

Organization and Activities of the Doctoral Program in Earth Evolution Sciences (Geological Sciences) for the Academic Year 2012

Organization

During the year from April, 2012 to March, 2013, 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 Environment and Biomass Sciences, but they are listed in our organization herewith, 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
Hisada, Ken-ichiro, D. Sc., stratigraphy, sedimentology
Kimata, Mitsuyoshi, D. Sc., mineralogy and crystallography
Sashida, Katsuo, D. Sc., Paleozoic and Mesozoic biostratigraphy

Associate Professors:

Agematsu, Sachiko, Ph.D.(Sc.), paleontology
Enescu, Bogdan, Ph.D. (Sc.), seismology, structural geology
Kamata, Yoshihito, Ph. D.(Sc.), stratigraphy, tectonics
Tsunogae, Toshiaki, Ph.D.(Sc.), metamorphic petrology and crustal evolution
Ujii, Kotaro, Ph.D.(Sc.), structural geology
Yagi, Yuji, Ph.D. (Sc.), seismology, structural geology
*Maruoka, Teruyuki, Ph.D.(Sc.), geochemistry

Assistant Professor:

*Anma, Ryo, Ph.D., structural geology and tectonics
Fujino, Shigehiro, Ph.D.(Sc.), sedimentology, stratigraphy, paleoseismology
Ikehata, Kei, Ph.D. (Sc.), petrology, resource geology
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
Takizawa, Shigeru, D. Sc., structural geology
Cooperative Graduate School System

Professor:

Takada, Akira, D. Sc., volcanology

Associate Professor:

Ishizuka, Osamu, D. Sc., volcanic arc magmatism

Research and Teaching Assistants:

Miyamoto, Makoto
Otani, Satoshi, B.A.
Ozaki, Shiro
Shimizu, Masahiro
Watase, Koichi, B.A.

Administrative Staff:

Isaka, Kyoko
Yasuda, Yoko

Doctor and Master's Theses

The following doctor and master's theses were completed during the academic year 2011 under the supervision of the members of the Doctoral Program in Earth Evolution Sciences.

Doctor of Philosophy (Science or Geosciences)

Du, Wei (2013): Precambrian multicellular microfossils preserved in the Neoproterozoic Doushantuo Formation of the Yantze Gorges and Weng'an Area, South China.
Fukuda, Miho (2013): Study on ²³⁰Th-normalized Fluxes of Biogenic Components Recorded in the Central-Southernmost Chilean Margin Sediments Since the Last Glaciation.
Oyun-Erdene, Zorigtkhuu (2013): Petrological and Geochronological Study of the Altai Orogeny in the Central Asian Orogenic Belt, Western Mongolia.

Shimizu, Hisako (2013): The Stability of Sapphirine + Quartz in High and Low Oxygen Fugacity Granulites.

Master of Science or Geoscience

Master of Science

- Ezaki, Hayaki (2013): Characteristic of the Slip-rate Function of Slow Tsunami Earthquakes.
- Furukawa, Takayuki (2013): Miocene stratigraphy of the Anamizu region, Noto Peninsula, Ishikawa Prefecture.
- Iwami, Takahiro (2013): Paleozoic and Mesozoic sedimentary complex of the southern part of Ashio Mountains, Gunma Prefecture, central Japan.
- Kasahara, Amato (2013): Development of Complex Seismic Source Inversion Method and Its Application.
- Kunii, Miyuki (2013): Geochemistry of sandstone provenance related to the Paleo-tethys subduction zone: the case of northern Thailand.
- Saito, Tsubasa (2013): Fault Zone Structure and Frictional Velocity Dependence of Thrusts in an Accretionary Prism: Implications for Very-Low-Frequency Earthquakes.
- Shimizu, Tatsuya (2013): Ammonites from the Ashizawa Formation of the Futaba Group, north-east Japan.
- Uchiumi, Mai (2013): Mixed conodont fauna from the limestones distributed in the Gujo-Hachiman area, Gifu Prefecture.
- Utagawa, Fumiaki (2013): Lithostratigraphy and mega fossils of the Neogene Shirahama Group, Izu Peninsular, central Japan.
- Yoshie, Yuta (2013): Hydrothermal evolution of ilmenite-series granite in the inner zone of SW Japan.
- Watanabe, Shota (2013): Mineralization of Hakurei sulfide ore deposit, Bayonnaise knoll caldera, Izu-Bonin arc.

Master of Geosciences

- Seki, Takuma (2013): Stratigraphical and petrological characteristics of Benri scoria flow deposits in Aso-4 pyroclastic flow deposits, Aso volcano, central Kyushu, Japan.

Master of Arts in Education

none

Research Activities

Each researcher had the following research activities during the academic year 2012.

Research projects

- Agematsu, S. (2012~): Paleontology of the Earliest Triassic conodont.
- Agematsu, S. (2013~): Biostratigraphy and paleoenvironment of the Upper Ordovician to Lower Silurian in Malaysia.
- Anma, R. (2012~): Magmatism at Ridge Subduction Zones
- Anma, R. (2012~): Quaternary Environmental Changes in Western Asia
- Anma, R. (2012~): Paleo-oceanography in NE Pacific.
- Arakawa, Y. and Shinmura, T. (2007~): Geological and geochemical studies of volcanic rocks in Aso volcano, Japan.
- Arakawa, Y., Matsui, T. and Kimata, M. (2010~): Sr isotopic and mineralogical studies of anorthite megacrysts in arc volcanic rocks.
- Arakawa, Y. (2008~): Petrological and petrochemical studies of volcanic rocks Izu arc and adjacent area.
- Enescu, B. (2011~): Dynamic and static stress triggering of earthquake and tremor after the 2011 M9.0 Tohoku-oki earthquake.
- Enescu, B. (2009~): Modeling and forecasting of seismicity on the Japanese Islands.
- Enescu, B. (2012~): Dependence of the frequency-magnitude distribution on the strength properties of the crust. (with the Research Group of Prof. S. Wiemer, Swiss Federal Institute of Technology, Zurich).
- Enescu, B. (2012~): Development and application of a new seismic interferometry monitoring method, using the Hi-net continuous waveform data. (with the Research Group of Prof. J.-P. Montagner, Paris Institute of Earth Physics, France, and Dr. K. Shiomi, National Research Institute for Earth Science and Disaster Prevention, Tsukuba).
- Enescu, B. (2012~): Study on the early aftershocks of the 2011 Tohoku-oki earthquake and their underlying physical mechanisms. (with Dr. O. Lengline, Univ. of Strasbourg, France).
- Enescu, B. (2012/10/01 ~ 2013/03/31, as an NIED Visiting Researcher): The underground velocity structure and its relation with seismicity in the Niigata region, Japan. (with Dr. T. Takeda, Na-

- tional Research Institute for Earth Science and Disaster Prevention)
- Enescu, B. (2012~): Dynamic triggering of earthquake and non-volcanic tremor. (with the Research Group of Prof. K. Obara, Earthquake Research Institute, Univ. of Tokyo).
- Fujino, S. (2007~): Stratigraphic records of past earthquakes and tsunamis along the Nankai Trough.
- Hayashi, K. (2009~) : Oxygen isotope study of hydrothermal ore deposits.
- Hisada, K. and Takahashi, M. (2009~): Study on an origin of angiosperm (Thailand)
- Hisada, K. and Poshtkoohi, M. (2012~): Geology of Iran
- Hisada, K. and Charusiri, P. (2012~): Geology of Thailand
- Ikehata, K. (2005~): Petrological and petrochemical studies of volcanic products from active volcano.
- Ikehata, K. (2006~): Development of analytical methods for non-traditional (e.g., Cu, Fe, Zn) stable isotope ratios of materials and its applications to geochemical samples.
- Kamata, Y. (2011~): Stratigraphy and tectonics of the Paleo-Tethys in Thailand and Lao.
- Kamata, Y. (2011~): Stratigraphy and tectonics of Jurassic accretionary complex in Japan.
- Komuro, K. and Nakata, M. (2011-13) Analysis of tellurium phases in epithermal gold deposits.
- Komuro, K., Nishido, H. and Kayama, M. (2011-13) Estimation of radiation damages on minerals by cathodoluminescence.
- Kurosawa, M. (2012): Single fluid-inclusion analysis using particle-induced X-ray emission (PIXE) to elucidate chemical compositions and behaviors of hydrothermal fluids from granites.
- Kurosawa, M. (2012): Trace-element analysis of pegmatite and mantle minerals by using laser-ablation ICP-MS.
- Kyono, A. (2012): Ab initio quantum chemical investigation of arsenic sulfide molecular diversity.
- Kyono, A. (2012): Crystal structural changes of ion oxyhydrates with nanoparticulation.
- Kyono, A. (2012): Control technology for crystal structures and chemical compositions of sulfides with group 15 elements.
- Maruoka, T. (2009-2012) Geochemical study for understanding the environmental perturbations at the mass-extinction events.
- Sashida, K. (2013~): Paleozoic and Mesozoic paleoenvironmental studies in Thailand and peninsular Malaysia.
- Tsunogae, T. and Santosh, M. (2009-2015): Crustal Evolution of the Gondwana suture zones.
- Tsunogae, T., Osanai, Y., Toyoshima, T., Owada, M., and Hokada, T. (2010-2014): Ultrahigh-temperature metamorphism in East Antarctica.
- Tsunogae, T. and Dubessy, J. (2009-2014): Characterization of fluids in high-temperature granulites: evidence from quantitative Raman spectroscopic study.
- Ujiie, K. (2007~): Field studies of the Shimanto accretionary complex and fault zones.
- Ujiie, K. (2007~): Microstructural investigations of fault rocks in the Shimanto and Nankai accretionary complexes.
- Ujiie, K. and many others (2007~): Fault zone drilling in the Nankai Trough, Costa Rica, and Japan Trench subduction zones.
- Ujiie, K. and Tsutsumi, A. (2009~): Friction experiments on subduction zone materials.
- Yagi, Y. (2012~): Seismic source process of large and great earthquakes derived from a hybrid back-projection and a new inversion that takes into account the uncertainty of Green's function.

Research grants

- Agematsu, S. (2012~): Response of biofacies to environmental changes in the pelagic ocean of the Panthalassa during the latest Permian to earliest Triassic period, JPY 300,000.
- Agematsu, S. (2013~): Paleoenvironment during the Late Ordovician to Early Silurian time, JPY 4,680,000
- Anma, R. Decoding Quaternary Environmental Changes in West Asia Recorded in Sediments. KAKEN No. 24101011, ¥15,600,000-
- Fujino, S. (2011–2015): Stratigraphic records of past earthquakes and tsunamis along the Nankai Trough. Program to Disseminate Tenure Tracking System, JPY 15,000,000 for 2012.
- Hayashi, K. (2012-2014): Microscopic scale oxygen isotope study for ore and gangue minerals of hydrothermal deposits. Grant-In-Aid for Scientific Research (C), JPY 1,600,000 for 2012.
- Hisada, K. (2012-):Ancient West Asian Civilization as the foundation of all modern civilizations: A counter to the Clash of Civilizations' theory 2012-2016, JPY 7,150,000.
- Hisada, K. (2012-):Early diversification of primitive Angiosperms during Jurassic and Cretaceous in Mongolia, JPY 300,000.
- Hisada, K. (2012-):High-accuracy provenance study

- of clastics from Mesozoic accretionary complex on land, JPY 5,200,000.
- Ikehata, K. (2012-2013): Research on variation of volatile compositions in magma during eruptions. H24 Joint Research Program A (studies for earthquake and volcanic eruption prediction), Earthquake Research Institute, The University of Tokyo.
- Ikehata, K. (2012-2013): Research on behavior of volatile and metal element in magmatic-hydrothermal system. Chemical Analysis Division 2012 Research Grant, Research Facility Center for Science and Technology, University of Tsukuba
- Kamata, Y. (2012-2013): Internal structures of the Jurassic accretionary complex and its structural relationship with the Kurosegawa Belt. Grant-In-Aid for Scientific Research (C), JPY 800,000.
- Kurosawa, M. (2012): Studies on chemical compositions and behaviors of hydrothermal fluids in the M-type granitic bodies. Grant-In-Aid for Scientific Research (C) (20012-2014).
- Kurosawa, M. (2012): The construction of databases for chemical compositions and textures of sherds and stone implements from archaeological sites in Western Asia. Grant-In-Aid for Scientific Research on Innovative areas (2012-2016).
- Kyono, A. (2012): Crystal structural changes of ion oxyhydrates with nanoparticulation. Grant-in-Aid for Young Scientists (B) from JSPS (project no. 24740352), JPY 2,730,000 for 2012.
- Kyono, A. (2012): Control technology for crystal structures and chemical compositions of sulfides with group 15 elements. Joint research with Sekisui Chemical Co. Ltd. JPY 1,000,000 for 2012.
- Maruoka, T. (2012): A multi-isotope approach to understanding paleo-environments in West Asia, Grant-in-Aid for Scientific Research on Innovative Areas (MEXT), ¥19,630,000 (Direct : ¥15100000, Indirect : ¥4530000)
- Takizawa S. (2011-2013): Formation energy of fault rocks and mylonite. Japan Society for the Promotion of Science Basic Research(C),JPY 800,000 for 2012.
- Tsunogae, T. (2010-2013): Tectonothermal evolution of Antarctica-India-Madagascar region and the amalgamation of Gondwana Supercontinent. Japan Society for the Promotion of Science: Basic Research (B), JPY 9,300,000.
- Ujiie, K. (2012): Grant-in-Aid for Scientific Research (B) from JSPS (21340150).
- Ujiie, K. (2012): Grant-in-Aid for Scientific Research on Innovative Areas from MEXT (21107005).
- Ujiie, K. (2012): Post-cruise study of IODP Expedition 334 from JDESC.
- Yagi, Y. (2012~2015): Development of multi-data inversion that takes into account the uncertainty of model. Japan Society Promotion of Science: BasicResearch(C), JPY 5,200,000.
- Yagi, Y. (2012~2017): Seismicity of east Asia. Japan Society Promotion of Science: JPY 10,790,000.

Activity Reports for Academic Exchange and Cooperation

Chulalongkorn University, the Kingdom of Thailand

- (1) Exchange of Researchers:
none
- (2) Exchange of Graduate Students:
Sumet Phantu Wongraj (tokubetsukenkyusei; Thai Government Scholarship, from December 2012 to February 2013, Hisada, K.)
- (3) Collaboration Research:
none