

# MonGOOS Data Working Group activities

*Working Group coordinated by*

Leonidas Perivoliotis (HCMR)

Marta de Alfonso (PdE)

Lea Santoleri (CNR)

## Presentation Topics

- Updated information on the existing observing systems as provided by the partners
- Elements on the Mediterranean's observing capacity
- The Mediterranean Ocean Observing Data Center

# Updated information on the existing observing systems as provided by the MonGOOS partners



mongoos

# Puertos del Estados

## Current Status (Nov. 2014)

### Deep Water Buoy Network:

- 15 stations (7 in Med sea)
- Moored in deep water (>400 m)
- Multiparameter (Waves+Met+Oce)
- Real time transmission by satellite



### Coastal Buoy Network:

- 8 stations (6 in Med Sea)
- Moored in coastal waters (<100 m)
- Measuring waves and SST.
- Real time transmission by UHF

**Reduction of the coastal buoys from 16 to 8 in 2014 (9 to 6 in the Med)**



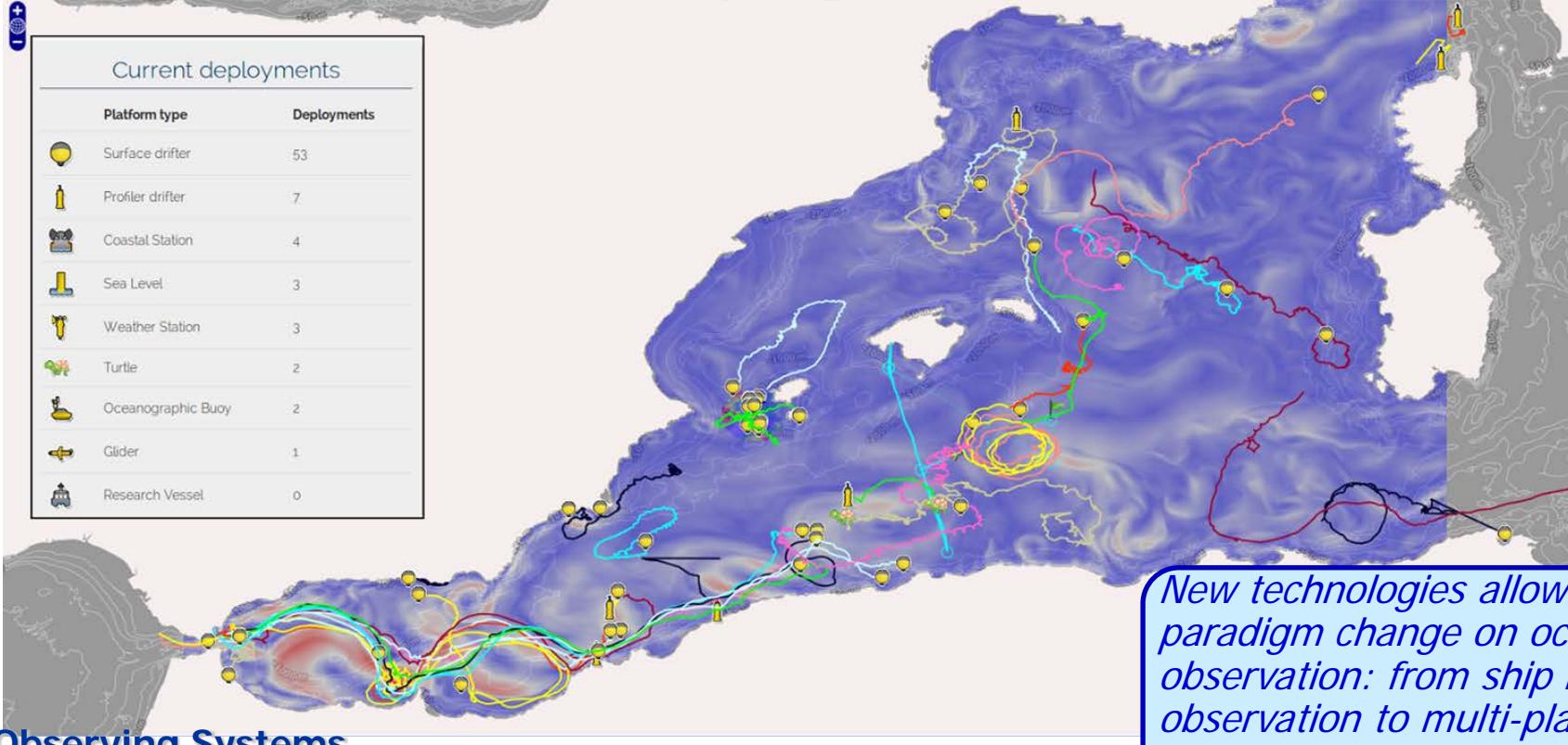
### Tide gauges Network:

- 36 stations (17 in Med Sea)
- Installed in Harbour facilities
- Measuring sea level and port agitation
- Real time transmission (1 min) by GPRS or ADSL



No significant changes expected during 2015

# SOCIB Deployments On October 2014



## Observing Systems

- 24m LOA Coastal Catamaran
- HF Radar Ibiza Channel, 12 MHz.
- Gliders Fleet; endurance lines, open access
- Coastal Stations, Lagrangian platforms and Satellite Products
- Nearshore Beach Monitoring

## Forecasting Systems

- ✓ *Operational Ocean Currents & Waves (MONGOOS & PE)*
- ✓ *Meteo-Tsunamis pre-operational system*

*New technologies allow paradigm change on ocean observation: from ship based observation to multi-platform observing systems.*

## Data Centre

- *Free, Open, Quality controlled data*
- *WEB access, International protocols, standards*
- *APP development*

# SOCIB - 2014 Activities

New fixed stations: Ibiza  
Channel and Ciutadella  
(Menorca)

New sensors: sea turtles  
Improved smartphone  
applications

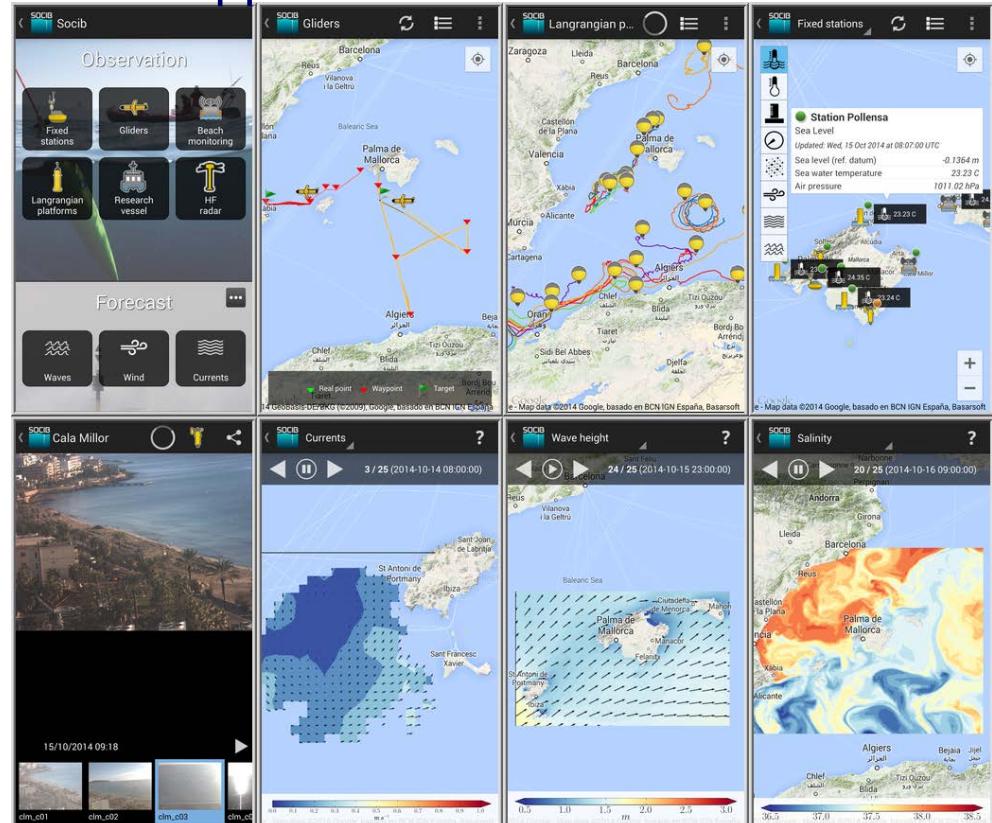
Participation to scientific  
missions :

Alborex: 25 drifters, 2 gliders, 3  
argo floats, 1 ship

MEDESS-4MS

Bluefin Tuna

Apps for Android and iOS

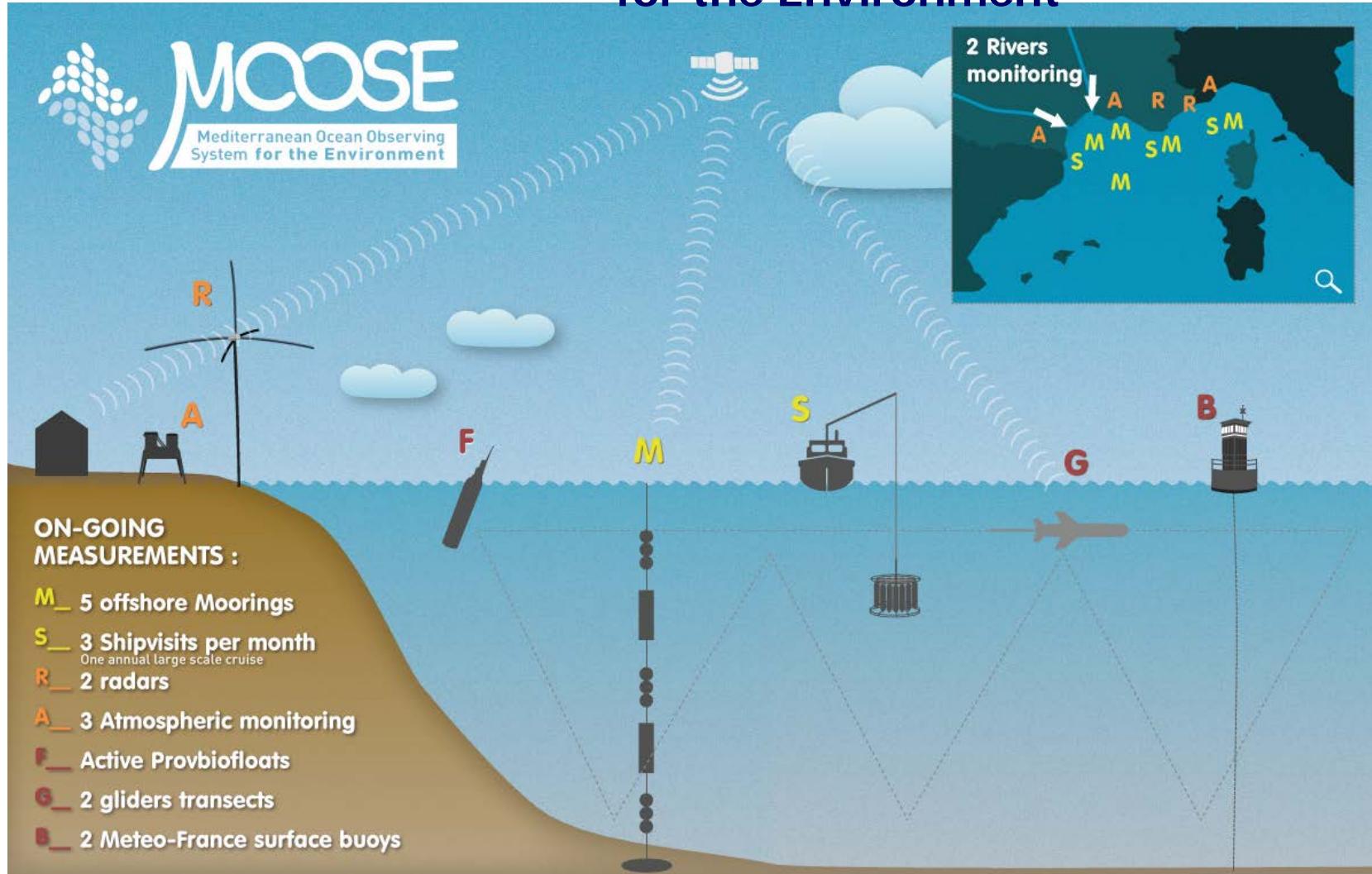


## Future activities

New web page

Improved products and services to users through a dedicated API  
Data assimilation in the ocean forecast model

# MOOSE "Mediterranean Ocean Observing System for the Environment"



**Patrick Raimbault**

Mediterranean Institute of Oceanography,  
Campus de Luminy, 13288 Marseille cedex 09  
[patrick.raimbault@univ-amu.fr](mailto:patrick.raimbault@univ-amu.fr)

MISTRALS



**Laurent Mortier**

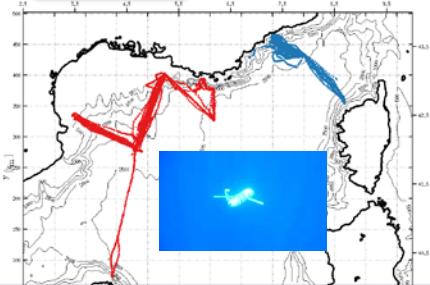
LOCEAN Tour 45-55 4ème étage  
4, place Jussieu. PARIS CEDEX 05  
[mortier@locean-ipsl.upmc.fr](mailto:mortier@locean-ipsl.upmc.fr)

AllEnvi

Alliance nationale de recherche  
pour l'environnement

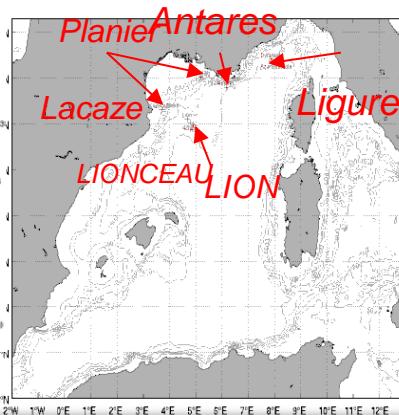
# Hydrodynamic recordings in the NW Mediterranean

## Gliders

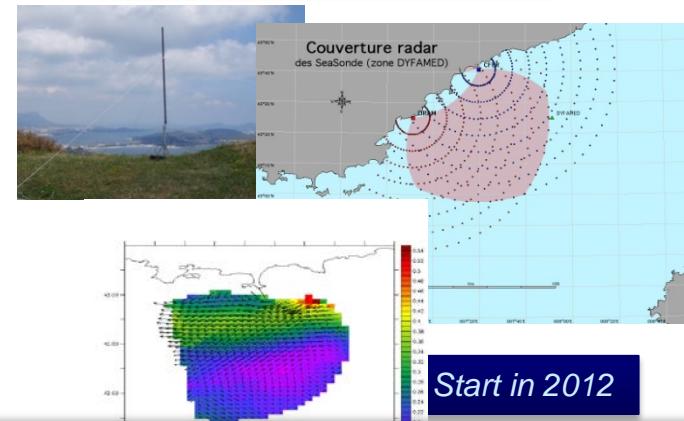


Two permanent transects  
More than 12 000 profiles since  
2010

## 6 offshore moorings



## 2 HF Radars (Toulon/Nice)

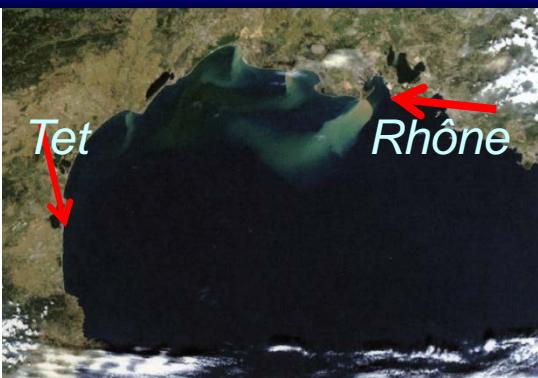


Start in 2012

## Floats



## Land/ocean interaction river inputs

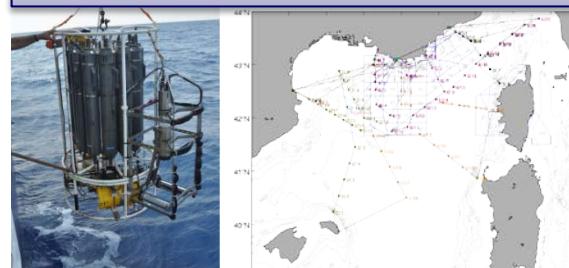


## Future plans

- Maintain the network and the data flow from the different sources
- Increase the volume of biological data
- Add some new sensors ( $O_2$ , pH) on the mooring lines

## Biogeochemical cycles, matter fluxes, acidification

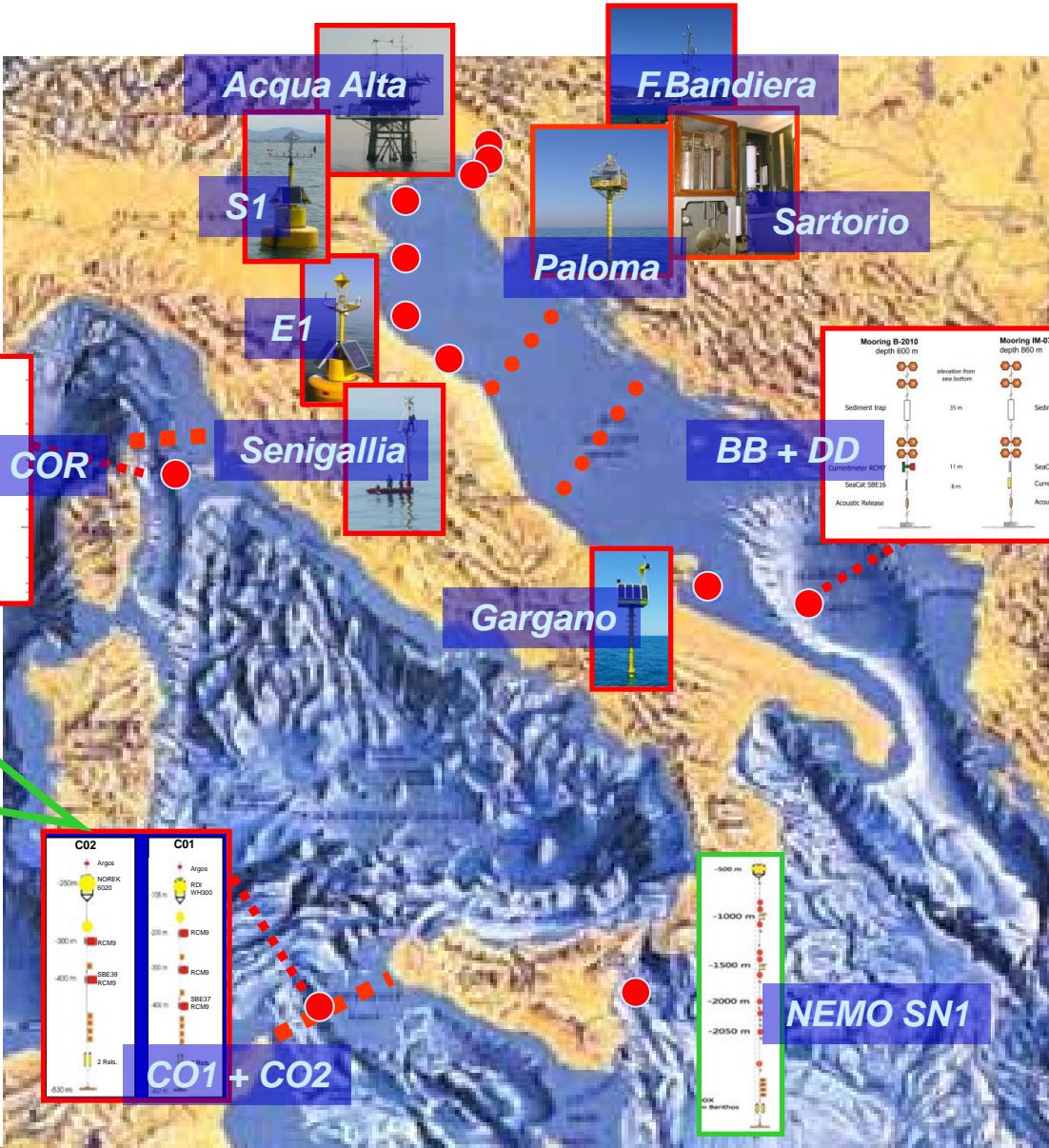
### 3 monthly cruises – One annual cruise



### 4 mooring with sediment traps



Budget of major elements -  $CO_2$ ,  $O_2$  and nutrients evolution  
Bloom dynamics – Biological structure - export production

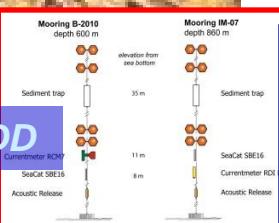


## *In operation*

## **To be implemented**

**Corsica Channel – COR**

*Sea temperature, Salinity, Currents*  
Future implementation:  $pCO_2$  at 400 m



Sicily Channel - CO1, CO2

## *Sea temperature, Salinity, Currents*

#### *Future implementation:*

- Sediment trap at 400 m (\*)
  - Oxygen sensor (optode) at 400 m (\*)
  - Measurement system for chemical hydrophobic contaminants at various depths (\*)
  - CTD profiler (0-200 m) (from Corsica Channel)
  - CTD, DO and light transmission probe at 400 m
  - $pCO_2$  at 400 m (EMSO-MedIT; PON PAC)

(\*) data acquired in JERICO TNA available via JERICO and SEADATANET

# CNR-ISMAR in-situ observing network

North Adriatic: PTF Acqua Alta

Meteo, CTD, Sea level, Waves, Currents, Turbidity, Dissolved Oxygen



Future implementation: Contros CO2 sensor

North Adriatic: PALOMA, Molo Bandiera, Molo Sartorio:

CTD, Meteo, Sea level



Future implementation: T at 15 and 24 m (SBE 39)  
real-time data transmission of all data

North Adriatic: Meda Senigallia

CTD, Meteo, Sea Level



North Adriatic: S1 + E1

CTD, Currents, Dissolved Oxygen, Turbidity, Fluorescence, CDOM,  
Meteo



Future implementation: S1: transformation from buoy to beacon  
E1: acoustic modem to replace wire at 8.5 m

South Adriatic: BB + DD

CTD, Currents, Dissolved Oxygen, Turbidity,  
Sediments, Sea level (as pressure)



South Adriatic: Meda Gargano

CTD, Dissolved oxygen, CDOM,  
Chlorophyll-a, Meteo

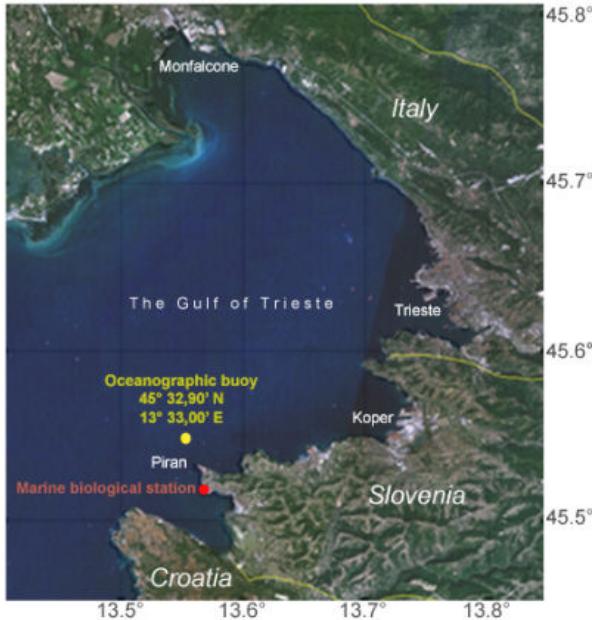
Future implementation: flow cytometer  
current meter



**monGOOS**



NATIONAL INSTITUTE OF BIOLOGY  
MARINE BIOLOGY STATION



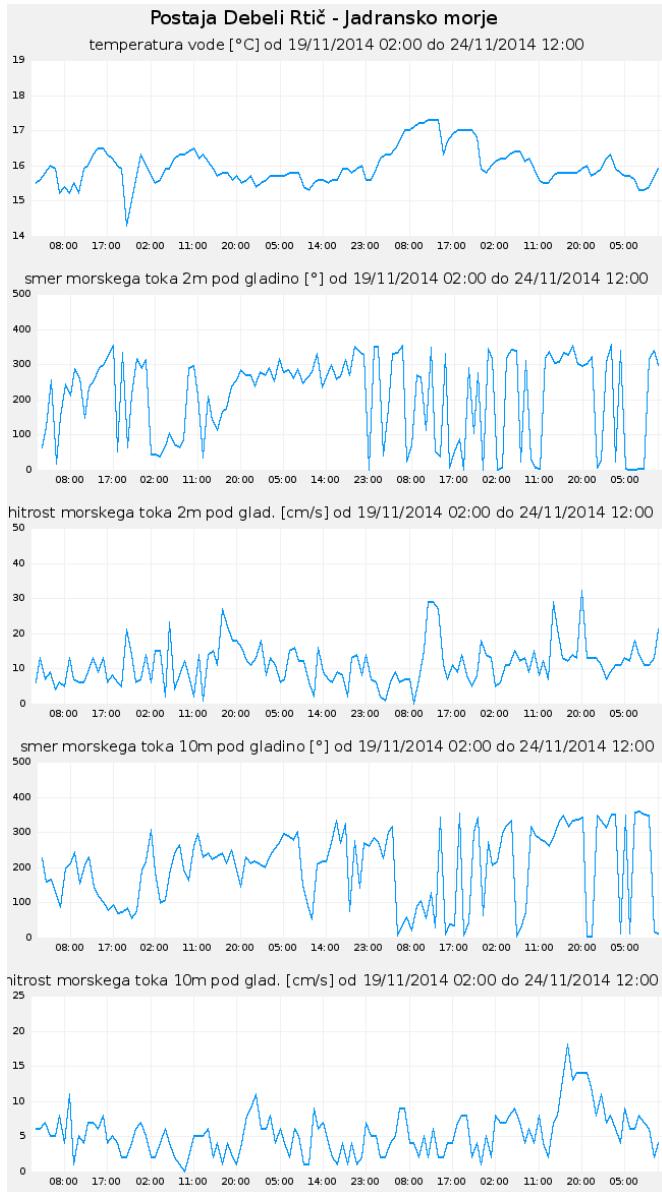
## Coastal Buoy Vida Marine Biology Station Piran

Manufacturer, instrument	Quantity	Height above/below the sea-surface (m)	Sampling period (s)	Number of measurements / time	Quality control
VAISALA, HMP 45A	Air temperature and humidity	5,0	10	6 / minute	YES
Gill Instruments, WindMaster Pro Ultrasonic Anemometer	Wind speed and direction	5,0	0.1	10 / s	YES
Xsens Technologies, MTI XSENS COMPASS	3D compass	5,0	0.1	10 / s	NO
VAISALA, GMP343	CO <sub>2</sub> in the air	4,0	120	1 / 2 minutes	NO
LICOR, LI-190SL-50	PAR	4,4	0.23	4,26 / s	NO
SeaBird, SeaBird 16plus SEACAT	Salinity and temperature	-2.5 ± 0.2	300	1 / 5 minutes	NO
Wet labs, ECO Chlorophyll Fluorometer Chlorophyll-a (FL-CHL)	Chlorophyll concentration	-2.0 ± 0.2	300	1 / 5 minutes	NO
AANDERAA DATA INSTRUMENTS, Oxygen optode 3835	Oxygen	-2.2 ± 0.2	60	1 / minute	NO
AANDERAA DATA INSTRUMENTS, Oxygen optode 4835	Oxygen	-22.5 ± 0.5	60	1 / minute	NO
Nortek, Acoustic currentmeter AWAC 600kHz with NIP	Currents	-22.5 ± 0.5	1600	in the first 10 min in 30 min interval	NO
Nortek, AWAC 600kHz ADCP with NIP	Waves	-22.5 ± 0.5	11024	in 1024 s in 30 min interval	NO
Nortek, AWAC 600kHz ADCP with NIP	Temperature	-22.5 ± 0.5	1600	in the first 10 min in 30 min interval	NO

*Next year plans*  
Maintain the buoy in operation



monGOOS



REPUBLIC OF SLOVENIA  
MINISTRY OF THE ENVIRONMENT AND SPATIAL PLANNING  
SLOVENIAN ENVIRONMENT AGENCY

## Two new buoys in Gulf of Trieste



## Recorded parameters

- sea surface temperature
- current profile (speed, direction, every 1 m)
- waves (height, direction, period)

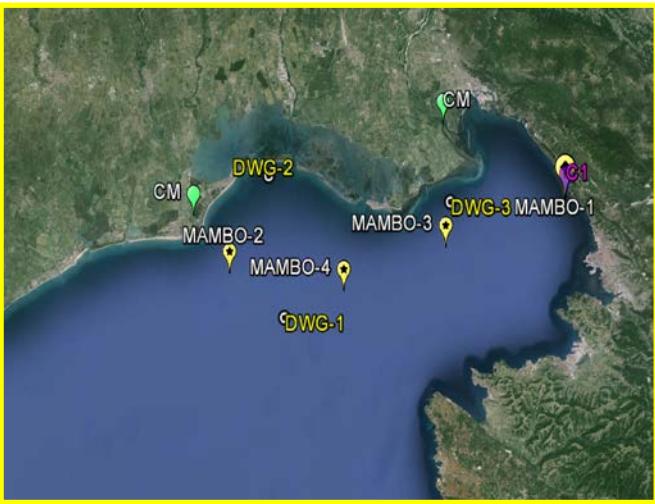


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# OGS in-situ Observing Network

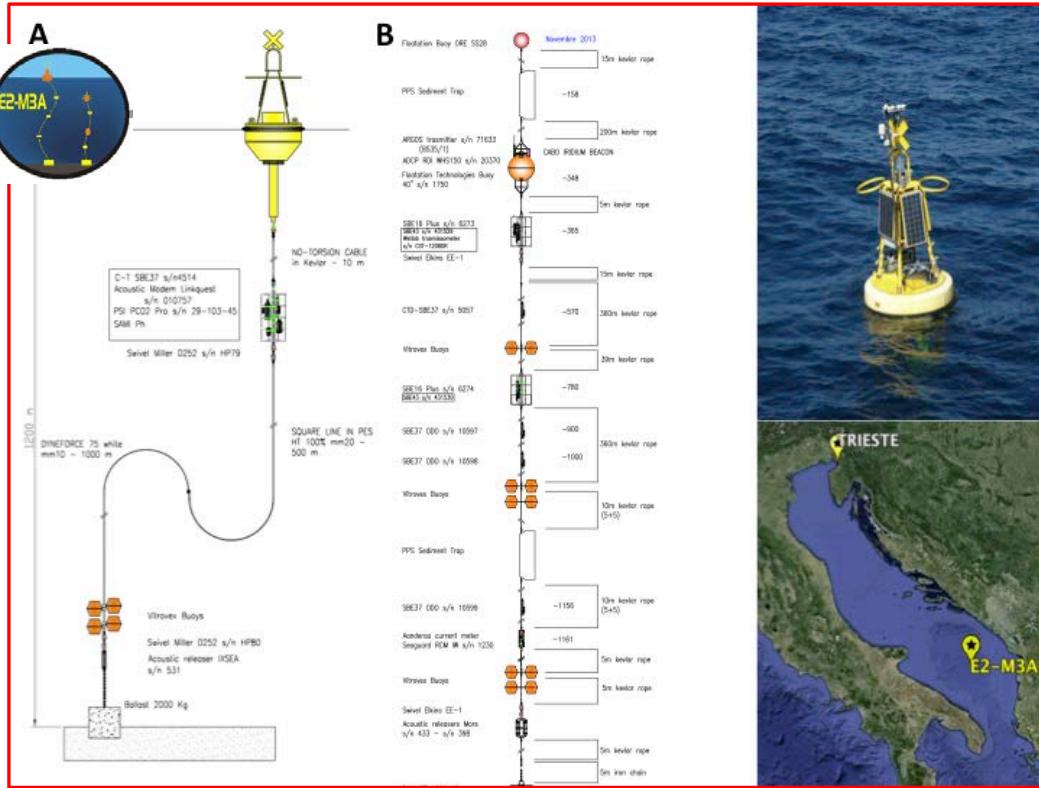


*North Adriatic, Gulf of Trieste*



*South Adriatic*



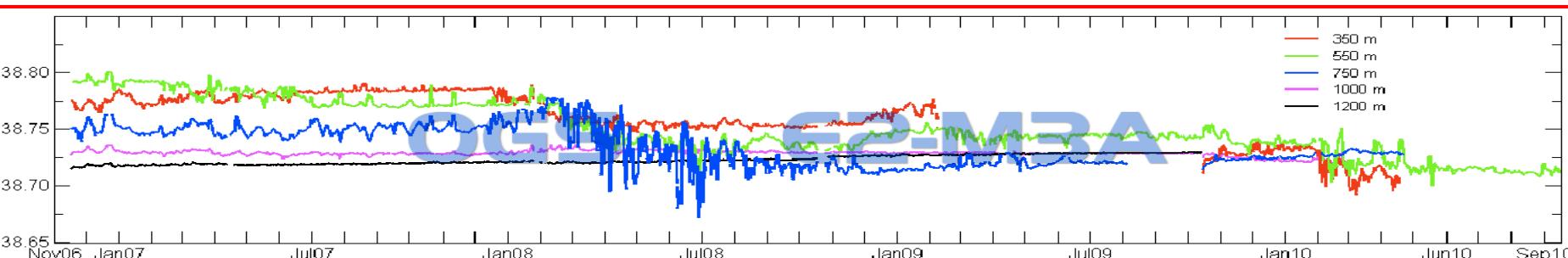


## E2M3A

*Oceanographic Measurements:  
CTD, Currents, Dissolved  
Oxygen, Turbidity, pH, pCO<sub>2</sub>,  
Transmittance*

*Atmospheric Measurements:  
Meteo, Infrared radiation, Solar  
Radiation*

*Future implementation:  
New CTD & Dissolved Oxygen  
sensors*



## Meteo-oceanographic infrastructures in the North Adriatic, Gulf of Trieste:

- one meteo-oceanographic buoy with sensors at 10 m (*MAMBO-1*)
- 3 profiling meteo-oceanographic buoys (*MAMBO-2, 3 and 4*)
- 3 Wave Buoys (*DWG-1, 2, 3*)
- 2 river current meters (*CM*)
- Long Term Ecological Research station (*LTER*) (*C1*)



### *Next year plans*

- Maintain the network in operation

All data managed by OGS – NODC (National Oceanographic Data Centre)



**NODC - National Oceanographic Data Center**  
ISTITUTO NAZIONALE DI OCEANOGRAFIA E DI GEOFISICA Sperimentale



The Data Centre



Who are we?  
Data Request and Submission  
Data Formats  
Data Quality Control  
Publications  
Links

Projects



ACTIVE  
EU SeaDataNet II  
EU EMODNET Chemistry  
JERICO  
ODIP  
CONCLUDED  
Adricom-EXT  
Adricom-STAR  
Archimede

Marine Information

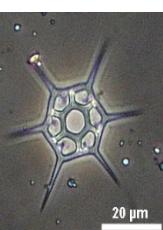
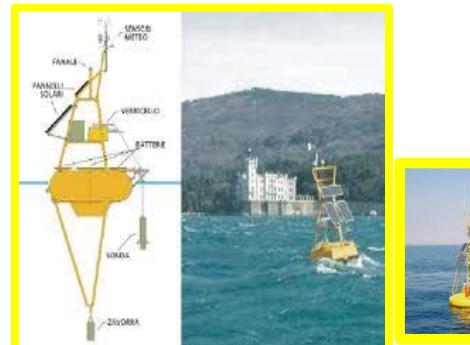


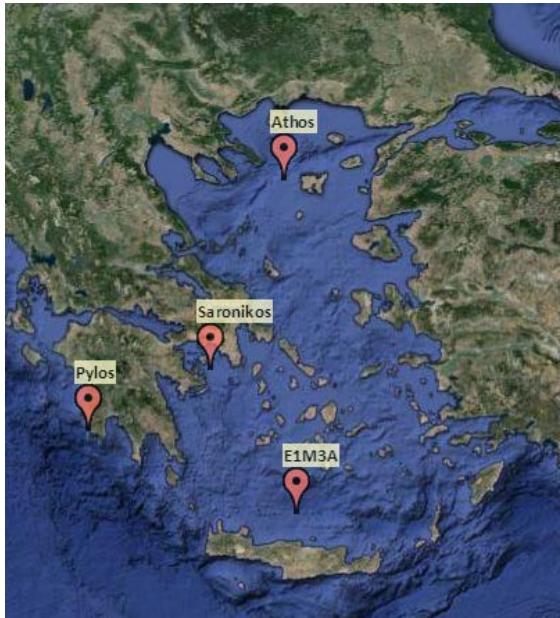
Catalogs  
CSR - Cruise Summary Reports  
EDMED - Marine Data Reports  
EDIOS - Operational Observing Systems  
EDMER - Marine Project Reports  
Other Metadata  
DOI Archive

Marine Data



Physics & Chemistry  
Data Distribution  
Biology  
LTER C1 station  
Operational Oceanography  
MAMBO Buoy  
E2M3A Southern Adriatic Observatory





## POSEIDON System

### Mooring network:

4 buoys are currently in operation

2 multiparametric stations (E1M3A, Pylos) restored their full recording capacity (down to 1000m).

North Aegean Station (Athos) – multiparametric configuration until 100m (offline)



**7 New Argo floats deployed in 2014**

2 (IONIO project)

1 (Perseus)

4 Greek Argo Infrastructure

**Next year plan: 6-8 new deployments**



Ferry Box Line (Athens – Crete) is maintained into operation

**Introduction of a glider component during 2015**

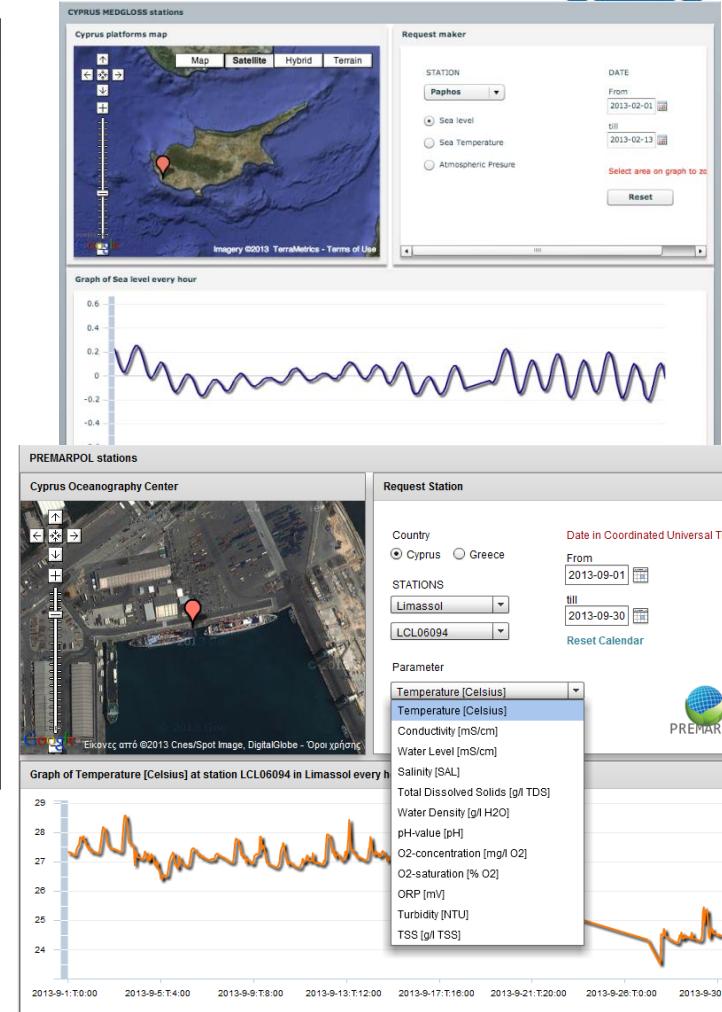


2 Gliders will be purchased in 2015 through national funds (tender will be announced till the end of 2014)

# CYCOFOS - Oceanographic Center of University of Cyprus

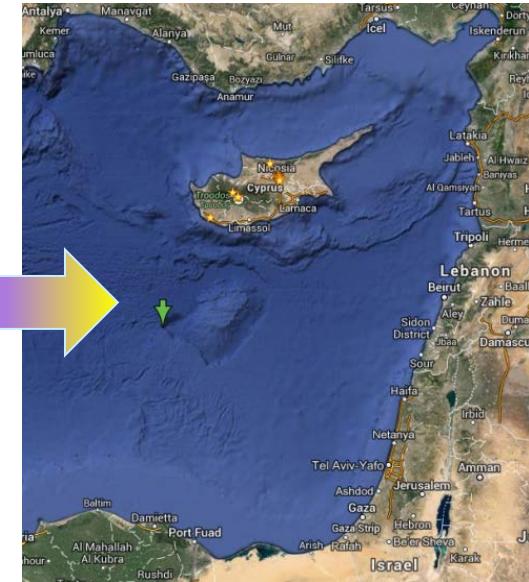
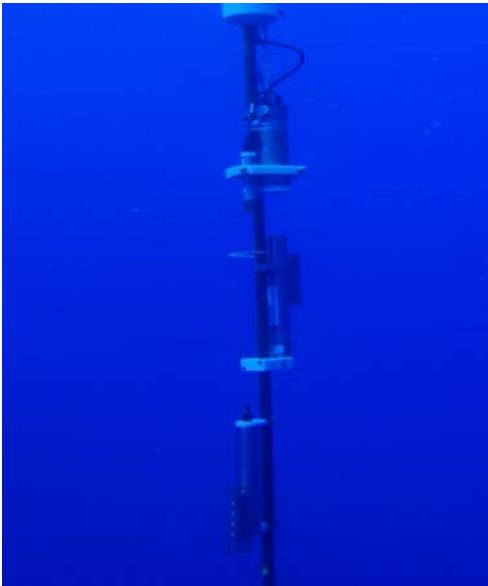


**Systematic Glider missions for monitoring the Levantine Sea**



**Sea level stations: Paphos, Larnaca, Paralimni, Zygi**

# New Capability for Marine Monitoring of the Eastern Levantine: The OC-UCY Floating Observatory



## Present applications

- Air Pressure (BAROS)
- Ocean Acidification: pCO<sub>2</sub>
- Conductivity-Temperature

## Large capacity for new payload

- Waves, currents, met, acoustics
- water quality, cameras

## Platform specifications

- Power:** Solar Panels  
**Processing:** Linux PC  
**Communications:** Iridium, local wi-fi, LAN

- Subsea:** Coupler to surface inductive modem, connector junction box

# Mediterranean Observing Capacity

# Fixed stations

MONGOOS inventory, updated on <http://www.mongoos.eu>



Waves: 51  
Sea level: 100  
Wind: 78  
Air Pressure: 81  
Air Temperature: 80  
Water Temperature: 113  
Currents: 37  
Salinity: 50

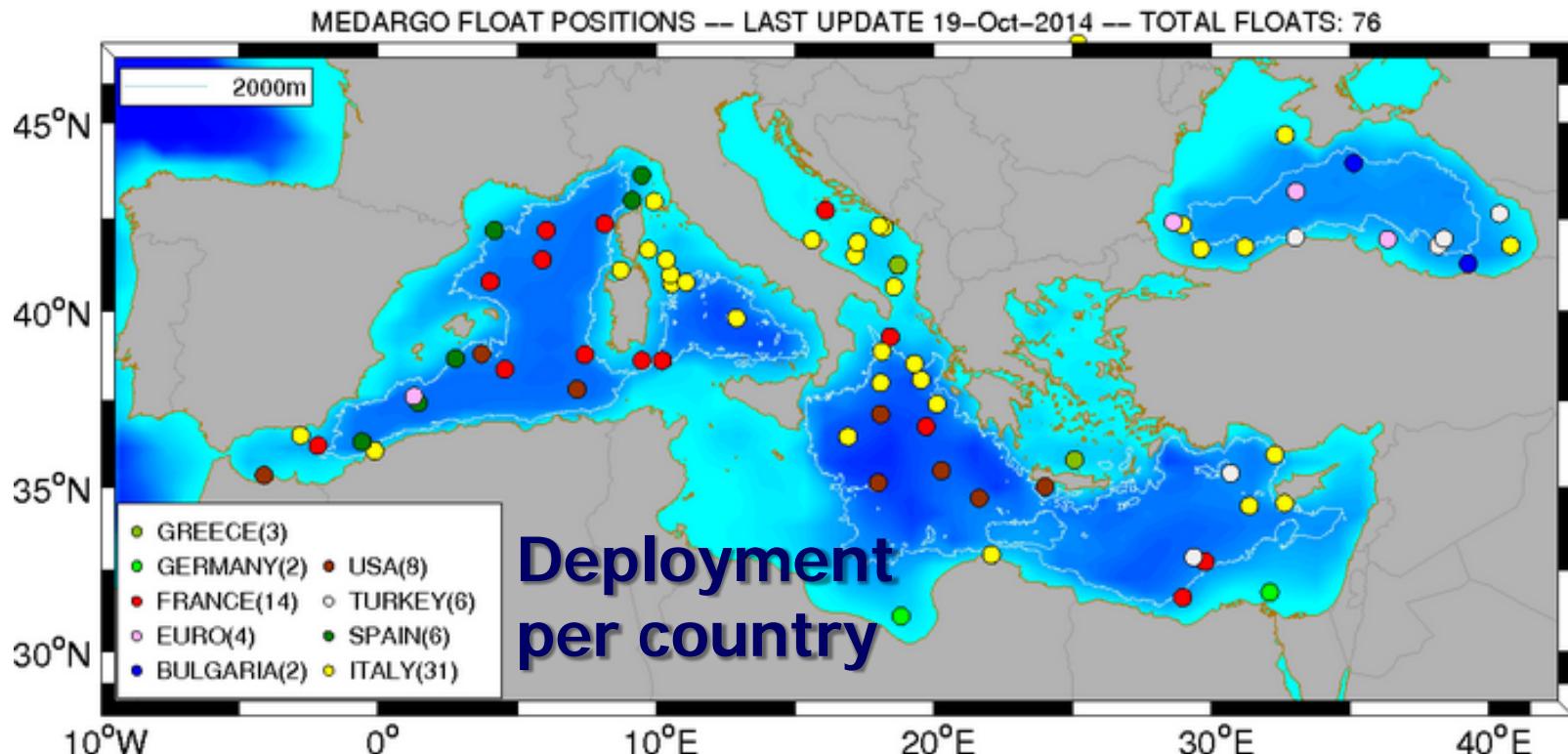


**8 Offshore Deep Ocean  
Multi Parametric  
Observatories**

LION  
ANTARES  
DYFAMED  
W1-M3A  
NEMO-SN1  
E2-M3A  
PYLOS  
E1-M3A

# MedArgo: Mediterranean Argo Regional Centre

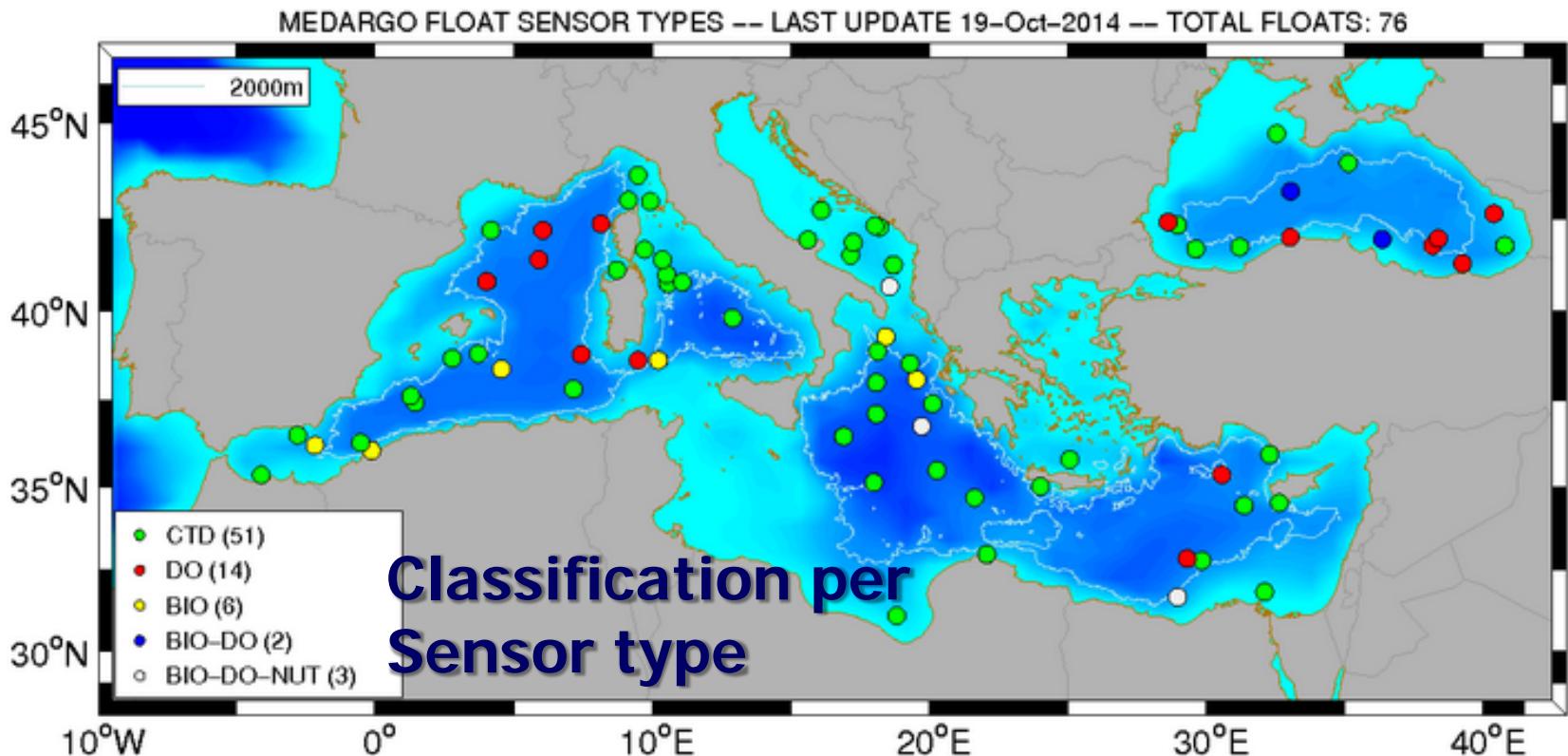
76 floats alive as of 19 October 2014

 MedArgo

<http://nettuno.ogs.trieste.it/sire/medargo/active/index.php>

# MedArgo: Mediterranean Argo Regional Centre

76 floats alive as of 19 October 2014



MedArgo



<http://nettuno.ogs.trieste.it/sire/medargo/active/index.php>

## Deployments/Collaborations plans for end 2014 and 2015

### 2014 deployments

- 7 BioArgo-France (1 ProvBio, 6 Provor DO)
- 15 Argo-Italy (12 Arvor, 2 ProvBio, 1 ProvNut)
- 2 Argo-Turkey (2 Provor DO)
- 4 Euro (1 Arvor A3, 1 Provor DO, 1 Nova) (E-AIMS, Perseus, IONIO)
- 2 Greek Argo (2 Nova)
- 3 USA (3 Apex)

**32 new floats (6 countries):**

#### BULGARIA:

- ITALY:** 1 Med (2014), 10 Med (2015); 4 BIO Med (2015), 2 BS (2015)  
**FRANCE:** 14 BIO Med (NAOS)  
**GREECE:** 1 Med (2014), 3 Med (2015)  
**SPAIN:** 1 Med (2014), 3 Med (2015)  
**GERMANY:** 2 Med (2014), 3 Med (2015)  
**TURKEY:**  
**ROMANIA:** 1 BS (bio) (2014)  
**USA:** unknown

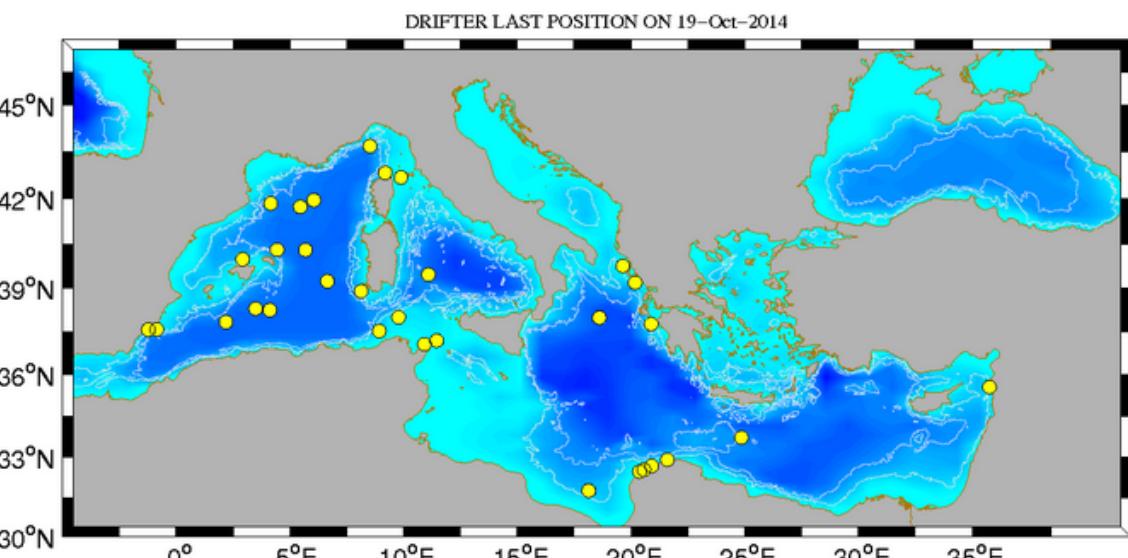
**TOTAL → 45 floats should be  
deployed before the end of 2015**

Collaborations already established with Malta, Lebanon

Possible future collaborations: Tunisia (Sicily Channel), Algeria (Algerian current)

# MedSVP: Mediterranean Surface Velocity Programme

32 drifters alive as of 19 October 2014



## 2014 deployments

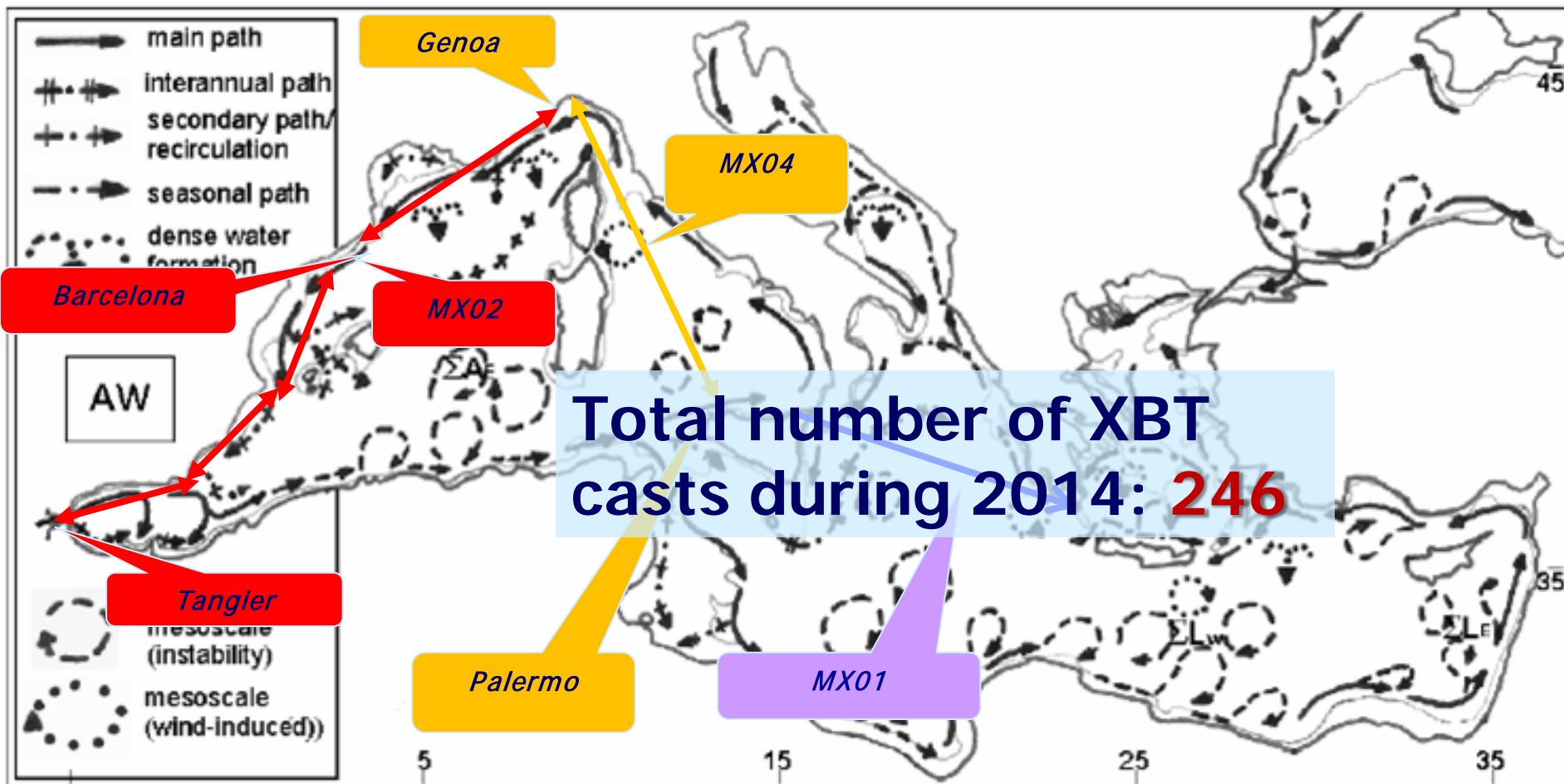
- 5 SVP (REP 2014)
- 25 SVP (ALBOREX)
- 17 CODE (MEDESS)
- 8 SVP (ALTIFLOAT)
- 8 SVP (SOCIB-IMEDEA)
- 16 SVP (IONIAN)

**Total : 79 drifters**

## Deployments plans for 2014-15

Italy: 10 CODE in the Northern Adriatic (RITMARE) & 30 SVP in the Mediterranean (Tunisian Shelf, Eastern Levantine, Northern Adriatic)  
Spain:??

# Ships Of Opportunity in the Mediterranean : XBT activity during 2014





# Ships Of Opportunity in the Mediterranean : XBT activity during 2014

**mx01**

	SHIP	T4	Deep Blue	T5/20	XCTD-1	Total
13/05/2014	Daniel A		22	7		29
05/08/2014	Daniel A		16	7	2	25
14/10/2014	Daniel A		21		2	23

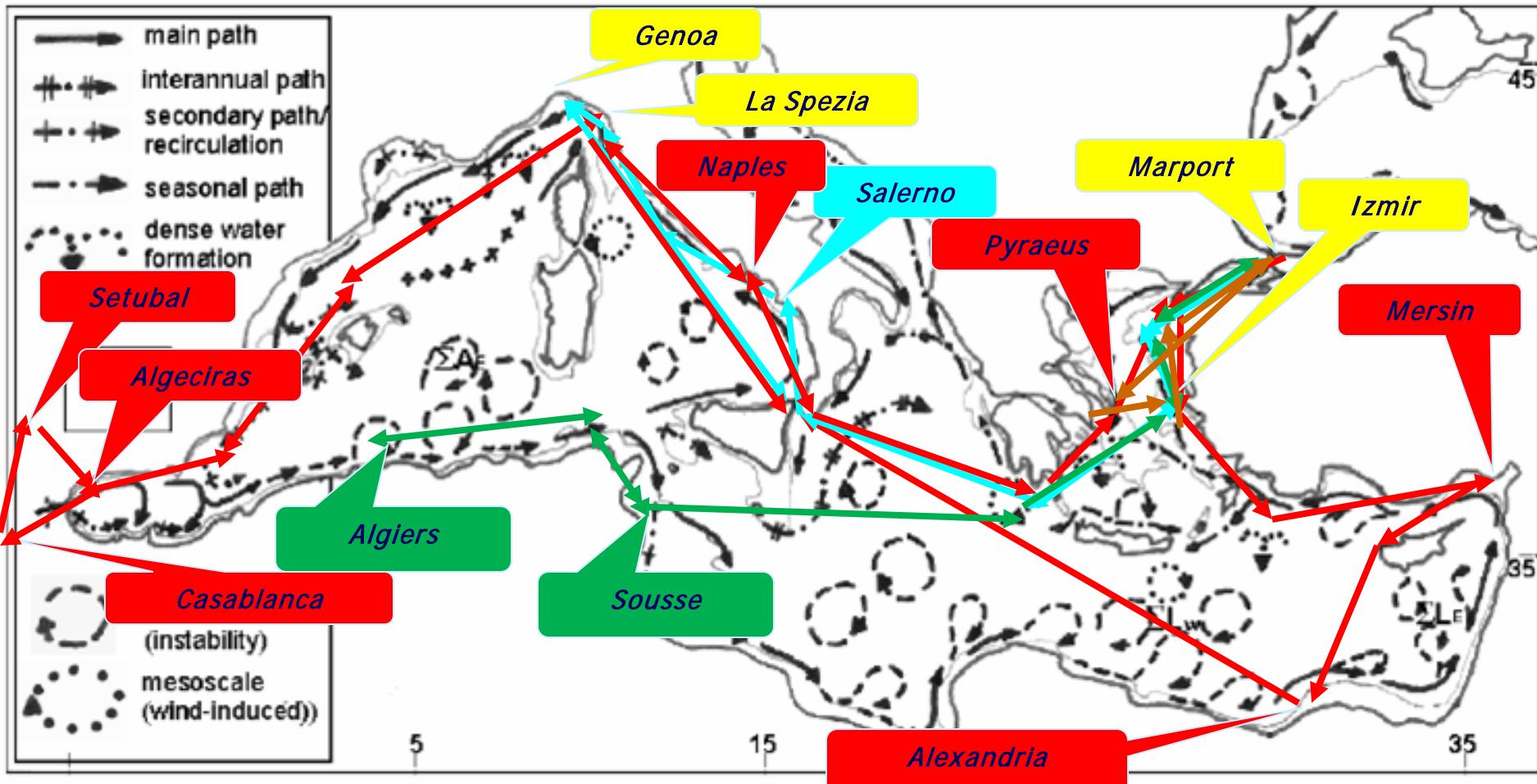
**mx02**

10/03/2014	Excellent	30	5	35
27/11/2014	To be done			

**mx04**

20/02/2014	La Superba	3	19	7	29
28/04/2014	La Superba	4	18	9	31
04/06/2014	La Superba	5	16	7	28
05/08/2014	Daniel A		9		9
25/09/2014	La Superba	2	20	5	27
13/10/2014	Daniel A			10	10

# E-SURFMAR in the Mediterranean 2014



→ Hilde A & Marguerite A = same line

→ Daniel A

→ Natalia A

→ Ayse A

*In yellow ports common to the lines*

## E-SURFMAR in the Mediterranean 2014

AWS call sign	Ship name	Ship call sign	Ship IMO	Ship owner	Country owner
BAREU51	La Superba	ICGK	9214276	Grandi Navi Veloci	Italy
BAREU62	Daniel A	TCLA	9238064	Arkas Shipping	Turkey
BAREU66	Excellent	IBBE	9143441	Grandi Navi Veloci	Italy
BAREU67	Hilde A	TCXV7	9305908	Arkas Shipping	Turkey
BAREU70	Marguerite A	TCPV5	9305893	Arkas Shipping	Turkey
BAREU74	Ayse A	TCM9	8415639	Arkas Shipping	Turkey

# Mediterranean Gliders fleet - 2014



Institute	CSIC/SOCIB	CNRS	OGS	OC-UCY
Country	Spain	France	Italy	Cyprus
Number of Gliders	7	15	3	2
Type of Gliders	Slocum shallow(1), Slocum deep(4), Seaglider (2)	Slocum deep (8), Slocum shallow (4) Spray (2) Seaglider (1)	Seaglider (1), Slocum shallow (2)	Seaglider (2)
Payload	CTD, DO, Fluor CHLa, Turbidity	CTD, DO, Fluor CHLa, CDOM, Phycoerythrine, SUNA, Backscatter	CTD, DO, Fluor CHLa, Backscatter	CTD, DO, Fluor CHLa, Backscatter

**Total number : 27**  
**Slocum deep 12**  
**Slocum shallow 7**  
**Seaglider 6**  
**Spray 2**  
**Routine monitoring missions established in West and East Med**

# High resolution recording of surface currents – HF Radar systems



27 active systems declared in the survey of the EuroGOOS HF Radar Group. Known existing installations (eg. Nice) are still missing

## Major identified gaps in the Mediterranean observing capacity

- ✓ There are extended areas with small or not at all observing capacity:
  - (a) The southern part (along the African coasts) of the Mediterranean is currently recorded only through passing Lagrangian platforms (mainly argo floats), while no permanent observatories are present
  - (b) The Eastern Mediterranean is clearly under-sampled with only few permanent observatories available.
- ✓ Biogeochemical measurements through in-situ platforms are rare throughout the Mediterranean. The biochemical component of the Mediterranean monitoring system is still very weak

The need for a better coordination of operational observing systems is evident

# The Mediterranean Ocean Observing Data Center

# The Mediterranean Data Center

- Collects and process data from Insitu platforms in the Mediterranean Sea
- The regional node for the Insitu component of the Copernicus Marine Core Service (MCS)
- Single point access for data provision to Med Marine Forecasting Center (MFC)
- Distributes added value (quality controlled) data in a unique format
- Built through MyOcean I&II, ***but it supports the Mediterranean observing component of major EU projects in Operational Oceanography*** (Jerico, Perseus, FixO3).
- Continuously expanded in terms of capacity in order to gather all the available data from the insitu platforms in the Med.

# In situ Thematic Assembly Centers (TACs): A regional organization

## North West Shelves: BSH/Germany

- Temp & Salinity : BSH/Germany
- Current: SMHI/Sweden
- Sea Level: DMI/Denmark

## Arctic: IMR / Norway all data

## Baltic Sea: SMHI/Sweden

- Temp & Salinity : BSH/Germany
- Current: SMHI/Sweden
- Sea Level: DMI/Denmark
- Bio : FMI-Syke/Finland

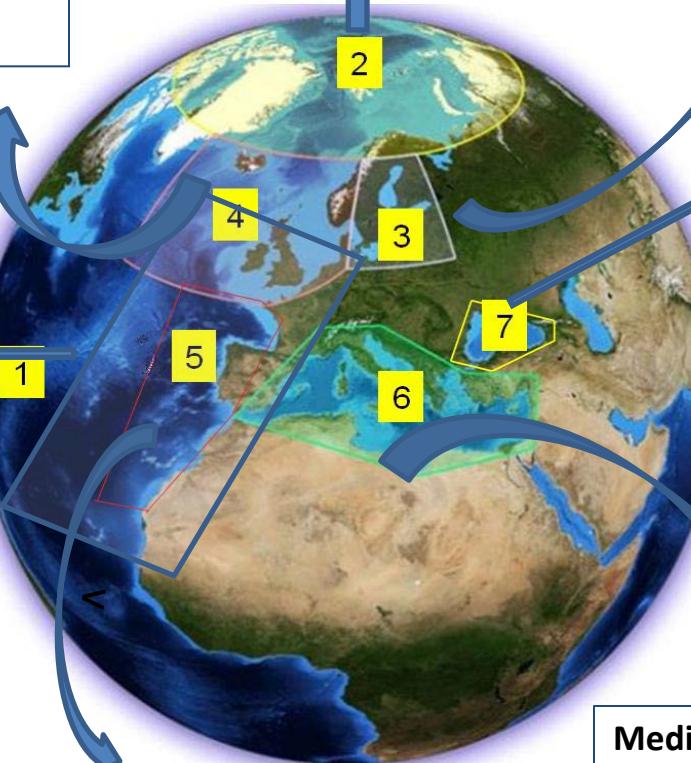
## Global Ocean : Coriolis/France

- Link with international network s: Coriolis/France
- ARGO: Coriolis,BODC,BSH
- European Vessels:  
NIVA/Norway



## South West Shelves: Puertos Del Estado/Spain

- Mooring : PdE
- Underway data: Coriolis/France



## 16 Partners/ 11 countries Ensure the link with :

- International networks
- EuroGOOS ROOSes
- SeaDataNet

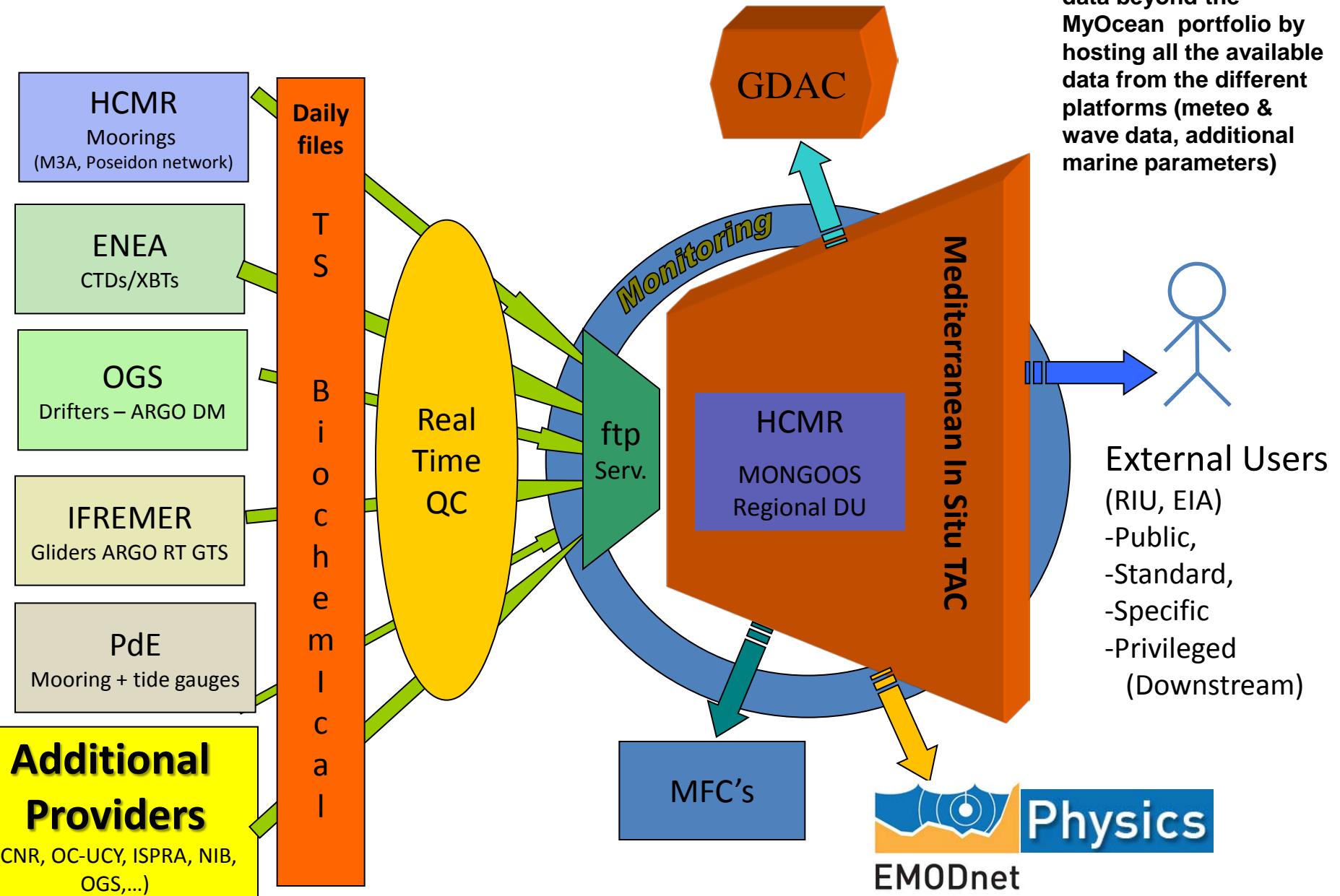
**Process data in a common  
but distributed manner for  
MyO & ROOSes needs**

## Mediterranean Sea : HCMR/Greece

- Mooring : HCMR/Greece
- XBT/CTD: ENEA/Italy
- Drifter & Argo: OGS/Italy
- Glider and Argo: Coriolis/France

**Infrastructure built on EuroGOOS strategy and  
supported through MyOcean I&II projects**

# The Mediterranean Data Center – Production line



# The Mediterranean Data Center

*Data availability on 24th of November 2014 (1990-now)*



198 profilers  
76 active



35 Gliders



82 moorings  
57 active



1295 drifters  
14 active



187 XBTs  
2 active



190 CTDs



146 Thermosalinographs  
7 active

**2082 unique platforms**

**34354 total files**

# The Mediterranean Data Center

## *Platform additions during the last year*

*Institution: UPC - Universitat Politecnica de Catalunya - Spain*

### **OBSEA – Platform: Moored Buoy**

- Website: <http://www.obsea.es>
- Parameters:
  - Atmospheric pressure at sea level ( hectopascal )
  - Air temperature in dry bulb ( degree\_Celsius )
  - Wind from direction relative true north ( degree )
  - Horizontal wind speed ( meters/second )
  - Sea temperature ( degree\_Celsius )
  - Electrical conductivity ( S/m )
  - Practical salinity ( psu )
  - Sound velocity ( meters/second )
- ***Start date: 19-01-2014***



# The Mediterranean Data Center

## Platform additions during the last year

Institution: Center for Advanced Studies of Blanes (CEAB) – Spain

### OOCS – Platform : Moored Buoy/Bottles/CTD

- Website <http://www2.ceab.csic.es/oceans>

• Buoy:

- Air temperature in dry bulb (degree\_celsius)
- Relative humidity (%)
- Atmospheric pressure at altitude (hectopascal)
- Horizontal wind speed (meter/second)
- Wind from direction relative true north (degree)
- Light Irradiance Surface PAR ( micromole photon/(m<sup>2</sup>.s) )
- Current to direction relative true north (degree)
- Horizontal current speed (meter/second)
- Sea temperature ( degree\_Celsius )
- Practical salinity ( psu )
- Sea pressure (decibar)

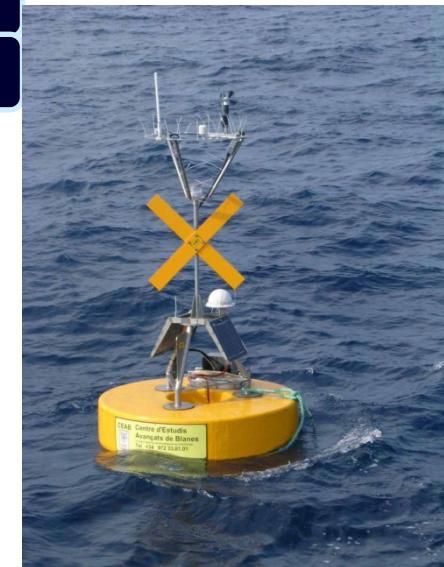
• Bottles:

- Nitrate, Nitrite, Silicate, Phosphate, Ammonium concentration in sea water (millimole/m<sup>3</sup>)

• CTD:

- Light Irradiance Surface PAR ( micromole photon/(m<sup>2</sup>.s) )
- Sea temperature ( degree\_Celsius )
- Electrical conductivity ( S/m )
- Practical salinity ( psu )
- Turbidity ( milliT.U Formaz Turb Unit )
- Dissolved oxygen ( ml/l )
- Dissolved oxygen ( micromole/kg )
- Fluorescence ( milligram/m<sup>3</sup> )
- Sea sigma-theta ( kg/m<sup>3</sup> )

• Start date: 10-01-2014



## *Platform additions during the last year*

*Institution: Istituto Nazionale di Oceanografia e di Geofisica Sperimentale (OGS) – Italy*

### E2M3A –Platform: Moored Buoy

- Website: <http://nettuno.ogs.trieste.it/e2-m3a/>
- Type: Buoy
- Parameters:
  - Temperature of the atmosphere ( degree\_Celsius )
  - Atmospheric pressure at sea level ( hectopascal )
  - Relative humidity ( % )
  - Wind from direction relative true north ( degree )
  - Horizontal wind speed ( meters/second )
  - Sea temperature ( degree\_Celsius )
  - Electrical conductivity ( S/m )
  - Dissolved oxygen ( millimole/m<sup>3</sup> )
  - Downwelling vector irradiance as energy (longwave) in the atmosphere ( Watts per square metre )
- Start date: 24-10-2014



## *Platform additions during the last year*

*Institution: Istituto Nazionale di Oceanografia e di Geofisica Sperimentale (OGS) – Italy*

### DWRG1 – Platform: Moored Buoy

- Website: <http://gotts.inogs.it/>
- Parameters:
  - Average zero crossing period of waves {Tz} on the water body ( second )
- Start date: 24-10-2014



### DWRG2– Platform: Moored Buoy

- Website: <http://gotts.inogs.it/>
- Parameters:
  - Average zero crossing period of waves {Tz} on the water body ( second )
- Start date: 23-10-2014

## *Platform additions during the last year*

*Institution: Istituto Superiore per la Protezione e la Ricerca Ambientale ( ISPRA ) - Italy*

### **RMNGE – Platform: Moored Buoy**

- Website: <http://www.isprambiente.gov.it/it>
- Parameters:
  - Wind from direction relative true north ( degree )
  - Horizontal wind speed ( meters/second )
  - Sea temperature ( degree\_Celsius )
- Start date: 05-04-2014

### **RMNSP – Platform: Moored Buoy**

- Website: <http://www.isprambiente.gov.it/it>
- Parameters:
  - Wind from direction relative true north ( degree )
  - Horizontal wind speed ( meters/second )
  - Sea temperature ( degree\_Celsius )
- Start date: 05-04-2014

### **RONSV – Platform: Moored Buoy**

- Website: <http://www.isprambiente.gov.it/it>
- Parameters:
  - Wind from direction relative true north ( degree )
  - Horizontal wind speed ( meters/second )
  - Sea temperature ( degree\_Celsius )
- Start date: 01-06-2014



## *Platform additions during the last year*

*Institution: Consiglio Nazionale delle Ricerche - Istituto di Studi sui Sistemi Intelligenti per l'Automazione ( CNR-ISSIA ) - Italy*

### W1M3A – Platform: Moored Buoy

- Website: <http://www.udas.ge.issia.cnr.it/OI1/modules/system/home.php>
- Parameters:
  - Atmospheric pressure at sea level ( hectopascal )
  - Air temperature in dry bulb ( degree\_Celsius )
  - Gust wind speed ( meters/second )
  - Long-wave incoming radiation ( watt/m<sup>2</sup> )
  - Hourly precipitation rate ( millimeter/hour )
  - Incident radiation ( W/m<sup>2</sup> )
  - Relative humidity ( % )
  - Wind from direction relative true north ( degree )
  - Horizontal wind speed ( meters/second )
  - Sea temperature ( degree\_Celsius )
  - Practical salinity ( psu )
  - Aver. Height Highest 1/3 Wave (meter)
  - Wave direction rel. true north ( degree )
  - Turbidity ( milliT.U Formaz Turb Unit )
  - Fluorescence ( milligram/m<sup>3</sup> )
  - Oxygen saturation ( % )
- Start date: 01-09-2013



## *Platform additions during the last year*

Institution: National Institute of Biology - Marine Biology Station (NIB-MBS) - Slovenia

### VIDA-Platform: Moored Buoy

- Website: <http://buoy.mbs.su>
- Type: Buoy
- Parameters:
  - Air temperature in dry bulb ( degree\_Celsius )
  - Relative humidity ( % )
  - Wind from direction relative true north ( degree )
  - Horizontal wind speed ( meters/second )
  - Sea temperature ( degree\_Celsius )
  - Practical salinity ( psu )
  - West-east current component ( meters/second )
  - South-north current component ( meters/second )
- Start date: 17-06-2013



# The Mediterranean Data Center

## *Platform additions during 2014*

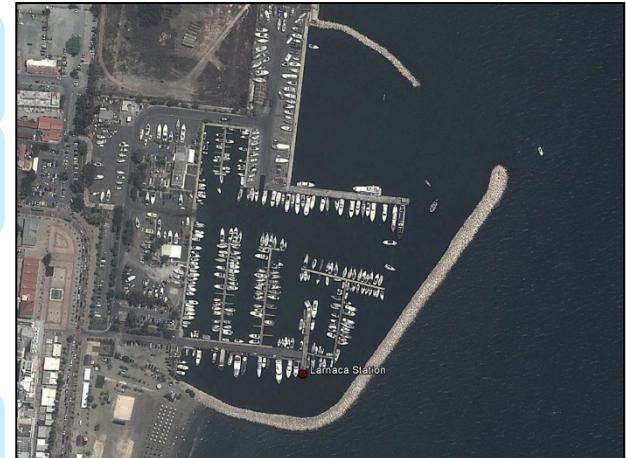
*Institution: Oceanography Center – University of Cyprus (OC-UCY) - Cyprus*

### Paphos

- Website: <http://www.oceanography.ucy.ac.cy/>
- Sea Level ( meters )
- Sea temperature ( degree\_Celsius )
- Start date: 24-11-2014

### Larnaca

- Website: <http://www.oceanography.ucy.ac.cy/>
- Sea Level ( meters )
- Sea temperature ( degree\_Celsius )
- Start date: 24-11-2014



### Paralimni

- Website: <http://www.oceanography.ucy.ac.cy/>
- Sea Level ( meters )
- Sea temperature ( degree\_Celsius )
- Start date: 24-11-2014

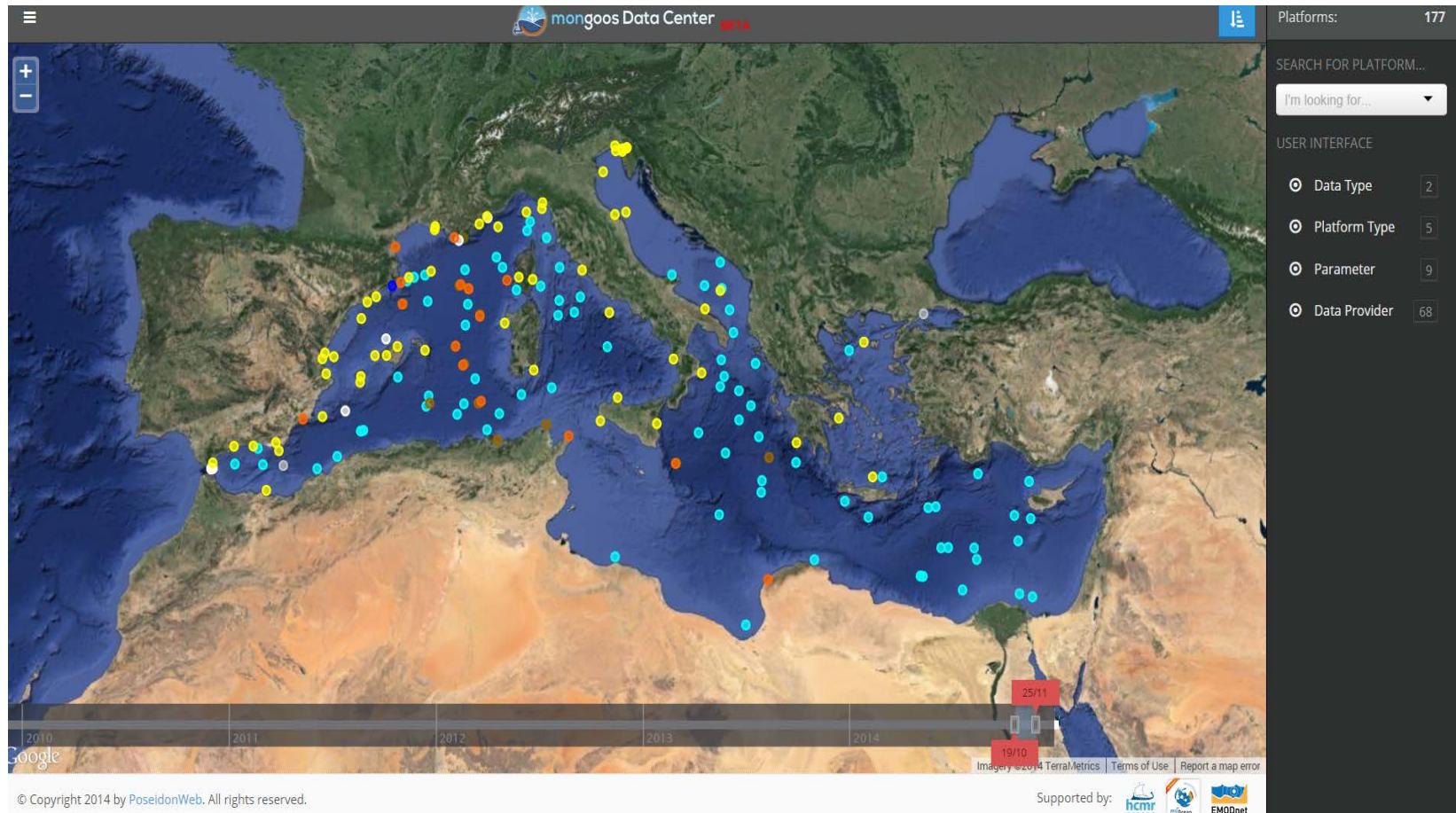


### Zygi

- Website: <http://www.oceanography.ucy.ac.cy/>
- Sea Level ( meters )
- Sea temperature ( degree\_Celsius )
- Start date: 24-11-2014

# The Mediterranean Data Center has its own web portal now

Data availability on 25/11/2014 – 177 active platforms



<http://oceanobs.mongoos.eu>

## *Technical info + Status by 25-11-2014*

Development with open source technologies:

- Linux operating system
- Python for backend infrastructure
- Postgres database with PostGIS
- PHP, HTML, CSS, Javascript in frontend

Data stored in two ways:

1. NetCDF files
  - MyOcean FTP site ([medinsitu.hcmr.gr](http://medinsitu.hcmr.gr))
  - Historical datasets from 1990
2. Database
  - Mongoos Ocean Observing System ([oceanobs.mongoos.eu](http://oceanobs.mongoos.eu))
  - Historical datasets from 2010
  - Database update in hourly basis

Next steps:

- Beta phase ends at April 2015. User feedback must be evaluated
- Optimize performance
- Expand compatibility to Internet Explorer and Safari
- Optimize responsive layout
- Extend database with more datasets from past years
- User management and connection with OpenID ([MyOcean](#), [MonGOOS](#))
- Download data in ASCII, xls, csv, NetCDF formats

## *Known gaps in spatial coverage*

### **Western Mediterranean**

- SOCIB/IMEDEA platforms in Balearic Sea - **Data aggregation on going**

### **Adriatic Sea**

- CNR ISMAR offshore stations – **Data aggregation on going**
- Croatian stations

### **Corsica/Sicily**

- Offshore platforms operated by CNR-ISMAR is missing – **Data aggregation on going**

### **Malta**

- Coastal stations are missing (T&S, sea level)

### **Cyprus**

- Missing coastal stations (T&S, sea level) - **Data transfer started**
- Data from glider missions is included

### **Turkey**

- Data from Mediterranean platforms is missing – **Agreement with METU**

### **Israel**

- Coastal stations (T&S, sea level) are missing

### **Northern African coast**

- No data is available – Limited knowledge about capacity

# Compliments to the people provided input

- ✓ Marta de Alfonso (Puertos del Estados)
- ✓ Charles Troupin (SOCIB)
- ✓ Patrick Raimbault (MOOSE)
- ✓ Fabio Raicich (CNR-ISMAR)
- ✓ Vanessa Cardin (OGS)
- ✓ Vlado Malacic (NIB)
- ✓ Maja Jeromel (Slovenian Environment Agency)
- ✓ George Zodiatis (OC-UCY)
- ✓ Pierre Marie Poulain & G. Notarstefano (OGS, Med Argo and Drifters)
- ✓ Franco Reseghetti (ENEA, Med XBTs & E-SURFMAR)
- ✓ Daniel Hayes (OC-UCY, Med Gliders)
- ✓ Patrick Gorringe (EuroGOOS, Med HF Radar)

# Thank you for your attention