Japan Geoscience Union Meeting 2012
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MIS32-01 Room:202 Time:May 21 09:00-09:15

The fantastic relations between Itoigawa Global Geopark and Sasayuri (Lilium japonicum) which traveled in the universe

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City flower, tree, bird, and stone

In Itoigawa City, Niigata with the Itoigawa Global Geopark (IGGP), city flower, tree, bird, and stone are enacted.
Of course, the city stone is jade. Lily named Sasayuri (*Lilium japonicum*) chooses the city flower, King fisher (*Alcedo atthis*) chooses the city bird, as for a stone, and, as for the city tree, beech is chosen, respectively.

Sasayuri in the IGGP

The flower "Sasayuri" of Itoigawa is endemic lily in Japan which represents Japan as *Lilium japonicum* of a scientific name shows. The Sasayuri was widely distributed over the hills and fields south of central Honshu, and although it was not a specialty of Itoigawa, especially Itoigawa residents loved Sasayuri from the lovely figure and decent tone.
Riding on space shuttle Endeavor on November 14, 2008, the seed of Sasayuri of IGGP came out to the universe.
After the seed went the earth around 4080 times in 255 days in International Space Station, it rode on Endeavor again with an astronaut, Dr. Koichi Wakata, and returned to the earth on July 31, 2009. On September 10, 2009, seed of Sasayuri has returned to IGGP again.
Why could Sasayuri from Itoigawa go to the universe? There were many dramas intricately related to the mountain of the Itoigawa global geopark, the sea, underground resources, a human being, a company, a university, etc.

Cosmo Flower 2008 Mission

The JAMSS planned the Cosmo Flower 2008 Missions in order to promote the interest over people's universe. This mission carry seeds of a flower familiar for a Japanese to the Kibo ISS module, and return and raise it into the earth again. As seeds of the flower carried to the universe, 16 plants were chosen from Hokkaido to Okinawa. 14 cherry trees were chosen. Except the cherry tree, Kosumire (*Viola japonica*) from Tsukuba City, Ibaraki Prefecture and Sasayuri (*Lilium japonicum*) from Itoigawa Global Geopark was carried to the universe.

Dr. Ken Ono and Tsugami Shindo mountain trail

From Mt. Nagatogayama moutain to the Sea of Japan did not have a mountain trail. Dr. Ono thought that he would make the mountain trail. He and his collaborators completed the mountain trail at last over the time for ten years in 1971.
The way almost made from human power was named Tsugami Shindo mountain trail. This mountain trail became very famous.

Mr. Yoichi Hasegawa's visit

One day, Mr. Yoichi Hasegawa visited Ono. Mr. Hasegawa of the mountain lover considered writing of the novel dealing with Tsugami Shindo.
The talk of the Sasayuri revival which Dr. Ono is tackling in the talk stopped at the heart.
Although Sasayuri was seen ordinarily in the hills and fields in Itoigawa, in recent years, the number was becoming fewer.
Dr. Ono thought that he would increase Sasayuri in biotechnology.
Mr. Hasegawa was a promoter of the Cosmo Flower 2008 Missions. He decided to add Sasayuri from IGGP to the flower brought to the universe.

If Dr. Ono is not in IGGP

If there is not Dr. Ono, there is not Tsugami Shindo mountain trail, and Sasayuri did not go to the universe. Dr. Ono worked in the limestone mine in Itoigawa. The mountain trail was not made when there was no limestone here. The department of science and engineering, Waseda University, from which Dr. Ono graduated was founded for the fund which Mr. Meitaro Takeuchi of-

fered. The mine which Mr. Takeuchi was managing is the Hashidate gold mine in Itoigawa. Possibly Dr. Ono was not in Itoigawa without the Hashidate gold mine. After all, if there was neither the Hashidate gold mine nor a limestone, Sasayuri from IGGP will go to the universe!

Cosmo Sasayuri's bloom

In Sasayuri's transition ceremony, the local schoolchild sang a "Furusato" and "Jupiter". The sprout of the seed was tried and about 600 inner 26 piece seeds budded. It is said that it becomes around 2014 that the Cosmo Sasayuri makes a flower bloom. The Cosmo Sasayuri will be valued forever in IGGP. The tale will surely be told for a long time in IGGP.

Keywords: Lilium japonicum, Itoigawa, Cosmo Flower 2008 Mission, International Space Station, Hashidate Gold Mine, Tsugami Shindo

Japan Geoscience Union Meeting 2012
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The summary of Choshi geopark project and introduction of geological education program for junior high school students

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Choshi, located at the east end of the Boso peninsula, Chiba prefecture, Japan, has many geological heritages that should be preserved and passed on to future generations. Representative geological features in Choshi are as follows.

First, the Bioubugaura coastal cliff, comprising Pliocene and Pleistocene sedimentary rocks, is approximately 9 km in length and 30?50 m in height and faces the Pacific Ocean. This topography, which is also called ”Dover in the East”, consists of sharp cliffs formed by land erosion resulting from sea waves. According to a previous report, the speed of erosion is 5?6 m per year. To prevent erosion, protection blocks were constructed in 1966. Consequently, Bioubugaura coastal cliff vegetates, the surface color of the cliff turns to green to grow many kinds of vegetation. Second, the Cretaceous shallow sea sediments, designated as a government national monument, are exposed in the Inubouzaki coastal area at the east end of the Choshi peninsula. Third, the ”Inuiwa” and ”Sengaiwa” rocks, carried on the tradition of the ”Yoshitune legend”, are composed of Jurassic greywacke, mud stones, and conglomerates that includes calcareous coarse fragments with fusulina fossils.

Study of Choshi geopark in terms of geological, geographical, and climatological characteristics shall provide understanding of not only the geological framework of Choshi area but also land utilization. Land in Choshi is used for producing some special local products as follows, cabbage cultivation, wind power generation, and fisheries industry. This area is considered to be the country’s best among these special local products. Using the concepts of ”construction process”, corresponding to the geological framework, ”land utilization process”, corresponding to the production of special local products, and ”conservation process”, corresponding to Choshi geopark activities, we define the ”life cycle thinking method” of local environment. Using this thought process, we are currently implementing ESD (Education for Sustainable Development) at local elementary, junior high, and high schools.

Keywords: Geopark, Choshi, Life cycle thinking, ESD, local products

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MIS32-03 Room:202 Time:May 21 09:30-09:45

Fossil investigation and educational activities as a geopark campaign: Hakusan Tedorigawa Geopark.

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Hakusan Tedorigawa Geopark in Hakusan City, Ishikawa Prefecture was authorized as a Japanese geopark in September, 2011. The main subject of this geopark is ”Mountain, River, Sea, and Snow ? life-nurturing journey of water”. Sacred mt. Hakusan and the surrounding area are covered with heavy snow in winter. Hakusan City has variety of water environment. White snow, which symbolizes Mt. Hakusan, gradually melts after early spring and finally reaches to the sea. The journey of the water from the mountain to the sea creates the nature, life, geography and human culture of this area reflecting blessings of water. Geologic and hydrodynamic processes involved in this area, and cultural history based on such nature compose our Hakusan Tedorigawa Geopark.

The fossil investigation of the Tetori Group has long been continued as educational and academic purposes. ”Kuwajima Fossil Bluff” is the main target of the investigation and assigned to be an important geopoint of this geopark. The long history of fossil investigation from late nineteen century makes us to realize that the bluff is the ”birthplace” of Japanese geology and paleontology. Now geopark activity is expected to act as an out-reach window of the investigation results.

In spite of the academic and geopark-related importance, the Kuwajima Fossil Bluff and its investigation, how it relates with the main subject of the geopark is not clear for people. However, it benefits from other standpoint. The bluff can relate ”water journey” with erosion, transportation and sedimentation processes, and can let the visitors realize the importance of water as a major ”geo”player. Location of Kuwajima Fossil Bluff in front of Tedori Lake surrounded by mountains and streams works as excellent geopoint for such geostory.

During the recent project of fossil investigation, a volunteer party ”Kuwajima fossil investigation party” has been considerably contributed. Seminars and communication for the members with paleontologists has often been organized to keep their higher motivation. This activity is also expected to provide nurturing system for geologists and paleontologists in the making.

Keywords: geopark, ”Kuwajima Fossil Bluff”, fossil investigation

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Spread and education about volcanic disaster mitigation knowledge through Geopark activities in Izu-Oshima Volcano

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Japan suffered from several severe disasters in 2011, such as Kirishima (Shinmoedake) Volcano eruptions, the 2011 off the Pacific coast of Tohoku Earthquake (M9.0) and the Typhoon Talas (the 12th typhoon in 2011). These disasters reminded us of the importance of education for disaster mitigation.

It is pointed out that it is difficult for people to realize a severe natural hazard happening once in several hundred years and need to take refuge when it really happens. Japan Meteorological Agency (JMA) has held lectures and meetings in order to tell people directly about disaster mitigation knowledge. However, efficiency of such measures is limited. In a sightseeing spot, it is important to obtain mutual understandings with tourist industry about disaster countermeasures to prevent harmful rumors.

To conquer these difficulties, the activities of Geoparks are effective in spread and education about volcanic disaster mitigation knowledge.

Geoparks aim at protecting geological heritage, supporting education of disaster mitigation and prompting tourism.

In the Izu-Oshima Geopark, private enterprises have cooperated with the governmental agency. We take many measures as Geopark activities; tour with nature guide, outdoor education and nature guide cultivation lecture. We are thinking volcanic disaster mitigation as important in Geopark activities. It is effective to experience vivid volcanic and geological activities, with enjoying themselves. The leading role of these activities is field guides. The knowledge about disaster mitigation is spread in the broad age group through these guides to students and tourists. JMA staff and volcano researchers cooperate in cultivation of guides, and they cooperate with tourist agents to ensure safety in tourism. This approach has successfully acquired understanding of tourist industry companies.

Izu-Oshima Local Cooperative Office for Volcanic Disaster Mitigation was established in the Oshima town office in April 2008 as a local branch office of JMA. It has cooperated with Oshima town office and has been carrying out disaster mitigation.

We report the spread of disaster mitigation knowledge in Izu-Oshima, and the measure of education through Geopark activities.

Keywords: geopark, volcanic disaster mitigation

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MIS32-05 Room:202 Time:May 21 10:00-10:15

Educational program of Hakone Geopark project aims to the fusion of nature and history; Museum should play role.

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[1]Kanagawa Prefectural Museum of Natural History

Hakone is a region blessed with rich natural, historical and cultural valuable have been formed. There is also close to the metropolitan area, has become one of Japan's international tourist destination for more than 30 million tourists visit every year from home and abroad. Odawara-shi, Hakone-machi, Manazuru-machi and Yugawara-machi are advancing towards the certified activities Geopark. The purposes of this activity are that the resources, including the geology of the region and maintain conservation historical, cultural and ecological resources and raise its value.

Including the Kanagawa Prefectural Museum of Natural History, the museum facility in the region, as expected of a large facility based in Geopark.

The largest museum facility should play a role is still considered to be education. That local people are familiar with the culture, nature and history of the region should be at the origin of the activities of the Geopark. I would like to think about how you go to expand the educational activities to the people of the region. Educational activities that combine nature and history of the Hakone area, I want to go forward. To that end, staff of the museum facilities in Hakone Region to work together with a common understanding is essential.

Keywords: Hakone Geopark project, Educational program, museum facility

Japan Geoscience Union Meeting 2012
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Geo-Caravan : Outreach Programs by the Museum in the San-in Kaigan Geopark

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San-in Kaigan Geopark is a widest geopark in Japan composed of six municipalities. Consequently, many public facilities for lifelong learning, information facilities and load side stations are scattered all over the geopark. Many guide groups and nature related groups use them as the basis of activities. Revitalization of such facilities and their cooperation is significant for the geopark activities together as one. But the lifelong learning is not very active in the most of facilities, because they are small and expert staffs are not sufficiently assigned. Therefore, it is hoped that the museum with many expert staffs and accumulation of data, exhibits and know-how to lifelong learning engage the geopark activities.

The Museum of Nature and Human Activities, Hyogo supports the lifelong learning activities organized in the San-in Kaigan Geopark. Outreach program of the museum composed of exhibitions, seminars and some events related to nature and culture in the San-in Kaigan Geopark , which is named Geo-Caravan, was held at 6 facilities in the San-in Kaigan Geopark during the last year. Most of exhibits in the Geo-Caravan are made easy to move and they are traveled from place to place every three or four weeks. Various programs such as lectures, workshops and symposium on the nature and culture, geo-tour and nature observation events around the facility, dance and music events and others are held depending on needs and requests. These programs are not so-called traveling exhibition held unilaterally by the museum, but are organized and performed by the cooperation among the staffs of facilities, active groups, administrative organ and the museum.

Geo-Caravan produces not only attracting visitors to facility but following effects.

(1) Participants take an interest in nature and culture of geopark area.
(2) Geo-Caravan assigns a field of activities to active groups in the area.
(3) Hidden propulsive talents for the geopark activities are dug up through some events.
(4) Planning and performing process of Geo-Caravan bring in cooperation each other.

Important role of museum is not only lifelong learning but advancement of cooperation among the facilities and people in the geopark.

Keywords: geopark, San-in Kaigan, museum, outreach, lifelong learning

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A resident awareness of geopark based on questionnaire study to the people of Happou Town, Akita Prefecture

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We did the questionnaire survey on resident awareness of Happou-Shirakami Geopark. The questionnaire was performed to 1500 household and the response rate is 47.8%. The questionnaire is composed of 8 questions about the recognition of a word geopark, the level of interest, recognition of the activity of registration to Japanese geopark, source of information, the kind of activity to participate in, method of public relation and expectation to geopark.

The residents of 61% know about the word geopark. Source of their information are Town Magazine (52 %), newspaper (43 %) and television (30 %). The residents of 59% are interested in geopark. We devided residents into high cognitive group (who know the word geopark) and low cognitive group. Residents are also devided into high interest group and low interest group. 69 % of high cognitive group residents belong to high interest group.

Keywords: geopark, questionnaire study, Happou Shirakami geopark, resident awareness

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Issues Facing Muroto Geopark after Gaining Global Status

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1. Introduction

The theme of Muroto Geopark is 'Where the ocean and the land meet - the forefront for the birth of new habitable land'. Muroto Geopark includes the entire area of the city of Muroto. Here, visitors can enjoy distinctive geological heritage and topography such as turbidite layers. Muroto Geopark also shows its visitors how the local people created a local history, culture, and industry in harmony with nature in this area.

Muroto Geopark was designated as a Global Geopark at the 10th European Geoparks Conference on September 18, 2011. After global status had been granted, Muroto Geopark has raised its profile in general, and continues to do so.

At the same time, however, the grant of global status revealed the problems that Muroto Geopark faces in a clearer way than before. This presentation will mainly talk about a report on such problems the Geopark faces after gaining global status.

2. Changes after Gaining the Global Status

Since Muroto Geopark was accredited as a Global Geopark, we have conducted several public relations activities such as media coverage and giving lectures at local schools, universities, and local communities. Those PR activities attracted many people and the number of those who enjoyed guided tours given by volunteer guides dramatically increased. For example, from September to December, the number of guided tours at Cape Muroto increased by 472 percent over the same period of the previous year. Also, local people started to engage in the establishment of a new volunteer guide organization and in the investigation of new geopoints (interesting points in the geosites) among the geosites. In this way, Muroto Geopark seems, however gradually, to be developing with the support of both local people and visitors after becoming a Global Geopark.

3. Problems Emerging after Gaining Global Status

Muroto Geopark faces three main problems after having been accredited as a Global Geopark. 1) The volunteer guide system: as mentioned above, the number of guided tours has increased dramatically. However, the number of guides has remained the same. 2) Inadequacy in investigation of new Geopark tours: most of visitors tend to visit the Cape Muroto Site and the Gyodo-Kuromi Coast Site because guided tours are available at these sites or because they have promenades. Therefore, most visitors still believe that Muroto Geopark is essentially only a place in which to view rocks and geological layers along the coastline of Muroto. 3) Environmental conservation: the Mt. Dannnotani Site, one of geosites, has natural-growth cedar trees as one of its chief features. Because many people now visit the site, there is concern that the ecosystem of the mountain will change.

4. Activities to be Taken in Order to Address the Problems

Muroto Geopark is now working on the following three activities in order to address the above problems: 1) Holding volunteer guide training seminars, 2) Planning new Geopark tours, and 3) Hosting discussions on the environmental conservation of the Mt. Dannnotani Site. Details of those activities are discussed in the presentation.

5. Conclusion

In order to consider the issue of inadequacy of Geopark tours, it is not enough to strengthen the guide system and investigate new means to encourage visitors to travel over the full extent of the Geopark. It is also important to introduce new geopoints (must-see sights in the Geopark) into the Geopark story when we produce Geopark traveling courses. Therefore, it is important to work together with Muroto Geopark Promotion Committee, local people, and concerned organizations.

Also, the Geopark network plays can play an effective role in helping to solve the problems mentioned above. The Geopark project has never been carried out in solitude or isolation. Cooperation is always the key to develop all Geoparks.

Keywords: Muroto Geopark, after gaining global status

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What is ”Sustainable development” in terms of Geopark -Through Local People’s Story-telling in Muroto-

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In Geoparks of Japan, ’global status’ started to become brand. However, getting the global status is not the final goal of Geoparks because it is expected for the concept of Geopark should be practiced sustainably. It is, therefore, important to imagine how the projects are going on after the global status given. Also, public administration and media care only about how Geopark contributes to economic development in the area. However, the visible data does not show all the result of Geopark projects.

Misunderstanding of the term ’sustainable development’,one of the key concepts of Geopark project, causes the above situations. Today, the term is well known. It is discussed and practiced in many fields and it will give the global society some clues when we think about the social development (not only economic but also culture or people’s way of thinking).

Even the term is a key for Geopark projects, not many people fully understand the concept. In Geoparks in Japan, the term has not yet discussed adequately. Moreover, the term itself is not known by public administration and even people who actually work to popularize Geoparks. They simply recognize Geopark as local revitalization; therefore, they just care for nothing but economic efficiency and the visible data.

This presentation will aim to consider the effective way of ’sustainable development’ for local people in Muroto. It will show you several examples how local people think about the Geopark and development. This presentation fill finally give my point of view on ’sustainable development’ which has been nurtured through the interaction with local people so far.

Keywords: Geopark, Sustainable development, Storytelling, Muroto