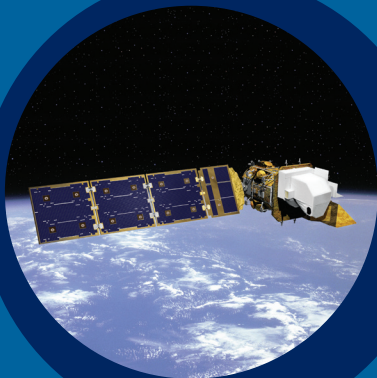


Data and Monitoring Needs *for* Western Water Management



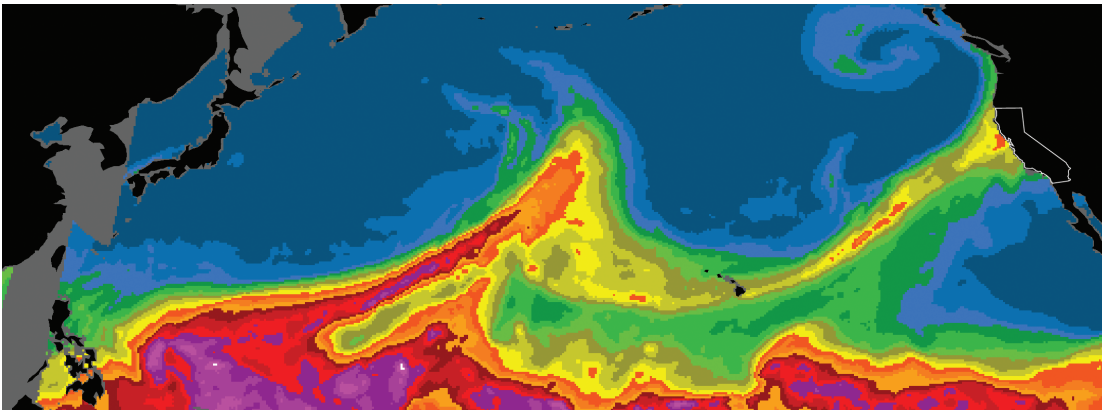
Data and Monitoring Needs

THE WESTERN STATES WATER COUNCIL places a high priority on funding for vital federal water and climate data collection and analysis programs (position #345, adopted October 2012). Water is the lifeblood of the West. Managing water to meet the needs of our cities, farms, and the environment relies on federal hydroclimate monitoring networks and data collection programs. State and local water agencies depend on these programs for the information they use in making decisions to protect public health and safety and the environment.

Like the nation's water infrastructure, many of these networks are aging, and years of neglecting to invest in their hardware and software threaten information continuity critical for water management. Monitoring and data programs further need to be able to take advantage of the latest advances in technology, using tools including remote sensing or real-time data acquisition and transmission to improve capabilities such as flood or water supply forecasting.

Federal water and climate data and analysis programs cover all phases of the hydrologic cycle from monitoring conditions in the atmosphere to measuring water use on the ground. These programs also span across multiple agencies, including, NASA, NRCS, NOAA, NWS and USGS. Descriptions of the specific monitoring these agencies provide are included throughout this brochure:

NASA National Aeronautics and Space Administration
NOAA National Oceanic and Atmospheric Administration
NRCS Natural Resources Conservation Service
NWS National Weather Service
USGS United States Geological Survey



Satellite image of atmospheric river reaching West Coast. Atmospheric river storms — storms fueled by concentrated streams of water vapor from the Pacific Ocean — are responsible for most episodes of major West Coast flooding. The HMT's efforts in California were responsible for identifying this storm type and its importance for flood management and water supplies. *NOAA figure*



The National Water and Climate Center of the Natural Resources Conservation Service (NRCS) monitors snowpack conditions and has a limited network of soil moisture monitoring sites.

NRCS



NOAA/NWS

The Hydrometeorology Testbed (HMT) program in the National Oceanic and Atmospheric Administration's (NOAA's) Climate Program Office provides research-level monitoring and forecasting for extreme precipitation, while the **Weather Forecast Offices and River Forecast Centers in NOAA's National Weather Service (NWS)** produce operational weather and streamflow forecasts.

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DATA AND MONITORING NEEDS FOR WESTERN WATER MANAGEMENT

**Monitoring
Instrumentation**

NASA/USGS
Landsat Satellite

NOAA
Atmospheric
River
Observatory

NOAA
TAO Array Buoy
(Tropical Atmosphere Ocean)



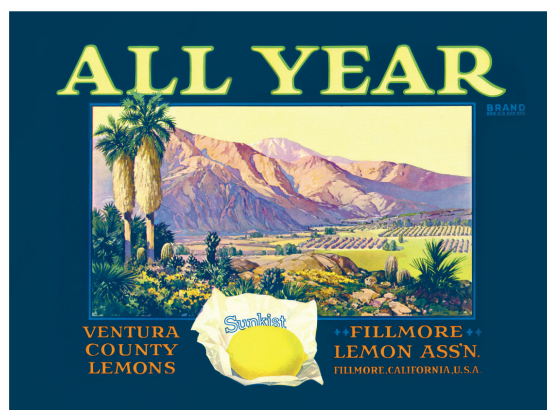
Uses for Monitoring Instrumentation

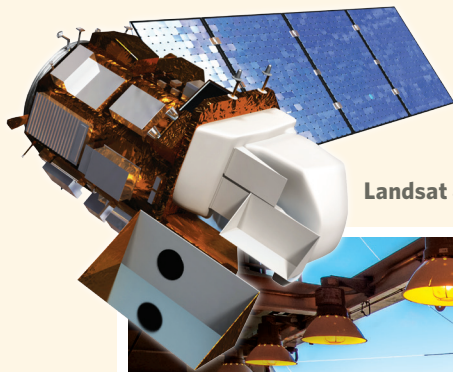
WESTERN STATES USE INFORMATION FROM THE FEDERAL DATA PROGRAMS FOR PURPOSES SUCH AS:

- Flood fighting and making emergency management decisions
- Drought response and management
- Operating water supply and flood control projects
- Water supply planning
- Administering water rights and allocating water among competing uses
- Protecting in-stream water uses
- Complying with federal water quality and environmental requirements

Adequate and consistent federal funding is needed to maintain, restore, modernize, and upgrade these data programs not only to avoid loss or further erosion of critical information and data, but also to address incorporation of new technological capabilities and improve efficiencies of data collection and dissemination.

Continuity of important long-term historical records such as USGS streamflow data must be maintained and capabilities of aging historical observing networks such as the NWS cooperative observer program (important for monitoring spatial variability of precipitation) must be appropriately preserved. Important data gaps remain to be filled. For example, the Council has supported (position #332, adopted June 2011) development of an improved observing system for extreme precipitation events in the West, a system that would rely on monitoring programs of multiple federal agencies including NOAA and NRCS.





Landsat 8

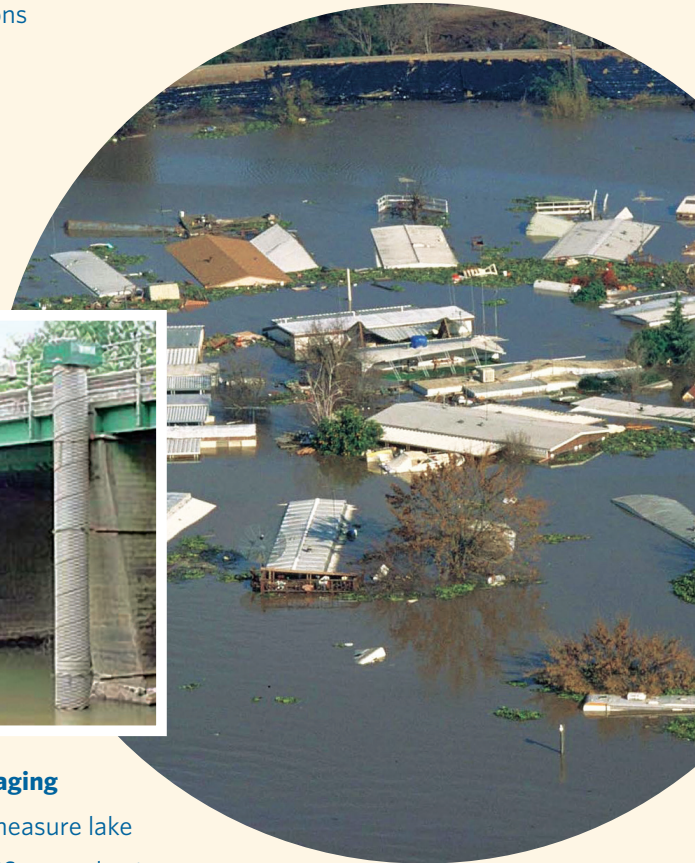


Landsat Data Continuity Mission Ready for Launch



The National Aeronautics and Space Administration (NASA) and USGS Landsat program delivers thermal imaging data that can be used for estimating water use by crops and native vegetation; Landsat and other NASA missions enable estimation of evapotranspiration for irrigation scheduling for agricultural and urban landscape.

NASA/USGS



USGS

The U.S. Geological Survey (USGS) Cooperative Streamgaging Program and National Streamflow Information Program measure lake and reservoir levels and flow in rivers and streams, and USGS groundwater data programs monitor water levels in wells.

