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

G04-01 Room:201A Time:May 20 10:00-10:15

Electric field measurement for high school

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There are many student instruments for the magnetic field measurements while the number of the student field instruments for the electric measurement is small. One of the reasons is that it is very difficult to measure the electric field in the atmosphere. In our presentation, we propose some experiments of electric field measurement.

Keywords: Electric field measurement, High school, SSH

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G04-P01 Room:Convention Hall Time:May 20 10:45-12:15

Radiation measurement with Hakaru-kun

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We propose a student experiment of radiation measurement after the nuclear power plant accident occurred on March of 2011. In order to educate the basic knowledge of radiation for the student, we propose that the students measure the radiation in nature.

Keywords: Radioactivity, Radiation, Hakaru-kun

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G04-P02 Room:Convention Hall Time:May 20 10:45-12:15

Expect the unexpected events from K12 class rooms: Some exercises studying ”Power laws” with K12 students

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Power law relations, such as the Gutenberg-Richter’s law or the modified Omori’s law, are much familiar with seismologists. However, in K12 geoscience classes, these relations are treated neither on textbooks nor in class room exercises. The Tohoku-Oki earthquake occurred as an unexpected magnitude even for seismologist, while it could be expected statistically from the G-R law for whole Japanese Islands. During two decades, we have developed teaching materials employing power laws for example; in modifying ”Go-game model (Ohtsuka,1971)” and ”Sand-pile model (Bak et.al.,1989)” etc. Recently, for being designated Super Science High-school, our school made an introduction class studying ”complex system sciences; eg. fractals (Mandelbrot,1977), deterministic chaos (Lorenz,1993), self organized criticality (Bak et.al.,1987)”. In these classes, students can study the basis of ”power laws” and the behaviors and characteristics of each model with plotting graphs and enjoying games like cellar automata. We also employed some power law examples in economics and social sciences; so called Zipf’s law, including war casualties, sales of companies, markets crashes etc.. Through these exercises our students also discuss the size and frequency of such natural and social catastrophic hazards and the possibility of encountering with these events. Furthermore, the cognition bias and the confirmation bias around disasters are also going to be discussed.

Keywords: unexpected, power law, Gutenberg-Richter’s law, high-school

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G04-P03 Room:Convention Hall Time:May 20 10:45-12:15

The students who study Earth Science will be increased by a new curriculum (Questionnaire survey in Saitama pref.)

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The questionnaire survey of a new curriculum was executed for the high schools in the Saitama prefecture, and the answer was obtained from 114 schools. As a result, the increase of students who study Earth Science is expected by executing a new curriculum in the high school.

Keywords: Curriculum, Entrant in 2012, Basic Earth Science, Study subject, Saitama Pref.

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G04-P04 Room:Convention Hall Time:May 20 10:45-12:15

Earth science club activities supported by Project for Enlivenment of Science Clubs in Schools, JST

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The social concern with the global environment issues and natural disasters has been growing. At our school, Earth Science Club activities were started five years ago. At first, the club's main activity was going to holiday excursions. In addition to it, research and study on water regime (in particular, groundwater) with a focus on field work have been made during the past few years. These activities have been conducted with the assistance of Project for Enlivenment of Science Clubs in Schools, Japan Science and technology Agency (JST). In this presentation I would like to introduce these activities.

Keywords: School club activities, Field work, Spring, Japan Science and technology Agency