

Enhancing Coastal and Ocean Observing and Innovation: OAR and IOOS



Image: <u>Source</u>

Data Integration in Decision-Support Tools

OVERVIEW

Great Lakes, ocean, and coastal observation data is stored and shared across multiple pathways for specific purposes. This structure ensures data reaches multiple stakeholders. However, opportunities exist to increase collaboration and communication about how these data are provided to users. Sharing strategies reduces duplication of effort in terms of ensuring data access and benefits from services and tools. It is important to synchronize data standardization between Oceanic and Atmospheric Research (OAR) and Integrated Ocean Observing System (IOOS) to ensure different data sets are interoperable across systems and disciplines to enhance the development of tailored portals and products. Developing a systematic, coordinated workflow process and data pipelines would work to prevent unnecessary duplicative efforts, and enhance data integration into decision-support tools to better provide stakeholders with actionable information.

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Image: Source

OPPORTUNITY

The challenges surrounding the enhancement of data integration with IOOS-OAR collaborations include:

- Transitioning research data into operational use.
- Managing the extensive planning required for transitioning research-to-operations.
- Optimizing data pipelines, with the objective to shorten the latency time between collecting data collection and processing the data to be meaningful for users.

NEXT

Priority recommendations:

Develop data pipelines that: 1) meet the National Oceanic and Atmospheric Administration's (NOAA) procedural directives; 2) meet Findability, Accessibility, Interoperability, and Reusability (FAIR) data practices; and 3) follow procedural directives in the context of the NOAA Environmental Data Management 2013 framework.

- Develop and improve data pipelines to provide user's better access to data from authoritative (e.g., NOAA) data sources.
- Develop effective Application Programming Interfaces (API) to ensure users have access to useful information generated from data and data pipelines. An API is a software intermediary that allows two applications to talk to each other; NOAA's Weather Radar Live and Alerts app is an example of an API.
- Develop an overview of how different workflows intersect;
- Develop a systematic, coordinated workflow process for current and future collaborations.
- Synchronize data standardization between IOOS and OAR to ensure different data sets are FAIR and interoperable across systems and disciplines to enhance the development of tailored portals and products.
- Formalize IOOS Regional Association data management requirements to assist external entities meet data management requirements at the academic, regional, and national level.

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