

0022-01

Room:303

Time:May 23 08:30-08:45

Topographic models on the Mt. Kannabe in San-in Kaigan Geopark and their effect - Creation of Communicating Geology-

Tohru Sakiyama^{1*}, Noritaka MATSUBARA¹

¹Geo-Env., Inst.Nat.Env.Sci., Univ. Hyogo

Outline of geology and land use

Mt. Kannabe is a quaternary(1 to 2 Ma) scoria cone. Area around Mt. Kannabe is overlaid with scoria and is utilized as the farmland of cabbage. On the other hand, basaltic lava erupted from Mt. Kannabe is distributed along the valley floor. Many waterfalls, pot holes and other eroded structures are observed on the basaltic lava. Rainwater on the Mt. Kannabe becomes underground stream, spring out from edge of the area covered the scoria and flow on the basaltic lava, because permeability of lava is lower than scoria. Japanese horseradish and farmed trout using spring water filtrated by the scoria are special products in the area.

Production of topographic models

We give the learning programs using the topographical relief with geological map for understanding the geological structure and relationship between geology and land use in the San-in Kaigan Geopark. Furthermore, we made a miniature model of Mt. Kannabe for experiment on the penetration of meteoric water into the scoria cone.

Topographical reliefs with geological map were made as a part of life long learning programs in the Museum of Nature and Human Activities Hyogo. The topographic reliefs are made by collaboration among all participants of the program. Besides making the topographic reliefs, they discuss on the geology, geography, rocks etc. They bring the finished topographic relief to the field trip. This process help to deep their understanding of relation between geology and land use.

Miniature of the Mt. Kannabe was exhibit in the "San-in Kaigan Geopark festival". Participants put water on the miniature and they know that scoria easily permeate the rain water and filtrated water is clear.

Communicating Geology

The effect of the producing of the topographic models is not only understanding of geology but deepening the communication among the participants. Communication between members are deepened through working on the topographic models, and the communication more deepen understanding of geology. Furthermore, the understanding of geology should create high level communication. We call "communicating geology" to the geological science creating such positive spiral. Creating the communicating geology should be one of the objects on geological study in the geopark.

Keywords: geopark, life long learning, geological map, communicating geology, topographical relief, San-in Kaigan

0022-02

Room:303

Time:May 23 08:45-09:00

Training of guide in Itoigawa geopark

Hiroshi Miyajima^{1*}, Yoshiyuki Iwasaki², Seiichi Saito², Toshiyuki Oshima², Naoshi Watanabe², Hitoshi Sekizawa², Hiroko Torigoe², Ko Takenouchi¹, Yousuke Ibaraki¹

¹Fossa Magna Museum, ²Itoigawa geopark promotion office

Introduction

The role of a guide at the geopark is very essential. An excellent guide satisfies the intellectual curiosity of the geotourists, and at the same time he is a good educator who invites people to the world of 'the GEO'.

A good guide attracts geotourists to visit a geopark again. He will also elevate people's consciousness of the importance of resource preservation in the geopark. In short, a guide has a key role in three basic elements in a geopark: 'preservation', 'the education and research' and 'the trip' and thus the success of a geopark largely relies on them.

Here, we would like to report the training of the guide in Itoigawa geopark (abbreviate Itoigawa Geopark as IGP in the following).

The guide in "Pre-Geopark period"

Before aiming for the Global Geopark, there was Itoigawa guide society and its members were used to guide cultural sciences, like the jade culture, Choujagahara remains, Princess Nunakawahime, the salt trail, festivals and the writer Gyofu Souma. Natural science was hardly included in the guide in those days.

The guide in "Geopark period"

The importance of a guide was re-recognized and, various guide training have been done from 2006.

Guide training field trip

This field trip has begun in 2008. An excursion was carried 4 times in 2008 and 2009, and 6 times in 2010 in major areas such as Itoigawa-Shizuoka Tectonic Line and salt trail Geosite, Kotaki-gawa jade gorge Geosite, Benten-iwa Geosite etc. We tried to share knowledge of not only curator's but also participant's who has special mastery in specific area. To keep learning quality, the number of participant was limited and the preliminary inspection had been done to prevent accident.

IGP exam

In 2009, the first IGP exam was held to generate geopark awareness. 464 people aged 8 to 80s, and 433 persons passed. The advanced examination was done in the following year. 121 persons took beginners and 136 people took advanced level.

Official Geopark guide (the first term)

The authorized guide was chosen as the first term guide from the person who has actual guide experience and/ or passed Geopark examination.

Official Geopark guide test

To see guide experience and motivation of candidates, the official guide test was held at Oyashirazu Geosite. Specifically, examinee had to show tourist, who were disguised by two geopark staffs, Oyashirazu Geosite in limited time by their own way. At the same time, dress, attitude, walking speed, talking and the correctness and so on were checked. As a result 16 people passed and certified as the second term official Geopark guide.

Start of IGP official guide group

Now that official geopark guide totalled 35 persons, IGP official guide group made a start to share member's experience and skill up. On-the-job training and meeting of the guide is going to be held.

The issue concerning Geopark Guide

The main issue is guide fee of the official guide. At the moment, tourist is charged only ¥1000 uniformly. When compared it with the guide charge of the Iwami silver mine for example (until 3 hours, 5000 yen), very cheap. Because the guide fee greatly

influences motivation and sustainability of the guide, it's important to discuss thoroughly among geopark staff, tourist association and guides.

Keywords: Itoigawa geopark, guide, training, certification, geotourism, guide fee

0022-03

Room:303

Time:May 23 09:00-09:15

Educational programs executed in the Unzen Volcanic Area Geopark- examples of "Problem-solving type geotour"

Marekazu Ohno^{1*}

¹Unzen Volcanic Area Geopark

The result of the Programme for International Student Assessment (PISA) 2006, coordinated by the OECD, has been showed the decline of academic standard of Japanese children. In the evaluation as to reading, mathematics and sciences, reading showed remarkable decline of the score. For science category, it was emerged that Japanese children tend to be inferior the ability which recognize questions scientifically and which explain natural phenomena scientifically. The result of the PISA 2009 also showed same tendency. In order to correspond to these results, the Ministry of Education, Culture, Sports, Science and Technology (MEXT) construct the new Courses of Study, which has been enforced to elementary and junior high school. The main purpose of the new Course of Study is to foster "zest for living"(IKIRUCHIKARA) in children; briefly to human nature, healthy body, and the ability to find out new problem and solve them oneself. I define this ability as problem-solving skills in this abstract.

On the other hand, it is needed for geopark to conserve and utilize geological and geographical heritages including human history and culture to scientific study, education, and tourism for local promotion. The purpose of the education promotion in geopark, therefore, must be corresponded to those of the Course of Study defined by MEXT. In this presentation, I introduce two educational programs of "problem-solving type" for elementary and junior high school student executed in the Unzen Volcanic Area Geopark .

Problem-solving type geotour I "Hot springs geotour"

The 6 grade of elementary school learn the character of liquid. In this unit, it is a purpose to classify the liquid into three groups using litmus paper; acidity, neutrality and alkalinity. The liquid used in this unit usually uses the hydrochloric acid, the soda water, the brine solution, vinegar, and the aqueous sodium hydroxide. In the geotour, experiment of classification of liquid uses real hot springs gushed out from ground. Since the Obama, Unzen, and Shimabara hot springs have different characters as to liquid quality; alkalinity, strong acidity and weak acidity, respectively, students can be learned the differences of the liquid by experiments for these hot springs.

Problem-solving type geotour II "Treasure Stone geotour"

The 1st grade of junior high school learn volcanic activity, igneous rock, and stratum and its special distribution. The purpose of the geotour is to understand the rock diversity by observation of rocks yielded from Shimabara Peninsula. In the Shimabara Peninsula, all of the main volcanic rocks (basalt, andesite, dacite and rhyolite) can be observed. In addition, conglomerates of sedimentary and metamorphic rocks derived from Kyushu Mountains are deposited at the coast of south area of the Peninsula. Therefore, various kind of rocks and their differences can be learned by a day.

Notes and problems of "Problem-solving type geotour"

The notes of "Problem-solving type" geotours are summarized as follows;

- 1)Intimate communication and giving information necessary to solve problem to children.
- 2) To secure safety and press remark and awareness of children, it is need to arrange an assistant per five children.
- 3) In order to develop the contents learned in geotour at school and /or home, it is prepared an original leaflet and a home teaching material.

And the problems of "Problem-solving type" geotours are also summarized as follows;

- 1) Since the "Problem-solving type geotour" need the original leaflets, experimental materials and home teaching materials, it costs compared with a usual tour, and needs preparation time.
- 2) To prevent the difference being caused in the content of the assistant's guidance, it is necessary the prior meeting among assistants.

Keywords: Unzen Volcanic Area Geopark, PISA, New Corses of Study, zest for living, problem-solving skills, problem-solving type geotour

Japan Geoscience Union Meeting 2011

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

©2011. Japan Geoscience Union. All Rights Reserved.



0022-04

Room:303

Time:May 23 09:15-09:30

Geotourism and its problems in Shirataki Geopark

Makoto Kumagai^{1*}, Hidetoshi Horishima¹

¹Engaru Town Geopark Promotion Department

It introduces the example and the problem of the geotourism in the Shirataki Japanese Geopark.

Keywords: Shirataki Geopark, Obsidian, Geotourism

Japan Geoscience Union Meeting 2011

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

©2011. Japan Geoscience Union. All Rights Reserved.



0022-05

Room:303

Time:May 23 09:30-09:45

Toya Caldera and Usu Volcano Global Geopark Welcomes You to the 2nd Japan Geopark Network Convention Sep.29-Oct.1, 2011

Toshiya Tanabe¹, Yumiko Haraguchi¹, Keiichi Noro¹, Toshiya Takahashi¹, Nire Kagaya^{1*}, Tadahide Ui², Naoyuki Ohshima¹, Saburo Mimatsu¹, Hiromu Okada²

¹Toya-Usu Global Geopark Council, ²NPO CeMI

Toya Caldera and Usu Volcano Global Geopark is located in the southwestern part of Hokkaido. Most of the areas spread over Date City, Toyoura Town, Toyoko Town and Sobetsu Town. It covers also western part of the Shikotsu-Toya National Park. Annual tourists counts approximately 6,870,000 (5.2% of the total in Hokkaido), and foreign lodgers are approximately 200,000 (10% of the total), in 2009.

The 2000 eruption of Mt. Usu caused great damage in the area. Since then 4 municipalities, Date, Toyoko, Toyoura and Sobetsu have been promoting the concept of an "Eco Museum" as a reconstruction effort under the main theme "Living Together with Ever-Changing Earth". Under this program, municipalities and Government constructed facilities, information center and geo sites, and people participated various programs including field study tours.

It was the time of creation of new program "Geopark" in the world. Because the main concept between world geopark and our eco-museum are so similar, we made a decision to switch the program into Geopark. "Toya Caldera and Usu Volcano Geopark" was born in 2007, and on August 22, 2009, it was finally designated as the member of the Global Geoparks Network, the first of the three in Japan.

At Toya Caldera and Usu Volcano Global Geopark, you can enjoy the spectacular works of nature - caldera lake "Toya", Nakajima and Usu volcano, and learn about the close relationship between our lifestyle coexisting with the nature since the Jomon-Ainu Era. There are many attractive sites and opportunities learning at museums (volcano, prevention disaster, shell-mound of aboriginal Jomon people, natural environment, etc), and enjoying trails, guided tour. The volcano's gift treasure - hot springs and delicious marine and farming foods will also welcome your visit here.

We introduce a new system of "Volcano Meister", as a part of man power enrichment program. 16 members presently assigned as a Volcano Meister and are participating in various geopark activities.

The 2nd Japanese Geoparks Network Conference will be held in the Toya Caldera and Usu Volcano Global Geopark during Sept. 29 to Oct. 1, 2011. We are looking forward your attendance, and asking you a favor for advices and comments.

Keywords: toya, usu, geopark, volcano, co-existence, disaster prevention

Japan Geoscience Union Meeting 2011

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

©2011. Japan Geoscience Union. All Rights Reserved.



0022-06

Room:303

Time:May 23 09:45-10:00

Geoguides training program in Aso Geopark

Yoshioki Sato¹, Kazunori Watanabe¹, Hidetoshi Sakamoto¹, shinichiro ikebe^{1*}, Akinobu Ishimatsu¹, Yoko Suzuki¹

¹ Aso Geopark Promotion Council

Aso Geopark was accredited as a member of Japanese Geoparks Network in 2009 and we are currently aiming at to be a member of Global Geoparks Network. Aso Geopark has recently started a program to train Geoguides.

In Aso Geopark, we have promoted Eco-Tourism for quite a long time but the people who guide tourists are mostly focusing on the plants and history. The course is designed by the experts of volcanology to introduce the basic knowledge on topography and geology of Aso Volcano, in addition to overviewing the connection between spring water in Aso area and Aso Volcano. The association of geology and topography of Aso Volcano with culture is also highlighted. The course provides two hours per class every Saturday for 15 weeks. Studying in the fields is also required. Those who finish the above-mentioned course and field study are recognized as Geoguides.

Keywords: Aso, geopark, guide, training program

0022-07

Room:303

Time:May 23 10:00-10:15

Muroto Geopark -Our determination to pursue GGN membership and areas needing improvement

Okada Tetsuya^{1*}, Tadahiro Shibata¹, Tanaka Keiichi¹

¹Muroto Geopark Committee

1. Introduction

Muroto is located in one of the most active marginal zones worldwide. This region has been affected by natural disasters including huge earthquakes, tsunamis and typhoons. Despite all these challenges, people have lived enriched lives for over 1000 years on the Muroto Peninsula. Muroto Geopark communicates to the visitors the relationship between its geoheritage, harsh natural environment and people who live in symbiosis with nature. Also it has been utilizing its resources for education, disaster prevention, scientific researches and geotourism. In this presentation, we present our determination to pursue GGN membership, as well as the areas needing improvement, and report our recent progress.

2. Purpose of our geopark activities

Our application for the Global Geoparks Network (GGN) has three purposes.

The first purpose is to communicate the geoscientific significance of Muroto's geoheritage through the alliance with other GGN member geoparks. Muroto Geopark is not only a place to learn about the ongoing processes characteristic of a subduction zone, but is expecting large earthquakes and tsunamis that are predicted to occur. It can contribute to the geodiversity of GGN, and show the world how the area formed by tectonic actions sustains our community.

The second purpose is, by joining the GGN, to strengthen the networking among our community members, considering the affiliation with the GGN as one step in our ongoing progress. We are aware of the need to re-evaluate community resources, encourage networking among members and cooperate by sharing information. We aim to increase the local people's interest in the community, stimulate their curiosity and increase their sense of pride.

The third purpose is to make a positive influence on other areas with geoheritage. If Muroto City, with depopulation and declining industry, can conserve and utilize its geoheritage and achieve a sustainable development, it can encourage areas with similar problems elsewhere in the world.

3. Geoeducation as the first step of improvement

Muroto Geopark joined a national network in 2008, and gained endorsement to be a candidate for membership of the GGN in 2010. However, we failed to obtain the said endorsement twice in previous years. We attribute the failure to our inadequacy in promoting geotourism. Our areas needing improvement includes hub facilities, signage, community involvement and strategies to have tourists travel around and stay longer in Muroto.

In order to improve these issues, we have been focusing on education. We expect that education will realize children's potential to become great contributors to the sustainable development of the local economy. In the future, they are expected to support geopark-related activities as community members or researchers.

The 11th Children's Summer School on Earthquakes and Volcanoes held in Muroto in August 2010 truly influenced the way community members see the geopark. The participant children, who became "Muroto Geopark Kid Advisors" later, had a great learning experience with scientists. Community members also became highly interested in the geopark after this event, including schoolteachers who have been incorporating geopark themes in their teaching. Signage and pamphlets have been revised to reflect children's point of view.

4. Toward the future

As mentioned above, an educational event brought about a turning point, and Muroto Geopark began to attract increasing attention of the community. Moreover, growing number of community members want to gain accurate knowledge of the geopark

and communicate it to visitors. We, Muroto Geopark Promotion Committee intend to support the geopark activities run by community members through their own initiative. We expect that the effort will strengthen the collaboration with various industries including tourism, which will help us achieve our goals as a geopark.

Keywords: Muroto, Geopark, Global Geopark Networks

O022-08

Room:303

Time:May 23 10:15-10:30

Evaluation and publication of resources for tourism and risk factor of the disaster -a case study in Shirouma Daisekkei-

Jiro Komori^{1*}, Yoshihiko Kariya², Kuniyasu Mokudai³

¹Dept of Geo & Min, Bhutan / Nagoya Univ, ²Dept of Environ Geography, Senshu Univ., ³Pro-Natura Foundation Japan

Shirouma-daisekkei (hereinafter mentioned as "Daisekkei") which is one of the famous trekking route in Japan shows important resources for tourism, because as far as the lowest part can be approached by even ordinary tourists. The convenient transportation from the urban area to the base of the trail means the southern gateway of the Itoigawa Geopark. Furthermore, the alpine landscape in the Daisekkei; perennial snow patches, steep and bare rock cliffs and alpine plants feast the tourist eyes and excite the climber hearts. The background of such resources for tourism is formed by the tectonic activity around the Itoigawa-Shizuoka Tectonic Line, complicated glaciation in the glacial period and landslide activity and heavy snow/rain in the present time.

On the other hand, fatal and injury accidents occur frequently due to many rock fall and slope failure. These cases are also effected by above mentioned geographic condition and natural phenomenon as the risk factor, i.e. crowded climbers, fragile geology and steep slope and deep snow accumulation/dense fog as the obstacle to the rock fall observation.

Hence, natural phenomena in Daisekkei compose bilateral character, such as the resources for tourism and the risk factors. This relation is also identified in the other geoparks and its candidates. Since the initial planning of the geoparks, geoscience knowledge and experiences has been benefited for excavation, evaluation and propagation of the resources. However, the risk factors which seem as negative impact also have to be collected and disclosed by the knowledge and experiences, with the local side (i.e. government and industrial side). If the visitors understand the resources and risk factor has common background and geoscientific question "why this topography and geology is existed here?", they can enjoy safety geopark with diversified and essentially viewpoint.

In this presentation, we will introduce and discuss the resources for tourism and risk factor in Daisekkei as the case study.

Keywords: Itoigawa Geopark, snow patch, rock fall, climbing accident, information disclosure, self responsibility

O022-09

Room:303

Time:May 23 10:45-11:00

Mount Shinmoe 2011 Eruption and Kirishima Geopark

Ryusuke Imura^{1*}

¹Kagoshima University

Mount Shinmoe (1421 m tall) which straddles both Kagoshima Prefecture and Miyazaki Prefecture has had small eruptions from time to time since its small-scale eruption in August of 2008. However, since the morning of January 26, 2011 it has been continually active. From 3:15 p.m. on the 26th, a large-scale sub-Plinian eruption continued for a few hours, spreading lapilli and volcanic ash made up of pumice over a wide area. Moreover, on January 28 a lava dome was detected inside the crater, and on February 1 an explosive eruption sent aerial vibrations that broke windows and injured some people. Given these circumstances, nearby neighborhood associations have offered information on regulations regarding entry into the mountains and traffic news and have called out to residents in nearby communities to stay alert for eruptions.

In the Pan Kirishima area, we have been putting much effort in disaster prevention as part of promoting Geopark activities. In March of 2009, we constructed a Kirishima Volcano Disaster Prevention Map and distributed the map to residents in nearby communities and from April to May held information sessions at every neighborhood association. We believe that the smooth evacuation of residents in communities near the volcano in response to the recent eruption was a result of such preparations. We also believe that the many lectures and geotourism events about Mount Kirishima we have thus far planned played a large role in educating the civil servants in nearby municipalities and residents of the area about Mount Kirishima, which in turn led to their calm response to the eruption.

The Mount Kirishima Mount Shinmoe eruption of 2011 has shown to the world for the first time that this Geopark plays an extremely important role in disaster prevention.

Keywords: shinmoe-dake, kirishima, eruption, geopark, disaster prevention

Japan Geoscience Union Meeting 2011

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

©2011. Japan Geoscience Union. All Rights Reserved.



0022-10

Room:303

Time:May 23 11:00-11:15

Geopark and Volcanic hazards

Shinichi Sugimoto^{1*}

¹GEO PARK 2012 CONFERENCE

Many blessings are brought at the quiet time though the volcano causes man the disaster at time.

The promotion of the Geopark is not only pass information as to geological and geographical value of the nature, history and culture of local people, but also play a role of a volcanic disaster prevention.

It is very important for reducing the disaster to know the characteristics of volcano and its eruption style.

Therefore, the volcano education that uses Geopark enables sustainable regional disaster prevention.

Keywords: geopark, volcanic, hazards

O022-11

Room:303

Time:May 23 11:15-11:30

Understanding of local geological history and awareness of its value through education process for geotour guiding

Shin Murakoshi^{1*}, Masato Koyama¹, Tomoki Uenishi²

¹Faculty of Education, Shizuoka University, ²Izu Sogo high school

Understanding of local geological history and awareness of its value through education process for geotour (field excursion in geoparks) guides were investigated with high school students in Izu Peninsula. Sixteen students were guided to Izu Peninsula, which is one of proposed sites for geoparks in Japan, by a university professor of geology. After the geotour, the students planned by themselves a geotour for local primary school pupils. Change of interest to science and geology, and self-evaluation of awareness and understanding of local geological history were measured by questionnaires to the students. Concept maps were also collected before and after the whole project. Effect and educational significance of geotour guiding, as well as problems to be solved were discussed.

Keywords: geo-guides, geo-tour, Izu-Peninsula, key-competency

Japan Geoscience Union Meeting 2011

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

©2011. Japan Geoscience Union. All Rights Reserved.



O022-12

Room:303

Time:May 23 11:30-11:45

Next millennium vision for Geoparks in Japan

Mahito Watanabe^{1*}, Committee for next millennium vision of Geoparks in Japan²

¹Geological Survey of Japan, AIST, ²Japan Geoparks Network

To achieve sustainable society in mobile belt like Japanese islands, it is necessary to know about the earth system and its time cycle of activity. However, people in Japan do not know well about the earth due to lack of enough geo-scientific education. To make these situation better, the Japan Geoparks Network (JGN) has started "Next millenium vision of Geoparks in Japan" project. This project aims to;

- Understand geological and human history within and around each Geopark
 - Establish the next millennium vision of each Geopark area considering possible natural events in next thousand years in the region
 - Spread a message that a longer-term plan is necessary for the society to realize sustainable development considering natural disasters and global environmental problems
 - Foster children who can consider future of the reginal and global society with longer-term scientific framework
- To achieve these aim, we have started;
- To study regional history and geohistory of each Geopark area
 - To organize geo-scientist and local historian in geoparks to help those studies

Through these activities we expect that local people will notice the geological characteristic features of their own areas and utilize the features to develop their regions. Earth sciences will play a important role in the process of such activity and will be accepted more widely in the society.

Keywords: Geopark, Ecucation of Earth Science, Regional development, Sustainable development