CIOOS
CANADIAN INTEGRATED OCEAN OBSERVING SYSTEM

SIOOC
SYSTÈME INTÉGRÉ D'OBSERVATION DES OCÉANS DU CANADA

Portage Webinar

2020-07-28

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OVERVIEW:

- Why are we here?
- CIOOS overview
- CIOOS benefits
- Data Management: the FAIR way
- Website tour
- Looking ahead

Who am I speaking with?

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a. Academic Librarian
b. Researcher
c. Data specialist
d. High performance computing
e. Other

From the West Coast, to the St. Lawrence, to the Atlantic





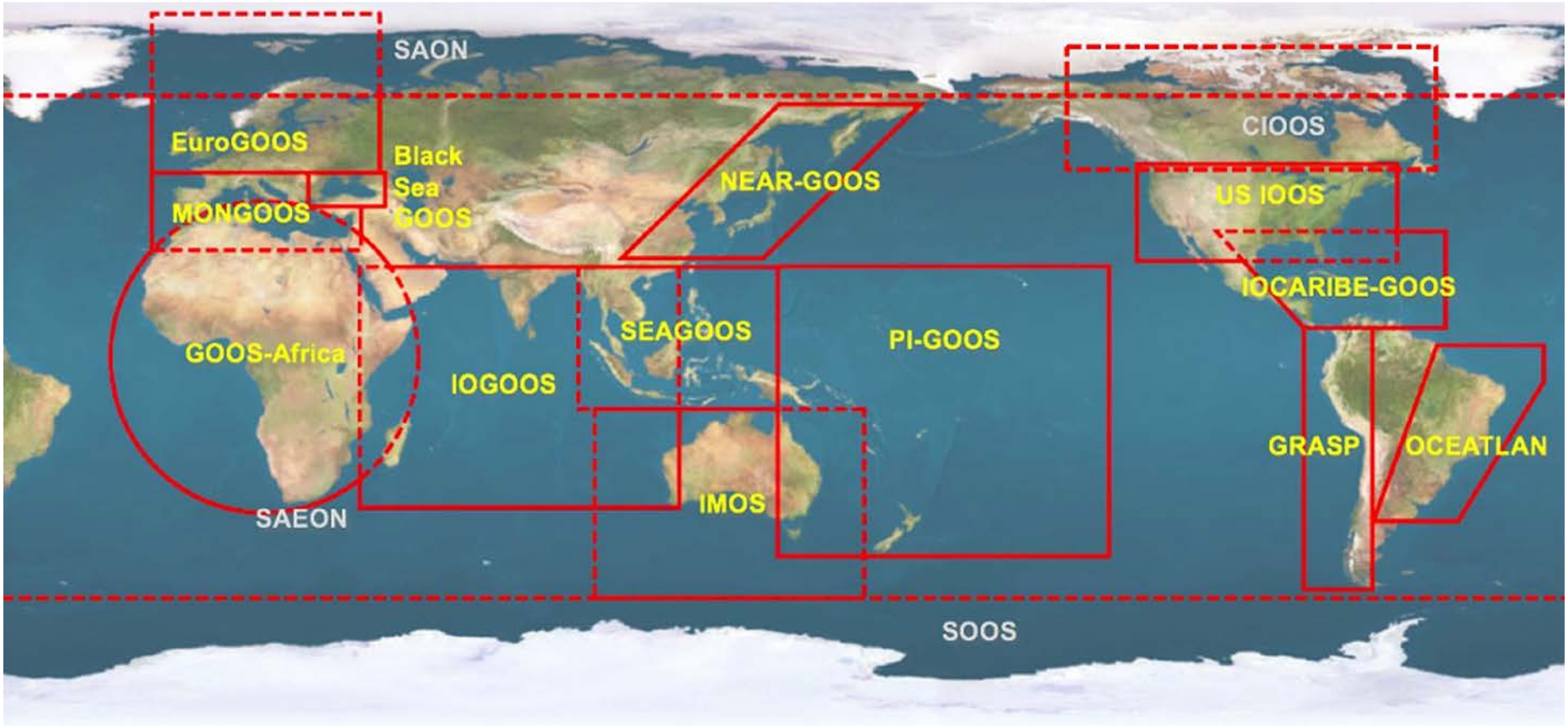



Source: DFO 2017; Pendleton et al. 2018; Visbek 2018; WWF 2020

A Tsunami of (Scattered) Ocean Data

Source: [Santos et al. 2019]

International motivation



Source: https://www.goosocean.org/index.php?option=com_content&view=article&id=83&Itemid=121

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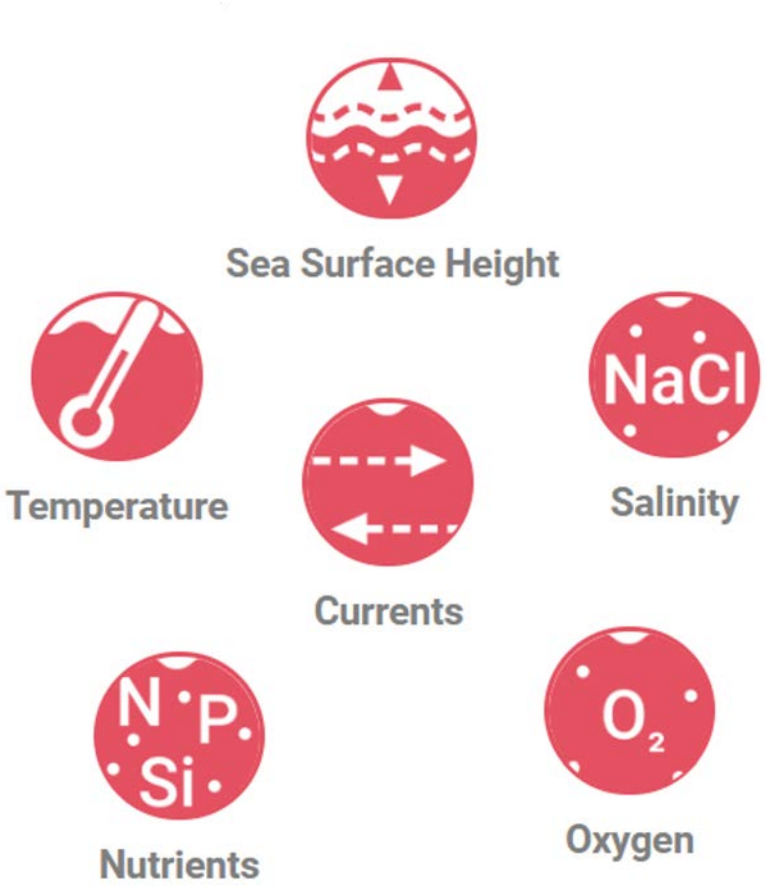
- **National collaboration** to share, discover and access ocean data
- Works **across sectors** to bridge Canada's ocean observing community
- **National and regional data portals** provide free and easy access to ocean and coastal data and information
- Uses **internationally recognized data standards** and digital infrastructure
- Three Regional Associations in the **Pacific, St. Lawrence, and Atlantic**

Benefits

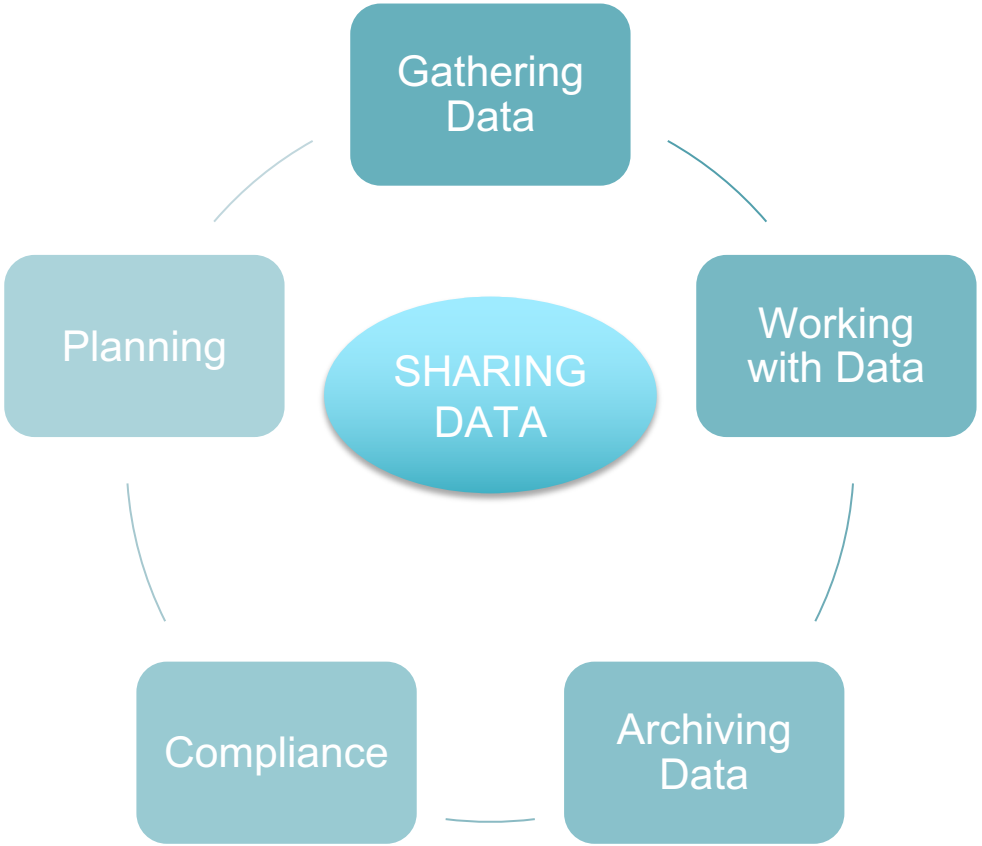
- Ocean disciplinary data repository
- Dedicated Engagement Team
- Data management support tools
- CIOOS metadata standards
- CC-BY open data license increases attribution of research
- Reduce duplication, storage redundancy, wasted resources
- Support open ocean sciences and applications



What brought you to this webinar?

a. General curiosity
b. **I work with or support** coastal and ocean research
c. **I am a** coastal and ocean researcher
d. Learn about the CIOOS data management approach
e. Understand the value of a domain specific repository

Research Data Management



Adopted

- **ISO 19115 series** - v1 profile in use, v2 profile underway (includes guidance for DataCite DOI, ORCID and ROR integration),
- **CKAN** - metadata catalog with customized configuration
- **ERDDAP** (OPeNDAP protocol, non-proprietary data formats such as NetCDF)
- **Controlled vocabularies:** Climate & Format Standard Names, Government of Canada Core Subject Thesaurus, SeaDataNet Device Categories, SeaVoX Device Catalogue, ICES Platform Codes, SeaVoX Platform Categories (details here)

Adopting

- **ISO 19157** - intended to integrate in v3 or later, within next year
- Data policy development based on criteria in **CoreTrustSeal**
- Data integration from third parties planned to leverage the **DMP Assistant** with a customized template
- OBIS interoperability

Specific Challenges

- **Bilingual** support - limitations for automated and manual translations
- Dataset and collection **granularity** (seeking insights from RDA Task Force within Data Discovery Paradigms IG)
- Integration of data **provenance** (lineage) and **quality** information
- Compatibility with North American Profile (NAP) which is based on the ISO 19115:2003 while we are using ISO 19115: 2014
- Interplay with **ERDDAP** and **CKAN** and CIOOS asset map (filtering/sorting)
- Maturity or existence of **community standards** for some data types
- Approach to **publishing profile** publicly (plus include in Ocean Best Practices repository)
- Representation from **diverse data sources** - currently focussed on instrument-based measurements, beginning to address some types of physical samples (e.g., Oxygen from water samples). Model outputs and human/machine observation/annotation based measurements are outstanding.
- **Sensitive data**: endangered species, Indigenous data, military restrictions

Diving deeper into data granularity

Poll: What are the best attributes for aggregating oceanographic datasets?

https://www.sli.do/

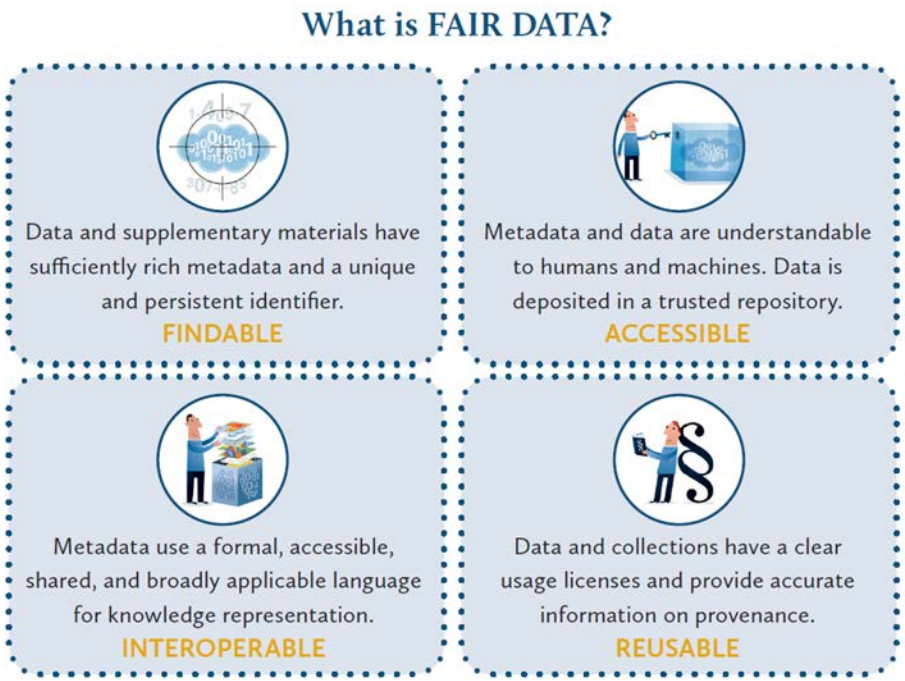
Event Code: 93838

Datasets are currently recommended to be one deployment of one instrument, but we need to extend guidance to recognize physical samples, models, and observation-based data sources.

Aggregation choices need to optimize (sometimes conflicting) aims of:

- **Discovery** - sufficiently unique without overwhelming users with too many similar records
- **Access** - compatibility with digital architecture and protocols.
- **Interoperability** - ability to combine data types and formats, consideration for applications harvesting data from distributed/federated repositories
- **Citability** - giving credit appropriately (as per initiatives like http://credit.niso.org/), ability to obtain comparable data citation metrics

The Value of Open Data: F.A.I.R. Data Principles



F: metadata delivered through CKAN catalog, identifier guidance in progress, (increasingly) rich metadata available in metadata record

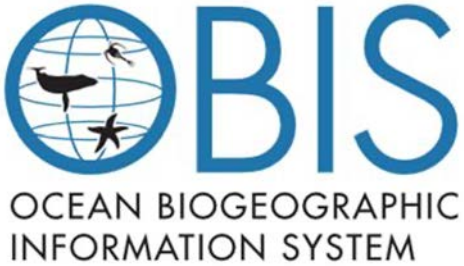
A: metadata and data delivery protocols are standardized

I: controlled vocabularies applied, formats are standardized and non-proprietary (ISO 19115, NetCDF)

R: recommend data licensing as CC-BY, community practices incorporated

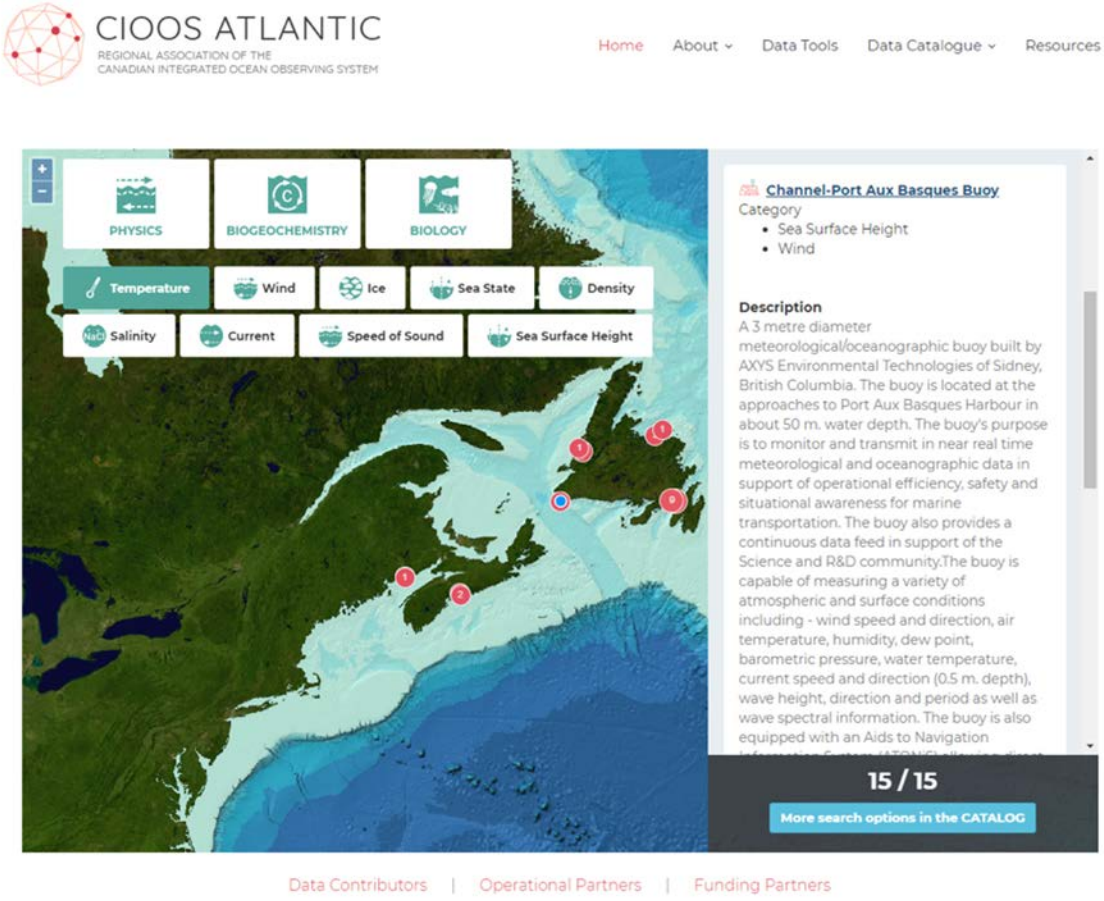
Association of European Research Libraries, Implementing Fair Data Principles, 2017.

Linked Data



Interoperability between repositories is key!

Website demo - cioosatlantic.ca home and Asset Map



Website demo - CKAN dataset view

Catalogue / Organizations / SmartAtlantic / **Channel-Port Aux Basques Buoy**

Channel-Port Aux Basques Buoy

Followers
0

Organization

smartatlantic

SmartAtlantic

The SmartAtlantic Alliance is an initiative of the Fisheries and Marine Institute of Memorial University of Newfoundland's Centre for Applied Ocean Technology (CTec) and the Institute for Ocean Research Enterprise (IORE) of Halifax.

CTec leads the Placentia Bay SmartBay applied ocean observation system on Newfoundland's south coast, with the on-going expansion of the SmartBay initiative to additional ports-of-call around the Province.

IORE, under the guidance of the Canadian Marine Pilots' Association (Atlantic region), is leading the operation of meteorological/oceanographic buoys off Herring Cove at the mouth of Halifax harbour in Nova Scotia and off the Port of Saint John, New Brunswick .

Recognizing the operational efficiencies and potential collaboration and expansion opportunities presented, CTec and IORE have partnered to unite the SmartBay, Halifax and Saint John initiatives under a new and exciting "SmartAtlantic Alliance" banner; creating the nucleus of a

Dataset | Groups | Activity Stream

Channel-Port Aux Basques Buoy

A 3 metre diameter meteorological/oceanographic buoy built by AXYS Environmental Technologies of Sidney, British Columbia. The buoy is located at the approaches to Port Aux Basques Harbour in about 50 m. water depth. The buoy's purpose is to monitor and transmit in near real time meteorological and oceanographic data in support of operational efficiency, safety and situational awareness for marine transportation. The buoy also provides a continuous data feed in support of the Science and R&D community.The buoy is capable of measuring a variety of atmospheric and surface conditions including - wind speed and direction, air temperature, humidity, dew point, barometric pressure, water temperature, current speed and direction (0.5 m. depth), wave height, direction and period as well as wave spectral information. The buoy is also equipped with an Aids to Navigation Information System (ATONiS) allowing direct transmittal of the buoy data to a ship's bridge.

SHOW PERMALINK

Access and Use

Licence: This data may be redistributed and used without restriction.

Data and Resources

ERDDAP Data Subset Form
ERDDAP's version of the OPeNDAP .html web page for this dataset. Specify a...
EXPLORE

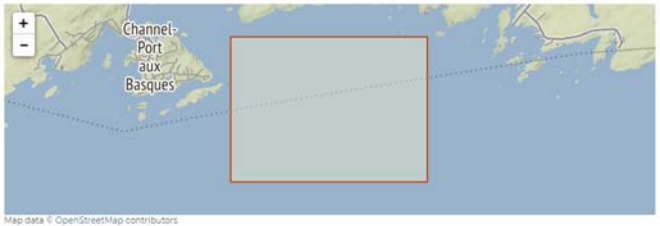
Dates

Metadata Created	January 10, 2020, 3:11 PM (UTC-04:00)
Metadata Updated	January 10, 2020, 3:11 PM (UTC-04:00)
Temporal Extent Begin	August 29, 2013
Temporal Extent End	December 05, 2019
Reference Date(s)	August 29, 2013 (Creation) December 05, 2019 (Revision)

Metadata Source

View Harvested Metadata: XML/JSON
Access full metadata **here**
Source last modified December 20, 2019, 11:14 AM (UTC-04:00)
Other records harvested from CIOOS Atlantic

Dataset extent

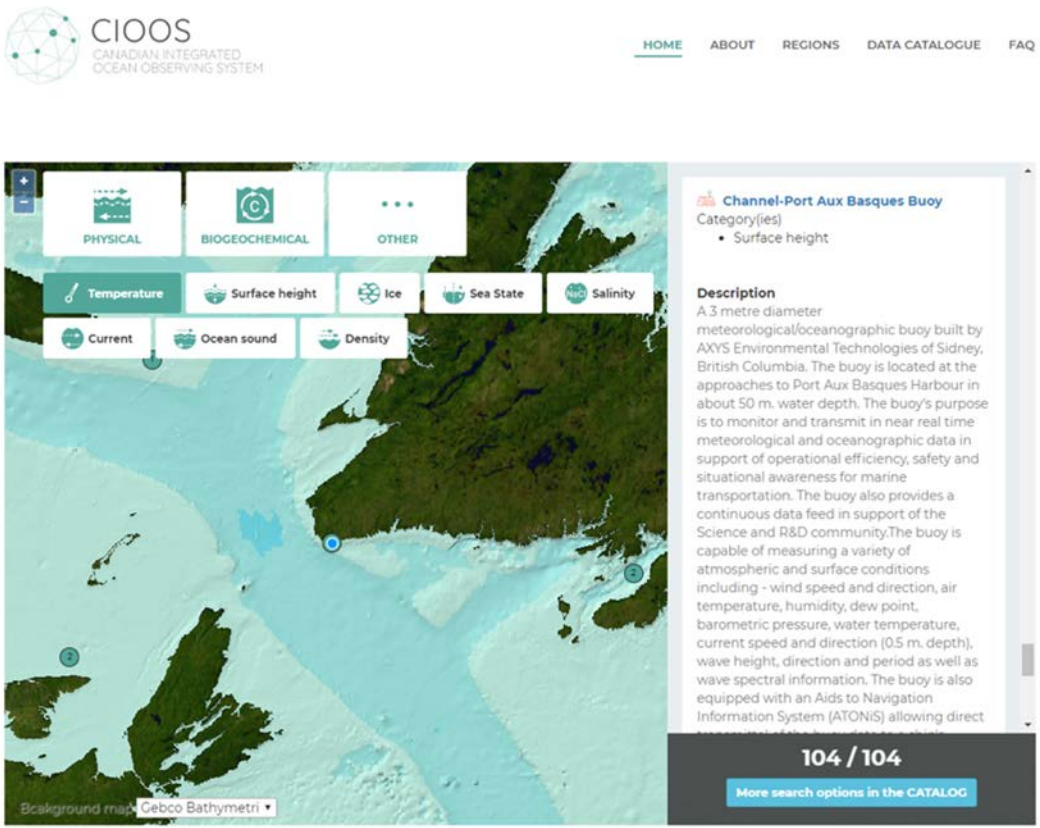


Map data © OpenStreetMap contributors
Tiles by Stamen Design (CC BY 3.0)

Additional Info

Field	Value
Ocean Variables	• Sea Surface Height • Sea Surface Temperature • Surface Currents
Scope	dataset
Status	On Going
Dates	• **Date:** 2013-08-29 **Type:** Creation • **Date:** 2019-12-05 **Type:** Revision
Maintenance Note	
Point of Contact	**Name:** SmartAtlantic **Contact Info Email:** SmartBay(at)smartbay.ca **Role:** Publisher
Responsible Party	• **Affiliation:** MI **Role:** Originator • **Name:** Marine Institute **Role:** Originator
Spatial	{"type": "Polygon", "coordinates": [[[-59.08039833, 47.55284167], [-59.12039833, 47.55284167], [-59.12039833, 47.57284167], [-59.08039833, 47.57284167], [-59.08039833, 47.55284167]]]}
North Bounding Latitude	47.572841669999995
South Bounding Latitude	47.55284167
East Bounding Longitude	-59.12039833
West Bounding Longitude	-59.080398329999994
Temporal Extent	**Begin:** 2013-08-29 **End:** 2019-12-05
Vertical Extent	
Default Locale	English
Citation Identifier	**Code:** SMA_port_aux_basques
Version	

Website demo - cioos.ca dataset federation



National Objectives

- Integrate more datasets from new and existing data providers
- OBIS and additional EOV support
- Infrastructure improvements
- Develop targeted data visualizations
- Improve data integration processes
- UI/UX and mobile experience optimization
- **Outreach**
  - Engagement with federal, provincial departments
  - Ocean industry, Indigenous groups, and academic providers
- **Communications**
  - Promotional material and social media
- **National Web Presence**
  - Detailed national user feedback report and improvements
  - Stakeholder engagement, communications plan
- **Data Stewardship**
  - Biological and genomic dataset support
  - International connections: GOOS, IOOS, MarineGeo, OBIS

Regional Objectives

- **Atlantic**
  - Integration of new providers and two provider workshops
  - Working closely with Indigenous data providers
  - Integration of glider data
- **St. Lawrence**
  - Extensive biological EOV support
  - Development of specialized visualization interfaces.
- **Pacific**
  - Ten site visits with data providers and users
  - Five data provider workshops
  - Integrate ocean model outputs and additional EOVs

What support tools would improve your chances of using or referring CIOOS?

a. Tools that support data integration into CIOOS data standards
b. Tools that support data management
c. Tools for authoring metadata
d. Tools that support visualization
e. Tools for long-term storage

We look forward to answering your questions

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Lydia - lydia.ross@cioosatlantic.ca

Photo of a marine weather buoy