

# **SPPreader**

The bi-annual newsletter of the  
DFG Priority Program SPP 1144



## **Meteor cruise M60/3**

Meteor expedition M60/3 is the first research cruise within the frame of the DFG-Priority Program 1144 "From Mantle to Ocean: Energy-, Material- and Life-cycles at Spreading Axes". Because the original chief scientist P. Herzig has been appointed director at the new "Leibnitz Institut für Meereswissenschaften" in Kiel, T. Kuhn from the Bergakademie Freiberg has agreed to be chief scientist for this cruise.

M60/3 is scheduled to depart from Fort-de-France (Martinique) on 15 January, 2004 and end in Fort-de-France on 13 February, 2004. More information will you find in the shipboard diary ([http://www.rcom-bremen.de/Meteor-Logbuch\\_2004.html](http://www.rcom-bremen.de/Meteor-Logbuch_2004.html)).

The principal scientific aim of the R/V Meteor cruise M60/3 is to investigate the interrelationship of geological and biological processes in active, ultramafic-hosted hydrothermal systems on the MAR between 14°45'N and 15°05'N. Three different sample locations will be targeted: the active Logatchev hydrothermal field at 14°45'N which hosts massive sulfides, another hydrothermal field at 14°55'N which is only known from photo sledge investigations, and outcropping oceanic mantle rocks at 15°05'N which are characterized by active serpentization. The main tools for seafloor investigations and sampling will be the new 4000m workclass ROV QUEST 5 provided by the University of Bremen (c/o Prof. G. Wefer, Dr. V. Ratmeyer, MARUM) and the TV-grab.

The research objectives are focused on the chemistry of hydrothermal fluids and minerals in relation to the tectonic activity, the composition of the oceanic lithosphere, and the activity of hydrothermal biota. An important question is, whether there is a genetic link between the hydrothermally active Logatchev field and the ultramafic rocks which host the hydrothermal precipitates. The results of these investigations will improve our understanding of the formation processes of many massive sulfide deposits on land which are also hosted by ultramafic rocks. Geochemical and biological work focuses on the interaction of hydrothermal fluids and biota in hydrothermal systems. Major objectives are the analyses of the chemical species in the hydrothermal fluids (both, gaseous species and metals) and their interaction with the colonization patterns, the functional roles and the activity patterns of hydrothermal bacteria, archaea and fauna. A central issue in these investigations is the transition of inorganic and organic compounds and energy that is provided by electron donating reduced gases (i.e. diluted H<sub>2</sub>, H<sub>2</sub>S, CH<sub>4</sub>) from the geochemical level to the biological level of the hydrothermal communities. The influence of supercritical phase separation on the fluid chemistry, mineral precipitation and the structure of hydrothermal communities will also be addressed.

Hydrothermal systems hosted by ultramafic rocks, which are characterized by active hydrothermalism and active serpentization, are especially suitable for combined research on the above-mentioned scientific objectives.

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## **SPP 1144 data management**

The data management for the SPP1144 will consist of several components. On one hand data will arise during the ship expeditions. That begins hydro 005 (on 130) Ship post 08 (on 11/11) on 48-tb0.48-ref58/h

Data processing and validation  
(e.g. ADELIE, GIS, ...)

Data archiving WDC-MARE/PANGAEA  
(Long-term data archiving and publication)

Post-cruise data production  
Publication of scientific results

## **International Observatory Network (ION)**

The International Ocean Network (ION, see <http://www.ocean.cf.ac.uk/ion/index-2.html>) committee was established in June 1993 with the goal to facilitate international cooperation in the development of ocean-bottom observatories (chair: Prof. Dr. Adam Schultz, Oregon State University, USA [adam@coas.oregonstate.edu](mailto:adam@coas.oregonstate.edu); secretary: Prof. Dr. Heinrich Villinger, University of Bremen, Bremen, Germany, [vill@uni-bremen.de](mailto:vill@uni-bremen.de)). Originally created for the purposes of the seismological community, in 1995 its participation was enlarged to include the geoscience community, and again in 2001 to include the oceanographic community.

The charter of ION as adopted in June 1993, amended in January 1995 and January 2001 is as follows:

“The International Ocean Network (ION) was formed to foster synergies among different disciplines, and to facilitate cooperation in th

close to Ascension) could become monitoring targets within the life of the SPP1144. This point should already be borne in mind when we consider what will follow the SPP in 2009! The workshop ended with the formulation of a proposal to ESF to establish a EUROCORES program (under the name of MARidge) which, similar to EUROMARGINS, should fund inner-European research efforts on MAR monitoring on a multi-lateral basis. This MARidge initiative is presently being lead by (alphabetically) Devey, Escartin, Pascoal, Santos and Tyler.

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### **InterRidge-Office**

The InterRidge Office will be moving to Germany as of 1.1.2004 for three years. The SPP leader (Devey) will be taking over the Chair of InterRidge. This is an enormous opportunity for the SPP to play a role in shaping international ridge research. Preparations for this takeover are in full swing, the computer system to house the InterRidge web-site will be installed and tested over the Christmas-New Year period. The InterRidge Office will be staffed by one full-time coordinator and a part time research assistant. The coordinator will be responsible for the day-to-day running of the office and also for the outreach activities of InterRidge. We hope that the coordinator will be able to develop materials which are of use globally to help raise the profile of InterRidge and to help us bring the excitement of ridge research to school and university classes worldwide.

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### **Ridge2000**

At the beginning of March 2004 (29.2. –2.3.2004), the US Ridge2000 program will be holding a workshop in Rhode Island to discuss where the American community wishes to place its Intergrated Study Site in the Atlantic. Due to a schedule problem, the SPP leader (Devey) will not be able to attend the meeting, but the SPP1144 will be represented at this meeting.

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