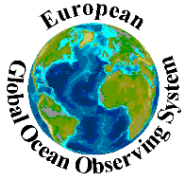
EMODnet

European Marine Observation and Data Network

Service Contract No. MARE/2010/02

Preparatory Actions for European Marine Observation and Data Network

Physical Parameters Lot [SI2.579120]



Objectives of EMODnet Physics

- EMODnet – Physics has to provide access to **archived and real-time data on physical conditions in Europe's seas and oceans** and to determine how well the data meet the needs of users.
- **Contribute** towards the definition of an operational **European Marine Observation and Data Network (EMODnet)**

- **Contribute** to developing the definition of the **Global Monitoring for Environment and Security (GMES)** marine core service → exploit and support GMES key initiatives
- **Contribute** to **Common Data** Formats and **Metadata** Representation → adopt, exploit, support the **Common Data Index and Common Vocabularies**

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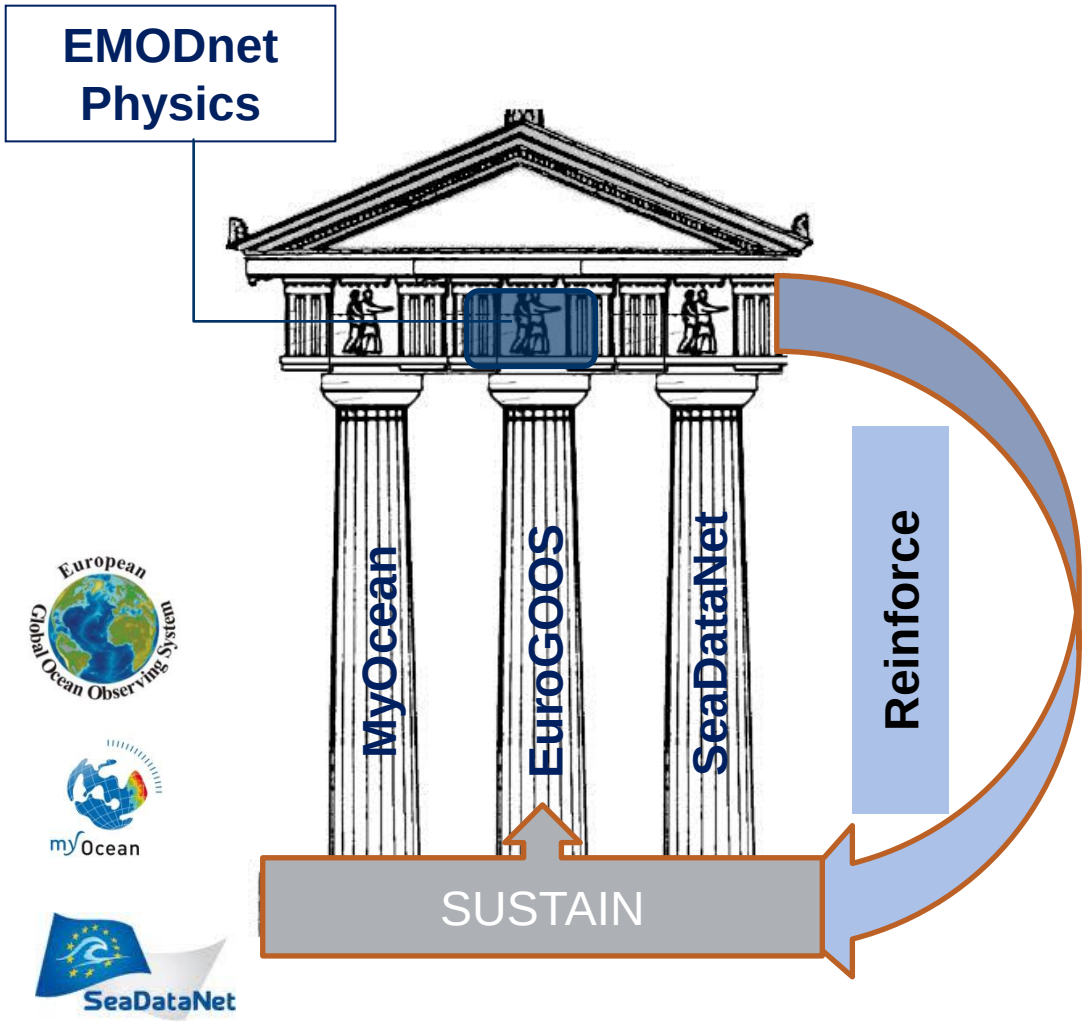

- bridge the communities behind EuroGOOS, MyOcean and SeaDataNet
- MoU between MyO SDN
- Build up on existing
- infrastructures by adding value – not unless complexity
- Ensure data access to any user
- Attract new data holders
- Attract better and more data

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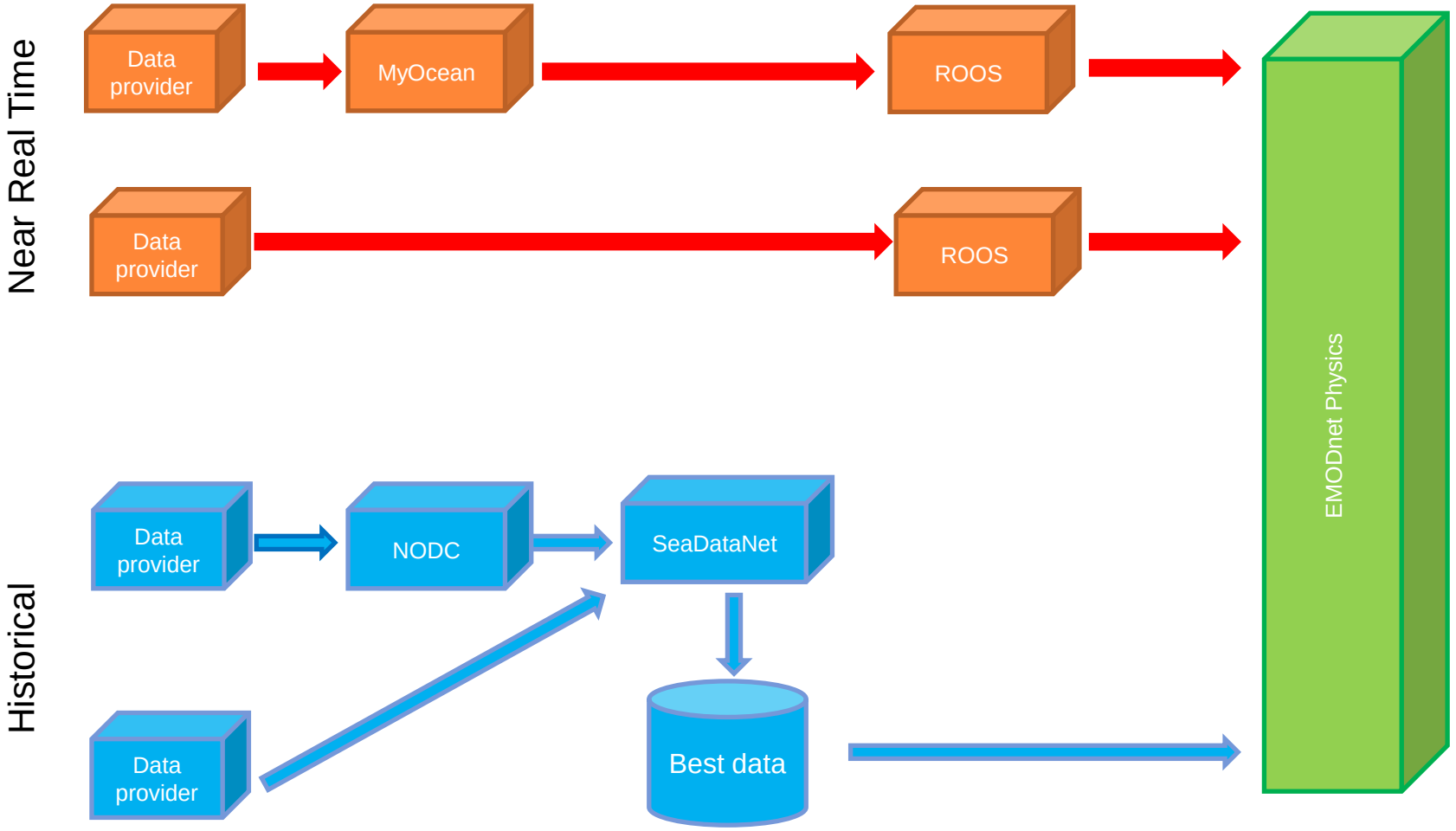

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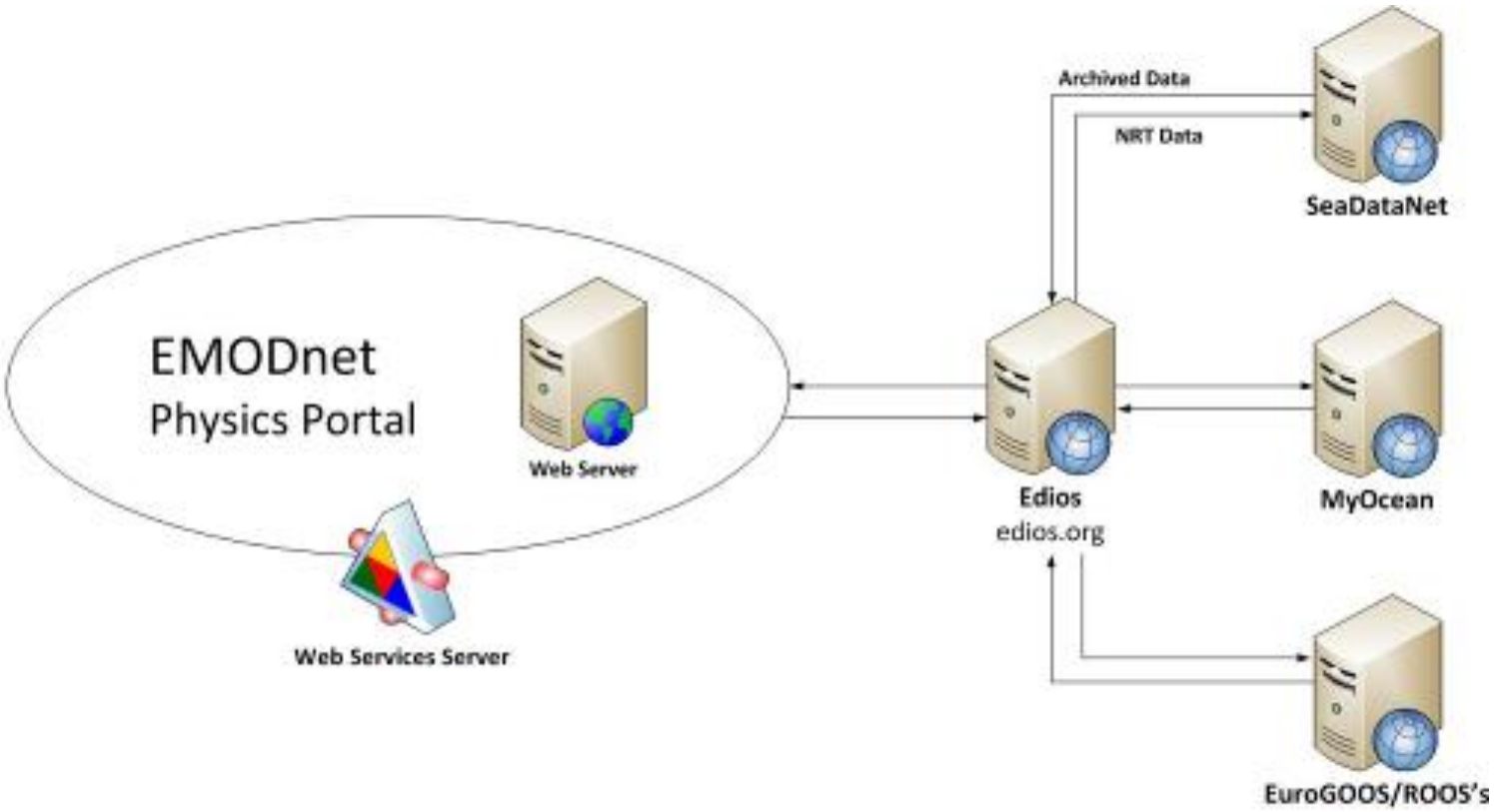
EMODnet Physics logical architecture



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A marine data service to provide access to archived multidisciplinary datasets of **in situ observations relevant to the monitoring of the ocean state and health**, in the form of single data and gridded fields for **European seas**

EDMO: European Directory of Marine Organisations (>2200 entries)
EDMED: European Directory of Marine Environmental Data sets (>3000 entries)
EDMERP: European Directory of Marine Environmental Research Projects (>2500 entries)
CSR: Cruise Summary Reports (>31500 entries)
EDIOS: European Directory of Ocean-observing Systems

Common Data Index (CDI)

- descriptions of distributed data sets and their access procedures
- marine profile of ISO 19115, for describing marine observation data
- fully compliant with data discovery services as defined by INSPIRE

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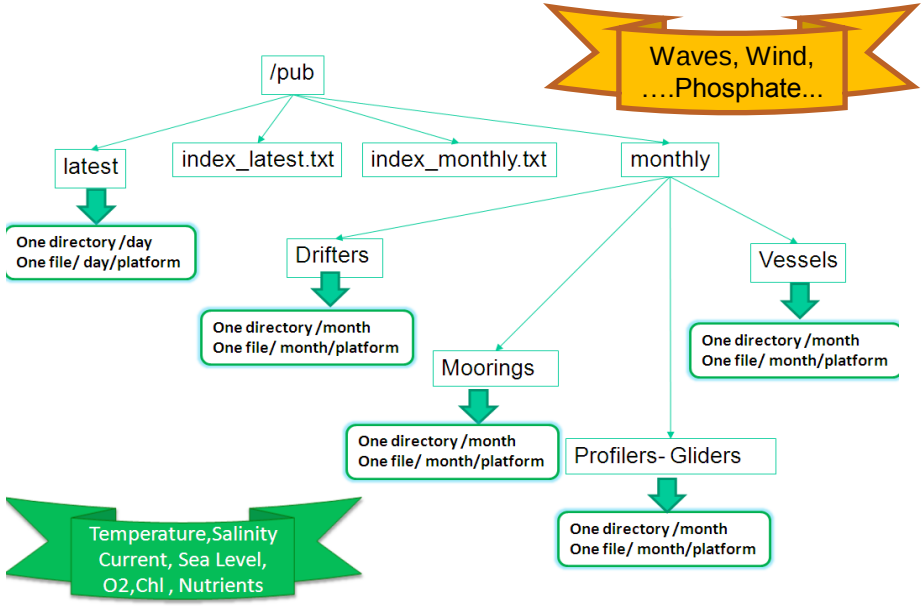
CDI, Common Vocabularies, Interoperability

SDN Data formats: ODV (ASCII) and NetCDF (CF)

→ the 'de facto' standards in the oceanographic and meteorological communities.

List code	List Name	List code	List Name
L231	SeaDataNet Metadata Entities	L061	SeaDataNet Platform Classes
P021	BODC Parameter Discovery Vocabulary	L081	SeaDataNet Data Access Restriction Policies
L021	SeaDataNet Geospatial Feature Types	L101	SeaDataNet Geographic Co-ordinate Reference Frames
C320	ISO countries	L111	Height and Depth Vertical Co-ordinate Reference Datum
L05	SeaDataNet device categories	L241	SeaDataNet Data Transport Formats
L031	SeaDataNet Measurement Periodicity Classes	L071	SeaDataNet Data Access Mechanisms
EDMERP	European Directory of Marine Research Projects	EDMO	European Directory of Marine Organisations

A GMES marine service to provide free and open access to real-time and delayed mode «ocean monitoring and forecasting» information based on the combination of **satellite, in situ observations and assimilative ocean models** on the **global ocean and European seas**



Parameters

- **Water:**
  - **CNDC (electrical conductivity), PSAL(practical salinity) → Sea Water Salinity**
  - **TEMP → Sea Water Temperature**
  - **EWCT (east current component), HCDT (relative direction through north), HCSP (horizontal current speed), NSCT (current north component) → Water Currents**
  - DOXY, DOX1 (oxygen)
  - FLUO, FLU2, FLU3, FFU (fluorescence)
  - PHPH (pH)
  - TURB: (Turbidity)
- **Sea Level:**
  - **SLEV → Sea Level**
- **Wave:**
  - **SWHT (wave height), SWPR (wave period), VTDH (significant wave height) VTZA (average crossing zero wave period), VTPK (wave spectrum peak period), VPED (wave spectrum peak energy) …. → Wave**
- **Wind:**
  - **WSPD (horizontal wind speed), WDIR (wind direction rel. to north) → Wind Direction**
- **Atmospheric:**
  - ATMS (atmospheric pressure) ATPT(atmospheric pressure hourly tendency)
  - DEWT (dew point temperature) DRYT (air temp in dry)
  - RELH (relative humdity)
- **Light Irradiance:**
  - LGHT (light irradiance)

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Data quality and quality flags

- Near Real Time Quality Flag → MyOcean → quality control is performed automatically (value from 1 - best to 9 - unchecked)
- Quality Control procedures on Real Time Data/Near Real Time Data are aiming at
  - Detecting missing mandatory information
  - Detecting errors made during the transfer or reformatting
  - Detecting duplicates
  - Detecting remaining outliers (spikes, out of scale data, vertical instabilities etc)
  - Attaching a quality flag to each numerical value in order not to modify the observed data points

- Achieved Data Quality Control procedures → SeaDataNet → reviewing NODC schemes and other known schemes (e.g. WGMDM guidelines, World Ocean Database, GTSPP, Argo, WOCE, QARTOD, ESEAS, SIMORC, etc.)
  - Quality Flags defined in the Common Vocabularies as list **L201**.

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www.emodnet-physics.eu

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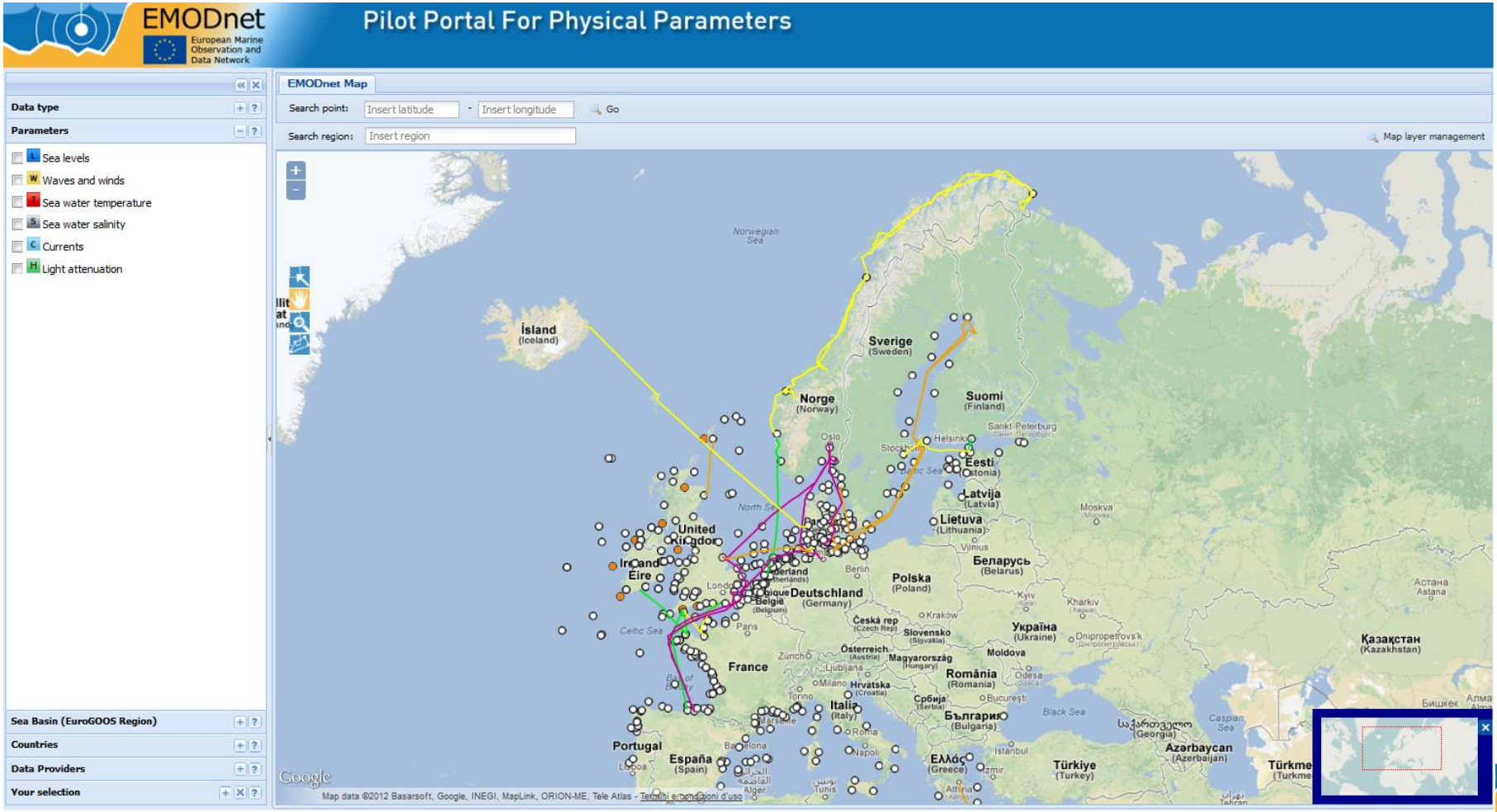

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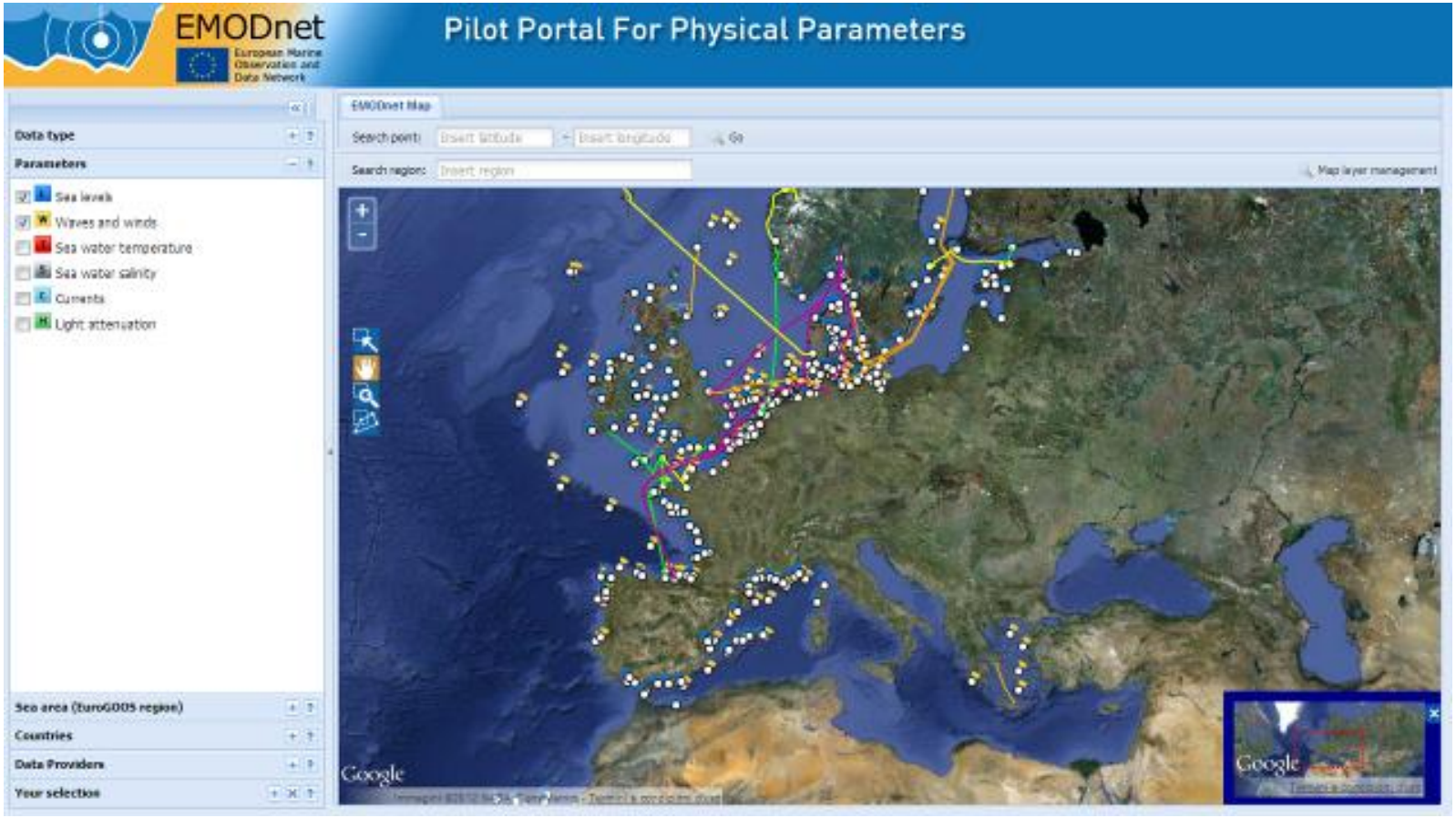

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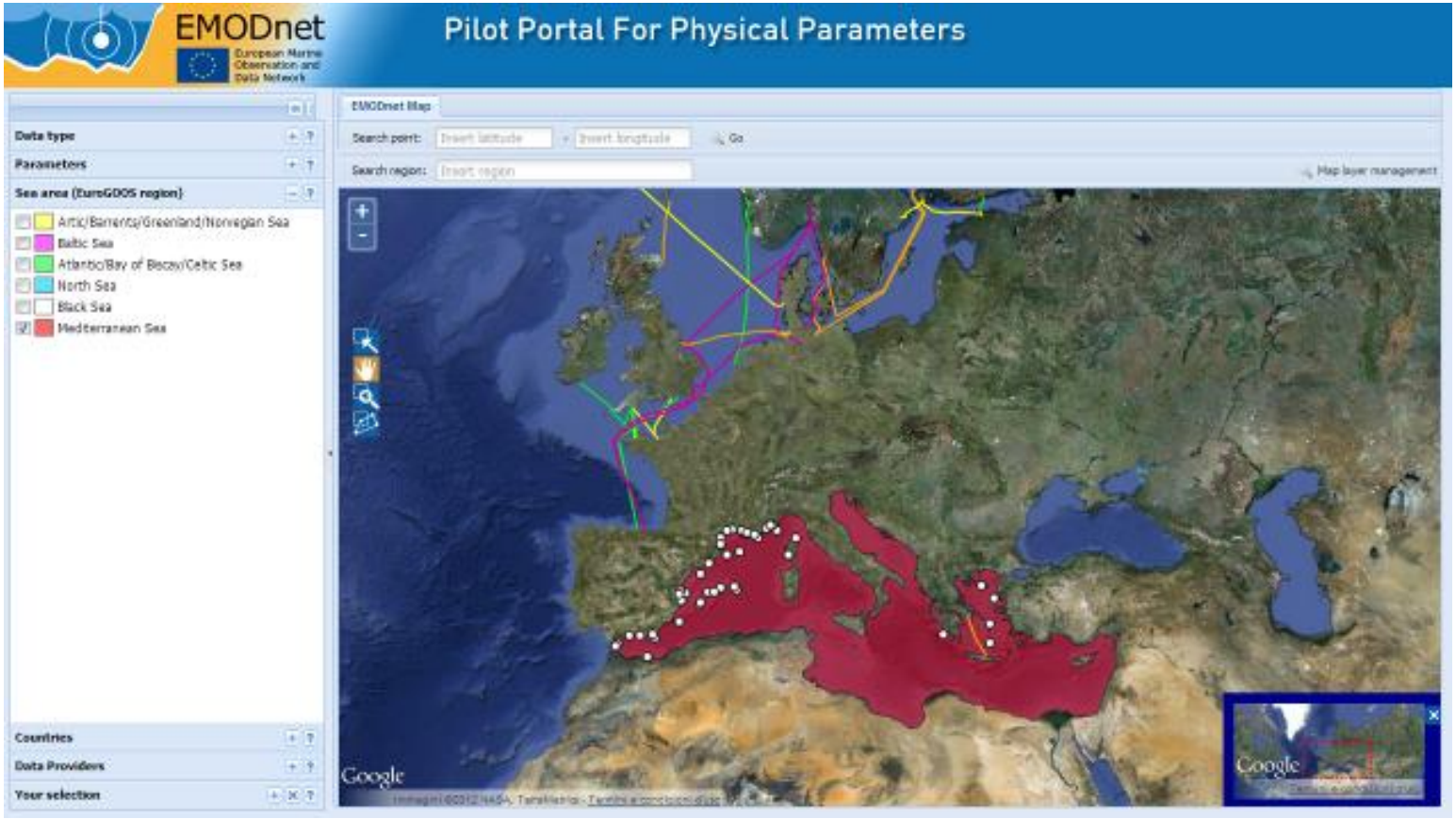

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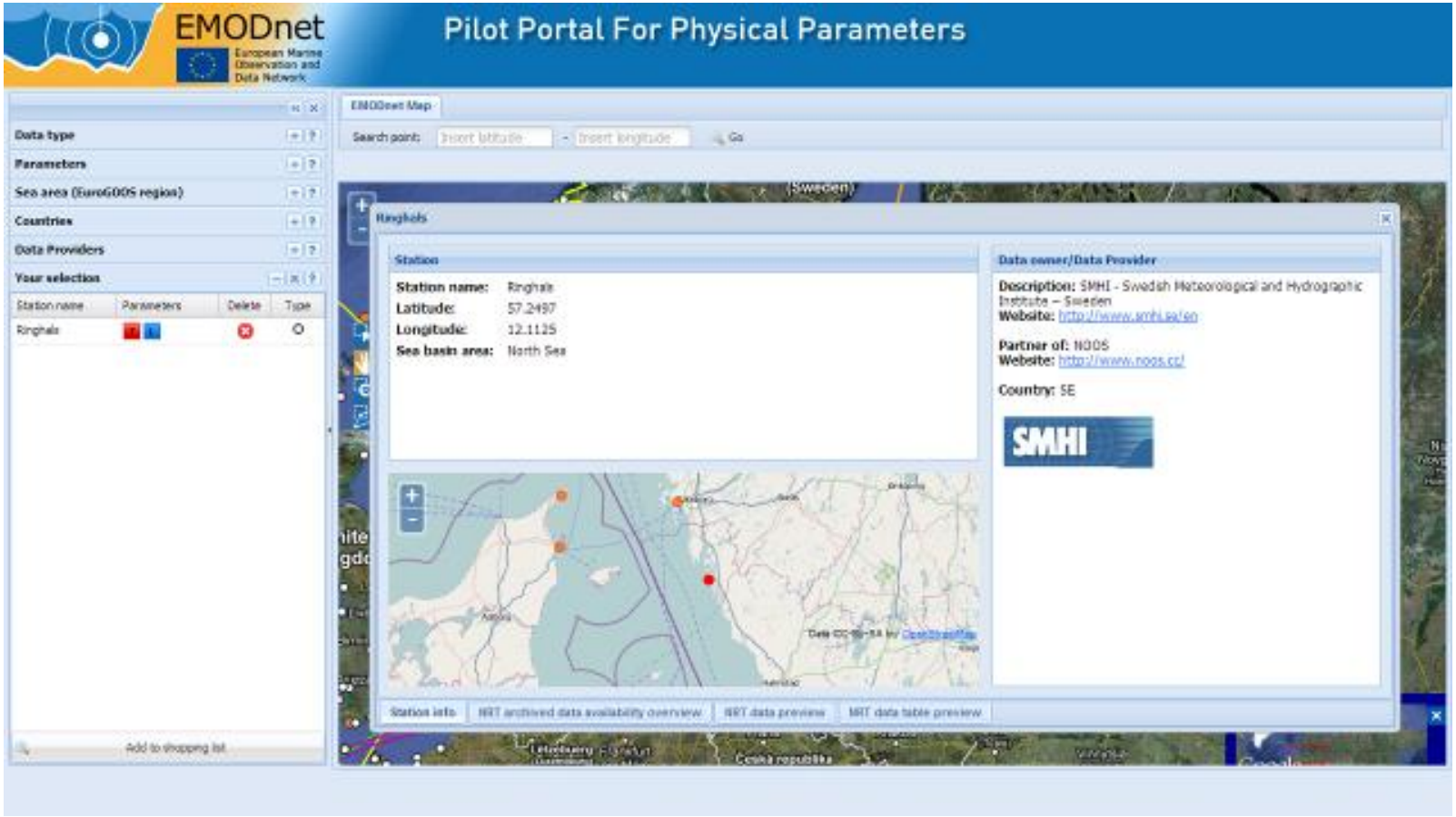

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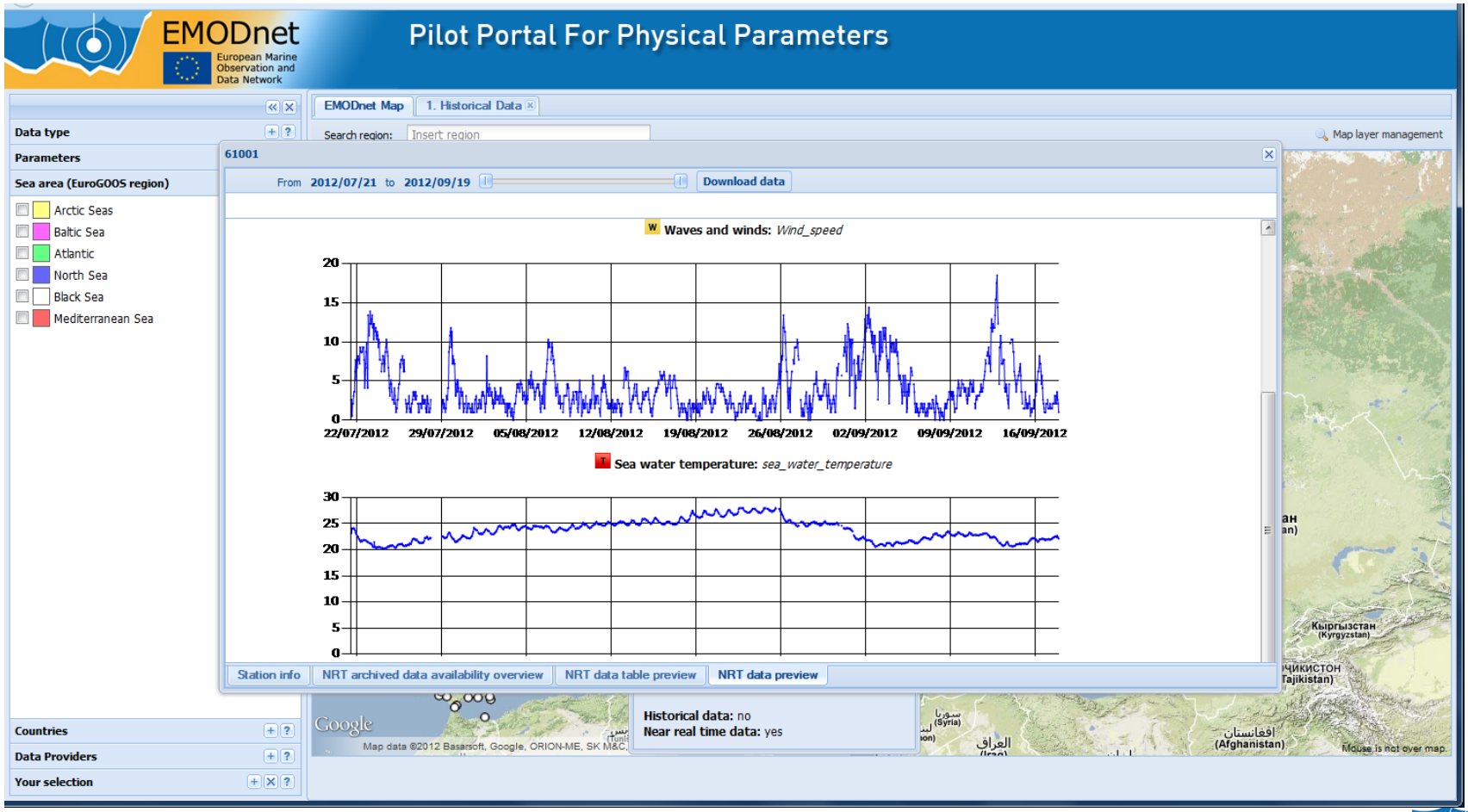

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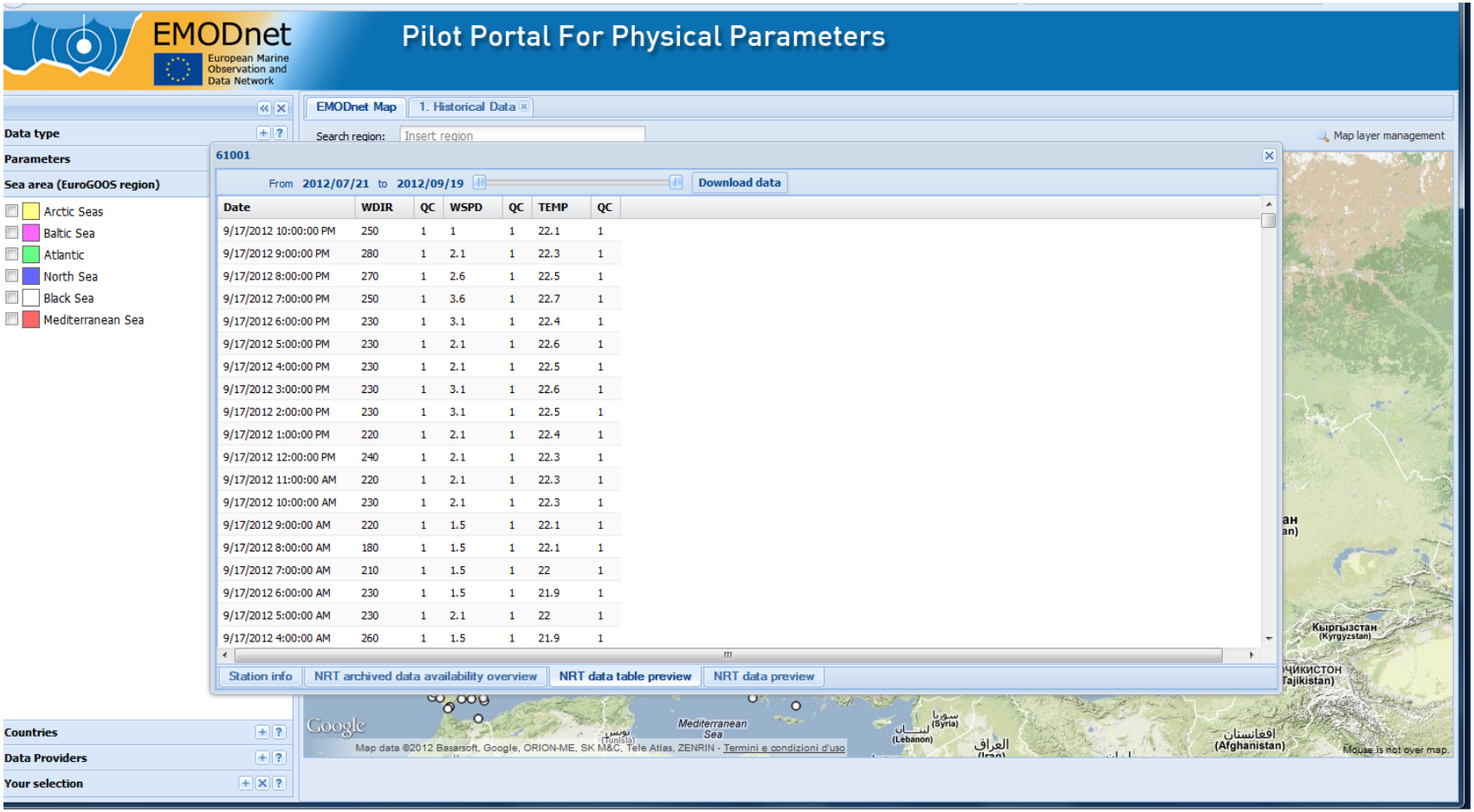

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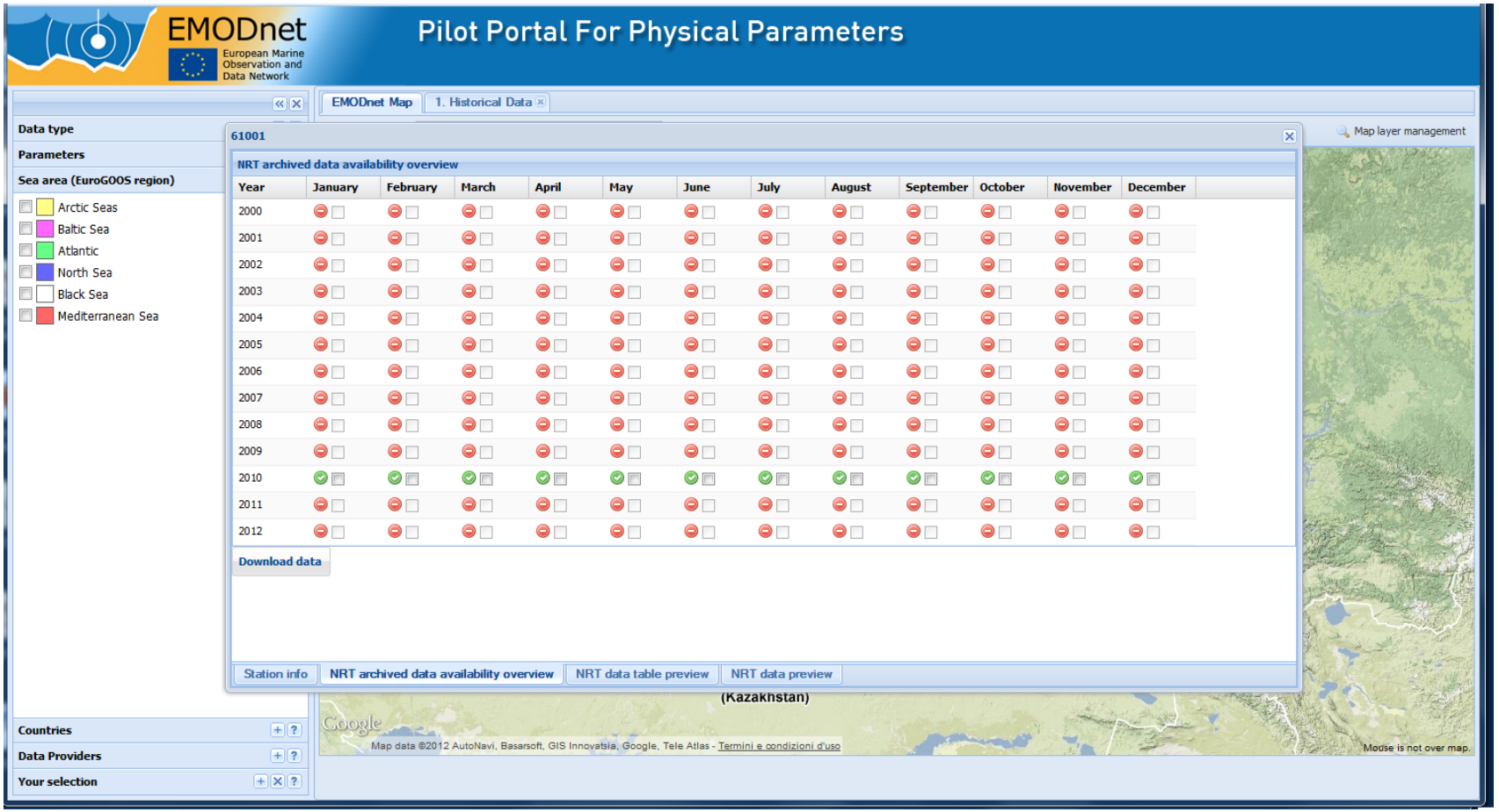

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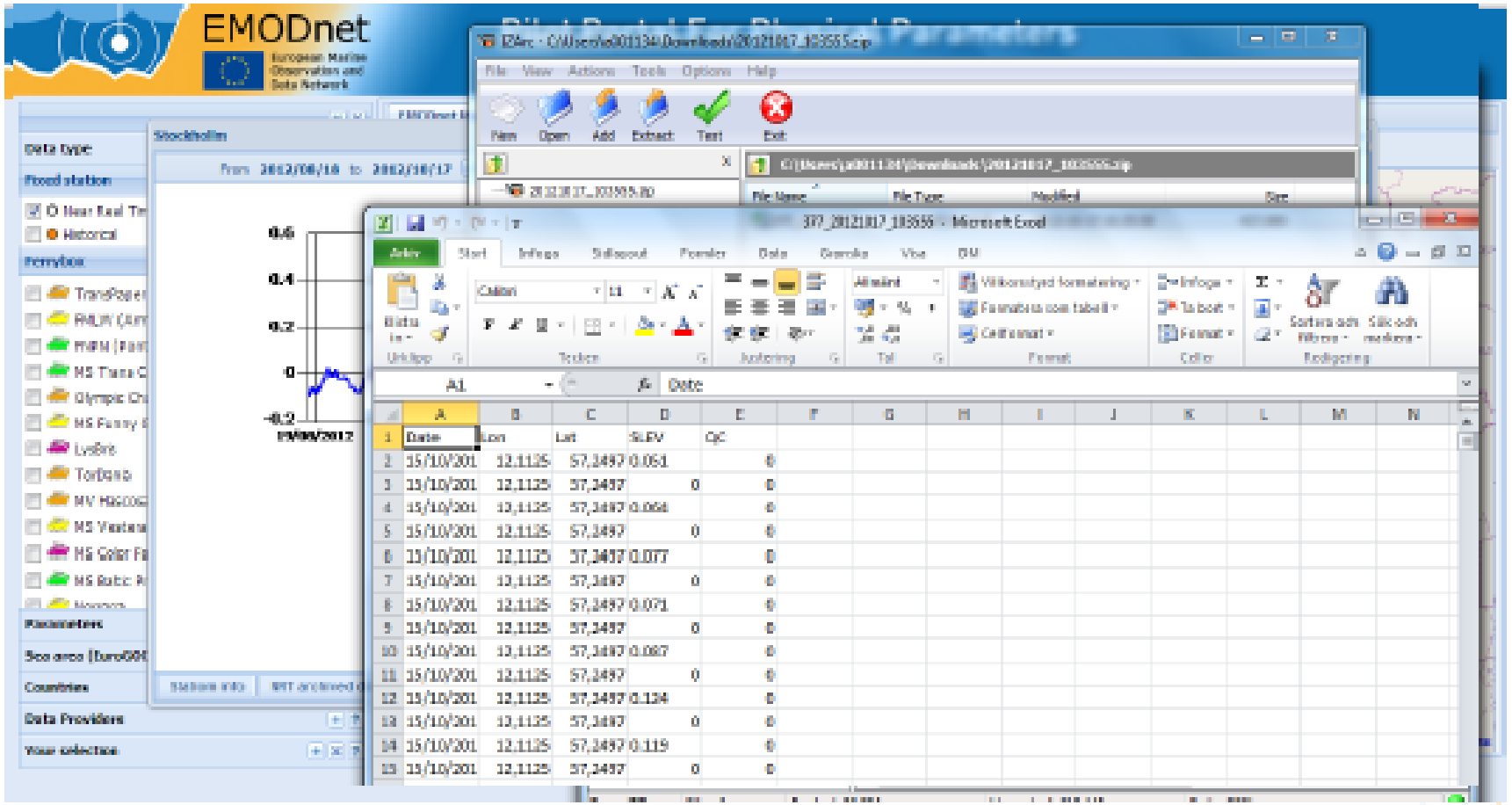

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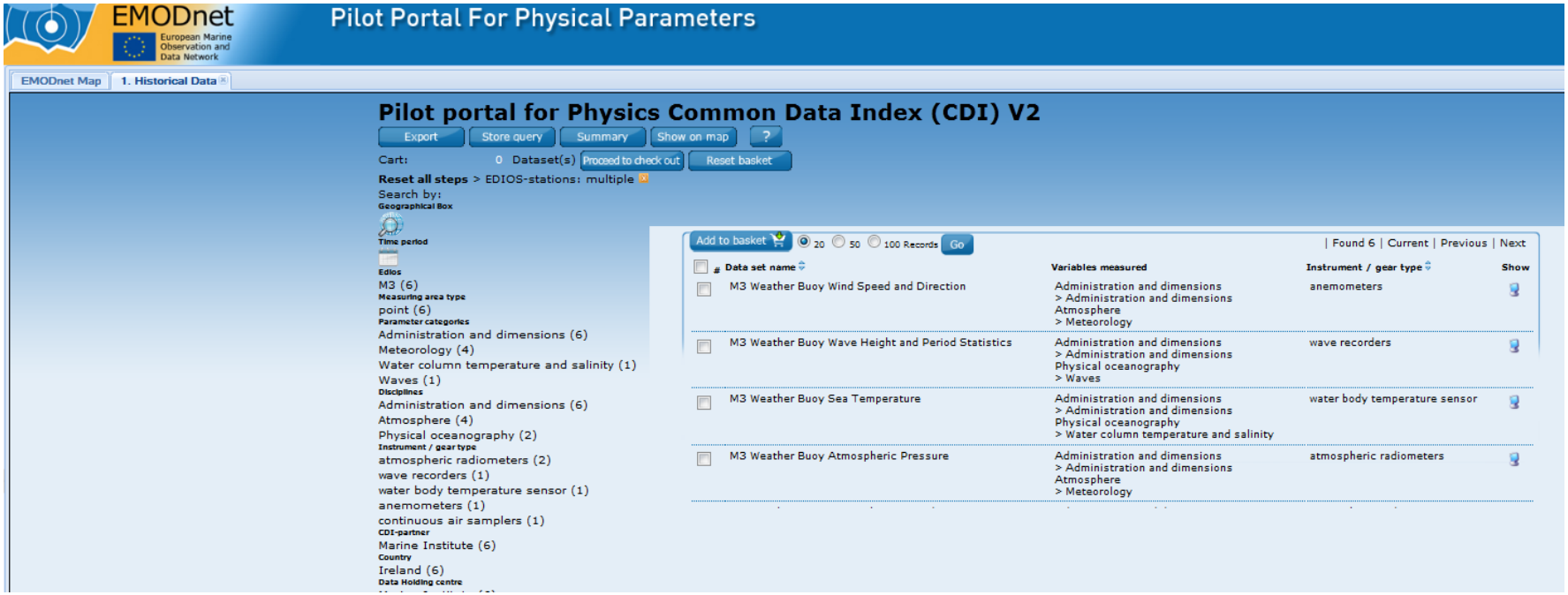

archieved data discovery page: CDI list

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archieved data discovery page: CDI details

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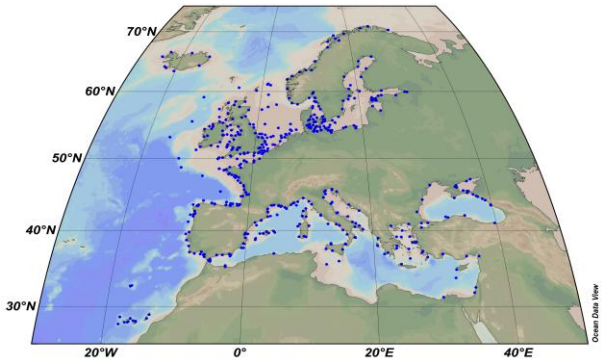
What is in:

Sea Basin	NRT data	Updated EDIOS
Arctic Sea/ Greenland Sea/ Norwegian Sea	3	
Baltic Sea	130	30
Black Sea	56	
Celtic Seas, Bay of Biscay and Iberian Coast	1	
Mediterranean Sea	5	5
North Sea	109	25
Total	353	60



Yet to come:

Sea Basin	missing stations
Arctic Sea/ Greenland Sea/ Norwegian Sea	30
Baltic Sea	31
Black Sea	14
Celtic Seas, Bay of Biscay and Iberian Coast	29
Mediterranean Sea	27
North Sea	17

parameter group	missing stations
sea level	92
temperature	41
currents	13
waves	42
wind	19
salinity	16
light attenuation	11

Data available from early 2000 with gaps

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EMODnet Physics, Interoperability OGC

EMODnet Physics WMS/WFS

WMS specifies a number of different request types, two of which are required by any WMS server:

- GetCapabilities - returns information about the WMS
- GetMap - returns a map image
  http://151.1.25.219:8080/gisclient/services/ows.php?project=ett&map=stazioni&request=getcapabilities&service=WMS
  http://www.emodnet-physics.eu/test.wms.getfeatureinfo.html

WFS provides an interface allowing requests for geographical features across the web using platform-independent calls

- GetCapabilities - this queries the WFS service to determine available options
  http://151.1.25.219:8080/gisclient/services/ows.php?project=ett&map=stazioni&request=getcapabilities&service=WFS
- GetFeature - this performs the actual query
  http://www.emodnet-physics.eu/test.wfs.html

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