

Geodynamics

Space geodesy

Volcanology



International  
Graduate Program  
in the  
Natural History Sciences

Geochemistry

Evolution

Biodiversity

Ocean bottom seismology



HOKKAIDO  
UNIVERSITY

<http://www.sci.hokudai.ac.jp/dnhs/inhs/>

# Introduction

The International Graduate Program in the Natural History Sciences provides Master and PhD courses for international students who want to study natural history at Hokkaido University.

The fields, in which the Department of Natural History Sciences engages in education and research fall broadly into two main categories, supported by our excellent faculty members. One is “earth sciences”, which includes cosmo- and planetary sciences, atmosphere-ocean science, biogeoscience, solid earth science, and earth resource science. The other, “biodiversity and organismal evolution”, includes taxonomy, phylogeny, phylogeography, ancient DNA science, population genetics, and evolutionary developmental biology. In this International Program, young scientists can develop interdisciplinary studies among these various fields.

International graduate students can undertake all their educational and research activities in English, yet interact closely with Japanese students.

We enthusiastically invite you to take advantage of this fantastic opportunity to study the natural history sciences at Hokkaido University.



## Hokkaido University

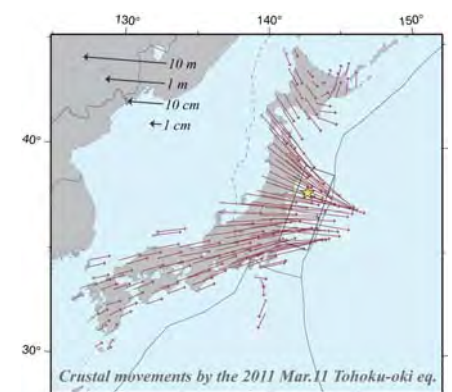
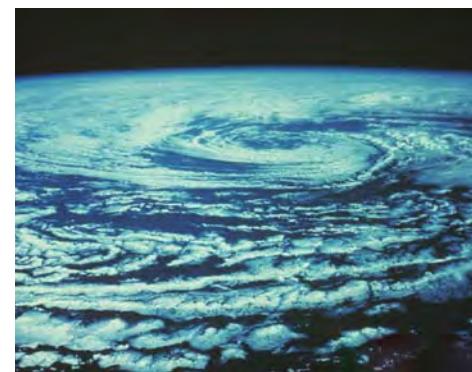
Hokkaido University is one of the oldest, largest, and most prestigious universities in Japan. Boasting the largest number of faculties of Japan's national universities, we cover almost all areas of the humanities and social and natural sciences and are leader in research activities in Japan and the world. Our alumni include a Nobel laureate, business leaders, research pioneers, artists and writers.

Our graduates benefit from the University's determination to develop curious minds that are ready to embrace challenges and acquire knowledge, reveal new global perspectives and find solutions which change society for the better.



# Division of Earth and Planetary Dynamics

The Division of Earth and Planetary Dynamics conducts a variety of basic research across a broad range of temporal and spatial scales to better understand the Earth as a dynamic system that comprises the solid Earth, oceans, and atmosphere. We investigate diverse topics in geophysics, including mantle dynamics, earthquakes, volcanic activity, surface and ground water, and atmosphere-ocean circulation. To achieve our goal of elucidating the nature of the dynamic Earth, we take a comprehensive approach based primarily on theoretical and experimental studies, analyses of geophysical data, and field-work that takes advantage of the distinctive location of Hokkaido University.



	<p><b>Masato FURUYA</b> Professor PhD (science)</p> <p>Space geodesy Geodynamics Glaciology</p>	<p><b>Kosuke HEKI</b> Professor Doctor of science</p> <p>Space geodesy Earth and planetary physics</p>	<p><b>Junji KOYAMA</b> Professor Doctor of Science</p> <p>Seismology Geodynamics</p>	<p><b>Shoshiro MINOBE</b> Professor PhD (Science)</p> <p>Climate dynamics Physical oceanography Meteorology</p>
	<p><b>Kiyoshi YOMOGIDA</b> Professor PhD</p> <p>Theoretical seismology Lateral heterogeneity Scattering New analysis of seismic data</p>	<p><b>Kazuhisa A. CHIKITA</b> Associate Professor Doctor of Science</p> <p>Physical hydrology Inland water dynamics River material load Lake hydrodynamics</p>	<p><b>Masaru INATSU</b> Associate Professor PhD (Environmental Earth Science)</p> <p>Meteorology Climatology</p>	
	<p><b>Kazunori YOSHIZAWA</b> Associate Professor PhD</p> <p>Global seismology Seismic tomography</p>	<p><b>Yoshinori SASAKI</b> Lecturer PhD (Science)</p> <p>Physical oceanography Climatology</p>		
	<p><b>Hanna NA</b> Assistant Professor PhD</p> <p>Physical oceanography Climatology</p>			
	<p><b>Name</b> Position Degree</p>	<p>Fields of speciality</p>		
	<p>Staff members</p>			



# Division of Earth and Planetary System Science

The Division of Earth and Planetary System Sciences at Hokkaido University has a rich tradition of leadership in geoscience education and research, consolidated through experience accumulated over 80 years and expanding in new directions. The Division offers graduate courses in a wide range of fields in the modern Earth and planetary sciences for understanding the Earth as the system of interrelated physical, chemical, and biological processes, encompassing the lithosphere, atmosphere, hydrosphere, and biosphere. There are six Research Groups in the Division, as follows: Petrology and Volcanology, Earth Environmental History, Geochemistry, Earth Materials Science, Earth System Evolution, and Geotectonics. We offer M.S. and PhD degrees in a variety of geoscience disciplines. For further information on specific research programs, please contact any of the staff members listed below.



<p><b>Mitsuhiro NAKAGAWA</b> Professor Doctor of Science</p> <p>Igneous petrology Volcanology Geochemistry</p>	<p><b>Hisayoshi YURIMOTO</b> Professor Doctor of Science</p> <p>Geochemistry Cosmochemistry</p>	<p><b>Takaya NAGAI</b> Professor PhD (Science)</p> <p>Experimental mineral physics Crystallography</p>	<p><b>Noriyuki SUZUKI</b> Professor Doctor of Science</p> <p>Organic geochemistry Sedimentary geoscience</p>	<p><b>Toru TAKESHITA</b> Professor PhD</p> <p>Structural geology Tectonics</p>
<p><b>Yoshitsugu KOBAYASHI</b> Associate Professor PhD</p> <p>Vertebrate paleontology</p>	<p><b>Shogo TACHIBANA</b> Associate professor PhD (Science)</p> <p>Cosmochemistry Geochemistry</p>	<p><b>Junji YAMAMOTO</b> Associate professor PhD (Science)</p> <p>Geochemistry</p>	<p><b>Hiroyuki MIURA</b> Associate Professor Doctor of Science</p> <p>Crystallography Descriptive mineralogy</p>	<p><b>Ken SAWADA</b> Associate Professor PhD (Science)</p> <p>Organic biogeochemistry Paleobiogeochemistry</p>
<p><b>Makoto KAWAMURA</b> Associate Professor Doctor of Science</p> <p>Tectonogeology</p>	<p><b>Jinichiro MAEDA</b> Associate Professor Doctor of Science</p> <p>Igneous petrology Geology</p>	<p><b>Tsuyoshi WATANABE</b> Lecturer PhD (Science)</p> <p>Carbonate geochemistry Coral Reefs Earth Environmental Sciences</p>	<p><b>Jun KAMEDA</b> Lecturer PhD (Science)</p> <p>Structural geology</p>	<p><b>Mitsuhiro YOSHIMOTO</b> Assistant Professor PhD (Science)</p> <p>Volcanology</p>
<p><b>Yasuhiro IBA</b> Assistant Professor PhD (Science)</p> <p>Paleontology Paleobiogeography</p>	<p><b>Ken-ichi BAJO</b> Assistant Professor PhD (Science)</p> <p>Cosmochemistry Geochemistry</p>	<p><b>Fumiko NAKAGAWA</b> Assistant Professor PhD (Science)</p> <p>Isotope biogeochemistry Environmental chemistry</p>	<p><b>Jun KAWANO</b> Assistant Professor PhD (Science)</p> <p>Mineralogy Crystal growth</p>	<p><b>Marie PYTHON</b> Assistant Professor PhD</p> <p>Igneous petrology Geology</p>



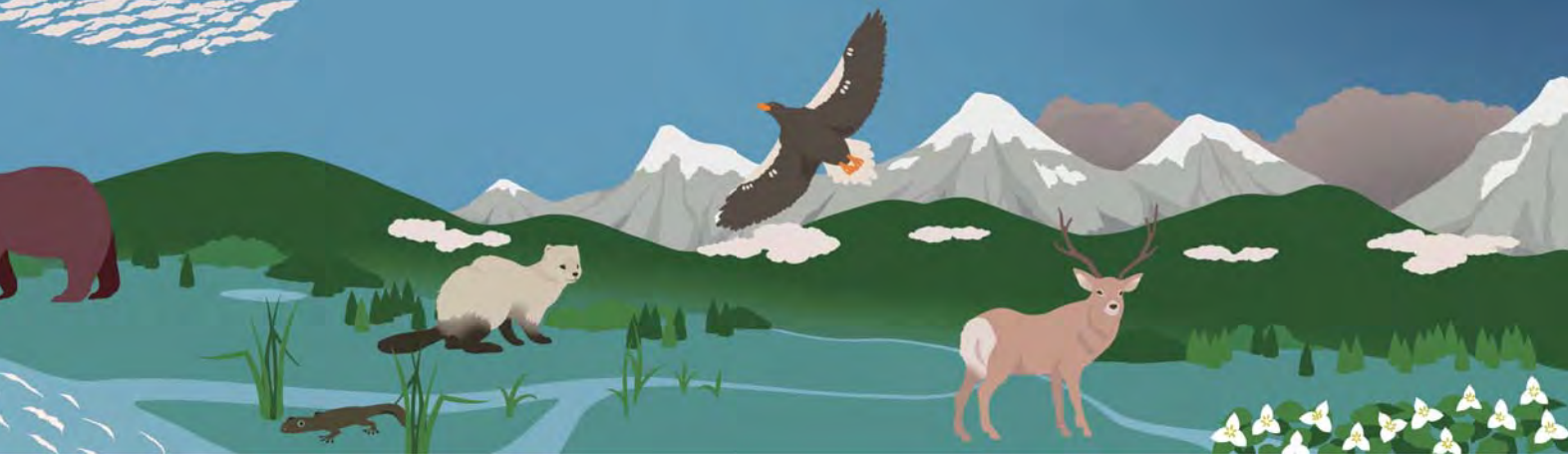
# Division of Seismology and Volcanology

When, where, why, and what size of earthquakes and volcanic eruptions will take place? While earthquakes and volcanic eruptions are often a public concern, threatening our social basis, they can also provide important clues to understanding the dynamics and evolution of the planet Earth. Earthquakes and volcanoes are surface manifestations of the internal activity of the Earth, and thus understanding their mechanisms and processes is an essential issue in the geosciences. We investigate the physical background of seismic and volcanic activity based on a multi-disciplinary approach, including seismology, geodesy, geothermics, fluid dynamics, electromagnetics, geology, and so on, in collaboration with domestic and international universities and research institutes. Hokkaido provides good opportunities for students to apply the wide range of knowledge that they have learned, including physics, chemistry, mathematics, and earth science, to real earthquakes and volcanoes.



<p><b>Toru MOGI</b> Professor Doctor of Engineering</p> <p>Subsurface structural research Geomagnetism</p>	<p><b>Makoto MURAKAMI</b> Professor Doctor of Science</p> <p>Volcanophysics Geodesy</p>	<p><b>Yuichiro TANIOKA</b> Professor PhD</p> <p>Seismology Tsunami</p>	<p><b>Takeshi HASHIMOTO</b> Associate Professor Doctor of Science</p> <p>Volcanophysics Geomagnetism</p>	<p><b>Kei KATSUMATA</b> Associate Professor Doctor of Science</p> <p>Seismology</p>
<p><b>Yoshio MURAI</b> Associate Professor Doctor of Science</p> <p>Ocean bottom seismology</p>	<p><b>Hiromitsu OSHIMA</b> Associate Professor Doctor of Science</p> <p>Volcanophysics</p>	<p><b>Hiroaki TAKAHASHI</b> Associate Professor Doctor of Science</p> <p>Seismology Geodesy</p>	<p><b>Hiroshi AOYAMA</b> Associate Professor Doctor of Science</p> <p>Volcanophysics Seismology</p>	<p><b>Hitoshi Y. MORI</b> Assistant Professor Doctor of Science</p> <p>Volcanophysics Geodesy</p>
<p><b>Yuichi NISHIMURA</b> Associate Professor Doctor of Science</p> <p>Ocean bottom seismology Tsunami</p>	<p><b>Takuji YAMADA</b> Associate Professor Doctor of Science</p> <p>Seismology</p>			





## Division of Biodiversity

There exists today an amazing diversity of organisms, all of which are the consequence of evolution. In addition, during the evolutionary history of the earth, many more species have gone extinct than survive today. In the Division of Biodiversity, we investigate patterns of diversity and the processes that generated these patterns. Through molecular, morphological, and ecological analyses, we study diversity at various levels of the biological hierarchy, including geographic patterns of genetic variation; patterns of phylogenetic relationships relevant to macroevolution and the classification of life; the process of speciation by which new biological species arise; and the changes in reproductive, developmental, and regenerative systems that can lead to evolutionary novelty.



**Takeo HORIGUCHI**  
Professor  
PhD

Systematics of algae  
and protozoa

**Shin TOCHINAI**  
Professor  
PhD

Evolutionary developmental  
biology

**Matthew H. DICK**  
Professor  
PhD

Invertebrate systematics  
Bryozoan systematics  
and paleontology

**Ryuichi MASUDA**  
Professor  
PhD

Molecular phylogeny  
and population genetics of  
mammals and birds

**Kazuhiro KOGAME**  
Associate Professor  
PhD

Taxonomy  
phylogeny  
and evolution of seaweeds

**Hiroshi KAJIHARA**  
Associate Professor  
PhD

Marine invertebrate morphology  
taxonomy  
phylogeny  
and biogeography

**Helena FORTUNATO**  
Associate Professor  
PhD

Evolution and ecology of  
marine invertebrates

**Tsuyoshi ABE**  
Lecturer  
PhD

Taxonomy  
phylogeny  
and evolution of seaweeds

**Masaki EDA**  
Lecturer  
PhD

Zooarchaeology  
Archeozoology  
Phylogeography

**Toru KATOH**  
Assistant Professor  
PhD

Molecular phylogeny  
Population genetics

**Yoshinori NISHITA**  
Assistant Professor  
PhD

Molecular biology

**Chizuko NISHIDA**  
Assistant  
B.A.

Cytogenetics





## Curriculum

### Features of study for degrees

- (A) All the lectures, research work, and thesis work will be conducted in English. Students will be expected to learn Japanese language gradually during their stay.
- (B) Students are expected to write a thesis based on research conducted during the course and submit the thesis to examiners in the Natural History Sciences, Graduate School of Science, Hokkaido University for evaluation. A student will be awarded Master (Science) degree and/or PhD (Science) degree, if he/she has completed the course with satisfactory academic performance. A thesis has to be submitted to the examiners with their approval and an oral defense is also required.
- (C) Basic terms for finishing their thesis are two years for Master course and three years for PhD course.

### Master's Course (two years)

The graduate students in the Master's Course must take more than 30 credits, including 4 credits in common subjects, 12 credits in required subjects, and 14 credits in elective subjects and inter-graduate classes of our university.

### PhD Course (three years)

The graduate students in the PhD Course must take the following 2 required subjects: Seminar in Natural History Sciences 2 and Research in Natural History Sciences 2 (if you received any Master's degree).

## Admission

### Entrance timing

Entrance timing is April or October, depending on the personal conditions.

### Procedure

- Step 1 Find and contact a supervisor  
<http://www.sci.hokudai.ac.jp/dnhs/inhs/>
- Step 2 Apply to the graduate school  
<http://www.sci.hokudai.ac.jp/english/>  
  
See "Application for Graduate School" on the home page.
- Step 3 Commence enrollment procedures

## Student fees

### Enrollment Fee

282,000 JPY (estimated).

### Tuition Fee

267,900 JPY for the first semester.

Total annual fee = 535,800 JPY (estimated).

The above tuition and fees are subject to revision at the time of or during your enrollment. In the event of a revision, the revised amounts are immediately applied.

## Contact us

Hokkaido University  
International Graduate Program in the Natural History Sciences  
Office for International Academic Support, Faculty of Science  
Kita-10 Nishi-8 Kita-ku, Sapporo 060-0810, Japan  
Phone: +81-11-706-2916  
E-mail: [international@mail.sci.hokudai.ac.jp](mailto:international@mail.sci.hokudai.ac.jp)  
<http://www.sci.hokudai.ac.jp/dnhs/inhs/>