

# INTERRIDGE NEWS



Promoting international cooperation in ridge-crest studies

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## ChEssBASE: A CENTRAL SOURCE OF INFORMATION FOR SPECIES FROM DEEP-WATER CHEMOSYNTHETIC ECOSYSTEMS — FUSION WITH THE INTERRIDGE BIOLOGICAL DATABASE AND INTEGRATION WITH OBIS.

BY

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ONLINE ARTICLE FOR THE 2005 EDITION

Since the discovery of hydrothermal vents in 1977 and of cold seep communities in 1984, over 500 species from vents and over 200 species from seeps have been described (Van Dover et al., 2002). With the regular discovery and investigation of new vent and seep sites, as well as other reducing habitats such as whale falls, sunken wood or areas of low oxygen intersecting with the margin, samples are constantly being collected by research groups around the world, with new species often being described. The wealth of samples is rapidly increasing, however catalogues for the collections often remain within each institution or research lab. To promote and facilitate international collaboration, as well as to share information and to obtain the maximum return from the large effort devoted to the collection of these samples, it is essential that the sample and species information collected to date is freely available and searchable in a user-friendly and efficient database.

Data first started being compiled in an overarching way in 1997, after an evening discussion on biological sample exchange at the First International Symposium on Deep-Sea Hydrothermal Vent Biology in Madeira. During this discussion, it was recommended that InterRidge should establish a biological database of hydrothermal samples. This database was designed and built, and the interface to the data was via the InterRidge website. The goal was to facilitate access to information on existing biological samples collected from global vent sites encouraging international sample exchange. The 3-year rotation system of the InterRidge office as well as the lack of the necessary expertise and funds to maintain and update a large database presented a challenge for the InterRidge office and the international community.

In 2002, the Alfred P. Sloan Foundation (USA) funded ChEss ([www.noc.soton.ac.uk/chess](http://www.noc.soton.ac.uk/chess)), one of the 14 field projects of the Census of Marine Life initiative (CoML, [www.coml.org](http://www.coml.org)) investigating the diversity, abundance and distribution of marine life, past, present and future. The main goals of ChEss are to describe and understand the biogeography of species from deep-water chemosynthetic ecosystems and the forces driving them (Tyler et al., 2003). To this aim, ChEss is developing a long-term field programme for the exploration and investigation of new sites in key locations (see ChEss web site) and has developed a web-based database for all species from deep-water chemosynthetic ecosystems: ChEssBase.

The main objective of ChEssBase ([www.noc.soton.ac.uk/chess/database/database.html](http://www.noc.soton.ac.uk/chess/database/database.html)) is to provide a central source of information for:

- 1) deep-water chemosynthetic ecosystems
- 2) available samples across laboratories around the globe.

To avoid duplication of effort and maximize resources and efficiency, ChEss (NOC, UK) and InterRidge (currently hosted at the Leibniz Institute of Marine Science, IFM-Geomar, DE) decided to merge their biological databases in January 2004, to create a single central source of information hosted by ChEss. In parallel, ChEssBase has been integrated into the Ocean Biogeographic Information System (OBIS), the information component of the CoML initiative. OBIS is a web-based provider of global geo-referenced information on marine species in four dimensions (the three dimensions of space plus time), offering not only access to data contents, but also to information infrastructure, and informatics tools such as maps, visualizations and models ([www.iobis.org](http://www.iobis.org)).

The first version of the database includes data on 806 species and 432 genera from 76 chemosynthetic sites that range from vents, seeps, whale falls and sunken wood. These data contain information (where available) on the taxonomy, morphology, trophic level, reproduction, endemism, distribution and habitat type, as well as on basic geophysical characteristics of the sites. There are also 954 papers in a searchable reference list. During the second development phase of ChEssBase, specific sample data will be included in the database, with cruise information, sample location, responsible researcher and institution. A photography and video gallery linked to each species will also be created.

The links with other related databases, such as the Ridge2000 biological database that is currently being developed (<http://ridge2000.bio.psu.edu>, Penn State, USA), Biocean ([www.ifremer.fr/isi/biocean](http://www.ifremer.fr/isi/biocean), Ifremer, Brest), or Microbis (<http://icomm.mbl.edu/microbis>, MBL, USA), can be facilitated through the OBIS portal.

The collaboration of the international research community is essential to ensure ChEssBase remains up to date with the latest information such as new sites discovered, new species described or new samples collected. For this, ChEss and InterRidge encourage researchers to send their new publications and cruise reports to Dr Eva Ramirez (ezr@icm.csic.es, ChEssBase manager). This will facilitate the task of including all new data and information in the database quickly and accurately, and therefore make this available to you, the community.

#### References

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Van Dover, C. L., German, C. R., Speer, K. G., Parson, L. M. and Vrijenhoek, R. C., 2002. Evolution and biogeography of deep-sea vent and seep invertebrates. *Science* 295: 1253-1257.

