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Paleomagnetic dating of ferricretes in New Caledonia. Preliminary results.

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Although the description of the emplacement (Cluzel et al., 2001) and the weathering (Trescases, 1975; Latham, 1986; Chevillotte et al., 2006) of the New Caledonia peridotites is well documented in the literature, the knowledge and the age of formation of the landsurfaces formed upon the ultrabasic massifs are poorly documented. Several surfaces have been recognised along the island but no reliable ages could be attributed to the associated regolith. In fact, the overthrust of the Ophiolitic Nappe in the South is stratigraphically constrained by a younger autochthonous olistostrom dated by Late Priabonian pelagic foraminifera (Cluzel et al., 1998). The supergene weathering being still active, the beginning of the ferruginisation of the various plateaux is not well constrained and estimated to have occurred between 34 Ma and Actual.

The processes of absolute dating are not relevant to these weathering profiles (K-Mn oxides are poorly concentrated). Ferricretes and various ferruginous materials have the potential to record the ancient geomagnetic field providing means of age determination. In tropical soils, most of the primary remanence carrying minerals are dissolved during weathering and secondary magnetic minerals, such as goethite and haematite, are formed in situ acquiring a crystallisation (or chemical) remanent magnetization (CRM). The paleomagnetic pole recovered by demagnetizing the CRMs are plotted on the local apparent polar wandering (APWP) reference curve providing an age for the different parts of the paleoweathering profiles.

The data and interpretations we present here are based on paleomagnetic analysis of ferricretes of Goro and Tiebaghi. The preliminary results suggest, for the first time ever, well constrained ages between 20 and 25 Ma of major ferruginisation stages of the peridotites of New Caledonia.

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