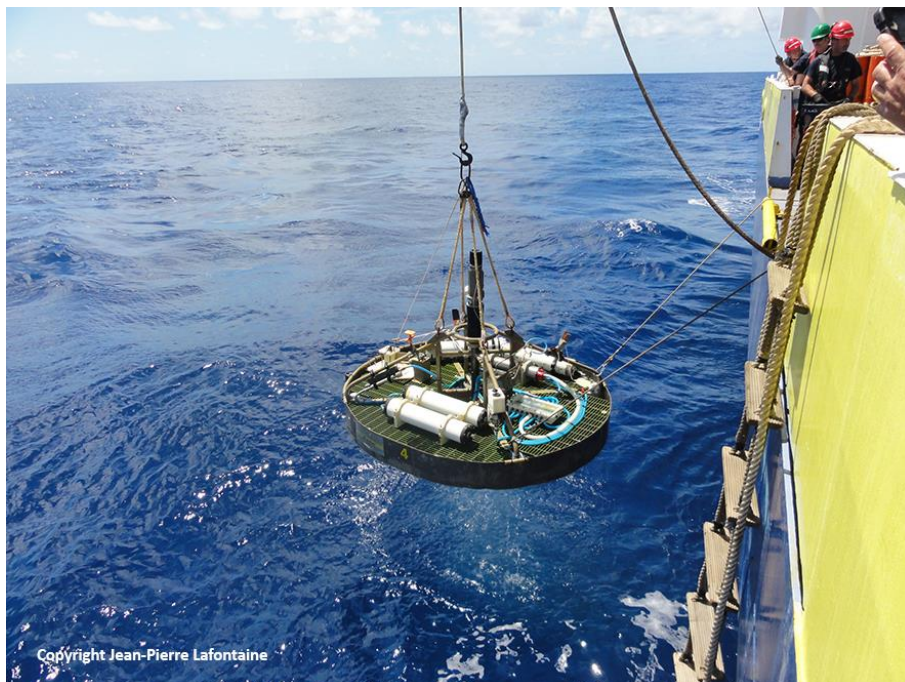




The Momarsat cruise just ended. The major objective of this cruise was to do the annual maintenance of the EMSO-Açores observatory, which is located on the Mid-Atlantic Ridge, on the Lucky Strike vent field at 1700 m depth.

The two deep-sea stations SEAMON West and SEAMON East as well as the surface buoy BOREL were recovered on board the Pourquoi pas? French research vessel, reconditioned and deployed again a few days ago.

The West node, dedicated to geophysical studies, is equipped with a broad band seismometer (OBS) as well as a pressure gauge.



The East node is dedicated to ecology, microbiology and fluid chemistry. It includes (1) a connected biological observatory module (TEMPO – equipped with a high-resolution camera and 4 LED lights and an environmental module with a temperature probe, a chemical analyser (for iron) and an oxygen sensor), (2) a turbidimeter, (3) an instrumented microbial colonization module (CISICS), (4) a thermistor chain as well as a (5) chlorinity/temperature sensor (BARS).



The BOREL buoy transmits the data flow from the bottom to the surface and then, to land. It is equipped, in addition to its communication and localization modules, of a geodesic GPS, a meteorological as well as a pH, conductivity and temperature sensor located at 25m below the surface.



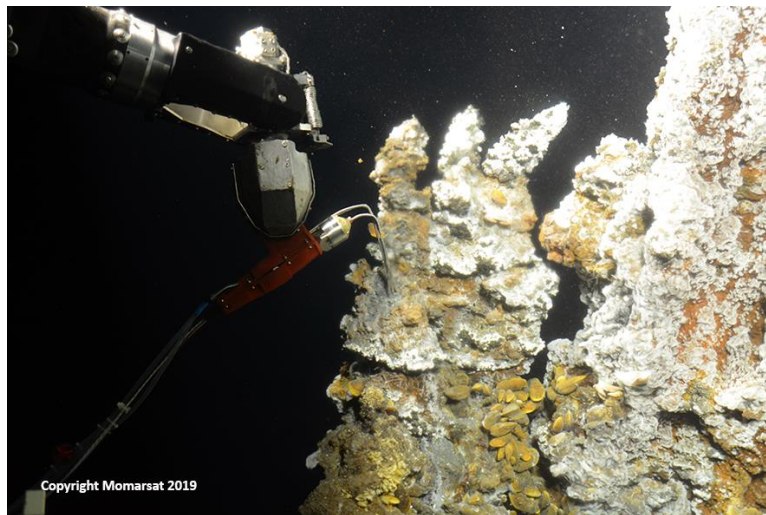
Data are transmitted every 6h with an acoustic link from the bottom to the surface and then via satellite to a land base server where they are decoded, archived and delivered to the scientific community on the EMSO-France web site (<http://www.emso-fr.org>).

In addition to the connected components, a large number of sensors complete the observatory on Lucky Strike. They include 30 autonomous temperature probes for hydrothermal fluids and diffusion zones, 3 current meters, 2 pressure sensors, 4 OBS, 1 network of 4 hydrophones (Hydroctopus), 4 microbial colonization devices, one autonomous hydrothermal fluid serial sampler (DEAFS) as well as an oceanographic mooring.





Several *in situ* measurements as well as fluid, faunal and microbial samplings were achieved to complete the dataset and integrate a larger spatial scale.



To optimize ship time, two exploratory studies concerning turbulence patterns and the geochemical signature of Lucky Strike hydrothermal plume have been done during night time.

The maintenance team included 35 scientists, engineers and technicians (IFREMER, CNRS, UBO, IMAR-Pt) with a team of 10 technical staff for the maintenance of the BOREL and SEAMON infrastructure and their sensors, and 21 scientific staff to program the sensors, coordinate sampling and ensure the moorings.

Momarsat 2019 was quite successful, totalizing 19 dives with the submersible Nautile and over 35 VMP profiles and 49 CTD casts.