

IOOS Environmental Sensor Map Updates

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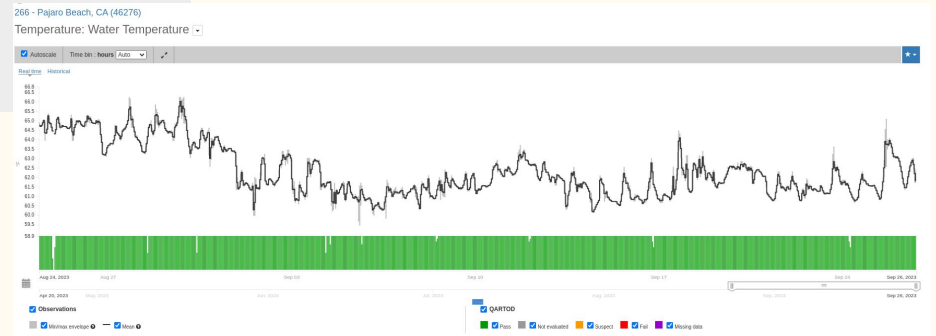
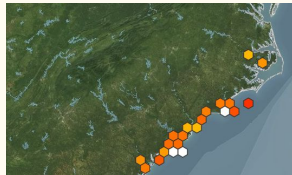
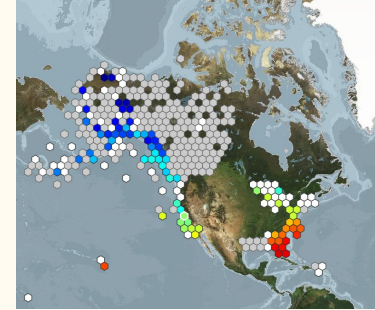
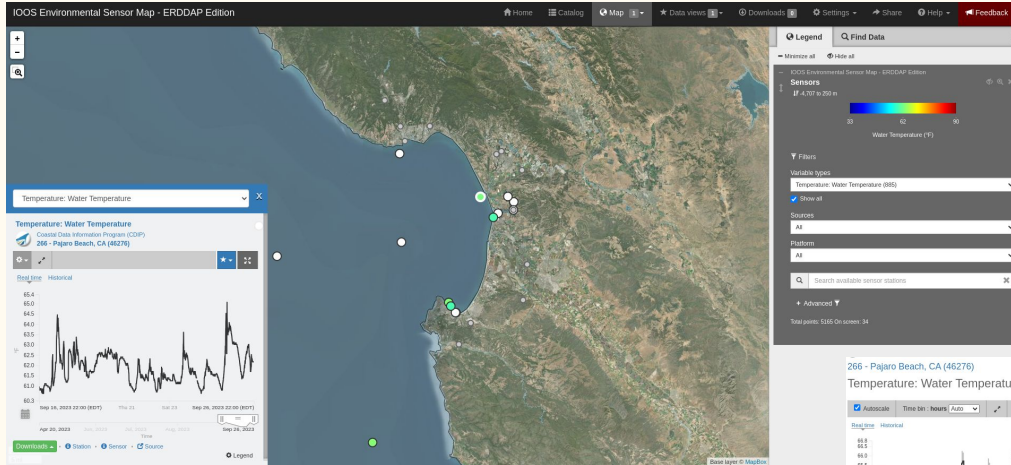
IOOS DMAC 2023

Background

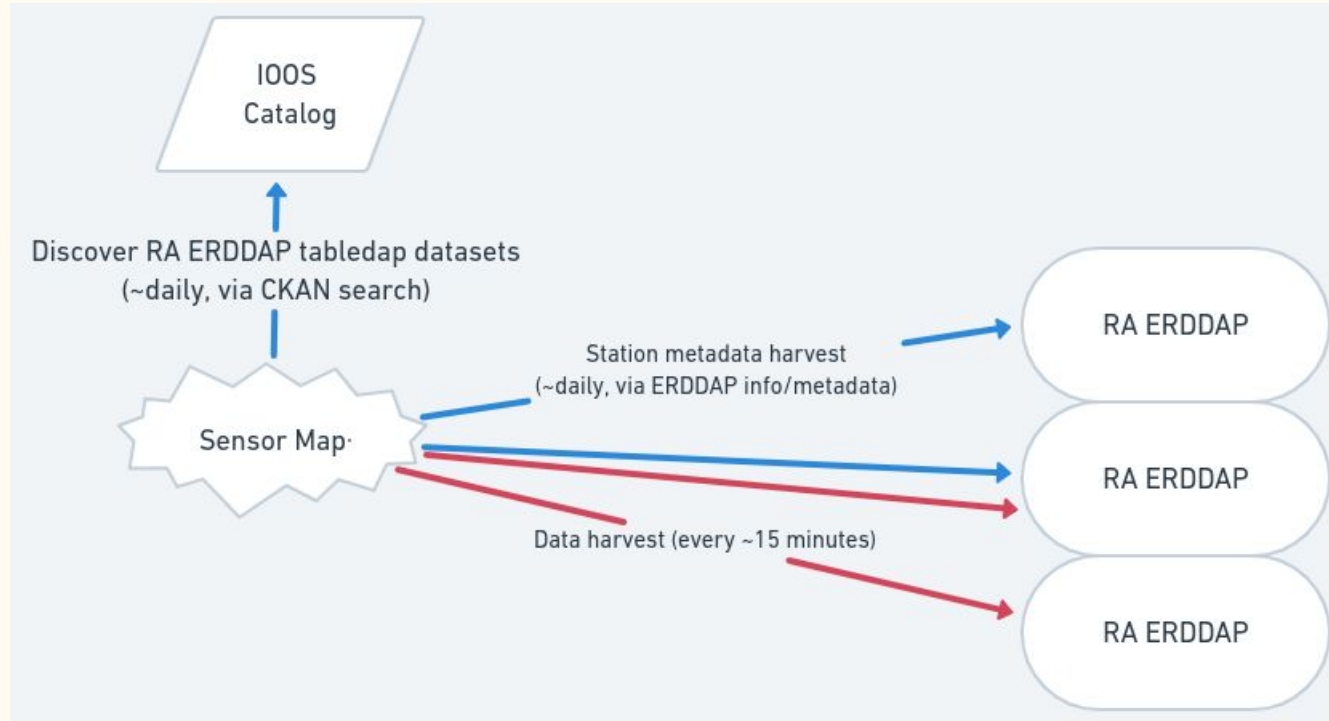
- Stable version - IOOS scalability experiment
 - <https://sensors.ioos.us>
 - How much sensor data can we put into one system/interface?
 - More is better approach (every data source we can find, aka all the things!)
 - New techniques
 - Streaming data ingestion buffer (kafka)
 - Timeseries database (TimescaleDB)
 - Hex binning dense data visualization
 - Temporal binning in API endpoints
 - Comprehensive view of data, but doesn't reflect regional RA curation
- Beta version - RA ERDDAP driven
 - <https://beta.sensors.ioos.us>
 - Limit to data served by RAs*
 - Discovered in IOOS data catalog
 - Served via ERDDAP tabledap
 - *May include other sources to augment spatial coverage



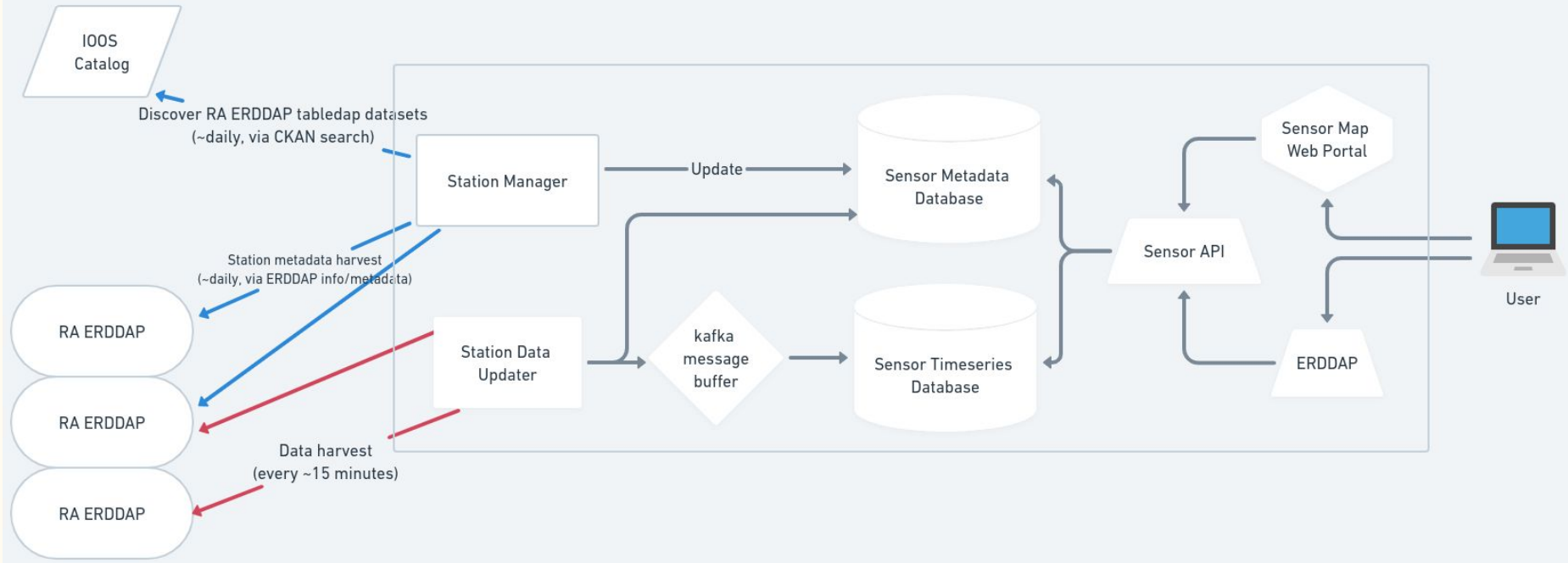
Portal Interface



System Diagram

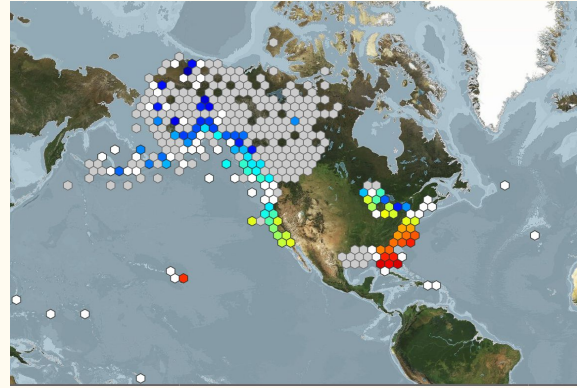


System Diagram - Detail

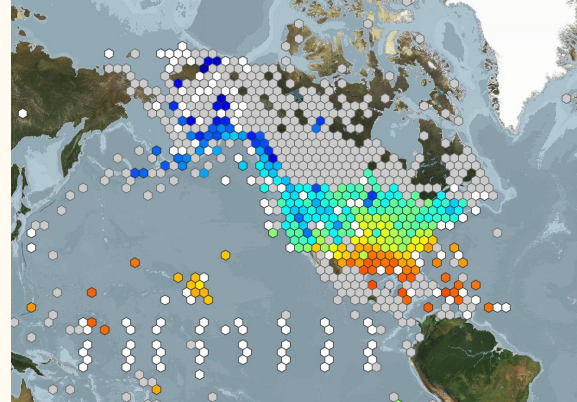


Current Status

- RA ERDDAP driven version of the sensor map in beta
 - Discovers RA ERDDAP served sensor datasets via the IOOS data catalog
 - Harvests sensor data from time series datasets conforming to [IOOS Metadata Profile v1.2](#)
 - Needs review of each RA's data and gap analysis
- Monthly data processing reports emailed to RA data managers
- ~12k stations in ERDDAP driven map
 - Old gen map has ~46k
- Transitioning back to using IOOS catalog for ERDDAP dataset discovery for most RAs



<https://beta.sensors.ioos.us> (RA ERDDAPs)



<https://sensors.ioos.us> (all the things)

Next Steps

- Re-integrate with IOOS catalog for ERDDAP tabledap dataset discovery
- Continue to refine data validation checks and error reporting
- Reach out to RAs to sort out ERDDAP service availability or data issues
- Quality-of-life tooling around using ERDDAP
 - [docker-erddap](#) - ERDDAP docker image with easy configuration, datasets.d dataset xml management, logging improvements
 - [erddap-gold-standard](#) - IOOS ERDDAP gold standard example datasets
- Improve operational status reporting
 - Metrics on station counts and ERDDAP service outages
- Coverage gap analysis and addition of data sources if needed