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

O022-01 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-

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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

Japan Geoscience Union Meeting 2011
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O022-02 Room:303 Time:May 23 08:45-09:00

Training of guide in Itoigawa geopark

Hiroshi Miyajima[1*], Yoshiyuki Iwasaki[2], Seiichi Saito[2], Toshiyuki Oshima[2], Naoshi Watanabe[2], Hitoshi Sekizawa[2], Hiroko Torigoe[2], Ko Takenouchi[1], Yousuke Ibaraki[1]

[1]Fossa Magna Museum, [2]Itoigawa 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 lattract geotourists visit a geopark again. He will also elevate people's consciousness of the importance of resource preservation in the geopark. In short, guide has key role in three basic elements in geopark: 'preservation', 'the education and research' and 'the trip' and thus the success of geopark hugely 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 masterly in specific area. To keep learning quality, the number of participant was limited and the preliminary inspection had 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

Japan Geoscience Union Meeting 2011
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O022-03 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*]

[1]Unzen 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
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O022-04 Room:303 Time:May 23 09:15-09:30

Geotourism and its problems in Shirataki Geopark

Makoto Kumagai[1*], Hidetoshi Horishima[1]

[1]Engaru Town Geopark Promotion Department

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

Keywords: Shirataki Geopark, Obsidian, Geotourism

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O022-05 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 Tanabe[1], Yumiko Haraguchi[1], Keiichi Noro[1], Toshiya Takahashi[1], Nire Kagaya[1*], Tadahide Ui[2], Naoyuki Ohshima[1], Saburo Mimatsu[1], Hiromu Okada[2]

[1]Toya-Usu Global Geopark Council, [2]NPO 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, Toyako 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, Toyako, 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
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O022-06 Room:303 Time:May 23 09:45-10:00

Geoduides training program in Aso Geopark

Yoshioki Sato[1], Kazunori Watanabe[1], Hidetoshi Sakamoto[1], shinichiro ikebe[1*], Akinobu Ishimatsu[1], Yoko Suzuki[1]

[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

Japan Geoscience Union Meeting 2011
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O022-07 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 Shibata[1], Tanaka Keiichi[1]

[1]Muroto 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

Japan Geoscience Union Meeting 2011
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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 Kariya[2], Kuniyasu Mokudai[3]

[1]Dept of Geo & Min, Bhutan / Nagoya Univ, [2]Dept of Environ Geography, Senshu Univ., [3]Pro-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 geocientific 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

Japan Geoscience Union Meeting 2011
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O022-09 Room:303 Time:May 23 10:45-11:00

Mount Shinmoe 2011 Eruption and Kirishima Geopark

Ryusuke Imura[1*]

[1]Kagoshima 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 Januray 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
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O022-10 Room:303 Time:May 23 11:00-11:15

Geopark and Volcanic hazards

Shinichi Sugimoto[1*]

[1]GEOPARK 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

Japan Geoscience Union Meeting 2011
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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 Koyama[1], Tomoki Uenishi[2]

[1]Faculty of Education, Shizuoka Universit, [2]Izu 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
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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 Japan[2]

[1]Geological Survey of Japan, AIST, [2]Japan 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 desasters 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

Japan Geoscience Union Meeting 2011
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O022-P01 Room:Convention Hall Time:May 23 16:15-18:45

Reconstruction of the environment of maximum Wurm of Shirataki regeon in Engaru Town, Hokkaido

Takao Oka[1*], Takayuki Kato[1], Mayuko Yonejima[1], Tomoaki Iida[1], Yaeko Igatashi[2], Makoto Kumagai[3]

[1]Earth Science Co., Ltd, Japan, [2]Institute for Paleoenvironment of N.R., [3]Engaru town office, Hokkaido

The main scientific theme of Shirataki Geopark is the explanation of 2 to 3 Ma volcanic activity concerned with obsidian and the use of it by peoples. The Shirataki Obsidian is of common knowledge as material of paleolith, and had been studied minutely in archaeology. On the other hand the reconstruction of the environment of maximum of Shirataki region had not been tried in the period of about fifty years after the Association of Scientific Collaboration for Shirataki Region and M. Kounoya et.al studied topography and geology of the region. We will lecture on the reconstruction of the environment of maximum Wurm of Shirataki region revealed by 14C-dating and pollen analysis with sedimentary facies analysis linking the promotion of geopark in Engaru Town.

Keywords: geopark, maximum Wurm, pollen analysis, 14C-dating, Paleolithic age, Shirataki

Japan Geoscience Union Meeting 2011
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O022-P02 Room:Convention Hall Time:May 23 16:15-18:45

The highlight of SHIRATAKI geopark and trying to prepare the guidebooks for a guide of geosites

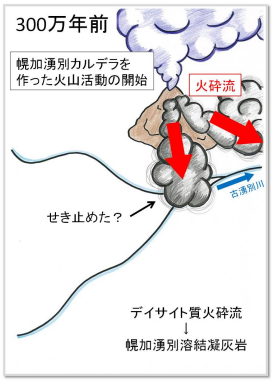
Mayuko Yonejima[1*], Takayuki Katoh[1], Takao Oka[1], Keiji Wada[2], Makoto Kumagai[3]

[1]Earth Science Co., Ltd. JAPAN, [2]Hokkaido Univ. of Education, Asahikawa, [3]Engaru town office

In 2010 SHIRATAKI geopark were designated for a Japanese geopark.

There are plenty of geosites covering a story of long geological time periods. A main theme is ”Obsidian” (including archeological heritage), and the minor themes are a story of geological history, tectonics, environmental change....

We have been trying to prepare the guidebook to a few model courses.One of the courses is ”Shiyubetu River course”. We report the process of preparing the guidebook in case of this course.



Keywords: SHIRATAKI geopark, obsidian, guidebook

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Report on elementary guide training program in Mt. Apoi geopark

Toshio Kurumada[1*], Takumi Harada[1]

[1]Mt. Apoi Geopark Promoting Council

We report the purpose and the problem of the guide training program in Mt. Apoi geopark.

Keywords: Samani town, Mt. Apoi, Geopark, Furusato-Geo-Jyuku, guide training

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O022-P04 Room:Convention Hall Time:May 23 16:15-18:45

Toya Caldera & Usu Volcano Global Geopark Guide

Tadahide Ui[1*], Hiromu Okada[1], Nizaemon Kagaya[2], Shinobu Ando[2], Akiko Watanabe[1], Tatsuro Hirota[1]

[1]CeMI, [2]Toya Caldera & Usu Volcano Meister

Publication of official route guides for Toya Caldera & Usu Volcano Global Geopark has started. Authors are scientific advisors of the Geopark and Usu Volcano Meisters. Contents of each volume are brief description of geo-points, a route map, some topics and glossary. Technical staffs of NPO CeMI performed design and editorial works. Each volume is full-color, A5-size and 32 pages. Listed price is 200 yen each. The following volumes are now available at the Toyako Visitor Center and some hotels.

Vol.01 Yosomiyama Trail
Vol.02 Konpirayama Trail and 2000 Eruption Memorial Park
Vol.03 Trail at the western foot of Nishiyama
Vol.04 Usu Somma Trail

We plan to publish further volumes on the other geosites, introductory volume of the entire Geopark and English version of each volume.

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O022-P05 Room:Convention Hall Time:May 23 16:15-18:45

Earth studies as a part of consistent education program through elementary, junior high and high schools in Shikaoi Town

Youji Funakoshi[1*]

[1]Shikaoi elementary school

The ”Earth studies” is one of the main frame of domestic education program through elementary, junior high and high schools in Shikaoi Town. We will present the history and case sample of out-door education programs corroborating with nature-guides in Shilkaribetu lake.

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The Oga Peninsula-Ogata Geopark Plan

Hirokazu Takeuchi[1], Tateo Shiraishi[1*]

[1]Oga Pen.-Ogata Geopark Promotion Council

The stratigraphic succession of the Oga Peninsula is regarded as the standard section of the Neogene of the inner Japan arc and records the 50 million year geologic development including the break up event of the Japan Sea.Ogata-mura is founded half a century ago on the reclaimed lake bottom of the Hachirogata-lagoon and carry out large scale agriculture on fertile lake sediments.

These areas are experiencing great shortening deformation under compressional stress regime in the Quaternary. Three types of Quaternary volcanoes(Toga, Megata, and Kampu volcanoes) were formed and youger formations were highly deformed. Late Pleistocene marine terraces of the Oga Peninsula and underground geology of the Hachiro-gata lagoon record ongoing uplifting and subsidence respectively.

Active crustal movement has caused many disasters on the people. Many lives were lost by the Tunami and ground failures occurred by liquefaction generated by the Nihonkai-chubu earthquake of 1983. Moreover, earthquakes directly above their forcus had produced great damage in 1939 and1810.

On the basis of these characteristics of the Oga Peninsula and Ogata area, we work out a detailed design for our Geopark as a theme park where people will meet following three stories; 1)geologic development, 2)interrelationship between ground and human on it and 3)gifts supplied from the earth.

Keywords: Oga Peninsula-Ogata, Geopark, Neogene geologic development, Recent crustal movement, Seismic disaster

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we are supported by a gift from the earth -yuzawa city geo park plan-

makoto numakura[1*]

[1]yuzawa city geo park conference

The city of Yuzawa, Akita Prefecture.
We would like to join the world of Geoparks Network and We will introduce the concept of Geoparks Yuzawa.

Yuzawa City has a lot of gifts from the earth and the site of hot springs and geothermal and mining.

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Shimonita town trying for Geopark

The council of geopark[1], yasuyuki kanai[3], hideo suzuki[2], Tomohiko Sekiya[2*]

[1]The council of geopark Shimonita, [2]The Shimonita town board of education, [3]The council of geopark Shimonita

1) The central Sanba River metamorphic rocks and the Chichibu Meso-Paleozoic stratum, which continues along the central line to Kyushu.
2) The Nenashi-Yama (rootless mountain) Group includes Atokura Krippe, which was selected as one of the 100 most important geological phenomena in Japan.
3) The Shimonita Tectonic Line has a rich geological structure that is said to hold the key to explaining the process of the Japanese archipelago's formation.
4) Motojuku Cave in Saimoku formed around 900 million years ago.
5) The magnificent projection of the Kanto Loam Stratum's top lies 10 meters deep and an impressive 200 meters wide.

Many of Shimonita's geological phenomena are concentrated within a circumference of 10 kilometers, so you observe everything within a very short distance; there is no place in the world that you can see these phenomena other than Shimonita.

In addition, Mt Myogi and Mt. Arafune are very odd and uniquely shaped mountains. Even if you do not know much about geology, you can simply enjoy the experience of hiking these distinctive structures and viewing the exceptional scenery.

In Gunma Prefecture, there is a popular card game called Jomo Karuta that highlights Shimonita's internationally famous products such as negi (Japanese green onions) and konnyaku, as well as it's wealth of tremendous mountains and geological formations.

Recently, Shimonita Town has been expanding PR efforts based on the slogan "Negi and Konnyaku Geopark ".
From April 2010, the Geopark Implementation Committee will expand its central headquarters into the old Aokura Elementary School. In the future, all questions that people have about the Shimonita Geopark can be directed to the committee at the Aokura headquarters.

Until now, Shimonita Town has been a very interesting and fascinating place only
between geological researchers and their staffs, but now the town wants to promote and explain these magnificent places to the general public by making a plan to train Shimonita locals to be guides for visitors and by creating events that everyone can easily participate in and enjoy. The whole town of Shimonita is very excited about the potential of getting UNESCO Global Geopark recognition.

Keywords: Geopark, shimonita town, Krippen

Japan Geoscience Union Meeting 2011
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Development and utilization of geological information in Ibaraki Prefecture -Application for North Ibaraki Geopark plan-

Taiki Kobatake[1*], Chiho Saito[1], Haruna Takimoto[1], Kaori Zushida[1], Jun Hosoi[1], Ibaraki University Geological Information Utilizing project team[1]

[1]Environmental Sciences, Ibaraki Univ.

Geopark is a nature park with important scientific inheritance and has been famous as the resource for scientific sightseeing in Japan. There are 14 Geoparks(JGN) in Japan in January 2011. The activity of the construction of Geopark is growing and the locations of it will increase in the days ahead. North Ibaraki area is one of them. The Ibaraki University Geological Information Utilizing Project, which has been established in 2007, is composed mainly of the Ibaraki University students. We have made 14 ”Geological Sightseeing Map” and ”North Ibaraki Geological Point Map”. These maps are very useful for geo-tours. Now, our project is working as a member of the committee of the North Ibaraki Geopark Plan.

Keywords: Ibaraki Prefecture, Geopark, geotourism, regional development

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Chichibu basin.Peculiar climate in which it draws close to various geological features

Ken-ichi Yoshida[1*], satoshi miyagi[1]

[1]The Chichibu Geopark Promotion Council

The Chichibu area is located on the eastern edge of outer zone in Southwest Japan. Neogene sytem and Quaternary sytem are piled on the bases of Sanbagawa belt, Chichibu belt, Shimanto belt and Sanchu graben. During the Miocene era, Chichibu was covered with the sea that stretched out to the east and marine sediments were piled up. Presently the east side was upheaved, and the mountains of Sanbagawa metamorphic rocks emerged from deep down underground. Chichibu was isolated from the Kanto plains.

Magma intrusion to the west caused contact metamorphism to limestones, etc. of Chichibu belt. This inheritance of the earth supported the living of the people in Chichibu.

Chichibu's basin is a big factor to brew the original climate of Chichibu.

The location of Chichibu affected the life of people there. Chichibu is near Edo or Tokyo. Many people engaged in forestry and the fuel industry for the city of Edo or Tokyo, and iron, limestone, and silk supported the living of people. Now a lot of tourists visit Chichibu as it is one of day trip spots from Tokyo.

Because of this, the modern geology of Japan chose Chichibu as the first field. Sedimentary rock, igneous rock, and metamorphic rock exist, and it provides with material that shows Palaeozoic, Mesozoic, and Cenozoic. It is a good field for the researchers and the students who research or study Geology because they can observe a basic element of Geology. This is why they call Chichibu "The Cradle of Geology in Japan".

For a long time, Iron deposit and limestone have been very important provisions for the people in Chichibu. Chichibu is begining to change. Profound and huge industries are declining. Things that never used to be reflected are now in the spotlight. Phloxes of Hitujiyama hill, irises of Ryoukami, icicle of Ohtaki and autumn tints of Nakatugawa, etc. are healing a lot of people's hearts and minds.

Maples that survive in steep geographical features of Chichibu belt. Buildings where mulberry and silk are recalled. Ruins of Chichibu mining companies. Stone images made from stone of Chichibu. They are still valuable existence now. A lot of NPO groups are established, and the approach to satisfy a new demand is developed everywhere.

The Chichibu Geopark Promotion Council acts as a pivot of the movement. The catchphrase is "Geopark Chichibu." One city and four towns and related groups of NPO added the element of Geo to past activities, and they started new ones.

We considered how to make many people understand the feature of Chichibu Geopark. So we make posters and billborads plainly. Also we always thought as "12 year old kids can understand our posters and billboards."

-The relation between various geological features and geographical features is understood at one view.
-We represent geologic time "About ∗∗ years ago." Only few people can understand relative age.
-Geo site is the place where the minimum security precurity precaution is needed.
-Minimum English is used.
-Even after the recognition of Geopark, we kept the possible design in our minds.
-We avoid introducing the fossil collection places.
-We made the A4 edition of the same design as the poster. The meeting of each group was printed on the table, aiming at its popularization.
-The supplementation explanation pamphlet is made.

The Chichibu Geopark Promotion Council was established in 2011. Various activities have been done since then. Poster making, paying for signboards, developing school education ..summary signboard installation.. old, and geologic excurtion, etc. the special official arrangement, training association lecture meetings, and advanced inspected geopark..

Keywords: Chichibu, various geological features, basin geographical features, the cradle of geology, Chichi belt

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Aiming to gain the Golden-spike to Tabuchi outcrop -Consolidation and preservation of the type section proposed-

Nobuyuki Aida[1*], Council for Certifi. of Chiba Geopark[2]

[1]Omigawa Senior High School, [2]Theoretical Study Center for E.P.M.G.

1.preface

Council for Certification of Paleo-Kanto Great Depth Submarine Basin Geopark was organized in December, 2009 at the mother's body in the Association for the restoration of Ikedea-no-ike .The business which was done first is the consolidation and the preservation of the outcrop of the title.

2.Stratotype and Golden-spike

The rivet of the gold which is called Golden-spike from IUGS is struck by the international stratotype. The Lower-Middle Pleistocene boundary can readily determinrd on the basis of the Matuyama-Brunhes magnetic polarity reversal (B/M boundary),and the stratotype isn't yet decided. The candidate sites sre two outcrops of Italy and Tabuchi outcrop on the River Yoro right bank of Ichihara City. At Tabuchi outcrop, the Byakubi (TNTT) volcanic ash is in the about 1 m higher rank of the B/M boundary. The base of this Byakubi volcanic ash layer is proposing with the Lower-Middle Pleistocene boundary.

3.Efforts to have paid to the authorization of stratotype

The following efforts were accomplished. 1)The seminar with twice and the briefing to the local community were done. 2)It made an outcrop name " the stratum in the geomagnetic field reverse period " and it installed an explanation signboard (October, 2010) (It establishes an English bulletin board in January, 2011). 3)It installed a guideboard in several places of the roads from the parking lot to the outcrop. These are a coagency with local Tabuchi neighborhood association. 4)An international symposium was hosted in Ichihara City on January 15-16th, 2011. We had the opinion that Chiba section is better than two Italian sections from two inviters.

4.Aiming to gain the Golden-spike to Tabuchi outcrop

If Golden-spike is struck by Tabuchi outcrop, to be useful for the activation of the area as the base of the sightseeing is sure. In the future, it plans to service as the Geosite. There is concerning in the Ikeda-no-ike and Tabuchi together with Ichihara City, the key word is Paleo-Kanto depth Submarine Basin. The state of the change from the forming into the present becomes one tale, and stories of the tale can be visited at the Geosite in each place in Boso peninsula. It plans to proceed with the service of the continuing Geosite at Tabuchi and Ikeda-no-ike.

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Design of Hakone Geopark

Daiji Hirata[1*], Secretariat of Hakone Geopark promote meeting[2]

[1]Kanagawa Prefectural Museum (NH), [2]Hakone Geopark promote meeting

Hakone is a famous sightseeing area in Japan, located in the western part of Kanagawa prefecture. Tourists can enjoy volcanic sceneries and hot springs, the nature such as creatures and the venerable history and culture. More than 30 million tourists visit from Japan and foreign countries every year.

Local governments of Odawara-shi, Hakone-machi, Manazuru-machi, Yugawara-machi and Kanagawa prefecture, have promote Hakone Geopark design. There is the area of the 254 square kilometers, and the population is about 250,000 people. Hakone volcano with wealthy nature and the neighboring area with the venerable history / culture are good for a geo-park. In addition, as a place of activity and the geo-tourism contributing to education based on Hakone volcano.

Sightseeing Promotion: Rediscover a local attractive geo-site while considering maintenance.
Local promotion: Planning local promotion of the inhabitants participation.
Education: The creation of the place of the local general learning.

We aim at the Japanese Geopark authorization of August, 2012. Therefore we establish the Hakone Geopark Promotion Committee in April, 2011 and devises basic plan and enforcement plan.

Keywords: Hakone volcano, Geopark, local education, sightseeing promotion, local promotion

Japan Geoscience Union Meeting 2011
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Volcano gifts from the south: conception and preparation for the Izu Peninsula Geopark

Masato Koyama[2], Mitsuhiro Hida[1*], Motoyasu Ueta[1]

[1]Ito City Government Office, [2]Shizuoka University

The Izu Peninsula, located on the northernmost tip of the Philippine Sea plate, is a terrestrial part of a volcanic massif (Izu block) formed by the subduction of the Pacific plate. The Izu block drifted by the northward motion of the Philippine Sea plate and collided with Honshu at about 1Ma. After the collision, terrestrial volcanoes continue to erupt and active crustal movements deform the topography of the Peninsula.

On March 28, 2011, 7 cities and 6 town offices, Shizuoka Prefecture, tourist associations, branches of national administrations, and local NPOs organized the Izu Peninsula Geopark Council and started to prepare for the establishment of the Izu Peninsula Geopark.

The main theme of the Izu Peninsula Geopark ”Volcano gifts from the south” consists of the following five subthemes: (1) A volcanic massif drifted from the south and collided with the Japanese mainland, (2) Geological basement originated from submarine volcanoes, (3) Large terrestrial volcanoes after the collision, (4) An active monogenetic volcano field and crustal movements associated with ongoing accretion, and (5) Local society and culture developed by the geological benefits and disasters.

The Council is preparing various items such as geosites, seminars for geoguides and general residents, textbooks and leaflets, and geotours.

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How did Global Geopark change Itoigawa munucipal museum?

Hiroshi Miyajima[1*]

[1]Fossa Magna Museum

INTRODUCTION

Fossa Magna Museum (FMM) in Itoigawa is the municipal museum opened in April 1996. Geology of Itoigawa, discoverer E. Naumann of Fossa Magna, and rocks, minerals and fossils from the world are displayed in the museum. A visitor from opening exceeded 940,000 people.

The FMM played an important part with the education and the sightseeing in Itoigawa. Moreover, there were some discoveries such as new species fossils and four new minerals by curators. The FMM is the kernel facilities of the exhibition, education, research, and strage of geological specimen of Itoigawa geopark (IGP), too. Changes in the museum by the promotion of geopark will be reported.

EXHIBITION

English commentary plate has been added. A voice guide was handled newly and it made explanations by Japanese, English, Chinese and Korean. A multi purpose exhibition room was moved to the exhibition room only for the geopark. It can get fundamental information about the IGP and the geotour in this room.

EDUCATION

The outreach lecture was begun instead of lecture in the FMM. Local information was increased in the lecture, and a topic except for the geology was included, too. There were more participants than a lecture in FMM. It could get interesting information from the person living for many years by the lecture outside the FMM. Geology hiking was renamed in the Geotour, and not only geology but also creatures and cultures learned in the Geotour. The skill of the curator's explanation improved by many outreach lectures and the Geotours.

VISITORS

It increased to 59,591 people in 2009 though visitors in the FMM were 46,411 people in 2008. This is a big increase of 128% compared with the previous year. It expects that the visitor in 2010 is almost the same as 2009. This increase might be an effect of Geopark and ETC discount in expressway.

MUSEUM SHOP

The museum shop of FMM was extended in 2008 because sales of the mineral, fossil specimen and natural stone accessories were good. However, it was told that the GGN inspectors were prohibiting selling of geological objects in the FMM when the IGP was examined in July 2009. The shop income in 2010 decreased from the previous year for about six million yen as of the end of January in 2011 because it had stopped sales of the specimen. Sales decreases of specimens are too large though various commodities that did not violate the rule of GGN in the shop were newly introduced. It is necessary to make an effort to the development of suitable commodities for Geopark. Because sales of the jade from Itoigawa were traditional, the permission of GGN was obtained.

Even if it is a specimen for the education and the research, its sales are not admitted in GGN. However, a genuine specimen of the fossil and the mineral increases the interest in earth sciences for children. It influences the personnel training as there is a person who became a specialist because of the specimen and the collection, too. It is difficult to tell the feeling of quality of the mineral by the replica and the image.

In addition, the cement made from limestone can be sold though the fossil specimen found in the limestone mine cannot be sold in the shop. The sandpaper made from the garnet can be sold though the specimen of garnet discovered in the mine cannot be sold. It is quite difficult for a general person to understand this strange rule.

INVESTIGATION AND RESEARCH

It increases there is no curators in the museum, guides to the visitor, and the service of the judgment on minerals and fossils etc. has decreased. Moreover, the time that the curators spend on a geological research about the region has decreased because of

an increase in the business related to IGP. Therefore, academic conference presentations and the thesis writing in the field other than Geopark are slack, and the registration of the specimen of the museum is the stagnation feelings.

Keywords: Itoigawa geopark, museum, number of vistors, Fossa Magna Museum, museum shop, sales of specimen

Japan Geoscience Union Meeting 2011
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Citizen involvement research activities and its effects in Itoigawa Geopark.

Yousuke Ibaraki[1*]

[1]Itoigawa Geopark, [2]Fossa Magna Museum

Itoigawa Geopark had joined in Global Geoparks Network in August 22, 2009. Many activities on promotion, education and research have been done before the Fossa Magna Museum had opened. One of the most remarkable features of these activities is citizen involvement research activities.

There are diverse rocks in age and formed environment in Itoigawa Geopark. In paleontology, there are seamount type limestone of Paleozoic, shallow marine to terrestrial clastic rocks of Mesozoic and deep to shallow marine clastic rocks of Cenozoic, and many fossil localities are in Itoigawa Geopark. In mineralogy, there are jade and rare mineral localities. In petrology, there are rocks from non-metamorphic rocks to eclogite facies rocks. Finding new minerals, rare or new species of fossils are cooperated with citizens in Itoigawa Geopark. For example, one of new minerals named Itoigawaite first found by a citizen. A new species of Paleozoic brachiopoda Daviesiella omiensis also found by a citizen. Museum curator had supported a citizen to research whale, shark and brachiopoda fossils.

Not only in geology, but biodiversity is high caused diverse topology from coast to alpine area in Itoigawa Geopark, and research activities cooperated with citizens are done in biology and ecology.

The following effects can be expected by research activities.

- Constant renewal of geo-stories which are foundation of Geopark.
- Increasing of tourist to Itoigawa, increasing of repeater, and its economic effect.
- More people have interest in Itoigawa Geopark, and have interest in earth science.
- Citizens know that they can make contributions for Itoigawa Geopark, and more citizens cooperate with curators.
- Make notable results in research activities, and people in Itoigawa are proud and have love for their hometown.

As I mentioned above, research activities is so important that it acts as a source of power to promote Geopark activity.

Keywords: Itoigawa Geopark, research activities, citizen, effects

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Report on the Southern Alps -Median Tectonic Line Area- Geopark

Geopark promotion office Association for poromoting Southern Alps[1*]

[1]Policy and Promotion Division ,Inacity

Report on the Southern Alps -Median Tectonic Line Area- Geopark

Japan Geoscience Union Meeting 2011
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Plan for Hakusan Tedorigawa Geopark

Tsuyoshi Hibino[1*], Takashi Yamaguchi[1]

[1]Hakusan City Board of Education

In Hakusan City, Ishikawa Prefecture, the conference of promoting Geopark is organized in 2010 and aim at authorized as the Japan Geopark for the present.

There are Mt. Hakusan and the Tedori River flows into the Sea of Japan, and there is rich nature in this area. This region has also various geological histories. There are the Hida metamorphic rocks, the Tetori Group and some volcanic materials. In addition, there are various geographical features in this area that formed by the Tedori River eroding those strata.

The living of people based on such geological features and geographical features also has various styles. People in this region have lived for a long time with the blessing and the disaster of Mt. Hakusan and the Tedori River. The influence of the water such as rivers exists always greatly for this region. Therefore, people's lifestyles have been considering peripheral nature.

The Mt. Hakusan-Tedori River region is a place where we can be felt the nature made from the planet earth of water, and moreover the symbiosis of such nature and people.

Keywords: Mt. Hakusan, the Tedori River, Geopark, Hakusan City, Ishikawa Prefecture

Japan Geoscience Union Meeting 2011
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O022-P18 Room:Convention Hall Time:May 23 16:15-18:45

Current state of the Japan Geopark ”Dinosaur Valley, Fukui Katsuyama Geo-park”-Mainly educational programs and activiti-

Mikio Mizukami[1], Takenori Hatanaka[1], Hiroki Kinoshita[1*]

[1]Katsuyama City Geopark promotion confere

Dinosaur Valley Fukui Katsuyama Geopark was officially recognized as a Japan Geopark in October 2009. Although this designation is quite recent, Katsuyama has actually been in the forefront of fossil research and education projects for over a decade. Countless valuable dinosaur fossils have been uncovered from local excavation sites and put on display at the Fukui Prefectural Dinosaur Museum, a world-class facility which serves as the heart of this Geopark. Surrounding the museum is the Katsuyama Dinosaur Forest, where the children’s Fossil Dig Experience event has been held for over ten years through the cooperation of the city and local NPOs. Boasting over 50,000 participants from all over the country, the Fossil Dig Experience has established itself as one of the city’s most prominent dinosaur-related programs. Working in collaboration with programs such as this, the Geopark Promotion Group based in Katsuyama City Hall strives to further develop the park in both its scale and its public awareness. In addition to maintaining the park’s individual geosites and creating informational pamphlets, the Geopark Promotion Group has also begun holding Geotours and seminars as well as special lectures at schools. Dinosaur Valley’s acceptance as a Japan Geopark has certainly increased citizen’s awareness, however programs such as the Fossil Dig Experience program which rely heavily on volunteer support require new assistance from citizens as current volunteers continue to get older. Furthermore, finding new geosites for fossil excavation is another issue the Geopark Promotion Group is working on to take this geopark to its maximum potential.

Keywords: Geopark, Fossil, Geotour

Japan Geoscience Union Meeting 2011
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Educational Activities in the San'in Kaigan Geopark

Ken'ichi Ishimoto[1*]

[1]San'in Kaigan Geopark Promotion Council

We conduct various educational activities in the San'in Kaigan Geopark. Especially, educational activities in each region are actively performed.
For example, educational activities in each school, hands on learning activities in "Geo Caravan" and "Geo Festival".

Keywords: San'in Kaigan Geopark, Educational Activities, Hands on Learning Activities

Japan Geoscience Union Meeting 2011
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Natural environment and people's lives based on geodiversity -Case studies in the San'in Kaigan Geopark?

Noritaka Matsubara[1*], Tohru Sakiyama[1], Muneki Mitamura[2]

[1]Inst. Nat. Env. Sci., Univ. Hyogo, [2]Geosci., Osaka City Univ.

The natural environment and people's lives exist upon regional geodiversity, and are changing according to geohistory. Geoparks, now attracting attention as an approach for sustainable development, can create and utilize the connection between geological and geographical resources and the natural environment, culture, industry, etc.

In the San'in Kaigan Geopark covering three prefectures, we can observe geological features, the natural environment and people's lives, all related to the formation of the Sea of Japan. It is important not only for sightseeing but also for disaster reduction and a sustainable development to know the relationship between geodiversity and the natural environment, culture and industry. Moreover, giving a geological meaning to local resources leads to branding of the regional community.

Keywords: San'in Kaigan, geopark, geodiversity

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The recently released handbook for teachers studying in the field at San'in Kaigan G.P.: Focusing on Tottori Sand Dunes

Yoshinori Kodama[1*]

[1]Fac. of Regional Scineces, Tottori Univ.

A handbook for teachers studying in the field has recently been released on the Web site related to San'in Kaigan Geopark, Japan. This handbook is primarily targeted at teachers. I will present the aims of this handbook, process followed in creating this handbook and introduce some of its contents.

Keywords: geopark, handbook, Web site, Tottori Sand Dunes, San'in Kaigan Global Geopark Network, local educational material

Japan Geoscience Union Meeting 2011
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Where the ocean and the land meet land -Scientific story of Muroto Geopark-

Tadahiro Shibata[1*]

[1]Muroto Geopark Committee

Cape Muroto retains the record of dynamic movements of the earth which resulted from the motion of tectonic plates. The Japanese Island Arc is located at a subduction zone. In most cases, the subduction zone is a region where an oceanic plate meets with a continental plate or another oceanic plate. The denser oceanic plate slides under the other plate and sinks into the mantle. The energy generated from the motion of these two plates is transformed as earthquakes, and the various associated tectonic and magmatic activities lead to continent formation (orogenic movement). Muroto Geopark provides an excellent example for these processes.

The explanation of the background of our geosites involves three geologic stages: 1) formation of the accretionary complex, 2) igneous activities and 3) topography formation accompanying the plate subduction. Other crucial factors are the expected large-scale earthquakes, as well as the disaster and blessings from the sky and the ocean. These are closely related to the various earth-phenomena in different time scales, ranging from several million years (e.g. plate motions) to over several tens of seconds (e.g. earthquakes).

Leading studies in earth sciences focus on ”the past”, that is retained in the ground of Muroto in the present case, and ”the present”, which can be observed at the bottom of the ocean off Muroto. Studies on the mechanism of generation of earthquakes and tsunamis are among the most active research fields in the world. Such studies have been conducted on Muroto’s geology and the Nankai Trough off the coast of Muroto. The research findings are expected to serve as the basis of the information necessary for minimizing the damage from the earthquakes and tsunamis in the future.

Geological processes occur in time scales that are beyond that of human lives, making it difficult for us to relate them to our daily living. However, our lives are undoubtedly influenced by those processes. We benefit from them, and simultaneously, face the risk of natural disasters. The geosites in the Muroto Geopark possess significantly valuable and useful geoheritage which leads visitors to understand how active our planet Earth is.

What had occurred in the past and what will occur in the future in a region ”where the ocean and the land meet?” How can the human civilization co-exist with natural disasters simultaneously enjoying the nature’s blessings? The key to these questions lies in Muroto Geopark and at the bottom of the adjacent waters.

Keywords: Muroto, Geopark, Scientific story

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How to Enjoy Muroto Geopark 610 Times More! -The 11th Children's Summer School on Earthquakes and Volcanoes-

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1. Introduction

The 11th Children's Summer School on Earthquakes and Volcanoes (hereafter, "Summer School") was held in Muroto City where local development and disaster awareness raising efforts have been actively promoted through geopark activities. Muroto Geopark has a theme: "Where the ocean and the land meet ? the forefront for the birth of new land." Various evidence of the landform development is found in the topography and geology of Muroto. The children who participated in the "Summer School" event were divided into six teams and took part in several experiments and field trips under the theme: "How to enjoy Muroto Geopark 610 times more!" They explored such questions as: "What happens at the place where the ocean and the land meet?" "Where the ground beneath our feet in Muroto came from?" and "How do you live and enjoy leisure activities in Muroto?" In this presentation, the activities of this event will be reported along with its implications for geopark activities.

2. Activities of the "Summer School"

The children's activities started with finding Muoroto's topographical and geological features through the comparison with the landscapes they are used to seeing. From the lookout by the scenic road, Muroto Skyline, they had a panoramic view of marine terraces and the Pacific Ocean. On the seashore, they saw and actually touched the emergent landforms including the accretionary complex. In answering the questions posed by the scientists, such as "In the scene in front of you, where do you think earthquakes happen?" children not only found the characteristic features of local topography, but also developed their own questions.

The field trip was followed by a few experiments held outdoors and indoors. The children created an "accretionary wedge" with flour and cocoa powder and made tsunami in a big water tank. Their questions raised during the field trip were answered through those experiments and explanations given afterwards. In addition, through talking with the leading researchers in the field, they began to understand how to enjoy the geopark.

The last item of the program was a presentation of the discoveries and ideas gained through the activities with the scientists during the two days. Later, the participated children became "Muroto Geopark Kids Advisors."

3. Useful implications for the Muroto Geopark

The "Summer School" was an important influence on the local geopark activities. It promoted the collaboration between the local residents and the scientists to create a scientific "story" together, which eventually improved the quality of geopark-related tours. Also, it raised awareness not only among the community members who participated with children, but also among those who learned about the event through the media. Since this event, increasing number of schools and community groups have asked us to send a guest instructor (our staff) to talk about geopark. Additionally, schoolteachers have started incorporating geopark themes into their teaching. What children gained from such visiting lectures or field trips has been reflected on their creative works, such as objet-making, painting, play, haiku and music.

This appears to be a rare case of learning experiences of the "Summer School" taking root in the community activities. Further collaboration of scientists and the community is expected to lead to an outreach effort promoting Earth science in the future.

Keywords: Muroto Geopark, summer school., outreach, education

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Kirishima Geopark - The nature diversity and the volcanic activity -

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Kirishima is a generic designation of a cluster of Quaternary volcanoes situated in southern
Kyushu, Japan. This volcano occupies an area of about 20km x 30km elongated, it spread out between Miyazaki prefecture and Kagoshima prefecture, and contains more than 20 small volcanoes which have been repeatedly active from Pleistocene to Recent times. The last eruption occurred on January 2011.

Kirishima Volcano as we see them today has been made by activities belong when Kakuto caldera forming (about 340,000years ago.)

Kirishima Volcano is just like a 'Museum of volcanology' because we can observe many types of volcanoes and volcanic products (lavas, pyroclastic flows, lahars, etc).

The eruptive activity of Kirishima and global climate change make a very rich natural environment in this area. We can observe many kinds of precious plants in all seasons.

At 31, January 2011, Shinmoe-dake has erupting hardly , and it give hard damage to flora on nakadake, takatihonomine. But the cycle of flora at kirishima is just start now.

We will introduce the nature diversity and the volcanic activity of Kirishima.

Keywords: Kirisima Geopark, geopark, shinmoe-dake Volcano

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Origin of Amakusa Islands -Amakusa Goshoura Geopark-

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Introduction: Amakusa Islands is an archipelago, situated western Kyushu and that is beautiful landscape keeping the marine environments for nature in all of its wonderful coastal lives. Amakusa Islands also have various geologic resources and stone-masonry cultures. Amakusa Goshoura Geopark shows the geologic history since the Cretaceous in the eastern part of Amakusa Islands.

Chapter 1:The geologic history of Amakusa Islands started at about a hundred million years ago, when some granitic magma intruded into deep underground in the eastern area of Amakusa Islands. Before long, the area uplifted and a land appeared. The ancient Amakusa area located coastal area at a hundred million years ago. The various kinds of ancient lives flourished both on the ground and in the sea. There are many important geologic aspects including valuable fossils of dinosaurs, mollusks and pleciosaur within the Goshoura Group.

The ancient Amakusa area sunk under deep-sea in the Late Cretaceous (85 to 65.5 million years ago). Therefore, the Goshoura Group covered by the Himenoura Group. Deep-sea clay and silt alternation with some thinner sandstone of the Himenoura Group contains abundant remains of ammonite, large marine bivalves, and some scattered fish and echinoderms. The Himenoura Group deposited about 3,600-4,000m in thickness during an interval of 20 million years. Dinosaurs were extinct at the upper part of the Himenoura Group in Amakusa Islands.

Chapter 2 : After the age of the dinosaur extinction, the Amakusa area repeated twice uplift and subsidence such as deep-sea bottom to land surface, under the tropical climate in Eocene (50 to 40 million years ago).

The Akasaki Formation of the Miroku Group formed of terrestrial origin and contained of turtles and large mammals, such as Coryphodontidae and Trogosus, which hold the record for the oldest fossils in Japan.

The Amakusa area subsided under the shallow sea following the terrestrial period. The Shiratake Formation of the Miroku Group is composed of thick sandstone, which is yield marine mollusks, such as Turritella (Gastropoda), and Nummulites (benthic foraminifera), and large mangrove gastropod in tidal flat blackish.

The Kyoragi Formation of the Hondo Group formed mainly clay and silt alternation intercalated some thinner sandstone with Nummulites, which deposited under deep-sea.

Chapter 3 : The magma activity happened from Kyushu to Setouchi coastal area in Neogene. Intrusive rocks originated felsic and intermediate magma intruded into the Paleogene strata of Amakusa Islands during 19 and 14 million years ago. Diabase intruded partly into the Kuratake area of Amakusa-kamisima and Goshoura Islands.

The Japan Sea at the eastern part of Eurasian Continent had open in the early Miocene. At the Amakusa Islands, the formations formed in Cretaceous and Paleogene were deformed by pressure for spreading of the Japan Sea crust. It might be resulted in three synclines and two anticlines of the geologic structure in the Amakusa area.

Chapter 4: In the Last Glacial period (about 20,000 years ago), the human life did hunting of animals including deer and ancient elephant, which flourished on the plain and forests of Ariake and Yatsushiro sea areas where did not been today's sea. The human settled in the coast since about five thousand years ago.

In the end of 16th century, the western culture blossomed in the Amakusa area for the geographical advantage in its facing to the East China Sea. After the Amakusa Rebellion, people found underground resources. People worked in the coal ceramic and stone mines and blossomed the culture of stonemasonry in 20th century.

The Goshoura Geopark, which began in 2009, is the area with special geologic significance. The Amakusa area works on the new reginal development promotion by the beginning of the Goshoura Geopark.

Keywords: Amakusa, geopark, Goshoura, fossil

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The first underground mining ‘geopark‘ in Zabrze, SW Poland- for promotion of geo-tourism

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This poster introduces a project of the first underground geopark, based on selected post-mining sites of Zabrze City in south-west Poland. It has been elaborated by Polish Geological Institute in Warszawa and aiming creation of a link among various mining sites on the town territory.

Geopark as a surface defined regional structure is based on the following aspects: geological, architectural, sometimes postin-dustrial, environmental, historical and other aspects (depending on the area). Projected geopark will be founded on objects like ‘Historic GUIDO Coal Mine‘, ‘The KROLOWA LUIZA Mine‘ and ‘MACIEJ Shaft‘.

Zabrze is the place where the International Conference is held every year, in which guests are the representatives of industrial heritage and tourist organizations from Poland, Europe and other countries, as well as academia.

There are a very few places in Europe with such numerous industrial heritages, mainly related to mining. Some of the existing industrial heritage facilities had already been made available to the public there. However, no geological complement is provided, so an exemplary visitor there couldn’t find how the mined rocks have been formed. Proposed geopark will provide detailed geological information to the public as well as create new opportunities for touristic-cultural activity and local economy.

The geopark will be the first mining geopark in Europe such that most of main touristic attractions are located underground.

Keywords: geopark, geotourism, mining, industrial heritage, Polish Geological Institute, Poland

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Let's dig up "Geoheritage":100 geosites in Hokkaido are being recruited!

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[1]Meiji Consultant, [2]Geological Survey of Hokkaido, [3]Hokkaido geosites examination group

In Hokkaido there are many localities in which part of the history of the landscape is well documented. The Geosites examination group, Hokkaido branch of Geological Society of Japan has started the rist-up and describing "sites of geological interest" since March, 2008. The purpose of rist-up of geosites is to promote the conservation of Hokkaido's rich heritage of landscape, rock, fossil and mineral sites. And the objective is to inform a wider public including local populace of the importance of this patrimony, and of scientific geological and geomorphological values. Please read the necessary information on:
http://www.geosites-hokkaido.org/

Keywords: 100 Geosites, 100 geosites in Hokkaido, geosites, website, geoparks, database

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Workshop of geotourism in Science Agora

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We held the workshop of Geotourism in Sciece Agora 2011. The person interested in the science communications was targeted. The contents are the keynote address, virtual Geotour and panel discussion of Geopark. The opinion of the future of Geopark from various aspects was discussed.

Keywords: geotourism, virtual geotour, promotion of geopark, science communication, Japanese Geopark Network

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Let us enjoy Geo-Tetsu - the Third proposal of Geo-tours through Train Windows, JR Yodo Line in Shikoku

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1. Aims of Geo-Tetsu activities

Succeeding two year's presentation (Kato et al., 2009; Fujita et al., 2010), we will present Geo-Tetsu this year too.

The activity of Geo-Tetsu recommends Geo-tours through train windows. The word "Tetsu" contains meaning of the abbreviation of railway in Japanese, and of the generic name of railway fans. In Japan, railway is the commonest transportation system, everybody loves to ride trains. Geo-Tetsu offers the chances to get contact with the geoscientific features observable through train windows. Here in Geo-Tetsu, geologic and geographic features of the sceneries are explained plainly but scientifically by a guide-book prepared by a group of specialists. Therefore, the Geo-Tetsu can offer the opportunities to get contact with geoscience in travelling by trains. It is nowadays said that people become less and less aware of natural sciences in this country. Geo-Tetsu could, we hope, make people's eyes direct to geosciences, or eventually toward natural sciences.

We selected Geo-Tetsu courses and Geopoint through which people can see representative geoscientific phenomena through train windows.They are better accompanied by walking paths accessible at the stopovers alongside the railway routes. Availability of shorthistories about the selection of the rail routes is also taken into consideration. In short, the routes should offer the chance for geosciences to be seen, touched and felt through train travelling. As many information as obtainable are gathered from various perspectives; railway itself, geology and geography, and sight-seeing as well. A group of specialists compiled a guide-book using gathered information which is a key element of the Geo-Tetsu.

A first Geo-Tetsu proposal of JR Dosan Line in Shikoku started by our project two years ago, and we tried to investigate Gomen- Nahari Line as a second proposal last year. Here the JR Yodo Line is presented as a third project of Geo-Tetsu.

2. JR Yodo Line in Shikoku, the third project of Geo-Tetsu

(1) Abstract of the Yodo Line

The Yodo Line runs along the Shimanto-River, from Wakai tation at Shimanto Town in western area of Kochi Prefecture to Kita-Uwajima Station at Uwajima City in the southwest region in Ehime Prefecture. It is 76.3km in total distance, and is opened in March 1974. This line was planned originally as a route from Ehime Prefecture to Kochi Prefecture in the Meiji era. After many complications, its part was opened as the Uwajima Line as a kind of light railway in 1914, it took 60 years to the opening of present line. Therefore, the old and new technology coexists together in Yodo Line, and then many engineers and railway fans are attracted to the facilities of this railway.

(2) Rich sight-seeing resources of the Yodo Line

Yodo Line runs almost according to Shimanto River. We recommend to enjoy watching the development of incised meanders and the subsidence bridges from the train window, between Tosa-Taisho Station and Yoshinobu Station. Hard sandstone and fragilie mudstone of Shimanto terrane crop out at the riverside which has been eroded by the Shimanto River. Then differential erosion makes strange features of "sandstone's heads" on the Shimanto River. When we pass Yoshinobu Station, the scenery of the train window completely changes. For the dogleg appears many times, the speed of the train becomes slow. In the north side of Iyo-Miyanoshita Station, we can see the Hokezu mountain range which divedes the Pacific Ocean and the Inland Sea. Along the ridge of the Hokezu mountain range, there is the Butsuzo tectonic line. Going out of Muden Station, there is a hardest area called Madonoto Pass. The train runs down through the steep slope of about 140m relative height between two stations. At the end of Geo-Tetsu tour of Yodo Line, we can see the rias coast in Uwajima region.

Keywords: Geo-Tetsu, Yodo Line, Shimanto River, Subsidence bridge, Incised Meander, Geo-tour

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Development of Papercraft 3-dimentional map

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We developed the method of making Papercraft 3-dimentional map from detailed topographic model (Triangle Irregular Network: TIN).

This Papercraft maps are represent real landscapes and available for educational purposes. The processes of putting the Papercraft together are helpful in understanding characteristic landforms such as Geopark or other natural parks.

Keywords: Papercraft, 3-dimentional map, landscape