



# COMPILING OCEANOGRAPHIC INFORMATION AND KNOWLEDGE ABOUT COASTAL REGIONS



## Researcher Infobox

**Name:** Flávio Martins

**Academic Qualifications:** Bachelor's Degree in Mechanical Engineering; Master's in Mechanical Engineering; PhD in Mechanical Engineering

**Research Interests:** Coastal and Oceanic Modelling; Ocean Observation; Operational Oceanography

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How can coastal marine resources be exploited more efficiently, sustainably and inclusively on a global scale?

**Flávio Martins**, a researcher at the Centre for Marine and Environmental Research (CIMA), is part of a consortium working to develop an **Environmental Coastal Observatory of the Southwest Iberian Peninsula – OCASO**, the main objective of which is to create an oceanographic observatory in the Southwestern Iberian Peninsula.

This is a cross-border project between Portugal and Spain, with several institutions working in partnership. Along with the University of Algarve, these include the University of Cadiz leading the project, the Portuguese Hydrographic Institute, the State-owned Spanish Port

System (Puertos del Estado) and the Spanish Institute of Oceanography.

**While many researchers argue that we know the moon better than we know the ocean floor, it is also a fact that the EU's blue economy generates over 500 billion euros annually and employs around 3.5 million people.**

Similarly, we have been using models to forecast the weather since 1960, but the practice of ocean forecasting is still in its infancy.

The importance of OCASO is related to the ability to gather information and oceanographic knowledge about this coastal region. Observations come from several platforms managed by the partners involved in the project. These platforms include fixed buoys, high-frequency radar data and data from oceanographic campaigns. The data obtained from these, using autonomous underwater vehicles, such as the one operated by the University of Algarve, are of particular note.

In addition to the observational data, the consortium manages a set of numerical models that provide more detailed information, as well as forecasting capabilities. In this context, says the researcher, "The University of Algarve contributes to the project with the SOMA system, which is the operational model of the Algarve Coast." This model, he explains, "runs on the University's servers daily, providing three-day forecasts of the region's oceanographic variables".

Observational and forecast data are fed into a visualisation platform that is accessible

to the general public. This information allows companies in the ocean economy to improve their performance, while also ensuring improvements are seen in the marine environment and the safety of operations.

Around the world, decisions relating to maritime operations are made more on the basis of weather forecasts than oceanographic forecasts, for the simple reason that the latter either do not exist or are not available. As a result, humanity is unable to take full advantage of marine resources, maximise ocean safety and ensure the quality of the marine environment.

**Observing the ocean is such a complex, risky, costly task, that only by coordinating local and regional observatories can we provide an adequate response, generating global improvements in knowledge.**

"The information and knowledge produced at OCASO will allow for marine environment strategies to be devised that are both sustainable and allow for the safeguarding of the marine environment, preserving ecosystems and water quality," adds Flávio Martins. "The data stored also allows for a better understanding to be gained of climate evolution, which in turn can contribute to defining the strategies used to adapt to climate change and support sustainable and resilient development policies," concludes the researcher. This project therefore helps meet the targets of Goals 14, "Life Below Water", and 13, "Climate Action".