

# Mode of exhumation of the Kamuikotan high-P/T metamorphics recorded by unconformity of the Middle Yezo Group, Hokkaido, Japan

# Hayato Ueda[1]; Makoto Kawamura[2]; Akihiro Moriya[3]

[1] Div. Earth & Planetary Sci., Hokkaido Univ.; [2] Earth and Planetary Sci., Hokkaido Univ.; [3] Earth and Planetary Sci., Hokkaido Univ

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The middle Early Cretaceous Iwashimizu accretionary complex, which underwent blueschist facies metamorphism, is unconformably overlain by the late Early Cretaceous forearc basin deposits of the Middle Yezo Group in SW slope of the Hidaka Mountains. The relation suggests that the Iwashimizu Complex was exhumed and exposed on the surface during ca. 20 m.y. since its peak metamorphism. We present mode of exhumation of the Iwashimizu Complex by stratigraphy and clastic composition of the forearc basin deposits.

In typical sections of the central Hokkaido, the Lower Sorachi Ophiolite and the overlying Yezo forearc basin deposits (subdivided into Lower Yezo, Middle Yezo, Upper Yezo, and Hakobuchi Groups) comprise a nappe tectonically covering the Kamuikotan subduction complexes. However, the forearc basin nappe is significantly attenuated or more commonly lacking in the southern Kamuikotan Zone of the Hidaka Mountain area. The Yezo forearc basin deposits occur in a synclinorium, and are in contact with the Iwashimizu Complex in the west and middle Early Cretaceous accretionary complex of the Idonnappu zone in the east. In the western part of the synclinorium, the Middle Yezo Group unconformably overlies the Iwashimizu Complex or fault slices (klippen) of the Sorachi and Lower Yezo Groups which overlies the Iwashimizu Complex. Whereas coherent forearc succession from Sorachi through Lower Yezo to Middle Yezo Groups structurally overlies the Idonnappu accretionary complex in the eastern part. Around the boundary of the two parts above, melange zones occur between the Iwashimizu Complex and the Sorachi or Lower Yezo Groups. The melange occasionally grades into the Lower Yezo Group.

Conglomerate and sandstone rich in metabasite clasts are found as basal conglomerate or intercalations in upper horizons of the Middle Yezo Group. They are fluvial deposits, conglomerate rich in shell fragments (shallow marine?), graded beds (gravelly turbidite), and pebbly mudstone (slump or debris flow deposits). Ubiquitous occurrences of pebbly mudstone imply unstable sedimentary environments. These conglomerate and sandstone beds contain clasts of both the Iwashimizu Complex origin (high-pressure metamorphic alkaline metabasalt) and the Sorachi Group origin (unmetamorphosed tholeiitic metabasalt).

Geologic cross sections across the Yezo synclinorium suggest that the Iwashimizu Complex was exposed as a metamorphic core complex with extensional tectonics. The Sorachi to Lower Yezo forearc basin suite, which is complete in the east and significantly attenuated in the west, structurally overlies the subduction or accretionary complexes as nappes or klippen. Melange zones between the Iwashimizu Complex and the forearc suite fragments may have been major low-angle shear zones (detachment fault). This structure is completed until the timing of the unconformity.