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Latest highlights from the EMSO-Açores deep sea observatory

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The MoMAR “Monitoring the Mid-Atlantic Ridge” project was initiated by InterRidge in 1998 to study the environmental instability resulting from active mid-ocean-ridge processes at hydrothermal vent fields south of the Azores. It is now a component of the EMSO (European Multidisciplinary Subsea Observatory) European programs, which coordinate eulerian observatory initiatives in European seas. The EMSO-Açores observatory focuses on two main questions: What are the feedbacks between volcanism, deformation, seismicity, and hydrothermalism at a slow spreading mid-ocean ridge and how does the hydrothermal ecosystem couple with these sub-seabed processes?

The uncabled observing system was deployed in 2010 in the Lucky Strike vent field at 1700 m depth. It comprises two Sea Monitoring Nodes (SeaMoN), a first dedicated to geophysics –seismicity and geodesy- and a second dedicated to ecological studies. The nodes are acoustically linked to a surface relay buoy, ensuring satellite communication to a land base station in Brest (France).

An array of autonomous sensors (OBSs, pressure probes, temperature probes in selected smokers, current meters and temperature probes in the water column) and colonization devices complete the infrastructure. A site studies program contributes to increase the set of accessible parameters and to extend the spatial coverage of the study.

This paper will present the latest highlights of EMSO-Açores studies, underlining the complementarity of spatial and temporal studies.