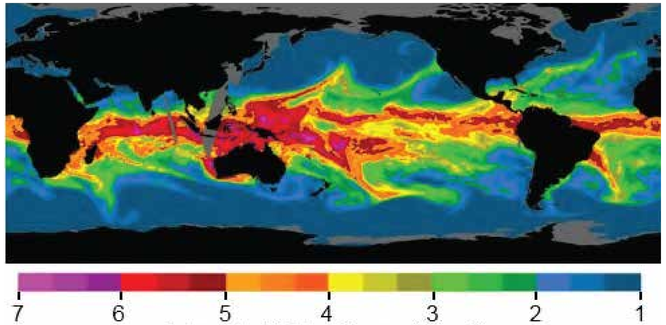
San Francisco Bay Area AQPI System

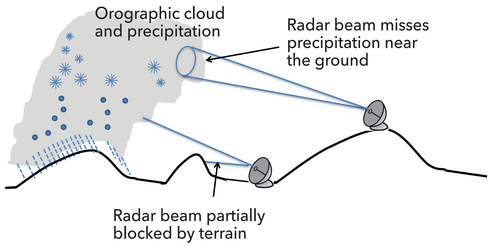
Advanced Quantitative Precipitation Information System



Integrated Water Vapor (g cm^{-2})

More than 50% of the Bay Area's rain and flooding comes from atmospheric rivers (ARs). But existing S-band (NEXRAD) radars aim too high to see the low-elevation ARs. Four modern, adjustable-aiming X-band radars and one C-band radar, along with improved weather modeling, will provide different forecast lead times: 12 hours for very high resolution precipitation over the Bay Area; 10 days for improved precipitation forecasts over the Bay and Sierra watersheds; and 48 hours for streamflow and coastal and Bay margin storm surge. This will greatly improve reservoir operations for water supply, flood management, regulating combined sewer and wastewater flows, anticipated emergency response, transportation management and more.

Difficulties Observing Rainfall in SF Bay Area with NEXRAD Radar



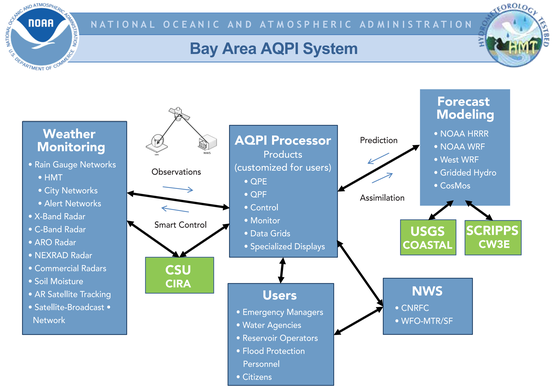
S-band (NEXRAD) radar aims too high to see atmospheric rivers. Mountains also obstruct the S-band radar beams.

NEW AQUPI RADARS

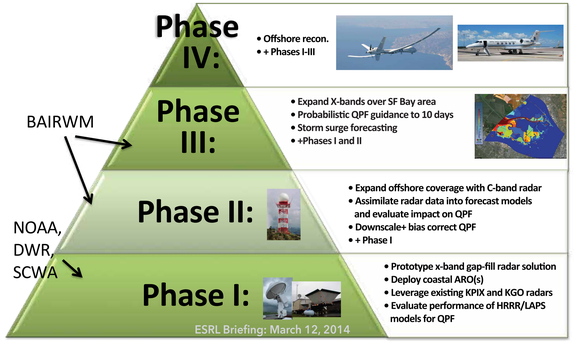
S-BAND (NEXRAD)

C-BAND

X-BAND



AQPI Implementation



The Bay Area has submitted a Prop 84 grant proposal for $19 million to cover the $26.5 million cost of Phases II and III of the project. Future funding, such as from Prop 1, will be sought for Phase IV that will give even greater lead time of impending storm events.

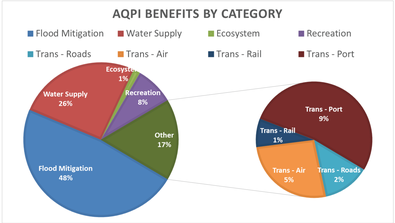
AQPI Benefits Summary

Overall
- Total Wx Benefits ($240M/yr; $34/person)
- Incremental AQPI Benefits ($79M/yr; $11/person)

By Category
- Flood Mitigation (48%)
- Water Supply (26%)
- Ecosystem Services (9%)
- Transportation (17% (Ports 9%))

Present Value
- PV(6%, 10yr)
- Benefits - $460M
- Costs - $90M

Benefit/Cost Estimates
- Best Estimate - 5:1
- Optimistic Estimate - 13:1
- Pessimistic Estimate - 2:1



FOR MORE INFORMATION: WWW.BAFPAA.ORG/AQPI