

The 25th ISOPE Conference Anniversary

June 21–27, Kona, Hawaii Big Island, USA

at Hilton Waikoloa Village: www.isopec.org

The Twenty-fifth (2015) International
**Ocean and Polar
Engineering Conference**

Including additional ISOPE symposia:

1st **Materials Reliability & Refinery**

3rd **High Manganese Steel**

4th **Tsunami & Safety**

4th **Asset Integrity**

6th **Arctic Science & Technology**

5th **Arctic Materials**

6th **Renewable Energy & Environment**

7th **Sloshing Dynamics & Design**

7th **Frontier Energy Tech**

9th **Strain-Based Design**

11th **Ocean Mining & Gas Hydrates**

13th **High-Performance Materials**

ISOPE-2015

Kona, Big Island, Hawaii, June 21–26

Technical Program

(Updated April 20, 2015)

Refereed papers from 53 countries in 188 technical sessions
9 plenary and keynote presentations

Full Program with Paper List, General Information, Reservations,
Publications and Updates on

<http://www.isopec.org/publications/publications.htm>

ISOPE-2015 Conference proceedings

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Forms for Advance Registration and Venue Hotel:

<http://www.isopec.org/conferences/conferences.htm>

Organized by:

Technical Program Committee, ISOPE

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with cooperating organizations (listed inside)



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TECHNICAL PROGRAM

The Twenty-fifth (2015) International Ocean and Polar Engineering Conference Hilton Waikoloa, Hawaii, June 21–26, 2015

The number at the end of the session title indicates the tentative number of the proceedings volume. Only the changes in titles or authors the ISOPE-2015 Technical Program Committee (TPC) received in writing before April 20, 2015 are reflected in this program. Final corrections will be updated in the Conference Proceedings of peer-reviewed papers and the Final Program. Conference proceedings (ISBN 978-1-880653-89-0; ISSN 1098-6189) will be available as a set of 4 volumes (6,100 pp. est.) from ISOPE during and after the Conference.

The 11th Ocean Mining and Gas Hydrates (OMS-2015 or OMSGH-2015) Symposium Proceedings is part of ISOPE-2015 Conference proceedings.

All ISOPE publications are indexed by Engineering Index (EI), SCOPUS and others.

FULL CONFERENCE PROGRAM WITH SESSION / PAPER
LIST: Updated at

<http://www.isopec.org/conferences/conferences.htm>
<http://www.isopec.org/publications/publications.htm>

SUNDAY, June 21

Welcome Reception

17:00

Kona Pool

MONDAY 08:30

1. OPENING GENERAL SESSION:

OCEAN AND ARCTIC REVIEW (V. 1)

Monday July 16 08:30 Monarchy Ballroom

Chair: H W Jin, ExxonMobil Research & Engineering, USA
Co-Chair: F. Vorpahl, Fraunhofer-IWES, Germany

Introduction

Jin S Chung, ISOPE-2015 Conference Co-chair, USA

Conference Opening Address

Nol Gresnigt, ISOPE President, Technical University of Delft, Netherlands

Plenary Speakers

Materials and Corrosion Technology Challenges in Upstream Projects

Eric Wright, ExxonMobil Development, USA

Safe Conduct of Arctic Offshore Pioneering Operations

Arno Keinonen, AKAC Inc, Canada

WEDNESDAY 19:00

Annual ISOPE Conference Banquet

at Grand Ballroom

THURSDAY 13:15

KEYNOTE III

Thursday June 25 13:15 Queens 1

Introduction:: Jin S Chung, ISOPE, USA

Recent Status of Methane Hydrate R&D Program and Research Activities of Methane Hydrate Research Center, AIST, Japan [Oral presentation]

Norio Tenma, National Inst of AIST, Japan

THURSDAY 14:00

**139. OMGH I:
Gas Hydrates 1 (OMS-2015)**

Thursday June 25 14:00 Queens 1

Chair: T. Komai, Tohoku Univ, Japan

Numerical Simulation of Gas Hydrate Bearing Sediments for Enhanced Recovery Using Partial Oxidation Method

Takeshi Komai, Tohoku Univ; Yasuhide Sakamoto, AIST; Atsushi Kihita, Tohoku Univ; Norio Tenma, AIST, Japan

Using of Adiabatic Conversion of Dispersed Thermodynamic System in the Development of the Marine Gas Hydrate Deposits

Alexander N Gulkov, Victor D Lapshin, Vacheslav V Slesarenko, Alexey A Morozov, Sergey F Solomennik, Far Eastern Federal Univ, Russia

P-wave Velocity Monitoring during the Dissociation of Methane Hydrate Bearing Sand by Using Giant Pressure Cell

Tatsuya Yokoyama, Eiki Nakayama, Hideki Saito, OYO Corp, Japan

Depressurization and Electrical Heating of Hydrate Sediment for Gas Production

Hideki Minagawa, Sho Kimura, Hiroaki Kaneko, National Inst of AIST; Takuma Ito, Research Inst of Innovative Tech for Earth; Shohei Noda, Hideo Narita, National Inst of AIST, Japan

Geological Constraint on Gas Hydrate Accumulation in Qilian Mountain Permafrost – A Case in DK-9 Hole

Zhengquan Lu, Gangyi Zhai, China Geological Survey; Yongqing Zhang, Inst of Exploration Techniques, CAS; Shiqi Tang, China Geological Survey; Panpan Tan, Inst of Mineral Resources, CAS; Ting Wang, Hui Liu, Youhai Zhu, China Geological Survey, China

Effect of Fines on Shear Strength of Methane Hydrate Bearing Sand

Masayuki Hyodo, Akira Nishimura, Shintaro Kajiyama, Yamaguchi Univ, Japan

Experimental Study of Mud Erosion Phenomena at Sand Mud Alternate Layer

Hiroyuki Oyama, Shungo Abe, Toru Sato, Univ of Tokyo, Japan

Phase Equilibrium of Methane Hydrate in the Presence of TBAB and Salt

Jitendra S Sangwai, Gaurav Pandey, Deepjyoti Mech, IIT Madras, India

**149. OMGH II:
Gas Hydrates 2 (OMS-2015)**

Thursday

June 25

16:20

Queens 1

Chair: Zhengquan Lu, Gangyi Zhai, China Geological Survey, China
China

Experimental Investigation on Tuning Patterns of Methane Inclusion in Isoxazole Clathrate Hydrates

Jae W Lee, KAIST; Minjun Cha, Kangwon National Univ; Seungjun Baek, Wonhee Lee, KAIST; Kyushul Shin, Kyungpook National Univ, Korea

Displacement of Solution and Hydrates Formation in Cooled Glass Beads

Mingjun Yang, Yongchen Song, Oanoan Jiang, Dalian Univ of Tech, China

Analysis of Gas Hydrate Formation in Subsea External Sleeve Choke

Biao Hu, Hongwu Zhu, Xianwen Duan, Fangling Xu, Youjiang Zhang, China Univ of Petroleum-Beijing, China

Pore-Scale Simulation of Methane Hydrate Formation and Permeability in Sand Layers

Kentaro Kamada, Toru Sato, Hiroyuki Oyama, Takero Yoshida, Univ of Tokyo, Japan

Numerical Studies on Geomechanical Response of UBGH-2 Hydrate Bearing Sediments during Gas Production in the Ulleung Basin, Korea

Yung-Mok Kim, Sejong Univ, Korea; Jonny Rutqvist, Lawrence Berkeley National Lab, USA

The Reverse Circulation (RC) Drilling Techniques for the Mineral Resources Exploration and Production in Ocean

Yongqin Zhang, Chinese Geological Survey, China

Numerical Simulation on the Deformation of Stratum Due to Gas Hydrate Dissociation

L Lu, X B Lu, X H Zhang, S Y Wang, Inst of Mechanics, CAS, China

Mesoscale Modeling of Methane Hydrate Dissociation in Homogeneous Porous Media

Wu-Yang Sean, Chung-Yuan Christian Univ; Pei-I Yu, Ray-Quan Hsu, Chiao-Tung Univ, Taiwan, China

Shear Behaviour and Localized Deformation of Methane Hydrate-bearing Sand by High Pressure Plane Strain Shear Tests

Shintaro Kajiyama, Masayuki Hyodo, Yamaguchi Univ, Japan

**159. OMGH III:
Gas Hydrates 3 (OMS-2015)**

Friday

June 26

08:00

Queens 1

Chair: Zhengquan Lu, China Geological Survey, China

Experiments for Warming Sediments under the Seabed by Exothermic Heat of CO₂ Hydrate through Injecting CO₂/Water Emulsion for Enhanced Methane Hydrate Recovery

Yojiro Ikegawa, Hiroshi Suenaga, Shiro Tanaka, Kenji Kubota, Nohara, Shintaro Nohara, Central Research Inst of Electric Power Industry, Japan

Numerical Simulation of Mud Erosion by Water Flow in Porous Media Using Lattice Boltzmann Method

Takero Yoshida, Tosu Sato, Hiroyuki Oyama, Univ of Tokyo, Japan

Friction Strength between Well and Sediment under Confining Pressure for Methane Hydrate Production Well Integrity

Masayo Kakumoto, Jun Yoneda, Norio Tenma, Kuyuki Miyazaki, Kazuo Aoki, National Inst of AIST; Ryuichi Itoi, Kyushu Univ, Japan

Electric-Submersible-Pump Performance under Methane/Water/Methane-Hydrate Pipe Flows

Tsutomu Shimizu, Yoshitaka Yamamoto, Norio Tenma, Hideo Narita, AIST, Japan

Experimental Study on Gas Hydrate Inhibitors for Hydrate Control during Deep-Sea Drilling

Xin Zhao, Zhengsong Qiu, Guowei Zhou, Weian Huang, Ganghua Chen, China Univ of Petroleum, China

FRIDAY 10:30

KEYNOTE IV

Friday June 26 10:30 Queens 1

Deep Ocean Mining Systems and Technology, Past and Present [Oral presentation]

Jin S Chung, ISOPE, USA

KEYNOTE V

Friday June 26 10:50 Queens 1

Introduction:: Jin S Chung, ISOPE, USA

The Summary of Environmental Baseline Survey for Mining the Cobalt-Rich Ferromanganese Crust on Deep Seamount in Japan Fs License Area

Teruyoshi Narita, Junya Oshika, Nobuyuki Okamoto, Japan Oil, Gas and Metals National Corporation (JOGMEC), Japan

**169. OMGH IV: Deep Ocean Mining 1: (OMS-2015)
Recent Programs, Technology Assessment, Exploration,
Environment**

Friday June 26 10:30 Queens 1

Chair: Jin S Chung, ISOPE, USA

The Solwara 1 Deepwater Mining Project [Invited Oral presentation]

Roland Berndt, Nautilus Minerals, Australia

PNG Preparing to Embrace Deep Sea Mining [Invited Oral presentation]

Mohan Singh, Mineral Resources Authority, Papua New Guinea

EU Blue Mining Project - An Overview [Oral presentation]

Frank Lim, 2H Offshore, UK

Ocean Mining Lunch

Hosted by ISOPE
Following session 169.

All OMS-2015 participants are invited:

Reservation is required by June 14: Janice at
isope-2@isope.org

[] Attend

[] Not attend

178. OMGH V: Deep Ocean Mining 2 (OMS-2015)

Friday June 26 14:00-15:00 Queens 1

Chair: Benjamin C McLellan, Kyoto Univ, Japan

Environmental Management in Seafloor Mining [Oral presentation]

Renee Grogan, Nautilus Minerals, Australia

Reconsideration of Polymetallic Nodule Processing Methods -- Further Improvement of Existing Methods

Kenji Haiki, Masatsugu Okazaki, Tadayuki Ishiyama, Deep Ocean Resource Development, Japan

Effect of Size Distribution of Deep-Sea Polymetallic Nodule on Estimation of the Abundance from Seafloor Photograph Based on the Classic Formulae

Akira Tsune, Deep Ocean Resources Development, Japan

Research on Variably Accelerated Sedimentation of Coarse Mineral Particles in Still Water

Dasheng Tang, Yuxiang Chen, Dehuai Xu, Hong Xiao, Changsha Research Inst of Mining & Metallurgy, China

Change of Biogenic Ba Content in Pacific Ferromanganese Crusts since Cenozoic –A Signal of Paleoproductivity Pulses?

Guoqing You, Jiahua Pan, Wenhong Sun, Shuqin Liu, Chinese Academy of Geological Sciences, China

Comparison of the Lifecycle Impacts of Seafloor Mining with Onshore Equivalents

Benjamin C McLellan, Ran Motoori, Tetsuo Tezuka, Kyoto Univ, Japan

Investigation into Rheological Behavior of Bentonite Paste to Study Mechanical Behavior of Deep Sea Soil

Shankar Krishnapillai, Sangam L Kute, Krishna Kannan, IIT Madras, India

Investigation of Rheological Behavior of Bentonite Paste to Study Mechanical Behavior of Deep Sea Soil

Sangam L Kute, Shangkar Krishnapillai, Krishna Kanna, IIT Madras, India

186. OMGH VI: Deep Ocean Mining 3 (OMS-2015)

Friday June 26 10:00 AM 2015 Queens 1

Chair: Masatsugu Okazaki, Deep Ocean Resource Development, Japan

Co-Chair: Jianxin Xia, Minzu Univ of China, China

Economic Feasibility Impacts of Waste and Waste Water Treatment Regulations for Deep Ocean Hydrothermal Ore Mining in Japan

Ran Motoori, Benjamin C McLellan, Tetsuo Tezuka, Kyoto Univ, Japan

Study on Mining Posture of Deep-sea Mining Arm

Jinzhong Zhou, Guizhou Inst of Tech; Zhi Yang, Xiangtan Electric Manufacturing Group; Pinghong Tang, Changsha Research Inst of Mining & Metallurgy, China

Spatial Configurations and Particle Transportation Parameters of Flexible Hose in Deep-sea Mining System

Yun Peng, Jianxin Xia, Huatang Ren, Minzu Univ of China, China

Water-hammer Pressure in the Hydraulic Lifting Pipeline of Deep-sea Mining System

Yi Zou, Cao Bin, Jianxin Xia, Minzu Univ of China, China

Hyperbaric Excavation: From Fundamental Research to Applied Development [Oral presentation]

Wiebe Boomsma, IHC Mining, Netherland

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