

## Some boundaries in the Itoigawa Global Geopark, Central Japan

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### **The feature of Itoigawa global geopark**

The Itoigawa Global Geopark (IGGP) located in most western park of Niigata Prefecture is one of the first global Geopark authorized by GGN in 2009.

The feature of IGGP is rich in diversity.

Even if compared not only with domestic but with a foreign geopark as a feature of the Itoigawa global geopark (IGGP) located in western Niigata which is one of the first global geopark authorization places in Japan, it is mentioned that it is rich in diversity.

It is as follows when the main thing is listed.

(1) Vertical drop: it has a 2766 m big vertical drop from the seashore in the Sea of Japan to Mt. Korenge-san of the Hida mountain range.

If Toyama bay submarine channel of the seabed off Itoigawa is included, a still more geographic vertical interval will become large.

(2) Geological boundary: it is roughly divided into two part by Itoigawa-Shizuoka Tectonic Line at the Hida outer edge belt of an east Fossa Magna area and Nishi.

(3) The difference of age of rocks: it has a difference as long as 500 million years to the Mt. Yake-yama volcano which started activity at Cenozoic era Quaternary (about 3000 years before) from jadeitite generated to the Paleozoic Cambrian period (about 500 million years before).

(4) Various geographical features: coastal plain, sea cliff, sand hill, hill, river terrace and lava flow geographical feature, lava dome and erosional feature (a landslide and large-scale collapse), an asymmetrical mountain ridge, twin ridges (line depression contour), curl, etc.

(5) Various rocks: various rocks such as a sedimentary rock, an igneous rock (plutonic rock, hypabyssal rock, and volcanic rock), and a metamorphic rock, are distributed.

(6) Various minerals: six species of new minerals and 13 species of minerals from new [ Japanese ] are discovered.

(7) Various fossils: new four genera and a new 26 species of fossils are described.

(8) Biodiversity: various creatures are distributed over an area with various altitude, geology, and geographical features.

### **Some boundaries in the IGGP**

Dialect, Food, Electric frequency, Electricity of a railroad, Classification of JR, Seasoning of instant noodles

### **boundary mechanism of production**

It is thought that the cause of the "boundary" of the dialect accepted in Itoigawa and its neighborhood or manners and customs has the large existence of steep geographical feature (the Hida mountain range, the cliff of Oyashirazu) and steep streams (Himekawa, Kurobe river) which restricts the traffic of a physiographic factor, i.e., a human being.

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