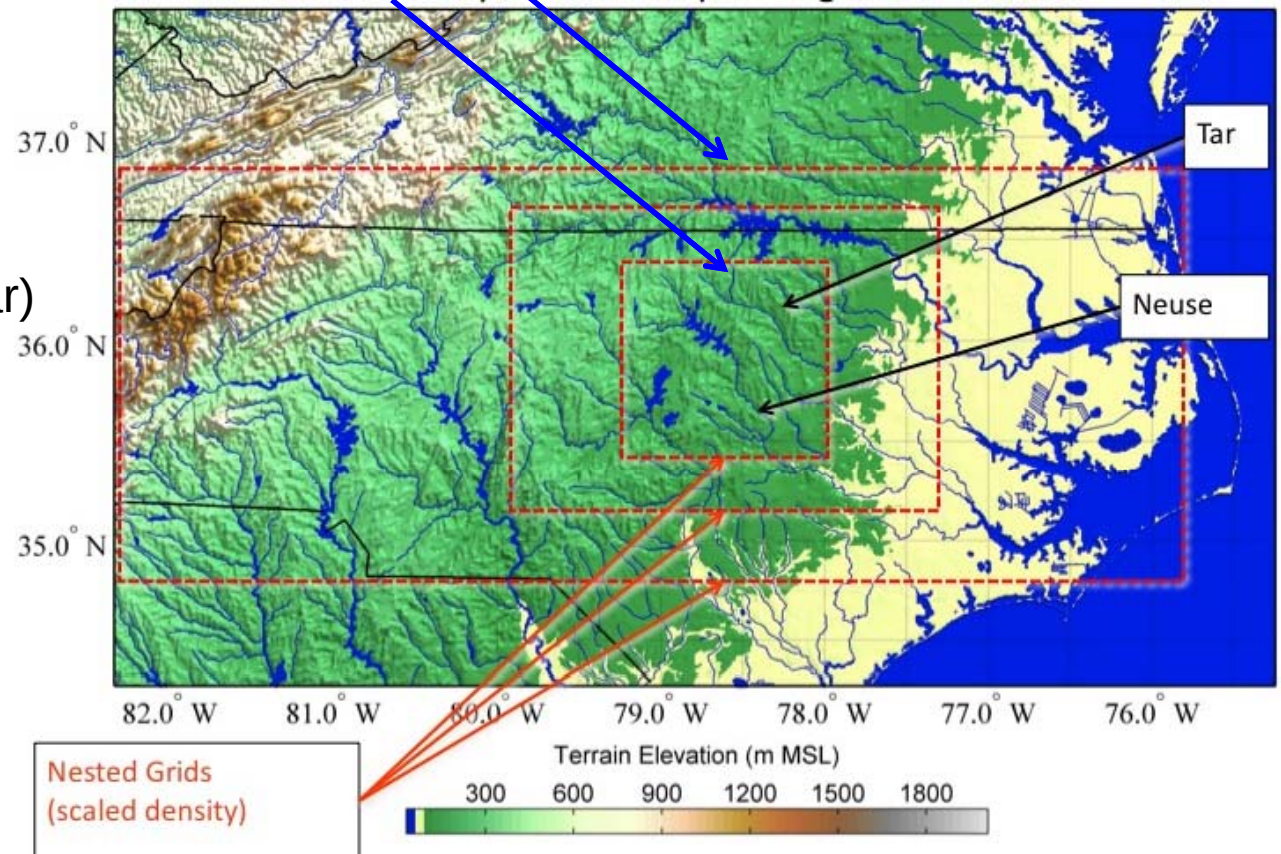
~5375 mi²

All season

Neuse River Basin

~6225 mi²

All season



OLYMPIE X

- **Physical validation**

- i.e. experimentation with physical assumptions in GPM algorithms

- **Precipitation estimation**

- ocean-coastal-mountain

- i.e. validation of its accuracy from satellite instruments mounted on aircraft

- **Hydrological applications**

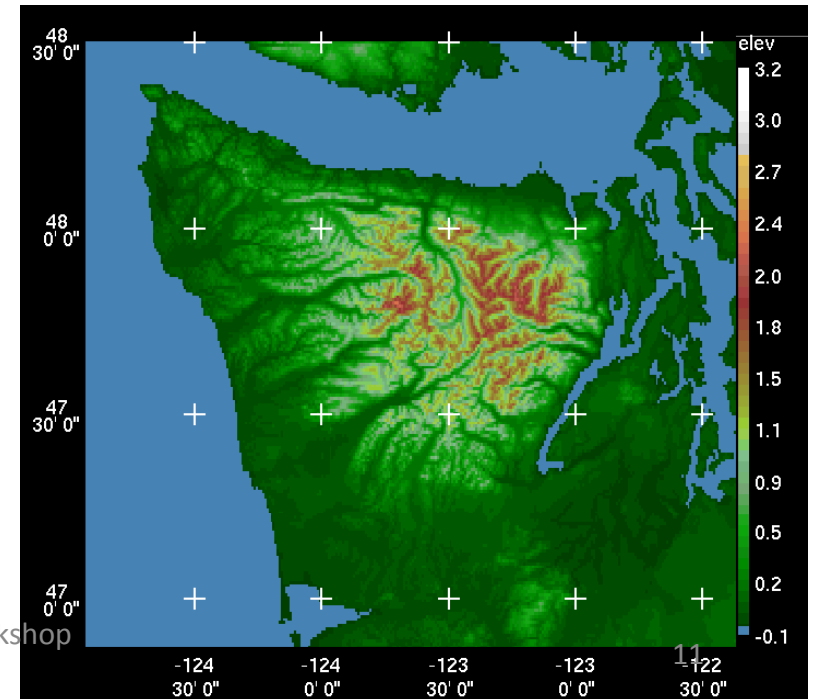
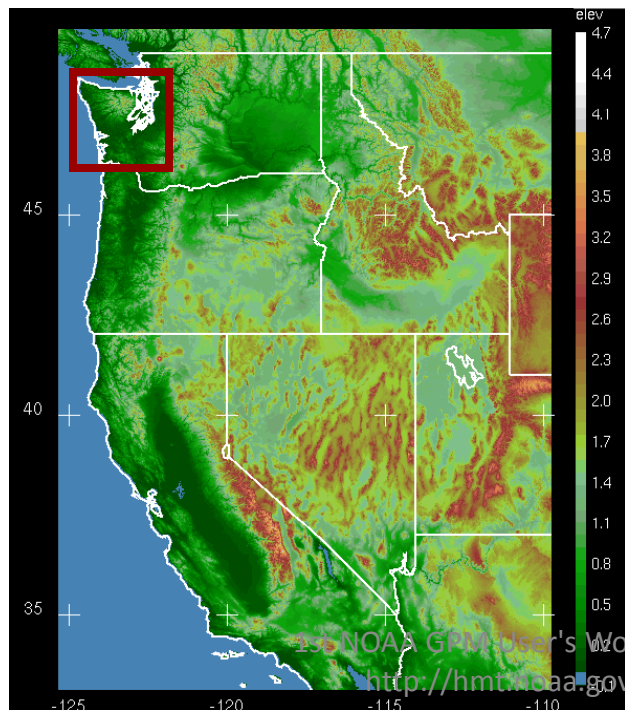
- i.e. testing the efficacy of GPM to improve streamflow forecasting in complex terrain

- **November-December, 2014**

Contacts:

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Rob Cifelli

August 18-19, 2010



Thank You!

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HMT

Hydrometeorology Testbed



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Tools for Water in a Changing Climate

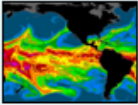


What's New...

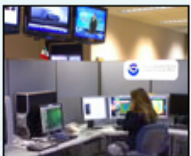
August 4, 2010
Hollings Scholar Completes Comparative Analysis of Soil Moisture in California's American River Basin



July 15, 2010
Two Projects Extend HMT Findings on Atmospheric Rivers



Major Activity Areas



Decision Support



Hydrologic Applications



Quantitative Precipitation Estimates



Quantitative Precipitation Forecasting



Snow Information

HMT is a national research strategy of regional demonstration projects directed to improving the accuracy and lead time of extreme precipitation and flood forecasts and warnings, to better understand and manage water resources in a changing climate.

NOAA Hydrometeorology Testbed
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HMT Observing Systems

Scanning Radars



Profiling Radars



1st NOAA GPM User's Workshop
GPS IWV & Sounding Systems
<http://www.noaa.gov>

HMT Observing Systems

Precipitation Gauges



Precipitation Disdrometers



Surface Meteorology & Snow Depth



Soil Moisture



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<http://hmt.noaa.gov/>

Stream level

