Education Program for Children and Youth by the Seismological Society of Japan

> Masato Koyama, Kazuyuki Nakagawa, Manabu Hashimoto, Eiji Kuwabara, Masaki Takahashi, Kojiro Irikura, Committee for Future Planning Committee for School Education The Seismological Society of Japan

Basic Ideas of the Children's Summer School on Earthquake and Volcano 1) To show children mechanism and characteristics of earthquake and volcano directly -the guideline for education and school formalism, authoritarianism and improper abbreviation 2)To show children not only disaster but gift of the nature -Conventional Education on Disaster Prevention confrontation against the negative side of nature no attention to the understanding nor collaboration To play the antithetical role against its incompleteness and limit

History

- Aug.20-21,1999: The 1st Summer School on Earthquake and Volcano: 22 participants
 - "Secrets of Tanna fault" in Kan'nami, Shizuoka
 - Cosponsored by VSJ
- Mar.31,2000 Eruption of Usu
- Aug.18-19, 2000: The Seminar on History of Ito City: Nature of Ito presented by Volcano"
- Aug.26-27,2000: The 2nd Summer School on Earthquake and Volcano: 40 participants
 - "Wacthing Usu" in Sobetsu and Abuta, Hokkaido
 - Cosponsored by VSJ

History (Cont.)

- Jul.20-22, 2001: 2001 World Children's Summit on Earthquake and Volcano in Izu-Oshima: 157 participants
- Oct. 5 and Nov. 16, 2002: Experiments and field trip around the Ueno city in the Training Course of Volunteer Coordinators, "Medaka's(killfish?) School": 16 participants
 - Experiments on fault motion and liquefaction, and seismic observation
 - Excursion around the Ueno Castle, Kizugawa fault, and the Hokekyo Memorial
 - On the request of the Ueno Social Welfare Assoication
- Aug. 2~3, 2003: 4th Summer School on Earthquake and Volcano by SSJ and VSJ in Fuji

The Secrets of the Tanna Fault (1999)



Observation of topography looking down the Tanna basin Explanation of topography by model





Explanation in the Fault Park

Observation of trenched section of fault



The Secrets of the Tanna Fault (1999)



Experiments of fault formation with food



Liquefaction experiment with drink bottle

Summarizing lecture

Shot with "fault"



Watching Usu Volcano(2000)



Explanation of Usu by Prof. Okada





Experiment of lavaflow with flour

Observation of scoria and pumice



The 3rd World Children's Summit on Earthquake and Volcano in Izu Oshima (2001)



Self-introduction game

Observation of cross-section of lava and pumice





The 3rd World Children's Summit on Earthquake and Volcano in Izu Oshima (2001)



Observation of 1986C lava flow

Discussion in team





Briefing in front of Mt. Mihara Panel discussion



Medaka's(killfish) School in Ueno (2002)



Experiment of fault movement Hokkekyo memorial of the1854 Eq.



Explanation of trench excavatio

Watching topography with stereographic viewer





Experiments Made in This Program

- Liquefaction in a drink bottle
- Formation of fault with food stuffs
- Observation of pumice
- Eruption and lava flow with flour
- Magma intrusion with gelatin and oil
- Seismic observation
- Use of tools and materials in daily life
- Old-type equipment
- To help understand the basic mechanism

Liquefaction in a Drink Bottle



Putting sand and water into bottle



Hitting the bottle to generate liquefaction

You can do it with a larger vessel.

Formation of Fault with Food Stuffs

Put flour and chocolate into a box

Apply horizontal contraction

Consolidate the "layer"

Yes, I made it!

Observation of Pumice

Preparation of pumice

Observation of Pumice

Watching pumice with microscope

Experiment on Eruption and Lava Flow with Food Stuffs

Preparation of surface

Preparation of magma reservoir

Experiments of Lavaflow using Flour

Squeeze the magma reservoir

Formation of "lava dome"

Eruption of Magma of Flour

"Lava dome"

"Lava" flow

Experiment of Magma Intrusion with Gelatin and Oil

Preparation of gelatin

Intrusion of magma of oil

Ascent of Magma of Oil

Observation of Seismic Wave

Seismograph (Old one)

Sources

Seismographs Old pen-recorder

The Largest Shock of the Day

Measurements of Seismic Wave Velocity

Recorded seismic wave

Know-how's(1)

- ~5 children/team, 40 in total
- Children of different ages in a team
- Team competition
- ~2days and 1 night/ 2 daily classes for local children
- Collaboration with local government
- Prepare a concrete plan a year before
- Clarification of role and responsibility of staffs

Prizes for Good Question

Gozzila (who was buried in Izu Oshima), Catfish and Mole Cards

Know-how's(2)

- To let participants pay their own expense
- To let children think by giving a task at first
- Bilateral communication:
 - To enjoy communication with children
- To prepare programs in case of bad weather
- To summarize the class
- To prepare souvenir/prize

Example of Assignment

Mt. Fuji

Showa Shinzan

Volcanoes usually have shapes like this.

Example of Assignment

Why is the Izu Oshima volcano flat?

Certificate

まぐま観察博士認定証

平塚市の神田中学のせんせい

佐藤 明子

あなたは、2000年8月26日、有珠山周辺で開催された地震火山こどもサマースクール「有珠山ウォッチン グ」において、火山がなぜ噴火するのか、有珠山がどんな火山なのか、美しい洞爺湖付近の景色がどのよう にして作られたのか、そのふしぎとすごさと恵みなどについて、みんなで楽しく学んだことをここに証しま す。これからも、まぐま観察博士の称号に恥じぬよう、自然の怖さと暖かさの両方をよく考え、災害に強い 地域社会や文化を作っていく努力を重ねられんことを期待いたします。

2000年8月26日

日本火山学会・日本地震学会 サマースクール実行委員会・委員長 高橋正樹

Response from Participants (1)

こんこうは、8月2日のウマースワールは、むすかしかたけれど、

わたしは、4年生なの、てい子どもサマースワールには、出られませんてした。 みんなナマスペイルカードショの、言語をしていて、うらやましかったです。 むすかしかったいと、新聞がんばったので、よかったらナマズイルカードくたっさい。 丹那迷行層の写真は、先生のホームへのーシーを見て書きました。 夏休みのしゅく題であかあさんにてった。てもらいなから書きました。

"いいのらい年も子ともサマースリールかあったらいまたいです。

Response of Participants (2)

0

この夏休み火山はしん世界 こかも対シットに出て学んだこと、 それから調べたことを、まとめてみる ことにしました。 サシットで、いろんなことが、やべ、 友達もできました。 みんな火山てこわいて思っていまなね。 でも火山は、めぐみもあたえてくれる ものなのです。

Requirements for the Future Activity

- Lots of time and labor for preparation
- Small number of staffs with skill and understanding of the policy
- As many participants as a bus can carry
- Enlargement of number of volunteers
 - Permanent organization
 - Manual for new staffs
- Expense paid by participants

Date	Name	Place	Number of days	Fee*	Prticipants
Aug.20-21, 1999	"Secrets of Tanna Fault"	Kannami, Shizuoka	2 days	¥2,500	22 from Shizuoka and vicinity
Aug.26-27, 2000	"Watching Usu"	Sobetsu and Abuta, Hokkaido	2 days	Free	40(Aug.26) 19(Aug.27) from Hokkaido
July 20-22, 2001	2001 World Children's Summit on Earthq. & Volcano	Izu Oshima, Tokyo	3 days (2 nights in a seminar house)	Free	157 from Shizuoka, Kobe, Izu etc. 6 foreign participants

*Travel expense between participants' home and site are not included.

Date	Name	Field Works	Experiments	Lectures
Aug.20- 21, 1999	"Secrets of Tanna Fault"	Observation of topography of fault and volcano	Fault with flour Liquefaction in drink bottle	Strong motion Earthquake Active fault Volcano
Aug.26- 27, 2000	"Watching Usu"	Observation of Usu volcano	Lava flow with flour Observation of pumice	Volcano and magma Eruption and deposit Showa Shinzan Gift and Disaster from Volcano
July 20- 22, 2001	2001 World Children's Summit on Earthq. & Volcano	Observation of Izu Oshima volcano	Lava flow with flour Dyke intrusion in gelatin Handy GPS	Active fault Strong motion Izu Oshima Volcano

Date	Name	Place	Numb er of Days	Particip ants	Field Trips	Experim ents	Lecture s
Oct.5 Nov.16	Medaka' s School	Ueno, Mie	2 daily classe	16 (Oct)	Ueno Castle	Fault with flour	Active fault
			S	6 (Nov)	Kizugaw a Fault Hokekvo	Liquefact ion Seismic	Stereo graphy Tectoni
					memoria I	observati on	CS