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# SOCIB, a new open infrastructure in the Balearic Islands: Spanish Contribution to the GDP in the Western Mediterranean Sea



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Balearic Islands Coastal Observing and Forecasting  
System

# Outline

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- 1. What is SOCIB?**
- 2. Components**
- 3. The drifter facility**
- 4. Spanish contribution to the GDP**

# 1. What is SOCIB

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SOCIB is **C**oastal **O**cean **O**bserving and **F**orecasting **S**ystem based in the **B**alearic **I**slands

**It is a multi-platform distributed and integrated Scientific and Technological Facility (a facility of facilities...)**

- Providing streams of oceanographic data and modelling services in support to operational oceanography.
- Contributing to the needs of marine and coastal research.

## **RESPONDING TO 3 KEY DRIVERS**

Strategic Society Needs

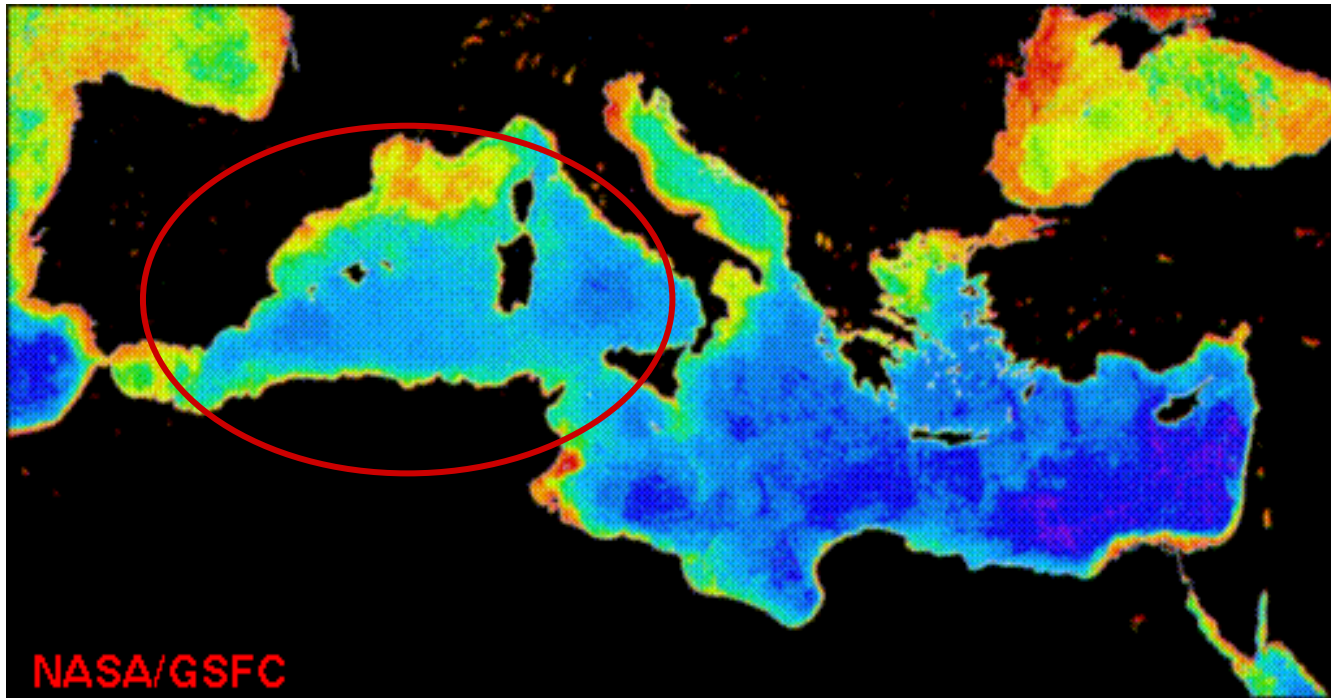
Science Priorities

Technology Developments

# 1. What is SOCIB

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Will be mostly, but not only, focused in the western Mediterranean, from the **nearshore** to the **open ocean**.



# 2.- Main components

ICTS Socib Coastal Ocean Observing and Forecasting Facilities

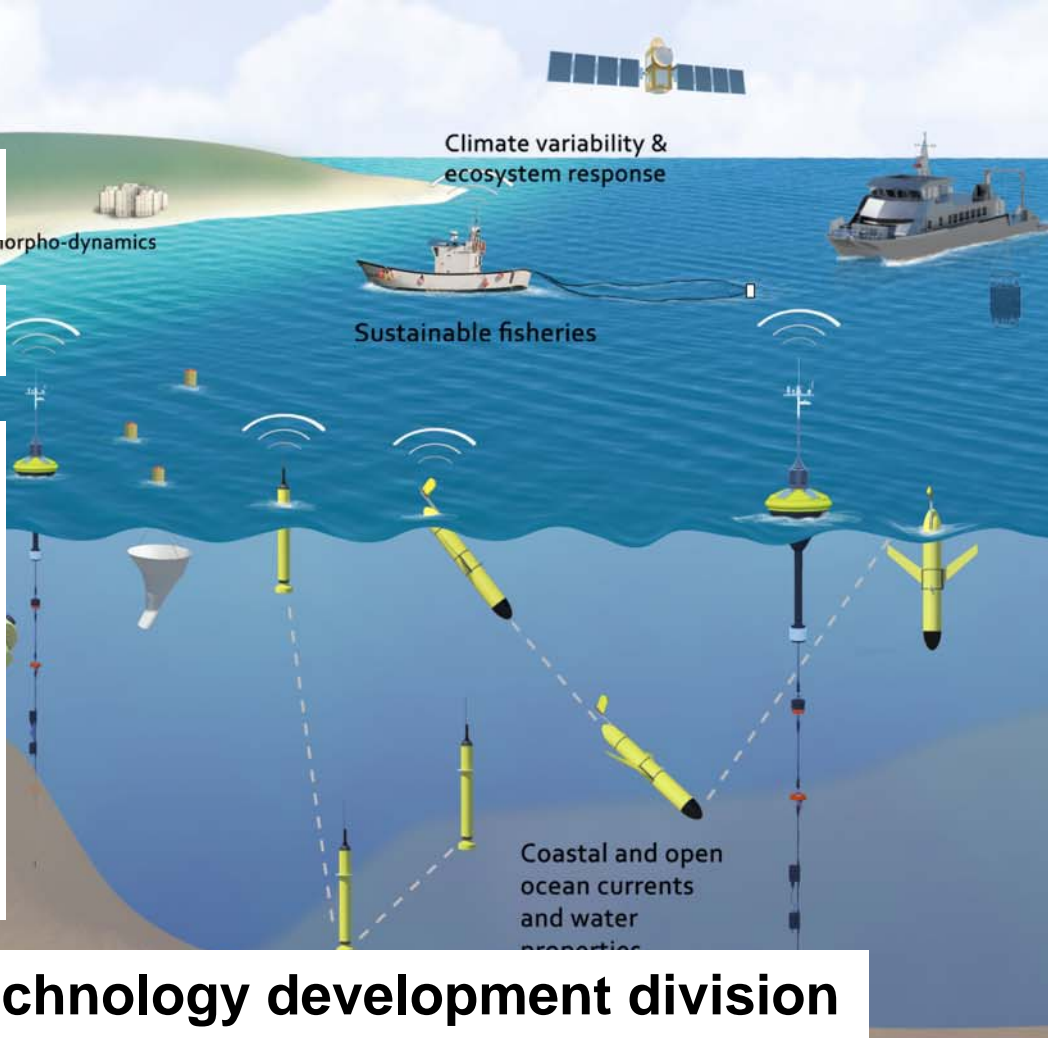
1. Data Center

2. Forecasting sub-system

3. Observational Facilities

- Coastal Research Vessel
- Coastal HF Radar
- Gliders and AUV's
- Mooring, tide gauges
- Nearshore beach monitoring
- Argo and surface drifters

Engineering and technology development division



## 2. Components

### 1. Data center

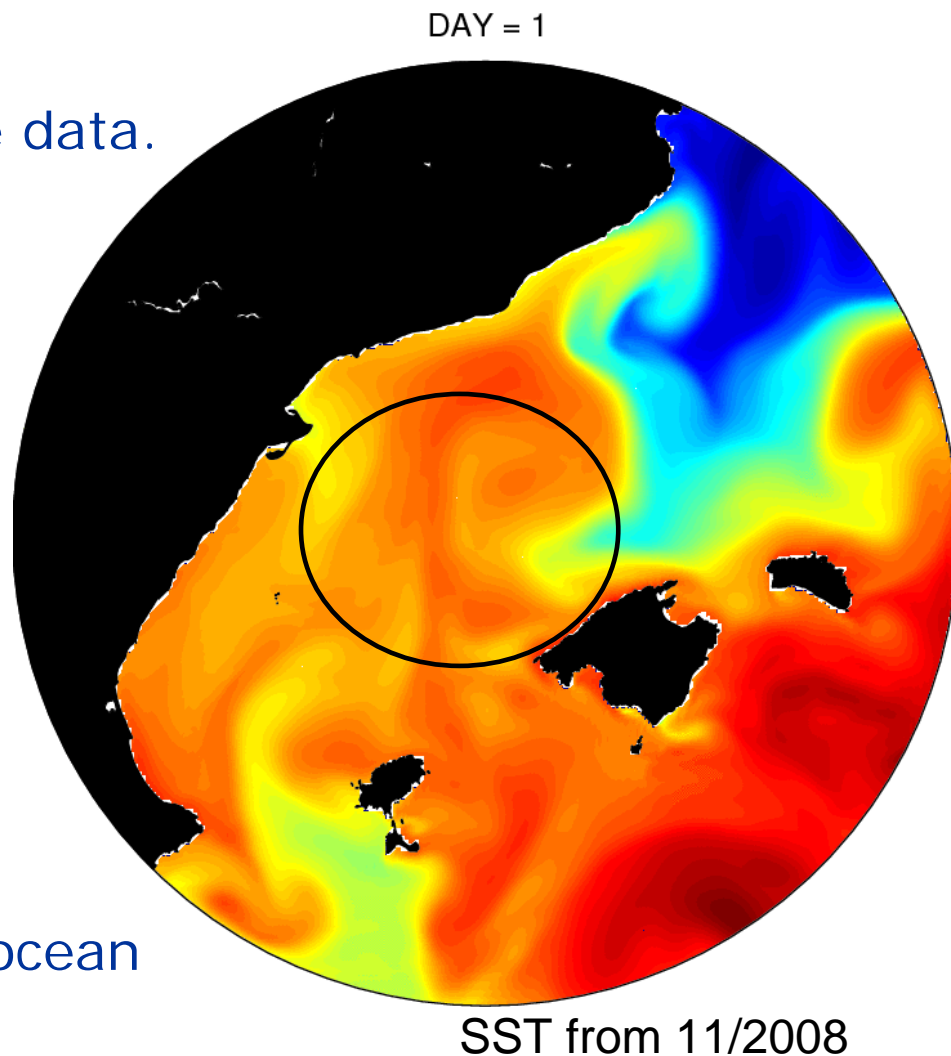
To accomplish the full lifecycle data.

Platform management  
an communication,  
Quality Control  
assurance, Metadata  
Aggregation and  
Standardization, Data  
Archive, dissemination

### 2. Forecasting system

Operational Modeling  
ROMS, 1.5 km resolution

WRF Atmospheric Model  
SWAN for coastal and harbors ocean  
wave Dynamics



# 3. Components

## 3. Observational Facilities: Coastal Catamaran

R/V, 24 m LOA  
Similar to NOAA R/V Manta



## Observational Facilities: HF Radar Facility

(1) In 2011. Long range system in the Ibiza Channel

(2) 2nd Phase. Menorca Channel and High Resolution system in the Palma Bay

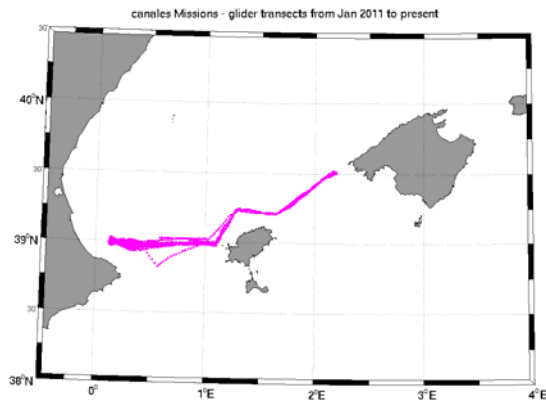


# 3. Components



## 3. Observational Facilities: Glider Facility

- 28 glider missions, , + 10.000 profiles
- Since January 2011; routine operations in Ibiza and Mallorca Channels (150 miles section)



## Mesoscale – Submesoscale / Vertical motions - biogeo effects

GEOPHYSICAL RESEARCH LETTERS, VOL. 36, L14607, doi:10.1029/2009GL038569, 2009

Vertical motion in the upper ocean from glider and altimetry data

Simón Ruiz,<sup>1</sup> Ananda Pascual,<sup>1</sup> Bartolomé Garau,<sup>1</sup> Isabelle Pujol,<sup>2</sup> and Joaquín Tintoré<sup>1</sup>

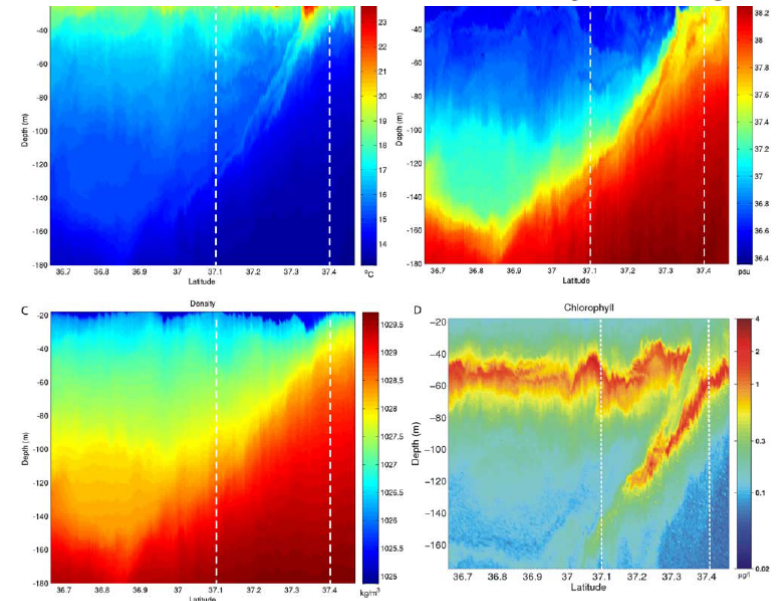
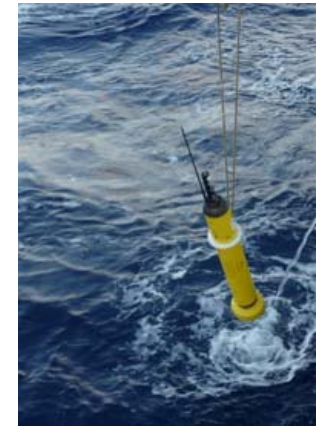


Figure 2. Vertical section of temperature ( $^{\circ}\text{C}$ ), salinity (PSU), density ( $\text{kg/m}^3$ ) and chlorophyll ( $\mu\text{g/l}$ ) from glider section 2 (dashed magenta in Figure 1). White dashed lines define sub-section in the northern part of the domain.



# 3. Components

## 3. Observational Facilities: Argo facility



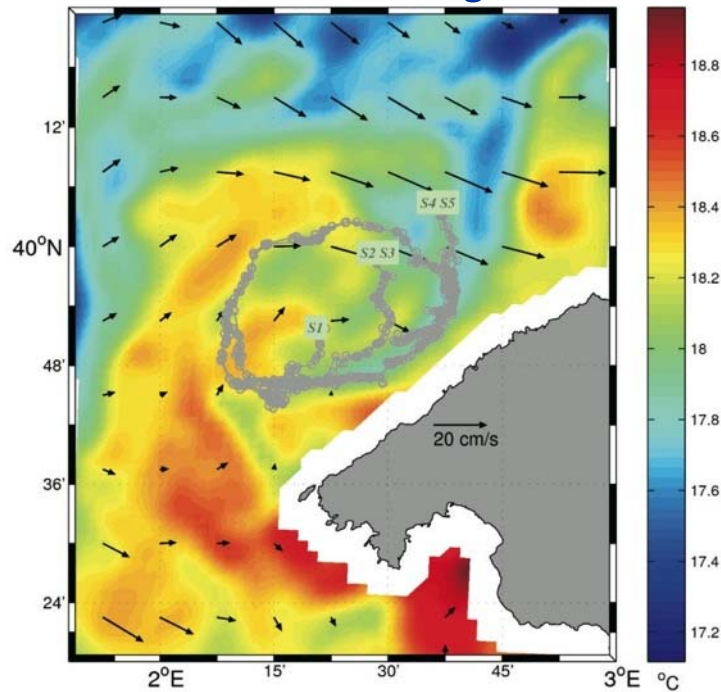
**Implementacion:** fleet of 8 Argo in the WMEd.  
Actually it requires 3 / 4 deployed each year.



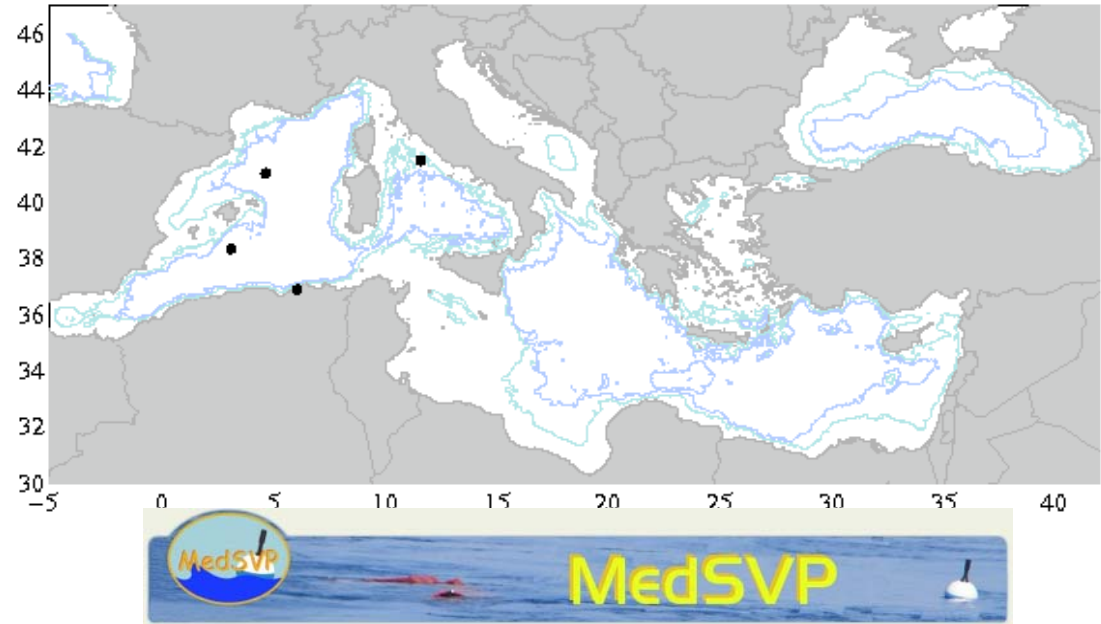
# 4. Drifter Facility



## Pilot study



DRIFTER LAST POSITION 24-Sep-2011

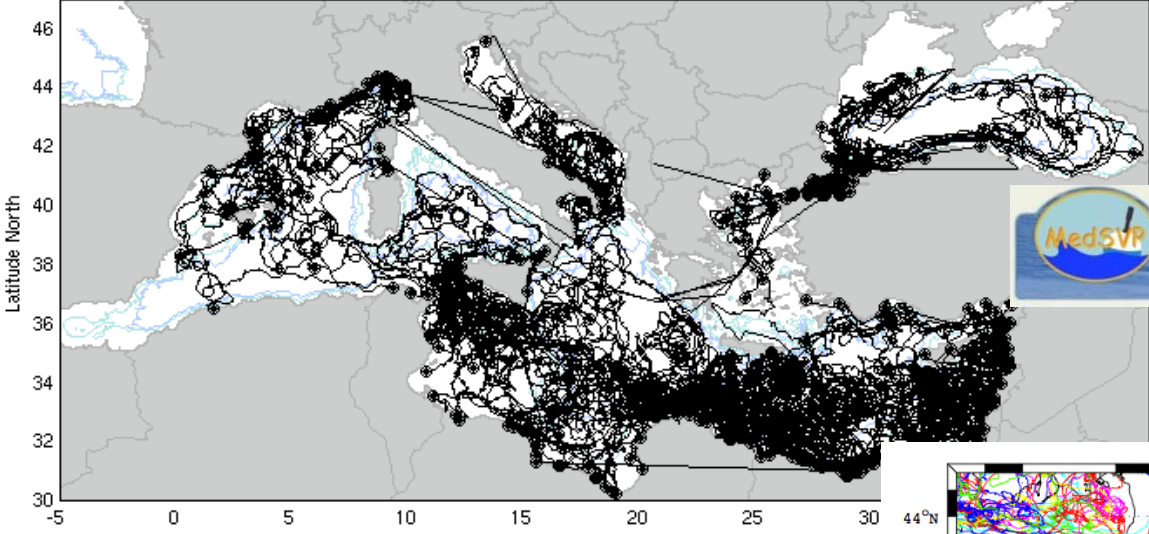


Drifter processing

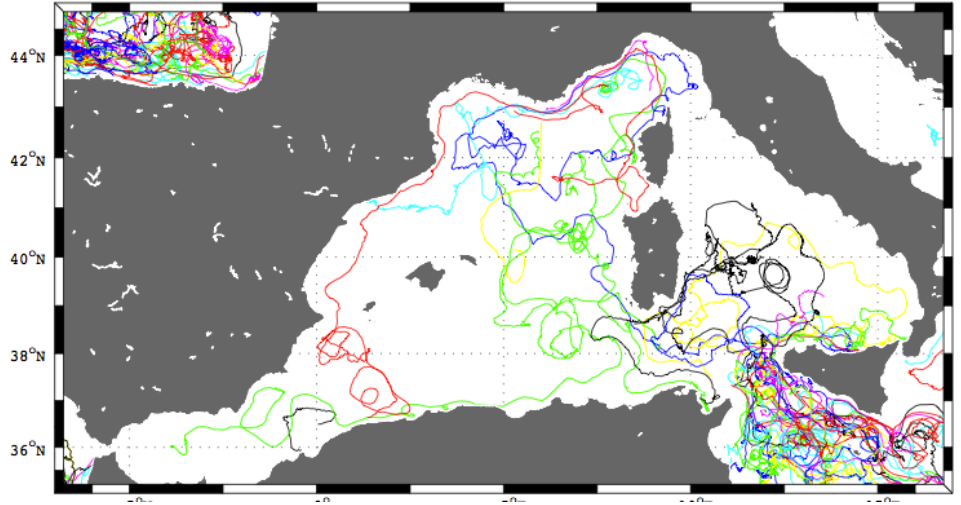
## NRT Drifter data processing

# 5.- Spanish contribution to the GDP

## Historical Data Set



## Global Drifter Program



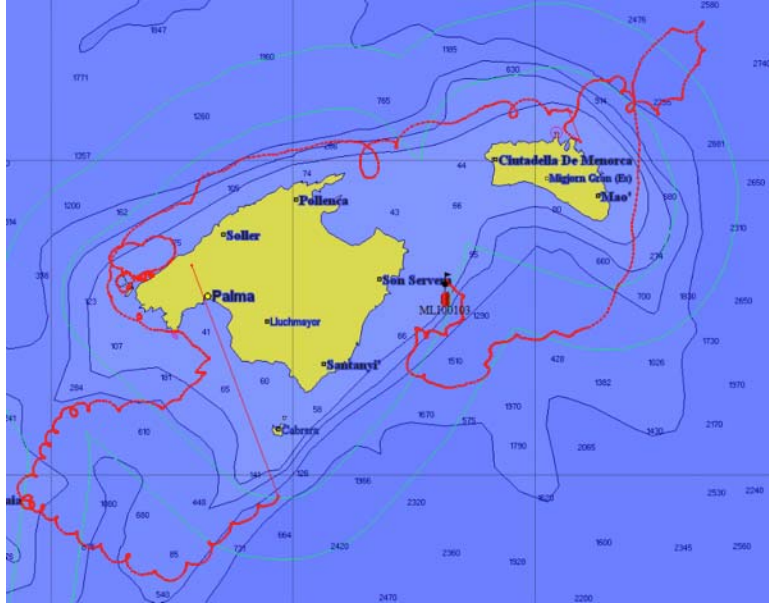
# 5.- Spanish contribution to the GDP

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12 SVP Drifters in the Western Mediterranean Sea  
Actually it requires 6/8 deployments each year.

# 5.- Spanish contribution to the GDP

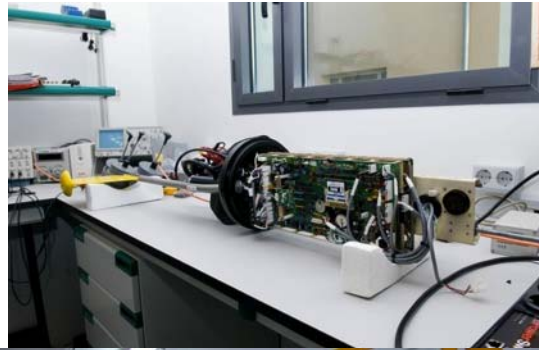


Research project: Tosca, Bluefin

The implementation plan, and the funds, have been approved for the next 10 years

# SOCIB Engineering and technology Development

Electronics  
Laboratory

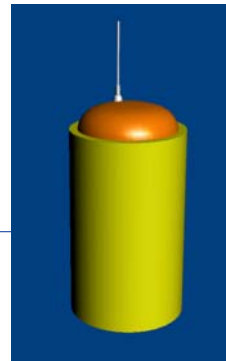


Ballasting  
Laboratory



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Development



# In summary

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- ❑ SOCIB will deploy 6/8 SVP drifters in the Western Mediterranean Sea, as part of the Spanish contribution to the GDP, for at least, the next 10 years.
- ❑ SOCIB is willing to be involved in the GDP and in any pilot project that contributes to its enhancing.

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# Thanks