An in-situ data management system in Europe for operational oceanography
A EuroGOOS-MyOcean joint effort

S. Pouliquen/Ifremer - T. Gies /BSH for MyOcean In situ TAC partners

IMDIS 2013, Lucca/Italy
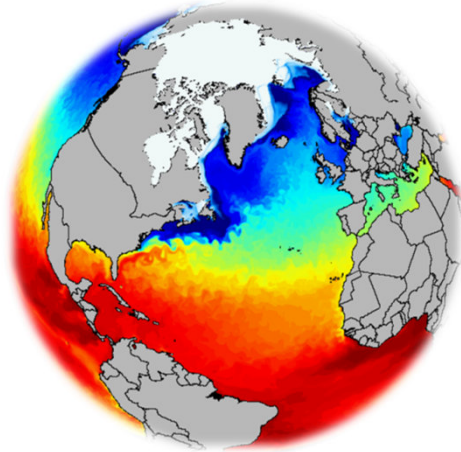
23rd - 25th of September 2013

MY OCEAN

Marine Core Service

MyOcean, a core service

A Copernicus/GMES marine service to provide

free and open access

to **real-time** and **delayed mode** «ocean monitoring and forecasting» information

based on the combination of

satellite, in situ observations and

assimilative ocean models

on the **global ocean** and **European seas**

The MyOcean Catalogue of Products

Marine Core Service

1 Global
2 Arctic
3 Baltic
4 NWS
5 IBI
6 Med Sea
7 Black Sea

Currents

Temperature & Salinity

Surface

Level

V3.0
MyOcean

State of the art Quality-Product quality information available for all products

Biogeochemistry

107 products

Sea Ice

Copernicus

April 2013

REANALYSES
10 to 45 years

FORECAST
2 to 10 days

The role of the INS-TAC

- **Integrate** physical (T ,S ,Current ,Sea Level) and biogeochemical (O2, Chl, nutrients) data for <u>assimilation</u> and <u>validation</u> of models at <u>global</u> and <u>regional</u> scales

- Provide products for **forecasting , validation and reanalysis** purposes $\Rightarrow$ Real-time , Near Real-Time and Delayed mode products

- Provide products for **external users**
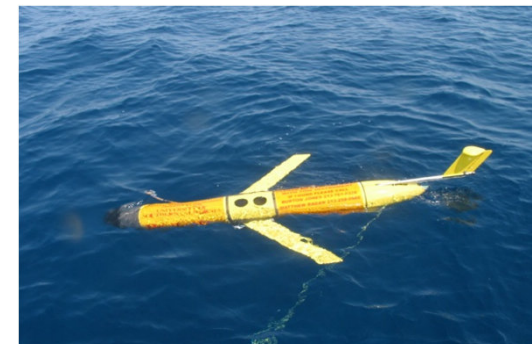
Implemented in-situ systems
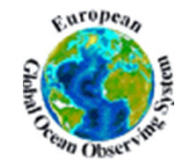
• Fixed buoys / moorings

• Tide gauges

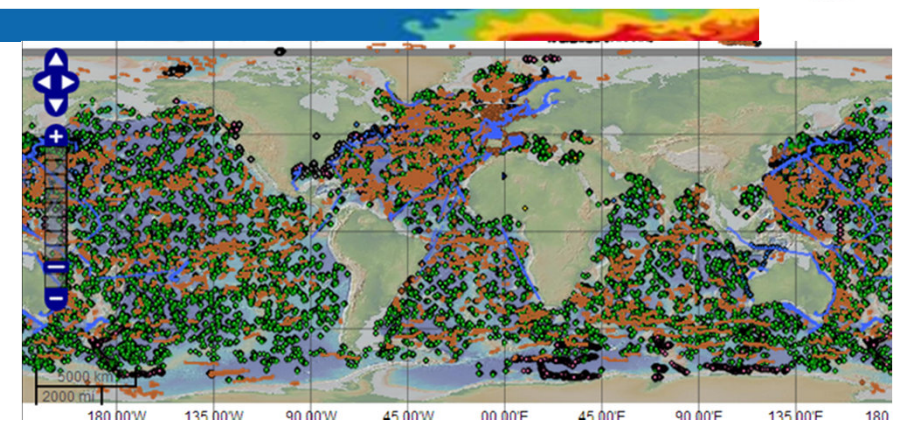• Drifting buoys and gliders

• Research vessels

• Ferrybox and SOOP

• Argo floats

A Near Real Time System
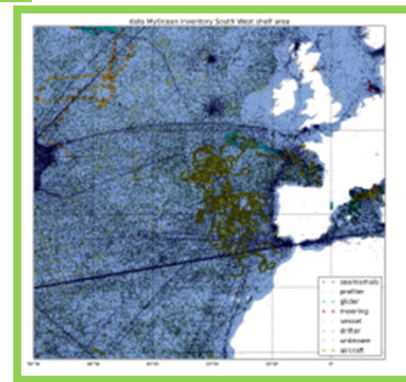
Arctic: IMR / Norway

Baltic Sea: SMHI/Sweden
- Temp & Salinity : BSH/Germany
- Current & ea Level: SMHI/Sweden
- Bio : Syke/Finland

North West Shelves: BSH/Germany
- Temp & Salinity : BSH/Germany
- Current & Sea Level: SMHI/Sweden

Black Sea IOBAS/Bulgaria

Global Ocean :
Coriolis/France
- Link with international network s: Coriolis/France
- European Vessels: NIVA/Norway

South West Shelves: Puertos Del Estado/Spain
- Mooring : PdE
- Underway data: Coriolis/France

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

Nearly 3000 platforms per day (200 to 400 at regional level)
80% within 24h

A Near Real Time System

Focus: Northwest-Shelf

www.nwsportal.bsh.de

Quality control and validation

Quality check on raw time series data is performed to detect erroneous measurements based on a standardised real-time quality control procedures, jointly developed by the MyOcean In-situ Tac partners.

Validation steps
- Plausibility
- Range check
- De-spiking
- Treatment of stuck values
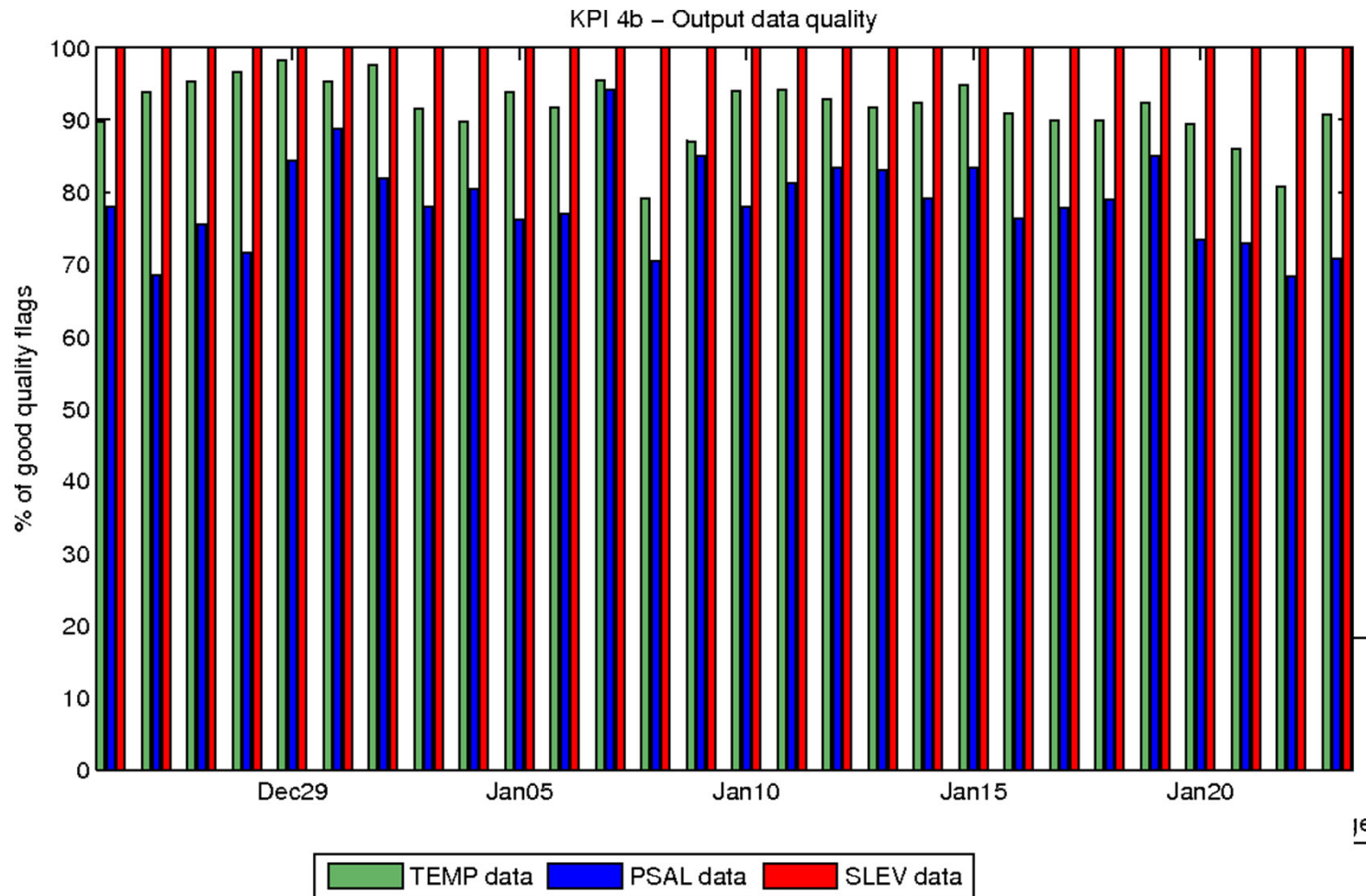- .....
- .....
- Consistency check against climatologies

Ocean Temperature, analyzed mean, 1-deg grid, Monthly deg C

Quality control and validation
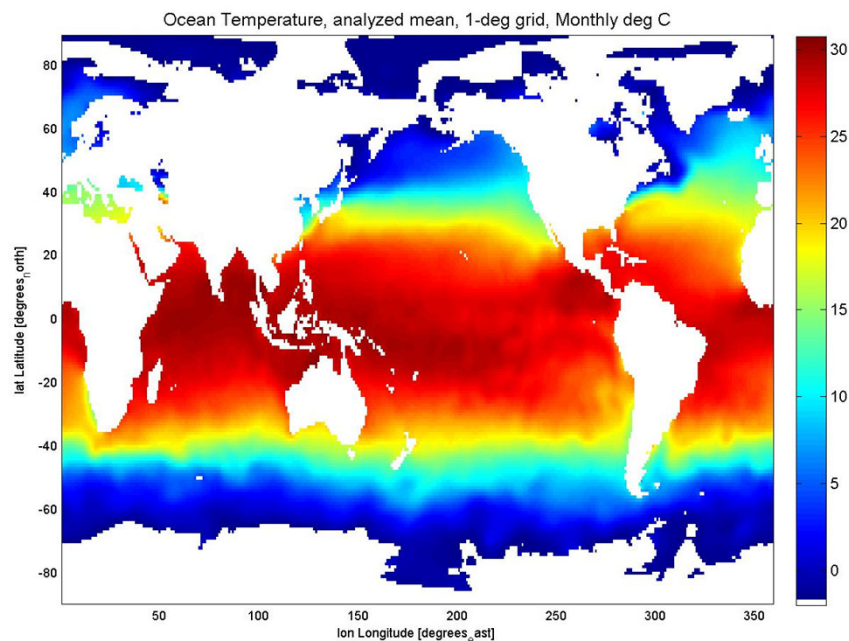
Depending on the characteristics of the specific platforms, flexible definitions of the quality control needs to be defined.

HoekVanHolland_NAP
2011-10-03 00:00:00 - 2011-10-06 09:39:09 (UTC)

KPI (focus Northwest shelf)
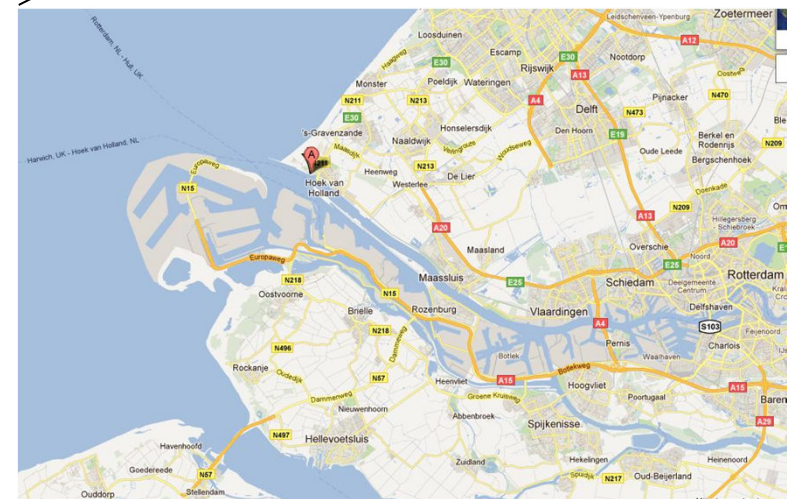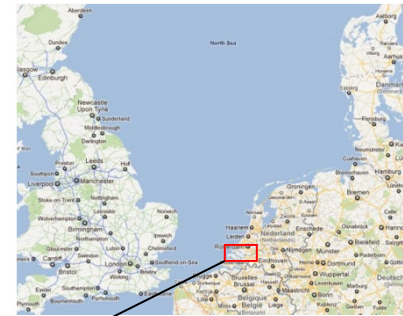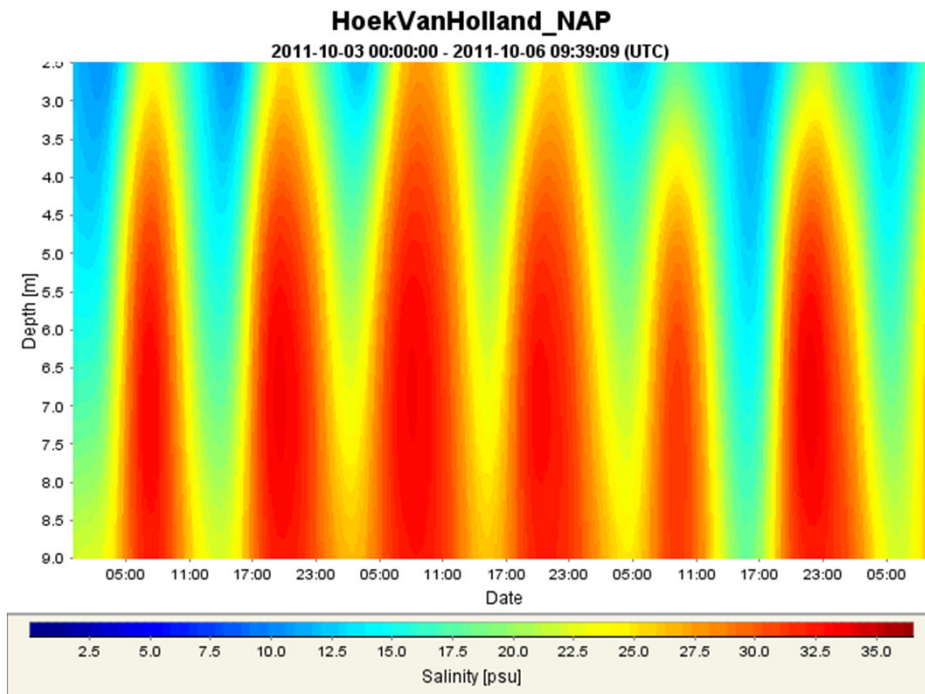
Assess quality and homogeneity of data as a part of routine operations.

KPI 4b – Output data quality
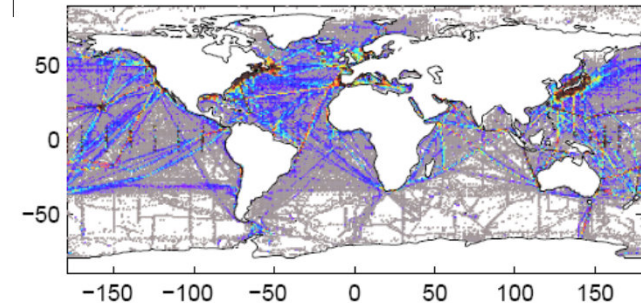
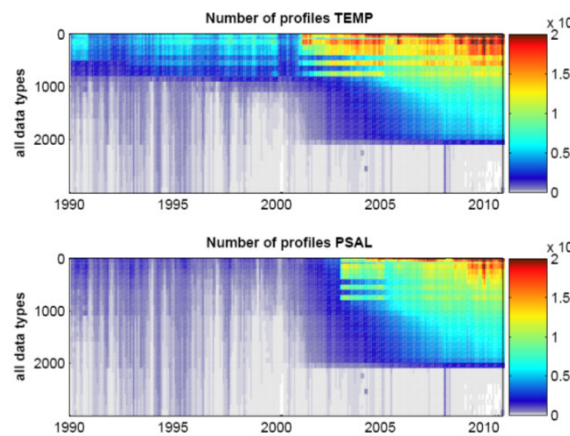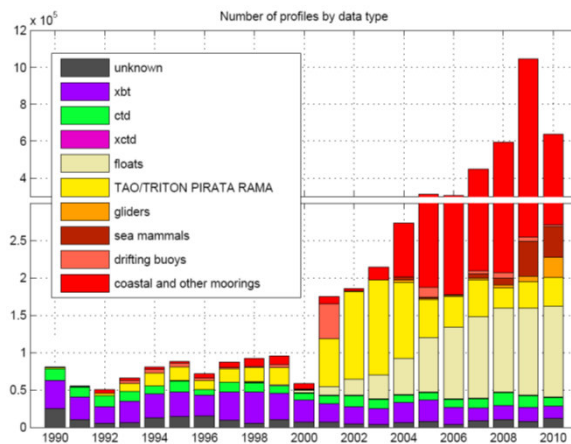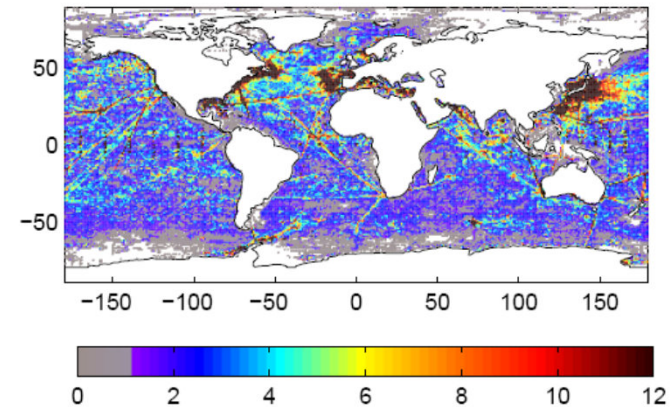# A delayed mode service for global ocean reanalysis, the CORA product

Main Data sources

- Coriolis DataBase since 1990
- Historical data from Argo GDAC, GTSPP data base
- WOD09 CTD data + yearly updates provided by USNODC
- European data collected from EuroGOOS ROOS partners i
  SEPRISE, Mersea, MyOcean, Groom, EuroArgo projects

Number of profiles per year : Pre-Argo era 1990-1999

Number of profiles per year : Argo era 2000-2010

Number of profiles by data type

- unknown
- xbt
- ctd
- xctd
- floats
- TAO/TRITON PIRATA RAMA
- gliders
- sea mammals
- drifting buoys
- coastal and other moorings

Number of profiles TEMP
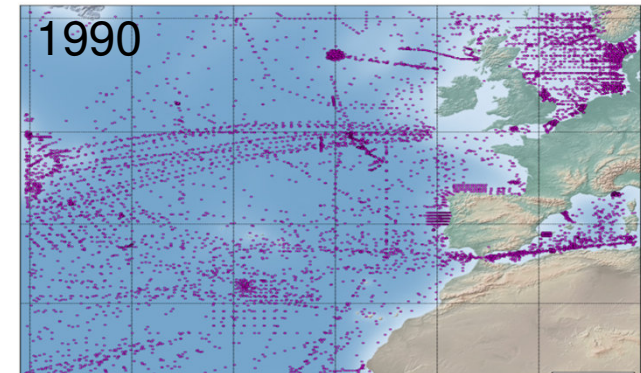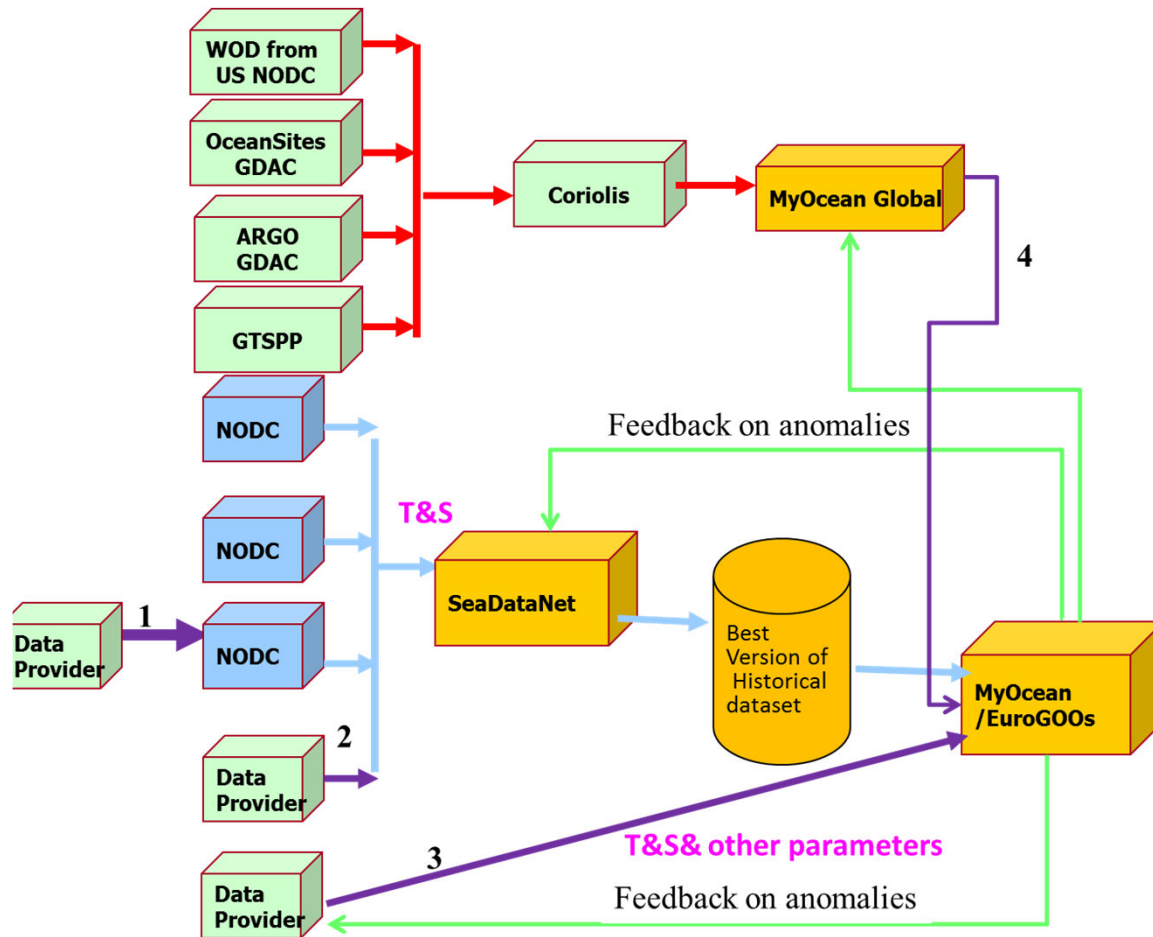
Number of profiles PSAL

A regional delayed mode service that is developing in partnership with SeaDataNet and EMODnet

A shared validation activity between MyOcean and SeaDataNet teams
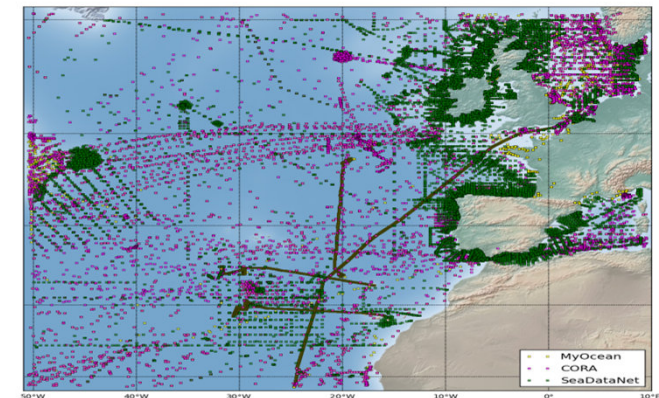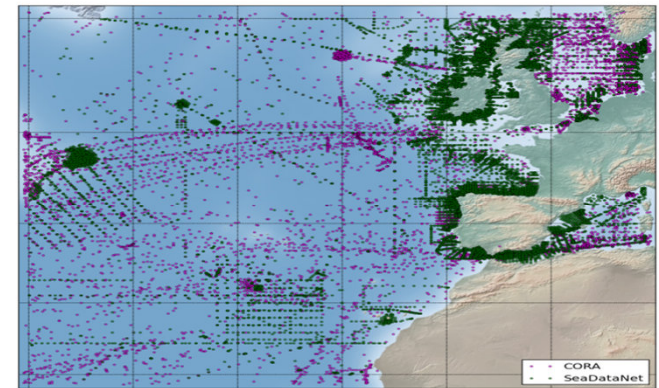
A shared validation activity between MyOcean and SeaDataNet teams

Marine Core Service

- Coriolis
- European Data
- European Data Provider
- European Data Provider
- European Data Provider
- NODC
- NODC

MyOcean INS TAC DU → Image of T&S Observations → Validation → Product T & S

SeaDataNet → Validation → Product T & S
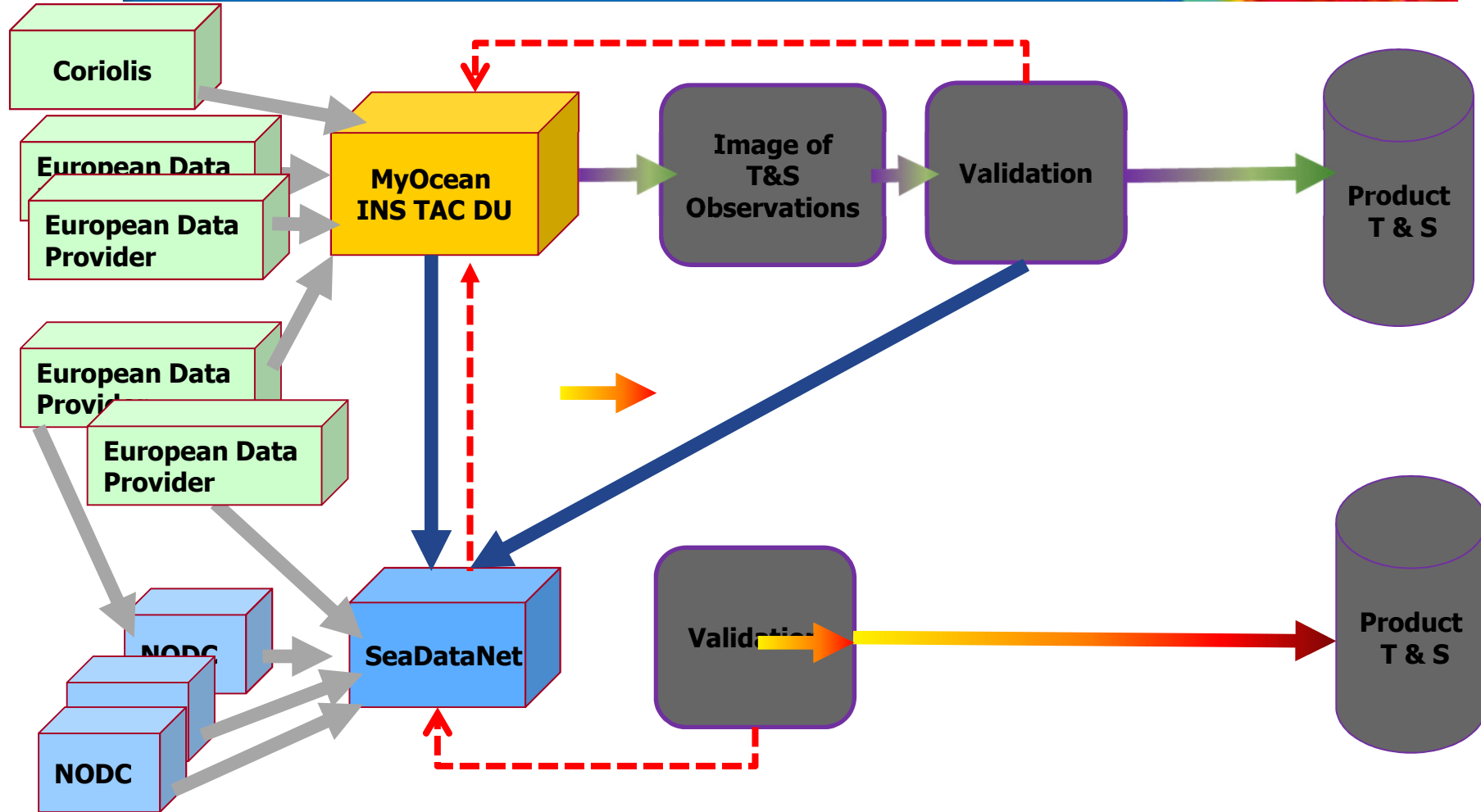
Data provided to SDN by MyOcean INS TAC
Anomalies detected by SDN

Summary/Recommendations

■ **In situ observation is not granted and has to be sustained for operational oceanography needs**

- Sustainability of in situ observing systems remains a major concern and a very high risk for operational oceanography and climate change research.

- Free and open data access is essential for operational oceanography needs and best use of existing observations: *acquire once use multiple*

- Efficient Data exchange system relies on common standards on metadata, format , Quality Control Procedures and product discovery/viewing/access

- Important for re-analysis activities to have close link/interoperability between the Real-Time and Delayed Mode data streams

Acknowledgements

- Thanks to all data providers

- Thanks to the ROOSs

- Thanks SeaDataNet for the "historical data"

- Thanks to the MyOcean In-situ TAC

Thanks for your attention