The EMECO Datatool: an online assessment and reporting system for co-production of environmental assessments of shared marine waters

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EMECO Datatool: www.emecodata.net

EMECO Datatool

The European Marine Ecosystem Observatory (EMECO) initiative has developed a web-based Datatool. The Datatool automates collation and standardisation of environmental data from many different sources (Fig. 1). In a streamlined process the Datatool enables bespoke outputs and reports to be produced collaboratively. This enables the co-production of knowledge in an open and robust way, promoting transparency and engagement.

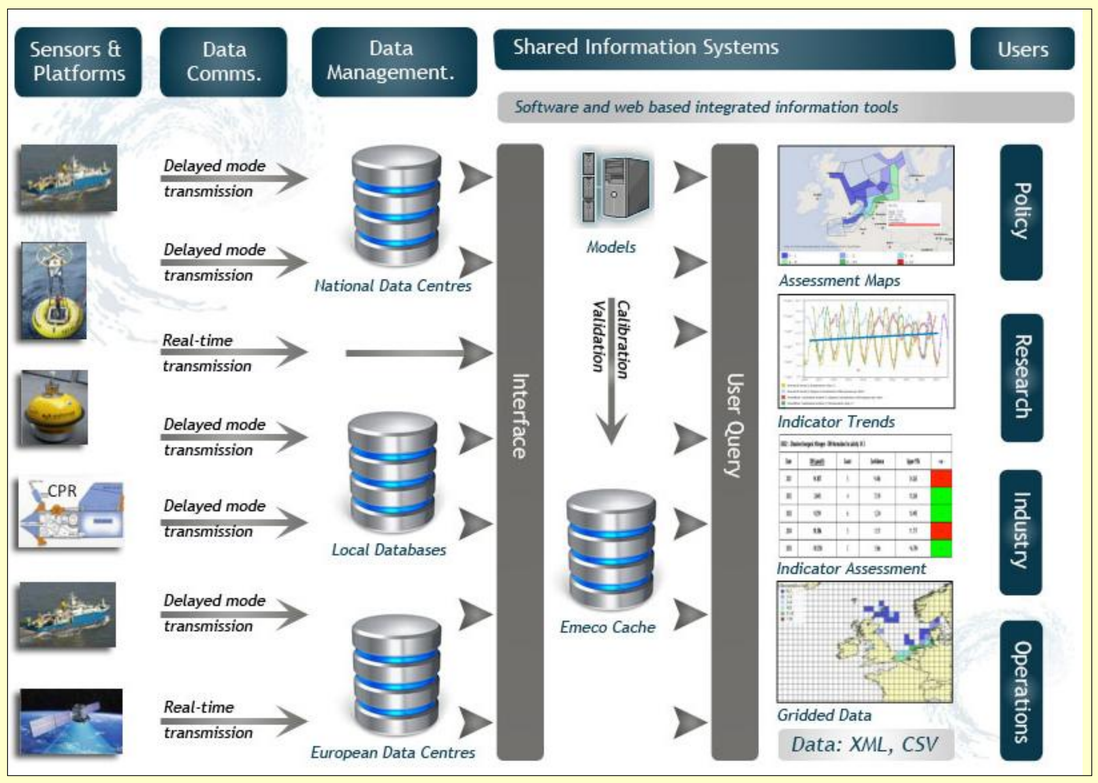


Fig. 1: Data and information flow in the Datatool.

Technology

The Datatool is developed using Open Source software and GIS technology. Data may be imported in a large number of common data formats, including: NetCDF, XML, Delimited (CSV), Access, WMS, KML and TXT.

Querying

The EDT user interface (Fig. 2, top left-hand side) and data options (lower left-hand side). The results are as an 'assessment map' output. The query is executed and data are combined to provide an assessment product.

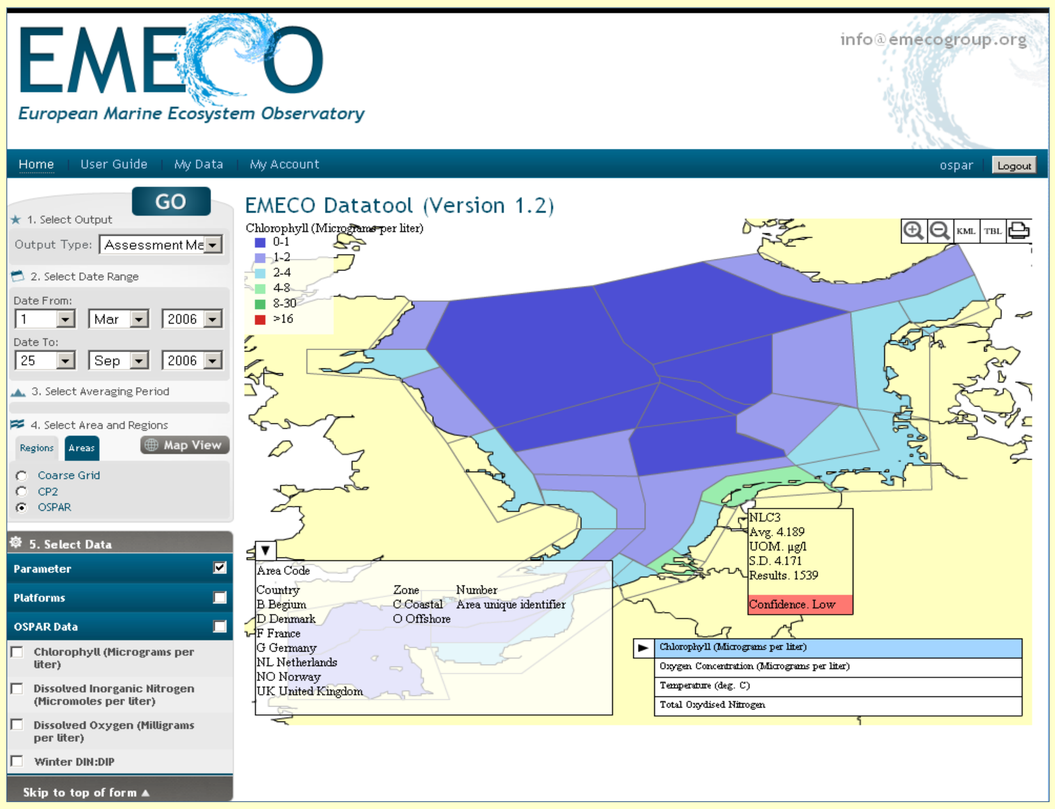


Fig. 2: Example query in the EDT user interface. Results are mapped onto OSPAR modelling water bodies in the North Sea.

Outputs

Queries produce bespoke assessment products; maps, Google Earth kml image, time-series plots and the raw data (CSV and XML formats) (Fig. 3). Thresholds representing the ecological health of parameters can be chosen and displayed on graphs and in summary tables; where the value exceeds the threshold a '+' is recorded, values beneath the threshold score '-' (Fig. 3e).

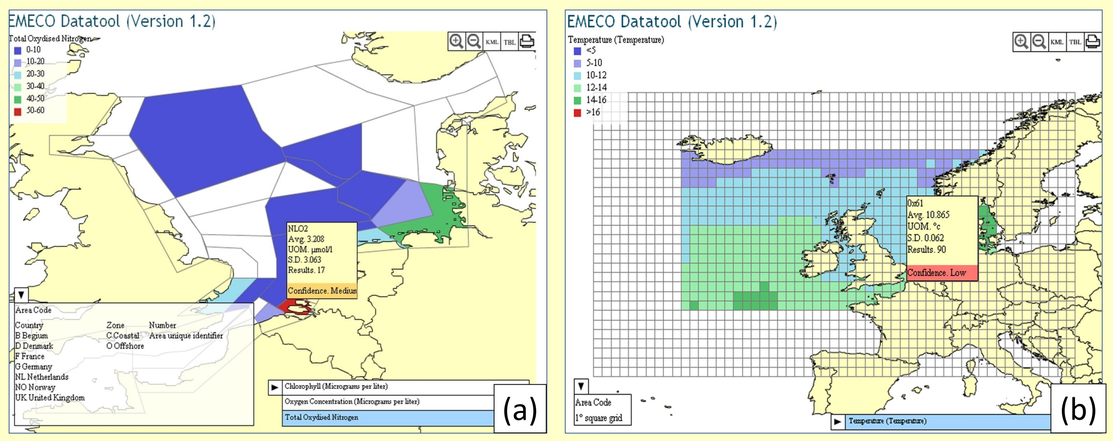
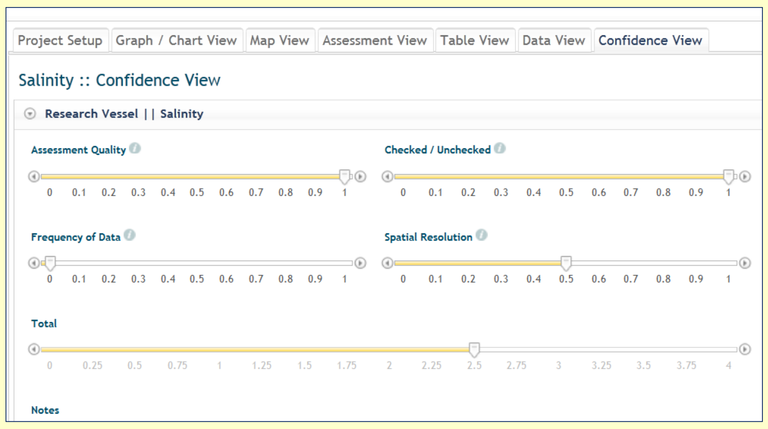


Fig. 3: Examples of EMECO products: assessment maps of (a) total oxidised nitrogen and (b) temperature; (c) Google Earth kml image; (d) time-series graph; and (e) graph and summary table showing a threshold for growing season chlorophyll (90th %ile).

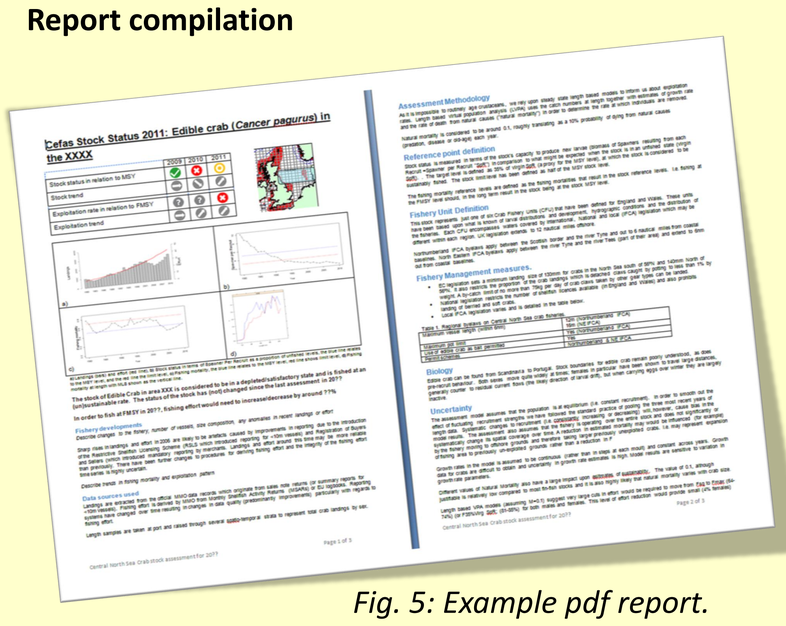
Confidence



Level of confidence is calculated based on four criteria: data quality; frequency; checked (quality controlled); and spatial resolution (Fig. 4).

Fig. 4: Confidence score.

Report compilation



Reports can be compiled collaboratively in password-protected web-pages, using personalised or team log-ins. Graphs, maps and tables are dynamically linked to their source data so that figures automatically update with new queries or data. Reports are exported in pdf format (Fig. 5).

Fig. 5: Example pdf report.

Acknowledgements

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