



Tongji University · Kingswell Hotel · Shanghai, China
UNDERWATER MINING INSTITUTE

FINAL PROGRAM

15 October 2012 (Monday)

WELCOMING RECEPTION AND REGISTRATION

Kingswell Tongji Shanghai Hotel

50 Zhangwu Road, Shanghai

20:00 – 21:30

UMI participants and guests welcome

16 October 2012 (Tuesday)

TECHNICAL SESSION I

Tongji University, Yifu Building

1239 Siping Road, Shanghai

08:30 – 18:00

Participants staying at the Kingswell Hotel should enjoy breakfast before coming to Yifu.

08:30 WELCOME

Call to Order

*Charles L. Morgan
UMI Program Chair*

Welcoming Address

*Huaiyang Zhou
Tongji University*

Introductory Remarks

Charles L. Morgan

Presentations

08:50 KEYNOTE ADDRESS

COMRA's Work

Jiancai JIN

Secretary-General, China Ocean Mineral Resources Research and Development Association (COMRA), State Oceanic Administration, Beijing, China

09:10 The Status of China Mining

Weidong YAN

Ministry of Land and Resources, China

09:30 Towards Developing a Regulatory Regime for Deep Sea Mining – The Cook Islands Perspective

Paul Lynch

Cook Islands Government, Rarotonga, Cook Islands

09:50 Economic, Environmental and Technical Considerations for Deep-sea Mining

Rahul Sharma

National Institute of Oceanography, Goa, India

10:10 To Identify the Unique Characteristics of the Hydrothermal Ecosystem Along the Southwestern Indian Ridge

Huaiyang ZHOU

State Key Laboratory of Marine Geology, Tongji University, Shanghai, China

10:30 Break

11:00 Deep Sea Minerals and the Green Economy

Samantha Smith

Nautilus Minerals Inc., Brisbane, Australia

11:20 Meeting Global Environmental and Social Development Objectives Through Sustainable Seafloor Resources

Robert Heydon (David Heydon, Speaker)

DeepGreen Resources Inc., Carindale, Queensland, Australia

11:40 Environmental Data Collection in Mining Studies: The Essential Need for Standardisation

Malcolm Clark

National Institute of Water & Atmospheric Research, Wellington, New Zealand

12:00 Projection of a Dredger's Environmental Experience onto the Deep Sea Mining World

Simon Boel

OceanFLORE, Zwijndrecht, Belgium

12:20 Break for Lunch at Shangdao Restaurant (meal ticket required)

13:30 Poster Session

Poster Presentations

**Science Requirements for Management of Environmental Effects of Seabed Mining:
A New Zealand Perspective**

Malcolm Clark

National Institute of Water & Atmospheric Research, Wellington, New Zealand

**A Discussion on the Determination of the Size of Areas for Exploration and
Exploitation of Seamount Cobalt-rich Ferromanganese Crust**

Gaowen HE

Guangzhou Marine Geological Survey, Guangzhou, China

Multidisciplinary Mineral Exploration Services for Offshore Resource Development

Mark Mussett

Odyssey Marine Exploration, Inc., Tampa, Florida, United States

**Geochemical and Mineralogical Characterizations of Ferromanganese Crusts by
ROV Mapping and Sampling in the NW Pacific Seamounts**

Akira Usui

Kochi University, Kochi, Japan

Presentations - continued

14:00 Tailings and Their Disposal In Deep-sea Mining

Gerd Schriever

BIOLAB, Germany

**14:20 Considering Baseline Conditions during the Development of Environmentally
Optimal Mining Pattern in the IOM Exploration Area, Clarion-Clipperton Zone**

Valcana Stoyanova

Interoceanmetal Joint Organization, Szczecin, Poland

**14:40 The Next Frontier: Deep Sea Mining in Papua New Guinea, Environmental Impact
Assessment, Monitoring and Regulation**

Tracy Shimmiel

Scottish Association for Marine Science, Scottish Marine Institute, Argyll, Scotland

**15:00 Addressing the Environmental Impact of Deep Sea Dredging and Mining
Equipment: Lessons Learned from the Dredging Industry**

Maria B.G. Castro

MTI Holland BV, The Netherlands

15:20 Jiaolong's Sea Trial in the Marianas Trench

Feng LIU

*China Ocean Mineral Resources Research and Development Association (COMRA),
State Oceanic Administration, Beijing, China*

15:40 Break

16:10 Recent Research in Deep Sea Mining and Related Processing in China

Ning YANG

*State Key Laboratory of Exploitation and Utilization of Deep Sea Mineral Resources,
Changsha Research Institute of Mining & Metallurgy, Changsha, China*

16:30 Float Principle and Test Research of Deep-ocean Nodule Collector

Ning YANG

*State Key Laboratory of Exploitation and Utilization of Deep Sea Mineral Resources,
Changsha Research Institute of Mining & Metallurgy, Changsha, China*

16:50 Chatham Rise Phosphate - Exploration and Mining Developments

Ray Wood, GNS Science, Wellington, New Zealand

Robin Falconer (Speaker), Chatham Rock Phosphate, Ltd., Takaka, New Zealand

17:10 Chatham Rise, Mining Operations and System Design

Gert Jan Grundlehner

Royal Boskalis Westminster NV, Papendrecht, The Netherlands

17:30 Road Map to Successful Commercial Deep Ocean Mining

John Halkyard

Deep Reach Technology Inc., Houston, Texas, United States

17:50 Technical Session I Closing Remarks

Charles Morgan



16 October 2012 (Tuesday)

SPECIAL DINNER

18:30 PM to 20:30 PM (*optional, prepaid meal ticket required*)

Kingswell Tongji Shanghai Hotel

Featuring a buffet of Chinese cuisine and the Jinyin Bamboo Flute Art Association (Tongji University student musicians) performing “jinyin” or wonderful music.

Total Participants as of 10/07/12: 61

Brad Baker	John Halkyard	Mark Mussett
Simon Boel	James Hein	Toshiya Nakatani
Jim Bolleter	David Heydon	Winston and Wiston Rocher
Evert Bomers	Leping and Wendy Hu	Emile Rupert
Tim Boyd	COMRA: Jiancai Jin	Steve and Joan Scott
Maria Castro	COMRA: Ning Yang	Sander Steenbrink
Georgy Cherkashov	COMRA: Feng Liu	Greg Stemm
Carol Cudworth	COMRA: Huaiyang Zhou	Akira Tsune
Tara Davis	COMRA: Jiabiao Li	Jan Willem van Bloois
Julien Denegre	David and Trish Kanagy	Kris van Nijen
Tom Dettweiler	Mark Liebner	Hu Wang
Philippe Espinasse	Valery Maslennikov	Charlene Wildman
Robin & Ferial Falconer	Campbell McKenzie	Michael Williamson
Surinder Ghag	Irina Melekestseva	John Wiltshire
Robert Goodden and Beatrice Brandt	Drew and Julie Meyer	Tetsuo Yamazaki
Ian and Lesley Graham	Charles and Karynne Morgan	Weidong Yan
Gert Grundlehner	Lei and Loea Morgan	Qunhui Yang

17 October 2012 (Wednesday)

TECHNICAL SESSION II

08:30 – 18:00

Participants staying at the Kingswell Hotel should enjoy breakfast before coming to Yifu.

Concurrent with Technical Session II is the *Shopping in Shanghai Tour* for prepaid spouses and guests, 09:00 – 15:00. Meet guides, Leping and Wendy Hu, at 08:45 in the lobby of the Kingswell Hotel.

08:30 International Marine Minerals Society: Annual General Membership Meeting
Georgy Cherkashov, President

Mini Presentations (*no abstracts*)

09:00 SME (Society for Mining, Metallurgy and Exploration) Welcome
Drew Meyer, President
David Kanagy, Executive Director

09:10 KIOST (Korea Institute of Ocean Science & Technology) Update
Sang Joon PAK, Senior Research Scientist

Presentations

09:20 Chinese Exploration for Deep Seabed Mineral Resources and Its Recent Progress
Jiabiao LI
Second Institute of Oceanography, State Oceanic Administration, Hangzhou, China

09:40 Estimation of Poly-Metallic Nodule Coverage in Benthic Images
Timm Schoening, Bielefeld University, Bielefeld, Germany
Thomas Kuhn (Speaker), Federal Institute for Geosciences, Hannover, Germany

10:00 Deep Sea Bulk Sampling
Leonhard Weixler
BAUER Maschinen GmbH, Schrobenhausen, Germany

10:20 Rock Excavation and Gathering Techniques for a Submerged Mining Operation
Mahesh Menon
Nick Ridley (Speaker)
Soil Machine Dynamics Ltd., Tyne & Wear, United Kingdom

10:40 Break

11:10 A Unique Approach to Ocean Mineral Exploration
Tom Dettweiler
Odyssey Marine Exploration, Inc., Tampa, Florida, United States

- 11:30 Geotechnical Properties of Polymetallic Nodules of the Eastern Part of the Clarion-Clipperton**
Ivo Dreiseitl
Interoceanmetal Joint Organization, Szczecin, Poland
- 11:50 Rare-Metal-Rich Ferromanganese Mineral Deposits from the Western Arctic Ocean**
James R. Hein
U.S. Geological Survey, Santa Cruz, California, United States
- 12:10 Developing a Strategy for the Exploration of Vast Seafloor Areas for Prospective Manganese Nodule Fields**
Thomas Kuhn
Federal Institute for Geosciences (BGR), Hannover, Germany

12:30 Break for Lunch, Shangdao Restaurant (*meal ticket required*)

- 14:00 Real-Time Monitoring of Mid-Ocean Ridge Hydrothermal Process by NEPTUNE Canada Undersea Network**
S. Kim Juniper
University of Victoria, British Columbia, Canada
- 14:20 Seafloor Massive Sulfide Deposits: More Than Meets the Eye?**
Fernando Barriga
University of Lisbon, Lisbon, Portugal
- 14:40 SMS Potential of Sedimented Back Arcs: The Andaman and Aegean Seas**
Steven D. Scott
University of Toronto (emeritus) and Marine Mining Consultants, Toronto, Canada
- 15:00 Iron and Silicon Isotopes Constrain the Origin and Formation Mechanisms of Modern Hydrothermal Systems: Implications for Investigating the Enigma of Banded Iron Formations in Ancient Earth**
Jun LI
Key Laboratory of Marine Hydrocarbon Resources and Environmental Geology, Qingdao Institute of Marine Geology, Qingdao, China
- 15:20 Seafloor Massive Sulfides at the Mid-Atlantic Ridge: Age, Resources and Composition**
Georgy Cherkashov
VNIIOkeangeologica, St. Petersburg, Russia
- 15:40 Trace Elements in Modern and Ancient Black Smokers**
Valery Maslennikov
Institute of Mineralogy, Ural Branch, Russian Academy of Sciences, Miass, Russia

16:00 Break

- 16:30 Trace Elements in Massive Sulfides from the Semenov Hydrothermal Cluster, 13°31'N, Mar: ICP-MS and LA-ICP-MS Study**
Irina Melekestseva
Institute of Mineralogy, Ural Branch, Russian Academy of Sciences, Miass, Russia

16:50 Hydrothermal Activity of the Equatorial South Atlantic and its Bearing on the Regional Resource Potential

Sven Petersen

GEOMAR, Helmholtz Centre for Ocean Research, Kiel, Germany

17:10 UV-Fluorescent Sensing for Primary Selection of Metal-rich Seafloor Massive Sulfide Ore

Toshiya Nakatani

Osaka Prefecture University, Sakai, Osaka, Japan

17:30 How to Improve Economy of Seafloor Massive Sulfide Mining under Japan's Conditions

Tetsuo Yamazaki

Osaka Prefecture University, Sakai, Osaka, Japan

17:50 Two Distinctive Structure-bounded Hydrothermal Vent Sites in Subsea Caldera, Tongan Water

Sang Joon PAK

Korea Institute of Ocean Science & Technology, Ansan, Korea

18:10 Closing Remarks and End of Technical Sessions

Charles Morgan

17 October 2012 (Wednesday)

UMI BANQUET – 18:30

*Grab your tickets--buses leave Kingswell Hotel at 18:30. A special banquet affair, hosted by COMRA, will be held near the famous Bund area of Shanghai. We are honored to have **David Heydon** address the Institute with his presentation, **Marine Minerals – For the Good of Mankind**.*



David Heydon is an entrepreneur, innovator, and visionary, having founded companies such as Mineral Process Technology Ltd, Pyrotech Resources Ltd., Nautilus Minerals, Inc., and others. He raised US\$360 million for the exploration and development of the world's first deep sea mine, and was instrumental in introducing deepsea mining to large mining companies such as Placer Dome, Barrick Gold, Teck Resources, Anglo American, and Metalloinvest. More recently, David founded DeepGreen Resources Inc. where he has raised funds for a deepsea nodule project from the world's largest metal trading company, Glencore International. As a former director of the International Marine Mining Society, he remains an active contributor and supporter of the Underwater Mining Institute.

21:30 Adjournment of the 41st UMI

Return to Kingswell Hotel Tongji Shanghai

18-20 October 2012 (Thursday, Friday, and Saturday)

UMI FIELD TOURS

(optional, prepaid)

Travel Guide: Shanghai China International Travel Service

Technical Host and Guide: Professor Huaiyang Zhou, Tongji University

Important: Please pack light for the field trip and have your luggage stored at the Kingswell Hotel. There is not enough room on the bus for everyone and luggage.

Itinerary:

Thursday, October 18:

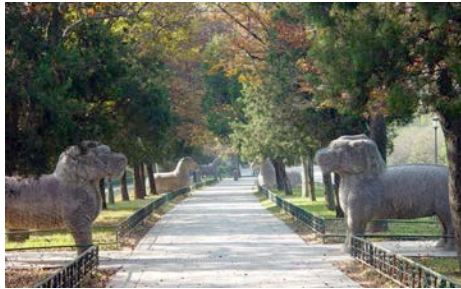
08:00 – Meet in lobby of Kingswell Hotel for Suzhou (1.5 hours)

Stops include Humble Administrator's Garden and Silk Factory, Lunch, then Hanshan Temple and Tiger Hill

16:30 – Drive from Suzhou to Nanjing (3 hours)

19:30 – Dinner

20:30 – Hotel check in



Friday, October 19:

09:00 – Gather in hotel lobby

Stops in Nanjing include Ming Xiaoling Mausoleum, Lunch, then Confucious Temple.

17:00 – Dinner

18:30 – Drive from Nanjing to Tongling (2 hours)

Saturday, October 20:

09:00 – Gather in hotel lobby

Visit to Tongling mining district hosted by Professor Zhou.

12:00 – Lunch

14:00 – Drive back to Shanghai (6 hours)

19:30 – Dinner

21:00 – Return and check in to Kingswell Hotel Tongji Shanghai

Field Tour members as of 10/07/12: 45 persons

Brad Baker	Charles and Karynne Morgan, DBL RM
Fernando Barriga and Celia Lee, DBL RM	Lei and Loea Morgan, DBL RM
Heyward Bates	Mark Mussett
Simon Boel	Toshiya Nakatani
Evert Bomers	Sang Joon Pak
Georgey Cherkashov	John Parianos
Malcolm Clark	Rob Robson
Karsten Ewald	Winston and Wiston Rocher, DBL RM
Maria Castro	Carsten Ruehleemann
Robert Goodden and Beatrice Brandt DBL RM	Steven and Joan Scott, DBL RM
Ian and Lesley Graham, DBL	Tracy Shimmield
James Hein	Greg Stemm
Thomas Kuhn	Richard Stockwell
Kyeong-Yong Lee	Charlene Wildman
Li Li	Tetsuo Yamazaki
Mark Liebner	Ning Yang
Paul Lynch	Qunhui Yang
Valery Maslennikov	Hu Wang
Irina Melekestseva	Huaiyang Zhou

20 October 2012 (Saturday)

CHECK-IN TO KINGSWELL HOTEL

Field Tour members to check as of 10/07/12: 45 persons

Brad Baker; 20-23	Charles and Karynne Morgan, DBL 148966 20-22
Fernando Barriga and Celia Lee DBL; 148966 20-21	Lei and Loea Morgan with Charles & Karynne above
Heyward Bates; 148966 20-21	Mark Mussett; 20-21
Simon Boel;	Toshiya Nakatani; 20-21
Evert Bomers; 148966 20-21	Sang Joon Pak; 148966 20-21
Georgey Cherkashov; 148966 20-21	John Parianos;
Malcolm Clark; 148966 20-21	Rob Robson; 148966 20-21
Karsten Ewald; 148966 20-21	Winston and Wiston Rocher DBL; 148966 20-21
Maria Castro; 148966 20-21	Carsten Ruehlemann;
Robert Goodden and Beatrice Brandt DBL; 148966 20-22	Steven and Joan Scott, DBL; 148966 20-21
Ian and Lesley Graham, DBL 20-22	Tracy Shimmield; 148966 20-21
James Hein; 148966 20-21	Greg Stemm; 20-22
Thomas Kuhn, 20-21	Richard Stockwell – <i>Not staying at Kingswell</i>
Kyeong-Yong Lee; 148966 20-21	Charlene Wildman; 148966 20-21
Li Li	Tetsuo Yamazaki; 20-21
Mark Liebner	Ning Yang; n/a
Paul Lynch; 148966 20-21	Qunhui Yang; n/a
Valery Maslennikov; 148966 20-21	Hu Wang; n/a
Irina Melekestseva; 148966 20-22	Huaiyang Zhou; n/a

