

# UPGRADE OF THE OBSEA EXPANDABLE SEAFLOOR OBSERVATORY

**Marc Nogueras Cervera, Alberto Hidalgo Castro**

SARTI Research Group. Universitat Politècnica de Catalunya. Rambla Exposició 24, 08800, Vilanova i la Geltrú. Barcelona. Spain.  
+(34) 938 967 200

*Abstract- The objective of this paper is to present the last modifications of the OBSEA observatory after the maintenance operations done.*

*Keywords- OBSEA, data publication, seafloor observatory, oceanographic buoy*

## INTRODUCTION

Since May 2011 OBSEA underwater observatory is providing data again, after an inactivity period caused for the electrical fault of the submarine cable. OBSEA (Expandable Seafloor Observatory) is a seafloor observatory located at 4km from the coast of "Vilanova i la Geltrú" (Barcelona, Spain) and at 20 meters depth. This station is connected to the shore station with and old telecommunications cable used to provide electrical power to and bring data from the observatory. At shore, a power supply is generating the 300Vdc required for the observatory and a bundle of servers are storing, processing and publishing all the data generated for the observation system.

## DESCRIPTION

The seafloor node of OBSEA is equipped with a CTD (conductivity, temperature and depth), a Hydrophone and an underwater camera, moreover at land there is a meteorological station with temperature, pressure, wind and rain sensors. In addition, last may 2011 the observatory has been upgraded with a surface buoy with a weather station (Air Temperature, Ultrasonic anemometer, barometric pressure, magnetic compass heading, pitch and roll angles, rate of turn gyro, and GPS for position and speed) and with a surveillance camera. The buoy is connected to an Acoustic Wave and Current Profiler (AWAC) providing daily updated data of water movement.

Due to all these recent changes in the observatory, the OBSEA website has also been remodeled, in order to provide an easiest access to the obtained data.

Many data charts have been included (see fig. 1), so users can see the current status of the observatory in a quick look, and new functionalities have also been added. These include personalized queries, which allow users to obtain the exact data they want, or a more user-friendly interface for the live camera.

Two new live cameras have been included in the website too, related to new data sources: the surface buoy and a meteorological station located in the SARTI building. Besides from the video, these new sources provide new sets of data, which have also been added to the website, and will help to improve the user's knowledge about the observatory situation.

In the OBSEA project we are always thinking in the future for what in addition to the improvements that are being done at present several work lines are being planned to be developed next and following years. The next stage of the project will be the development of a second seafloor node in a near position with some features of deep water observatories. The new node will have a ROV mateable connectors plate usable for testing purposes of remote operated vehicles, will improve the energy management and efficiency and the monitoring and control capabilities. The structure of the observatory is also being designed to reduce the complexity and periodicity of the maintenance operations.

## CONCLUSION

In this article last modifications have been presented and future actions to be done have been detailed.

## REFERENCES

- [1] <http://www.obsea.es> Obsea website
- [2] <http://www.cdsarti.org> Sarti research group website

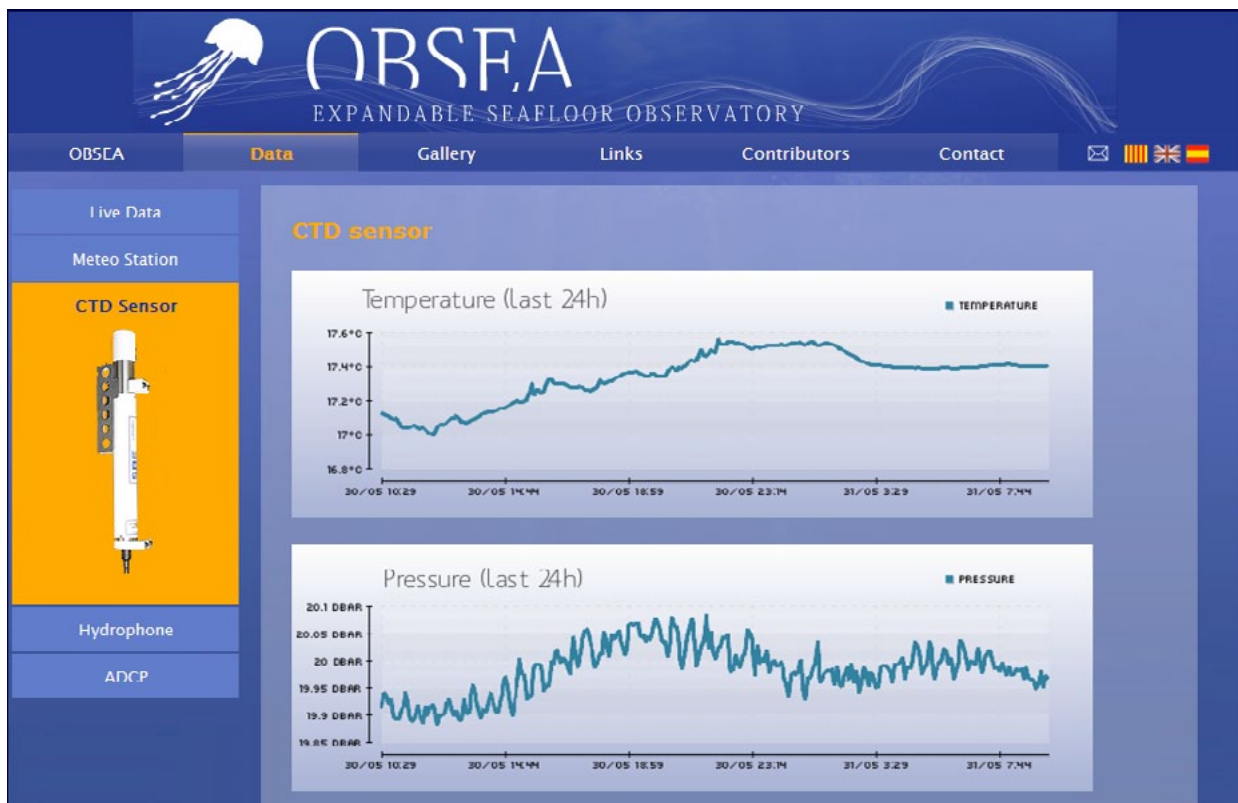


Figure 1: Data visualization in the OBSEA website.