

**FUTURE OCEAN – KIEL MARINE SCIENCES** Understanding the Ocean — Sustaining Our Future

The Cluster of Excellence 'The Future Ocean' pursues a research approach that is unique in Germany: marine researchers, geologists and economists join forces with mathematicians, computing, medical, legal, and social scientists to investigate ocean and climate change from a multidisciplinary perspective. A total of over 200 scientists from Kiel University, the GEOMAR Helmholtz Centre for Ocean Research Kiel, the Institute for the World Economy (IfW) and the Muthesius Academy of Fine Arts are using innovative means to share their findings with the international scientific community, stakeholders, decision makers, civil society and the public at large. The "Future Ocean" is funded by the German Research Foundation.

Starting from April 2012 scientific activities will focus each semester on a different marine science topic. In autumn/winter 2012/2013 the focus will be on Seafloor Resources. Researchers from biology, geology, economics and law will investigate the potential of seafloor resources and new avenues of better management and governance of ocean resources.

For further information please visit: www.futureocean.org/resources

#### www.futureocean.org



#### Scientific Steering Committee

Colin Devey, GEOMAR Helmholtz Centre for Ocean Research Kiel Nele Matz-Lück, International Law, Kiel University Lars Rüpke, GEOMAR Helmholtz Centre for Ocean Research Kiel Sven Petersen, GEOMAR Helmholtz Centre for Ocean Research Kiel Till Requate, Department of Economics, Kiel University

#### Venue

Steigenberger Conti Hansa, Schlossgarten 7, 24103 Kiel

#### Registration Deadline

15<sup>th</sup> January 2013 Participation is free of charge (including meals and refreshments).

#### Registration

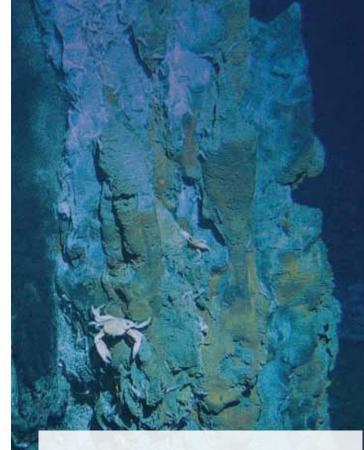
Places are limited so registration is required and is binding. Please register by E-Mail **Erna Lange**, elange@geomar.de

#### For further information please contact

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# Seafloor Mineral Resources: Scientific, Environmental, and Societal Issues

# An international workshop for students

18<sup>th</sup> – 20<sup>th</sup> March 2013 Hotel Steigenberger Conti Hansa, Kiel, Germany

#### **Scientific Program**

Mining of seabed mineral deposits is one means of securing the global future demand for raw materials and will present new environmental, legal, and technical challenges. It is our aim to bring together international experts from science, industry, legal entities, and from non-government organisations for a discussion of submarine mineral resources trying to find the right balance between protection and use of the ocean's non-living resources.

The workshop addresses the entire added value chain of marine minerals as well as environmental issues and the legal framework by bringing together international experts from all fields. We have structured the program to encourage an intensive exchange between students and experts to encourage cross-disciplinary dialogue and networking.

The Workshop will cover the following themes THEME 1 Scientific basics THEME 2 Mining processes THEME 3 Environmental impact of mining THEME 4 Legal and economic considerations

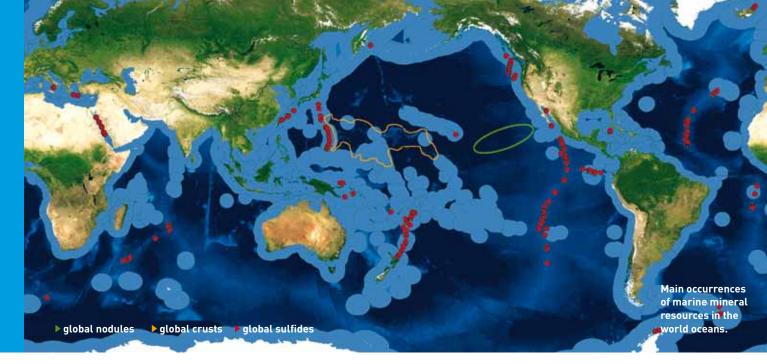
## Monday 18<sup>th</sup> March, (9<sup>00</sup>-17<sup>00</sup>)

#### **THEME 1** Scientific basics

- Dr. Thomas Kuhn | BGR Hannover Manganese nodules deposits, genesis and potential of raw materials
- Dr. James R. Hein | United States Geological Survey Genesis, distribution, and resource potential of ferromanganse crusts for strategic and critical metals
- Prof. Mark Hannington | Ottawa University Seafloor massive sulfides (SMS) and their resource potential
- Prof. Lawrence Cathles | Cornell University Distribution of volcanogenic massive sulfides

#### **THEME 2** Mining processes

- ▶ N. N.
  - Meeting global environmental and social development objectives through sustainable seafloor resources



### Monday 18th March, (900-1700)

#### **THEME 2** Mining processes

Dr. Robert van de Ketterij | MTI Holland Technologies for mining in the deep sea

Time for discussions with speakers

### **Tuesday** 19<sup>th</sup> March, (9<sup>00</sup>-17<sup>00</sup>)

#### **THEME 2** Mining processes (cont.)

- N.N. Metallurgy of deep sea mineral resources
- Dr. Steffen Knodt | Aker Wirth Economic considerations of future marine mining activities and production technology

# **Tuesday** 19<sup>th</sup> March, (9<sup>00</sup>-17<sup>00</sup>)

#### **THEME 3** Environmental impact of mining

- Dr. Cindy van Dover | Duke University Biology of deep sea hydrothermal systems
- Dr. Gerd Schriever | Biolab Research Institute
   Past German environmental impact studies on Manganese nodules
- Dr. Samantha Smith | Nautilus Minerals The frist environmental impact assessment of a submarine massive sulfide mining operation
- Prof. Pedro Martinez Arbizu | Senkenberg Research Institute
   Environmental issues related to German Manganese nodule licence area
- Tim Packeiser | World Wide Fund For Nature
   Public awareness in high seas and marine ecoregions

# Wednesday 20th March, (900-1430)

#### **THEME 4** Legal and economic considerations

- Dr. Peter Buchholz | BGR Hannover
  World metal production and future demands
- Prof. Tullio Treves | International Tribunal for the Law of the Sea Legal regulation of the exploitation of the deep sea's mineral resources and latest developments
- Harald Brekke | Norwegian Petroleum Directorate
   Various legal, political, and scientific aspects of seabed resources in the Arctic region

Time for discussions with speakers

14<sup>00</sup> Conclusion