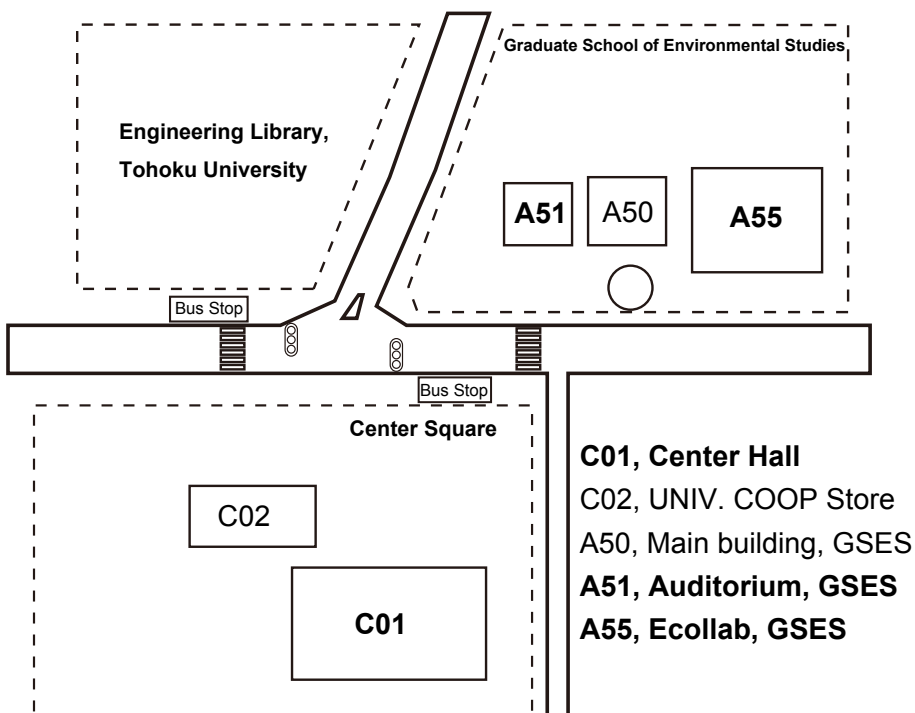


## Overall Time Table of WD10 / JBBP 2013

	Tuesday, March 12th, 2013 Center Hall (C01)	Wednesday, March 13th, 2013 Center Hall (C01)      Ecollab. 4th lecture room (A55)	Thursday, March 14th, 2013 Center Hall (C01)      Ecollab. 4th lecture room (A55)	
09:00	Opening		Deep Carbon Cycle	09:00
10:00	ICDP & Geothermal Drilling Project	Creation control of EGS reservoir in ductile zone		10:00
11:00			Creation control of EGS reservoir in ductile zone-2	11:00
12:00	2min. Poster presentation			12:00
13:00	Lunch & Poster Session	Group Photo, Lunch	Lunch & Poster Session	13:00
14:00				14:00
15:00	Overview of Geothermal & Geofluid Research	Characterization of the Beyond brittle rock mass : Geological perspective		15:00
16:00	Characterization of the Beyond brittle rock mass: Water-Rock Interaction	Engineering	Exploration and Monitoring: 2	16:00
17:00				17:00
18:00	Banquet			18:00

	Friday, March 15th, 2013	Saturday, March 16th, 2013 Auditorium (A51)      Ecollab. 4th lecture room (A55)	Sunday, March 17th, 2013	
09:00		Opening & Session1. Contaminated soil, policy and current situation in Asia		09:00
10:00		ICDP-JBBP Plenaly		10:00
11:00		Session2. Information system and Risk assessment of Contaminated soil		11:00
12:00		Lunch		12:00
13:00	Field Trip		Excursion: Tsunami Area	13:00
14:00				14:00
15:00		Tour to Tsunami stricken area : Minami-Sanriku		15:00
16:00				16:00
17:00				17:00
18:00				18:00

### VICINITY MAP



**10<sup>th</sup> International Workshop on WATER DYNAMICS**  
**Deep Carbon Cycle**  
**ICDP-JBBP**  
**(v.20130305)**

Venue: Center Square, Graduate School of Engineering, Tohoku University  
 Ecollab. Graduate School of Environmental Studies, Tohoku University

**Tuesday, March 12th, 2013**

**Center Hall (C01), Center Square**

Time	No.	Speaker	Title	Chairman
<b>Opening</b>				
9:00-9:05	1	Noriyoshi Tsuchiya Tohoku University	WS Framework	<b>N. Tsuchiya</b>
9:05-9:10	2	Eiji Ohtani Tohoku University	Opening Remarks	
9:10-9:15	3	Hiroshi Asanuma Tohoku University	Safety Information	
9:15-9:25	4	Yasufumi Iryu Tohoku University	Introduction of J-DESC Continental Drilling Section	
<b>ICDP &amp; Geothermal Drilling Project</b>				
9:30-10:15	5	Hirofumi Muraoka Hiroaki University	Japan Beyond-Brittle Project, a proposal of engineered geothermal power generation in ductile zones	<b>H. Asanuma</b>
10:15-10:50	6	Greg Bignall GNS, NZ	Future Direction of Deep Geothermal Exploration in the Taupo Volcanic Zone, New Zealand	
10:50-11:15	7	Wilfred Elders UC Reverside, USA	Investigation of Unconventional Very High Enthalpy Geothermal Systems in Iceland and their Possible Application in the USA	
11:15-11:40	8	Yoonho Song KIGAM, Korea	Background and progress of the Korean EGS pilot plant project	
11:40-12:05	9	Ernst Huenges GFZ	The European Energy Research Alliance Joint Programme Geothermal Energy	
12:05-12:30	Poster Presentation (2min introduction, P-1 – P-11)			<b>A. Okamoto</b>
12:30-14:30	Lunch & Poster Session			
<b>Overview of Geothermal and Geofluid Research</b>				
14:30-15:00	10	Masami Nakagawa Colorado School of Mines, USA	Geothermal Energy, Research and Community	<b>N. Tsuchiya</b>
15:00-15:30	11	Eiichi Takahashi Tokyo Institute of Technology	“Geofluid” Research Project 2010-2014	
15:30-15:50	Break			
<b>Characterization of the Beyond brittle rock mass: Water-Rock Interaction</b>				
15:50-16:20	12	Mark Reed University of Oregon, USA	Insights from natural magmatic-hydrothermal systems and geochemical models of granite-freshwater reaction at 500 °C and 100MPa	<b>A. Okamoto</b>
16:20-16:50	13	Scott Wood North Dakota State University, USA	Hydrothermal mass transfer of the REE: Insights from experimental studies and active geothermal systems	
16:50-17:20	14	Noriyoshi Tsuchiya Tohoku University	Supercritical geofluids go through rock mass with fracturing	
18:30	<b>Workshop Banquet</b>			

## Wednesday, March 13th, 2013

### Center Hall (C01), Center Square

Time	No.	Speaker	Title	Chairman
<b>Creation control of EGS reservoir in ductile zone</b>				
09:00-09:15	15	Jochem Kuch GFZ, Germany	Project Development in the International Continental Scientific Drilling Program	H. Asanuma
09:15-09:45	16	Steve Hickman USGS, USA	Stress Field Characterization for Creation of High-Temperature Geothermal Reservoirs	
09:45-10:15	17	Mai Linh Doan UJF Grenoble, France	Seismic / aseismic activity on fault in ductile zone / brittle-ductile transition zone	T. Ito
10:15-10:45	18	Teng-fong Wong State University of New York at Stony Brook, USA	The Brittle-Ductile Transition: Failure Mode and Permeability Evolution	
10:45-11:15	19	Joseph White University of New Brunswick, Canada	Rheological response and fluid transport in high heat flow brittle-ductile transition zones: examples from nature	
11:15-11:30	Break			
11:30-12:00	20	Peter Sammonds UCL, UK	High temperature fracture of volcanic rocks	K. Sakaguchi
12:00-12:30	21	Takatoshi Ito Tohoku University	Consideration of thermal stress caused by fluid injection	
12:30-13:00	22	Douglas Schmitt University Alberta, Canada	Stress measurements in ductile zone / brittle-ductile transition zone	
13:00-14:00	Group Photo, Lunch			
<b>Characterization of the Beyond brittle rock mass : Geological perspective</b>				
14:00-14:30	23	Thomas Driesner ETH Zurich, Switzerland	How can fluids flow through very hot rock?	N. Tsuchiya
14:30-15:00	24	Atsushi Okamoto Tohoku University	Precipitation of silica in sub to supercritical water: implications to hydrological system of the Kakkonda geothermal fields	
15:00-15:30	25	Harald Milsch GFZ, Germany	Physical properties of rock at high P and T: An experimental perspective	
15:30-16:00	26	Klaus Regenauer-Lieb The University of Western Australia	Fractures in the Ductile Realm, Insights from the Australian Deep Geothermal Project	
16:00-16:10	Break			
<b>Deep Carbon Cycle</b>				
16:10-16:50	27	Zhenmin Jin China University of Geosciences, China	Impure UHP marbles from the Dabie Mountains: metamorphic evolution and implications for carbon cycling in continental subduction zones	S. Kamada
16:50-17:20	28	Alexander Sokol Siberian Branch Russian Academy of Sciences	H <sub>2</sub> O storage capacity of olivine as a key to study the genesis of kimberlite magma	
17:20-17:50	29	Sujoy Ghosh ETH Zurich, Switzerland	Iron-Nickel carbide stability in the Earth's mantle	

### Ecollab. 4th lecture room (A55), GSES

Time	No.	Speaker	Title	Chairman
<b>Engineering</b>				
14:00-14:05	30	Hiroshi Asanuma Tohoku University	Introduction	H. Asanuma
14:05-14:35	31	Jochem Kuch GFZ, Germany	Support by ICDP –From Planning to Operations	
14:35-15:05	32	Ragnar Asmundsson Heat RD, NZ	Characterisation of supercritical wells – techniques developed for the Iceland Deep Drilling Project and future improvement concepts for the Japan Beyond Brittle Project	
15:05-15:35	33	Dennis Nielson DOSECC Exploration	Beyond Brittle Geothermal System Development	
15:35-15:45	Break			
15:45-16:10	34	Shigemi Naganawa The University of Tokyo	Drilling Technologies in Harsh HP/HT Environment	H. Asanuma

16:10-16:35	35	Hiroyuki Hashimoto Halliburton Overseas Limited	Zone isolation Technologies on high temperature environment	<b>S. Naganawa</b>
16:35-17:00	36	Takashi Okabe GERD	Logging and borehole tests in HT/HP conditions	
17:00-17:20	37	Hiroshi Asanuma Tohoku University	Monitoring of the JBBP reservoir	
17:20-17:40	38	Yasuhiro Fujimitsu Kyushu University	Simulation technologies for JBBP	
17:40-18:00	39		Discussion on Prioritization, Roadmap, and Implementation plan	<b>H. Asanuma</b>

## Thursday, March 14th, 2013

### Center Hall (C01), Center Square

Time	No.	Speaker	Title	Chairman
<b>Deep Carbon Cycle</b>				
09:00-09:30	40	Tomoaki Kubo Kyushu University	Rheology of two-phase aggregates of H <sub>2</sub> O and CO <sub>2</sub> ices	<b>S. Kamada</b>
09:30-09:50	41	Yao Wu China University of Geosciences, China	Hydrogen solubility in omphacite up to 10 GPa and its implication for water transportation in deep subduction zones	
09:50-10:10	42	Chao Wang China University of Geosciences, China	The thermal transport properties of clinopyroxenes under high pressure and high temperature and its implications	
10:10-10:40	43	Ayako Shinozaki The University of Tokyo	Influence of CH <sub>4</sub> and H <sub>2</sub> fluids on phase changes of olivine under high pressure and high temperature	
10:40-11:00	Break			
<b>Creation control of EGS reservoir in ductile zone-2</b>				
11:00-11:20	44	Kimio Watanabe Renergies	Introduction of the D/SC (Deterministic and Stochastic Crack Network Simulator)	<b>TBD</b>
11:20-11:50	45	Noriaki Watanabe Tohoku University	Field-scale fluid flow analysis by a novel fracture network model simulator, GeoFlow	
11:50-12:20	46	Hideaki Yasuhara Ehime University	Fluid Flow through rock fracture: microscopic phenomena	
12:20-14:00	Lunch & Poster Session			
<b>Exploration and Monitoring: 2</b>				
14:00-14:10	47	Hisao Ito JAMSTEC	Introduction	<b>H. Ito</b>
14:10-14:40	48	Hiroshi Asanuma Tohoku University	Induced seismicity from geothermal fields	
14:40-15:10	49	Michael Feler MIT, USA	Induced seismicity oil/gas field (To be determined)	
15:10-15:40	50	William Ellsworth USGS, USA	Injection Induced Earthquakes	
15:40-16:00	Break			
16:00-16:30	51	Toshiko Terakawa Nagoya University	High fluid pressure and triggered earthquakes in the enhanced geothermal system in Basel, Switzerland	<b>H. Ito</b>
16:30-17:00	52	Kazutoshi Imanishi AIST	Monitoring of brittle-ductile transition zone by seismological observations	
17:00-17:30	53	Hisao Ito JAMSTEC	Characterization of seismic events and physical state at the BDT region	
17:30-17:50	54		Discussion	

### Ecollab. 4th lecture room (A55), GSES

Time	No.	Speaker	Title	Chairman
<b>Exploration and Monitoring: 1</b>				
09:00-09:10	55	Toru Mogi Hokkaido University	Introduction	<b>T. Mogi</b>
09:10-09:40	56	Yoonho Song KIGAM, Korea	Geophysical surveys for deep structure investigation in Korean EGS project	

09:40-10:05	57	Shigeo Okuma AIST	Aeromagnetic Surveys for Geothermal Exploration	T. Mogi
10:05-10:30	58	Tatsuya Sato GERD	Consideration of the geophysical structure of brittle-ductile transition zone. - Example of Kakkonda geothermal area	
10:30-10:40	Break			
10:40-11:05	59	Susumu Abe JGI	Experimental investigation on multidisciplinary geophysical characterization of deep underground structure using multi-scale, multi-mode seismic profiling	T. Mogi
11:05-11:30	60	Jun Nishijima Kyushu University	Exploring a deep geothermal resources using the latest gravity measurement technology	
11:30-12:00	61	Kuntur Arnason ISOR, Iceland	Geophysical exploration and likely physical signatures at the brittle/ductile boundary	
12:00-12:20	62		Discussion	

## Friday, March 15th, 2013

### Field Trip

## Saturday, March 16th, 2013

### Auditorium (A51), GSES

Time	No.	Speaker	Title	Chairman
<b>Water Dynamics: Geosphere Pollution</b>				
9:00-9:05	63	Toshikazu Shiratori	Opening Remarks	
<b>Session1. Contaminated soil, policy and current situation in Asia</b>				
9:10-9:35	64	Yusuo Lin	Status of the policy and regulation framework for soil environmental protection in China	K. Suto
9:35-10:00	65	Gouqing Wang	Soil Environmental Quality Standards (SEQSs) in China: historical review and proposed framework	
10:00-10:30	66	Pattamawan Khunpresert	Current Soil Contamination Policy, Regulation and Implementation in Thailand	
10:30-11:00	67	Hoa Thi Pham	Soil contaminated by heavy metals in Hochiminh City, a review	
11:00-11:25	Break			
<b>Session2. Information system and Risk assessment of Contaminated soil</b>				
11:25-11:55	68	Mengfang Chen	Recent Development in Chinese Risk Assessment Guidelines and Tools	Y.Ogawa
11:55-12:25	69	Takeshi Komai	Comprehensive Risk Assessment System for Chemical and Radioactive Substances	
12:25-12:30	70	Chihiro Inoue	Closing Remarks	
12:30-13:00	Lunch			
13:00-	G-Safety: Kick off Symposium			
Tour to Tsunami stricken area : Minami-Sanriku				

### Ecollab. 4th lecture room (A55), GSES

Time	No.	Speaker	Title	Chairman
<b>ICDP-JBBP Plenaly</b>				
09:00-09:40	71	Tsuchiya, T. Ito, Mogi, Asanuma	Summary report from the thematic sessions	H. Muraoka
09:40-10:10	72	Hirofumi Muraoka Hiroasaki University	Approaches to the full proposal	
10:10-10:40	73	Hiroshi Asanuma Tohoku University	Implementation plan & roadmap	
10:40-10:50	74		Closing Remarks	
Reporting	75		JBBP Core Member	

## Sunday, March 17th, 2013

Excursion : Tsunami Stricken Area

## Tuesday, March 12th - Thursday, March 14th, 2013

### Poster Session

#### Center Hall (C01), Center Square

No.	Presenter	Title
<b>P-1</b>	Sheng-Rong Song National Taiwan University	Potential of Geothermal Energy in Taiwan
<b>P-2</b>	Robert Zierenberg UC Davis, USA	Alteration Related to Magma Emplacement in Icelandic Geothermal Systems
<b>P-3</b>	Horst Zwingmann CSIRO ESRE	Constraining timing of brittle deformation
<b>P-4</b>	Yves Mazabraud Université Antilles Guyane	Tectonic control of geothermal body formation in the Lesser Antilles volcanic arc and initiation of schistosity within the shallow brittle crust
<b>P-5</b>	Klaus Regenauer-Lieb The University of Western Australia	<b>This presentation was moved to 3/13 15:30-, O-26 at "Characterization of the Beyond brittle rock mass : Geological perspective" session</b>
<b>P-6</b>	Patrick Dobson Lawrence Berkeley National Laboratory	Coupled THM Processes During Deep Injection Near Brittle-Ductile Rock Transition at The Geysers Geothermal Field, California
<b>P-7</b>	Norio Yanagisawa AIST	Metal sulfide minerals and brine from Kakkonda geothermal system
<b>P-8</b>	Jun Muto Tohoku University	Microstructures and grain size distribution of pulverized fault rocks
<b>P-9</b>	Momoko Hirata Tohoku University	Experimental study about mechanical behavior of simulated fault gouge toward unstable slip
<b>P-10</b>	Takanori Sakairi Tohoku University	Melting relation in the Fe-S-Si system: Implications for the chemical and thermal structure of the Earth's core
<b>P-11</b>	Junko Yamaki Tohoku University	Fractal properties of fracture in rock mineral using 3D X-ray CT measurement
P-12	Takuya Ishibashi Tohoku University	Challenge to analysis of 3-D channeling flow through fractured type of reservoir by GeoFlow
P-13	Keisuke Sakurai Tohoku University	Relative permeability measurement and numerical modeling of two-phase flow through fracture in granite under confining pressure
P-14	Hanae Saishu Tohoku University	The formation of the hydrothermal-convection zone and the heat-conduction zone in Kakkonda geothermal field by quartz precipitation
P-15	Chizu Sekiguchi Tohoku University	Experimental study on observation of critical behaviors of multicomponent geofluids by spectroscopic measurement
P-16	Yusuke Mukuhira Tohoku University	Understanding of the physics behind large Induced seismicity from conventional EGS reservoir at Basel
P-17	Michimasa Musha Tohoku University	Distribution of C-H-O fluids in the accretionary prism deduced from fluid inclusions from the Shimanto belt in the Muroto area, SW Japan
P-18	Kazuyuki Shioya Tohoku University	Waterjet removal of geothermal scale using self-rotating waterjet nozzle system under high ambient pressure
P-19	Akihisa Kizaki Tohoku University	Shear Strengths in Brittle and Ductile Failures of Rock on Fracture Creation in JBBP
P-20	Kazuki Sugawara Tohoku University	Evaluation of phytoremediation applicability for tsunami contaminated soil in Tohoku region: Arsenic removal by fern species
P-21	Putri Setiani Tohoku University	Mathematical Model of Hydrogen Production from Water–Sulfide Reactions under Hydrothermal Conditions
P-22	Qingqing Lu Tohoku University	Source Analysis of Heavy Metals in Kosaka River, Hokuroku Mining District, Northeast Japan
P-23	Rei Takeda Tohoku University	Application of thermoluminescence to geothermal activity explorations
P-24	Anna Suzuki Tohoku University	Fractional mass transport model and associated heat conduction in complex fractured rocks

P-1 - P-11: 2 min. Introduction on Tuesday