

熊野酸性岩類, 古座川岩脈の古地磁気記録とその意味

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Implications of a paleomagnetic record from the Miocene Kozagawa Dike, Kumano Acidic Rocks, Kii Peninsula, Japan

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The granite porphyry facies in the Kozagawa Dike of the Kumano Acidic Rocks, a Middle Miocene volcano-plutonic complex in the Kii Peninsula of southwestern Japan, yields stable remanent magnetization components. Rock magnetic analyses suggest that fine-grained, probably single or pseudo-single domain magnetite is the main stable component carrier. Precisely determined site mean directions of characteristic components revealed by principal component analysis of stepwise alternation field and thermal demagnetization results form a tight cluster, providing an overall mean direction characterized by an approximately 40 clockwise shift of declination from the south and a steep negative inclination. Based on a statistical analysis of virtual geomagnetic poles, the overall mean direction is interpreted as a geologically instantaneous record of the paleomagnetic field, probably acquired within a relatively short time span compared to paleomagnetic secular variation. The Kozagawa mean direction is distinct from published data for laccolithic granite porphyry intrusions of the Kumano Acidic Rocks, possibly resulting from a time lag in acquisition of remanent magnetization. The southwesterly and up direction has previously been regarded as representing clockwise rotation of southwestern Japan associated with back-arc opening of the Japan Sea; however, we consider it to be a snapshot of an extraordinary paleomagnetic field such as a transitional or excursions state at about 14.3 Ma, not of tectonic origin.