EMODnet
European Marine Observation and Data Network

国家海洋信息中心
NATIONAL MARINE DATA AND INFORMATION SERVICE

EMOD-PACE

European Marine Observation and Data Network Partnership for China and Europe

CEMDnet

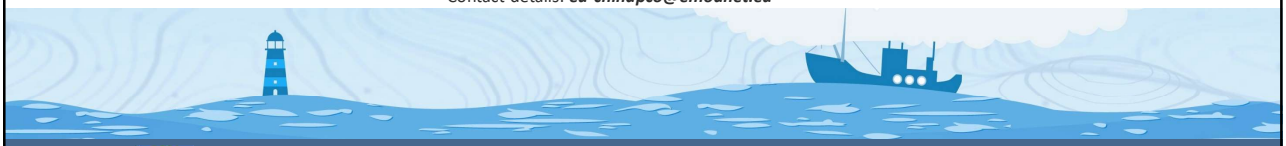
China-European Union Marine Data Network Partnership

中国-欧盟海洋数据网络伙伴关系 - 中国-欧盟海洋数据网络伙伴关系

Strengthening International Ocean Data through the European Union's Ocean Diplomacy with China

Marine Knowledge Expert Group (Closed Session) 28th April 2022

Contact details: ***eu-chinapco@emodnet.eu***



The project "International Ocean Governance: Strengthening international ocean data through the EU's ocean diplomacy with China" is financed by the European Commission EuropeAid/139904/DH/SER/CN.

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Agenda

- Explanation of the EMOD-PACE and CEMDnet Partnership evolution
- Update of the project activities
- Specific issues and points of attentions, recommendations to strengthen the outputs and outcome/impacts
- Workplan for the next Months
- Implications of no-cost extensions - end December 2022
- Upcoming meetings and activities
- Legacy and vision

EMODPACE-CEMDNET
Objectives

Facilitate European and Chinese engineers and scientists to build up a picture of the marine environment using data from both sources.

Promote international ocean governance and support the implementation of global commitments by **making ocean marine data and data products more easily accessible and by providing better data and data products**.

Highlights to present

EU China Blue Year Event - forecasting, data, monitoring, planning, indicators

June 2017

July 2018

China and EU signed a Blue Partnership for the Ocean

EU delegation visited NMDIS

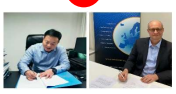
September 2018

February 2020

EMOD-PACE (EMODnet PArtnership for China and Europe) project funded by the Partnership Funding Instrument (PI) and managed by the Unit FPI.4 called Industrialized Countries & Foreign Policy Support (€3.5million, 30 months)

EMOD-PACE, CEMDnet Mid-term meeting and MoU between EMODnet and NMDIS Portals online with map viewer & Helpdesk

January 2021

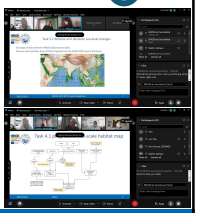


October 2021

1. EMOD-PACE CEMDnet WP1 and WP2 meeting
2. EMOD-PACE CEMDnet IODE and ODIN WESTPAC meeting
3. Project Management Board meeting

Meetings for the preparation of EMOD-PACE next milestones and deliverables in all work-packages

December 2021



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Roadmap for 2022

Inter Services Steering Committee meeting advice & Request for project extension

Early February 2022

Mid February 2022

1. M24 Milestones and Deliverables
2. Interim Report

Project Management Board focus on
1. High level meeting
2. Common Work Plans
3.Dissemination

March 2022

M K E G

May 2022

Joint High Level Meeting EMODPACE-CEMDnet (remote)

Partnership meeting in Brussels, *in situ*

September 2022

May-December 2022

Dedicated Dissemination & Communication Activities

Nov/Dec 2022

Final Conference, China Tianjin, in situ

M K E G

Proposed consortium in-situ final meeting in Brussels

December 2022

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EMOD-PACE Work Packages

Work Package 0 - Project Coordination, Management and Communication

Work Package 1 - EU-China Web Portal, creation of **interoperable information system** linking EMODnet & NMDIS

Work Package 2 - Establishing **data interoperability** between EMODnet and NMDIS

Work Package 3 - Comparison of European and Chinese **models for regional sea reanalysis**

Work Package 4 - Comparison of European and Chinese **models for seabed habitat and ecosystem vulnerability**

Work Package 5 - **Coastal Adaptation**

- Relative sea level changes & Absolute sea level changes
- Coastal erosion
- Wetland degradation
- Vessel traffic density

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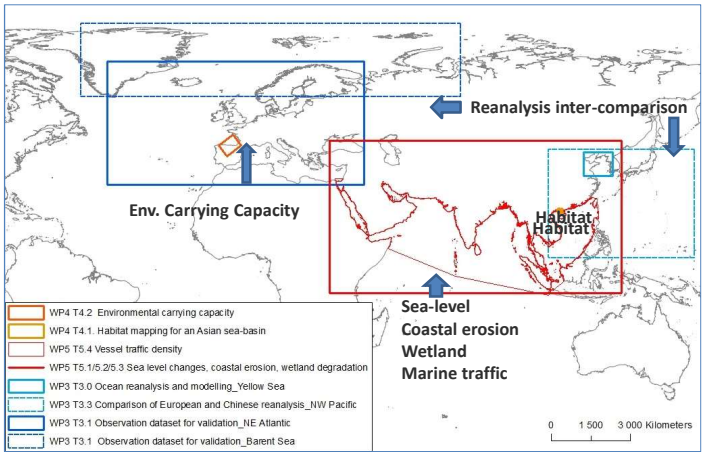
Areas of Interest for the EMOD-PACE CEMDnet Collaboration



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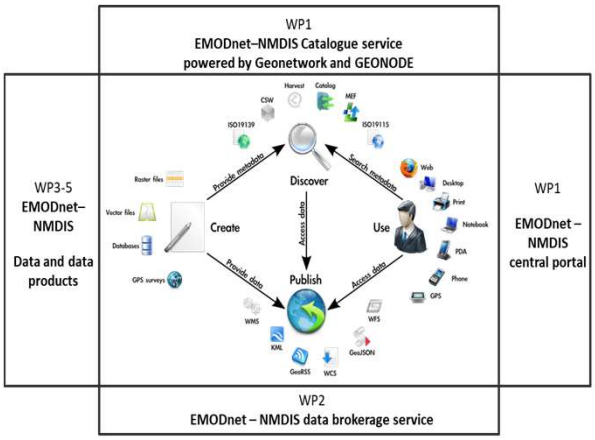
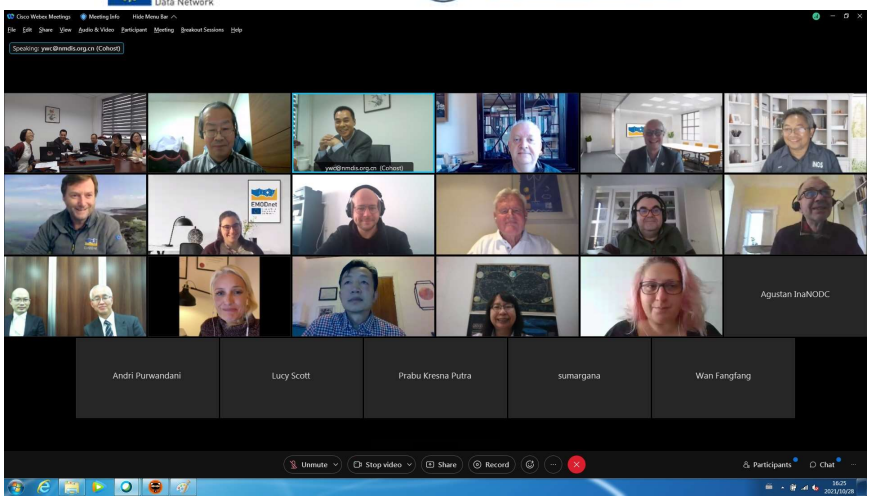
How we have been achieving EMOD-PACE CEMDnet common objectives



WP0 - Coordination

- *PMB meetings : 5 (15 Jan 2021, 19 Mar 2021, 28 May 2021, 27 Oct 2021, 9 Dec 2021 and upcoming in March 10th 2022)*
- *Regular coordination meeting with NMDIS-CEMDNet Coordination Office*
- ODIN-WESTPAC & IODE meeting : 28 Oct 2021 → Extend partnership to wider region
  - Benefits to join partnership – rationale
  - Side-event related to extending partnership
- Plenary meeting & possible **side event linked to extending Partnership** (May 2022)
- **No cost extension** (December 2022) Opportunities to meet and share achievements in China and Europe
  - Time for all beyond contract outputs to fully materialise: Joint Activities / Common Work Plans
  - Extended period for increased communication dissemination & lasting impact
  - Connect with other opportunities/events
- **Issues resolution**: language and communication, open data sharing, data sharing workarounds, Common Work Plans and Joint Activities – dissemination & outreach



The 2021 Ad hoc meting of the Ocean Data and Information Network (ODIN) for the WESTPAC region took place online on October 28th 2021

Source: http://odinwestpac.nmdis.org.cn/pages/newsDetail.html

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EMOD-PACE Deliverables

*Deliverables received and submitted by PCO are in **GREEN BOLD**

* Dissemination Level (1. Public via project website; 2. Public and actively promoted; 3. Internal and shared to Partnership Internal and shared to Partnership)

Deliverable	Deliverable description	Due date (Month/M)	Dissemination Level
D0.1	**Inception meeting minutes: Short minutes and actions from the inception meeting**	**M2**	**3**
D0.2	**Interim report 1: project status after 1 year**	**M12**	**3 to 1?**
D0.3	**Interim report 2: project status after 2 years**	**M24**	**3 to 1?**
D0.4	Draft Final report	M29	**3**
D0.5	Final report	M30	**1 to 2?**
D0.6a/0.6b/0.6c	**Minutes of inception, mid-term,** final meeting	**M2, M11,** M30	**3**
D0.7a/0.7b/0.7c	**Minutes of Steering Committee meetings (3 meetings foreseen, provisional timings included, for Steering Committee validation)**	**M1, M12, M24**	**3**
D0.8	**Report on the Performance Monitoring System Methodology and Approach**	**M2**	**3**
D0.9a-i	**Three-monthly performance monitoring summary reports using performance indicators**	**M6, 9, 12, 15, 18, 21, 24,** 27, 30	**3**
D0.10	**Short (6 pages maximum) communication and dissemination plan**	**M3**	**3**
D0.11	**Leaflet (bilingual in English and Chinese) on project communicating key objectives, partnership**	**M14**	**2**
D1.0	**Minutes from the WP1 and WP2 meeting for European and Chinese counterparts held in M19**	**M20**	**3**
D3.1	**Short report on choice of sea-basins and models made, including a list of data made available**	**M12**	**1**
D3.2	**Draft report on comparison between reanalyses (i.e. draft report on inter EU-China coastal model product inter comparison and analysis and EU-China reanalysis product inter-comparison and analysis**	**M24**	**1 to 3**
D3.3	Final report on comparison between reanalyses (i.e. final report on inter-comparison EU-China coastal model product)	M30	**1 to 3**
D4.1	**Short summary report summarizing choice of test areas, identification of data requirements and list of required data and data already gathered**	**M12**	**3 to 1?**
D4.2	**Draft report describing the mapping method and the suitability of EUNIS approach to China, showing a single sea basin as an example**	**M24**	**1 to 3?**
D4.3	**Draft report on the suitability of ECC approach to Europe, showing the Bay of Biscay as an example and eventually another European basin**	**M24**	**1 to 3**
D4.4	Final report describing the mapping method and the suitability of EUNIS approach to China, showing a single sea basin as an example	M30	**1 to 2**
D4.5	Final report on the suitability of Ecological Carrying Capacity (ECC) approach to Europe, showing the Bay of Biscay as an example and eventually another European basin	M30	**1 to 2**
D5.1	Online discussion paper on the translation of mapped coastal behaviour into mapped coastal resilience, an applied data product with clear added value because it can be used in decision making	M30	**1 to 2?**

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Joint Activities

***Reports received by the EMOD-PACE Project Coordination Office are in RED BOLD**

Joint activity	Activities	Internal deliverable (Deadline, tentative)
JA3 1.1	**Data review: Availability of observations for validation of regional sea reanalysis**	**31 Oct. 2020, report (can be combined with JA3 8)**
JA3 1.2	**Review of reanalysis evaluation in regional seas**	31 Oct. 2020, report
JA3 1.3	**Review of data assimilation method** ***-EMOD-PACE_WP3_JA3_1_3_data assimilation review.pdf***	**31 Oct. 2020, report**
JA3 1.4	**Review of Coast Ocean models** ***-EMOD-PACE_WP3_JA3_1_4_coastal ocean model review.pdf***	**31 Oct. 2020, report**
JA3 8	**WP3.1 Common observation dataset for model validation** ***-EMOD-PACE_WP3_JA_3_8_data review_validation_dataset.pdf***	**31 Dec. 2020, dataset & report**
JA3 9	**WP3.3 Common validation and inter comparison method for reanalysis in the regional sea** ***-EMOD-PACE_WP3_JA3_9_common validation method.pdf***	**31 Dec. 2020, report**
JA 4.1.1	Literature review	19th January 2021
JA 4.1.2	Data collation and preparation – depth to the seabed	19th January 2021, Datasets inventory; 19th June 2021, Data layer delivery
JA 4.1.3	Data collation and preparation – seabed substrate	19th January 2021, Datasets inventory; 19th June 2021, Substrate layer
JA 4.1.4	Data collation and preparation – optical properties	19th January 2021, PAR/Kdpar deliverable; 19th June 2021, PAR at seabed
JA 4.1.5	Data collation and preparation – biological observations and other explanatory variables	19th January 2021, Datasets inventory; 19th June 2021, data collation delivery
JA 4.1.6	**M12 reporting**	**19th February 2021**
JA 4.2.1	Literature review	January 2021
JA 4.2.2	ECC method selection	January 2021

Joint Activities

Joint activity	Activities	Internal deliverable (Deadline, tentative)
JA5.2	Review of existing knowledge for relative and absolute sea level rise in the AoI	30th April 2021
JA5.3	**Consolidated list of tide gauge stations and application of trend extraction with alternative methods** ***-WP5_CWP_JA5.3_Consolidated list of tide gauge stations and application of trend extraction with alternative methods_v1-1.pdf*** ***-Copy of EMODPACE_RLR_1993_2019.xlsx*** ***-Copy of EMODPACE_TGDB.xlsx***	**30th January 2021**
JA5.4	**Consolidated list of model/reanalysis/projection data sets** ***-JA5.4.ListOfReanalysis.docx***	**30th November 2020**
JA5.6	**Decision of the AoI on the basis of regions with different coastal types, in combination with data availability/literature** ***-JA5.6.AreasOfInterest_20201102.docx*** ***-JA5.6.zip***	**30th November 2020**
JA5.8	Generation of mapping products and indicators derived from Earth Observation data in order to analyse the coastal erosion and wetland degradation trends in the AoIs	30th April 2021
JA5.9	**Grid of the Area of Interest for the vessel density maps** ***-WP5.4_Vessel_density_Map_AoI_Grid_Notes_20201104.docx*** ***-EMOD_PACE_WP5_GRID_20201026.7z***	**30th October 2020**
JA5.10	**Vessel density maps**	**29th October 2021**
JA5.11 (Deliverable 5.1 from proposal)	Online discussion paper on the translation of mapped coastal behaviour into mapped coastal resilience	31th July 2022

WP1 – Information System

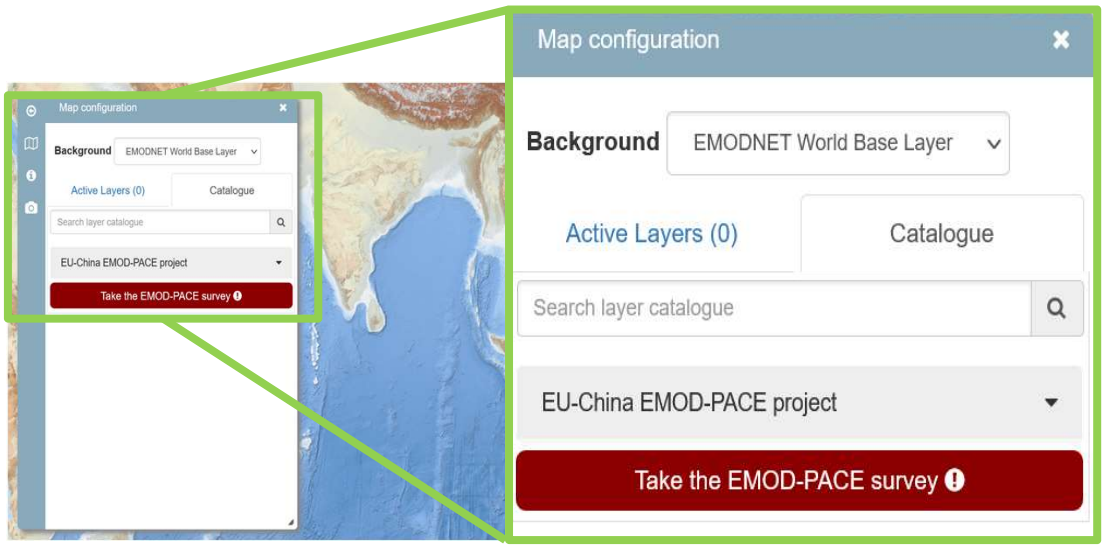
Provide visibility to the project results and access to data and products

- **Task 1.1.** Development of a bilingual web-portal giving access to project information
  - **Milestone 1-2.1**. *Publication of **bilingual web portal** with project information* (M6); **Done** (with the assistance of NMDIS)
  - **Milestone 1-2.2**. *Web-site operational, including **bilingual map viewer*** (M12); **In place; map viewer updates ongoing**
  - **M1-2.5.** *English **user-helpdesk** operational* (M6) ; **Done**
- **Task 1.2.** Modify the EMODnet central portal to allow users to discover and download data and data products
  - 3 (+ 4 beta) European data/products available
  - EMODPACE experts providing active support to NMDIS to making available OGC layers & Data services
- ***Task 1.3**. Expanding remit to other Asian data centers;* ***In progress***
- ***Task 1.4**. User feedback collection and helpdesk in English* **Done**
- ***Task 1.5**. Services to detect and remove data duplicates*
- ***Task 1.6**. A system to monitor the volume and purpose of data and product usage*

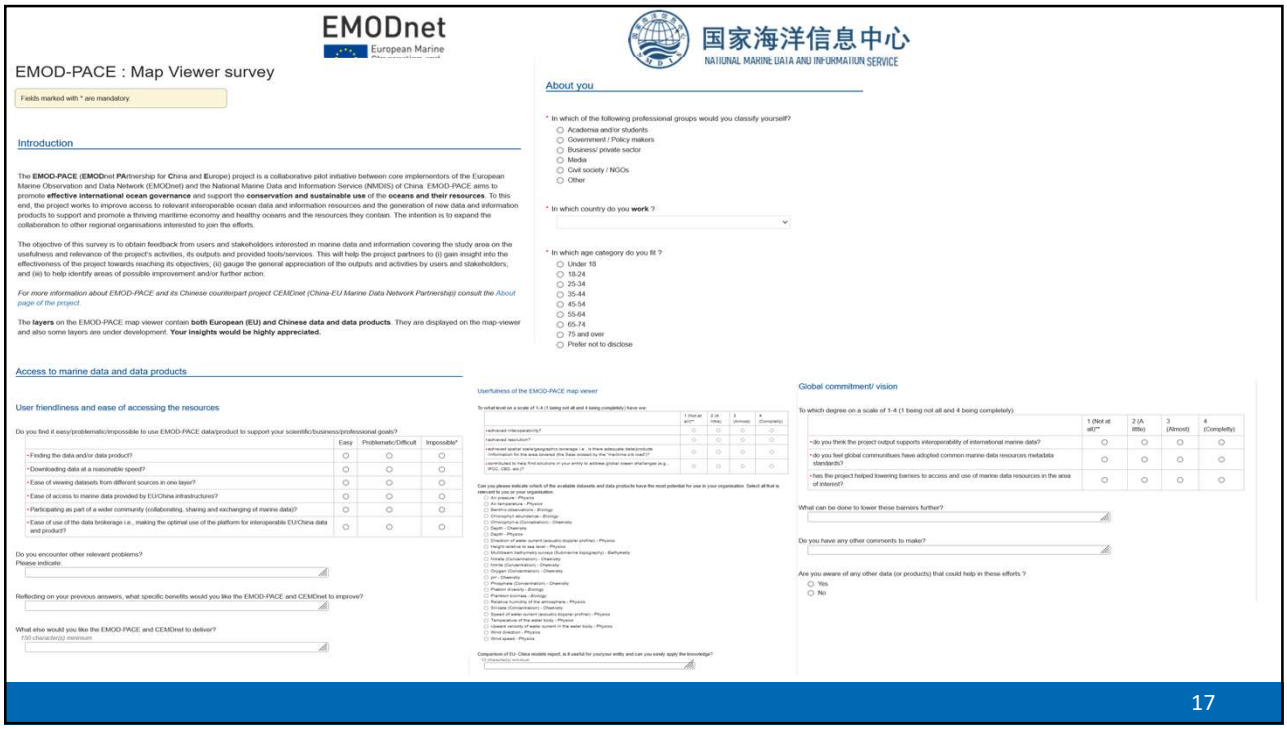
WP1 – Information System

Points of attention and observations

- Major updates to EMODnet with implications for EMODPACE website/portal
  - New website on new domain : https://www.emodnet.eu => https://emodnet.ec.europa.eu
  - New design and layout & more stringent guidelines
- **Continuous updates of map viewer and web content**
  - New (condensed) "About" page : https://emodnet.ec.europa.eu/en/emod-pace/about
  - **Map-viewer continuously updated in alignment with the '**centralisation', including download options (easy download of data/products)
  - WP5 data is hosted on an ERRDAP server they run. Map viewer displays a WMS layer based on that data. Plan to continue this workflow.
  - EMOD-PACE map viewer survey launched : https://ec.europa.eu/eusurvey/runner/EMOD-PACE_MapViewer-Survey
  - Document/agreement on one single Metadata catalogue
  - NMDIS = Open data policy but not data shared, tech transfer



https://emodnet.ec.europa.eu/geoviewer/?layer_collections=EMOD_PACE#!/



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EMOD-PACE : Map Viewer survey

Fields marked with * are mandatory.

Introduction

The **EMOD-PACE** (**EMOD**net **PA**rtnership for **C**hina and **E**urope) project is a collaborative pilot initiative between core implementors of the European Marine Observation and Data Network (EMODnet) and the National Marine Data and Information Service (NMDIS) of China. EMOD-PACE aims to promote **effective international ocean governance** and support the **conservation and sustainable use** of the **oceans and their resources**. To this end, the project works to improve access to relevant interoperable ocean data and information resources and the generation of new data and information products to support and promote a thriving maritime economy and healthy oceans and the resources they contain. The intention is to expand the collaboration to other regional organisations interested to join the efforts.

The objective of this survey is to obtain feedback from users and stakeholders interested in marine data and information covering the study area on the usefulness and relevance of the project's activities, its outputs and provided tools/services. This will help the project partners to (i) gain insight into the effectiveness of the project towards reaching its objectives; (ii) gauge the general appreciation of the outputs and activities by users and stakeholders; and (iii) to help identify areas of possible improvement and/or further action.

For more information about EMOD-PACE and its Chinese counterpart project CEMDnet (China-EU Marine Data Network Partnership) consult the About page of the project.

The **layers** on the EMOD-PACE map viewer contain **both European (EU) and Chinese data and data products**. They are displayed on the map-viewer and also some layers are under development. **Your insights would be highly appreciated.**

About you

* In which of the following professional groups would you classify yourself?
- Academia and/or students
- Government / Policy makers
- Business/ private sector
- Media
- Civil society / NGOs
- Other

* In which country do you **work** ?

* In which age category do you fit ?
- Under 18
- 18-24
- 25-34
- 35-44
- 45-54
- 55-64
- 65-74
- 75 and over
- Prefer not to disclose

Access to marine data and data products

User friendliness and ease of accessing the resources

Do you find it easy/problematic/impossible to use EMOD-PACE data/product to support your scientific/business/professional goals?

	Easy	Problematic/Difficult	Impossible*
•Finding the data and/or data product?			
•Downloading data at a reasonable speed?			
•Ease of viewing datasets from different sources in one layer?			
•Ease of access to marine data provided by EU/China infrastructures?			
•Participating as part of a wider community (collaborating, sharing and exchanging of marine data)?			
•Ease of use of the data brokerage i.e., making the optimal use of the platform for interoperable EU/China data and product?			

Do you encounter other relevant problems?
Please indicate:

Reflecting on your previous answers, what specific benefits would you like the EMOD-PACE and CEMDnet to improve?

What else would you like the EMOD-PACE and CEMDnet to deliver?
150 character(s) minimum

Userfulness of the EMOD-PACE map viewer

To what level on a scale of 1-4 (1 being not all and 4 being completely) have we:

	1 (Not at all)**	2 (A little)	3 (Almost)	4 (Completly)
•achieved interoperability?				
•achieved resolution?				
•achieved spatial scale/geographic coverage i.e., is there adequate data/products information for the area covered (the Seas crossed by the "maritime silk road")?				
•contributed to help find solutions in your entity to address global ocean challenges (e.g., IPCC, OBD, etc.)?				

Can you please indicate which of the available datasets and data products have the most potential for use in your organisation. Select all that is relevant to you or your organisation.
- Air pressure - Physics
- Air temperature - Physics
- Benthic-observations - Biology
- Chlorophyll abundance - Biology
- Chlorophyll-a (Concentration) - Chemistry
- Depth - Chemistry
- Depth - Physics
- Direction of water current (acoustic doppler profiler) - Physics
- Height relative to sea level - Physics
- Multibeam bathymetry surveys (Submarine topography) - Bathymetry
- Nitrate (Concentration) - Chemistry
- Nitrite (Concentration) - Chemistry
- Oxygen (Concentration) - Chemistry
- pH - Chemistry
- Phosphate (Concentration) - Chemistry
- Plankton diversity - Biology
- Plankton biomass - Biology
- Relative humidity of the atmosphere - Physics
- Silicate (Concentration) - Chemistry
- Speed of water current (acoustic doppler profiler) - Physics
- Temperature of the water body - Physics
- Upward velocity of water current in the water body - Physics
- Wind direction - Physics
- Wind speed - Physics

Comparison of EU -China models report, is it useful for you/your entity and can you easily apply the knowledge?
10 character(s) minimum

Global commitment/ vision

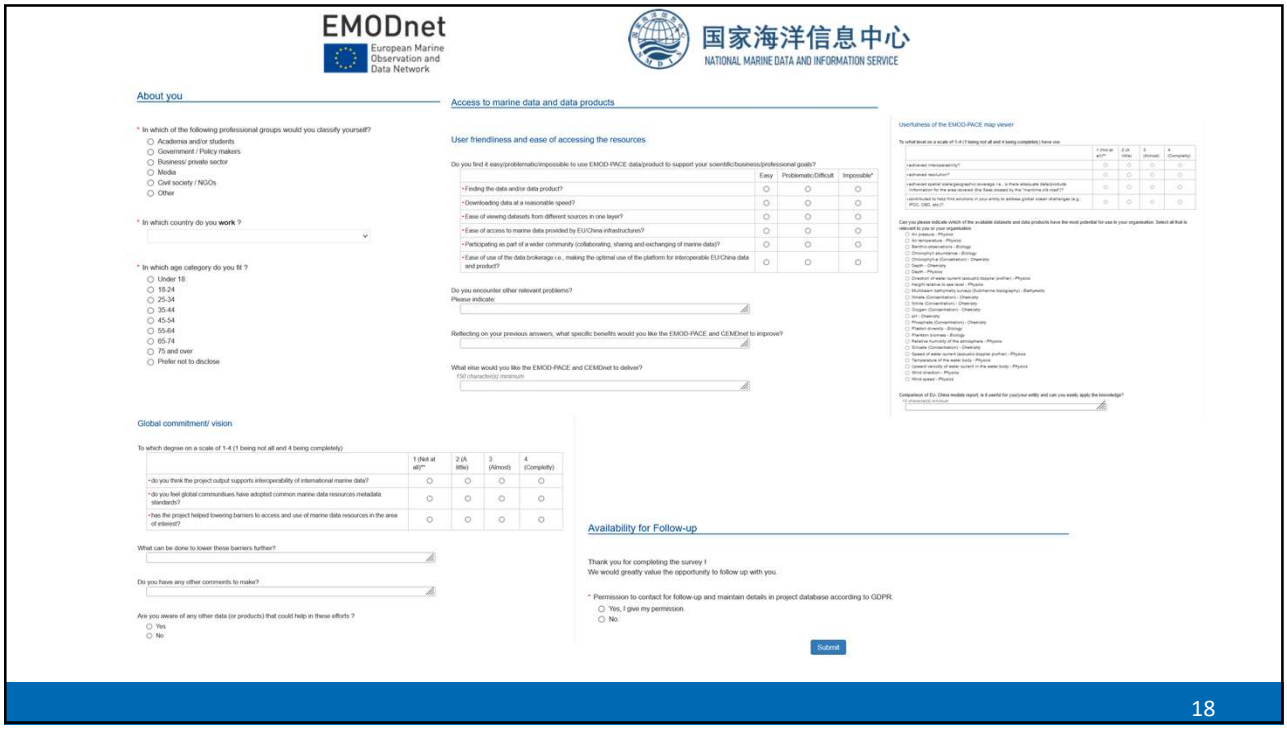
To which degree on a scale of 1-4 (1 being not all and 4 being completely)

	1 (Not at all)**	2 (A little)	3 (Almost)	4 (Completly)
•do you think the project output supports interoperability of international marine data?				
•do you feel global communities have adopted common marine data resources metadata standards?				
•has the project helped lowering barriers to access and use of marine data resources in the area of interest?				

What can be done to lower these barriers further?

Do you have any other comments to make?

Are you aware of any other data (or products) that could help in these efforts ?
- Yes
- No



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- Yes
- No

Availability for Follow-up

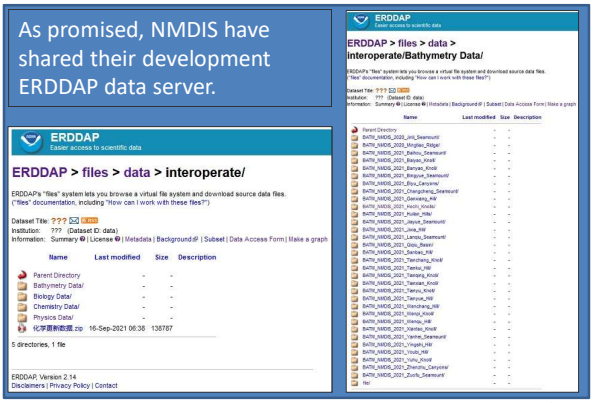
Thank you for completing the survey !
We would greatly value the opportunity to follow up with you.

* Permission to contact for follow-up and maintain details in project database according to GDPR.
- Yes, I give my permission.
- No.

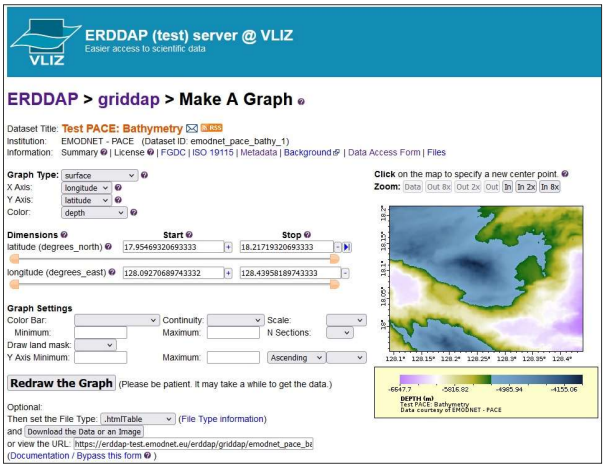
Submit

WP1 – Data Interoperability with NMDIS

As promised, NMDIS have shared their development ERDDAP data server.



Imported a file into EMODnet ERDDAP server



WP1 – Support to NMDIS

- NMDIS preparing all the products of 4 disciplines (WP2) + list for WP1 Once the NMDIS OGC server is set up, the products can be shared. **Status: NMDIS will update EMOD-PACE on this development when it is in place.**
- Guidance from WP1 (metadata and OGC services) on "absolute minimum" standard WMS (9 metadata fields in Geoserver). Better: minimum fields required for proper Geonetwork metadata catalogue (CSW) in preparation for eventual sharing with EMOD-PACE and provide an example of an EMODnet product to their reference – **status: DONE**
- WP1 to send sent email to NMDIS to fix ERDDAP XML config syntax – **status: DONE**
- WP1 to work with NMDIS to help them setup GEONODE – **status: ongoing, Geonode technically running**
- WP1, the Central Portal Technical team and Bilbomatica (3rd party contractors) are working together to define schedule of development work for Bilbomatica. **Status: This work will possibly deliver M1-2.7 "The deployment of the Geoserver monitoring plugin"**

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WP1 - Task 1.3 Expanding remit (UN Ocean Decade Satellite Activity)

https://emodnet.ec.europa.eu/en/ocean-decade-satellite-activity-expanding-data-interoperability-between-europe-and-asia

Extend the web portal to allow users to discover and view data held by Asian data centres, not yet included in our catalague, with common formats

- Optimize the full potential of the MoU, by using it to broaden the collaboration in the Asia Region.
- Combine data from different/broader regions with already existing/open data from NMDIS/EMODnet might give new scientific insights
- Data, products & metadata stay in original datacentre (not copied over). Using OGC web services to display products. Geonetwork for displaying unified metadata catalogue
- Exchange of technical knowledge, i.e. OGC & INSPIRE standards

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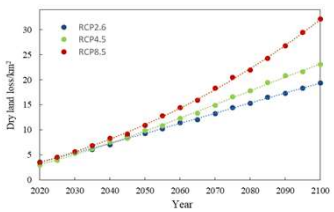
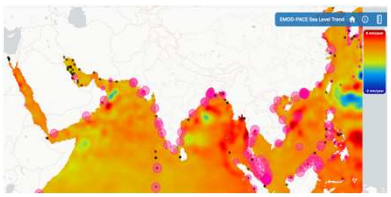
Benefits for others to join

- **Contribute to the shared high level of objectives** of the project to
  - *improve our knowledge of the behavior of the sea*
  - *promote international ocean governance for our global commitments*
  - *reduce uncertainty-driven risk and improve productivity*
- **Be a part of a concrete wider cross-regional project with hands-on collaborations at the technical and scientific level** to improve access and sharing of marine data, processing of marine data, assessing modeling approaches and generation of data products useful for a wide range of regional and global users;
- **Learn from and share expertise/experiences** with colleagues from Europe, China and other Asian countries, benefiting from lessons learned amongst others





WP2 – Data interoperability

Milestone MS 1-2.3 - *Web-site operational - including **downloadable data** from both NMDIS and EMODnet* M24

First step: Harvesting Chinese data via ERDAPP servers done

- Making available via the EMODPACE portal
- Testing interoperability

Second step: deploying EMODPACE data broker in progress

- Self-standing portal with interfaces for data and data products discovery and access for EMODnet and NMDIS.
- Configuration of alternative solution via a dedicated brokerage service (including NMDIS data in the CP data services)

WP2 – Data interoperability

- WP1 and WP2 meeting for European and Chinese counterparts held in M19
  - *Participants : European (24 persons) and Chinese NMDIS colleagues (9 persons)*
  - *Meeting summary:*
    - ✓ *NMDIS converting local data sets for Physics, Chemistry, Bathymetry, and Biology to agreed European standards for metadata and data*
    - ✓ *NMDIS setting up and populating web service end-points*
    - ✓ *Progressing with deployment DAB brokerage service for retrieving NMDIS metadata and data and developing interface at EMOD-PACE portal*
  - *Minutes : D1.0 Minutes from the WP1 and WP2 meeting for European and Chinese counterparts held in M19 – DELIVERED*

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WP2 – Data interoperability

Brokerage **Service**

- NMDIS has **successfully deployed ERDDAP** endpoint for data sharing and **Swagger API endpoint for metadata sharing**, while for Biology it has populated EurOBIS IPT service endpoints
- Data sets to be shared by NMDIS number 29 for four themes:
  - ✓ **Chemistry** (China ocean surveys - 2008-2017: dissolved oxygen, pH, nutrients, alkanes, alcohols and other elements),
  - ✓ **Biology** (China ocean surveys - 2001-2017: chlorophyll, benthos, plankton and other elements),
  - ✓ **Bathymetry** (China ocean surveys - 1998-2017: Submarine topographic data),
  - ✓ **Physics** (Operational NRT & Archived oceanographic data sets)
- Data Conversions and endpoint population made to date by NMDIS
  - ✓ **Chemistry** (14 cruise voyages and 117 stations data sets)
  - ✓ **Bathymetry** (32 interesting underwater features)
  - ✓ **Biology** (14 cruise voyages and 26 data sets with 3965 occurrence records)
  - ✓ **Physics** (27 cruises with 521 casts, current timeseries and ship mounted ADCP for 13 cruises)

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Technology Updates (WP2): Establishing data interoperability between EMODnet and NMDIS
Final Year: Planned Progress

- A series of WP2 collaborative thematic data meetings took place to monitor, discuss and advance progress for the development and implementation of the EMODnet – NMDIS data brokerage service and physics NRT data exchange.
- The target number for parameters to be covered with interoperable data made available is 29, with sample data being already provided for 10 parameters so far. NMDIS is working on transformation of its datasets to increase the number of parameters. As a next step, it was agreed that NMDIS would share the following

Chemistry: Chemical data of China ocean surveys from 2008 to 2017:
- analysis and test data of marine chemical samples, including
- pH,
- nutrients,
- dissolved oxygen,
- alkanes,
- alcohols and other elements.

Biology: Biological data of China ocean surveys from 2001 to 2017: biological sample analysis data from observation site, including
- chlorophyll,
- benthos,
- plankton and other elements.

Bathymetry: Submarine topographic data of China Ocean Survey by multi-beam bathymetry surveys for scientific interesting areas made on scientific ocean cruises from 1998 to 2017;

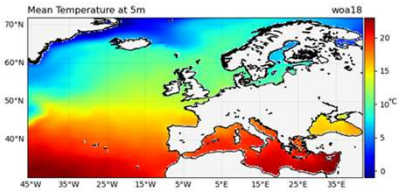
Physics: Operational NRT data from national monitoring activities, and archived oceanographic data sets from scientific ocean surveys.

WP3 – Regional sea reanalysis

- **WP3.2.1**: Validation / Inter-comparison of EU **coastal forecast** product and NMDIS reanalysis in the Yellow Sea
  - *Hourly forecast (EU) validation: Sea level, SST/SSS at coastal stations*
  - *Daily mean product validation/inter-comparison: sea level, coastal SST/SSS and open sea T/S for both forecast& RAN*
  - *Model fields inter-comparison*
- **WP3.2.2**: Validation & inter-comparison of EU and CN **tide model** in Chinese coast: EU model: completed; CN-model: on-going
- **WP3.2.3**: Validation & inter-comparison of EU **climate simulation** & CN reanalysis in NW Pacific: SST and SSH: completed

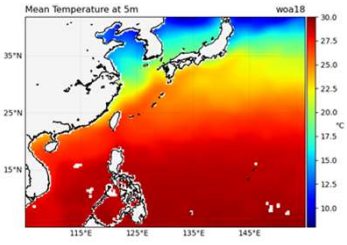
- **WP3 EMODPACE-CEMDNET:** *8 meetings in 6 Months-working on JA3.2-JA3.7*

WP3 – Regional sea reanalysis



WP3.3 Inter-comparison of EU and China reanalysis

- Reanalysis inter-comparison/validation framework
  - Reanalysis products: three from EU, two from China
  - Three geographic areas: NW Pacific, European Seas, GIN Seas
  - Variables/parameters exchanged
    - 3D temperature, salinity and currents; 2D sea level, 2004-18
  - Products with common spatial grid/format generated
  - Data sharing protocols developed
- Common validation method developed
  - Similar to CMEMS validation matrix: 4 classes are applied
- Current status:
  - Class 1 and class 2 results are completed; Class 3 and 4 will be completed in M24-M30



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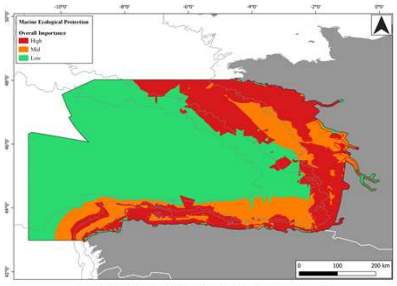
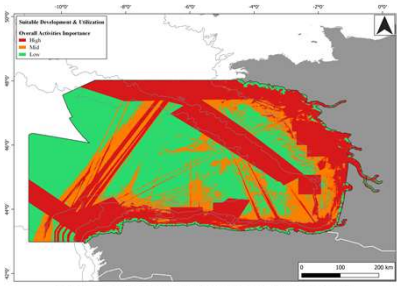
WP4 – Seabed habitat & ecosystem vulnerability

Comparing the European and Chinese numerical models used by analysing the applicability of each side's models in different areas:

- Task 4.1 Habitat mapping for an Asian sea-basin
- Task 4.2 Environmental carrying capacity (ECC)



Marine ecological protection in the Bay of Biscay



Importance of Human activities: Aggregated assessment

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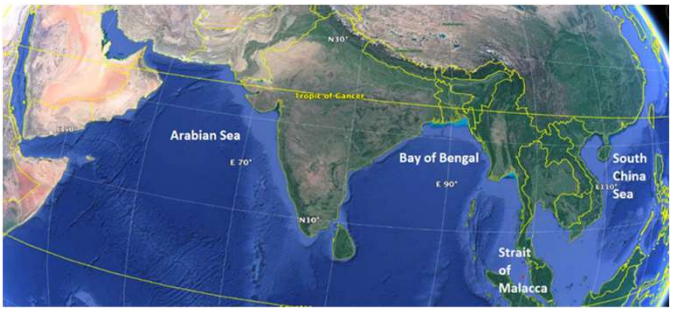
WP5 – Coastal Adaptation

WP5 Aims & Objectives

To provide data/information products (i.e. digital maps) covering the Seas crossed by the Maritime Silk Road on:

- Task 5.1 – Relative and absolute sea level changes
- Task 5.2 – Coastal erosion
- Task 5.3 – Wetland degradation
- Task 5.4 – Vessel traffic density



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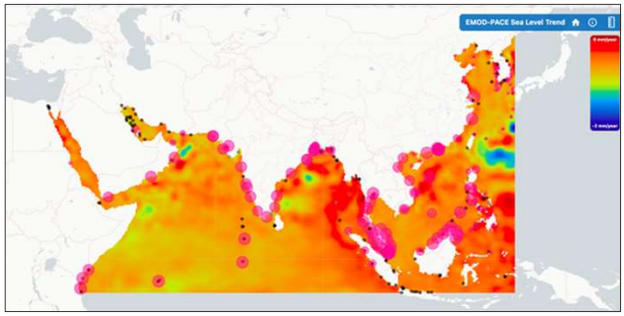
WP5 – Coastal Adaptation

Task 5.1 – Relative and absolute sea level changes



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WP5 – Coastal Adaptation

- **Task 5.2** – Coastal erosion

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WP5 – Coastal Adaptation

- **Task 5.3** – Wetland degradation

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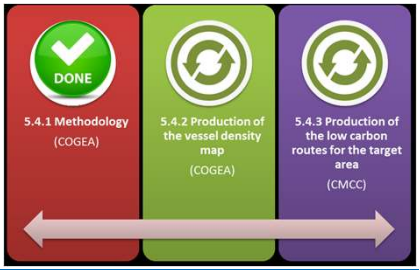
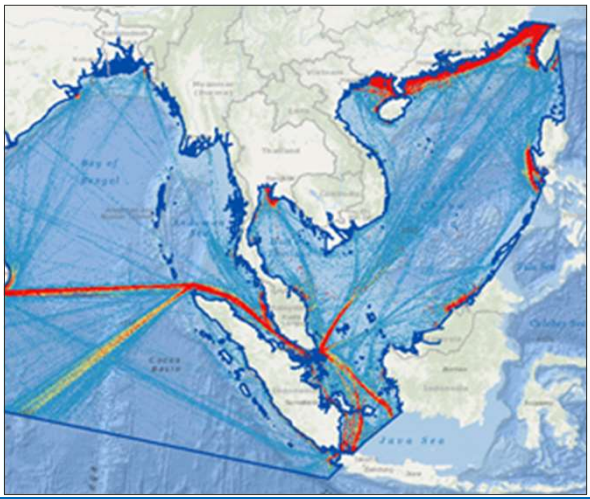
WP5 – Coastal Adaptation

- **Task 5.4** – Vessel traffic density





Summary points for attention & feedback

- Efforts in Joint Activities (WP3-5) : time consuming, but promising and supportive to EMOD-PACE contractual deliverables.
- Language barriers (both sides)
- Issues with data access through common technology
- Cooperation within Work-Packages
- Use of Earth Observation date for models
- No cost extension, added value beyond delivery of outputs
- Dissemination/Communication for maximum impact
- High Level Plenary Meeting (11-12 May) with side-event for expanding the Partnership

Next Steps

- Achieve Future milestones. deliverables, both contractual and also those through the MoU Common Work Plans
- Plenary meeting – May 2022 and Wider region Stakeholder Side-event https://emodnet.ec.europa.eu/en/ocean-decade-satellite-activity-expanding-data-interoperability-between-europe-and-asia
- Continue to undertake the agreed activities as outlined in the workplan, and also the Common Work Plans for the substantive Work Packages 3-5, using the AGILE approach
- Maintaining a 'flexible adaptive' schedule of consecutive remote workshops and physical meetings to monitor and fine-tune the progress and address any difficulties that may arise until a physical meeting is possible.
- Maintaining and where needed increase interactions, connections and collaboration between NDMIS and EMODPACE colleagues
- Increase the pace of concrete steps for further development and implementation of the extended work plan during the coming stage, working towards potential in-situ final meeting in Brussels and also Tianjin
- Work-Packages 1 and 2 Meeting EMOD-PACE and CEMDnet critical to advance the development of interoperability solutions for discovery and access of data and data product; to ensure that the brokerage will meet the needs of both sides; and to ensure the transformation of full datasets was successful.
- Team up with interested stakeholders to extend the collaboration to the wider region through ODIN WESTPAC with the support of UNESCO IODE.

Key Challenges & Opportunities Ahead

- Identification of data/product gaps and resolution if possible in each work package.
- To determine 'work-around' solutions where-ever data itself cannot be made openly accessible.
- Effective Communication in English and Chinese.
- Determining the ultimate added-value brokerage functionalities and their implementation between EMOD-PACE and CEMDnet (delivery at M24 (mid February 2022 – MS1-2.3))
- Establishing the connection to NMDIS web-services
- Establishing whether the brokerage is to be a sustainable choice for the project efforts
- Connect with more maritime industry groups to ensure there is easy and effective uptake of the EMOD-PACE data products by the maritime sector.
- Optimize the full potential of the MoU, by using it to broaden the collaboration in the Asia Region. Task 1.3, i.e., to 'Extend the web portal to allow users to discover and view data held by Asian data centres, not yet included in NMDIS, with common formats'.

MKEG Questionnaire (Feedback received May 2021)

Looking into what the EMOD-PACE & CEMDnet will deliver, which data/data product (displayed layers) is the most interesting one for your organisation?

- Water chemistry and physical variables;
- Vessel traffic density and production of the low carbon routes for the target area;
- Horizontal wind speed (and direction) at different heights (up to 150m), not only ocean surface wind.

Can we better facilitate international ocean governance through the project?

- More information improves decision making, if it is placed in correct context;
- Through building collaboration and trust.

Can we better facilitate access to information by the Maritime Private sector companies through the project?

- When new data arrives, use network to promote it's arrival;
- Improve communication;
- Provide accuracy, reliability and long data series. More types of data would encourage usage;

Do you believe the project/portal/efforts has the potential to support you in your experience?

- Another source of data is useful and the portal allows it to be placed alongside that already available;
- I would love to see the project also extended to Japan;
- If more relevant data becomes available.

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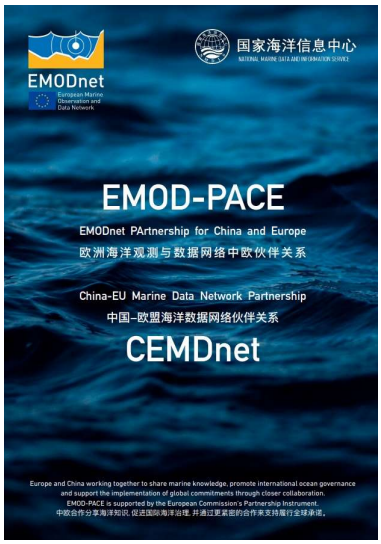
Thank You – 谢谢 (Xie Xie)



https://emodnet.ec.europa.eu/en/emod-pace