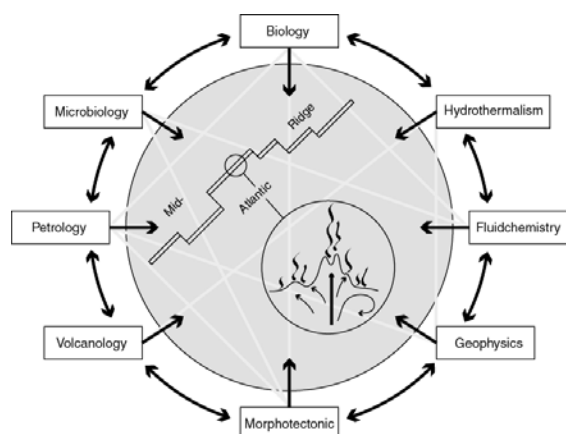


# SPPreader

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

Issue 1, December 2003

The SPP 1144 web site is at:  
**[www.deridge.de](http://www.deridge.de)**



## First Edition

The SPP 1144: „From Mantle to Ocean: Energy-, Material- and Life Cycles at Spreading Axes“ started on the first of October 2003, and with it this newsletter. In general, there will be two editions per year. We hope that you will find this newsletter useful. Please send any feedback you may have to [klacksch@uni-bremen.de](mailto:klacksch@uni-bremen.de). This is also the address to use if you have a contribution which you would like included in the next issue.

Our bi-annually newsletter aims to bring you all the latest developments and news around the SPP and other international activities at mid-ocean ridges.

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## Funded projects in SPP 1144

First of October 2003 the grants for the projects of the first phase (2 years) of the DFG-priority program 1144 were started. More than 25 proposals were submitted, from which the group of referees selected 16 projects with 20 participating working groups. A further growth is expected for the next year - starting October of 2004 - because some proposals which were judged important but immature should be submitted once again after revisions.

Below is a list of all accepted projects (links to more extended information on the projects is given on the SPP 1144 homepage [www.deridge.de](http://www.deridge.de)). People interested in cooperation with the program or groups working inside this program structure are welcome to contact the respective scientists or the coordinator.

Short title of project	Project leader	Organization
Electromagnetic and seismological measurements to study the deep melt structure beneath the MAR	Dahm, T.	Univ. Hamburg
Coordination of the Priority Program 1144	Devey, C.W.	Univ. Bremen
Geobiological coupling between vent fluids and symbiotic primary producers	Dubilier, N.	MPI Bremen
The role of ocean crust alteration for the marine calcium budget	Eisenhauer, A.	GEOMAR Kiel
Petrological, geochemical and isotopic investigations of massive sulfides	Herzig, P.	Bergakademie Freiberg
Low pressure differentiation of basalts – Constraints from experiments	Holtz, F.	Univ. Hannover
Microbial diversity and key activities at hydrothermal habitats	Imhoff, J.F.	Inst f. Meeresk. Univ. Kiel
Methane transport to the ocean from the Mid-Atlantic Ridge, 2°S to 11°S	Keir, R.	GEOMAR Kiel
Hydrothermal fluids as media for the transport of energy and mass	Koschinsky, A.	IUB Bremen
Microbial interaction of fluid and mineral phases at hydrothermal vents	Küver, J.	Univ. Bremen
Mineralogy, geochemistry and isotope characteristics of altered oceanic crust	Lackschewitz, K.S.	Univ. Bremen
Geophysical studies near the Ascension transform	Reston, T.	GEOMAR Kiel
Primordial helium and vertical mixing at the Mid Atlantic Ridge, 2°-11°S	Rhein, M.	Univ. Bremen
Temporal evolution of hydrothermal systems at the Mid-Atlantic Ridge	Scholten, J.	Univ. Kiel
Gas chemistry and carbon cycling at hydrothermal systems along the MAR	Seifert, R.	Univ. Hamburg
Logatchev longterm hydrothermal field environmental monitoring	Villinger, H.	Univ. Bremen

## **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 serpentinization. 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.

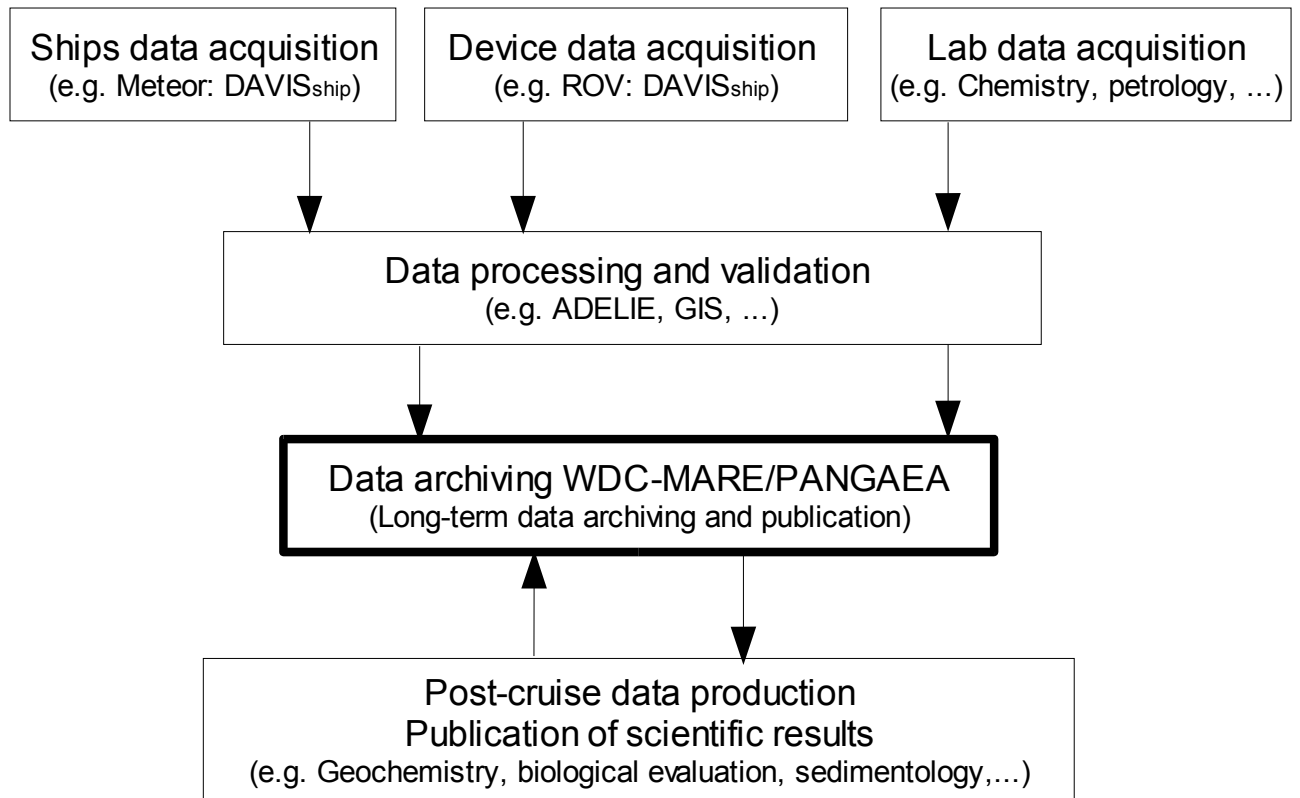
The research objectives are focused on the chemistry of hydrothermal fluids and minerals in relation to the tectonic activity, the composition of the oceanic lithosphere, and the activity of hydrothermal biota. An important question is, whether there is a genetic link between the hydrothermally active 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 serpentinization, 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 with the primary ship data from which the station list results, goes further with the data resulting from the deployment of measuring devices (e.g., ROV, CTD, TV grab) and ends with the data produced by investigating sample material in the ship labs. After processing and validation, these data will be transferred to the data management system PANGAEA shortly after the cruise. At this stage the data will be available to all SPP1144 scientists via the WDC-MARE/PANGAEA system.



Data produced post-cruise by individual scientists or working groups, likewise have to be archived in the PANGAEA database and will be accessible for the SPP 1144 scientists. Data related to scientific results published in scientific journals will be published by WDC-MARE/PANGAEA together with all relevant information (e.g., publication source, principal investigator, used methods).

The data flow of the ship data and the ROV data will run almost automatically. Data from independent measuring instruments and from the labs/working groups must be transferred by the responsible scientists (PI) via the SPP coordination office (K.S. Lackschewitz) to WDC-MARE/PANGAEA (H.-J. Wallrabe-Adams). Additional information characterizing the data ('metadata') are necessary for a complete and appropriate archiving. Information on necessary metadata and data formats will be available on the SPP homepage as soon as possible.

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## Upcoming event

*SPP 1144 Workshop 13/5-14/5/2004*

There will be annual workshops, financed by the DFG, to chart the progress of the work in the programm. The first of these workshops, which will be devoted to the results of the first SPP cruise M60/3 (see above) and the development work within the other projects will take place from 13-14<sup>th</sup> of May 2004. Both oral and poster presentations will be scheduled. Anyone interested in attending should contact the SPP coordination office to make sure that their name is on the list of invitees.

## **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 the development of critical elements of the observing systems, harmonization of those elements of the system that would allow shared maintenance of the observatories, development of common plans for the use of international resources (e.g. Ocean Drilling Program, Global Ocean Observing System), timely exchange of data, coordination of siting plans. ION welcomes the participation of all countries with an active program in the development, deployment, and operation of ocean observatories.”

ION is an international association affiliated with IUGG (International Union of Geodesy and Geophysics). In the future, ION may become affiliated with other international associations having interest in observatories in the oceans.

ION is clearly of interest for the SPP1144 initiative, and at the Dec. 2003 meeting of the ION Committee in Berkeley, California, the SPP leader made a presentation of SPP activities. The ION committee were particularly interested in the monitoring aspect of the SPP and the long-term geophysical stations which it is planned to install initially at Logatchev (see project Villinger, above). Together with the InterRidge Working Group “Deep Earth Sampling” there may be interest in generating IODP drilling proposals to do observatory work in the SPP field areas. Those interested in this possibility should contact the SPP leader for more information.

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## **MOMAR**

The European Science Foundation (ESF) funded a workshop in Barcelona during October 2003 on „Long-term monitoring of deep-ocean hydrothermal ecosystems“ to address the state of observatory work in Europe. Participants were invited from most European countries together with an observer from ESF and the American Ridge2000 program. The results of the workshop surprised perhaps all participants – Europe is probably better equipped than any other region of the globe (including the USA) with the necessary infrastructure to build and maintain one or several underwater observatories. A list of all these facilities, together with the presentation made at the workshop, is available at <http://www.ipgp.jussieu.fr/rech/lgm/MOMAR>. The workshop discussion centred around how to get a working observatory at a MAR hydrothermal area with real-time data transmission and intervention running in Europe. The possibility of using shortly-to-be-retired submarine telecommunication cables for data transmission was considered in detail but rejected because of liability and maintenance cost considerations. During this discussions on appropriate monitoring sites it became clear that the MOMAR area south of the Azores is presently at the highest state of readiness in terms of state of knowledge and available background data but that our SPP1144 areas in the equatorial Atlantic may quickly reach and surpass this state of readiness within the next few years. There is therefore a clear possibility that the SPP areas (Logatchev and

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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