

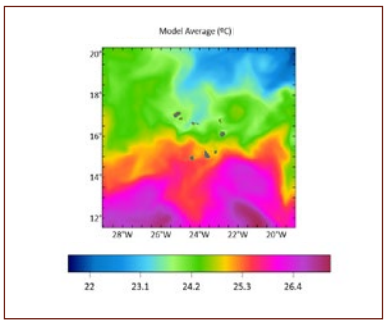
FACT SHEET

OCEAN AND COASTAL MODELLING

AIR CENTRE

To develop high-resolution ocean and coastal models, including the ocean–atmosphere and ocean–land interfaces, towards an Atlantic Digital Twin. To combine models with observations. To support science-based management of fisheries, aquaculture and maritime planning.

HIGHLIGHTS



Dynamic downscale of NEMO for Cabo Verde (MOHID model in cooperation with the Azores University)

High-Resolution Ocean Forecasts

Global forecasts, such as those from Mercator, lack the resolution and variables needed by most AIR Centre members. A 2–3 km downscaled ocean forecast for the Azores is already pre-operational, and a new one is being installed for Cabo Verde, with OKEANOS (University of the Azores) and IMar. These models will support higher-resolution local models and the development of the Sea State web app for other countries in the AIR Centre network, currently available for Angola and Nigeria.



Construction work in Luanda's coastal zone

Coastal Change in West Africa

Four decades of satellite-derived shorelines along the Atlantic coast of Africa show where the coast is eroding and where sediment accumulates. The AIR Centre is using these results to identify hotspots of sediment convergence and divergence and to define a future network of virtual coastal observatories. At least one coastal site will be studied in detail, with real-time forecasts merging all available information on coastal dynamics.



Aquaculture facility

Digital Twins of the Ocean

The AIR Centre improves how natural systems are represented in digital twins, both for blue economy uses such as aquaculture and for ecological variables. It contributes to OCEAN-X, the Macaronesian Digital Twin of the Ocean, and to STEP, a digital twin of the Tróia Technological Free Zone. Tools and results will be shared with the community and offered to the European Digital Twin Ocean (EDITO).