

# Japan Geoscience Union Meeting 2011

(May 22-27 2011 at Makuhari, Chiba, Japan)

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GSU023-01

Room:301A

Time:May 22 11:45-12:00

## Seminar for Culture:teaching volcanology in liberal arts education in University

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<sup>1</sup>Akita University, College of Education

I report on the practice example in the Seminar for Culture established in Akita University. The Seminar for Culture is a colloquium for the first grade students. This seminar is one of a series of education seminar subjects

Keywords: Seminar for Culture, Volcanology, Liberal arts, education in University

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GSU023-02

Room:301A

Time:May 22 12:00-12:15

## Undergraduate education for Earth and Environmental Sciences in Faculty of Science, Kumamoto University

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<sup>1</sup>Faculty of Science, Kumamoto University

Undergraduate curriculum in Faculty of Science, Kumamoto University starts common basic subjects for mathematics and sciences for freshman. Then, Students select their course from mathematics, physics, chemistry, earth sciences and biology when they are promoted to the junior class. We have to provide attractive curriculum for freshman and sophomore class to be selected by students. We have also to keep educational achievement for junior and senior class.

We use English textbook used in American college for Earth science lecture in freshman class. Lectures for sophomore class are occasionally expanded since 2004. Curriculum in Earth and environmental sciences for junior and senior class consist of models for Earth Material Sciences, Earth and Environmental History and Earth and Planetary Physics. Students promote to Earth and Environmental Sciences Course increase steadily.

Keywords: Faculty of Science, Kumamoto University, Earth and Env. Sci., Undergraduate education

GSU023-03

Room:301A

Time:May 22 12:15-12:30

## Teaching Introductory Seismology using Hi-net waveforms

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<sup>1</sup>GSHE, Kyoto Univ., <sup>2</sup>IGS, Kyoto Univ., <sup>3</sup>DPRI, Kyoto Univ.

Hi-net has been operated by NIED for more than a decade and is one of the premier seismographic networks in the world. Major characteristics of Hi-net is the national high-frequency seismographic network major characteristic of which include that sensors are uniform in the network, that stations are distributed densely and uniformly in Japan, and that waveform data are available to public in quasi real-time. Data from Hi-net has been used to elucidate seismicity in Japan as well as to study earthquake sources and interior of the Earth. Hi-net also is a major contributor in JMA catalog and early earthquake warning system in Japan. In addition to scientific researches, waveform of Hi-net has been utilized in schools, and several proposals have been reported previously in JPGU meetings.

In this presentation we discuss our ongoing efforts to utilize Hi-net waveforms in introductory college lab courses in Earth science. Specifically, we discuss our material efforts and successes in teaching seismology in the courses in Kyoto University for science-oriented undergraduate students. Earth science is not a popular subject in high schools, and such introductory courses are designed for students with little previous experiences in the subject. Seismic waveform analysis has been one of the popular lab projects, and we have integrated use of Hi-net waveforms into wealth of lab materials we inherit to teach introductory seismology. Our ongoing effort is trying to take advantage of that waveform database of Hi-net is expanding every day,

We discuss why and what we are doing, and what could be ahead of us in teaching seismology with Hi-net.

Keywords: College Education, Earth Science Education, Seismology, Hi-net

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GSU023-04

Room:301A

Time:May 22 12:30-12:45

## How to give educational service in geology course at Korean universities

Kosuke Egawa<sup>1\*</sup>

<sup>1</sup>MHRC/AIST

South Korea is enjoying considerable success on the world stage in recent years. It is thought that the impact of college education on its success is an important factor. I have seen how to give educational service in Korean geoscience course during my seven-years graduate life at Korean university. In this meeting, I report recent educational trends in geoscience study based on some examples from Seoul and Kangwon National universities.

Keywords: South Korea, geoscience education, Seoul National University, Kangwon National University

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GSU023-P01

Room:Convention Hall

Time:May 22 14:00-16:30

## Study on the interest and teaching effect about earth science

Haruka Matsuoka<sup>1\*</sup>, Mikiya Yamashita<sup>2</sup>, Takeshi Uemura<sup>3</sup>

<sup>1</sup>Tsukuba Gakuin University, <sup>2</sup>JAMSTEC, <sup>3</sup>Kaijo Junior and Senior High school

To reveal the understanding of earth science, the questionnaire survey is carried out for university student to make a specialty of information science in Tsukuba Gakuin University during the first term of 2010. According to the result of this survey, it is clear that most member of our class has strong interests for natural science and environment problem. Although they can understand that the usual living condition is affected for earth event such as global warming, they have no idea for the way to change that situation for future environment. This study is contributed the improvement of general society through the understanding of earth science in university students.

Keywords: Earth Science Education, Natural Science

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GSU023-P02

Room:Convention Hall

Time:May 22 14:00-16:30

## Space Weather Forecasting Contest held in 2010-2011

Y. Sato<sup>1</sup>, T. Deguchi<sup>1</sup>, Daizaburo Wada<sup>1\*</sup>, Hiroyuki Ishikawa<sup>1</sup>, Wataru Miyake<sup>1</sup>

<sup>1</sup>Tokai Univ.

Space Weather Forecasting Contest has been held by George Mason University in USA since 2009. High school students, undergraduates, alumni, graduate students, and faculty/staff at any university or research institute may participate in this competition. Our team of Tokai University has participated in the contest of this season as the first team from Japan. The contest will run for 20 weeks, and will be ended on April 9, 2011. Forecasts are to be made Monday through Friday between 04:00 and 23:59 UT for Tuesday through Saturday between 00:00 and 23:59UT. Forecasters are required to submit their forecast of near-earth solar wind velocity  $|V_x|$ , Kp, and average  $> 2$  MeV electron flux at geosynchronous orbit.  $|V_x|$  and Kp forecasts should be for the maximum values for the forecast period. Scoring is based on comparing submitted forecasts with maximum and average values taken from measurements. We report results of our participation, encouraging more Japanese participants for the next season.

Keywords: space weather, forecasting contest

GSU023-P03

Room:Convention Hall

Time:May 22 14:00-16:30

## Study of the volcanic rocks from the Pohnpei Island, Western Pacific

Mayuko Itoh<sup>1</sup>, Izumi Moriyama<sup>1</sup>, Kohei Takayoshi<sup>1</sup>, Keiko Tachibanada<sup>1\*</sup>, Naomi Nakakura<sup>1</sup>, Hideo NAKAYA<sup>1</sup>, Hafiz Ur Rehman<sup>1</sup>

<sup>1</sup>Kagoshima University

The island of Pohnpei is the greatest island among the Caroline island group in the Western Pacific with an area of about 338 square km. It is located on the 6 degrees 54 minutes N and 158 degrees 14 minutes E, about 800 km north from the equator. This volcanic island is a part of an eroded portion of massive volcanic edifice of a shield volcano with fringing outer coral reefs and the lagoon. The average height of the island ranges from 700 to 800 m. The volcanic rocks of the island consist of alkali olivine basalt, basanite, and basanitoid. The present structure of the island represents several geographical features that the island had suffered through the history such as huge volcanism, diastrophism, and erosion. We carried out petrographical and mineralogical work on the volcanic rock samples collected from the island of Pohnpei. From preliminary petrographic study the volcanic rocks can be classified into three major rock types such as alkali olivine basalt, basanite, and basanitoid. Most of the volcanic rocks are aphanitic to phaneritic in texture and are composed of olivine, clinopyroxene, micro plagioclase, titanomagnetite and minor nepheline in a fine ground mass of olivine, plagioclase, alkali feldspar, and nepheline. Phenocrysts of olivine are common surrounded by a fine-grained ground mass. One sample of basanite contained harzburgites xenolith with large crystals of olivine and pyroxene, indicating mantle cumulate origin. The age of the volcanic activity of those rocks is presumed to be different from the difference between the chemical compositions of studied rocks samples. By carrying out detailed petrography and textural features of the volcanic rocks, we can understand the geochemical evolution and structural setup of the Pohnpei Island.

Keywords: Pohnpei Island, Western Pacific, Alkali basalt, Volcanic activity, Geology, Petrology

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GSU023-P04

Room:Convention Hall

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## Geophysics Experiment in Tohoku University

Atsushi Kumamoto<sup>1\*</sup>, Mare Yamamoto<sup>1</sup>, Naoki Uchida<sup>1</sup>, Futoki Sakaida<sup>1</sup>, Shusaku Sugimoto<sup>1</sup>, Isao Murata<sup>1</sup>, Fuminori Tsuchiya<sup>1</sup>

<sup>1</sup>Tohoku Univ.

Undergraduate students in geophysical course in Tohoku University take a class of geophysics experiment for one year. The class is conducted through three stages. In the first stage, the students measure a physical constant, such as charge of electron, sound velocity, dielectric constant in atmosphere, viscosity coefficients of liquids, gravitational acceleration, earth's rotation velocity, and light speed. Through the measurements of well-known physical constant, they can obtain further understanding on the errors which can not be avoided in the experiments. In the second stage, the students design and build a simple measurements system using basic electric circuits such as thermometers by thermocouple and diode, water-level meter, and ultrasonic range meter. They learn the basics on electric circuits which are used in most of recent geophysical observations. In the third stage, the students perform basic observation of geophysical phenomena such as characteristic vibration of the building, seismic moment, land and sea breeze, ground temperature, ionospheric altitude, and lightning locations. They have an experience of observation and data analysis of the geophysical phenomena with time variations. The unique points of this experiments are as follows: (1) The students can determine the subject and method of their experiment freely. (2) Long periods (2-4 months) are allocated for each experiment. The current status and some problems will be reported in the presentation.

Keywords: Geophysics Experiment