ERI International Symposium on Subduction systems: Structure, seismicity and geodynamics

The International symposium on "Subduction systems: structure, seismicity and geodynamics" will be held at the Earthquake Research Institute, University of Tokyo in Tokyo, on Wednesday, November 10 through Thursday, November 11, 2010.

Knowledge of the lithospheric structure in and around the Japanese islands has been greatly improved with analyses of recent observations by very dense seismic and GPS networks and seismic profiling using active and passive seismic sources. These results indicate that as a next step of research on subduction systems, more integrative multidisciplinary studies are needed on the geodynamics of the Japanese island arc systems. In the future, ERI would like to have two types of research projects: (1) integrative research on Japanese island arc systems that are well-constrained by observations, and (2) global comparisons to other similar systems in space and time. International collaboration is critical to establish and carry out such research.

This symposium aims to exchange scientific knowledge on Japanese island arc and other world-wide systems that include processes associated with subduction and associated collision and rifting. We would like to exchange ideas, identify scientific questions and discuss the creation of possible new collaborations (including coordination of funding, new field experiments, exchange of students and researchers). A major goal of this symposium is to establish new international collaborations ranging in size from between individuals to large multi-disciplinary projects.

Program

November 10, Wednesday Venue: Conference Room 1 (5th floor, Bldg #2), ERI, Univ. Tokyo.

1. Symposium opening

9:00 – 9:25 Hiroshi Sato (ERI, Univ. Tokyo)

Aim of this symposium and key questions on geodynamic problems of the tectonic evolution of Japanese islands

2. Lithospheric and upper mantle structure in the subduction zone (Chair: Kazushige Obara)

9:25 – 9:45 Takaya Iwasaki (ERI, Univ. Tokyo)

New features of Island arc crust and upper most mantle revealed from recent seismic expeditions in Japan

9:45 – 10: 05 Ramon Carbonell (CSIS, Spain) "Topo-Iberia": Integrated Geophysical project (Tentative title)

10: 05 – 10: 25 Hans Thybo (Univ. Copenhagen, Denmark) Continental Rifting

10:25 - 10:45 Coffee Break

10:45 – 11:05 Irina Artemieva ((Univ. Copenhagen, Denmark) Past and present tectonic processes and the structure of the continental lithosphere

11:05 – 11:25 Hitoshi Kawakatsu (ERI, Univ. Tokyo) Mantle structure beneath Japanese islands (tentative title)

11: 25 – 11:45 Michael Bostock (Univ. British Columbia, Canada), Pascal Audet (UC Berkeley), Nik Christensen (UWisconsin and UBC), Roy Hyndman (Geological Survey of Canada), Simon Peacock (UBC), Stephane Rondenay (MIT) Fate of Water in the Cascadia Forearc

LUNCH

13:15- 13:35 Erin Wirth (Yale University, USA) Investigations of upper mantle anisotropy beneath Japan and other subduction systems.

13:35-13:55 Discussion Structure and seismicity in subduction zones (Chair: Takaya Iwasaki)

13: 55 – 14:15 Naoshi Hirata (ERI, Univ. Tokyo) Seismic structure beneath Tokyo observed by Very dense seismic network (MeSO-net)(Tentative title)

14:15-14:35 Rupert Sutherland, Stuart Henrys, Daniel Barker, Rebecca Bell, Daniel Bassett, Stephen Bannister (GNS Science, New Zealand, Imperial College London, Oxford University, UK)

Results of recent active-source seismic experiments at the Hikurangi subduction margin, New Zealand

14:35-14:55 Henrys, S., Sutherland, R., Seward, A., Henderson , M. (GNS Science, NZ), Stern, T., Savage, M., Townend, J. (University of Victoria Wellignton),

Mochizuki, K., Sato, H., Iwasaki, T.(ERI, Univ. Tokyo, Japan), Barker, D., Bassett, D., Bell, R. (GNS Science, NZ) and SAHKE Field Deployment Team. The 2009-10 SAHKE Experiment: acquisition and preliminary results across the interseismically locked southern Hikurangi margin, New Zealand

14:55 – 15:15 Laura Wallace (GNS Science, NZ) Subduction thrust processes and tectonics at the Hikurangi margin, New Zealand: an analogue for southwest Japan

15:15 – 15:40 Coffee Break

15:40 – 16: 00 Kazushige Obara (ERI, Univ. Tokyo) Depth-dependent slip regime on the plate interface revealed from slow earthquake activities in the Nankai subduction zone

16:00 – 16:20 Aitaro Kato (ERI, Univ. Tokyo) Seismic structures related to slow and fast earthquakes in frictional stability transition regime on subduction megathrust

16:20-16:40 Masanao Shinohara (ERI, Univ. Tokyo) Seismic structure and seismicity along the Japan trench: new results from ocean bottom observations

16:40 – 17:00 Shuichi Kodaira (JAMSTEC, Japan) Active source seismic studies around subduction zones - lessons from seismogenic zone and subduction factory –

17:00 - 17:30 Discussion

18:00 – 20:00 Reception Venue: Restaurant: abreuvoir (Mukougaoka Faculty House)

Day Two Nov. 11 (Thursday) Venue: Conference Room 1 (5th floor, Bldg #2), ERI, Univ. Tokyo.

Crustal deformation, rheology and volcanism (Chair: Hiroshi Sato)

9:00-9:20 Takashi lidaka (ERI, Univ. Tokyo) Upper most mantle structure beneath Japanese islands.

9:20-9:40 Ryuta Arai (ERI, Univ. Tokyo) Multiple collision and subduction structure of the Izu collision zone:arc-arc collision in central Japan 9:40-10:00 Tatsuya Ishiyama (Tohoku University, Japan) Mechanisms of dynamic subsidence and horizontal shortening in the Kinki Triangle, central Japan

10:00 – 10:20 Jun-Ichi Kimura (IFREE/JAMSETC, Japan) Cenozoic tectono-magmatism in SW Japan: Magmatic responses during back arc basin opening and subduction re-initiation

Coffee Break

10:40 – 11:00 Jun Muto (Tohoku Univ., Japan) Rheological structure of Northern Honshu, Japan: Fault reactivation and post-seismic creep

Geodynamic modeling (Chair: David Okaya, Hiroshi Sato)

11:00-11:20 Bunichiro Shibazaki (Building Res. Inst., Japan) Modeling of fault development and mountain buildings considering the nonuniform rheological structure of the crust in the northeastern Japan arc

11:20-11:40 Eh Tan and Luc Lavier (Univ. Texas at Austin, USA) Modeling of subduction and collision environments: numerical techniques and examples

11:40-12:00 David Okaya (USC), Hiroshi Sato (ERI), Naoshi Hirata (ERI), Eh Tan (UTIG), Luc Lavier (UTIG), and Francis Wu (SUNY) Philippine Sea-Pacific slab interaction as an additional cause for seismicity beneath Kanto

12:00-12:20 Thorsten W Becker (Univ. Southern California, USA) A Multi-disciplinary Model of the Pacific Upper Mantle (tentative titles)

12:20-12:40 Satoru Honda (ERI, Univ. Tokyo, Japan) Mantle flow around the subduction zones

12:40-13:00 Discussion

13:00- LUNCH

14:30 – 17:00 Workshop on the International Collaborative Research on the subduction systems (Closed) Venue: Seminar Room (Mukougaoka Faculty House)