West Coast Vancouver Island – August 2023

Expedition with R/V SONNE SO294 – Long-Term Deployed Instruments

Project: As part of Expedition SO294 with the German research vessel SONNE, a suite of seafloor-mounted equipment is deployed off Vancouver Island. This includes **ocean-bottom pressure gauges** (**OBP**). A map showing all deployment sites is seen in Figure 1. All of the long-term monitoring OBP instruments will be deployed in water depths > 1000m (Figure 2).

The expedition SO294 is a collaboration between the GEOMAR Helmholtz Centre for Ocean Research Kiel, Geological Survey of Canada (GSC), Ocean Networks Canada (ONC), the Japan Agency for Marine-Earth Science and Technology (JAMSTEC), Kobe University, and the University of Tokyo. The goal of the project is mapping of natural seismicity offshore Vancouver Island and defining the natural earthquake- and tsunami-hazard along the West Coast of Canada.

What: We have deployed **6 long-term OBP**. Figures of the type of instrumentation and dimensions of instruments are given below. Intended deployment coordinates and water depth are given in Table 1.

When: The instruments were **deployed in September 2022.**

- **Long-term OBP** remain on the seafloor **until end of August 2024**.

  Exact dates of the recovery in 2024 will be communicated at a later stage of the project. The recovery will be coordinated by the GSC using the Canadian Coast Guard Ship CCGS *John P. Tully*.

Where: OBP instruments were deployed at Clayoquot slope:

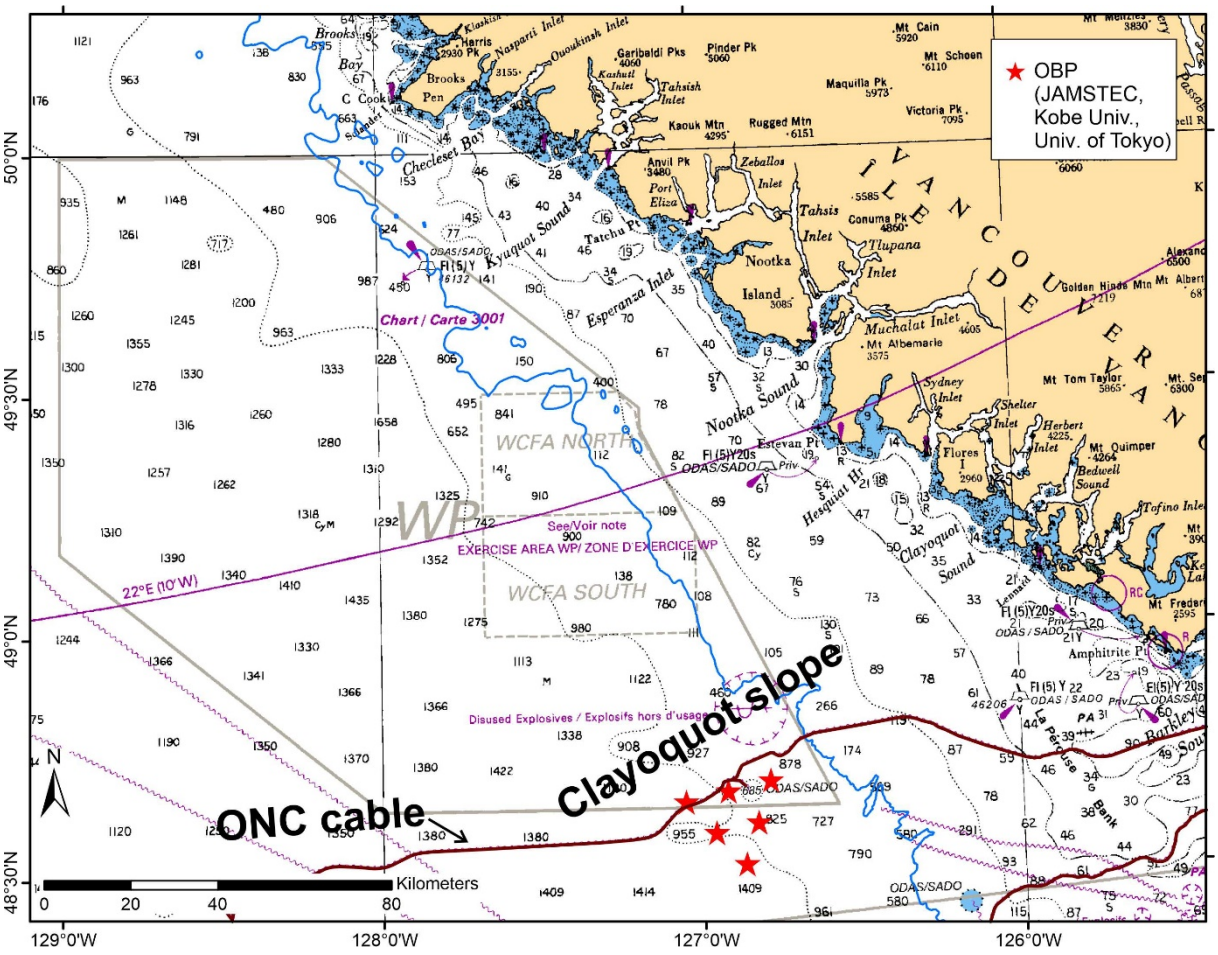

Figure 1. Location of all **long-term equipment** deployed during expedition SO294 with R/V SONNE remaining on the seafloor for at least 1 year. The 1000m isobath is shown as blue line.

Note: The base map product has been produced by Natural Resources Canada and incorporates Canadian Hydrographic Service data, pursuant to CHS MOU 2021-0505-1260-NRCAN. The incorporation of data sourced from CHS in this product shall not be construed as constituting an endorsement by CHS of this product. This product does not meet the requirements of the Navigation Safety Regulations, 2020 under the Canada Shipping Act, 2001. Charts and publications issued by or on the authority of CHS, corrected and up-to-date, must be used to meet the requirements of those regulations.

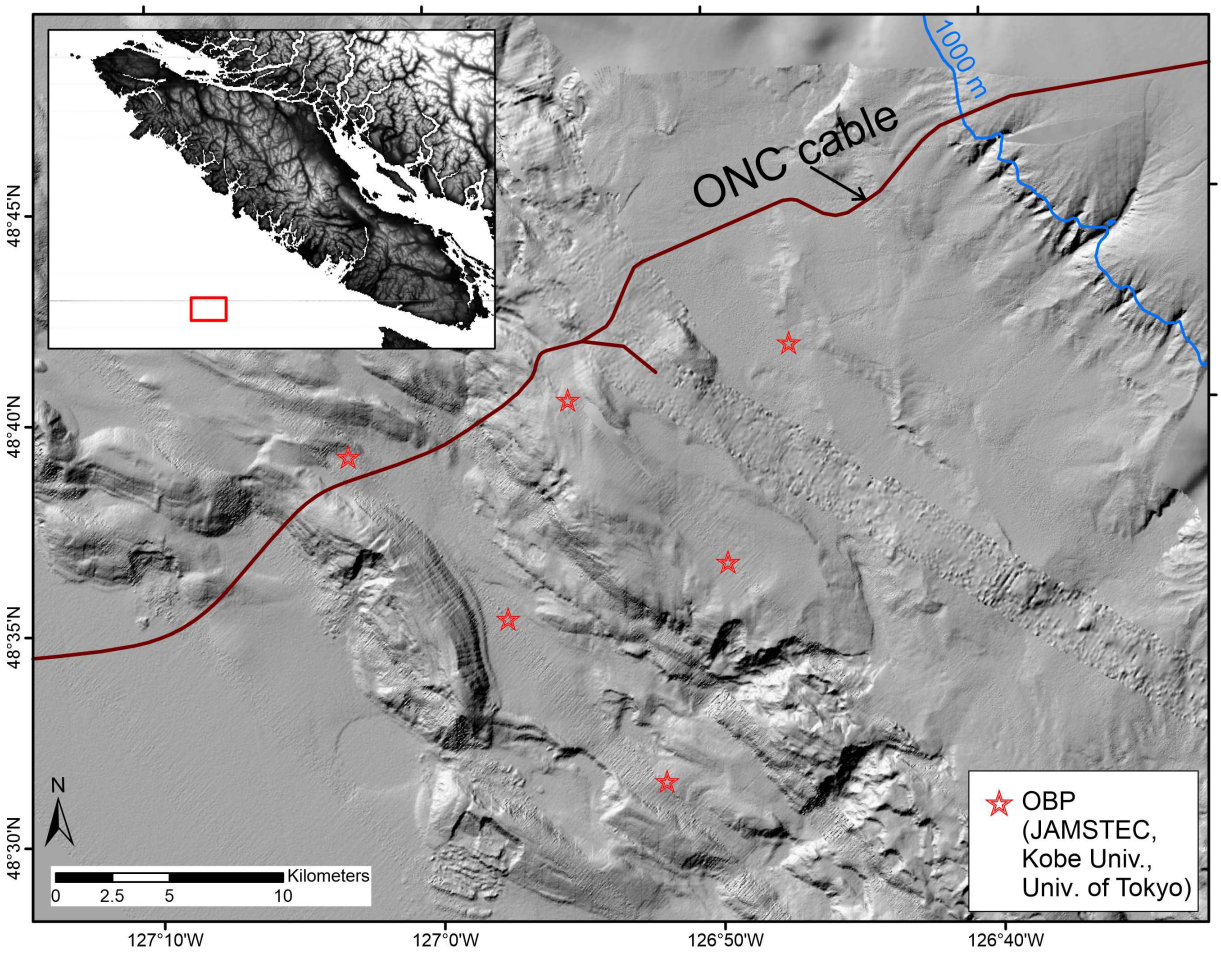

Figure 2: Detailed view on **long-term equipment** deployed on the **Clayoquot slope**. The 1000m isobath is shown as blue line. Seafloor bathymetry is shown as grey-shaded relief. See inset for relative position off Vancouver Island.

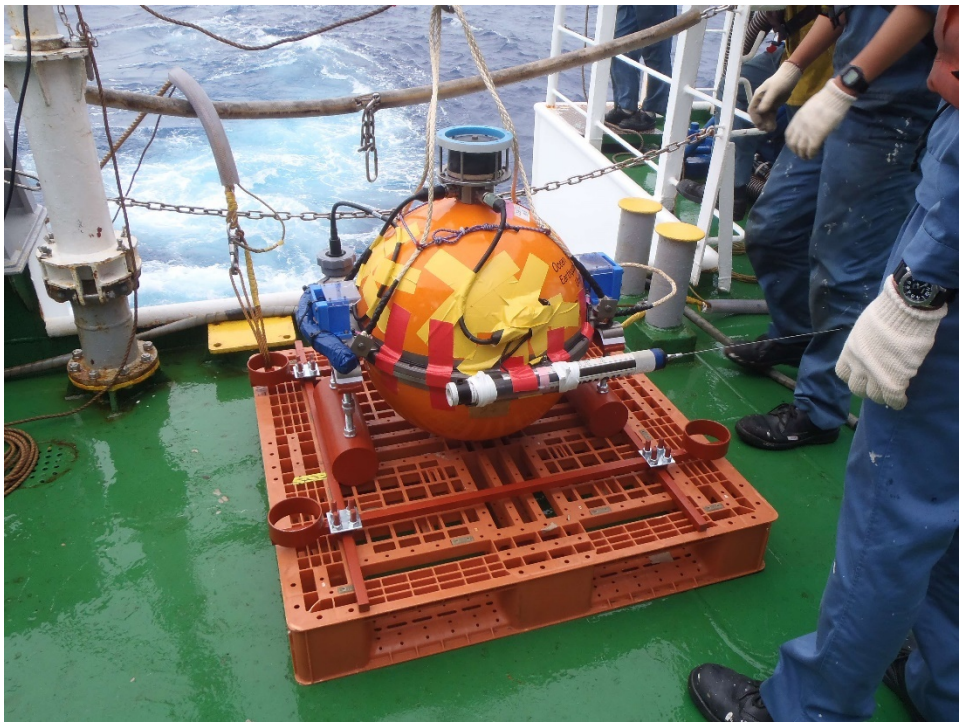

Figure 3. Ocean-bottom pressure gauge (by JAMSTEC, Kobe University, and University of Tokyo). Footprint of the instrument is 1m by 1m and the height above ground is 1.0 m.

Table 1. Location and water depth of **long-term deployment** sites.

Duration	Station-Name	Latitude (°N)	Longitude (°W)	Water Depth (m)	Description
2 years	OBP1	48.690950	-126.786800	-1402	OBP
	OBP2	48.672650	-126.918817	-1302	OBP
	OBP4	48.652550	-127.052100	-2110	OBP
	OBP3	48.606683	-126.825567	-1529	OBP
	OBP5	48.585917	-126.957433	-2260	OBP
	OBP6	48.520067	-126.865367	-2250	OBP