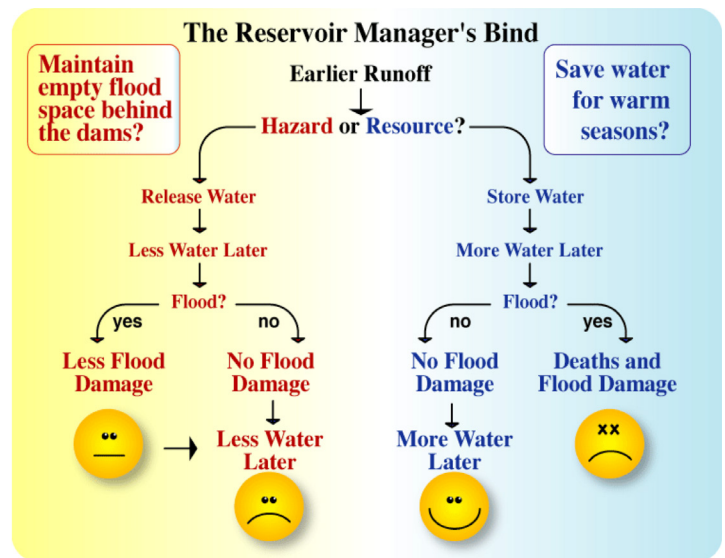
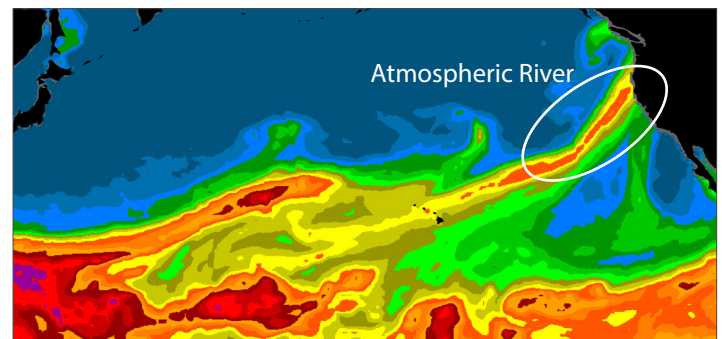


Working Towards a Solution

- Antecedent soil moisture can determine whether an extreme rainfall event produces a flood, so soil moisture sensors with other associated meteorological equipment are being placed at 43 new sites across CA.
- Water vapor fuels precipitation, and GPS technology provides a viable method of measuring the vertically integrated water vapor (IWV). HMT is partnering with UNAVCO, the operators of the Plate Boundary Observatory, where many GPS receivers already exist for geodetic purposes, to provide IWV measurements from over 50 locations in or near CA.
- The snow level is important with respect to flooding in mountainous watersheds because it determines the surface area throughout the watershed that is exposed to snow versus rain. ESRL engineers have invented a new, compact radar designed to measure the snow level at a much reduced cost compared to other radars used for this purpose. These “snow-level radars” are being installed in ten key watersheds across CA.
- A major finding from HMT is the role that atmospheric rivers, narrow regions of enhanced water-vapor transport, have in creating heavy precipitation that can lead to flooding. A picket fence of atmospheric river observatories (AROs) is being deployed along the CA coast. The AROs provide critical information on water vapor transport aloft and the snow level.
- Taking full advantage of the new measurements requires a complementary effort in data assimilation and weather forecast modeling.
- Decision support tools also are being developed to integrate the new information provided by the observations and models into flood forecasts, and to inform water management decisions and minimize water shortages due to drought.



Credit: Mike Dettinger, USGS/Scripps Institution of Oceanography



Satellite Image of an Atmospheric River. Credit: NOAA/PSL



Atmospheric River Observatory in Bodega Bay, CA. Credit: Clark King, NOAA

On the Web

Hydrometeorology Testbed: <https://hmt.noaa.gov>

Atmospheric Rivers: <https://psl.noaa.gov/arportal/>

Real-time & Archived Data: <https://psl.noaa.gov/data/obs/>

For more information, contact:

Dr. Allen White

Email: Allen.B.White@NOAA.gov

