Detailed hinterland analysis using reworked fossil diatoms in the Horonobe area, northern Hokkaido, Japan

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The hinterland analysis using reworked fossil diatoms was attempted to estimate the uplift timing of the Soya hill around the Horonobe town, northern Hokkaido. In this study area, Neogene diatomaceous sediments are extensively distributed. They consist of the Miocene Masuporo and Wakkanai, the Miocene to Pliocene Koetoi, and the Pliocene to Pleistocene Yuchi and Sarabetsu Formations in ascending order, among which the Yuchi and Sarabetsu Formations contain numerous reworked fossil diatoms from underlying strata. The Yuchi Formation in the western part of the area includes numerous reworked ones from the Miocene strata, possibly the Masuporo and Wakkanai Formations, such as Actinocyclus ingens, Denticulopsis hustedtii, D. hyalina, D. lauta and etc. as well as some from the Pliocene, possibly the Koetoi Formation, represented mainly by Neodenticula kamtschatica. On the other hand, the Sarabetsu Formation in the western part of the area includes numerous N. kamtschatica as the reworked fossil diatom. The occurrences of reworked fossil diatoms obviously indicate that the sediments containing the reworked fossil diatoms as in autochthonous ones were subjected to erosion when the sediments with the reworked fossil diatoms were deposited.

Judging from the above, we suggest that the area of the erosion environment appeared around the western margin of eastern part of the Soya hill since late Pliocene time, and also around the central part of the hill since early Pleistocene time. This interpretation implies that uplift areas of the Soya hill have propagated toward the west since late Pliocene time.