350,000,000 years old

Exploring the 350 million years of history and memories of the earth and life.

That's Mine. It's Mine
Mine-Akiyoshidai
Karst Plateau Geopark
History of the earth and life is still alive in karst plateau.

From 350 million years ago, a drama of the earth and life began.

Let's start from here!

This building is very cool!

Wow, what a beautiful landscape. It's just amazing.

Karstar (Mine-Akiyoshidai Karst Plateau Geopark Center)
(MAP C-2)

Why are there many white stones and sinkholes or so-called dolines in the ground of Akiyoshidai?

Grassland is dotted with white stones.

Spreading in front of you is sinkholes in the ground.

Not only should you enjoy beautiful scenery, but you should further explore karst landscapes.

A lot of jagged white stones!

Lots of sinkholes! Did meteorites hit the ground?

Tip The earth moves.
Where did white stones come from?  
Eighty million years journey of coral reefs

These white stones are officially known as “limestone”. Limestone was formed from sedimentary deposit that is made of corals lived in warm water and other organic residues. The limestone rocks of the Akiyoshidai plateau were initially created as corals built on “plates” that move across the surface of the earth. Over the course of about 80 million years, the plates gradually moved and later delivered them to the edge of a continent. Limestone carried by the plate was mixed with various sediments rocks and accreted onto the continental plate. The accreted sediments are called “accretionary prism” that consists of most of Japanese basement along with Akiyoshidai.

Limestone was formed about 250 million years ago.

The plate carried coral reefs.

Limestone melts!

Akiyoshidai is karst plateau formed on limestone which was eroded by rainwater and groundwater. The surface of karst is characterized by sharp stone columns or sinkholes, which are also called as dolines, while an enormous limestone cavern is formed underneath.

Environment has been protected by people

For many years Akiyoshidai has been the place where people cut grass or plowed their fields. The grassland landscape we see today has not changed for hundreds of years thanks to mowing and burning. From Bakumatsu period (1853-1868) to Show period (1926-89), the area was used for the military exercises. There was plan to turn the area into the bombing exercise field during the postwar period, however, as local residents and researchers strongly appealed to value of Akiyoshidai, the plan was finally withdrawn.

If you want to learn more, please visit here!

Akiyoshidai Museum of Natural History (MAP C-2)
The illustration allows visitors to easily understand the history of Akiyoshidai. Many fossils are also being displayed. Let’s get Akiyoshidai’s basic information here!
Choose favorite course among three and enjoy tour!

For those who are interested in melting land.


Mission
What type of topography does melted land shape?

1. Akiyoshidai Eco Museum (MAP C-1)
Lots of experience corners in the museum enable you to fully utilize your five senses! Cylinder-style exhibition is a must-see! You can immediately learn about the Akiyoshidai's underground structure.

Check it out!
Visit three caves and enjoy differences among them!

Northern part of Akiyoshidai

2. Kagekiyo Cave (Uppermost stream) (MAP D-1)
As river water is flowing into the cave, you can see how the water dissolved and changed landscape of limestone formations.

3. Taisho Cave (Upper stream) (MAP C-1)
The structure of this cave is very complex and limestones retain same shapes as when they were created by the water erosion. The elevation difference between the highest and lowest points is more than 100 meters.

Southern part of Akiyoshidai

4. Akiyoshi Cave (Downstream) (MAP C-2)
The most spacious limestone cave in Japan. After passing through limestone for several kilometers, the water contains abundant calcium carbonate that created many stalactites that can be seen in the cave.

Is there any difference between groundwater upstream and downstream in terms of features of each cave?
For those who are interested in the links between melting land and people.

1. Doline Farming → 2. Yowara Uvala and Hamlet → 3. Beppu Benten Pond

**Mission**
How do people utilize melted land?

**Check it out! Circle Fields**

1. Doline Farming (MAP C-2)

The doline farming area in which floors of dolines are used for cultivation. In the Edo period (1603-1867) people already used dolines as farmland because surface streams drained easily from the basin while relatively flat bottoms were conducive to agriculture.

**Check it out! Where does rainwater go?**

2. Yowara Uvala and Hamlet (MAP B-2)

This village has developed within the uvala, the enclosed depression formed by the fusion of several dolines. This place is far from other villages, houses are concentrated at the bottom. Without a river, a stream of rainwater sinks underground through a deep, vertical hole known as a ponor.

**3. Beppu Benten Pond (MAP C-2)**

It is a spring pond where water is constantly gushing out. The pond is about 40 meters around and 4 meters deep. Since early times, water has been used in households and agriculture. It is also selected as one of the best 100 natural water sources in Japan by Ministry of Environment.

**Column**

Water in Akiyoshidai

The limestone is easily dissolved by rainwater or groundwater that contain carbon dioxide (CO2). Hardness of the water flowing this region is high as it contains abundant calcium ions. The bottom of the kettle or the pan which are often used for boiling this water turned completely white. A white substance left behind is calcium carbonate generated from reaction of calcium ions and this phenomenon is one of the unique characteristics of this region.

Pan is totally white!
The land of Akiyoshidai was carried by the plates. For those who are intrigued by timeline of the earth.

1. Naganobori Copper Mine Ruins → 2. Arakawa Mine Gallery Ruins

What is Mine-Akiyoshidai Karst Plateau Geopark like?

Check it out!

The formation of copper dates back about 100 million years ago!

Magmatic activity about 100 million years ago was very active caused by the plate subduction and had two major effects on limestone. One is partial conversion of the limestone into marble and the other is copper and silver that were made by reaction between thermal water heated by magma with limestone. Against this historical background, many mine ruins are remained in this area among which the most famous is "Naganobori Copper Mine Ruins".

1. Naganobori Copper Mine Ruins

This is the Japan's oldest state-owned copper mine where copper was extracted intermittently until around Showa 30' (1950s) from Nara period (710-794). Copper extracted from this mines was used for making Nara Daibutsu.

About 250 million years ago when limestones and other rocks were accreted to the continental plate, "mass extinction" was happened. About 90 percent of all species are believed to have died off during this time. Ten million years later, large forests spreading across landmass of the earth. These ancient plant materials formed the coals of Ohmine Coalfield. Although this type of high quality coal called anthracite, is rarely found in Japan, they are available in this coalfield. It is due to the fact that magmatic activity which happened about 100 million years ago accelerated the carbonization of coal and covered them into anthracite.

Check it out!

Coal formed about 200 million years ago!

2. Arakawa Mine Gallery Ruins

The entry/exit point of the digging tunnel built to extract smokeless coal from underground. The Navy Ministry developed this coal mine method in 1904.
Mito-Gobo (Burdocks)
Mito-Gobo features a soft flesh and fine texture. It is believed that the secret of this characteristic lies in hard and clayey soil which is said to have been formed by the weathered limestone and gobo only gradually grown in this soils have this unique texture. As the ground is so hard, harvesting work requires the use of heavy machines and the process is painstaking and time-consuming.

Ofuku Roadside Station (MAP B-2)
4383-1 Kami, Ofuku-cho, Mine City
TEL: +81-(0) 837-56-5005

Shuho-Nashi (Japanese Pears)
Twentieth Century Pears which have feature of a well-balanced sweetness and sourness along with fresh and crisp textures. At the foot of Akiyoshidai, where vast limestone ground is spreading, pears are produced by using well-drained fertile soil and day-night temperature difference.