Magnetic Properties and Opaque Mineralogy of Serpentinized Peridotites from Iwanai-dake Ultramafic Rock Body, Hokkaido, Japan

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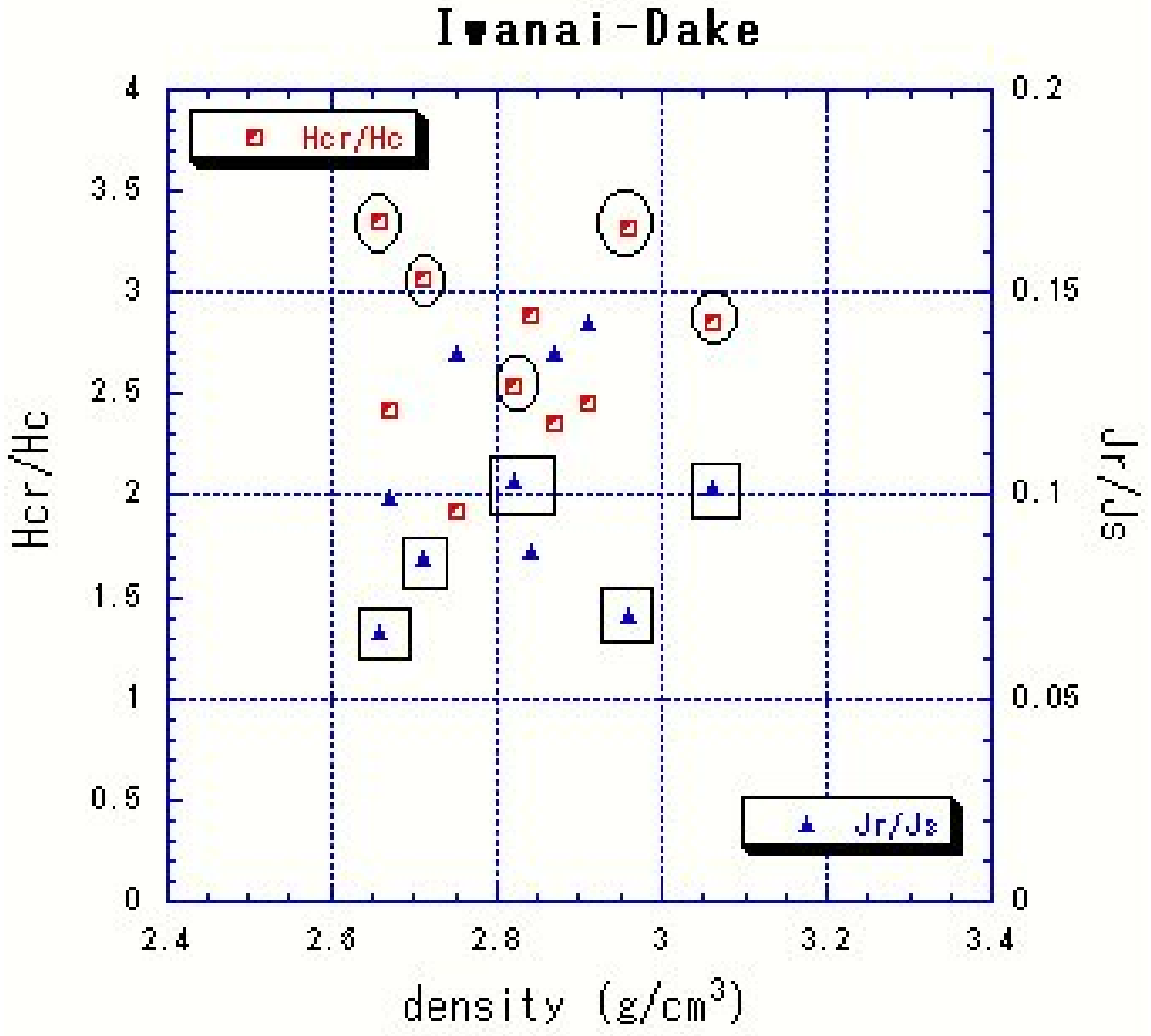
The magnetic properties and opaque mineralogy of serpentinized peridotites in Iwanai-dake ultramafic bodies in Hokkaido, Japan are studied. The rock body consists mainly of serpentinized peridotites that originated from depleted mantle (Fo: around 90). The center of the Iwanai-dake body consists of fresh dunite and harzbergite and their degree of serpentinization gradually increases towards the surface of the body. Three degrees of serpentinization classified as low, middle, and high are observed.

The degree of serpentinization in the Iwanai-dake seems to correlate with some parameters of magnetic properties, which are the following: (1) Serpentinization corresponded to the density and initial magnetic susceptibility. The intensities of NRM are scattered. (2) Curie temperature of these samples is also observed at 580 deg.C corresponding to pure magnetite. (3) Hysteresis parameters show that higher serpentinized samples contained larger grains. The ratio of remanent and induced saturation magnetization (Jrs/Js) correlated inversely with the degree of serpentinization. The ratio of remanent coercive force and coercive force (Hcr/Hc) correlated normally with the degree of serpentinization.


Iwanai-Dake
Hcr/Hc
Jr/Js
density (g/cm3)
4
3.5
3
2.5
2
1.5
1
0.5
0
0.2
0.15
0.1
0.05
0
2.4
2.6
2.8
3
3.2
3.4