

The Use of Digital Object Identifiers (DOIs)

The MedSEA CKP experience and other examples

Simona Simoncelli (INGV, Bologna)

simona.simoncelli@ingv.it

OUTLINE

- What is a DOI
- Motivations
- Effects
- Examples:
 1. MedSea Ckeckpoint
 2. SeaDataNet
 3. CMEMS MED-MFC
- Some points of discussion

What is a DOI

- It is a persistent identifier or handle used to uniquely identify objects, standardized by the International Organization for Standardization (ISO)
- **Each DOI name permanently and unambiguously identifies the object to which it is associated**
- It also associates metadata with objects, allowing it to provide users with relevant pieces of information about the objects and their relationships
- Included as part of this metadata are network actions that allow DOI names to be resolved to web locations where the objects they describe can be found
- DOIs are in wide use mainly to identify academic, professional, and government information, such as journal articles, **research reports and data sets**, official publications and other types of information resources
- A DOI aims to be "resolvable", usually to some form of access to the information object to which the DOI refers. This is achieved by binding the DOI to metadata about the object, such as a URL, indicating where the object can be found.
- It is used to **locate, identify, and cite research data**

Motivations

Researchers and scientists are dealing with many activities and products like:

- Monitoring activities → sampling/technical developments
- Data management → formatting/QC/archiving/disseminating
- Project Management → reporting/disseminating/implementing services
- Software development → new applications
- Model development → operational oceanography, ...
- Operational activities → management software, products development, products validation, reporting, product dissemination
- Service development → web applications

The use of DOI would give credit to all these activities and their creators

Effects


- Increase data sharing stimulating **data providers** to unlock earlier their data
- Increase data re-use, stimulating downstream applications (i.e. MPA connectivity)
- Encourage the creation/population of web catalogues (ISO)
- Stimulate/improve communication and dissemination activities
- Improve the overall quality of science "products" through transparency (i.e. project reports, project results) and sharing
- Benefit the scientist career proving all his skills
- Increase science efficiency (cost/benefits) and reduce duplication of efforts
- Increase knowledge and pushes forward it
- Improve scientific papers production and transparency
- Provide statistics on the usage of the "object" → its impact

The MedSea Checkpoint case

The main object is to **locate, identify, and cite project results**

DOI have been assigned to :

1. Main reports: DAR 1, DAR 2 and Literature Survey (by CMCC)
2. Targeted Products and the relative quality measures (by Ifremer)
3. Challenge reports describing the Targeted Products, their methodology and their expert evaluation (on going) (by CMCC)



EMODnet
European Marine Observation and Data Network

Search ...

Central Portal

Home About Data Portals Data Products Map Viewer Submit Data **Checkpoints** News & Events

Reports

Download here all the latest reports of the EMODnet Sea-basin Checkpoints

Data Adequacy Reports

The Data Adequacy Reports (DAR) provide an overview of the monitoring effort in the regional basins with the aim to show how well the available marine data meets the needs of users.

- Arctic
 - First Data Adequacy Report, September 2016
- Baltic
 - First Data Adequacy Report, September 2016
- Black Sea
 - First Data Adequacy Report, December 2016
- Mediterranean Sea
 - Second Data Adequacy Report + Annex 1, Annex 2, Annex 3, Annex 4, Annex 5, May 2017
 - How to cite: "Pinardi, N., Simoncelli, S., Clementi, E., Manzella, G., Moussat, E., Quimbert, E., ... Stylianou, S. (2017). EMODnet MedSea CheckPoint Second Data Adequacy Report (Version 1). European Marine Observation and Data Network. https://doi.org/10.25423/cmcc/medsea_checkpoint_dar2"
 - First Data Adequacy Report, April 2015
 - How to cite: "Manzella, G., Pinardi, N., Guarnieri, A., De Dominicis, M., Moussat, E., Quimbert, E., ... Falcini, F. (2015). EMODnet MedSea CheckPoint First Data Adequacy Report (Version 1). European Marine Observation and Data Network. https://doi.org/10.25423/cmcc/medsea_checkpoint_dar1"

<http://www.emodnet.eu/checkpoints/reports>



EMODnet
European Marine Observation and Data Network

Search ...

Central Portal

Home About Data Portals Data Products Map Viewer Submit Data **Checkpoints** News & Events

Reports

Download here all the latest reports of the EMODnet Sea-basin Checkpoints

Literature Survey Reports

The Literature Survey Reports describe the marine data sources available in the different sea basins and assess if there are references to the adequacy and fitness for use of those data.

- Arctic, July 2016
- Atlantic, October 2016
- Baltic, September 2016
- Black Sea, October 2016
- Mediterranean Sea + Annex 1, Annex 2, Annex 3, September 2014
 - How to cite: "Moussat, E., Pinardi, N., Manzella, G., Clementi, E., Tintore, J., Gomez-Pujol, L., ... Reizopoulou, S. (2014). EMODnet MedSea CheckPoint Literature Survey (Version 1). European Marine Observation and Data Network. https://doi.org/10.25423/cmcc/medsea_checkpoint_ls"
- North Sea, August 2014

Further information on each of the Sea-basin Checkpoints can be found by accessing the relevant portal via the Checkpoints page.

<http://www.emodnet.eu/checkpoints/reports>

Project Reports http://www.emodnet-mediterranean.eu/reports_news/

Final Data Adequacy Report for Mediterranean checkpoint (with Annexes)

MEDSEA_D11.4 – Data Adequacy Report May 2017
 How to cite: "Pinardi, N., Simoncelli, S., Clementi, E., Manzella, G., Moussat, E., Quimbert, E., ... Stylianou, S. (2017). EMODnet MedSea CheckPoint Second Data Adequacy Report (Version 1). European Marine Observation and Data Network. https://doi.org/10.25423/cmcc/medsea_checkpoint_dar2"

- Annex1_D11.4
- Annex2_D11.4
- Annex3_D11.4
- Annex4_D11.4
- Annex5_D11.4

First Data Adequacy Report for Mediterranean checkpoint

MEDSEA_D11.2 – Data Adequacy Report 18 June 2015
 How to cite: "Manzella, G., Pinardi, N., Guarnieri, A., De Dominicis, M., Moussat, E., Quimbert, E., ... Falcini, F. (2015). EMODnet MedSea CheckPoint First Data Adequacy Report (Version 1). European Marine Observation and Data Network. https://doi.org/10.25423/cmcc/medsea_checkpoint_dar1"

Literature survey for Mediterranean checkpoint

The MedSea Literature Survey summarizes the first main attempt to classify the input data sets on the Mediterranean Sea by selecting a number of applications in order to determine how easy it is to access and use the data needed for these applications and their fitness for purpose.

MEDSEA_D1.3 – Literature Survey EMODNET MedSea Checkpoint 26 September 2014
 How to cite: "Moussat, E., Pinardi, N., Manzella, G., Clementi, E., Tintore, J., Gomez-Pujol, L., ... Reizopoulou, S. (2014). EMODnet MedSea CheckPoint Literature Survey (Version 1). European Marine Observation and Data Network. https://doi.org/10.25423/cmcc/medsea_checkpoint_ls"

- ANNEX1 – Methodology for classifying the existing upstream data according to the Literature Survey 26 September 2014
- ANNEX2 – SeaDataNet characteristic categories and definitions (PO2 list) 26 September 2014
- ANNEX3 – List of the upstream data sources and characteristics needed by the seven challenges of the 'MEDSEA Checkpoint project' using the SeaDataNet Common Vocabularies 26 September 2014

Targeted Products and the relative quality measures

Targeted Products

Name of Targeted product	Short description	Format
MEDSEA_CH1_Product_1	A wind - wave data set	shapefile
Full description and quality information: http://dx.doi.org/10.12770/c669abf9-31a3-4040-9954-3e8a31f2b73		
MEDSEA_CH1_Product_2	A suitability index of a wind farm in the NW Mediterranean concerning the environmental resources	shapefile
Full description and quality information: http://dx.doi.org/10.12770/225600af-6d9d-480e-b14f-bc26387d9bcd		
MEDSEA_CH1_Product_3	A suitability index of a wind farm in the NW Mediterranean concerning the environmental resources, the natural barriers, human activities, MPA and fisheries	shapefile
Full description and quality information: http://dx.doi.org/10.12770/67b457aa-1339-482d-8b78-fedae1bc3cc2		

EMODnet European Marine Observation and Data Network

MEDSEA_CH1_Product_1 / Wind and wave data set from MARINA project

2016-11-21 (Creation)
 Author(s): George Kallos¹, George Galanis¹, Platon Patlakas¹, Christina Kaloger¹
 Point of contact(s): University of Athens¹
 Affiliation(s): 1: University of Athens
 Publisher(s): EMODnet; Medsea Checkpoint
 Credit: EMODnet; Medsea Checkpoint
 DOI: 10.12770/c669abf9-31a3-4040-9954-3e8a31f2b73

Abstract
 Today's normative and regulatory requirements to assess the producible energy from wind rely on in-situ measurements (made with assessment sensors, which are extremely costly to implement offshore, however, proof should be provided that hindcast model results are highly reliable, in order to provide an equivalent assessment. Very high resolution models is also the key issue in decision making for a proper design that is relying on the consistency of all datasets provided in the assessment.
 In this tender the products of the FP7 MARINA project will be used: 10-year (2011-2020) high-resolution atmospheric, wave, tidal and ocean current simulations will be used. The model outputs are at high resolution (0.25x0.25 degree horizontal resolution, 1-hour time resolution, 5-vertical levels at 10,40,80,120,180 m). The wave parameters are co-located with the meteorological output fields.
 Satellite altimetry data from ENVISAT and JASON satellites have been assimilated in the system. Other wind and wave satellite data sets will be also analyzed (Synthetic Aperture Radar-SAR for example). At the same co-located points the tidal and ocean current data together with bathymetry are available. For preselected points in the North Western Mediterranean (Spain-France-Italy area) directional wave spectra data have been saved and are available. From SKIRON meteorological model available parameters are: WIND SPEED (m/s), WIND DIRECTION (deg), AIR PRESSURE (hPa), AIR DENSITY (kg/m³), TEMPERATURE (K), MODEL SEAMASK.
 From the wave model available parameters: SIGNIFICANT WAVE HEIGHT (m), MEAN WAVE DIRECTION (deg), WAVE MEAN PERIOD (s), PEAK WAVE PERIOD (s), SWELL WAVE HEIGHT (m), MEAN SWELL PERIOD (s), MEAN DIRECTIONAL SPREAD, WINDSEA MEAN DIRECTIONAL SPREAD, SWELL MEAN DIRECTION, SPREAD, MAXIMUM WAVE HEIGHT (m).

Keywords: Medsea - CH01 - Windfarm; Siting; Forecast/Hindcast; Delayed; Atmospheric conditions; Offshore wind energy; Wind energy site assessment; Numerical Atmospheric Modeling

Utilisation: Resolution related to intellectual property rights.

Temporal Extent: 2011-01-01 - 2010-12-31

How to cite
 George Kallos, George Galanis, Platon Patlakas, Christina Kaloger (2016). MEDSEA_CH1_Product_1 / Wind and wave data set from MARINA project. EMODnet; Medsea Checkpoint. <https://doi.org/10.12770/c669abf9-31a3-4040-9954-3e8a31f2b73>

Access to data and metadata
 Link to the data services and to the full metadata set

Associated resources

MEDESEA_CH1_Product_1 / Wind and wave data set from MARINA project

MEDESEA_CH1_Product_1 / Wind and wave data set from MARINA project

LINKS

MEDESEA_CH1_Specification_1 / Wind and wave data set from MARINA project [Link](#)

Identification

Product name | MEDSEA_CH1_Product_1 / Wind and wave data set from MARINA project

Deliverable identifier | MEDSEA D2.3.5

Contact for the resource

Organisation name | University of Athens

Organisation name | EMODnet Medsea Checkpoint

email | back-end-medsea-ckpt@cls.fr

Date (Creation) | 21 Nov 2016

Purpose | Support the evaluation of the suitability of sites for wind farm development in particular: o on border between Spanish and French waters o on border between French and Italian waters

Abstract | Today's normative and regulatory requirements to assess the producible energy from wind rely on in situ measurements (mast with anemometric sensors), which are extremely costly to implement offshore. However, proof should be provided that hindcast model results are highly reliable. In order to provide an equivalent assessment, Very high resolution models is also the key issue in decision making for a proper siting that is relying on the consistency of all datasets provided in the assessment. In this tender the products of the FP7 MARINA project will be used. 10-year (2001-2010) high-resolution atmospheric, wave, tidal and ocean current simulations will be used. The model outputs are at high resolution (0.05x0.05 degree horizontal resolution, 1-hour time resolution, 5-vertical levels at 10,40,80,120,180 m). The wave parameters are co-located with the meteorological output fields. Satellite altimetry data from ENVISAT and JASON satellites have been assimilated in the system. Other wind and wave satellite data sets will be also analyzed (Synthetic Aperture Radars-SAR for example). At the same co-located points the tidal and ocean current data together with bathymetry are available. For preselected points in the North Western Mediterranean (Spain-France-Italy areas) directional wave spectra data have been saved and are available. From SKIRON meteorological model available parameters are: WIND SPEED (m/s), WIND DIRECTION (deg), AIR PRESSURE (hPa), AIR DENSITY (kg/m³), TEMPERATURE (K), MODEL SEAMASK From the wave model available parameters: SIGNIFICANT WAVE HEIGHT (m), MEAN WAVE DIRECTION (deg), WAVE MEAN PERIOD (s), PEAK WAVE PERIOD (s), SWELL WAVE HEIGHT (m), MEAN SWELL PERIOD (s), MEAN DIRECTIONAL SPREAD, WINDSEA MEAN DIRECTIONAL SPREAD, SWELL MEAN DIRECTIONAL SPREAD, MAXIMUM WAVE HEIGHT (m)

Processing level | Forecast/Hindcast

Production mode | Delayed

NSPIRE themes | Atmospheric conditions

UPSTREAM DATA

Air pressure | Pressure (measured variable) exerted by the atmosphere | National and Kapodistrian University of Athens, Department of Physics, Atmospheric Modeling and Weather Forecasting Group | Marina Platform Project Data Base [Link](#)

Wind speed and direction | Eastward wind velocity in the atmosphere | National and Kapodistrian University of Athens, Department of Physics, Atmospheric Modeling and Weather Forecasting Group | Marina Platform Project Data Base [Link](#)

Wind strength and direction | Northward wind velocity in the atmosphere | National and Kapodistrian University of Athens, Department of Physics, Atmospheric Modeling and Weather Forecasting Group | Marina Platform Project Data Base [Link](#)

Wave height and period statistics | Mean (Energy) wave period model output | National and Kapodistrian University of Athens, Department of Physics, Atmospheric Modeling and Weather Forecasting Group | Marina Platform Project Data Base [Link](#)

COMPONENTS & QUALITY MEASURES

MEDESEA_CH1_PRODUCT_1 / WIND AND WAVE DATA SET FROM MARINA PROJECT - 10 YEAR HIGH SPATIAL AND TEMPORAL RESOLUTION WIND WAVE HINDCAST DATA

begin date | 2001-11-01 T00:00:00

end date | 2010-12-31

Vertical extent


Minimum value | -180

Maximum value | 0


Measure	Value	Quality error (%)	DPS value
Horizontal Spatial Coverage (AP1.1)	257526.36 km**2	0%	257526.36 km**2
Vertical Spatial Coverage (AP1.2)	180 meters	0%	180 meters
Temporal Coverage (AP1.3)	3652 days	0%	3652 days
Number of Characteristics (AP2.1)	4	0%	4
Horizontal resolution (AP3.1)	5000 meters	0%	5000 meters
Vertical resolution (AP3.2)	40 meters 0, 10, 40, 80, 120, 180	0%	40 meters
Temporal resolution (AP3.3)	0.042 days	0%	0.042 days
Thematic accuracy (AP3.4)	10 %	10 %	10 %
Temporal validity (AP4.1)	1095 days	0%	1095 days




SeaDataNet Example of data products



PAN-EUROPEAN INFRASTRUCTURE FOR OCEAN & MARINE DATA MANAGEMENT

PARTNERS 

USERS 

ABOUT US **METADATA** **DATA ACCESS** **STANDARDS** **SOFTWARE** **PRODUCTS** **EVENTS** **PUBLICATIONS**


PRODUCTS

Aggregated datasets


Climatologies

ACCESS PRODUCTS


Download the SeaDataNet aggregated datasets : ODV collections of all SeaDataNet measurements of temperature and salinity by sea basins, or the SeaDataNet climatologies : regional gridded field products based on the aggregated datasets




SEARCH DATA




BROWSE DATA




DOWNLOAD SOFTWARE




LOOK-UP VOCABULARIES



ACCESS PRODUCTS




ACCESS METADATA CATALOGUES



HOW TO CONTRIBUTE?

>

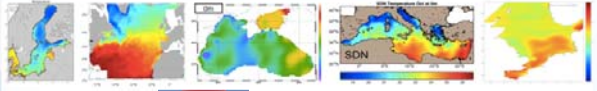
FEEDBACK 



AGGREGATED DATASETS


The aggregated datasets are regional ODV collections of all temperature and salinity measurements contained within SeaDataNet database covering all the European sea basins (Arctic Sea, Baltic Sea, Black Sea, North Sea, North Atlantic Ocean, Mediterranean Sea).

CLIMATOLOGIES

SeaDataNet gridded climatologies are based on the aggregated datasets v1.1. The preparation of the products has also improved the quality, the consistency and the overall coherence of the data made available by SeaDataNet. They have been computed using DIVA software.

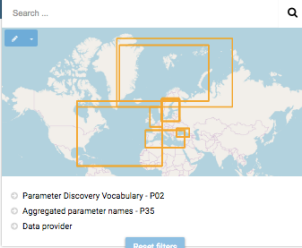



SeaDataNet products

Catalogue

Search ...



Parameter Discovery Vocabulary - P02
Aggregated parameter names - P05
Data provider

Reset filters

CATALOGUE MY DOWNLOADS

Results 1 to 17 on 17 : 20 by page

Sort by : Popularity

North Atlantic Ocean - Temperature and salinity observation collection V1.1

SeaDataNet Temperature and Salinity historical data collection, including revised quality flags after quality control with ODV. For data access please register at <http://www.marine-ic.org>. The dataset format is ODV binary collections. You can read, analyse and export from the ODV application provided by Alfred Wegener Institute at <http://ohh.awi.de/>

Source: Seadatanet

Black Sea - Temperature and salinity observation collection V2

The Black Sea historical dataset includes all open access temperature and salinity in situ data from the Black Sea and Sea of Azov for period 1968-2014. The data were retrieved from the SeaDataNet infrastructure in the mid of 2015. Data quality has been analysed and checked using ODV software. Quality flags of anomalous data have been revised using different QC procedures in conjunction with the visual expert...

Source: Seadatanet

Mediterranean Sea - Temperature and Salinity Climatology V1.1

Mediterranean Sea Climatology computed from the SeaDataNet V1.1 aggregated dataset. The version used for the DIVA software is the 4.6.9. The period covers 1900-2013. For data access please register at <http://www.marine-ic.org>

Source: Seadatanet

Mediterranean Sea - Temperature and salinity observation collection V1.1

SeaDataNet Temperature and Salinity historical data collection contains all open access temperature and salinity in situ data retrieved from SeaDataNet infrastructure at the end of 2013. The data span between 6.25 and 37 degrees of longitude, thus including an Atlantic box and Marmara Sea, and cover the time period 1900-2012. Data have been quality checked using ODV software. Quality flags of anomalous ...

Source: Seadatanet

Mediterranean Sea - Temperature and salinity observation collection V2



SeaDataNet Temperature and Salinity historical data collection for the Mediterranean Sea contains all open access temperature and salinity in situ data retrieved from SeaDataNet infrastructure at the end of 2014. The data span between 6.25 and 37 degrees of longitude, thus including an Atlantic box and Marmara Sea. It covers the time period 1900-2014. Data have been quality checked using ODV software. Quality flags of ...


Source: Seadatanet

North Atlantic Ocean - Temperature and Salinity Climatology V1.1

Climatology data from the SeaDataNet aggregated dataset v1.1 for the North Atlantic Ocean. The version used for the DIVA software is the 4.6.9. The period covers 1900-2013. For data access please register at <http://www.marine-ic.org>

Source: Seadatanet

<p>PRODUCT IDENTIFICATION</p> <p>Title</p> <p>External shortname</p> <p>Abstract</p> <p>Descriptive keywords</p> <p>Feature type</p> <p>Sea areas</p> <p>Ocean discovery parameters</p> <p>Ocean chemistry variable</p> <p>Usage license</p> <p>SPATIO-TEMPORAL EXTENT</p> <p>Geographical extent</p> <p>Geographic bounding box</p> <p>Spatial resolution</p> <p>Coordinate reference system</p> <p>Vertical extent</p> <p>Max. depth in meters (>0 below Sea Level)</p> <p>Max. depth in meters (>0 below Sea Level)</p> <p>Number of vertical levels</p> <p>Temporal extent</p> <p>Start date</p> <p>End date</p> <p>Temporal resolution</p> <p>ONLINE RESOURCE</p> <p>Download (link)</p> <p>Web Map Service (WMS)</p> <p>CONTACT</p> <p>Originator</p> <p>Custodian</p> <p>METADATA</p> <p>Internal permanent shortname</p> <p>DOI</p> <p>Creation date</p> <p>Update date</p> <p>Version</p>	<p>Mediterranean Sea - Temperature and Salinity Climatology V1.1</p> <p>SEADATANET_MedSea_climatology_V1.1_public</p>  <p>Mediterranean Sea Climatology computed from the SeaDataNet V1.1 aggregated dataset. The version used for the DIVA software is the 4.6.9. The period covers 1900-2013. For data access please register at http://www.marine-ic.org</p> <p>Surface</p> <p>Mediterranean Region</p> <p>Mediterranean Sea</p> <p>Temperature of the water column</p> <p>Salinity of the water column</p> <p>ITS-90 water temperature</p> <p>Water body salinity</p> <p>SeaDataNet licence</p>  <p>46.12</p> <p>-9.25</p> <p>36.62</p> <p>30.00</p> <p>0.125 degree</p> <p>WGS 84 (EPSG 4326)</p> <p>-5500.0</p> <p>0.0</p> <p>33</p> <p>1900-01-01</p> <p>2013-12-31</p> <p>1 month</p> <p>Full dataset</p> <p>Mediterranean Sea/Salinity.19002013.4Dani.nc*Salinity_1.1</p> <p>Mediterranean Sea/Salinity.19002013.4Dani.nc*Salinity_1.2</p> <p>Mediterranean Sea/Temperature.19002013.4Dani.nc*Temperature_1.1</p> <p>Mediterranean Sea/Temperature.19002013.4Dani.nc*Temperature_1.2</p> <p>Istituto Nazionale di Geofisica e Vulcanologia - INGV, Sede di Bologna</p> <p>IPREMER / IZM/SISMER</p> <p>http://dx.doi.org/10.12770/95aw7a06-8f06-4afe-836d-ca92bc99f5f8</p> <p>2015-11-30</p> <p>1.1</p>
---	--



DOIs for the 3 reports presenting all the SDN products have just been created

But we need to finalize and improve our dissemination strategy

8

MED-MFC products

COPERNICUS
MARINE ENVIRONMENT MONITORING SERVICE

ONLINE CATALOGUE

CATALOGUE PDF FIRST VISIT? MY CART 0 My Account

YOUR SEARCH ?

TYPE YOUR SEARCH

REGIONAL DOMAIN ▶
Mediterranean Sea

PARAMETERS ▶
Temperature

TEMPORAL COVERAGE
From 1992-01-01 To 2017-09-22
 If checked, the search results will only show products containing the whole selected time range

PRODUCT WITH DEPTH LEVEL

MEDSEA_ANALYSIS_FORECAST_PHYS_006_001	
MEDITERRANEAN SEA PHYSICS ANALYSIS AND FORECAST	
MODEL	● ● ● X X X
3DUV S SSH T	(i)
0.063 degree x 0.063 degree (72 depth levels)	
From 2013-01-01 to Present	
daily-mean, hourly-mean	
MORE INFO	ADD TO CART WMS Sub-setting

MEDSEA_REANALYSIS_PHYS_006_004	
MEDITERRANEAN SEA PHYSICS REANALYSIS (1987-2015)	
MODEL	● ● ● X X X
3DUV SSH T S	(i)
0.063 degree x 0.063 degree (72 depth levels)	
From 1987-01-01 to 2015-12-31	
monthly-mean, daily-mean	
MORE INFO	ADD TO CART WMS Sub-setting

Conclusions

- We are still learning how to manage information in order to communicate it simply
- The researchers are happy to get acknowledgment of their work
- DOI allows to identify datasets uniquely
- DOI should increase visibility and trust
- The users find all the information related to the resource
- Researchers get credits from their citation especially on their data usage
- **Scientific Data journals** allow also to publish datasets, i.e. Earth System Science Data (IF 6.696) and Nature Scientific Data
- It should change the way to write papers → 1) more focus on the main subject allowing to cite additional resources (i.e. project reports); 2) leaving the data analysis and validation to data journals