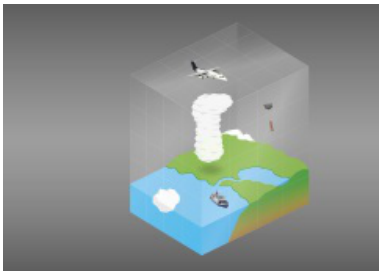

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Forecast Informed Reservoir Operations (FIRO): Supporting Forecast Improvements through Targeted Data Collection

Forecast Informed Reservoir Operations (FIRO) is a proposed alternative management strategy that aims to use data from watershed monitoring and state of the art weather and streamflow forecasting to improve water supply reliability without impairing flood protection. Lake Mendocino, located in northern California, US, is a current testbed for this strategy. This project was guided by the Lake Mendocino FIRO Steering Committee (SC), which consists of water managers and scientists from several federal, state, and local agencies, and universities. The SC shares a vision that operational efficiency can be improved by using monitoring and forecasts to inform decisions about releasing or storing water. Assessment is underway that will consider and recommend FIRO strategies that could be implemented in the near term using current technology and scientific understanding. This effort will also identify and develop new science and technologies to ensure the successful implementation of FIRO and increased benefits in the long term.
An extensive data collection campaign has been underway since January 2017, with the objective to improve precipitation forecast skill through improved understanding of atmospheric rivers (ARs), the storms that bring the most precipitation to this watershed. The goal is understanding AR evolution as the AR makes landfall and interacts with terrain, understanding the effect of ARs on watershed management and hydrology, and to form a unique database for model verification. Coastal and inland field sites equipped with multiple ground-based sensors as well as Vaisala radiosonde systems and profiling radars support these objectives. This network provides a high resolution look at how low level water vapor flux brought by ARs moves through the watershed. This presentation will provide an overview of the FIRO project, with an emphasis on the field data collection program and its role in helping to achieve major FIRO science and management goals.

Primary author: WILSON, Anna (University of California San Diego)

Co-authors: Dr RALPH, F. Martin (Scripps Institution of Oceanography); JASPERSE, Jay (Sonoma Water); TALBOT, Cary (US Army Engineer Research and Development Center); TURNBULL, Stephen (US Army Engineer Research and Development Center)

Presenter: WILSON, Anna (University of California San Diego)

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