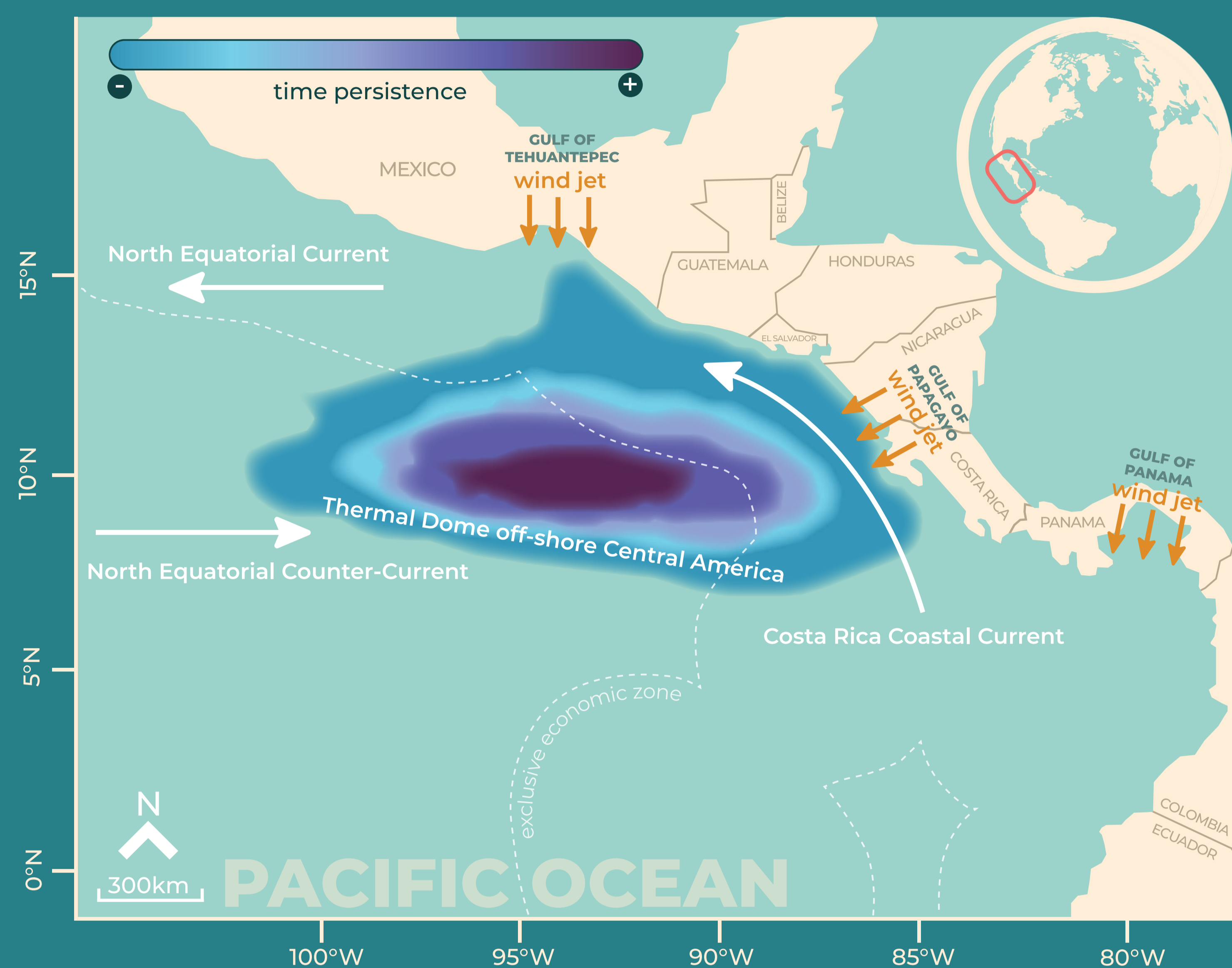




# EXPLORE THE THERMAL DOME OFFSHORE CENTRAL AMERICA

This project develops an ocean observing system for a dynamic management of the Thermal Dome offshore Central America.



## The Thermal Dome

A persistent offshore upwelling system driving a biodiversity hotspot and projected to be the first protected area in the high seas.



argo-dome.org

## Three dimensional functioning of the Thermal Dome

Associated to regional circulation and trade winds, an upwelling of cold and nutrient-rich waters enhances the growth of phytoplankton in the sunlit layer at the ocean surface. The resulting phytoplankton biomass drives an outstanding biodiversity within the core of the Dome.

Below, the mesopelagic layer is characterized by a permanent oxygen minimum zone (OMZ), as a long-term result of bacterial respiration fueled by biological carbon pump. This "steady state" OMZ now protects from further respiration the biological carbon passing through it.

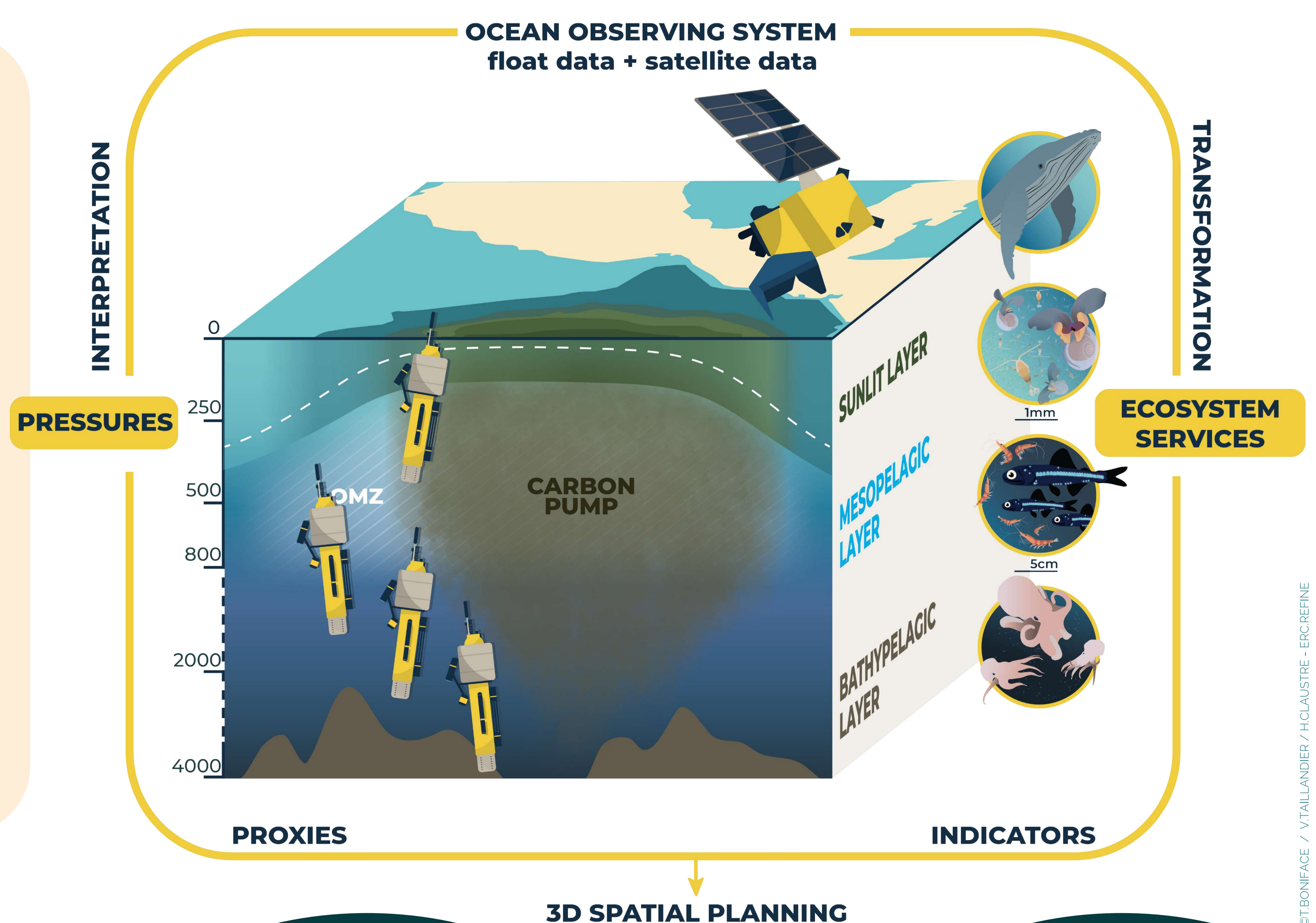
A significant amount of carbon thus escapes from the OMZ and continues its sinking journey to the bathypelagic layer. There, it fuels and sustains the requirements of a deep biodiversity hotspot particularly linked to seamounts.

### OBJECTIVES

- Deploy and sustain an array of profiling floats equipped with advanced sensors
- Establish an observational framework to support governance in the BBNJ context

### Data applications

- 3D monitoring of the most relevant oceanographic features that structure the Thermal Dome, incorporating knowledge on upwelling, mid-water dynamics, seafloor features, and carbon fluxes.
- Design of scenarios for 3D area-based conservation of the Thermal Dome aligning with the BBNJ agreement.
- Aims to highlight the role of data collection by ocean observing systems in decision-making when developing regional strategies.



### EMERGENCE OF APPLICATIONS

ARGO-DOME prototypes an integrated framework designed to address the evaluation and management of crucial ecosystem services, from scientific constraints to concrete policy actions.

### CAPACITY BUILDING & TRANSFER OF TECHNOLOGY

Partners of the project cooperate to develop and sustain a regional infrastructure, sharing tools, skills and resources on the use of data, software and hardware.

### OCEAN LITERACY

Serves as support to undertake ocean literacy actions for the young generation in the context of the adopt a float project ([adoptafloat.com](http://adoptafloat.com))

