Japan Geoscience Union Meeting 2015
(May 24th - 28th at Makuhari, Chiba, Japan)

G04-01 Room:102B Time:May 24 09:30-09:45

Fuji-Sat Project: Development of the simulated micro-satellite and its operation at the summit of Mt. Fuji

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We developed a virtual satellite and then installed it at the summit of Mt. Fuji. A purpose of this project is to make use of a provided observation concept and production technology in the plan of the satellite by working at the summit of Mt. Fuji, and examining a virtual satellite. We investigated a preliminary study in order to check the Fuji mountaintop and similarity of the outer space in 2013. We installed the virtual satellite (Fuji-Sat) at the summit of Mt. Fuji based on those knowledge in the summer in 2014. The Fuji-sat observes an electromagnetic wave strength change and performs the reception of data by the communication with an amateur radio station. The design of protection and the charge function to severe temperature environment is done, and these apparatuses are expected when we can collect electromagnetic wave strength change data for approximately one year in 2015.

Keywords: Small satellite, Virtual satellite, Mt. Fuji

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G04-02 Room:102B Time:May 24 09:45-10:00

Demonstration experiment of a handmade data logger at the summit of Mt. Fuji during the winter in 2013-2014

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Global environmental issues are one of the most important problems to solve for human being. In order to solve these problems, environmental education (in school) is one of the significant action items. The long-term measurement of each environmental parameter is effective for the students to realize the environment change. However, it is difficult to operate the long-term observation for them because there is no data logger system, with enough flexibility, inexpensiveness, durability and convenience. Therefore, development of a data logger for students which satisfies several demands is required. Since we developed a handy data logger which can operate individually without a personal computer and whose power is supplied by the battery with solar charge equipment, we report the one-year results used at the top of the Mt. Fuji.

Keywords: Logger, Handmade, Long-term

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G04-03 Room:102B Time:May 24 10:00-10:15

Development of Web Contents on Clouds utilizing Facebook and YouTube

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Photographs and animations of various clouds taken in the campus of Kochi University were posted on Facebook and YouTube, with short captions. Students and teachers can clearly come to feel the change of clouds and weather by making their own pictorial books on the Web.

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G04-04 Room:102B Time:May 24 10:15-10:30

An analog tool of two-dimensional spring-block model for education and outreach

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The fact that the occurrence of earthquakes strictly obeys the famous Gutenberg-Richter's law is quite essential for earthquake experts, however few people could understand the details of these phenomena. The misunderstanding and confused awe for disastrous disasters seems to be brought from these backgrounds. In this regard, we developed some educational tools for understanding the G-R law; Go-game model(Ohtsuka,1971), sand-pile model(Bak et.al,1989). Kato(2007) described his one-dimensional Burriged-knopoff model as an educational tool. We introduced here another two dimensional B-K model extended from Kato's model. The model consists of thick iron plates (60x60x12mm) and color rubber bands. Each iron plate has four brass hocks on its sides, and is connected to their four nearest neighbors with the rubber bands. The system is driven by a wooden square rim connecting with rubber bands and surrounding whole system. The exercises are carnied out on our class room floor, the students watch and count the slips of each or whole blocks (occurrence of earthquakes), while the system is driving slowly to one direction(a mimic of plate motion). Our preliminary results show clear consistency with the G-R law. The students fully enjoy the counting exercises and can be strongly inspired with the fine results. Through these exercises and analysis, they study the interesting character of the G-R law and occurrence of earthquakes. The details of this model and analysis will be presented at the conference.

Keywords: spring-block, Gutenberg-Richter's law, earthquake, education, high school

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G04-05 Room:102B Time:May 24 10:30-10:45

What things do the teachers want to tell other teachers in Japan?

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The author carried out a questionnaire research about the actual situation of science classes related to earthquake in the Great East Japan Earthquake affected area. Many messages from the teachers in the area were collected in 2014. The points of these messages are divided into four types; promoting science education, combination of science and natural disaster prevention, promoting disaster prevention education, and others.

Keywords: Great East Japan Earthquake, elementary school, secondary school, science class, teacher, questionnaire research

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G04-06 Room:102B Time:May 24 11:00-11:15

Consideration of earth and planetary sciences education at secondary schools in Japan through employment examination

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Some students who are/were first "CHIGAKU-KISO (Basic Earth Science)" and/or "CHIGAKU (Earth Science)" learners at upper secondary schools in Japan took the 2015 fiscal year employment examinations for civil servants on 2014 school year. These kinds of examinations normally have covered huge range of many subjects such as "RIKA (Natural Science)" including physics, chemistry, biology, and earth science. We, therefore, need to analyze the contents of earth science questions in these examinations. This is because these questions may impact classes of "CHIGAKU-KISO (Basic Earth Science)", "CHIGAKU (Earth Science)", and other subjects at upper secondary schools in Japan.

According to former analyses of these examinations, scientifically incorrect questions have sometimes appeared now and then in these questions. Education of "CHIGAKU-KISO (Basic Earth Science)" and "CHIGAKU (Earth Science)" at upper secondary schools in Japan may receive a harmful influence from these incorrect questions. In this presentation, we will report our interpretation of the influence on school education through the analyses of these examinations.

Keywords: Civil Service Employment Examination, Levels of secondary school graduation, Natural Science, "CHIGAKU-KISO (Basic Earth Science)", "CHIGAKU (Earth Science)"

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G04-07 Room:102B Time:May 24 11:15-11:30

The try which makes physical geography enriched and makes the geography B curriculum new.

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A new curriculum was conducted in a main school from the previous fiscal year. At most 12 units per 3 years of geography B could be taken by a new curriculum, and I decided to make the learning contents deepen.

It's "Physical geography is explained even more than now in politeness and specifics." that I put emphasis by syllabus planning for 3 years.

There are 3 reasons that this judgement was done.

The 1st reason is because I thought understanding of agricultural geography and industrial geography became easy when a natural environment could be understood. This way of thinking is advocated from the past and is the general way of thinking from which a geography is learned. How to advance it along the contents of a textbook isn't being done by the new syllabus planning made this time. It was made "geomorphology, industrial geography, climatology, agricultural geography ". A physical environment and human activity make them understand that I have a relation, and I'd like to make a geographical basic way of thinking fixed.I have started geography A at the same time concurrently with geographical B. It was set as "rural geography and urban geography, ethnic conflict, environmental issue, population geography" by geography A. These contents aren't also unrelated to physical geography, so there is an intention to make a basic way of thinking and learning method fixed.

The 2nd reason is because the student who tries to remember terminology twice had problem consciousness to be increased when the same terminology appeared beyond the field. 1 of the characteristics of the geography is to be able to talk beyond the field by 1 of terminology. This is necessary to learning of topography science in particular. When it wasn't shown many times where terminology of physiography was used in particular, I found out that a word isn't understood. If terminology is new terminology every time it comes out, it's caught, and if geographical learning is to remember, it's misunderstood. Therefore the student who can see a decline of a desire to learn goes out. I thought as the way to stop a decline of a desire to learn.

The 3rd reason is because I'd like to judge a map and a sourcebook from to deal with a topography from the early stage and show the new world.

A student seems to have a good impression to these tries. It's based on the above, and class development at the viewpoint where the physiography was made the center is announced while introducing an example.

Keywords: physical geography, geography B, curriculum

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G04-08 Room:102B Time:May 24 11:30-11:45

Coordination of education program which is provided by Kyoto Univ. for high school students and Earth science education

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Kyoto University provides the JST education program for laureate high school students with a cross formed by academic curiosity and science ”ELCAS” from 2014. In this presentation, we will introduce the coordination, the contents and the current state of the ELCAS program, and the education of Earth sciences. Mainly, we will discuss the contents, the educational effect and a problem of the field work training program for Earth sciences which is being performed by the ELCAS program.

Keywords: Education of sciences, Field works, High school students, Cooperation with high schools