

Granulite-grade gabbroic mylonites and crustal-scale decollement in a deep crust exposed in the Hidaka metamorphic belt, Japan

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Granulite-grade gabbroic mylonites are developed in a shear zone of intracrustal decollement and an extending ramp in the lower-crustal rocks of the northern Hidaka metamorphic belt. The zone is 100 to 800m in width and the intensity of shearing increases towards the basal detachment surface, indicated by overall grain size reduction and the decrease of volume percentages of pyroxene porphyroclasts. The gross microstructure, fabric pattern and mineral chemistry also change in accordance with the increase of shearing. Orthopyroxene porphyroclasts in the highestly strained zone are very well elongated as much as 1 to 40 in aspect ratios. The mylonites are derived mostly from two pyroxene gabbro and partly from olivine gabbro both of which are syn-tectonic intrusives, invaded by another one.