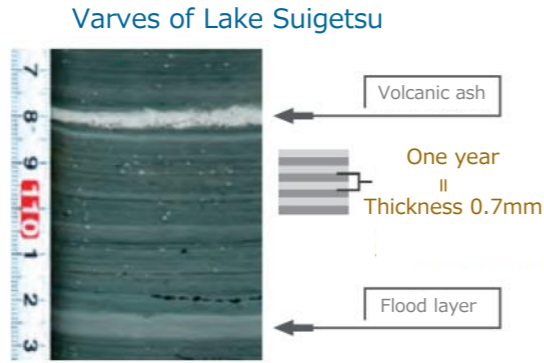


# Welcome to the Varve Museum!

Varves are annual layers of sediments or sedimentary rocks which show a beautiful striped pattern.

A striped pattern is formed by depositing different materials in each season.

A darker layer and a bright layer are alternatively piled up to form striped pattern.



## Two values of Lake Suigetsu varves

### Global standard of geological time scale

The Suigetsu varves have improved the accuracy of the radiocarbon dating method used for dating of archaeological remains. The data have been used around the world.

### Time machine for environmental change

Pollen, volcanic ash etc. included in the sediment reveal vegetation and climatic changes and volcanic activities in the past.

Pollen of Japanese hemlock found in Lake Suigetsu varves.



## 70,000 Year Gallery of the Suigetsu Varves

45 m long Lake Suigetsu varves are exhibited as a form of stained-glasses. We go back from the present to the past up to 70,000 years ago.



Beautiful video introducing what varves are and what can be learned from Lake Suigetsu.



Our ancestors left Africa and started to spread throughout the world since 70,000 years ago. The exhibition introduces the history of humanity and the environment using the Lake Suigetsu varves as historical references.



Varves from around the world are collected. Collections include varves from Cretaceous period, the age of dinosaurs.



The landscape and climate from 70,000 years ago to the present were reconstructed by pollen from varves.



This section introduces the mechanism of climate change and progressing global warming. We think about how to deal with climate change.



The mechanism to form the world's longest varves is introduced. The images of the lake bed are also exhibited in this section.



The display introduces the radiocarbon dating and the history of Lake Suigetsu studies to make it as the global standard.



This section shows the history and meanings of making standards for measuring exhibiting several kinds of the standard scales.



Take a look at the only research lab specialised to the palaeoclimatological studies in Japan.



Ramsar Convention: an intergovernmental treaty for the conservation and wise use of wetlands and their resources. Five Lakes of Mikata was registered in 2005.

## Cafe Shima



Delicious foods using local ingredients are provided together with a beautiful view of Hasu River and Lake Mikata from a hill top.

One of the menu  
- Varve sandwich

The wide straw at the centre penetrates all layers. When you take it out, you will see the section of layers.

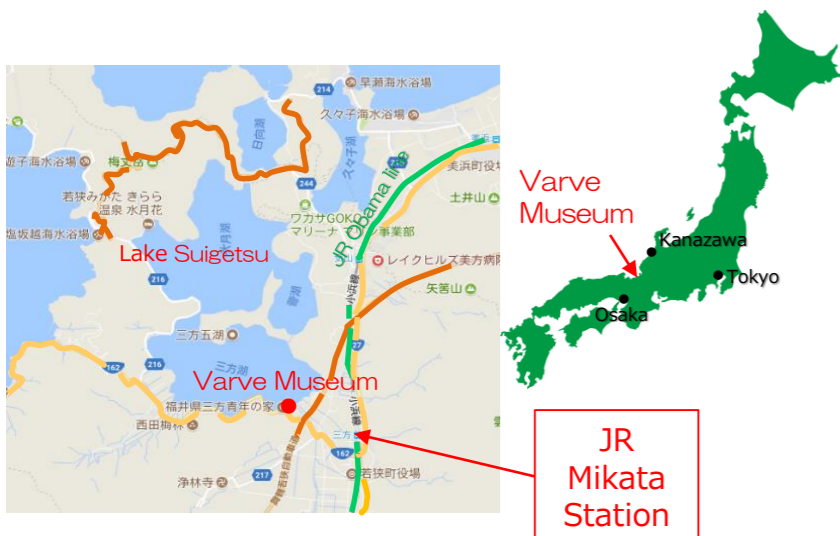
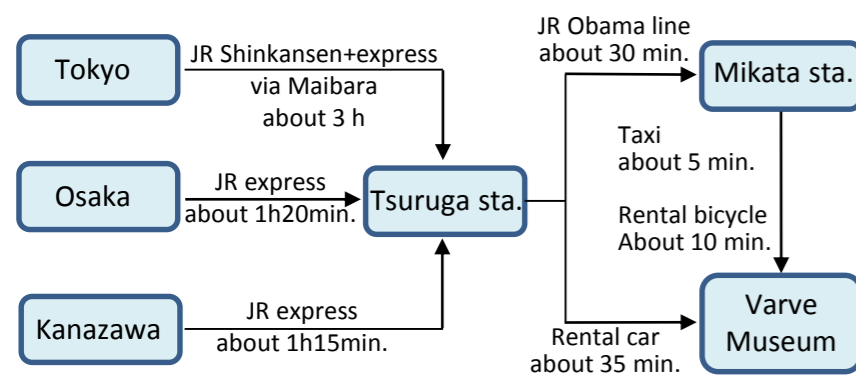
## Wakasa Mikata Jomon Museum

Torihama shell mound in the upstream of Lake Mikata is a time capsule from Jomon Period (ca. 16,000 – 2500 years ago).

Many well-preserved artefacts were found. The museum explains the lives of Jomon People.



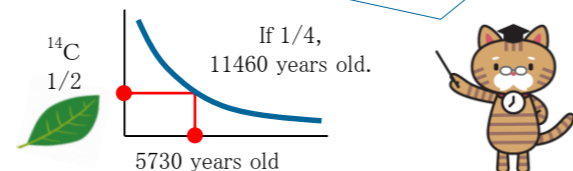
## How to get to Varve museum



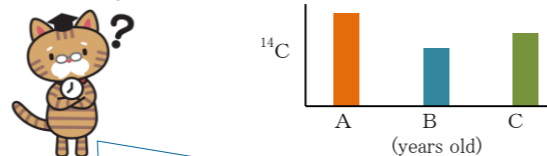
Why is the varves of Lake Suigetsu the world standard?

Tell me, Dr. Nyanko.

The amount of  $^{14}\text{C}$  in living organisms starts to decrease after the death and becomes half in 5730 years (half-life of  $^{14}\text{C}$ ). We can detect how old excavated relics are by measuring the amount of  $^{14}\text{C}$ .

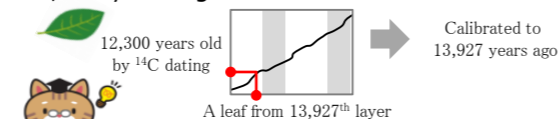


However, the amount of  $^{14}\text{C}$  is different depending on the period.



So, the amount of  $^{14}\text{C}$  from different period will not be the same even the same period has past. We cannot know accurate dates.

A leaf from 13,927th layer of varved sediment from Lake Suigetsu indicates 12,300 years ago by radiocarbon dating. But the real date is 13,927 years ago.



We can calibrate using the data of Lake Suigetsu.

So, when the relics in other site shows 12,300 years ago by radiocarbon dating, the real date is 13,927 years ago.

The data sets from Lake Suigetsu have been incorporated in IntCal 13 which is the world standard  $^{14}\text{C}$  calibration curve. The data sets improved the accuracy of radiocarbon dating. Therefore, it is "Global Standard of Geological Time Scale".

It took 6 years to counting the 70,000 layers and measuring  $^{14}\text{C}$  of almost 1000 leaves.

**Location** 122-12-1 Torihama, Wakasa-cho, Mikatakaminaka-gun, Fukui Prefecture 919-1331, JAPAN inside Jomon Roman Park (adjacent to Wakasa Mikata Jomon Museum)

**Opening hours** 9:00~17:00 (Entrance gate closes at 16:30.)

**Closed days** every Tuesday & Year-end and New Year holidays (12/29 to 1/2)

**Admission fee**

Adults: 500 yen / Students (aged 6 to 18): 200 yen

※ Combo ticket covering Wakasa Mikata Jomon Museum is 30 percent off.

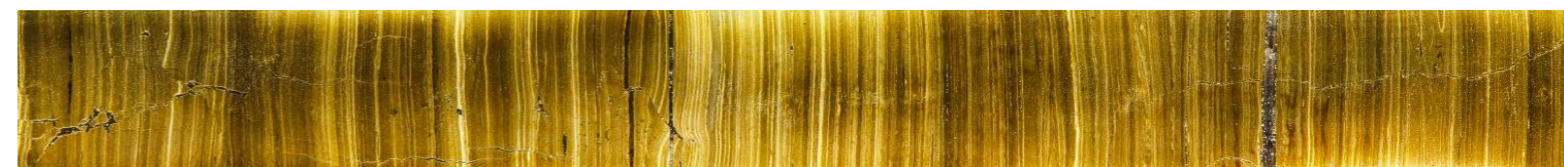
※ A group over 20 people is 20 percent off.

**TEL** +81-770-45-0456

**URL** <http://varve-museum.pref.fukui.lg.jp/>



年縞ねんこう博物館  
VARVE MUSEUM



World of Lake Suigetsu varves  
Let's go to see 45m, 70,000 year stripes of sediment.

Fukui Prefecture