PREFACE (Welcome Message)

It is my great pleasure to welcome you to the Tenth Anniversary International Symposium, organized by the Center of Environmental Science and Disaster Mitigation for Advanced Research (CEDAR) at the Muroran Institute of Technology.

A decade ago, CEDAR was established as a multidisciplinary research center to contribute to global and local environmental preservation, new energy development, and disaster mitigation through science and new technologies. During that decade, numerous cooperative research projects, international cooperation, and national projects were undertaken and completed successfully. Those achievements were presented to the public at the annual Joint Seminar on Environmental Science and Disaster Mitigation (JSED). At JSED, all members of CEDAR, including students and invited researchers from overseas, came together for mutual discussion of research results with multilateral perspectives for the next research stage. Because the JSED2015 at this time became a memorial symposium for us, the special lecture opening to the general public about disaster mitigation, and three keynote lectures on new energy, environmental science, and disaster management engineering are programmed in addition to presentations by guest speakers from the universities of academic exchange agreement with Muroran Institute of Technology. I am greatly appreciative of their many and diverse contributions.

I would like to thank all the authors and participants for their respective contributions to the success of the JSED2015, and particularly wish to express our gratitude for the support of the Natural Disaster Research Council, Hokkaido Association for the Preservation of the Environment through Technology (HAPET), Hokkaido Branch of the Mining and Materials Processing Institute of Japan, and the Muroran Institute of Technology.

Finally, on behalf of the Organizing Committee, welcome again to JSED2015. We hope that you will find the seminar both informative and enjoyable, that you will take the opportunity to expand your knowledge of environmental science, energy, and disaster management engineering, and that you will have an impressive stay in Muroran.

Ken-ichi Itakura
General Chair of Organizing Committee, JSED2015
Director of CEDAR, Muroran Institute of Technology

	Room A	Room B
Friday, March 13		
10:00 - 10:10	Opening Remarks	
10:10 - 11:00	Keynote Lecture 1	
11:00 - 11:15	Coffee-Break	
11:15 - 12:15	A1: Unused Resource Energy	B1: Treatment of Environmental Contamination
12:15 - 13:30	Lunch	
13:30 - 14:20	Keynote Lecture 2	
14:20 - 14:30	Coffee-Break	
14:30 - 15:30	A2: Performance Control Structure	B2: Biological Technology and Treatment of Environmental Contamination
15:30 - 15:45	Coffee-Break	
15:45 - 16:30	A3: Environmental Assessment (1)	B3: Biological Technology
16:30 - 17:15	A4: Environmental Assessment (2)	B4: Biological Technology and Hydrogen Energy Applications
18:00	Banquet	

Saturday, March 14		
9:00 - 9:50	Keynote Lecture 3	
9:50 - 10:00	Coffee-Break	
10:00 - 11:00	A5: Crisis Management Systems and Unused Resource Energy	B5: Construction Materials Performance Control
11:00 - 11:15	Coffee-Break	
11:15 - 12:00	A6: Water and Soil Disaster Management	B6: Construction Materials Performance Control and Recycle System
12:00 - 13:00	Lunch	
13:00 - 14:30	Special Lecture	
	Closing Remarks	

The 10th Anniversary International Symposium
of The Center of Environmental Science and Disaster Mitigation
for Advanced Research

Joint Seminar on Environmental Science and Disaster Mitigation Research 2015 (JSED2015)

Environmental, Disaster Prevention, and Energy
– Towards a Livable Future –

Houraiden, Muroran, Hokkaido, Japan
13-14, March 2015.

Friday, March 13

ROOM A

10:00 - 10:10 Opening Remarks — Seiichi Kagaya and Ken-ichi Itakura

10:10 - 11:00 Keynote Lecture 1

Chair: Ken-ichi Itakura

Derek Elsworth
(Pennsylvania State University, USA)

Control of permeability and seismicity -- Keys to the successful development of EGS geothermal reservoirs
Derek Elsworth[1], Quan Gan[1], Yi Fang[1], Justin Pogacnik[2], Josh Taron[3], Ghazal Izadi[4], Yves Guglielmi[5], Kyunjae Im[1]
[1] Pennsylvania State University, [2] University of Auckland, [3] United States Geological Survey, [4] Baker Hughes Innovation Center, [5] CEREGE Aix-Marseille Université
pp.K1-K4

A1: Unused Resource Energy

Chair: Tatsuo Iwasa

11:15 - 11:30 A1-1 **Study on supersonic free jets with applications to volcanic eruptions**
Srisha M V Rao , Asano Shingo , Mitsutomu Hirota, and Tsutomu Saito
Muroran Institute of Technology
pp.1-4

11:30 - 11:45 A1-2 **Evaluation of gasification zone during underground coal gasification (UCG) experiment using AE technology**
Faqiang Su[1], Masahiro Kitagawa[1], Rei Yoshida[1], Shinji Matsubara[1], Ken-ichi Itakura[1], Kohki Sato[1], Gohta Deguchi[2], Kotaro Ohga[3], and Junichi Kodama[3]
[1]Muroran Institute of Technology, [2] Underground Resources Innovation Networks, [3] Hokkaido University
pp.5-6

ROOM B

B1: Treatment of Environmental Contamination

Chair: Yasuharu Kanda

B2: Biological Technology and Treatment of Environmental Contamination

Chair: Kiyotaka Tokuraku

Saturday, March 14

ROOM A

9:00 - 9:50 Keynote Lecture 3

Chair: Yukihiro Kohata

Susumu Yasuda
(Tokyo Denki University, Japan)

Restoration of the residential areas damaged due to soil liquefaction during the 2011 Great East Japan Earthquake
Susumu Yasuda
Tokyo Denki University
pp.K9-K12

A5: Crisis Management Systems and Unused Resource Energy

Chair: Yukio Hama

10:00 - 10:15 A5-1 **Development of spread type psychodrama for trauma and loss & grief**
Jun Maeda
Muroran Institute of Technology
pp.43-44

10:15 - 10:30 A5-2 **An evaluation of the public response to communicating channels of natural hazard warnings**
Norman K.W. Cheung[1] and Benjamin J. Axelsen[2]
[1] Kingston University, [2] Emergency Planning Resilience and Response
pp.45-48

10:30 - 10:45 A5-3 **Evaluation of the effect of mutual assistance in evacuation by using the multi agent simulation**
Naotaka Ikutomi, Takaya Yamashiro, Mikiharu Arimura, Takumi Asada, and Hideki Yoshida
Muroran Institute of Technology
pp.49-52

10:45 - 11:00 A5-4 **Production gas monitoring in UCG experiment**
Kazuhiro Takahashi[1], Kohki Satoh[1], Ken-ichi Itakura[1], and Gota Deguchi[2]
[1] Muroran Institute of Technology, [2] Underground Resources Innovation Networks
pp.53-54

A6: Water and Soil Disaster Management

Chair: Hideki Yoshida

11:15 - 11:30 A6-1 **Research on optimization of the parameters of flood runoff model using GIS**
Li Ren-zhi[1], Soichiro Okuizumi[2], and Makoto Nakatsugawa[2]
[1] Henan Polytechnic University, [2] Muroran Institute of Technology
pp.55-58

11:30 - 11:45 A6-2 **Hydraulic and numerical experiments on a damaged vehicle due to wave overtopping at a slipway adjoining a coastal road**
Masashi Ochi and Katsutoshi Kimura
Muroran Institute of Technology
pp.59-60

11:45 - 12:00 A6-3 **Stability monitoring of road embankments in cold regions and its evaluation**
Koki Fukutsu and Shima Kawamura, and Makoto Nakatsugawa
Muroran Institute of Technology
pp.61-64

13:00 – 14:30 Special Lecture (Public Lecture)

Chair: Yukihiro Kohata

Yoshiaki Kawata
(Kansai University, Japan)

災害の多発・激化時代におけるわが国の防災・減災対策
河田惠昭
関西大学　社会安全研究センター　センター長
pp.S1-S4

ROOM B

B5: Construction Materials Performance Control

Chair: Noriyuki Sugata

B6: Construction Materials Performance Control and Recycle System

Chair: Yoshihiko Kishimoto