

EurOBIS

European Ocean Biogeographic Information System

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Introduction

Within the **MARBEF** (MARine Biodiversity and Ecosystem Functioning) network, the **European regional node of the Ocean Biogeographic Information System** (EuroOBIS) is being developed. This distributed system to present biogeographic information will integrate individual datasets on marine organisms and can therefore provide a better understanding towards long-term, large-scale patterns in European marine waters. EuroOBIS acts as the European node of the Ocean Biogeographic Information System (OBIS). Data inventories of former European projects, such as BIOMARE will be recovered and will together with others contribute to EuroOBIS. At the moment EuroOBIS can be consulted from the MARBEF website at <http://www.marbef.org/data>.

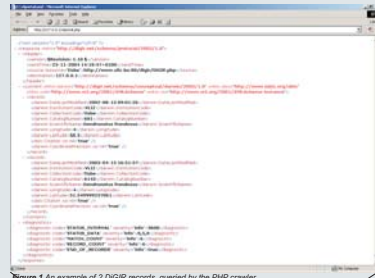


Figure 1 An example of 2 DIGIR records, queried by the PHP crawler

Data collection

EuroOBIS makes use of a distributed database system. This leaves the maintenance and update of the databases in the hands of their owners and developers. This distributed system makes use of the Distributed Generic Information Retrieval (DIGIR - <http://www.digir.net>) protocol and is fully platform independent. It can be installed on any computer that has PHP and a web server running. (fig.2)

The data collecting consists mainly of three steps:

1. A PHP crawler queries all DIGIR databases connected to EuroOBIS at certain intervals. The result is a set of XML records (fig. 1) which are parsed to a SQL database (the EuroOBIS-cache held at the Flanders Marine Institute).
2. When a new or updated record arrives in the EuroOBIS cache, a match to a taxon in ERMS is made (fig. 3).
3. A link back to the original record is stored in the EuroOBIS cache since a DIGIR record holds only a limited number of fields.

Of course, other methods (send data via e-mail, FTP, ...) can be used to collect this biogeographical datasets.

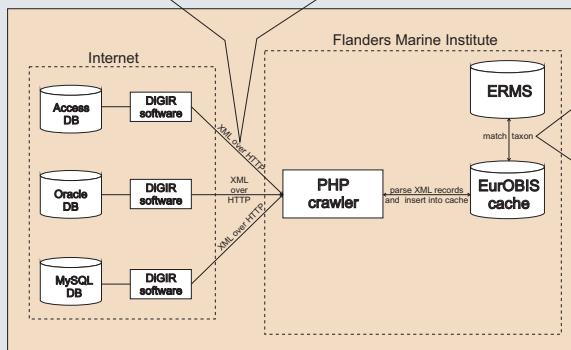


Figure 2 The process of querying the different geographical databases, caching them and matching them to ERMS



Figure 3 A match with ERMS for the taxon 'Dendronotus frondosus' was made



Dendronotus frondosus (Ascanius) at Wilckxkoden intertidal pool. Photo: L. Kowicki

ERMS as taxonomic backbone of EuroOBIS

Since datasets from different sources are brought together (which were collected / maintained / created by different persons), there is a pressing need for one standard taxonomic species register.

Within EuroOBIS the **European Register for Marine Species** (ERMS) will function as the taxonomic backbone and each species list from every incoming dataset will be matched with this register, which has a consistent hierarchic classification. This will allow the user to search not only for species names, but also for higher taxonomic levels, better known to non-specialists. Also 'Fuzzy Matching', included in ERMS, will allow the user to search EuroOBIS for species even when spelling variations are entered.

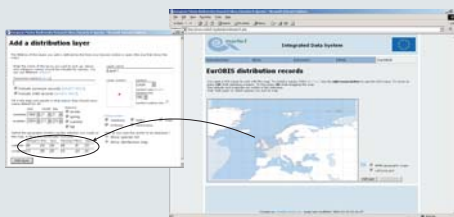


Figure 4 The EuroOBIS search page with an area selected via the map and directly converted into coordinates on the 'Add layer' page

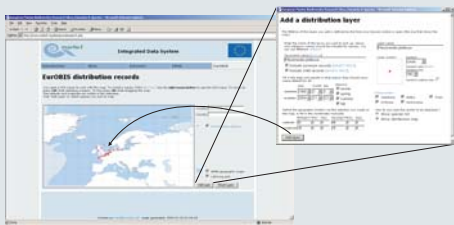


Figure 5 The EuroOBIS search page with the results of the query of the 'Add layer' page

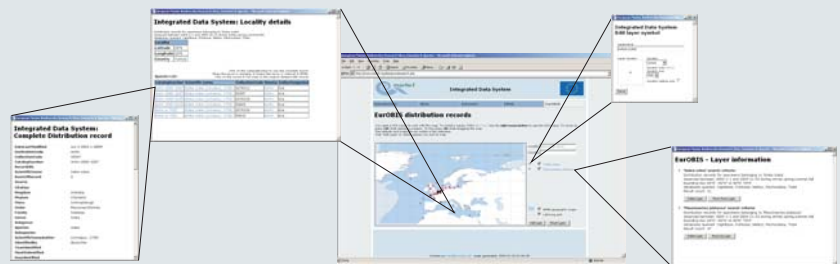


Figure 6 Different pop-ups when you click on the specific entities

GIS Interface

The EuroOBIS records can be queried via a GIS web interface at <http://www.marbef.org/data>

The GIS interface is a SVG-based map with a layered interface. You can add different layers with biogeographic information.

When you click on 'Add Layer', a fill-in form will pop up. Here you can enter:

- The taxon name. By clicking on lookup, you can search the ERMS register for a taxon name
- Start- and end date when the taxon was found
- Latitude and longitude where the taxon was found
- Layer name or how you want to name the layer
- The symbol-size, symbol-color and symbol-shape
- The data-provider(s) you want to query

Additionally you can select the latitude and longitude by holding down your left mouse button while moving over the SVG map. The 'Add-Layer' form will pop up with coordinates corresponding to the manual geographical query (fig. 4).

The **result** will be displayed on the map as soon as you click the 'Add layer' button on the pop-up page (fig. 5). This process can be repeated for any other layer you wish to add. The layers will remain in memory as long as your browser window is open.

You can perform several operations on these layers (fig. 6):

- show/hide a layer via the checkbox nearby the legend
- clicking on a point on the map will display an overview of the taxa found on that location
- move up/move down/delete layers by clicking on the legend
- change the layer-symbol/layer-color/layer-size by clicking on the legend-symbol