

JCOMMOPS INTEGRATED MONITORING SYSTEM

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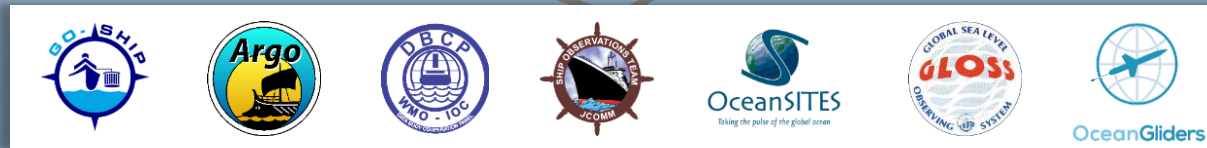


GOOS – GLOBAL OCEAN OBSERVING SYSTEM



GOVERNANCE

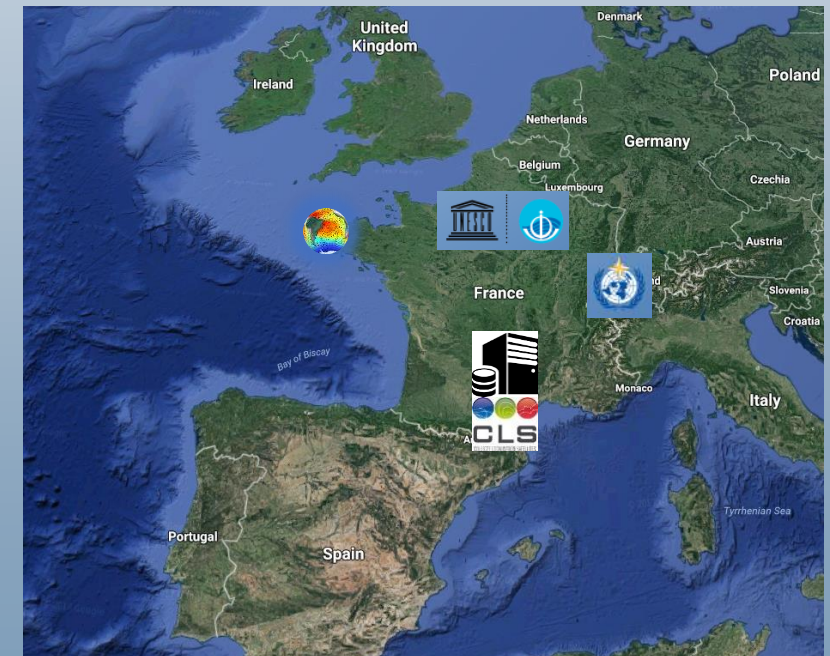
UN Agencies, Joint Commission, Observing Networks



JCOMM IN SITU OBSERVATIONS PROGRAMME SUPPORT CENTRE

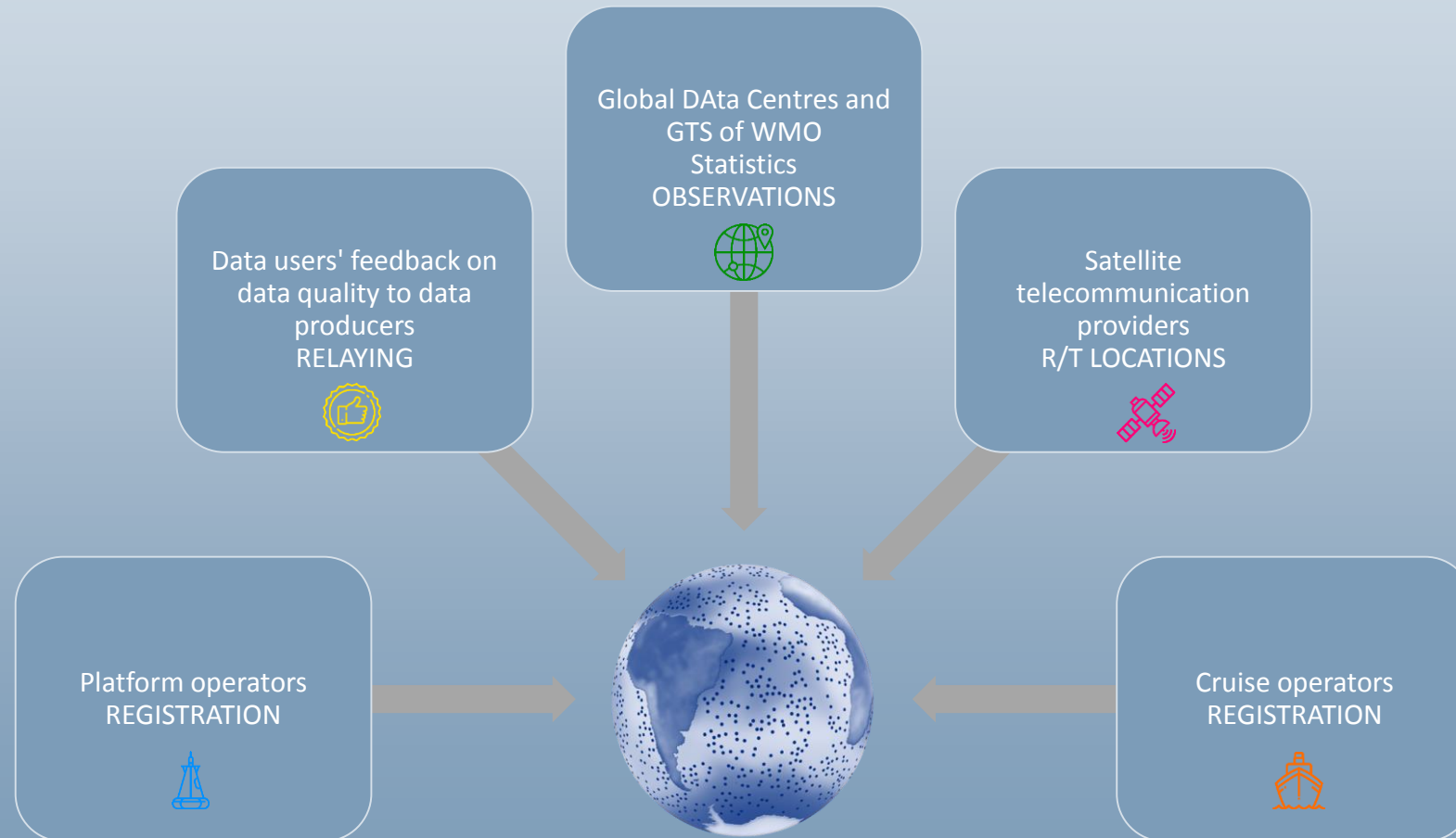
Established in France/Brest on the “World Campus for the Sea”

- 7 global networks
 - Argo, DBCP, SOT, OceanSITES, GO-SHIP, GLOSS & OceanGliders
- Resources
 - Premises hosted by Ifremer (Brest - FRANCE)
 - IS powered by CLS (Toulouse - FRANCE)
 - 6-person team: 3 TCs, 1 oceanographer Sc./communication/outreach, 2 IT
- Assistance, coordination & monitoring
 - Cross-programme technical expertise & support
 - Metadata harmonization
 - Cruise planning
 - Metadata quality control
 - Tracking
 - Performance indicators



COLLECTING METADATA

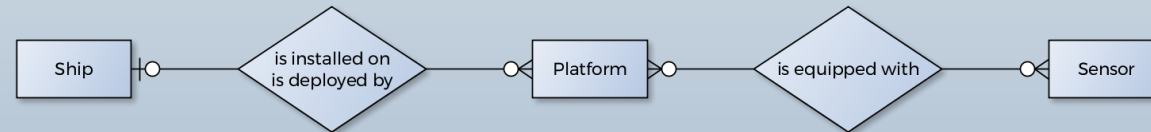
How to gather everything?



ENHANCING THE METADATA

Adding value to it

- Modelling
 - Organizing concepts, in an integrated way



- Harmonization
 - Unified reference tables, shared entities: integration
 - Built on top of existing standards, when available (SDC P01, EV specification sheets)
- Unicity
 - Unique IDs for concepts: platforms (WMO/WIGOS), ships (ICES), agencies (EDMO)
- Integrity
 - Metadata controlled and adjusted manually by experts, as necessary

Aim: fueling an autonomous system

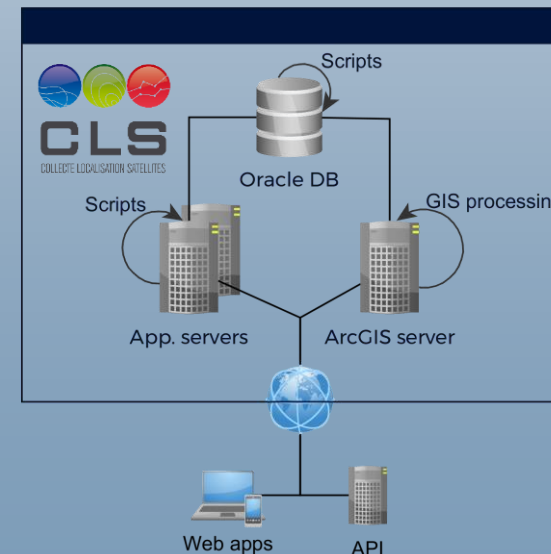
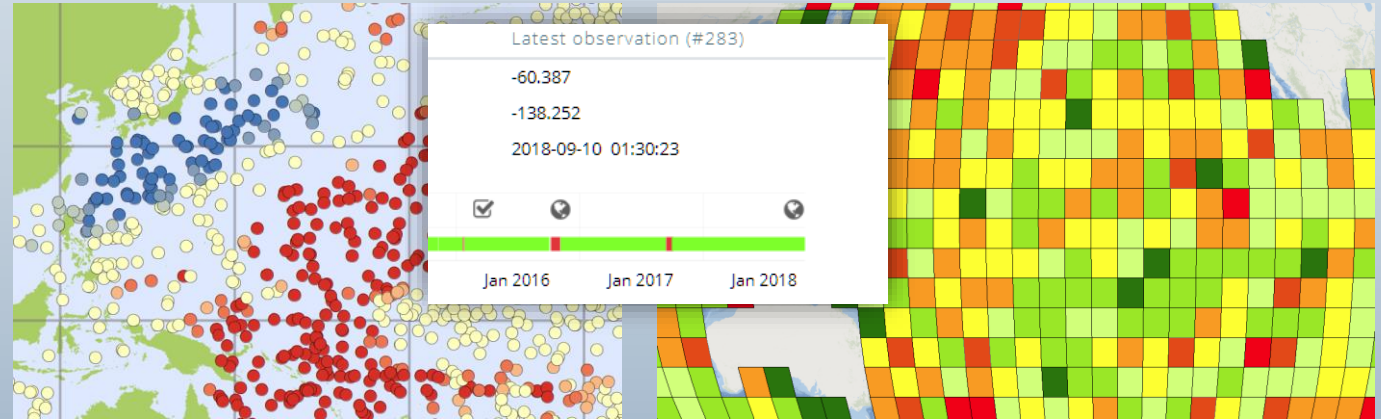
MANAGING THE METADATA

How do we handle it?

- Autonomous system
 - Platform lifecycle
 - Enriched metadata through routines
 - Geo-tracking (EEZ Warnings, ice)

- GIS processing powered by ESRI
 - Spatial analyzes (density, hotspots)
 - OGC compliant
 - Web 3D support (WebGL)

- High availability ensured by CLS
 - 24/7 monitoring



DISTRIBUTING THE METADATA

What can we do with it?

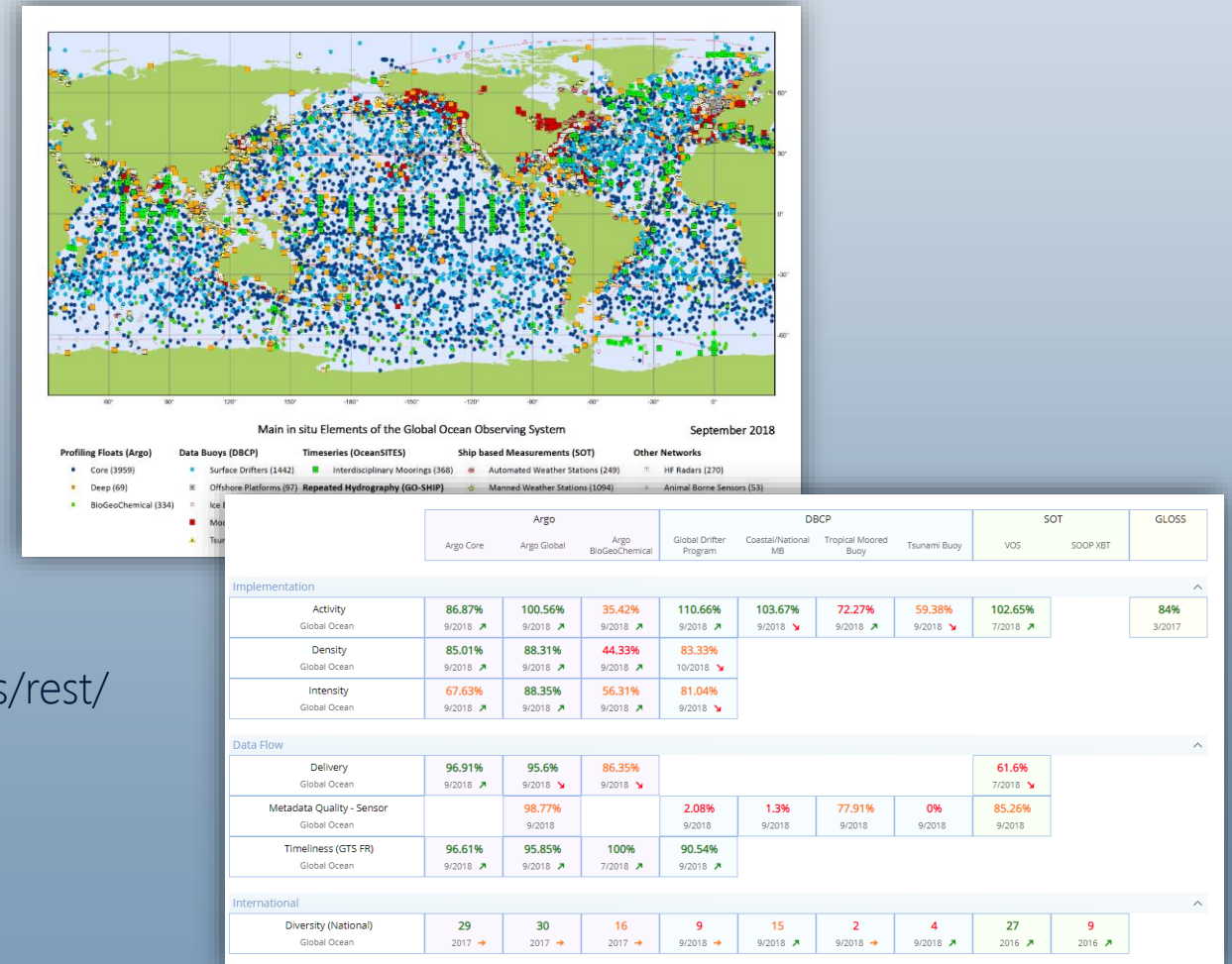
- Authoritative status maps
 - www.jcommops.org/maps

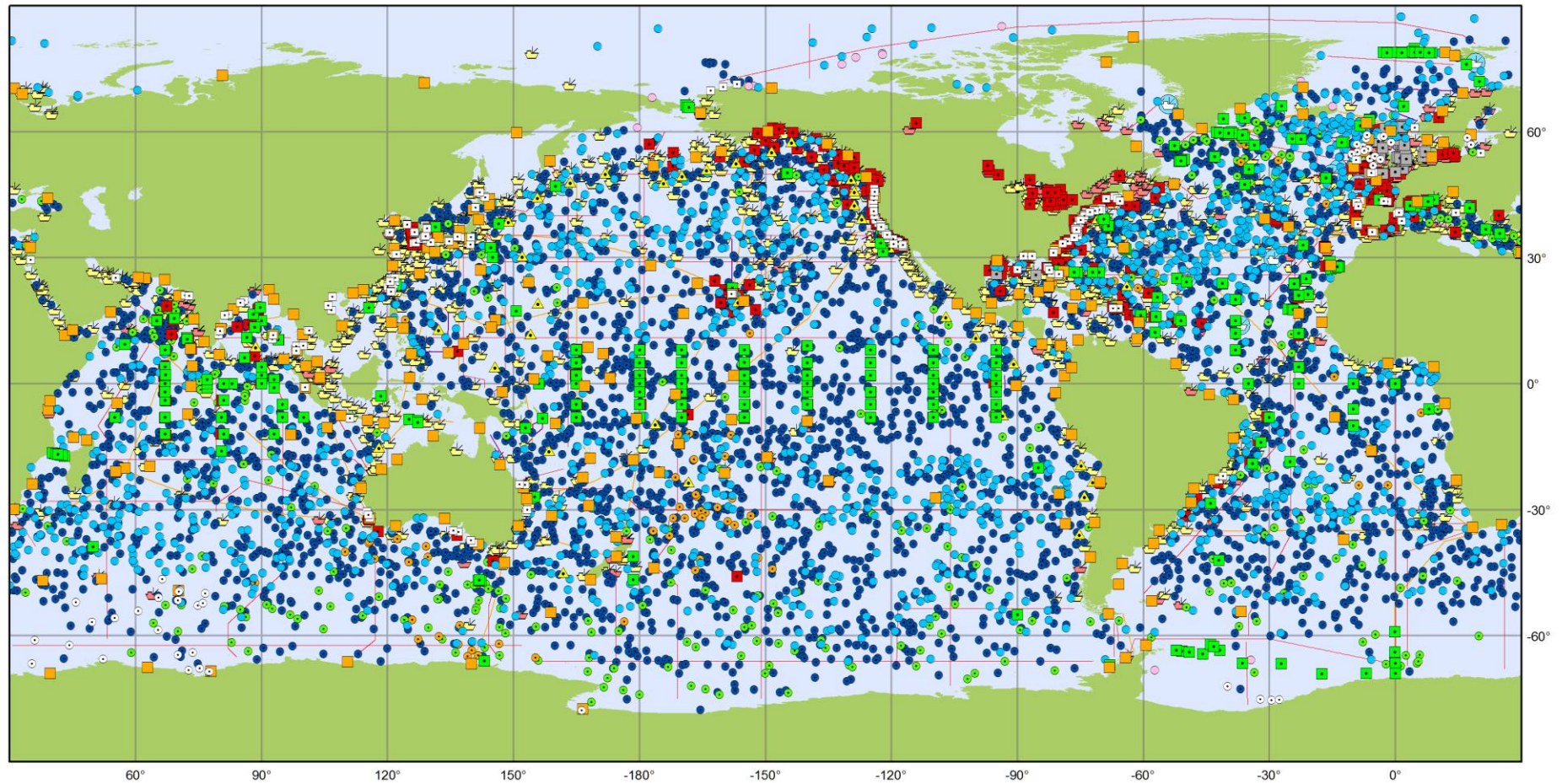
- Key Performance Indicators
 - www.jcommops.org/kpi

- JCOMM Report Card
 - www.jcommops.org/reportcard

- Data exchange
 - File exports
 - REST API under development (WIGOS compliant)
 - GIS REST API (ArcGIS Server) - www.jcommops.org/arcgis/rest/

- Web application
 - www.jcommops.org





Main in situ Elements of the Global Ocean Observing System

September 2018

Profiling Floats (Argo)

- Core (3959)
- Deep (69)
- BioGeoChemical (334)

Data Buoys (DBCP)

- Surface Drifters (1442)
- Offshore Platforms (97)
- Ice Buoys (15)
- Moored Buoys (394)
- ▲ Tsunameters (37)

Timeseries (OceanSITES)

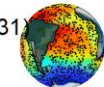
- Interdisciplinary Moorings (368)
- Repeated Hydrography (GO-SHIP)
- Research Vessel Lines (62)
- Sea Level (GLOSS)
- Tide Gauges (252)

Ship based Measurements (SOT)

- Automated Weather Stations (249)
- Manned Weather Stations (1094)
- Radiosondes (12)
- eXpendable BathyThermographs (37)

Other Networks

- HF Radars (270)
- Animal Borne Sensors (53)
- Ocean Gliders (31)



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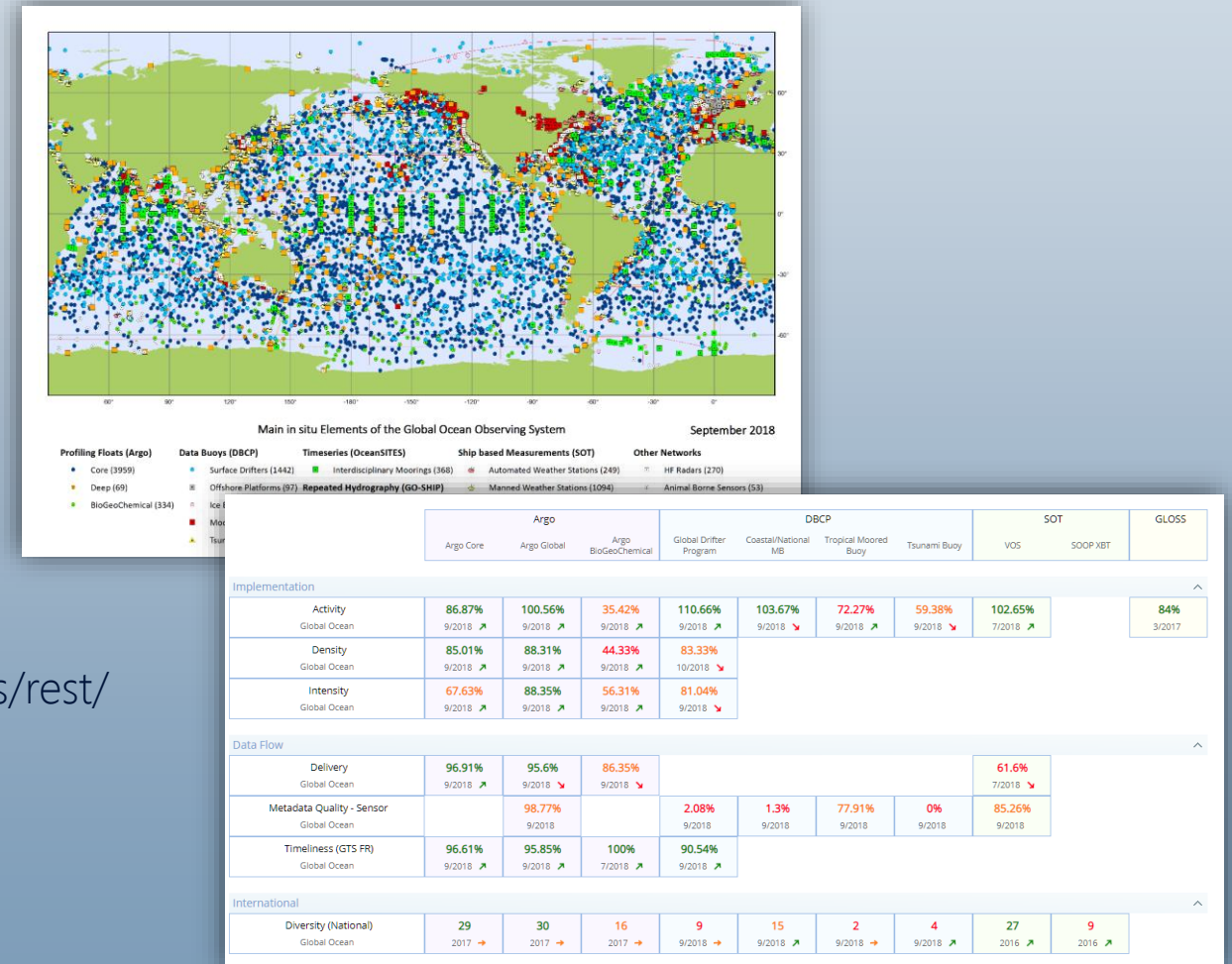
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Argo			DBCP				SOT		GLOSS
Argo Core	Argo Global	Argo BioGeoChemical	Global Drifter Program	Coastal/National MB	Tropical Moored Buoy	Tsunami Buoy	VOS	SOOP XBT	

Implementation

Activity Global Ocean	86.87% 9/2018 ↗	100.56% 9/2018 ↗	35.42% 9/2018 ↗	110.66% 9/2018 ↗	103.67% 9/2018 ↘	72.27% 9/2018 ↗	59.38% 9/2018 ↘	102.65% 7/2018 ↗	84% 3/2017
Density Global Ocean	85.01% 9/2018 ↗	88.31% 9/2018 ↗	44.33% 9/2018 ↗	83.33% 10/2018 ↘					
Intensity Global Ocean	67.63% 9/2018 ↗	88.35% 9/2018 ↗	56.31% 9/2018 ↗	81.04% 9/2018 ↘					

Data Flow

Delivery Global Ocean	96.91% 9/2018 ↗	95.6% 9/2018 ↘	86.35% 9/2018 ↘					61.6% 7/2018 ↘
Metadata Quality - Sensor Global Ocean		98.77% 9/2018		2.08% 9/2018	1.3% 9/2018	77.91% 9/2018	0% 9/2018	85.26% 9/2018
Timeliness (GTS FR) Global Ocean	96.61% 9/2018 ↗	95.85% 9/2018 ↗	100% 7/2018 ↗	90.54% 9/2018 ↗				

International

Diversity (National) Global Ocean	29 2017 →	30 2017 →	16 2017 →	9 9/2018 →	15 9/2018 ↗	2 9/2018 →	4 9/2018 ↗	27 2016 ↗	9 2016 ↗
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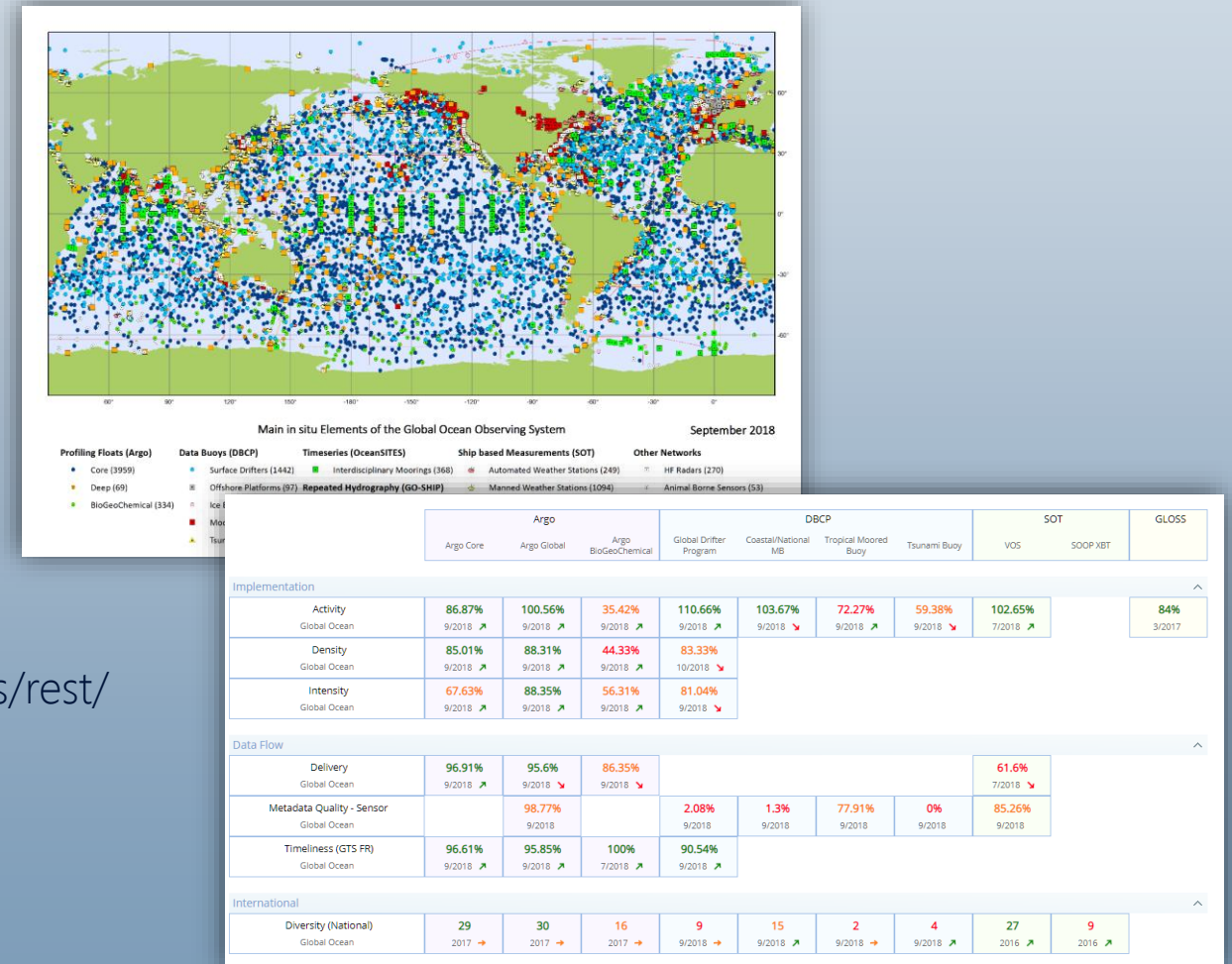
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DISPLAYING THE METADATA

WWW.JCOMMOPS.ORG

Query, map, save, compare

The screenshot displays the JCOMMOPS web application interface. At the top, it shows navigation links for Search, Register, Maps, and Metrics, along with a Log In button. The main interface is divided into three main sections:

- Query Platforms:** A sidebar on the left containing various filters for platform metadata, including Reference, Status, Country, Programs, Networks, Exclude networks, Family, Model, Age (days), Ending cause, and Site name. It also has expandable sections for Ship & Cruise, Identifiers, Telecom, and Hardware.
- Interactive Map 2.0 (beta):** A central map showing the Atlantic Ocean with numerous colored dots representing platform locations. The map includes labels for various oceanographic features like the Stratospheric Fracture Zone, Romanche Fracture Zone, and Ascension Fracture Zone, as well as basins like the Guinea Basin and Angola Basin.
- Platforms Table:** A table at the bottom displaying metadata for the selected platforms. The table has columns for Observing networks, Reference, Status, Model, Country, Program, Deployment Date, Deployment Lat, Deployment Lon, Cruise Name, Last Location Date, and Serial No.

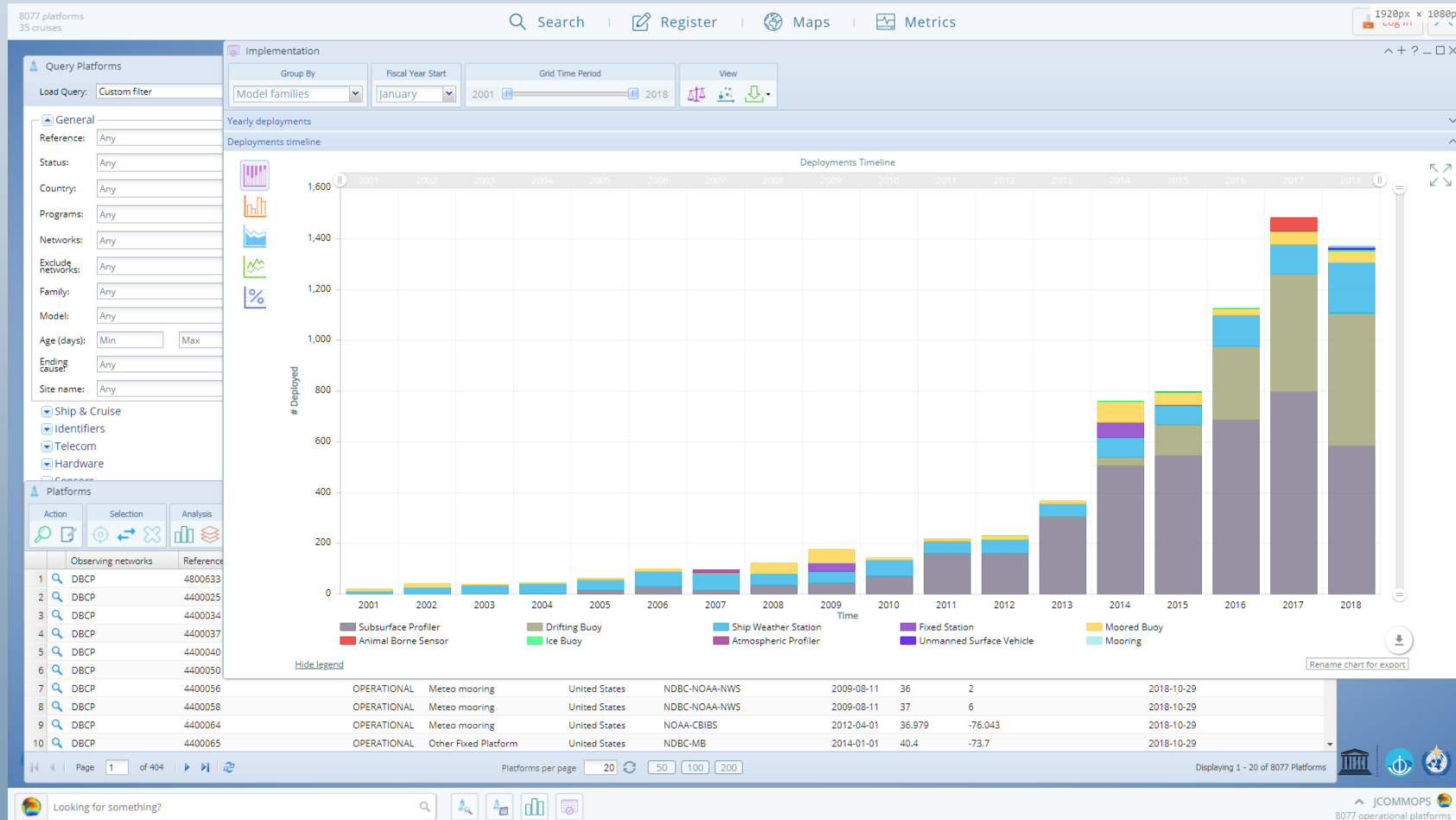
Observing networks	Reference	Status	Model	Country	Program	Deployment Date	Deployment Lat	Deployment Lon	Cruise Name	Last Location Date	Serial No.
11	DBCP 4400066	OPERATIONAL	Moored Buoy	United States	NDBC-MB	2014-01-01	39.6	-72.6		2018-10-29	
12	DBCP 4400091	OPERATIONAL	Moored Buoy	United States	NDBC-NOAA-NWS	2014-12-09	39.8	-73.8		2018-10-29	
13	DBCP 4400098	OPERATIONAL	Meteo mooring	United States	NDBC-NOAA-NWS	2009-08-11	42	8		2018-10-29	
14	DBCP 4400099	OPERATIONAL	Meteo mooring	United States	NDBC-NOAA-NWS	2009-08-11	36	9		2018-10-29	
15	DBCP 4400137	OPERATIONAL	Meteo mooring	Canada	EC MB	2001-01-01	42.234	-62.018		2018-10-29	
16	DBCP 4400139	OPERATIONAL	Meteo mooring	Canada	EC MB	2001-01-01	44.24	-57.103		2018-10-29	
17	DBCP 4400150	OPERATIONAL	Meteo mooring	Canada	EC MB	2006-03-01	42.51	-64.02		2018-10-29	
18	Argo 6903208	OPERATIONAL	NOVA	Italy	Argo ITALY	2017-01-02	-55.03	175.5		2018-10-24	0406
19	DBCP 4200003	OPERATIONAL	Other Fixed Platform	United States	NDBC-MB	2014-01-01	26	-85.6		2018-10-29	
20	DBCP 4200012	OPERATIONAL	Meteo mooring	United States	NDBC-NOAA-NWS	2005-02-28	36.75	-122.42		2018-10-29	

At the bottom of the interface, there is a search bar with the text "Looking for something?", a page indicator showing "Page 143 of 404", and a "Platforms per page" selector set to 20. The footer includes the JCOMMOPS logo and the text "8077 operational platforms".

DISPLAYING THE METADATA

WWW.JCOMMOPS.ORG

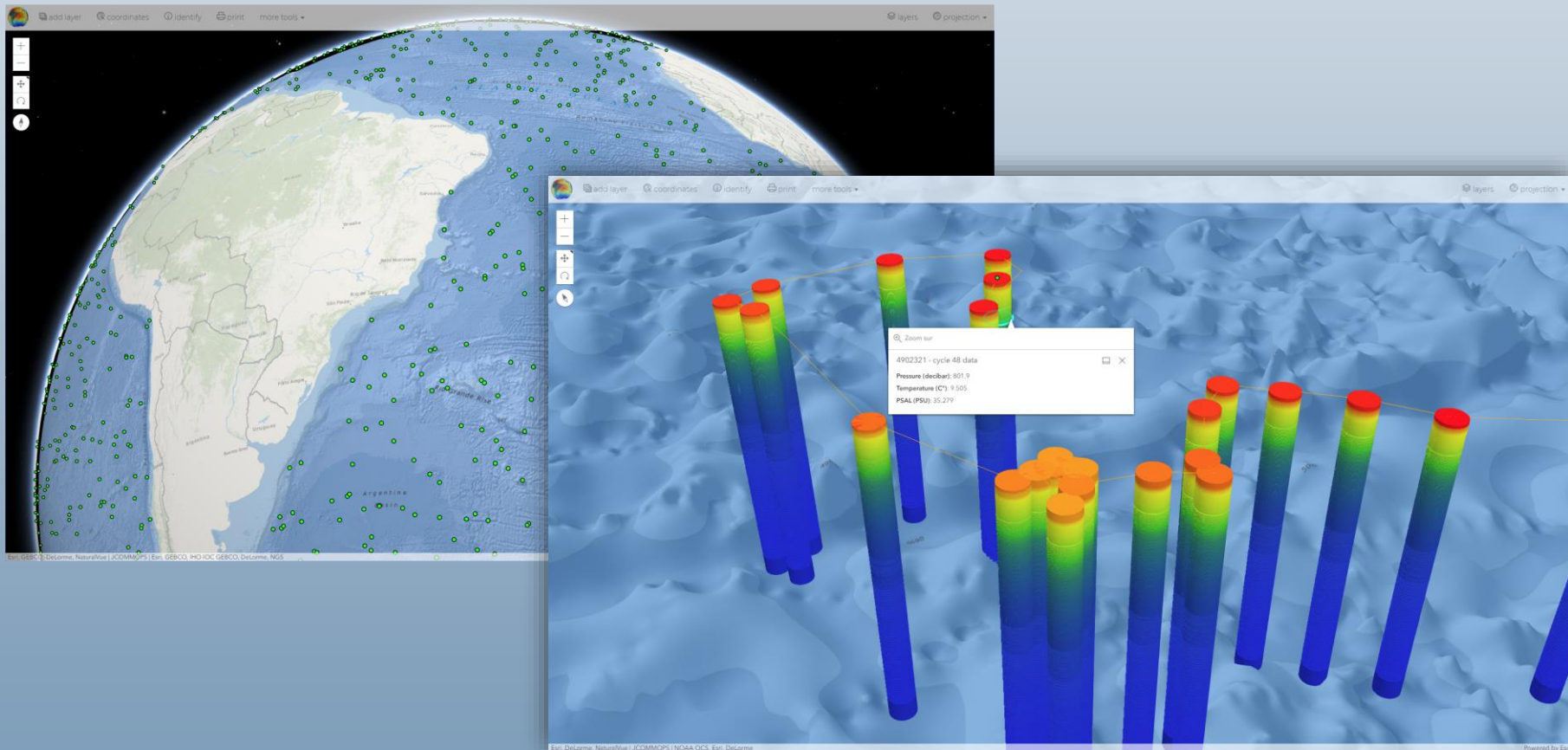
Graphs and stats, as dynamic widgets



DISPLAYING THE METADATA

WWW.JCOMMOPS.ORG

3D engine



PERSPECTIVE

- Continuous improvements
 - Website: search indexing (Elasticsearch – observations), lighter forms for manual entries, 3D tools, etc.
 - Complete suite of integrated products (KPI: fill in the gaps)

- Integrate more metadata (completeness, new networks)
 - History
 - Metadata rules (format & content) not yet defined for all networks

- Release new services (WMO IDs allocation, REST metadata access, mobile app.)

- Develop and strengthen synergies and interconnectivities (WIGOS, IODE, BODC, ERDDAPs)

Спасибо

Thank you

Gracias

Merci

谢谢

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integration
communication
innovation



support@jcommops.org



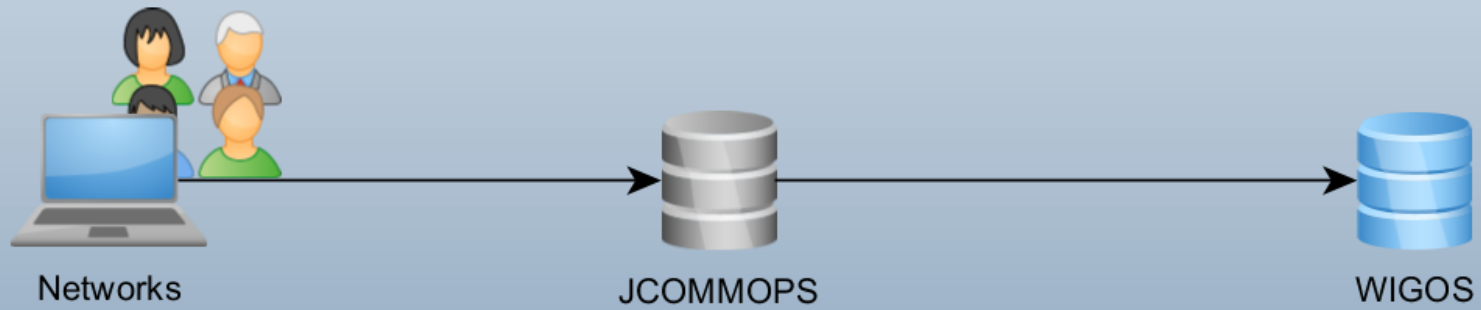
JCOMMOPS - TERMS OF REFERENCE

Implementation, Data/Metadata exchange, Monitoring

- to assist in the **implementation** and deployment of the observing networks through close interaction with programme managers and platform operators, and through Capacity Development and outreach;
- to assist in establishing ,maintaining and verifying mechanisms for the timely **exchange of data and metadata**, including the facilitation of quality control and archival functions;
- to develop the consistent set of tools needed to **monitor the status** of the observing system and its attendant data and metadata distribution, so as to identify action areas and improve the **overall effectiveness** and development of the system.

WMO INTEGRATED GLOBAL OBSERVING SYSTEM

- Built on top of network specifications
 - JCOMMOPS will feed the WIGOS
 - WIGOS Metadata Data Representation (WMDR): XML, ISO standards (GML, O&M)



- WIGOS ID

WIGOS Identifier Series-Issuer of Identifier-Issue Number-Local Identifier

0-22000-<ppp> - <WMO ID>

KEY PERFORMANCE INDICATOR

Common denominator, target first

Master networks: All | Indicators: All | Basins: Any | Networks: Any

Click on a square to display timeline and details

	Argo			DBCP				SOT		GLOSS
	Argo Core	Argo Global	Argo BioGeoChemical	Global Drifter Program	Coastal/National MB	Tropical Moored Buoy	Tsunami Buoy	VOS	SOOP YBT	
Implementation										
Activity Global Ocean	86.87%	100.56%	35.42%	110.66%	103.67%	72.27%	59.38%	102.65%		84%
Density Pacific Ocean				85%						
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Density Global Ocean	85.01%	88.31%	44.33%	83.33%						
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International										
Diversity (National) Global Ocean	29	30	16	9						

