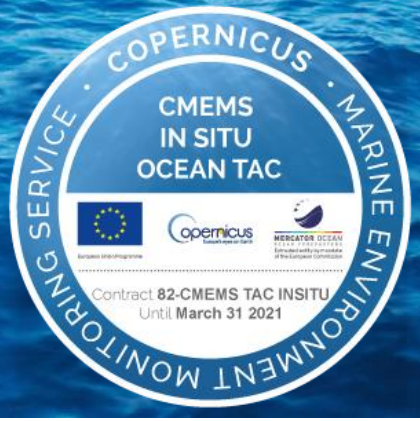


marine.copernicus.eu

Assessment of existing services and new services provided by the Copernicus Marine In Situ Thematic Assembly centre (INSTAC)

Loïc Petit de la Villéon & Sylvie Pouliquen (Ifremer)
and all the in Situ TAC Team

Presentation Summary

- **Context: the Copernicus Marine Service (CMEMS) and its In Situ component (INSTAC)**
- **What has been done during phase 1 of CMEMS (2015-2017)**
- **What is scheduled and already started to be done for phase 2 (2018-2020)**

Where is the INSTAC within CMEMS

3 components:

- Space
- Insitu
- Services

→

Atmosphere Monitoring
Climate Change
Marine Monitoring (CMEMS)
Land Monitoring
Security
Emergency Management

→

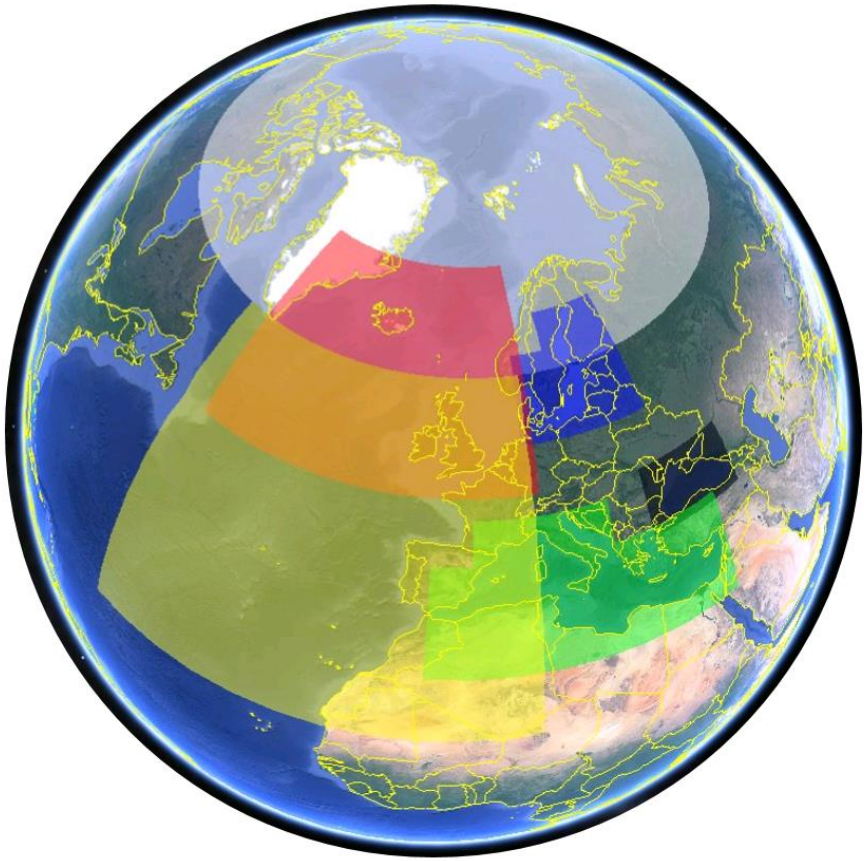
7 MFCs (models)
- GLO MFC
- ARC MFC
- BAL MFC
- NWS MFC
- IBI MFC
- MED MFC
- BS MFC

8 TACs (Observations)
- **In Situ TAC**
- 6 Space TACs:
  - OCTAC,
  - SLTAC, …
- 1 Multi Ob.

CIS

In Situ TAC: Organization (2018)

IN SITU TAC ORGANIZATION Leader: Ifremer / France



Management & Operations
7 Regions

Global:	Ifremer / France
Arctic:	IMR / Norway
Baltic:	SMHI / Sweeden
NWS:	BSH / Germany
IBI:	Puertos del Estado / Spain
MED:	HCMR / Greece
Black Sea:	IOBAS / Bulgaria

Scientific Expertise Cross Cutting

Product Quality:	Oceanscope-PdE-IMR
Multi Year:	SOCIB-OceanScope-PdE
BGC assim.:	IMR

System Evolution

HF Radar:	AZTI-CNR-SOCIB
Carbon Data:	UIB
BGC assessment:	IMR-HCMR-SYKE
Monitoring:	SOCIB-PdE-HCMR

In Situ TAC: general description

The objective of the IN SITU component of the CMEMS

Copernicus Marine Environmental Monitoring service- is

- **To provide Near real time data to be assimilated in the MFC –Marine Forecasting centres**
- **To provide materials (sea truth) to be used to validate the model outputs**
- **(delayed mode data)**
- **To provide materials as a contribution to added value products and reports such as the Ocean State Report (OSR) and Ocean Monitoring Indicators (OMIs)**

In Situ TAC: general description

General characteristics:

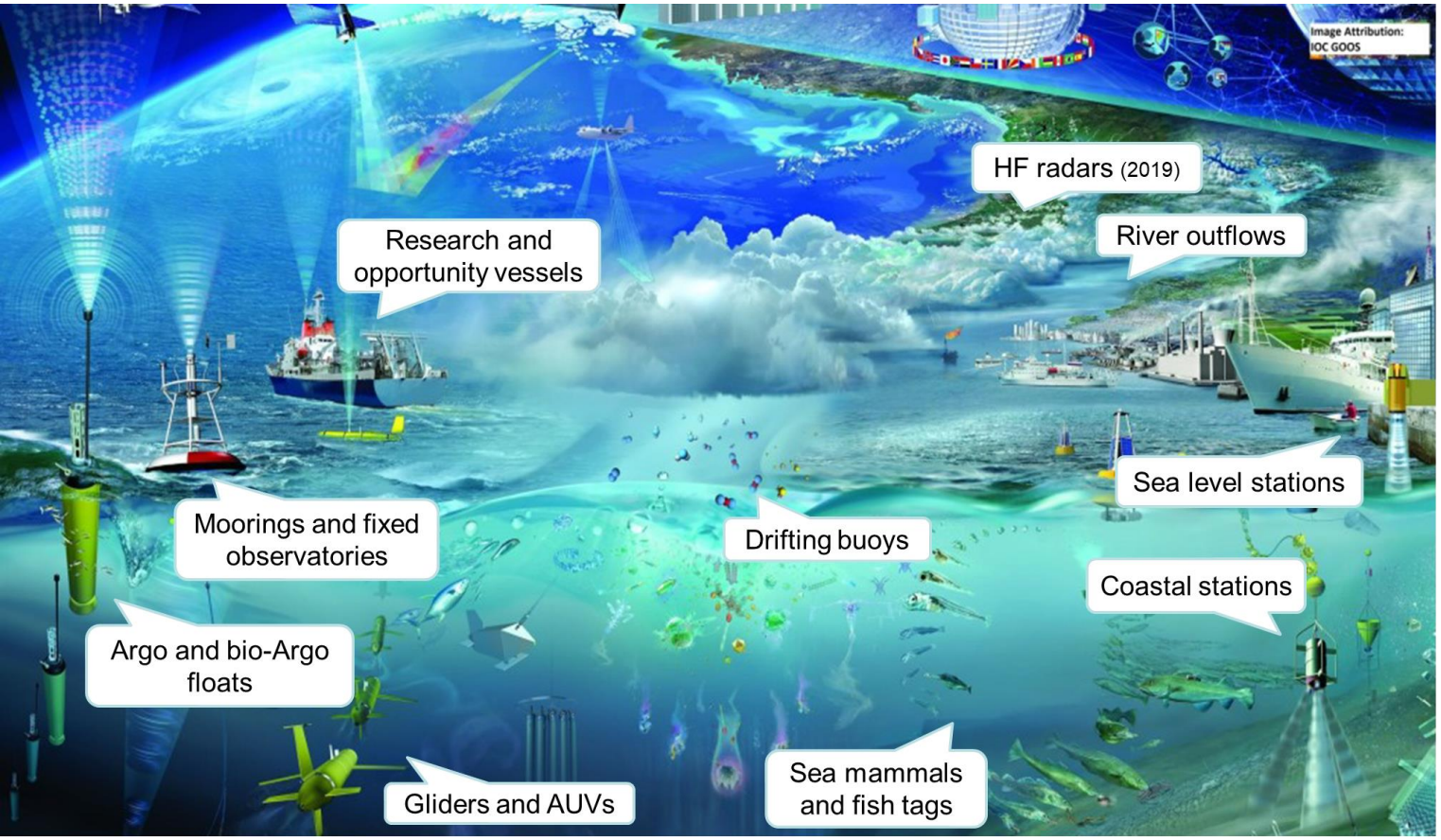
- **Fully operational service** since April 2015
- **7 Components:** Global + 6 regions (Arctic, Baltic, NWS, IBI, MED and BlackSea)
- **Same data format** (NetCDF - OceanSites 1.2)
- **Same FTP structure**
- **Same RTQC** & quality indexes
- **NRT** (near real time) and **REP** (reprocessed) products

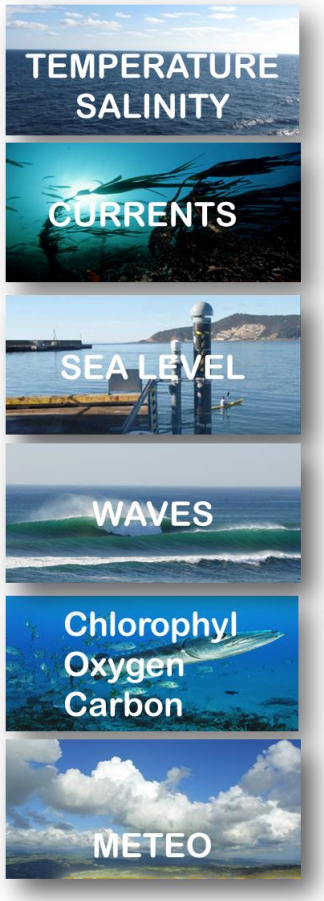
7 regional contributions
1 unique approach

Functions implemented:

- **Acquisition** from international networks and regional providers
- **Quality control:** agreed procedures following EuroGOOS DATA-MEQ WG recommendations in coherence with international agreements (SeaDataNet,…)
- **Product validation & assessment**: assess the consistency of the data

In Situ TAC: Organization (2018)



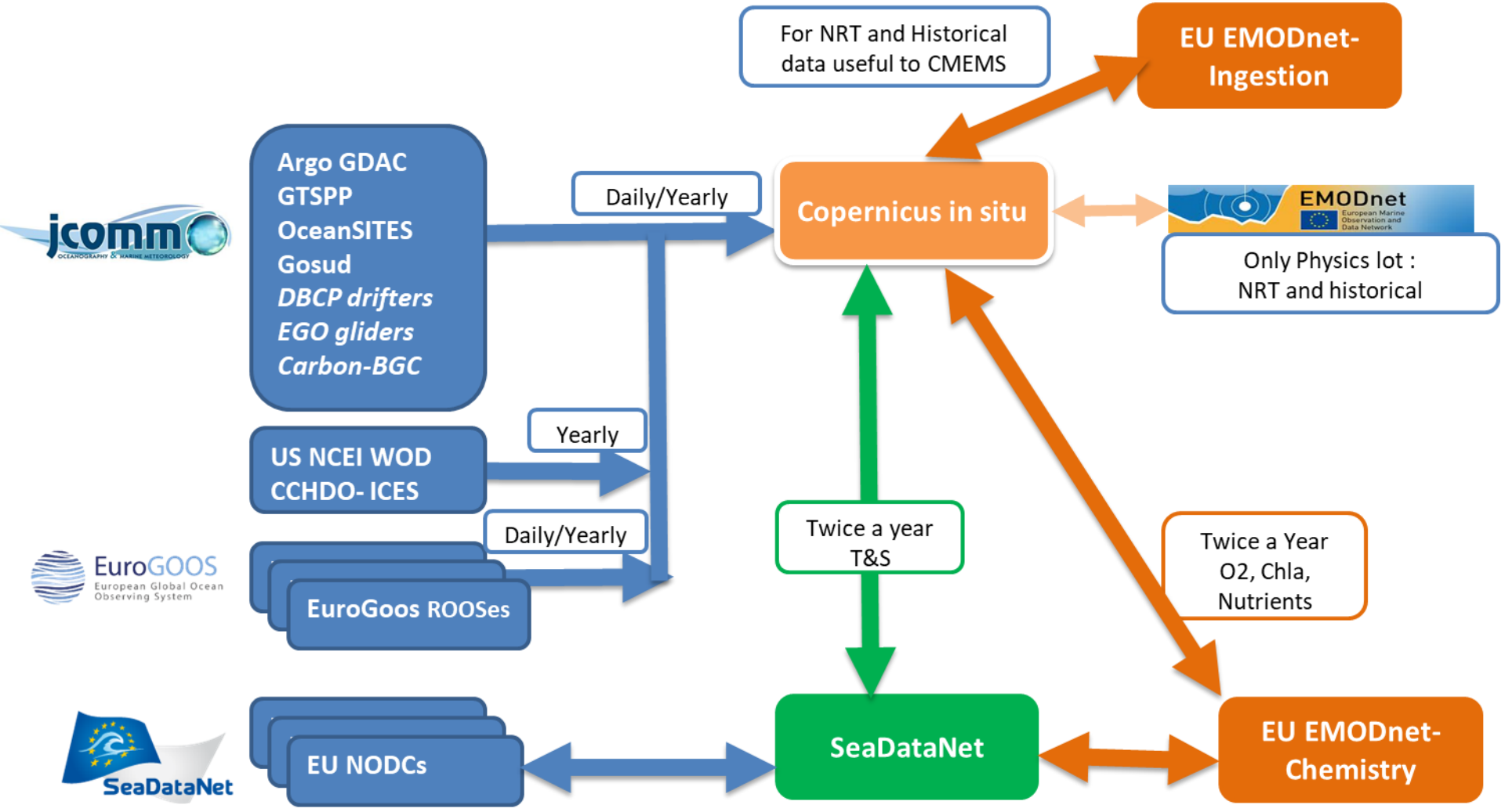


Credit: Global Ocean Observing System Office (IOC-GOOS)

In Situ TAC Products Catalogue

	Near Real Time Updated Hourly	Reprocessed MultiYear Updated every 6 month	Ocean Monitoring Indicators Updated every 6 months
 Temperature -Salinity	Since 2015	Since 2015	OHC Since 2018 OHF planned 2020 Anomalies planned 2019
 Current	Since 2015 Planned 2019 : add HR Radar	Since 2016 : Drifter only Planned 2019 : add VM-ADCP 2020 HF Radar	Atl-Arc exchange Baltic inflow 2018 Med outflow planned 2019
 Sea Level	Since 2015		Ocean steric height planned 2020 Anomalies SLEV planned 2020
 Waves	Since 2017	Since 2018	Anomalies SWH planned 2019
 Oxygen-Chlorophyll-a-Nutrients	Since 2017	Since 2018	Black Sea O2 planned 2019
 Carbon	Planned 2019	Planned 2019	

CMEMS IN SITU TAC integrated in the European and International in Situ data management landscape



CMEMS IN Su TAC integrated in the European and International in Situ data management landscape

Close collaboration with SeaDataNet on:

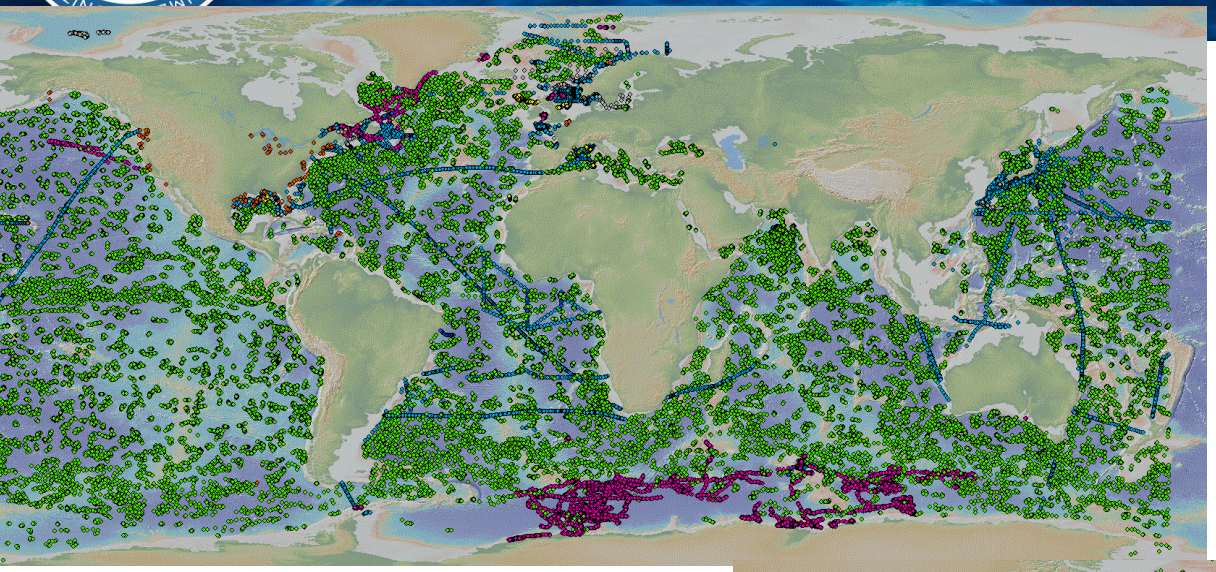
- QC procedures, Standards (vocabularies, formats, catalogues), Regional climatologies,
- Delayed Mode products: INSTAC integrates the Best copy of the data coming from SeaDataNet Infrastructure with data available at International level.

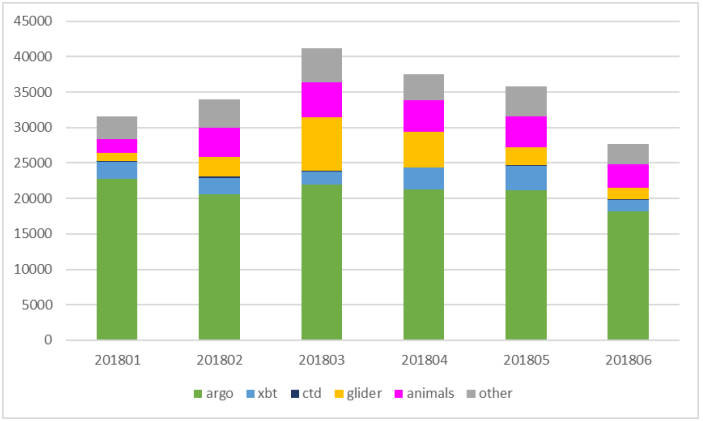
Close collaboration with EUROGOOS ROOSes who operate most of the European national observing systems.

Close collaboration with International **JCOMM** observing systems: Coriolis hosts the GDACs for Argo, GOSUD and OceanSITES.

Close collaboration with EMODnet-Physics for integrating more providers in European system and **EMODnet-Chemistry (new in phase 2)** for the enhancement of BGC REP products in link with **ICOS Ocean**

Spring 2018 at INSTAC: profile data



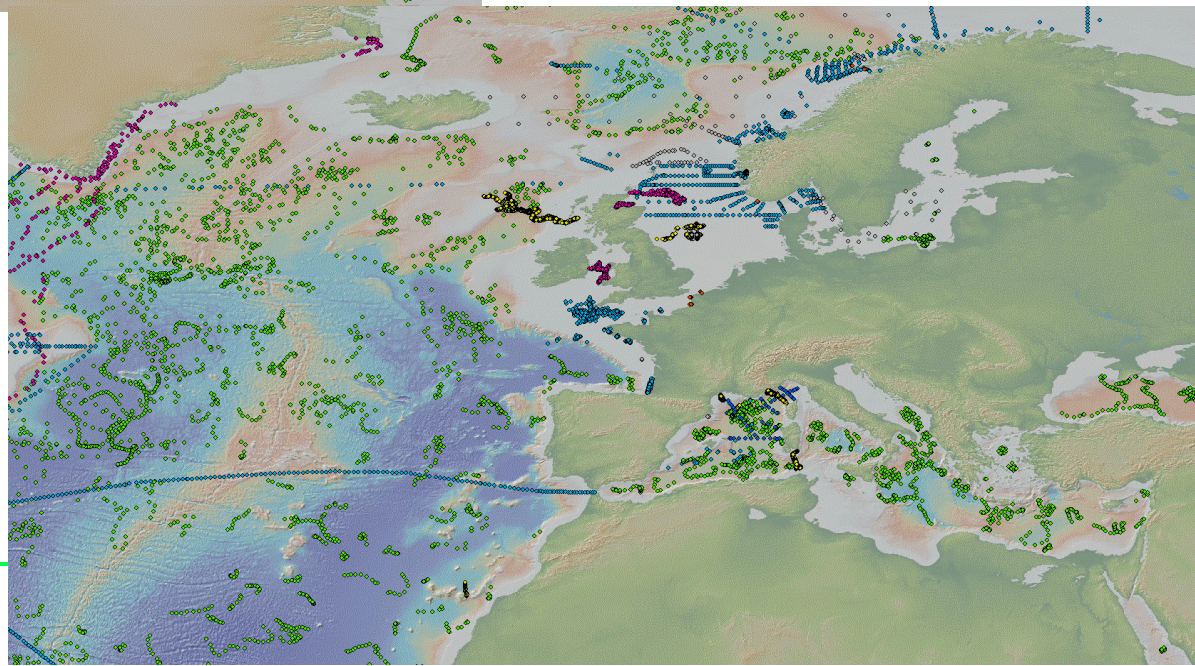


Global Ocean :

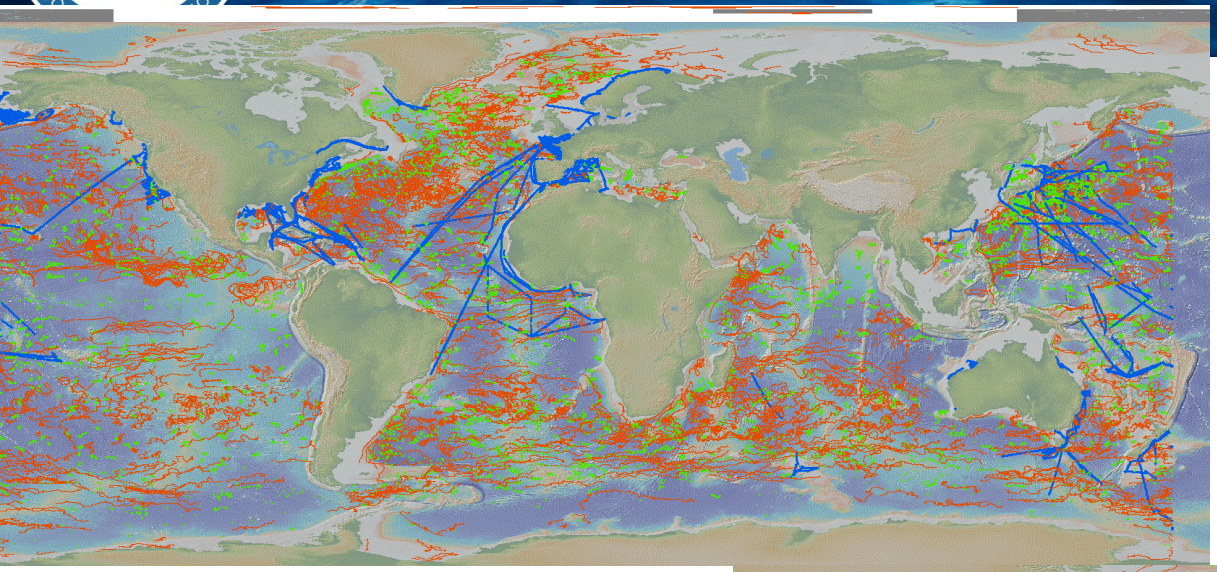
- Argo + XBT lines
- Sea mammals Antarctic and Arctic

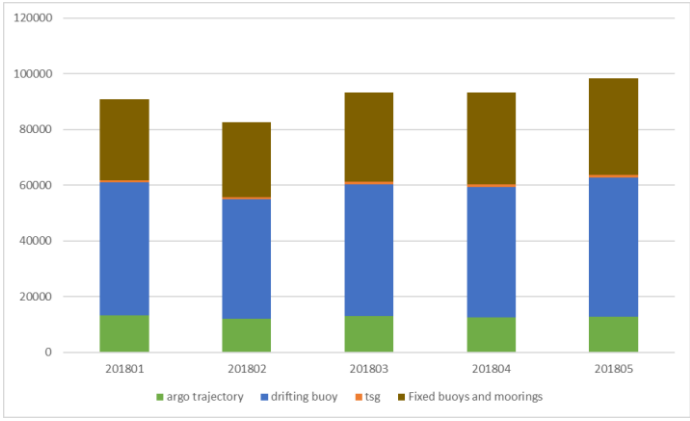
EU Regional Seas:

- XBT lines
- Argo in MED BS and starting Baltic
- Some gliders



Spring 2018 at INSTAC: TimeSeries data



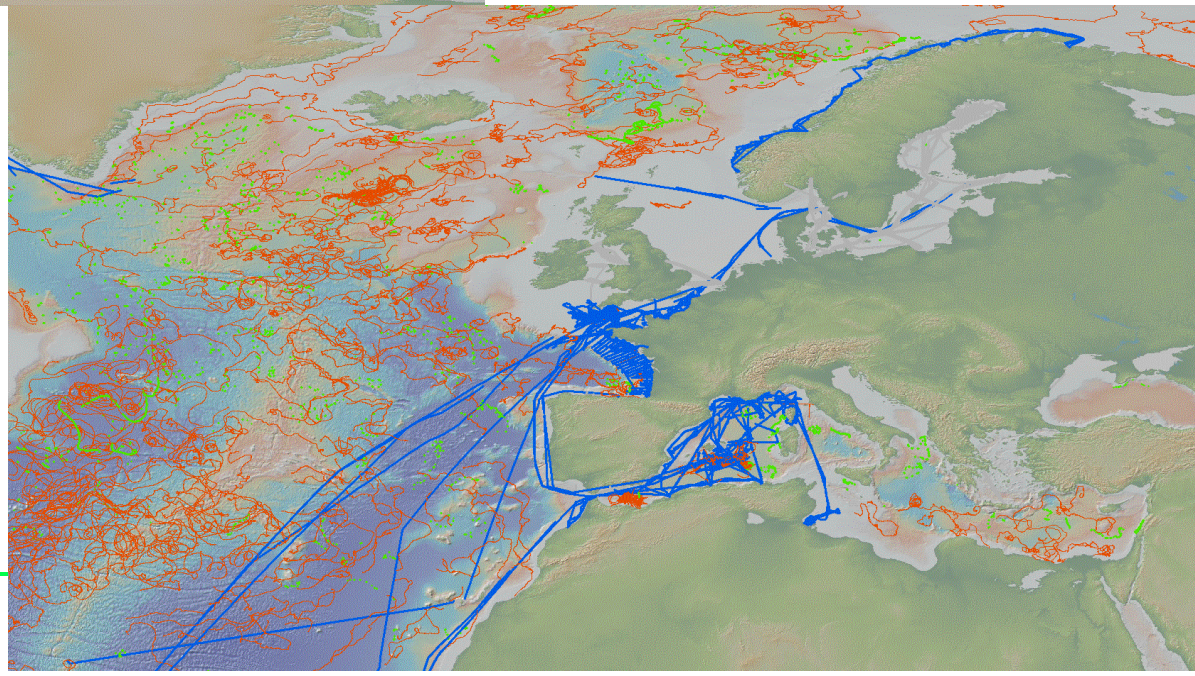


Global Ocean :

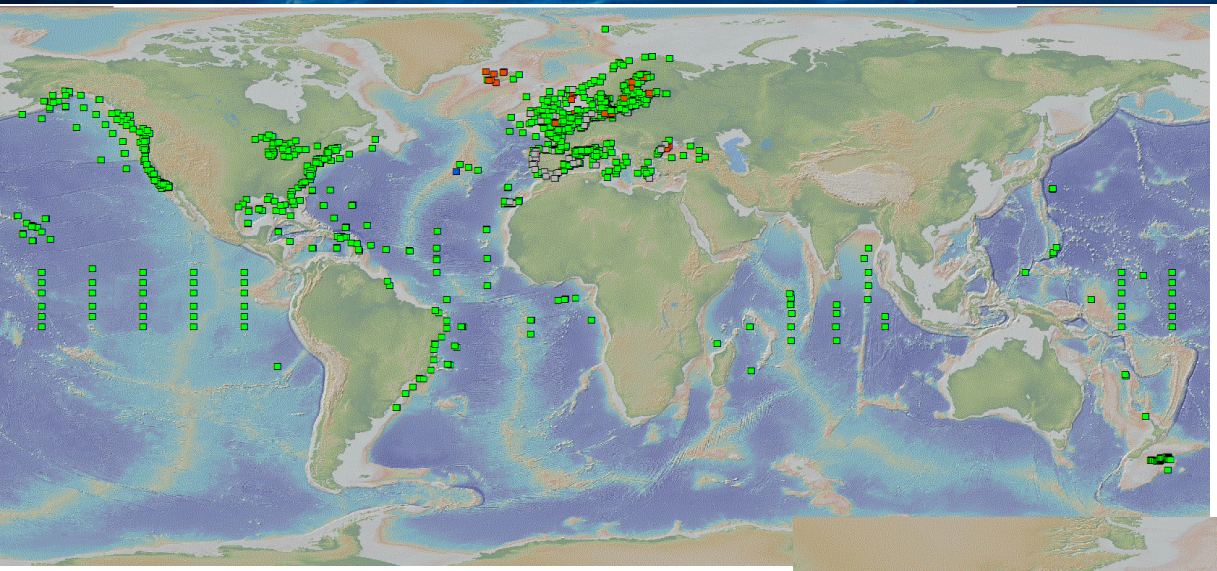
- Drifters
- TSG
- Argo trajectories

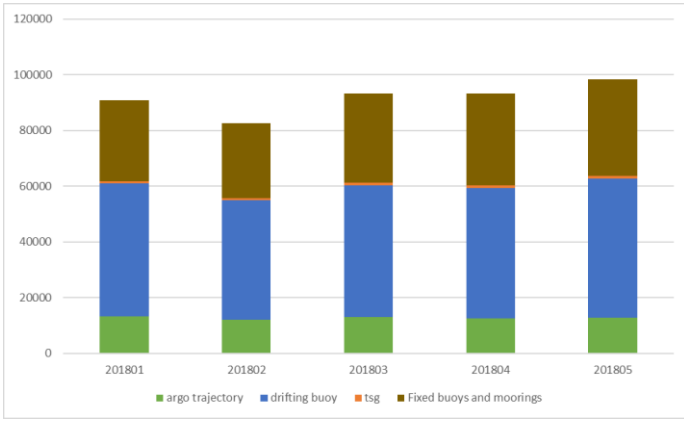
EU Regional Seas:

- Ferrybox and TSG
- Argo in Med



Spring 2018 at INSTAC : TimeSeries data



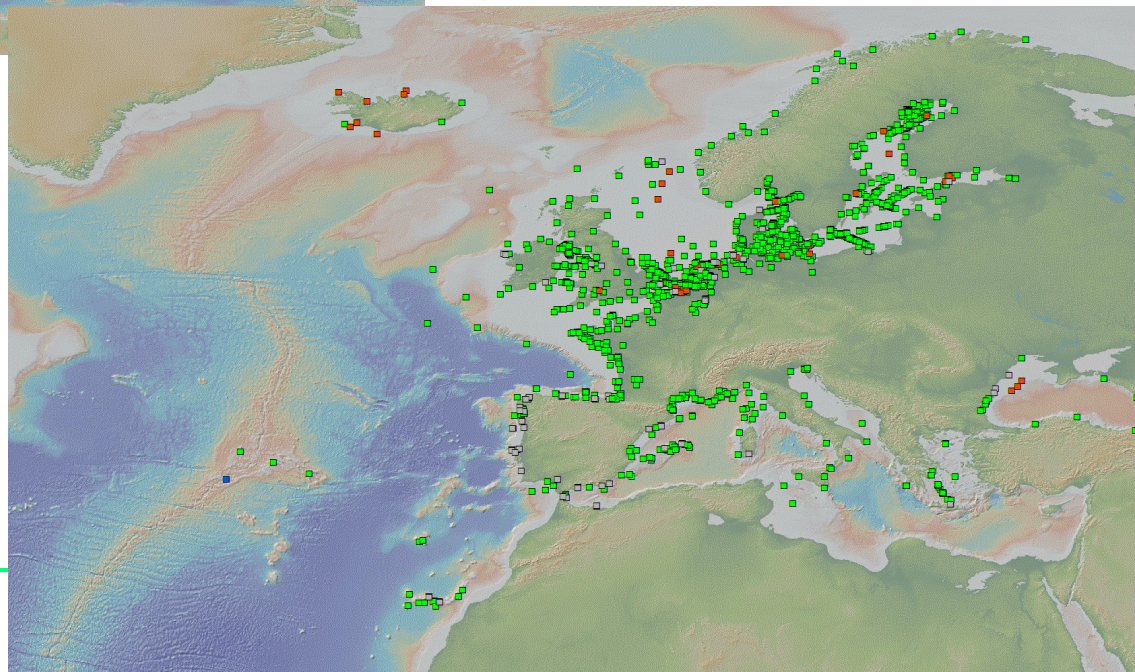


Global Ocean :

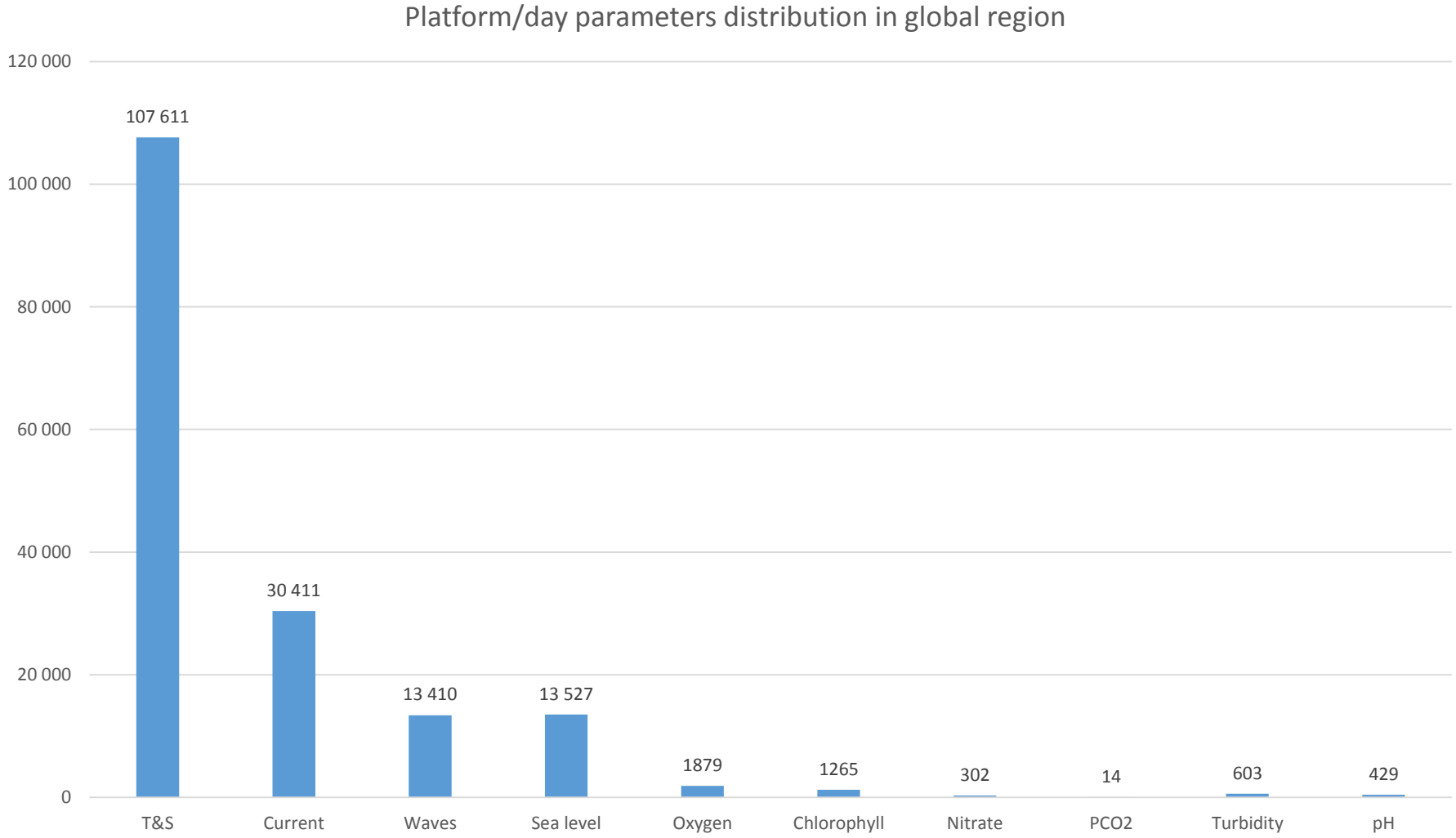
- Drifters
- TSG
- Argo trajectories
- Moorings (Tao Pirata US-NDBC)

EU Regional Seas:

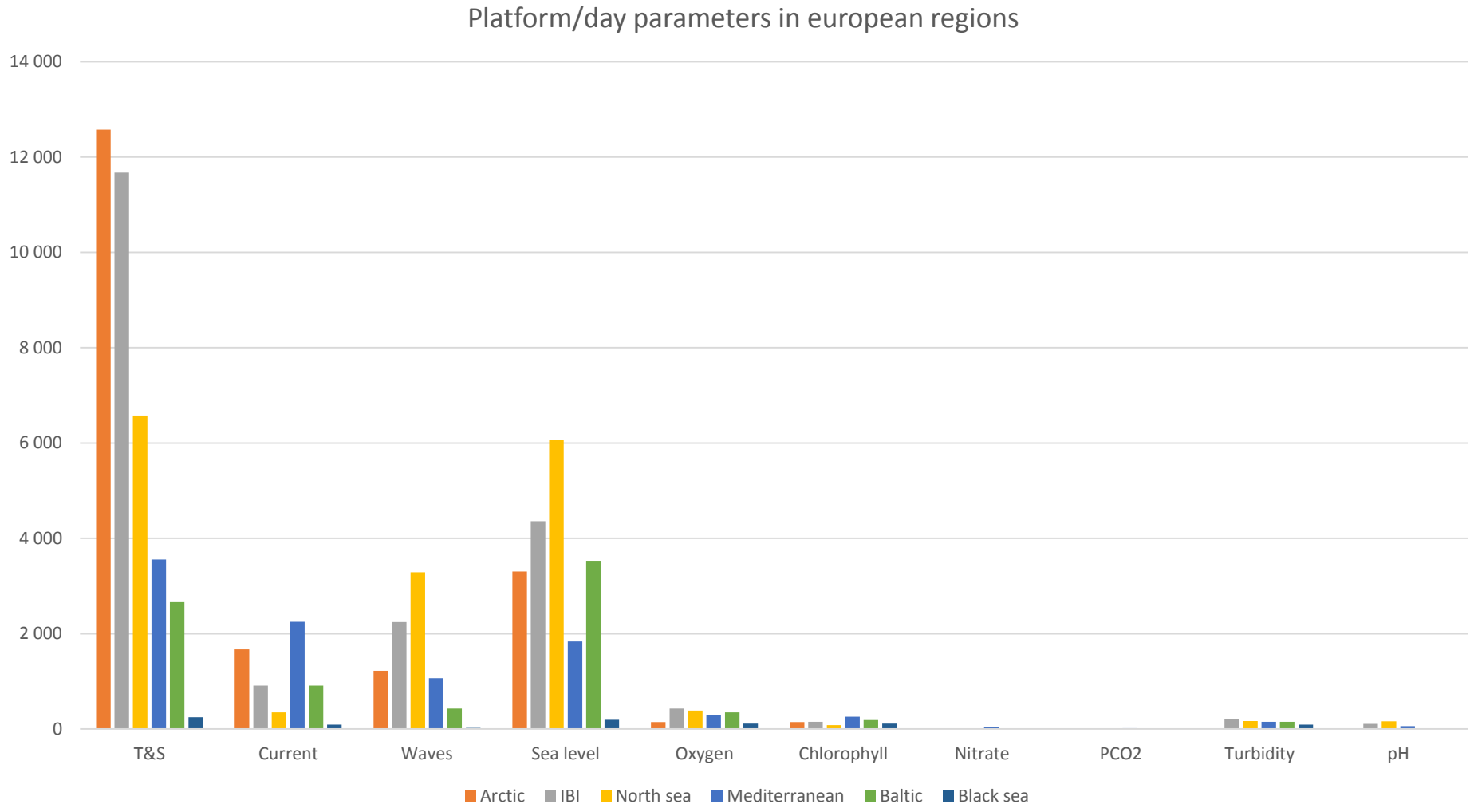
- Ferrybox and TSG
- Argo in Med
- Monitoring Stations and tide gages



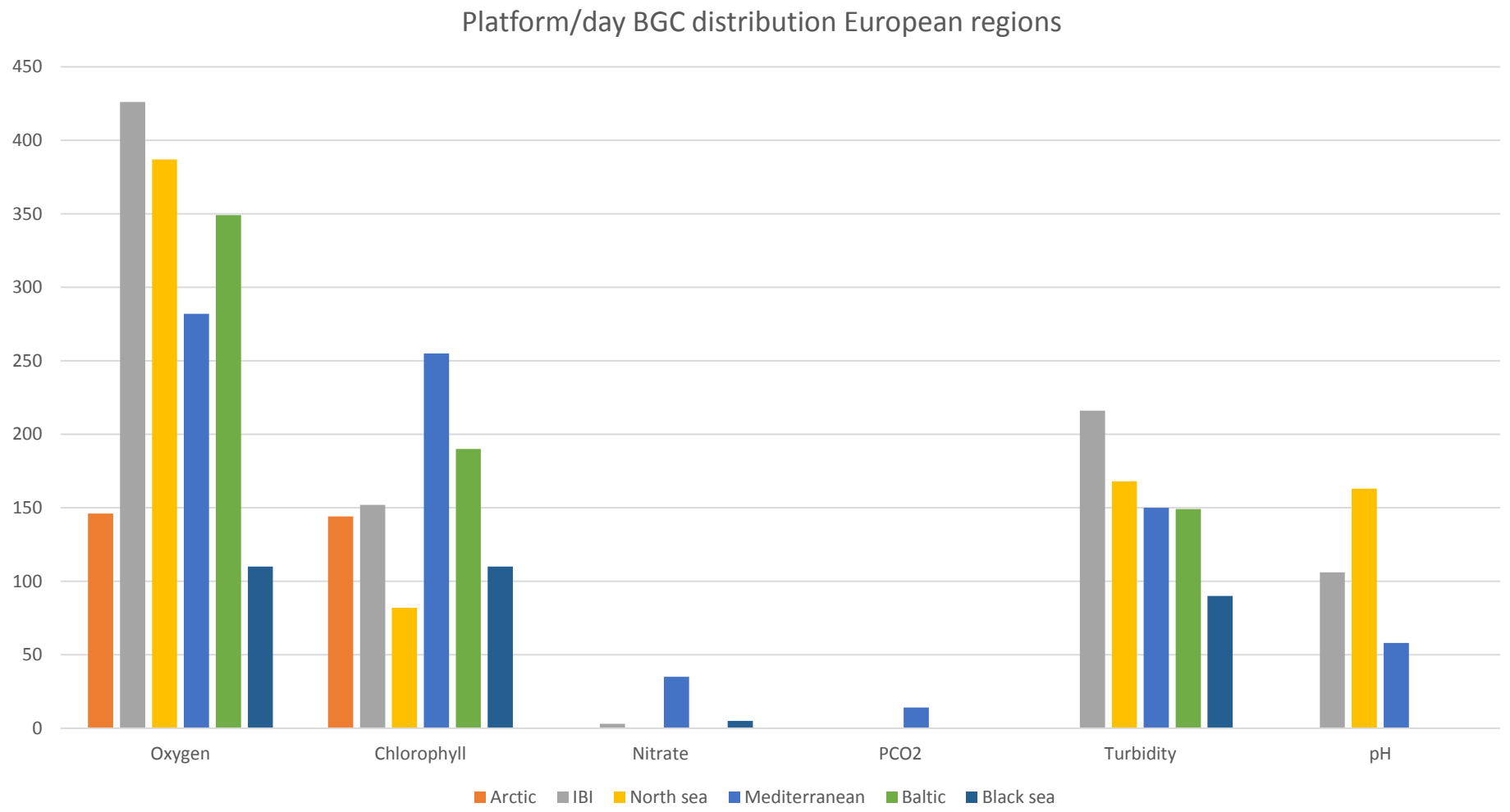
Parameters: Global Ocean



Parameters: Per European regions



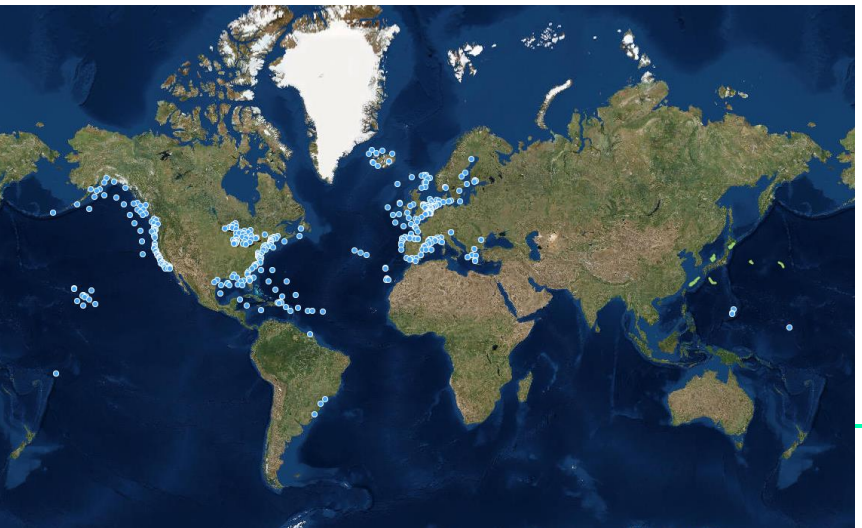
Parameters: Focus on BGC Per European regions



Parameters

Currents
Waves

Sea Level
O2 Chl-a/Fluorescence



The In Situ cor

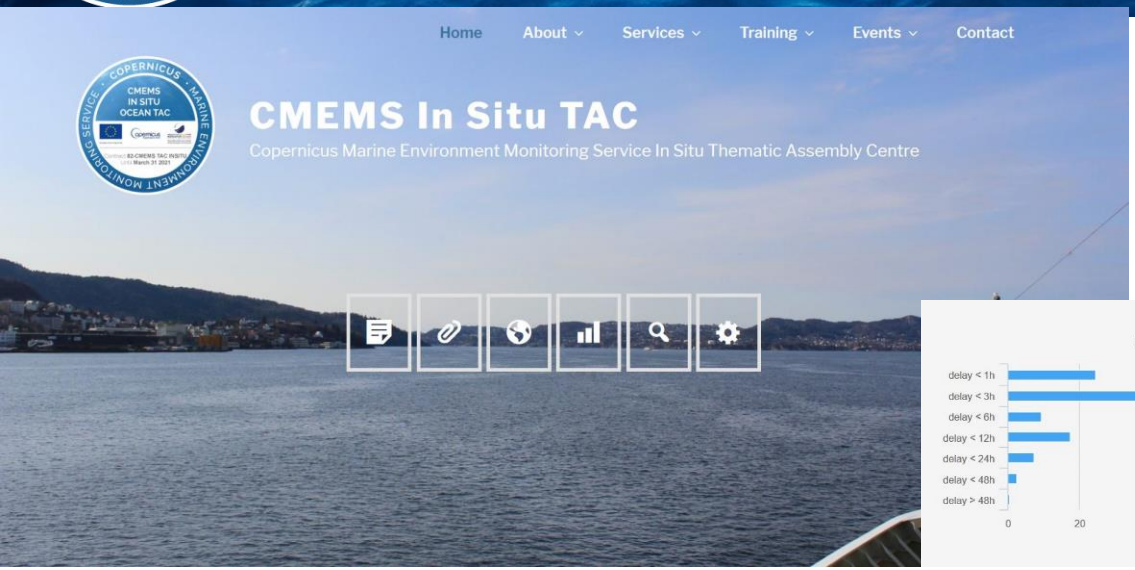
Convince Platforms operator on “Why Share data with CMEMS INSTAC “

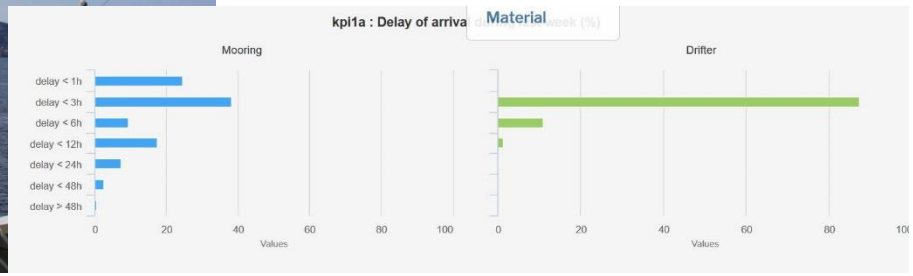
- **Adding value to the data**: making data available via CMEMS INSTAC allows datasets to be combined to create data products and improve CMEMS products in your area of interest . Underlying data sources are always carried with the data.

- **Satisfying funding requirements**: Increasingly funding bodies and governments require that data obtained using public funds be made freely available. Submitting data and making it available via CMEMS INSTAC ensures data is publicly shared for re-use in particular with EMODnet and SeaDataNet.

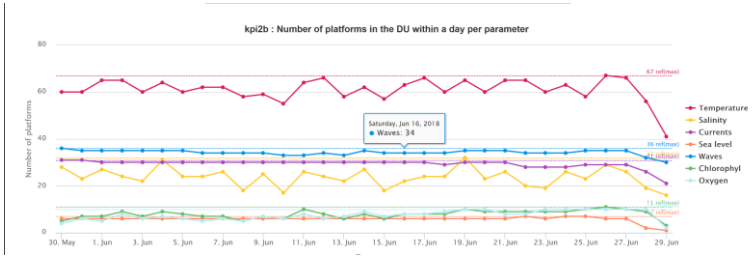
- **Enhancing Data Quality**: Making a data set available to CMEMS INSTAC allows you to benefit to additional assessment especially during the elaboration of historical products where coherency with neighboring observations is performed and feedback on anomalies detected provided back to providers .

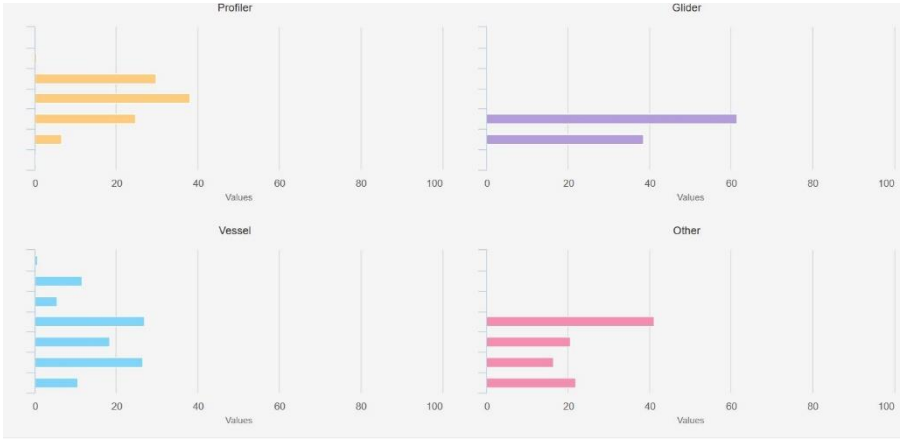
More information on INSTAC web site: http://marineinsitu.eu





Mediterranean Sea





More information on INSTAC web site: http://marineinsitu.eu

What is INSTAC offering?

INSTAC products overview

- product list
- spatial coverage
- data source
- parameters

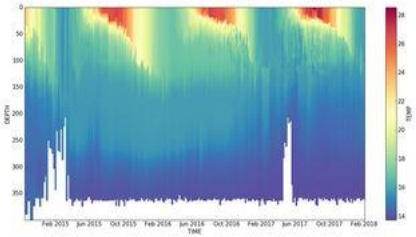
How do I download INSTAC data?

data downloading & index files

- tips
- by platform category
- by bounding-box
- by parameter
- by timerange

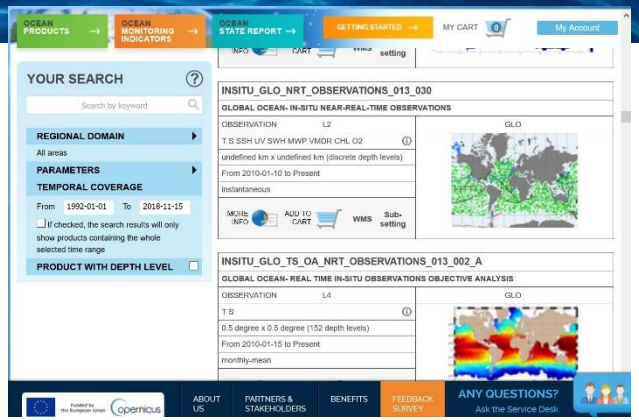
How do I process INSTAC data?

netCDF processing with python



- vessels
- profilers
- gliders
- drifters

More information on INSTAC web site: http://marineinsitu.eu



INSITU_GLO_UV_L2_REP_OBSERVATIONS_013_044

GLOBAL OCEAN- DELAYED MODE IN-SITU OBSERVATIONS OF OCEAN SURFACE CURRENTS

OBSERVATION	L2	GLO
UV		
undefined degree x undefined degree (discrete depth levels)		
From 1990-01-01 to 2016-12-31		
instantaneous		

MORE INFO | ADD TO CART | WMS | Sub-setting

INSITU_GLO_TS_OA_REP_OBSERVATIONS_013_002_B

GLOBAL OCEAN- DELAYED MODE GRIDDED CORA- IN-SITU OBSERVATIONS OBJECTIVE ANALYSIS IN DELAYED MODE

OBSERVATION	L4	GLO
T S		
0.5 degree x 0.5 degree (152 depth levels)		
From 1990-01-01 to 2016-12-15		
monthly-mean		

MORE INFO | ADD TO CART | WMS | Sub-setting

INSITU_MED_NRT_OBSERVATIONS_013_035

MEDITERRANEAN SEA- IN-SITU NEAR REAL TIME OBSERVATIONS

OBSERVATION	L2	MED
T S SSH UV SWH MWP VMDR CHL O2		
undefined km x undefined km (discrete depth levels)		
From 2010-01-01 to Present		
instantaneous		

MORE INFO | ADD TO CART | WMS | Sub-setting

INSITU_GLO_TS_REP_OBSERVATIONS_013_001_B

GLOBAL OCEAN- CORA- IN-SITU OBSERVATIONS YEARLY DELIVERY IN DELAYED MODE

OBSERVATION	L2	GLO
T S		
undefined km x undefined km (discrete depth levels)		
From 1950-01-01 to 2016-12-31		
instantaneous		

MORE INFO | ADD TO CART | WMS | Sub-setting

INSITU_GLO_WAVE_REP_OBSERVATIONS_013_045

GLOBAL OCEAN - DELAYED MODE WAVE PRODUCT

OBSERVATION	L2	GLO
SWH		
undefined km x undefined km (discrete depth levels)		
From 1990-01-01 to 2016-12-31		
instantaneous		

MORE INFO | ADD TO CART | WMS | Sub-setting

INSITU_GLO_BGC_REP_OBSERVATIONS_013_046

GLOBAL OCEAN - DELAYED MODE BIOGEOCHEMICAL PRODUCT

OBSERVATION	L2	GLO
CHL O2		
undefined km x undefined km (discrete depth levels)		
From 1990-01-01 to 2016-12-31		
instantaneous		

MORE INFO | ADD TO CART | WMS | Sub-setting

INSITU_MED_TS_REP_OBSERVATIONS_013_041

MEDITERRANEAN- IN-SITU OBSERVATIONS YEARLY DELIVERY IN DELAYED MODE

OBSERVATION	L2	MED
T S		
undefined km x undefined km (discrete depth levels)		
From 1990-01-01 to 2016-12-31		
instantaneous		

MORE INFO | ADD TO CART | WMS | Sub-setting

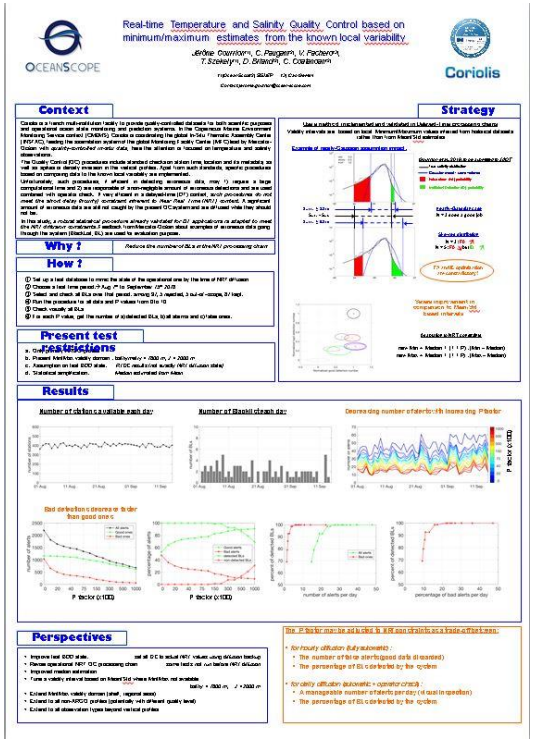
INSITU_BAL_NRT_OBSERVATIONS_013_032

BALTIC SEA- IN SITU NEAR REAL TIME OBSERVATIONS

OBSERVATION	L2	BAL
T S SSH UV SWH MWP VMDR CHL O2		
undefined km x undefined km (discrete depth levels)		
From 2007-01-01 to Present		
instantaneous		

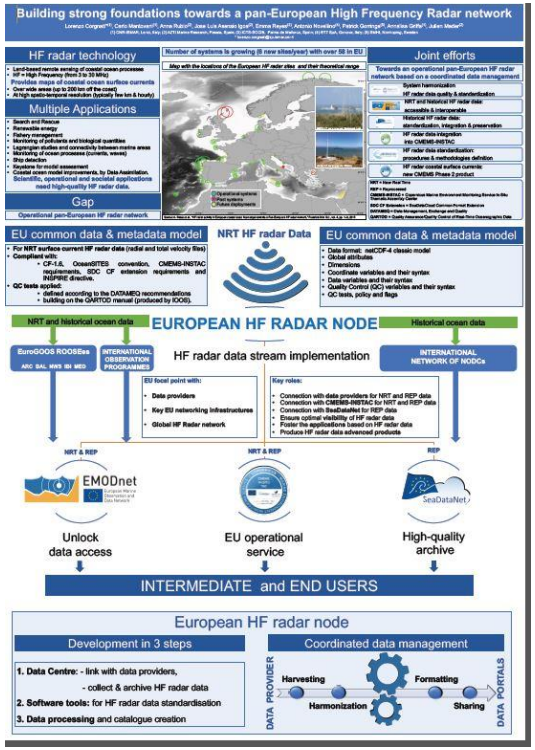
MORE INFO | ADD TO CART | WMS | Sub-setting

Linked activities presented during IMDIS 2018 as posters



Real time T & S quality control based on min /max
Estimates from the known local variability
Gourrion Jerome et al.
Session 4 Poster 91

Building strong foundation towards
a pan European High frequency network
Corgnati L. et al session 3 poster 104



THIS IS A TEAM WORK