

Petrology and thermal structure of the Paleozoic high-P/T metabasites in the Gorny Altai, southern Russia

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Paleozoic high-pressure intermediate type metabasites around Altai Mountains, southern Russia, have been metamorphosed under pumpellyite-actinolite, greenschist, epidote-amphibolite and quartz-eclogite facies conditions. Assemblages and chemical compositions of minerals in the metabasites systematically change with increasing metamorphic grades toward the central part of metamorphic sequence. Pressure/temperature ratios of estimated metamorphic conditions for metabasites increase with the metamorphic grades. Assuming this metamorphic field gradient as the thermal structure along a surface of subducting oceanic lithosphere, it can be obtained in the case that the young (<2 Ma) oceanic lithosphere subducts, based on two-dimensional thermal models of a steady-state subduction-zone.