

A celebration of the 50 Anniversary of BODC

Past, present and future: successes and challenges in managing marine data

Challenges of sharing marine data

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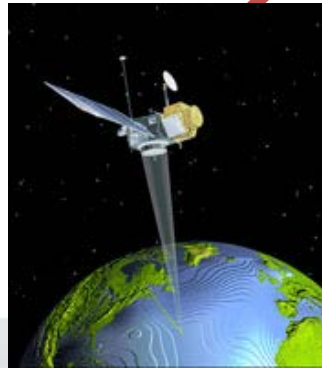


**National
Oceanography Centre**
NATURAL ENVIRONMENT RESEARCH COUNCIL

noc.ac.uk

From 2006 - Marine Data – A Big Issue

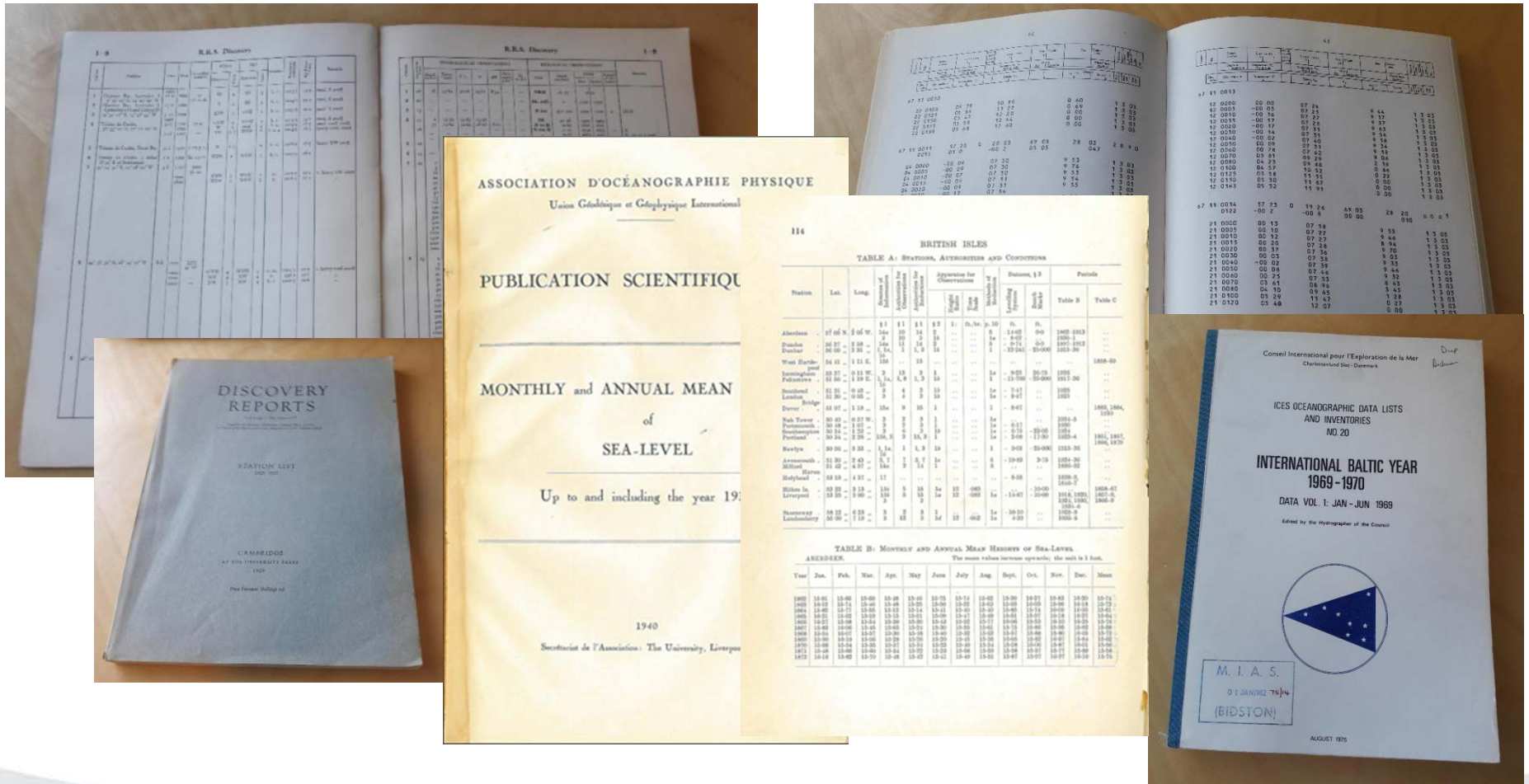
The key:
STANDARDS



Overview

- **100 years of data sharing**
- **The last 50 years**
- **The 21st century**
- **Some issues:**
 - **Policy – Technical – Resources – Cultural - Human**
- **Today and tomorrow**
- **Some final remarks**

Historical data sharing...



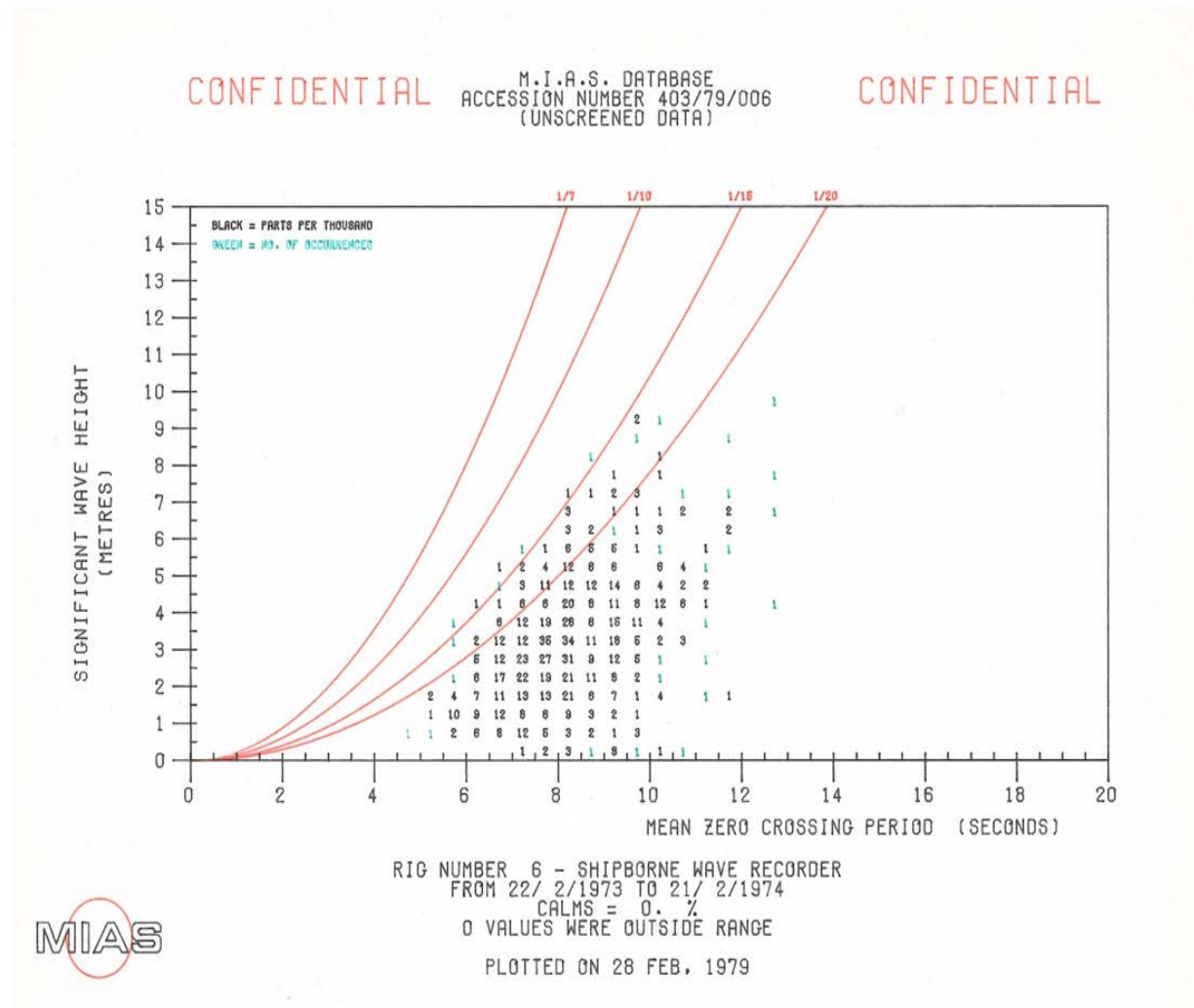
Marine Information and Advisory Service (MIAS) experience

- Set up in 1970s
- Based at the Institute of Oceanographic Sciences (IOS)
- The “National Oceanographic Data Centre” under the IOC’s International Data and Information Exchange (IODE) programme
- Initial remit to acquire and make available data relevant to the oil industry
- A different restriction on every data set!

Historical technical challenges



Historical technical challenges



MIAS

International Perspective

International Geophysical Year (1957-58)

- "all observational data shall be available to scientists and scientific institutions in all countries"
- World Data Centre system

World Meteorological Organisation (WMO)

- WMO Resolution 40 (1995)

Intergovernmental Oceanographic Commission (IOC) of UNESCO

- IOC Data Exchange Policy (2003)

Some global projects and programmes

- World Ocean Circulation Experiment
- Joint Global Ocean Flux Study
- Argo
- Voluntary Observing Ships
- Ocean Biogeographic Information System (OBIS)
- ...

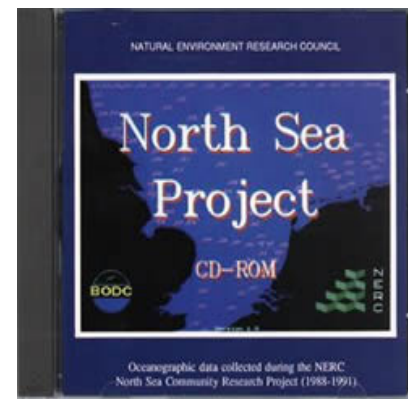
NERC experience

NERC North Sea Project (1987-92)

All data from the project

Available for academic use

Released at end of the project



NERC Data Policy Handbook (1998)

Data Acquisition

Data Management

Data Use

Charging for access to NERC's data



Comment from Pam Draper MIAS Data Scout (retired 1988)

“Surely BODS’ data bank must have been one of the earliest scientific ones? **Going round to mostly University scientists I found that they had not come across the concept before, making it even harder to persuade them to part with “their” data!** Being so early in that field meant that we were dealing mostly with analogue or hand-recorded data, thus adding to the problems of acquisition.”

But even with a Data Policy...

A story of obtaining data

First contact – data will be in online in 4-6 weeks (from Feb 8th)

New delays (Mar 31st)... be patient!!

Later next week (from Apr 28th)

May 17 : off until Jun 5...

Recovering from 2-week-holiday (6/6)

New email on 22/6; then 28/7 (out of office till 31/7)

On a cruise (18/8) - from 18/8 to 5/9

New email on 12/9 ...

Files provided 15/9/2006

Email sent on 7/11/07 because of problems with the files. Reply on 8/11:

... cruise experienced several (curable) difficulties with data capture, and the fixing process is not yet complete, so you should not be trying to absorb that data set into BODC as it is not finalised.

I think that it should be ready some time early in the new year - around February, maybe."

TO CONTACT AGAIN IN FEBRUARY...

MEDAG experience

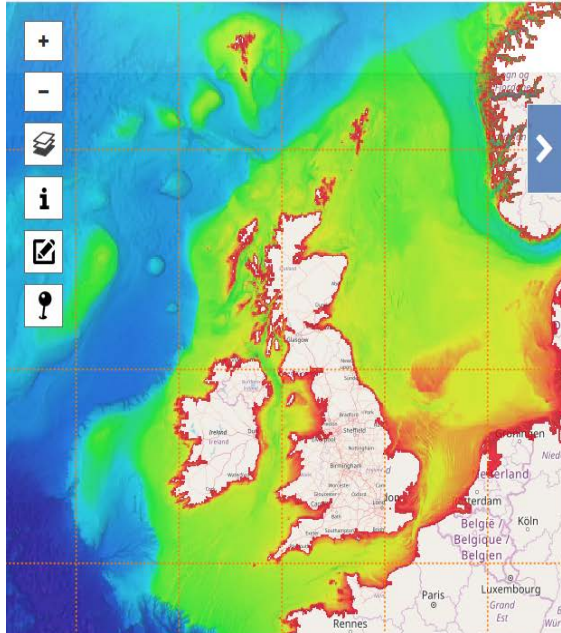
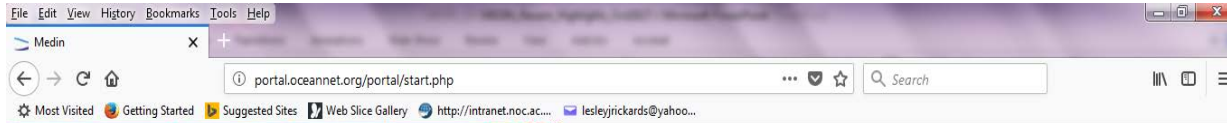
Marine Environmental Data Action Group (1996-2008)

“Charging for Marine Environmental Data: Present practices and the blockages that exist to the effective use of publically funded data”

Recommendations:

- **In regard to the charging**
 - Minimal cost, waiving for research, enhancing for commercial applications
- **In regard to correct blockages to data availability**
 - IACMST agree charge-free data exchange
 - Move to internet distribution
 - Ensure charges do not prevent data re-use

MEDIN Experience



MEDIN Search for marine data across UK organisations
Contact Addthis

Welcome to the MEDIN portal

The MEDIN portal contains information about 12107 marine datasets from over 400 UK organisations. Use the search boxes below, or the advanced search options, to find marine data. More filtering options are available on the results page to refine your search. Click a green traffic light on a metadata record to access the data.

Need help? Light version

SEARCH

Free search

Date (yyyy[mm]dd)

From To

Search for marine data across UK organisations

Contact Addthis

RESULTS

New search Compact view

Found 13349 | Show Page (1 of 668) | Previous | Next

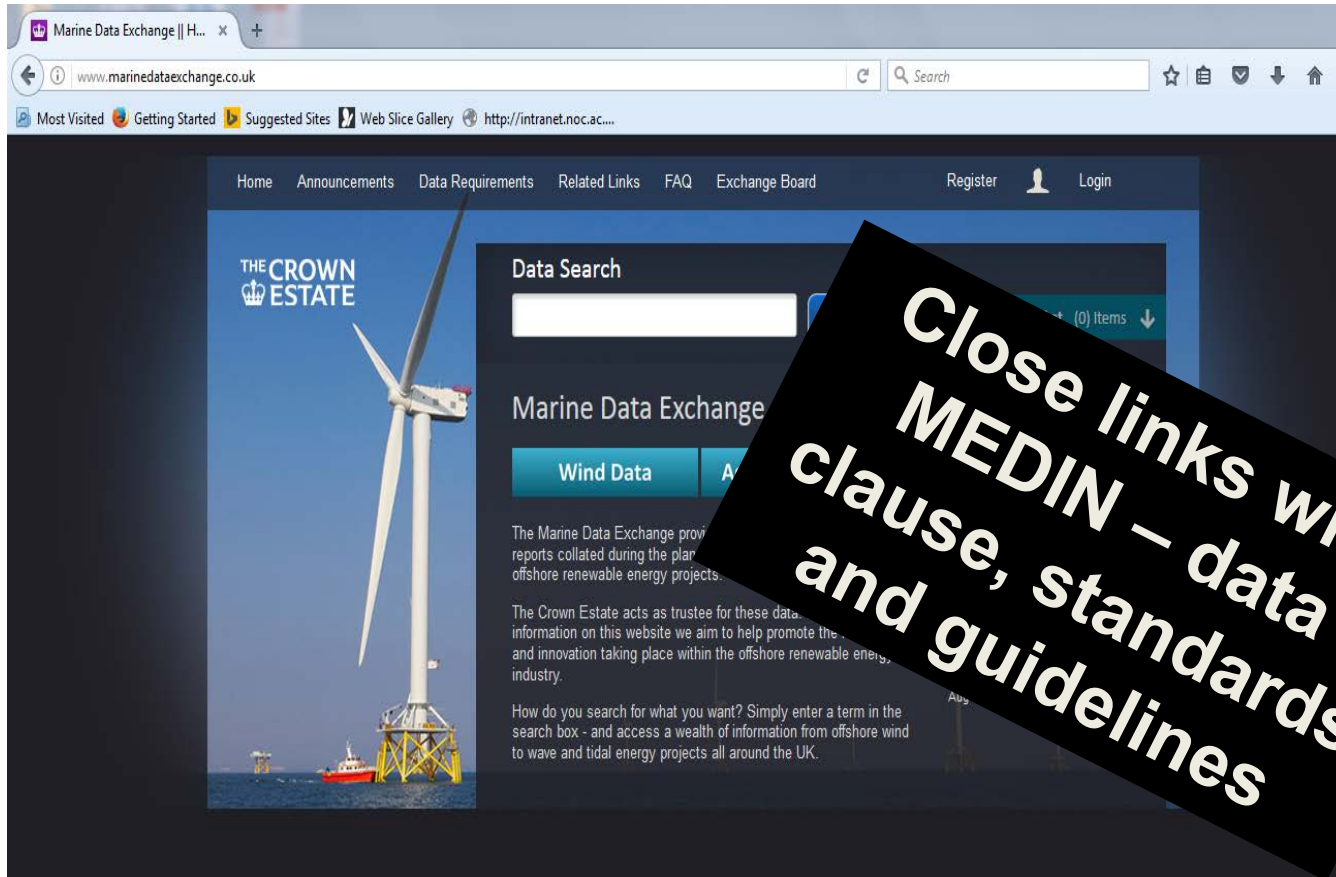
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Department for Environment, Food and Rural Affairs (DEFRA) MCZ: Farnes East: Multibeam survey FRNE_26_2012: Southern North Sea (01/03/2012 to 20/03/2012)	Department for Environment, Food and Rural Affairs	●	Fri 26 Jan 2018	<a>WMS <a>CSV
British Geological Survey (BGS) Geochemical and Sampling Survey S1/72/02: Bristol Channel: Gamma Spectrometer (16/Sep/1972 to 01/Oct /1972)	British Geological Survey (BGS)	●	Fri 26 Jan 2018	<a>WMS <a>CSV
Eastern IFCA (EIFCA) Geophysical Survey 2014_RP2014D The Well habitat mapping: (07/Jul/2014 to 08/Aug/2014)	Eastern IFCA	●	Fri 26 Jan 2018	<a>WMS <a>CSV
British Geological Survey (BGS) 2015/1 Multibeam and Geophysical	British Geological Survey (BGS)	●	Fri 26 Jan 2018	<a>WMS <a>CSV

MEDIN Experience

*Measure once,
use many times*





Offshore renewable energy developers provide data to The Crown Estate and this information is freely available

Open Data, Data.gov.uk and INSPIRE

Open Government Licence (for public sector information)

Since 2010 data.gov.uk has been helping people to find and use open government data, and supporting government publishers to maintain data

You can find:

- data published by central government, local authorities and public bodies
- links to download data files
- help on creating an account to publish data

INSPIRE Directive

- EU spatial data infrastructure
- Environmental policy making



Data Portals: Cefas, Marine Scotland and UK Hydrographic Office

Marine Scotland Open Data Network (MSODN)

Marine Scotland gathers and uses a wide range of data and information as part of its work and has developed a number of platforms to make data and information available, following on from the Marine Atlas in 2011. These are brought together in an integrated suite, featured below.



Marine Scotland Information



Marine Scotland INFORMATION (MSI) is the home for information, interactive maps, larger geospatial data and other related data to support the maps layers on Marine Scotland MAPS NMPI and also to host the pages previously known as Marine Scotland interactive.

Marine Scotland INFORMATION combines all of these resources into one central location where users can search, view and download various maps and data.

Marine Scotland Maps NMPI



Marine Scotland MAPS NMPI (National Marine Plan interactive) is an online, interactive GIS-based tool allowing you to view types of information (a scale of your choice); undertake a number of with the maps layers or creating maps for print possible links have been to related parts of the Marine Atlas, updated data as well as links to sources to facilitate data download. New data is being added.

Marine Scotland Data



Marine Scotland DATA is a dedicated portal that will allow you to search Marine Scotland's



Home > Search

Datasets available will include many of our legacy datasets covering subjects such as fish, shellfish and plankton survey data from the 1980's to the present day, crab tagging data, otolith sample data, records relating to MEDIN Marine Fisheries Data Archive Centre, water temperature, salinity, and sediment data from across the UK continental shelf.

Each month we will publish more current data, as we implement the Open by Default approach across the business.



Fish stomach records



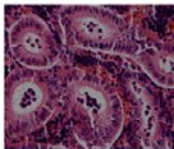
FishDAC



Food Safety



Offshore Chemical Notification Scheme



Registry of Aquatic Pathology



Sea temperature and salinity trends



SmartBuoys

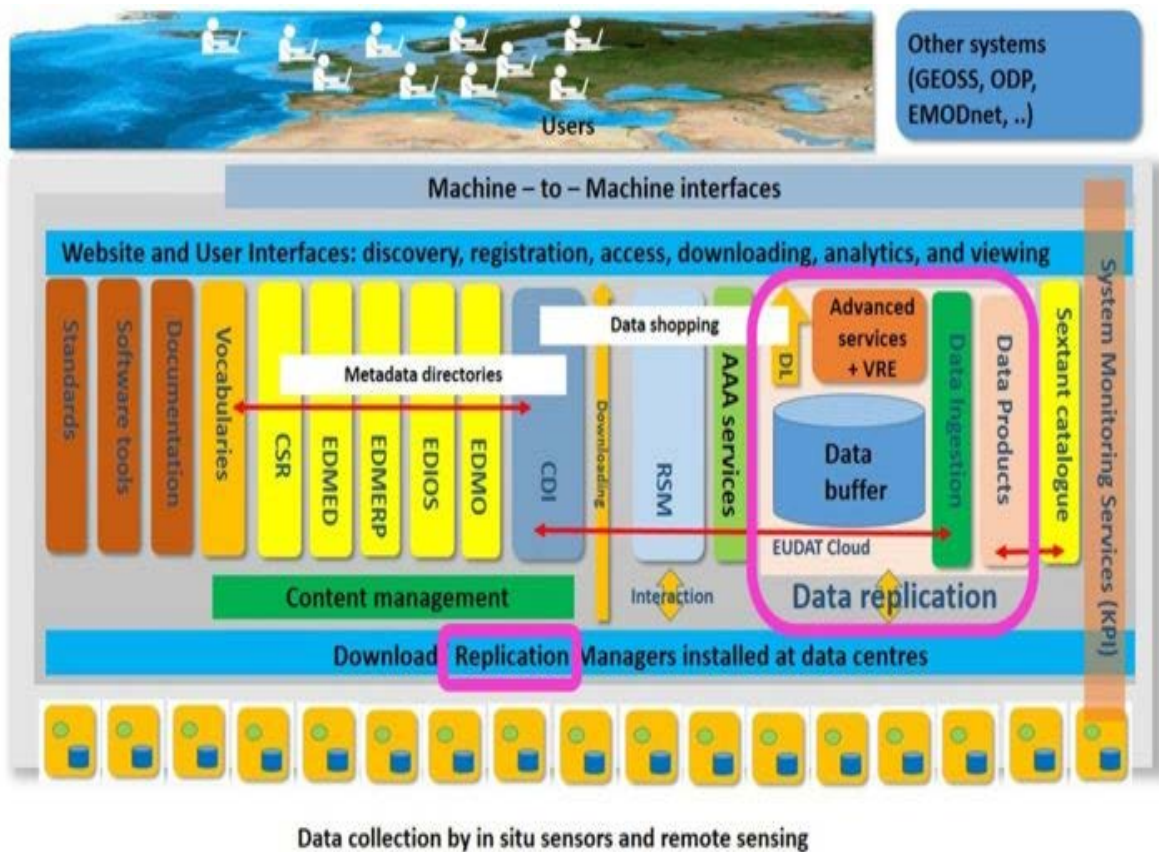


WaveNet

The screenshot shows the UKHO INSPIRE Portal & Bathymetry DAC interface. It features a search bar, a 'Themes' dropdown menu with options like 'INSPIRE Overview', 'UK - Germany EEZ Boundary', 'UK - Ireland EEZ Boundary', 'UK - Netherlands EEZ Boundary', 'UK - Norway EEZ Boundary', 'Bathymetry', 'UK - France Adjacent Waters Limit', and 'UK - BCO'. The main area displays a bathymetry map of the UK and surrounding waters, with various geographical labels like 'Scotland', 'Edinburgh', 'United Kingdom', 'Ireland', 'Leeds', 'Sheffield', 'Wales', 'England', 'Cardiff', 'London', and 'Paris'. The map uses a color scale to represent depth, with blue for shallow and red for deep.

European experience

A pan-European infrastructure set up and operated for managing marine and ocean data in co-operation with National Oceanographic Data Centres and oceanographic data focal points from 35 countries bordering European seas



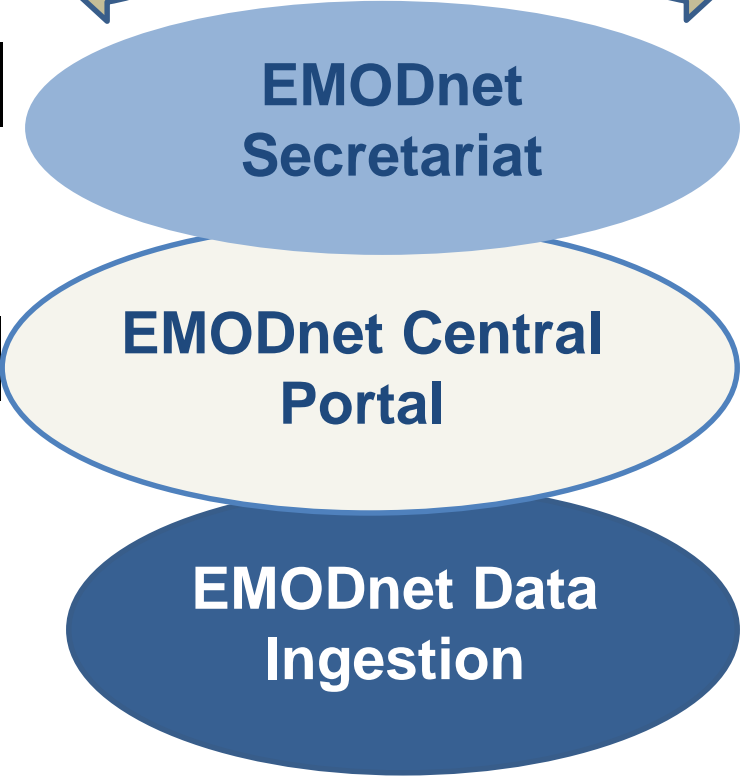
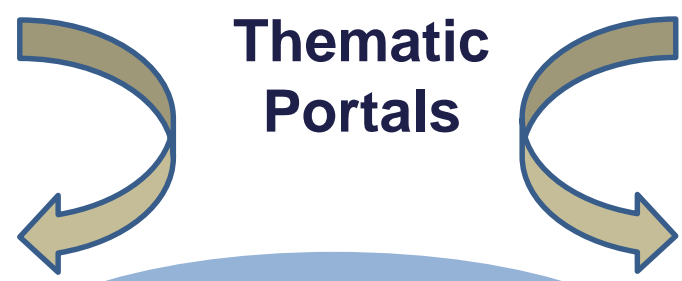
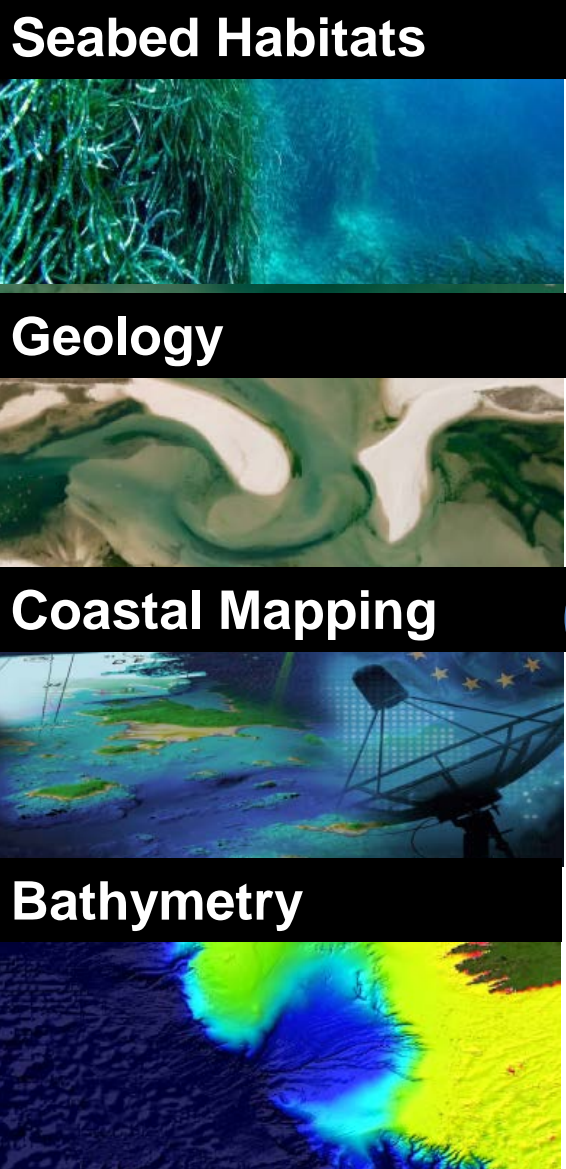
1990s	Metadata directories, MEDAR/ MedAtlas
2002-05	Sea-Search
2006-11	SeaDataNet
2011-15	SeaDataNet II
2016-20	SeaDataCloud

European experience

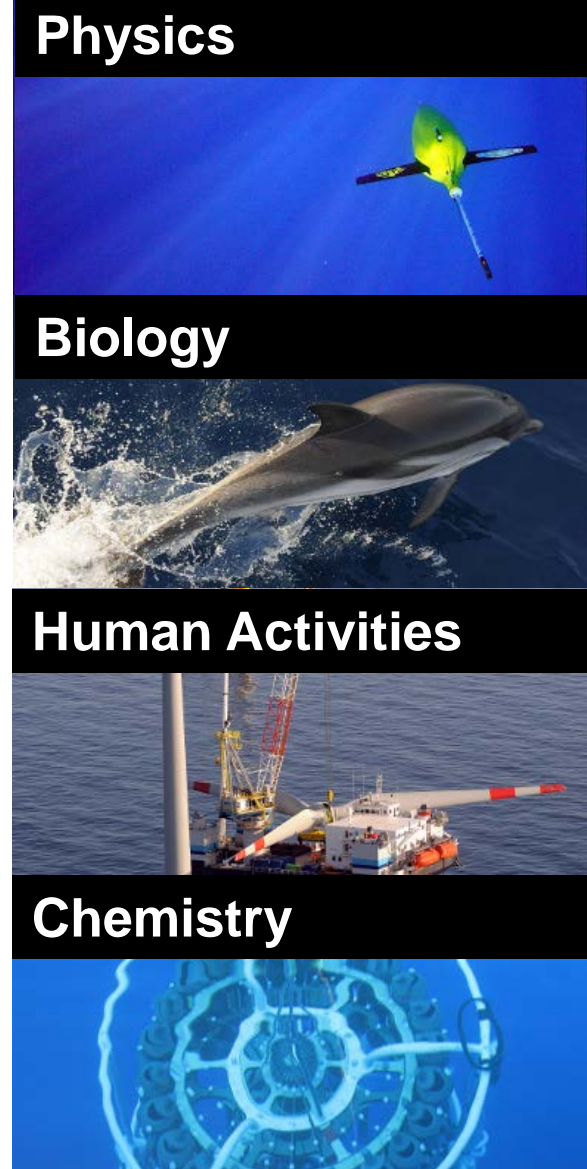


- Initiative of EU DG MARE
- EU communication “MARINE KNOWLEDGE 2020 - marine data and observation for smart and sustainable growth” promotes ‘capture once – use many times’
- The EU Blue Growth communication considers ocean and marine data as important input for driving scientific and economic developments



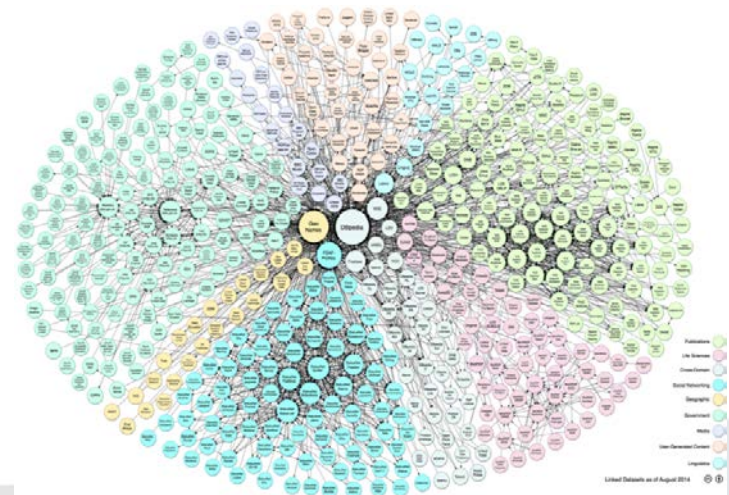


Sea Basin Check Points

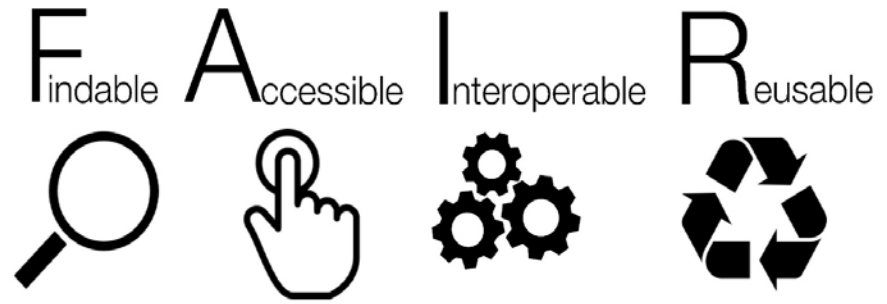


Today's challenges...

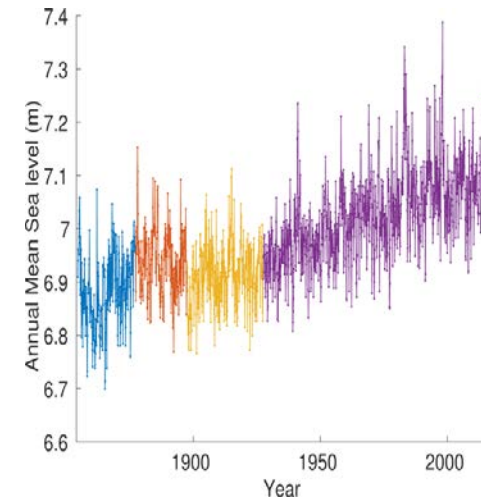
- More data
 - High volume
 - More diversity
- Sensor Web Enablement
- Web services
- Persistent Identifiers
- Big data
- Linked data
- Internet of Things



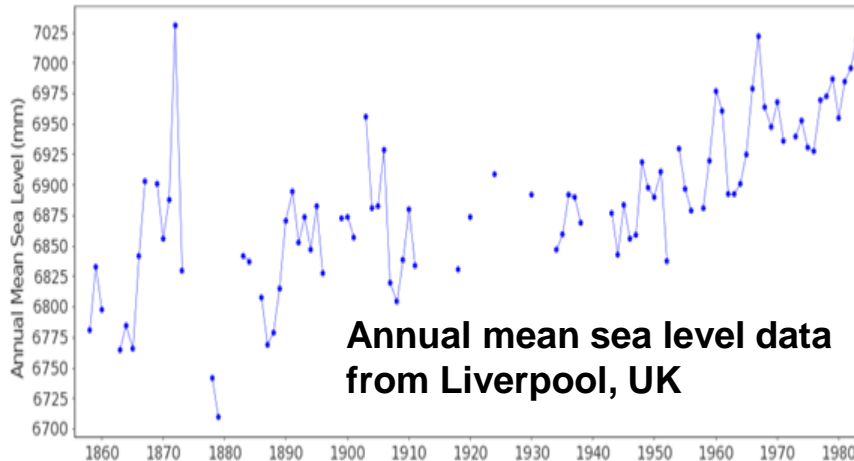
Are your data FAIR?



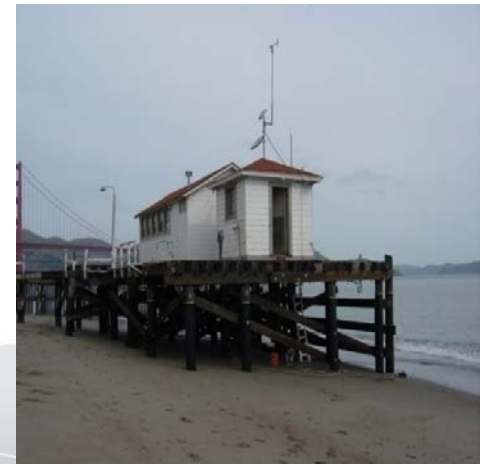
- Sea level records are some of the longest ocean observations available
- Earliest continuous time series begin in the 18th Century
- Length of data available makes creating one complete findable, accessible, interoperable and reusable (FAIR) record a challenge



San Francisco mean sea level record



Annual mean sea level data from Liverpool, UK



And tomorrow?

- **Data Democratisation**
 - Information in a digital form to be accessible to the average end user
 - Goal – to allow non-specialists to access, understand and analyse data
- **Social media**
- **European Open Science Cloud**
 - SeaDataCloud – moving to cloud environment (cooperation with EUDAT)
 - SeaDataCloud – Virtual Research Environment
 - “Blue Cloud Pilot” – EMODnet and Copernicus
- **Are we meeting user needs?**
- **You still need all the building blocks**

Where are we now?

Policy:

Open Government Licence (OGL 3.0) ✓✓

International Data Policies ✓

INSPIRE directive ✓ and ✗

Technical:

Much more data available (but not all FAIR) ✓

Some agreed standards – metadata, data, etc. ✓✓

Proliferation of portals (and data duplication)... ✓ and ✗

Human:

Are we providing what users want?? ✓ and ✗

Humans can still be a problem (yet to be resolved)!!

Resources:

EU funding of projects like SeaDataNet and EMODnet driven technical developments ✓