# Faculty of International Resource Sciences

## AKITA UNIVERSITY


FEED YOUR CURIOSITY FOR THE EARTH.
GO OUT AND EXPLORE THE WORLD.

# CONTENTS



### *Akita Kanto Festival*

A festival held from August 3rd to 6th every year in Akita City. The largest of the Kanto poles weigh approximately 50 kilograms, and men balance them on their hands, lower backs, and foreheads, pitting their skills against one another in competition. The university also has a team that participates.

### *Namahage Sedo Festival*

This festival is held on the second Friday, Saturday, and Sunday in February every year. It is fascinating to watch the brave and powerful Namahage.

### *Kamakura igloos*

Caves made from snow are called Kamakura. An altar is built within the Kamakura enshrining the god of water as an event of the Lunar New Year.

### *Lake Tazawa*

Japan's deepest lake is located in Semboku City. One can enjoy its views as they change with the four seasons as well as swimming, canoeing, and rafting.

### *Onsen*

Akita has many onsen (hot springs). Among them are the world famous Tamagawa Onsen and Nyuto Onsen.

### *Kiritanpo Hotpot*

Akita's representative local cuisine. It is a hotpot dish consisting of rice that has been pounded and grilled, chicken, vegetables, mushrooms, and other ingredients.

# Message from the Dean

## From Curiosity about the Earth's Dynamics to a Global Career

With its small reserves of underground resources, Japan heavily depends on imports to supply natural resources. Besides, because of the surge in resource consumption among emerging countries in recent years, the competition for energy resources is becoming increasing intense worldwide. Therefore, we need to foster resource professionals with advanced knowledge and skills to ensure a stable supply of natural resources.

The Faculty of International Resource Sciences was established in 1914 with the purpose of training engineers to work at the forefront of business and research sectors of resource development. Our curriculum is designed exclusively for this aim. We offer specialized courses all taught in English, the Resource Sciences Fieldwork Abroad Program and daily communication opportunities with students from across the globe, equipping students with English language proficiency and global awareness. As a result, many of our graduates have been recruited by leading resource-related companies inside and outside Japan.

Over the past two years of the COVID-19 pandemic, we have continued to conduct classes, experiments and practical training, doing all we can to make it safe. While students have been unable to visit overseas miming sites, we have provided alternative learning arrangements using tools such as virtual reality. Natural resources are essential as ever, even in today's digital society; thus, looking ahead to the post-pandemic era, we are committed to nurturing talents who can be presently effective in the resource industry.

We look forward to welcoming students who are eager to contribute to the future as resource specialists to our campus.

**FUJII Hikari**
**Dean of Faculty of International Resource Sciences**

Graduated from the University of Tokyo with a Bachelor of Engineering in 1987 and completed his graduate studies at Stanford University in 1993. He has working experience as a petroleum engineer in offshore oilfields in Saudi Arabia and has been in his current position, Dean of Faculty of International Resource Sciences and Graduate School of International Resource Sciences, since 2019.

# Five Key Features

## 01 Leading team of resource science experts

Building on advanced expertise and an extensive network of domestic and international contacts, Akita University is an institution that provides students with a comprehensive, structured curriculum in resource sciences, covering everything from the mechanisms of resource generation through to exploration, development, and production.

## 02 Interdisciplinary approach to resource science education

The Faculty of International Resource Sciences consists of three departments that together range across social sciences/humanities and earth sciences/engineering fields. These fields are closely interconnected in an interdisciplinary curriculum that encourages study beyond any single specialization. In this way we cultivate, for example, experts in resource geoscience who are well-versed in mineral economics, and resource policy specialists who possess an understanding of geology and engineering.

## 03 Specialized education in English

The Faculty of International Resource Sciences offers a cosmopolitan academic environment in which English is used on a daily basis for interaction with faculty and students from many countries, and for the presentation of research findings in international forums. First and second year students improve their fundamental English proficiency through a special program in Intensive English for Academic Purposes (I-EAP), before beginning to take specialized courses taught entirely in English from the second year.

## 04 Compulsory resource science fieldwork overseas

With the aim of fostering the practical ability to address a range of challenges encountered at the front lines of resource development, we require all students to complete Resource Sciences Fieldwork Abroad, a four-week practical program. In combination with Creative Practice of International Resource Science taken before departing and after returning to Akita, this program prepares students for an independent graduation research project that they undertake in the final year.

## 05 Cutting-edge research in resource sciences

The Faculty of International Resource Sciences boasts top-of-the-line research facilities and equipment, which are freely available for the use of undergraduate students under the supervision of their instructors. Our faculty members pursue ground-breaking research with international partners. Students benefit from access to these new research insights as they are acquired.

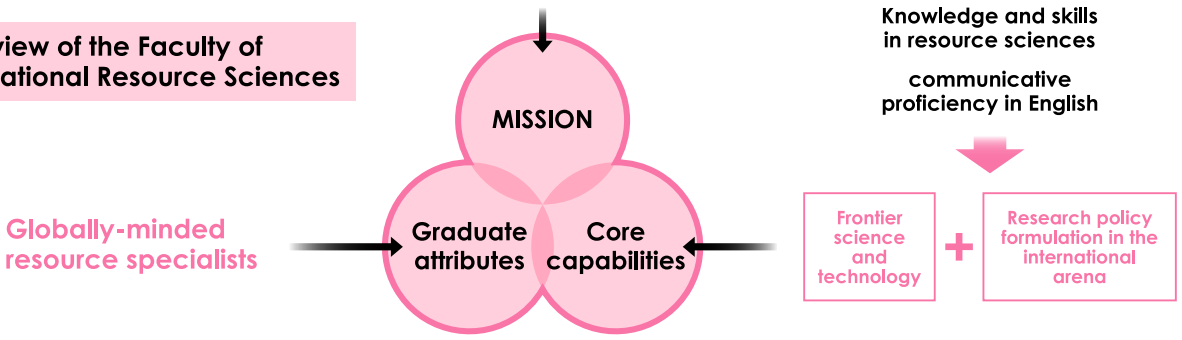
# Field of Study

World-class education for global leaders
in the field of resource science is provided

Goals are:
To produce globally-minded individuals with a systematic knowledge of resources,
from those resources' generation through to their exploration and development

To cultivate employment-ready resource specialists to take important roles
in world-wide resource strategy in all sections of global corporations and international organizations

**Overview of the Faculty of International Resource Sciences**



# Department of Resource Policy and Management

In the Resource Policy and Management Course, students acquire deep insights into law, politics, economics, and international cooperation as they relate to natural resources. These essential insights are further refined by incorporating contextual information, like culture, history, geography, and religion when considering resource locations.

The course consists of a unique curriculum, not only in Japan but worldwide, designed to train the future professionals that will solve energy and mineral-related resource problems and environmental issues from angles of the social sciences and the humanities. After establishing a solid foundational knowledgebase in resources in both Japanese and English, students build upon their understanding using perspectives developed in the interdisciplinary sciences, all taught in English, to work internationally as resource-focused and environment-oriented professionals. The curriculum includes the Resource Sciences Fieldwork Abroad program, a three to four week program, in which students gain hands-on experience in the best practices in resource exploration, development, and management outside Japan. A truly international department, in the last eight years, this course has accepted international students from Vietnam, Malaysia, Mongolia, and China, and has sent Japanese students to pursue their independent academic interests in Taiwan, the Philippines, Malaysia, Indonesia, Iran, Germany, Poland, Finland, New Zealand, Kenya, Botswana, and USA.

By studying natural resources, including materials, water, and land, through integrated interdisciplinary points of view, students will be able to better understand complex world affairs surrounding resource policy and management and gain the skills necessary to handle global issues with corporate responsibility.

**NAWATA Hiroshi**
(Chair, Dept. of Resource Policy and Management)

## Course work explores

### Political Science, International Relations and Public Policy

Study the factors of resource conflict and the ideal way of stable resource distribution and explore sustainable resource governance.

### Sustainable Resource Management and Area Studies

Sustainable Resource Management is studied to support community development and to ensure the long-term material basis of societies in a way that human well-being will increase at the same time as rates of resource use and environmental degradation slow down.

### International Cooperation and Development Studies

The impact of resources on the relationships between countries that provide development assistance and the countries that receive assistance, as well as the ways in which local governments and autonomous authorities function are studied.

### Mineral, Energy and Environment Studies

Sustainable resource supply and demand are studied through economic evaluation and analysis related to energy and mineral resources development and global environmental problems.

### Law and Business Management

Legal regulations such as international law and mining laws, as well as joint venture agreement and human rights in investment laws are studied to understand how they relate to resource development and business management.

### Intercultural Communication and Cultural Anthropology

Intercultural understanding and global communication are studied in accordance with their importance in international negotiations and multi-stakeholder engagement in resource development and management.

### Highlights

The recently published book *Resource Development and Environmental Considerations in the Modern Middle East: The Future of National Strategy in the Age of SDGs* (edited by NAWATA Hiroshi, 2021) presents a multifaceted vision of the future of resources, economy and environment of the Middle East from an interdisciplinary perspective, based on the SDGs.

# Department of Earth Resource Science

Earth science is the study of various Earth activities such as fossil and mineral formation, volcanic eruptions, seismic activity, tsunamis, tectonic movements, oceanic environmental changes, climate change and the geomagnetic field. These geologic activities are closely linked to important energy resources as well as metal and non-metal resources. The Department of Earth Resource Science provides a detailed understanding of such Earth activities and covers how resources are formed, their distribution and exploration methods. Students start studying a wide range of subjects including humanities and engineering fields soon after enrollment, and develop practical English language skills through the Intensive-English for Academic Purposes program. From the second year onwards, specialized subjects such as earth science are taught in English, while in the third year, students will gain valuable skills through practical training including geological site investigations and the Resource Sciences Fieldwork Abroad Program. Our solid curriculum will help students who have low confidence in their English language skills or knowledge of earth sciences and resources to grow as world-class professionals in those fields by the time they graduate. Many of our graduates are working on the global stage, applying the knowledge and skills they gained during their studies. Why don't you join our department and aim to become a world-class earth resource science specialist?

**OHBA Tsukasa**
(Chair, Dept. of Earth Resource Science)

## Course work explores

### Stratigraphy and Paleontology

Using geological surveys and studies of microfossils and sedimentary facies, we recreate the ancient marine environmental changes from past to present, exploring the "where" and "why" oil resources and metal resources exist from the changes in organic matter production quantity and storage systems.

### Economic Geology

We are interested in the natural processes that have concentrated metals to form mineral deposits throughout the Earth's history, from deep time to present. We study the formation of ores using field work and mine visits in Japan and overseas, microscopy observations and chemical analyses of rocks and minerals.

### Petrology

We study the origins and formative processes of various kinds of rocks based on field observation, microscopic works, and chemical analyses. The results of the petrologic studies are utilized for understanding the origins of mineral resources, as well as interpretation of the formation processes of the Earth crust and contributions to geothermal resource exploration and volcanic hazard mitigation.

### Geophysical Exploration Studies

Using electrics, magnetics, gravity, seismic waves, electromagnetic waves and other geophysical phenomena studies are conducted to reveal the structures beneath the surface of the earth.

### Petroleum Geology

Surface and subsurface studies, of source rock, reservoir rock, and trap mechanisms of petroleum from the standpoint of sedimentology, geochemistry, or paleoenvironment, are widely conducted based on 3D seismic, well-log data, and borehole samples provided from industries with the use of well equipped analyzing facilities.

### Mineral Resources and Tectonics

This field studies formation and concentration processes of useful minerals, evaluates new mineral resource potential, and proposes exploration and exploitation strategies of ore deposits, based on geology, mineralogy petrology and geochemistry. Tectonic and sedimentary processes related to mineralization are also studied.

### Environmental Geoinformatics

Our methods integrate multiple techniques from a number of fields, such as stratigraphy, sedimentology, paleoceanography, paleoclimatology, geochronology, etc., to better understand the Earth's history. We combine field work and laboratory analyses with data science, which is strongly emphasized in order to clarify and understand the uncertainty in our measurements. This informs interpretation of our results and improves our confidence in conclusions.

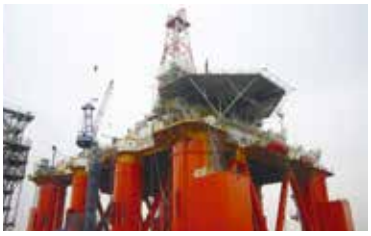
### Highlights

Check out our website for the latest information or details of the course and research.

*http://www.gipc.akita-u.ac.jp/~earth-resource/index_eng.html*

# Department of Earth Resource Engineering and Environmental Science

To realize sustainable living for all people on planet earth, the Sustainable Development Goals (SDGs) were set at the 2015 UN Summit. They are 17 detailed goals with 169 targets, one of which is “Affordable and clean energy”. Japan's “Mining Law” also states that developing mineral resources is to contribute to public welfare, never causing harm to health and hygiene. By SDGs, we reaffirm that resource and energy development must be “affordable and clean”. Based on this noble philosophy, we hope that students who study here in the Department of Earth Resource Engineering and Environmental Science will grow as engineers who can fulfill minimally invasive development and production of resources and energy, and distribute them justly around the world.



**IMAI Tadao**
(Chair, Dept. of Earth Resource Engineering and Environmental Science)

## Course work explores

### Resource Environment Substance Cireulation Studies

Studies are conducted regarding the movement and concentration mechanisms of metallic elements and hazardous substances involved in resource development and water resource conservation.

### Rock Engineering

Studies are conducted regarding environmentally sound resource development through rock surveys, stability analysis, and water jet drilling technologies, with a foundation in rock dynamics.

### Mineral and Metallurgical Processing

Studies are conducted regarding the development of isolation and concentration technologies that utilize mineral resources, rare metals, and other resource recycling technologies. Additionally, studies are conducted regarding the efficient recovery of scarce resources from urban mines, and the basic principles of pyro and hydrometallurgy are investigated.

### Energy Resources Engineering

Studies are conducted through experimentation and numerical calculation regarding efficient and environmentally friendly production methods of petroleum and geothermal resources.

### Geosystem Engineering

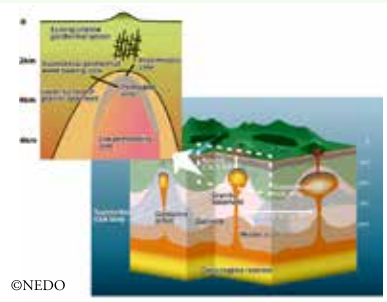
Studies are conducted regarding oil, gas, geothermal, and other resource developments including offshore resources and CCS with focuses on drilling engineering and reservoir simulation.

### Mining Technologies

Studies are conducted to develop a new discipline which takes an interdisciplinary approach such as ICT (Information and Communication Technology), Soft-computing and Robotics into Mining and Disaster Control.

### Highlights

To realize a carbon-neutral society, our Geosystem Engineering Research Team is engaging in the development of next-generation geothermal energy technologies. They are participating in the government's supercritical geothermal project and conducting research toward the planned drilling and production testing of pilot wells starting 2024, and that of exploration wells from 2025.



Conceptual Diagram of Supercritical Geothermal Resources
(https://www.nedo.go.jp/english/activities/activities_ZZJP_100145.html)
©NEDO

Drilling rig

# Curriculum

## Admission

1st year / 2nd year / 3rd year / 4th year

I-EAP (Intensive English for Academic Purposes)

Creative Practice of International Resource Science

### Common Courses

- Introduction to International Relations
- Practice of Resource Science
- Introduction to Resource Geology
- Discussion Seminar

- Introduction to Earth Resource Engineering and Environmental Science
- Introduction to Earth Science
- Introduction to Resource Policy and Management
- Debate Seminar

etc.

### General Education Courses

Freshman Seminar
Thematic Courses
International Language Courses
Sports and Culture Courses

### Basic Education Courses

- I-EAP Certificate
- History of International Relations on Resources
- Cross-cultural Communication
- Resource Development and Human Rights
- Micro Economics
- Macro Economics
- International Cooperation of Japan
- Linear Algebra
- Calculus
- Fundamentals of Physics
- Physics Laboratory Work
- Fundamentals of Chemistry
- Chemistry Laboratory Work

etc.

## Practice of Resource Science

### Dept. of Resource Policy and Management

**Specialized Courses**

- Studies on Resource Policy
- International Law
- Energy and Environment
- Policy Process
- International Development
- Cultural Anthropology
- Negotiations
- Energy Geopolitics
- Studies on Resource Area
- Current Trend on Resource Development
- International Affairs Analysis
- Resource and Peacebuilding
- Mining Law
- Contractual Framework for Resource Development
- Mineral Economics
- Energy Systems and Policy
- Advanced Studies on Resource Area
- Special Lecture on International Cooperation
- Presentation Skills
- Historical Geology
- Material Cycles Studies
- Recycle Process System Engineering

etc.

### Dept. of Earth Resource Science

**Specialized Courses**

- Historical Geology
- Geologic Mapping
- Petroleum Geology
- Laboratory for Paleontology
- Mineralogy
- Economic Geology
- Laboratory for Mineralogy
- Petrology
- Laboratory for Petrology
- Geophysics
- Paleoenvironmental Analysis
- Sedimentology
- Structural Geology
- Laboratory for Petroleum Deposits
- X-ray Crystallography
- Laboratory for Stratigraphy
- Laboratory for Economic Geology
- Remote Sensing Geology
- Laboratory for Petrology, Mineralogy and Economic Geology
- Presentation Skills
- Geophysical Exploration
- International Law
- Strength of Materials
- Rock Mechanics

etc.

### Dept. of Earth Resource Engineering and Environmental Science

**Specialized Courses**

- Strength of Materials
- Fluid Mechanics
- Physical Chemistry
- Analytical Chemistry
- Fundamental Drawing and Design in Engineering
- Petroleum Engineering
- Geochemistry
- Petroleum Engineering
- Powder Technology and Surface Engineering
- Instrumental Analysis
- Mineral Processing
- Rock Mechanics
- Foundation Laboratory Work for Engineering
- Surveying and Practice
- Materials Processing
- Computer Programming
- Geothermal Engineering
- Rock Engineering
- Recycling and Wastewater Treatment
- Refining Process Engineering
- Presentation Skills
- Geophysics
- Economic Geology
- Geophysical Exploration
- Mineral Economics

etc.

## Resource Sciences Fieldwork Abroad

### Dept. of Resource Policy and Management

- Senior Research Proposal

etc.

### Dept. of Earth Resource Science

- Applied Economic Geology
- Applied Mineralogy
- Research Proposal

etc.

### Dept. of Earth Resource Engineering and Environmental Science

- Literature Reading
- Research Proposal

etc.

## Bachelor Thesis

## Graduation

## Creative Practice of International Resource Science

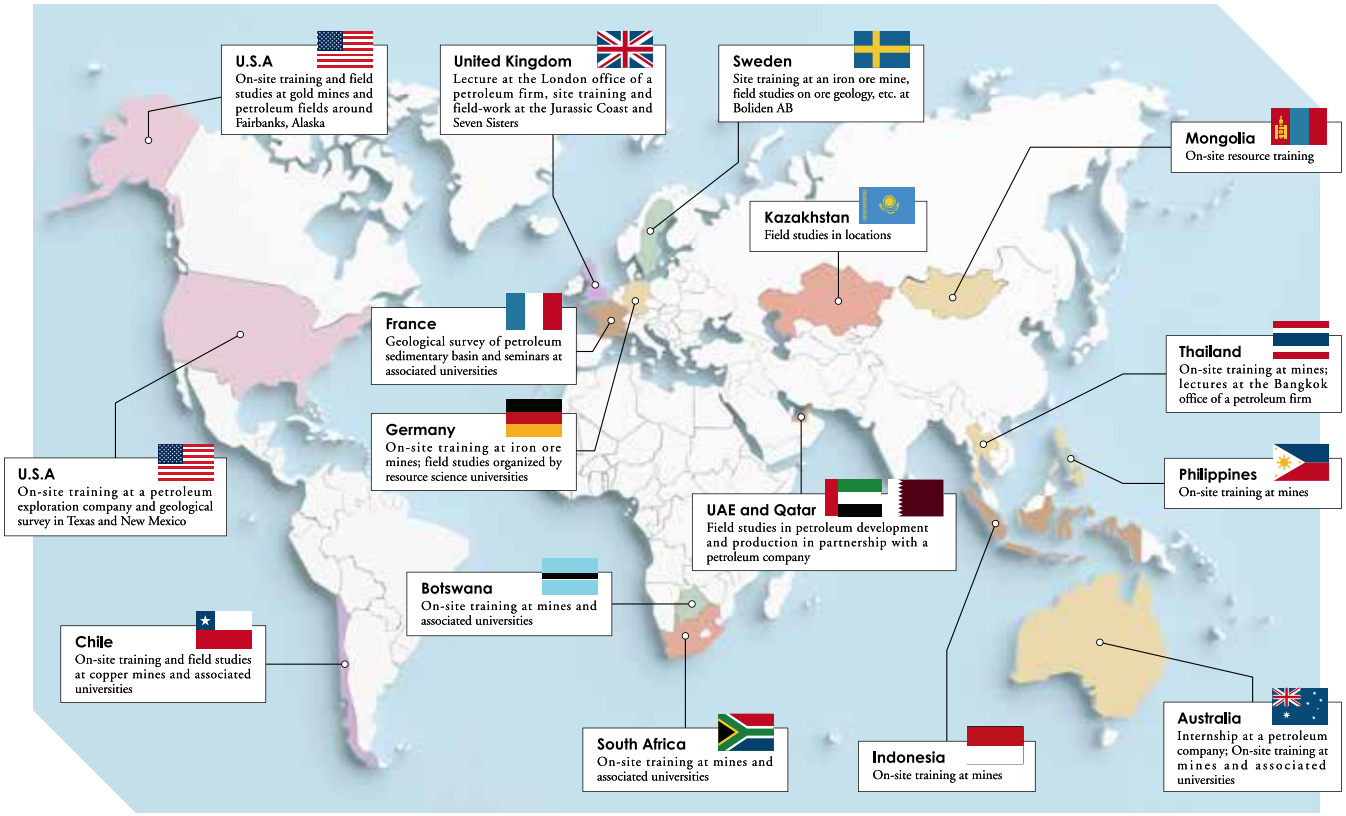
These seminars are designed to ensure that students get the maximum benefit from the compulsory Resource Science Fieldwork Abroad program: a 4-week practical program undertaken at an organization outside Japan, such as a mining/petroleum company, or international organization. Students participate in the seminars both before departure and after completing the program.

**Pre-departure study** ▶ **Fieldwork** ▶ **Post-fieldwork**

- Choosing a fieldwork area
- Approaching a host organization
- Orientations led by faculty members
- Individual pre-departure study
- Report writing
- Reporting and debriefing session

# International Fieldwork

This hands-on training program is a requirement in the third year of the course; students will conduct surveys and study the latest, actual state of resources in a foreign country. Students will utilize the fundamental knowledge of their specialty field to learn about the various resource-related issues facing the world while in a dynamic field offering experiences that cannot be had in Japan.




【Costs required for fieldwork】
Akita University will cover the cost of return travel, visa applications, and overseas travel insurance. Students are responsible for their own costs including accommodation and ground transportation.

# Graduate School of International Resource Sciences

The Graduate School of International Resource Sciences aims to solve global resource issues, pursuing cutting-edge studies and research backed by expertise in the fields of earth resource science and earth resource engineering and environmental science. We will foster global leaders with wide-ranging knowledge of earth science, resource development and environmental conservation.

## Master's Program

With the aim of solving global resource issues, this program trains students to cultivate creative minds and a global perspective, so they can be at the forefront of future development and innovation of resources and energy strategies.

## Doctoral Program

This program will foster professionals with a state-of-the-art research capability, who can adequately apply research results to resource areas and propose new guidelines for resource exploration and development.

## Program/Division Descriptions

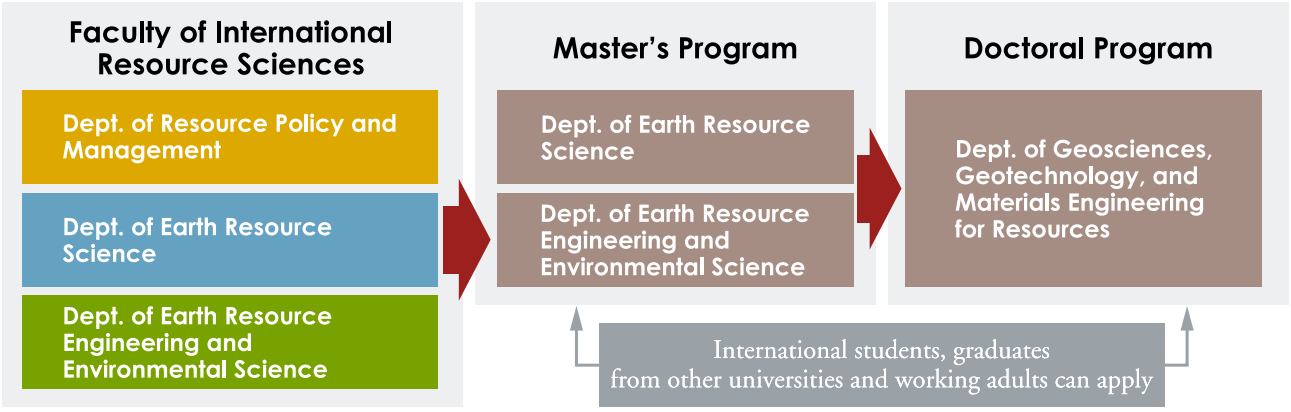
### Master's Program

| Department | Outlines | Objectives |
|---|---|---|
| **Earth Resource Science** (Capacity:17) | This department conducts research with a focus on investigating generation and deposits of minor metals essential to develop new materials, as well as natural resources such as minerals and energy resources. | We will equip students with expertise in resource science and earth science, in order to meet society's needs in resource exploration and development. |
| **Earth Resource Engineering and Environmental Science** (Capacity:23) | This department provides education in recycling technologies and earth and resource system engineering, aiming to fulfill a sustainable society as well as environmentally-friendly resource development. | This program will foster world-class resource engineers with expertise in earth resource and environmental science.<br>Students will be taught how to implement the next-generation resource development with a holistic view.<br>Specialty areas include:<br>• Resource environmental science<br>• Development and production of various natural resources including petroleum, natural gas, minerals and geothermal energy<br>• State-of-the-art technologies and theory of environmental conservation, specifically in the fields of recycling and smelting process and wastewater treatment |

### Doctoral Program

| Department | Outlines | Objectives |
|---|---|---|
| **Department of Geosciences, Geotechnology, and Materials Engineering for Resources** (Capacity:10) | This department conducts resource science research in the areas of:<br>• Resource exploration and development compatible with conditions of resource generation and deposits<br>• Technology to solve environmental problems arising from resource exploitation<br>• Resource economics<br>• Resource recycling technologies | We will equip students with a sophisticated research capability and a high degree of expertise, enabling them to adequately apply research results to resource areas and propose new guidelines for resource exploration and development. |

## Process Flowchart

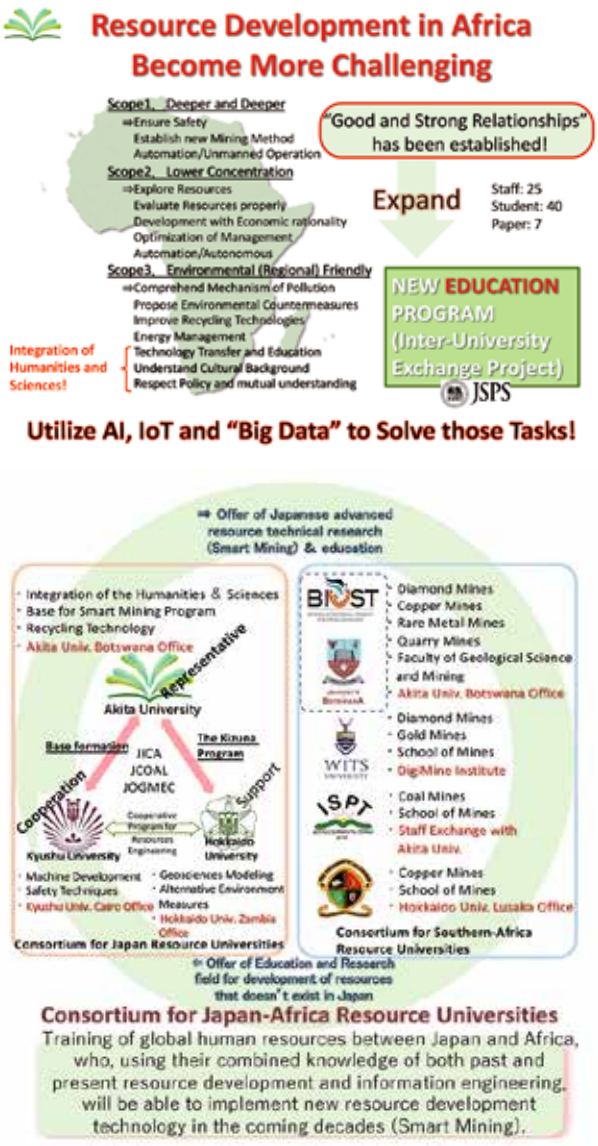


# Project for Education and Research

## MEXT　INTER-UNIVERSITY EXCHANGE PROJECT

"An innovative program for development of core human resources for smart mining to lead sustainable resource development in Southern Africa"
(Project duration : 2020 to 2024)
In collaboration with Kyushu University (Cooperating University) and Hokkaido University (Supporting University), we are implementing a collaborative program for human resource development at the undergraduate and master's levels in Japan and Southern African countries, aiming to develop global human resources who can practice resource development (Smart Mining) by actively incorporating information technology, which is a core technology of Society 5.0. We will practice the program. In consideration of the global spread of the new coronavirus, the program has been designed to make active use of online resources.

Collaborating universities in South Africa: University of the Witwatersrand (Republic of South Africa), The University of Zambia (Republic of Zambia), The Polytechnic Institute of Tete (Republic of Mozambique), Botswana International University of Sciences and Technology (Republic of Botswana), University of Botswana (Republic of Botswana)




## MEXT　University Fellowship Founding Project

Project Title: "Cultivation of Advanced Resource Sciences-related Doctoral Students with the Integration of the Humanities and Sciences to Contribute to Achieving SDGs"　(Project period FY2020 to FY2027)
The objective of this project is to secure excellent candidates who apply to study for the doctoral program in contributing to science, technology, and innovation in the future, and implement improvements in their treatment and support for students' career paths in the doctoral program.

1. Advancement of research and assistance to career paths:

1) Increasing interaction between Doctoral students by utilizing a lounge for the exchange of information and compiling a database of research activities.
2) Holding research workshops for improving their ability to research
3) Implementing internships through cooperative research with enterprises

2. Securing career paths:

1) Mentorship and implementation of securing career paths through a specially appointed professor
2) Matching the eligible students' research activities to needs of enterprises by compiling a database

3. Assistance grant funding and research expenses

Payment of 150,000 yen per month for assistance grant funding (worth ones' living costs) and 300,000 yen per year for research expenses

# Project for Education and Research

## JSPS　Core to Core Program

“Establishment of Research and Education Hub to Develop Young Researchers on Mining Informatics for Sustainable Resource Development in Middle Asian Countries”  (Project duration: 2021 to 2023)

JSPS adopted the University’s project, “Establishment of Research and Education Hub to Develop Young Researchers on Mining Informatics for Sustainable Resource Development in Middle Asian Countries” as a Core to Core Program (B. Asia-Africa Science Platforms). The purpose of this project is to cultivate young resource information researchers through building educational and research foundations and promoting mutual exchanges with representative universities in five Central Asian countries that have high underground resource (especially mineral resources) potential as resource frontier areas, but lack workforce with advanced technological and planning capabilities for resource development. Specifically, Japan and overseas hubs will conduct joint research and hold seminars, symposiums, researcher exchanges and other activities. Japan-based institution: Akita University. Partner institutions in Japan: Hokkaido University, Kyushu University, and University of Tsukuba. Overseas institutions and partner organizations: Mongolian University of Science and Technology (Mongolia), Nazarbayev University (Kazakhstan), Navoi State Mining Institute, Uzbek-Japan Innovation Center of Youth (UJICY) (Republic of Uzbekistan), National Academy of Sciences of Tajikistan (including Mining-metallurgical Institute of Tajikistan) (Republic of Tajikistan) and Kyrgyz State University of Geology, Mining and Natural Resources Development, named after Academician U. Asanaliev (Kyrgyz Republic).

## JICA／JST Science and Technology Research Partnership for Sustainable Development

"Construction of a Decarbonized Heat Energy Supply System using Groundwater Resources"

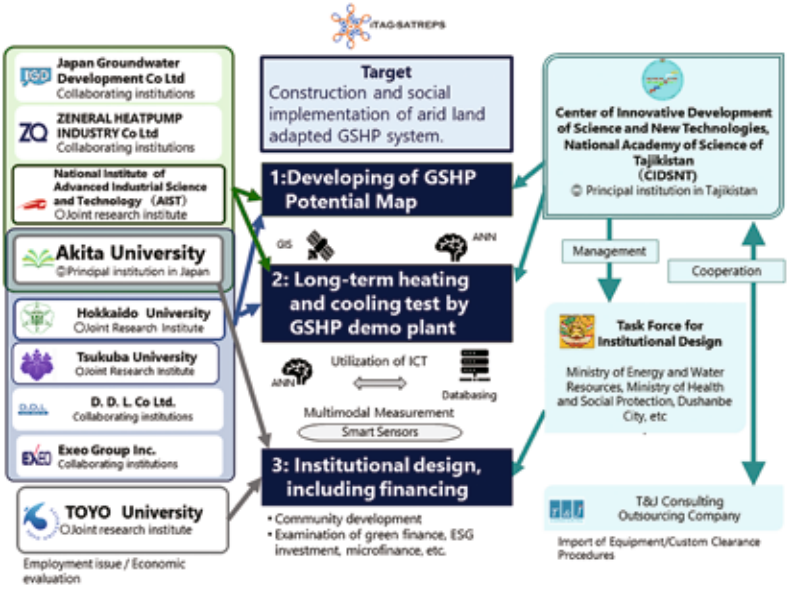
(Project duration: 2021 to 2026; 2021 was a preparation year)

This research aims to contribute to regional stability and take countermeasures against global warming through improving energy conditions and creating jobs by building and popularizing the “Advanced Arid Region Geothermal Heat Pump System (Tajikistan Model)” integrating ICT technology, including AI, in Tajikistan, a country that suffers from temperature extremes and does not have significant oil and natural gas resources. Specifically, the project focuses on the following three research topics: (1) Development of groundwater flow and heat transport model based on field surveys, GIS data and AI for maps of potential use of geothermal and groundwater heat energy.

(2) Implementation of long-term heating and cooling tests using a demonstration plant based on multi-modal measurement and AI.

(3) Planning a system for dissemination of the “Tajikistan model.” The plan is to develop an optimal geothermal heating and cooling system based on (1) and (2) using AI, which will be reflected in the system planning for (3). In addition, the project involves working with stakeholders to develop and introduce a system for the industrialization of geothermal systems and the creation of jobs as a result, including the provision of financing.

iTAG-SATREPS stands for “Innovative Tajik-Akita GSHP system”  SATREPS project.



# Messages from an International Student and Alumni

**Chow Man Xeunn**
From Malaysia

## Department of Resource Policy and Management

I decided to major in Resource Policy and Management at Akita University because I was interested about resources from a business aspect and also because a majority of the classes are conducted in English starting from Year three. Having lecturers that could speak fluent English and class materials that are prepared in English really helped my understanding towards the class and I believe it is a significant plus to all foreign students that are worried about their Japanese proficiency.
Coming from a different country and living environment, I fully understand the concerns about having to adapt to a completely new environment. But thankfully, there are many other foreign students that joyfully help you adjust to your new student life! The university also hosts various events throughout the year to allow us to interact with both foreign and Japanese students!
Going back to the education perspective, the course covers various topics such as economics, international relations and so on; topics that are extremely relevant to resources. I believe this is one of the biggest advantages for students of this major as it educates us on topics outside of our major. Oh, and the students of Akita University's International Resource Department are also highly sought after from major corporations in Japan!
I hope my words have piqued your interest and made Akita University your first choice to study abroad!

**Jonathan Macuroy**
From the Philippines

## Department of Earth Resource Science

I decided to pursue my PhD in Akita University because it has one of the best programs for earth resource science in the country. As a former mining college, the university has an extensive collection of studies and samples from various geological sites all over Japan. Naturally, I was a little nervous about the idea of living in a foreign country with little to no contacts and with the onset of the global pandemic months before I was scheduled to arrive, I was worried that a lot of things may not go as planned. However, I was pleasantly surprised to find out the warm welcome of the Japanese people, especially those from Akita Prefecture. Additionally, the logistical and overall support I got from my professors, colleagues and lab-mates are overwhelming. And of course, the cutting-edge technologies available at the university's laboratories enable me to conduct my research with relative ease. Although I am only required to take a few courses for my PhD program, I was able to sit-in and observe other undergraduate and Master classes which equipped me with some fundamental knowledge I needed for my program. Lastly, I am amazed by the amount of opportunities that the university provides for their students. Such opportunities range from teaching and/or research assistantships, internships to Japan's top mining companies, research budget for advanced laboratory analyses, and other financial and/or logistical support. Akita University is indeed a good choice for those who wish to pursue a career in earth resource science.

**Adib Nurdini** (left)
From Malaysia

## Department of Earth Resource Engineering and Environmental Science

I have always been interested in learning deeper about earth resources, so I decided to major in Earth Resource Engineering and Environmental Science. Through this course, I not only learned deeper about the subjects in classes by theory, but also practically by conducting various types of experiments and research in the laboratory, which helped me understand my major from a variety of perspectives. One of the fascinating aspects of this course and faculty is the incorporation of both Japanese and English into the learning process, increasing the knowledge absorption for students and providing more exposure to the course from a global perspective.
As an international student, I had some rough patches throughout the university years, particularly in terms of study and social life, as adapting to a whole new culture is indeed challenging; however, unconditional and consistent support from professors, classmates, and department staff undoubtedly helped me throughout my studies.
Years spent at Akita University not only focused on the study, but it also taught me to value interpersonal relationships and appreciate nature as Akita has beautiful scenery for all seasons (my favorite is winter!). Aside from the university curriculum, engaging in extracurricular activities such as sports and academic clubs, internships, and becoming an exchange student are just a few of the opportunities available to be grabbed while studying at Akita University.

# Partner Universities

The Faculty of International Resource Sciences has agreements with many universities inside and outside Japan, with an emphasis on the promotion of academic exchange.
While our partner universities have strongly supported our outgoing students for the Resource Sciences Fieldwork Abroad Program, the exchange of researchers is actively carried out to promote research with each other.

## Overseas Partner Universities

### Inter-University Agreements*

- Liaoning Technical University (China)
- Northeastern University (China)
- Mongolian University of Science and Technology (Mongolia)
- Botswana International University of Science and Technology (Botswana)
- University of Cagliari (Italy)
- Kenyatta University (Kenya)
- Mongolian National University of Education (Mongolia)
- University of Haifa (Israel)
- University of Botswana (Botswana)
- East Kazakhstan State Technical University (Kazakhstan)
- Technology, Institut Teknologi Bandung (Indonesia)
- University of the Philippines Diliman (Philippines)
- Chulalongkorn University (Thailand)
- Luleå University of Technology (Sweden)
- Memorial University of Newfoundland (Canada)
- Curtin University(Australia)
- University of Santiago (Chile)
- Eduardo Mondlane University (Mozambique)
- University of Ferrara (Italy)
- University of the Witwatersrand (South Africa)
- University of Yangon (Myanmar)
- Trisakti University (Indonesia)
- Gadjah Mada University (Indonesia)
- New Mongol Academy (Mongolia)
- Papua New Guinea University of Technology (Papua New Guinea)
- Universitas Pertamina (Indonesia)
- Cracow University of Economics (Poland)
- United Arab Emirates University (UAE)
- Padjadjaran University (Indonesia)
- University of Zambia (Zambia)
- Kyrgyz State University of Geology, Mining and Natural Resources Development named after Academician U. Asanaliev (Kirghiz)
- Mining-metallurgical Institute of Tajikistan (Tajikistan)
- Kajaani University of Applied Sciences (Finland)
- Nazarbayav University(Kazakhstan)

### Inter-Department Agreements

- Faculty of Engineering, Hasanuddin University (Indonesia)
- Red Sea University Faculty of Earth Sciences and Faculty of Marine Sciences (Sudan)
- Technical Faculty in Bor, University of Belgrade (Serbia)
- The AGH University of Science and Technology (Poland)
- Faculty of Geological Engineering, Universitas Padjadjaran (Indonesia)
- Faculty of Science, Kasetsart University (Thailand)
- Institut national de la recherche scientifique (Canada)
- National Institute of Chemistry, Technology and Metallurgy, University of Belgrade (Serbia)
- Faculty of Mineral Technology Universitas Pembangunan Nasional "Vetaran" Yogyakarta (Indonesia)
- Uzbek-Japan Innovation center of Youth(UJICY) (Uzbekistan)
- Centre of Innovative Development of Science and New Technologies of the National Academy of Science of Tajikistan (Tajikistan)
- University of Geological Sciences, Uzbekistan(UGS) ・Uzbek-Japan Innovation center of Youth(UJICCY) (Uzbekistan) (Tripartite)
- Navoi State Mining Institute (Uzbekistan)

Joint Laboratory of Akita University and Padjadjaran University
Established in Padjadjaran University in 2019.

Akita University Botswana Office
Established in Botswana International University of Science and Technology in 2017.

### Akita University Overseas Hubs*

| Country | Base name |
|---|---|
| Mongolia | Akita University Mongolia Office |
| Thailand | Joint Laboratory of Akita University and Chulalongkorn University |
| Indonesia | Joint Laboratory of Akita University, Faculty of International Resource Sciences and Trisakti University |
| | Joint Laboratory of Akita University and Padjadjaran University |
| Botswana | Akita University Botswana Office |
| UAE | Joint Laboratory of Akita University and UAE University |

∗Lists of universities and hubs that have a connection with Faculty of International Resource Sciences.

# Q&A

## Q. What kind of place is Akita?

A. Akita is located on the Sea of Japan side of northern Honshu. It is home to a World Heritage site, Shirakami-Sanchi and Lake Tazawa, the deepest lake in Japan, and is well-endowed with abundant nature symbolized by the Oga Peninsula and Mount Hachimantai. There are four distinct seasons with cherry blossoms in spring, the Kanto Festival—one of the three major Tohoku festivals in summer, beautiful autumn foliage, as well as winter sports and festivals that can only be enjoyed in Akita's winter.
Akita University's campus is located in Akita City, the capital of Akita Prefecture, where public transportation is convenient and the cost of living is much lower than in the Tokyo area, making it the perfect environment for international students.

## Q. How many international students attend the school?

A. There are about 200 international students enrolled at Akita University. In the Faculty of International Resource Sciences, there are international students and non-degree seeking researchers from Mongolia, Indonesia, Malaysia, Vietnam, China, the Philippines, Botswana and more.

## Q. What level of Japanese is required?

A. In our faculty, specialized subjects from the second year are entirely taught in English, whereas general and fundamental education subjects and specialized subjects for first year students are all conducted in Japanese. Therefore, students will need adequate Japanese language skills.
At Akita University, classes are offered to international students to equip them with Japanese language proficiency and a better understanding of Japanese society and culture.

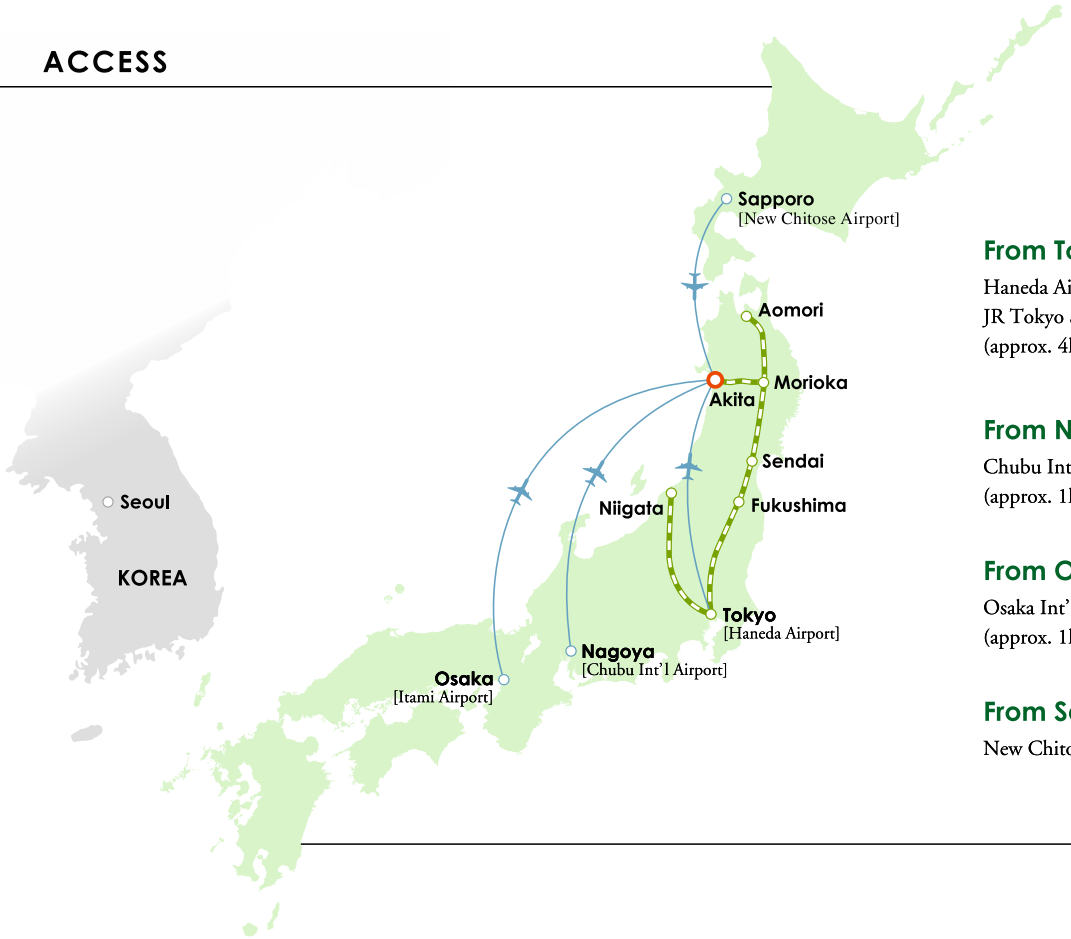
## Q. Are there any scholarships or financial aid available to international students?

A. There are several forms of financial aid available to international students, including the Japanese government's MEXT scholarship program as well as scholarships from foreign governments or private organizations. At the university level, we provide tuition fee exemption; students whose academic excellence is recognized but have difficulty making payments for financial reasons are eligible for tuition fee reduction.

## Q. Can international students have part-time jobs?

A. Only international students in Japan on a "student" visa who have been granted permission to engage in activities other than that permitted under the status of residence previously granted from the Immigration Bureau may engage in part-time work.

## ACCESS




### From Tokyo

Haneda Airport - Akita Airport (approx. 1hr)
JR Tokyo Station - Akita Station
(approx. 4hrs by Komachi, Akita Shinkansen)

### From Nagoya

Chubu Int'l Airport - Akita Airport
(approx. 1hr 25mins)

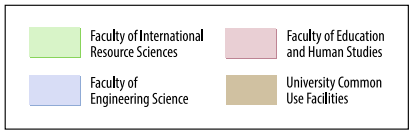
### From Osaka

Osaka Int'l Airport (Itami) - Akita Airport
(approx. 1hr 30mins)

### From Sapporo

New Chitose Airport - Akita Airport (approx. 1hr)

## TEGATA CAMPUS MAP





# Akita University


**Faculty of International Resource Sciences**

1-1 Tegata Gakuen-machi, Akita City, Akita
010-8502, JAPAN
TEL. +81-18-889-2214
***http://www.akita-u.ac.jp/shigen/eng/index.html***