



EMODnet



European Marine
Observation and
Data Network

EMODnet Thematic Lot n° 0 - *Bathymetry – High Resolution Seabed Mapping (HRSM2)*

EASME/EMFF/2017/1.3.1.2/01/SI2.791269

Start date of the project: 18/12/2018 - (24 months)

EMODnet Phase III – Quarterly Progress Report (6)

Reporting Period: 01/04/2020 – 30/06/2020



Contents

1.Highlights in this quarter.....	3
2.Identified issues: status and actions taken	5
3.User feedback (Contact Us form, online chat & other communication means)	6
4.Meetings/events held/attended & planned.....	8
5.Communication and dissemination assets.....	10
6.Monitoring indicators	19
7.Annex: Other documentation attached.....	22

Disclaimer

The information and views set out in this report are those of the author(s) and do not necessarily reflect the official opinion of the EASME or of the European Commission. Neither the EASME, nor the European Commission, guarantee the accuracy of the data included in this study. Neither the EASME, the European Commission nor any person acting on the EASME's or on the European Commission's behalf may be held responsible for the use which may be made of the information.

1. Highlights in this quarter

[Please make sure that progress in each of the tasks specified in Section 1.4.1 of the Tender Specifications is listed. For those tasks not experiencing progress, please give an explanation. Max 2 pages]

- **Task 1 - Gather and give access to bathymetric survey data:** During the reporting period, the number of survey data sets has increased again from 27565 to 29858 CDI entries, while the number of Composite DTM entries respectively High Resolution DTMs have seen no changes. In particular, OceanWise has populated more than 2000 new CDIs for the Greater North Sea region. The overall number of data providers for the CDI and both Sextant catalogues remained at 64 organisations. In the coming quarters it is expected that data providers will bring in more entries for the HR-DTM catalogue.
- **Task 2 - Compile a multi-resolution digital terrain model of European seas:** Following the delivery of gridded individual bathymetric datasets by all the data providers, assigned sea basin coordinators have been very active in selecting and aggregating these datasets for their area of concern. Because of the COVID pandemic, a planned physical meeting intended for the organisation of the work of the basin coordinators has been replaced by monthly remote meetings. Processing stages, including qualitative analysis of the surveys, processing and merging of the selected contributions were the main objects of these meetings. The group of regional coordinators is confident to finish the regional DTM compilations towards end of July – mid August 2020. As follow-up, GSGC will then start the integration process for generating the new EMODnet DTM, which is planned for release near the end of 2020. In support and following feedback from basin coordinators, partner Ifremer has made and provided updates of the GLOBE Software (current version is 1.15.18) which is used by all the participants of the project. The latest version solves minor bugs and facilitates basin coordinators to deal better with the large amount of data. This GLOBE version also integrates recent developments from CORONIS related to the interpolation of sparse data. Although, still in a developing stage, these algorithms are currently being tested by the basin coordinators with a particular focus on the evaluation of the performance with various configurations (density of soundings, relative distribution of the information, type of seabed morphology, computer resources, ...). Feedback is being given by the basin coordinators to CORONIS for further improving their methodology and associated algorithm.
- **Task 3 - Establish best-estimate European digital coastlines and compile overview of legal baselines:** Deltares continued its work on generating a new release of the best-estimate digital coastlines for different tidal reference levels, on the basis of satellite images and its GTSM global tidal model. Moreover, Deltares progressed with its analyses for deriving tidal bathymetry in the selected pilot areas in the Wadden Sea and Portugal. In parallel, Deltares, is keen on updates and new entries from partners for the existing inventory of legal coastlines and baselines.
- **Task 4 - Establish machine-to-machine connections to data and data products:** the recent implementation of a new version of the GLOBE Software on the DATARMOR infrastructure at Ifremer, is followed by practical testing on the three regional DTMs, which together cover the Mediterranean Sea area.
- **Task 5 - Maintain a web portal:** In the reporting period, where needed, support was given by MARIS to data providers for populating new entries in the CDI service. While Ifremer has upgraded the Sextant catalogue Content Management System (CMS) and associated manual in such a way, that there is now a staging process. Data providers can make new entries or update existing entries in the CPRD and HR-DTM catalogues, while Ifremer as master can validate these before actual publishing. This will improve the overall quality and consistency of these two catalogues. Activities took place by GSGC and MARIS for including the new EMODnet Bathymetry World Base Layer (EBWBL) in the portal. This included adding explanatory texts at several pages and integrating the EBWBL layer in the Bathymetry Viewing service. After concluding these preparations, the EBWBL was officially launched 30 June 2020, closely working together with the EMODnet Secretariat.
- **Task 6 - Operate a help-desk:** several questions were received and answered by the helpdesk. The user questions received and answered are detailed in chapter 3 and Annex 1.
- **Task 7 - Achieve international interoperability:** Promotion of the new EMODnet Bathymetry World Base Layer (EBWBL) has been undertaken together by the EMODnet Secretariat, EMODnet Bathymetry and the SEABED 2030 / GEBCO participants, and with help from DG-MARE. This pre-tiled representation service (OGC-WMTS) of the world provides the most up-to-date compilation of bathymetric data and topographic data available. It includes the EMODnet DTM for Europe combined with GEBCO for the rest of the world's

bathymetry. This is complemented with a satellite derived Digital Terrain Model for the land cover. This new EBWBL service can be used by all the EMODnet thematic portals as a common base layer, but also by any other users wishing to display an underlying map of bathymetry and topography as part of their projects. This work is presented to the user and the international community as a contribution from EMODnet Bathymetry and the European Commission in the global effort of sharing broadly ocean data knowledge. The release has been made public on the 30/06/2020.

- **Task 8 - Achieve INSPIRE compliance:** Interacting with the EMODnet Secretariat, final activities were undertaken for fully achieving INSPIRE compliance for all EMODnet Bathymetry OGC web services, both from the CDI service and the Bathymetry Viewing and Download service components. The latest validation indicates that EMODnet Bathymetry now has a full score. The coordinator also took part at the annual INSPIRE conference, where EMODnet bathymetry was taken as an example of a successful implementation of the INSPIRE Directive.
- **Task 9 - Monitoring of performance:** the overall performance of the portal and its services is continuously measured and its results are reported in the separate indicators spreadsheet. It demonstrates that the Bathymetry portal and its services and products continue to be highly popular and in great demand for a wide range of user applications.
- **Project management:** The coordinator and technical coordinator prepared the 5th quarterly progress report which was accepted by EU (EASME and DG MARE). Coordinator and technical coordinator also provided complementary information on the Annual Progress report and the International Standards and Interoperability report which have been accepted by EASME on the 6/05/2020.

2. Identified issues: status and actions taken

[Provide an overview of the issues identified by EASME (Table A), if any, during the reporting period, the status of those issues and actions taken to address them and/or roadmap with remaining actions planned to resolve the issues. In Table B, provide information about issues and challenges identified by yourself, if any.]

A. Priority issues identified and communicated by EASME/ DG MARE/ SECRETARIAT			
Priority issue	Status (Pending/Resolved)	Action(s) taken / remaining actions planned	Date due
JIRA Issue 33: Implement Web Services MetadataUrl and DataUrl fields	Resolved	MetadataUrls and DataUrls were included in the OGC web services of the CDI data discovery and access service respectively the Bathymetry Viewing and Download service. INSPIRE compliant landing pages have been incorporated in Sextant to serve as MetadataUrls, which have been included in the GeoServer instances. The Secretariat has made a final validation, which indicated that the issue is fully resolved.	
B. Issues / challenges identified by the thematic assembly group itself			
Priority issue / challenge	Status (Pending/Resolved)	Action(s) taken / remaining actions planned	Date due

3. User feedback (Contact Us form, online chat & other communication means)

[Provide a list of all user feedback received on your portal in chronological order within the reporting period. Indicate the type of the feedback received, a clear description of the query, and the actions undertaken to resolve the issue (e.g. update of metadata, fixing a particular issue with the map viewer). Indicate the status of the query (i.e. has the query been resolved or not yet), and if not provide an explanation why. List any feedback you received on the portal that can be used to build EMODnet use cases. Provide information in the table.]

See 7 ANNEX for detailed communication

Overview of user feedback and/or requests received in this quarter							
Date	Organisation	Type of user feedback (e.g. technical, case study, etc.) and short description of the feedback received	Means of contact	Response time	Status of user query: resolved/pending	Measures taken to resolve the query	Status: if not (yet) resolved/pending, explain reason why and expected timeline
4 April 2020	??	Question about the EMO format for the DTM	Feedback form	Same day and number of messages following days	Resolved	Format documentation provided and explanation given how to use it with GLOBE	
12 April 2020	??	Issue with using GeoTiff files	Feedback form	Two days later	Resolved	Tested it without issues ourselves and given feedback	
15 April 2020	Sympatico, Canada	Issue with WCS	Feedback form	Next day a number of messages	Resolved	Tested that WCS was working properly and informed user.	
1 May	??	Question about colour	Feedback	Three days	Resolved	Explanation given.	

2020		bands of GeoTiffs	form	later			
11 May 2020	Manxgeo, UK	Issue with registration	Feedback form	Next day	Resolved	Tested ourselves and explained. Confirmation received from user.	
15 May 2020	??	Question about coverage of WMS	Feedback form	Two days later	Resolved	Information provided about new global coverage (EBWBL service).	
14 June 2020	Onplotsolutions, UK	Question about having land in downloadable DTM tiles	Feedback form	Next day	Resolved	Explanation given.	
15 June 2020	??	Spotted an error in the DTM	Feedback form	Next day	Pending	Reported to regional coordinator who will give a follow-up for the next EMODnet DTM release.	Should be solved in the new EMODnet DTM by end 2020.
22 June 2020	University of Rhode Island, USA	Question about Quality Index	Feedback form	Two days later	Resolved	Explanation given how the QI can be used.	

4. Meetings/events held/attended & planned

[Organisational meetings/events held/participated (incl. presentations, lectures, trainings, demonstrations, workshops, etc.) by the contractant since the last quarterly report and planned in the future. Please add a short description on the meeting as well as the nature and volume of the audience.]

A. Meetings/events organised and attended				
Date	Location	Type event (internal or external meeting, training (workshop), etc.)	Meeting attended (A) / organised (O)	Short description and main results (# participants, agreements made, etc.)
15-16 April 2020	Remote	Internal meeting	O	Progress meeting with core team and basin coordinators (30 persons)
23-24 April 2020	Remote	External meeting	A	7 th EMODnet Technical Working Group (approx. 15 persons)
28 May 2020	Remote	Internal meeting	O	Progress meeting with core team and basin coordinators (30 persons)
10 June 2020	Remote	Conference: "INSPIRE Conference"	A	Presenting "EMODnet Bathymetry – INSPIRE compliance for bathymetric data" (100+ attendees)
16 June 2020	Remote	Workshop; "Coastal workshop: EMODnet and CMEMS"	A	Presenting EMODnet Bathymetry products and active collaboration on Satellite Derived Bathymetry and coastline delineation (15+ attendees)
23 June 2020	Remote	Internal meeting	O	Progress meeting with core team and basin coordinators (30 persons)
SUM			O	Total 3 meetings organised =
SUM			A	Total 3 meetings attended =

B. Meetings/events planned in the future				
Date	Location	Type event (meeting, training (workshop), etc.)	Meeting to be attended (A) / organised (O)	Short description and main expected outcomes
28 July 2020	remote	SEABED 2030 technical meeting	A/O	Further cooperation
July 2020	Remote	Internal: progress meeting	O	Progress and delivery of the basin compilation.
22 September 2020	remote	Webinar: EMODNET: A decade of achievements connecting marine data to knowledge	A	Promoting products and services of EMODnet Bathymetry
Fall 2020	Remote/physical	Final EMODnet HRSM II meeting	O	To monitor and discuss all results and gather input for final reporting
24-26 November 2020	France (if possible)	MERIGEO	A	Shared presentation of mutual collaboration of Seabed Habitats and Bathymetry
1-3 December 2020	London, UK (if possible)	Oceanology International 2020 conference and exhibition	A	Presenting EMODnet Bathymetry at the stand of MARIS
Jan 2021	France/remote	GEBCO committees and symposium	O/A	International collaboration related to the GEBCO. To be organised by UNESCO and Shom in Paris

5. Communication and dissemination assets

[Please list all the relevant communication and dissemination products and assets you have developed during this period (e.g. development of communication materials such as brochures, videos, press releases, newsletters, etc.) and are planning to do. At the bottom of the table, provide a total number for every type of communication product you have developed (e.g. total # of press releases, etc.).]

A. Communication products				
Date	Communication action/ material	Short description (of the material, title, ...) and/or link to the activity	Main results	Name of event at which material was disseminated (if applicable)
30/06	Press release	“EMODnet Bathymetry now offers the highest resolved bathymetric worldwide layout” press release	Official release of the EMODnet World Base layer WMTS service	

B. Planned communication products			
Date	Communication action/ material	Short description (of the material, title, ...) and/or link to the activity	Main results expected
End December 2020 (planned)	Press release	Release of new EMODnet DTM and related data products	Lots of users, downloading and using the new DTM

[Publications (e.g. peer-reviewed journals, book chapters, conference papers, etc.) that you are aware of using/referring to EMODnet data or data products within the reporting period.]

List of known publications using EMODnet data or data products				
Date	Type and name of journal, conference, ...	Publication title including DOI (if known)	Author(s)	Organisation(s)
April 2020	<i>Frontiers in Earth Science</i> . 10.3389/feart.2020.00114	Insights into microseism sources by array and machine learning techniques: Ionian and Tyrrhenian Sea case of study.	Moschella, S., Cannata, A., Cannavò, F., Di Grazia, G., Nardone, G., Orasi, A., ... & Gresta, S.	Dipartimento di Scienze Biologiche, Geologiche e Ambientali – Sezione di Scienze della Terra, Università degli Studi di Catania, Catania, Italy,
April 2020	<i>Technium: Romanian Journal of Applied Sciences and Technology</i> , 2(2), 25-38.	Importance of offshore wind farms Marmara Sea for Turkey's renewable energy targets: a case study Marmara Sea.	Karipoğlu, F.	Izmir Institute of Technology
April 2020	<i>The Archaeology of Europe's Drowned Landscapes</i> (pp. 371-392). Springer, Cham. 10.1007/978-3-030-37367-2_19	Greece: Unstable Landscapes and Underwater Archaeology. In	Galanidou, N., Dellaporta, K., & Sakellariou, D.	Department of History and Archaeology University of Crete Rethymno Greece
April 2020	<i>Ecological Informatics</i> , 101092. 10.1016/j.ecoinf.2020.101092	Seafloor geomorphic features as an alternative approach into modelling the distribution of cetaceans.	Claroa, B., Pérez-Jorgeb, S., & Freya, S.	OceanCare, 8820 Wädenswil, Switzerland
April 2020	<i>Environmental Pollution</i> , 114567. 10.1016/j.envpol.2020.114567	A closer look at anthropogenic fiber ingestion in <i>Aristeus antennatus</i> in the NW Mediterranean Sea: Differences among years and locations and impact on health condition.	Carreras-Colom, E., Constenla, M., Soler-Membrives, A., Cartes, J. E., Baeza, M., & Carrassón, M. (2020)	Departament de Biologia Animal, de Biologia Vegetal i d'Ecologia, Universitat Autònoma de Barcelona, Cerdanyola del Vallès, 08193, Barcelona, Spain
April 2020	<i>BioRxiv</i> . 10.1101/2020.04.16.044263	Impact of removing a concrete gas platform on benthic communities in the North Sea.	Coolen, J. W., Bittner, O., Driessen, F. M., Van Dongen, U., Siahaya, M. S., De Groot, W., & Van Der Weide, B. .	Wageningen Marine Research Den Helder, The Netherlands

April 2020	<i>Remote Sensing</i> , 12(8), 1344. 10.3390/rs12081344	The autonomous underwater vehicle integrated with the unmanned surface vessel mapping the Southern Ionian Sea. The winning technology solution of the Shell Ocean Discovery XPRIZE.	Zwolak, K., Wigley, R., Bohan, A., Zarayskaya, Y., Bazhenova, E., Dorshow, W., ... & Wallace, C. .	Department of Navigation and Marine Hydrography, Faculty of Navigation and Naval Weapon, Polish Naval Academy, 81-127 Gdynia, Poland
April 2020	(Doctoral dissertation,	<i>Natural and anthropogenic fluid migration pathways in marine sediments</i>	Böttner, C.	Christian-Albrechts-Universität).
April 2020	<i>Scientific Reports (Nature Publisher Group)</i> , 10(1). 10.1038/s41598-020-63737-7	Deep sea explosive eruptions may be not so different from subaerial eruptions.	Iezzi, G., Lanzafame, G., Mancini, L., Behrens, H., Tamburrino, S., Vallefucio, M., ... & Ventura, G.	National Institute of Geophysics and Volcanology, Rome, Italy
April 2020	<i>Journal of Geophysical Research: Oceans</i> , e2019JC015804 10.1029/2019JC015804	Glider Observations of the Northwestern Iberian Margin During an Exceptional Summer Upwelling Season.	Rollo, C., Heywood, K. J., Hall, R. A., Barton, E. D., & Kaiser, J.	Centre for Ocean and Atmospheric Sciences, School of Environmental Sciences, University of East Anglia, Norwich, United Kingdom
April 2020	<i>Quaternary International</i> . 10.1016/j.quaint.2020.04.025	At the edge of the Cantabrian sea. New data on the Pleistocene and Holocene archaeological open-air site of Bañugues (Gozón, Asturias, Spain): Palaeogeography, geoarchaeology and geochronology.	Álvarez-Alonso, D., Pardo, J. F. J., Carral, P., Flor-Blanco, G., Flor, G., Iriarte-Chiapusso, M. J., ... & Weniger, G. C. (2020)	Department of Prehistory, Ancient History and Archaeology, Complutense University of Madrid, C/ Profesor Aranguren s/n. Ciudad Universitaria, E-28080 Madrid, Spain
April 2020	ICES Scientific Reports. 10.17895/ices.pub.5968	ICES. 2020. Working Group on Nephrops Surveys (WGNEPS; outputs from 2019).	Aristegui-Ezquibela, M., Burgos, C., Chiarini, M., Cvitanic, R., Río Fernández, J. D., Doyle, J., ... & Martinelli, M.	Universitat politecnica de Catalunya – BarcelonaTech
April 2020	<i>Frontiers in Marine Science</i> , 7, 263. 10.3389/fmars.2020.00263	. A High-Resolution Global Dataset of Extreme Sea Levels,	Muis, S., Apecechea, M. I., Dullaart, J., de	Deltares, Delft, Netherlands

		Tides, and Storm Surges, Including Future Projections.	Lima Rego, J., Madsen, K. S., Su, J., ... & Verlaan, M.	
04/20	<i>Science</i> , 368(6495), 1140-1145. 10.1126/science.aba5899	Seafloor microplastic hotspots controlled by deep-sea circulation.	Kane, I. A., Clare, M. A., Miramontes, E., Wogelius, R., Rothwell, J. J., Garreau, P., & Pohl, F. .	School of Earth and Environmental Sciences, University of Manchester, Manchester M13 9PL, UK.
	<i>Offshore Technology Conference</i> . Offshore Technology Conference. 10.4043/30662-MS	Supervised Multi-Agent Autonomy for Cost-Effective Subsea Operations. In	Vincent, J., Vannuffelen, S., Ossia, S., Speck, A., Strunk, G., Croux, A., ... & Grall, S. (2020, May).	Onesubsea
April 2020	XVIII Congreso Asociación Española de Teledetección. ISBN: 978-84-1320-038-5	Progreso en la estimación de la batimetría en regiones costeras turbias de EEUU con los satélites Sentinel-2A/B.	Caballero, I., & Stumpf, R. P.	NOAA, USA
May 2020	<i>OCEAN DYNAMICS</i> . 10.1007/s10236-020-01364-6	Short-term, linear, and non-linear local effects of the tides on the surface dynamics in a new, high-resolution model of the Mediterranean Sea circulation.	Palma, M., Iacono, R., Sannino, G., Bargagli, A., Carillo, A., Fekete, B. M., ... & Struglia, M. V.	ENEA - CR Casaccia, Via Anguillarese 301, 00123, Rome, Italy
May 2020	<i>Bulletin of Volcanology</i> , 82(6). 10.1007/s00445-020-01378-4	The evolution of Santa Maria Island in the context of the Azores Triple Junction.	Marques, F. O., Hildenbrand, A., Costa, A. C. G., & Sibrant, A. L. R.	Universidade de Lisboa, Lisbon, Portugal
May 2020	Master Thesis	Desarrollo de una herramienta de optimización del "LCOE"(Costo Nivelado Eléctrico) utilizada para la ubicación y planificación de parques flotantes híbridos de energía eólica y marina.	Izquierdo Pérez, J.	Universitat Politècnica de València. Escuela Técnica Superior de Ingenieros Industriales - Escola Tècnica Superior d'Enginyers Industrials

May 2020	<i>Water</i> , 12(5), 1412. 10.3390/w12051412	Evaluation and Application of Newly Designed Finite Volume Coastal Model FESOM-C, Effect of Variable Resolution in the Southeastern North Sea.	Kuznetsov, I., Androsov, A., Fofonova, V., Danilov, S., Rakowsky, N., Harig, S., & Wiltshire, K. H.	Helmholtz Centre for Polar and Marine Research, Alfred Wegener Institute, Klußmannstr. 3d, 27570 Bremerhaven, Germany
May 2020	<i>Journal of Marine Systems</i> , 103372. 10.1016/j.jmarsys.2020.103372	Modeling the spatiotemporal distribution of the deep-sea shrimp <i>Aristeus antennatus</i> (Crustacea: Decapoda) on the northwestern Mediterranean continental margin crossed by submarine canyons.	Clavel-Henry, M., Bahamon, N., Solé, J., Gorelli, G., del Arco, J. G., Carretón, M., ... & Company, J. B.	Instituto de Ciencias del Mar (CSIC), Passeig marítim de la Barceloneta, 37-49, 08003 Barcelona, Spain
May 2020	<i>Frontiers in Marine Science</i> . 10.3389/fmars.2020.00393	Drivers of megabenthic community structure in one of the world's deepest silled-fjords, Sognefjord (Western Norway).	Meyer, H. K., Roberts, E. M., Mienis, F., & Rapp, H. T.	Department of Biological Sciences and K.G. Jebsen Centre for Deep-Sea Research, University of Bergen, Bergen, Norway,
May 2020	<i>Sensors</i> , 20(10), 2911. 10.3390/s20102911	Towards Naples Ecological REsearch for Augmented Observatories (NEREA): The NEREA-Fix Module, a Stand-Alone Platform for Long-Term Deep-Sea Ecosystem Monitoring.	Fanelli, E., Aguzzi, J., Marini, S., del Rio, J. D., Noguerras, M., Canese, S., ... & Conversano, F.	Department of Life and Environmental Science, Polytechnic University of Marche, 60131 Ancona, Italy
May 2020	<i>Physical Geography</i> , 1-37. 10.1080/02723646.2020.1762960	. Physio-geographical characteristics of the marine regions and their catchment areas of the Mediterranean Sea and Black Sea marine system.	Poulos, S., & Kotinas, V.	National and Kapodistrian University of Athens, Greece
May 2020	<i>PeerJ</i> , 8, e9260. 10.7717/peerj.9260	Here are the polyps: in situ observations of jellyfish polyps and	van Walraven, L., van Bleijswijk, J., & van der Veer, H. W.	Department of Coastal Systems, and Utrecht University, NIOZ Royal

		podocysts on bivalve shells.		Netherlands Institute for Sea Research, Den Burg, Netherlands
May 2020	<i>Frontiers in Marine Science.</i> 10.3389/fmars.2020.00457	Ecosystem Functioning Under the Influence of Bottom-Trawling Disturbance: An Experimental Approach and Field Observations From a Continental Slope Area in the West Iberian Margin.	Ramalho, S. P., Lins Pereira, L., Soetaert, K., Lampadariou, N., Cunha, M. R., Vanreusel, A., & Pape, E.	Centre for Environmental and Marine Studies, Department of Biology, Universidade de Aveiro, Aveiro, Portugal
May 2020	<i>Journal of Coastal Research, 95(sp1),</i> 695-700. 10.2112/SI95-135.1	What Happens to a Mediterranean Microtidal Wave-dominated Beach During Significant Storm Events? The Morphological Response of a Natural Sardinian Beach (Western Mediterranean).	Trogu, D., Buosi, C., Ruju, A., Porta, M., Ibba, A., & De Muro, S.	Department of Chemical and Geological Sciences University of Cagliari Cagliari, Italy
May 2020	<i>Frontiers of Biogeography.</i> 10.21425/F5FBG45003	(2019). Recent geospatial dynamics of Terceira (Azores, Portugal) and the theoretical implications for the biogeography of active volcanic islands.	Rijsdijk, K. F., Buijs, S., Quartau, R., Aguilée, R., Norder, S. J., Ávila, S. P., ... & Stocchi, P.	Institute for Biodiversity and Ecosystem Dynamics (IBED), University of Amsterdam,
May 2020	Report: 10.5284/1053675	7097 Rapid Coastal Zone Assessment Survey: Phase One Desk-based Assessment for South-West England: South Coast Cornwall.	Johns, C., Dudley, P., & Grant, M.	Cornwall archeological Unit
May 2020	(Bachelor's thesis,	<i>Estudio numérico-experimental del oleaje en las proximidades del puerto de Bilbao, como herramienta de gestión portuaria</i>	Botella Langa, A.	Universitat Politècnica de Catalunya).

May 2020	<i>Geosciences</i> , 10(6), 210. 10.3390/geosciences10060210	. Ground Deformation and Seismic Fault Model of the M6. 4 Durrës (Albania) Nov. 26, 2019 Earthquake, Based on GNSS/INSAR Observations.	Ganas, A., Elias, P., Briole, P., Cannavo, F., Valkaniotis, S., Tsironi, V., & Partheniou, E. I.	National Observatory of Athens, Institute of Geodynamics, Lofos Nymfon, Thission, 11810 Athens, Greece
May 2020	<i>Quaternary International</i> . 10.1016/j.quaint.2020.05.025	Lower Palaeolithic archaeology and submerged landscapes in Greece: The current state of the art.	Tsakanikou, P., Galanidou, N., & Sakellariou, D. .	Centre for the Archaeology of Human Origins, University of Southampton, Avenue Campus, SO17 1BJ, United Kingdom
May 2020	<i>Archaeological and Anthropological Sciences</i> , 1-13. 10.1007/s12520-020-01082-6	Residual relief modelling: digital elevation enhancement for shipwreck site characterisation.	Majcher, J., Plets, R., & Quinn, R.	School of Geography and Environmental Sciences, University of Ulster, Coleraine, Northern Ireland BT52 1SA, UK
June 2020	<i>Journal of Sea Research</i> , 101914. 10.1016/j.seares.2020.101914Get	Spatial dynamics of eukaryotic microbial communities in the German Bight.	Sprong, P. A. A., Fofonova, V., Wiltshire, K. H., Neuhaus, S., Ludwiczowski, K. U., Käse, L., ... & Metfies, K.	Alfred-Wegener-Institute, Helmholtz-Zentrum für Polar- und Meeresforschung, 27570 Bremerhaven, Germany
June 2020	<i>Marine Biology</i> , 167(91), 91. 10.1007/s00227-020-03702-0	The historical ecology and demise of the iconic Angelshark <i>Squatina squatina</i> in the southern North Sea.	Bom, R. A., van de Water, M., Camphuysen, K. C., van der Veer, H. W., & van Leeuwen, A.	Department of Coastal Systems, NIOZ Royal Netherlands Institute for Sea Research, and Utrecht University, P.O. Box 59, 1790 AB, Den Burg, Texel, The Netherlands
June 2020	<i>Geophysical Research Letters</i> , e2019GL086604 10.1029/2019GL086604	Elastic fault interactions and earthquake rupture along the southern Hellenic subduction plate interface zone in Greece..	Saltogianni, V., Mouslopoulou, V., Oncken, O., Nicol, A., Gianniou, M., & Mertikas, S.	Helmholtz Centre Potsdam, GFZ German Research Centre for Geosciences, Potsdam, Germany
June 2020	<i>Geological Society, London, Special Publications</i> , 505.	Mapping Ireland's coastal, shelf and	O'Toole, R., Judge, M.,	Geological Survey Ireland Beggars Bush,

	10.1144/SP505-2019-207	deep water environments using illustrative case studies to highlight the impact of seabed mapping on the generation of blue knowledge.	Sachetti, F., Furey, T., Mac Craith, E., Sheehan, K., ... & Monteys, X. .	Haddington Rd. Dublin, Ireland
June 2020	<i>Tectonics</i> , e2020TC006116. 10.1029/2020TC006116	Active extension in a foreland trapped between two contractional chains: The South Apulia Fault System (SAFS).	Maesano, F. E., Volpi, V., Civile, D., Basili, R., Conti, A., Tiberti, M. M., ... & Rossi, G.	Istituto Nazionale di Geofisica e Vulcanologia, Rome, ITALY
June 2020	<i>Journal of the Acoustical Society of America</i> , 147(6), 3948-3958 10.1121/10.0001408	Estimating the effects of pile driving sounds on seals: Pitfalls and possibilities. <i>The</i>	Whyte, K. F., Russell, D. J., Sparling, C. E., Binnerts, B., & Hastie, G. D..	Sea Mammal Research Unit, Scottish Oceans Institute, University of St Andrews, St Andrews, Fife, KY16 8LB, United Kingdom
June 2020	<i>Palaeogeography, Palaeoclimatology, Palaeoecology</i> , 109878. 10.1016/j.palaeo.2020.109878	Medieval versus recent environmental conditions in the Baltic Proper, what was different a thousand years ago?.	Andrén, E., van Wirdum, F., Ivarsson, L. N., Lönn, M., Moros, M., & Andrén, T. (Södertörn University, SU
June 2020	<i>Ecological Informatics</i> , 101130. 10.1016/j.ecoinf.2020.101130	. An open-source framework to model present and future marine species distributions at local scale.	Lasram, F. B. R., Hattab, T., Nogues, Q., Beaugrand, G., Dauvin, J. C., Halouani, G., ... & Leroy, B.	Univ. Littoral Côte d'Opale, Univ. Lille,
June 2020	EGU, Earth Surface Dynamics 10.5194/esurf-2019-40	Links between Baltic Sea submarine terraces and groundwater sapping.	Jakobsson, M., O'Regan, M., Mörth, C. M., Stranne, C., Weidner, E., Hansson, J., ... & Norkko, J.	Stockholm University,
June 2020	<i>Desalination</i> , 491, 114570. 10.1016/j.desal.2020.114570	Screening the hurdles to sea disposal of desalination brine around the Mediterranean.	Pistocchi, A., Bleninger, T., & Dorati, C.	European Commission JRC, Ispra, Italy

June 2020	Book /10.1007/978-3-319-98696-8	<i>Maritime Spatial Planning.</i>	Zaucha, J., & Gee, K	University of Gdańsk Gdańsk, Poland
June 2020	<i>Marine Chemistry</i> 10.1016/j.marchem.2020.103847	Manganese dynamics in tidal basins of the Wadden Sea: Spatial/seasonal patterns and budget estimates.	Beck, M., Dellwig, O., Schnetger, B., Riedel, T., & Brumsack, H. J. .	Institute for Chemistry and Biology of the Marine Environment (DE)

6. Monitoring indicators

[Please refer to the standardised monitoring tool i.e. Matomo to complete the designated excel template on monitoring and progress indicators in annex, and provide a comment or short explanation on numbers and trends in the table below for each indicator when possible/applicable. If monitoring was carried out using tools other than Matomo, please indicate clearly.]

Comments on the progress indicators in the excel template	
Progress indicator	Comment
1.1 Status/Volume and coverage of all available acquired data A) Volume and coverage of available acquired data	For CDIs, most population had already been done in the previous quarters as there was an input deadline considering the production of updated regional DTMs. A few data providers were behind schedule and have finally delivered in the report quarter, still just in time for inclusion in the regional DTM productions.
B) Usage of data in this quarter (formerly indicator 4)	Considerable increase in number of downloaded CDIs, however caused by only a few users
1.2 Status/Total number and the coverage of all built & external data products A) Volume and coverage of available built & acquired data products	The CDTMs are required as input for the Regional DTMs and all data providers have delivered before the deadline. For the HR-DTMs production by data providers will start as the deadline is later in autumn 2020.
B) Usage of data products in this quarter (formerly indicator 4)	Considerable increase in use of WMS and WFS services for the Bathymetry Viewing service
2. Organisations supplying/approached to supply data and data products within reporting period	For CDIs, most population had already been done in the previous quarters as there was an input deadline considering the production of updated regional DTMs. A few data providers were behind schedule and have finally delivered in the report quarter, still just in time for inclusion in the regional DTM productions. Of these, OceanWise has delivered > 2000 new CDI entries for the Greater North Sea region.
3. Online 'Web' interfaces to access or view data	Stable

5. Statistics on data volunteered through download forms	Bathymetry is used by all sectors and for many applications as it provides basis information. A lot of users do not give details about themselves, unless they use Marine-ID in the download forms.
7. Published use cases	EMODnet Bathymetry has a steady number of use cases which all receive attention from users
9.1. Technical monitoring	The portal has a very good and stable response time and overall a very good up time (100%).
9.2. Portal user-friendliness (Visual Harmonization score)	The portal has continued to have a 100% score.
10. Visibility & Analytics for web pages	As expected and targeted, the pages related to the “EMODnet bathymetry viewing and Download Service” have the highest score and this traffic is very stable, like also other sections and services. This means that users spent the most time browsing and interacting with the viewing service which has many functions and overall is the most interesting product and service that EMODnet Bathymetry has to offer. From there, users also undertake downloading of DTM tiles which has a continuous high score of circa 8000 – 10000 downloaded DTM files per quarter.
11. Visibility & Analytics for web sections	This indicator shows the interest of users for specific sections of the website, excluding the Bathymetry Viewing and Download service. Strangely enough, it seems that the helpdesk receives most attention, which could be an error in the colour used as it is more to expect that the CDI pages receive that attention. Although many feedback forms are received through the helpdesk, their numbers are far lower than the reported page views here, which needs to be validated.
12. Average visit duration for web pages	Average visit duration is erratic, ranging from few seconds to 2:30 minutes. The interpretation of this diagram is complex as it might be interpreted in terms of user’s interest but also as difficulty to understand the concept described on the web page.

The monitoring numbers reported as part of the progress monitoring of EMODnet performance are collected through Matomo. In some cases, numbers from other monitoring systems may also be reported (e.g. Awstats, Google Analytics). Each system uses different technical approaches and therefore has its strengths and shortcomings. Therefore, results are indicative and care should be taken with interpreting absolute numbers or comparing results from different tools. It is often more sensible to consider trends over time collected by the same monitoring tool.

7. Annex: Other documentation attached

Feedback and communication from help desk with users

Subject: Re: EMODnet Bathymetry Feedback form

Date: Wed, 8 Apr 2020 11:11:46 +0200

From: ...

To: Dick M.A. Schaap <dick@maris.nl>

Thank you very much. Now it's clear.

Grazie Dick, superwork anyway. Keep it up.

My best regards.

Il giorno mer 8 apr 2020 alle ore 09:01 Dick M.A. Schaap <dick@maris.nl> ha scritto:

Dear ...,

Globe can read the EMO file but it needs to be exported to a dtm file before you can work with it. So first load the EMO file, then export it to DTM and finally import the DTM again.

That should work.

Kind regards

Dick

On 4/7/2020 6:50 PM, .. wrote:

Thank you for the information. So I assume that uploading a DTM file is just the equivalent of consulting an emo one, isn't it?

Because it seems I manage to read dtm files with Globe, but not to do the same with .emo.

Thanks alot,

Il giorno mar 7 apr 2020 alle ore 14:06 Dick M.A. Schaap <dick@maris.nl> ha scritto:

Dear,

Thank you for your interest in EMODnet Bathymetry.

The .emo format is our EMODnet DTM format and a comma separated file containing the following fields: Longitude, Latitude, Depth Minimum for the grid cell, Depth Maximum, Depth Average, Depth Standard deviation, Number of interpolation values used, Number of used elementary Surfaces, Average smoothed depth value, Offset of smoothed depth with respect to the average depth, CDI Identification (reference of the most significant survey used for this grid cell), DTM Identification (reference for the most significant DTM used for this grid cell)

More details can be found in the following document:

https://www.emodnet-bathymetry.eu/media/emodnet_bathymetry/org/documents/euco-0901-002_dtm_exchange_format_specification_v1.6.pdf

Kind regards,

Dick M.A. Schaap

Technical Coordinator

On 4/4/2020 8:02 PM, noreply@maris.nl wrote:

Name

Email

Feedback / Good afternoon, I've just found and downloaded high resolution files in .Emo format. What application

Question is necessary to open and read it properly? Thanks for your service.

Subject:Re: EMODnet Bathymetry Feedback form

Date: Tue, 14 Apr 2020 07:15:01 +0200

From: Dick M.A. Schaap <dick@maris.nl>

To: ...

Dear ...,

Thanks for your interest in EMODnet Bathymetry.

Concerning your issue with Area of Interest. We have done it ourselves a couple of times and the downloaded tifs (RGB/32bit) are fine without issues.

You mention 'bad magic number 16188(0x3f3c)' which might indicate a corrupted file or so. Can you please try again and tell us what happens. And can you inform us what software you use for viewing the downloaded tifs?

Kind regards,

Dick M.A. Schaap

Technical Coordinator

On 4/12/2020 6:13 AM, noreply@maris.nl wrote:

Name

Email ...

Feedback / Question Looks like the AOI downloaded cannot be open, it throws an error stating it is not tiff and bad magic number 16188(0x3f3c) Can you check this

Subject:Re: EMODnet Bathymetry Feedback form

Date: Thu, 16 Apr 2020 16:18:20 +0200

From: Dick M.A. Schaap <dick@maris.nl>

To:

Dear ...,

Good news. Please include an acknowledgement as explained at:

<https://www.emodnet-bathymetry.eu/data-products/acknowledgement-in-publications>

So:

EMODnet Bathymetry Consortium (2018): EMODnet Digital Bathymetry (DTM).

<http://doi.org/10.12770/18ff0d48-b203-4a65-94a9-5fd8b0ec35f6>

Kind regards

Dick

On 4/16/2020 4:00 PM, .. wrote:

Dick I had success! See below.

Are there any licenses or permissions we need to print these contours in a book?

thank you very much for your help

On 16/04/2020 1:43 a.m., Dick M.A. Schaap wrote:

Ok will hear from you.

Dick

On 4/15/2020 8:10 PM, .. wrote:

Hi Dick

I managed to download an .asc file. of about 1700 kb. I'll have a look.

thanks

On 15/04/2020 10:06 a.m., Dick M.A. Schaap wrote:

Dear ...,

We checked and saw there has been an issue with the WCS service. Can you please try again and see if it is ok now?

Will hear from you.

Dick M.A. Schaap

Technical Coordinator

On 4/15/2020 3:49 PM, noreply@maris.nl wrote:

Name:

Emailaddress:

Feedback: Hello When I press the link I received to download shown below, I get a message on Chrome saying the site is down and on Firefox saying Secure Connection failed. (<https://rest.emodnet-bathymetry.eu/file/SfeFc7RT9cMxZSop4fbgaTGr4>)

Subject:Re: EMODnet Bathymetry Feedback form

Date: Mon, 4 May 2020 07:30:41 +0200

From: Dick M.A. Schaap <dick@maris.nl>

To:

Dear ..,

Thank you for your interest in EMODnet Bathymetry. Concerning your question, it is not possible to retrieve the actual elevations from the RGBA Tiffs. These are available just for illustration purposes. The actual elevation values are available in the EMO, Esri ASCII, XYZ, SD and NetCDF formats. Also it is possible to download a GeoTiff with elevation values as Area of Interest. This option is probably the easiest for you in case you are interested in a small area. For the complete Tiles, the Esri ASCII format is the format that has the most industry support and can be read by all GIS software packages.

Kind regards,

Dick M.A. Schaap

Technical Coordinator

George

On 5/1/2020 9:57 PM, noreply@maris.nl wrote:

Name: ...

Emailaddress:

Feedback: Dear EMODNet team, I need some help interpreting the downloaded GeoTiff tiles. They come with 4 bands, RGBA. Can you tell me how to retrieve the elevation value from these 4 bands? What is the formula to decode the bands to actual elevation value in meters? Thank you so much,

=====
Subject:EMODnet Bathymetry Feedback form
Date: Tue, 12 May 2020 17:56:21 +0100
From:
To: 'Dick M.A. Schaap' <dick@maris.nl>

Hi Dick,
Many thanks for your response, Log in is ok and all is fine now thanks with required data successfully received.
All the best

..
From: Dick M.A. Schaap <dick@maris.nl>
Sent: Tuesday, May 12, 2020 5:41 PM
To: ...
Subject: Re: EMODnet Bathymetry Feedback form

Dear ...,
Can you provide some more information what you were trying to do? Did you order data via the CDI Data Discovery and Access service OR did you used the Bathymetry Viewing and Download service and tried to order some DTM tiles?
Please explain, because otherwise we cannot analyse what have might gone wrong.
Did you succeed in the meantime? or is the issue continued?
Will hear from you.
Kind regards
Dick M.A. Schaap
Technical coordinator
On 5/11/2020 12:43 PM, noreply@maris.nl wrote:
Name ..
Email ...
Feedback / Hi -- I am trying to register on SeaDataNet and am registered Marine-Id (manngéo) but get an error --->
Question Database error Can't get userdesk from country IM can you please advise ? Many thanks

Subject:Re: EMODnet Bathymetry Feedback form
Date: Sun, 17 May 2020 12:38:40 +0200
From: Dick M.A. Schaap <dick@maris.nl>
To: ...

Dear ...,
Thank you for your interest in EMODnet Bathymetry.
The EMODnet Digital Terrain Model has been produced and is regularly maintained for the European waters which we limited in a bounding box of (36W,15N; 43E,90N). The DTM is based upon a large collection of survey data sets and composite DTMs that have been gathered and processed for these waters and can be considered as the best DTM available for this area.
Quite recently, we have complemented the European data products with a new map layer: the EMODnet Bathymetry World Base Layer (EBWBL). This is composed of the 2018 EMODnet Bathymetric grid around Europe (approx. 115m resolution) and uses the GEBCO 2019 grid (approx. 500m resolution) elsewhere in the marine environment. While land coverage is based on a combination of satellite images.
However, this EBWML is only made available as OGC WMTS service. Have a look at: <https://tiles.emodnet-bathymetry.eu/> This webpage will give you details about the WMTS Capabilities document and a Demo Viewer (<https://tiles.emodnet-bathymetry.eu/preview.htm>) to try out a number of EMODnet DTM layers for Europe, the EBWBL for global coverage, and the various projections supported in the EBWBL WMTS service.
Hope this helps you to get a unified global bathymetry and terrain map. Integration of the WMTS service might take you some extra efforts compared to WMS, but is not complicated

Kind regards
Dick M.A. Schaap
Technical Coordinator

On 5/15/2020 7:25 PM, noreply@maris.nl wrote:

Name: ...

Emailaddress: ...

Feedback: Madam, Sir, First thank you for this beautiful product ! I've tried to use your WMS service with the layer "mean_atlas_land" as described here : <https://portal.emodnet-bathymetry.eu/services/services.html>. But it seems limited to a bounded box : is it possible to get the full earth coverage ? Thanks, ...

Subject:EMODnet Bathymetry Feedback form

Date: Mon, 15 Jun 2020 21:08:44 +0200

From: Dick M.A. Schaap <dick@maris.nl>

To: ...

Dear ...,

Thanks for your interest in EMODnet Bathymetry. Concerning your feedback: the downloadable EMODnet DTM tiles only contain the bathymetry. EMODnet is not an authoritative source for land data and has therefore excluded it from the downloads. Work around is to use area of interest download option which works with WCS. This will include the land data. Although this WCS service has limitations in the size of the area.

Hope this explains and gives you help.

Kind regards

Dick M.A. Schaap
Technical Coordinator

On 6/14/2020 9:59 PM, noreply@maris.nl wrote:

Name: ...

Emailaddress: ...

Feedback: Trying to download DTM around Greece but no land data showing in the download only bathymetry - even though I only have Mean depth full coverage selected. I got this data for the UK the other week so a bit confused?

Subject:Re: EMODnet Bathymetry Feedback form

Date: Tue, 16 Jun 2020 08:06:34 +0200

From: Dick M.A. Schaap <dick@maris.nl>

To:

Dear ...,

Thank you for your interest in EMODnet Bathymetry and also for spotting this error. We are in the process of updating the EMODnet DTM, adding new surveys and repairing anomalies, in order to have a new release by end of this year. I have informed the colleagues in charge about the error that you have identified and they will work on this.

Kind regards

Dick M.A. Schaap
Technical Coordinator

On 6/15/2020 7:53 PM, noreply@maris.nl wrote:

Name ...

Email

Feedback / I would like to report an error on the latest gridded product available. On the South Coast of Madeira

Question Island the bathymetric product available shows a "hole" almost with almost 2000m of depth. This "hole" is not real, and probably is an artifact due to interpolations. I know interpolated products might have this kind of errors, and in the present case this might lead to important errors when conducting research performed using the cited dataset.

Subject:Re: EMODnet Bathymetry Feedback form
Date: Wed, 24 Jun 2020 09:57:46 +0200
From: Dick M.A. Schaap <dick@maris.nl>
To: ...

Dear ..,

Thank you for your interest in EMODnet Bathymetry. Concerning your question:

Quality Index is an improved source reference layer with quality indication. Metadata has been expanded with characterization of the dataset by vertical, horizontal and temporal indicators, purpose of the survey, and information about commonly adopted standards. Analysis has resulted in extra maps with Quality Indicators for each source reference. A [report](#) about the Quality Index analysis method and results can be downloaded from:

https://www.emodnet-bathymetry.eu/media/emodnet_bathymetry/org/documents/emodnet_bathymetry_quality-index_application_version12022019.pdf

while the quality index layers can be viewed and interrogated for metadata, using the Map Viewer at:

<https://portal.emodnet-bathymetry.eu/>.

After activating the Quality Index layer, you will have a submenu for LEGEND and for CONFIGURE DISPLAYED QUALITY INDICATOR . This allows you to view the Quality Indicators on the map, but has no option to download the quality index files as such.

Moreover we provide OGC WMS and WFS for the Quality Index layers for which you can find more details at:

<https://portal.emodnet-bathymetry.eu/services/>

Hope this helps.

Kind regards

Dick M.A. Schaap

Technical Coordinator

====

6/22/2020 1:26 AM, noreply@maris.nl wrote:

Name ..

Email ..

Feedback / Question Hi, I am trying to download the quality indicator dataset, principally the vertical flag for the EMODnet bathymetry (2018). Unfortunately, I can't seem to find this on the site. Can you advise?
