Geophysical Research Abstracts, Vol. 7, 09189, 2005
SRef-ID: 1607-7962/gra/EGU05-A-09189

0.1 Extensive remagnetisation of the South American Palaeozoic Rocks

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Palaeomagnetic results from the Paganzo Basin (NW Argentina), the Subandean Zone of the Andes (Bolivia) and the Parnaíba Basin (NE Brazil) reveal widespread remagnetisation of the South American Palaeozoic rock units, mainly during the Permian and the Early Cretaceous times. Magnetic remanences from the Permo-Carboniferous sedimentary sequence of the Paganzo basin include an Early Permian syn-folding remanence (La Antigua Formation) carried by both magnetite and haematite, and a post-folding remanence (Malanzán Formation) carried by either magnetite or haematite. Rock units of the Parnaíba Basin were remagnetised during the Permian (Itaim, Tianguá and Ipú Formations), and Early Cretaceous (Pimenteiras, Piauí, and Pedra de Fogo Formations). Most of the magnetic overprints in the Parnaíba Basin are of chemical origin (chemical remanent magnetisation), and carried by secondary haematite formed during intense weathering. Whereas, local Early Cretaceous remagnetisation (Piauí Formation) observed in NE Brazil were acquired during the thermal event related to the Mesozoic magmatic intrusion (thermoremanent magnetisation) that occurred during continental break-up prior to the opening of the Atlantic Ocean. On the other hand, the Carboniferous-Early Permian remagnetisation in the Paganzo Basin seems to be related to the Late Palaeozoic orogeny.