NOAA RESEARCH • ESRL • PHYSICAL SCIENCES DIVISION

Developing Data Tools and Products in Support of Research to Applications

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Science Review
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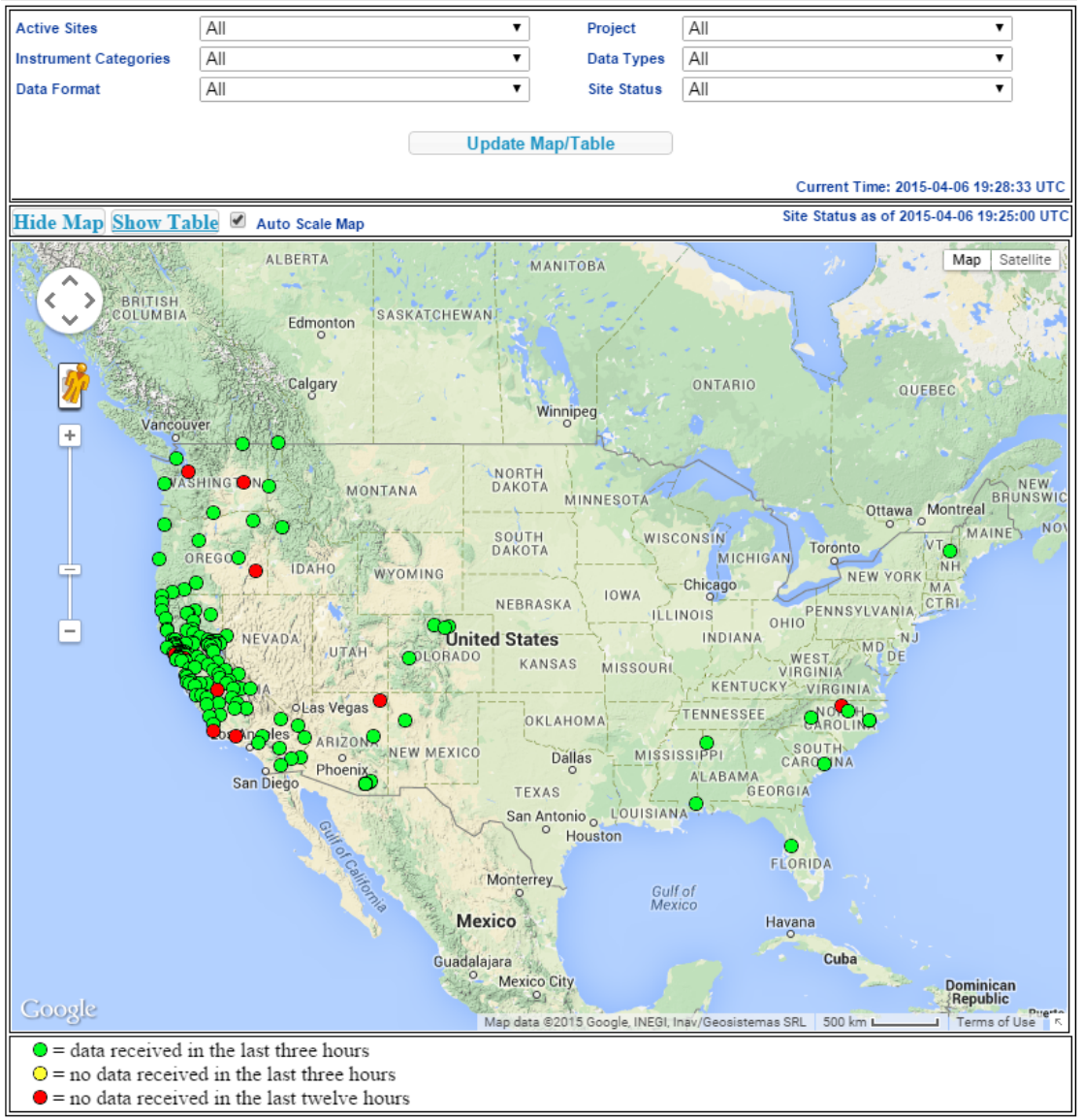
Outline

- Share and Share Alike
  - Where to go for access to PSD's Hydrometeorology Testbed (HMT) observations
- Two examples of specialized data displays that add value to PSD and NOAA baseline observations/models
  - The award-winning Water Vapor Flux tool gets a face lift
  - Chardonnay anyone? An automated frost/heat forecast tool for viniculture applications
- Summary

Tim Coleman
Dan Gottas
Dave Reynolds



- Access to PSD's real-time and archived HMT observations: http://www.esrl.noaa.gov/psd/data/obs/datadisplay/
- Data also available through MADIS
- Data also shared with NWS Western Region using NWS-specified formats and with the California Data Exchange Center

MADIS Meteorological Assimilation Data Ingest System

HYDROMETEOROLOGY TESTBED HMT

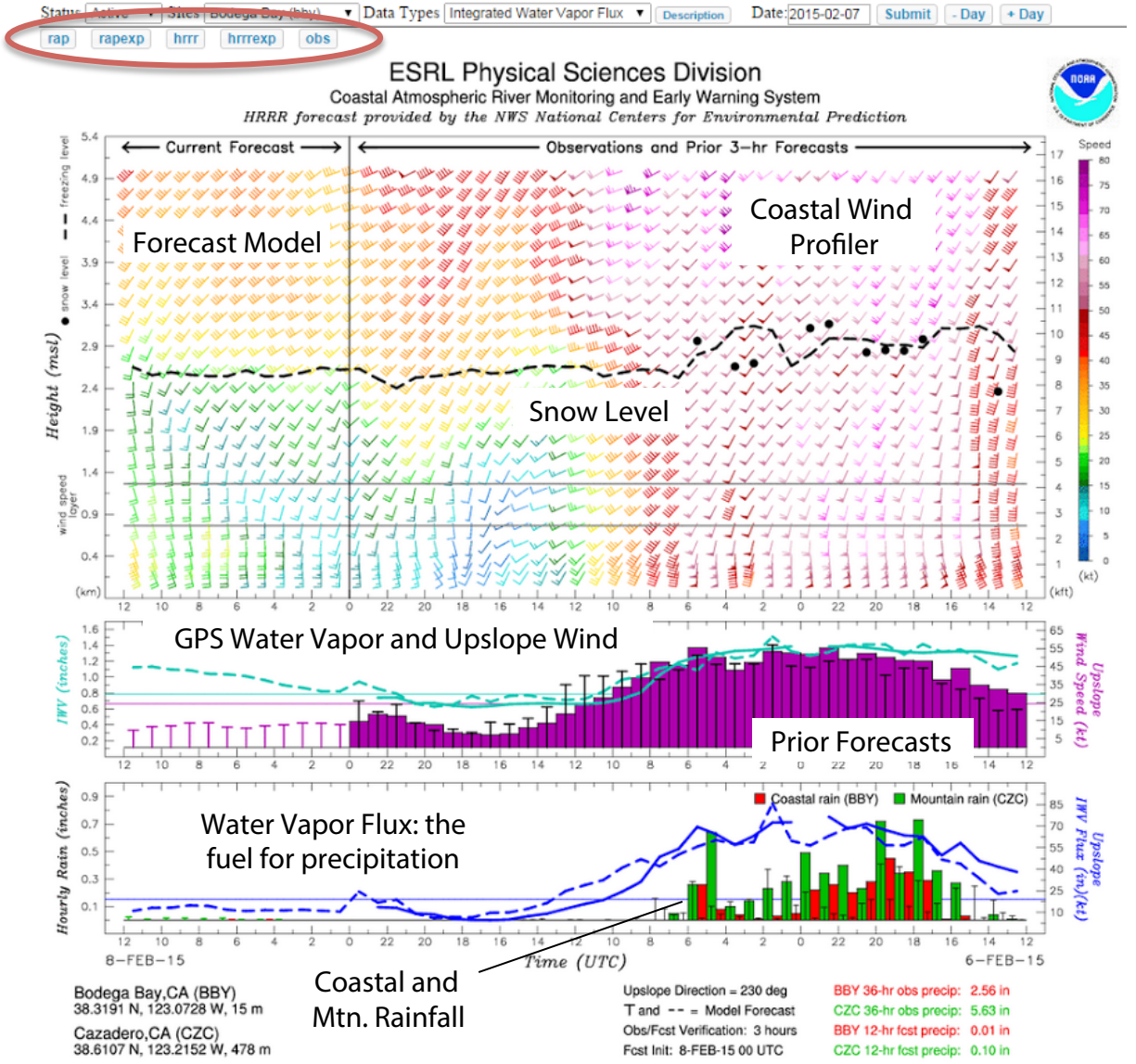
DEPARTMENT OF WATER RESOURCES STATE OF CALIFORNIA

NATIONAL WEATHER SERVICE

HMT Real-time Water Vapor Flux Tool Display

Now uses HRRR and RAP forecast models

Providing forecasters with the critical integrated observations to determine how Atmospheric Rivers (ARs) are impacting the area and how model forecasts are portraying the AR conditions and orographic precipitation enhancement.

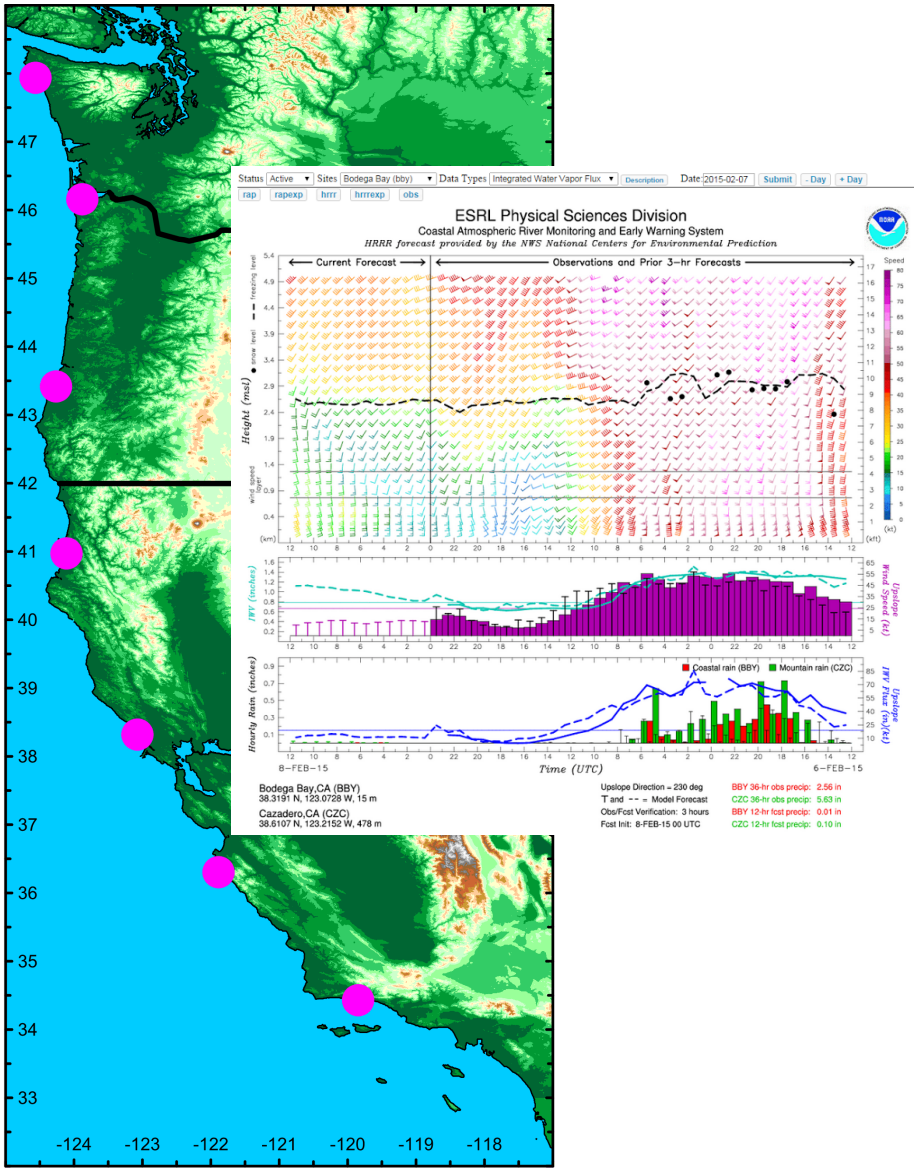


Neiman et al. 2009
Proc. Inst. Civ. Eng. Water Manage.
White et al. 2012 (*BAMS*)

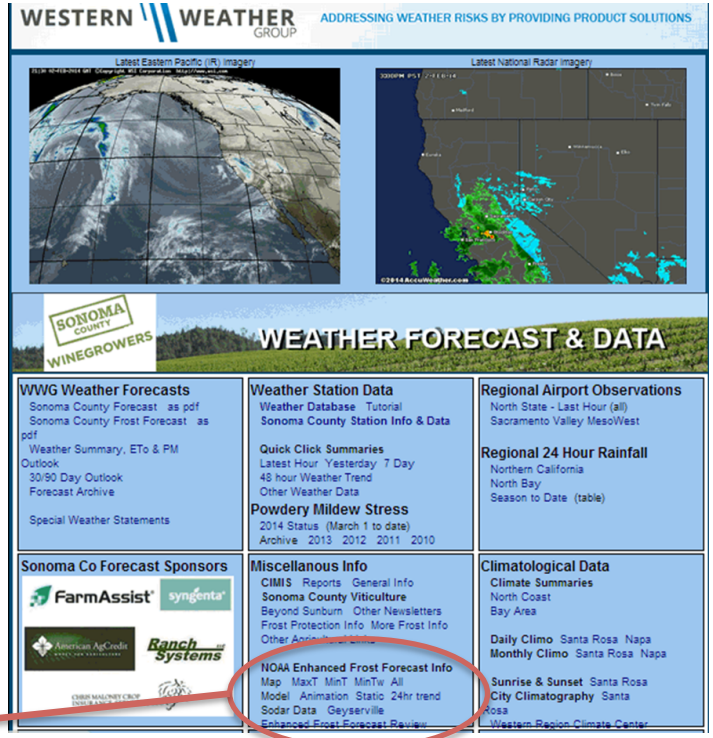
Coming for winter of 2015-16: PSD is installing a “picket fence” of coastal Atmospheric River Observatories along the West Coast for weather and wind energy applications. Funding for the network was provided by the California Dept. of Water Resources and the U.S. Dept. of Energy.

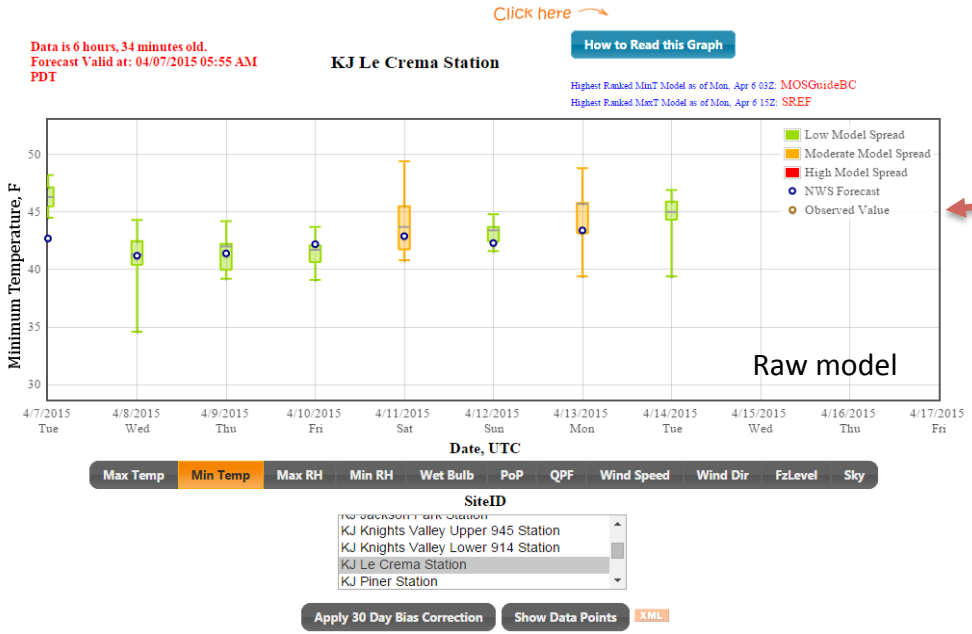
Photo by Clark King, PSD

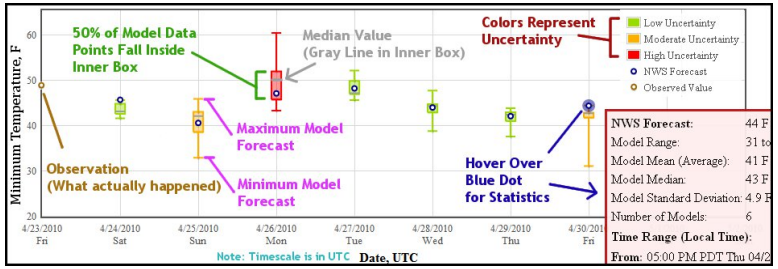
Photos by Florence Low, CA-DWR



- Current 2.5-km resolution NWS gridded forecasts are too coarse to resolve vineyard microclimates
- NWS developed a bias correction algorithm using currently available surface obs. to “adjust” numerical guidance to the obs. in their Grid Forecast Editor (GFE)
- **PSD Frost Forecast Tool** uses an ensemble of NCEP model forecasts downscaled to 0.5-km grid resolution with bias correction using real-time vineyard data made available through private sector participation







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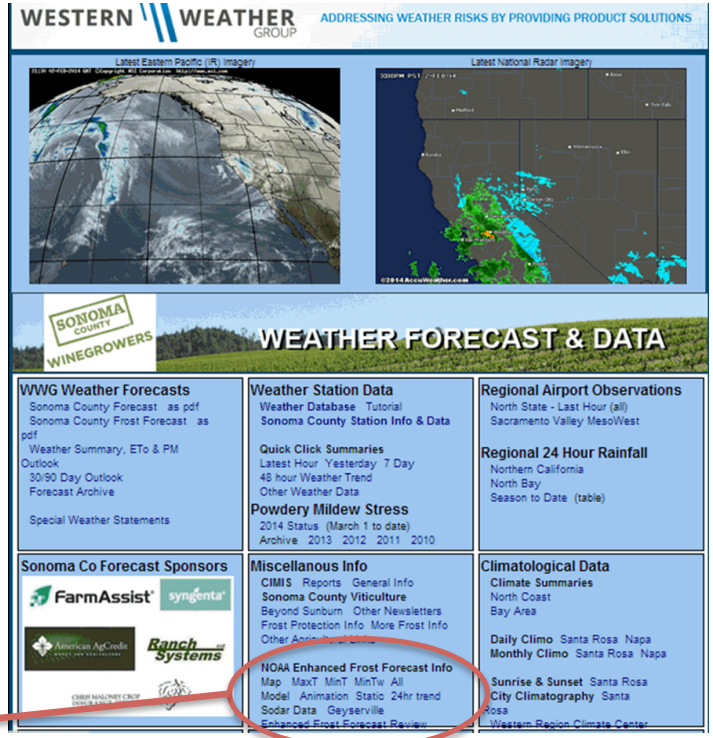

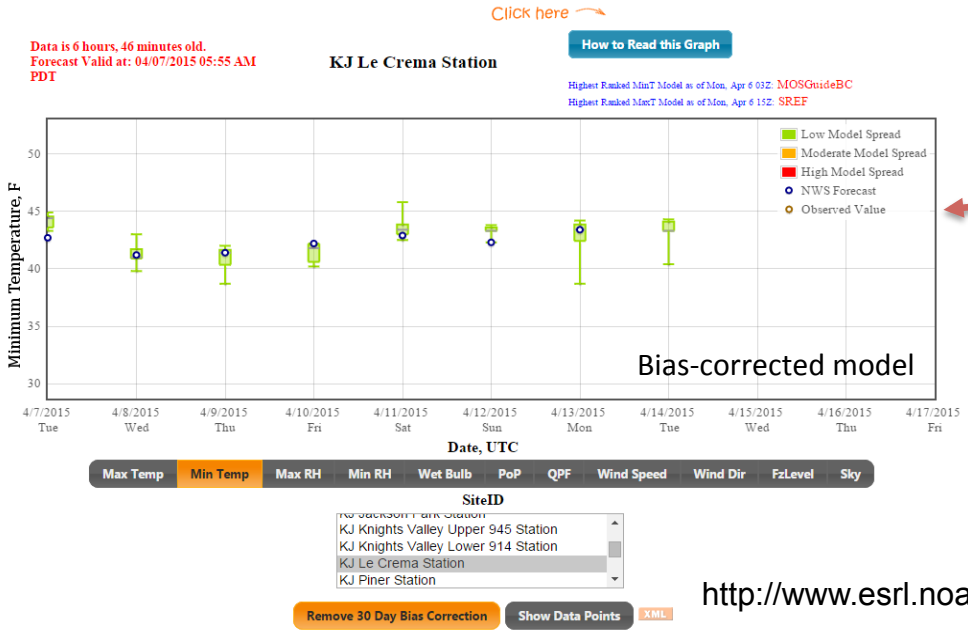

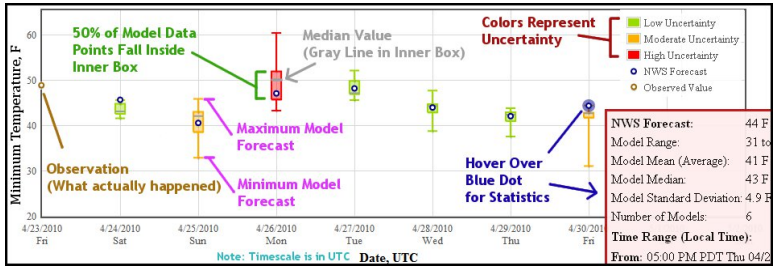

http://www.esrl.noaa.gov/psd/data/obs/nwspqr/ms/model_spectrum_v2_2.php?

Summary

- PSD shares their observational data and specialized data products with NWS forecasters and the public via the internet and other end user-driven methods
- PSD works with NWS staff and other stakeholders to develop new observation and model forecast tools to aid with NWS and external user decision making
- PSD is in the process of developing in-house AWIPS-2 capability to help expedite the development, testing, and transition of new data and products into NWS operations