

Geological and geochemical feature of the Hantaishir ophiolite complex, Western Mongolia

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The Upper Proterozoic Hantaishir ophiolite complex is located in the western part of Mongolia. This complex is 50 km long and 10-12 km wide, and its entire configuration is northwest to southeast trending. The Hantaishir ophiolite complex includes from bottom to top ultrabasic rocks, cumulate gabbros, sheeted dikes, pillow lavas and overlying siliceous sediments.

Ultrabasic rocks of this complex are lightly serpentinised. Sheeted dike complexes are composed of boninites and tholeiitic andesites. Pillow lavas have andesitic composition. The gabbroic cumulates, dikes and andesitic lavas have comparable light REE-depleted and flat patterns.

On the basis of the discriminant plots using immobile elements, gabbros and lavas from the Hantaishir complex are assigned an origin as island arc tholeiites. A range of petrological and geochemical parameters suggests that ultrabasic rock was generated in a supra subduction zone environment. A possible tectonic model for the ophiolite complex is a marginal basin behind an island arc.