OceanGliders Data Assimilation Task Team

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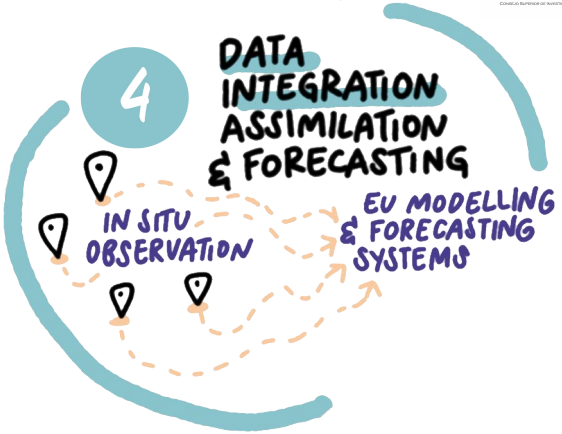
EuroSea

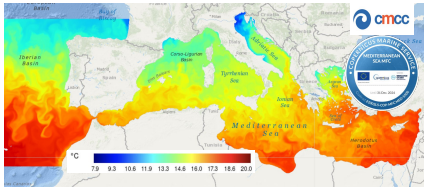
AZTI

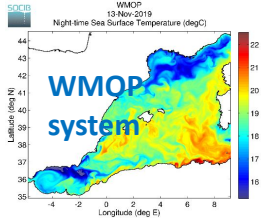
CSIC

cmcc Centro Euro-Mediterraneo sui Cambiamenti Climatici



SOCIB Balearic Islands Coastal Observing and Forecasting System





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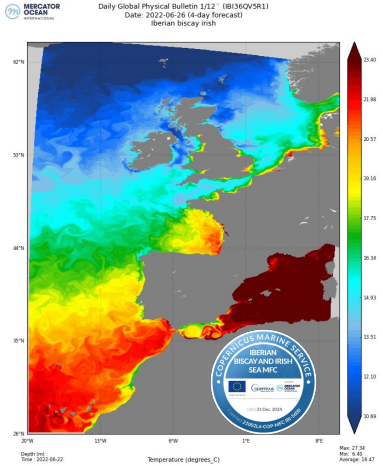


Puertos del Estado

ACRI ST

GEOMAR

ECMWF

Task 4.1&4.2 Assimilation of gliders and floats in the Copernicus Marine systems: analysis/forecast quality assessment

OceanGliders

- the best practices in use of glider and floats in-situ observations by operational forecasting systems
- On the accessibility to the glider / Argo floats observations in NRT and DT mode.
- On the quality control (QC) in the assimilation systems

EuroSea

Internal Milestone #28

Joint workshop between CMCC SOCIB Task 4.2, Task 4.3, Task 4.4 partners and WP3 on sharing best practices on how to use novel sensors (glider, floats) data for assimilation and validation in the CMEMS (global and MED) and SOCIB operational systems (physical and biogeochemical)

Date: *24 June 2021 10:00-12:00 CET*

Goal: EuroSea Task 4.2 aims at evaluating the impact of the glider and BGC Argo observations on marine forecasting systems in the Mediterranean Sea. The question of where and how to access the data in both near-real-time (NRT) and delayed-time (DT) is critical for this task. Several issues have been identified concerning the glider data availability, especially for NRT systems. The objective of this workshop is to bring together European experts on glider data collection, processing and management with the data assimilation experts to open a discussion on this issues and propose solutions to use glider and float observations in operational forecasting systems in the best possible way.

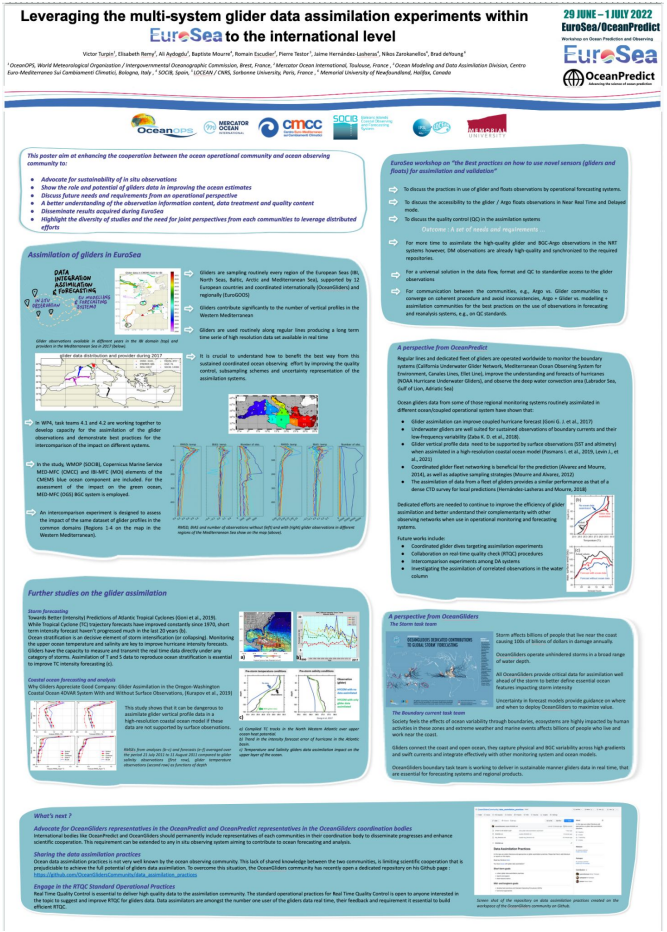
AGENDA

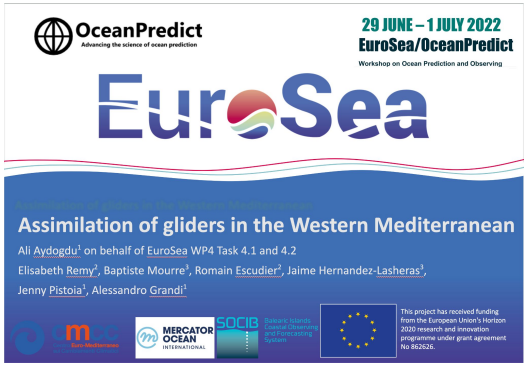
10:00-10:15 Objectives and overview of the status (Ali Aydogdu)
10:15-10:25 Update on SOCIB experience (Jaime Hernandez)
10:25-10:35 NRT and delayed mode data exchange strategy and further opportunities (Victor Turpin / Daniel Hayes)
10:35-10:45 The status of glider observations in the CMEMS (Thierry Carval)
10:45-12:00 Discussion

Best practices on how to use novel sensors (gliders and floats) for assimilation and validation

A need…

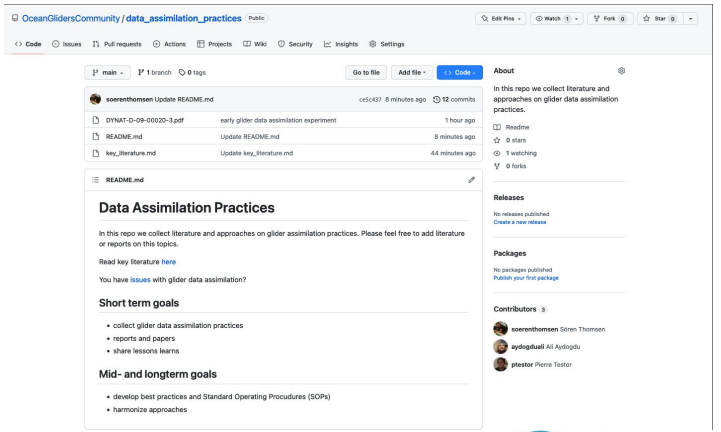
- for more time to assimilate the high-quality glider and BGC-Argo observations in the NRT systems however, DM observations are already high-quality and synchronized to the required repositories.
- to come up with a universal solution. CMEMS (European) and SOCIB (Baleric) systems involved in EuroSea can be taken as a base to detect the need for improvements and propose solutions for every step of the data flow and usage.
- for communication between the communities, e.g., Argo vs. Glider communities to converge on coherent procedure and avoid inconsistencies, Argo + Glider vs. modelling + assimilation communities for the best practices on the use of observations in forecasting and reanalysis systems, e.g., on QC standards.



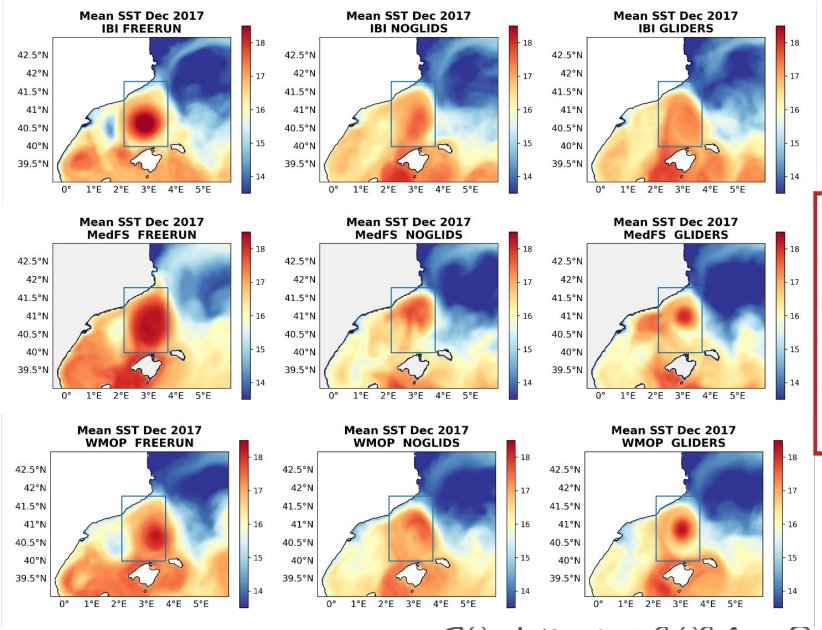


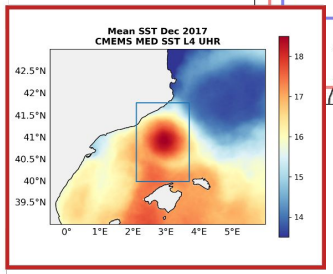
Participation to EuroSea/OceanPredict workshop to present the collaboration between assimilation and observation communities.

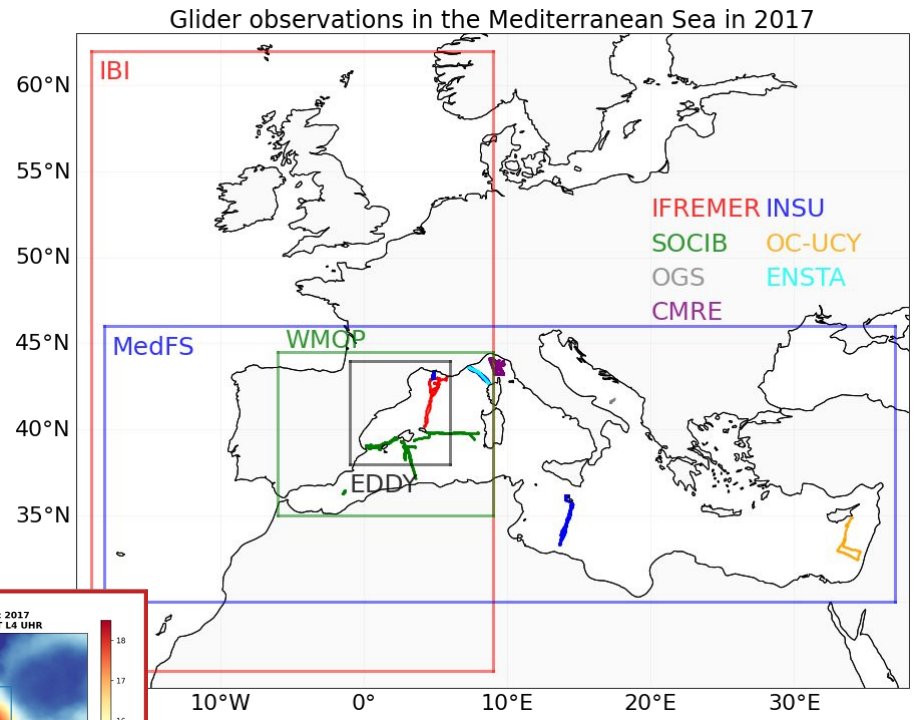
Participation to OceanGliders BestPractices Workshops



- Evaluation of the ability of glider DA to correct mesoscale structures (fronts, eddies) e.g., intense anticyclonic eddy in the Balearic Sea (Aguiar et al. 2019; OSR3, Aguiar et al. 2022, JGR-Oceans)

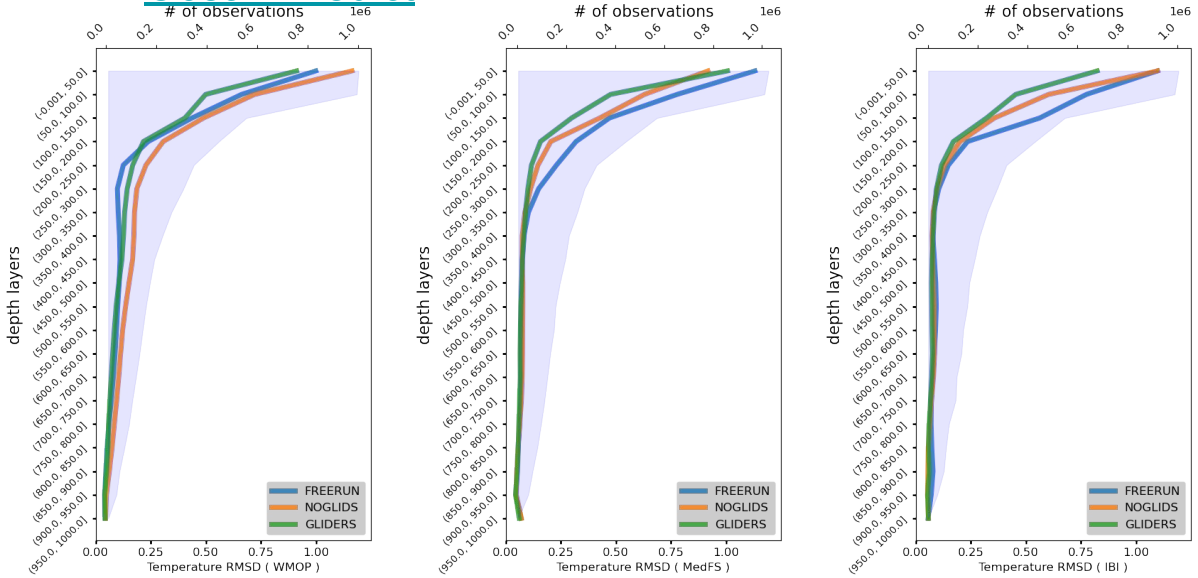






Keep up to date bibliographic references

Report on the use (assimilation, validation, …) of glider observations in OceanPredict systems: [Observations table(s) (operational centre usage) - Ocean Predict]



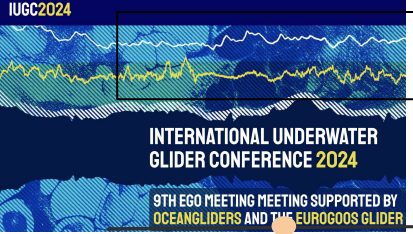
OceanPredict

ABOUT	FOCUS	SCIENCE	UN DECADE	TEAMS	EVENTS	NEWS	DOCUMENTS

Center/ Institute	System Name	Drifter/ Temp.	Drifter/ Velocity	Drifter/ ocean waves	Drifter/ SLP	Ocean glider/ Temp.	Ocean glider/ Salinity	Animal borne/ Temp.	Ice buoy/ ice drift	Ice-tethered profiler/ Temp.	Ice-tethered profiler / Salinity	ALAMO	Tide Gage	Coastal Wave Recorders	Notes
BoM (CSIRO)	OceanMAPS	Level 1	Level 1			Level 3	Level 3	Level 3							
CHM-REMO	RODAS					Level 1	Level 1								
ECCC	GIOPS (global 1/4°)	Level 5	Level 1		Level 5	Level 5	Level 5	Level 5	Level 1	Level 3	Level 3	Level 3	Level 1		
	RIOPS (Pac-Arctic-NAtl 1/12°)	Level 5	Level 1		Level 4	Level 5	Level 5	Level 5	Level 1	Level 3	Level 3	Level 3	Level 2		
	CIOPS (East&West Coast, 1/36°)	Level 4	Level 2		Level 4	Level 4	Level 4	Level 4					Level 2		
ECMWF	OCEAN5 Global 1/4	Level 1	Level 1			Level 5	Level 5	Level 5	Level 1	Level 5	Level 5	Level 3	Level 1		
	ECWAM			Level 1											
INCOIS	RAIN (1/12 degree)														
	INCOIS-GODAS (1/2X1/4 global)														
	HYCOM (1/12 degree)														
	SWAN														
	WAVEWATCH III (1 degree)														
JMA	MOVE (Global)	Level 5			Level 4	Level 5	Level 5	Level 5				Level 5	Level 1		TS data on GTS are used in operation.
	MOVE (Regional)	Level 5	Level 1		Level 4	Level 5	Level 5	Level 5				Level 5	Level 1		
	Wave DA Systems			Level 4	Level 4									Level 4	
Mercator Ocean	RT Global 1/12°	Level 1	Level 1			Level 5	Level 5	Level 5		Level 1	Level 1				
	Reanalysis 1/12°		Level 1			Level 5	Level 5	Level 5							
	Regional 1/36°					Level 5	Level 5						Level 1		
MET Norway	TOPAZ4 (Pan-Arctic)	Level 1	Level 1						Level 1	Level 5	Level 5				
	WAM3km														
Met Office	FOAM global and regional (1/4 and 1/12 degree)	Level 5	Level 1			Level 5	Level 5	Level 5	Level 1	Level 1	Level 1				
	FOAM shelf (1.5 km)	Level 5	Level 1			Level 5	Level 5	Level 5							
	Coupled DA (1/4 degree)	Level 5	Level 1			Level 5	Level 5	Level 5							
	WaveWatchIII														
NASA GEOS	S25v2 global 1/2				Level 4										
	S25v3 MERRA2 Ocean 1/4				Level 4					Level 3	Level 3				
NOAA	RTOFS-DA	Level 5	Level 1			Level 5	Level 5	Level 5				Level 5			TS profiles are collected from GTS
CMCC	GOFS16 (global 1/16°)		Level 1			Level 5	Level 5								
	MEDFS					Level 3	Level 3						Level 1		

Intercomparison to evaluate the ability of glider DA to improve error statistics.

OceanGliders



OGDA TT core scientific objectives

Cooperation with OGDM TT
Best Practices TT

Cooperation with: Event base TT
BOON TT

OceanGlider Data Assimilation Task Team

R

Improve observation error covariances

Subsampling/Superobing

Correlations

H

Develop/improve observation operators

Mapping the modelled observation

QC

Better online quality control

Blacklisting

Timeliness for the NRT systems

Process

Identify processes / improve representation

transports

eddy

deep water formation

biogeochemistry

Links OceanGliders to OceanPredict

Involves early career researchers putting hands on glider assimilation

Search for funding for better use of glider observations

Possible coordinated experiments using analysis/forecasting systems

Ocean Gliders