

Distribution of uplift rates of the last 100ky and tectonic boundary in Tokachi-Abashiri inland area, East Hokkaido

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INTRODUCTION

We have studied uplift along the Shokotsu River, Abashiri River and Toshibetu River that is a branch of the Tokachi River, located in the eastern part of Hokkaido, to evaluate the tectonic long-term stability of geological environment for the last 100ky in Hokkaido, Japan.

Many researchers think that the eastern Hokkaido is strongly affected by the oblique subduction of the Pacific Plate and a collision of Chishima.

METHOD

At first, we investigated distribution of marine/ river terrace through the use of aerial photographs. After that, we surveyed stratigraphy of terrace at the sites. The uplift for the last 100ky was estimated basically by the altitude of marine terrace formed in stage 5e in the coastal area (FS method). In the inland area, the uplift rate was estimated by the relative height between the two river terraces that had been formed in the same climate condition and different age, i.e. glacial age (stage 2-stage 6, TT method) and interglacial age (present-stage 5e, FS' method), proposed by Yoshiyama and Yanagida (1995).

RESULTS and DISCUSSION

(1) Shokotsu River area

FS values are 9-14m near the river mouth (Koike and Machida, 2001). TT values are 10-20m, and are slightly larger toward to the upstream.

(2) Abashiri River area

This river is located in the east of the Shokotsu River. We discovered MIS5e marine terrace deposits under the pyroclastic flow deposit deriving from Kussharo Caldera. FS(5e) values are different at the both side of the Abashiri-ko fault group. FS(5e) values in the west of the fault group are 17-33m, and those in the east of the fault group are over 73m.

(3) Toshibetu River area (branch of the Tokachi River)

A FS value of 33m is obtained near the river mouth by Koike and Machida (2001). In the downstream area, FS' values are 30-50m. Uplift in the midstream area is estimated to 50-65m by the TT method.

(4) Tectonic boundary

The downstream area of the Toshibetu River (Tokachi River) is located in the east of the Tokachi Plain east margin fault group. In the west of the fault group, Yoshiyama and Yanagida (1995) reported uplift of 0-25m. It shows that distribution of uplift around the Tokachi Plain east margin fault group is very similar to that around Abashiri-ko fault group. Furthermore, high uplift in the midstream area of the Toshibetsu River suggests that dislocation continue to the north of the Tokachi Plain east margin fault group.

Therefore, we concluded that there is a late Quaternary tectonic boundary which consists of 2 fault groups, although only the Nishitoman fault of 5km in length, reported by the Active fault Research Group (1991), is detected between 2 fault groups.

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