

001-01

Room:503

Time:April 29 09:00-09:30

## Action of the disaster prevention education in Kochi~development and practice of the Kochi safety education program~

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<sup>1</sup>Kochi prefectural board of education secretariat,School safety management division

In 2013, the Kochi prefectural Board of Education created teacher's instructional documents for disaster prevention education called "the Kochi Safety Education Program (for earthquakes)" and handed it out to all the teachers in Kochi. It explains the outline of the program and introduces some specific efforts to promote disaster prevention education in Kochi.

Keywords: Disaster prevention education, the Kochi Safety Education Program (for earthquakes), Nankai trough quake, Instruction ten items

## Advancing disaster preparedness in Okinawa Prefecture

MATSUMOTO, Takeshi<sup>1\*</sup> ; FUJIWARA, Ayako<sup>1</sup>

<sup>1</sup>University of the Ryukyus

Okinawa Prefecture located in the south-westernmost part of Japanese Islands and in the subtropical area is often attacked by characteristic natural disasters which are different from the other areas in Japan, such as, destructive typhoons after passing the Western Pacific Warm Pool, high tide due to typhoons and warm water eddies, many earthquakes of both plate convergent type and due to active across-arc fault slip, most of them may induce tsunamis because their hypocentres are mostly sub-seafloor. Disaster preparedness, especially in Okinawa Prefecture is to be taught at the school education. Currently, 'Home Economics' is the only subject in which disaster preparedness is taught in junior and senior high schools in Japan. Therefore the articles on disaster preparedness in the current official textbooks on 'Home Economics' for junior and senior high school education were investigated in order to search if they contain descriptions enough to fulfil the disaster preparedness education in these schools. The results, however, show that the description in all the official textbooks was poor and that the volume of the description was half page in the minimum case and two pages even in the maximum case. The authors therefore started the following practice to fulfil the disaster preparedness education at schools.

A brochure to explain the nature of these natural disasters characteristic of Okinawa Prefecture and to teach how to prepare for the natural disasters was printed for auxiliary materials for school education. It includes the aspects of both natural science (earth science) and home economics, such as preparedness in the viewpoint of food clothing and shelter.

Japanese government established the system for renewing educational personnel certificates in 2007 and mandated the adoption of it in April 2009. The new system shows that only persons who have attended the certificate renewal courses over 30 hours and passed the examination before the expiration of the valid period can renew their certificate which is valid for next ten years. The purpose of this system is for teachers to acquire the latest knowledge and skills. Since 2012, the author has offered a 6-hour certificate renewal course titled by 'Disaster preparedness in Okinawa ? practicing development of teaching materials for school pupils'. This course was targeted mainly for science and home economics teachers of junior and senior high schools to tell the school pupils how to save their lives in case of devastated natural disasters.

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001-03

Room:503

Time:April 29 10:00-10:30

## Lesson from the great east earthquake and future education for safety

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Lesson from the great east earthquake and future education for safety

Keywords: Safety education

## Urban Disaster

KAWATA, Yoshiaki<sup>1\*</sup>

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Disasters in urban area have evolved with urbanization such as urbanizing disaster, urbanized disaster, urban disaster and Super-urban disaster. These changes of the disasters are discontinuous due to phase tradition. The condition will be proposed by the worst damage scenario. The disaster vulnerability depends on several conditions such as rapid urbanization and inadequate land use management, over-population and its density, imbalance of natural environment, over-dependence on social infrastructure and public service. Disaster resilience was proposed in Hyogo Framework of Action (HFA), the 3rd United Nation Conference on Disaster Reduction in 2005. Japanese government will promote the disaster resilient policy, but it does not include community based projects which is also supported by people in any community. In the case of retrofit of houses, community based promotion is necessary because the cause of a fire is an earthquake vulnerable old house in the community.

Keywords: Urban disaster, Disaster evolution, Phase tradition

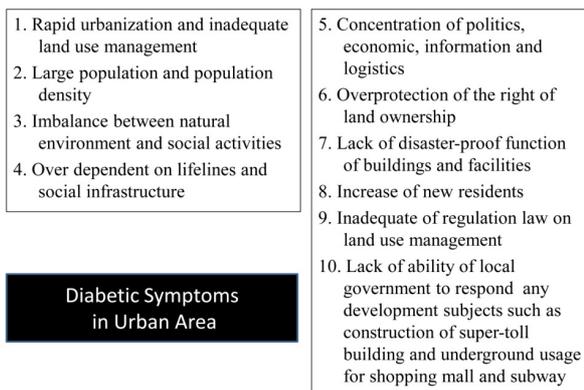


Fig. 1 Factors of acceleration of vulnerability in urban area

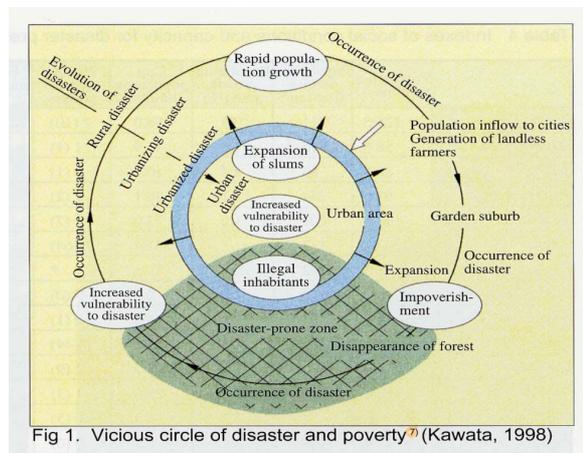
## Natural Disaster in The World

KAWATA, Yoshiaki<sup>1\*</sup>

<sup>1</sup>Faculty of Safety Science

Natural disasters have two characteristics. The former is that disaster history repeats itself and the latter is locality. In Istanbul, Turkey, plate boundary earthquakes have occurred 27 times since 438. Mayon Volcano, Philippines had erupted 50 times in 400 years since 17th century, therefore average time interval is 8 years. In Asia, natural disasters hold a certain percent of the world such as number of occurrences : 36%, property damage : 47%, death toll : 62% and number of injured : 89%. The last two has increased due to rapid growth of population in urban area. The combination with gigantic earthquake and tsunami and volcano eruption had occurred in Japan as 1) 864 to 887 with Mt. Fuji eruption, Jogan earthquake and tsunami and Nankai-trough earthquake and 2) 1703 to 1707 with Genroku earthquake in Tokyo, Nankai-trough earthquake and Mt. Fuji eruption. We are now under clear effect of global warming. For example, in South Asia, the number of flooding has increased nearly twice in next ten years. Since 1995 in China, river flood disasters occurred five time with the victims of more than one hundred million. In 2005, hurricane Katrina with category 5 hit New Orleans and just three weeks after hurricane Rita also hit the damaged area. She was also category 5 and they made compound disaster. Finally, we proposed vicious cycle among population increase, disaster occurrence and poverty in rural area and urban area. The pair of two vortexes is very stable, therefore it is necessary to become economic growth to break the vortexes.

Keywords: Natural disaster, Global warming, Vicious cycle



## Support by the health care providers in the reconstruction phase of disaster

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<sup>1</sup>Graduate School of Health Sciences, Kobe University

In the reconstruction phase, health care providers should pay particular attention to vulnerable groups which include the poor, women, children, elderly, handicapped and people with preexisting mental disorders.

Japanese people have experienced two severe natural disasters for the last two decades. The Hanshin-Awaji Earthquake occurred in the early morning of the January 17, 1995. Approximately 6,433 people perished and more than 43,792 people were injured. Homes of more than 300,000 people were totally or partially destroyed. Citizens not directly affected by the earthquake had to endure extreme disruption and confusion in their daily lives due to the long time disruption of daily activities resulting from the severely damaged infrastructure.

The Great East Japan Earthquake measuring a magnitude of 9.0 created a devastating tsunami that resulted in the destruction of a nuclear power station with the release of radioactive materials into the environment. The disaster occurred on March 11, 2011, and created one of the most severe humanitarian disasters in modern day Japan. According to the most recent estimates, 15,870 people perished during the disaster, with an additional 2,814 missing, and more than 329,777 being internally displaced. Some statistical models estimated that 727 of those who perished were children.

Three aspects were focused in this paper. The first is the data of psychological reactions in the small children and their mothers following the Hanshin-Awaji Disaster, and the second is the data obtained of children with intellectual or physical disabilities. Thirdly, I would like to introduce our activities in Indonesia and Tohoku based on our experiences gained after the Hanshin-Awaji Earthquake.

Keywords: reconstruction phase, support, PTSD, disability, family

## Some recent efforts and future activities of JpGU for the next high school national curriculum revision

MIYAJIMA, Satoshi<sup>1\*</sup> ; ABE, Kunihiro<sup>2</sup> ; IIDA, Kazuaki<sup>3</sup> ; UEMURA, Takeshi<sup>4</sup> ; OBI, Yasushi<sup>5</sup> ; KAWAGATA, Shungo<sup>6</sup> ; KAWAMURA, Norihito<sup>7</sup> ; KOBAYASHI, Norihiko<sup>8</sup> ; TAKIGAMI, Yutaka<sup>9</sup> ; NEMOTO, Hiroo<sup>10</sup> ; NOUMI, Fuminaga<sup>11</sup> ; HATAKEYAMA, Masatsune<sup>12</sup> ; MANNEN, Kazutaka<sup>13</sup> ; MINAMISHIMA, Masashige<sup>14</sup> ; YAJIMA, Michiko<sup>15</sup> ; YAMASHITA, Satoshi<sup>16</sup> ; WATANABE, Masato<sup>17</sup>

<sup>1</sup>Saitama prefectural Fukaya dai-ichi High School, <sup>2</sup>NPO corporation nature reproduction center toward "the rich sea mingled with fresh water area clean, <sup>3</sup>Urawahigashi high school,Saitama, <sup>4</sup>Kaijo Junior and Senior High school, <sup>5</sup>Kanagawa Prefectural Sagami-hara Seiryō High School, <sup>6</sup>Faculty of Education and Human Sciences, Yokohama National University, <sup>7</sup>Faculty of Education and Human Studies, Akita University, <sup>8</sup>Seibu Gakuen Bunri High School, <sup>9</sup>Kanto Gakuen University, <sup>10</sup>J.F.Oberlin University, <sup>11</sup>Saitama Municipal Sashiougi Junior High school, <sup>12</sup>Seiko Gakuin High School, <sup>13</sup>Hot Springs Research Institute of Kanagawa Prefecture, <sup>14</sup>Tokyo Metropolitan Ryogoku Senior High School, <sup>15</sup>Tokyo Medical and Dental University, <sup>16</sup>Saitama Prefectural Kumagaya Girls' Upper Secondary School, <sup>17</sup>Miyamaedaira elementary school

From 2012, the new national curricula standards has been in effect according to Ministry of Education, Culture, Sports, Science and Technology guidelines.

Among most high school students three or more subjects are chosen from the following four subjects; Basic Physics, Basic Chemistry, Basic Biology and Basic Geoscience.

As a result, The number of students who choose Basic Geoscience in 2014 has increased by about 3.5 times compared with that of the number under the former national curriculum guidelines, and some improvement came to be seen in people's geoscience literacy.

During this time, the Educational Affairs Committee of JpGU, in preparation for the next national curriculum revision, consider the way of desirable high school geoscience education through preliminary discussion in the study meeting (December 2012) and symposium (May 2013).

In order to raise geoscience literacy, it is necessary for the number of students studying geoscience to increase even more.

It is necessary to discern what is asked of high school geoscience education by society, and include the appropriate contents.

In order to allow students to learn the content effectively, we need to discuss what kind of subject setup is desirable.

In this session, based on the discussions so far, we present three drafts about the subject setting of a high school geoscience with different points of view. In addition, we plan to deepen discussion about the future direction of geoscience education taking into consideration the presentation about expectations for geoscience education from people who do not specialize in science.

Keywords: next national curriculum revision, high school geoscience education, subject setting

## Suggestion of the modified selective subject based on the current Basic Earth Science

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<sup>1</sup>Kanagawa Prefectural Sagamihara Seiryō High School, <sup>2</sup>Yokohama National University, <sup>3</sup>Seibu Gakuen Bunri High School, <sup>4</sup>Kanto Gakuen University, <sup>5</sup>Saitama Municipal Sashiōgi Junior High school, <sup>6</sup>Tokyo Metropolitan Ryōgoku High School, <sup>7</sup>Saitama Prefectural Fukaya dai-ichi High School, <sup>8</sup>Tokyo Medical and Dental University, <sup>9</sup>Kawasaki Municipal Miyamaedaira elementary school

Current basics subjects (2 credits) are subjects set based on mind of science for all, and the contents are veneer knowledge. However, it is thought that these basic subjects contribute to the improvement of good scientific literacy upbringing of the balance of the high school student's knowledge because a study rate of all subjects of four subjects of science rose because three subjects of science choice are required. In addition, it is realistic subject setting when based on the situation to teach the subject that does not match a specialty of a high school science teacher.

However, as contents of basics subjects are broad and veneer and have not the learning a principle and structure, the memorized tendency of the item is deeply concerned. Based on this reflection, we want to propose a new Basic Earth Science including contents learning a principle and structure by the selection of contents of the current basics subject carefully.

Keywords: Basic Earth Science, careful selection of contents, selective subject

## Suggestion of the new high school general science with the contents necessary as earthian

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<sup>1</sup>Saitama Prefectural Kumagaya Girls' Upper Secondary School, <sup>2</sup>NPO corporation nature reproduction center, <sup>3</sup>Urawahigashi high school,saitama, <sup>4</sup>Kaijo Junior and Senior High school, <sup>5</sup>Faculty of Education and Human Studies,Akita University, <sup>6</sup>Seiko Gakuin High School

Existing national curricula standards(N.C.S) in high school require 3 basic sciences of the 4 basic sciences, an improvement on the former N.C.S. But it is not enough for students to only study 3 basic subjects for coming to a deeper understanding of their place in earth's ecological system.

Therefore we would like to propose two new types of 'General Science' which need 4 credits or 6 credits in school classes.

One type integrates four science subjects into one compulsory subject with the aim of developing better understanding of the global environment and sustainable society,and is based on learning of the problem solution type with high regard for key competency. The other type is to divide 4 basic sciences into 2 subjects in order to understand science literacy, and consists of 'physics and chemistry' and 'biology and earth science' at this time, we want to suggest the former, which integrates four basic science subjects.

Keywords: general science, compulsory subject, problem solution type, understanding global environment scientifically

## Proposal of novel compulsory subject which is mixed Geoscience, Geography, environment, and natural disaster prevention

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<sup>1</sup>Division of Natural Sci., J. F. Oberlin Univ., ERI(Guest), <sup>2</sup>Saitama Prefectural Fukayadai-ichi Upper Secondary Sch., <sup>3</sup>Seikou Gakuin Secondary Sch.

The subcommittee of school curriculum at the committee of school education at Japan Geoscience Union (JpGU) has investigated into the contents of Earth and Planetary Sciences and its related Sciences of next and future subjects of upper secondary schools based on the next and future national standard curricula in Japan. We would like to make 3 types of subjects and their contents. In this presentation, we will report novel compulsory subject of them.

This novel compulsory subject will be invented based on new concepts which break down long-established the framework of current subjects. The contents of this subject consist of geoscience, geography, environment, natural disaster prevention, and so forth. The educational purpose of this subject is to acquire the scientific literacy and the attainment ability of type of PISA, Programme for International Student Assessment, through the ability of natural and social sciences. As a result, students will be able to get ability to take action and thinking faculty for environmental problem and natural disaster prevention by themselves scientifically.

Keywords: Novel Compulsory Subject, Upper Secondary School, Geoscience, Geography, Natural Disaster Prevention, Environment

## My Expectations to High School Subject "Earth Science" under the New National Curriculum Standard in Japan

ABIKO, Tadahiko<sup>1\*</sup>

<sup>1</sup>Kanagawa University

The new national courses of study in science education of high schools implemented formally in 2013 have asked high school students to choose 3 science subjects from 4 subjects such as physics, chemistry, biology and earth science. This revision has led to following changes; First, the number of students to choose earth science has drastically increased and most of them tend not to study earth science deeply, but to regard it as sort of general education. Second, and what counts most is, their interests in the most important problems of the global environmental issues are increasing. If these tendencies are continued to be seen, new earth science as a high school subject shall have a very serious and critical mission to enhance student's general science literacy and their motivations for engagement or action in solving those real life problems, while they must be active to make effective conditions of the sustainable development in our human life as well as in all kinds of life on the earth.

Keywords: science education, earth science education, global environmental issues, education for sustainable development (ESD)

## Hunting mega-quakes -What we can and cannot find out from tsunami deposit-

SHISHIKURA, Masanobu<sup>1\*</sup>

<sup>1</sup>Active Fault and Earthquake Research Center, AIST

The giant tsunami of 2011 Tohoku was inundated into further inland and transported sand and mud from the coast. Such sand and mud are called tsunami deposit. Researchers have surveyed past tsunami deposits before the 2011 tsunami, and have revealed that the 869 Jogan tsunami had very large inundation in the Tohoku area. Because the inundation area was eventually almost similar between the 2011 and 869, studying past earthquakes and tsunamis (paleoseismology) came to be recognized in its importance for forecasting magnitude of tsunami. However finding out past phenomena beyond several thousand years is not easy. In this talk, I would like to introduce how to reconstruct the past earthquake and tsunami from historical records, tsunami deposits and coastal topography, including episode of field survey and relationship with society.

Keywords: great earthquake, tsunami, tsunami deposit, paleoseismology

## Recent eruptions in Japan (review): past and future

NAKADA, Setsuya<sup>1\*</sup>

<sup>1</sup>ERI, Univ. of Tokyo

In late November of 2013, eruption started in Nishinoshima approximately 1,000km south of Tokyo, and the activity continued. Including this eruption characterized by gentle lava outflow, various types of eruptions occurred in Japan during recent decades. For instance, Shinmoe-dake (Kirishima) woke up with explosive pumice eruption in 2011 after a quiescent period of 300 years. Sakurajima repeats explosions every day. Miyakejima erupted with subsidence of the volcano peak area in 2000. Eruption at Unzen issued pyroclastic flows for several years in early 1990s. Except some people damaged directly by it, volcanic eruption itself fascinates people, and the resultant landforms, hot springs, and fertile plateaus bring blessings to people. Therefore, eruption activity is different from other natural hazards. In the volcanic belts surrounding the Pacific, such as Indonesia, Chile and so on, eruption activity in the Japanese Islands was very low in magnitude during these centuries. After the large earthquake on March 11, 2011 which caused a extensive crustal movement in the whole East Japan, seismic activity increased in several volcanoes in the East Japan including Mount Fuji. Volcanologists were worried about eruptions triggered. However, no volcanic eruptions were triggered during, at least, three years. Does an earthquake trigger volcanic eruption really?

In this lecture, I review recent major volcanic eruptions in and outside the Japanese Islands with their research results. In addition, I will mention on the possibility of large-scale eruptions near future, especially at Mount Fuji stopping eruption for these 300 years and at volcanoes that experienced caldera-forming eruptions in the past.

Keywords: volcanic eruption, Nishinoshima, natural hazards, triggering eruption, Mount Fuji, Caldera eruption

## Career path of young scientists

NAKAMURA, Masato<sup>1\*</sup>

<sup>1</sup>Institute of Space and Astronautical Science of Japan Aerospace Exploration Agency

For sustainable development of geosciences, it is necessary to consider supporting and training system of geoscientists, especially for young geoscientists who hardly get permanent academic positions under recent condition surrounding Japanese young scientists. They are worrying about their carrier paths, with considering their work-life balances in parallel. Due to anxious of invisible future, some of them quit trying to become scientists when they face to life events such as childbirth and care of their children or parents, If this situation will continue still more, our academic field, geosciences, will reduce gradually. Therefore, I will introduce to them mental attitude required for geoscientists and successful role models, i.e., active senior geoscientists by doing continuous efforts.

## Effort for Diversity Promotion, University of Tsukuba

HABAZAKI, Makiko<sup>1\*</sup>

<sup>1</sup>Office of Diversity, University of Tsukuba

The University of Tsukuba promotes the gender equality based on the 3rd Basic Act for Gender-Equal Society and the 4th Science and Technology Basic Plan in Japan, recognizing our social role and responsibility to form a gender equal society. In 2007, the Committee on Gender Equality and the Office of Gender Equality were established, and 'Basic Principles and Policies on Gender Equality' has been enacted in 2008. For the three years from 2009 to 2012, a project of 'University of Tsukuba Style: Sustainable Support for Women Researchers' program was adopted as a strategic fund of a model of support for women researchers for Promoting Science and Technology. Therefore we endeavor to develop its environment of the gender equality. In April 2012, 'the Office of Gender Equality' was reorganized to 'the Office of Diversity', and 'Basic Principles and Policies on Diversity' was designed to become a university where human potential and diversity are respected and all stakeholders can experience pride and joy in their work. In March 2013, 'Action Plan of Diversity, University of Tsukuba' was designed, and in August, new project was adopted as 'Fund for supporting activities for female researchers'. In response, we are going on amplification of environment for gender equality and diversity.

We are promoting various projects based on following five purposes in 'Action Plan of Diversity (from 2013 to 2018)'.

1. Promotion for diversification in university management
2. Offering of assistance in the balancing of education, research, and work with family life
3. Expansion of diversity in next generation
4. Pursuit of awareness-raising activities targeting faculties, staffs, and students
5. Pursuit of gender equality through partnerships with the local community and international society

Workers during a Childbirth, Child Care, and Family Care can employ for tenured faculty members and secure of substitute teachers. The University also opened Au Work-Life Balance Counselling Room for such workers. For educational activity, we have held some seminar of awareness of diversity for managerial staff, and class of 'Work-Life I and II' for university student. Then, we have been focused 'Expansion of lower' that educate young generation (especially women) wanted to be scientist. As a result of these efforts, the ratio of women researcher has increased year by year at University of Tsukuba.

005-03

Room:313

Time:April 29 10:05-10:35

## Balance with caring for parents, caring for children, and studying-My experience in caring for my parents-

OHYA, Hiroyo<sup>1\*</sup>

<sup>1</sup>Graduate School of Engineering, Chiba University

Suddenly one day, if your parents are given half a year to live and you become care for your parents-. The caring for parents suddenly comes to you and may continue for a long time. When I was caring for my little children, my father was given half a year to live due to cancer. I will talk about my experience for caring for my father, caring for children, and studying in this session. Shall we think about caring for parents from each point of view regardless that you experienced or not?

Now my children are university and high school students. I will also talk about the difference of life-work balance between the childhood and adolescence.

## An Encouragement of doing *Ikumen* and taking *paternity leave*

YOSHIDA, Hiroki<sup>1\*</sup>

<sup>1</sup>Fathering Japan, Nonprofit Organization

The author has a confident to contribute to all male scientists, who have an idea of taking a *paternity leave*. We can learn many things and grow up ourselves by taking care of children. However, the time as to be a current parent especially for a small child is too short. Thus, male scientists should do *Ikumen* right now and take *paternity leave* if necessary.

The term parental leave includes maternity, *paternity*, and adoption leave. The minimum benefits are stipulated by Japanese law. Although such valuable supports are provided by the government, there are few people experienced *paternity leave*. One of the reasons is too worry about eyes of surrounding people such as colleagues and neighbors. Even they take *paternity leave*, they may have a hard time to take care of children. Parenting is different from repeating same things as just for feeding, substituting diapers, etc. It is an important work to bring up and to educate children, precious talented people in the near future. Praising, encouraging and smiling are the most important for education not only for children but also for all people. *Ikumen* experience will be sure to help your private life as well as academic and scientific works.

## Now and Future Thailand's Family

TANGWATTANANUKUL, Ladda<sup>1\*</sup>

<sup>1</sup>Graduate School of Engineering and Resource Science, Akita University

In Thailand, families reside with their family size either in cities or countryside. The family size in countryside is larger than one in cities. The marriage practice allows women to move into husband's family.

Family member are delegated household each other. Women do household: cooking, cleaning and washing. Instead, men do heavy work in their house. When children reach about 8 years old, they need to assist their mother and father like cooking and taking care of younger siblings. Most men of Thailand can cook and taken care of kids. Recently, the family likes to pay money to housekeeper to clean house and wash clothes. Some family's grandmother and grandfather are in house. They take care of kids when the parent goes to work out. Women worked in company or government ask maidservant to stay with her family. Maidservant will take care of baby and cooking for the host family. They get foods and salary about 20000 yen per month. Most of the maidservants are teenager and the maidservants are from Myanmar or Laos. However, recently women who graduate from colleges or universities become choosing to work for long period before marriage.

006-01

Room:Main Hall

Time:April 30 09:00-09:26

## Geopark

OIKE, Kazuo<sup>1\*</sup>

<sup>1</sup>Chairman, Japan Geopark Committee, Kyoto University of Art and Design

Looking at the landscape constructed by the activity of the earth, tasting vegetables and fruits produced by the blessing of nature, we learn the natural phenomena, regional history and culture of the geoparks.

The basic characteristics of nature of Japan islands are earthquake occurrence, volcanic eruption and tsunami. Japan's geoparks are located along the deformation belt and are also the parks of the earth where the culture of the Japanese people who have lived in natural disasters is introduced.

On December 2013, thirty three geoparks has been certified by the Japan Geopark Committee. Six of them have been certified to join the Global Geopark Network. We will continue to learn from the beauty of nature of Japanese archipelago, and introduce it to people of the world.

Keywords: Geopark, Japan Geopark Committee, Japanese Geoparks Network

## Nature parks as a tool for local sustainable community

MATSUDA, Hiroyuki<sup>1\*</sup>

<sup>1</sup>Yokohama National University

### Abstract

Biosphere reserve (BR) of UNESCO's Man and the Biosphere (MAB) Programme seeks balance between sustainable use of natural capitals and biodiversity conservation, rather than protection of primeval nature. In the early stage of the MAB programme, BR encouraged academic research in the site and usually consisted of core area and buffer zone. Forest Ecosystem Reserve of Japan follows the concept of BR zoning.

Since 1995, BR consists of core, buffer and transition areas. Transition area supports sustainable use of natural capitals (Figure 1). Therefore, BR becomes a good arena of development of local economy. Also global trend of environmental movement shifts from protection of primeval nature to conservation of natural resources.

BR recommends involvement of all actors in management and decision-making processes. New forms of institutional cooperation and links between different levels of economic and political decision making. Aya BR, designated in 2013 as the 5th Japanese BR, is recognized as one of the best models of participatory approach for BRs in the world. Bokova (Director-General of UNESCO) said, "From the Luberon-Lure BR in France and the Aya BR in Japan to the Dana BR in Jordan, local communities are developing bio-products that meet both local and global needs, and in ways that contribute to a healthy environment and reduce waste."

Fig. 1 Role of core, buffer and transition areas in biosphere reserves

Keywords: UNESCO, MAB, biosphere reserve



## Geopark from the viewpoint of residential research

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<sup>1</sup>Research Institute for Humanity and Nature

Residential research is a new method being proposed for use in problem-solving research that corresponds to the actual local circumstances and from the stance of the scientist/researcher not only being a resident but also a member of the local society concerned. I participated in a project involving storks, an endangered species, being returned to the wild, which took place in the area around Toyooka City in Hyogo Prefecture, and in researching the environmental sociology of Hyogo Park of Oriental White Stork, and thus also gaining experience as a residential researcher. The Sanin Kaigan Global Geopark is also in the area, and hence the storks being returned to the wild and the activities of the geopark are correlated, with also having been involved in the geopark's activities to a certain extent. Based on this personal experience I discuss the potential of geoparks being a tool to use in solving local problems, from the point of view of residential research.

Keywords: residential research, integrated local environmental knowledge, re-introduce project of the oriental white stork, adaptive governance

## Think about the Geopark - After landslides disaster from the eyes of the guide

NISHITANI, Kana<sup>1\*</sup>

<sup>1</sup>Izu Oshima Geopark

Three and a half years have passed since I met the Geopark. I have continued to guide because I have been fascinated by the story of plants, animals and human beings and the earth involved each other. So everyone's sensitivity and eyes for wonder, knowledge and experience was always different that I felt every tour would be the only one story in the world.

October 16 of this year, 36 people died, three people were still missing in Izu-Oshima. Because of the landslide disaster caused by heavy rain of typhoon No. 26. We thought " Water drainage is good in this islands because it is young volcano here." We were scary the eruption and tsunami, but not worry about floods. We couldn't imagine the landslide disaster.

"Why we could not notice the danger? Why we could not tell it to the person who become a victim? ". I felt unbearable thought. If I could warn it, a life would not to be lose. Then, I realized that there is lots of sadness in the back of words "We are living on the land that volcanoes made ".

Now, We are starting the reconstruction in Izu-Oshima. There are various problems, which are always changing. I feel that facing the reconstruction and disaster is just a Geopark itself.

We had the seminar by volcanic expert, and inviting lecturers from Miyakejima, Unzen Geopark, and Sanriku Geopark, for residents.

Are there any changes to the residents by sharing the information with different Geoparks?

We consider the role of a network of Geoparks through various activities after the disaster.

Keywords: geopark, guide, Izu Oshima, net work, disaster, rule

## Summary of the evaluation process of Japan Geopark Committee

WATANABE, Mahito<sup>1\*</sup>

<sup>1</sup>Geological Museum, Geological Survey of Japan, AIST

Japan Geopark Committee (JGC) has started its evaluation of prospective geoparks in 2008. Geopark specialists from the geoparks of Japanese Geoparks Network (JGN) joined as on-site evaluators in 2012.

Dossiers are evaluated by the JGC member and they decide which candidate should be further evaluated on-site. JGC decides a on-site evaluator and a assistant evaluator for each candidate area from those who are well experienced person in one of Geopark. One JGC member and two evaluator conduct a on-site evaluation for 2-3 days. Detailed evaluation report based on the dossier and the on-site survey is written by them and submitted to the JGC. JGC that is composed of eleven member make a final decision on each application.

Check list for the evaluation are revised every year by JGC and on-site evaluation from the geoparks.

Keywords: Geopark, UNESCO, Global Geoparks Network, Japanese Geoparks Network, Japan Geopark Committee

## volcano gifts from the south Izu Peninsula Geopark

YOSHIKAWA, Kaoru<sup>1\*</sup> ; HORINO, Yoshiaki<sup>1</sup> ; ISHII, Chiharu<sup>1</sup> ; TUKUDA, Hiromi<sup>1</sup> ; KOYAMA, Masato<sup>2</sup>

<sup>1</sup>Izu Peninsula Geopark Promotion Council, <sup>2</sup>Shizuoka University

The Izu Peninsula was situated to the south of the Japanese archipelago long time back. Due to the movement of the Philippine sea plate, it moved gradually to the North and collided with Honshu. In the Izu Peninsula, which was formed out of this mutual collision a great range of natural diversity can be seen, which makes it unique as a peninsula on the global scale. It is possible to observe the geological mechanisms that formed the peninsula in different locations. The peninsula is ideal to observe the geological processes ranging from submarine volcanism, land volcanism due to the collision of landmasses and ongoing volcanic activities. As a geopark, Izu Peninsula is attempting to collaborate with other geoparks and raise awareness on natural disasters as results of tectonic level processes, while preserving local nature, culture and history.

In March 2011, 13 cities and towns came together to form the core of the geopark. In September 2012 the geopark was accredited by the Japanese Geoparks Network. In December 2013 two more towns joined the geopark area. The geopark employed a new researcher on human geography in 2013 and published its newsletter.

Apart from these the geopark is working to assess the volcanic gas conditions in Teishi Kaikyu area with the Natural Disaster prevention unit of the Shizuoka University, giving guide programs, popularizing earth science for children, and participating in childrens summer school camps. In the Asia Pacific Geoparks Networks Conference (APGN 2013) the geopark put up its poster and introduced its activities.

Keywords: geopark, Izu Peninsula

O06-07

Room:Main Hall

Time:April 30 11:49-12:19

## Action of Mt. Apoi Geopark for the accession of GGN

HARADA, Takumi<sup>1\*</sup> ; SAKASHITA, Kazuyuki<sup>1</sup> ; KATO, Satomi<sup>1</sup> ; NIIDA, Kiyooki<sup>1</sup>

<sup>1</sup>Mt. Apoi Geopark Promotion Council

2013, Mt. Apoi Geopark sought a recommendation to the GGN to JGC. However, wish was dismissed. I will introduce the approach to solving the problems of the Mt.Apoi Geopark.

Keywords: guide, Information tool, Traditional Culture of Ainu, cultural exchange, Nature conservation activities

## Mt. Naeba foot geopark concept -The person from 30,000 years before to the present, and relation of the ground -

SATOU, Nobuyuki<sup>1\*</sup> ; NAKAZAWA, Hidemasa<sup>1</sup>

<sup>1</sup>Tsunan town Board of Education

Here we present the outlines of the Mt. Naeba foothills geopark concept. The geopark is located in the northwest of Mt. Naeba, which area includes both Tsunan town of Niigata prefecture and Sakae village of Nagano prefecture. It is characterized by the facts that while the area has 3 to 4 meter of annual snowfall the population of over 10,000 is maintained, and that 30,000 years of history and cultures of people interacting with the earth can be learned. Numerous environmental changes have occurred on the earth, in the air, in the oceans and on the lands. Studies on the rocks, clays, volcanic ashes, plant and pollen remains in the peat layers, information from archaeological remains and various meteoric factors, enable us to know the influences of the environmental changes to the lives of the people. The Mt. Naeba foothills emerged about 3 million years ago and the base of the land was formed by the lava flow of the Mt. Naeba. Through the development of river terraces, snowfalls and waters from springs, a rich natural environment was formed. The present environment as the snowy country began about 8,000 years ago. Tendency towards the sedentary way of life increased in the prehistoric times with the development in the exploitations of resources. The land formation and the peoples lives are closely related. For example, during the Jomon period, 5000 years ago, people formed very unique flame-style pottery using indigenous clays, made stone tools using volcanic flows or sedimentary rocks and lived in the settlements constructed on the river terraces. There are plenty of archaeological data showing the relations of the land and the people. We began to think about our land seriously placing the Mt. Naeba foothills geopark as a keyword. This idea is to reflect our land which is a precious treasure with geo-eco-culture, to love, to learn, to protect and to pass on the region to the next generations. A group of local people called Geo-egg emerged recently, and many inhabitants began to have consciousness to learn more about the land they were born and bred visiting the local heritages. For us, the Mt. Naeba foothills geopark is one of the hopes for overcoming the disaster of the Northern Nagano earthquake.

Keywords: Mt. Naeba, geopark, river terrace, tephra, archeological remains

## Amakusa Geopark plan

KUNITAKE, Yuko<sup>1\*</sup> ; KANAZAWA, Hiroyoshi<sup>1</sup> ; UGAI, Hiroaki<sup>1</sup> ; HASE, Yoshitaka<sup>1</sup>

<sup>1</sup>Amakusa Geopark planning promotion committee

The Amakusa Islands, consisting of about 120 islands are located in the southwest area of Kumamoto Prefecture: a beautiful archipelago with geologic and geographic characteristic landscapes and a 100 million year history, not to mention a treasure of ancient fossils offering its visitors a fantastic glimpse into times gone by. A unique culture has been carved out of life on these islands by its inhabitants adding to the many breath-taking sightseeing opportunities. The plan of the Amakusa Geopark is to show off the diversity of geology, geography, history, culture, industry and ecology in Amakusa with a mind of ecologic conservation and economic growth.

Residents and officials alike collaborate to preserve the geologic inheritance of Amakusa with an educational perspective. Exposing the unique beauty of this inheritance as a tourist attraction in conjunction with the history and culture of the area, an attractive geo-tourism will be founded aimed at the promotion of the Amakusa area.

Keywords: Island, sea, geopark, guide

## Shimokita Peninsula Geopark Design;The glory of 4 oceans,one land 4 geological elements

ARAYA, Tomofumi<sup>1\*</sup> ; MIYASHITA, Junichiro<sup>1</sup> ; UEDA, Hayato<sup>1</sup> ; ITO, Michio<sup>1</sup> ; MITSUNO, Yoshiatsu<sup>1</sup>

<sup>1</sup>shimokita peninsula geopark design promotion meeting

### **About Shimokita Peninsula**

Shimokita Peninsula is located on the northeastern side of Aomori Prefecture, and the northernmost point of Honshu Island. It stretches across 1 city, 1 town and 3 villages surrounded by 4 bodies of water; the Pacific Ocean in the east, the Sea of Japan in the west, Mutsu Bay in the south, and the Tsugaru Strait in the north.

Shimokita Peninsula Geopark contains the 4 major geological elements that make up the island of Japan, including Osorezan's gold ore deposit and caldera, Hotokegaura's green-tuff series, the vast coastal exposure of quaternary strata in the Tanabu area, and Cape Shiriya's accretionary body. Shimokita also has a rich history and culture influenced by the Kitamaebune shipping trade, the Abeshiro kuroko mine, the northernmost distribution of monkeys in the world, the Tsugaru Strait's Blakiston's line, etc. Shimokita is blessed with amazing resources in a wide variety of fields.

### **Reason for applying to the JGN**

The Shimokita Peninsula lacks universities and public museums so many people don't have a chance to study at a higher level, and realize how lucky we are to have many valuable natural treasures and learning resources.

Turning this area into a geopark will give people a chance at higher education and help create pride and love for Shimokita.

Through this geopark we hope to educate and explore Shimokita together with the next generation so that we can all learn of its value and importance.

### **Shimokita Peninsula Geopark Design: Theme and Story**

Japan is made up almost entirely of four basic geological elements; the non-volcanic Pacific coastal range consisting of the accretionary body, the axial volcanic chain, the sedimentary basin between the coastal and axial ranges, and the green-tuff mountains and hills which record the genesis of the Sea of Japan.

This geopark is the only one that touches both the Pacific Ocean and the Sea of Japan making it the only place where we can see all four basic elements in one place.

Also the peninsula is surrounded by four bodies of water and each body of water supports its own unique type of fishing. Fishing is the main industry that supports Shimokita.

Thus the theme of this project is [Shimokita Peninsula Geopark: The glory of 4 oceans, one land 4 elements.] The sub-themes are [East Coast Zone: Gift from the Pacific Ocean,] [Tanabu Plains Zone: Competition between land and sea,] [Osorezan and Mutsu Hiuchidake Volcanic Zone: Volcano and hot spring blessings,] [West Coast Zone: Split land.]

### **Contribution to JGN**

As a place without universities or museums we hope to exchange ideas with other members of the JGN so that we may develop higher education and lifelong learning opportunities here in Shimokita. We hope to contribute to the JGN by demonstrating a system of higher education without the support of a university.

In Japan we believe that spirits live in mountains, trees and rocks. Osorezan and Hotokegaura are famous places for praying to the spirits. People come from all over Japan to talk to Itako, blind mediums who speak with the deceased at Osorezan.

With Osorezan at the center of the Shimokita Peninsula Geopark another contribution to the JGN is a geopark not only with amazing geology, but with the intangible resource of faith.

### **In Conclusion**

The Shimokita Peninsula Geopark may not have anything that no other geoparks have or anything more amazing, but it is unique in that it is the only geopark in Japan which touches both the Pacific Ocean and the Sea of Japan.

The people of Shimokita want to protect, preserve and share the amazing natural resources of Shimokita with others. We hope that by taking pride in our home, our love for Shimokita will be carried on for generations and visitors will see it as a special place too.

Applying to join the JGN will allow the people of Shimokita to realize the value of our natural resources. It will also give us a new reason to love the peninsula and create a new type of tourism.

Keywords: Japanese national geopark, 4 oceans, 4 geological elements, Love for Shimokita(Love for one's home), Faith;Mt.Osorezan

## The Promotion of Nanki Kumano Geopark Plan

HIGASHIKAWA, Tomoaki<sup>1\*</sup> ; HASHIZUME, Masaki<sup>1</sup> ; TAWARA, Takaharu<sup>1</sup> ; TANIWAKI, Tomokazu<sup>1</sup>

<sup>1</sup>Nanki Kumano Geopark Promotion Council

The area of Nanki Kumano Geopark Plan is located in the southern part of the Kii Peninsula, the southernmost point of Honshu. It consists of a city, 7 towns and a village: Shingu City, Shirahama Town, Kamitonda Town, Susami Town, Nachikatsuura Town, Taiji Town, Kozagawa Town, Kushimoto Town and Kitayama Village.

The total area of Nanki Kumano Geopark Plan is approximately 1,356 km<sup>2</sup>; the area stretches 60 km from east to west and 60 km from north to south. It includes various landforms ranging from steep mountains over 1,000 m to deeply-indented coastlines formed by the submerged coast.

The area of Nanki Kumano is blessed with mild and moist climate, but does not have many plain fields because it consists largely of steep mountains. Besides, roads were not built in earlier times. Therefore, the livelihoods of people have relied on forestry, fishery, and shipping industry since a long time ago. In addition, the geography, nature and culture of this area inspired a feeling of awe in city people away from the area. Historically, many people have visited this area and it has prospered as sacred sites of Kumano worship. In modern times, it has become a key area of forestry, fishery, and shipping and has also thrived on diggings of mineral resources, papermaking industry, hot springs and tourism.

However, in recent years, regional disparity between urban and rural areas has widened. We can see depopulation, aging and industry decline in rural areas, although pavements, railroads, ports and an airport have been developed and traffic has become more convenient than before.

In this situation, the progress of earth science gradually revealed the formation process of geological and geographical features peculiar to this area. Moreover, it has turned out that those features are quite unique. This area consists of three kinds of geological conditions formed by a series of plate movements. The central part is made up of accretionary prism formed by subduction of oceanic plate near the ocean trench. The eastern and western parts are respectively composed of forearc-basin sediments formed on accretionary prism. Additionally, igneous rocks are distributed in the eastern part. These three landforms exist in this area due to the encounter of plates. Thus, we can learn typical three geological formations showing the formation process of the land in addition to dynamic planet activity, namely, subduction of plate.

Culture, history, industry and people's life have been developed in this area by using geological and geographical features. People feel a sense of pride in each of them and gradually recognize that they are valuable assets that should be left to future generations.

The area of Nanki Kumano is the core of Sacred Sites and Pilgrimage Routes in the Kii Mountain Range registered as a World Heritage Site in 2004. Sacred Sites, Pilgrimage Routes, Cultural Landscapes are already regarded highly as worthwhile. However, we think not only they but also charm and value of this area can be enhanced by exploring dynamism of a land formation, the formation process of nature and contacts between people and nature in this area. We are working on the geopark project with the idea that charm and value of this area will give local people confidence and pride and will create new jobs and opportunities for human interaction. We believe it important for sustainable local development to advance this project in the area of Nanki Kumano. Therefore, we apply for membership in Japanese Geoparks Network.

We would like to contribute to Japan Geoparks Network by demonstrating a new model of geopark activities; we can enhance each value of the sites by connecting the geological heritage with the existing property: the UNESCO World Heritage Site, Kushimoto Coral Communities (a registered wetland under the Ramsar Convention) and Yoshino-Kumano National Park.

Keywords: Nanki Kumano, Geopark

## Geographic History of the Purple Mountain and Suigo and the Life Carried on to the Future

SHIBAHARA, Toshitsugu<sup>1\*</sup>

<sup>1</sup>Mt.tsukuba Area Geopark promotion Council

Mount Tsukuba is located in the northeast of Kanto Plain. From the distance, the mountain looks like a single peaked mountain which is a rare view in Kanto area. The mountain is called "Shiho", meaning a purple mountain, since the color of the mountain surface looks purple in the evening reflected by the setting sunlight.

The crest has steep double peaks constructed of solid gabbros which were intruded and risen approximately 75 million years ago.

The mountainside (declive) and the base of the mountain (piedmont) are covered with debris of gabbro and weathered debris of granite.

The gentle curves of the mountain skirts make its mountain shape beautiful. Additionally, as the northeast tip of Kanto Plain, the surrounding regions centering the Kasumigaura Lake make the scenic beauties of "Suigo" with broad platforms and lowlands formed by the 4th period of the sea level change.

Therefore, blessed with the "geological inheritance", the Mount Tsukuba is renowned as we have an expression, "Mt.Fuji in the west, Mt.Tsukuba in the east." So, the mountain has been regarded as the landmark of Kanto. Also, even competing with Mt.Fuji, which has just been approved as one of the World Heritages, the mountain worship and many Japanese traditional culture and art have originated in this area.

The activities typified by the water transport in Kasumigaura Lake, stone manufacturing and pottery, have had developed its own style independently even though the region was located near Edo(Tokyo). It is particularly worth noting that they supported the modernization of Japan. Inada granite was used for architectures such as the Diet Building, Bank of Japan and Nihon-bashi Bridge in the Meiji Era.

In the modern age, Tsukuba Science City is established on the platform at the base of Mount Tsukuba. The area is vitalized from both inside and outside Japan and has started to create the future.

Evaluating the features of this area-the nature, the history and people's activities-from the geological and geographical points of view, each element may not seem to relate to each other. However, once you change your perspectives, you can find fascinating, charming and attractive aspects in them.

So, in Tsukuba Area Geopark, we view every geographical and geological feature of this area as a series of the eternal history and rediscover the value of the geological features of this area, share it with people inside and outside of the region and carry on to the future.

## Concept for the Tateyama Kurobe geopark:Feel the tales of dynamic time-space, 3800Ma history and 4000m topography !

MASUBUCHI, Yoshiko<sup>1\*</sup> ; OONO, Hiromi<sup>1</sup> ; TANBO, Toshiya<sup>1</sup> ; FUJITA, Masato<sup>1</sup> ; ISHIZU, Hidetomo<sup>1</sup> ; TAKEUCHI, Akira<sup>1</sup> ; NAKAO, Tetsuo<sup>1</sup> ; HORIUCHI, Yasuo<sup>2</sup>

<sup>1</sup>Tateyama Kurobe geopark Promotion Conference, <sup>2</sup>Tateyama Kurobe geopark Support Municipalities Conference

”4000 meters times 3.8 billion years”; this is how we could express the geological history and geography of the eastern part of Toyama Prefecture. Nature guides activities in each of 9 municipalities have made it a duty to transmit the scale of those numbers, protect the land and make good use of it. And this, in turn, has been the founding principle behind the Tateyama Kurobe geopark.

The region of the Tateyama Kurobe geopark is now located in the geologically very active region. The volcanic and tectonic activities that have been ongoing since the Mesozoic Era create the Toyama bay that is over 1000 meters deep, and the Tateyama Mountain Range that is over 3000 meters tall. Since they place in a very compact location, the eastern part of Toyama Prefecture has a dynamic and unique landscape and geology. Besides, the region has the youngest granite on Earth which is said to be around 800 thousand years old and it shows rapid tectonic activity. While the oldest mineral on Japan, Eoarchean?Paleoproterozoic zircon (over 3.8 billion years old), was also identified. This turns the region into a life-size ”encyclopedia of geology”. It encompasses various minerals and sings of the multiple events occurred during the long history of Earth, including rests of the collision that created the Asian continent during the Paleozoic. In the present time, large quantities of precipitation which comes from the Sea of Japan to the Tateyama Mountain Range return to the Sea of Japan through the mountain glaciers located in the southernmost in the Far East, rivers and numerous springs in the alluvial fans. This water circulation maintains unique natural environment in this region.

Since the earliest times, the people had come to understand the importance to protect the resources of the land and sea and the voluntary nature guides system was established in 1970s by Toyama prefecture. This is pioneer in nature guides system in our country. The nature guides activities become widespread throughout the northern Japanese Alps and the coastal plain by Toyama Bay. We cannot still say that many citizens and travelers in the region understand the whole story above. However, recently we have found that more people are aware of the importance of the land and began to grow a strong wish to know more about what makes their land special.

All of this above makes us think that ”that is on what our region and landscape is based”. We want to use the geopark activities as catalyzer to bring together all those actors in order to bring out the interest of the people about the region. However, we believe that we need an organization at the center of it all that is ”built by the people, for the people”. Therefore, instead of limiting ourselves to the various organizational forms in existence, we decided to pioneer an organization that would make this possible, having the local actors themselves create it, receiving support from both private and public sectors. This is because we believe that, in our region, the people and the governments should work as partners together for the management of the geopark.

Keywords: Tateyama Kurobe geopark conception

## JGN National Training meeting Summary - The current state and issue of Geoguide development -

SAKANOUE, Hiroyuki<sup>1\*</sup> ; ISHIKAWA, Toru<sup>1</sup>

<sup>1</sup>The Council for the Promotion of the Kirishima Geopark

In the various geoparks around the country special features, required knowledge, and original curriculum has been established and geoguide training is progressing. However, in Kirishima, there are more than a few areas that have concerns over the content, length and so forth of the curriculum. Also, due to the differences in shape and environment of the features such as mountains, beaches, and islands the crisis management skills required of guides is substantial and various forms of support will be needed.

At the November 2013 JGN National Training Meeting held in Kirishima Geopark, geoguide development was the chosen theme. Local guides gave presentations and shared information on current conditions and issues and then participated in a lively group debate on the topic of risk management. With the information gleaned from this training meeting compiled with general information a report detailing the objectives of Kirishima Geopark guide development will follow.

Keywords: Geopark, Kirishima, Geoguide development, JGN National Training Meeting, risk management.

## Authorization System of San'in Kaigan Geopark Guide

FUKUHARA, Youichiro<sup>1\*</sup> ; SAN'IN KAIGAN GEOPARKE, Promotion council<sup>1</sup>

<sup>1</sup>San'in Kaigan Geopark Promotion Council

San'in Kaigan Geopark Promotion Council established an authorization system which authorizes local guides who fulfill a certain criteria as "San'in Kaigan Geopark Guide", to improve the guide information for visitors and develop the skills of local guides.

San'in Kaigan Geopark includes three cities and three towns in three prefectures, and tour guides has been existed since before this area became one of geoparks. Various tour guide services were provided, showing visitors around the town and coastal area, for free or with charge. To add the geological elements to these guide services and fascinate visitors even more, the council and local guides in the San'in Kaigan Geopark spent a lot of time discussing about the training and requirements to set a uniform criteria in 2012-2013, aiming to promote geotourism.

There are two levels in the authorization system of San'in Kaigan Geopark Guide. Local guides must guide a specific geosite in the area and explain about the geopark system and overview to receive a level 1 certificate. To receive a level 2 certificate, in addition to the skill of level 1, local guides must help the council's events as representative guides of the San'in Kaigan Geopark.

The requirements of level 1 guide are 1) Taking training courses about basic knowledge of geopark, geosite, guide and risk management admitted by the council, 2) Being covered by general liability insurance, and 3) a person who belongs to tourism facilities registered in the council. This certificate is valid for three years.

In addition to active experiences as a level 1 guide, the requirement of level 2 guide is passing qualification test conducted by the council.

In the near future, by operating this authorization system, we aim to boost the skills of San'in Kaigan Geopark Guide and promote active geopark activities.

Keywords: San'in Kaigan Geopark, Geopark guide, Authorization system

O06-P03

Room:Poster

Time:April 30 18:15-19:30

## The Tour Guide Training program for Sanriku Geopark

SEKI, Hiromitsu<sup>1\*</sup> ; UENO, Ayumi<sup>1</sup>

<sup>1</sup>Sanriku Geopark Promotion Conference

The Sanriku Geopark promotion conference conducted the tour guide training program based on PDCA cycle as many visitors can enjoy the Sanriku Geopark.

We will report the program this year.

We will continue to systematically train human resources held on a regular basis to promote the Sanriku Geopark.

Keywords: Tour Guide Training Program, Sanriku Geopark, PDCA cycle

## About the ideal Geopark guide in the Geopark

KONOMATSU, Masahiko<sup>1\*</sup> ; ONISHI, Nao<sup>1</sup>

<sup>1</sup>Wakayama University

As of January, 2014, there is the Geopark of 33 areas in Japan. It is predicted that the numbers increase from local sightseeing promotion more. When a tourist observed the geo-site in the Geopark, they are impressed by mentioning a creature, the history, the culture of scenery and the topography, geological feature, and knowing the local splendor, and it become a repeater. However, the tourist cannot often understand the knowledge of the earth science including the origin of a geological feature, the topography only by watching merely scenery and the topography by oneself, and reading a guidance signboard. Therefore the guide can tell charm and an impression to a tourist to a tourist as a story concerning the geo-site because a Geopark guide exists. In addition, I can go to the attractive geo-site in usual times because a guide goes together at the place that I cannot go. Furthermore, as for the guide, a climate, a creature, culture are concluded based on a geological feature, the topography; remind you of it.

I am shown that even the guidelines on member standard to the Global Geopark Network (GGN) train a guide and perform the tour with the guide. Therefore, in the Geopark, a Geopark guide and the training become the important matter. The training lecture of the Japanese Geopark guide sets a curriculum while devising information sharing in what I do by Geopark meeting and JGN whole country workshop in Japan in each Geopark and is carried out.

Therefore, through an expert Geopark guide, there was what kind of skill and, in this study, examined a tourist what kind of response you gave. Furthermore, about the training system of the Geopark guide, I investigated nationwide tendencies and extracted the points that I weighed it, and were common. I compared it with the training system of a common ecotourism.

In addition, in Wakayama where the writer is, there is Nanki-Kumano Geopark design, and the training of the Geopark guide is carried out from 2013. What kind of person took lectures, and questionnaire survey did what kind of skill the body had there.

In consideration of the tendencies that were a common point and the whole country, I suggested it about a curriculum of the necessary geo-guide training based on real attendance true satisfaction to a minimum.

Keywords: Geopark, Geopark guide, The training of the Geopark guide, Nanki-Kumano Geopark design

## Training of Geoguides by Nankikumano Geopark

YAMAMOTO, Toshio<sup>1\*</sup> ; TANIWAKI, Tomokazu<sup>2</sup>

<sup>1</sup>Pacific Consultant, <sup>2</sup>Wakayama Prefecture

The Nanki Kumano geopark concept is an area of the southern part of Kii Peninsula used as the southernmost tip of the main island of Japan, and is an area which consists of 1 city 7 town 1 village in Shingu-city, Shirahama-cho, Kamitonda-cho, Susami-cho, Nachikatsuura-cho, Taiji-cho, Kozagawa-cho, Kitayama-village, and Kushimoto-cho.

East and west and the north and south of this area are about 60 km, and a gross area is as wide range as about 1400 km<sup>2</sup>, and it is an area which has complicated coastline by a drowned coast, and various geographical features from the steep mountain land over 1000m. About geology, it consists of three geology objects produced by the motion of a series of a plate. The central part consists of an accretionary prism made by subduction of an oceanic plate near the trench, and the eastern part and the western part consist of front arc basin deposition objects formed on the accretionary prism. Furthermore, the huge eruptive rock object is distributed over the eastern part.

On these grounds, a respectively characteristic geographical feature scene and ecosystem, and culture are cherished, and they are connected deeply mutually. With such a background in Nanki Kumano, various attractive "encounter" between the ground, a living thing, and a person has always been produced.

From these things the Nanki Kumano geopark concept was born by the theme which meets with the nature and culture of Kumano cherished on the three grounds which the plate met and were produced.

In the Nanki Kumano geopark promotion conference, 100 or more persons' geopark guide is scheduled to be trained between the fiscal 2013 and the fiscal 2015. There is an application of attendance exceeding 70 persons and the geopark guide of the 1st term (about 60 persons) was born in the fiscal 2013. It is carrying out the curriculum which thought local training, practice of geo-tour, etc. as important on the basis of acquisition of a guide technique or a safety control on the occasion of geopark guide cultivation, and trained the geopark guide with high quality which can guide for counter value.

Trial geo-tour to which a participant takes the lead and performs it in order to develop having learned by a lecture or local inspection training in geopark guide cultivation as practical skill is included in the curriculum. By this measure, in which it is difficult to attach to the body in the guide cultivation lecture of a lecture, the practice power about the importance of a safety control or time management was able to be trained, and the bottom raising effect of the whole geopark guide, an improving point when performing the geopark guide in the evaluation meeting after enforcement can be clarified, was able to be acquired.

Moreover, it became an important opportunity to consider the composition of the tour for having a visitor enjoy oneself by planning and carrying out trial geo-tour and actually looking back upon it. In this trial geo-tour, the opportunity that it will perform making the tool of the area for greeting a visitor, and it will heap geopark activity that the guide cultivation lecture attendance student itself works on a local contractor for development of the Geo-bowl, is also growing.

About the geopark guide after cultivation, opportunities, such as a school and skull session, are prepared and continuous skill improvement is aimed at. Moreover, cultivation of an upper geopark guide is also scheduled to be tackled

Keywords: Geopark, Geoguide, NankiKumano, trial geo-tour

## Hakone Geopark -The activities by cooperation with various organizations

AOYAMA, Tomofumi<sup>1\*</sup>

<sup>1</sup>Hakone Geopark Promotion Council

The Hakone Geopark Promotion Council, established in 2011, is consisting of 72 affiliates including educational institutions, volunteer groups, a wide variety of companies and NPOs in the area. They are not only working for Geopark's activities independently, but acting by cooperating with each organization.

We introduce some examples of the investigative commission by council members about development of goods and maintenance of signboards.

## Concept behind the Tateyama Kurobe geopark: towards the cooperation of private and administrative organizations

MASUBUCHI, Yoshiko<sup>1\*</sup> ; TANBO, Toshiya<sup>1</sup> ; FUJITA, Masato<sup>1</sup> ; TAKEUCHI, Akira<sup>1</sup> ; ISHIZU, Hidetomo<sup>1</sup> ; NAKAO, Tetsuo<sup>1</sup> ; KOSHIMIZU, Kazunori<sup>2</sup> ; HORIUCHI, Yasuo<sup>2</sup>

<sup>1</sup>Tateyama Kurobe Geopark Promotion Conference, <sup>2</sup>Tateyama Kurobe Geopark Support Municipalities Conference

The Toyama plain is divided roughly into two equal parts by the centrally located Kureha hills: the east side, called Gotou (East of Kureha), and the west side, called Gosai (West of Kureha). Each side has its own landscape and traditions. On the west side, in Gosai, you have a region where the influence of the Kaga clan is still felt strongly; on the east side, in Gotou, you have a region influenced by the unique shape of the land, with a steep mountain range over 3000 meters tall overlooking many coastal alluvial fans, where the many people live. The Tateyama Kurobe geopark is based in Gouto, this east side, with its landscape and traditions, and with its people's industriousness and thoughts that shaped the region.

A peculiarity in this region is that, in order to protect the land and understand its value, governments have supported many residents and organizations, which would then pursue various activities on their own.

With this in mind, various local regional study groups, field researchers, university and high school teachers, and other professionals gathered together and, on January 20th 2013, created the Kurobe Tateyama geopark Research Group. The Group has proposed to turn the whole region into a geopark, conducting various researches about the current amount of human activity and natural resources in the region, as well as about the future tasks and responsibilities that would come with the organization of a geopark. At the same time, they contacted the various local governments situated in the region to promote the idea of geopark, as well as to receive their support regarding its current and future activities. Also, and this is the peculiarity of this region's geopark, the group also made contact with the region's business community, where they not only promoted the geopark but also promoted their direct participation in its activities, making the local businesses, which are at the base the local industries and economy, have a strong role in all the geopark activities.

This is how, on December 9th 2013, the Kurobe Tateyama geopark Association was founded, upon what would become its predecessor, the aforementioned Kurobe Tateyama geopark Research Group. This Association, receiving support from both local businesses and local governments, was given the responsibility of all activities pertaining to the realization of the geopark in terms of human resources. The Association itself is privately run, their members linked to regional development and local business leaders. The organization currently consists of the following groups: activity planning group, research and education group, Geo-guide formation group, Geo-tourism group. While, at this moment, the geopark is supported by a volunteer staff, in the future, the organization seeks to have the geopark fully supported economically by local firms and touristic businesses.

Also, the Association seeks support from the local governments, mostly in three forms: support in the protection and usage of the designated geosites through bylaws and regulations, usage of the geopark in local and environmental education and disaster prevention by inclusion into the school curriculum, and making of the various public museum employees' currently volunteer work in the geopark organization into a part of their duties. At this moment, the Association is preparing the "Tateyama Kurobe geopark Support Municipalities Conference", in order to get a hold on their support to fully start the geopark's activities during 2014.

The association aims to have the geopark activities supported by the partnership of both private and public sectors, by having them be responsible for the maintenance of both activities and installations. This is how we are aiming for regional development through the Tateyama Kurobe geopark.

Keywords: The concept of Tateyama Kurobe Geopark

## Activities and work for the future in the Hakusan Tedorigawa Geopark.

HIBINO, Tsuyoshi<sup>1\*</sup>

<sup>1</sup>Hakusan Tedorigawa Geopark Promotion Council

We have advanced various activities since 2010 in the Hakusan Tedorigawa geopark. Hakusan Tedorigawa Geopark was certified as a Japanese geopark in 2011. We carried out various activities, such as the activities to promote the geopark, educational activities, training for guides, environmental maintenance for geopark and so on, after the certification.

In 2013, we had the domestic examination for application to the Global Geopark Network, but the result was not reached. Although we received some good evaluation about the activities of the geopark by this examination, and we were able to share it among various people who pushed forward the activities for the geopark. Furthermore, the work that should be solved became more clear and also became the index in pushing forward the future activities. We will promote various activities for solving these works in the Hakusan Tedorigawa Geopark.

Keywords: geopark, Mt. Hakusan, Tedorigawa river, educational activity, training for guides, geotour

## Joint Management of Geopark and Biosphere Reserve - The Case Study in the Hakusan Tedorigawa National Geopark in Japan

AOKI, Tatsuto<sup>1\*</sup>

<sup>1</sup>School of Regional Development Studies, Kanazawa University

Area of the Hakusan Tedorigawa National Geopark (GP) in Japan is partly overlapped with that of Hakusan Biosphere Reserve (BR). The organizing committee of the Hakusan Tedorigawa GP has started to manage Hakusan BR for making to coexist these two programs within the same region (see our poster presentation for in details).

As well known, both program is controlled by UNESCO, and the purposes of these programs are became almost the same after the Sevilla strategy of BR in 2002 as follows.

- >Conservation the regional nature and natural heritage
- >Encourage the scientific research and education for regional nature
- >Encourage the local community and economy though the scientific based sustainable using the regional natural resource

The local ecological diversity can't exist without local geodiversity. Furthermore, the local geo-diversity provides much of effect for the local people through the local ecosystem. Fundamentally, the general ideas of these two programs are inseparable. On the other hand, these two programs must be separate on the park system. The authors think that it is necessary to take care following points to for making to coexist these two programs.

For inside of the park

- >promoting the scientific relationships between two programs
- >making relationships between organizing committees of each program
- >organizing the TPO for using each brand and trademark
- >organizing budget and human resources

For outside of the park

- >promoting the scientific relationships between two programs
- >organizing the methods for advertises these two programs

Keywords: Hakusan Tedorigawa National Geopark, Hakusan Biosphere Reserve, UNESCO, Co-existence

## Networking of geology, history and culture in the Izumo region

RITSUO, Nomura<sup>1\*</sup> ; TAKASU, Akira<sup>1</sup> ; IRIZUKI, Toshiaki<sup>1</sup> ; HAYASHI, Masahisa<sup>1</sup> ; TASAKA, Ikuo<sup>1</sup> ; TSUJIMOTO, Akira<sup>1</sup>

<sup>1</sup>Kunibiki Geopark Project Center, Shimane University

The ground of Izumo, Shimane Prefecture, was formed in association with the creation of the Chugoku Mountains, the Sea of Japan and the largest brackish lakes, Shinjiko and Nakaumi, in Japan, all of which were episodic in the Earth history. A lot of geologists have investigated such characteristic features of Izumo area and have found its unique geological figures such as magnetite-rich granite of the late Mesozoic and early Cenozoic Era, severely deformed Neogene sediments, huge alluvial plane, and the Quaternary volcanoes. A varied nature of such geologic basements leads the birth of local industry, using diversified biological and mineral resources, and as a consequence led to the formation of so called “ Izumo culture. ” There was much folklore in a long human history, such as well known “ Kunibiki legend. ” Izumo is thus very famous as the place of mythical world. We enhance interdisciplinary research on the geological, geographical and biological nature linking to the history and culture of the Izumo region. Main goal of our project is to make a plan of national and international geo-park for the Izumo region

Our research project is based on the fruits resulted from the active investigation that mainly carried out by the geologists in the Department of Geoscience, Shimane University, as a plan to make a geopark for the San ’ in and Shimane districts. The 38 geological places in the Izumo region were introduced in the publication, “ 100 geosites selected in the San ’ in and Shimane districts, ” that was published in 2013. On our schedule, we will set up a social organization to promote our geopark project in coming April, 2014.

Keywords: Izumo region, Culture and Geography of Izumo, Kunibiki legend, Shimane Peninsula, Tataro iron industry

## Device and the present conditions of ***Mine-Akiyoshidai Geopark Plan***

OBARA, Hokuto<sup>1\*</sup> ; FUJIKAWA, Masayuki<sup>1</sup> ; YAMAGATA, Tomoko<sup>1</sup>

<sup>1</sup>Mine-city Geopark Promotion Council

The geopark activities in Mine area located in the middle western part of Yamaguchi Prefecture have been promoted from 2011. The geopark name and the theme are decided as follows; "***Mine-Akiyoshidai Geopark Plan***" and "**The history of the earth and the life to breathe on the karst plateau**". The contents of Geopark Plan and its present status will be presented.

The name and theme spotlight Akiyoshidai Karst Plateau in Mine area. The limestone which forms the karst plateau originated from coral reef of oceanic island. It has various information of natural history, so that contains academic value very much. Scientific and cultural values concerning the geology, geography, biology, ecology and human culture in Akiyoshidai are very high. Therefore, Akiyoshidai Karst Plateau is very precious worldwide.

In Mine area, as well as Akiyoshidai Karst Plateau, there are Omine Coalfield which is mined high quality anthracite (hard coal) and Naganobori Copper mine which is the oldest public copper mine in Japan. We aim to keep those geo-resources, use them for an instructional activity positively, and apply them in local promotion.

Keywords: ***Mine-Akiyoshidai Geopark Plan***, Akiyoshidai, karst plateau, Mine area, Yamaguchi Prefecture

## Creating new geo business and the role of key persons in the San'in Kaigan Geopark

IMAI, Hiroko<sup>1</sup> ; NIINA, Atsuko<sup>2</sup> ; MATSUBARA, Noritaka<sup>3\*</sup>

<sup>1</sup>NPO Tajima Marine School, <sup>2</sup>Regional Innovation Research Center, Tottori University of Environmental Studies, <sup>3</sup>Division of Geo Environmental Sciences, University of Hyogo

The economical success is essential for the sustainable development of geoparks. Local business is the main actor to offer high quality products and service in a geopark. If they can satisfy of the demand of consumers and visitors, the geopark itself will become a higher quality one. This presentation reports on the case studies of geo business from the beginning to the present in the San'in Kaigan Geopark.

Keywords: geobusiness,, geo product and service, regional promotion, San'in Kaigan Global Geopark

## Effects and Issues of Resident Involvement in Walking Model Route Map

MATSUBARA, Noritaka<sup>1\*</sup>; SAKIYAMA, Tohru<sup>1</sup>

<sup>1</sup>Division of Geo Environmental Sciences, University of Hyogo

One of the important roles of geopark activities is resident understanding of the geopark concept, territory and its features. For this purpose, it is important that local residents participate in geopark activities positively. However, in Japan, where local development has been undertaken by governmental organizations, it is difficult for local residents to take part in geopark activities.

This time, we planned "Geopark Walking Model Route Map" across the San' in Kaigan Geopark in cooperation with local people, to promote better understanding and communication with local people, government and academia involved in geopark activities.

<San' in Kaigan "Geopark Walking Model Route Map">

In a geopark, creating a tour route and map which allow visitors to explore the geosites easily is required. We have therefore prepared a "Geopark Walking Model Route Map" for walking tours in half-day or one day, and for enjoying the feature of each area. Each map includes outlines of about twelve must-see geological spots, allowing visitors to enjoy sightseeing and learn about the San' in Kaigan Geopark. 20 model courses extending to three prefectures (Kyoto, Hyogo and Tottori) were created until fiscal year 2012.

<The process for planning a "Geopark Walking Model Route Map" >

1) San'in Kaigan Geopark Promotion Council Academic Group selects the candidate sites from the area where geopark activities are prosperous, and if requested to create a map by local residents.

2) Local guides, tourism facilities, local residents, geopark-related officials and academic members form a working group on creating a draft of map.

3) The working group surveys the field and checks the highlights, safety, estimated walking time, etc.

4) Academic Group creates a map.

5) The working group checks the content of the map.

Since Academic Group directly got involved in creating a map, the contents were thought to become difficult. To make it understandable to the general public, we posted images and descriptions on the map to Facebook and modified them to more simply by collecting public opinions through SNS during the process 5).

<Effects and issues of resident involvement in "Geopark Walking Model Route Map">

We were able to make "Geopark Walking Model Route Map" useful for local residents, by involving experienced local guides and people in the area. It is important that geopark guides take part in map creation especially in the process 2) and 3). Firstly, geopark guide's participation made the map more practical. Secondly, by working together by local residents and researchers, scientific information could be shared among local people.

As mentioned above, we think that resident involvement in planning "Geopark Walking Model Route Map" was effective, however, some problems were found in its operation. The map is not used effectively in the area which has fewer visitors and no local guides. From now on, it is also necessary to accept visitor's opinions and correct continuously so that the map may come to be more effective and useful for both visitors and local residents.

Keywords: geopark, San' in Kaigan Geopark, Geopark Walking Model Route Map, resident participation

## Shimonita geopark and regional construction

KANBE, Satoru<sup>1\*</sup> ; OKAWARA, Junjiro<sup>1</sup> ; SEKIYA, Tomohiko<sup>1</sup>

<sup>1</sup>Shimonita geopark promoting office

Shimonita Geopark is a Geopark comprised of the farming and mountain village Shimonita town that assumed Shimonita-negi and konjac located in Southwest Gunma a special product. It is the farming and mountain village that is full of nature among the Mt. Myogi and Kanto mountains and is a town historical as a stage of the branch road of Nakasendo Road.

I am said to be the sacred place of the geological feature study from old days, and the geological feature phenomena that they hid a secret of the Japanese Islands birth. Those geological features bring about the unique life and culture of people of the land.

I introduce sightseeing, citizen-based town planning of Shimonita town utilized these area resources.

In a sightseeing side, we open a course in a guide training lecture so that a local guide guides you and begin the sightseeing taxi which I matched with a world heritage as tourists who came by a train.

In an education side, because the teaching materials becoming the help of the science education of the elementary and junior high school are abundant, we perform an invitation from Tokyo and wrestle for activity to have local children know the charm of the hometown more, and to bring up regionalism

In addition, the symposium of the theme "how protected local treasure" held a symposium last year and, as the place that thought about the sustainability of local resources, utilized the network of the Geopark and had you report the example of sustainable resources utilization from many aspects.

In Shimonita town, I wrestle as consistency of the local promotion that is sustainable by Geopark activity.

Keywords: geopark, shimonita, regional construction, education of earth

006-P15

Room:Poster

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ITAYA, Daiki<sup>1\*</sup>

<sup>1</sup>Happo Tourism Association

a



## Total Design Strategy of Sakurajima-Kinkowan Geopark

ISHIMIYA, Satoshi<sup>1\*</sup>

<sup>1</sup>Sakurajima-Kinkowan Geopark Promotion Council

The Geopark is thought of as a place where, across a long period of time, the local peoples' thoughts on community planning and improvement can be expressed as a single goal.

With that idea in mind, the Sakurajima-Kinkowan Geopark's information sharing and role as a geopark are based on a Total Design strategy.

The Total Design strategy, logo, character design, etc. are products of a team of local designers and illustrators who work both in and outside of Kagoshima.

The results of these design specialists' work are a friendly character and design, which draw interest from a wide age group, and allow them to enjoy the Geopark and its activities at their own pace.

The current poster uses this Total Design to introduce Sakurajima-Kinkowan Geopark.

Keywords: Total Design

## Aso Geopark Infrastructure Development; International Students Monitoring Tour

KATAYAMA, Akira<sup>1\*</sup> ; ISHIMATSU, Akinobu<sup>1</sup> ; YAMAUCHI, Mariko<sup>1</sup>

<sup>1</sup>Aso Geopark Promotion Council

Aso Geopark has been applied for joining the Global Geopark Network (GGN) in December 2013. The Promotion Council has been maintaining both the hard and soft elements of the park infrastructure for not only Japanese tourists but also visitors from abroad as we expect more visitors after becoming the GGN member. In November 2013, international university students in the Tokyo area, who are from Canada, UK, Czech Republic, Korea, China and Taiwan, are interested in Aso region, carried out 3 days monitoring tours to evaluate Aso Geopark's foundations to meet visitor satisfaction. The group researched geological sites, public transport systems, the Geopark's base facilities, guiding leaflets and foreign language service at tourists' information and accommodations. During the tour, related people from municipalities, accommodation unions and the council staff gathered together with students and discuss about findings which students discover as native tourists. From the monitoring tour, overall performance includes guide's skill, numbers of signboards and omotenashi at accommodations are relatively highly satisfied. However, explanations in multilingual signboards at public transport stations and base facilities and also automatically translation service on the geopark official website were pointed out and need of immediate development. Even though there are many experiment activities in Aso Geopark, most of students suggested having more kindly information service from an entrance to a goal for main tourist's route to look around Aso region with stress free. Explanations for Japanese culture such as use of Ryokan and Onsen, hot spas are essential. This monitoring tour has been programmed to have sustainable relationship between the council staff and students as an adviser for future infrastructure developments. Only long-term stay students were selected and asked to check the geopark's official website both before and after the monitoring tour. The promotion council will boost our infrastructures from this research and continue to have more monitoring activities.

Keywords: Aso, geopark, monitor

O06-P18

Room:Poster

Time:April 30 18:15-19:30

## Minami-alps geopark

KASUGA, Hiromi<sup>1\*</sup> ; KOIKE, Yutaka<sup>1</sup> ; FUJII, Rieko<sup>1</sup>

<sup>1</sup>Minami-Alps geopark conference

The measure of the Minami-Alps geopark

Keywords: geopark, Mountains, Person, Meeting

## The earth science learning tourism Let's enjoy learning The Chichibu Geopark!

MIYAGI, Satoshi<sup>1\*</sup> ; YOSHIDA, Ken-ichi<sup>1</sup>

<sup>1</sup>The Chichibu Geopark Promotion Council Japan

People avoid taking part in the Geo-tourism on focus the geology or topography due to its image as difficult and not-interesting. However, once you go to Geo-tourism, you can enjoy learning the history, culture and the local life by talking with local guide. The Chichibu Geopark held monitor tours The earth science learning tourism which set on the several themes, by bus and train this year.

People who participated in the monitor tour commented as follows:

- Hope many people to understand the importance of nature.
- Nice to hear the details by local people.
- Hope to conserve and restore the industrial heritage.
- Hope to continue the Geopark monitor tour.

Geo-tourism is the journey to make us enjoy by local guide as interpreter of the earth.

We continue to discover, to familiarize and also to conserve and utilize the goodness of Chichibu as the local treasure.

Keywords: The Chichibu Geopark, monitor tours, The earth science learning tourism, Geo-tourism

## Private organization for lifelong learning in the Geopark -San-in Kaigan Geopark Saloon (tentative name)

SAKIYAMA, Tohru<sup>1\*</sup> ; NIINA, Atsuko<sup>2</sup> ; MATSUBARA, Noritaka<sup>1</sup> ; IMAI, Hiroko<sup>3</sup> ; IMAI, Manabu<sup>3</sup>

<sup>1</sup>Graduate School of Regional Resource Management, University of Hyogo, <sup>2</sup>Regional Innovation Institute, Tottori University of Environmental Studies, <sup>3</sup>NPO Tajima Umino Gakko

Local branding is required in a geopark, and therefore the lifelong education is one of the important activities of the geopark. The staffs of many education and research organizations such as universities and museums are working in the San-in Kaigan Geopark. They do research activities and take part in the operation of the geopark as the member of the committee. Furthermore, they educate for geopark guides and general citizens. These educations are carried out by each organization in cooperation with municipalities individually. There are many small educational facilities and community center in the geopark and some of them provide some educational programs related to geopark. Furthermore, individual guide groups and nonprofit organizations related geopark activity also provide opportunity of learning of training for guides and improving their skill. Summarizing and provision of information by promotion council of San-in Kaigan Geopark are expected, but all programs cannot be grasped by following reasons.

(1)Most of events are not for full area but close to a municipality.

(2)Most of promoting offices of the geopark belong to industry and tourism division, but most of educational facilities belong to education board in the city or town.

(3)Some information on the private offices, NPO and university are not easily spread, because of operating system of the organization led by local government.

(4)Secretariat has very much work because of the wide geopark.

Then we started up a private group (San-in Kaigan Geopark Research Group) for the lifelong education. Members of San-in Kaigan Geopark Research Group belong to universities, NPO, corporations, guide groups and administrative officers.

The San-in Kaigan Geopark Research Group supports the San-in Kaigan Geopark through following educating programs.

(1)Holding regular meetings

(2)Coordination of seminars provided by many educational facilities

(3)Providing original seminars

(4)Planning and execution of out-reach program (geo-caravan)

(5)Providing lecturer

(6)Execution of continuous professional development for geopark guide (Geo-CPD)

The group is composed mainly of staffs of NPO, personal organization and university, and can provide the educational activities across the administrative division. Participation of staffs from various fields makes the geopark expect spreading cooperation in the San-in Kaigan Geopark.

Keywords: geopark, San-in Kaigan, lifelong learning, earth science education

O06-P21

Room:Poster

Time:April 30 18:15-19:30

## Past action in the instructional activity of the Shikoku Seiyo Geopark

MAKITA, Takanori<sup>1\*</sup>

<sup>1</sup>Shikoku Seiyo Geopark promotion meeting

I performed an instructional activity over many divergences until now in the Shikoku Seiyo Geopark, but, please let the instructional activity in the Seiyo municipal institution Kaida elementary school introduce in that here.

<sup>1</sup> performed an instructional activity over many divergences until now in the Shikoku Seiyo Geopark, but, please let the instructional activity in the Seiyo municipal institution Kaida elementary school introduce in that here.

## A Five Senses Sensation in Oga City Geopark Study Center -Geological Geo-Cite and Human History&Culture Meeting Point-

IGARASHI, Yusuke<sup>1\*</sup> ; KIKUCHI, Mitukazu<sup>2</sup> ; OYAMADA, Tomoko<sup>2</sup>

<sup>1</sup>Oga City Board of Education, <sup>2</sup>Oga City Geopark Study Center

The Oga City Geopark Study Center was officially opened on August in 2012. This opening followed on from the establishment of the Oga Peninsula-Ogata region as one of the Japanese Geopark sites on September in 2011. The creation of this center focused on the idea that by coming to visit, you would be able to learn everything that there is to know about the Oga Peninsula-Ogata Geopark and surrounding area.

Since the opening of this facility, more than half of the guests at the Geopark center have consisted of arranged educational institution visits - among these visits, Elementary School guests have been the most in number so far. Recently, we are seeing an increase in visits to the center when the weather is poor outside, as this is the biggest issue for people who are traveling to visit the area as part of a 'Geo-Tour'.

Depending upon the guest, we have aimed to provide a wide range of learning materials considering the age and the purpose of the visit. We have also given a high priority to hands-on, participatory ways of learning that will require the use of all five senses of the visitor.

For the lower grade Elementary School learners, we have also provided a range of picture-story style shows which are related to both the Geopark, as well as the legends and stories of Oga City. During the summer and winter vacation times, a workshop is held for Elementary School guests where rock specimen and stones from the Oga area are used to make replicas and models of various common fossils. We are very keen to promote these hands-on activities to the enjoyment of our guests.

Aside from the geological elements of our center, it is also felt that we should promote and educate visitors to the human history of the region in order to preserve our cultural and traditional assets. We aim to cover both of these points comprehensively and widely.

Going forward, it is our aim to promote the human and geological connection and to explore this intertwined relationship. We wish to further our success in this by cooperation with the Ogata Village Polder Museum of Reclaimed Agricultural Land, located only a few kilometers away from our Geopark's location.

It is with this announcement that we would like to introduce you to our facility and activities and express the wish for prospects which lead us to a bright and successful future.

Keywords: The Oga City Geopark Study Center, education, history, culture

## How the precise geological model is utilized in education at schools

YOSHIKAWA, Hirosuke<sup>1\*</sup> ; HATANAKA, Takenori<sup>1</sup> ; OTSUKA, Masahiro<sup>2</sup>

<sup>1</sup>Dinosaur Valley Fukui Katsuyama Geopark Promotion Council, <sup>2</sup>Arado elementary school

In 2013, a precise geological model of this region was created with the help of a scientist. This model has mainly been utilized in schools to develop various lessons about Geo-visualization.

The point of this project is not simply to reveal this regions geological features; rather, it aims to awaken the children spirit of inquiry and provide them with the educational opportunity to experience surprise and discovery. We will now present an example of how this geological model was utilized and explain how it may be applied in the future.

Keywords: precise geological model, education at schools, lessons about Geo-visualization, spirit of inquiry, educational opportunity

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O06-P24

Room:Poster

Time:April 30 18:15-19:30

The summary of Mt. Apoi geopark project and introduction of earth science education program.

KATO, Satomi<sup>1\*</sup>

<sup>1</sup>Mt. Apoi Geopark promotion council

I will introduce earth science education program of Mt. Apoi Geopark.

Keywords: town of Samani, Mt. Apoi, geopark, earth science education, lifelong learning, rock

O06-P25

Room:Poster

Time:April 30 18:15-19:30

## To decipher a volcano story from the south.

NAKAGAWA, Kazuyuki<sup>1\*</sup> ; MATSUMOTO, Shota<sup>2</sup> ; COMMITTEE OF 14TH EARTHQUAKE & VOLCANO, Summer school for children.<sup>3</sup>

<sup>1</sup>JijIPress, <sup>2</sup>Kobe University, <sup>3</sup>SSJ,VSJ,GSJ,Izu Peninsula Geopark Promotion Council

The Seismological Society of Japan,The Volcanological Society of Japan,The Geological Society of Japan has held the " earthquake volcano Children Summer School " every summer . The 2013 marks the 14 th , August 3 , 4 days , it was held in the Izu Peninsula Geopark in Shizuoka Prefecture .The theme is " the volcano story from the south ." We report an overview of the program, such as the announcement of children.

Keywords: Education for disaster-prevention, Geopark, Izu Peninsula



## Geo-tour program for children during summer vacation in Choshi Geopark

YAMADA, Masahito<sup>1\*</sup> ; IWAMOTO, Naoya<sup>1</sup> ; NAKAMURA, Kizuna<sup>1</sup>

<sup>1</sup>Geopark Promotion Office, Choshi City Hall

### 1.Purpose

Choshi Geopark Promotion Council organized geo-tour for children during summer vacation last year, which is in collaboration with the Association of Chiba Institute of Science (hereafter CIS), Choshi Ryokan union Choshi Inn union, Choshi GeoParty. The purpose of this geo-tour is to provide unique experiences for the children that can also be used as part of their summer homework, and to create a model of overnight package tour.

### 2.Schedule of geo-tour

The geo-tour was held four times. The first (Jul 24 to 25), the second (Jul 31 to Aug 1) and the fourth round (Aug 27 to 28) have activities such as "biological observation at rocky shore, touch the nature fun". The third round (Aug 8) was one day trip with "observation of the stratum, that can also be submitted to the children's school as their summer homework.

For the overnight program, we first gathered at Choshi Station at 9:30am, according to the arrival time of the JR limited express. After giving an orientation in CIS, the next event was biological observation at the rocky shore in Nagasaki coast. Then there was plant observation in Kimigahama followed by lunch break in the Culture Center for Youth and Children. In the afternoon, we made star plates and watched a planetarium show. Next, we explored at Inubosaki in the late afternoon. On the next day, there were observation of the landscape at the top of the Mt. Atago-yama, moved to climax forest and had summary of the experiences learned during the programs. The last event was a closing ceremony that all the children were given a participation certificate.

For the one day trip, after giving an orientation in CIS, there were interpretation of layers and sampling of tephra at By-obugaura, and lunch time at CIS. In the afternoon, we observed the sampling using stereoscopic microscope.

### 3.Advance preparation

Preparation of this geo-tour was started around late April. The events were organized primarily by exchanging information using e-mails. A Working Group meeting was carried out about once a month.

Application of this geo-tour was started from Jun 10 through the "Jaran" internet version, that reservation was received at each accommodation.

We posted advertisement on the web site of the Choshi Tourism Association and the Choshi Geopark Promotion Council. In addition, we made flyers and sent to each museum and Secretariat of Geopark Promotion Council in Kanto region on July 9. Also, an article was published to the local newspaper on July 20.

The number of participants did not increase as expected. Thus, we changed the program to accept participants from the local people who do not need accommodation.

### 4.On geo-tour days

The numbers of children for round one to four were 6, 2, 2 and 21, respectively. Many of them were delighted to join the tour. According to the questionnaire results, many children enjoyed playing at rocky shore. A mother of participants who is born and raised in Choshi commented that she can feel the enjoyable part of Choshi again and another mother would like to learn more about Geopark.

### 5.Evaluation meeting

Evaluation meeting was held on Sep 19 with a total of 16 participants. The discussion was held by dividing the participants into groups in a workshop format with sticky notes.

The positive comments raised in the meeting were "The children have fun", "Various organizations have cooperate", "Various projects could be introduced", "Overall framework was constructed", "Accident-free" and so on.

On the other hand, the problems are "Difficult to understand how to apply", "Necessary to devise PR activities", "The program was too packed", "Setting of dates", "Few participants", "Consideration for participants", "Difficult to understand the interpretation".

In addition, the solutions suggested are "Take action as soon as possible", "Separate geo-tour from accommodation", "Learn from other Geoparks", "Consider the situation of the day" and "Have a better contact system and role-sharing".

## Towards the practice of Disaster prevention education and measures using an application of Japanese Geoparks

KUMAGAI, Makoto<sup>1\*</sup> ; IMAI, Masayuki<sup>1</sup> ; TAMAOKI, Masashi<sup>1</sup> ; SUGIYAMA, Toshiaki<sup>2</sup> ; KONDO, Masato<sup>3</sup>

<sup>1</sup>Engaru Town Hall, <sup>2</sup>Engaru High school, <sup>3</sup>Hokkaido-Chizu Co.,Ltd.

The core concept of Shirataki Geopark is Where Nature and Culture Meet. Its biggest attractions are the sites of the unique volcanic activity that formed the obsidian, and relics showing how people in the Paleolithic period used the obsidian as an essential resource.

Keywords: disaster prevention education, geographic information systems, school education, tourists correspondence

O06-P28

Room:Poster

Time:April 30 18:15-19:30

## The resident seminar after the landslide disaster, and support of research.

NISHITANI, Kana<sup>1\*</sup> ; KAJIYA, Akimi<sup>1</sup> ; NAKADA, Setsuya<sup>2</sup> ; NAKAGAWA, Kazuyuki<sup>3</sup>

<sup>1</sup>Izu Oshima Geopark, <sup>2</sup>ERI, <sup>3</sup>Jiji Press Ltd.

The resident seminar was hold about a disaster by Earthquake Research Institute of the University of Tokyo and the Izu-Oshima Geopark. Four specialists explained to residents what has happened and how far it understands in perfection now. 160 persons participated.

We thought our Geopark could help a research goes into Oshima, and we opened a window for support of study.

We represented our progress and a subject about the questionnaire result of a resident seminar.

Keywords: geopark, disaster, Izu-Oshima, volcano, information, measure

## What's the meaning of sharing the thought and the experience? The report what we learned through symposium in Izu-Oshim

NISHITANI, Kana<sup>1\*</sup> ; SHIRAI, Iwahito<sup>1</sup>

<sup>1</sup>IZU Oshima Geopark

What is sharing of a thought or experience?

The report what we learned through the symposium in Izu-Oshima

After the landslide disaster of the typhoon 26, we will take a symposium in order to learn how to faced the trouble after a disaster and how to live on this island. We will invite people from Miyake-island and the Sanriku Geopark where have experience of eruptions or tsunami, and we will exchange opinions.

Moreover, in order to send some information all of residents equally, we planed to make a booklet for shearing the experience of disaster.

We will consider about the role as a network of the Geopark from our measures.

Keywords: geopark, network, protection against disasters, disaster, jointly , a role

## Exhibition of "Geohistory of Hachirogata" Established in Polder Museum of Ogata Village

SHINDO, Tomoya<sup>1\*</sup> ; WATANABE, Akira<sup>1</sup> ; USUI, Noriyuki<sup>1</sup>

<sup>1</sup>Polder Museum of Ogata Village

Polder museum of Ogata village was opened in 2000. Main theme of the exhibition was Hachirogata reclamation project and history of Ogata village, such as the reclamation works, start of Ogata Village, settlement project as colonists and the lives of the settled people. In the preparation of the museum, Natural History in Ogata also was nominated for the exhibition theme, exhibition on "Geography of Hachirogata" were also included in it. However, it was decided that the exhibition plan is excluded completely in the process of planning reduced for various reasons.

In 2011, Oga Peninsula-Ogata Geopark was certified by the Japan Geopark Committee for the first

## The picture book about geo-stories of Toay-Usu global geopark

KAGAYA, Nire<sup>1\*</sup> ; HATA, Yoshiaki<sup>1</sup> ; NAKAYA, Asami<sup>1</sup> ; ENDO, Kazuya<sup>1</sup> ; TAKEKAWA, Masato<sup>1</sup> ; HIROSE, Wataru<sup>1</sup> ; SASAKI, Hikaru<sup>2</sup> ; SASAKI, Mayuko<sup>2</sup>

<sup>1</sup>Toya-Usu Global Geopark Council, <sup>2</sup>SESENSITKA

Toya-Usu global geopark is a volcanic geopark located in Hokkaido in northern Japan. There are major farms producing vegetables and fruits in this area, and the lands the crops are grown on contain a moderate amount of alkaline ash and pumice from the Toya volcano and the Usu volcano. Therefore, the soil is well suited for cultivation, with a balanced pH and good runoff of water. Also, there are forests in various transition stages around Mt. Usu. This produces bio-diversity with each environmentally-accepted creature. This is due to frequent disturbance and restoration by the eruptions of Usu volcano in recent years. Because of this, we can find a lot of hidden tales "Geo-Stories", associated with the activity of the living Earth when we focus on the different aspects of local industry, people's livelihood, and the natural habitats of living things.

In 2014, Toya-Usu global geopark produced the picture book Toya-Usu Global Geopark Storybook in order to comprehend the relationship between the worlds above and under the ground world. It is edited to include easy-to-understand text and illustrations to reach local people of all ages.

Keywords: Geopark, geo-story, Toya, Usu

## Winter is the Time for Geo-tour!! : The Recommended Winter Trekking Course in Toya-Usu

KAGAYA, Nire<sup>1\*</sup> ; HATA, Yoshiaki<sup>1</sup> ; NAKAYA, Asami<sup>1</sup> ; ENDO, Kazuya<sup>1</sup> ; TAKEKAWA, Masato<sup>1</sup>

<sup>1</sup>Toya-Usu Global Geopark Council

In Hokkaido, Japan the number of tourists in the period from April to September 2012 (34 million) was double that of the period from October 2012 to March 2013 (17 million). This gap between the number of tourists in summer and in winter is large when compared with any other region of Japan. This is because the low temperatures and snow in the winter months is standing in the way of winter tourism in Hokkaido, which is a high latitude location.

The downturn in the tourism industry during the winter is an old challenge. In our Geopark, it continues to disturb local employment and industrial growth, and marks it hard to have a stable income throughout the year. Creating new attractions in the region is a solution of vital importance for the promotion of our Geopark and the sustainable development of the local economy.

The winter is actually the best season for enjoying the outdoors of our Geopark, when you can easily see the steaming active lava domes and craters due to the low temperature, as well the beautiful landscape covered with snow. Snow-shoe trekking is becoming popular these days in Japan. There is a lot of potential for a successful tour in the winter months. Here I will present our recommended winter trekking course.

Keywords: geopark, foot path, snow-shoe, geo tour

## Selecting potential geosites in the eastern Kii Peninsula, SW Japan

KAPUSCIK, Dorota<sup>1\*</sup>

<sup>1</sup>Waseda University

The geologic structure formed by plate subduction along trenches is well preserved in Southwest Japan. Formed from Jurassic to Paleogene eastward trending belts of accretionary complexes with metamorphic rocks characterize the geology of the Kii Peninsula.

The eastern Kii Peninsula presents varied geological features, such as rocks exposures and fossils, which displays the history of formation of the Japanese Islands. The aim of this work is to identify significant geological sites in the region and set the basis for establishing geosites in future. A geo-site, in the field of geo-tourism, is a geological attraction with the highest value rank, which identification would play the essential role in development of geo-tourism in this region.

Scientifically important geosites has been picked up together with the sites of unique history and culture within the study area including Ise, Toba and Shima City in eastern Kii Peninsula. The valorization of selected objects, from the aspect of geo-tourism development in the region, is based on field studies and detailed petrographic analyzes by using samples from rock exposures on the surface. The thin sections analyze provides information about more precise surface trace of the Median Tectonic Line (MTL) in the eastern Kii peninsula, which can be use as the most attractive point of geological trips in the region.

This work also focus on the lack of geo-touristic infrastructure that would make available all their advantages for educational and tourism purposes. Though several MTL outcrops are visible among local roads in relatively close distance to popular touristic spots, most visitors do not notice this fact. Sufficient information about geosites, as well as the access facility, is the most important for visitors. Establishing a tentative geo-touristic course in the study area would increase public awareness of geoscience education, protection and conservation important landscapes for future generation and help tourists with better understanding the geology of visited area.

Keywords: MTL, geo-site, geo-tourism, Kii Peninsula

## Virtual Poster Geotour of Unzen Volcanic Area Global Geopark Part 2 : Unzen Hell

OHNO, Marekazu<sup>1\*</sup>

<sup>1</sup>Unzen Volcanic Area Geopark Promotion Office

Main theme of Unzen Volcanic Area Global Geopark is "coexisting between active volcanoes and human beings". However this geopark also has another highlights; e.g. hot springs, human histories and local foods which are closely related to natural environments. In this poster presentation, we introduce highlights of "Unzen Hell"(geothermal area) on the basis of a view of a geopark.

Keywords: Unzen Volcanic Area Global Geopark, Virtual geotour, Sulfate hot springs, Unzen Hell, Geothermal Area, Solfatic cray

## Strata Observation Party Evolved into the Geo-Tour -The Oga Peninsula-Ogata Geopark's Trial-

WATANABE, Kosei<sup>1\*</sup> ; TAKEUCHI, Hirokazu<sup>1</sup> ; SUGAWARA, Sinichi<sup>1</sup>

<sup>1</sup>Oga Peninsula-Ogata Geopark Promotion Council

The Oga Peninsula-Ogata Geopark is a suitable place for geological learning and research. We could examine the strata for 70 million year-long dramatic history. Every year, many students and researchers in the field of geology come to visit. At the beginning of Geopark's authorization period, due to desired efforts in education and research, this area was considered to be particularly "difficult" Geopark compared to other locations. However, more recently due to the interaction and exchange of ideas from various geological conventions and from within the community of Geopark inspectors, we are happy to announce this area is now more "fun" Geopark.

With this announcement, we would like to introduce our progress and the results, the bright future prospects.

Keywords: Oga Peninsula-Ogata Geopark, Geo-Tour, Oga no Namahage

## The geopark which feels the sound which turns over the page of the history of the earth

SATO, Misao<sup>1</sup> ; SATO, Hidekazu<sup>1\*</sup> ; MIURA, Go<sup>1</sup>

<sup>1</sup>miyagi kuriharacity

The causes for Kurihara to aim at a geopark were Heisei 20 Iwate and the Miyagi inland earthquake.

In this earthquake, very various types and destructive movement of the slope of a scale which exceed 3000 from the summit of the mountain of the volcano which constitutes the Ou mountain range to foot arose.

Inland epicentral earthquake.

This is business of the earth in the Ou mountain range repeated since ancient ancient times, the natural wonder itself can be felt here and it is thought that Nature is moving.

”The sound which turns over the page of the history of the earth is felt.”

In the Ou mountain range, this meaning has only the history for the 1 million ? 2 million years the history for earth 4,600 million years, and in it, and Iwate and the Miyagi inland earthquake in the meantime are new occurrences of five years ago.

We should make it the hit of a between, should feel it and must merely have felt the dreadfulness of the earth.

We have helped the moment which turns over rightly 1 page that the Ou mountain range will change greatly, in the history of It continues for a long time endlessly.

Since it seethes with the senses rather than explaining, it is expressing it in the word of ”feeling sound” by the Mt. Kurikoma foot geopark concept.

## Locality exploration of archaeological relics and a theme of geopark - an example of the Yakumo geopark plan

OYA, Shigeyuki<sup>1\*</sup>; KATOH, Takayuki<sup>2</sup>; THE ASSOCIATION OF GEOPARK PLAN, In yakumo<sup>3</sup>

<sup>1</sup>Yakumo education committee, <sup>2</sup>Earth Science Co.Ltd, <sup>3</sup>Yakumo town

Yakumo-cho is a town that has the chief industries of the dairy farming and the fishery which owns the two seas of the Pacific Ocean and Sea of Japan, being in the narrowest part in Oshima Peninsula.

Since 2012, it is doing an activity while the geopark conception preparatory meeting of the private base gets the support from Yakumo town, too.

Oshima Peninsula is the peculiar place which was the corridor connect with Honshu, like a geological feature like landform and also for the people to come and go since the Old Stone Age.

Therefore, the one of archaeological relic which was carried from Honshu in the converse to the one from the inland in Hokkaido is jumbled up around Yakumo town. These relics are also beautiful for modern human beings.

Accordingly, the tour by which an use and an origin are explained about the stone and it observes relics and observes the geological feature of the source of supply and the candidate site can be organized. It thinks of that the case cooperates with some geoparks in each place, too.

The examples are as follows {The archaeology relic (the stone quality)-Locality-The way of visiting}.

1. Jadeite→Itoigawa City→ Visit to the Itoigawa geopark
2. Obsidian→Akaigawa village and Shirataki area of Engaru town→Visit to the Shirataki geopark
3. Blue schist→Kamuikotan belt→Visit to the Asahikawa geopark (plan)
4. So-called "Aotora" (Greenschist to blueschist facies metamorphosed banded pyroclastic rock brocks in a serpentinite mass) →Nukabira serpentinite mass, Kamuikotan belt→Visit to the Hidaka mountains museum (Hidaka town)
5. Rodingite metazomatized from serpentinite itself with Cr-spinel→Nukabira serpentinite mass, Kamuikotan belt→Visit to the Hidaka mountains museum (Hidaka town)
6. Welded tuff bearing hornblend (house-formed production) →Nigorikawa pyroclastic flow→Visit to around the Nigorikawa caldera
7. Silicified shale→The Yakumo formation with the contact zone of intrusive rocks→Visit to several localities around Yamumo town
8. Marlite→The nodule in Yakumo formation→Visit to Kami-Yakumo area, Yakumo town
9. Agate→The area of volcanic rocks of submarine such as Kunnui-, Yakumo-, Kuromatunai- formations→The Kuroiwa in Yakumo town, R. Kunnui-gawa in Oshamanbe town, and R. Shiribeshi-toshibetu-gawa in Imakane town
10. Talc→Era area in Matsumae town→Visit to Matsumae town
11. Asphalt→Yamakoshi area in Yakumo town, Kuji city in Iwate prefecture→Visit to the oil showing of Yamakoshi, and the Sannriku geopark

Keywords: Yakumo geopark plan, archaeological relics

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O06-P38

Room:Poster

Time:April 30 18:15-19:30

## East and West found in the Jomon Pottery - Example from the Archeological Geo-diversity

YAMAGISHI, Yoichi<sup>1\*</sup>

<sup>1</sup>Itoigawa Geopark Council (Itoigawa City Geopark Promotion Office)

The Itoigawa Global Geopark is interesting place where you can see the difference between the east and west culture. Geo-diversity is deeply reflected to archeological features too.

## Mini Geotourism Centered on Itoigawa's Old Town

II, Toru<sup>1\*</sup> ; WATANABE, Seigou<sup>1</sup> ; TAKENOUCHI, Ko<sup>1</sup>

<sup>1</sup>Itoigawa Geopark Council(Itoigawa City Geopark Promotion Office)

One of the main points of entry for the Itoigawa Geopark is Itoigawa Station, located in the middle of Itoigawa's Old Town. The north side of the station has since long ago been a shopping area. Once lively with activity, it now sees little foot traffic. This problem is shared with many rural cities, the causes include: loss of customers to large suburban box stores, the recent trend away from public transport, and declined enthusiasm among shop owners due to decreased sales and difficulty in finding successors. In 2009 came Global Geopark certification and plans were undertaken to further utilize and revitalize the Old Town in time for the new Hokuriku Shinkansen Line in March 2015. In this session, we will introduce how we are using Geotourism in order to increase foot traffic in the Old Town. The center of the old town district is an area called 'Ro-no-Ji' for its square shape resembling the Japanese character 'ro'. It is largely commercial and is often used for events such as festivals. Itoigawa Station lies at one corner of Ro-no-Ji alongside a tourism information center which includes geopark information. In the Old Town are a statue of Princess Nunakawa, a local deity; and historical landmarks including the beginning of the old Salt Trail, Kaga-no-I Brewery, and a gangi-lined street. Gangi are traditional roofs built over streets Japan's snowy regions. This street preserves the image of Japan before modern shopping malls. A number of Geopark-related sights show ways in which the land has changed. These are all valuable tools in the development of the Old Town District. The Itoigawa Machinaka Collection is an event that has been held every year since 2006. Participation is increasing yearly and in 2013 a Town Walking Tour attracted many participants looking to enjoy the Old Town. The 'Increase Shop Charms Women's Club' was formed in 2010 by 50 women working in the Old Town to help revitalize the area in preparation for the new Shinkansen. They now help with the Machinaka Collection, sell limited edition sweets, and participate in events in the area, helping to reenergize the district. The Itoigawa Geopark Council promotes downtown walking through pedestrian maps. These maps include interesting sights around the station as well as specialty products available at downtown shops. The leaflet targeted toward women has been particularly well-received. Itoigawa Station is a hub which connects the Hokuriku Main Line with the Oito Line, and so travelers occasionally must wait for their connection. Wanting to capitalize on this, a Geopark Guide Walking Tour program was tested. Over 10 days in late October, 8 people participated in these impromptu tours. All 8 were women who, having time to spend before their next train, enquired at the tourism desk about things to do. The guides primarily focused on the gangi street, Kaga-no-I Brewery, the seaside viewing platform, and downtown shops, from which some visitors bought gifts. Others declined the tour, but took leaflets to walk the town alone. To improve secondary transport from Itoigawa Station, a Town Loop Bus began operation in 2011. Running weekends and holidays, the bus starts at the station and makes a 40 min. loop through central Itoigawa's main tourist sites. Among these are the Fossa Magna Museum, Chojagahara Archaeological Museum, and the Itoigawa Folk History Museum. These are all indispensable facilities within the Geopark and the new bus line is important for visiting Geotourists. Since starting an all-day pass program in 2013, ridership has increased. The Old Town has many sites of interest, but they are being overlooked. Few people visit the Old Town outside of events. In order to help people understand the charms of this area, we must improve information transmission and hospitality. We mustn't miss the opportunity afforded to us by the opening of the new Hokuriku Shinkansen to increase visitors to this forgotten gem.

Keywords: town strolling, shopping streets, partnerships, Hokuriku Shinkansen

## Investigation and preservation of old Coalmine in the Mikasa Geopark

NII, Tadahiro<sup>1\*</sup> ; KURIHARA, Ken'ichi<sup>2</sup>

<sup>1</sup>Promotion Policy Division, Mikasa City Office, <sup>2</sup>Mikasa City Museum

Mikasa city is the area of Mikasa Geopark had many coalmines.  
Therefore, Mikasa created prosperity by coalmine, which has many remains of them.

To consider using those remains, we investigated worth of them from point of architecture.

Then, based on the results, We tried to safety state of around the Nishiki headframe in 2013. The Nishiki headframe is believed to have completed in December 1920, and it is the oldest remaining headframe in Hokkaido. The headframe is approximately 10 meters high, and the shaft is approximately 197 meters deep.

So, we introduce you the action of preservation and reuse those remains in the Miasa Geopark.

Keywords: coalmine, remains, preservation and reuse, geopark activity, Mikasa Geopark

## Rice farming and culture in Yuzawa Geopark

KAWABE, Kenichiro<sup>1\*</sup>

<sup>1</sup>Yuzawa Geopark Promotion Group

Yuzawa Geopark is a member of the Japan Geopark Network from 2012. In 2013, Yuzawa Geopark have created a catch copy and story. We are using the word "Life and History", in this copy. In this presentation, I will introduce the rice farming and culture in Yuzawa Geopark.

People have been praying for a good harvest. Also, a lot of the daily necessities and equipment used in religious ceremonies were made from rice straw. It was born from rice farming that praying for a good harvest and making daily necessities. And then, we are inheriting the culture from old generations. The inheriting is supported in rice farming that has been actively.

## Diversity of "freezing" and its application to activities in the Tokachi-Shikaoi Geopark

ONISHI, Jun<sup>1\*</sup> ; SAWADA, Yuki<sup>2</sup>

<sup>1</sup>Tokachi shikaoi geopark Promotion conference, <sup>2</sup>Fukuyama city university

" Freezing " is one of the main themes of Tokachi-Shikaoi Geopark. It appears in many different features: periglacial phenomena and landform, ecology, and life-style of residents in this region. We show some examples of geomorphic features related to cold climate, and activities of residents adapting to the " freezing " winter and even using ice to build hot spa, ice bar and other activities on " freezing " Lake Shikaribetsu. Our poster will show introduction to the world of freezing.

Keywords: tokachi shikaoi, geopark, freezing

## Viewing the Earth's Climate from Space

FREILICH, Michael<sup>1\*</sup>

<sup>1</sup>Director, Earth Science Div. NASA Headquarters

Earth is a complex, dynamic system we do not yet fully understand.

The Earth system, like the human body, comprises diverse components that interact in complex ways.

We need to understand the Earth's atmosphere, lithosphere, hydrosphere, cryosphere, and biosphere as a single connected system.

Our planet is changing on all spatial and temporal scales.

This presentation will highlight how satellite observations are revolutionizing our understanding of and its response to natural or human-induced changes, and to improve prediction of climate, weather, and natural hazards.