



InterRidge News

Initiative for international cooperation in ridge-crest studies

Principal Members

France
Japan
United Kingdom
United States

Associate Members

Canada
Germany
Italy
India
Norway
Portugal

Corresponding Members

Australia
Brazil
China
Denmark
Iceland
Korea
Mexico
Morocco
New Zealand
Philippines
Russia
SOPAC
South Africa
Spain
Sweden
Switzerland

Contents

InterRidge Office Updates

Coordinator Update.....	3
Mailing list sign-up form.....	5
New InterRidge Web Page Overview.....	7
InterRidge Publications.....	9

InterRidge Projects

Overview of InterRidge Working Groups.....	10
SWIR Update.....	11
Special Article: CARLSBERG - Central Indian Ridge: A case for InterRidge Working Group <i>Drobia R.K., et al.</i>	12

International Ridge-Crest Research

Biological Studies

Report of gravid female acanthocephalans in zoarcid fish from EPR 13°N and of a potential amphipod intermediate host of this parasitic worm. <i>de Buron I., et al.</i>	14
Fishes from the Luchy Strike hydrothermal vent field and the surrounding deep-sea environment: Crista 3 Cruise results. <i>Marques A. and A.J. Almeida</i>	16
Mercury levels in mussels and shrimp from the Mid-Atlantic Ridge (MAR) hydrothermal vent fields. <i>Martins I., et al.</i>	17

Back Arc Basins

Rift Propagation and extensive off-axis volcanic and hydrothermal activity in the Manus Basin (Papua New Guinea): MANAUTE Cruise. <i>Auzende J-M., et al.</i>	21
---	----

Mid-Atlantic Ridge

New fields with manifestations of hydrothermal activity in the Logatchev area (14°N, Mid-Atlantic Ridge). <i>Cherkashev G.A., et al.</i>	26
New data on some major MAR structures: preliminary results of R/V Akademik Nikolaj Strakhov 22 cruise. <i>Peyve A., et al.</i>	28

Indian Ridge

Deep-sea Exploration of the Central Indian Ridge at 19°S. <i>Dyment J. et al.</i>	29
Exploration of the Carlsberg Ridge. <i>Mudholkar A., et al.</i>	32

Continued overpage

InterRidge News is published twice a year by the InterRidge Office, Ocean Research Institute, University of Tokyo,

1-15-1 Minamidai, Nakano, Tokyo 164-8639, Japan. Editor: Agnieszka M. Adamczewska.

Tel: +81 3 5351 6820; Fax: +81 3 5351 6530; E-mail: intridge@ori.u-tokyo.ac.jp <http://www.intridge.org>

New data on some major MAR structures: preliminary results of *R/V Akademik Nikolaj Strakhov 22* cruise.

A. Peyve¹, E. Bonatti² and scientific party: D. Brunelli², A. Chilikov¹, A. Cipriani², K. Dobrolubova¹, V. Efimov¹, S. Erofeev¹, V. Ferrante², L. Gasperini¹, R. Hekinian³, M. Ligi², G. Maurizio², A. Mazarovich¹, A. Perfiliev¹, Y. Raznitsin¹, G. Savelieva¹, B. Sichler³, V. Simonov⁴, S. Skolotnev¹, S. Sokolov¹, N. Turko¹

¹ *Geological Institute, Russian Academy of Sciences, Moscow, Russia*

² *Instituto di Geologia Marina CNR, Bologna, Italy*

³ *IFREMER, Centre de Brest, France*

⁴ *United Institute of Geology, Geophysics and Mineralogy, Russian Academy of Sciences, Russia*

The 22nd cruise of *R/V "Akademik Nikolaj Strakhov"* with a joint Russian – Italian geological team took place in the Central Atlantic from 28 April to 1 July 2000. The cruise was conducted in two legs. The first leg – as outlined in the Russian-Italian project (PRIMAR) – was in the eastern part of the Vema fracture zone as a continuation of the previous joint expedition to this region (Fabretti *et al.*, 1998). St. Paul F.Z. area was also studied based on the Italian-French programme. The aim of the second leg according to the Russian programme was to map (using a multibeam EM 12S echo sounder) and dredge the poorly studied 5° - 7°20' N MAR area. In the second part of the leg preliminary bathymetric and geophysical (single channel seismic profiling, magnetometric survey) study of the Cape Verde abyssal plain in the area between 26°30' W and 28°30' W (convergence area of latitudinal and south-east trending fracture zones) was conducted.

The Vema fracture zone is one of the unique structures, where a relatively undisturbed section of oceanic crust is exposed along almost 270 km of the south slope of the fracture zone valley. This provides an opportunity to examine variations in crust and mantle composition over 16 My. Study of ultramafic rocks and gabbro collected between 42°08' W and 43°39' W revealed such variations (Auzende *et al.*, 1989; Cannat and Seyler 1995; Fabretti *et al.*, 1998; Peyve *et al.*, 2001).

To get a complete picture of the

crust-mantle compositional diversity, we made 12 successful dredges from the eastern ridge transform intersection to 42°03' W. Preliminary result show that ultramafic rocks from this Vema segment are different from segments to the west, where ultramafics with porphyroclastic and milonitic textures predominate. No amphibole peridotites were found here in contrast to west area. There are also some other differences in rock composition.

Bathymetric mapping of the 5° - 7°20' N MAR (Sierra Leone F.Z. area) has shown that the rift valley to the south of 7°10' N F.Z. is divided into several blocks 35-40 km long. They are separated by left lateral zones of "deviations from linearity" and by overlapping rift valleys. In the rift valley, 5°58' N we found an anomalous depth of 4975 m.

Extensive dredging in the Sierra Leone F.Z. area revealed that modern rift from the 7°10' N F.Z. to at least 6°N is composed of basalts and ultramafic rocks distributed in more or less equal proportion. At the dredge station S2244 (6°54' N, 33°57' W) just in the centre of the rift valley peridotites were dredged together with fresh glassy basalts. Various altered and serpentinised harzburgites and dunites (many tectonically rounded) were dredged with white-blue serpentine – talc – chrysotile-asbestos - chlorite mud. Serpentinised ultramafics are light green to red and magenta due to formation of different Fe oxides. Sulfide mineralization is widespread along numerous slick insides. This as

well as the wide distribution of carbonate and zeolite veins is a result of widely distributed hydrothermal activity in this area, especially in 6°09' N, 33°25' W. Gabbros are less common. They are mostly olivine varieties up to pure troctolites.

Dredging profile across rift valley at 6°35' N has shown that such type of structure (ultramafic crust with tectonically emerged fragments of magma chambers, represented by gabbro and thin fragmented lava flows is not limited only to the modern rift valley. As we see this MAR segment has much in common with the St. Paul F.Z. area.

References

- Auzende, J.-M., D. Bideau, E. Bonatti, M. Cannat, J. Honnorez, Y. LaGagrielles, J. Malavieille, V. Mmamalokas-Frangoulis, C. Mevel, Direct observation of a section through slow-spreading oceanic crust. *Nature*, 337, 726-729, 1989.
- Cannat, M., M. Seyler, Transform tectonics, metamorphic plagioclase and amphibolitization in ultramafic rocks of the Vema transform fault (Atlantic Ocean). *Earth Planet. Sci. Letter*, 133, 283-298, 1995.
- Fabretti, P., E. Bonatti, A. Peyve, D. Brunelli, A. Cipriani, X. Dobrolubova, V. Efimov, S. Erofeev, L. Gasperini, J. Hanley, M. Ligi, A. Perfiliev, V. Rastorguyev, Y. Raznitsin, G. Savelieva, V. Semjenov, V. Simonov, S. Sokolov, S. Skolotnev, S. Susini, I. Vikentyev, First results of cruise S19 (PRIMAR Project): petrological and structural investigations of the Vema Transverse Ridge (equatorial Atlantic). *Giornale di Geologia*, 60, 3-16, 1998.
- Peyve, A. A., G. V. Savelieva, S. G. Skolotnev, V. A. Simonov, Composition of crust – mantle transition zone in the Vema fracture zone area, Central Atlantic. Submitted to *Geotectonica*, 2001. 