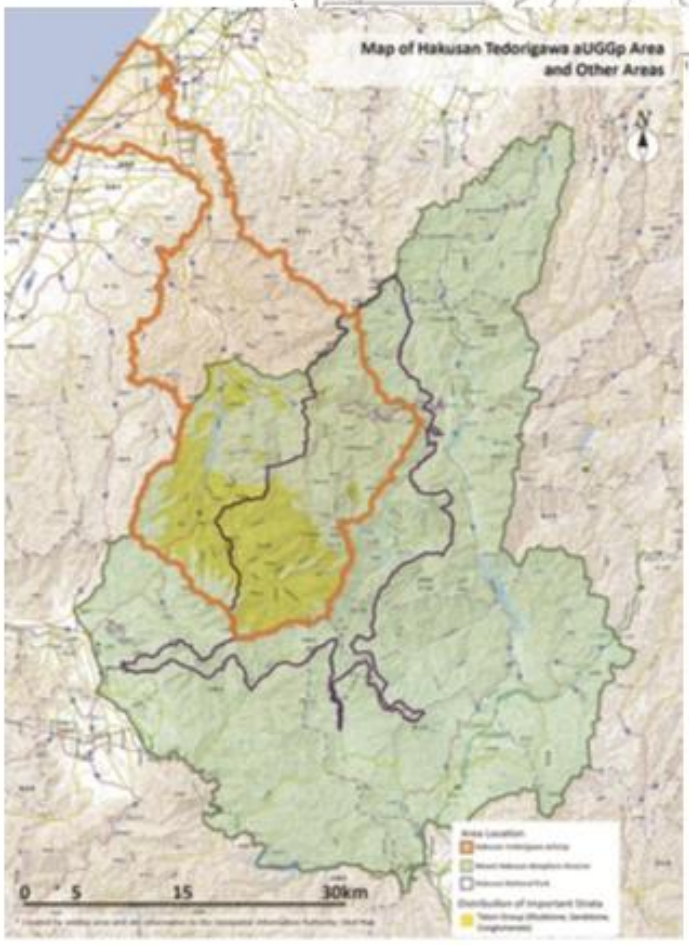
Organisation des Nations Unies pour l'education, la science et la culture

Géoparcs mondiaux UNESCO

Applicant UNESCO Global Geopark

Hakusan Tedorigawa, Japan

Geographical and geological summary



1. Physical and human geography

The aUGGp is located on the west coast of Japan, in Ishikawa Prefecture. It covers all of Hakusan City, with a total area of 754.93 km^2. It includes Mt. Hakusan (2,702m elevation), and the Tedori River basin flowing from Mt. Hakusan to the Sea of Japan. The plains by the sea have a relatively mild climate, averaging 13-14oC. Annual precipitation is 2,000 to 3,000mm – higher than the Japan average. The mountains have an average temperature about 2oC lower, and annual rainfall exceeds 4,000mm.

Mt. Hakusan is the highest peak, and the surrounding area is one of the world's high snowfall areas. Up to 10m of snowfall can be seen, with surrounding villages receiving about 2.5m on average. Much snow melts in spring, with almost all melted by autumn. The abundance of moving water has brought many blessings to the residents, and shaped the topography.

The Tedori River is one of the steepest in the world, with an average gradient of 1/27. This formed many erosive features such as V-shaped valleys and gorges in the upper to mid-river, and transports sediment downstream.

Mt. Hakusan's flora and fauna are considered some of the best in Japan, and are protected through the Mount Hakusan Biosphere Reserve, and the Hakusan National Park, etc. Mt. Hakusan is the western-most alpine area of Japan, and as such is the western most distribution of many alpine species. Furthermore, with the golden eagle at the top of the ecosystem, Mt. Hakusan is known to be inhabited by a high density of wildlife such as birds and mammals.

Since ancient times the ethnic group in this area has been Japanese, and no ethnic minorities exist. The population of Hakusan City in 2020 is 113,581. The population is skewed, with most inhabitants living in the plains. Population decline is high in the mountainous areas.

2. Geological Features and Geology of International Importance

Japan is mostly formed from the Hida Belt on the west coast (old continental crust) and increasingly young accretionary prisms on the east coast, and intruding granites. It is covered by relatively new volcanic and sedimentary rock. The Hakusan Tedorigawa aUGGp comprises mostly of Hida Belt rocks, with rocks related to the Sea of Japan rifting volcanism, Quaternary volcanics of Hakusan volcano, and Quaternary sediments. This situation makes it significant for understanding the development of the Japanese archipelago since 240 million years ago. These strata are visible in places where erosion by the Tedori River system has exposed them.

Hida metamorphic rocks in the upper reaches of the Tedori River are the oldest rocks in the area, and form the base. Above this is the Tetori Group, late Jurassic to early Cretaceous river-lacustrine strata consisting of conglomerate, sandstone, and mudstone. Research has been conducted here since the earliest days of geology in Japan. Many animal and plant fossils – including dinosaurs – have been found, and it is considered an internationally important strata for understanding biological evolution. Dense rhyolites consisting of mostly welded tuff are distributed above, which indicate the large-scale volcanism that occurred at the edge of the former continent. Moonstone rhyolite is distributed above, and was produced by magmatism in the earliest stage of the Sea of Japan formation. Above this is early Neogene green tuff associated with spreading of the Sea of Japan. Hakusan volcano which has unique magma composition, began its activity 300,000 to 400,000 years ago. An active, reverse fault is bordering the mountains to the east and flats to the west.