

## CHEMICAL OCEANOGRAPHIC DATA FOR THE MEDITERRANEAN: EXISTING DATABASES - PROPOSAL FOR A DIFFERENT APPROACH

M. Dassenakis\*, M. Ladakis, S. Triantafyllaki, V. Paraskevopoulou, T. Kastritis, H. Andrianos,  
Laboratory of Environmental Chemistry, University of Athens, Panepistimioupoli Zografou, 15771, Athens, Greece  
\* edasenak@cc.uoa.gr

### Abstract

This paper presents: (a) the results from a search in the World Wide Web for information portals and databases containing chemical oceanographic data about the Mediterranean, (b) a new approach for the dissemination and publication of such data in a proposed database.

**Keywords :** Database, chemical oceanographic data

The search in the World Wide Web produced the following list of main oceanographic portals and databases for chemical marine data and metadata.

**Portals:** OceanPortal (<http://www.oceanportal.org>), The eSeFDee Marine Sciences Portal (<http://www.dvz.be/Portal/>): directories with links to ocean data and information related web sites.

**Metadata websites:** Sea Search (<http://www.sea-search.net/>), European Directory of Marine Environmental Datasets (EDMED) ([www.bodc.ac.uk/services/edmed](http://www.bodc.ac.uk/services/edmed)), Marine Environmental Data Information Referral Catalogue (MEDI) (<http://ioc.unesco.org/medi/>), NASA's Global Change Master Directory (GCMD) (<http://gcmd.nasa.gov/>) are websites with metadata products/directories, i.e. information about datasets and centres or researchers that can provide them.

### Datasets

- The European Environment Agency holds online environmental data from EU member states in the EEA Data Service (<http://dataservice.eea.eu.int/dataservice/>) and metadata for each dataset. No chemical oceanographic data for the Mediterranean were found.

- The World Ocean Database (<http://www.nodc.noaa.gov/OC5/SELECT/dbsearch/dbsearch.html>) allows a specified search of the World Ocean Database 2001, through the WODselect retrieval system. The datasets retrieved are subsequently e-mailed to the user.

- PANGAEA (<http://www.pangaea.de/>) is an online data library providing geo-coded environmental, marine and geological data/metadata.

- International Council for the Exploration of the Sea (ICES) (<http://www.ices.dk>). The Oceanography section contains datasets from oceanographic cruises for the Western Mediterranean Basin.

- UNEP (United Nations Environmental Programme) Resources: Unep.net (<http://www.unep.net/>) provides oceanographic graphs, charts and reports from processed data, but no chemical oceanographic results were found about the Mediterranean. UNEP/MAP (Mediterranean Action Plan) (<http://www.unepmap.org>) provides all the technical reports of UNEP/MAP in pdf format, which contain processed data and conclusions.

- POSEIDON (<http://www.poseidon.ncmr.gr/>) is a monitoring, forecasting and information system for the Greek seas. A network of observation buoys and an operational centre will provide, when the system is in full functionality, physical, biological and chemical parameters. The website currently offers access to recent data from the Aegean Sea.

Limited datasets in websites with complete presentation on CD-ROMs:

- Mediterranean Targeted Project II-MATER (1996-1999) (Mass Transfer and Ecosystem Response) (<http://www.ifremer.fr/sismer/program/mater/>).

- Medar/Medatlas II (Mediterranean and Black Sea Database/1999-2001) (<http://www.ifremer.fr/medar/>).

Databases with other types of data, useful for the interpretation of marine chemical data:

- The Clean Seas and Coasts online (<http://www.thalassa.gr/2002/index.html>) website contains information on the bathing water quality in Greece.

- EMWIS (<http://www.emwis.org/>), (<http://kronos.minenv.gr/emwis/>), National Data Bank of Hydrological and Meteorological Information (<http://ndbhmi.chi.civil.ntua.gr/>), MED-HYCOS (Mediterranean Hydrological Cycle Observing System) (<http://medhycos.mpl.ird.fr/>) contain hydrological-meteorological information for rivers.

- MFSTEP (Mediterranean Forecasting System Toward Environmental Predictions) (<http://www.bo.ingv.it/mfstep/>), CERSAT

(<http://www.ifremer.fr/cersat/en/welcome.htm>) contain satellite observation data.

### Conclusion

We found that there is little information on chemical oceanography in contrast to the physical and biological disciplines. The available data are mostly about basic chemical oceanographic parameters (pH, salinity, dissolved oxygen, etc) and nutrients but not main pollutants (i.e. trace elements, organic compounds). Therefore a new database is needed, focused on chemical oceanography and at the same time interlinked with databases of physical, geological or biological data.

Aim of the database: to record chemical oceanographic-marine pollution data for the Mediterranean region.

Characteristics of the database:

- free access to every user interested in such data (academics, decision-makers, NGOs, general public),
- possibility for continuous contribution of new datasets by researchers,
- two choices of presentation format according to the end-user (data tables or graphs-conclusions for users not interested on raw data)

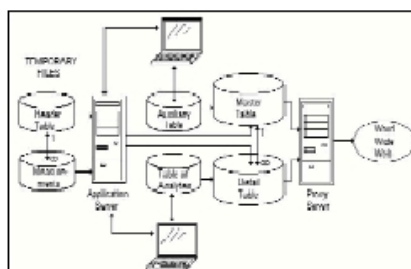


Figure 1 schematically presents the structure of the proposed database. The database will be built in the principles of master-detail tables.

Evaluation of the data: Data must

follow the guidelines of IUPAC about minimum requirements for reporting analytical data for environmental samples [1]. The DB administrator will determine the format of the contributed data.

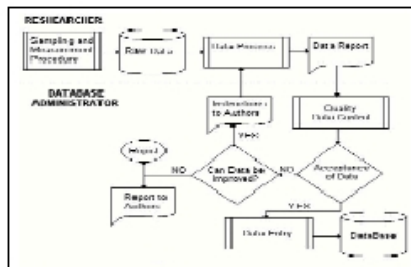


Figure 2 presents the operation flow chart for the proposed database. We believe that a database with chemical oceanographic data should be created under the auspices of an

international organisation with long expertise on data processing and management. It should also have sufficient funding since the original database design/programming, the interconnection with other existing databases and the maintenance/constant expansion of the database require the permanent employment of adequate, specialised personnel.

### References

- 1-Egli H., Dassenakis M., Garelick H., Van Grieken R., Peijnenburg W.J.G.M., Klasinc L., Kördel W., Priest N., Tavares T., 2003. Minimum requirements for reporting analytical data for environmental samples (IUPAC Technical Report). Pure Appl. Chem., 75: 8: 1097-1106.