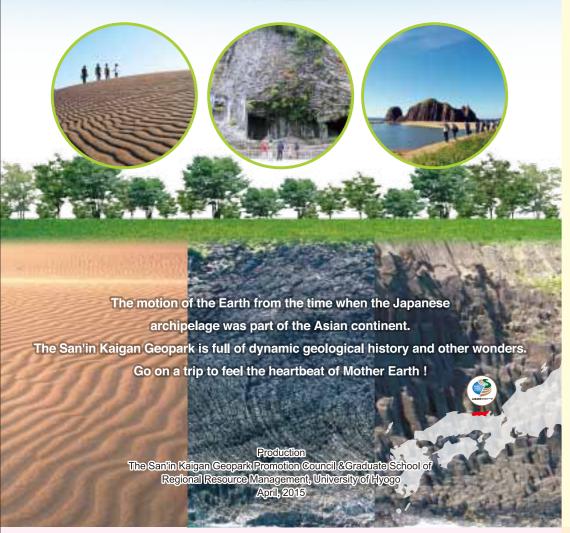


# San'in Kaigan UNESCO Global Geopark

**JAPAN** 

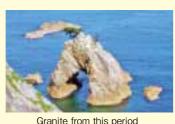


## San'in Kaigan Global Geopark

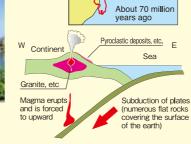
San'in Kaigan Geopark: recording earth's ever-changing activities

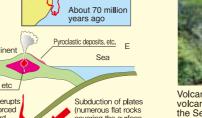
## The Japanese archipelago as part of the Asian continent

Long ago, the Japanese archipelago was part of the Asian continent. As a result of volcanic activity, pyroclastic flow occurred on the surface of the earth, while magma slowly got cold and hardened to form granite deep underground.





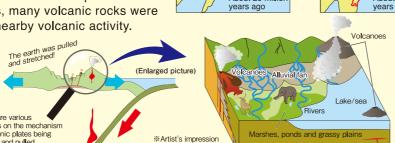




# Senganmatsushima, Uradome Kaigan Coast, Iwami Town) Granite from this period (Tainohama Beach Shin'onsen Town)

## Formation of the Sea of Japan

The edge of the continent began to split. During the separation, hollows were formed, which later became lakes and rivers. Elephants, deer and other animals lived in these freshwater areas. Later, the hollow spread to form the Sea of Japan. In the process, many volcanic rocks were made by the nearby volcanic activity.





the early age of the formation of

the Sea of Japan (Kasumi Kaigan Coast, Kami Town)





About 20 millio

Volcanic rocks (lava) in the early age Volcanic rock (sheet) in the latter age Shishi-no-kuchi (lit. the mouth of lion) \ (Tateiwa Rock, Kvotango City)

## Geological features, natural environment, people's lives, and the formation of the Sea of Japan

#### Activity of the Japanese archipelago

After the Japanese archipelago began to look like it does today, volcanic activity continued and at the same time, ria coasts and coastal terraces were formed, as well as deep valleys and beautiful waterfalls in the mountains. In the meantime, plains, basins and sand dunes were also formed and people began to live in this region.





Volcanic rocks that spouted out through volcanic activities after the formation of volcanic activities after the formation of the Sea of Japan and a waterfall formed by later erosion. by later erosion (Kirigataki Waterfalls, Shin'onsen Town)

San'in Kaigan Geopark The Pacific Ocea

Various landscapes and people's lives in the San'in Kaigan Geopark

Beautiful landscapes featuring various kinds of rocks, strata, and coastal landforms, as well as inland waterfalls and valleys can be observed in the San'in Kaigan Geopark. Making use of such features, the people of the region developed a highly characteristic way of life.

## Sand dunes, sandbars & Ria coasts & lagoons



Coastal terraces

Burial mounds on terraces (Onaru Burial Mound Group,

Kyotango City)

Making use of sand dunes as Chinese shallot field (Fukube Sand Dunes, Tottori City)

marine landforms Highlights: Hattandaki Waterfalls, Saruodaki Waterfalls, Highlights: Kasumi Coast, Tajimamihonoura,

(Takeno Kaigan Coast, Toyooka City)



Waterfalls & valleys

intangible folk-cultural property)



in kuroboku soil (Kannabe Highlands, Toyooka City)

Volcanoes, mountains & highlands
Landforms by landslides Highlights: Wasabu, Nukida, Yokoo, Tando

Rice terraces (Rice terraces of Nukida, Kami Town)

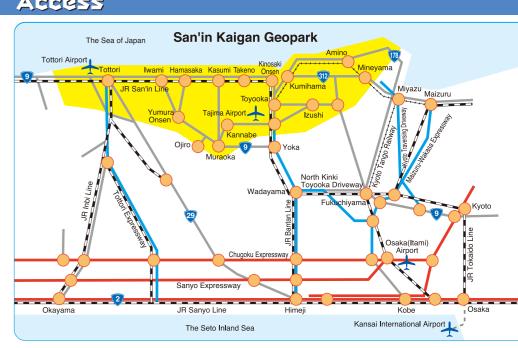
The rocks and strata in the San'in Kaigan Geopark contain the history of the earth from

the time when the Japanese archipelago was part of the Asian continent, through

the formation of the Sea of Japan, to the present.

Mountains and highlands

#### Access



## Biodiversity

The formation of the Sea of Japan and the movements of the earth brought about an environment blessed with diverse geological and geomorphological features, which serve as the natural habitat of various creatures.

#### Sand dunes & sandbars

Animal species include: Antlio Wolf Spider



Marshes, streams & rice fields Oriental White Stork Baikamo (Ranunculus Nipponicus) Japanese Killifish Eastern Skunk Cabbage Four-spot Midge



Oriental White Stork

Mountains & highlands Plant species include: Animal species include: Japanese Beech Tree Asiatic Black Bear Mongolian Oak Golden Eagle



### Forests near coasts

Eelgrass / Sea Grape Horned Turban Shell Abalone / Iwagaki Oyste Wakame Seaweed



Evergreen Broad-leafed Forests

#### Coastline of the Sea of Japan Oval Squid Marbled Rockfish

Red-spotted Grouper Largescale Blackfish Horse Mackerel



School of Horse Mackerel

Offshore of the Sea of Japan

Animal species include: Red Snow Crab Firefly Sauid



Snow Crab

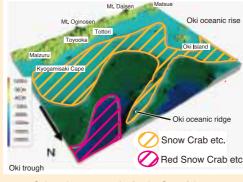
## Geo-sourmet

Various foods owe their great taste to the characteristic climate of the San'in region.

#### Snow crab & red snow crab ★Find out what's "Geo" about crabs here!

The Sea of Japan is a huge depression formed after the separation of the Japanese archipelago from the Asian continent. Its center is very deep, but the depth of the channels connecting it to the neighboring seas are shallow (around 50-140m). Therefore, the exchange of seawater is limited to the surface of the ocean's layers, meaning "the Sea of Japan proper water" exists in deep waters. Thanks to this oxygen-rich cold seawater, coldwater fish and shellfish, such as crabs, can live in the Sea of Japan.

Another feature of the Sea of Japan is its complicated submarine topography. Thanks to this, two kinds of crabs are enjoyed in this area, namely, the snow crab and the red snow crab. Snow crabs live at a depth between 100-500m, and red snow crabs live at a depth between 500-2500m. Each type of crab has its own unique taste. The com plexities of the submarine topography bring about a variety of marine resources as well as the habitat isolation of each crab.



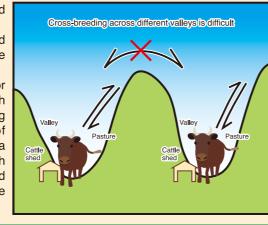
Submarine topography for the Sea of Japan



#### Japanese black cattle (Tajima cattle & Impaku cattle) ★ Find out what's "Geo" about Japanese black cattle here!

Japanese black cattle are raised in and around the San'in Kaigan Geopark area. Because each inland village was surrounded by steep mountains, it was difficult to mate

cattle from neighboring valleys. As breeding was limited to separate valleys for a long time, excellent pedigrees unique to each valley were established. By cross-breeding such varieties, an even better bloodline of Tajima Cattle has been developed. The area has other factors ideal for the production of high quality cattle. For example, cold winters and sheds and pastures at different altitudes are ideal for making cattle with good marbling.



## ☆Tajima Cattle is the breeding cattle for Kobe Beef and Matsusaka Beef

#### Vegetables grown in Sand Dunes ★Find out what's "Geo" about vegetables in sand dunes!

In sand dunes, the grains of sand are almost uniform in size and hardness, so root crops can grow large and straight. Using this, sweet potatoes and Chinese yams are produced in this

region. Watermelons and melons are also grown in sand dunes because of good drainage and easy control of water and fertilizers. With people's endeavors and the technological development, the Tottori Sand Dunes have become one of the most eminent Chinese shallot producing areas in Japan since they were successfully cultivated there in 1914.





coastal areas

Melons grown in sand dunes in Kvotango City

## Variety of geo-gourmet

Bounty of the sea Firefly Squid

Riches of the soil

Rice various locations



The fishery yield of firefly sauid is the highest in Japan. Firefly squid caught in the San'in region feature a sweet, elegant flavor.

coastal areas The San'in region, as well as Akita

Sandfish

are developed.

including Tango Rice

(rice terraces) Rice

and Stork-friendly Ric

Prefecture, is a major production area. Fatty young sandfish are mainly caught



White squid (Swordtip squid)

the clear, white body is sweet and delicious.

#### Fruits & vegetables grown in highlands various locations rand-name rice with inique characteristics



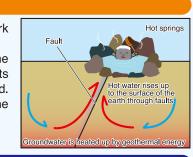
and vegetables, such as pears, peaches, cabbages and adishes, are grown or sunny hills and untain slopes

## Unique climate and peoples' lives

Various cultures and industries that have supported and developed the local communities were established under the unique climate of the San'in region. They are also utilized as tourist attractions.

A large number of hot springs in the San'in Kaigan Geopark have long been utilized as therapeutic bath resorts.

There are many faults, or fractures and discontinuities of the ground caused by the movement of the earth. The faults function as conduits to bring water up from deep underground. The heated underground water rises up as hot springs to the surface of the earth through the faults.



hanks to the nourishing seawater (the Sea of Japan proper water) and the warm current, the area is blessed with marine life.

#### Ria coasts - Ports to wait out storms

When the sea level rises, its complicated geographical features (mountains and valleys) create coastlines called ria coasts. These coves are good natural harbors, as they block seasonal winds from the Sea of Japan. They also flourished as ports for Kitamaebune (commercial ships) to wait out storms long ago.



forming mountains and valleys,

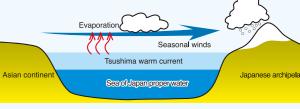


When the sea level rises, valleys sink into the sea and ridges become capes. Capes act as wind breakers and

## Weather, climate & benefits of the Sea of Japan

The San'in region is a rainy and snowy area. The locals' phrase "Don't forget to bring an umbrella with you even if you forget your lunch box" expresses this situation well. In winter, there is a lot of snowfall caused by the northwest seasonal winds from Siberia. The snow in the mountains is over one meter in depth. This is because the moisture-laden seasonal winds from the Tsushima warm current on the surface of the Sea of Japan blow against the mountains, climb upward and form snow. People's lives in the San'in region are greatly affected by the climate. On the other hand, deep in the Sea of Japan, the cold "Sea of Japan proper water" exists. Thanks to the Tsushima warm current and the cold proper water, the harvest from the Sea of Japan includes both coldwater fish and shellfish (crabs.etc.) and warmwater fish and shellfish (yellowtails.etc.).









The large coastal sand dunes spanning 16 km from east to west right on the Sea of Japan. There are three lines of undulating sand dunes.



**Uradome Kaigan Coast** Moroyose is a good natural harbor and a port of call for Kitamaebune (trading ships between Osaka and Hokkaido in the Edo The coast is home to strangely-shaped rocks and sea caves which are composed of granite and formed by the erosion of violent waves from the Sea of Japan. The white sandy beaches with pine trees here are also very beautiful. This scenic coast was Period) as they waited out storms.Old houses on the streets, which developed on the sandbars in Hamasaka, have been left



Tajimamihonoura features rocky coasts replete with cliffs and sea caves that were formed by erosion due to strong waves from the Sea of Japan. It is a nationally designated natural monument and place of scenic



The Kasumi Kaigan Coast is a rocky coast with many beautiful spots, including Yoroi no Sode (nationally



Imagoura is a cove that flourished as a port of call for Kitamaebune ships (commercial ships). Wave-cut benches that have developed around the seashore are ideal for playing on. The curiously shaped Frog Island and Obikinohana observatory are popular among visitors.



Takeno developed as a base for because the Nekozaki Peninsula protected it from seasonal winds. There are many uniquely-shaped rocks, sea caves, and cliffs. Takeno Coast is selected as one



Sea-level changes made this beautiful lagoon, Kumihama Bay, and a sandbar known as Shotenkyo.

Oyster farming is flourishing here, and oyster floats create a quaint atmosphere.



[Natural Monuments and a Place of Scenic Beauty]

Kotohikihama Beach is a sandy beach

When walking on the beach, visitors

will notice the squeaking sound that

Tateiwa Rock is an immense monolith with well-developed andesite columnar joints. The contrast of the black rock and white beach is beautiful. There is an interesting legend about defeating ogres, related to Tateiwa.



"Kyogamisaki" literally means "cape of Buddhist scriptures." It is named this way because the rocks with columnar joints look like Buddhist scriptures. Kyogamisaki Lighthouse is designated as a Heritage of Industrial Modernization.





around and 6.9 square km in size with

an average depth of about 2.8 m.





This is a vein deposit made in the following process: hot water came into the underground cracks, and then various elements from the rocks around melted into the hot water and crystallized in the cracks. Copper was the main product here.



The 100 best rice terraces in Japan The beautiful rice terraces utilize gentle slopes which were formed by landslides. There is an ownershi system in place for the rice terraces.



The contrast of the waterfall with a height of 40 Yumura Hot Springs is a historic, quiet meters and the surface of the rock is truly dramatic. It is designated as one of the 100 best waterfalls in Japan. The opening festival resort that opened in the Heian Period (848). Hot spring water of 98°C for the falls is held every year. Traditional events, such as Umbrella Dancing, are performed as well. gushes out in large quantities.



Rare creatures including golden eagles and Asiatic black bears are found here. Lava as well as other solid rocks can also be seen. In addition, numerous waterfalls are dotted around.



This waterfall consists of andesitic lava. The fall is made up of two parts and the upper one allows visitors to observe the fall from behind. There are many falls and valleys around Yoshitaki Wateralls.



It is called Saruodaki because it looks like a tail of a monkey (saru = monkey, o = tail, daki = waterfall). The height of the falls is about 60 m and it is selected as one of the 100 best waterfalls in Japan.



This is the newest volcano in the Kansai region. The crater is visible from the top of the mountain. Several events related to the lava flow are held



It is said that Kinosaki Hot Springs has a history of about 1300 years, and was initially discovered by a priest called Dochi. Visitors can enjoy 7 public baths in Kinosaki, all the while wearing yukata,



million years ago and formed these beautiful joints.