A 'Geopark'?

A geopark is an investment in the future for our children: how do we make sure that the treasures of the Earth - its geology, its natural beauty, its history and culture - are handed down to posterity, fifty or a hundred years from now? Geoparks teach us how to interact with the Earth so that we can bequeath these treasures to following generations.

Our actions today must show the adults of tomorrow the wonder of our planet, so that we can teach them how to live in harmony with the Earth and ensure that its treasures are not taken away from future generations. Let us create a society based not purely on consumption, but one which is sustainable. If we all do what we can, even the smallest things, this will surely be possible.

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GEOPARKS JAPAN 日本ジオパーク

That's Mine. It's Mine
Miné-Akiyoshidai Karst Plateau Geopark

Contents

Foreword

Mine City, located in the middle of Yamaguchi prefecture, is recognised as a Japanese National Geopark: the Miné-Akiyoshidai Karst Plateau Geopark. The theme of Miné-Akiyoshidai Geopark is 'Three Miracles'.

What were these 3 miraculous events? Read this pamphlet to find out. This pamphlet explains the themes of Miné-Akiyoshidai Geopark: please use it to guide you as you explore the geopark.

Translator's note: in this pamphlet you will see Mine written both 'Mine' and 'Miné'. These refer to the same thing: the accent above the e is merely a pronunciation aid.

Miné-Akiyoshidai Karst Plateau Geopark

Our Vision

To create a society which looks after the Earth, and in which we look after each other.

Our Plan of Action

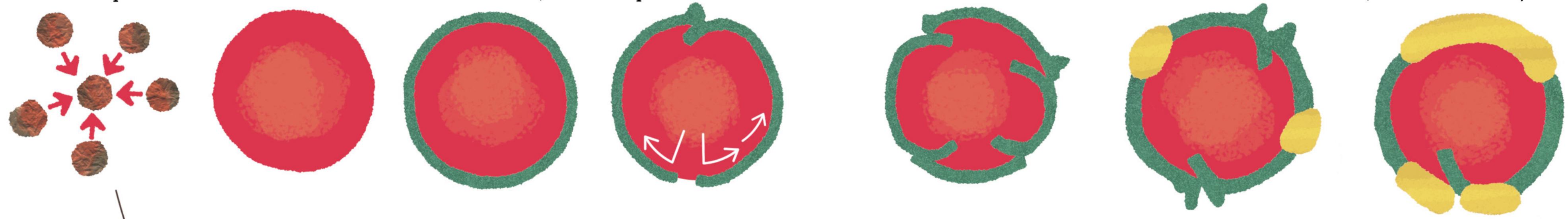
We are currently working towards gaining recognition as a UNESCO Global Geopark. By exchanging ideas to help solve individual areas' problems through the Global Geopark Network, we can work towards creating a better society.

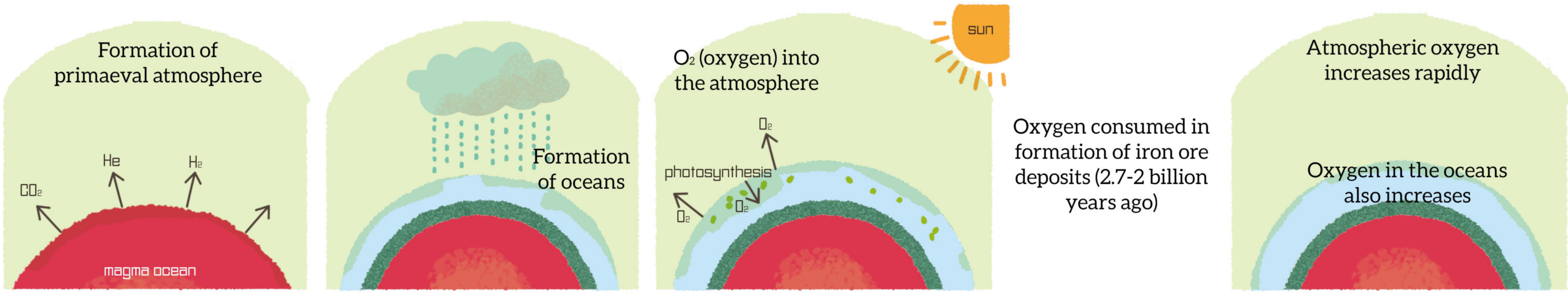
We also work towards the economic revitalisation of the area by training local guides and selling guided tours, as well as releasing local products made in cooperation with local people.

4.6-2 billion years ago

~ The beginnings of Earth and life ~

Collisions of asteroids and small planets | Magma Ocean | Formation of plates (cooling of the surface) | Beginning of plate tectonics | Formation of island arcs | Collisions of island arcs and formation of continents | Collisions of continents and the emergence of supercontinents (around 2 billion years ago)

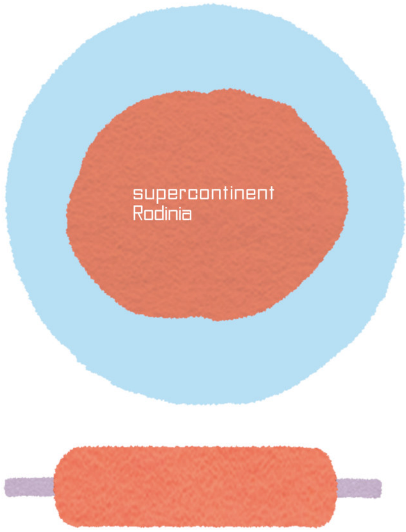




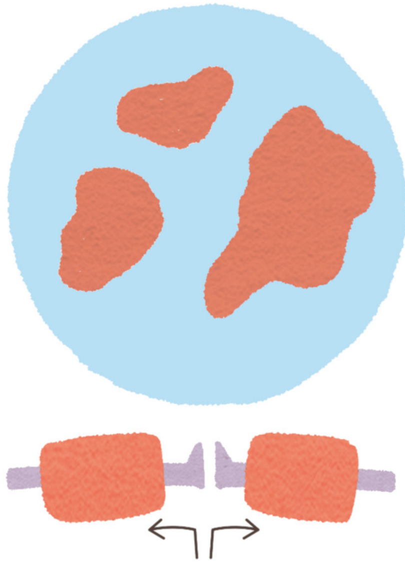
The emergence of life at thermal vents etc.	Appearance of photosynthetic organisms O_2 photosynthesis cyanobacteria	Appearance of small eukaryotes FeO iron ore deposits	The 'explosion of life'; first appearance of organisms on land
approx. 4 billion years ago	approx. 3.2 billion years ago	approx. 2 billion years ago	approx. 650 million years ago

800-500 million years ago

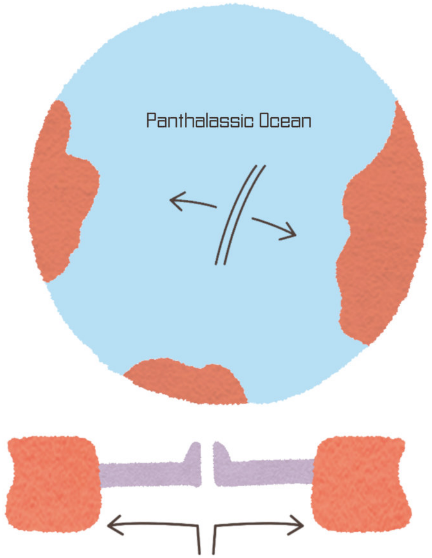
~ The birth of the Panthalassic Ocean: the appearance of seas and subduction zones ~



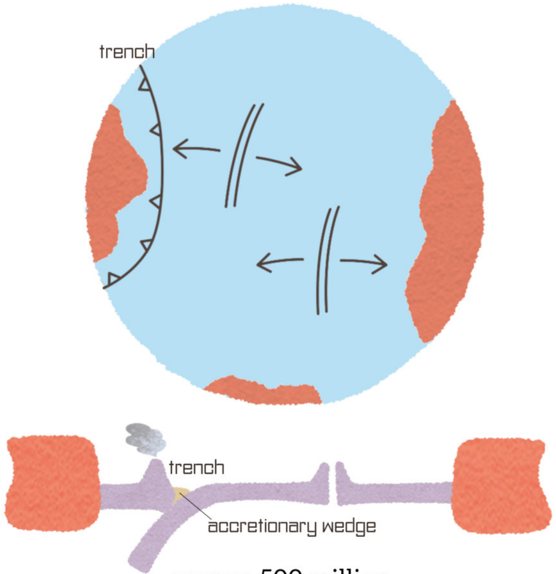
approx. 1.1 billion – 800 million years ago



approx. 750 – 700 million years ago



approx. 600 million years ago



approx. 500 million years ago

Around 750 million years ago (Ma), the supercontinent Rodinia broke up, creating an ocean called Panthalassa, also known as the Palaeo-Pacific Ocean. The emergence of this ocean created the first conditions for the eventual formation of the Japanese archipelago.

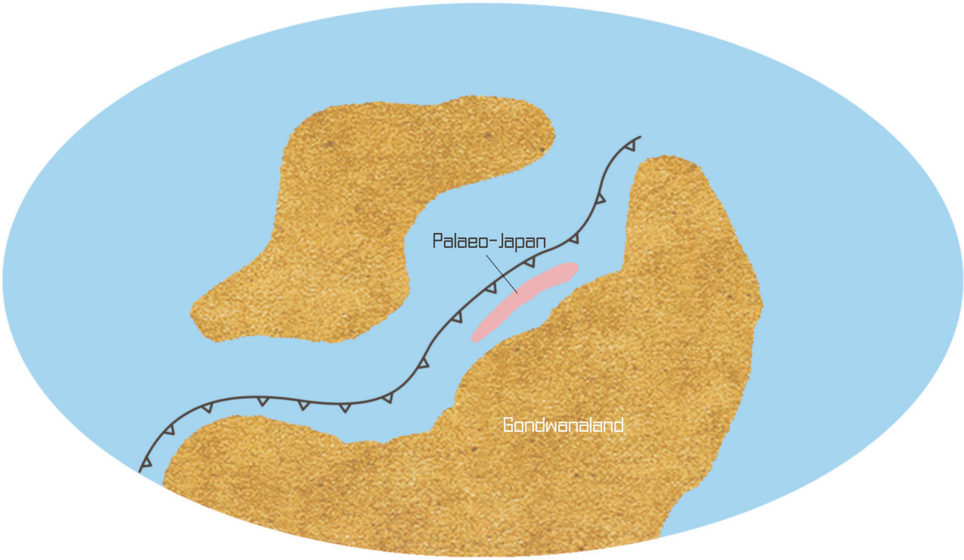
As the Panthalassic Ocean grew, the oceanic plate beneath it became older and cooler, growing heavier and beginning to sink near the margins of the continent. This occurred around 500 million years ago.

This sinking of the plate under the continent - a process known as subduction - caused earthquakes and volcanic eruptions as well as the formation of an accretionary wedge. An accretionary wedge refers to material accreted onto the continent as one plate subducts under another, forming a wedge shape. The conditions for, and the process of, the formation of accretionary wedges will be explained in detail later.

These earthquakes and eruptions, and the accretionary wedge that formed on account of them, were the basic building blocks for the formation of the Japanese archipelago.

500-400 million years ago

~ The beginning of Japan's geological story ~



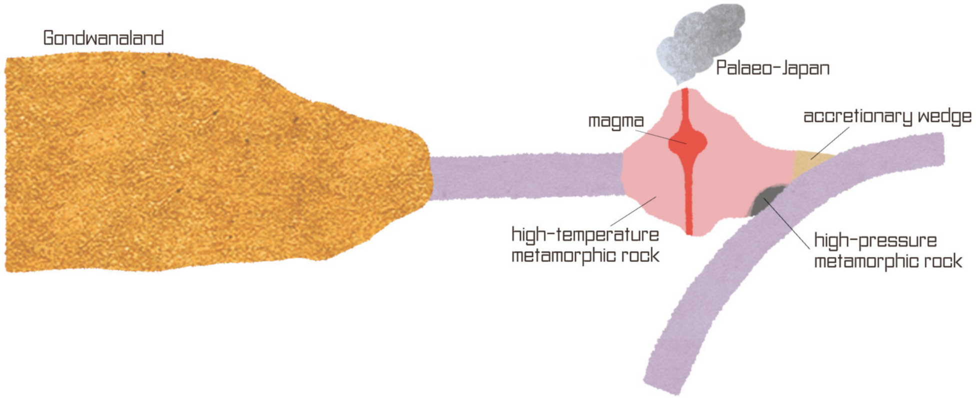


Plate tectonics begins

Around 500 million years ago, as the oceanic plate was subducting into the Earth, magma rose up from the mantle causing volcanic eruptions. It is thought - for reasons which will be explained later - that accretionary wedges form only in the presence of sufficient magma from volcanic eruptions. Areas of the accretionary wedge which formed closest to the subducted plate (known as a 'slab') were turned into high-pressure metamorphic rock; those areas formed near magma became high-temperature metamorphic rock.

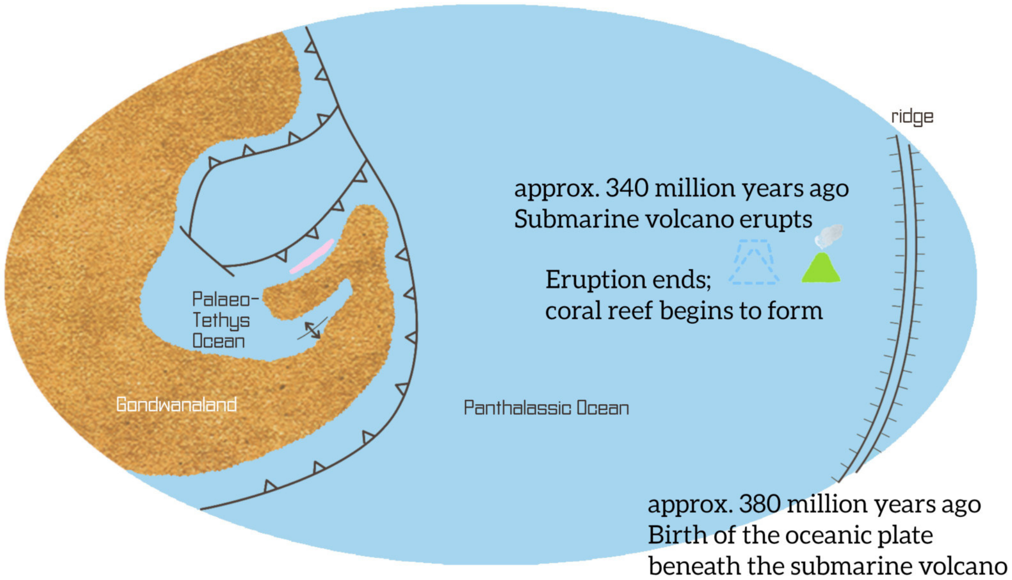
The geological evidence for this time period lies in this metamorphic rock as well as in the volcanic rock which formed from magma, which show us the subduction that was occurring in this period. 400-million-year-old, high-temperature metamorphic rock can be seen at Hirano in Mine City.

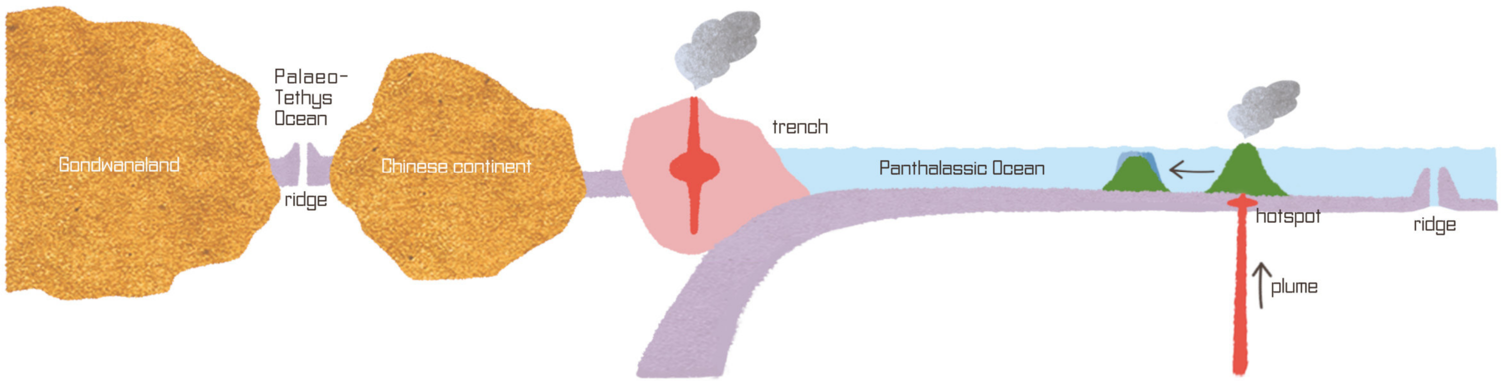
400-340 million years ago

~ The Akiyoshidai limestone is born as a coral reef ~

During the Devonian Period there were large-scale changes on the Earth, such as the formation of the Palaeo-Tethys Ocean. Among these changes was the birth of the oceanic plate which would later come to subduct under Japan, forming the Akiyoshidai accretionary wedge.

Then, in the early part of the Carboniferous Period, the coral reef which would turn into the Akiyoshidai limestone, and the submarine volcano on which it formed, came into being.



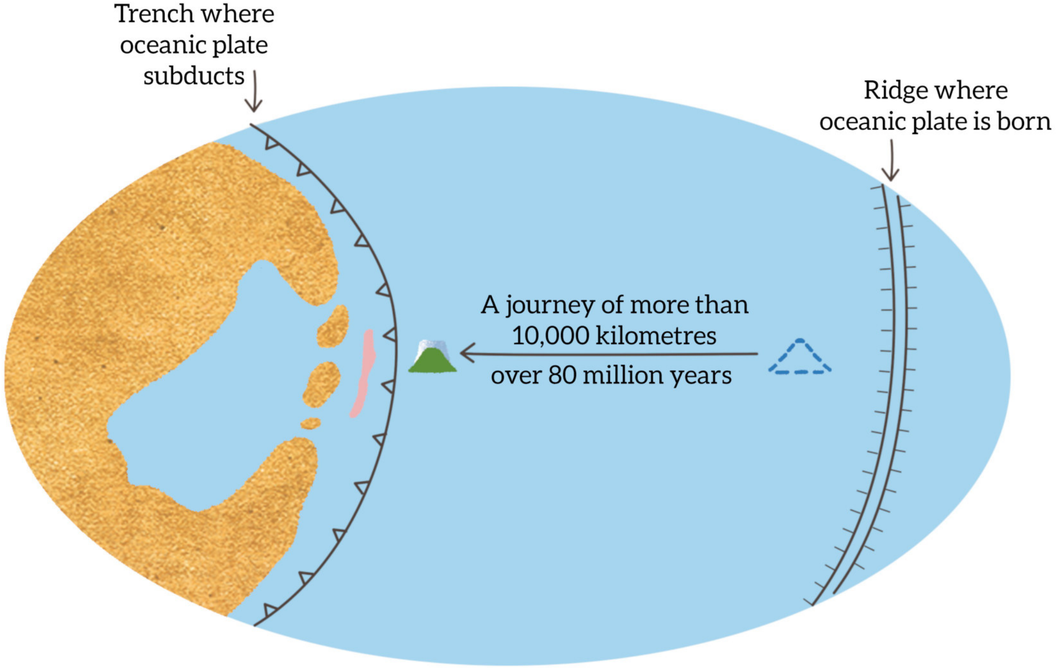


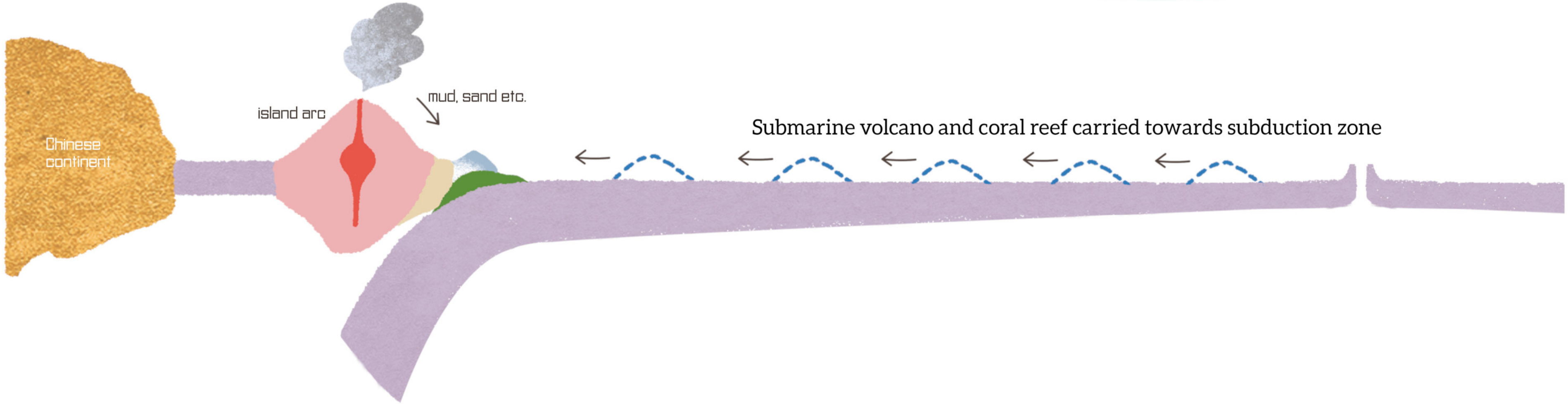
260 million years ago

~ Movement of the oceanic plate, and the coral reef it carried ~

During the middle part of the Permian Period, the submarine volcano with the coral reef on top was moving towards the trench where it would eventually subduct, becoming part of the accretionary wedge.

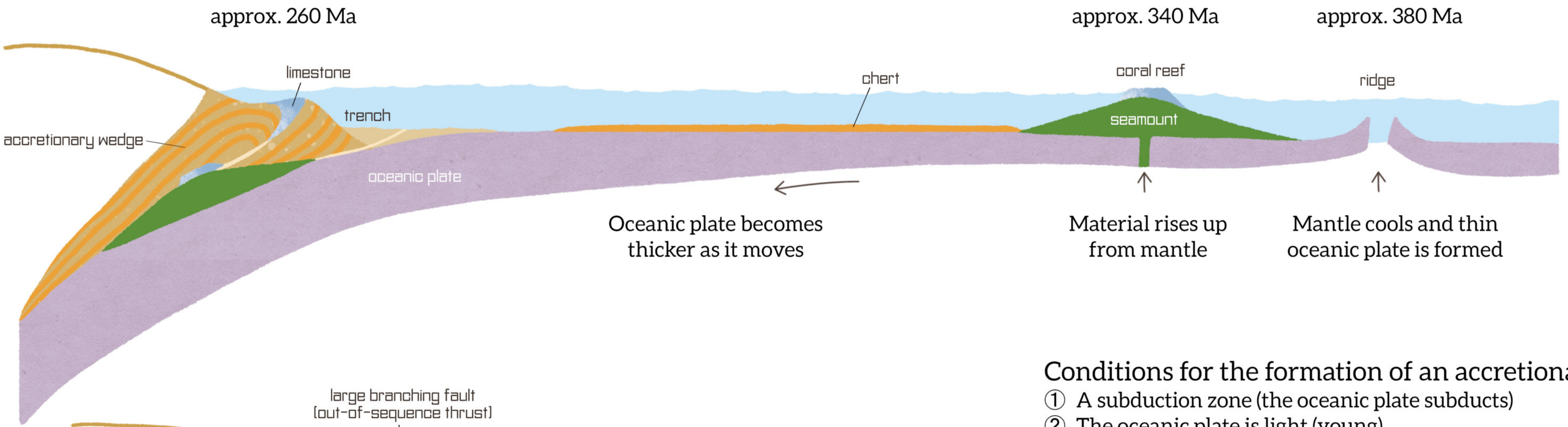
On the island arc, violent eruptions caused large amounts of mud and sand to flow into the trench. After a journey over more than 10,000 kilometres, which had taken more than 80 million years, the submarine volcano with the coral reef on top eventually arrived at the trench where it would become part of Akiyoshidai.

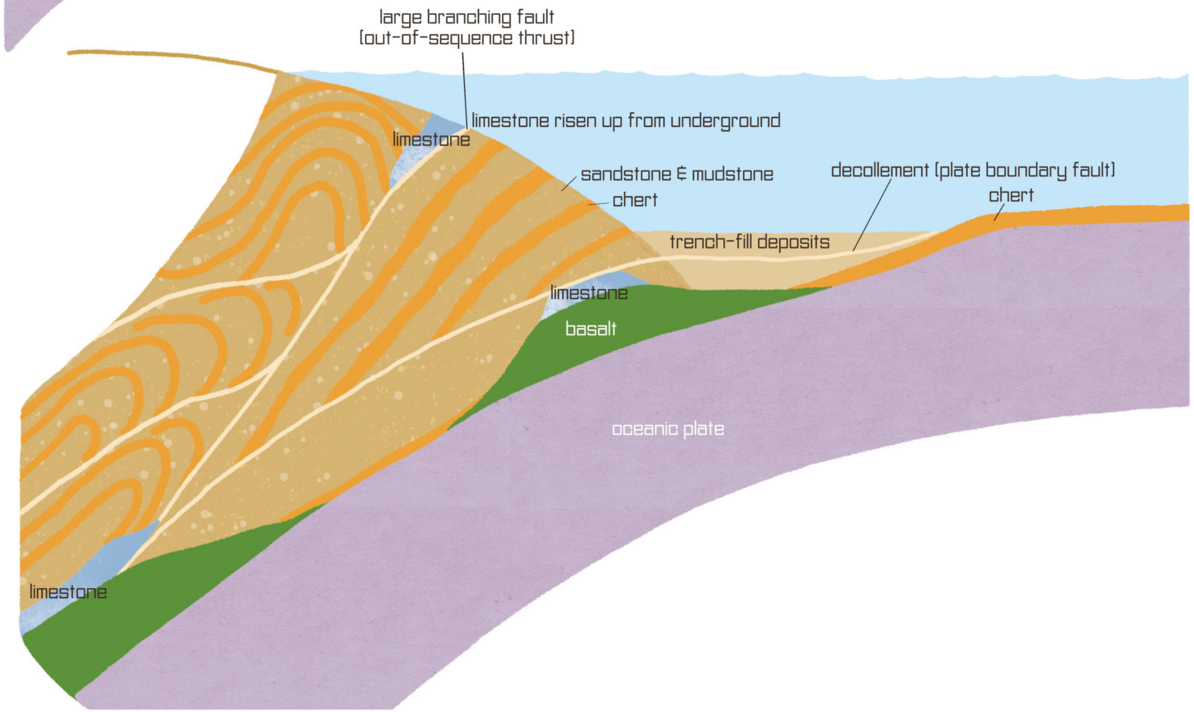




The white world of Miné-Akiyoshidai

~ From a coral reef to limestone ~





Conditions for the formation of an accretionary wedge

① A subduction zone (the oceanic plate subducts)
② The oceanic plate is light (young)
③ Mud and sand (trench-fill deposits) are deposited in the trench.
These trench-fill deposits are provided by volcanic eruptions.

Conditions for the accretion of limestone

~ Scenario A ~

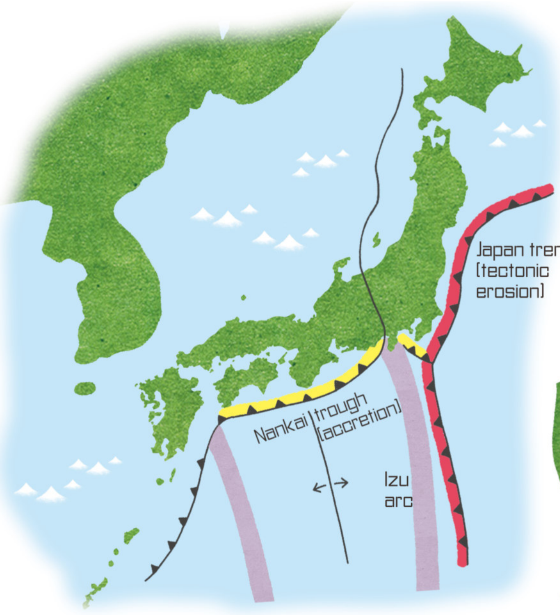
① Limestone is separated from the seamount deep within the accretionary wedge
② Limestone slowly rises up to the surface along a large branching fault

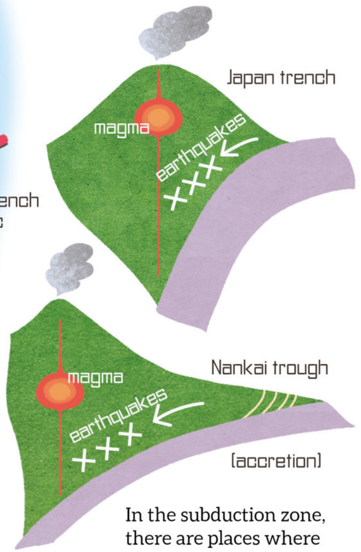
~ Scenario B ~

① The subducting plate stops subducting due to the subduction of a lighter plate (i.e. the island arc or plateau)
② The seamount which had been subducting with the plate also stops subducting
③ Subduction begins again on the ocean side and formation of the accretionary wedge resumes

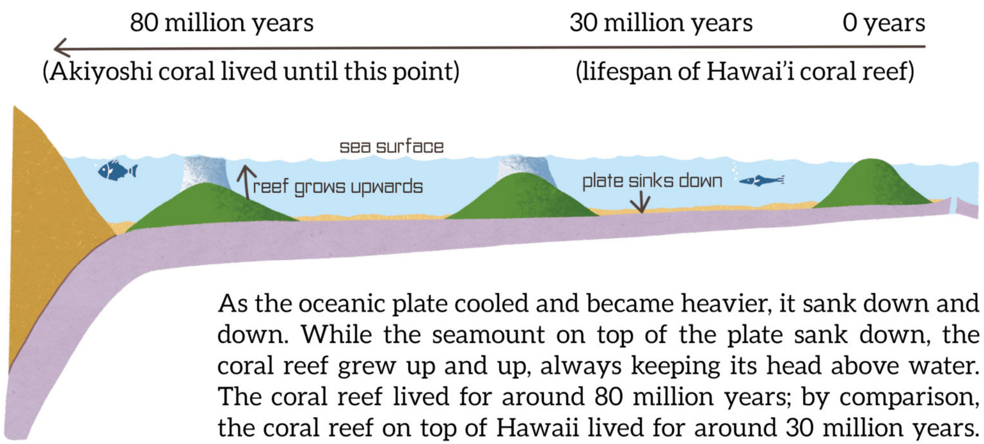
The secrets of the white world

~ The hidden reasons accretionary wedges form ~



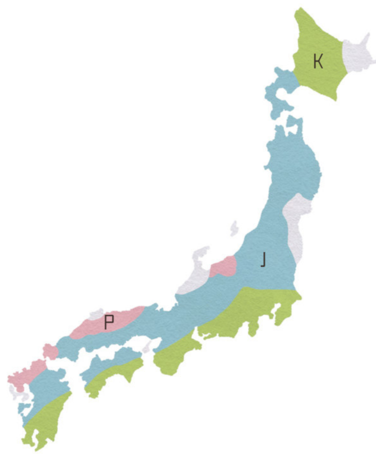


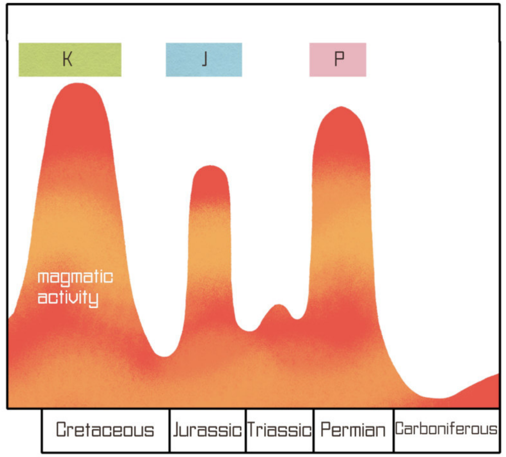
In the subduction zone, there are places where accretion occurs and places where it does not.



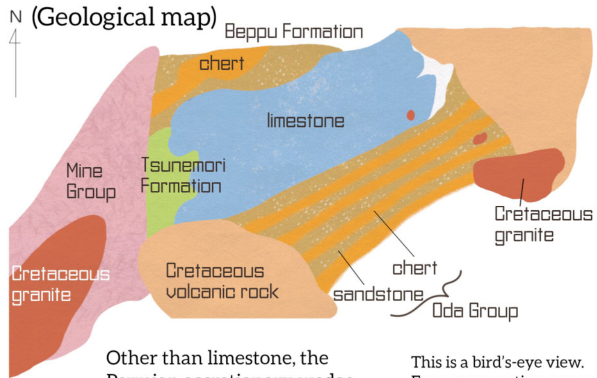
As the oceanic plate cooled and became heavier, it sank down and down. While the seamount on top of the plate sank down, the coral reef grew up and up, always keeping its head above water. The coral reef lived for around 80 million years; by comparison, the coral reef on top of Hawaii lived for around 30 million years. This is because the Akiyoshidai limestone traversed the warm ocean near the equator for the duration of its existence.

In fact, accretion occurs when violent volcanic activity on the mainland or island arc delivers large quantities of mud and sand into the trench.





The accretionary wedges making up the Japanese archipelago formed primarily in the Permian, Jurassic and Cretaceous periods. Accretion occurred when volcanic activity caused large amounts of mud and sand to accumulate in the trench, forming the foundation of the accretionary wedge. As the figure above shows, there is a close relationship between volcanic activity and accretionary wedge formation. In the area surrounding Akiyoshidai are found the Ōda Group and the Beppu Formation, which were also part of the same accretionary wedge.



Other than limestone, the Permian accretionary wedge also contains the Ōda Group and the Beppu and Tsunemori Formations.

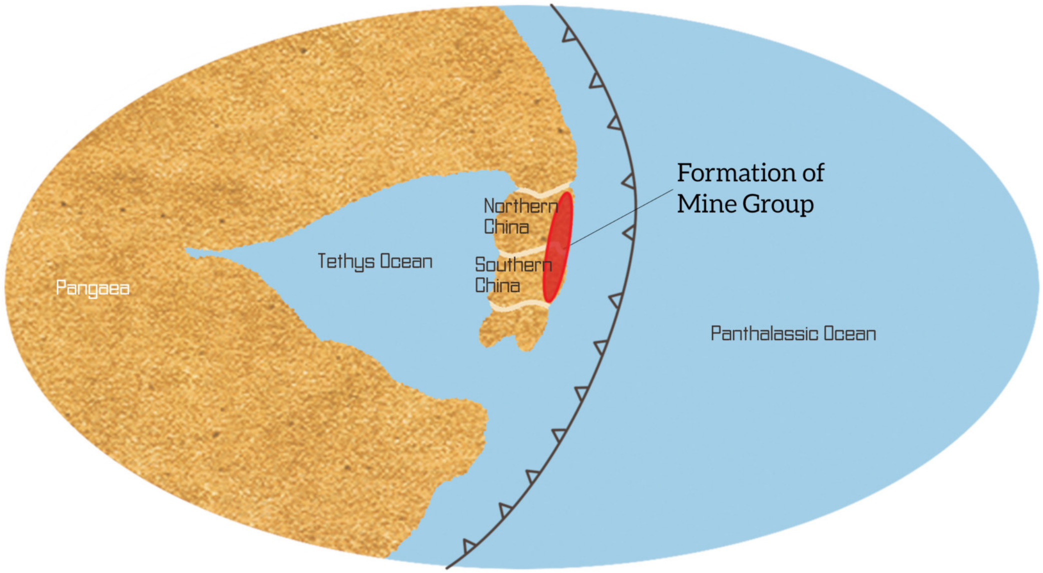
This is a bird's-eye view.
For a cross-section, see pg. 22-3.

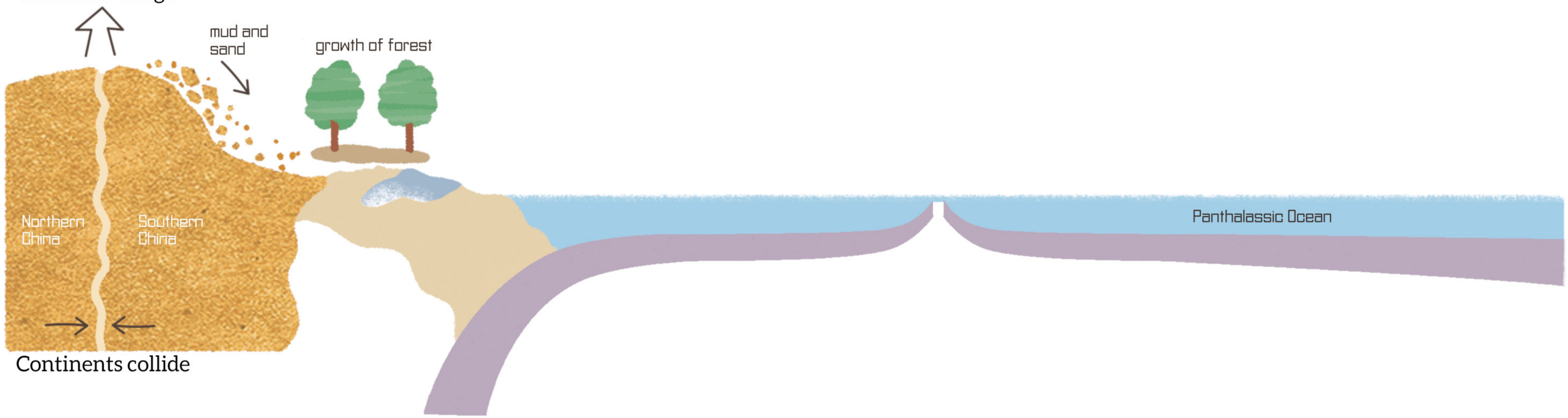
230 million years ago

~ The world after the great extinction ~

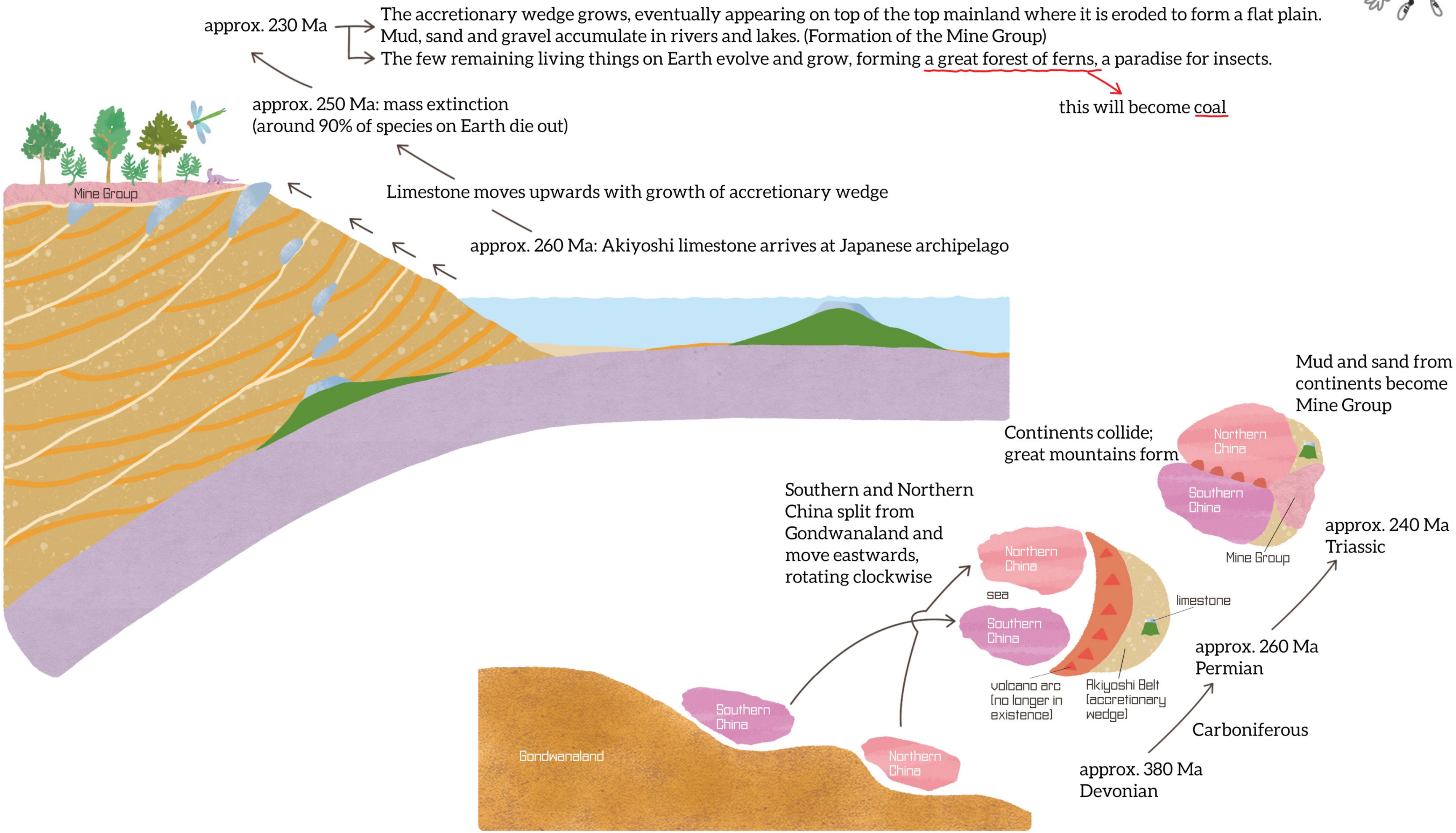
Around 10 million years after the accretion of the Akiyoshidai limestone, the world saw the largest mass extinction of the Phanerozoic Aeon. Though its cause is not known for certain, it is thought that around ninety per cent of all species on Earth became extinct. The many animal and plant fossils discovered in the Mine Group, which formed around 20 million years after the mass extinction, show that a great forest had grown here: this was the great renaissance of life.

Around the same time two adjacent continents, Northern and Southern China, collided. This collision formed a great mountain range much like the Himalayas today; it also provided the mud and sand which became the rock of the Mine Group.





The black world of Miné-Akiyoshidai ~ Coal and the great forest ~

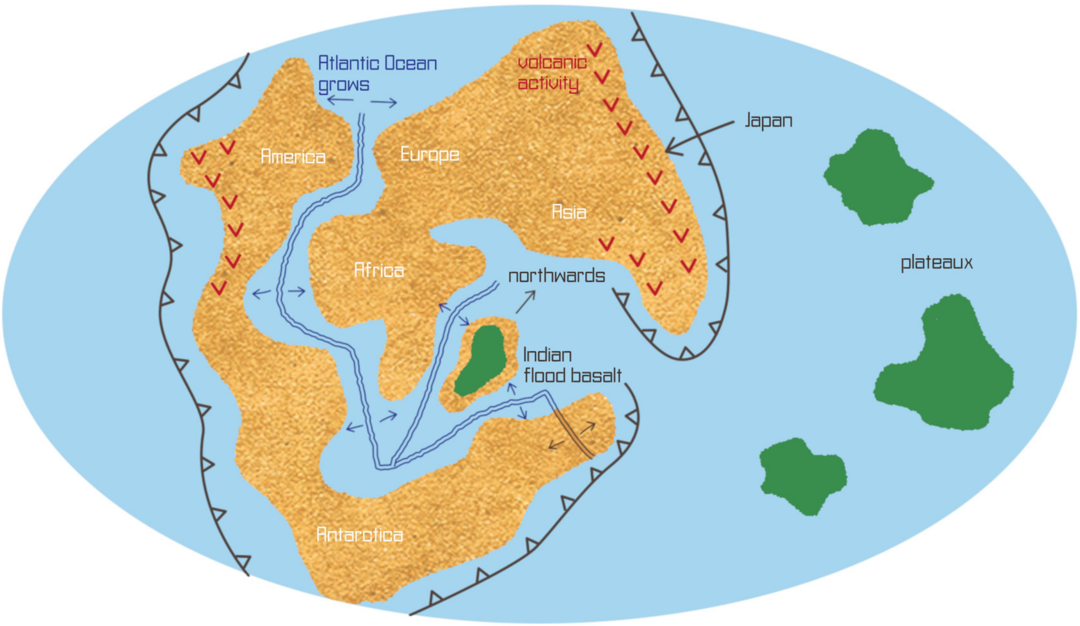


90 million years ago

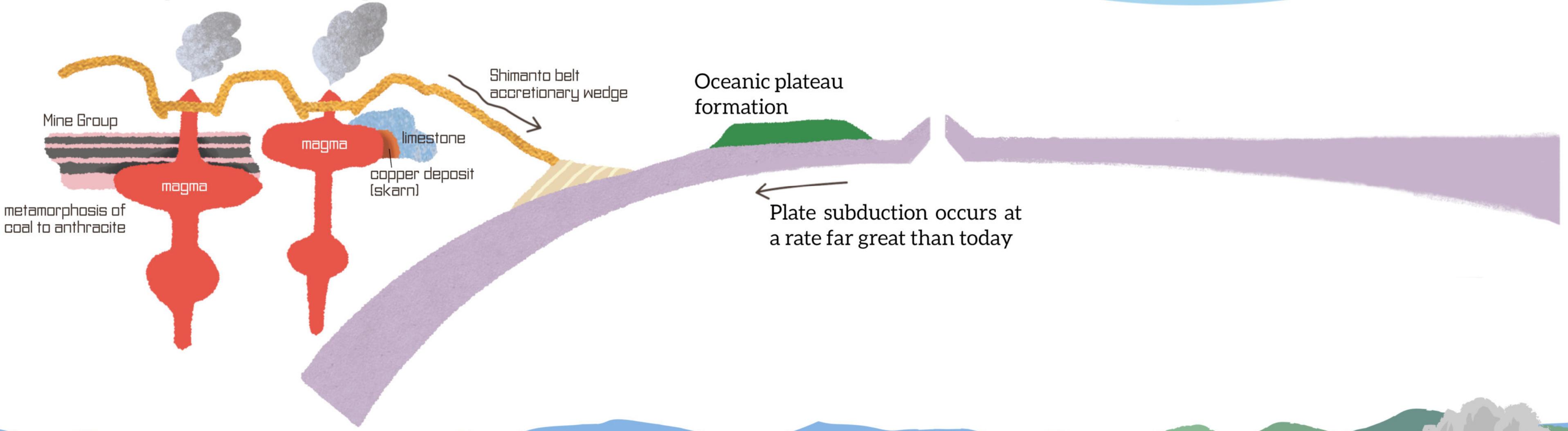
~ Superplumes and mega-eruptions ~

This period, the Late Cretaceous, saw large amounts of volcanic activity all over the Earth. A great, hot ball of magma - a superplume - rose up from the Earth's mantle, splitting the continent. In India flood basalt was erupted, and in the Pacific Ocean many plateaux were formed.

From the patterns of the Earth's magnetic field recorded in the oceanic plate at the bottom of the Pacific Ocean it has been calculated that, in the Cretaceous, the oceanic plate was emerging from the ridge and subducting into the trench at a speed several times that of today. In areas surrounding the Pacific Ocean can be found many calderas, the result of massive volcanic eruptions. This same magmatic activity was also the cause of the formation of copper deposits at Naganobori and the metamorphosis of coal within the Mine Group to form anthracite.

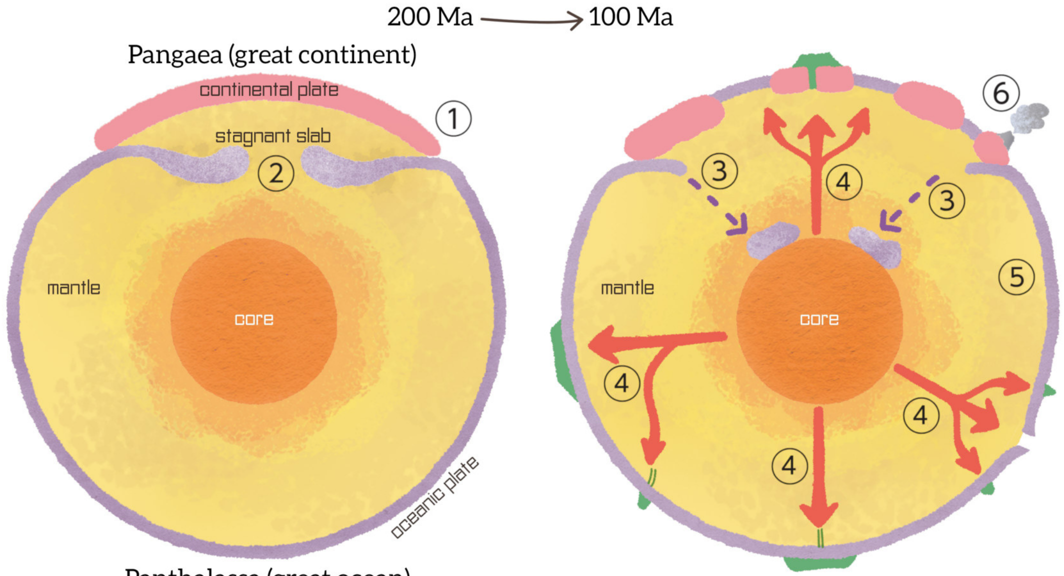


Massive volcanic eruptions and the consequent formation of calderas



The red world of Miné-Akiyoshidai

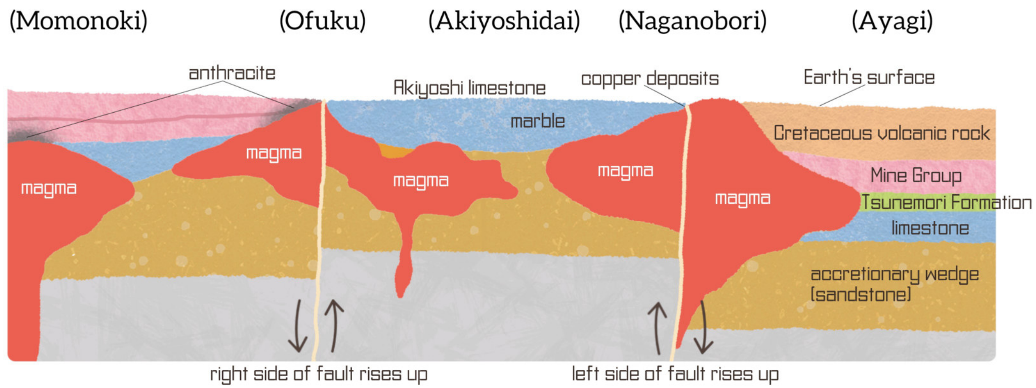
~ Volcanic activity and copper ~



① The oceanic plate subducts under the great continent Pangaea from all four directions.
② Underneath Pangaea cooling masses of subducted rock, known as stagnant slabs, form.
③ These stagnant slabs sink down to the Earth's core, a phenomenon known as a cold plume.
④ An amount of material from the mantle equivalent to the volume of the stagnant slab is displaced and rises up - a hot plume - which breaks up the continent, forms underwater plateaux and ejects flood basalt on the Indian continent.
⑤ Movement speed of the oceanic plate in the Cretaceous period is four or five times that of today.
⑥ Continuous, violent volcanic eruptions occur along the edge of Japan and the Asian continent.

- In the late Cretaceous period around 90-100 million years ago, violent volcanic eruptions occur on the eastern edge of the Asian continent and Japan, whose magma caused changes to rocks underground.
- When limestone comes into contact with magma a chemical reaction occurs, resulting in the formation of metal deposits such as copper and silver.
- Organic material from the forests of the Mine Group undergoes metamorphosis through heat to become anthracite, a high-quality coal which gives off little smoke.
- In the Quaternary period - the most recent period in Earth's history - faults form, causing copper deposits and anthracite to appear on the Earth's surface.

Underneath Mine today

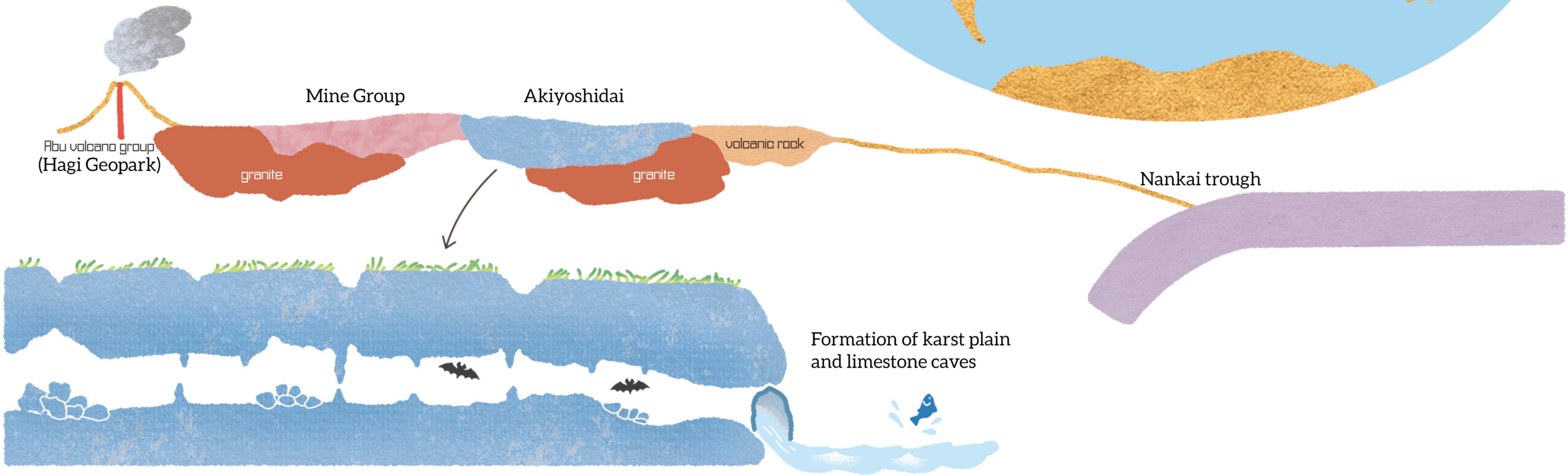


The present day

~ The result of millions of years of change ~

The Sea of Japan began to form around 20 million years ago, a process which took approximately 5 million years and defined the shape of the Japanese archipelago as we know it today.

After its formation the Japanese archipelago slowly rose up, by which process the layers of earth and rock covering the Akiyoshidai limestone were scraped away; after the limestone appeared on the Earth's surface, the karst plain and the limestone caves beneath it began to form. These changes in the Earth's surface continue today.



Mine GeoMap ~ Geological Map ~

Explore the sites of Miné-Akiyoshidai Geopark, searching for the memories of the Earth

Igneous rock
Rock formed approx. 100 million years ago by magmatic activity

Mine Group (conglomerate, sandstone, mudstone)
Area featuring coal (anthracite) seam

Akiyoshi belt (accretionary wedge):

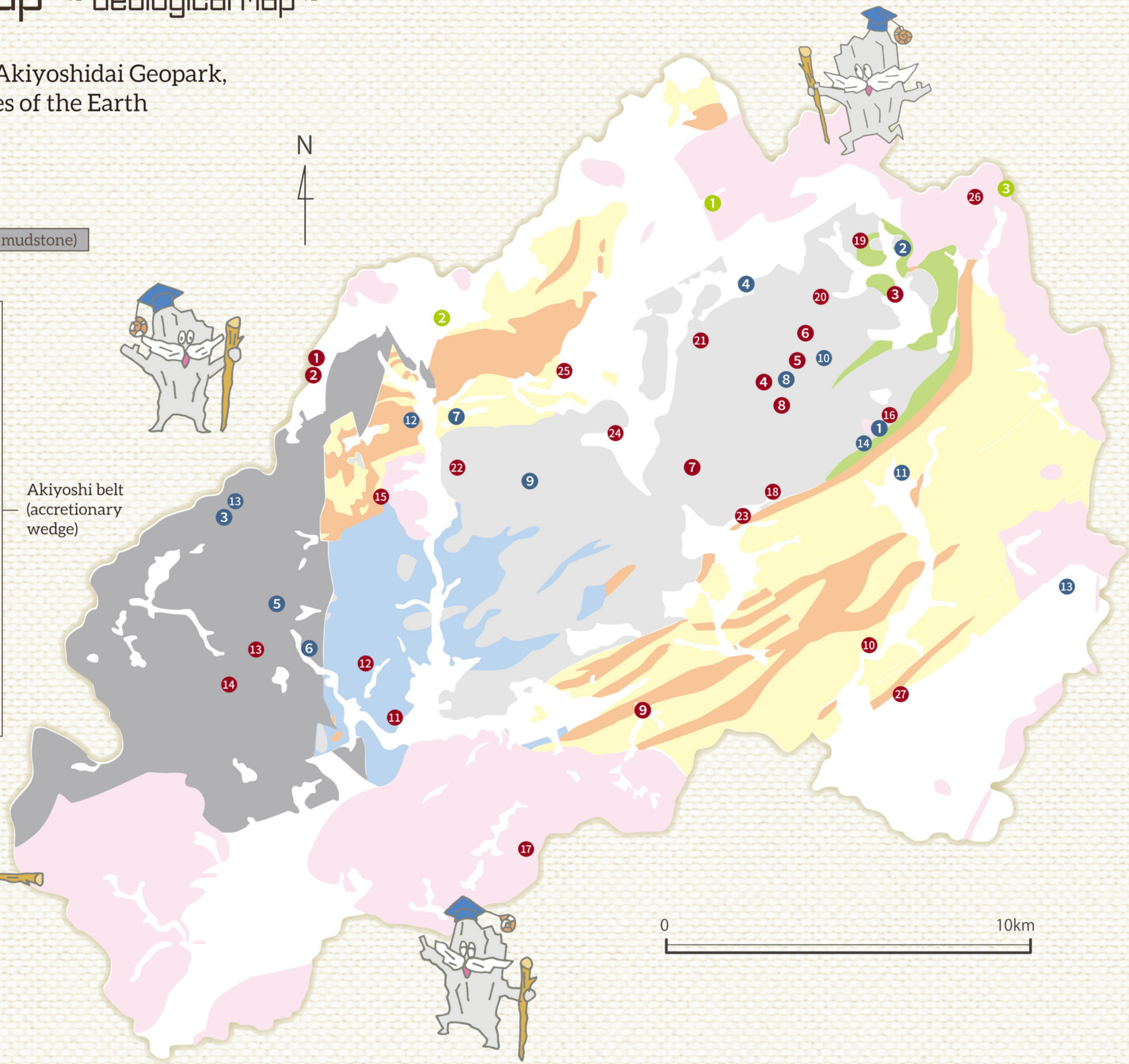
Tsunemori Formation (mudstone)
Rock formed from continental mud accumulating on the sea floor

Sandstone
Rock formed from continental sand accumulating in deep-sea depressions

Chert
Rock formed from bones and shells of radiolarians &c. on the sea floor

Limestone
Rock formed from the accumulated, hardened remains of coral

Basalt (greenschist)
Rock from seamount on which coral reef grew



Geosites

1. Hirano granitic gneiss (orthogneiss)
2. Hirano serpentinite
3. Miya-no-baba basalt
4. Mt Kanmuri
5. Mt Kita
6. Kaerimizu
7. Ryūgo Peak
8. Chōja Nishiki rock extraction area
9. Kamisobara chert
10. Ayagi sandstone
11. Shibukura limestone-block mudstone
12. Tsunemori gravelly mudstone
13. Momonoki former strip mine
14. Okubata fossiliferous siltstone
15. Ofuku granite
16. Naganobori skarn (strip mine)
17. The Great Stones of Magura
18. Akiyoshidō cave
19. Kagekiyo-ana hole
20. Taishōdō cave
21. Nakaodō cave
22. Ofukudō cave
23. Suijin pond
24. Shiramizu pond (spring)
25. Beppu Benten pond
26. Mitō Force
27. Saigatōge tectonic fault escarpment

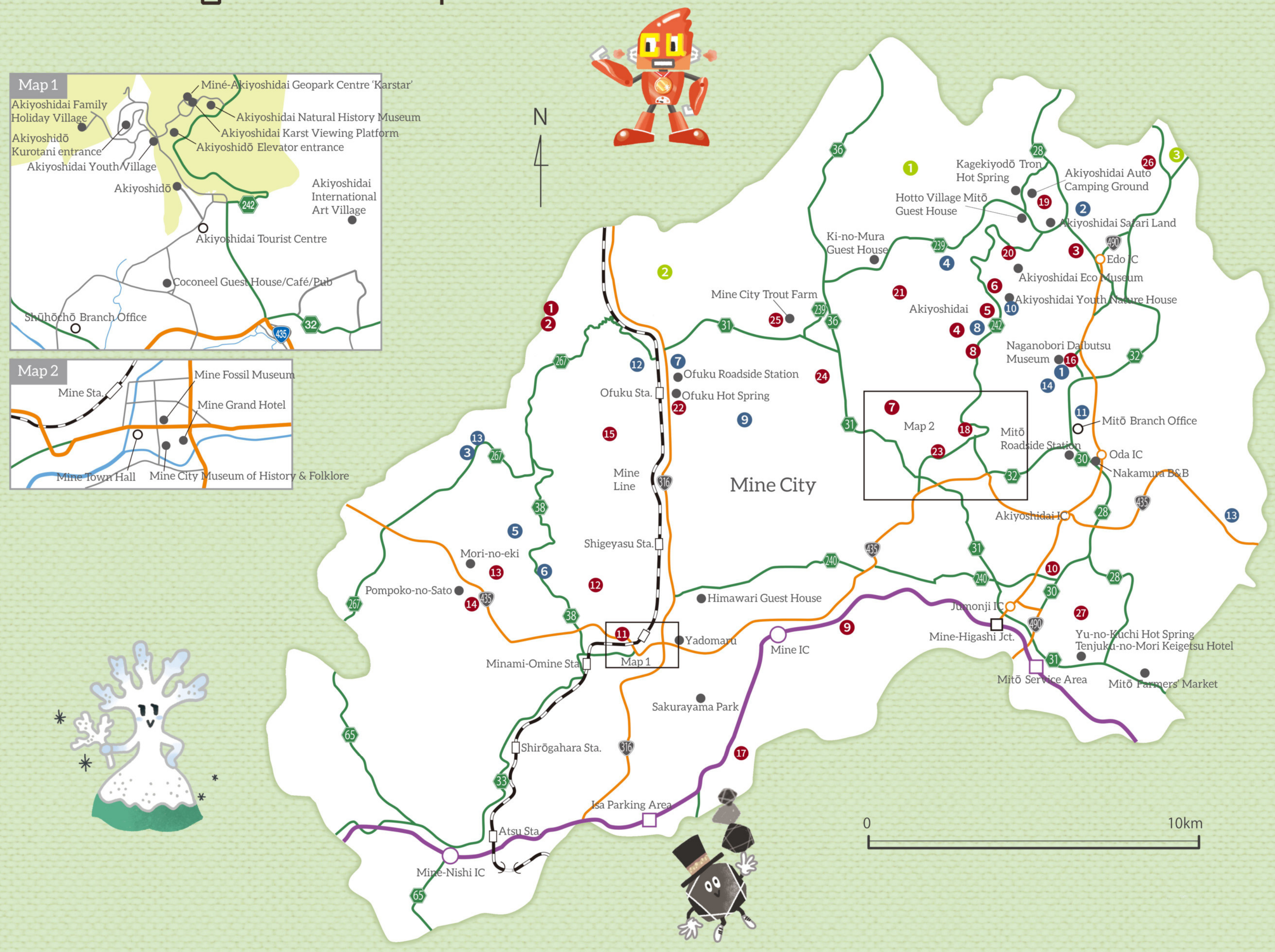
Cultural sites

1. Naganobori Copper Mine ruins
2. Suebara kilns
3. Mt Rakan stone Buddha carving
4. Aoyama silver mine ruins
5. Arakawa horizontal shaft
6. Miné inclined shaft
7. Ofuku lime kilns
8. Chōjagamori forest
9. Yowara uvala and hamlet
10. Kaerimizu doline fields
11. Kinreisha shrine
12. Suijin park
13. Ōishi terraced fields
14. Kuzuga'ana hole

Nature sites

1. Mt Katsuragi
2. Mt Hanao
3. Nitanda reservoir

Mine City Tourism Map



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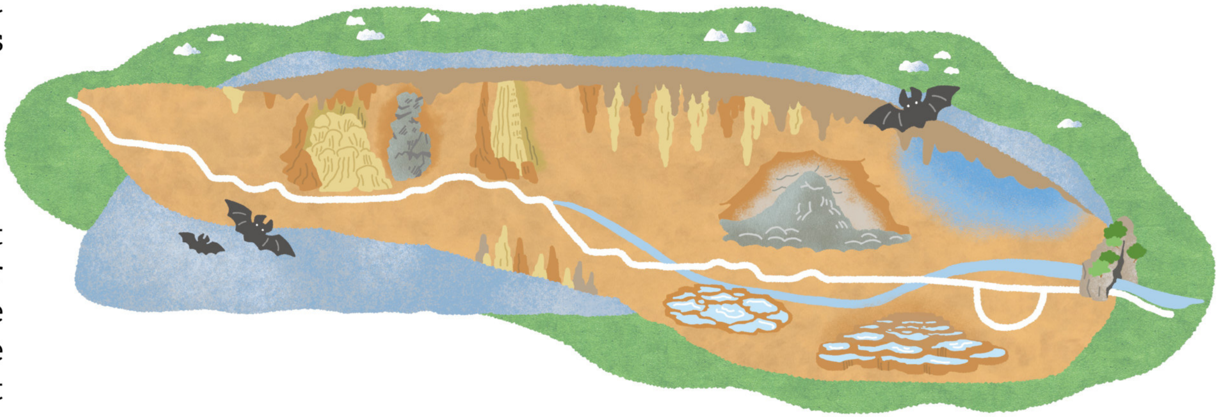
Naganobori copper and the Nara Daibutsu

The Daibutsu, or Great Buddha, of the Tōdaiji temple in Nara is a national treasure known as the 'dōzō Rushana-butsu zazō' or, literally, 'copper image of the sitting Vairocana Buddha'. Work on its construction began in 743AD, and the image was dedicated in 752. Chemical analysis has shown that copper from the Naganobori mine was used in the construction of the Daibutsu, and we may suppose that the name of Naganobori was well known in the capital at the time. Copper and iron ore are thought to have been brought to Japan, along with the cultivation of rice, from China and the Korean peninsula: analysis of copper shows that, until the 6th century, most copper came from those regions.

Around about the 8th century records of Japanese copper production begin to increase, and in the year 708 production of the 'Wadōkaichin', one of the first coins minted in Japan, begins. Cast-off copper has been unearthed from the remains of workshops at Asukaike in Nara prefecture, leading archaeologists to conclude that domestic copper production had already begun by the 7th century. Naganobori must surely have been at the very forefront of Japanese copper production in the period.

The formation of limestone caves

As water which has fallen on the ground sinks down through the soil, dissolved CO_2 in the water makes it acidic; when limestone underground is exposed to this acidic water, stalactite caves form. Most of the caves underneath Akiyoshidai today formed after the limestone had risen up towards the Earth's surface. As explained earlier in this booklet, the limestone of Akiyoshidai formed from a coral reef in the southern oceans, far from Japan. As the coral reef grows upwards the reef underneath slowly turns to hard limestone, meaning that caves can form even directly underneath living reefs. Evidence for this can be found in the beautiful limestone caves of the Ryūkyū limestone in Okinawa and the coral reefs of Minami Daitōjima. In other words, there would have been caves - long since disappeared - in the Akiyoshi limestone even when it was still a coral reef. After the coral reef had become limestone and risen up towards the Earth's surface, it began to be dissolved by acidic water and new caves formed. At the same time, the layers of earth and rock around the cave are eroded and the water within the cave begins to flow out. This plays an important role in the evolution of the cave: the cave grows at the fastest rate around the level of the groundwater table but, at the same time, flooded caves form beneath the water level and vertical shafts form above it. As the limestone rises up the relative water level changes, allowing the formation of caves at lower levels. Various different types of cave form depending on the their relation to the groundwater level: phreatic caves, which form below the water table, also known as flooded caves; epiphreatic caves, which form around the same level as the groundwater table and are partially filled with water; and vadose caves, which form above the water table. All these different types of cave still exist in Akiyoshidai. The caves that can be seen in Akiyoshidai today represent only a tiny fraction of the true number - there may be giant flooded caves lurking underground, yet to be discovered. Innumerable are the caves which have been created and destroyed ere now; more numerous still will be those born and destroyed in the interminable future, long after humanity, a brief spark between two immensities of darkness, has disappeared from the face of the universe.



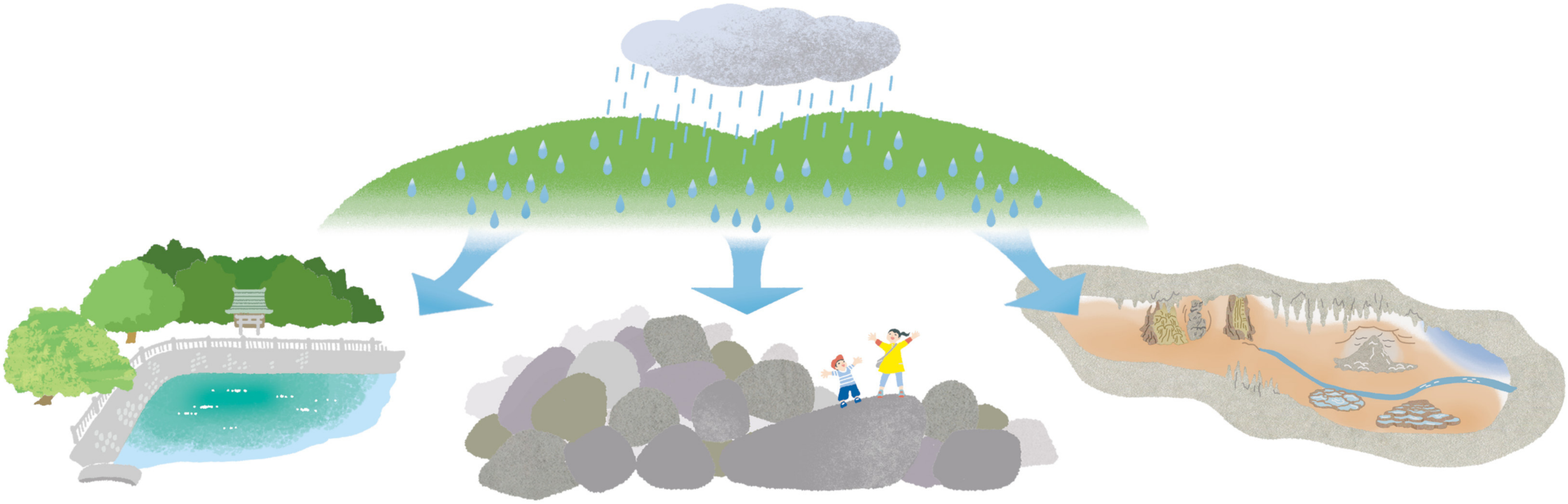
Grasslands

A large grassland plain stretches over Akiyoshidai. This is, in fact, a semi-natural plain maintained by an annual field-burning in February known as the Yamayaki. As well as burning the plain, other ways to maintain grasslands include cattle grazing and grass harvesting. On Akiyoshidai, however, there is no water on top of the plain, making grazing difficult. In addition, as tractors replaced cows and use of chemical fertilisers increased in the 20th century, grass harvesting also decreased dramatically. The harvesting of grass, however, also led to increases in plants unique to grasslands on Akiyoshidai and flowers favoured by butterflies. Not only, therefore, is the maintenance of the grasslands important for the protection of tourism resources, but it also allows us to protect the valuable biology of the grassland for the future.

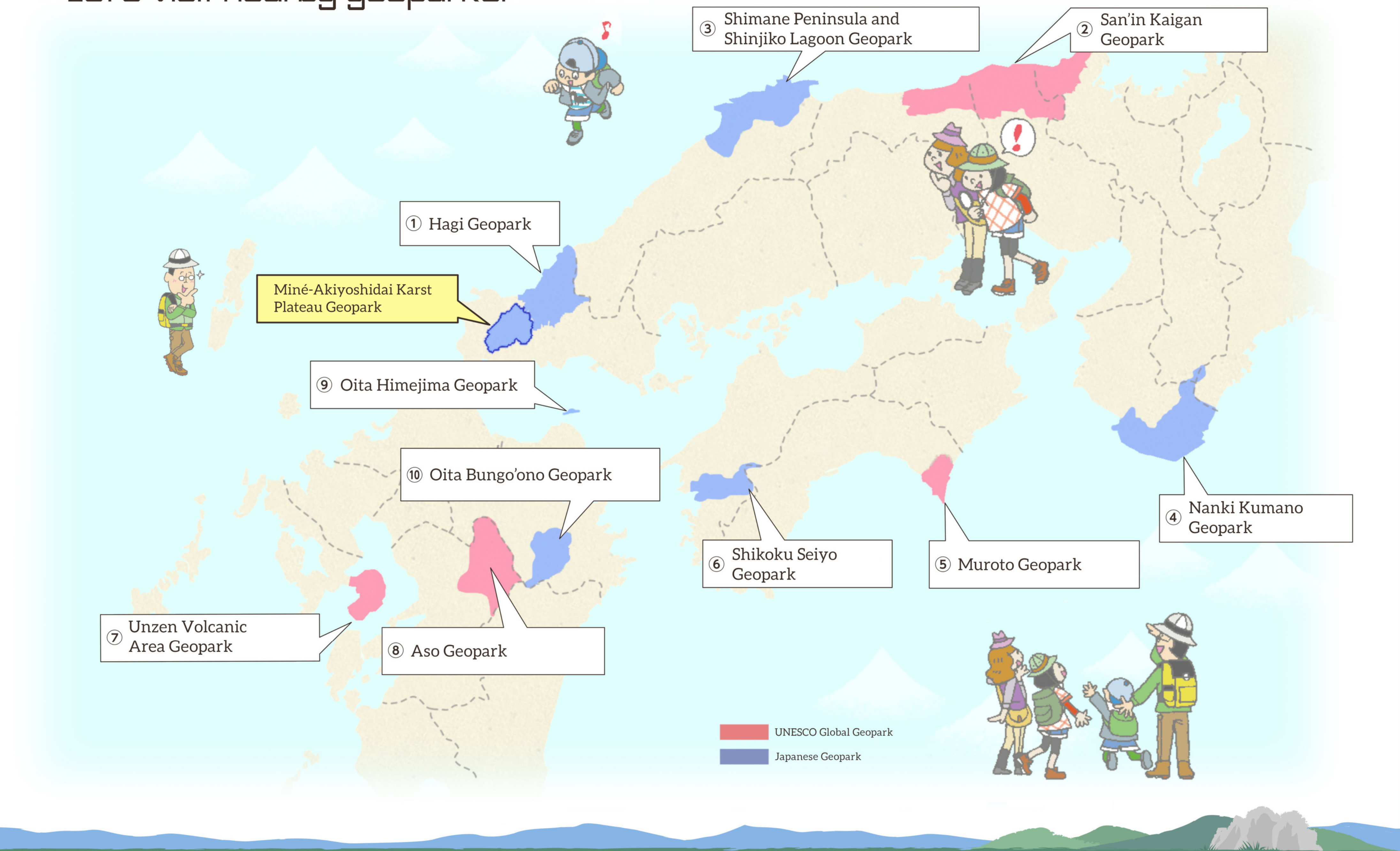
Underground geology

Various bits of Akiyoshidai's geological heritage - limestone, coal, copper - stand out, but the 'Geo' of Akiyoshidai is much more than just these. In addition to the limestone caves, Beppu Benten pond and the Great Stones of Magura are also 'geo'. What the three share is groundwater. The karst landscape and the stalactites of Akiyoshidō are brought into being by water and dissolved CO_2; in this sense, rain and CO_2 are also 'geo'. Eroded stone eventually becomes soil, giving us fields. In a broad sense, therefore, soil is also 'geo', and fruits and vegetables the fruits of 'geo'.

We are able to see the limestone and coal in Akiyoshidai because the layers of earth and rock which covered them have been weathered and eroded away. In other words, the processes of erosion and deposition as well as changes in the atmosphere, which have been occurring constantly since the beginning of the Earth and still are today, are all connected to 'geo'. Disasters such as floods and earthquakes can happen here without warning. The movements of the Earth ('geo') cause all the different types of weather which occur around us. Geo is, therefore, closely connected to our daily lives.



Let's visit nearby geoparks!



① Hagi Geopark

Hagi Geopark is the closest geopark to Mine Akiyoshidai, sharing a border to the north. On the second floor of the Hagi Meirin Gakusha can be found the geopark office and exhibition. The theme of Hagi geopark is 'three types of magma': magma from the late Cretaceous period around 100 million years ago, around the same time as the magma which created the copper deposits at Naganobori; magma formed when the Japanese archipelago split from the Asian mainland creating the Sea of Japan, around 150-200 million years ago; and magma erupted between 20 and 90 million years ago creating the Abu Group of monogenetic (formed from a single volcanic eruption) volcanoes. The late Cretaceous Period magma formed granite and rhyolite which, being eroded to form clay, become the basis of 'Hagiyaki' pottery. Magma erupted during the period of the formation of the Sea of Japan became the gabbro of Mt Kō; when it was erupted it heated up the layer of rock deposited directly before, creating the beautiful Susa hornfels. The Abu volcano group contains Yamaguchi Prefecture's only active volcanoes. All over the area can be seen volcanoes with unique, flat peaks. It is possible to enter the crater of Kasayama, the youngest volcano, and from the observation deck the volcanoes of the Rokushima islands can be seen in the distance. In the Handa and Zōmeki areas can be found limestone from the same period as that of Akiyoshidai as well as limestone caves.

② San'in Kaigan Geopark (UNESCO Global Geopark)

Main features are sedimentary rock and volcanic rock formed at the same time as the sea of Japan. The Genbudō cave, formed from Quaternary-period volcanic rock, is famous as the place where the reversal of the Earth's magnetic field was first observed by Motonori Matsuyama, later the first head of Yamaguchi University. In 2020 a new geological period, the Chibanian, was recognised based on this reversal of geomagnetic polarities. The beautiful wind patterns on the sand of the Tottori sand dunes, whose sands were once granite, are also worth seeing.

③ Shimane Peninsula and Shinjiko Lagoon Geopark

Volcanic and pyroclastic rocks which were erupted many tens of millions of years ago during the formation of the Sea of Japan can be seen on the Earth's surface. The 'hidden door of Kaga' is a sea cave made from pyroclastic rock. In the rhyolite surrounding Hinomisaki the tallest columnar joints in Japan are found. In the Shinjiko lagoon, fresh- and saltwater meet. Tasty clams can be eaten there.

④ Nanki Kumano Geopark

Formed from a Palaeogene-period accretionary wedge like Muroto Global Geopark. In the following Neogene Period, the Kumano acidic rocks were formed along with the subduction of the Philippine Sea Plate. This volcanic activity occurred in the special conditions created by the simultaneous formation of the Sea of Japan and the Shikoku Basin. Among the famous places in the area are the Kozagawa arc-shaped rock formations and the Hashiguiiwa rocks. The Nachi-no-taki is a waterfall with a height of 133 metres, which flows down the border between the Kumano acidic rocks and the neighbouring sedimentary rock.

⑤ Muroto Geopark (UNESCO Global Geopark)

Muroto geopark lies on an accretionary wedge from the Palaeo-Triassic Era, composed of sandstone and mudstone. Unlike the accretionary wedge of Miné-Akiyoshidai Geopark, Muroto's does not contain chert. This is because the accretionary wedge of Muroto is a relatively young wedge, located close to the trench. The wedge is formed by the subduction of the Philippine plate at the Nankai trough, and its formation continues today. The development of the stepped hills along the coast is particularly special, and they are a wondrous sight seen from above.

⑥ Shikoku Seiyo Geopark

This geopark, located in the western part of the island of Shikoku, shares similar geology with Miné-Akiyoshidai Geopark: the Shikoku karst is an exposure of limestone in the central part of the Shikoku mountain range, whose rocks are of the same age as those of Akiyoshidai. In addition to this, the Kurosegawa tectonic belt occurs in the geopark, composed of Palaeozoic-era igneous and metamorphic rock; some of the rocks in this zone share a common provenance with the orthogneiss at Hirano in Mine City. As well as these features, accretionary wedges from various different ages can be observed.

⑦ Unzen Volcanic Area Geopark (UNESCO Global Geopark)

Eruptions of Mount Unzen in the twentieth century claimed many lives. The magma of this volcano, which is rich in silicates, forms a highly viscous lava; after hardening at the top of the mountain this lava collapses, flowing down the mountain in a pyroclastic surge and causing great damage to the communities below. The volcano is also responsible for the many natural blessings of the area such as hot springs and beautiful scenery. The Mt Unzen Disaster Memorial Hall is a must-visit to understand the power of nature in Japan.

⑧ Aso Geopark (UNESCO Global Geopark)

A geopark centred around Mt Aso, a volcano boasting one of the world's largest calderas, formed by volcanic activity over many tens of thousands of years. Pyroclastic material from previous giant eruptions reached as far as Yamaguchi Prefecture: in Akiyoshidō, the remains of volcanic ash from one such eruption can still be seen. There are many natural sights to enjoy such as the soaring scenery, hot springs and waterfalls. The Aso shrine, the focus of religious belief in the area, was damaged in the Kumamoto earthquake of 2016.

⑨ Oita Himeshima Geopark

Himeshima is a small island about twenty minutes by ferry from the port of Imi on the Kunisaki peninsula, famous for its prawns. The modern island was formed by several smaller islands which emerged due to volcanic activity around 300,000 years ago and were connected by sandbars. The volcanoes here are formed from an unusual rock called adakite; this same adakite also makes up the Aono volcano in Tsuwano. These volcanoes were formed by the melting of the subducting Philippine plate. In beautiful Kannonzaki, obsidian can be found. This special obsidian is white in colour, rather than the usual black. The name Himeshima means 'Princess Island': the Hyōshimizu mineral spring is said to have a link to a princess. The bubbling, carbonated waters of the spring are used for both drinking and bathing.

⑩ Oita Bungo-ono Geopark

Pyroclastic deposits from the eruption of Mt Aso, known as welded tuff, are exposed all around in this geopark. These rocks have developed spectacular columnar joints. At the Harajiri and Chinda waterfalls, as well as the Taizako canyon, numerous stirring landscapes wrought by nature can be enjoyed. The welded tuff is an easy rock to work with, and several Buddha images can be seen carved in cliffs in the geopark. It is also possible to see the strata of the Ōnogawa Group which were deposited in the fore-arc basin, formed along the Median Tectonic Line.

Afterword

Geoparks began in the year 2000 with the foundation of the European Geoparks Network, followed by the Global Geopark Network in 2004. In Japan, the first meeting to discuss the foundation of a national Geopark Network was held in 2007, with the first 7 Japanese geoparks being certified in 2008 and the formal establishment of the Japanese Geopark Network the following year. The history of geoparks, therefore, extends back no more than twenty years; if one consider that geoparks became a UNESCO programme only five years ago, it is clear that the development of geoparks and their activities is still only in its very early stages. In the Japanese Geopark Network, many of us have been wondering about the state and the direction of the network. The network's youth, however, in fact presents an opportunity for us to determine how we grow the network: the future of geoparks lies with us. During the Meiji revolution, the samurai who would become the politicians of the new, post-revolution Japan travelled to the ends of the country to decide how they would remake the country; it now falls to us within the geopark network to do all we can to make the network as vibrant and forward-looking as we can. No precedent exists for the geopark we want to create: this is where the value of the network, the central feature of geoparks, makes itself known. It is in order to be part of this network, and to join friends in other places who are looking for answers to these same problems, that we are seeking membership of the UNESCO Global Geopark Network. In the modern world in which we live, it is necessary for us to join people from other regions, to work together and encourage one another to overcome our difficulties. Do the old and weak not die the same throughout the world? Are the problems we face, of ageing societies and dying communities, not related to those of poverty and hunger in Africa? The activities that we carry out in our geopark are not just for the revitalisation of our area: they are to help guide us as to how we ought to live in this world, how we ought to seek answers within ourselves and ought to work with international friends. Let us work to make tomorrow a better day than today for the people of the world.