

AQPI WEATHER FORECASTING SYSTEM

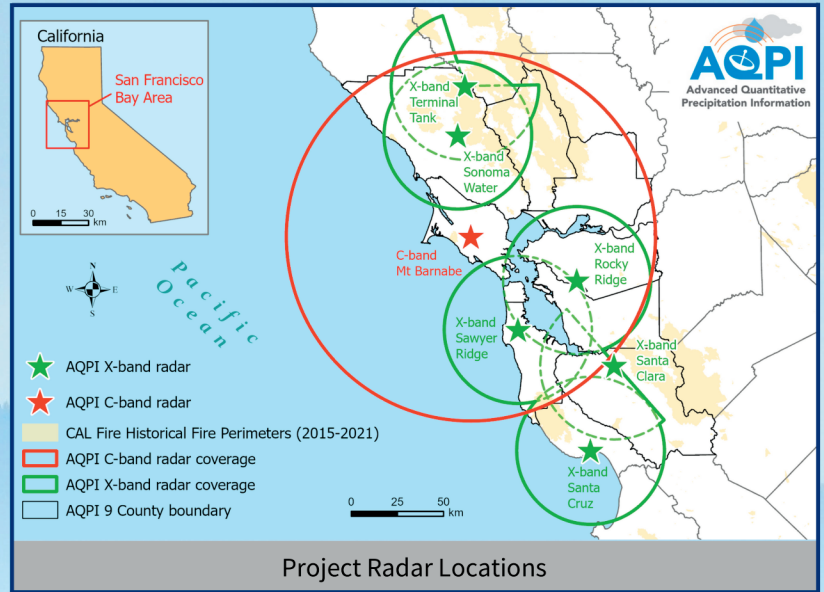
C-BAND FACT SHEET

The Advanced Quantitative Precipitation Information (AQPI) Project is a regional weather prediction system that uses enhanced weather radar to track precipitation associated with atmospheric rivers.

AQPI is a collaboration between local, state, and federal agencies led by Sonoma Water. Accurate and timely precipitation forecasts are critical for cost-effective risk-based decisions regarding public safety responses, infrastructure operations, and resource allocations.

The AQPI system includes:

- Small X-Band radars systems to track local storms with more detail and frequency within the Bay Area and fill gaps not covered by existing radars
- A larger C-Band radar to monitor atmospheric rivers approaching from the Pacific Ocean
- Surface stations including rain gauges, soil moisture probes, and stream gauges
- High-resolution precipitation forecasts
- Coastal flooding, storm surge, and tributary streamflow modeling and forecasting

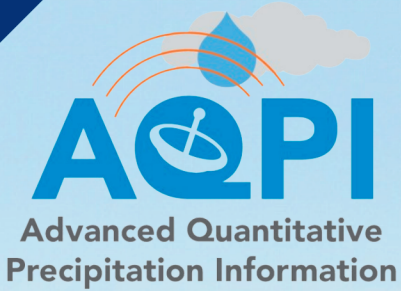


Why a C-Band Radar for Barnabe Mountain?



If you put a C-band radar on Barnabe Mountain in West Marin, you will have a clear view of the Pacific Ocean, which is where atmospheric rivers start. As storms hit land and move toward the Bay Area, the radar will track precipitation as it falls. The location on top of the mountain will also give great coverage to the populated areas of Marin.

In Sonoma, Contra Costa, and San Mateo Counties, the coverage of the new C-band radar will overlap with that of the X-band radars. This will give the counties good coverage. The average damage from floods caused by atmospheric rivers in California is over \$1 billion per year. Better information tools like this one will help agencies in charge of flood control, water supply, and wastewater management get ready in time.



Permitting

Sonoma Water, the project's lead agency, and Marin County Public Works, a participating agency, are preparing documentation in accordance with the California Environmental Quality Act (CEQA). Sonoma Water will obtain a building permit for the facility's construction. Permitting is anticipated to be finalized by mid-2023, with radar installation occurring in the second half of 2023.

Construction & Operating Details

The radar will be mounted about 10 feet above the ground on top of a seatainer (the radar shelter). The "golf ball" shape is the radome, which protects the radar antenna from the elements.

The C-band radar system uses a directional antenna to focus the energy in a certain direction, like how a lighthouse creates a narrow beam of light, and it scans horizontal to vertical in all directions to produce an image of the atmosphere. When scanning, the radar will not exceed FCC recommended levels for general population, as it is below all applicable regulatory standards. Also, because the radar will be placed ten feet above the ground, the radar beam will always be higher than the tallest person in the area.

Because Marin County and CalFire already utilize Barnabe as a fire lookout, the site has internet access. Maintenance is expected to be done once or twice a year or as needed. AQPI will handle a contract for communications.



Construction and Deployment Costs

The C-Band radar gear is funded by a grant from the California Department of Water Resources. The cost of construction is estimated at \$500,000. Sonoma Water staff are developing a financial strategy.

Project contact

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