Japan Geoscience Union Meeting 2012
(May 20-25 2012 at Makuhari, Chiba, Japan)

G02-01 Room:203 Time:May 21 10:45-11:00

Is there quartz crystal in space?

KAWASAKI, Masayuki[1*]

[1]Sayama City

Quartz crystal is rare in space, whereas there is quartz on the earth in large quantities. This difference comes from existence of the water on the earth.

Keywords: quartz, granite, water, earth history, meteorite

Japan Geoscience Union Meeting 2012
(May 20-25 2012 at Makuhari, Chiba, Japan)

G02-02 Room:203 Time:May 21 11:00-11:15

Aurora3D Project and Aurora Talk Show 2011

KATAOKA, Ryuho[1*], FUJIWARA, Hitoshi[2], MIYOSHI, Yoshizumi[3]

[1]Tokyo Tech, [2]Seikei University, [3]Nagoya University

Aurora3D project has been conducting stereo imaging of aurora in Alaska, supported by Housou Bunka Foundation and Nikon. The 3D aurora images have been presented at the science live show UNIVERSE at Science Museum. The website aurora3d.jp plays an important role to distribute the education materials and to inform the related outreach events via Twitter etc. The obtained images of aurora by Aurora 3D project are used for the Aurora Talk Show 2011, which was held at several different places over Japan in December 2011. The Aurora Talk Show 2011 was the second time as supported by SGEPSS. The young researchers of SGEPSS and local science communication groups collaborated together to make the science talk show using the auroral images etc. The main topic depends on each speaker and place, broadly ranging from the Sun to planets. It is important to continue and extend such activities, collaborating with science communication groups. We would like to have your participation, support, and advice for Aurora Talk Show 2012 etc.

Keywords: aurora, science cafe, planetarium, twitter

Japan Geoscience Union Meeting 2012
(May 20-25 2012 at Makuhari, Chiba, Japan)

G02-03 Room:203 Time:May 21 11:15-11:30

Public outreach activity using a digital 3-D globe, Dagik Earth

SAITO, Akinori[1*], TSUGAWA, Takuya[2], MIYAZAKI, Shin'ichi[1]

[1]Dept. Geophysics, Kyoto University, [2]National Institute of Information and Communications Technology

A portable, scalable and affordable 3-dimensional digital globe system, Dagik Earth, is developed to present the Earth scientific research works. It uses a spherical or hemispherical screen to project data and images of the Earth and planets. The three dimensional presentation is the only way to present the correct shape on the Earth while any map distorts the shape. Furthermore it helps audience to understand the scale size of the Earth and planetary phenomena in an intuitive way. Dagik Earth has been used in public outreach programs of universities and research institutes. Several sets of the hardware are ready for rent to scientists, science museums and school teachers. The development of software is carried out to improve the interface and scientific contents. International collaboration with Taiwan, Thailand, and other countries is in progress. In the presentation, we introduce the system of Dagik Earth and public outreach program using it.

Japan Geoscience Union Meeting 2012
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G02-04 Room:203 Time:May 21 11:30-11:45

Outreach Programs using Martian Meteorites

SASADA, Toshio[1*]

[1]STEP, Aichi University of Education

Martian meteorites are thought to be rocks formed on Mars. They are divided into four groups; Shergottites, Nakhlites, Chassignites and ALH84001. Their young crystallization ages suggest they are derived from a planet-sized body. Coarse-grained textures of nakhlites also suggest that they are derived from a planet-sized body. Similarities the isotopic compositions of nitrogen and noble gases of the martian atmosphere and those trapped in shock-produced glasses in some shergottites suggests that it is Mars.

In this presentation, the events of the observation of two martian meteorites {Zagami (shergottites)and Nakhla(Nakhlites)} will be reported.

Keywords: Martian meteorites, Outreach

Japan Geoscience Union Meeting 2012
(May 20-25 2012 at Makuhari, Chiba, Japan)

G02-05 Room:203 Time:May 21 13:45-14:00

Town watching to look for phenomena similar to volcano

TAKADA, Akira[1*]

[1]Geological Survey of Japan, AIST

Even people who live far from a volcano can find various phenomena relating to earth science, especially, volcano in town walking. If we have such a training of observation in our town, we become good observers like volcanologists in front of a volcano. If we encounter risks such as volcanic eruption, earthquake, landslide, etc., our experiences from the town watching help us for surviving our lives. This paper will introduce various phenomena relating to volcanoes: tension fracture, faults, intrusion, flank instability, and caldera collapse.

Keywords: Outreach, volcanology, eruption, fracture, slope, intrusion

Japan Geoscience Union Meeting 2012
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G02-06 Room:203 Time:May 21 14:00-14:15

Public outreach activities of the Japan Association for Quaternary Research: field excursion, lecture and concert

UEKI, Takeyuki[1*], Ken-ichi Nakao[2], NISHIYAMA, Ken-ichi[3]

[1]Geological Survey of Japan, AIST, [2]Tokushima Prefectural Museum, [3]Faculty of Integrated of Arts and Sciences, The University of Tokushima

The Japan Association for Quaternary Research performed field excursion, lecture talk and concert for general public as public outreach activities. These activities are effective and useful for spreading the knowledge of regional natural history far and wide to the public.

Keywords: Scientific association, Outreach, General public, Life-long education, Field excursion

Japan Geoscience Union Meeting 2012
(May 20-25 2012 at Makuhari, Chiba, Japan)

G02-07 Room:203 Time:May 21 14:15-14:30

Practice of the tsunami hydraulic experiment and the large peel sample using for the tsunami disaster education

NANAYAMA, Futoshi[1*], YOSHIKAWA, Hideki[1], SHIGENO, Kiyoyuki[2], ISHII, Masayuki[3]

[1]AIST, [2]Ibaraki University, [3]Geological Survey Association of Hokkaido

Tsunami education is very important for disaster mitigation near the future. We are working on two outreach projects. First, we have been making large peels from tsunami deposit outcrops around the Pacific coast of eastern Hokkaido, and we have donated these to the local museums due to the tsunami disaster education for local residents. Second, we developed a simple water tank for tsunami experiment using PVC plates with plastic sheeting for agriculture (4.5m long, 30cm high, 30cm wide). It was filled by fresh water. If we pull up the other end of the plastic sheet to resemble seafloor uplift due to the earthquake, the water was pushed up to propagate, tsunami wave run up a slope and splash out the water tank. Our prefabricated tsunami laboratory equipment is a good for the disaster education at the elementary school.

Keywords: large peel sample, tsunami hydraulic experiment, tsunami disaster education, large tsunami, tsunami deposit, eastern Hokkaido

Japan Geoscience Union Meeting 2012
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G02-08 Room:203 Time:May 21 14:30-14:45

Outreach activities of a university for the Great East Japan Earthquake

KURI, Miwa[1*]

[1]Science, Tohoku University

The public programs of the Great East Japan Earthquake were held at Tohoku University on based on civilian needs since May 2011 . In this report civilian needs and public response were analyzed.

A request of lecture by civilian for the Great East Japan Earthquake were guided by media news. The request key words were changed from diffusion of radioactive material to effect for health, cooking method for excluding of radioactive material, wearing for radioactive surroundings, and removing method of radioactive material from self surrounding s. However we limited the providing information for propertied of radioactive materials measurement of radioactive materials, diffusion of radioactive materials based on our specialties.

The most important thing is speedy timing of providing information.

Keywords: The Great East Japan Earthquake, civilian needs, outreach of university

Japan Geoscience Union Meeting 2012
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G02-09 Room:203 Time:May 21 14:45-15:00

Remote lectures by the connection of the Himalayas and Japanese classrooms via satellite communication system

KOMORI, Jiro[1*], NAIKI, Akihiko[2]

[1]Graduate School of Environmental Studies, Nagoya University, [2]Tokyo Metropolitan Mita High School

On-the-field introduction and discussion with live view and sound from actual site have impacts for the geoscience and disaster prevention education. In order to contribute the education and outreach of the research outcomes from the researchers to societies, we implemented remote lectures between a high school in Tokyo and a NPO the laboratory for Global Dialogue, and the field sites in the Bhutan Himalayas. The sites are the shrinking mountain glacier areas which have been notably affected by global warming. As the communication lectures, we featured present condition and issues regarding glacier and glacial lakes as well as the geology and geography in the Himalayas. Since the general network line and signal were not available in the sites, we used Inmarsat satellite communication system. Most of students and participants could learn a lot and took a keen interest in the geoscience and natural disaster. In the presentation, we will introduce the connection system and related issues, efficiency of the implementation and future plans. This activity was involved in the project entitled ”Study on Glacial Lake Outburst Floods in the Bhutan Himalayas” financed under the Science and Technology Research Partnership for Sustainable Development (SATREPS) program, supported by JICA and JST.

Keywords: Disaster prevention and geoscience education, On-the-field lecture, Inmarsat, Glacier and glacial lake, Global warming, Bhutan Himalayas

Japan Geoscience Union Meeting 2012
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G02-10 Room:203 Time:May 21 15:00-15:15

The cheapest simulator for characteristic vibrations,YURAYURA 2012, by Dr. Avaranger

NOHGUCHI, Yasuaki[1*]

[1]National Research Institute for Earth Science and Disaster Prevention

Recently, large swinging of the skyscraper which resonates by the long-period ground motion becomes a topic. In this paper, we will introduce the simple models to simulate the characteristic vibration of buildings for science education.

Keywords: Avaranger, Characteristic vibration, Yurayura

Japan Geoscience Union Meeting 2012
(May 20-25 2012 at Makuhari, Chiba, Japan)

G02-11 Room:203 Time:May 21 15:30-15:45

A project to utilize Abuyama observatory as a science museum

YONEDA, Itaru[1*], Hideyuki Shiroshita[2], Eiji Hirabayashi[3], Katsuya Yamori[1], Yoshihisa Iio[1]

[1]Kyoto University, [2]Kansai University, [3]Disaster Reduction and Human Renovation Institution

1. Introduction

Abuyama observatory is a seismological observatory of Disaster Prevention Research Institute (DPRI), Kyoto University, which is located in the city of Takatsuki, Osaka. Various observations have been conducted at this observatory since 1930. It is continuing observation as a base station for the project of the dense seismic observation of the next generation which is called MANTEN project mainly promoted by DPRI. Some of the historic equipments for the seismological observations such as the Wiechert seismograph and the Galitzin seismograph have been well maintained and exhibited. Since the history of the observations and experiences of the Abuyama observatory are very important, a project to utilize Abuyama observatory as a science museum started in 2011.

2. Abuyama Open Lab

The first problem for utilizing the observatory as a science museum is that the observatory has not been performing the exploitation campaign, because it is the place where we usually do observation and research, and that it is not ready for welcoming a lot of visitors. In order to solve these problems, a series of Abuyama Open Lab has been decide to held as the first step of the project, and the maintenance of this observatory and publicity activities have done. Moreover, a seminar on the history of seismology, lesson lecture on making a simple seismograph and various workshops that produce the contents of the museum have been developed.

In total, 4 open labs were held and about 500 visitors joined in the series of Open Lab in the 2011 fiscal year.

3. Study Tour

Biweekly study tour at the Abuyama observatory is also provided. Unlike the series of Open Lab, the exploitation campaign for this study tour has not carried out except for the website. However, if the observatory will be operated as a museum, visitors should be always welcome. But now, since there are few staff members, it is difficult to open every day.

4. Future work

In order to open the observatory to the public at any time, the staff members who can do guidance at the observatory are needed. However, since technical knowledge is required, currently not all the members can always be guides explaining the seismographs. Therefore, it is necessary to make a manual that allows even volunteers be a guide of the observatory. And it is also necessary to make the direction boards of showpieces.

Furthermore, we would like to develop the observatory as a museum where people can learn from and participate in the latest research projects. We aim at developing the science museum that keeps following the latest research activities.

Keywords: Abuyama observatory, science museum, earthquakes, MANTEN project, Disaster prevention education

Japan Geoscience Union Meeting 2012
(May 20-25 2012 at Makuhari, Chiba, Japan)

G02-12 Room:203 Time:May 21 15:45-16:00

Development of natural disaster learning program in collaboration with museums and elementary and junior high schools

HIRATA, Daiji[1*], SUGIHARA, Hidekazu[2], TANI Keiji[3], KATO Hiroyuki[4], TASHIRO Yoshihiro[5], NAKAMURA Toshihumi[6], OZAKI Yukiya[7], GOTO Masakazu[8]

[1]Kanagawa Prefectural Museum of Natural History, [2]Hot Springs Research Institute of Kanagawa Prefecture, [3]Chiyo Odawara Municipal Junior High School, [4]Izumi Odawara Municipal Junior High School, [5]Shiroyama Odawara Municipal Junior High School, [6]Ydorigi Matsuda Municipal Junior High School, [7]Kozu Odawara Municipal Elementary School, [8]National Institute for Educational Policy Research

Japanese Islands is located in the mobile belt plate convergence region. Hence it is, recognition of being a country of volcanoes and earthquakes is essential. We are working on a study that aims to develop and implement utilizing the historical materials of natural disasters and the nature of the western area of Kanagawa prefecture, the learning program of natural disasters through partnerships with elementary and junior high schools and museums, to evaluate . We believes that it is necessary to contribute to the development of aids to teaching and curriculum, such as can have the power to foster science literacy for children, live, to improve the quality of teachers to teach it.

Among the elementary schools and junior high school for each unit, build and implement a training program teaching method for learning the local natural disaster, such as tuition deployment. Learn the history of natural disasters that occurred in the western part of Kanagawa Prefecture, to investigate the record. To record changes in earthquake disaster in each region, active faults, such as floods and debris flow disaster damage of debris flow and landslide-tsunami, volcanic disaster by typhoon or heavy rain, due to the characteristics of the region, and the familiar materials of natural disasters. In collaboration with regional museums and research institutes and schools to learn the basic knowledge of natural disasters, and then rearrange the history of natural disasters in the region to raise the literacy of children and disasters.

Keywords: museum, elementary school, junior high school, natural disaster learning program

Japan Geoscience Union Meeting 2012
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G02-13 Room:203 Time:May 21 16:00-16:15

A practiced study program of the soil liquefaction at the grade-school in the stricken area of Tohoku earthquake

KASAMA, Tomohiro[1*], Saeko ISHIHAMA[1], Shuichi NIIDA[1]

[1]Kanagawa Prefectural Museum of Natural History

The reclaimed land around the Tokyo Bay, for example Urayasu, Chiba, was damaged by soil liquefaction of the 2011 off the Pacific coast of Tohoku Earthquake. Damage of soil liquefaction also occurred on the schoolyard. But the schoolyard is the important evacuation area in every school. The surface peels of cross section of sand cones which were formed by soil liquefaction in the schoolyard of a grade-school, Mihama-ku, Chiba were obtained and studied on March 30 and April 1, 2011 (Kasama et al., 2011). A special lesson of soil liquefaction using surface peels for the sixth grader was taken place at the same school on October 26, 2011. The lesson included such items, the outline of the Tohoku Earthquake, the history of the reclamation of the Inage seashore, the experiment of soil liquefaction using a PET bottle and the sand cone formation. The questionnaire was performed after the lesson. According to the replies by children , the shake of the Tohoku earthquake is slightly fearful (62%), about the water spouting by liquefaction on the schoolyard: although it was fearful, interest was also felt as a wonderful phenomenon (48%), about sand accumulating on the schoolyard: Interest was felt a little (52%), about our school is on reclaimed land: knew (97%), about liquefaction: knew after the Tohoku earthquake (65%), about sand cones: known by this lesson (55%), about understanding of this lesson: very well (the history of the reclaimed land: 51%, mechanism of soil liquefaction :71%, formation of sand cones :65 %) , and the comment of the lesson: very good (86%). The result of the questionnaire showed that while aftershock continued, the children looked at the soil liquefaction with interest and fear in the schoolyard, and also that the soil liquefaction is over the range of the government guidelines for teaching, but by using suitable experiments, degree of comprehension and interest became high.

Tomohiro KASAMA,Saeko ISHIHAMA and Shuichi NIIDA(2011)Surface peels of the cross section of sand cones on the schoolyard formed soil liquefaction and use as a teaching material,2011 Japan Geoscience Union,Makuhari,Chiba,MIS036-P176.

Keywords: 2011 Tohoku earathquake, soil liquefaction, grade-school, study program, stricken area

Japan Geoscience Union Meeting 2012
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G02-14 Room:203 Time:May 21 16:15-16:30

Prototype model of Geological diorama (GEORAMA)

TAKAHASHI, Masaki[1*]

[1]National Institute of Advanced Industrial Science and Technology (AIST), Geological Survey of Japan

Considering the problems in the geological outreach activity, I made an analog model, named The GEORAMA (geological diorama), 1/150 in scale. The three fundamental subjects, i.e. unconformity, normal fault, and intrusion of igneous rock, are intended in the model. The geological units are exposed only along the river cliff, mountain streams, sunken roads, and a quarry to represent the reality in the model. The observer can easily understand the geology of the model, because cross-sections are indicated on four sides of the model. The topographic map, the geological description map of each route, the geological map, and the cross sections are also prepared, which will help to grasp how the geological map is made.

Keywords: outreach, earth science, geology, educational promotion

Japan Geoscience Union Meeting 2012
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G02-P01 Room:Convention Hall Time:May 21 16:40-17:15

A Melody of the 2005 Fukuoka Earthquake using the many ground motion records

YAMADA, Nobuyuki[1*], Erika Kuboyama[1]

[1]Fukuoka University of Education

In this study, the melody was made from many ground motion records to understand about the shake of an earthquake. Although the trials which carry out to make from ground motion record to sound are Hirai and Fukuwa (2011) and Sakajiri (2011) for example, a making of melody trials from the records are only our previous studies.

This report is differ from Yamada (2010), it can try to make the one melody from one earthquake using the many motion records obtained at the observations, and can express a spread of the ground motion in sensuously.

Keywords: groud motion records, melody, science education

Japan Geoscience Union Meeting 2012
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G02-P02 Room:Convention Hall Time:May 21 16:40-17:15

Gravity measurements in Antarctica with pendulums and ticker-tape timers

KAZAMA, Takahito[1*], Chizuko Higashino[2], Koichiro Doi[3]

[1]Kyoto University, [2]Kansai University Dai-ichi High School, [3]National Institute of Polar Research

In high school physics classes, the value of gravitational acceleration (or gravity) is taught as about 9.8 m/sˆ2, which is often observed with simple experiments using pendulums and ticker-tape timers. In reality, however, the gravity value differs depending on place and time; for example, the gravity difference becomes about 0.5 % between equator and pole on the Earth. Although geodesists measure the minute gravity differences with high-accuracy gravity meters such as absolute gravimeters, it must be important for high school students to measure the gravity difference with the simple equipment such as pendulums and ticker-tape timers, in order to get students interested in gravity and physics.

We were thus motivated to measure the gravity value with a pendulum at Syowa Station in Antarctica, where we visited as the 53rd Japan Antarctic Research Expedition (JARE-53). We chose Syowa Station as the location to measure the gravity, because [1] Syowa Station is located at 69 degrees south latitude, close to the South Pole, and [2] an absolute gravimeter, installed at the gravimeter room in Syowa Station by JARE-53, observed the gravity value to an accuracy of more than eight orders. We first put a cylindrical brass (weight: about 750 g) to the lower end of a stainless steel wire (length: about 3 m), which was hanging from the ceiling of the gravimeter room. We then oscillated the brass with the amplitude of about 15 cm, and recorded the brass oscillation on video. And finally, we estimated the average oscillation period with movie analyses, and calculated the gravity value using a formula for the oscillation period of a single pendulum.

As a result, the gravity value with the above pendulum experiment at Syowa Station was estimated as 9.8462 m/sˆ2, which deviated by about 0.2 % from the gravity value observed with the absolute gravimeter (9.8252432 m/sˆ2). The causes of the gravity deviation possibly lie in [1] the measurement error of the oscillation period, [2] the measurement error of the pendulum length, and/or [3] the effect of air resistance and supporting point’s friction. We will evaluate the accuracy of the gravity value estimated by the pendulum experiment, with quantitatively discussing the causes of the gravity deviation.

In addition, we will regularly measure the gravity values with ticker-tape timers on the ice-breaker ship Shirase on the way back to Japan from Antarctica, although we are still at Syowa Station on February 10th 2012. Furthermore, we will measure the gravity value with the same pendulum as we measured the gravity in Antarctica, to discuss the difference of the gravity value between Japan and Antarctica.

Keywords: Gravitational acceleration, Antarctica, Pendulum, Ticker-tape timer, Absolute gravimeter, Syowa Station

Japan Geoscience Union Meeting 2012
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G02-P03 Room:Convention Hall Time:May 21 16:40-17:15

3-D display of subducting plates and earthquakes - Subducting two oceanic plates and unique seismicity beneath Kanto

KAIDA, Toshiki[1*], DEMACHI, Tomotsugu[1], NAKAJIMA, Junichi[1], UCHIDA, Naoki[1], UMINO, Norihito[1], HASEGAWA, Akira[1]

[1]Tohoku University

Recent dense seismic network data have contributed to deepen our understanding of 3-D inhomogeneous structure within the earth and of seismic activity occurring there. For example, investigations based on seismic tomography, hypocenter determinations and focal mechanism analyses have revealed precise configurations of the Pacific (PAC) and Philippine Sea (PHS) plates subducting beneath the Tokyo metropolitan area. Estimated geometry shows a broad contact area between the two plates located directly beneath the Kanto plain. The overlap with the PHS plate subducting above it hinders the PAC plate from being heated by the hot mantle wedge. Moreover, the fore-arc portion of the PHS plate, before its subduction beneath Kanto, had been cooled by the subduction of the PAC plate from the Izu-Bonin trench. These tectonic settings cause lower-temperature conditions within the two oceanic plates and the upper continental plates beneath the Tokyo metropolitan area. As a result, depth limits of seismic activities within the plates and along their boundaries are anomalously deep. Seismic tomography studies show that the eastern-most portion of the PHS slab mantle is serpentinized. The PHS slab may have been torn into two along the western boundary of this serpentinized mantle, with the eastern portion being left behind relative to the subduction of the western portion. This is accompanied by generation of large intraslab earthquakes along the boundary.

3-D display of obtained results, such as detailed configuration of subducting plates, seismic velocity structure and their relations to earthquake activity, is essential to be properly understood by other people or even for ourselves to more deeply understand. It also helps to spread scientific knowledge. Based on this idea, we are trying to develop a method of 3-D display of those images. Here we tried to visualize a three dimensional subducting plates and earthquake hypocenters by using one of the 3-D visualization softwares (Voxler 2; Golden Software), which we will report in this presentation.

Keywords: 3-D display, plate subduction, seismic activity, Tokyo metropolitan area

Japan Geoscience Union Meeting 2012
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G02-P04 Room:Convention Hall Time:May 21 16:40-17:15

Reaction of junior and senior high-school teachers to an earthquake rumor -Investigation in Yamagata prefecture-

ORIHARA, Yoshiaki[1*], KAMOGAWA, Masashi[2], NAGAO, Toshiyasu[1], UYEDA, Seiya[3]

[1]EQ Prediction Res. Center, Tokai Univ., [2]Dpt. of Phys., Tokyo Gakugei Univ., [3]Japan Academy

We examine reaction of the junior and senior high-school teachers to the rumor of 2008 earthquake in Yamagata prefecture. Reactions are classified by some parameters such as school grades and teachers generation. The science teachers investigated scientific evidence of the rumor with an internet. In addition, only a few percentages of the teachers mentioned that information literacy for the students and information sharing among teachers were required. Therefore, this implies that they should be improved for the teachers.

Keywords: rumor of earthquake, teachers, information literacy

Japan Geoscience Union Meeting 2012
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G02-P05 Room:Convention Hall Time:May 21 16:40-17:15

An implementation report of the 2011 Geology Day event entitled :The secret of the giant tsunami traces and Oyster reef

SHIGENO, Kiyoyuki[1*], Yoshikazu Kokubo[2], Junichi Yamashiro[3], ISHII, Masayuki[4], Yasuo Kondo[5], Yoshiaki Matsushima[6], Yoshiharu Yokoyama[7], Ryo Uehara[8], NANAYAMA, Futoshi[9], ANDO, Hisao[8]

[1]Ibaraki Univ., Meiji Consultant Co., Ltd., [2]Hokkaido Kushiro Technical High School, [3]Kushiro City Historical Museum, [4]Hokkaido Geological Survey Association, [5]Dept. Earth Science, Kochi Univ., [6]Kanagawa Prefectural Museum of Natural History, [7]Earth-Appraisal Co., Ltd., [8]Dep. Earth Sciences, Ibaraki Univ., [9]Geological Survey of Japan, AIST

During middle August 2011, we carried out large trench survey in order to evaluate unusual tsunami impacts to the past oyster reef fossils reported by Matsushima (1984) in the lakeside swamp of Lake Pashukuru between Kushiro City and Shiranuka Town in eastern Hokkaido. Related this survey, we planed the dissemination activities as the event ”Geology Day in 2011” on August 11 and 12 due to recognize local geology and geomorphology for residents and teachers in this area. In this poster presentation, we want to report of planning and implementation about our event entitled :The secret of the giant tsunami traces and Jomon Oyster-reef around Lake Pashukuru.

Keywords: Geo-tour, Geology Day, Lake Pashukuru, Kushiro City, Shiranuka Town, 100 Geosites in Hokkaido

Japan Geoscience Union Meeting 2012
(May 20-25 2012 at Makuhari, Chiba, Japan)

G02-P06 Room:Convention Hall Time:May 21 16:40-17:15

A simple simulator, Licky, for liquefaction in the Great East Japan Earthquake

NOHGUCHI, Yasuaki[1*]

[1]National Research Institute Earth Science and Disaster Prevention

In this paper we introduce a liquefaction simulator using the sand collected from the points of liquefaction damage by the Great East Japan Earthquake for science education.

Keywords: liquefaction, Licky, great east Japan earthquake

Japan Geoscience Union Meeting 2012
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G02-P07 Room:Convention Hall Time:May 21 16:40-17:15

Exhibition and education of a museum activity using paleoarts and advertising characters

ANDO, Yusuke[1*], NISHIOKA, Yuichiro[2], OGINO, Shintaro[3], TOKUGAWA, Hirokazu[3], NAKAUENO, Dai[4], KONNO, Taiki[5], MATSUMOTO, Yuki[5], SAKAI, Isami[6], KARASAWA, Hiroaki[1]

[1]Mizunami Fossil Museum, [2]Primate Research Institute, Kyoto University, [3]ActoW, [4]Ebina City, Kanagawa Prefecture, [5]Seian University of Art and Design, [6]Faculty of Science, Kyoto University

The Mizunami Fossil Museum opened in 1974 is a fossil-specific museum in Japan. Although its fossil collections are variable to study and educate, The Mizunami Fossil Museum opened in 1974 is a fossil-specific museum in Japan. Although its fossil collections are variable to study and educate, most information with the fossils have not been changed for 30 years. For example, a reconstructed model of the skeletons of *Desmostylus* that are the main exhibit was made when this museum opened, but now it is not supported by recent studies. In addition, the educational activities of the museum have been older-fashioned than those of others, which causes a problem such that many visitors mistake the *Desmostylus* for a dinosaur and lose interest in the same exhibition every year.

Recently, we have been performing the visual effects and PR activities to visitors by using paleontological arts (paleoarts) and advertising characters. We aim for these contents at conveying scientific knowledge to visitors correctly and intelligibly, and making a traffic line to our museum. Here, we explain the work process of these contents with reporting the effect that the museum acquired from them.

1.Paleoarts

We used reconstructed illustrations and a model based on the newest scientific knowledge at the 74th (2010) and 75th (2011) special exhibitions. Five illustrations of extinct animals including *Gomphotherium annectens* (Mammalia, Proboscidea) from the early Miocene Mizunami Group and illustrations and a model of Plotopteridae (Aves, Pelecaniformes) from the Oligocene Ashiya Group were made in the 74th and 75th, respectively. These illustrations and model were made on the basis of scientific data from paleontological journals, information of recent materials, and private communications to each specialist. During the process of making them, paleontologists provided paleoartists with variable comments and information from literatures, and the paleoartists kept making logs.

Over 90% of visitors and scientists regarded these activities as good, surveying by questionnaires about the exhibition in 2010. Therefore, we have been realized cooperating between scientists and artists, and educating for citizen, which are pointed by Tokugawa *et al*., (2010).

2.Advertising characters and animation to explains exhibition

We made the advertising girl character, Mio Mizunami, illustrated by cartoonist, Shota Kawamura (P. N. ringo), for the museum. We used the character for PR activities such as explanation of fossils and deployment of movie. Because she is the character of a paleontological museum, we gave her accessories carrying out the motif of the fossils from the Mizunami Group. The main purposes of making her are to rise the name recognition of the museum and educate paleontology to young visitors.

The animation she appears in was released in 2011 by our paleontologist and artist team. The contents of the animation are explaining the exhibition of the museum and collection method of fossils. This animation was made for schoolchildren but contains the newest information about Desmostylus (Inuzuka, 1984, Inuzuka *et al*., 1994), which adults can also enjoy. We employed a voice actress for Mio and adopted two local junior high school students for Desmo that is another character in the animation for the purpose of relation with social education.

As a result of using paleoarts and advertising characters, the concern about the museum of visitors and mass media became high. Especially the number of media coverage is 26 affairs in 2011. This is four times more against 2010 works. Therefore, we conclude that these contents are useful for the cognition and spread of a museum, fossils, and paleontology, and they are the effective means for gaining visitors.

Referrences Inuzuka, 1984, *Mono. Assoc. Geol. coll. Japan*, 28, 101-118. Inuzuka, *et al*., 1994, *The Island Arc*, 3, 522-537. Tokugawa *et al*., 2010, *Abst. Prog. 159th regul. meet. Palaeo.Soc. Japan*, p. 46.

Keywords: museum, paleontology, paleoart, advertising character, education

Japan Geoscience Union Meeting 2012
(May 20-25 2012 at Makuhari, Chiba, Japan)

G02-P08 Room:Convention Hall Time:May 21 16:40-17:15

Report for Science Cafe focused in Earth and Planetary Sciences

CHIBA, Takashi[1*], YAMADA, Kentaro[2], SATO, Kenji[3], YUKI, Asuka[4], SHIMOKOSHI, Shohei[5], FUJIU, Seiichi[6], OHSHIMA, Yui[7]

[1]Grad.Sch.of Frontier Sci., The Univ.Tokyo, [2]Dept. of Earth & Planetary Sciences, TITech, [3]Grad.Sch of Commerce, Waseda Univ., [4]ex-Musashino Art Univ., [5]Yokohama National Univ., [6]WDB CO.,LTD., [7]Grad.Sch. of Biosciences and Biotechnology, TITech

The area of study covered by Earth and planetary science includes Geology, Seismology, Climatology, Astrobiology and so on. Therefore, Earth and planetary science is one of the most famous academic disciplines in general.

However, it is difficult to say that the attractions, essences and familiar examples of earth and planetary science have become widespread into public well. In addition, there are only a few opportunities for general people to meet and talk with scientists directly. We propose that science communication is a better way to know and understand about earth and planetary sciences for public. Science communication is a means for communications between academic communities and public on an equal basis. Many activities of science communication are run today, but almost all of the activity aims to enlighten people who are usually not interested in science about the interest of science. That is very important, but not enough because the interests for sciences or scientific knowledge are different from understanding science and being able to contribute to society.

We established the concept presented in last JpGU (Chiba et al., 2011) and have been pursuing it in last year. Science cafe focused in earth and planetary sciences were held in three times at Jiyu-gaoka and Odaiba. The themes were seismology, planetary science and cosmoclimatology. In this presentation, we provide the characteristics and problems with the comparison of three science cafes and suggest how outreach activity for earth and planetary sciences be promoted from the viewpoint of science cafe.

Keywords: Earth and Planetary Sciences, Science Communication, Science Cafe, Science Bar

Japan Geoscience Union Meeting 2012
(May 20-25 2012 at Makuhari, Chiba, Japan)

G02-P09 Room:Convention Hall Time:May 21 16:40-17:15

Cross sections of stratovolcanoes drawned by sixth grader

KASAMA, Tomohiro[1*]

[1]Kanagawa Prefectural Museum of Natural History

Experiment on Polygenetic stratovolcano using waste food oils and colored sands was demonstrated to sixth grader in country school at Yohohama. The cross sections of stratovolcano were drawn by children, before experiment and after experiment. These pictures were divided into 4 types by inner stratigraphy. Textbook type was consisted by piled similar triangles. Parallel type was consisted by horizontal lines. Revers type was consisted by V shaped lines. Experiment type was consisted by gradual change from lower horizontal lines to upper triangle, that was found in this experimental stratovolcanoes. Before experiment, imagination sectional views were divided into 3 types; text type (42%), parallel type (50%) and reverse type (8%). After experiment, the greatest change was that simple liner lines were reduced and complicated curves were increased in the cross sections (84%). But drawing details of real cross sections was thought to be difficult for sixth grader, experimental type was 21%. Parallel type was still 56%, but text type was reduced to 23%. The reason why parallel type was still remained was thought to be that almost of the example pictures of stratum were parallel in textbook of grade-school. Therefore school-graders tended to catch the image of the parallel layers in the lower part of the experimental storatovolcano.

Keywords: sixth grader, strata, stratovolcano

Japan Geoscience Union Meeting 2012
(May 20-25 2012 at Makuhari, Chiba, Japan)

G02-P10 Room:Convention Hall Time:May 21 16:40-17:15

Technical problems related with the educational promotion of the geology

TAKAHASHI, Masaki[1*]

[1]National Institute of Advanced Industrial Science and Technology (AIST), Geological Survey of Japan

It is commonly discussed the difficulties on promoting the geologic results for the students as well as citizens. The one of the most serious problems in the outreach of geology is that no one can understand the geological map except for the expert on geology, that is, the geologists. It is probably regarded that the two-dimension geological map is the horizontal section of the three-dimension geological body. But in reality, the geological map also includes the information of time, such as geologic age. Therefore, the geological map is a two-dimension expression of four-dimensional information. Moreover, the boundary line between geological units will often show much complicated curve, because boundary line on the geological map is an intersection between plane or curved geological boundary and curved surface of the topography. These difficulties should be solved in the geological outreach more readily.

Keywords: outreach, earth science, geology, educational promotion

Japan Geoscience Union Meeting 2012
(May 20-25 2012 at Makuhari, Chiba, Japan)

G02-P11 Room:Convention Hall Time:May 21 16:40-17:15

The report of the International Earth Science Olympiad (IESO), past and future.

TAKIGAMI, Yutaka[1*], HISADA, Ken-ichiro[2]

[1]Kanto Gakuen University, [2]Graduate School of Life and Environmental Sciences, University of Tsukuba

We will report the outlines of the International Earth Science Olympiad (IESO).from 2007 and next 5 years to 2016.
1) From 2007 to 2010
IESO 2007 (Korea) 7 countries and 24 students, Japan was observer
IESO 2008 (Philippine) 6 countries and 24 students, 3 silver and 1 bronze
IESO 2009 (Taiwan) 14 countries and 50 students, 4 silver
IESO 2010 (Indonesia) 17 countries and 63 students, 1 gold and 3 silver
2) IESO 2011 (Italy)
Application Sep.1 to Nov.15, 2010
1st Selection Dec.19, 2010 (869 students. 50 places)
2nd Selection March 24-26, 2010 at Tsukuba City. (cancelled by 3.11)
2nd Selection June 4-5, 2010 at Tokyo Univ.
(From 27 students, 4 special excellent and 4 excellent students were selected.)
Training 8 students ; June -Aug. (correspondence course) 4 students; Aug. (4 days)
5th International Earth Science Olympiad Sep.5-14, 2011
Results ; 1 gold medal and 3 silver medals
Formal visit to the Ministry of Education, Culture, Sports, Science and Technology.
3) IESO 2012 (Argentina)
Application Sep.1 to Nov.15, 2011
1st Selection Dec.18, 2011 (924 students. 52 places)
2nd Selection March 25-27, 2012
(From 30 students, 4 special excellent and 4 excellent students will be selected.)
6th International Earth Science Olympiad Oct.8-18, 2012
4) IESO 2013 (India)
IESO 2014 (U.S.A.)
IESO 2015 (Russia)
IESO 2016 (Japan)?

Keywords: IESO, International Earth Science Olympiad