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A Deep Dive Into Dynamic Data Citations

An Ocean Networks Canada (ONC) Perspective

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2023-04-26

Land & Sea Acknowledgement

! Ж%ÁР Ы! ЫЖЫ! Ы! О НЫ! ! " u/đ ĩ Рήx Ё і f! ! %Рі Ы ЖЫ І ФДМ ЁМ "ЎІ ЎР НІ ЫНЖ ЖІР
x ЎНЖ Ф%і ЫНР%ЕФ ЫНН ЫДМ ЬР Ы! ЫЖЫ ЖФРі Ж%Рі ДМ "ήРГ Ў! ! ЖМЖ ЬО %ЕФРі
! Ƀ " ò МР НІ ЫНЖ Жx ЎНЖ ЎНЖ ЫЫ Е/ФР ЖННЖx ЫНДМ ЕРі ІήРФРЫ! ФН ДННЖ %Ѓ
! Жux ήЎ %Е ò > " u/ЕЖ %đ ĩ Рήx Ё і f! ! ДМ Рі Ы! РНЖІ ήО О ЬР ЫЖx ЫНХ ЎН О x! ЎФ! ДМ
ЎНРНБЎН ІήНННήЎФ ήР Іή%ЖЕО ήР ЫН ЫНР %Рі і %ЕО %Р%І О! РФЖБФНРЖ



Presentation Overview

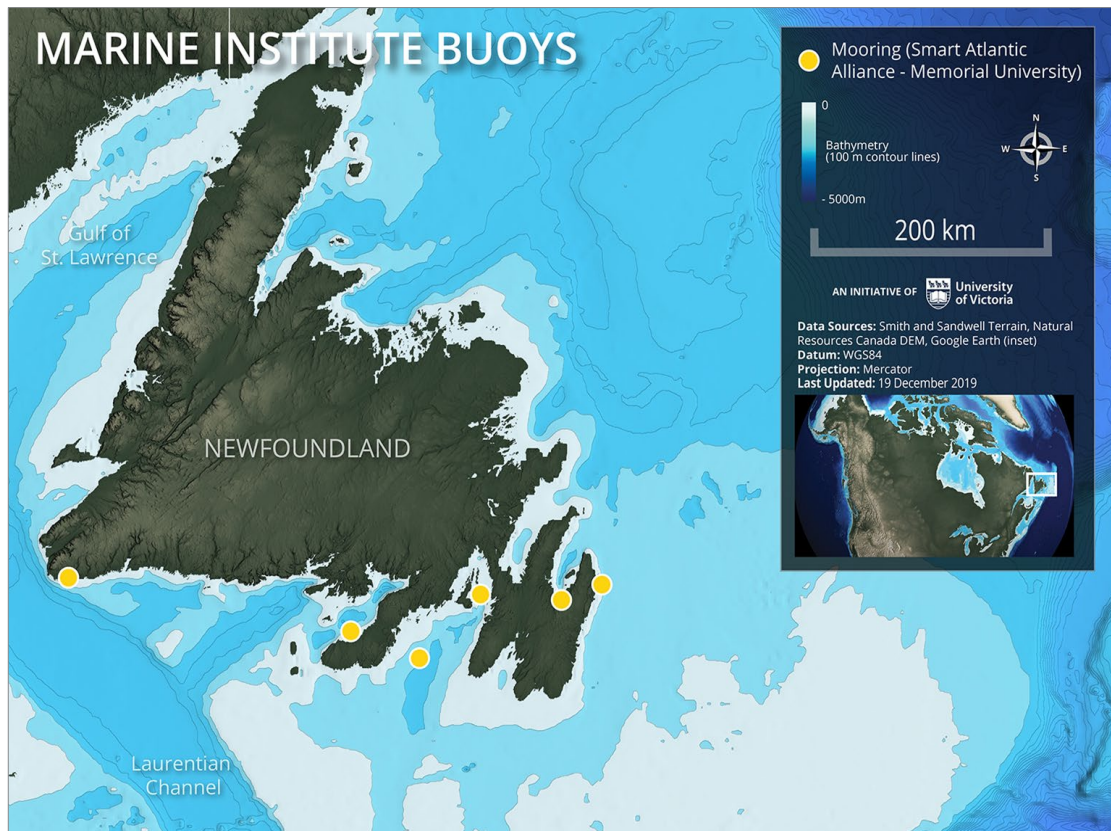
- Brief introduction to Ocean Networks Canada (ONC)
- Data Citation 101
- Data Citation at ONC
- Future Improvements
- Questions and Discussion

Ocean Networks Canada



- Highly heterogeneous
- Scope continually expanding

Atlantic Observatories



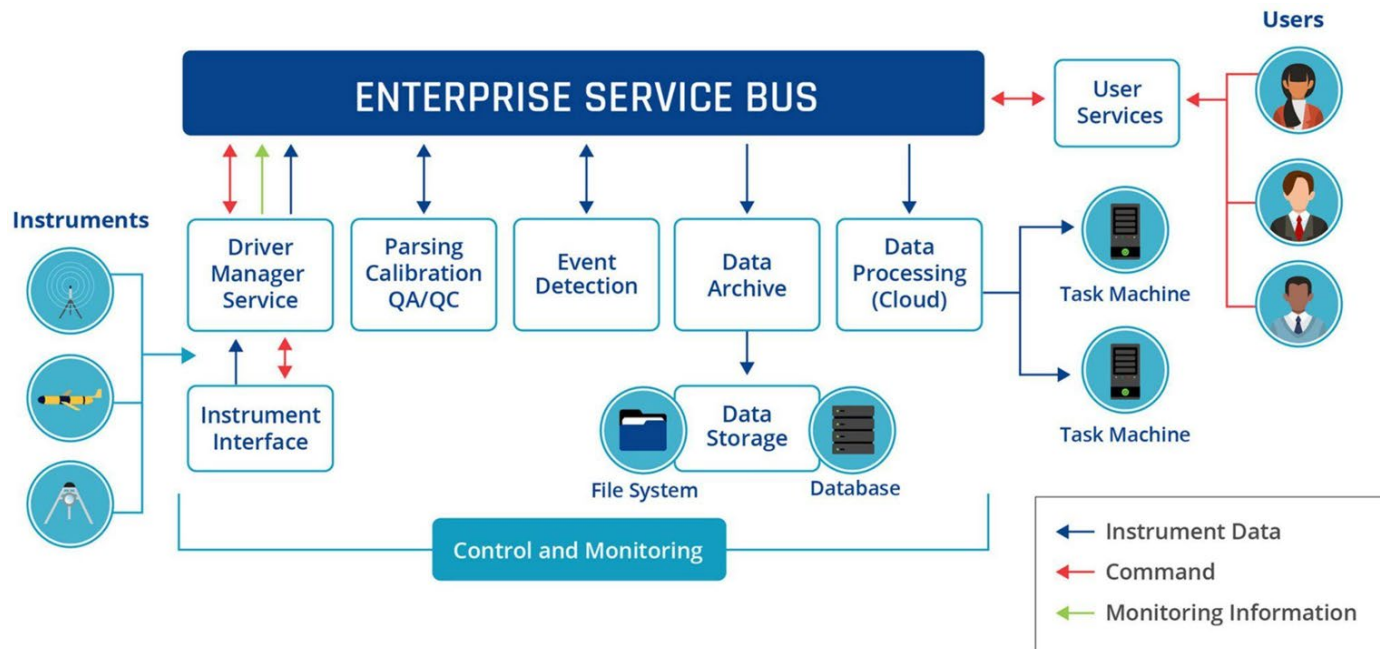
Arctic Observatories



ONC Community Observatories and Indigenous Partnerships



ONC Data Pipeline & Device Workflows



Recent publication: Owens D, Abeyesirigunawardena D, Biffard B, Chen Y, Conley P, Jenkyns R, Kerschtién S, Lavalée T, MacArthur M, Mousseau J, Old K, Paulson M, Pirenne B, Scherwath M and Thorne M (2022) **The Oceans 2.0/3.0 Data Management and Archival System**. Front. Mar. Sci. 9:806452. doi: 10.3389/fmars.2022.806452

Data Citation at ONC



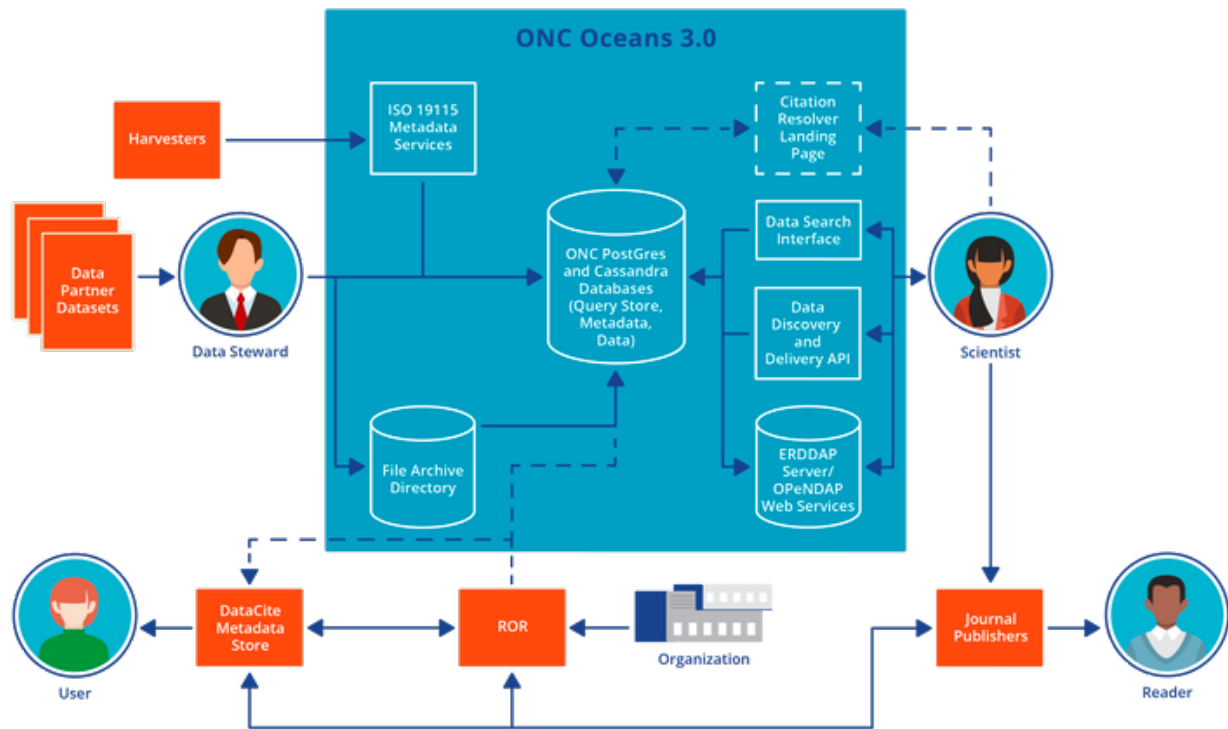
Digital Research
Alliance of Canada

Alliance de recherche
numérique du Canada

MINTED (Making Identifiers Necessary to Track Evolving Data), funded by Research Data Canada and CANARIE Inc. (2018-2020)

DynaCITE (Dynamic Citation Identifiers Training and Education) promotes the power of PIDs (persistent identifiers), funded by The Alliance's Data Champions Pilot Project.

Beginning to add additional functionality and features through a project called **ExperiMINTED** for a more comprehensive citation system



© Ocean Networks Canada

WORLD LEADING DISCOVERIES AT A CRITICAL TIME

OCEAN
NETWORKS
CANADA

Data Citations 101: Persistent Identifier (PID)

A persistent identifier (PID) is a long-lasting reference to a document, person, file, web page, or other object (real or digital)

Components of a PID:

- A unique identifier
- A service that resolves the identifier to the object - even if its location changes
- Metadata about the object



And more!

Data Citations 101:

DOI - Digital Object Identifier

DOI - Digital Object Identifier for journal articles, reports, publications, etc.

- <https://www.doi.org/>

Remains the same for the lifetime of a document, though metadata (including object location URL) can change with time

- <https://doi.org/10.1109/5.771073>



DataCite
FIND, ACCESS, AND REUSE DATA

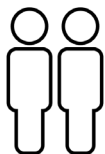
RORs & ORCID



Research Organization Registry (ROR)

A community-led project to develop open, sustainable, usable, and unique identifiers for research organizations.

ONC <https://ror.org/05gknh003>



Open Researcher and Contributor Identifier (ORCID)

A unique, open digital identifier that distinguishes you from every other researcher with the same or a similar name to you

Data Citations 101: What is Data Citation?

- Data citation is the practice of referencing data products used in research. A data citation includes key descriptive information about the data, such as the title, source, and responsible parties.
- Citing **data** is just like citing a **journal article**:

Chatzievangelou D, Thom sen L, Doya C, Purser A and Aguzzi J (2022) Transects in the deep: Opportunities with tele-operated resident seafloor robots. *Front. Mar. Sci.* 9:833617. doi: 10.3389/fmars.2022.833617

Tsleil-W aututh Nation. 2019. *Burrard Inlet Acoustic Doppler Current Profiler 600 kHz Deployed 2019-03-28*. Ocean Networks Canada Society. <https://doi.org/10.34943/2F1E5D11-88DB-48EE-A27E-D32E9B7AB593>

Data Citation 101: Importance of Data Citation

- Author(s) get due **credit**,
- Helps to **identify** and **find** the **data**
- Promotes research **reproducibility**
- Facilitates **collaboration**
- Helps track the **impact** and **reuse** of data sets
- Increases the **discoverability** of the research

Data Citations 101: Data Availability Statement

Data Availability Statements are
NOT the same thing as,
NOR DO THEY replace data citations

- AKA Data Access Statement
- Benefits
 - transparency
 - compliance with policies
 - promotes trust
 - good scientific practice

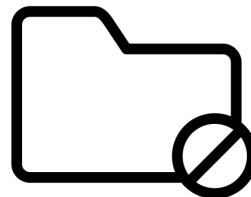
Data Availability Statement Continued



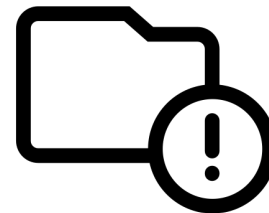
Data openly available in a public repository that issues datasets with DOIs



Data available on request due to privacy/ethical restrictions for sensitive data



Data is not available



No data used

Data Citations 101: FAIR Data Principles



Image credit: Australian Research Data Commons

What is a dataset at ONC?

1 Dataset = 1 Deployment of 1 Device

i.e. Device A at Site B, from Date X to Date Y



From this...

...to this.

ONC Implementation - Automating Metadata

- ONC has collected and managed tens of thousands of datasets throughout its 15 years
- Each dataset has existing rich metadata
- Complex relationships between different dataset parameters
- Thus, manually minting datasets DOIs would be inefficient

Automated Title Deconstructed

SearchTreeNodeName DeviceCategoryName Deployed SiteDeviceDateFrom

Upper Slope Fluorometer Turbidity Deployed 2019-05-16

Automated Abstract Deconstructed

Construction: The **DeviceName** was deployed on **SiteDeviceDateFrom** *at/on* **SearchTreeNodeName**. **SearchTreeNodeDescription**. This device is a **DeviceCategoryName**. **DeviceCategoryDescription**. It was deployed on a **Fixed/Mobile/Profiling** platform. Data from this deployment were archived and made available through Ocean Network Canada's Oceans 3.0 digital infrastructure, with quality assurance and derived data products following established practices.

Example: The **WET Labs ECO FLNTUS 4670** was deployed on **2019-05-16** at **Upper Slope**. **Upper Slope** is a location within **Barkley Canyon**, which is located on the upper continental slope. This device is a **Fluorometer Turbidity**. Fluorometer Turbidity instruments measure chlorophyll fluorescence and turbidity within the same volume of seawater. The instrument uses a light emitting diode (LED) to provide an excitation source. The fluoresced light is received by a detector at a particular angle from the LED source, and uses an interference filter to discriminate against scattered excitation light. Turbidity is measured at the same time, by detecting scattered light from a LED, which is positioned at the same angle as the **chlorophyll fluorescence**. It was deployed on a **fixed platform**. Data from this deployment were archived and made available through Ocean Network Canada's Oceans 3.0 digital infrastructure, with quality assurance and derived data products following established practices.

ONC Implementation - Landing Pages

Ocean Networks Canada
Oceans 2.0

Help | Login

Barkley Canyon instruments are offline due to node communication issue

Request Support | Report a Problem

Data Preview | Data Search | Plotting Utility | SeaTube | More

ABOUT

10.34943/2d4edb3d-f8f5-4f96-a212-b418e1bf70e9

DataCite Metadata

Title

Discovery Passage Hydrophone Deployed 2020-07-15

DOI

10.34943/2d4edb3d-f8f5-4f96-a212-b418e1bf70e9

Abstract

The Ocean Sonics iListen AF Hydrophone 2523 was deployed on 2020-07-15 at Discovery Passage. Discovery Passage is a channel that is part of Inside Passage. It is located between Vancouver Island and the Discovery Islands and north of the Georgia Strait. This device is a Hydrophone. Hydrophones are devices containing transducers that convert underwater sound waves into electrical signals. They are acoustic instruments that can process data while they are being collected to produce calibrated waveform data. Hydrophones are typically used to study vocalizations of marine mammals, ship traffic and ambient noise. It was deployed on a fixed platform. Data from this deployment were archived and made available through Ocean Network Canada's Oceans 2.0 digital infrastructure, with quality assurance and derived data products following established practices.

Creators

Organizational

Ocean Networks Canada Society

Date Created

2020-07-31

Funding References

Funding Reference

No funder

Publisher

Ocean Networks Canada Society

Citation

DOI Citation

Ocean Networks Canada Society. 2020. Discovery Passage Hydrophone Deployed 2020-07-15. Ocean Networks Canada Society. <https://doi.org/10.34943/2d4edb3d-f8f5-4f96-a212-b418e1bf70e9>.

Data Links

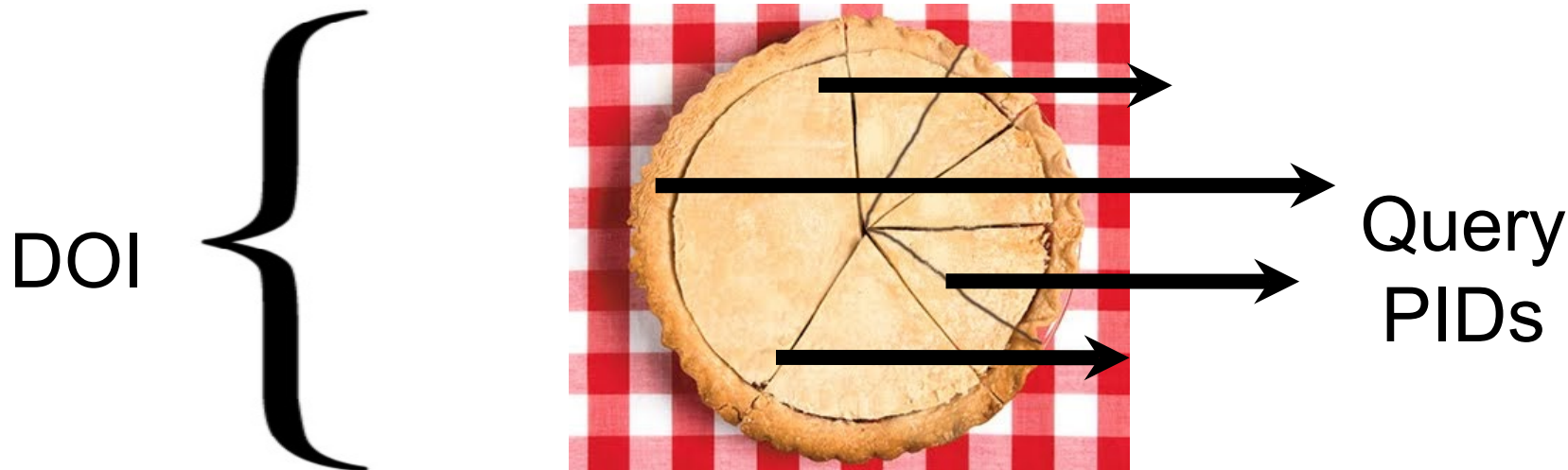
[Download data using Data Search](#)
[View device details for Ocean Sonics iListen AF Hydrophone 2523](#)
[Download latest ISO 19115 XML metadata](#)

Version History

DOI	Reason	↓ Date Created
10.34943/2d4edb3d...		2020-08-10 22:40:22.339

1 of 1 < 1 >

Query PIDs



- Every data search (query) in Oceans 3.0 is **saved** in the database and labeled with its own **local identifier**, the '**Query PID**'
- Query PIDs can be used like a DOI in the Oceans 3.0 Landing Page Resolver, to retrieve a landing page with **additional details** specific to that exact search

Query PID Landing Page: *Subset Query Details*

Ocean Networks Canada

Oceans 2.0

Data Preview

Data Search

Plotting Utility

SeaTube

More

Help | Login

Barkley Canyon instruments are offline due to node communication issue

Request Support

Report a Problem

8510415

ABOUT

DataCite Metadata

Title

Barkley Canyon Upper Slope Fluorometer Turbidity Deployed 2019-05-16

DOI

10.34943/fa04d675-3df2-4dc3-810b-cb365f7ec492

Abstract

The WET Labs ECO FLNTUS 4670 was deployed on 2019-05-16 at Barkley Canyon Upper Slope. Upper Slope is a location within Barkley Canyon, which is located on the upper continental slope. This device is a Fluorometer Turbidity. Fluorometer Turbidity instruments measure chlorophyll fluorescence and turbidity within the same volume of seawater. The instrument uses a light emitting diode (LED) to provide an excitation source. The fluoresced light is received by a detector at a particular angle from the LED source, and uses an interference filter to discriminate against scattered excitation light. Turbidity is measured at the same time, by detecting scattered light from a LED, which is positioned at the same angle as the chlorophyll fluorescence. It was deployed on a fixed platform. Data from this deployment were archived and made available through Ocean Network Canada's Oceans 2.0 digital infrastructure, with quality assurance and derived data products following established practices.

Creators

Organizational

Ocean Networks Canada Society

Date Created

2019-12-16

Funding References

Funding Reference

No funder

Publisher

Ocean Networks Canada Society

Publication Year

2019

Resource Type

One Deployment

Query Details

Data Product

Time Series Scalar Data

Query Date Created

2020-05-08T17:26:27.733Z

Query Date From

2019-06-20T00:00:00.000Z

Query Date To

2019-06-21T00:00:00.000Z

Variables

All

Format

csv

Data Product Options

Data Gaps:

Fill missing/bad data with NaNs (Not a Number)

Quality Control:

Clean Data

Processing: (Type/Period)

Average / 1 Minute



Citation

Query Citation

Ocean Networks Canada Society. 2019. Barkley Canyon Upper Slope Fluorometer Turbidity Deployed 2019-05-16. Ocean Networks Canada Society. <https://doi.org/10.34943/fa04d675-3df2-4dc3-810b-cb365f7ec492>. Subset Query: 8510415. Accessed 2020-05-08.

Data Links

Citing ONC Data - Search History

✓	Ocean Networks Canada > Pacific > Northeast Pacific Ocean > Barkley Sound > Folger Passage > Folger Deep	15991692	Time Series Scalar Plot	2022-05-24 00:00:00	2023-02-08 18:19:06	Clean Data, Min/Max+Avg	2023-02-08 18:20:58
✓	Ocean Networks Canada > Pacific > Northeast Pacific Ocean > Barkley Sound > Folger Passage > Folger Deep	15991693	Time Series Scalar Data	2021-09-20 00:00:00	2023-02-08 18:19:06	Fill missing/bad data with NaNs (Not a Number), Clean Data, None	2023-02-08 18:22:09
✓	Ocean Networks Canada > Pacific > Northeast Pacific Ocean > Barkley Sound > Folger Passage > Folger Deep	15991694	Time Series Scalar Data	2021-09-20 00:00:00	2023-02-08 18:19:06	Fill missing/bad data with NaNs (Not a Number), Clean Data, None	2023-02-08 18:22:09
^	Ocean Networks Canada > Pacific > Northeast Pacific Ocean > Barkley Sound > Folger Passage > Folger Deep	16001726	Time Series Scalar Data	2017-06-27 18:02:02	2017-07-09 19:51:53	Fill missing/bad data with NaNs (Not a Number), Clean Data, Min/Max	2023-02-09 19:29:15

Query PID	Device	Date From	Date To	Site ID	Dataset DOI	Copy Citation
14807859	Sea-Bird SeaCAT SBE19plus V2 T028	2017-06-27 18:02:02	2017-07-09 19:51:53	1000829	10.80242/45a5d894-946c-4b4f-b7eb-de775...	
14807859	Sea-Bird SeaCAT SBE19plus V2 T028	2017-06-27 18:02:02	2017-07-09 19:51:53	1000829	10.80242/962db9b9-eea9-4ab5-89d6-1d459...	
14807859	Sea-Bird SeaCAT SBE19plus V2 T028	2017-06-27 18:02:02	2017-07-09 19:51:53	1000829	10.80242/d792d74b-a770-40e3-b4b7-494f7...	

Copy Citation

Copy Citation

Ocean Networks Canada Society. 2017. Folger Deep Conductivity Temperature Depth Deployed 2017-05-02. Ocean Networks Canada Society. <https://doi.org/10.21383/f3299925-cf9b-4bdc-874b-d99fa0a32ef7>. Subset Query: 14807859. Accessed 2023-02-09.

CANCEL

COPY TO CLIPBOARD

Citing ONC Data - Search History

✓

Ocean Networks Canada > Pacific > Northeast Pacific Ocean > Barkley Sound > Folger Passage > Folger Deep

15991692

Time Series Scalar Plot

2022-05-24 00:00:00

2023-02-08 18:19:06

›

Clean Data, Min/Max+Avg

2023-02-08 18:20:58

✓

Ocean Networks Canada > Pacific > Northeast Pacific Ocean > Barkley Sound > Folger Passage > Folger Deep

15991693

Time Series Scalar Data

2021-09-20 00:00:00

2023-02-08 18:19:06

›

Fill missing/bad data with NaNs (Not a Number), Clean Data, None

2023-02-08 18:22:09

✓

Ocean Networks Canada > Pacific > Northeast Pacific Ocean > Barkley Sound > Folger Passage > Folger Deep

15991694

Time Series Scalar Data

2021-09-20 00:00:00

2023-02-08 18:19:06

›

Fill missing/bad data with NaNs (Not a Number), Clean Data, None

2023-02-08 18:22:09

^

Ocean Networks Canada > Pacific > Northeast Pacific Ocean > Barkley Sound > Folger Passage > Folger Deep

16001695

Time Series Scalar Data

2021-09-20 00:00:00

2017-07-09 19:51:53

›

Fill missing/bad data with NaNs (Not a Number), Clean Data, Min/Max

2023-02-09 19:29:15

Query PID

Device

14807859

Sea-Bird SeaCAT S

14807859

Sea-Bird SeaCAT S

14807859

Sea-Bird SeaCAT S

Date To

2017-07-09 19:51:53

2017-07-09 19:51:53

2017-07-09 19:51:53

Site ID

1000829

1000829

1000829

Dataset DOI

10.80242/45a5d894-046c-4b4f-b7eb-de775...

10.80242/962db9b9-eea9-4ab5-89d6-1d459...

10.80242/4792d74b-a7ba-4896-b4b7-494f7...

Copy Citation

Query Details

Data Product

Time Series Scalar Data

Query Date Created

2023-02-09T19:29:15.401Z

Query Date From

2017-06-27T18:02:02.000Z

Query Date To

2017-07-09T19:51:53.000Z

Variables

Conductivity

Format

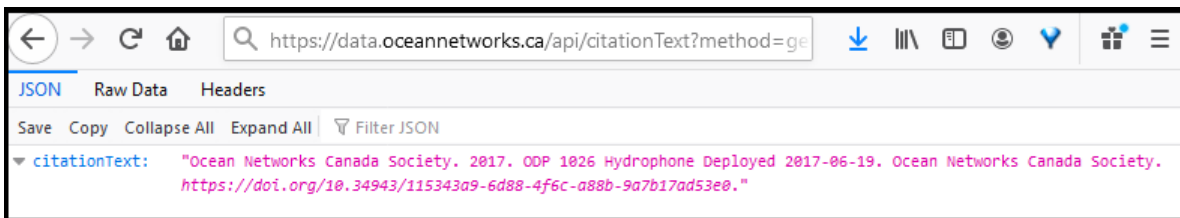
mat

Web Services: Citation Text

DOIs and Query PIDs can also be used with the **Oceans 3.0 API** to retrieve the data citation formatted according to the [ESIP Data Citation Guidelines for Earth Science Data, v.2](#):

DOI

<https://data.oceannetworks.ca/api/citationText?method=get&doi=10.34943/115343a9-6d88-4f6c-a88b-9a7b17ad53e0>



Query PID

<https://data.oceannetworks.ca/api/citationText?method=get&queryPid=8297994>



Finding Citations in Oceans 3.0: Data Products

A **new feature** (coming within next month) embeds citation text for datasets in the most common **time series data formats: CSV, MAT, JSON, ODV** (Ocean Data View).

- Data product documentation is available to users on our external wiki
- A citation list is provided when one data product combines more than one dataset
- With this citation information, you can
 - a. Cite datasets in your research outputs
 - b. Discover additional dataset metadata on the landing page (DOI in browser)
 - c. Determine if any data versioning occurred since your download (via landing page).

	A	B	C	D	E	F	G	H
1	## BEGIN HEADER							
2	#							
3	##							
4	## Origin Section - more information in Metadata file or Oceans 3.0							
5	##							
6	#SOURCE: "Ocean Networks Canada Data Archive" / Citation Author							
7	#HTTP: http://www.oceannetworks.ca / Citation Publication Site							
8	#HOME: "Canada" / Citation Publication Location							
9	#FLDATE: 2023-02-10T21:59:14.182Z / File Creation Date = Date for Citation							
10	#CITATION: "Ocean Networks Canada Society. 2012. Endeavour North Bottom Pre							
11	#METADATF: Endeavour_EndeavourNorth_BottomPressureRecorder_SeafloorPr							
12	#SEARCHID: 16011718 / DMAS Search ID from Oceans3.0							

variables - metadata	
metadata	
1x1 struct with 7 fields	
Field	Value
creationDate	'20230209T050048Z in QA'
deviceDetails	1x1 struct
location	1x1 struct
dataQualityComments	"
Attribution	1x1 struct
citation	'Ocean Networks Canada Society. 2012. Endeavour North
totalScalarSamplesReceived	3

Finding Citations in Oceans 3.0

- Seatube
- Seismic Data
- ERDDAP

ERDDAP > info > scalar_1200652

Grid DAP Data	Sub-set	Table DAP Data	Make A Graph	W M S	Source Data Files	Title	Summary	FGDC, ISO, Metadata	Background Info	RSS	E mail	Institution	Dataset ID
		data	graph			Barkley Canyon Axis Acoustic Doppler Current Profiler 2 MHz Deployed 2018-08-02 / Barkley Canyon Axis Professeur Acoustique de Vitesse par Effet Doppler 2 MHz déployé 2018-08-02		F I M	background	RSS	E mail	Ocean Networks ...	scalar_1200652

The Dataset's Variables and Attributes

Row Type	Variable Name	Attribute Name	Data Type	Value
attribute	NC_GLOBAL	cdm_data_type	String	TimeSeries
attribute	NC_GLOBAL	cdm_timeseries_variables	String	timeseries_id,longitude,depth,latitude
attribute	NC_GLOBAL	contributor_name	String	Ocean Networks Canada Society
attribute	NC_GLOBAL	contributor_role	String	Custodian
attribute	NC_GLOBAL	Conventions	String	COARDS, CF-1.6, ACDD-1.3
attribute	NC_GLOBAL	device_id	String	11302
attribute	NC_GLOBAL	device_name	String	Nortek Aquadopp HR-Profiler 2 MHz 2700
attribute	NC_GLOBAL	DOI	String	https://doi.org/10.34943/a3e691e2-d2c2-4b70-8b16-bbfd576c6243
attribute	NC_GLOBAL	Easternmost_Easting	double	-126.050664
attribute	NC_GLOBAL	featureType	String	TimeSeries
attribute	NC_GLOBAL	geospatial_lat_max	double	48.316713
attribute	NC_GLOBAL	geospatial_lat_min	double	48.316713
attribute	NC_GLOBAL	geospatial_lat_units	String	degrees_north
attribute	NC_GLOBAL	geospatial_lon_max	double	-126.050664
attribute	NC_GLOBAL	geospatial_lon_min	double	-126.050664

under the CC-BY 4.0 license (<https://creativecommons.org/licenses/by/4.0/>).

VIDEO INFORMATION Sean Tippet (2020-06-12 18:18:33)

2020-06-12 18:23:41 Winch clip is about 20m off the bottom
Created By: Chantel Ridsdale (2020-06-12 18:23:52)

Dataset Collections

Building capacity for assigning DOIs to collections of related datasets, using the 'Collection' Resource Type of DataCite metadata

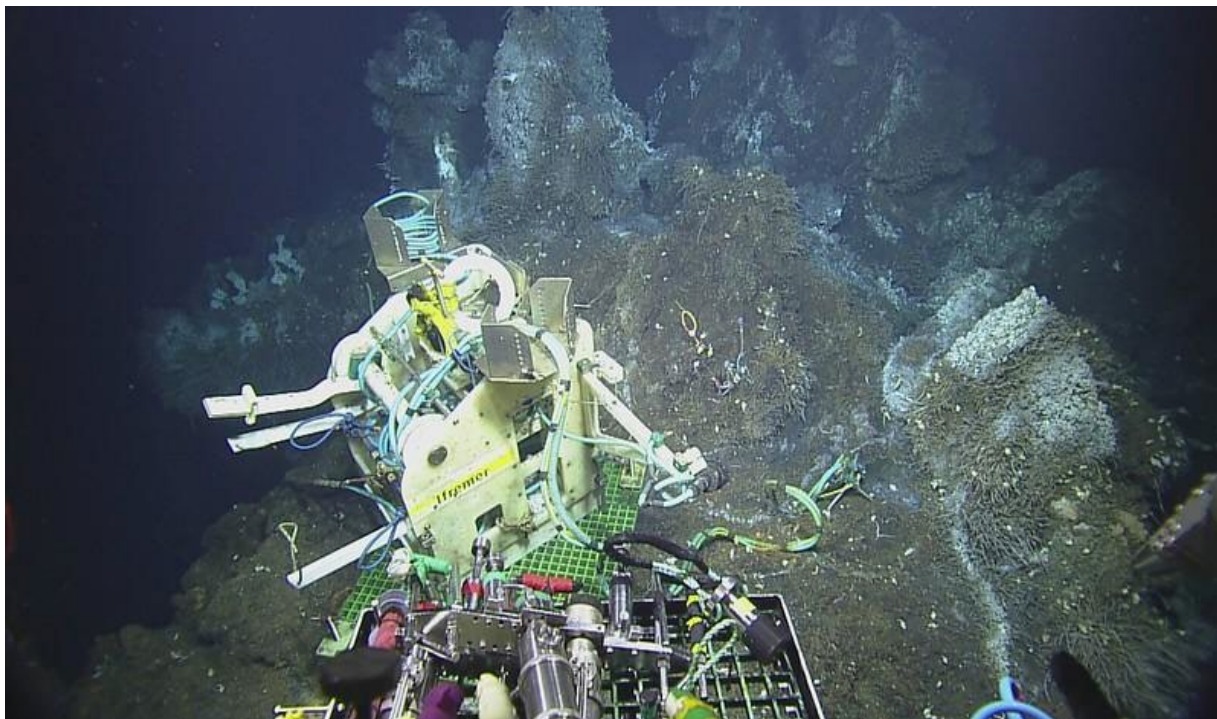
For the Collection, the DataCite metadata would indicate **hasPart** for each dataset it contains

```
<relatedIdentifier
relatedIdentifierType="DOI"
relationType="HasPart"
resourceTypeGeneral="Dataset">10.3
4943/79343631-10ab-4a11-b1d5-
ff55a62df097</relatedIdentifier>
```

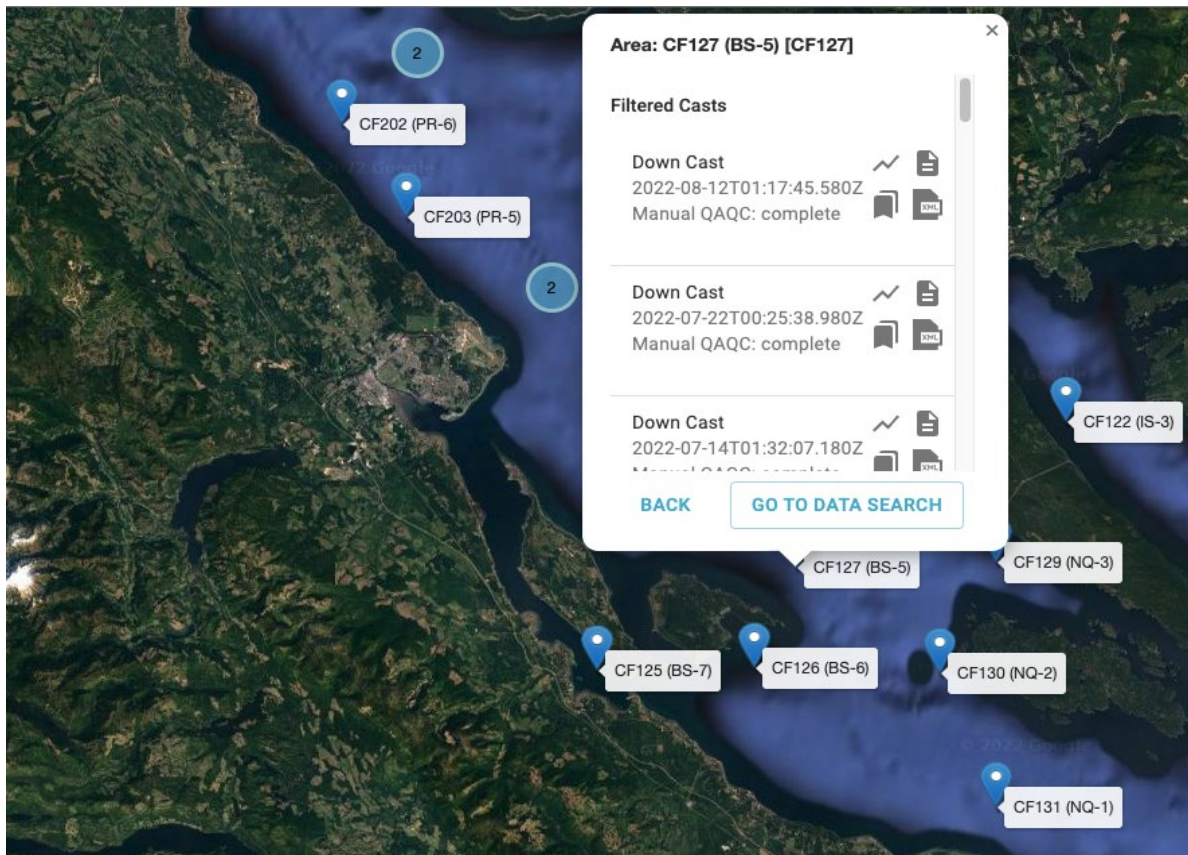
For the Dataset, the DataCite metadata would use **isPartOf** to indicate which Collection(s) it belongs to.

```
<relatedIdentifier
relatedIdentifierType="DOI"
relationType="isPartOf"
resourceTypeGeneral="Dataset">10.3
4943/5ab0d4d4-f8b6-478d-950b-
42fb6c6d0329</relatedIdentifier>
```

Dataset Collections - Use Cases



Dataset Collections - Use Cases



User Requested Data Collections

Example:

Dataset Collection Landing Page

Collection: Ocean Networks Canada datasets related to deep-water renewal processes in the Strait of Georgia from 2008-2021

Created by Chantel M Ridsdale, last modified on 23-Nov-22

Citation

Ocean Networks Canada Society. 2022. Collection: Ocean Networks Canada datasets related to deep-water renewal processes in the Strait of Georgia from 2008-2021. Ocean Networks Canada Society. <https://www.doi.org/10.26152/G315-PH34>

Title

Collection: Ocean Networks Canada datasets related to deep-water renewal processes in the Strait of Georgia from 2008-2021

DOI

10.26152/G315-PH34

Published Paper – Collection Request

JANUARY 2023 MASOUD AND PAWLOWICZ

A Predictably Intermittent Rotationally Modified Gravity Current in the Strait of Georgia[Ⓐ]

MINA MASOUD[Ⓐ] AND RICH PAWLOWICZ[Ⓐ]

[Ⓐ] Department of Earth, Ocean and Atmospheric Sciences, University of British Columbia, Vancouver, British Columbia, Canada

(Manuscript received 27 February 2022, in final form 7 July 2022)

ABSTRACT: The Strait of Georgia is a large and deep fjordlike basin on the northeastern Pacific coast whose bottom waters are dramatically renewed by a series of intermittent gravity currents in summer. Here, we analyze a dataset that includes moored observations from 2008 to 2021 and shipborne measurements from a 2018 field program to describe the vertical and cross-channel structure of these gravity currents. We show that the timing of these currents for more than a decade is well predicted by proxy measurements for both tidal mixing strength in the Haro Strait/Boundary Pass region and coastal upwelling on the west coast of Vancouver Island. Renewals occur as an ~30-m-thick turbid layer extending along the right-hand slope of a broad V-shaped valley that forms the southern end of the strait. Currents are primarily along-isobath at speeds of up to 20 cm s⁻¹ with a small downhill component. A diagnostic analytical model with a depth-dependent eddy viscosity is fitted to the observations and confirms a clockwise rotation of current vectors with height, partly driven by boundary layer dynamics over a scale of a few meters and partly driven by Coriolis forces in the near-bottom linear density gradient. Bottom drag and (small) entrainment parameters are similar to those found in other oceanic situations, and the current is “laminar” with respect to large-scale instabilities (with Froude number ≈1 and Ekman number ≈0.01), although subject to turbulence at small scales (Reynolds number of ≈10⁶). The predictability and reliability of this accessible rotationally modified gravity current suggests that it is an ideal geophysical laboratory for future studies of such features.

Ocean Networks Canada Society. 2022. Collection: Ocean Networks Canada datasets related to deep-water renewal processes in the Strait of Georgia from 2008-2021. Ocean Networks Canada Society. <https://www.doi.org/10.26152/G315-PH34>

<relatedIdentifiers>

Individual Comp

Title
Strait of Georgia (
Strait of Georgia (
Strait of Georgia (
Strait of Georgia (
Strait of Georgia (
Strait of Georgia (
Strait of Georgia (
Strait of Georgia (
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State of the Oce

Title
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<relatedIdentifier relatedIdentifierType="DOI" relationType="HasPart" resourceTypeGeneral="Dataset">10.34943/c3f0a0e
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<relatedIdentifier relatedIdentifierType="DOI" relationType="HasPart" resourceTypeGeneral="Dataset">10.34943/ccd9826

```

Versioning Data

Versioning is done in a 'batch' system

Batches contain:

1. Metadata Triggers
2. Data Versioning Tasks
3. DataCite DOI Updates

Metadata **triggers** include:

- calibration formula revisions
- data product parameter updates
- parser modifications

Versioning tasks currently supported are

- reprocessing to parse data (e.g., after formula or parser fix)
- re-postprocessing of derived data products (e.g., after algorithm fix or parameter change)
- file uploads (to fill gaps or replace faulty files)

Versioning Datasets and Metadata at ONC

Versioning in ONC Landing Pages

Version History		
DOI	Reason	DOI Generation Date
10.34943/88bc51eb-8581-4ca9-b44c-57b9bfb8d5d4	All data between 2011-09-14 to 2016-06-19, inclusive, were reprocessed in order to parse the WARN sensor data, versioning DOI	2021-11-12 18:10:19.53
10.34943/3561037a-7d29-4d6c-b36b-cfa8d4e20a7b		2020-04-13 19:08:38.571

Versioning in DataCite XML:

```
<relatedIdentifiers> <relatedIdentifier  
relatedIdentifierType="DOI"  
relationType="IsPreviousVersionOf">10.3494  
3/88bc51eb-8581-4ca9-b44c-  
57b9bfb8d5d4</relatedIdentifier>
```

```
<relatedIdentifiers> <relatedIdentifier  
relatedIdentifierType="DOI"  
relationType="IsNewVersionOf">10.34943/3  
561037a-7d29-4d6c-b36b-  
cfa8d4e20a7b</relatedIdentifier>
```


ExperimINTeD

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- **Goal 1:** Make the DOI/query PID information more obvious to end-users in Oceans 3.0
 - Search History Tool
 - Data Access Interface Enhancements



Ocean Networks Canada > Pacific > Northeast Pacific Ocean > Barkley Sound > Falger Passage > Falger Deep						15991692	Time Series Scalar Plot	2022-05-24 00:00:00	2023-02-08 18:19:06	Clean Data, Min/Max+Avg	2023-02-08 18:20:58
Ocean Networks Canada > Pacific > Northeast Pacific Ocean > Barkley Sound > Falger Passage > Falger Deep						15991693	Time Series Scalar Data	2021-09-20 00:00:00	2023-02-08 18:19:06	Fill missing/bad data with NaNs (Not a Number), Clean Data	
Ocean Networks Canada > Pacific > Northeast Pacific Ocean > Barkley Sound > Falger Passage > Falger Deep						15991694	Time Series Scalar Data	2021-09-20 00:00:00	2023-02-08 18:19:06	Fill missing/bad data (Number), Clean Data	
Ocean Networks Canada > Pacific > Northeast Pacific Ocean > Barkley Sound > Falger Passage > Falger Deep						16001726	Time Series Scalar Data	2017-06-27 18:02:02	2017-07-09 19:51:53	Fill missing/bad data (Number), Clean Data	
Query PID	Device	Date From	Date To	Site ID	Date						
14807859	Sea-Bird SeaCAT SBE19plus V2.7928	2017-06-27 18:02:02	2017-07-09 19:51:53	1000029	18:02						
14807859	Sea-Bird SeaCAT SBE19plus V2.7928	2017-06-27 18:02:02	2017-07-09 19:51:53	1000029	18:02						
14807859	Sea-Bird SeaCAT SBE19plus V2.7928	2017-06-27 18:02:02	2017-07-09 19:51:53	1000029	18:02						

	A	B	C	D	E	F	G	H
1	## BEGIN HEADER							
2	#							
3	###-----							
4	## Origin Section - more information in Metadata file or Oceans 3.0							
5	###-----							
6	#SOURCE: "Ocean Networks Canada Data Archive" / Citation Author							
7	#HTTP: http://www.oceannetworks.ca / Citation Publication Site							
8	#HOME: Canada" / Citation Publication Location							
9	#FLDATE: 2023-02-10T21:59:14.182Z / File Creation Date = Date for Citation							
10	#CITATION: "Ocean Networks Canada Society. 2012. Endeavour North Bottom Pre							
11	#METADATF: Endeavour_EndeavourNorth_BottomPressureRecorder_SeafloorPr							
12	#SEARCHID: 16011718 / DMAS Search ID from Oceans3.0							

ExperiMINTED

- **Goal 2:** Make the Batch Versioning System more robust and comprehensive in the use cases it can support.

Versioning tasks currently supported are

- reprocessing to parse data (e.g., after formula or parser fix)
- re-postprocessing of derived data products (e.g., after algorithm fix or parameter change)
- file uploads (to fill gaps or replace faulty files)

ExperimINTeD

General

Sensor

Ip

Electrical Rating

Data Rating

Nameplate

Port

Physical Characteristics

Device Action

Event

Site

Additional Attributes

Workflow

SeaScript

Parser Definition

Resource Role

```

1 * [[
2   "version": 1,
3   "versionDetector": {
4     "type": "binary_string",
5     "condition": "length_range",
6     "content": "17,39"
7   },
8   "validator": {
9     "type": "binary_string",
10    "condition": "min_length",
11    "content": "17"
12  },
13  "converter": {
14    "type": "binary_string_number",
15    "order": "big_endian"
16  },
17  "sensors": [
18    {
19      "sensorCode": "clock",
20      "readingIndex": 0,
21      "size": 4,
22      "offset": 5679936,
23      "scale": 1000
24    },
25    {
26      "sensorCode": "autoInitializeTimeout",
27      "readingIndex": 0,
28      "size": 3
29    },
30    {
31      "sensorCode": "MaxDataGapSeconds",
32      "readingIndex": 0,
33      "size": 4
34    },
35    {
36      "sensorCode": "OperatingMode",
37      "readingIndex": 0,
38      "size": 4
39    },
40    {
41      "sensorCode": "QueryMemoryInterval",
42      "readingIndex": 0,
43      "size": 4
44    },
45    {
46      "sensorCode": "AggregateDeviceId",
47      "readingIndex": 0,
48      "size": 4
49    },
50    {
51      "sensorCode": "ArchiveTimestampSource",
52      "readingIndex": 0,
53      "size": 4
54    },
55    {
56      "sensorCode": "BaudRate",
57      "readingIndex": 0,
58      "size": 4
59    },
60    {
61      "sensorCode": "ConcurrentTelnetAllowed",
62      "readingIndex": 0,
63      "size": 4
64    },
65    {
66      "sensorCode": "DatacentreDataCachePriority",
67      "readingIndex": 0,
68      "size": 4
69    },
70    {
71      "sensorCode": "DuplicateMessageAllowed",
72      "readingIndex": 0,
73      "size": 4
74    },
75    {
76      "sensorCode": "IdleTimeout",
77      "readingIndex": 0,
78      "size": 4
79    },
80    {
81      "sensorCode": "useMessageBuffering",
82      "readingIndex": 0,
83      "size": 4
84    }
85  ]
86 ]]
```

General

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Additional Attributes

Workflow

SeaScript

Parser Definition

Resource Role

```

1 * [[
2   "version": 1,
3   "versionDetector": {
4     "type": "binary_string",
5     "condition": "length_range",
6     "content": "17,39"
7   },
8   "validator": {
9     "type": "binary_string",
10    "condition": "min_length",
11    "content": "17"
12  },
13  "converter": {
14    "type": "binary_string_number",
15    "order": "big_endian"
16  },
17  "sensors": [
18    {
19      "sensorCode": "clock",
20      "readingIndex": 0,
21      "size": 4,
22      "offset": 5679936,
23      "scale": 1000
24    },
25    {
26      "sensorCode": "autoInitializeTimeout",
27      "readingIndex": 0,
28      "size": 3
29    },
30    {
31      "sensorCode": "MaxDataGapSeconds",
32      "readingIndex": 0,
33      "size": 4
34    },
35    {
36      "sensorCode": "OperatingMode",
37      "readingIndex": 0,
38      "size": 4
39    },
40    {
41      "sensorCode": "QueryMemoryInterval",
42      "readingIndex": 0,
43      "size": 4
44    },
45    {
46      "sensorCode": "AggregateDeviceId",
47      "readingIndex": 0,
48      "size": 4
49    },
50    {
51      "sensorCode": "ArchiveTimestampSource",
52      "readingIndex": 0,
53      "size": 4
54    },
55    {
56      "sensorCode": "BaudRate",
57      "readingIndex": 0,
58      "size": 4
59    },
60    {
61      "sensorCode": "ConcurrentTelnetAllowed",
62      "readingIndex": 0,
63      "size": 4
64    },
65    {
66      "sensorCode": "DatacentreDataCachePriority",
67      "readingIndex": 0,
68      "size": 4
69    },
70    {
71      "sensorCode": "DuplicateMessageAllowed",
72      "readingIndex": 0,
73      "size": 4
74    },
75    {
76      "sensorCode": "IdleTimeout",
77      "readingIndex": 0,
78      "size": 4
79    },
80    {
81      "sensorCode": "useMessageBuffering",
82      "readingIndex": 0,
83      "size": 4
84    }
85  ]
86 ]]
```

General

Sensor

Ip

Electrical Rating

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Physical Characteristics

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Workflow

SeaScript

Parser Definition

Resource Role

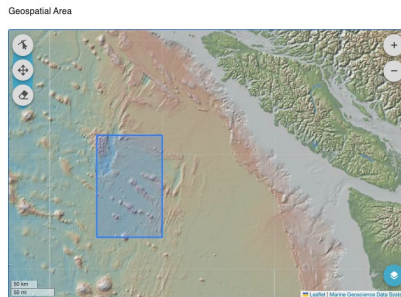
Attribute Code	Value	UoM	Label	Description	Comment	Date From	Last Modified Date
autoInitializeTimeout	65000	ms	Driver				2009-04-27 17:57:04
MaxDataGapSeconds	0	s		A gap in readings greater than this value will trigger the driver to download data			2009-07-23 21:14:57
OperatingMode	ascii	NA	Driver Initialization, Driver Synchronization	Device operating mode	Device attribute created at driver initialization using the device type attributes default value	2023-01-12 21:45:42	2023-01-12 21:45:42
QueryMemoryInterval	0	h	Driver, Driver Initialization	Time in hours between memory status queries		2018-05-16 14:39:34	2018-05-16 14:39:34
AggregateDeviceId		NA	Global	The aggregate device id			2015-07-02 19:21:29
ArchiveTimestampSource	Shorestation	NA	Global	The source of the Archive Timestamp			2015-05-04 17:19:36
BaudRate	115200	bps	Global	Instrument baud rate - Applies to serial devices only. This attribute in Oceans2.0 is informative only and has no control over data acquisition. An actual change to the baud rate requires a physical change on the device/port by Marine Operations		2020-03-08 19:37:33	2020-03-08 19:37:33
ConcurrentTelnetAllowed	false	NA	Global	Allows both telnet and data acquisition driver running concurrently			2009-12-03 23:40:25
DatacentreDataCachePriority	default	NA	Global	Priority for data to be put on the data centre data cache			2018-09-10 09:21:17
DuplicateMessageAllowed	false	NA	Driver Initialization	Default - do not allow duplicates			2017-06-05 16:57:40
IdleTimeout		s	Global	Maximum idle time in seconds before the driver will automatically reconnect			2009-07-23 21:14:57
useMessageBuffering	true	NA	Global				2009-03-31 18:38:04

represented and adhering

5 metadata records
standard (see

ExperiMINTED

- **Goal 4:** Enhance the Dataset Landing pages to have richer metadata, relationships, and discoverability.
 - schema.org integration to enable Google search
 - map for geoextent of dataset

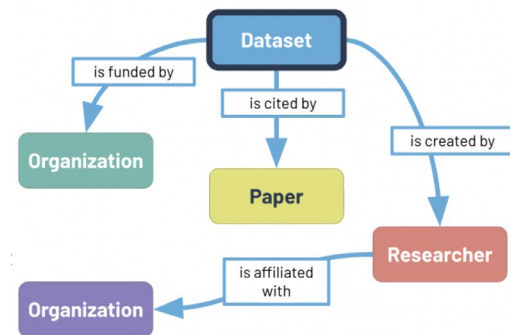
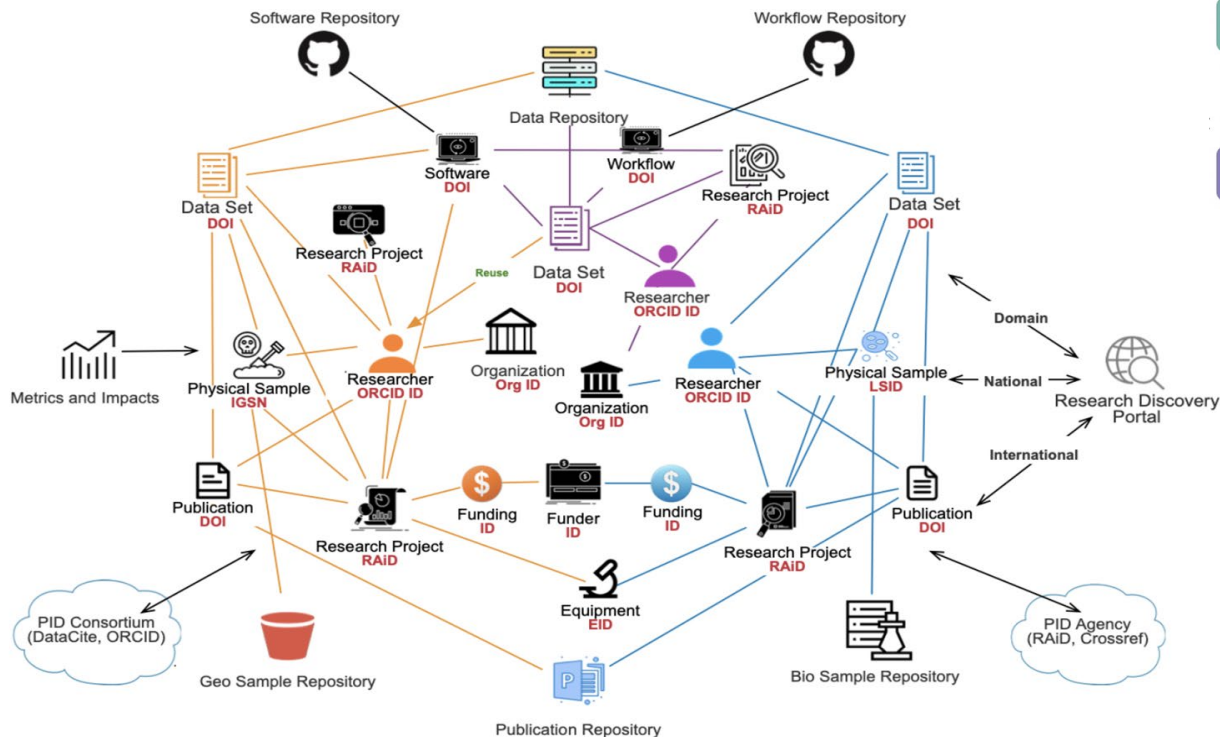
The logo for schema.org, featuring the text "schema.org" in white lowercase letters on a dark red rectangular background.The Google Dataset Search logo, with the word "Google" in its multi-colored font and "Dataset Search" in a grey sans-serif font below it.

ExperiMINTED

- **Goal 5:** Leverage improved accuracy relationships

		M, R, O (mandatory, recommended, optional)	
PropertyID	Property	DataCite	ONC
1	Identifier	M	M
2	Creator	M	M
3	Title	M	M
4	Publisher	M	M
5	PublicationYear	M	M
6	Subject	R	R
7	Contributor	R	M
7.1	contributorType	R	M
7.2.1	nameType	O	R
8	Date	R	M
8.1	dateType	R	M
9	Language	O	M
10	ResourceType	M	M
10.1	resourceTypeGeneral	M	M
11	AlternateIdentifier	O	O
12	RelatedIdentifier	R	R
13	Size	O	N/A
14	Format	O	M
15	Version	O	O
16	Rights	O	M
17	Description	R	M
18	GeoLocation	R	M
19	FundingReference	R	O

ExperimentED



ExperiMINTED

- **Goal 7:** Introduce dataset collections that can be automated for common use-cases, and manually generated for user-specific cases.
- **Goal 8:** Ensure that the data citations and related infrastructure are monitored and preserved

Thank you!



Questions?

Follow-up with us at
datacitations@oceannetworks.ca