GROOM II
GLIDERS FOR RESEARCH, OCEAN OBSERVATION & MANAGEMENT : INFRASTRUCTURE AND INNOVATION

EuroSea

EuroGOOS
European Global Ocean Observing System

European Data Management Workshop

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Status of the European Real Time glider data management system in the international context

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Agenda

- Global and European glider activity
- How are we monitoring the activity ?
- How are we monitoring the data flow ?
- The status of the European data flow ?

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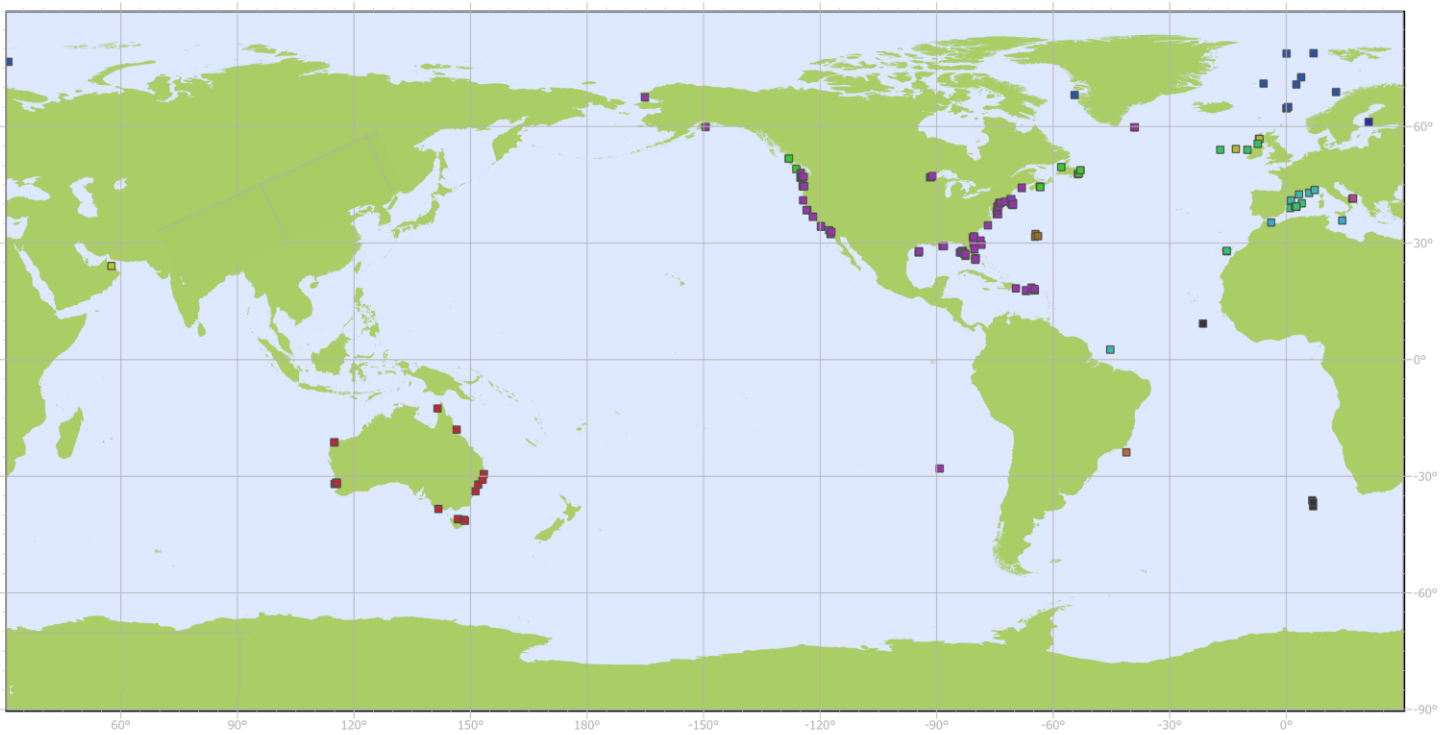


OceanGliders

National contribution to the OceanGliders program

All glider mission deployment locations registered at OceanOPS (247 during the last 12 months)

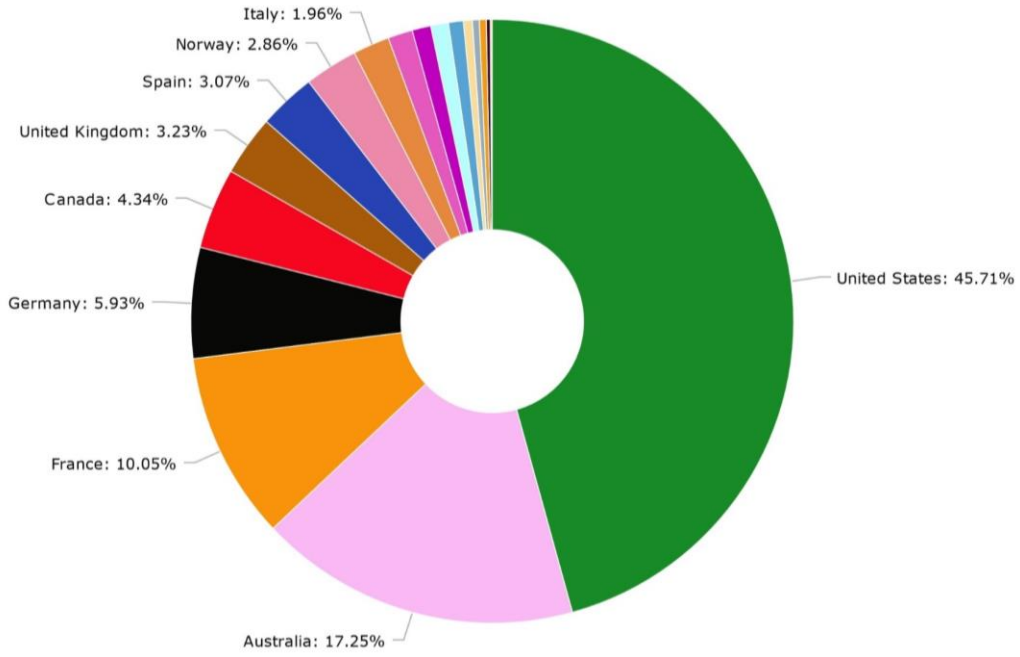
May 2022

AUSTRALIA (20) | FRANCE (6) | UK (3) | FINLAND (2) | ITALY (2)
BRAZIL (1) | GERMANY (5) | USA (158) | GREECE (2) | NORWAY (12)
CANADA (17) | SPAIN (11) | BERMUDA (4) | IRELAND (3) | SWEDEN (1)

Generated by ocean-ops.org, 2022-06-02
Projection: Plate Carree (-150,0000)

I. Global and European glider activity

Global glider activity



Canada	82	United Kingdom	61	Spain	58	Norway	54
Ireland	9	Finland	7	Estonia	7	Cyprus	4
United States	864	Australia	326	France	190	Germany	112
Bermuda	25	Brazil	19	Greece	18	Korea (Republic Of)	15
Italy	37						
Sweden	2						

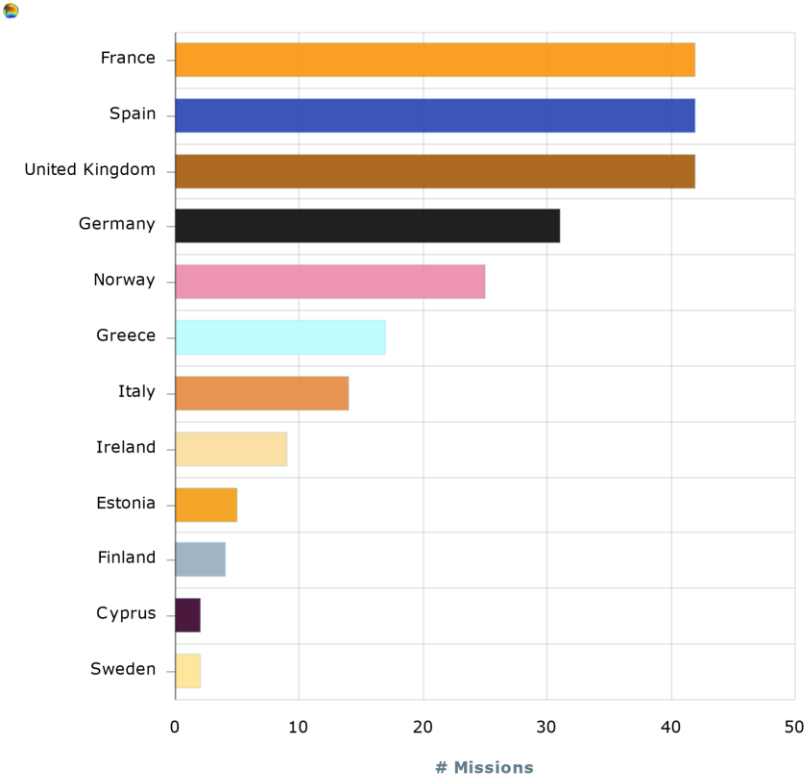
- **EU represents 42%** of the historical contribution to the OceanGliders program (in terms of deployments registered so far in OceanOPS)
- Australia = 17% (complet), US* = 48% (incomplet - 1/3 is missing), Canada = 5% (incomplete), Korea+Brazil = 2% (incomplete)
- Global activity is growing making it difficult to monitor without a common approach in terms of data management.

Global glider activity

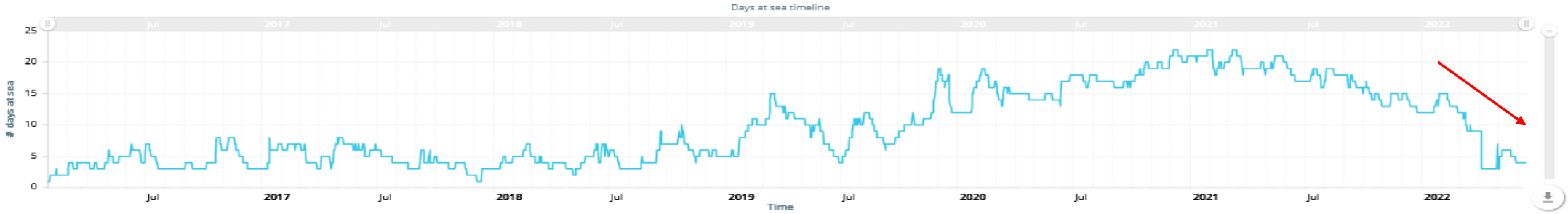
Implementation				
Activity	10% 4/2022 ↘	30 Raw count	100 Target	# of operational units vs target
Intensity	22.6% 4/2022 ↗	226 Raw count	1000 Target	# of registered deployments in the design over last 12 months
Sustainability	37 2021 ↘	37 Raw count	100 Target	# of OceanGliders sites visited during the year
Data Flow				
Delivery	13.64% 4/2022 ↗	6 Raw count	90% Target	# of registered units vs number of operational units (GDAC Ifremer)
Delivery	63.64% 4/2022 ↗	28 Raw count	75% Target	# of registered units vs number of operational units (GTS)
Depth profiled	485.14 4/2022 ↘	485 Raw count	- Target	Vertical distance profiled during the month (km)
Quantity (GDAC)	1045 4/2022 ↘	1045 Raw count	- Target	# of observations reported during the month (GDAC)
Quantity (GTS)	20625 4/2022 ↗	20625 Raw count	- Target	# of observations reported during the month (GTS)
Cumulated depth profiled	135010.4 4/2022 ↗	135010 Raw count	- Target	Cumulated vertical distance profiled month after month (km)
Instrumentation				
Instrumentation	15.07 4/2022 ↗	226 Raw count	1500 Target	# of different gliders (WMO and nickname) deployed of the last 24 months
Operations				
Reliability	114.45 4/2022 ↘	114 Raw count	- Target	Average duration of missions over the last 12 months

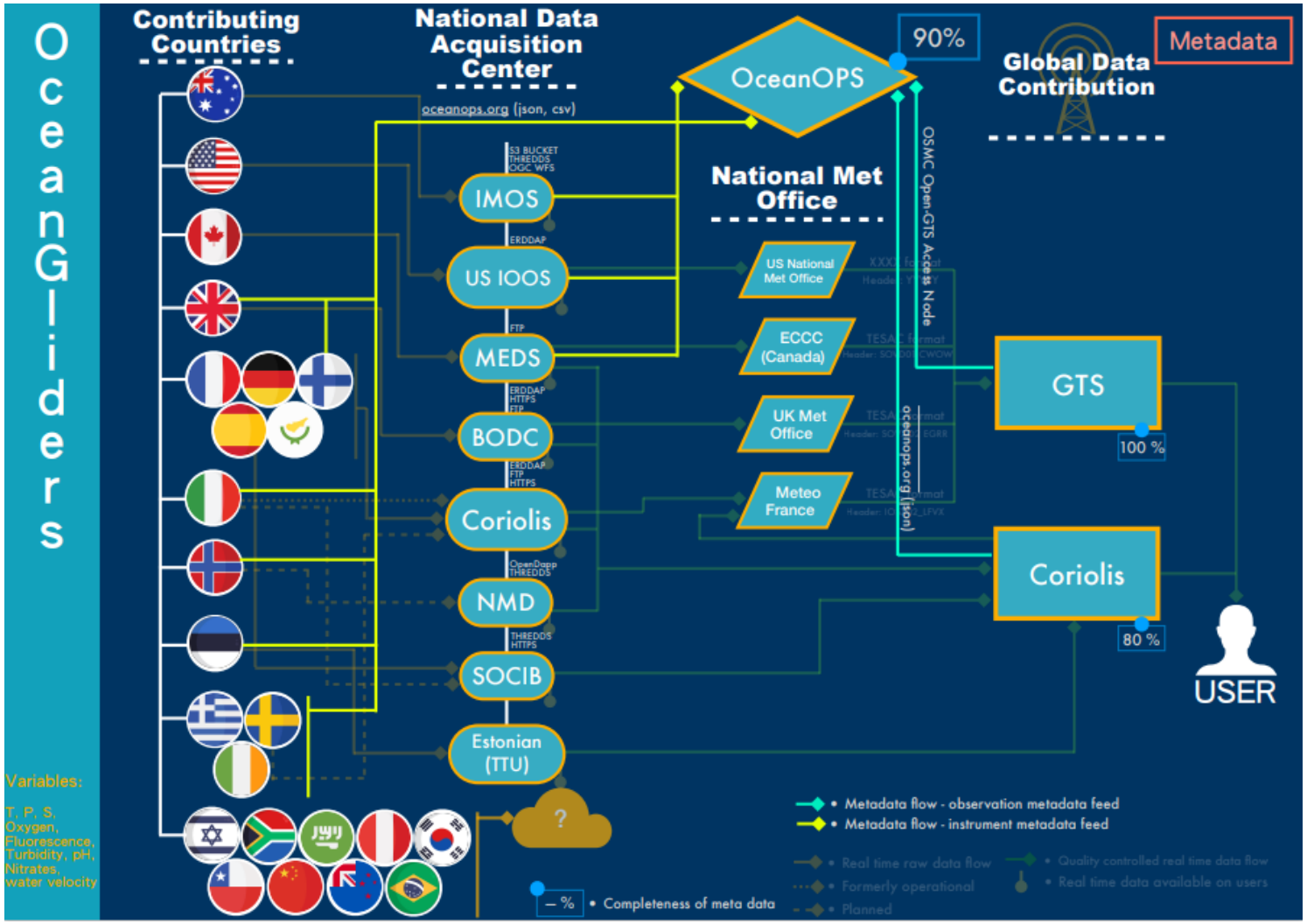
- Decrease in the cumulated number of days at sea not due to a limitation of the activity or performance but the difficulty to monitor properly the OceanGliders program.
- KPIs (Beta version) computed automatically but not relevant enough without a complete monitoring
- Tools exist for the global but can be addapted to the regional.

European glider activity (since 2018)



- Does this bar chart reflect the real European glider activity?
- Is the decrease in the number cumulated days at sea real ?
- Need for a better monitoring of the glider activity in Europe.
- Need for an improved glider data and metadata management in Europe.

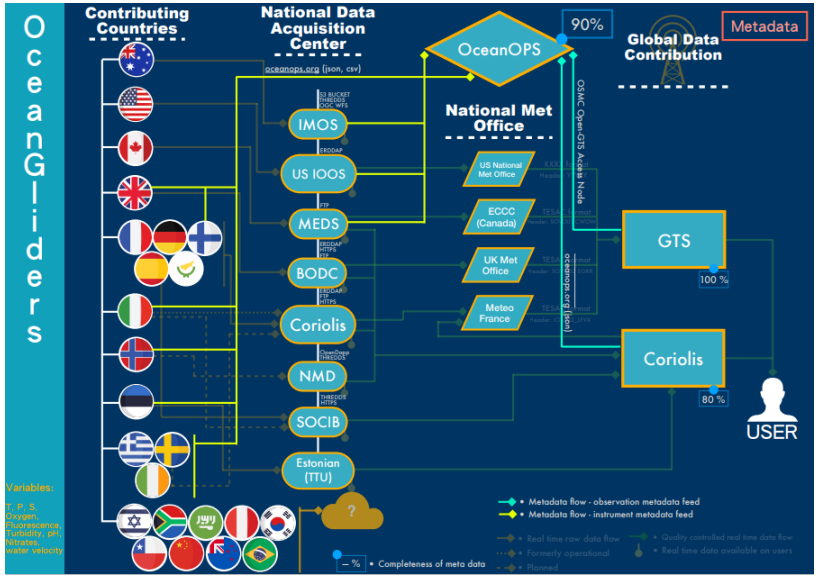




II. How are we monitoring the activity?

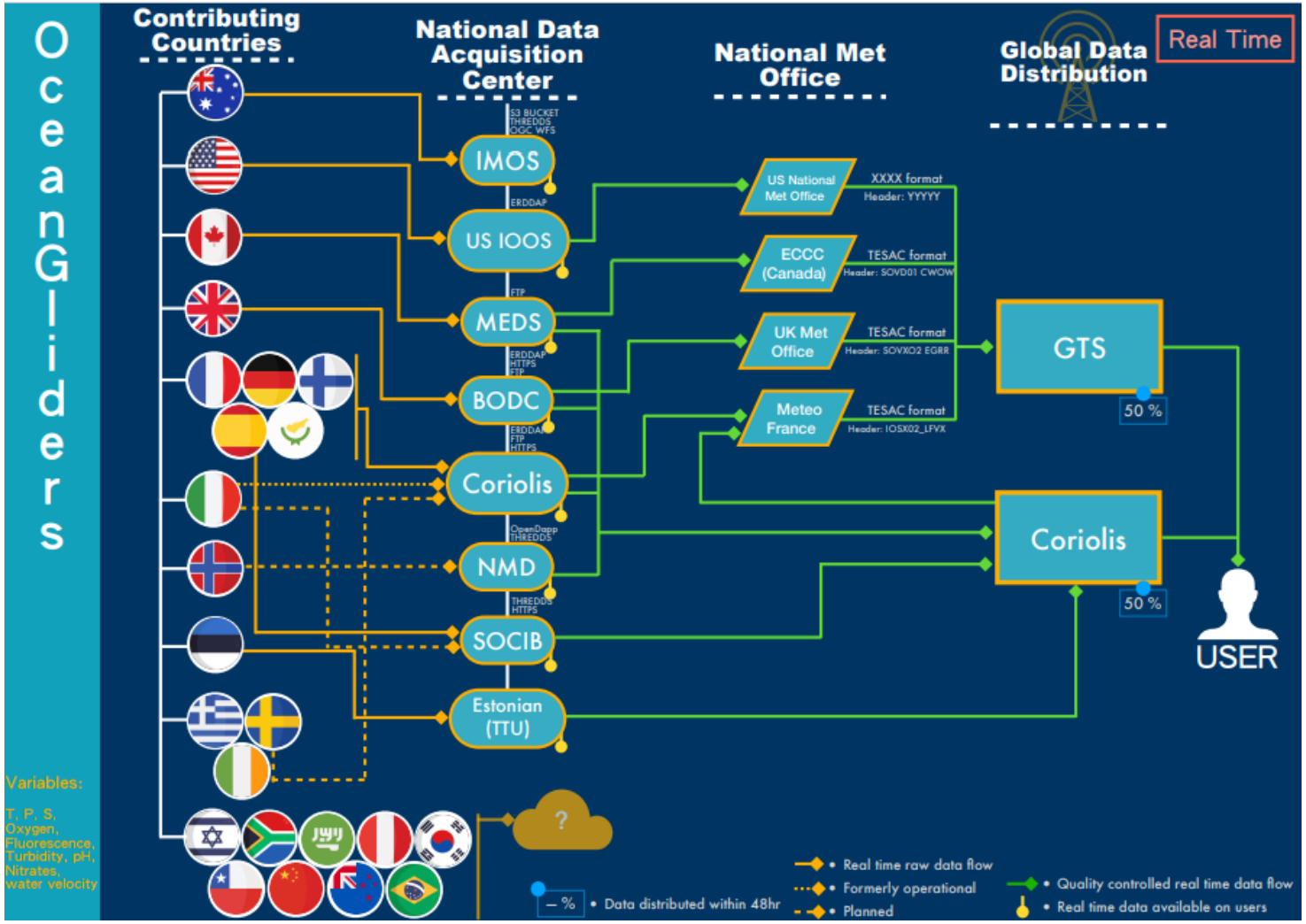
How are we monitoring the activity?

- Metadata harvesting
  - *Manual (from glider groups website to online form)*
  - *Semi-automated processing (json, csv files, from GTS)*
  - *Time consuming*
  - *Source of errors and oversight*

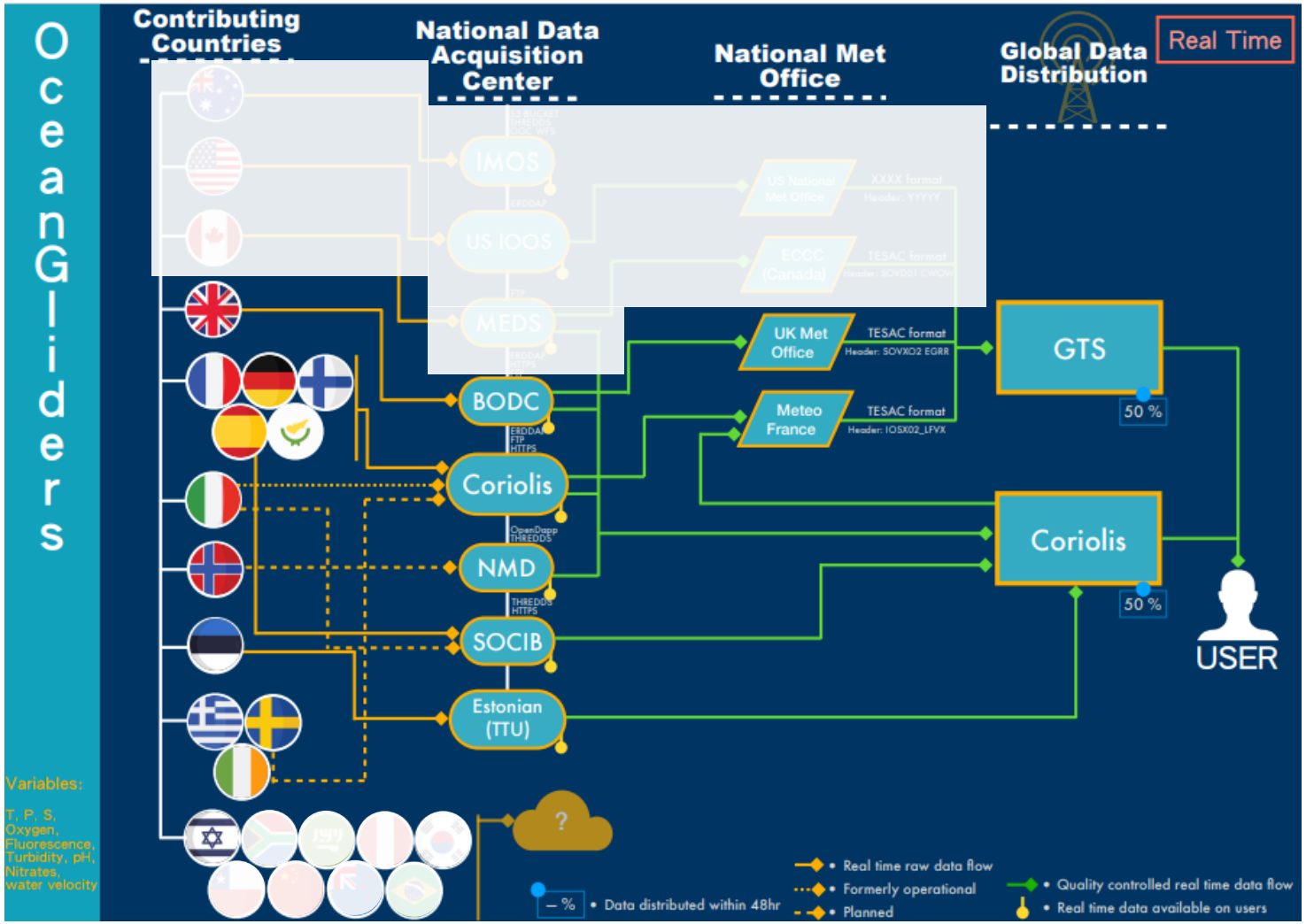


How can we improve?

- Centralize the European glider data and metadata
  - *Simplify PIs and Operators life (one entry point for data and metadata distribution)*
- Harmonizing the standard, format, vocabularies
  - *To automatise the procedures and fit data and metadata users requirements*



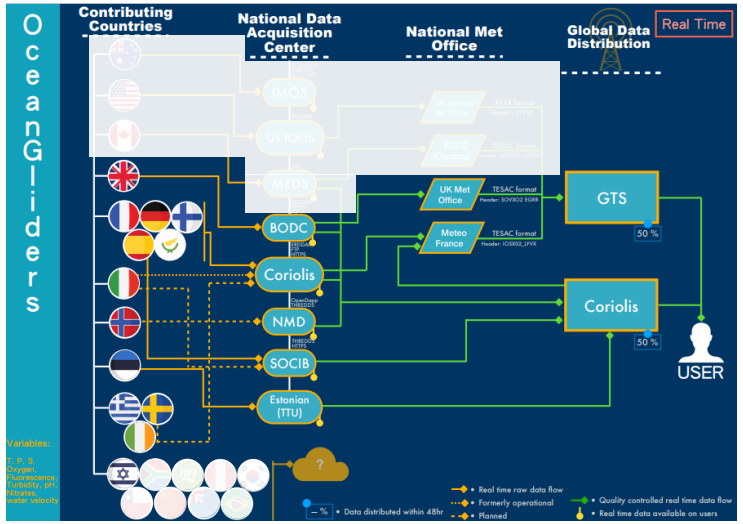
III. How are we monitoring the data flow?



III. How are we monitoring the data flow?

How do we monitor the data flow?

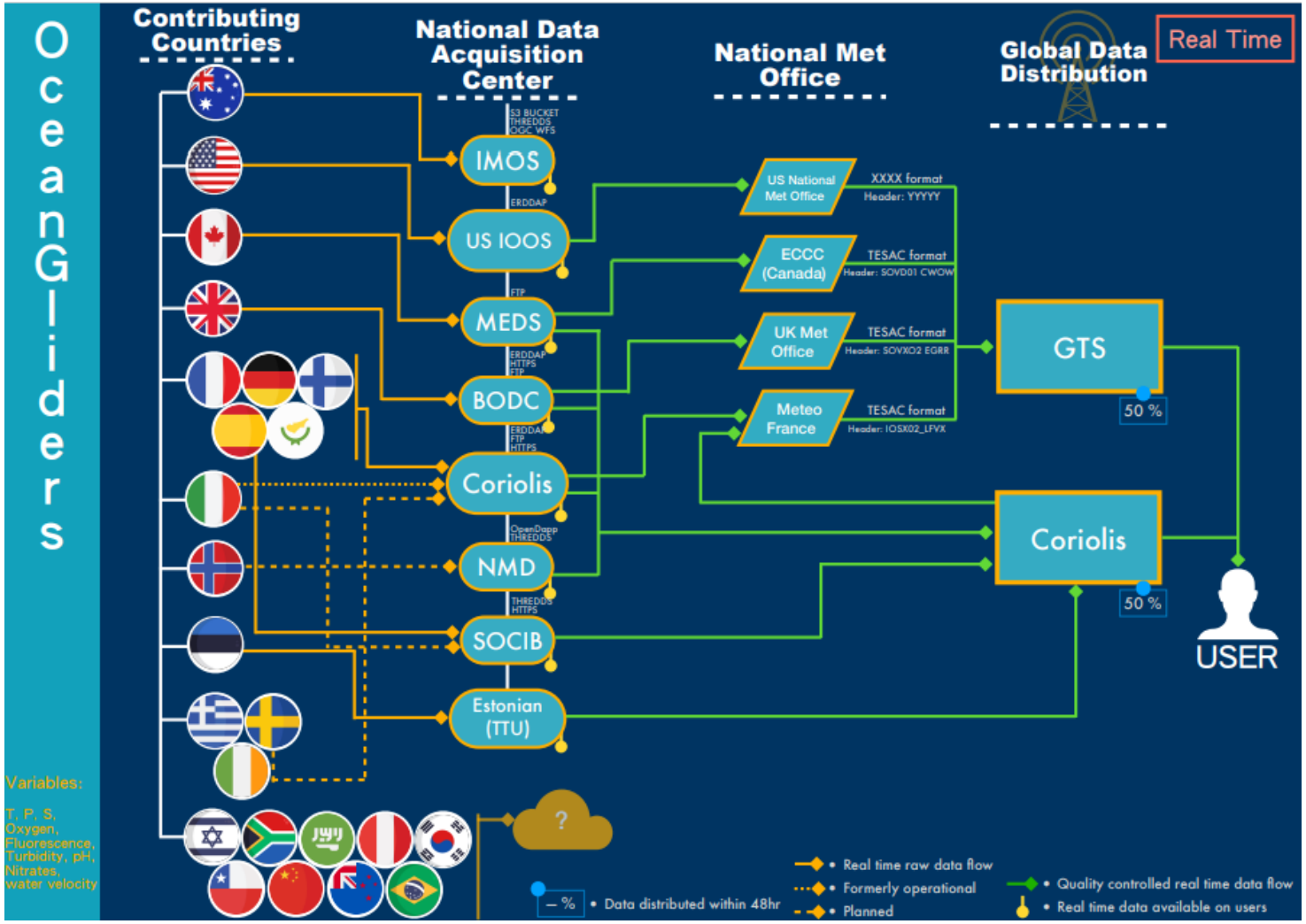
- From GTS
  - *Matching registered WMO ID (glider unique ID) with pre-filtered GTS data.*
    - Need to now the data providers (National Met offices)
    - Need the header of each data provider on GTS
    - Need registration of the glider mission at OceanOPS
      - *High complexity*



- From “GDACs”
  - *Only from Coriolis at the moment (not IOOS Glider DAC nor IMOS AODN)*
    - Centralize GDAC would be very helpful for monitoring data flow
  - *Through index file parsing (profile index file and trajectory index file)*
    - Simple, robust, flexible (index file can be modified on request – e.g. max depth)

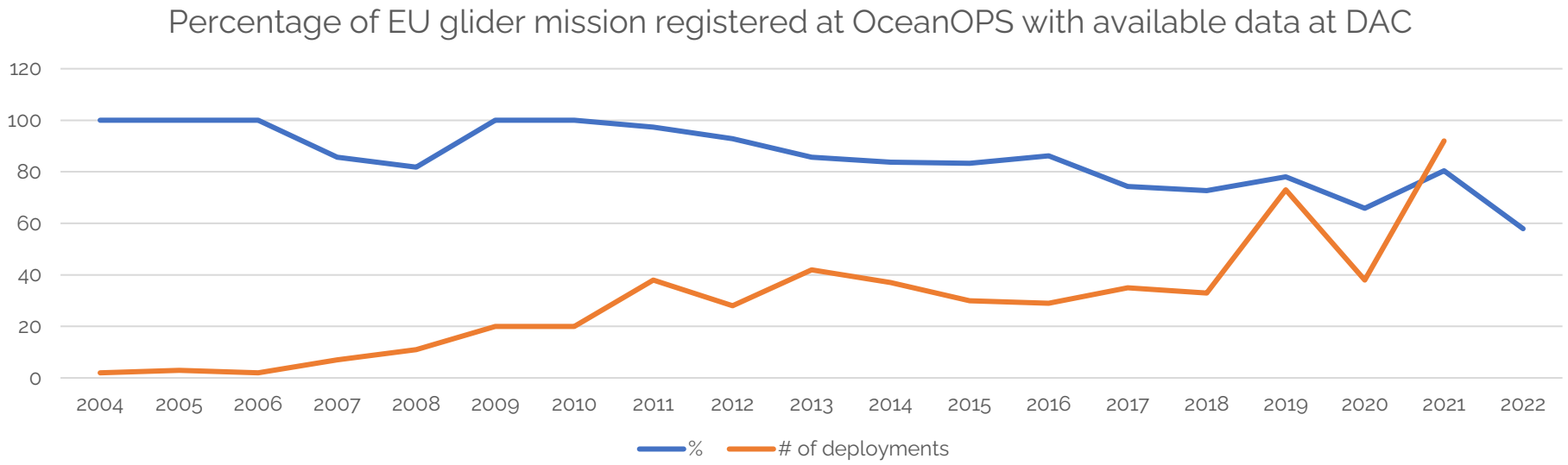
How can we improve?

- Simplify the data flow toward European GDAC (Coriolis)
- Validate BUFR format for Gliders on GTS
- Rely on multiple DAC to produce common format
- Centralize OceanGliders data sets into on place



IV. The status of the EU data flow?

Status of the EU data flow



75% of the glider data set (deployments registered in the OceanOPS system) is available at DACs.

Still difficult to track EU gliders data on GTS

- **75%** is a good score considering the diversity of DAC and operators in Europe
- But the trend should warn us :
  - *While activity is growing, data availability is decreasing.*
    - Results biased by the historical glider deployments only available in DACs repositories.
  - *Correlation between increasing activity, increasing number of glider groups in EU and decrease in data availability at DACs and GDACs*

Structural improvement in the EU glider data management needed

Toward a uniformization of the glider data management globally

- From 3 widely used format to OG1.0 (https://github.com/OceanGlidersCommunity/OG-format-user-manual)
  - *A flexible philosophy : common baseline, standard and format, but extendable.*
  - *Common vocabularies*
- Common data flow (GDAC and GTS) for “standard” variables (T, S, O2, Chla, CDOM, BBP)
- Common Quality Control ?

Improve efficiency of the EU glider data management scheme – this meeting

- Improve data flow on the short term (week 1)
- Re-think the current data management scheme in Europe (week 2 – ws 1)
- Always avoid duplication effort for Operators and Pis to reach data and metadata services

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