



## **Data flow and Data integration – WP7**

**Report on Tasks 7.1 7.2 – fourth meeting**

**14 December afternoon - 16 December 2016 morning, 11 January 2017**

**Ifremer, Brest**

*Version 2.0 (Final)*

*Date: 14 February 2017*



## Table of contents

<b>1</b>	<b><i>Meeting objectives</i></b>	<b>3</b>
<b>2</b>	<b><i>Workshop on “Integration in Integrators”</i></b>	<b>3</b>
2.1	Connection of network data archives to SeaDataNet	3
2.2	Copernicus INS TAC and EMODnet physics	4
2.3	ICES, EurOBIS and EMODnet biology	5
<b>3</b>	<b><i>Session “NRT QC Recommendations for selected EOVs”</i></b>	<b>6</b>
3.1	Network plans for QC enhancement for T&S, Current, O2, Chla and Nitrate	6
3.2	Recommendations for SeaLevel	6
3.3	Recommendations for Carbon	7
<b>4</b>	<b><i>Workshop on “Harmonization and discovery enhancements”</i></b>	<b>7</b>
4.1	Metadata – platform/station unique IDs and organizations	7
4.2	Common vocabularies for parameters	7
4.3	Network and product catalogue under Sextant	8
4.4	DOI strategy for Networks (led by Ifremer/T. Carval, F. Merceur)	9
4.5	AtlantOS monitoring dashboard (led by ETT/A. Novellino, Ifremer/T. Loubrieu, JCOMMOPS/A. Lizé)	9
4.6	Platform catalogue at GDAC level with candidate networks	11
4.7	SensorML catalogue with candidate networks	12
<b>5</b>	<b><i>Summary by Network</i></b>	<b>13</b>
5.1	WP2 – Ship based observation networks	13
5.2	WP3 – Autonomous observing networks	19
5.3	WP4 – Coastal observing system	24
<b>6</b>	<b><i>AtlantOS Transatlantic Data Harmonization Workshop in 2017</i></b>	<b>25</b>
<b>7</b>	<b><i>Updated action plan</i></b>	<b>26</b>
<b>8</b>	<b><i>Appendix 1 : Agenda for tasks 7.1 and 7.2 fourth meeting</i></b>	<b>30</b>
<b>9</b>	<b><i>Appendix 2 : Participants to tasks 7.1 and 7.2 fourth meeting</i></b>	<b>33</b>



## 1 Meeting objectives

See [12-WP7\\_4thMeeting-AtlantOS-Meeting Objectives.pptx](#)

S. Pouliquen/Ifremer co-coordinator of WP7 presented to the participants the objectives and the organization of this fourth and last plenary meeting dedicated to Task 7.1 and 7.2, as the implementation phase is going to start in March 2017.

After 18 months of collaborative work between the partners of WP7 to define the integrated AtlantOS system, time has come to (1) move towards implementation of the recommended Data Exchange backbone to facilitate access to and use of AtlantOS data and products both at Network and Integrator level, (2) and prepare the Implementation phase that aims to feed operational models and facilitate enhanced products from AtlantOS data.

This meeting dealing with these objectives is a working meeting (no more a series of oral presentations to the audience in plenary sessions) and thus has been organized in parallel sessions with small groups of people allowing enough time for exchanges between the Network representatives and the Integrator representatives, with the goal that at the end of the meeting

- Each Network representative knows exactly for his/her Network what he/she needs to set up and how in order to implement the recommendations and to feed more data in the Integrators, and can build a work plan with the actions to achieve before June 2017.
- Each Integrator representative knows how to integrate data from Networks not already or low integrated and when necessary, has set up actions in order to integrate the missing data from the Networks already well connected
- JCOMMOPS and ETT have inputs and a plan to implement WP9 monitoring tools

## 2 Workshop on “Integration in Integrators”

### 2.1 Connection of network data archives to SeaDataNet

This session was led by P. Thijsse/MARIS (see [12-WP7\\_4thMeeting-AtlantOS-01-SeaDataNet.pptx](#)) and aimed to investigate what is feasible to achieve under AtlantOS regarding the connection of AtlantOS network data archives that can be published via the SeaDataNet CDI system (and onwards to EMODnet).

The shared commons/plans between groups of Networks are:

- **Drifter / Glider / Argo / OceanSITES**
  - Similar approach preferred via connection of GDAC directly to SeaDataNet
    - Advantage is that the expertise for harmonization and additional QC is available in the GDAC, more than in the SeaDataNet NODC's
    - **Will be investigated first by ARGO**
  - **Taking into account sensitivities**
    - National datacentres might want to distribute datasets themselves
    - Exceptions need to be allowed, and not share without prior OK from centres (dataflow from GDACs need to be made clear).



- This solution will only work for European/global instrument focussed networks (Argo, Glider, Drifter), not for others more loosely organised networks like Tide gauges, etc. Would create too much chaos in data flows.
- For OceanSITES some discussion is required on which data should be published to SeaDataNet from the GDAC rather than the NODC
- **Tide gauges / Seafloor mapping**
  - **No actual networks with central data storage**
  - Therefore more difficult to connect, needs another approach

More specific on what is feasible under AtlantOS per network is presented in §5.

P. Thijsse with Network representatives: send a revised work plan with the feedbacks from this session and further collaborative work to defining achievable steps and deadlines for implementation starting in March 2017.

## 2.2 Copernicus INS TAC and EMODnet physics

This session was led by Ifremer/L. Petit de la Villéon and ETT/A. Novellino (see [12-WP7\\_4thMeeting-AtlantOS-01-CopernicusINSTAC.pptx](#) and [12-WP7\\_4thMeeting-AtlantOS-01-EDMODnet\\_physics.pdf](#)).

It focused on missing data in Copernicus INS TAC and EMODnet physics for:

- **Networks already connected**
  - **OceanSITES:** for Transport Mooring Arrays (TMA) at least the data from platform deployments funded for in WP3 should be pushed to OceanSITES
  - **Glider:** the bigger gap is UK data and plan to be delivered within 2017 at GDAC (already data on GTS but only T&S)
- **Networks not already connected :**
  - **CPR:** the DM data flow of physic data will be implemented through SeaDataNet when the node is setup.
  - **EATN :** no physical data only positions at the moment, to be reconsidered if future animals are equipped with other sensors

Then, as for integration in SeaDataNet, two Networks (or so-called Networks in WP7) were identified as weak points for which specific actions are needed

- **Tide gauges**
  - There is not a coordinated network for Tide gauges at the European level, the GCN (Global Core Network) component of GLOSS (Global Sea Level Observing System) is at global level. At EU level, only a Task Team under the EuroGOOS umbrella is on-going, led by Puerto del Estado (B. Perez Gomez). Recommendations come from EuroGOOS TT and requirements come from the users
  - Tide gauges may be operated by Hydrographic services, Research institutes or Mapping agencies. Rules may differ from one operator to another
    - Action is on-going at the EuroGOOS TT to improve the identification of Tide Gauges.



- For NRT data, there is a list of tide gauge observatories maintained by IOC (Tsunami warning system) => **Action**: compare the IOC existing list with what is presently circulating in Atlantic and identify the gaps. Some work already done by A. Novellino for EDMODnet, to be continued.
- Delayed mode processing is performed by each country and this will probably continue
- Data available not on a global repository but several repositories (GLOSS, Hawaii, BODC) with different samples, means .... Various and non-homogenous datasets. The EuroGOOS task team should provide recommendations for facilitate and homogenize access to at least European tide gauges
- **Seafloor mapping**
  - A bit apart from the AtlantOS core operations
  - A start, mainly based on German surveys out off EEZ for which data goes to PANGAEA. Contacts to be taken with other countries (The Netherlands –NIOZ)
  - The link has to be made with other initiatives (Gebco, EMODnet-Bathymetry, GeoMapApp –GMRT Global Multi-resolution Topography) especially for the data flow to EMODnet-Bathymetry that should be the entry point for integration in AtlantOS
  - Contact taken with Ifremer and BODC for Task 5 of WP2 for the link with EMODNet-Bathymetry

## 2.3 ICES, EurOBIS and EMODnet biology

This session was led by Ifremer/S. Pouliquen.

- Roles
  - Networks : SAHFOS for CPR, VLIZ for EATN and ICES for Fish Surveys
  - Integrators : VLIZ for EMODNet Biology , ICES for ICES biology/oceanographic and Ifremer for Copernicus INS TAC
- Status of data integration :
  - Biology data are well shared between Networks and Integrators.
  - Oceanographic data could be more shared especially with other Integrators like Copernicus INS TAC
- Mandatory metadata :
  - Important to first implement EDMO : to be added in all networks and not lost in the integrators (prepare traceability of use)
  - Discussion on unique ID for platforms to be finalized
  - At integrator level
    - **EMODnet Bio / EurOBIS** : EDMO can immediately be included in OBIS schema. Platform ID could be added to EventID



- **ICES** : will include EDMO / Platform Code and share it through WWW service.
- Important progress should be possible via EDMOnet ingestion to facilitate the integration of physics data through EMODnet physics/SeaDataNet/CMEMS and biology data through EMODnet biology
- Details by Network are presented in the summary §5.1

## 3 Session “NRT QC Recommendations for selected EOVs”

### 3.1 Network plans for QC enhancement for T&S, Current, O2, Chla and Nitrate

The situation is presently:

- For **Argo** all AtlantOS recommendations are already implemented for T&S, Current, O2 and Chla, and are planned to be implemented for Nitrate
- For **Gliders** all AtlantOS recommendations are already implemented for T&S and Chla (although no data in production yet), have to be done for Oxygen and Nitrate
- For **OceanSITES** most of the data are not quality controlled, an action to undertake for platform deployments funded by AtlantOS WP3 , fixO3 observatories and Transport Mooring Arrays (TMA)
- For **Drifters** the recommendations for T&S and Current are going to be implemented with the setup of the GDAC

Two main conclusions and consequently actions to be undertaken by the Networks concerned:

- (1) NRT QC recommendations for Oxygen, Chla and Nitrate are important to be implemented because the data for these EOVs are of high importance for Ecosystems models
- (2) All NRT QC recommendations have to be implemented at least for the data from platform deployments funded for in WP2 and WP3.

### 3.2 Recommendations for SeaLevel

Presented by L. Rickards/NERC, See [12-WP7\\_4thMeeting-AtlantOS-02-NRT\\_QC\\_Sea\\_Level\\_recommendations.pptx](#)

The NRT QC recommendations for sea level follow the guidance in:

- EuroGOOS Recommendations for in-situ data Near Real Time Quality Control (2010) report
- QARTOD Guide to Quality Control and Quality Assurance of Water Level Observations (2016)
- GLOSS Manual on Quality Control of Sea Level Observations (2011).

They include a core of 10 tests. The description sent to WP7 coordination completes the “QC Report” deliverable.



### 3.3 Recommendations for Carbon

Presented by B.Pfiel/Uib, see [12-WP7\\_4thMeeting-AtlantOS-02-NRT\\_QC\\_Carbon\\_recommendations.pptx](#)

The recommendations for Carbonate system apply to RT data from VOS/SOOP, GO-SHIP and moorings. The Carbonate system consists of 2 measured and 2 derived variables. QuinCE data processing software has been developed (joint activity with ICOS project) to allow (1) quality control of the data on a daily basis including an automatic initial QC and manual controls by an operator, and (2) automatic transmission to ICOS and external projects such as SOCAT. In the future, it will allow early warning system. The trial phase will start early March 2017 first with ICOS RT data and then connecting more and more systems. The objective is to be operational in 2018.

## 4 Workshop on “Harmonization and discovery enhancements”

### 4.1 Metadata – platform/station unique IDs and organizations

This session was led by P. Thijsse/MARIS and A. Lizé/JCOMMOPS (see [12-WP7\\_4thMeeting-AtlantOS-03-Metadata\\_EDMO\\_platform.pptx](#)) and aimed to Investigate how far the harmonization recommendations on EDMO codes for data providers and station/platform unique IDs is done in the networks data and metadata: what is already done, and what can be achieved?

- **At network level:** the elements per Network are presented in the summary §5.
- **At integrator level:**
  - A question to be answered by ICES: how does WIGOS station directory relate to the ICES directory?
  - EDMO in EMODNet biology/EurOBIS:
    - Is in the process of mapping to EDMO (central level for providers)
    - Now investigating if the data model for supplying data (via IPT) can be expanded to include an EDMO code as well
  - Unique platform/station ID in EurOBIS:
    - Now contains the event-id field where platform information could be present, but is free text.
    - Will be investigated if the data model can be expanded with a C17 field to store the platform: Either adapt the existing field, or add new fields
    - This will improve the situation to combine the biological data and the environmental data (chemical, physical) later again even though they take different routes. CPR is good test case for this.

### 4.2 Common vocabularies for parameters

This session was led by H.Snaith/NERC, see [12-WP7\\_4thMeeting-AtlantOS-03-Vocabularies.pptx](#)

One harmonization recommendation is that metadata used by the Networks for parameters in their data format should be “mappable” on existing standard vocabularies, specifically EU (SeaDataNet vocabularies) or international (CF or WoRMS for Taxa). A vocabulary matrix



([https://www.bodc.ac.uk/data/codes\\_and\\_formats/vocabulary\\_search/A05/](https://www.bodc.ac.uk/data/codes_and_formats/vocabulary_search/A05/)) for AtlantOS essential variables was built and validated with the Network representatives.

In this context, data variables that are correctly 'tagged' **with** the SeaDataNet / BODC P01 codes **and/or** the CF standard names (BODC P07 codes) **and** the SeaDataNet / BODC P06 code for units code can be recognised as related to the appropriate AtlantOS Essential Variables.

The aim of this session led by NERC/H. Snaith was then to screen with the Network representatives if their data formats are compliant with this recommendation and if not, how it can be achieved. The status by Network is presented in the summary §5.

### 4.3 Network and product catalogue under Sextant

This session was led by L. Petit de la Villéon, [see 12-WP7 4thMeeting-AtlantOS-03-AtlantOS\\_Catalogue.pptx](#)

- **First priority** is to describe the Networks contributing to AtlantOS data integration to give them visibility
  - Network descriptions already available in the catalogue: CPR, Argo, Drifter DBCP and GO-SHIP
  - Network descriptions to be made available in the catalogue ((Ifremer/L. Petit de la Villéon): OceanSITES
  - Network descriptions to be sent to Ifremer for publication in the catalogue:
    - VOS/SOOP and SOCAT (by UiB/B.Pfeil)
    - EATN (by VLIZ/F. Souza Diaz)
    - ICES for Fish surveys (by ICES/V. Soni)
    - GLOSS to be described for Tide Gauges (by NERC/L. Rickards)
    - Seafloor mapping (by GEOMAR/A-C. Wolf)
- **Second priority** is to describe the Integrators in AtlantOS
  - EMODnet Biology and EurOBIS (by VLIZ/F. Souza Diaz)
  - ICES (by ICES/V. Soni)

And when catalogues exist at Integrator level for integrated products the goal is to make visible in the AtlantOS catalogue what is relevant for Atlantic: the description of the Integrator shall link to the integrated products in the Integrator catalogue

- Copernicus INS TAC products
- ICES integrated products
- An action (Ifremer/L. Petit de la Villéon and Network representatives) was identified to add an AtlantOS Essential Variables keyword in the existing inputs of the AtlantOS catalogue





## 4.4 DOI strategy for Networks (led by Ifremer/T. Carval, F. Merceur)

All Networks representatives agreed that minting DOIs is valuable for data citation and traceability.

Presently the situation is:

- Networks already manage DOIs : Argo
- Networks are preparing or are willing to prepare a strategy for DOIs : Drifters, Glider, OceanSITES, VOS/SOOP, GO-SHIP
- Networks use DOIs without a network strategy : Seafloor mapping, CPR, Fish & plankton survey (ICES)
- Networks do not yet have plans : Tide gauges, EATN

Two main ways to go for a strategy for DOIs

- A Network wide strategy where DOIs are centrally managed (like Argo)
- A Network components strategy where components (=participants) of a Network assign DOIs in a decentralized way (like OceanSITES)
  - The scientist PIs publish datasets with a science data publisher (PANGAEA, Zenodo, SEANOE, BODC...)
  - This data is push on the GDAC
  - Advice : assign a single DOI for a site (a deployment) and a fragment for the files from that site

An example, in draft version, of bibliometric survey based on DOIs : Argo publications bibliometric survey at

<https://cloud.ifremer.fr/index.php/s/1G6fwGLYf1E26qZ>

## 4.5 AtlantOS monitoring dashboard (led by ETT/A. Novellino, Ifremer/T. Loubrieu, JCOMMOPS/A. Lizé)

In link with WP9.1 the objective of AtlantOS monitoring is to assess Atlantic Observation performances and feedback data providers with statistics for acknowledgement of their contribution to the systems. The monitoring should answer to “What is provided (platform, programs, networks, EOVs...) ?” and “How it is used (number of downloads,...) ?”

This session was led by A. Novellino/ETT (see [12-WP7\\_4thMeeting-AtlantOS-04-Monitoring-dashboard.pptx](#)), A. Lizé/JCOMMOPS and T. Loubrieu/Ifremer. The main conclusions from the discussions in working groups are:

- For the monitoring set up by JCOMMOPS that aims to track the implementation of the Network, a set of KPI has been elaborated for some WP3 networks (Argo, drifters) and are planned for OceanSITES.



- For the monitoring set up by ETT that aims to track from the user point of view, the following enhancements are identified
  - Improve display (platform –program –networks –EOVs)
  - Trace downloads not only from EMODNet portals but also from other Integrators. This will be based from log files that have to be shared
  - Track data quality based on flags (would be good to be able to set up alert system)
  - Track data latency (delay to get access to the data)
  - Aggregate results by provider
- ETT will conduct a user survey from end of January to end of March 2017 (but still open after the deadline) to assess of the services provided from the Networks and Integrators
- A working group is set up on download statistics for the format of the shared download usage logs, the methodology (filtering, aggregating) and the services. The participants identified during the meeting for this group are: Ifremer/T. Loubrieu, ETT/A. Novellino, JCOMMOPS/A. Lizé, Ifremer/T. Carval , VLIZ/F. Souza Diaz, ICES/ V. Soni, SAHFOS/D. Stevens.
- API (backbone) metadata exchanges need to be defined in January (ETT). Is it feasible?

Hereafter are listed the additional inputs from the discussion with Network or Integrator representatives in groups.

### Argo, Drifter and Seafloor mapping

- On quality of datasets (distribution of flags) : trends are relevant internally (Copernicus INS TAC, Argo), may be not so much to inter-compare networks.
- User survey: it is a bit difficult to assess AtlantOS as a service, as it is a project which improves pre-existing infrastructure to better observe the Atlantic Ocean.
- KPI available at Copernicus INS TAC, the Networks from WP2, 3 and 4 KPI need to be integrated in the dashboards as well.
- Seafloor Mapping : coverage as an indicator and monitoring areas where there are data and where they are no data in JCOMMOPS
- Could be interesting to compare what is funded with what is actually available in e-infrastructure

### OceanSITES, Tide Gauges

- OceanSITES is interested in indicators how many moorings ? temporal coverage ? (Period without failure, How many on the GTS ? When is the last one ?)
- Tide gauges is a JCOMMOPS network. They need to provide information (metadata) to JCOMM team. Even without a technical coordinator in JCOMM some basic indicators can be computed.

### EMODNET-Biology, ICES, CPR

- EMODnet-Biology indicators



- Errors on distribution species (for specific species) from EMODNET-Biology can be used as indicators of the observation coverage. On a yearly species.
- Number of species on which abundance processing could be an indicator.
- How to integrate indicators for physics with other biology indicators? EMODnet-Biology thinks on doing this but nothing done yet.

Would require more thinking with partners (action VLIZ/F. Souza Diaz).

- EMODNET-Biology can be a contributor to the download transaction/usage log.
- ICES has some indicators on numbering of observation, and also data usages, and even data submission statistics (for regulated collection framework).
- Option to access map indicators as web services (OGC) for better integration

## VOS/SOOP

- Monitoring data that have been acquired is difficult as the delay for data provision to ICOS is too long . Discussions are underway with JCOMMOPS to improve the situation (meeting in March 2017).
- Tracking the use with common tools on log file is interesting and important for VOS/SOOP PI recognition/feedback.

## GO-SHIP

- Monitoring data that are available at CCHDO by JCOMMOPS. T. Tanhua would like to also track NRT CTD data provision at Coriolis by JCOMMOPS.

## 4.6 Platform catalogue at GDAC level with candidate networks

This catalogue, located at the root on an FTP portal, aims to describe the available datasets and platforms of the Network. It is a simple technique that consists of populating, continuously (creation and update) on file arrival/update, two types of indexes as simple ASCII files (see format at <http://dx.doi.org/10.13155/45063>) at besides the data files made available on FTP:

1. **An index of data files**
2. **An index of platforms** generated from the data files catalogue

Ideally, the content of the index of data files should be enough to generate the CDI records for SeaDataNet.

Taking the example of the Copernicus INS TAC, Networks in AtlantOS for which data are managed at the GDAC level can setup such a catalogue. **GO-SHIP, VOS, Glider and Ferry Box Networks** are candidates to set up this catalogue to enhance access to their Network data and also their monitoring.

During this session of the workshop led by T. Carval/Ifremer, only the Drifter case was studied (see summary in §5.1). The same work will be carried out with the other candidates at the beginning of 2017.



#### 4.7 SensorML catalogue with candidate networks

Concerning the metadata for platform type and sensors, it was agreed at the beginning of AtlantOS project that it was an issue to be solved at Network level and that harmonization across networks was not seen as a priority. Nevertheless, a recommendation was formulated to implement whenever possible a SensorML marine profile, this profile being designed in partnership with other projects such as FIXO3, ODIP2, ENVRI+, SeaDataCloud.

The following Networks in AtlantOS are candidates to test or set up a SensorML catalogue for their Network: Argo, OceanSITES for FixO3 PAP moorings, GO-SHIP, VOS/SOOP, Gliders and Ferrybox

As only two of those Networks were represented for this session on 15<sup>th</sup> December 2016, and because of lack of time, it was decided to plan (Ifremer/T. Loubrieu) a dedicated meeting (web conference) in February 2017.



## 5 Summary by Network

### 5.1 WP2 – Ship based observation networks

<b>CPR</b>		
<b>Integration in integrators</b>	<b>SeaDataNet for archive data</b>	<ul style="list-style-type: none"> <li>• CPR physic data : Temperature, Salinity and fluorescence data</li> <li>• Will set up an <b>own SeaDataNet node</b> (following SOCAT example currently finishing)</li> <li>• Will work on QC procedures taking into account the AtlantOS recommendations</li> <li>• MARIS will send technical documentation about Download manager installation and process towards connection.</li> </ul>
	<b>Copernicus and EMODnet physics</b>	<ul style="list-style-type: none"> <li>• No RT data</li> <li>• Data flow to be set up for CPR Physics (T, S, Fluorescence) through SeaDataNet SAHFOS node to be setup → SeaDataNet/EMODnet physics → Copernicus INS TAC</li> </ul>
	<b>ICES, EurOBIS and EDMODnet Biology</b>	Already well connected for CPR Biology through IPT (integrated publishing Tool) → EurOBIS/EMODnet biology
<b>Harmonization and discovery enhancements</b>	<b>Metadata - EDMO codes for data providers</b>	<ul style="list-style-type: none"> <li>• will map to EDMO while setting up the SeaDataNet node</li> <li>• The past 10 years of data is feasible but for older data it's more difficult and work is going on with BODC. Somehow to add</li> </ul>
	<b>Metadata -Unique platform/station IDs</b>	<ul style="list-style-type: none"> <li>• Platform code (Ship-code + cruise ID + trawl id )</li> <li>• will map to C17 when working on SeaDataNet CDI connecting to publish archives (and to EurOBIS)</li> <li>• The past 10 years of data is feasible but for older data it's more difficult and work is going on with BODC. Somehow to add</li> </ul>
	<b>Common vocabularies for parameters</b>	Developing a data format, NERC to advise on best practise for included attributes
	<b>AtlantOS catalogue under Sextant</b>	Network description already available
	<b>DOI strategy for data citation</b>	Use DOIs without a network strategy
	<b>Platform catalogue at GDAC level</b>	Not a candidate network
	<b>SensorML catalogue</b>	Candidate Network
	<b>NRT QC</b>	Not applicable, only DM data



<b>Fish &amp; plankton survey (ICES)</b>		
<b>Integration in integrators</b>	<b>SeaDataNet for archive data</b>	Already linked with SeaDataNet (is CDI fed)
	<b>Copernicus and EMODnet physics</b>	Oceanographic data served through <a href="http://ocean.ices.dk">http://ocean.ices.dk</a> data portal. Possibility to update periodically Integrators with new data.
	<b>ICES, EurOBIS and EDMODnet Biology</b>	Biology data from DATRAS system (Trawl survey + acoustic) already available in EMODNet-biology. ICES provides Web and R services to allow machine to machine connection.
<b>Harmonization and discovery enhancements</b>	<b>Metadata - EDMO codes for data providers</b>	<ul style="list-style-type: none"> <li>• Implementation of EDMO codes in fisheries data is already on-going</li> <li>• EDMO codes will be added for oceanographic data</li> </ul>
	<b>Metadata -Unique platform/station IDs</b>	Will map Platform codes to existing ship codes in fisheries data
	<b>Common vocabularies for parameters</b>	Biology data already include AphiaID from WoRMS for Taxa
	<b>AtlantOS catalogue under Sextant</b>	Description to be sent for fish surveys
	<b>DOI strategy for data citation</b>	use DOIs (ICES is a DOIs publisher) without a network strategy
	<b>Platform catalogue at GDAC level</b>	Not a candidate network
	<b>SensorML catalogue</b>	Not a candidate network
	<b>NRT QC</b>	Not applicable, only DM oceanographic data



<b>Seafloor mapping</b>		
<b>Integration in integrators</b>	<b>SeaDataNet for archive data</b>	<ul style="list-style-type: none"> <li>• GEOMAR currently collecting Atlantic datasets from BSH when allowed to be used, collecting data from transit bathymetry from German research vessels</li> <li>• Data sets are provided to Pangaea on a national level and GMRT on an international level</li> <li>• Focus on international waters</li> <li>• Data flow to EMODnet-Bathymetry (surveys present in SeaDataNet CDI). Content of EMODnet Bathymetry to be checked : identify possible gaps, add more</li> </ul>
	<b>EMODnet Bathymetry</b>	
	<b>ICES, EurOBIS and EDMODnet Biology</b>	Not applicable
<b>Harmonization and discovery enhancements</b>	<b>Metadata - EDMO codes for data providers</b>	Geomar is harvesting data from other networks (that might use EDMO such as SeaDataNet / EMODNet Bathymetry). No network as such to implement EDMO codes
	<b>Metadata -Unique platform/station IDs</b>	Geomar is harvesting data from other networks (that might use Platform/Station ID's such as SeaDataNet / EMODNet Bathymetry). No network as such to implement Platform/station ID's
	<b>Common vocabularies for parameters</b>	will incorporate appropriate vocabularies as work stream evolves
	<b>AtlantOS catalogue under Sextant</b>	Description to be provided
	<b>DOI strategy for data citation</b>	Use DOIs without a network strategy
	<b>Platform catalogue at GDAC level</b>	Not a candidate network
	<b>SensorML catalogue</b>	Not a candidate network
	<b>NRT QC</b>	Not applicable



<b>VOS/SOOP</b>		
<b>Integration in integrators</b>	<b>SeaDataNet for archive data</b>	Start with SOCAT as a node for carbon data (pCO <sub>2</sub> ) and download manager is setup. Mapping to vocabularies, EDMO is done. 90% done.
	<b>Copernicus and EMODnet physics</b>	<ul style="list-style-type: none"> <li>No RT data presently but there will be some tests with voluntary ICOS stations with some lines (e.g. Nuka Artica) to demonstrate the possibilities</li> <li>Data flow for historical data will be sent through ICOS portal. Presently it's a viewing portal and data must be asked to individual PIs one by one which doesn't suit with operational needs while these data are essential for ecosystem model validation. Demonstration of access to data through GDAC for marine Biogeochemistry (not funded yet) for integration in Copernicus products would be important for future evolution of Copernicus INS TAC.</li> </ul>
	<b>ICES, EurOBIS and EDMODnet Biology</b>	Not applicable
<b>Harmonization and discovery enhancements</b>	<b>Metadata - EDMO codes for data providers</b>	On-going
	<b>Metadata -Unique platform/station IDs</b>	On-going
	<b>Common vocabularies for parameters</b>	Already using the SeaDataNet recommendations so mapping is possible and in contact with NERC for updates.
	<b>AtlantOS catalogue under Sextant</b>	Network description was sent to L. Petit de la Villeon, but Ute Schuster validation is needed. SOCAT description will be provided in coming weeks also.
	<b>DOI strategy for data citation</b>	Would like to use DOIs with a network strategy that need to be more elaborated as a decentralised strategy. Currently each voyage has its own DOI within SOCAT but the use of parent or clustered DOIs is planned.
	<b>Platform catalogue at GDAC level</b>	Not applicable
	<b>SensorML catalogue</b>	Not candidate network
	<b>NRT QC</b>	Done for Carbon and sea surface Temperature





<b>GO-SHIP</b>		
<b>Integration in integrators</b>	<b>SeaDataNet for archive data</b>	<ul style="list-style-type: none"> <li>• Start with some GO-SHIP data that is included within SOCAT as a node for surface carbon data (pCO<sub>2</sub>) and download manager is setup. Mapping to vocabularies, EDMO is done. 90% done</li> <li>• For the Ocean interior, GLODAP (1million bottle data), the Observation data are adjusted + gridded field. The route is to have a GDAC structure and is depending from additional funding.</li> <li>• Access to ADCP should be improved in link with WP2.5</li> <li>• Stimulate the submission of WP2 GO-SHIP cruise to the NODC and clearly identified as GO-SHIP cruise in SeaDataNet</li> <li>• In SeaDataNet better identify the GO-SHIP lines using information coming from JCOMMOPS and GLODAP</li> </ul>
	<b>Copernicus and EMODnet physics</b>	<ul style="list-style-type: none"> <li>• No RT data except CDT data where there is already an NRT distribution through Coriolis. Important to keep the expocode and GO-SHIP line information to be able to update with DM data. Ifremer in link with JCOMMOPS to study how to link to GO-SHIP line automatically.</li> <li>• For reanalysis, recommendation is to synchronize with CCHDO. When there is duplicate between SeaDataNet and CCHDO there should be a recommendation from GO-SHIP on which version to keep.</li> </ul>
	<b>ICES, EurOBIS and EDMODnet Biology</b>	Not applicable
<b>Harmonization and discovery enhancements</b>	<b>Metadata - EDMO codes for data providers</b>	On-going
	<b>Metadata -Unique platform/station IDs</b>	On-going
	<b>Common vocabularies for parameters</b>	Already using the SDN recommendations so mapping is possible with NERC for updates
	<b>AtlantOS catalogue under Sextant</b>	Network description is available



<b>DOI strategy for data citation</b>	Would like to use DOIs with a network strategy that need to be more elaborated as a decentralised strategy. The idea is to have a DOI for the line that links to the each individual cruises that links to the different datasets (bottles, CTD, ACDP...)
<b>Platform catalogue at GDAC level</b>	Candidate network <u>but</u> need additional funding to set it up
<b>SensorML catalogue</b>	Candidate Network
<b>NRT QC</b>	Mainly DM data. Will be done by Coriolis for CTD data transmitted in NRT.



## 5.2 WP3 – Autonomous observing networks

<b>Argo</b>		
<b>Integration in integrators</b>	<b>SeaDataNet for archive data</b>	<ul style="list-style-type: none"> <li>• Create CDI metadata files from Argo dataset files (T. Carval/Ifremer and P. Thijsse check together) and from JCOMMOPS for EDMO codes</li> <li>• Create ODV files from Argo data files</li> <li>• Setup method for exclusion in export to SeaDataNet CDI of certain floats (already distributed via Data Centres)</li> </ul>
	<b>Copernicus and EMODnet physics</b>	Already well connected, no missing data
	<b>ICES, EurOBIS and EDMODnet Biology</b>	Some Biogeochemistry data are collected that might be of interest for ICES, to be investigated
<b>Harmonization and discovery enhancements</b>	<b>Metadata - EDMO codes for data providers</b>	<ul style="list-style-type: none"> <li>• JCOMMOPS for Argo is committed to manage EDMO in its Database</li> <li>• EDMO codes are added when Argo data are pushed to Copernicus, there are not present in Argo GDAC files themselves : mapping implemented as far as possible for now (65/70% done already for Copernicus)</li> <li>• Own organization names/labels still in use as well in Argo files, not taken from EDMO</li> <li>• Improvement/update will take place continuously</li> </ul>
	<b>Metadata -Unique platform/station IDs</b>	already WMO platform codes
	<b>Common vocabularies for parameters</b>	International agreed format and content that can't be changed, but a one to one mapping exists between Argo variables and P01 codes and is described in the Argo documentation
	<b>AtlantOS catalogue under Sextant</b>	Network description already available
	<b>DOI strategy for data citation</b>	Network wide strategy where DOIs are centrally managed
	<b>Platform catalogue at GDAC level</b>	Already implemented
	<b>SensorML catalogue</b>	Candidate Network
	<b>NRT QC</b>	all AtlantOS recommendations are already implemented for T&S, Current, O2 and Chla, and are planned to be implemented for Nitrate



<b>Glider</b>		
<b>Integration in integrators</b>	<b>SeaDataNet for archive data</b>	<ul style="list-style-type: none"> <li>• Setup similar to Argo</li> <li>• Will follow exactly actions of Argo</li> </ul>
	<b>Copernicus and EMODnet physics</b>	The bigger gap is UK data and plan to be delivered within 2017 at GDAC (already data on GTS but only T&S)
	<b>ICES, EurOBIS and EDMODnet Biology</b>	Some Biogeochemistry data are collected that might be of interest for ICES, to be investigated
<b>Harmonization and discovery enhancements</b>	<b>Metadata - EDMO codes for data providers</b>	<ul style="list-style-type: none"> <li>• Adopted in data model, at least one (provider) will be part, probably more, e.g. for the DAC</li> <li>• Mapping already done (new codes created)</li> </ul>
	<b>Metadata -Unique platform/station IDs</b>	already WMO platform codes
	<b>Common vocabularies for parameters</b>	Format based on Argo variables and including the reference (sdn_parameter_urn) to SeaDataNet vocabularies explicitly
	<b>AtlantOS catalogue under Sextant</b>	Network description to be provided
	<b>DOI strategy for data citation</b>	Preparing a strategy
	<b>Platform catalogue at GDAC level</b>	Candidate Network
	<b>SensorML catalogue</b>	Candidate Network
	<b>NRT QC</b>	all AtlantOS recommendations are already implemented for T&S and Chla (although no data in production yet), have to be done for Oxygen and Nitrate



<b>Drifter</b>		
<b>Integration in integrators</b>	<b>SeaDataNet for archive data</b>	<ul style="list-style-type: none"> <li>• Setup prototype GDAC (2017) with netCDF</li> <li>• Test production of CDI and ODV files from data model, according to Argo commitment first</li> <li>• Mapping will be investigated</li> <li>• During set up of data model already demands (EDMO, other vocabs) will be taken into account</li> </ul>
	<b>Copernicus and EMODnet physics</b>	Already well connected (data on GTS)
	<b>ICES, EurOBIS and EDMODnet Biology</b>	Not concerned
<b>Harmonization and discovery enhancements</b>	<b>Metadata - EDMO codes for data providers</b>	<ul style="list-style-type: none"> <li>• EDMO code implementation in the work plan</li> <li>• Use at least one, but probably more, for different roles (provider, assembly center, data holder, etc). Labels in data format can be taken from ARGO</li> </ul>
	<b>Metadata -Unique platform/station IDs</b>	already WMO platform codes
	<b>Common vocabularies for parameters</b>	format based on Gliders (with sdn_parameter_urn explicitly in the data) under development
	<b>AtlantOS catalogue under Sextant</b>	Network description already available
	<b>DOI strategy for data citation</b>	Preparing a strategy
	<b>Platform catalogue at GDAC level</b>	<p>this catalogue will be part of the prototype in 2017 and the index of data files will contain at least:</p> <p>DAC identification, file_name, geospatial coverage (geospatial_lat_min,geospatial_lat_max, geospatial_lon_min, geospatial_lon_max), first and last valid location (x,y,t), date_update, data_mode, parameters, institutions, institution_edmo_codes, institution_wmo_locators</p>
	<b>SensorML catalogue</b>	Not a candidate network
	<b>NRT QC</b>	the recommendations for T&S and Current are going to be implemented with the setup of the GDAC



<b>OceanSITES</b>		
<b>Integration in integrators</b>	<b>SeaDataNet for archive data</b>	<ul style="list-style-type: none"> <li>• Approach via connection of GDAC to be investigated (GDAC not the only point of delivery and some of the NODC's already publish their data)</li> <li>• Under AtlantOS the metadata and data model of OceanSITES stations could be checked and compared to what is needed for CDI and producing ODV files</li> <li>• Identify gaps</li> <li>• Provide recommendations to feed back into OceanSITES, allowing easier link to SeaDataNet later on.</li> </ul>
	<b>Copernicus and EMODnet physics</b>	for Transport Mooring Arrays (TMA) at least the data from platform deployments funded for in WP3 should be pushed to OceanSITES
	<b>ICES, EurOBIS and EDMODnet Biology</b>	Some Biogeochemistry data are collected that might be of interest for ICES, to be investigated
<b>Harmonization and discovery enhancements</b>	<b>Metadata - EDMO codes for data providers</b>	Much OceanSITES station data currently available already in SeaDataNet via the NODC's. In that case mapping to EDMO ID's will run via that path. Investigation under AtlantOS as defined above might lead to further integration.
	<b>Metadata -Unique platform/station IDs</b>	Much OceanSITES station data currently available already in SeaDataNet via the NODC's. In that case mapping to Platform/Station ID's will run via that path. Investigation under AtlantOS as defined above might lead to further integration.
	<b>Common vocabularies for parameters</b>	Data format includes CF standard_name
	<b>AtlantOS catalogue under Sextant</b>	Network description already provided to be put in the catalogue
	<b>DOI strategy for data citation</b>	No plans yet. Action to investigate creating guidelines for OceanSITES providers.
	<b>Platform catalogue at GDAC level</b>	To be done at the existing UE GDAC
	<b>SensorML catalogue</b>	Candidate Network for FixO3 PAP moorings



	<b>NRT QC</b>	most of the data are not quality controlled, an action to undertake for platform deployments funded by AtlantOS WP3 , fixO3 observatories and Transport Mooring Arrays (TMA)
--	---------------	--

<b>EATN</b>		
<b>Integration in integrators</b>	<b>SeaDataNet for archive data</b>	no physical data only positions at the moment, to be reconsidered if future animals are equipped with other sensors
	<b>Copernicus and EMODnet physics</b>	
	<b>ICES, EurOBIS and EDMODnet Biology</b>	Integration of data in EMODnet biology has started
<b>Harmonization and discovery enhancements</b>	<b>Metadata - EDMO codes for data providers</b>	Via EMODnet Biology
	<b>Metadata -Unique platform/station IDs</b>	Definition for platform+deploymentID will be done jointly with ICES which will ease future integration in EMODnet-Biology (and EurOBIS)
	<b>Common vocabularies for parameters</b>	Via EMODnet Biology
	<b>AtlantOS catalogue under Sextant</b>	Description to be provided
	<b>DOI strategy for data citation</b>	No plans yet
	<b>Platform catalogue at GDAC level</b>	Not a candidate Network
	<b>SensorML catalogue</b>	Not a candidate Network
	<b>NRT QC</b>	Not applicable

### 5.3 WP4 – Coastal observing system

<b>Tide Gauges</b>		
<b>Integration in integrators</b>	<b>SeaDataNet for archive data</b>	<ul style="list-style-type: none"> <li>• There is not a coordinated network for Tide gauges at the European level and EuroGOOS tide gauge task team is the right point to achieve progress               <ul style="list-style-type: none"> <li>○ Different operators and rules differ for one operator to another, especially on identification of Tide Gauges (see action A-012d)</li> <li>○ Data available not on a global repository and non-homogenous datasets</li> </ul> </li> <li>• SeaDataNet:               <ul style="list-style-type: none"> <li>○ Few (117) Atlantic tide gauges already in SeaDataNet CDI system (to be checked, see action A-015d)</li> <li>○ EMODnet Physics 3 could provide limited financial support</li> </ul> </li> </ul>
	<b>Copernicus and EMODnet physics</b>	
	<b>ICES, EurOBIS and EDMODnet Biology</b>	Not applicable
<b>Harmonization and discovery enhancements</b>	<b>Metadata - EDMO codes for data providers</b>	<ul style="list-style-type: none"> <li>• Codes for organizations are available</li> <li>• EDMO codes in the datasets will be brought in via on-going ROOS actions. Mapping is supplied. (ROOS leader will introduce EDMO codes downwards towards source)</li> </ul>
	<b>Metadata -Unique platform/station IDs</b>	will get in contact with ICES for bulk upload of the stations in the ICES dictionary
	<b>Common vocabularies for parameters</b>	work through EuroGOOS Task Team to encourage use of standard vocabularies
	<b>AtlantOS catalogue under Sextant</b>	GLOSS to be described
	<b>DOI strategy for data citation</b>	No plan yet
	<b>Platform catalogue at GDAC level</b>	Not a candidate network
	<b>SensorML catalogue</b>	Not a candidate network
	<b>NRT QC</b>	work through EuroGOOS Task Team to encourage the implementation of the recommendations for Sea Level





## 6 AtlantOS Transatlantic Data Harmonization Workshop in 2017

S. Pouliquen/Ifremer informed the WP7 partners about the organization of a two-day transatlantic workshop in 2017 (dates foreseen: 7-8 June) on harmonization for Atlantic data.

Three goals for that meeting are identified:

1. Input for AtlantOS deliverable on transatlantic harmonization (D7.8)
2. Input for AtlantOS blueprint
3. a White-paper to be presented at the OceanObs-2019 conference and organizing a session to fit the purpose (Very ambitious goal)

More details on the organization are available in [WP7 Prep meeting Data Harmonization Workshop 14+15 December.docx](#)



## 7 Updated action plan

Action	Description	Who?	Planned date
A-001	Organize the AtlantOS Transatlantic Data Harmonization workshop	WP7 Coordination	7-8 June 2017
<b>WP7.1 Data Harmonisation : metadata - RTQC</b>			
A-002	parameter list/metadata mapping with Integrator vocabularies : Finalize priority <b>(3)Biology</b>	BODC/L. Darroch + SAHFOS,EATN, ICES and EMODnet-Bio	Done
A-003	Providers in EDMO and data formats	MARIS/P. Thijsse + All the Networks	On-going action
A-003b	Set up to the <b>simple hierarchy in EDMO</b> catalog in the framework of SeaDataCloud projet	MARIS/P. Thijsse	Implementation Phase (starting march 2017)
A-003c	Check if GO-SHIP and VOS/SOOP cruises are part of CSR and/or how they can be added in a sustained way. Then integrate EDMO codes also in GO-SHIP datafiles	GEOMAR/T. Tanhua (with MARIS/ P. Thijsse)	January 2017
A-003d	JCOMMOPS to confirm that EDMO information can be added in JCOMMOPS database and propose a planning	JCOMMOPS/A. Lizé	Done
A-004a	Recommendations for RTQC on T, S, Current, O2, Chl-a, Nitrate	All Networks performing RT measurements on those EOVs to review the proposed RTQC and feedback the experts	Done
A-004b	complete recommendations for RTQC on Carbon	UiB/B.Pfeil	March 2017
A-004c	provide recommendations for RTQC on Sea Level	BODC/Bradshaw	Done
A-004d	NRT QC recommendations for Oxygen, Chla and Nitrate to be implemented (high importance for Ecosystems models)	All Networks performing RT measurements on those EOVs	Implementation phase (starting March 2017)



Action	Description	Who?	Planned date
A-004e	All NRT QC recommendations to be implemented at least for the data from platform deployments funded for in WP2 and WP3.	OceanSITES for TMA and FixO3 moorings	Implementation phase (starting March 2017)
<b>WP7.2 Data flow and integration</b>			
A-010	Platform catalogue at Network level as index files	Candidate Networks (GO-SHIP, VOS, Drifters, Gliders and FerryBox) to set up a platform catalogue with support of T. Carval/Ifremer	On-going for Drifters (in 2017 prototype) March 2017
A-011	SensorML description for platforms : dedicated meeting to be set up (T. Loubrieu/Ifremer)	T. Loubrieu/Ifremer + Candidate Networks (Argo, OceanSITES for FIX03 PAP mooring, GO-SHIP and FerryBox)	February 2017
A-012a	Expand SeaDataNet C17 catalogue of platforms: guidelines to add new vessels	MARIS/P. Thijsse	Done
A-012b	ICES station directory : guidelines to add tide gauges (a first example)	BODC/E. Bradshaw	March 2017
A-012c	Platform id management : organize the dissemination for the set of recommendations	S. Pouliquen/Ifremer, P. Gorringer/EuroGoos	2017
A-012d	Platform id management for Tide Gauges : compare the IOC list with what is presently circulating in the Atlantic to identify the gaps	A. Novellino/ETT, A. Lizé/JCOMMOPS	March 2017
A-013a	<b>AtlantOS catalogue under Sextant :</b> Network descriptions	1)Description to be provided for VOS/SOOP, EATN, ICES, GLOSS for Tide Gauges, Seafloor mapping  2) Add a keyword for AtlantOS EVs in the descriptions ((Ifremer/L. Petit de la Villéon and Network representatives)	ASAP



Action	Description	Who?	Planned date
A-013b	<b>AtlantOS catalogue under Sextant</b> : Integrator description and their products relevant on the Atlantic	Copernicus INS TAC, ICES, EMODnet Biology and EurOBIS	March 2017
A-014	Implementation of DOI	Implement a strategy for their network : Drifter, Glider, OceanSITES, VOS/SOOP, GO-SHIP and, when strategy decided, Tide Gauges, EATN with support of T. Carval/Ifremer	Implementation phase (starting march 2017)
A-015b	<b>Enhance connection to SeaDataNet</b> : All Networks to choose the method to share via SeaDataNet (either become their own node, or share per country via the National Data Centres)	MARIS + All the Networks	Done
A-015c	<b>Enhance connection to SeaDataNet:</b> update the work plan and define achievable steps and deadlines for implementation starting in March 2017	MARIS + All the Networks	March 2017
A-015d	<b>Enhance connection to SeaDataNet:</b> which data are exactly in CDI and what is missing! Check “problem zones”	NERC/Tide gauges team with support of MARIS	March 2017
A-016b	<b>Enhance connection to Copernicus:</b> CPR propose a plan to provide access to physical data through GOSUD. Ifremer can support SAHFOS	SAHFOS with Ifremer support	Cancelled (only SeaDataNet node for CPR physical data)
A-016c	<b>Enhance connection to Copernicus:</b> WP3.3 Transport mooring arrays data flow to OceanSITES	BODC/H. Snaith	March 2017



Action	Description	Who?	Planned date
A-016d	<b>Enhance connection to Copernicus:</b> :WP4 to provide recommendations on how to integrate Sea Level data, Ferrybox and FOS	BODC – GEOMAR – WP4 leader	ASAP
A-017	<b>Enhance EMODnet Services for AtlantOS</b>	All networks to provide feedback on the priorities to ETT (EMODnet-physics) and VLIZ (EMODnet-biology and central)	On-going
A-018a	<b>Monitoring and dashboard services to show AtlantOS</b> : set up a working group for download statistics	Ifremer/T. Loubrieu, ETT/A. Novellino, JCOMMOPS/A. Lizé	January 2017
A-018b	<b>Monitoring and dashboard services to show AtlantOS</b> : user survey to assess of the services provided from the Networks and Integrators	ETT/A. Novellino	From January to March 2017
A-018c	<b>Monitoring and dashboard services to show AtlantOS</b> : define EMODnet-Biology indicators	VLIZ/F. Souza Diaz	March 2017
A-019a	Propose a strategy to improve the links to GEO: <b>GEOSS</b>	MARUM/Christoph Waddman, Ketil Koop-Jakobsen	September 2016
A-019b	Organise a <b>GEOSS</b> user workshop for AtlantOS data providers	UniHB /WP7 representatives	March 2017
A-020	<b>Enhance integrated access to data at Network level</b> : VOS/SOOP and GO-SHIP	GO-SHIP/T. Tanhua, VOS/B. Pfeil to describe their project	Fall 2016
A-021	<b>Feeding SeaDatNet CDI from GDACs:</b> raise the issue at SDN steering team level	MARIS	January 2017
A-022	<b>Enhance connection to GEOBON/MBON</b> : Establish close links to OBIS/EUR-OBIS and interact with EMODnet	MARUM	December 2016 and onwards
A-023	<b>Enhance connection of BCG data to ICES</b> : to be investigated	ICES with Argo, Glider and OceanSITES representatives	Spring 2017



## 8 Appendix 1 : Agenda for tasks 7.1 and 7.2 fourth meeting

<b>14 December afternoon</b>	13:30 - 14:00	Welcome coffee
	14:00 - 14:15	<b>Meeting objectives and organisation (15min)</b> Sylvie Pouliquen, WP7 co-coordinator
	14:15 - 17:00	<b>Workshop « Integration in Integrators » (3h15)</b>
		<p><b>14:15 – 14:30 Introduction of the 3 parallel working session (15 min)</b> MARIS/P. Thijsse, Ifremer/S. Pouliquen, L. Petit de la Villéon, ETT/A. Novellino, VLIZ/F. Souza Diaz, ICES/V. Soni</p> <p>14:30 – 14:35 : dispatching the Network representatives in groups, <i>then session leaders will move around the groups(1h10 by group, 5 min to move around the groups)</i></p> <p><b>14:35 – 17:00 : parallel working sessions (3h)</b></p> <ul style="list-style-type: none"> <li>• SeaDataNet for archive data (led by MARIS/P. Thijsse) : <ul style="list-style-type: none"> <li>○ 14:35 – 15:40 Argo, Drifter, Glider, CPR Physical data</li> <li>○ 15:45 - 16:50 Seafloor mapping, OceanSITES and “Tide Gauges”</li> </ul> </li> <li>• Copernicus and EMODnet physics (led by Ifremer/S. Pouliquen, L. Petit de la Villéon, ETT/A. Novellino) : <ul style="list-style-type: none"> <li>○ 14:35 - 15:40 Seafloor mapping, OceanSITES and “Tide Gauges”</li> <li>○ 15:45 – 16:50 Argo, Drifter, Glider, CPR Physical data</li> </ul> </li> <li>• ICES, EuroBIS and EMODnet biology (led by VLIZ/F. Souza Diaz, ICES/V. Soni) <ul style="list-style-type: none"> <li>○ 14:35 – 15:45 Fish &amp; plankton survey, CPR Biology data</li> <li>○ 15:45 – 16:50 EATN (<i>web conference if needed</i>)</li> </ul> </li> </ul> <p>16:50 – 17:00 : joining for next session</p>
	17:00-17:30	<b>Session « NRT QC recommendations for selected EOVs »</b> (led by LOCEAN/G.Reverdin)
		<ul style="list-style-type: none"> <li>• 17:00 – 17:15 : recommendations for SeaLevel (NERC/L. Rickards)</li> <li>• 17:15 – 17:30 : Network plans for QC enhancement for T&amp;S, Current, O2, Chla, Nitrate <ul style="list-style-type: none"> <li>• <i>Argo, Gliders and OceanSITES for T&amp;S, Current, Oxygen(O2), Chla, NO3</i></li> <li>• <i>Drifters for T&amp;S, Current</i></li> <li>• <i>« Tide gauges » for Sea level</i></li> </ul> </li> </ul>



15 December morning	8:30 – 9:00	Welcome coffee
	9:00 – 9:30	<b>End of session « NRT QC recommendations for selected EOVs »</b> <ul style="list-style-type: none"> <li>9:00 – 9:15 Network plans for QC enhancement for T&amp;S, Current, O2, Chla, Nitrate</li> <li>9:15 – 9:30 recommendations for Carbon (UiB/B. Pfeil)</li> </ul>
	9:30 – 12:30	<b>Workshop « harmonization and discovery enhancements » - first part (3h00)</b>  <b>9:30 – 9:45 Introduction of the 3 parallel working session (15 min)</b> MARIS/P. Thijsse, JCOMMOPS/A. Lizé, Ifremer/ L. Petit de la Villéon, NERC/H. Snaith  9:45 – 9:50 : dispatching the Network representative in groups, <i>then session leaders will move around the groups(50 min by group, 5 min to move around the groups)</i>  <b>9:50 – 12:30 parallel working sessions (2h45)</b> <ul style="list-style-type: none"> <li>Metadata / platform id and organizations (led by MARIS/P. Thijsse, JCOMMOPS/A. Lizé) : new entries and data format <ul style="list-style-type: none"> <li>9:50 – 10:40 Argo, Drifter, Glider,</li> <li>10:45 - 11:35 Seafloor mapping, OceanSITES, “Tide Gauges”</li> <li>11:40 – 12:30 CPR, Fish &amp; plankton survey, EATN</li> </ul> </li> <li>Common vocabularies (led by NERC/H. Snaith) : mapping or change in data formats <ul style="list-style-type: none"> <li>9:50 – 10:40 CPR, Fish &amp; plankton survey, EATN</li> <li>10:45 - 11:35 Argo, Drifter, Glider</li> <li>11:40 – 12:30 Seafloor mapping, , OceanSITES, “Tide Gauges”</li> </ul> </li> <li>Network and product catalogue under Sextant (led by Ifremer/L. Petit de la Villéon) : session to write and populate the Network description <ul style="list-style-type: none"> <li>9:50 – 10:40 VOS/SOOP, Seafloor mapping, OceanSITES, “Tide Gauges”</li> <li>10:45 - 11:35 CPR, Fish &amp; plankton survey, EATN</li> <li>11:40 – 12:30 Argo, Drifter, Glider</li> </ul> </li> </ul>
		12:30 – 13:30
15 December afternoon	13-30 – 17:30	<b>Workshop « harmonization and discovery enhancements » - second part (3h00)</b>  <b>13:30 – 13:55 Introduction of the 4 parallel working session (15 min)</b> Ifremer/T. Carval, ETT/A. Novellino, Ifremer/T. Loubrieu  13:55 – 14:00 : dispatching the Network representative in groups, <i>then session leaders will move around the groups(45 min by group, 5 min to move around the groups)</i>



		<p><b>14:00 – 16:25 parallel working sessions with all networks (2h25)</b></p> <ul style="list-style-type: none"> <li>• DOI strategy for Networks (led by Ifremer/T. Carval, F. Merceur) <ul style="list-style-type: none"> <li>○ 14:00 – 14:45 CPR, Fish &amp; plankton survey, EATN</li> <li>○ 14:50 - 15:35 Drifter, Seafloor mapping</li> <li>○ 15:40 – 16:25 OceanSITES, “Tide Gauges”</li> </ul> </li> <li>• AtlantOS monitoring dashboard (led by ETT/A. Novellino, Ifremer/T. Loubrieu, JCOMMOPS/A. Lizé, VLIZ//F. Souza Diaz) <ul style="list-style-type: none"> <li>○ 14:00 – 14:45 Drifter, Seafloor mapping</li> <li>○ 14:50 - 15:35 OceanSITES, “Tide Gauges”</li> <li>○ 15:40 – 16:25 CPR, Fish &amp; plankton survey, EATN</li> </ul> </li> </ul> <p><b>15:30 – 17:30 parallel working sessions with candidate networks (2h)</b></p> <ul style="list-style-type: none"> <li>• Platform catalogue at GDAC level (led by Ifremer/T. Carval) <u>with candidate networks</u> <ul style="list-style-type: none"> <li>○ 16:30 – 17:20 Drifter</li> </ul> </li> <li>• Sensor ML (led by Ifremer/T. Loubrieu) <u>with candidate networks</u> <ul style="list-style-type: none"> <li>○ 14:00 – 14:50 OceanSITES for FIX03 PAP mooring</li> <li>○ 16:30 – 17:20 Argo</li> </ul> </li> </ul>
--	--	--

<b>16 December morning</b>	8:30 – 9:00	Welcome coffee
	9:00 – 11:45	<p><b>Debriefing of the working sessions (2h45, 15 min per session)</b></p> <ul style="list-style-type: none"> <li>• SeaDataNet for archive data (MARIS/P. Thijsse)</li> <li>• Copernicus and EMODnet physics (Ifremer/S. Pouliquen, L. Petit de la Villéon, ETT/A. Novellino)</li> <li>• ICES, EurOBIS and EMODnet biology (VLIZ/F. Souza Diaz, ICES/V. Soni)</li> <li>• NRT QC Recommendations for selected EOVs (LOCEAN/G. Reverdin)</li> <li>• Metadata / platform id and organizations (MARIS/P. Thijsse, JCOMMOPS/A. Lizé)</li> <li>• Common vocabularies (NERC/H. Snaith)</li> <li>• Network and product catalogue under Sextant (Ifremer/L. Petit de la Villéon)</li> <li>• DOI strategy for Networks (Ifremer/T. Carval)</li> <li>• AtlantOS monitoring dashboard (ETT/A. Novellino, Ifremer/T. Loubrieu, JCOMMOPS/A. Lizé, VLIZ/F. Souza Diaz)</li> <li>• Platform catalogue at GDAC level (Ifremer/T. Carval)</li> <li>• Sensor ML (Ifremer/T. Loubrieu)</li> </ul>
	11:45 – 12:30	Wrap-up and update of the action list





## 9 Appendix 2 : Participants to tasks 7.1 and 7.2 fourth meeting

Institute	Tasks	Main Skill	Name	Attendance
CNRS/LOCEAN	7.1	T/S/Current	Gilles Reverdin <a href="mailto:reve@locean-ipsl.upmc.fr">reve@locean-ipsl.upmc.fr</a>	Partially
CNRS/LOCEAN	7.1 7.2	Glider	Pierre Testor <a href="mailto:testor@locean-ipsl.upmc.fr">testor@locean-ipsl.upmc.fr</a> Victor Turpin <a href="mailto:vtlod@locean-ipsl.upmc.fr">vtlod@locean-ipsl.upmc.fr</a>	Present  Partially
CNRS/LOV	7.1 7.2	CHL	Julia Uitz <a href="mailto:julia.uitz@obs-vlfr.fr">julia.uitz@obs-vlfr.fr</a>	Represented by G. Reverdin
CNRS/LOV	7.1 7.3	Nitrate	Fabrizio D'Ortenzio <a href="mailto:dortenzio@obs-vlfr.fr">dortenzio@obs-vlfr.fr</a>	Represented by G. Reverdin
ETT	7.1 7.2	EMODnet	Antonio Novellino <a href="mailto:antonio.novellino@ettsolutions.com">antonio.novellino@ettsolutions.com</a>	Present
EUMETNET	7.1 7.2	Drifter	Paul Poli <a href="mailto:paul.poli@meteo.fr">paul.poli@meteo.fr</a>	Present
EuroGOOS Office	7.1 7.2	EuroGOOS EMODnet	Patrick Gorringer <a href="mailto:patrick.gorringer@eurogoos.eu">patrick.gorringer@eurogoos.eu</a>	Present
GEOMAR	7.1 7.2	GO-SHIP	Toste Tanhua <a href="mailto:ttanhua@geomar.de">ttanhua@geomar.de</a>	Not present
GEOMAR	7.1 7.2	SEAFLOOR Mapping	Colin Devey <a href="mailto:cdevey@geomar.de">cdevey@geomar.de</a>	Represented by Anne-Cathrin Wölfel <a href="mailto:awoelfl@geomar.de">awoelfl@geomar.de</a>
HZG	7.1 7.2	Ferrybox	Wilhem Petersen <a href="mailto:wilhelm.petersen@hzg.de">wilhelm.petersen@hzg.de</a> Gisbert Breitbach <a href="mailto:gisbert.breitbach@hzg.de">gisbert.breitbach@hzg.de</a>	Not present  Not present
ICES	7.1 7.2	Fish plankton survey	Neil Holdsworth <a href="mailto:NeilH@ices.dk">NeilH@ices.dk</a>	Represented by Vaishav Soni <a href="mailto:Vaishav@ices.dk">Vaishav@ices.dk</a>
Ifremer	7.0	Coordination Copernicus	Sylvie Pouliquen <a href="mailto:atlantos_wp7_coordination@ifremer.fr">atlantos_wp7_coordination@ifremer.fr</a>	Present
Ifremer	7.0	Coordination	Valérie Harscoat <a href="mailto:atlantos_wp7_coordination@ifremer.fr">atlantos_wp7_coordination@ifremer.fr</a>	Present
Ifremer	7.1 7.2 7.3	Argo DOI Copernicus	Thierry Carval <a href="mailto:Thierry.Carval@ifremer.fr">Thierry.Carval@ifremer.fr</a>	Present



Institute	Tasks	Main Skill	Name	Attendance
Ifremer	7.1 7.2 7.3	Copernicus	Loic Petit de la Villeon <a href="mailto:Loic.Petit.De.La.Villeon@ifremer.fr">Loic.Petit.De.La.Villeon@ifremer.fr</a>	Present
Ifremer	7.1 7.2	Catalogue Interoperability Tools	Thomas Loubrieu <a href="mailto:Thomas.Loubrieu@ifremer.fr">Thomas.Loubrieu@ifremer.fr</a>	Present
Ifremer	7.1 7.5	O2	Virginie Thierry <a href="mailto:Virginie.Thierry@ifremer.fr">Virginie.Thierry@ifremer.fr</a>	Partially
IMAR	7.1 7.2	EATN	Pedro Afonso <a href="mailto:afonso@uac.pt">afonso@uac.pt</a>	Represented by Francisco Souza Diaz <a href="mailto:francisco.souzadiaz@vliz.be">francisco.souzadiaz@vliz.be</a>
OTN/Un. Dalhousie	7.1 7.2	EATN	Frederick Whoriskey <a href="mailto:FWhoriskey@Dal.Ca">FWhoriskey@Dal.Ca</a>	
JCOMMOPS	Link with WP9	JCOMM network monitoring	Anthonin Lizé <a href="mailto:alize@jcommops.org">alize@jcommops.org</a>	Present
MARIS	7.1 7.2	Vocabularies SeaDataNet EMODnet	Dick Schaap <a href="mailto:dick@maris.nl">dick@maris.nl</a>	Represented by Peter Thijssen <a href="mailto:peter@maris.nl">peter@maris.nl</a>
MARUM-UNIH B	7.0 7.1 7.2	Coordination GEOSS Standardization	Christoph Waldmann <a href="mailto:waldmann@marum.de">waldmann@marum.de</a>	Not present
			Ketil Koop-Jakobsen ( <a href="mailto:kjakobsen@marum.de">kjakobsen@marum.de</a> )	Present
NERC/BODC	7.1 7.2	Standardization DOI Interoperability tools	Justin Buck <a href="mailto:juck@bodc.ac.uk">juck@bodc.ac.uk</a> Louise Darroch <a href="mailto:louise.darroch@bodc.ac.uk">louise.darroch@bodc.ac.uk</a>	Represented by Helen Snaith <a href="mailto:h.snaith@bodc.ac.uk">h.snaith@bodc.ac.uk</a>
NERC/BODC	7.1	Sea Level	Liz Bradshaw <a href="mailto:elizb@bodc.ac.uk">elizb@bodc.ac.uk</a>	Represented by Lesley Rickards <a href="mailto:ljr@bodc.ac.uk">ljr@bodc.ac.uk</a>
NERC/NOC	7.1 7.2	OceanSITES	Helen Snaith <a href="mailto:h.snaith@bodc.ac.uk">h.snaith@bodc.ac.uk</a>	Present
SAHFOS	7.1 7.2	CPR	Martin Edwards <a href="mailto:maed@sahfos.ac.uk">maed@sahfos.ac.uk</a>	Represented by Derek Broughton <a href="mailto:derbro@sahfos.ac.uk">derbro@sahfos.ac.uk</a>
			Darren Stevens <a href="mailto:darren.stevens@sahfos.ac.uk">darren.stevens@sahfos.ac.uk</a>	Partially
UiB	7.1 7.2	Carbon	Benjamin Pfeil <a href="mailto:benjamin.pfeil@gfi.UiB.no">benjamin.pfeil@gfi.UiB.no</a>	Partially on web or video conf (15 <sup>th</sup> Dec)
University of Exeter	7.1 7.2	SOOP	UTE Schuster <a href="mailto:U.Schuster@exeter.ac.uk">U.Schuster@exeter.ac.uk</a>	Represented by Benjamin Pfeil <a href="mailto:benjamin.pfeil@gfi.UiB.no">benjamin.pfeil@gfi.UiB.no</a>



Institute	Tasks	Main Skill	Name	Attendance
VLIZ	7.1 7.2	Eur-OBIS	Klaas Deneudt <a href="mailto:klaas.deneudt@vliz.be">klaas.deneudt@vliz.be</a>	Represented by Francisco Souza Diaz <a href="mailto:francisco.souzadiaz@vliz.be">francisco.souzadiaz@vliz.be</a>
VLIZ	7.1 7.2	EMODnet	Simon Claus <a href="mailto:simon.claus@vliz.be">simon.claus@vliz.be</a>	
SeaScape/ EMODnet Secretariat	7.1 7.2	EMODnet	Jan-Bart Calewaert <a href="mailto:janbart.calewaert@emodnet.eu">janbart.calewaert@emodnet.eu</a> Belen Martin-Miguez <a href="mailto:belen.martin-miguez@emodnet.eu">belen.martin-miguez@emodnet.eu</a>	Represented by Antonio Novellino <a href="mailto:antonio.novellino@etsolutions.com">antonio.novellino@etsolutions.com</a>
Ifremer	WP4	WP4 leader	Patrick Farcy <a href="mailto:Patrick.Farcy@ifremer.fr">Patrick.Farcy@ifremer.fr</a>	Represented by Guillaume Charria <a href="mailto:Guillaume.Charria@ifremer.fr">Guillaume.Charria@ifremer.fr</a>
Ifremer	WP2	WP2 leader	Pascale Lherminier <a href="mailto:pascale.lherminier@ifremer.fr">pascale.lherminier@ifremer.fr</a>	Present