The Nazaré Canyon is one of the largest submarine canyons of the European Margin. The area it affects, offshore the Western Portuguese coast, is marked by the presence of the Protected Area of the Berlengas Islands and by important navigation corridors located offshore. A real-time monitoring system is maintained in this area since 2009 by Instituto Hidrográfico (Portuguese Hydrographic Office). The Nazaré Canyon Observatory MONICAN provides quasi real-time hourly measurements of waves, meteorological parameters, currents, water temperature and coastal sea level.

Installed with the financial support of the EEA Grants 2004-2009 programme through project MONICAN, the Nazaré Canyon Observatory MONICAN is presently contributing to the network of coastal ocean observatories gathered under DEOS project JERICO-NEXT. The Nazaré Canyon Observatory is part of the real-time monitoring system (MONIDE) system installed by Instituto Hidrográfico and covering the entire Portuguese continental margin, from the Gulf of Cadiz area to the Iberian Portuguese coast. The system includes a network of tide gauge stations (4), a network of directional wave buoys (2), a network of multi-parametric buoys (2), and a network of HF radar stations (4). The area covered by measurements of surface currents is in the Southern Hemisphere (the geographical area covered is key to the several scientific processes that affect the European continental margin (such as the Benioff Hovland Slip Current or the Mediterranean-South Atlantic Flow) and the Atlantic Ocean). The characterization of the coastal ocean surface is also an important issue to be tackled in the future.

The MONICAN web page is contributing to JERICO-NEXT Virtual Access. A particularly important information for the surfing community in the comparison of real-time measurements of waves and wind at the MONICAN buoys with the previously disseminated wave forecasts of those areas. The geographical area covered is key to the real evaluation of beach conditions and in the forecasts. Peaks of visualization of the web page occur from October to March, the time window for the occurrence of the Nazaré giant waves.

Support to the new motors of local economy

The public interest in Nazaré waves is opening a powerful window of opportunity to raise the society interest in questions related to the ocean. Those who arrive to Nazaré want to know why the big waves form there. And when they understand this is a consequence of a large submarine canyon they want to know from where was formed and how it is impacting other aspects of the coastal area.

The Nazaré Town Hall, in collaboration with Instituto Hidrográfico, has installed in the Fort of São Miguel (just in front of the big waves) an interpretation center of the Nazaré Canyon. In 2017 more than 200.000 visitors from everywhere in the World found here answers to their questions. Many of them where young scholars eager to learn about ocean sciences and technologies. The MONICAN real-time monitoring systems play here a huge role in providing the eyes to the conditions offshore, allowing the public to directly link what they are seeing to what is happening tens of kilometers offshore.

Future Developments

The introduction of new operational capacities for the waves monitoring by MONICAN buoys is presently being evaluated in reply to the demands of the surfing community. The MONICAN buoys are being used to test several new monitoring systems such as low cost passive sensors for contaminants or traps for colonization experiments. Those are now evolving to become long-term monitoring programs. A first test of operation of a HF radar facility (CODAR) covering the area of influence of Nazaré Canyon was conducted in 2011. This type of monitoring capacities are planned to be installed permanently in the future.