GROWTH AND INNOVATION IN OCEAN ECONOMY GAPS AND PRIORITIES IN SEA BASIN OBSERVATION AND DATA

THE MEDITERRANEAN SEA

D12.2.4 Six-monthly Progress Report (04/12/2015– 03/06/2016)

Total number of pages: 43

Workpackage	**12**	Project Management
Author(s):	S. Simoncelli	INGV

A project funded by:
EUROPEAN COMMISSION, DIRECTORATE-GENERAL FOR MARITIME AFFAIRS AND FISHERIES, MARITIME POLICY ATLANTIC, OUTERMOST REGIONS AND ARCTIC

Document Log

Date	Author	Changes	Version	Status
18/07/2016	S.Simoncelli	First draft preparation	V1	Draft
19/07/2016	N.Pinardi, G.Manzella	Review	V2	Completed

Table of Contents

Executive Summary

During the fifth six months of the Project the main efforts were dedicated to:

1) The production and release of the Targeted Products by the seven challenges;
2) The finalization of the methodology for the collection of harmonized information on upstream data and Targeted Products enabling the building of adequacy indicators;
3) The definition of appropriateness quality measures and quality errors;
4) Update of the challenges webpages;
5) Targeted Products visualization;
6) The revision of the input metadatabase.

The methodology for the fitness for use evaluation advanced in parallel to the production of the Targeted Products. It is based upon the definition of the expected Data Product Specification (DPS) and the actual Targeted Product Description (TPD). By comparing the expected and the realized products specifications it will be possible to extract the next DAR fitness for use indicators.

All the Challenges contributed very actively to the production and release of the Targeted Products, the annexed documentation describing the methodology applied and an expert evaluation on their appropriateness.

In conclusion, the project has shown to be capable to follow the major milestones and deliverables as expected from the tender and no major changes are foreseen for the next six months on the work plan schedule.

1. WP1: Literature Review (IFREMER)

This Workpackage was completed at month 10 (September 23, 2014) of the first year and the past reports have documented the development.

2. WP2 – WP8

During the reporting period all the 7 Challenges have been working on the following activities:

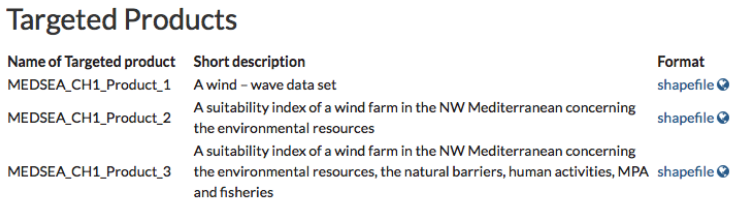
- Reporting on the methodology and finalization of the Targeted Products (internal deliverables D*.3.4 and their update D*.3.5);
- Release of the Targeted Products in the project repository;
- Web pages update with a synthesis of objectives, methodology, data sources and list of Targeted Products;
- Targeted Products visualization in the GIS portal in collaboration with WP9, under the coordination of WP12;
- Revision of the input metadatabase;
- Organization and presentation at the EGU 2016 Splinter Meeting.

In December 2016 the coordinator distributed a template for D*.3.4 reports containing the following outline:

1. General scope of the Targeted Products
2. Targeted Products catalogue
3. Description of Characteristics and Data sources used by Targeted products
4. Description of methodology to produce the Targeted Products
5. Expert evaluation of Targeted Product quality
6. Expert evaluation of gaps

All challenges provided the reports and their updated version D*.3.5 in June 2016. The reports are now under internal revision before their submission (planned for October 2016) to the expert panel for an external review.

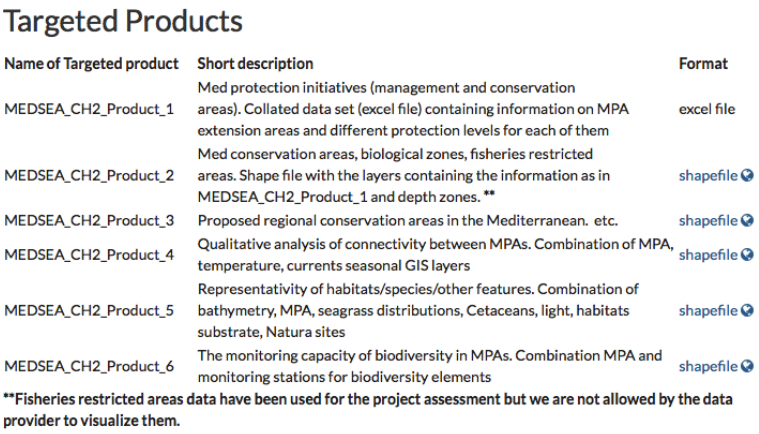
The TPs have been released on the project repository in order to start the implementation of the GIS visualization. Most of the products are now visible from the web portal, from the challenges web pages, that have been all updated to include: objective, methodology, data sources and the TP list. Figures 2.1, 2.2, 2.3, 2.4 are screenshot of challenges web pages showing the lists of TPS and their links to the GIS visualization for CH1, CH2, CH4 and CH6.
CH3 TPs are available as pdf files and are downloadable as well from the web page http://www.emodnet-mediterranean.eu/portfolio/oil-platforms-leak/.
CH5 TPs have been released in the project repository, MEDSEA_CH5_Product_4-5 and 8 have been visualized but they are not accessible yet due to some needed adjustment. Products MEDSEA_CH5_Product_6 and 7 need to be implemented in the GIS portal.
CH7 TPs have been released in the project repository but their visualization needs additional efforts in order to be able to display river outflow time series of the various parameters clicking at the river mouths.



Targeted Products

Name of Targeted product	Short description	Format
MEDSEA_CH1_Product_1	A wind – wave data set	shapefile
MEDSEA_CH1_Product_2	A suitability index of a wind farm in the NW Mediterranean concerning the environmental resources	shapefile
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

Fig.2.1 Screen shot from Challenge 1 web page with the list of the Targeted Products and the links to the GIS visualization. http://www.emodnet-mediterranean.eu/portfolio/windfarm-siting/

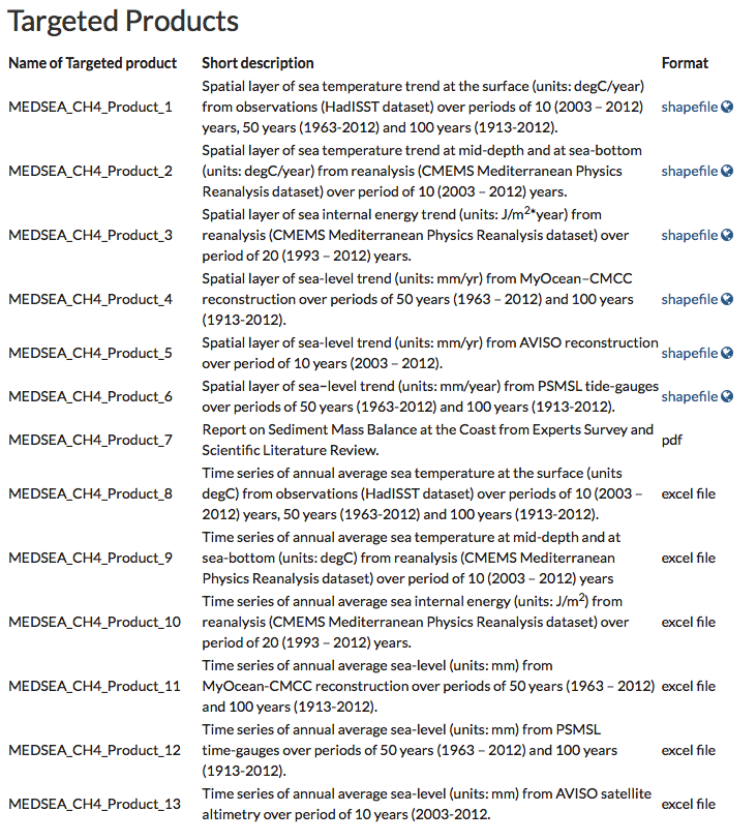


Targeted Products

Name of Targeted product	Short description	Format
MEDSEA_CH2_Product_1	Med protection initiatives (management and conservation areas). Collated data set (excel file) containing information on MPA extension areas and different protection levels for each of them	excel file
MEDSEA_CH2_Product_2	Med conservation areas, biological zones, fisheries restricted areas. Shape file with the layers containing the information as in MEDSEA_CH2_Product_1 and depth zones. **	shapefile
MEDSEA_CH2_Product_3	Proposed regional conservation areas in the Mediterranean. etc.	shapefile
MEDSEA_CH2_Product_4	Qualitative analysis of connectivity between MPAs. Combination of MPA, temperature, currents seasonal GIS layers	shapefile
MEDSEA_CH2_Product_5	Representativity of habitats/species/other features. Combination of bathymetry, MPA, seagrass distributions, Cetaceans, light, habitats substrate, Natura sites	shapefile
MEDSEA_CH2_Product_6	The monitoring capacity of biodiversity in MPAs. Combination MPA and monitoring stations for biodiversity elements	shapefile

**Fisheries restricted areas data have been used for the project assessment but we are not allowed by the data provider to visualize them.

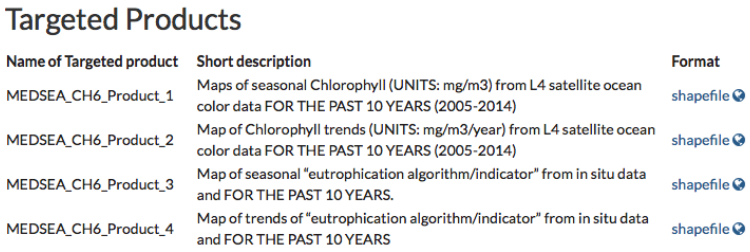
Fig.2.2 Screen shot from Challenge 2 web page with the list of the Targeted Products and the links to the GIS visualization. http://www.emodnet-mediterranean.eu/portfolio/marine-protected-areas/



Targeted Products

Name of Targeted product	Short description	Format
MEDSEA_CH4_Product_1	Spatial layer of sea temperature trend at the surface (units: degC/year) from observations (HadISST dataset) over periods of 10 (2003 – 2012) years, 50 years (1963-2012) and 100 years (1913-2012).	shapefile
MEDSEA_CH4_Product_2	Spatial layer of sea temperature trend at mid-depth and at sea-bottom (units: degC/year) from reanalysis (CMEMS Mediterranean Physics Reanalysis dataset) over period of 10 (2003 – 2012) years.	shapefile
MEDSEA_CH4_Product_3	Spatial layer of sea internal energy trend (units: J/m^2*year) from reanalysis (CMEMS Mediterranean Physics Reanalysis dataset) over period of 20 (1993 – 2012) years.	shapefile
MEDSEA_CH4_Product_4	Spatial layer of sea-level trend (units: mm/yr) from MyOcean–CMCC reconstruction over periods of 50 years (1963 – 2012) and 100 years (1913-2012).	shapefile
MEDSEA_CH4_Product_5	Spatial layer of sea-level trend (units: mm/yr) from AVISO reconstruction over period of 10 years (2003 – 2012).	shapefile
MEDSEA_CH4_Product_6	Spatial layer of sea–level trend (units: mm/year) from PSMSL tide-gauges over periods of 50 years (1963-2012) and 100 years (1913-2012).	shapefile
MEDSEA_CH4_Product_7	Report on Sediment Mass Balance at the Coast from Experts Survey and Scientific Literature Review.	pdf
MEDSEA_CH4_Product_8	Time series of annual average sea temperature at the surface (units degC) from observations (HadISST dataset) over periods of 10 (2003 – 2012) years, 50 years (1963-2012) and 100 years (1913-2012).	excel file
MEDSEA_CH4_Product_9	Time series of annual average sea temperature at mid-depth and at sea-bottom (units: degC) from reanalysis (CMEMS Mediterranean Physics Reanalysis dataset) over period of 10 (2003 – 2012) years	excel file
MEDSEA_CH4_Product_10	Time series of annual average sea internal energy (units: J/m^2) from reanalysis (CMEMS Mediterranean Physics Reanalysis dataset) over period of 20 (1993 – 2012) years.	excel file
MEDSEA_CH4_Product_11	Time series of annual average sea-level (units: mm) from MyOcean-CMCC reconstruction over periods of 50 years (1963 – 2012) and 100 years (1913-2012).	excel file
MEDSEA_CH4_Product_12	Time series of annual average sea-level (units: mm) from PSMSL time-gauges over periods of 50 years (1963 – 2012) and 100 years (1913-2012).	excel file
MEDSEA_CH4_Product_13	Time series of annual average sea-level (units: mm) from AVISO satellite altimetry over period of 10 years (2003-2012.	excel file

Fig.2.3 Screen shot from Challenge 4 web page with the list of the Targeted Products and the links to the GIS visualization. http://www.emodnet-mediterranean.eu/portfolio/climate-coastal-protection/



Targeted Products

Name of Targeted product	Short description	Format
MEDSEA_CH6_Product_1	Maps of seasonal Chlorophyll (UNITS: mg/m3) from L4 satellite ocean color data FOR THE PAST 10 YEARS (2005-2014)	shapefile
MEDSEA_CH6_Product_2	Map of Chlorophyll trends (UNITS: mg/m3/year) from L4 satellite ocean color data FOR THE PAST 10 YEARS (2005-2014)	shapefile
MEDSEA_CH6_Product_3	Map of seasonal "eutrophication algorithm/indicator" from in situ data and FOR THE PAST 10 YEARS.	shapefile
MEDSEA_CH6_Product_4	Map of trends of "eutrophication algorithm/indicator" from in situ data and FOR THE PAST 10 YEARS	shapefile

Fig.2.4 Screen shot from Challenge 6 web page with the list of the Targeted Products and the links to the GIS visualization. http://www.emodnet-mediterranean.eu/portfolio/marine-environment/

The TPs, their methodology, GIS visualization and the metadatabase of the upstream data sets used are under revision, to assure a successful result of the assessment methodology.

9. WP9: Web site development (CLS)

The activity during the last six months covered many activities:

- Targeted Products visualization;
- Challenges web pages update including schematic of the methodology and the list of Targeted Products and the link to the GIS visualization;
- Maintenance of suite of tools.

A detailed description of the Web Portal is included in the D12.4 deliverable.

The appropriateness quality elements for Data Product Specification (DPS), Targeted Product Description (TPD) and Upstream Data (UD) were defined in order to produce Quality Errors. The principles adopted are guided by ISO 19131 standard for Data Product Specification (DPS). A metadata template has been produced and tested for Challenge 3 case to design the Sextant metadatabase developments, to plan the implementation phase and the actions needed from the challenge leaders to populate the metadatabase.
In parallel, the design of the automatized visual output of the overall monitoring assessment is proceeding.

The process for operations with roles and expectations has been consolidated (cf. Figure 9.2). The **role 1** is at the editor level, the **role 2** is a referent by challenge for workflow animation and first level of administration, the **role 3** is under Literature Survey and Data Adequacy reports responsibility to consolidate the information registered and sue for cross-thematic evaluation.

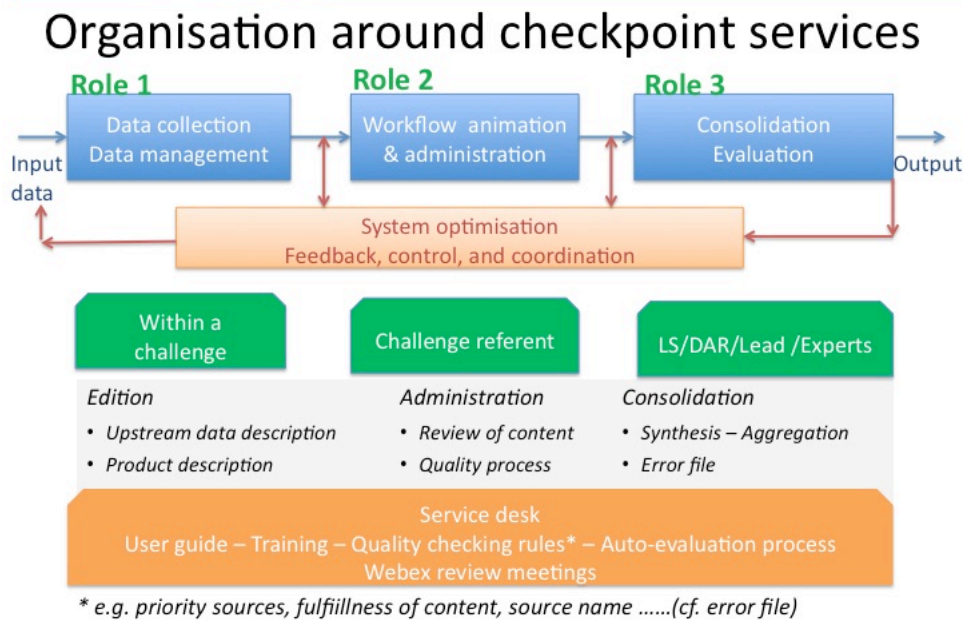


Figure 9.2 Checkpoint Operations

The monitoring of MedSea web portal visitors for the period 1 January 2016 – 15 July 2016 is summarized in Fig. 9.3. 2641 users visited the web portal from different countries. The duration of each section suggests that the users go deep in the web portal.

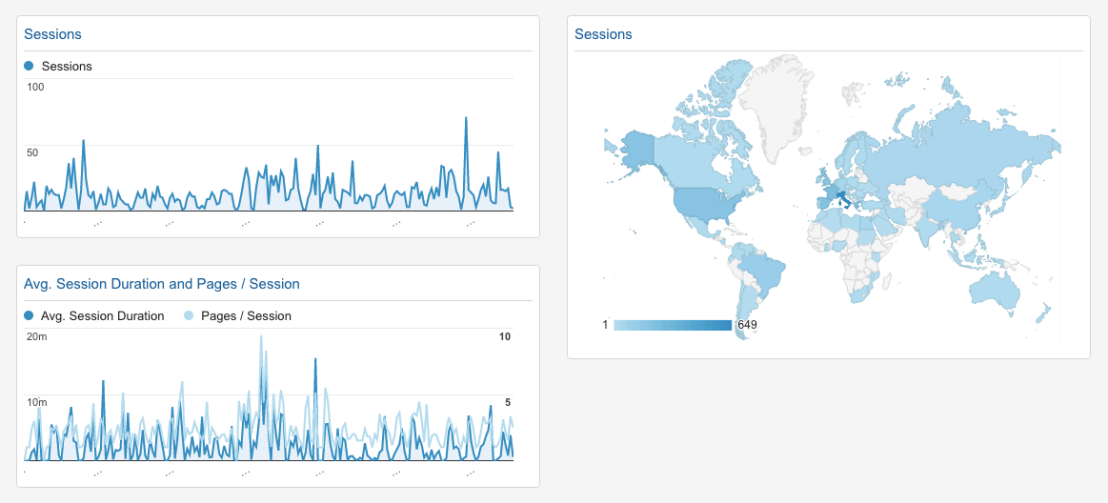


Figure 9.3 Monitoring of the web site visitors results (Jan-Jul 2016).

10. WP10: Organization of Panels (INGV)

The e-newsletter n.4 (D10.2.4) is in preparation. Main topics of the new issue are:

- Targeted Products definition and generation;
- DPS (Data Product Specification) and TPD (Targeted Product Description);
- Web site and service upgrade.

None activity was dedicated to the next Panel Meeting organization, which will be one of the main activities in upcoming fifth period

11. WP11: Data Adequacy Reports (INGV)

During the reporting period the WP11 was dedicated to the refinement of the methodology for the collection of harmonized information on **Upstream Data (UD)** and Targeted Products (TP) enabling the building of fitness for use indicators and report.

In order to evaluate the adequacy of the input data sets used to build the Targeted Products we need three steps (see Figure 11.1):

I. to define the **Data Product Specification (DPS)** and its relationship to input data sets (reference or expected set of specifications);
II. to define the **Targeted Product Description (TPD)** and the specific UD used (realized specification)
III. by comparing the expected and the realized specifications it will be possible to extract the next DAR fitness for use indicators.

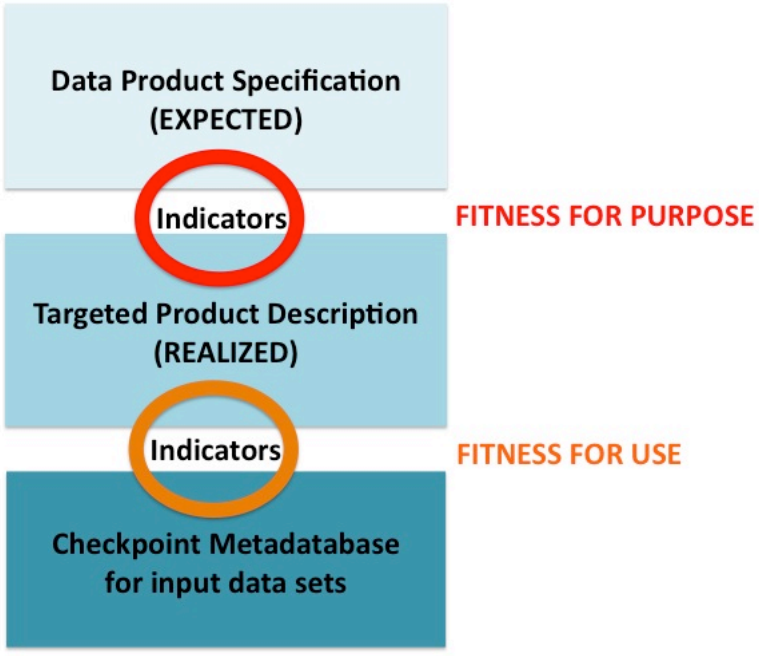


Figure 11.1 The information content of the complete Checkpoint Metadatabase and the processes.

Table 11.1 summarizes the adopted product component ISO **quality elements** for DPS, TPD and UD, their definitions. It includes nine ranks plus an expert evaluation on the usability of the product. These QE corresponds to nine **Quality Measures (QM)** for appropriateness specifically defined within the MedSea Checkpoint. The identification of the **appropriateness QMs** is composed by characters (XXX) indicating the DPS (Data Product Specification) or TPD (targeted Product Description) or UD (Upstream Data - the Input data set), then by AP (appropriateness), followed by a first number indicating the quality element and by a second number indicating the sub-element.

Product Component Quality Elements for DPS, TPD and UD: measures

	ISO Quality element			DPS, TPD, UD Cn QM: Quality Measure definitions			
Rank	**ISO Quality element**	**ISO sub-element**	**ISO definitions**	**Ids of appropriatness measures**	**MedCKP name of quality measure**	**MedCKP definition of quality measure**	**Units of quality measure**
1	Completeness	Omission	Data absent from a data set	XXX.AP.1.1	Horizontal Spatial Coverage	Horizontal coverage extent of product (eg : surface of the Mediterranean Sea covered by the product or by the input data set)	km**2
2	Completeness	Omission	Data absent from a data set	XXX.AP.1.2	Vertical Spatial Coverage	Vertical coverage extent of product or the input data set	metres
3	Completeness	Omission	Data absent from a data set	XXX.AP.1.3	Temporal Coverage	Temporal coverage extent of product or the input data set	days
4	Logical consistency	Conceptual consistency	Adherence to rules of the conceptual schema	XXX.AP.2.1	Number of Characteristics	Number of characteristics in product (not applicable to input data set)	integer
5	Thematic accuracy	Classification correcteness	Comparison of classes assigned to features or their attributes to universe of discourse (ground truth or reference data)	XXX. AP.3.1	Horizontal resolution	Averaged horizontal mesh size or equivalent value for the given scale of product or input data set(eg 50m for 1/50 000)	metres
6	Thematic accuracy	Classification correcteness	Comparison of classes assigned to features or their attributes to universe of discourse (ground truth or reference data)	XXX.AP.3.2	Vertical resolution	Average vertical sampling and description of specific vertical sampling schema of the product or the input data set (100 words max)	metres " _" text
7	Thematic accuracy	Classification correcteness	Comparison of classes assigned to features or their attributes to universe of discourse (ground truth or reference data)	XXX.AP.3.3	Temporal resolution	Temporal sampling interval of product or input data set	days (real number, i.e. 1 hour is equal to 0.04167)
8	Thematic accuracy	quantitative attribute accuracy	Closeness of the value of a quantitative attribute to value accepted as or known to be true	XXX.AP.3.4	Thematic accuracy	Percentage error of the product and description of error concept for the product or the input data set (100 words max) provided by expert	percentage " _" text
9	Temporal quality	temporal validity	validity of data with respect to time	XXX. AP.4.1	Temporal validity	Max elapsed time between last input data records update and product creation date	days
Expert	Usability	Usability	Usability evaluation may be based on specific user requirements that cannot be described using the quality elements above. Usability element shall be used to describe specific uality information about data set suitability for a particular application	Extent to which the selected input data set have been used for the TP with satisfaction (expert evaluation). **Maintained here as memorandum of an element that will be considered in DAR2**. Challenges' reports *.3.4 will be used			

Table 11.1 ISO Quality elements for DPS, TPD and UD, their definitions and the MedSea Checkpoint Quality Measures (QM) for appropriateness.

Table 11.2 shows the MedSea Checkpoint **Quality Errors (QE)** definitions and the formulas to compute them starting from DPS and TPD QM. QE will be computed for each **component (Cn)** of the TP. If we consider the OPL Bulletin, Challenge 3 TP, this means that QE will be evaluated for two components:

I. The likely oil spill trajectory, 10 days forecast of oil transport and transformation within 24 hours from the initial request;
II. The assessment of potential impact on the coastal socio-economic activities.

	TDP Cn QE : Quality Errors definitions				
Rank	**Appropriatness QE Ids**	**MedCKP name of quality errors**	**MedCKP definition of quality errors (QE)**	**Formula to be applied (to be included in the definition field in Sextant).**	**Units**
1	P.APE.1.1	Horizontal spatial coverage error	Percentage to which the extent of the horizontal spatial coverage of TPD is not compliant with the DPS extent in km**2	('TPD.AP.1.1' - 'DPS.AP.1.1')*100/'DPS.AP.1.1'	Percentage
2	P.APE.1.2	Vertical spatial coverage error	Percentage to which the extent of the vertical spatial coverage of TPD is not compliant with the DPS extent in metres.	('TPD.AP.1.2' - 'DPS.AP.1.2')*100/'DPS.AP.1.2'	Percentage
3	P.APE.1.3	Temporal coverage error	Percentage to which the extent of the temporal coverage of TPD is not compliant with the DPS extent in days.	('TPD.AP.1.3' - 'DPS.AP.1.3')*100/'DPS.AP.1.3'	Percentage
4	P.APE.2.1	Thematic content error	Percentage of completeness/Incompleteness of the number of characteristcs with respect to the list in DPS	('TPD.AP.2.1' - 'DPS.AP.2.1')*100/'DPS.AP.2.1'	Percentage
5	P.APE.3.1	Horizontal resolution error	Percentage to which the product averaged horizontal mesh size or horizontal scale is not compliant with the DPS averaged mesh size or horizontal scale	('DPS.AP.3.1' - 'TDP.AP.3.1')*100/'DPS.AP.3.1'	Percentage
6	P.APE.3.2	Vertical resolution error	Percentage to which the product averaged vertical mesh size or vertical scale is not compliant with the DPS averaged mesh size or vertical scale	('DPS.AP.3.2' - 'TDP.AP.3.2')*100/'DPS.AP.3.2'	Percentage
7	P.APE.3.3	Temporal sampling interval error	Percentage to which the product temporal sampling interval is not compliant with the one defined in DPS (percentage to be extracted from text of AP.3.3 measure)	('DPS.AP.3.3' - 'TDP.AP.3.3')*100/'DPS.AP.3.3'	Percentage
8	P.APE.3.4	Thematic accuracy errror	Compliance with the value domain of the accuracy defined in DPS (% extracted from thematic accuracy description)	TDP-AP-3.4'	Percentage
9	P.APE.4.1	Temporal validity error	Percentage to which the elapsed time of the product is not compliant with the max elapsed time specified in DPS.	('DPS.AP.4.1' - 'TDP.AP.4.1')*100/'DPS.AP.4.1'	Percentage

Table 11.2 MedSea Checkpoint Quality Errors (QE) definitions for each component of the TPD

Table 11.3 displays the UD QE definitions. Each TP component (Cn) will be associated to the UD used and for each input data sets UD appropriateness QM and DPS QM enter in the QE formula.

	UD Cn QE : Quality Error definition				
Rank	**UD Cn QE Ids**	**MedCKP name of quality measure6**	**MedCKP definition of quality measure 7**	**Formula definition to apply (to be included in the definition field in Sextant).**	**Units**
1	UD.APE.1.1	Horizontal spatial coverage compliance	Percentage to which the extent of the horizontal spatial coverage of the selected input data is not compliant with the DPS extent in km**2	('UD.AP.1.1' - 'DPS.AP.1.1')*100/'DPS.AP.1.1'	percentage
2	UD.APE.1.2	Vertical spatial coverage compliance	Percentage to which the vertical coverage of the selected input data is not compliant with the DPS coverage extent in metres	('UD.AP.1.2' - 'DPS.AP.1.2')*100/'DPS.AP.1.2'	percentage
3	UD.APE.1.3	Temporal coverage compliance	Percentage to which the time coverage of the selected input data is compliant with the DPS coverage extent in days	('UD.AP.1.3' - 'DPS.AP.1.3')*100/'DPS.AP.1.3'	percentage
4	UD.APE.2.1	Thematic content compliance	Not applicable		
5	UD.APE.3.1	Horizontal resolution compliance	Percentage to which the horizontal resolution or equivalent scale value (eg 50 m for map scale of 1/50 000) data or mean horizontal sampling interval of the selected input data is compliant not with the DPS horizontal resolution	('DPS.AP.3.1' - 'UD.AP.3.1')*100/'DPS.AP.3.1'	percentage
6	UD.APE.3.2	Vertical resolution compliance	Percentage to which the vertical sampling interval of the selected input data is not compliant with the DPS vertical resolution	('DPS.AP.3.2' - 'UD.AP.3.2')*100/'DPS.AP.3.2'	percentage
7	UD.APE.3.3	Temporal resolution compliance	Percentage to which the temporal sampling interval is not compliant with the DPS temporal sampling interval	100 - ('DPS.AP.3.3'- 'UD.AP.3.3')*100/'DPS.AP.3.3'	percentage
8	UD.APE.3.4	Thematic accuracy compliance	Compliance of the value domain of the accuracy of the selected input data with the value domain of the accuracy defined in DPS (% extracted from thematic accuracy description)	UD.AP.3.4	percentage
9	UD.APE.4.1	Temporal validity compliance	Percentage to which the elapsed time between last selected input data record update is not compliant with the max elapsed time specified in DPS	('DPS.AP.4.1' - 'UD.AP.4.1')*100/'DPS.AP.4.1'	percentage

Table 11.3 MedSea Checkpoint Quality Errors (QE) definitions for each UD related to a specific TPD.

Other collateral activities were dedicated to:

- the review of the 7 challenges Targeted Products (described in D*.3.4 and their update D*3.5) in collaboration with the WP2-WP8;
- the visualization of the 7 challenges Targeted Products in collaboration with WP9 and the WP2-WP8;
- the review/validation of the input metadatabase in collaboration with the WP2-WP8;

During the 2nd Annual Meeting we decided to organize a splinter meeting at the next EGU general assembly 2016 (17-22 April) to promote the MedSea Checkpoint service and to submit a questionnaire survey on the user needs and to collect the results. The meeting was successful, 20 potential users attended the meeting, plus the MedSea Checkpoint team. The results of the survey were analysed in an internal D11.3 *"Report on questionnaire survey on user needs"*. Due to the

12. WP12: Project management (INGV)

Meetings

Project management continued uninterruptedly during the fifth six months of the project. Several **Webex Meetings** were held having as topics of the discussion:

1) The definition of the assessment methodology for appropriateness territory;
2) The definition of Data Product Specification (DPS) and Targeted Product Description (TPD) quality elements to compute fitness for use and fitness for purpose indicators;
3) The definition of DPS and TPD templates and the framework (Sextant) in order to retrieve all needed information from the partners;
4) Development of the indicators;
5) The implementation of the developed procedure as a MedSea Checkpoint service within the web portal.

It follows the list of Webex Meeting:

- Feb 15, 2016;
- Feb22, 2016;
- Feb 29, 2016;
- Mar 21, 2016;
- Mar 24, 2016;
- Apr 1, 2016;
- Apr 6, 2016;
- Apr 15, 2016

A Meeting in Bologna on 9-10 March, 2016 was organized with the same topic of discussion, *N. Pinardi*, *G. Manzella*, *S. Simoncelli* and *E. Mussat* participated to the discussions.

Giuseppe Manzella participated to the **5th EMODNET Steering Committee** from 14:00 on Wednesday 9 December until 17:30 on Thursday 10 December 2015 in Brussels.

The scientific coordinator *Nadia Pinardi* participated to the **6th EMODnet Steering Committee Meeting** from 8:30 21 June until 15:30 on 22 June 2016 in Brussels.

EGU Splinter Meeting

INGV organized at the EGU 2016 Conference a splinter meeting dedicated to the MedSea CheckPoint:

EMODnet Mediterranean Sea Checkpoint Splinter Meeting
EGU General Assembly 2016
April 20th, 2016
12:15-13:15
http://meetingorganizer.copernicus.org/EGU2016/session/22331
Agenda
http://www.emodnet-mediterranean.eu/wp-content/uploads/2014/01/Medsea_Splinter_Meeting_Draft_Agenda_V1.pdf

Organizers: S.Simoncelli, G.Manzella, N.Pinardi (INGV, IT)

Scientific Steering Committee:
Giuseppe Manzella giuseppe.manzella@ettsolutions.com
Simona Simoncelli simona.simoncelli@ingv.it
Federico Falcini federico.falcini@artov.isac.cnr.it
Gianna Fabi gianna.fabi@an.ismar.cnr.it
David March david@imedea.uib-csic.es
Chara P Kyriakidou hkyriakid@hcmr.gr

The objectives were:

- to raise awareness on the concept of EMODnet Regional Checkpoints, i.e. activities connected to marine monitoring system assessment based upon Blu Growth applications;
- to receive feedback from a large research community pool on the partial results of the Checkpoint

Dedicated Webex Meetings with the scientific steering committee:

- 31 March 2016;
- Apr 8, 2016;
- Apr 15, 2016.

After the Meeting we asked to participate to an online survey and the analysis of users feedback was summarized in a report.
For the event we created the online survey and a mailing list of users.
Participation to the EGU 2016 Splinter Meeting: *Pinardi/Simoncelli/Manzella* from INGV and the challenge leaders.

Conferences

1. *S. Simoncelli, N. Pinardi, G. Manzella, E. Clementi, A. Guarnieri.* The EMODNet Mediterranean Checkpoint: Status of Development. Rome 8-9 March, 2016 INGV Convegno di Struttura Ambiente.
2. *Eric Moussat, Nadia Pinardi, Giuseppe Manzella, Frederique Blanc and the Medsea Team.* EMODnet MedSea Checkpoint for sustainable Blue Growth. Vienna 20 April, 2016. EGU 2016
3. *S. Simoncelli, N. Pinardi, G. Manzella, E. Moussat, F. Blanc.* The EMODnet MedSea CheckPoint. 8th International Workshop on Modeling the Ocean (IWMO), BOLOGNA. 7-10 June 2016 https://eventi.unibo.it/iwmo2016