

Ocean Networks Canada: An Update, Strategic Planning, and New Initiatives

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A UNIVERSITY OF VICTORIA INITIATIVE

Ocean Networks Canada: Cabled and Remote Observatories



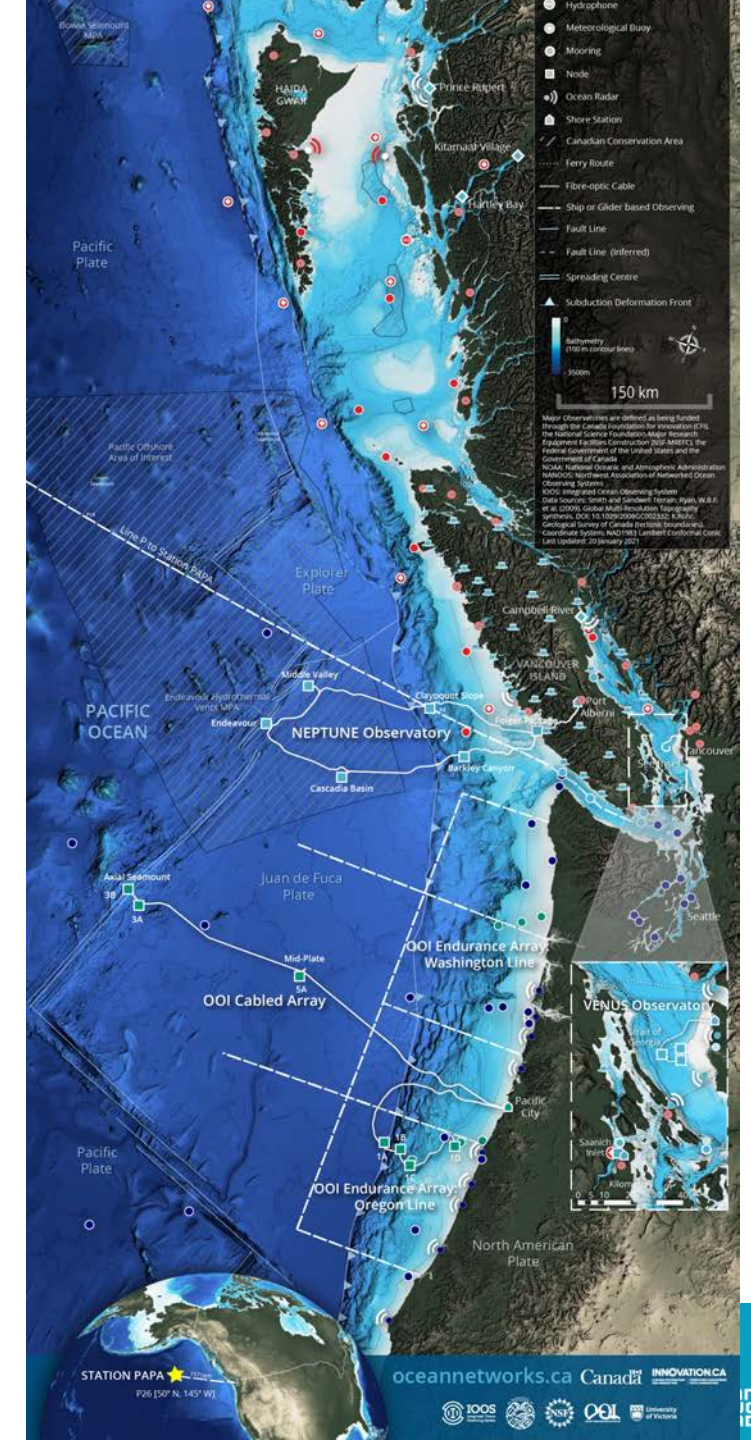
Ocean Networks Canada: Cabled and Remote Observatories



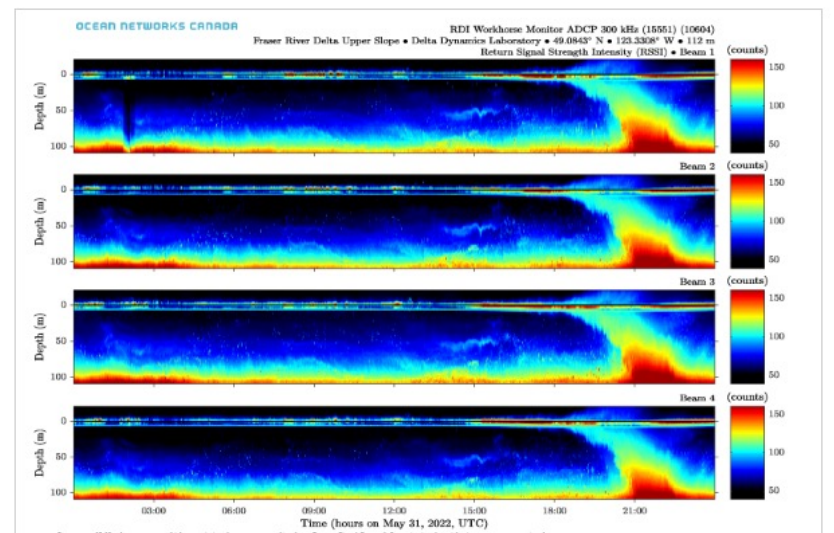
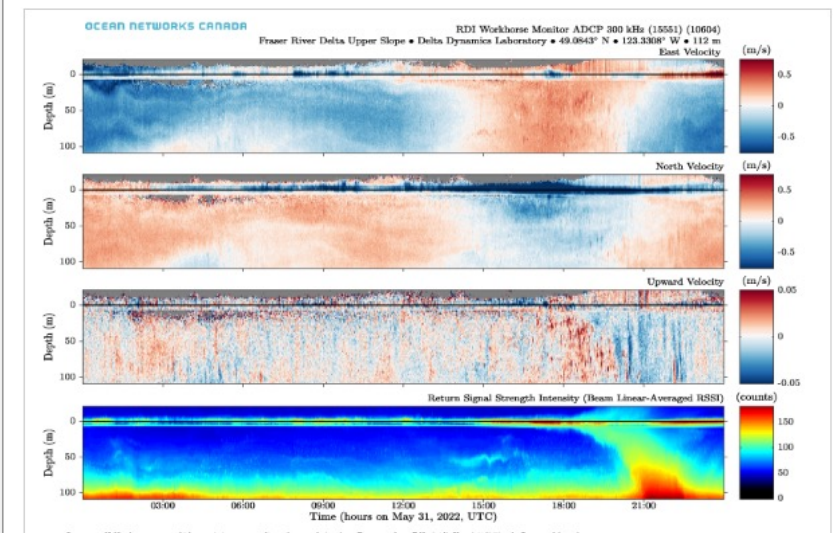
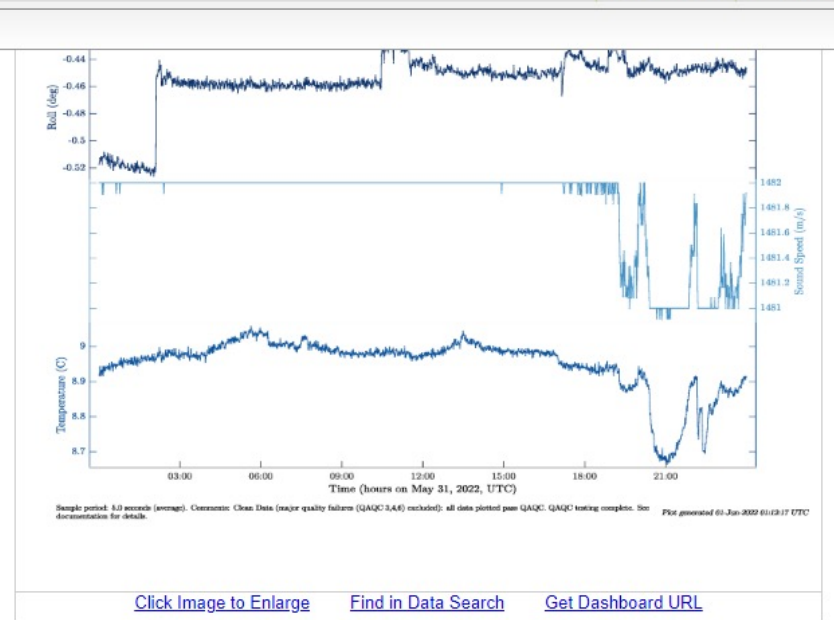
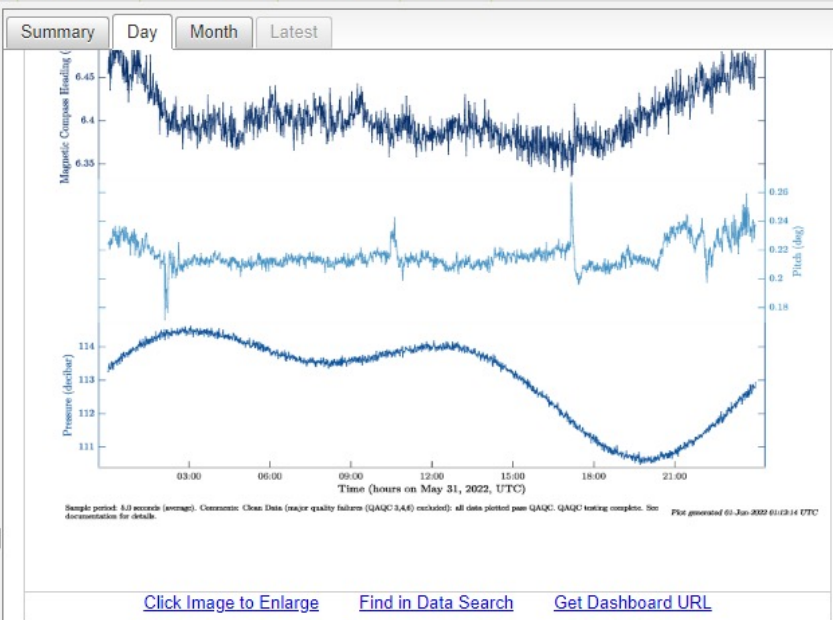
Ocean Networks Canada: NEP Observatories

Brief History

- 2006 First Node in Saanich Inlet (17 years)
- 2008 Strait of Georgia – Cabled and BC Ferries
- 2009 NEPTUNE
- 2011 HF Radar (CODAR) Network
- 2012 Cambridge Bay (Canadian Arctic)
- 2016+
 - Prince Rupert (BC)
 - Kitimaat, Hartley Bay, Campbell River (BC)
 - Baynes Sound, China Creek, Burrard Inlet (BC)
 - Holyrood Bay (NL)
 - Earthquake Early Warning (Titans)
 - CIOOS Pacific
- Oceans 3.0 Observatory and Data Management System



- Sort by: Instruments by Location
Filter on: No Filter
- Bay of Fundy
 - Conception Bay
 - Nova Scotia CODAR System
 - Placentia Bay
 - Port aux Basques
 - Mobile Platforms
 - British Columbia Ferries
 - Pacific
 - British Columbia Lower Fraser
 - British Columbia North Coast
 - Northeast Pacific Ocean
 - Barkley Canyon
 - Barkley Sound
 - Cascadia Basin
 - Clayoquot Slope
 - Clayoquot Sound
 - Endeavour
 - Salish Sea
 - Baynes Sound
 - Burrard Inlet
 - Discovery Passage
 - East Point
 - Juan de Fuca Strait
 - Monarch Head
 - Saanich Inlet
 - Strait of Georgia
 - Fraser River Delta
 - Fraser River Delta Upper Slope
 - Delta Dynamics Laboratory
 - Current Meter A
 - Current Meter B
 - Current Meter C
 - Turbidity 0.4 mab
 - Turbidity 1 mab
 - Acoustic Doppler Current Profiler 1
 - Acoustic Doppler Current Profiler 3
 - Conductivity Temperature Depth
 - Echosounder, Bioacoustic
 - Hydrophone



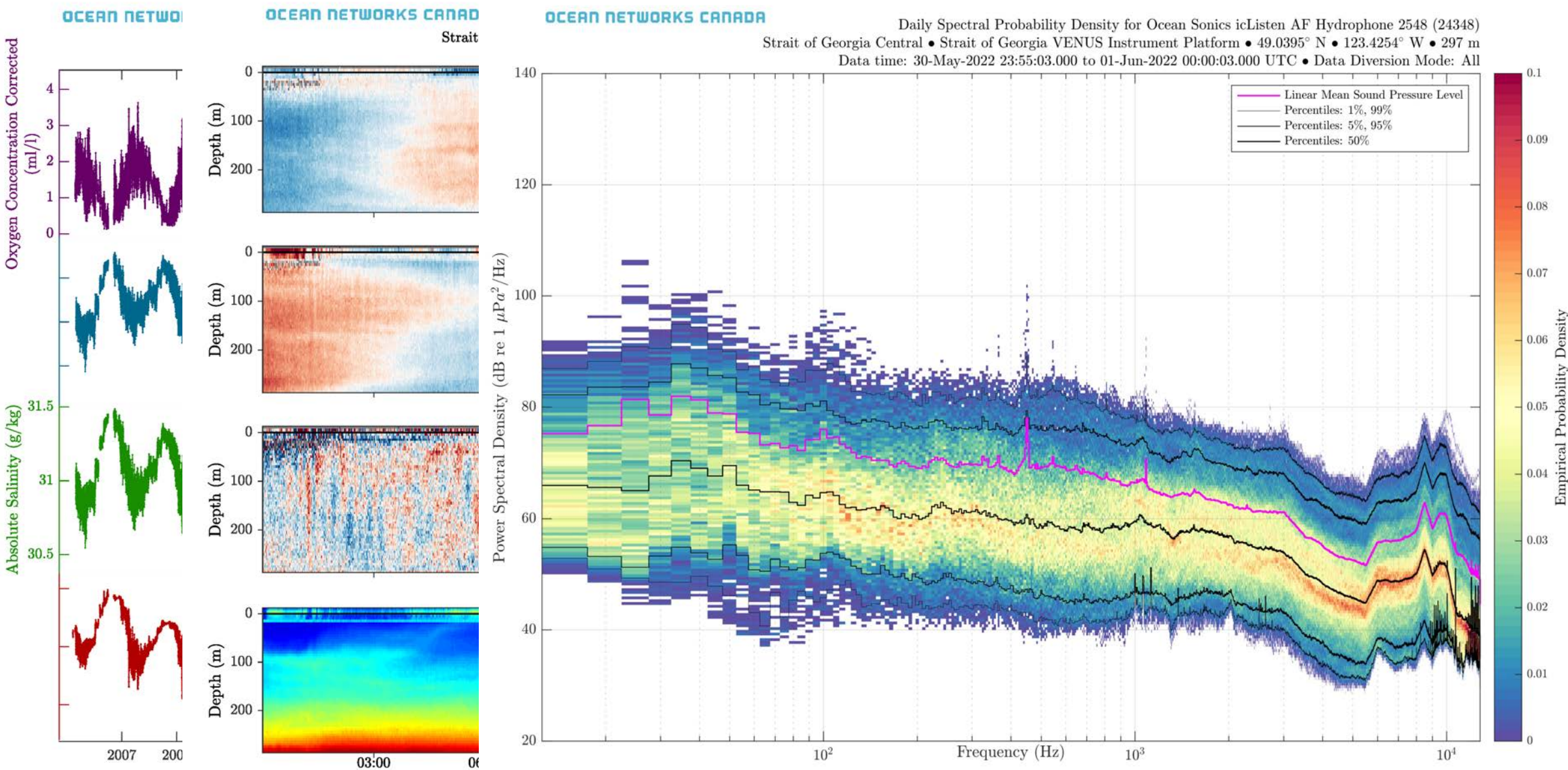
Other bookmarks

Power Spectral Density (PSD) (m²/s³/Hz)

Digital Data Logger

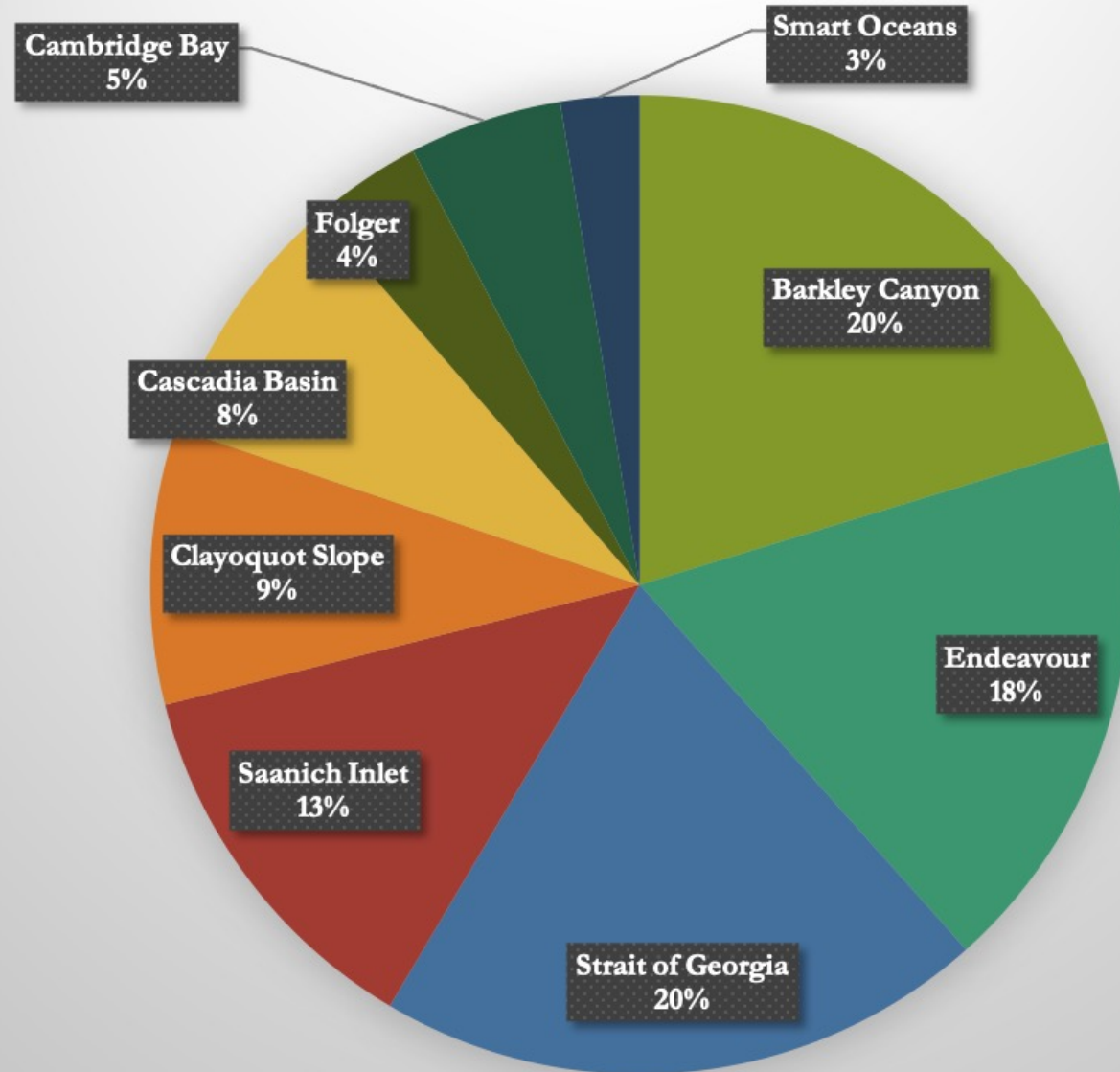
Scientific Instrument

Ocean Networks Canada: 16+ Years and Over a PB of Data

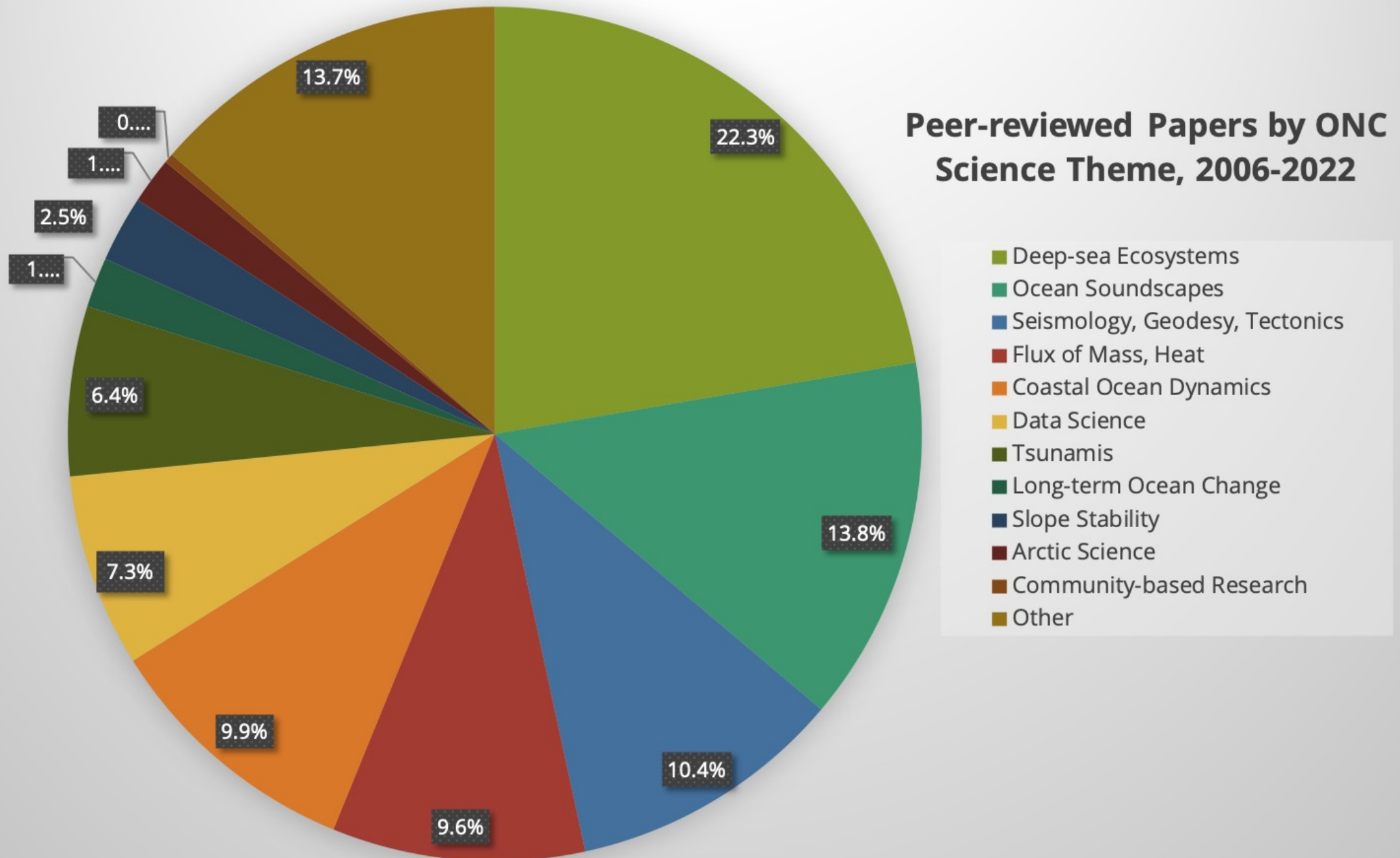


Ocean Networks Canada: Some Metrics

Peer-reviewed Papers by ONC Study Location, 2006-2022



Ocean Networks Canada: Some Metrics



Ocean Networks Canada: Some Challenges

Over the years, and “growing” issues:

- 1) Securing regular and sufficient ship and ROV time
- 2) Finding “match” funding: diversification and expansion
 - CIOOS Pacific
 - e.g. National CODAR Network Operator
- 3) Dedicated research funding from NSERC
- 4) Building specific and functional data exploration tools
- 5) Figuring out how to best leverage AI/ML
- 6) Aging infrastructure and technologies
 - Relatively few “cable” failures,
 - Some connector (Node port) failures
 - Refreshing and finicky sensor technologies (i.e. BGC)

Ocean Networks Canada: Strategic Plan 2023-2030

Turning observatory data into ocean intelligence for:

- Science
- Society
- Industry

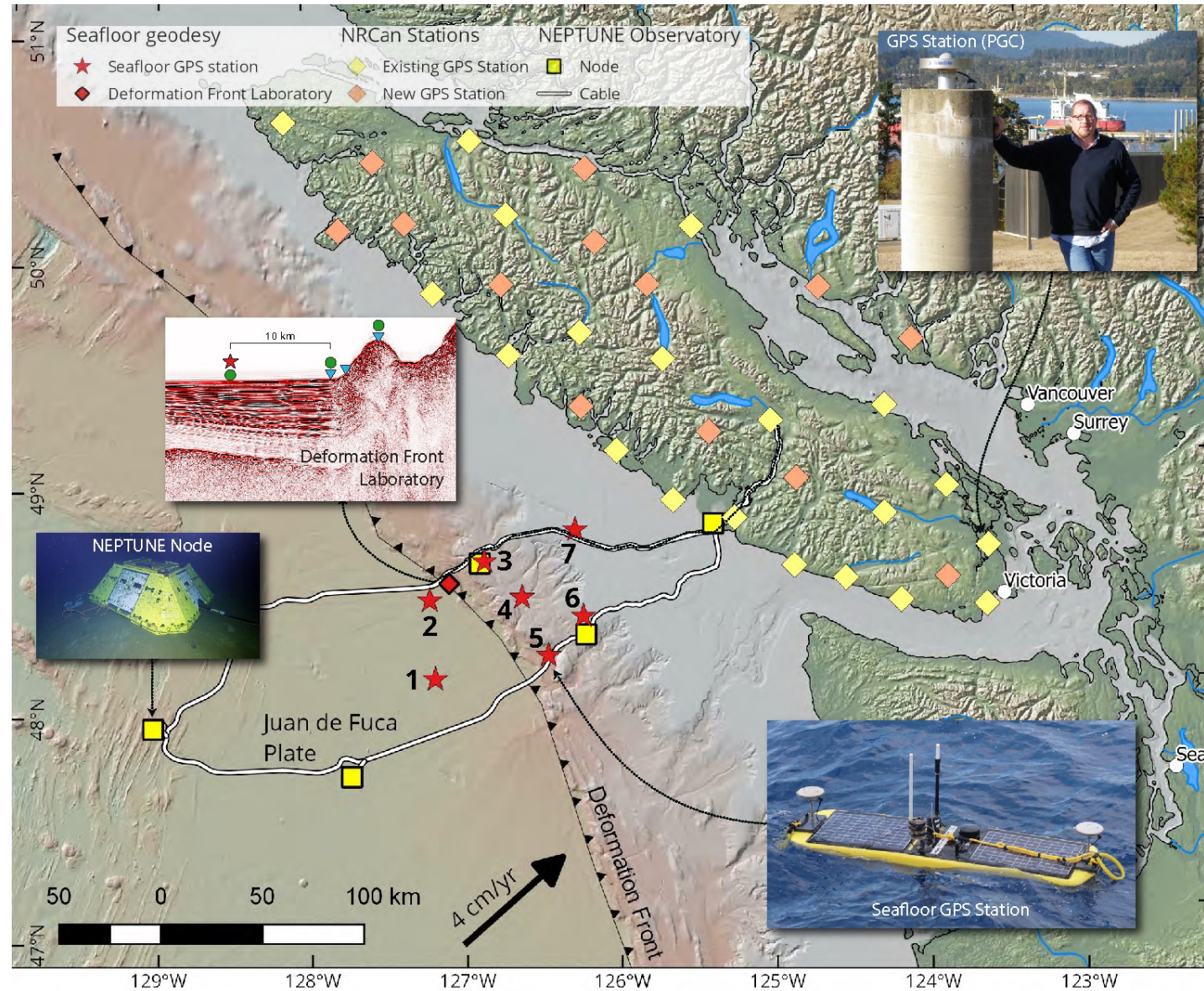
Three Major Goals

- Advance Ocean Observing
- Deliver world-leading data and ocean intelligence products and services
- Enable ocean-based solutions for climate change mitigation and coastal resilience



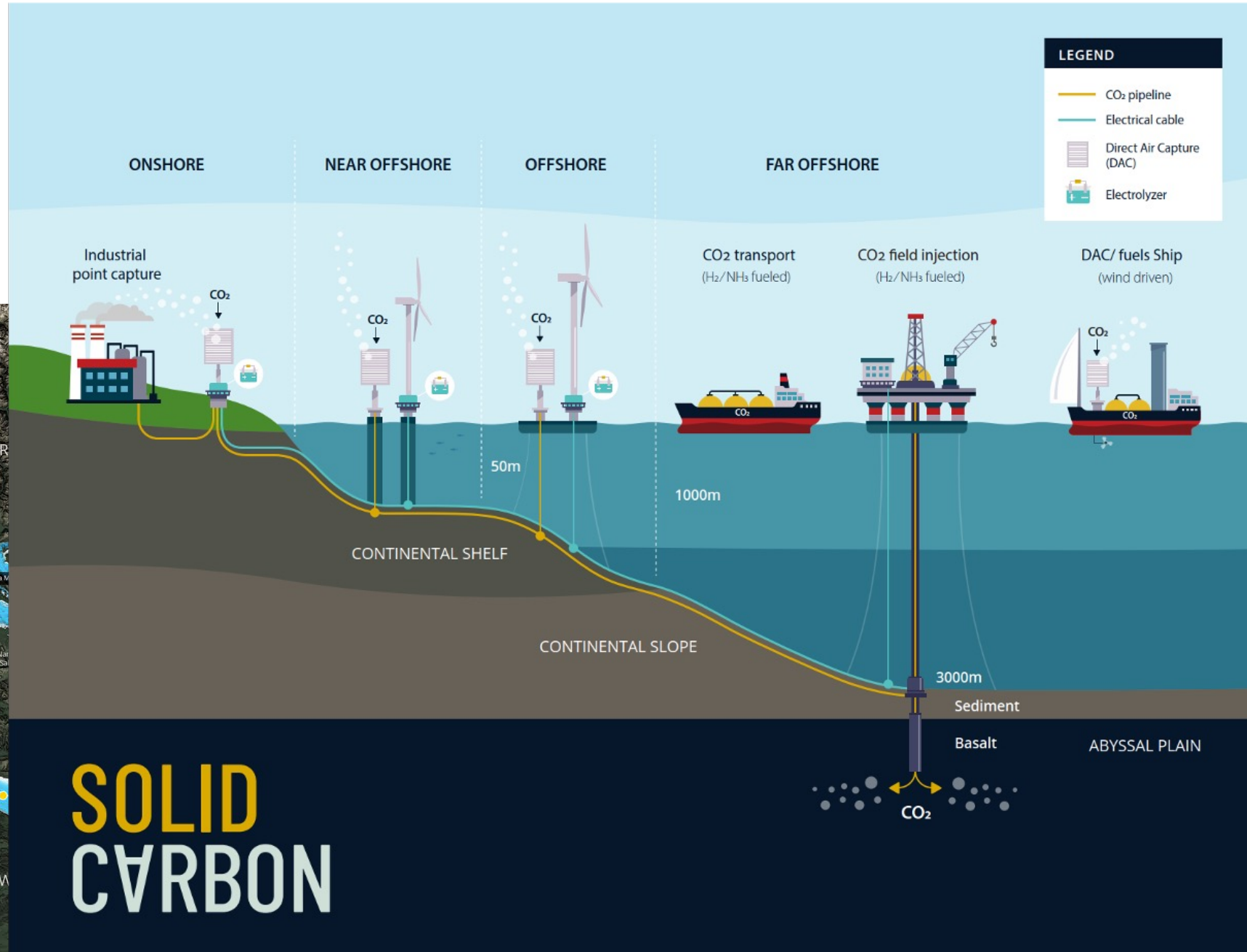
Ocean Networks Canada: Recent Initiatives

North Cascadia Subduction Zone Observatory (NCSZO)



Ocean Networks Canada: Recent Initiatives

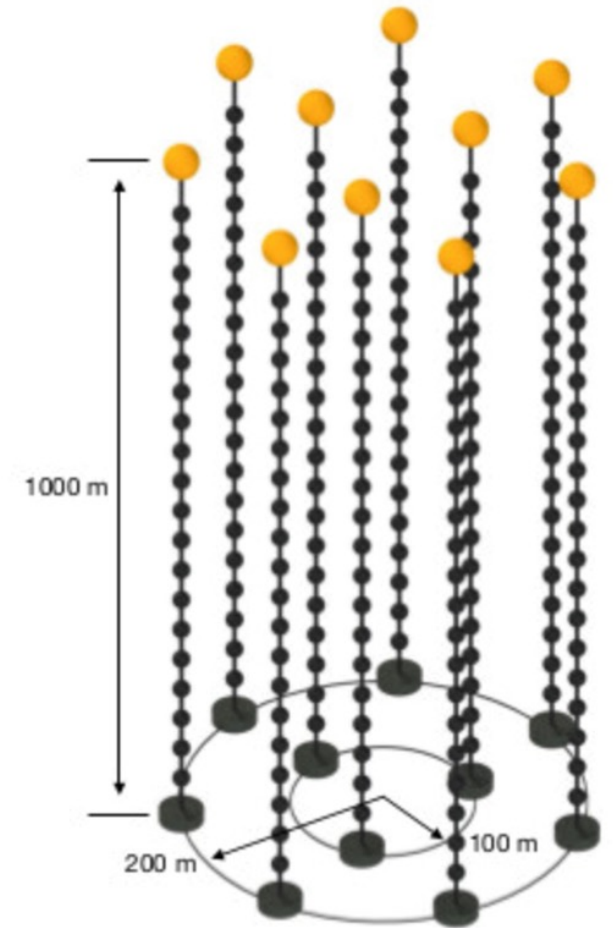
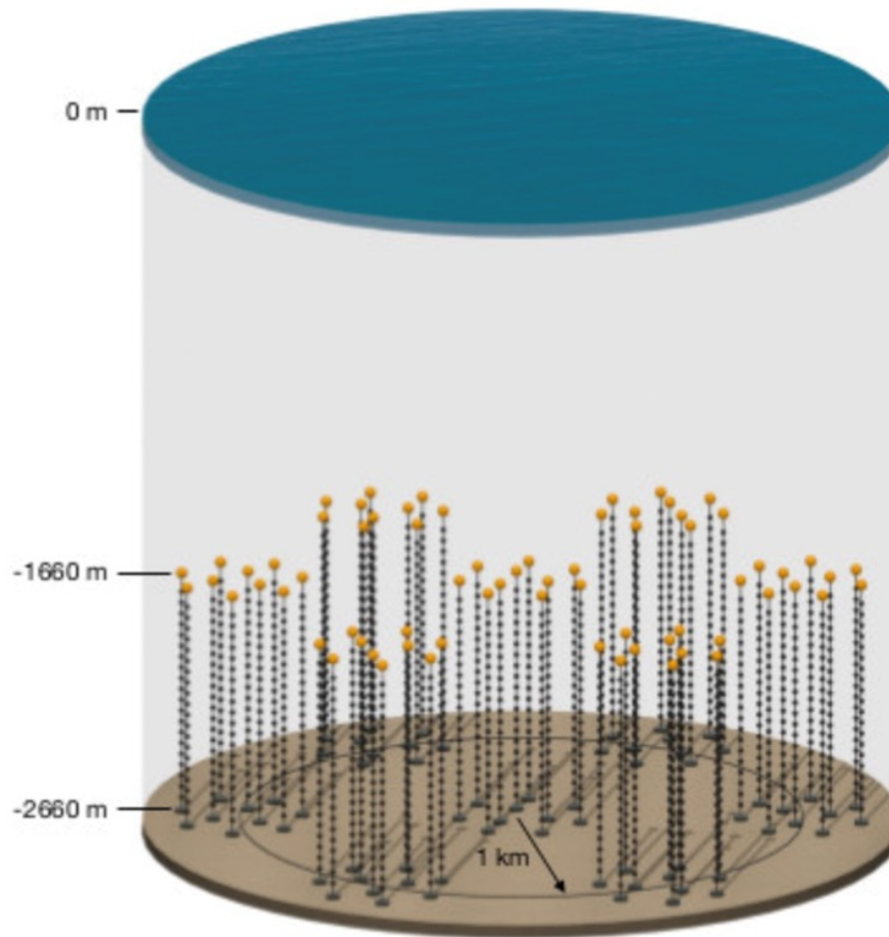
Solid Carbon: Deep Ocean, Long-term, Basalt Carbon Burial



Ocean Networks Canada: Recent Initiatives

Pacific Ocean Neutrino Observatory (P-ONE)

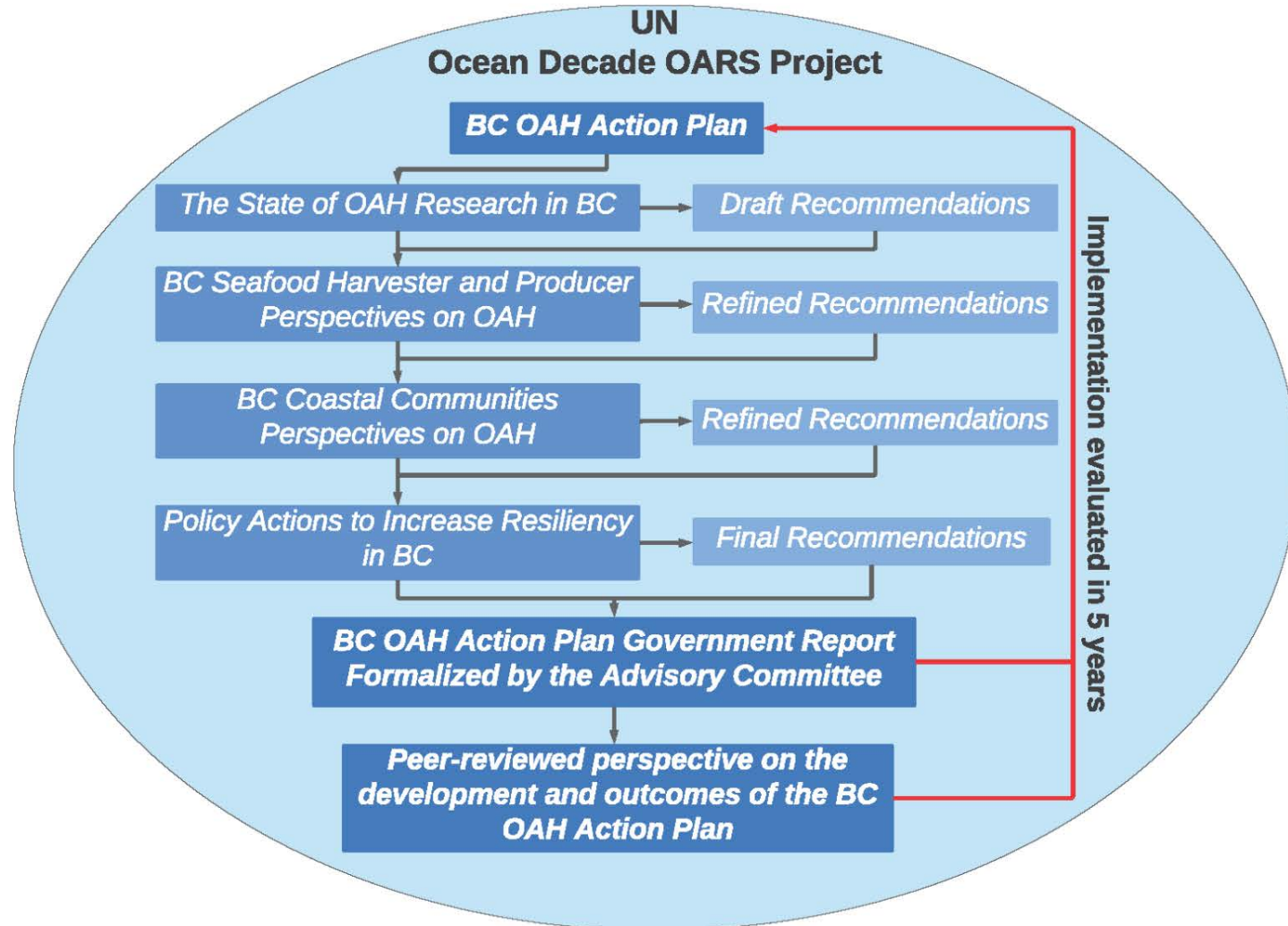
Test moorings /
strings deployed in
2019 and 2020.



Design of the proposed final stage of instrumentation of the Pacific Ocean Neutrino Experiment consisting of seven segments optimized for energies above 50 TeV (left) and the design of an individual segment that is planned to be installed in a four weeks sea operation in 2023/24 as Pacific Ocean Neutrino Explorer standalone detector. (Credit: TUM)

Ocean Networks Canada: Recent Initiatives

CIOOS & BC Ocean Acidification and Hypoxia Action Plan (2022)



The future looks Bright, Innovative, and Challenging

Also here from ONC are:

Steve Mihaly

Jesse Hutchinson

Bennit Mueller

Dwight Owens

Questions and Discussions ?

THANK YOU!

Ocean Networks Canada is funded by the Canada Foundation for Innovation, the Government of Canada, Natural Resources Canada, Fisheries & Oceans Canada, CANARIE, the Government of British Columbia, the University of Victoria, and many others.

 @ocean_networks  OceanNetworksCanada visit: oceannetworks.ca