Demo of the LifeWatch web services: online data processing tools for biodiversity research

Waumans Filip, Robin Houthoofdt, Bart Vanhoorne, Stefanie Dekeyzer, Aina Trias Verbeeck, Leen Vandepitte, Klaas Deneudt and Francisco Hernandez

Flanders Marine Institute (VLIZ), InnovOcean site, Wandelaarkaai 7, B-8400 Oostende, Belgium
E-mail: filip.waumans@vliz.be

To support and encourage scientific research on biodiversity and ecosystem functioning, Europe launched LifeWatch within the European Strategy Forum on Research Infrastructures (ESFRI). LifeWatch functions as a central virtual laboratory, integrating observatories, databases, web services and modelling tools distributed throughout Europe.

As part of the Flemish contributions to LifeWatch, the Flanders Marine Institute (VLIZ) set up an online data portal where scientists can use several web services to process biodiversity data (http://lifewatch.be/data-services). These web services assist in data standardization, quality control, visualization, analysis and retrieval of additional data.

Users of the data portal can choose to use a demo file or can upload their own data files. For the latter a log-in and password are required and can be requested by anyone. Both marine and terrestrial data can be uploaded. An extensive manual is available describing which input is required for each web service. The web services can also be used in a concatenated way as is demonstrated in several use cases.

The resulting data file contains extra columns in addition to the data in the original file. The original data file, the resulting data file and a summary report are stored on the server and linked to the user's account. This allows the user to retrieve the files later, at any time.

The number of available services will increase in the next years. Services currently available are:

- Data validation and Quality Control (QC) services: The LifeWatch portal uses a specific data format, based on the OBIS scheme and the Darwin Core. Part of this application will check if the data file uploaded by the user matches this LifeWatch data format. This application can also check if the uploaded data file matches the OBIS scheme. And thirdly this application can plot the coordinates in the uploaded data file on a map to check if the observation points are marine or terrestrial.

- Marineregions gazetteer services: Based on the latitude and longitude values and place names in the data file uploaded by the user, this application will return additional information derived from Marineregions (MRGID, preferred gazetteer name, etc.).

- Taxonomical services: Based on the scientific names in the data file uploaded by the user, this application will check if these names already exist in taxonomic databases or nomenclatures such as the World Register of Marine Species (WoRMS), Catalogue of Life (CoL), the Integrated Taxonomic Information System (ITIS), the Pan-European Species directories Infrastructure database (PESI), the Global Names Index (GNI), the International Plant Names Index (IPNI), Index Fungorum (IF) and the Paleobiology Database (PaleoDB). It is possible to match your data file with each taxonomic database separately or in a combined way.

- Tidal services: Based on the latitude, longitude and time values in the data file uploaded by the user, this application will calculate the water level based on tidal data for observations in the Belgian part of the North Sea.

- Geographical services: Based on the latitude and longitude values in the data file uploaded by the user, this application will retrieve information about administrative boundaries, bathymetry, biogeographical classification, features, protected areas, total biological valuation, etc.

At the VLIZ Young Marine Scientists Day the use of the LifeWatch web services will be demonstrated in an animated way.