

Tectonic significance of new Zircon U-Pb ages of sedimentary complexes in the northern Hidaka Belt, central Hokkaido, northern Japan

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The Hidaka belt in the central axis zone of Hokkaido has been one of the areas where geological research is most delayed in Japan, and their depositional ages and tectonic settings were not clear until now. It has been considered as late Cretaceous accretionary complex like the Shimanto belt in southwestern Japan. In this study, zircon particles are extracted from turbidite sandstone beds of eastern Rurochi Formation, central Kamiokoppe Formation and western Iwaonai Flysch and zircon U-Pb ages were measured by LA-ICP-MS method. As a result, age values of 52.4 ± 0.5 Ma from Rurochi Formation, 54.9 ± 0.3 Ma from Kamiokoppe Formation and 47.3 ± 0.5 Ma from Iwaonai Flysch were obtained respectively. Looking down the entire Hidaka belt including the age data of the southern part of the Hidaka belt reported by Nanayama et al. (2018), the following four points have been clarified.

(1) Clastic rocks (Hidaka Supergroup) distributed in the Hidaka belt are within the age of Paleocene ~ early Eocene.

(2) The Hidaka belt is distributed widely across the east-west width of more than 100 km. However, its internal structure and age differences are not clear, and it can not be explained by the accretionary growth model which becomes younger in the eastward.

(3) There is no significant age difference in the eruption age of the three bands of in situ basalts (N-MORB) recognized in the Hidaka belt (Miyashita et al., 1997), and if this is explained by the ridge subduction model, it can be explained only one event.

(4) The Hidaka Supergroup was a sedimentary body mainly composed of turbidite facies filled in the sea area between the Paleo-Japan arc and the Paleo-Kuril arc in Paleocene ~ early Eocene age. After 47 Ma, according to the joining of two arc-trench systems, significant deformation was occurred it. So, it is considered to be "collision complex".

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(References) Kiminami et al., 1986, Monog. Assoc. Geol. Collab., no. 31, 137-155. Miyashita et al., 1997, Mem. Geol. Soc., Japan, no. 47, 307-323. Nanayama et al., 1993, Palaeogeography, Palaeoclimatology, Palaeoecology, 105, 53-69. Nanayama et al., 2018, Island Arc, 27, e12233. Tajika, 1989, Chikyū monthly, 11, 323-327.

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