

AquaWatch Data Systems

A cloud-based solution for water quality monitoring
and forecasting that empowers better decision making



Water quality is a global issue

We rely on freshwater and coastal ecosystems, not only for our own wellbeing, but to support healthy environments and prosperous economies. However, these critical ecosystems are rapidly degrading. Comprehensive monitoring and predictive modelling being developed through the AquaWatch Australia (AquaWatch) program, is essential for effective management action.



AquaWatch requires a scalable and flexible data integration and processing platform, that aggregates data from thousands of in-situ sensors, with petabytes of Earth observation (EO) imagery from several satellite sensors, for inland or coastal water-bodies to whole countries. This platform is called the AquaWatch Data System (ADS).

Technology to solve global challenges

Powered by CSIRO's Earth Analytics Science and Innovation Platform (EASI) DataCube technology, the ADS provides the infrastructure to support advanced data analytics for the AquaWatch program and its users. This technology is essential to transform raw data into actionable insights, facilitating informed decisions for better water management and preparedness for the impacts of climate change.



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Using AquaWatch Data Systems

This high-performance platform enables AquaWatch to “turbo-charge” the capacity to process and integrate large amounts of data. It also supports all stages of water quality and monitoring forecasting applications and analytical workflow development, as well as machine learning approaches.

Key Features:

- Earth Observation satellite data: Sentinel 1/2/3, Landsat 5/7/8/9, VIIRS 19/20/21, MODIS Ocean, Hyperspectral (future)
- Ground based in situ sensor networks: Eagle.io, Senaps, HydroVu Sofar, HydraSpectra, SORAD
- Scalable cloud computing to continental scale
- AI and Machine Learning support
- Flexible integrated data analytics platform for exploratory data analysis
- Production grade automation

Working with the AquaWatch Data System

From exploratory scientific development through to production automation of successful workflows, the platform provides data access, visualisation and integration tools for AquaWatch scientists and end users.

We aim to offer three modes of access to the ADS and derived water quality information suited to the end users' specific needs:

- **Base Subscription:** Users can access the AquaWatch web portal and dashboard to monitor water quality parameters for their region of interest.
- **Processing Subscription:** Users receive secure access to the CSIRO-operated ADS system, enabling them to conduct their own analysis and visualisations.
- **Enterprise-level License:** Organisation can operate a fully functional ADS, implemented for their exclusive use and internal needs. CSIRO provides minimal support and updates as required, plus additional R&D services for new functionalities.

Next Steps

Get in touch to find out how AquaWatch can empower you to gain access to robust water quality insights.

AquaWatch Australia

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<https://research.csiro.au/aquawatch/>

<https://research.csiro.au/aquawatch/data-analytics/>