

## 南アフリカ・フレデフォート・ドーム周辺の古地磁気強度に関する研究

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## Paleomagnetic paleointensity studies of 2.0 Ga Vredefort Granophyres, South Africa

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Granophyres are frictionally melt-products during frictional heating due to impact cratering on the Earth. Experimental frictional melting of magnetite-free granites produces dispersed submicron-sized inclusions of magnetite by the oxidation of Fe in melt-susceptible mafic minerals. This result shows that granophyres could acquire a stable thermal remanence in submicron magnetites during the rapid cooling from the melt. Therefore, we believe that granophyres hold great potential for paleointensity determinations of contemporaneous magnetic fields during impact cratering events. However, there are few attempts to determine the paleointensity from Vredefort granophyres. Here we present paleointensity results of post-impact granophyres from the Vredefort impact structure, South Africa. The Vredefort Granophyre, the impact melt rock of the Vredefort event, occurs in nine dykes, with accessible localities on Holfontein farm south of the Vredefort, Daskop farm and near the Donkervliet Centre. Nine dykes of Vredefort Granophyre, ranging from 4.5 to 9 km in length and from 20 to 65 m in width, are found in the core and inner collar of the dome (Therriault et al, 1996) The formation age on Vredefort Granophyre dates a 2002 Ma from U-Pb zircon age obtained by Walraven et al.(1990). The dyke at the Holfontein locality near Vredefort is estimated to have intruded gneisses at -700C, whereas the Donkervliet dyke intruded rocks that were at -500C. The Vredefort Granophyre displays a relatively uniform mineralogical composition comprising hypersthene, plagioclase, orthoclase, quartz, biotite, magnetite and ilmentite. The mineral and rock textures imply moderately to highly super-cooling of the melt (Therriault et al, 1996). Here we collected five granophyre samples from 4 km southwest of Wedela, and six granophyre samples from 8 km west-southwest of Wedela. In this presentation, we will report a preliminary result of paleomagnetic and paleointensity study of Vredefort Granophyres.