

Slovenia

Meetings

1. COST-GEOTRACES-GMOS International Workshop on “Mercury in the marine environment: a global metrology challenge” organized by M. Horvat, C. Lamborg, G. Henderson and N. Ogrinc from May 9 to 12, 2011 in Piran, Slovenia dedicated to Hg analysis and speciation in the marine environment. Over 60 known experts and instrumental producers attended the workshop. The following issues were exposed during the workshop:

1. Hg species in open and coastal marine environment; evidence from various ocean environments (Mediterranean, Atlantic, Pacific, Baltic, Artics, etc..)
2. What to measure and why? Where it was discuss which mercury species need to be measured and which ancillary data are needed.
3. Metrology support in relation to appropriate reference materials.
4. Recent improvements for Hg speciation in marine environments.
5. Planning of intercomparisons in the framework of GMOS (Global Mercury Observation Systems) project and GEOTRACES.
6. Available instrumentation and demonstrations – last developed analytical systems.

All presentations are available on CD:

HORVAT, Milena (ur.)/et al. International Workshop on Mercury in the Marine Environment: a Global Metrology Challenge, Marine Biological Station, Fornače 41, Piran, Slovenia, 9.-12. May 2011/. Ljubljana: Jožef Stefan Institute, Department of Environmental Sciences, 2011. 1 optični disk (CD-ROM). ISBN 978-961-264-034-7.

<http://cobiss.izum.si/scripts/cobiss?command=DISPLAY&base=COBIB&RID=256315904>

2. Participation at the Workshop “The ocean chemistry of bioactive trace elements and paleoclimate proxies” May 29 to June 1, 2012, Geel, Belgium (L. Benedik – acting as an invited speaker, M. Vahčič as a participant).

Cruises

Participation of M. Vahčič and A. Bratkič on the James Cook South Atlantic Ocean cruise led by G. Henderson (University of Oxford, UK) from December 2011 to January 2012. The activities were related to the cycling of Hg species in marine environment including deep water profiles of dissolved gaseous Hg (DGM), total (THg), monomethyl Hg (MeHg) and dimethyl Hg (DMeHg) in open ocean waters. A special attention was paid on the distribution of DGM, which plays the major role in the exchange of Hg between water and atmosphere. At some locations also sediment samples were taken. In these samples THg and MeHg will be determined. The results performed on this cruise provides reliable and relevant

vertical high resolution data for modelling global (ocean) cycle of Hg and allows for more accurate predictions of its transport and fate with regard to human perturbations and climate change.



New funding

Participation at the James Cook South Atlantic cruise was partially financed by EU project GMOS.

New results

Samples obtained on the James Cook cruise are still under investigation. Preliminary results on DGM are presented in Figure 1. Depth profiles along transect 40°S show a depletion of DGM in the upper layers of the ocean. DGM is rather uniformly distributed deeper in the water mass, with slight variations in concentrations, which could be attributed to different water masses at different depths. Lower concentrations obtained at the surface are related to evaporation and photoreduction of DGM.

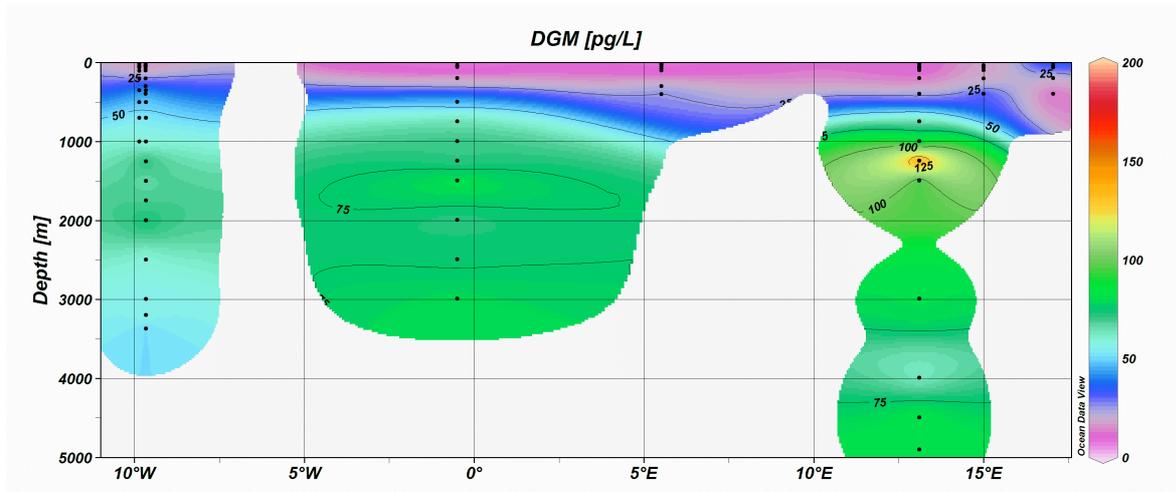


Figure 1. Depth profiles of dissolved gaseous mercury (DGM) in deep-sea waters.

Other activities

S. Tamše obtained GEOTRACES fellowship to perform his research on stable isotope composition of N and O in nitrates in marine samples. The research is going to be conducted at the Laboratoire de Glaciologie et Géophysique de l'Environnement (CNRS/UJF), Grenoble, France.

Publications

N. Ogrinc, M. Vahčić, A. Bratkič, J. Kotnik, F. Sprovieri, N. Pirrone, M. Horvat (2012) Mercury speciation in deep-sea waters of the Mediterranean Sea, presented at the 22th Goldschmidt conference June 24-29, 2012 in Montreal in a special session 13d. Geotraces, the international science program.

Submitted by: Nives Ogrinc.