

# Ages of Pliocene widespread volcanic ashes and the neotectonics in the western Horonobe area, north Hokkaido

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Stratigraphy and geological structures in sedimentary basins since the Pliocene in the north Hokkaido have become clear mainly from bio-stratigraphies. However, a radiometric age has scarcely been measured. This study clarifies the Fission Track (FT) ages of widespread volcanic ashes and diatom bio-chronology, and also we consider the period of a structural deformation in the western part of the Omagari fault, which has the NS strike in the west-central part of the area. Main investigation targets in this study are the Koetoi, Yuchi, and Sarabetsu Formations.

FT ages of Widespread Volcanic Ashes and Diatom Bio-chronology: In the western Horonobe area, the FT age of a volcanic ash around the boundary of the Koetoi and Yuchi Formations is  $2.1 \pm 0.2$  Ma. This ash is situated the western side of the inferred surface trace of the Omagari fault. In the borehole (HDB-1) which is situated in about 150 m north from this place, the diatom zone of the Koetoi Formation under this ash is the *Neodenticula kamtschatica* zone (6.4-3.5/3.9 Ma). The diatom bio-chronology is consistent with the FT age.

On the other hand, the FT age of the ash, 51.3 m in depth, in the borehole (HDB-2) which is situated in about 7 km southeast from the HDB-1 is  $3.9 \pm 0.3$  Ma. The upper and lower diatom zones of the ash are the *Neodenticula kamtschatica* zone. The diatom bio-chronology is consistent with the FT age. This ash on the eastern side of the inferred surface trace of the Omagari fault is situated in the Koetoi Formation. The diatom zones and FT age of the Yuchi Formation in the eastern Horonobe-area (Sagayama, 2003) correspond to those of the Koetoi Formation in this study sites.

Judging from the above, the contemporaneous heterotopic facies in the Horonobe area showed by Oka and Igarashi (1997) are evident from the FT age of ash and the diatom bio-chronology.

Starting age of the Deformation around the Omagari Fault: The seismic reflection profile in the western part of the Omagari fault shows that the Koetoi, Yuchi, and Sarabetsu Formations have a southwest dip. It seems that the Koetoi and Lower Yuchi Formations have regular thickness, and that on the other hand the thickness of the upper Yuchi and Sarabetsu Formations increase toward the west. Thus the deformation around the Omagari fault began after about 2 Ma which is the age of the boundary of the Koetoi and Yuchi Formations in the area.

We will carry out the correlation of ashes, the analysis of microfossil, and the measurement of paleomagnetism in order to clarify the reliable geological chronology.