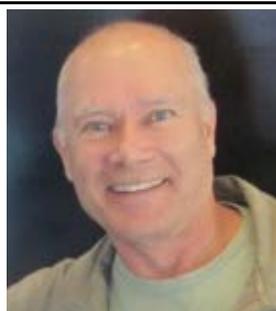


## SOUNDINGS

IMMS e-

NEWSLETTER

Edited and Published by Kira Mizell and James R. Hein



### A message from the President

Summer 2014

This has been an exciting year for interest and activities related to marine mineral deposits. The first two-thirds of this year is over and has brought us a plethora of marine minerals activities, for example several science project funding workshops, such as the E-tech metals workshop held in Southampton UK in February; commitment of significant levels of funding by the EU for environmental studies related to marine mining; the near completion of the three seafloor mining robots that will be used by Nautilus Minerals to mine their Solwara 1 site; many conferences and meeting, such as the jointly sponsored conference in St. Petersburg Russia, London UK, and others; marine minerals featured at land-based mining conferences, such as the Asia Mining Congress in Singapore in March; student training sessions on marine minerals, such as that held at KIGAM in Daejeon Korea; an unprecedented number of applications for plans of work approved at the 20<sup>th</sup> session of the ISA in July; and a large number of research, engineering, and policy papers concerning marine minerals. Many of these activities are highlighted in this second IMMS newsletter of 2014. And, most importantly, we're all looking forward to what may well be the largest UMI yet, which will be held in Lisbon, Portugal in September—this should be a UMI to remember and we sincerely thank the organizing committee for their commitment to excellence. We wish you a healthy and productive year.

Sincerely, Jim Hein, President of IMMS.

### Happenings within the IMMS

#### Amendments to IMMS Bylaws:

The Bylaws of the IMMS have been rewritten to incorporate the recommendations approved by the Executive Board last year at the RIO meeting and discussed in the March 2014 Newsletter. They will be posted online once the EB has a chance to review those changes and discuss potential further changes at their meeting in Lisbon.

# UNDERWATER MINING INSTITUTE

Annual Conference of the IMMS

## UMI Updates

- **General Info:** The IMMS 43rd annual conference of the Underwater Mining Institute (UMI) will be held in Lisbon, Portugal this year 21-28 September 2014. The theme of the conference, *Harvesting Seabed Mineral Resources in Harmony with Nature*, highlights presentations on how industry and marine preservation can work hand in hand.
- **Reasons to attend UMI this year:**
  - 130 participants including speakers, participants, staff, students and spouses
  - 42 Oral Presentations & 25+ Poster Presentations
  - 3 Field Tour options traveling from Lisbon to Central Portugal or to Algarve-Albufeira in South Portugal with mine and cultural stops along the way
  - Strategic Planning Meeting in Algarve-Albufeira of the technical, environmental, and education steering committee
  - Wine, culture, and the pure romance of Portugal!



For more information see  
<http://www.underwatermining.org/>  
 Late Registrations still accepted!

## Membership

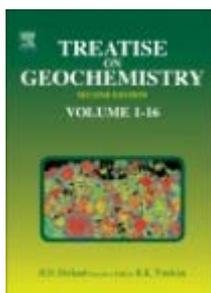
- Activity**
- **Sven Petersen (GEOMAR) recent cruise participation:** During the recent ODEMAR cruise (Nov-Dec 2013) with the French research vessel *Pourquoi Pas?*, two oceanic core complexes and associated hydrothermal fields (Semyenov and Irinovskoe) in the central Atlantic along the MAR were investigated with the autonomous underwater vehicle ABYSS-Remus 6000 (GEOMAR, Germany) and the ROV VICTOR (IFREMER, France). Led by Javier Escartin (IPGP, Paris, France) the multinational team investigated the structural geology of the core complexes and detachment faults as well as the petrology of the ultramafic and mafic host rocks. High-resolution microbathymetry with the AUV and follow-up sampling with the ROV allowed detailed investigations of the local geological control of hydrothermal activity along a detachment fault environment and the characterization of high-temperature venting as well as of associated active and fossil mineralization.
  - **Mr. JIN Jiancai has completed his tenure as the Executive Director and Secretary General of the China Ocean Mineral Resources Association (COMRA)**, during which China obtained two more contracts for exploration through the ISA, one for crusts and one for SMS, which with their previously held contract for nodules makes China one of two countries with contracts for all three commodities. The State Oceanic Administration has appointed Mr. Liu Feng as his successor who has extensive knowledge and experience in the deep-sea research and we look forward to his participation in IMMS/UMI.
  - **IMMS President, James Hein, USGS, presented lectures on deep-ocean mineral deposits and global activities**, at the Universities of Hiroshima and Kochi in Japan and at two ISA sensitization seminars, in Mexico City and at the UN in NYC; taught a three-day workshop for geologists from developing countries on deep-ocean mineral deposits, comparisons with land-based mining, and uses of the elements that characterize marine mineral deposits, Daejeon, Korea; participated in a workshop sponsored by the NOC and BGS in Southampton UK to develop a proposal to study elements found in crusts and nodules that are essential to energy technologies.
  - **Steve Scott, University of Toronto, participated in numerous invited talks and outreach opportunities** including:
    - Modern seafloor sulfide deposits: VMS analogs: China University of Geosciences, Beijing.
    - Present and future ores in the ocean: Athens University, Greece
    - Modern and ancient seafloor hydrothermal deposits: descriptions, genetic models, geochemistry

and mining: Tongji University, Shanghai (4 lectures)

o Several public library and primary school outreach presentations

- **Samantha Smith, [Nautilus Minerals](#) and IMMS President Elect, and others are featured in the BBC show "Into the Abyss."** Listen [here](#).
- **Thomas Kuhn (BGR) participated in the 6th German exploration cruise to their manganese nodule license area in the equatorial Pacific.** The cruise focused on exploration and resource assessment of a 2000 square km area in the eastern portion of the German license area which was pre-selected as a potential prospective field based on hydro-acoustic backscatter data. The crew also collected oceanographic baseline data and biological data in order to investigate potential impacts of future nodule mining on the marine environment. *This information has been paraphrased from a summary report by C. Rühlemann, T. Kuhn, A. Vink and shipboard scientific party; to read the full summary and see a list of recent BGR related publications click [HERE](#).*

## Recent Research and Publications



**A 649-page book organized and edited by IMMS member Steve Scott has been published for Elsevier's [Treatise of Geochemistry](#)** and contains chapters by IMMS members, Hein and Koschinsky on nodules and crusts, Hannington in part on seafloor massive sulfides, Piper and Perkins on phosphate, and Warren on evaporites. Full reference: S.D. Scott, volume editor (2013) *Geochemistry of Mineral Deposits: Treatise on Geochemistry (Second Edition)*, H. D. Holland and K. K. Turekian executive editors, v. 13, 649 pp., Elsevier.

**We also compiled a list of 24 recent publications on IMMS relevant topics sent to us by fellow IMMS members! View the citations [HERE](#).**

## Conferences and Workshops

### [Recap of Completed 2014 Conferences](#)

- **ISA sensitization seminar convened at United Nations headquarters in NYC, 15-16 April.** For a summary of the seminar's goals and the list of presenters, including several IMMS members, and their topics, click here (<http://www.isa.org.jm/en/node/936>).
- **Limits to Blue Growth in the Deep Sea, Congress Centre, Bremen, 19 May 2014.** A few words on the conference from IMMS Executive Board and member attendee, Julien Denegre: "Blue Growth is the long term strategy to support sustainable growth in the marine and maritime sectors as a whole. Seas and oceans are drivers for the European economy, have great potential for innovation and growth, and realize a maritime contribution to achieving the goals of the Europe 2020 strategy for smart, sustainable and inclusive growth. The 'blue' economy represents roughly 5.4 million jobs and generates a gross added value of almost €500 billion a year. However, further growth is possible in a number of areas that are highlighted within the strategy. One of the pillars consists of developing sectors that have a high potential for sustainable jobs and growth, including seabed mining. Numerous organizations within the EU are presently engaged in seabed mining activities, both as technology providers and as mine operators. The sector, though small, has been identified as having the potential to generate sustainable growth and jobs for future generations. EU support will include measures to ensure that state-supported competitors do not squeeze European companies out of the value chain for marine minerals. This might include a pilot action within the framework of the proposed European Innovation Partnership on Raw Materials, supported by a structured EU research effort addressing main technology challenges."
- **Minerals of the Ocean-7 & Deep-Sea Minerals and Mining-4, 2-5 June, Saint Petersburg, Russia.** A few words on the conference from IMMS EB member and attendee, Georgy Cherkashov: 60 scientists from China, Korea, Germany, UK, Belgium, Netherlands and Russia discussed different aspects of marine minerals and their potential mining. New trends in the study and exploration of ferromanganese nodules and cobalt-rich ferromanganese crusts, seafloor massive sulfides and gas hydrates were the focus for 3 days which culminated in a voyage along Neva River. In the

framework of the SMS session, a special interest was focused on Oceanic Core Complex-hosted SMS at the Mid-Atlantic Ridge and South-West Indian Ridge. Technological and economical aspects in exploration and exploitation of marine minerals were the subjects in some presentations. Recent efforts in Germany to fund a powerful consortium on the exploitation and mining of marine mineral resources were discussed as well. The next workshop will be held in St. Petersburg in June 2016.

### Upcoming 2014 & 2015 Conferences



Offshore and Deep-Sea Mining, 6-7 November, Le Meridien, Piccadilly, London: Establishing economic feasibility, developing regulatory policy, and capitalizing on commercial opportunities. **IMMS members receive 20% off** registration by entering the VIP Code FKA2485IMMS <http://www.ibcenergy.com/FKA2485IMMS>



Sea Tech Week, 9th Marine Science Conference, 13-17 October, Brest, France: Deep Sea Challenges <http://www.seatechweek.com/index.php/en/>



International Mining Congress and Exhibition of Turkey, 14-17 April, 2015, Antalya, Turkey <http://imcet.org.tr/defaulten.asp>

Sea Bed Mining Summit, September 2014 in London, UK **CANCELLED**

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## Job and Internship Opportunities

- **USGS Mendenhall Post-Doc Fellowship in marine minerals** will be advertised on USAJOBS website in September; USA citizens have priority. Several internship opportunities are listed on the InterRidge website. If you have such opportunities or job openings, please send to Kira Mizell ([kmizell@usgs.gov](mailto:kmizell@usgs.gov)) for our next newsletter.

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## Marine Minerals in the News



- **Foundation of the “DeepSea Mining Alliance” (DSMA) association on April 9, 2014 in Hamburg, Germany.**

Germany as an industrial nation is highly dependent on the import of mineral and metal resources. Sources that have not been considered until now are marine mineral resources, which are enjoying greater and greater interest, and which may make a considerable contribution to secure supplies of metal resources in the future. Backed up by the National Masterplan Maritime Technologies (NMMT) of the German government, and corresponding activities, the idea and the advantage of deep-sea mining gained much interest and supporters. Based on this development, the Deep-Sea Mining Alliance association (DSMA) was founded. Major goals of the association are the preparation of commercial, technological, and scientific projects on deep-sea mining as well as a better coordination of national and international activities addressing environmentally sound and sustainable exploration and exploitation practices of marine mineral resources. As a joint platform of the industry, its main objective is to support the coordinated representation of interests vis-à-vis government, industry, and society. The DSMA will cover the entire deep-sea mining value chain from a single source and will support deep-sea mining innovations based on R&D and JIP projects. The newly founded association will be open for international members. The DSMA comprises in the meantime more than 20 members, mainly from industry, and a number of further membership applications have been announced.

Mr Leonhard Weixler from BAUER Maschinen GmbH was elected as President of the DSMA. Prof. Peter Halbach (IMMS Executive Board), Free University of Berlin, was elected as Chairman of the advisory board.

[www.deepsea-mining-alliance.com](http://www.deepsea-mining-alliance.com)

- **European Commission launched consultation on deep sea mining.** Learn more [here](#).
- **UK’s MIDAS and the Netherlands research council launch “TREASURE”** cruise to collect data to support the development of a science-based approach and suitable tools for monitoring, predicting and

mitigating the environmental impact of deep-sea mining operations. Read more [here](#).

• **Nautilus Minerals: [Auxiliary Cutter assembly has commenced at SMD](#)**

• **Cook Island residents and scientists call for more environmental research** before nodule mining can begin. Read more about the conversation [here](#).

• **International Seabed Authority (ISA) News:**

- China Ocean Mineral Resources Association (COMRA) and ISA sign [15-year Exploration Contract](#) for ferromanganese crusts in the West Pacific.
- The Government of the Republic of Korea and ISA sign [15-year Exploration Contract](#) for polymetallic sulfides in the Central Indian Ocean.
- Seven plans of work approved at ISA's 20th Annual Session:
  - ☀ Russia: Cobalt bearing ferromanganese crusts
  - ☀ UK: Polymetallic nodules in the Clarion Clipperton Zone (overlapping a large portion of the former USA-2 license area)
  - ☀ India: Polymetallic sulphides on the Indian Ocean Ridge
  - ☀ [Ocean Mineral Singapore](#): Polymetallic Nodules in a reserved area of the Clarion-Clipperton Zone
  - ☀ Federal Institute of Geosciences, Germany: Polymetallic Sulphides of the Central Indian Ocean Ridge
  - ☀ Cook Islands Investment Corporation: Polymetallic Nodules of the Clarion Clipperton Zone (in a reserved area that once was part of the former USA-3 license area)
  - ☀ Campanhia de Pesquisa de Recursos Minerais (Brazil): Cobalt bearing crusts in the Rio Grande Rise of the South Atlantic Ocean
- Total number of Council/Assembly approved applications is now 26, 17 with signed contracts with the Authority, 2 in contracts awaiting final agreement, and the seven new mentioned above ready to be incorporated into contracts.
- UK Seabed Resources [recaps](#) first of five planned Environmental Baseline Cruises to the UKSR mine site in the eastern central Pacific Ocean (completed in October 2013) at the 20th Annual Session.

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## Content Request

Our next newsletter is scheduled for end of the year 2014 SO GET IN ALL YOUR NEWS AND VIEWS, SIGNIFICANT PUBLICATIONS, CRUISE SUMMARIES, CONFERENCES, etc. submitted to the Chief editor Kira Mizell ([kmizell@usgs.gov](mailto:kmizell@usgs.gov)) or Associate editor Jim Hein ([jhein@usgs.gov](mailto:jhein@usgs.gov)) for inclusion.

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Contact: Karynne Morgan, [karynnem@hawaii.edu](mailto:karynnem@hawaii.edu)