

## Piezometer Installation <sup>[1]</sup>

Submitted by Rory Lattimer Thu, 2011-10-20 00:00

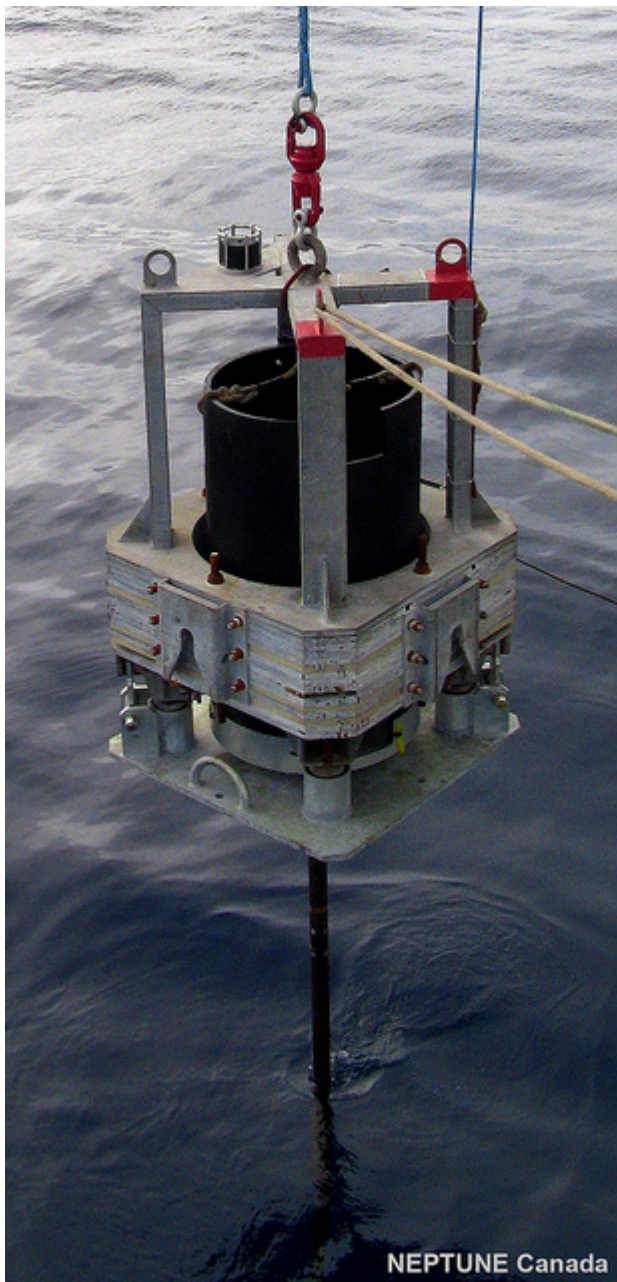


Scientists from Canada and France began deploying a cabled piezometer at 9:45 am (PDT) on Wednesday, July 6, 2011 at the Cascadia Basin site. This is the first operation of the NEPTUNE Canada July 2011 installation and maintenance expedition on the R/V Thompson. In visible company was the R/V Atlantis, the sister ship of the R/V Thompson, with a crew of researchers working on nearby Ocean Drilling Program (ODP) boreholes, an illustration of the high interest in the thin oceanic crust of the Juan de Fuca tectonic plate.

The needle-like probe of the piezometer is six centimetres in diameter and is equipped with 4 pore pressure and 4 temperature sensors distributed along its 4-metre length. The piezometer can measure differential pressure between the pressure in the sediment and the water column. Scientists are interested in comparing these pressure variations with other events such as nearby earthquakes and groundwater flow. Piezometers, therefore, expand areas of pore pressure measurements, which complement borehole measurements.

The Ifremer <sup>[2]</sup>-developed piezometer was lowered down 2560 m using the ship's cable rolled out on the A-Frame on the R/V Thompson. It was dropped at a rate of one metre per second for the final one hundred metres, where the momentum of its 999 kg ?piezo-head? pressed the piezometer probe four meters into the sediments. It was a delicate operation performed from deck, involving both Ocean Networks Canada staff and ship crew. Navigating the probe almost three kilometers to the ocean floor on a single wire from a large ship was extremely

challenging, and transponders had been placed on valuable assets already on the seafloor to ensure that they would not be skewered. It was a close call with a recently decommissioned cable that will be recovered next year.



During the deployment, the instrument was running on rechargeable batteries and logging data into internal memory - with a capacity for two years of data sampled in one second intervals. The raw data has been collected by the piezometer, including the data which covers the crucial deployment phase. This data is essential for calibration purposes and will become available for viewing and download from our archives.

After the piezometer was lowered, ROPOS descended for two and a half hours to the seafloor. During this dive, ROPOS caught images of sea cucumbers, jellyfish, and salps. After checking the distance between the instrument platform and the piezometer (fifty metres), ROPOS was ready to connect the instrument to a cable running between the piezometer and the Cascadia Basin Instrument Platform. At 02:39:51 UTC, the connection was made and data is flowing into our archive!

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- [Piezometer](#) <sup>[4]</sup>
- [cascadia basin](#) <sup>[5]</sup>
- [ROPOS](#) <sup>[6]</sup>
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ONC_breadcrumb.innerHTML; ONC_innerHTML = ONC_innerHTML.replace("&", "&");
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**Source URL:** <https://www.oceannetworks.ca/piezometer-installation>

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