

COPERNICUS MARINE 8th GENERAL ASSEMBLY

Improving Product Quality & Product Quality Monitoring

Isabel García-Hermosa, Marie Drévilion, Charly Régner, Stefania Ciliberti, Marcos García Sotillo,
and the Product Quality Working Group



PROGRAMME OF
THE EUROPEAN UNION



Copernicus
Marine Service

implemented by



MERCATOR
OCEAN
INTERNATIONAL

How do we monitor product quality?



- Measuring and documenting **product quality changes**
- Developing new product quality metrics

production centres



- Improving the access to **quality information** :
 - Managing the quality documentation
 - Monitoring product quality centrally and close to real time
- Organizing cross-cutting exchanges on product quality

Cross-cutting



Copernicus
Marine Service

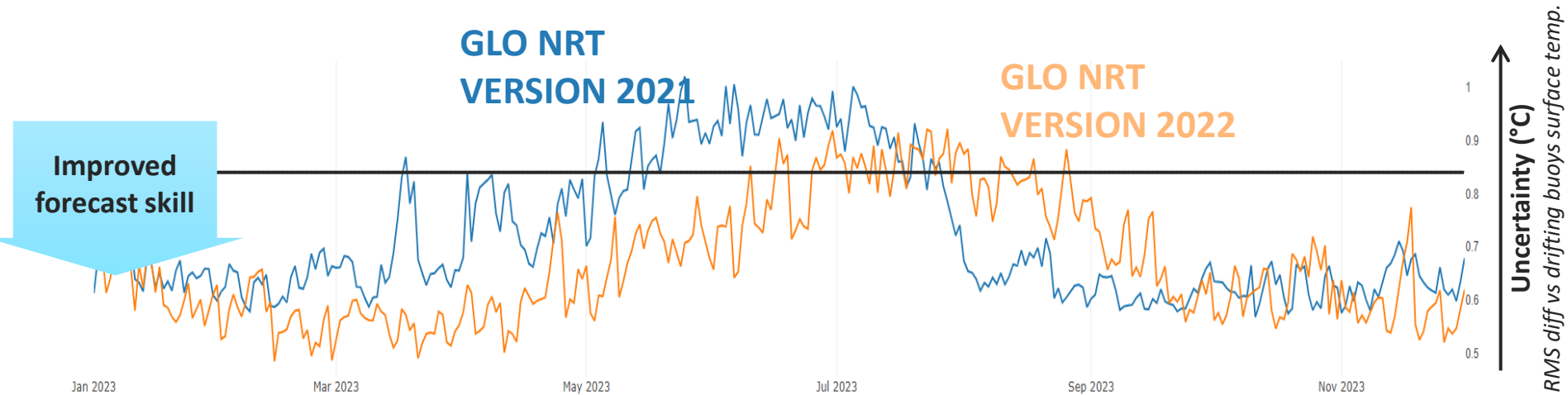


- **Product quality changes**

production centres

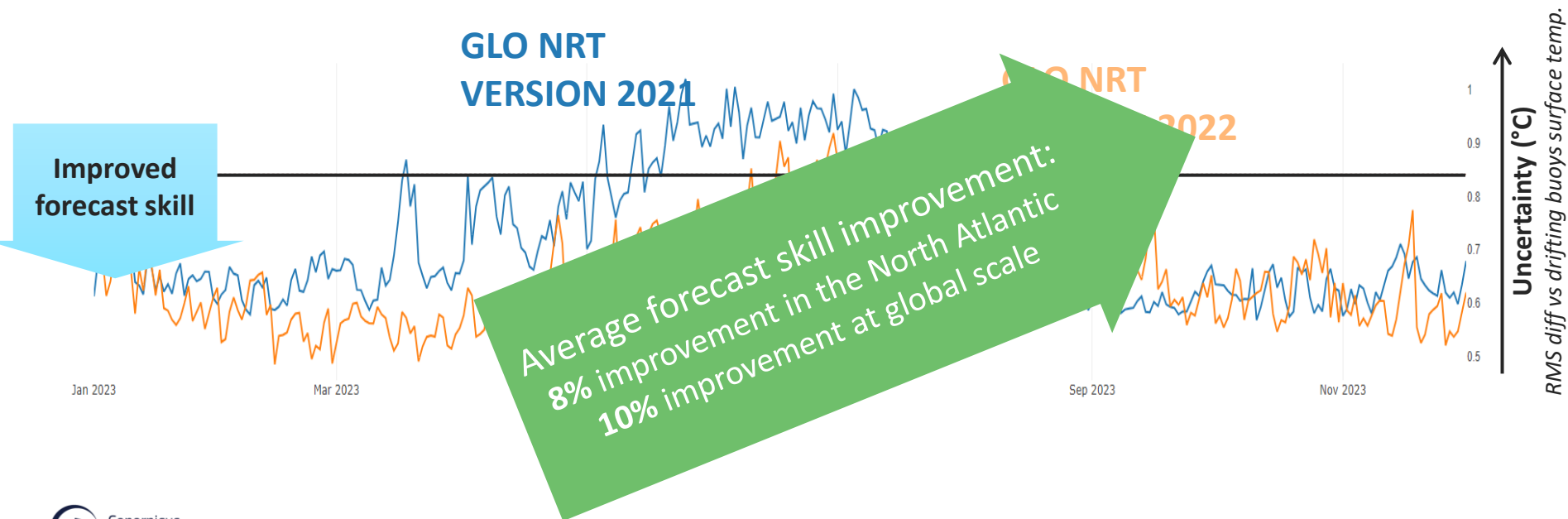
Measuring quality improvement

North Atlantic basin **5-day sea-surface-temperature forecast** uncertainty



Measuring quality improvement

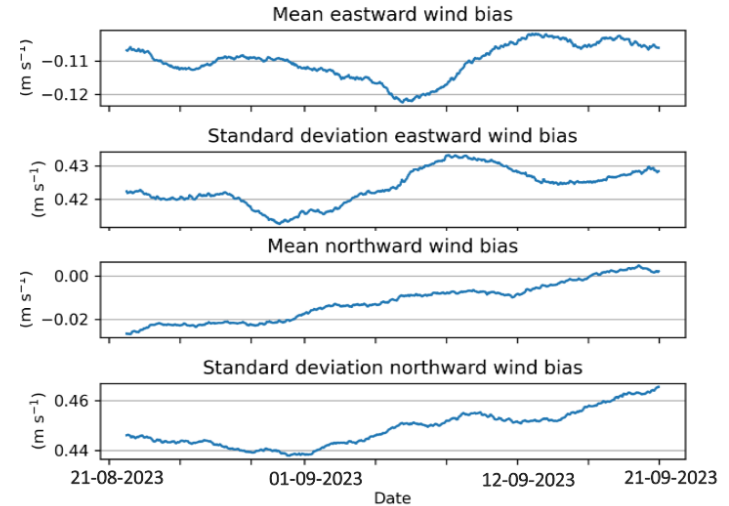
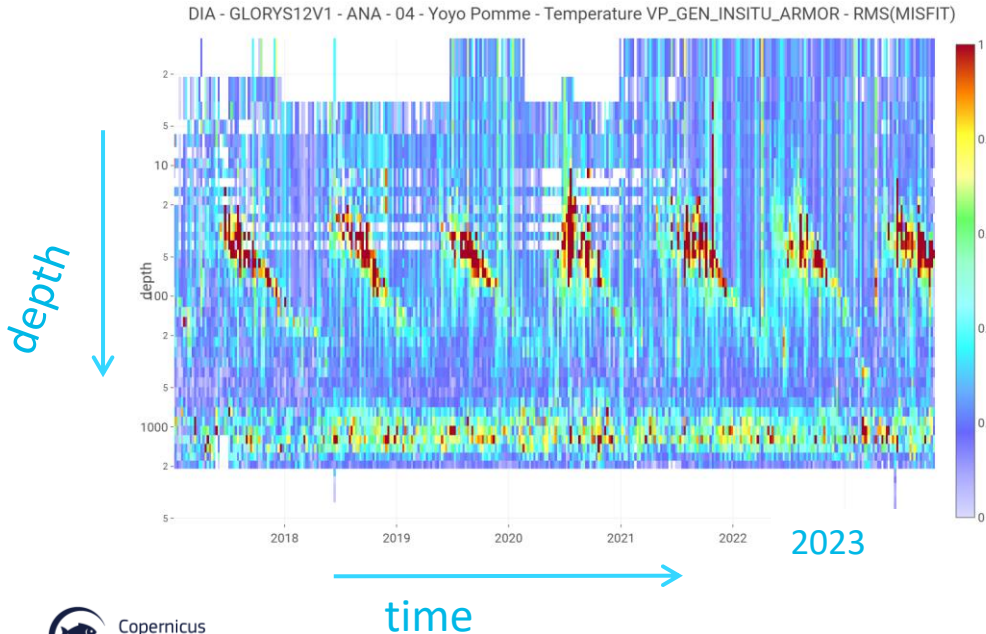
North Atlantic basin **5-day sea-surface-temperature forecast** uncertainty



Multi-year: regular verification of time extensions

Example from GLO MFC reanalysis
North East Atlantic temperature uncertainties

Example from WIND TAC reprocessing
Global wind uncertainties





Copernicus
Marine Service



- **Product quality
information**

Cross-cutting

Improving available quality documentation

Synthesis Quality Overview (SQO) documents *are accessible from the catalogue.*

Briefer than the Quality Information Document (QUID); provides synthetic information on validation of specific variables.

1 QUID => 1 SQO.
SQO: 1 page per variable:
1 short summary + EANs +
(optional 1 figure)

Resources News Events Contact Register Login

European Union Copernicus Europe's eyes on Earth Copernicus Marine Service

Services Opportunities Access Data Use Cases User Corner About

Baltic Sea Biogeochemistry Analysis and Forecast

Home > Marine Data Store > Product

Description	Overview
Notifications	<p>This Baltic Sea biogeochemical model product provides forecasts for the biogeochemical conditions in the Baltic Sea. The Baltic forecast is updated daily providing a new six days forecast. Three different datasets are provided. One with daily means and one with monthly means values for these parameters: nitrate, phosphate, chl-a, ammonium, dissolved oxygen, ph, phytoplankton, zooplankton, silicate, dissolved inorganic carbon, and partial pressure of co2 at the surface. Instantaneous values for the Secchi Depth and light attenuation valid for noon (12Z) are included in the daily mean files/dataset. Additionally a third dataset with daily accumulated values of the netto primary production is available. The product is produced by the biogeochemical model ERGOM (Neumann, 2000) one way coupled to a Baltic Sea set up of the NEMO ocean model, which provides the CMEEMS Baltic physical ocean forecast product (BALTICSEA_ANALYSISFORECAST_PHY_003_006). This biogeochemical product is provided at the models native grid with a resolution of 1 nautical mile in the horizontal, and up to 56 vertical depth levels. The product covers the Baltic Sea including the transition area towards the North Sea (i.e. the Danish Belts, the Kattegat and Skagerrak).</p>
Data access	
Contact	
DOCUMENTATION	
User Manual	
Quality Information Document	
Synthesis Quality Overview	
Licence	
How to cite	
DOI	
10.48670/moi-00009	

Improving process

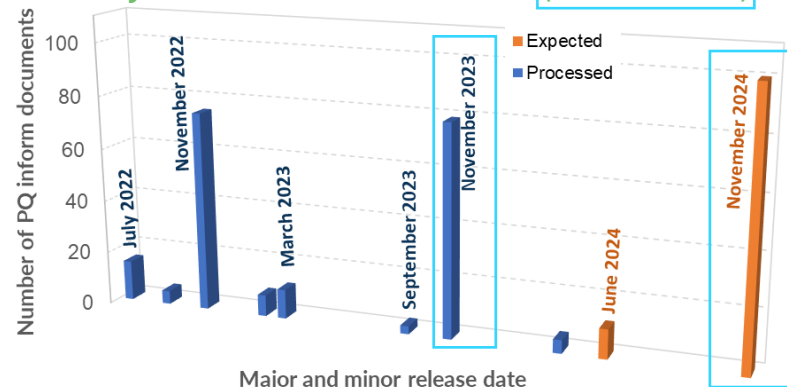
External review following:

- the increase in the number of product updates.
- the addition of SQOs to the catalogue.

Major entries in service: product update.

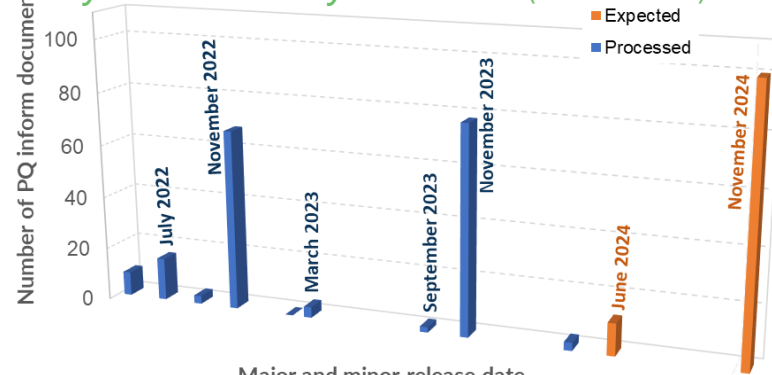
Minor entries in service: specific purpose.

QQuality Information Document (external)



Major and minor release date

Synthesis Quality Overview (internal)

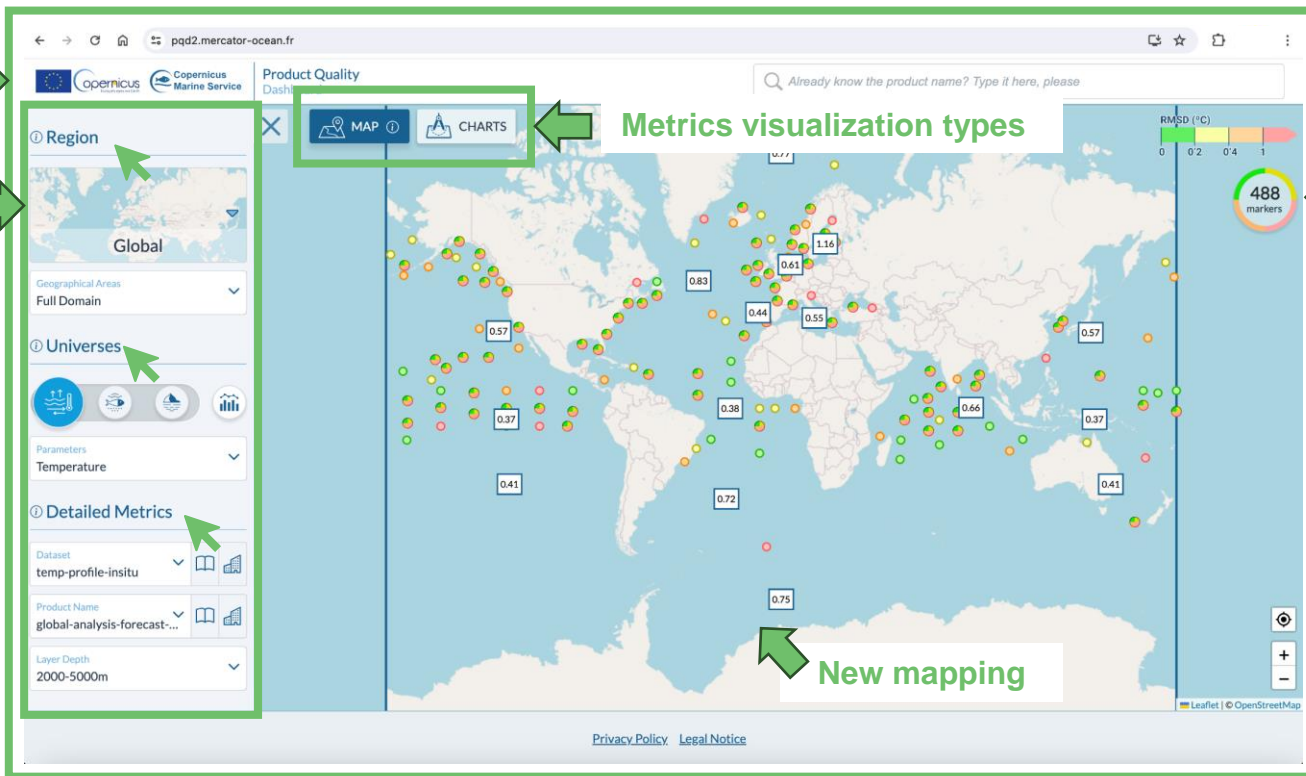


Major and minor release date

Improving the product quality dashboard

Revamped interface

New sidebar controller

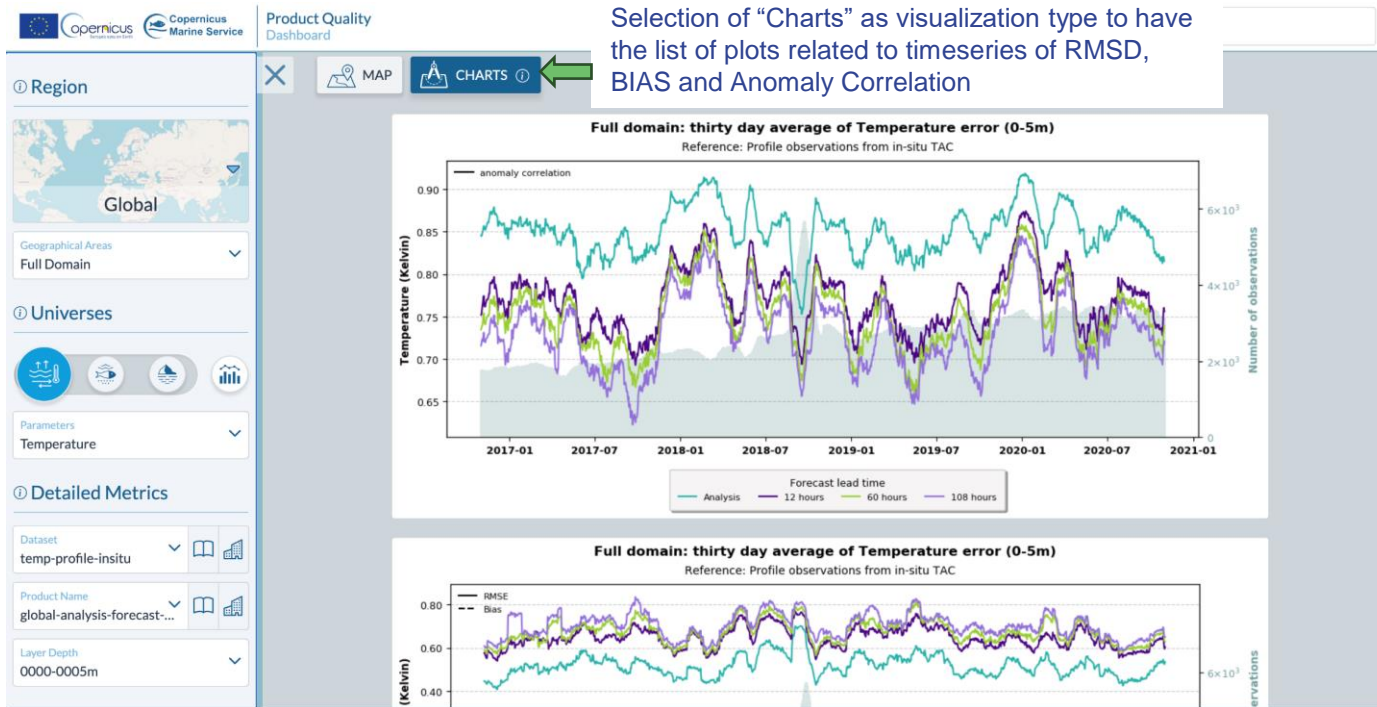


Metrics visualization types

Counter for buoys, with clustering function

New mapping

Improving the product quality dashboard



Selection of "Charts" as visualization type to have the list of plots related to timeseries of RMSD, BIAS and Anomaly Correlation

Improving the product quality dashboard : roadmap

- **New mock-up**
- Improved Leaflet/mapping
- Summary widgets for INS & SAT
- Service Desk

V1 DEV

- **Interactive Class-2**
- + Leaflet/mapping
- Upgraded mock-up

V2 DEV

- **V1 + V2**
- Improved BE-FE connection

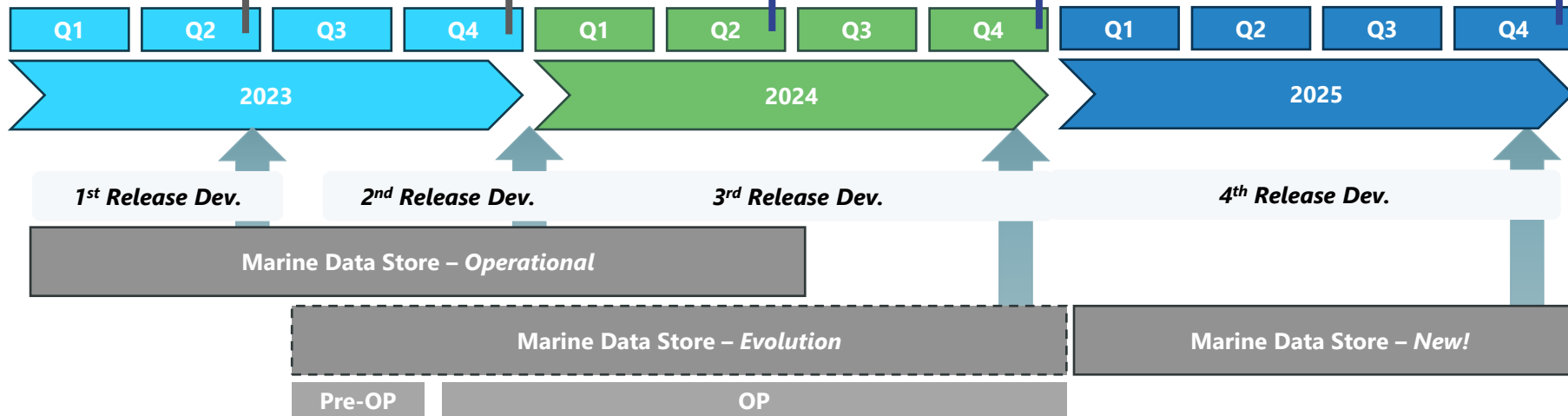
V2* EIS

- **PQ-D <> MDS**
- **Interactive Class-4**
- Upgraded FE

V3 EIS

- **Improved FCST widget**
- **Customizable EAN metrics** (timeseries and average)

V4 EIS



● Meetings to exchange on product quality **June 2023**

Product Quality Working Group meeting

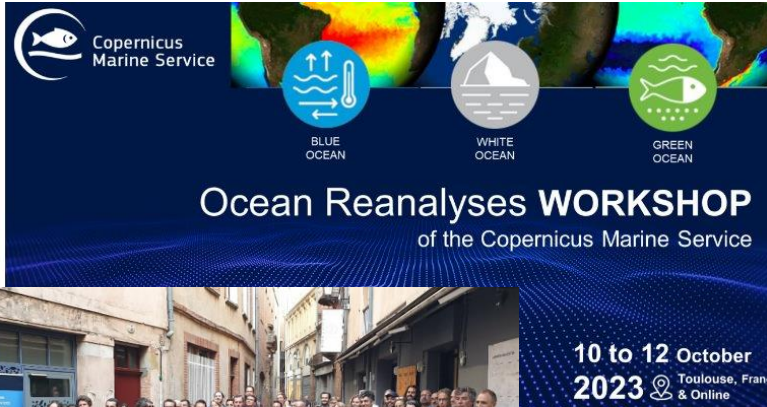
- *New metrics and quality incidents detection*
- *New product quality dashboard presentation*
- *Thematic task teams*
 - Bio Argo
 - Mixed layer depth
 - Validation of sea level at tide gauges
 - Common TAC metrics
 - Etc...



Next meeting online **25-26 June 2024**

-> to encourage and sustain thematic exchanges

Meetings to exchange on product quality **October 2023**



- Strengths and weaknesses of ocean reanalyses, for physics, sea ice, biogeochemistry, waves
- Preparation of an intercomparison exercise including regions for 2025



Workshop summary published in BAMS (Bulletin of the American Met. Society)
Gathering users and developers to shape together the next-generation ocean reanalyses: Ocean reanalyses workshop of the European Copernicus Marine Service

<https://doi.org/10.1175/BAMS-D-24-0034.1>



Copernicus
Marine Service

● **Thank You!**