

Restoring records of the 1930 North Izu earthquake through illustration

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A significant quantity of records document the Great East Japan earthquake due to the widespread ownership of cell phones and digital cameras among ordinary citizens when that disaster occurred. Other past disasters have fewer records available, in some instances due to wartime information control measures. Hayashi et al. (2006) interviewed survivors of the 1945 Mikawa earthquake that hit the Mikawa region in Aichi Prefecture, and then recreated both written form and Japanese-style painting images of the disaster experience, based on the accounts gathered in the interviews. Based on these interviews with the few remaining survivors, this study produced illustrations and restored a record of the scenes of the disaster. Further, details of post-disaster life and restoration efforts from the 1930 North Izu earthquake were also collected. As the disaster occurred 85 years ago, shortly before the start of World War II, the population of remaining survivors who could be interviewed is decreasing.

Ahead of the interviews, information was collected from literature, newspaper articles, and housing maps available at the Library in Shizuoka Prefecture. The events and social conditions at the time of the earthquake were organized into supplementary resources in preparation for the interviews. Two survivors of the earthquake from Shizuoka Prefecture were interviewed on October, 2015, one who resided in Kannami Town and the other in Nirayama Town. The interview was structured with three major questions as the focal point -First, life at the time of the earthquake and actions taken during evacuation. Second, human casualties and physical damage caused by the earthquake. Finally, support they received during the process of restoring their lives. Interviewees were asked to speak freely about their memories. In order to draw the details of the damage experienced and processes of restoration of the livelihood undertaken more accurately, first-person accounts from the interview emphasized identification of "when it happened" and "where it happened" as much as possible. The interview process was anchored by asking certain questions in a sequence, changing questions in response to the memory of the interviewee, and listening to their stories.

The survivor from Kannami was able to give accounts of events before and after the earthquake in chronological order, as well as the details of his area of residence. The survivor from Nirayama, contrastingly, could only recall memories from fragmented events. A total of ten illustrations were created based on the interview results, including: 1. life before the earthquake, 2. preparations made in anticipation of the earthquake, 3. human casualties caused by the earthquake, 4. evacuation after the earthquake, 5. housing repairs and local wreckage removal efforts. Lessons also emerged from the interview results while considering the themes and details to be drawn for the illustrations. As a result, it was revealed from the pre-earthquake efforts that there was an awareness of building damage and fire prevention from lessons learned after the Great Kanto earthquake, which occurred 7 years before the North Izu earthquake in the local area where the interviewees lived. It was also revealed that precautions and specific preparations for the earthquake were being practiced in the local area, given that earthquakes were erupting frequently prior to the North Izu earthquake.

The Kannami participant was particularly able to express pre-earthquake efforts and describe chronological events during and after the disaster, which was helpful in producing illustrations through this study. The illustrations were also able to touch upon the lessons learned at the time,

and therefore it may be worthwhile considering utilization of the illustrations as an educational resource for children, possibly in the form of a paperback story or a coloring book.

Keywords: The North Izu earthquake, interview, illustration

Application of GIS for geopark activity in Muroto UNESCO Global Geopark

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Geoparks and its significances are widely known to geological and geographical societies, but still unfamiliar to non-specialist people in Japan. Some visitors to Muroto UNESCO Global Geopark Center seem to expect a geopark to be the facility like amusement park or zoological park. The Muroto Geopark covers whole administrative area of Muroto city, and the "geopark center" is no more than a hub facility for geopark activities, including exhibition, education, scientific research, and administration. Geopark has a geographical space with a certain area and its whole image can be best illustrated by maps. Such geographical information of the geopark must be shared with geopark staffs, exhibited to the public, and always updated. It is presumably well managed with the GIS technique. In Muroto Global Geopark, the author conducts researches on coastal geomorphology, environment of wild animal habitat, tourism development, and geopark management. Field survey results will be plotted on the map together with topography, vegetation, and other National Land Numerical Information, using the GIS techniques. The GIS allows analyzing, sharing, and publishing geographical information quickly and efficiently at the every aspect of geopark activity.

Keywords: GIS, geopark activity, Muroto UNESCO Global Geopark

Teacher's licence renewing class using geoparks - A case study of Hakusan Tedorigawa Japanese Geopark -

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Recently geoparks are established in various places of Japan, and various educational activities are carried out in each geoparks. Teachers are in the forefront of the educational activities using geoparks in each area. Training programs on geoparks for teachers are carried out in various styles. Teacher's licence renewing class is one of those programs.

In Hakusan Tedorigawa Japanese Geopark, we are carrying out a teacher's licence renewing class jointly organized with the Seismological Society of Japan and the Hakusan Tedorigawa Geopark Promotion Council since 2014. Under the theme of natural disaster learning in geoparks, we visit the geo-sites in an excursion style. We explain the constitution of the earth, factors of the natural disaster seen there, and the past cases of disaster and disaster prevention. Moreover, in the class, we are considering about the science education, geography education and disaster prevention education using geoparks.

In this presentation, we will report about the class and discuss the effectiveness of using geoparks based on the results of the questionnaire. From the results, we found the following points. The local teachers were able to get a new point of view about disaster prevention from the everyday landscape. The teachers from outside the area were able to experience the relations between the disaster and the living of people, from the typical and understandable landscape.

Keywords: Geopark, Teacher's licence renewing class, Education, Disaster prevention, Field work

Workshop of Making Personal Evacuation Map

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The west part of Izu peninsula has often hit by huge tsunamis caused by Suruga trough. And this area is expected to be hit by 5m to 7m-high tsunami in near future again. The inhabitants living here must find the way to escape from the disaster. The members of Nishiizu volunteer coordinator group have tried to find how to evacuate from the disasters such as tsunami and avalanche and keeping the inhabitants mind highly motivated for disaster. We have performed the workshops walking around the town 6 times and analyzed the result of the questionnaires.

1. An avalanche occurred in this area in July 2013 and the group members managed the volunteer center. This experience made the members eager to help the inhabitants from the disasters.
2. We divided Nishiizu area into seven small areas because each area is expected to be isolated when the disaster occur.
3. The participants including junior high students walked around the town together in a small group watching and checking the safeties of the evacuation road, and checked evacuation time. They tried to find the shortest way to evacuate and tried to find the alternatives.
4. The map was made by Airbone LiDAR elevation data. A map of Ansei Tsunami flooded area was show behind the room.
5. They put the data into a large map after walking.
6. The data will be put into the government GIS map.
7. At the end of the workshops we asked them questions and analyzed 281 questionnaires.

Keywords: Geopark, Disaster, Questionnaire survey

Prospective customer study of Sanriku Geopark using the Sanriku railway.

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The Sanriku Geopark was authorized in the Japan Geopark Network (JGN) in September, 2013. The expectation of the local to the sustainable regional activation by the Sanriku Geopark is increased. However, the increase of the visitors by the Sanriku Geopark is not recognized after the authorized.

Itoh, et al (2015) suggested the Sanriku railway as a one of important factor to symbolize Sanriku Coast, and they also suggested that the several visitors using the Sanriku railway. In order to regional activate by the Geopark activities, it is necessary to know the transportation in the Sanriku area, such as the starting point and terminal of the visitors, and the image of the Sanriku railway. Internet questionnaire is useful such issues. The authors studied the regional activation strategy using Sanriku railway based on the Internet questionnaire.

At the results, the majority purpose of the visiting to Sanriku area is "to get a train" "gourmets" and "to see the magnificent nature". And the majority respondents choosing Kuji as the gate city, and the Miyako as the terminal for the sightseeing tour. The respondents have the image of the Sanriku railway as "beautiful coastline", "tsunami disaster" and TV drama of "Ama-chan". Based on a principal component analysis (PCA) employing variance-covariance matrices reveals that tourists are basically seeking "nostalgia" and "healing" experience. Based on these questionnaire data, it is necessary to make a strategy for concrete tourist increasing.

Keywords: Sanriku Geopark, Sanriku railway, tourism

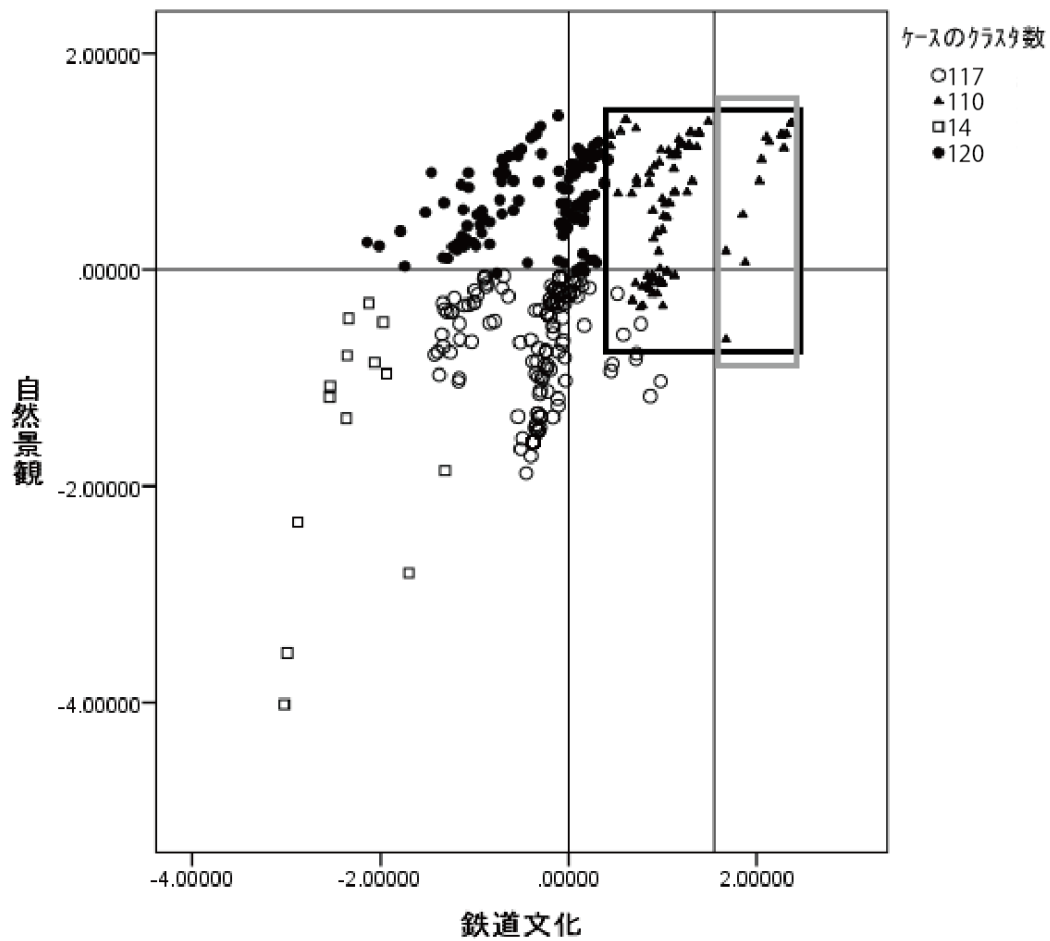


図 1 「三陸鉄道のイメージ」を変数とした場合のクラスター分析結果