

# Organization and Activities of the Doctoral Program in Earth Evolution Sciences (Geological Sciences) for the Academic Year 2008

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## Organization

During the year from April, 2008 to March, 2009, several promotions and appointments were made in the Doctoral Program in Earth Evolution Sciences (Geological Sciences) so that our research and teaching activities were enforced. All faculty and administrative staffs were (staffs with an asterisk \* are belonging to the Doctoral Program in Integrative Environmental Sciences, but they are listed in our organization here-with, because they study geological sciences and have lectures on geological sciences for undergraduate students):

### *Professor:*

Arakawa, Yoji, D. Sc., petrology, geochemistry and geochronology  
Hayashi, Ken-ichiro, D. Sc., migration of heavy metals, geochemistry of hydrothermal system  
Kimata, Mitsuyoshi, D. Sc., mineralogy and crystallography  
Ogasawara, Kenshiro, D. Sc., Cenozoic stratigraphy and molluscan paleontology  
Ogawa, Yujiro, D. Sc., structural geology and marine geology  
Sashida, Katsuo, D. Sc., Paleozoic and Mesozoic biostratigraphy

### *Associate Professors:*

Endo, Kazuyoshi, Ph.D., molecular paleontology  
Hisada, Ken-ichiro, D. Sc., Paleozoic and Mesozoic stratigraphy and sedimentology  
Tsunogae, Toshiaki, Ph.D.(Sc.), metamorphic petrology and crustal evolution  
Yagi, Yuji, D. Sc., seismology, structural geology  
\*Maruoka, Teruyuki, Ph.D., geochemistry

### *Assistant Professor:*

Agematsu, Sachiko, Ph.D. (Sc.), Paleozoic and Mesozoic biostratigraphy  
\*Anma, Ryo, Ph.D., structural geology and tectonics  
Hirai, Hisako, D. Sc., earth planetary high-pressure science  
Komuro, Kosei, D. Sc., ore geology and geochemistry  
Kurosawa, Masanori, Ph.D. (Sc.), mineralogy and

geochemistry

Kyono, Atushi, Ph.D. (Sc.), structural physics of minerals

Motoyama, Isao, Ph.D. (Sc.), Cenozoic stratigraphy and micropaleontology

Takizawa, Shigeru, D. Sc., structural geology

### Cooperative Graduate School System

#### *Professor:*

Takada, Akira, D. Sc., volcanology

Yamazaki, Toshitsugu, D.Sc., paleomagnetism

#### *Associate Professor:*

Ishizuka, Osamu, D. Sc., arc magmatism

#### *Research and Teaching Assistants:*

Miyamoto, Makoto

Otani, Satoshi, B.A.

Ozaki, Shiro

Shimizu, Masahiro

Watase, Koichi, B.A.

#### *Administrative Staff:*

Hirano, Kozue

Yasuda, Yoko

## Doctor and Master's Theses

The following doctor and master's theses were completed during the academic year 2008 under the supervision of the members of the Doctoral Program in Earth Evolution Sciences.

### Doctor of Philosophy (Science or Geosciences)

Ismail Hossain (2009): Petrology, Geochemistry and Geochronology of Basement Rocks in Bangladesh.

Michiguchi, Yoko (2009): Early stage deformation in accretionary prisms: Comparative study between Miura-Boso and Nankai Prisms.

Saesaengseerung, Doungrutai (2009): Devonian to Triassic radiolarian biostratigraphy and depositional environments of these radiolarian-bearing

ing rocks in Thailand.

Sato, Yudai (2009): Stratigraphy and geological significance of the Green Tuff: Example studies of the Oga Peninsula and Sado Island.

#### Master of Science or Geoscience

Fukuda, Miho (2009): Reconstruction of the Kuroshio and continental coastal diluted waters during 20 kyrs in the Northern East China Sea.

Fukano, Juchi (2009): Chemical composition and genetic environment of skarn minerals at the Kobushi deposit, Nagano prefecture.

Hirano, Toshiko (2009): Mainshock-aftershock interaction of intermediated-depth earthquakes.

Honda, Mizuho (2009): Material characteristics of CO<sub>2</sub>-hydrate under low temperature and high pressure conditions.

Muraoka, Satoru (2009): Formation process of geological structures in the Chikura group, southern Boso peninsula, based on the field investigation and analogue model experiments.

Nagakura, Itaru (2009): Phase relations in the system methane and ethane: liquid immiscibility and stability of van der Waals compound.

Nishi, Makiko (2009): Phylogenetic and biomineralogical studies on chelonian eggshell matrix proteins.

Nishizawa, Akiko (2009): Artificial fertilization and the engrailed gene expression analysis in the brachiopod *Lingula anatine*.

Saito, Kyoko (2009): Breccia pipe style mineralization at the Ulaan deposit, northeastern Mongolia.

Sakata, Sumie (2009): Cretaceous radiolarians from Kanto Mountains, central Japan.

Sawada, Daiki (2009): Upper Oligocene – Lower Miocene Radiolarian biostratigraphy in the high latitude North Pacific.

Shimamura, Takehiko (2009): Source rocks for detrital chromian spinels from the Neogene mélanges, Taiwan and their significance of occurrence.

Shinozaki, Ayako (2009): State of the C-O-H fluid and its reactivity with olivine under mantle conditions.

Wada, Takanori (2009): Interaction between normal faulting earthquakes and large interplate earthquakes in subduction zones.

Watanabe, Makio (2009): Biostratigraphy of the Upper Yezo Group distributed in the upper reaches of the Lake Katsurazawa area of Mikasa City, Hokkaido.

Yasudomi, Yukito (2009): Environmental change analysis during the last interglacial period in the Northwestern Pacific based on radiolarian assemblages in the submarine sediment core.

#### Master of Arts in Education

Sakairi, Kumiko (2009): Study on downstream shape change of river floor pebbles and teaching materials using its content.

Sato, Yukako (2009): New geological outdoor teaching materials adopting geographical aspects.

## Research Activities

Each researcher had the following research activities during the academic year 2008.

#### Research projects

Agematsu, S. (2007): Lower Paleozoic conodont, graptolite, and tentaculite from Southeast Asia and Triassic conodont natural assemblage.

Arakawa, Y., Kimata, M. and Matsui, T. (2005~): Sr isotopic and mineralogical studies of anorthite megacrysts in volcanic rocks in Kyushu-Ryukyu arc.

Arakawa, Y. and Shinmura, T. (2005-): Geological and geochemical studies of volcanic rocks in Aso volcano, Kyushu, Japan.

Arakawa, Y. (2008~): Petrological and petrochemical studies of volcanic rocks in Izu arc and adjacent area.

Hayashi, K. (2005-2009): Chemical analysis of single fluid inclusion by synchrotron X-ray fluorescence technique.

Hayashi, K. (2005-2009): Studies on mineral resources in Mongolia.

Hisada, K., Charusiri, P., Lee, B.J., and Jin, X. (2005-2009): IGCP516 "Geological Anatomy of East and South Asia: Paleogeography and Paleoenvironment in Eastern Tethys" (UNESCO)

Komuro, K., Hatta, T. and Shinohara, Y. (2008-2010): Effects of soil environment on the chemistry of food grains with attempts to make a counterplan.

Komuro, K. and Ito, T. (2008-2010): Development of oxygen minimum layer in the Pacific Ocean during Neogene.

\*Maruoka, T. (2006-2008): Geochemical study for understanding the environmental perturbations at the mass-extinction events.

Sashida, K. (2003-2009): Paleozoic and Mesozoic paleoenvironmental studies in Thailand and

peninsular Malaysia.

Tsunogae, T. and Santosh, M. (2008-2012): Crustal evolution of the Palghat-Cauvery suture zone in southern India.

Tsunogae, T. and Dubessy, J. (2004-2008): Characterization of fluids in granulites: evidence from quantitative Raman spectroscopic study.

Yagi, Y. (2007-2008): New formulation of seismic source inversion in an incomplete model.

Yagi, Y. (2008): Dynamic rupture process of the deep earthquake, and seismic source process of the 2008 Sichuan earthquake.

#### Research grants

Komuro, K. (2006-2008): Geochemical properties of sedimentary rock: microanalysis of sedimentary rocks and laboratory rock-water experiment. Japan Atomic Energy Agency Cooperative Research (A) on Nuclear Fuel Cycle. JPY 3,000,000 for 2008.

Kurosawa, M. (2008-2011): Studies on geochemical effect of fluid-inclusion chemistries on groundwater compositions in granitic bodies. Grant-In-Aid for Scientific Research (B).

Kyono, A. (2008): Study on variations of bonding character and structural stability in arsenic minerals. Grant-in-Aid for Young Scientists (B) (No. 19740325)

\*Maruoka, T. (2006-2008): Geochemical study for understanding the environmental perturbations at the mass-extinction events. Japan Society for the Promotion of Science: Grant-in-Aid for Young Scientists (A), JPY 1,170,000 for 2008.

Tsunogae, T. (2008-2011): Characterization of lower crustal fluids. Japan Society for the Promotion of Science: Basic Research (B), JPY 11,300,000.

Tsunogae, T. (2008-2010): Crustal evolution of the Gondwana suture zones in southern India. A joint research program of JSPS (Japan Society for the Promotion of Science) and INSA (Indian National Science Academy), JPY 4,980,000.

## Activity Reports for Academic Exchange and Cooperation

*Chulalongkorn University, the Kingdom of Thailand*

(1) Exchange of Researchers: none

(2) Exchange of Graduate Students:

Wunnaporn Punywai (Tokubetsu Kenkyusei; AIEJ Short-term Student Exchange Program, 12 months from March 2009, Ken-ichiro Hisada)

(3) Collaboration Research:

Organizing joint works as co-leaders for IGCP 516 (2005-2009) (Punya Charusiri and Ken-ichiro Hisada)