

The early days of Geoparks in Japan

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Abstract. Around the end of the 20th century, all mineral mines and coal mines in Japan were closed. Geologists in Japan became worried about the future of geological studies. At that time, news of geoparks came from Europe. “Rock Green Café” played an important role in the Japanese geopark movement. As of 2025, 10 UNESCO Geoparks and 38 National Geoparks were established in Japan. Many geoparks include examples of geohazards and vestiges of abandoned mines as georesources.

Key words: UNESCO Geopark, National Geopark, Japan, “Rock Green Café”, Fossa Magna Museum.

STARTING GEOPARKS IN JAPAN

The Geological Society of Japan (JGS) was founded in 1893. The number of members was 128 in 1897, reached a maximum of 5300 in 1999 and is now 3000 (Sasaki, 2018). Around the end of the 20th century, all mineral mines and coal mines in Japan were closed, and geologists in Japan became worried about the future of geological studies.

At that time, news about geoparks came from Europe. Some Japanese geologists attended the first International Geopark meeting in Beijing in 2004, the second meeting in Belfast in 2006, and then in 2008 four Japanese applicants attended the Osnabrück meeting.

In December 2007, the Japanese Geopark Liaison Council was established with support from Japanese geologists and private organizations that were conducting geological surveys, and, with some local authorities and others who wished to establish Geoparks began exchanging ideas.

In December 2008, seven Japanese Geoparks were designated as national geoparks. In May 2009, the Japanese Geopark Liaison Council became the Japanese Geoparks Network (JGN). Geoparks in Japan started in 2009 (<https://geopark.jp/en/>).

THE “ROCK GREEN CAFE” AND GEOPARKS

In order to propagate the concept of geoparks, the JGS and the Geological Survey of Japan (GSJ) invited Dr Wolfgang Eder of UNESCO, who had responsibility for geoparks, and made provincial tours around Japan.

Dr Eder found a signboard for the “Rock Green Café” in the countryside of south-east Japan (Fig. 1). This attracted much interest from him. At first I thought this was because he had found a grammatical mistake, because some foreigners are interested in the errors Japanese people can make when using English expressions. But he told me that he had travelled all

around the world, and this is the first time he had discovered a true expression of the spirit of geoparks. He stated that “Rock” means geology, “Green” means ecology, and “Café” means human activity (Fig. 2). These three words form three fundamental factors of the Geopark concept, and hence represent the spirit of Geoparks (Yajima, 2008).

In Japan, there are national parks and quasi-national park systems. Setonaikai, Unzen and Kirishma were designated as the first three national parks on March 16, 1934. Currently, Japan’s 34 national parks, 56 quasi-national parks, and 311 prefectural natural parks welcome approximately 900 million visitors every year.

Since 1911, under the Law for the Protection of Cultural Properties, the national government designates, selects, and registers the most important cultural properties as National Treasures, Important Cultural Properties, Historic Sites, Places of Scenic Beauty, or Natural Monuments and imposes restrictions on exports and activities. There are 415 Places of Scenic Beauty (including 36 Special Places of Scenic Beauty), and 1,030 Natural Monuments (including 75 Special Natural Monuments). Geological and mineralogical features such as particular rocks, mineral and fossil producing sites, conformable and unconformable strata, folded and thrust strata, geological features caused by the work of living creatures, and so on, are also classified as Places of Scenic Beauty and Special Places of Scenic Beauty.

Geoparks represent a different system from the upper National Parks and Natural Monuments. Geoparks are active and attractive. Geoparks are based on various georesources of global scale, they protect nature and culture, and prioritize education and tourism. A Geopark is a single, unified geographical area where sites and landscapes of geological significance are managed with a holistic concept of protection, education, and sustainable development. Japanese geologists used the “Rock Green Café” to advertise these three aims of geoparks.

A Geopark is a journey of bonding and learning about the earth, and a place to enjoy geotourism. It is a place where you can take a close look at mountains and rivers, learn about how they were formed, and think about their links to the ecosystem and to human life. A Geopark is where you think about Earth as

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Fig. 1. The signboard of the “Rock Green Café”
<https://geosociety.jp/faq/content0073.html>

a whole, from the ground at your feet to the boulders around you, and all the way into space; from billions of years into the past all the way into the future; and about the mountains, rivers, oceans, the atmosphere, and the organisms that live within it.

FOSSA MAGNA MUSEUM'S ORIGINAL GEOPARK CONCEPT

Before the geopark movement began in Japan, the city of Itoigawa in Northeast Japan had developed an original idea of geoparks in 1987, and published the “Fossa Magna Regional Development Project,” a local plan to make use of the regional geological resources for the purpose of revitalizing the region.

Although this was a very different kind of Geopark from those we see today, the people of Itoigawa people believe this was the first use of this term in the world. The Fossa Magna is the large fault that divides Japan, and named by Edmund Naumann (1854–1927), the father of geology in Japan.

In 1994, the Fossa Magna Museum opened as a museum dedicated to the Fossa Magna, to Itoigawa’s fascinating geological history and to jade. After subsequent complete renovation, it continues this mission and acts as the Research and Information Center of the Itoigawa UNESCO Global Geopark.

In 2007, the city of Itoigawa announced its plans to become a Global Geopark and, with other likeminded regions, formed the Japanese Geoparks Network. In 2008, Itoigawa became one of the founding members of this network and in 2009 its application to the Global Geoparks Network was accepted and it became Japan’s First Global Geopark. Since receiving certification, Itoigawa Geopark has been striving to be a model region for Geopark-centred societal development (JGN <https://geoitogawa.com/eng/about/aboutus.html>).

ジオサイトは Rock Green Café

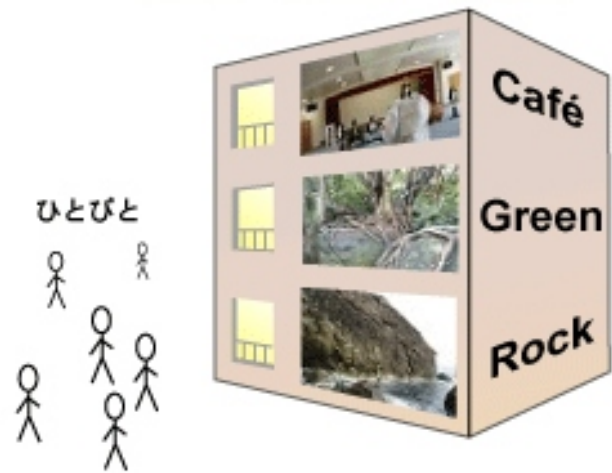


Fig. 2. The geopark concept explained with the “Rock Green Café” <https://geosociety.jp/faq/content0073.html>

GEOPARKS, NATURAL DISASTERS AND ABANDONED MINES

As of July 2025, the JGN regular membership consists of 10 UNESCO Global Geoparks in Japan and 38 Japanese National Geoparks (Fig. 3). There are 7 aspiring geoparks listed as associate members. Every year, the JGN National Conference and workshops are held. Active support is given to areas which have suffered from natural disasters through sharing information about natural disasters, such as volcanic eruptions, earthquakes, landslides and so on.

GEOPARKS WITH EVIDENCE OF VOLCANIC ERUPTIONS

Toya-Usu UNESCO Geopark: Surrounded by mountains, the lake resembles a large cauldron. Approximately 110,000 years ago, an eruption caused a huge depression to form, and the lake formed when the depression filled with rainwater. Such a lake is called a caldera lake. South of Lake Toya is Mt. Usu, an active volcano. Its fumarolic gas, bare rock and awesome traces of eruptions convey the might of the volcano. Mt. Usu has erupted at least nine times since 1663: four times in the 20th century alone (1910, 1944–1945, 1977–1978, 2000). These eruptions have had disastrous effects and have impacted people’s lives. To keep the memories of these disasters from fading, buildings and roads damaged by eruptions have been protected as evidence of these events and a footpath has been built to give visitors access to these (<https://www.toya-usu-geopark.org/english/>)

Unzen Volcanic Area UNESCO Geopark: Here one can see the traces of disasters caused by the well-known active volcano, Mt. Unzen, while also enjoying the blessings of the wonderful nature created by Mt. Unzen. This Geopark, featuring

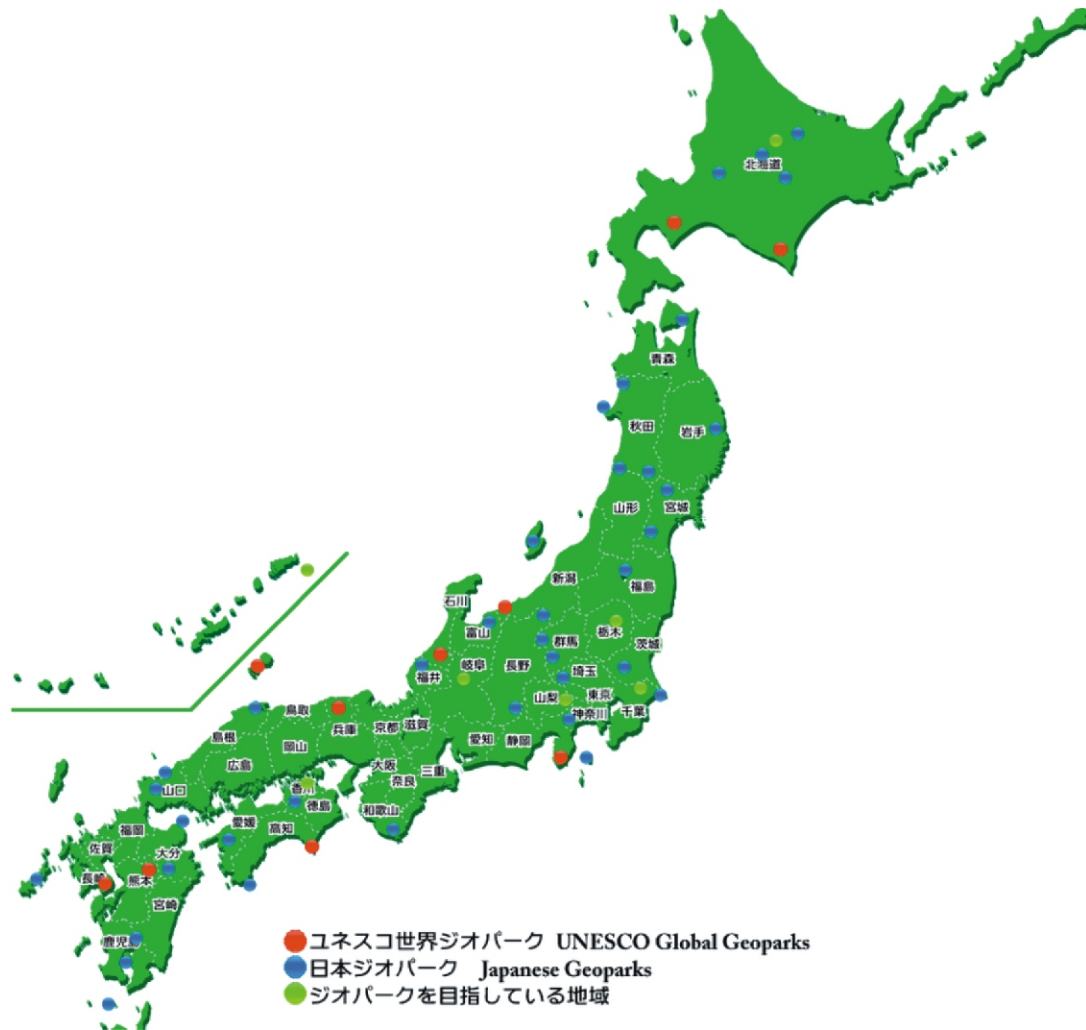


Fig. 3. Geoparks in Japan

Red circles – UNESCO Geoparks; blue circles – National Geoparks; green circles – aspiring geoparks; <https://geopark.jp/geopark/b>

an active volcano, is quite unique in the world. A volcano brings intermittent disasters however it also gives precious benefits to us at other times. One of the main attractions of the Unzen Volcanic Area UNESCO Global Geopark is “Mt. Heisei Shinzan”, the newest volcano in Japan, showing the reconstruction process from its disastrous eruptions in 1990–1995. Forty three people including three volcanologists [Katia Krafft (1942–1991), Maurice Krafft (1946–1991) and Harry Glicken (1958–1991)] died because of a sudden pyroclastic density current in 1991 (<https://en.unesco.org/global-geoparks/unzen-volcanic-area>).

Bandaisan National Geopark: Mount Bandai creates characteristic beautiful scenery, as a result of volcanic activity that generates repeated slides of snow and rock. One of these triggered by a phreatic explosion started in 1888, killed 477 people. The mountainside of Urabandai (close to Mt. Bandai) was a wasteland, but the efforts of many people led to successful tree planting. Today this is designated as a national park. In 1954 slope failure after heavy rain made good conditions for a ski resort. Mt. Bandai and Urabandai became a geopark (<https://www.bandaisan-geo.com/eng/>).

Izu Oshima National Geopark: Following the fissure eruption in the northern part of the caldera on 21 November 1986, a new fissure eruption started at 17:45 on the northwestern slope of the outer rim on the same day as the first eruption, which is an

extension of the crater sequence. Eleven craters were formed over a distance of about 1 km from south-east to north-west, and high columns of fire were raised. There was an outflow of a’lava’ from the largest of these craters, which flowed along Nagasawa to within 200 m of Motomachi. The town of Oshima issued an order for all inhabitants to evacuate the island at 22:50 and a simultaneous evacuation was carried out during the night. One month later all these residents returned to Oshima island (<https://izuoshima-geo.org/en/>).

Mt. Asama North National Geopark: Mount Asama erupted in 1783, causing widespread damage. The three-month-long plinian eruption that began on 9 May 1783, produced andesitic pumice falls, pyroclastic flows, lava flows, and enlarged the cone. The climactic eruption began on 4 August and lasted for 15 hours, and included pumice falls and pyroclastic flows. The complex features of this eruption are reflected by rapidly formed deposits of coarse pyroclastic ash near the vent and the subsequent flows of lava; and these events which were accompanied by a high eruption plume which injected yet more pumice into the air. At that time people ran to the temple dedicated to Kannon, climbing more than 50 steps. Ninety three people were saved in this way, though 477 died because of arriving too late. The temple is part of the geosite (<http://www.asamaen.tsumagoi.gunma.jp/en/geopark.html>).

GEPARKS WITH EARTHQUAKE HAZARDS

Sanriku National Geopark: In response to significant damage to the Rikuchu Kaigan National Park's area during the Great East Japan Earthquake in 2013 the park merged with the Tanesashi Kaigan Hshikamidake Prefectural Park and Hachinohe city in Aomori Prefecture with the aim of aiding recovery from the earthquake and preserving lessons about the damage caused. The park took on its current name, later incorporating the Minami Sanriku Kinkazan Quaisai-National Park in 2015 (<https://en.kamaishi-kankou.jp/learn/geopark/>).

Mt. Kurikoma Area National Geopark: The 2008 Iwate-Miyagi Nairiku earthquake triggered the largest catastrophic critical landslide recorded in Japan. To show nature's power to the eyes of visitors, the park shows the spectacular landslide mechanism and its aftermath (<https://www.kuriharacity.jp/w024/010/010/kurkoma-geoerea-pamphlet-english.pdf>).

GEPARKS WITH ABANDONED MINES

Mikasa National Geopark: The development of Mikasa started with the discovery of 'coal', a gift of nature, in the Horonai area in the first year of the Meiji Era (1868). Since then, the development of the town has been closely intertwined with all things "Geo". Hence the entire city of Mikasa is now designated as a Geopark (https://www.city.mikasa.hokkaido.jp/geopark/detail_sp/00005579.html).

Mt. Kurikoma Area National Geopark: Hosokura Mine that was operational for almost 1200 years, and after its commercial closure was opened to visitors as a park. Visitors can learn about the conditions inside the mine by actually walking down into it. The tunnel is kept cool at 15 degrees year-round, without using air conditioning (https://www.kurikoma-sanroku.jp/en/spots_winter05.html).

Sado Island National Geopark: Rocks formed during the volcanic activities in ancient times underpin the island and include gold and silver veins which were mined, leading to the largest production of these metals in Japan. The Sado Gold

Mine is said to have been founded in 1601 by three mountain masters. In 1603, the Sado Magistrate's Office was established under the direct control of the Tokugawa shogunate, and the production of gold coins also took place, supporting the finances of the Edo shogunate. In March 1989, unfortunately, operations were suspended due to resource depletion, and the running history of nearly 400 years came to an end (<https://www.sado-kinzan.com/en/knowledge/>).

MINE-Akiyoshidai Karst National Geopark: Copper was produced at the Naganobori Copper Mine in this geopark, through the reaction between limestone and magma 100 million years ago. It was mined intermittently from ancient times until today. The copper was mined and used to construct the Great Buddha of Nara at Tōdai-ji (in around the 8th century CE). The Naganobori Copper Mine is the oldest nationally-run copper mine in Japan.

The Ōmine Coalfield in this geopark has produced anthracite (coal that does not produce much smoke when burned). A large amount of the coal that was mined underground was carried up to the ground here. The MINE Inclined Mineshaft is one of the most important mineshafts in Japan. In the past there were many railway stations in the area which were used to transport coal (<https://en.mine-geo.com/>).

FUTURE GEPARKS

The history of geoparks in Japan is relatively recent, although it has a longer history of preceding activities, for instance in private organizations in which I worked, forerunners of the Japanese Geoparks Network.

There are now 7 aspiring geoparks listed as associate members 10 UNESCO Geoparks and 38 National Geoparks in Japan have to be judged every four years. All Japanese geoparks are now very active and attractive. And now, the TV program of "Buratamori" in which the television celebrity Tamori visits each a geopark each week and explains its geology in simple terms, has established their deep-rooted popularity.

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