EMODnet Ingestion and safe-keeping of marine data

6th Quarterly Report

Reporting Period: 01/10/2017 – 31/12/2017

Date: 08/01/2018

Contents

1. Highlights in this reporting period

- The number of **published data submissions ' as is'** in the **View Submissions service** (aka Summary Records service) has increased from **10 to 55 submissions (**metadata forms and related data sets).
- The EMODnet Ingestion animation movie **'Wake up your data'** has been finalised and with great success publicly launched in a cooperation with the EMODnet Secretariat early November 2017. The movie is posted on YouTube and prominent links can be found at the EMODnet Central and EMODnet Ingestion portals.
- Partners have made further progress with promoting EMODnet Ingestion and encouraging data submitters. Next to the 55 published submissions more than 35 additional submissions are under processing and also activities are underway for phase II.

2. Work package progress

WP0 – Project Management:

In the quarterly reporting period the coordinator or members of the EMODnet Ingestion consortium have participated in the following relevant meetings:

Date	Location	Topic	Short Description
15-17 November 2017	Antwerp, Belgium	EMODnet 'Open Sea Lab' hackaton	Participation of RBINS to provide support and information about the EMODnet Ingestion portal and services

The coordinator prepared the 5th quarterly progress report which was accepted by the EU (EASME and DG MARE).

WP1 – Construct and operate central Data Ingestion portal with services:

Already in the previous quarter all required technical development activities for the EMODnet Ingestion portal and its range of services had been completed. In the present quarter only a few corrections or improvements have been implemented. Moreover a banner has been included in the homepage to promote the animation movie 'Wake up your data'.

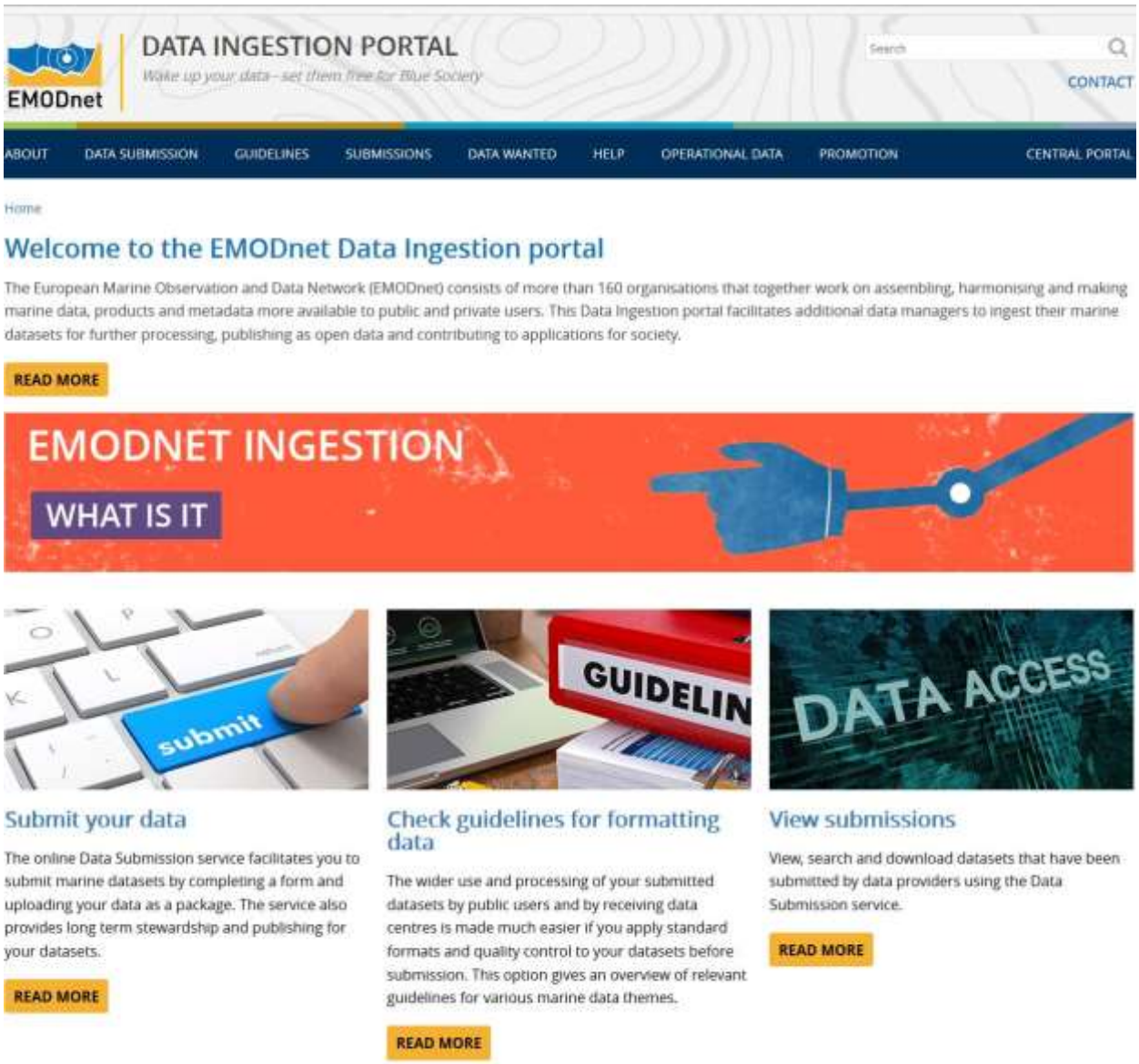


Image: impression of the upgraded EMODnet Ingestion portal with banner to the animation movie

WP2 – Implement pathways to forward submitted data to the appropriate repository:

Earlier MARIS and thematic coordinators have initiated engagement of their networks in the pathways for EMODnet Ingestion. The aim is to establish members of each thematic network to become Data Centres in the pathway network for EMODnet Ingestion. In the last quarter further progress has been made and the Data Centre Matrix of engaged data centres has been expanded from 43 to 49. These can be actively involved in the processing of data submissions that are relevant for their expertise and country. All relevant themes are now covered (Physics, Bathymetry, Geology, Chemistry, Biology, Seabed

Habitats, and Human Activities). A further expansion is planned with missing data centre members of EMODnet thematic networks.

JNCC as coordinator of the EMODnet Seabed Habitats lot has held a training workshop during its kick-off meeting using the test submission service.

WP3 – Facilitate machine-to-machine transfers:

The **NRT machine-to-machine ingestion** aims at identifying and arranging additional NRT data stations for EMODnet Physics. These can originate from additional operators that are willing to get connected and share their NRT data freely in EMODnet Physics. The standards and procedure for NRT data and a list of receiving repositories for NRT data have been published at the portal. The portal explains how the NRT exchange is organised between operators of observing stations and EuroGOOS – Copernicus and it gives a link to the EMODnet Physics portal to show how NRT stations can be displayed and used. Moreover a set of stepwise instructions has been included. Alternatively operators can download a Guidance document for NRT data exchange which recently has been compiled by EMODnet Physics and EMODnet Ingestion together. The Guideline can be downloaded from the Ingestion portal at: https://www.emodnet-ingestion.eu/media/emodnet_ingestion/org/documents/emodnetdi.nrtdatamanagement.v.2.0.pdf

This promotion and invitation has been quite successful and through the collaboration of EMODnet Ingestion and EMODnet Physics so far the following new NRT stations and operators have come forward and been included by partner ETT in the EMODnet Physics portal.

NRT stations	Operator
30 tide gauge stations of the Italian TideGauge network	ISPRA, Italy
4 fixed stations, 2 gliders, 2 turtles	SOCIB, Spain
High Frequency Radar data at Brest bay: Pointe de Brézellec- Pointe de Garchine	Shom – France
23 FerryBox lines (Stenalines)	SMHI - Sweden

In addition several historical datasets for physics have been identified by ETT as coordinator of EMODnet Physics and these have been ingested in the Data Submission service for further processing.

Historical physics datasets	Origin
>1100 sea mammals data, 2004 – 2015,	MEOP group
3 fixed buoys (Civitavecchia, Gaeta), 2012 -2017	University of Tuscia - Italy

HFR data (Naples, Manfredonia, Trieste), RITMARE project	CNR ISMAR - Italy
HFR data (MESA, VADE), 2014-2015	SMH - Sweden
1 fixed station (UTO), data covering the period April – July 2017	FMI - Finland

These submissions are being processed in contact between assigned Data Centres and the data originators. The HFR data for SMHI, the Italian Tide Gauges, and the fixed buoys from Civitavecchia and Gaeta are already done and published in the View Submissions service.

The **Sensor Web Enablement (SWE) pilot** concerns real time monitoring systems, allowing direct standardised access to selected data types from selected monitoring instruments. This activity is executed by BODC, IFREMER, ETT and OGS. In the last quarter further progress has been made:

A first draft of the SWE profiles is now published at: https://odip.github.io/MarineProfilesForSWE/ This site includes a story that narrates how projects, people, technologies and vocabularies were brought together to formulate meaningful and semantically rich profiles for the marine domain. The related EU-projects that have funded this effort are listed under the above mentioned URL.

Two of the partners, i.e. OGS and BODC have implemented demonstrators that implement the SWE marine profiles. These demonstrators can be found at:

http://nodc.ogs.trieste.it/sos/client, where OGS publish marine observatories acquiring meteo-oceanographic data in (near) real time

and

http://linkedsystems.uk/52n-sos-webapp/, where BODC publish historic ANIMATE project data as a demonstrator from placing fixed observatory data on an SOS server.

In order to support new and existing partners to implement the above mentioned profiles, BODC and OGS have also created specific URLs with working examples of sensors described with SensorML following the SWE Marine profiles and can be found at:

- A model of an Aanderaa oxygen optode: http://linkedsystems.uk/system/prototype/TOOL0969/current/
- An instance of an oxygen optode: http://linkedsystems.uk/system/instance/TOOL0969_prospect/current/
- An instance of a Wind Monitor-JR: http://europa.ogs.trieste.it/OGS_SOS/SensorML_3_0/Sensor_V3_E2M3A_WIND.xml

- An instance of SBE 37-SMP-ODO MicroCAT high-accuracy conductivity and temperature recorder: http://europa.ogs.trieste.it/OGS_SOS/SensorML_3_0/Sensor_V3_E2M3A_CT.xml

As the available SOS software from 52North does not produce SWE marine profiles compliant sensorML, the need for a user friendly sensorML editor was made obvious. The plan is that partners will produce sensorML to describe their sensors throught a user friendly editor that will produce SWE Marine profile compliant sensorML. The existing 52North sensorML editor SMLE was reviewed and assessed by EMODnet. The comments produced are with 52North, who is currently working on providing a user friendly and marine compliant sensorML editor, that will support the adoption of the SWE profiles for Real time data exchange by new partners.

EMODnet Physics makes progress with developing a dedicated page at: www.emodnet-physics.eu/RealTime which will integrate datasets from the above mentioned partners.

Work is underway for publishing detailed documentation and instructions at both portals for adoption by other operators of comparable monitoring stations who wish to join the demonstrator service.

WP4 – Marketing and outreach activities:

Marketing and outreach activities are undertaken by all consortium members and aim at promoting the EMODnet Ingestion portal and services as well as identifying, encouraging and supporting potential data providers to submit relevant marine data sets by means of the Ingestion portal. Consortium members give a follow-up to the earlier compiled inventory and also explore other opportunities. Thereby partners are supported by the central promotion campaign, promoting EMODnet Ingestion at almost all EMODnet portals, and the set of promotion materials as produced by RBINS. In the last quarter a major promotional instrument was finalised and launched by means of the EMODnet Ingestion animation movie '**Wake up your data'**. The animation explains in a very attractive way the process of submitting data and their further elaboration as well as why data managers should undertake action. The animation was launched with great success in a cooperation with the EMODnet Secretariat early November 2017. The movie is posted on YouTube (https://www.youtube.com/watch?v=p3vwngxyXuo) and prominent links can be found at the EMODnet Central and EMODnet Ingestion portals. Also it has been screened at several meetings. These include:

- EuroGOOS conference, 2 – 5 October 2017, in Bergen – Norway, where partner RBINS also presented the EMODnet Ingestion project at an Information Booth
- ODIP II Workshop, 2 – 5 October 2017, in Galway – Ireland, by MARIS and HCMR
- EMODnet Seabed Habitats kick-off meeting, 3 October 2017, in Athens – Greece, by JNCC, where JNCC also held a training exercise
- EMODnet 'Open Sea Lab' hackaton, 15 – 17 November 2017, Antwerp – Belgium, by RBINS and EMODnet secretariat

- IODE Best Practices Workshop, 15 November 2017, Paris – France, by MARIS
- SeaDataCloud Plenary Meeting, 19 November 2017, Athens – Greece, by MARIS and HCMR
- EMODnet HRSM Plenary Meeting, 26 November 2017, Heraklion – Greece, by MARIS

Use cases:

The use case for the Netherlands by Deltares and RWS concerning monitoring data from renewable energy projects in the North Sea has made further progress. The licensing process for the planning, construction and operation of offshore wind parks requires data and knowledge on the effects on ecology. Therefore the Dutch government has set up a integrated monitoring and research program in cooperation with other North Sea countries, the Offshore Wind Ecological Program (Wozep). The monitoring and research is done by research institutes and commercial consultancy companies. The monitoring data from this Dutch program, and from the other countries are extremely valuable to reuse and it is proposed to ingest these data into the EMODnet portals. So far submissions for four biological monitoring data sets have been drafted that will be further elaborated for inclusion in the EMODnet Biology portal.

Image: Biological monitoring locations around the Offshore windpark Egmond aan Zee (OWEZ). Benthos (green) and Fish data (blue) will be made available via the Data Ingestion portal to be published in the EMODnet Biology portal

A first version of the mapping of these data to the EMODnet Biology portal's standard, OBIS, has already been made. For the near future, the mapping will be finalized, and an infrastructure for delivering also other windfarm monitoring data to SeaDataNet and other EMODnet portals will be established. For this purpose Rijkswaterstaat (RWS) and Deltares, together with Wagening Marine Research, work together on governance and procedures to make sure that the data from the Wozep program can be used by the international community.

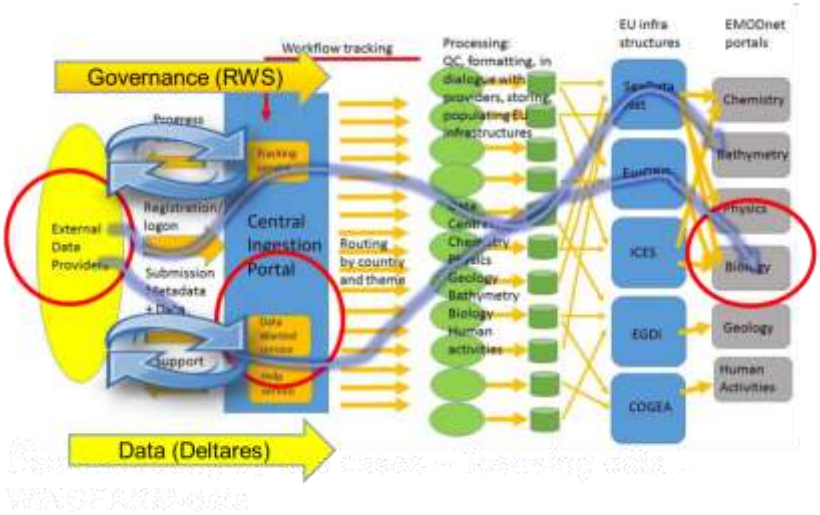


Image: Planned pathways for the Wozep data streams

The following general process will be followed: monitoring data will be delivered to Wageningen Marine Research (biological data) or Deltares (other data). Datasets are then standardized to the Dutch AQUO standard, and published as web services. For assimilation into EMODnet, these datasets are submitted to the EMODnet ingestion portal. After submission, the datasets will be attributed to Deltares for further transformation to a suitable EMODnet format such as defined by SeaDataNet and OBIS.

The Netherlands governmental ecological programme WOZEP is part of a larger WIND/ENERGY related international network on the North Sea. The Netherlands by means of RWS is also actively promoting EMODnet in this network.

The use case for the United Kingdom with Crowne Estate concerning renewable energy projects is also making further progress. With support of partner BODC a number of interesting datasets from the Crowne Estate portal have been submitted into EMODnet Ingestion. This concerns physical observations and also GIS maps for various renewable energy sites in UK waters. Several submissions have already been published in the Summary service at the Ingestion portal and additional processing is underway by COGEA and BODC as Data Centres for achieving Phase II: integration of data sets into EMOdnet portals.

Key indicators:

Portal statistics:

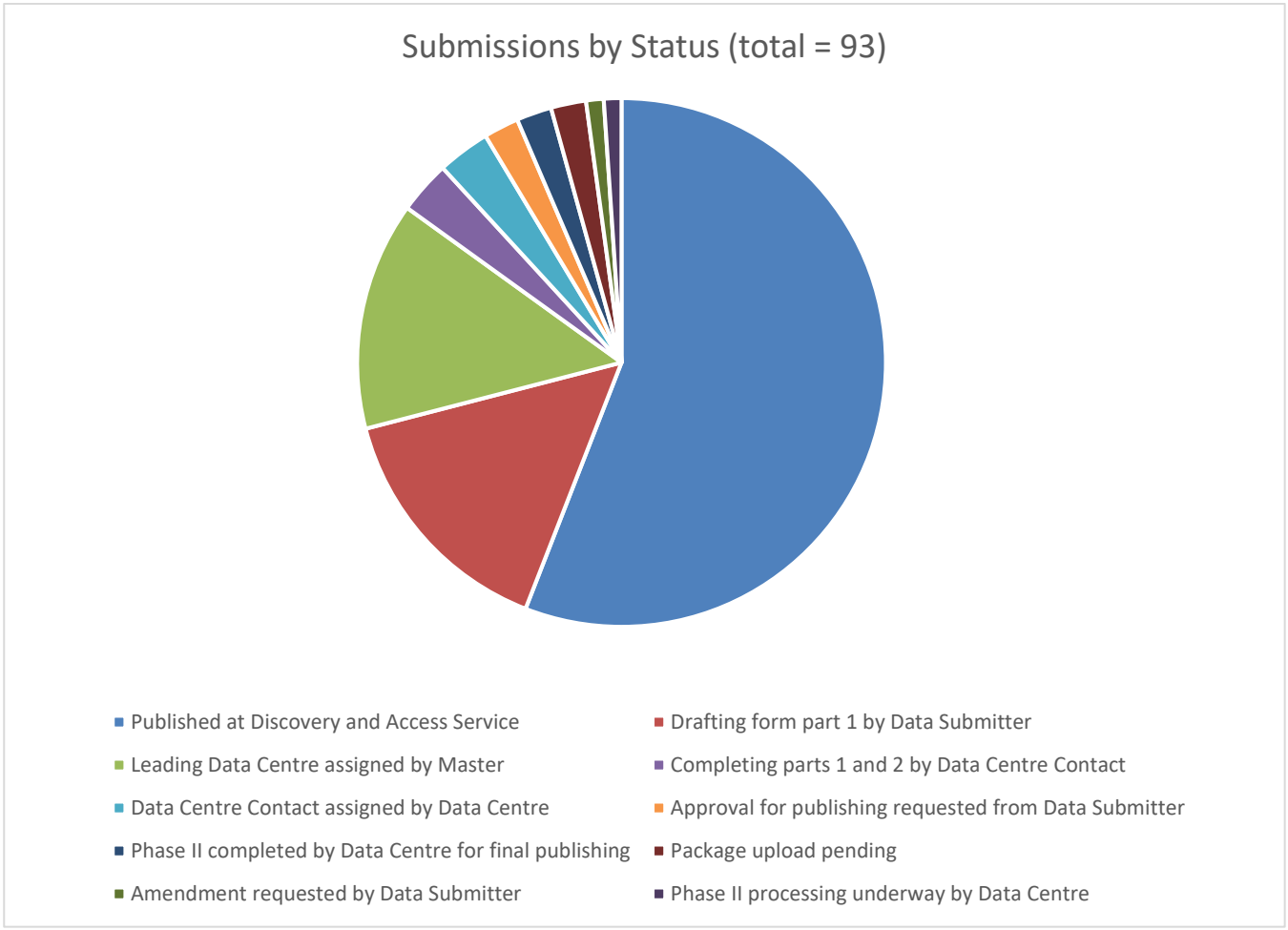
Most of the EMODnet Thematic portals and the Central EMODnet portal have included references and links to the EMODnet Ingestion portal. This leads to very good visiting statistics of more than 9.000

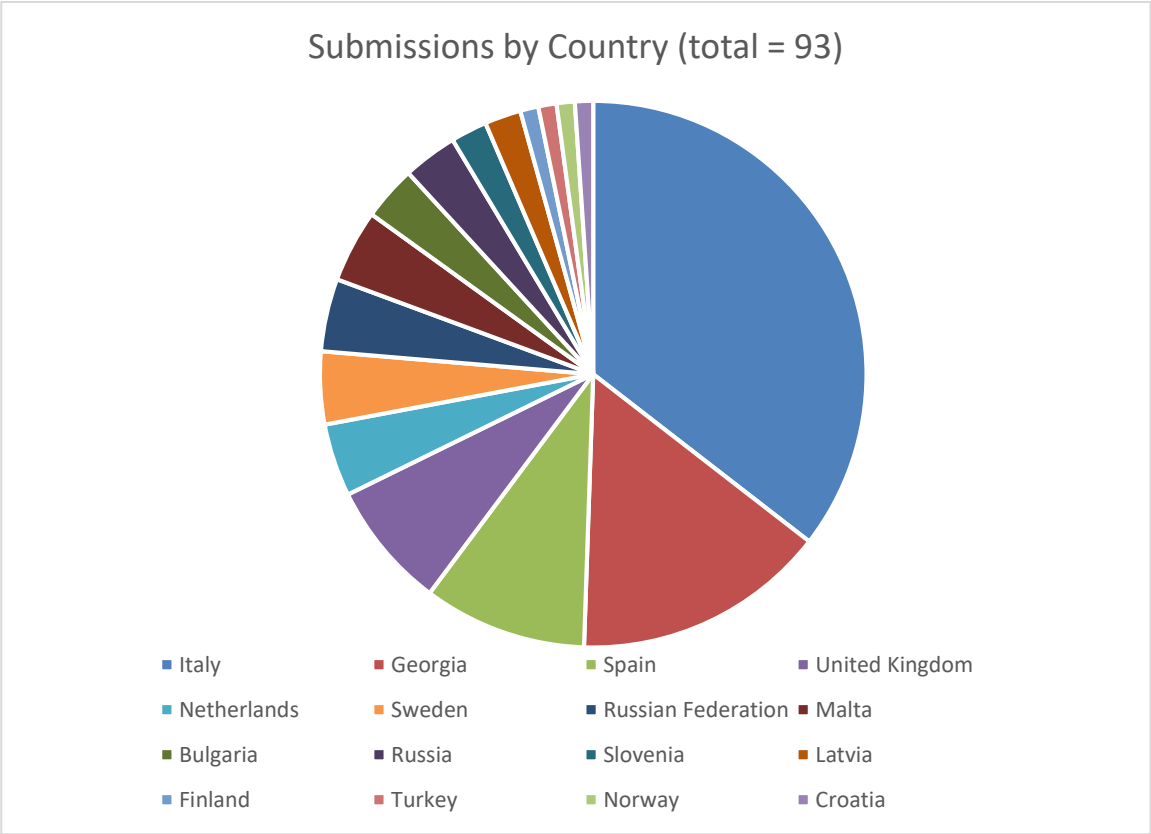
visitors in November 2017, which is quite high, also considering that EMODnet Ingestion portal was launched in February 2017.

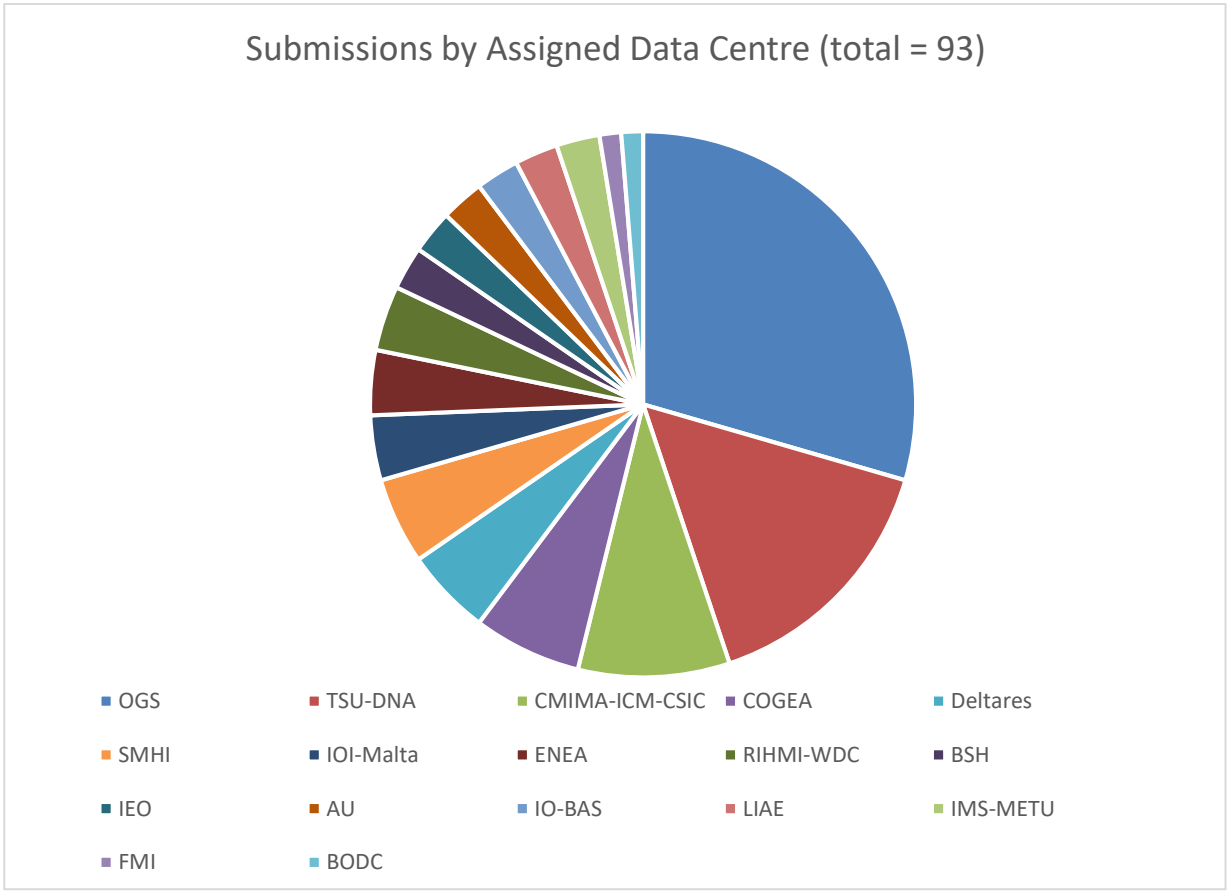
Month	Unique visitors	Number of visits	Pages	Hits	Bandwidth
Feb-17	703	1,092	15,816	38,669	1.55 GB
Mar-17	668	1,035	4,388	13,698	870.03 MB
Apr-17	5,617	6,128	9,846	19,068	946.18 MB
May-17	5,935	6,424	15,824	25,282	661.99 MB
Jun-17	5,754	6,206	49,675	53,944	852.16 MB
Jul-17	5,789	6,175	51,582	57,601	1.14 GB
Aug-17	7,121	7,563	53,292	59,510	1.05 GB
Sep-17	8,139	8,762	54,858	69,300	1.65 GB
Oct-17	8,260	9,150	60,049	80,101	1.97 GB
Nov- 17	9,271	10,409	58,818	76,237	2.01 GB
Dec- 17	8,460	9,370	57,147	64,709	1.18 GB

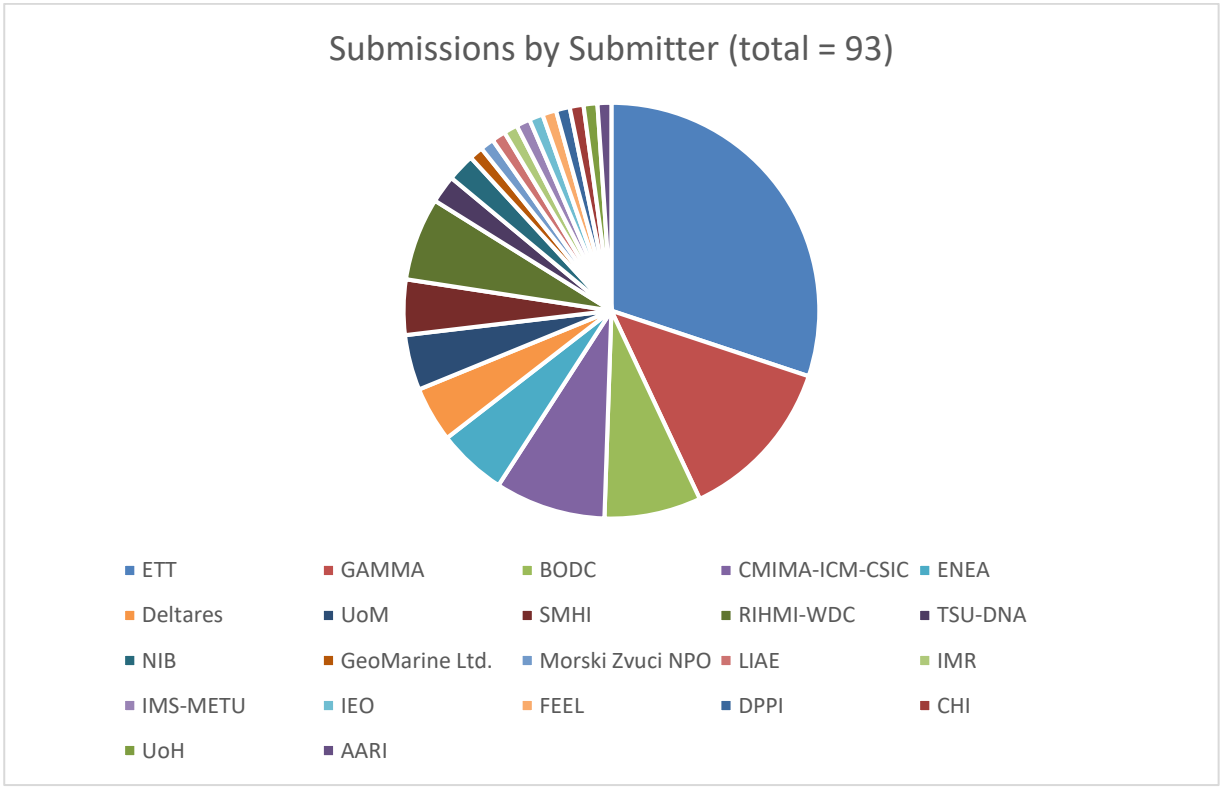
Statistics of submissions.

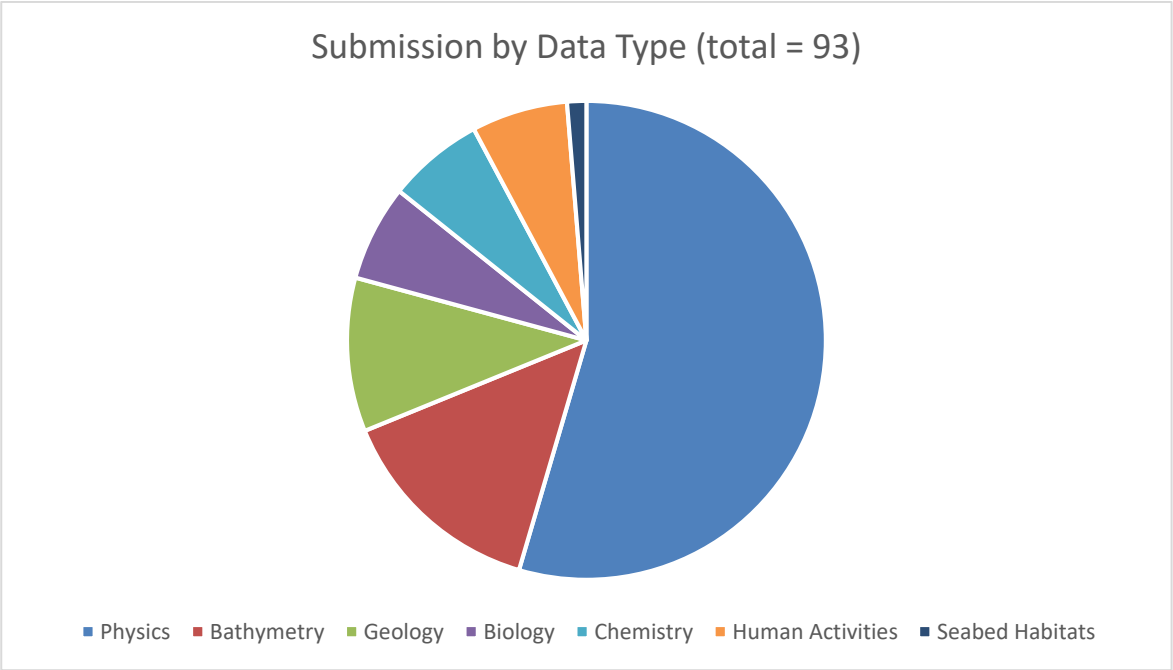
End of 2017 there are 93 submissions in the Submission service, of which 55 already have been published in the Summary service. The following figures give characteristics of those submissions.


Submissions by Status (total = 93)
Published at Discovery and Access Service
Drafting form part 1 by Data Submitter
Leading Data Centre assigned by Master
Completing parts 1 and 2 by Data Centre Contact
Data Centre Contact assigned by Data Centre
Approval for publishing requested from Data Submitter
Phase II completed by Data Centre for final publishing
Package upload pending
Amendment requested by Data Submitter
Phase II processing underway by Data Centre


Submissions by Country (total = 93)
Italy
Georgia
Spain
United Kingdom
Netherlands
Sweden
Russian Federation
Malta
Bulgaria
Russia
Slovenia
Latvia
Finland
Turkey
Norway
Croatia


Submissions by Assigned Data Centre (total = 93)
OGS
TSU-DNA
CMIMA-ICM-CSIC
COGEA
Deltares
SMHI
IOI-Malta
ENEA
RIHMI-WDC
BSH
IEO
AU
IO-BAS
LIAE
IMS-METU
FMI
BODC


Submissions by Submitter (total = 93)
ETT
GAMMA
BODC
CMIMA-ICM-CSIC
ENEA
Deltares
UoM
SMHI
RIHMI-WDC
TSU-DNA
NIB
GeoMarine Ltd.
Morski Zvuci NPO
LIAE
IMR
IMS-METU
IEO
FEEL
DPPI
CHI
UoH
AARI



3. Unexpected difficulties encountered

Nothing to report.