

Granodiorite magma as a heat source of granitic melt: partial melting of hornfels by contact metamorphism

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The Miocene Kofu granitoid complex (KGC) covering ~600 km² in the Kofu area of central Honshu, is exposed in a northern part of the Izu arc-collision zone. Tokuwa granodiorite, which is a member of KGC, intruded into Cretaceous to Paleogene sedimentary rocks (Kobotoke group) and resulted in contact metamorphism of the Kobotoke group. The meta-sedimentary country rocks (zeolite to greenschist facies) were metamorphosed to cordierite-biotite hornfels around the intrusive body. The cordierite-biotite hornfels in the vicinity of the intrusion (about 20m from the contact) exhibits patchy leucosomes (30-60cm in diameter) consisting of euhedral cordierite and chemically zoned plagioclase, suggesting that the patchy leucosomes were formed by partial melting of hornfels.