OCEAN NETWORKS CANADA’S
OCEANS 2.0
DATA MANAGEMENT SYSTEM
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OCEANS 2.0 – A COMPREHENSIVE DATA MANAGEMENT SYSTEM

- Initiated in 2001 with VENUS in the Salish Sea
- Followed quickly in 2003 by the addition of NEPTUNE
- Original “Data Management and Archiving System” (DMAS)
- Evolved into Oceans 2.0 by 2009 as NEPTUNE came online.

Mandate:
- Manage all infrastructure systems and sub-systems
- Manage all instrument connections, control, and data flow
- Secure all data acquisition from all distributed sensors
- Manage all the metadata and calibration information
- Prepare the data and metadata for user/client access
- Provide means for users to discover, explore, and acquire data, data products, and metadata.
- Enable publication of innovative research with impact!

oceannetworks.ca → data.oceannetworks.ca
Ocean Networks Canada Data Preview

Instruments by Location: Ocean Networks Canada - Pacific

British Columbia North Coast
- Description: The British Columbia North Coast is located on the west coast of British Columbia. It includes marine and coastal waters near Vancouver Island.

Salish Sea
- Description: The Salish Sea includes a network of channels and coastal waters near Vancouver Island. The Salish Sea includes the Strait of Georgia, Strait of Juan de Fuca, San Juan Inlet and Puget Sound. The VENUS and Mill Bay observatories are located in the Salish Sea.

Northeast Pacific Ocean
- Description: The Northeast Pacific Ocean includes marine and coastal waters along the west coast of North America. The NEPTUNE observatory is located in this region.

Vancouver Island
- Description: Vancouver Island is located on the west coast of British Columbia. It is enclosed by the inner coastal waters of the Salish Sea and the Pacific Ocean.
ADCP 300 kHz
RDI Workhorse Monitor ADCP 300 KHz (0273) (20003) Details | Documentation
RDI Workhorse Monitor ADCP 300 KHz (15551) (10564) Details | Documentation

Date From (UTC): 17-Oct-2018 17:21:03
Date To (UTC): 24-Oct-2018 17:21:03

Data Availability: Green highlight periods of available data. Click-drag to zoom; double-click to see full history.


Time Series Scalar Data | Time Series Scalar Plot | Log File | RDI ADCP Time Series | RDI Daily Current Plot | RDI Daily Intensity Plot

ADCP 300 kHz 276 Annotations (Disable Pop-up Blocker to See All)
Magnetic Compass Heading (8221, 8561)
Pitch (8222, 8562)
Pressure (8225, 8565) 2 Annotations
Roll (8223, 8563)
Sound Speed (8220, 8560)
Temperature (8224, 8564)

Velocity Bin-mapping:
- Nearest vertical bin (always matches winADCP)
- As configured on the device (matches processing on device - EXxxx1)
- None
- Linear interpolation (Off method)

Three-Beam Solutions:
- Off
- As configured on the device (matches winADCP - EXxxx1x)
- On

Low Correlation Screen Threshold:
- 64 counts (RDI default)
- As configured on the device (matches winADCP - WC)
- 0 counts (off)
- 16 counts
- 32 counts
- 128 counts

Error Velocity Screen Threshold:
- 2 m/s (RDI default)
- As configured on the device (matches winADCP - WE)
- 0 m/s (off)
- 5 m/s
- 1 m/s
- 0.5 m/s
- 0.25 m/s
- 0.1 m/s

NOTE: Most data products have additional Metadata automatically generated and added to the Cart.
All Infrastructure Monitoring and Control

Ocean Networks Canada

Device Console

<table>
<thead>
<tr>
<th>Device Name</th>
<th>Status</th>
<th>JB Readings</th>
<th>Uptime</th>
<th>Last Reading</th>
<th>IP Address</th>
<th>Log</th>
</tr>
</thead>
<tbody>
<tr>
<td>SoG East Node</td>
<td>CONNECTED</td>
<td>11172708</td>
<td>64 days</td>
<td>18:48:37</td>
<td>10.72.32.34</td>
<td>INFO</td>
</tr>
<tr>
<td>SoG East Node Secondary Board</td>
<td>CONNECTED</td>
<td>11006776</td>
<td>64 days</td>
<td>16:48:37</td>
<td>10.72.32.33</td>
<td>INFO</td>
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<tr>
<td>Delta Node - S30375</td>
<td>CONNECTED</td>
<td>11191446</td>
<td>64 days</td>
<td>18:46:36</td>
<td>10.72.96.33</td>
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<tr>
<td>Nortek Aquadopp HR-Profiler 5281</td>
<td>CONNECTED</td>
<td>3546966</td>
<td>20 days</td>
<td>13:11:32</td>
<td>10.72.106.33</td>
<td>INFO</td>
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<td>NRCAN Air Bleeding System</td>
<td>CONNECTED</td>
<td>3428490</td>
<td>19 days</td>
<td>20:31:00</td>
<td>10.72.106.33</td>
<td>INFO</td>
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<td>Ocean Sonics L:Listen AF Hydrophone 2556</td>
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<td>2011660</td>
<td>19 days</td>
<td>20:27:20</td>
<td>10.72.106.33</td>
<td>INFO</td>
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<tr>
<td>Paroscientific Pressure Sensor 108195</td>
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<td>2511677</td>
<td>19 days</td>
<td>20:27:20</td>
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<td>INFO</td>
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<td>Paroscientific Pressure Sensor 108203</td>
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<td>Paroscientific Pressure Sensor 108206</td>
<td>CONNECTED</td>
<td>1772470</td>
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<td>13:06:34</td>
<td>10.72.106.33</td>
<td>INFO</td>
</tr>
<tr>
<td>SoG Central Node</td>
<td>CONNECTED</td>
<td>1553011</td>
<td>20 days</td>
<td>13:06:34</td>
<td>10.72.106.33</td>
<td>INFO</td>
</tr>
<tr>
<td>WET Labs ECO-NTUS 462</td>
<td>CONNECTED</td>
<td>2628021</td>
<td>20 days</td>
<td>13:06:34</td>
<td>10.72.106.33</td>
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<td>WET Labs ECO-NTUS 762</td>
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<td>23 days</td>
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<td>INFO</td>
</tr>
</tbody>
</table>
Shore Station
Network power and control
“Drivers” talks to instruments (raw)
Scalar data is time stamped, parsed, converted/derived into variables
Complex data time stamped (raw)
Buffered (up to two weeks)

Archiver
Receives data every second from SS drivers
Central SS to ingest/reprocess non-streaming data
Scalar data ingested into Cassandra (Apache) DB
Raw (and complex) archived by a file/AD system
Metadata managed in a PostgreSQL

~200 GB/day
~700 TB

Seismic/Acoustic

Extras
Logging in has benefits (save, share, more info, etc.)
All time series have annotation “tracks”
Complex data viewers (active and passive acoustics)
Sandbox local computing environment
Access to entire workflow/instrument management

Military/Antelope

IRIS/ONC

User Interface
Graphic User Interface (Oceans 2.0)
Application Programming Interface
ERDDAP, linked directly to Cassandra
Processing required spawns VTM
ONC’s Oceans 2.0
Discovery, Explore, and Download @
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Ocean Networks Canada