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AMS-04 South American alkaline igneous complexes

Paleomagnetism of the Alto Paraguay Alkaline Province

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The Alto Paraguay Province consists of a series of ring complexes that parallel the Paraguay river (the border between Brazil and Paraguay) for more than 40 km along a narrow N-S band. Intrusive and subintrusive rocks are predominant, except for the Pão de Açúcar complex which corresponds to a volcanic field. The province is well dated by Ar/Ar method with preferable age of 241Ma. For the paleomagnetic work seven complexes were sampled, including two lava flows and some dykes. Remanent magnetization is mainly carried by high coercive magnetite.
Characteristic components of magnetization include both normal and reversed polarities, but also an abnormally large number of anomalous directions which can be related to a slow varying transitional (polarity reversal) field as already suggested for Permo-Triassic times. The calculated paleomagnetic pole along other Late-Permian to Early Triassic poles places South America in a position that favors the A-type reconstruction of Pangea. Magnetic anisotropy indicate subhorizontal foliated fabric for lava flows which may be related to original magma fluxes or to tilting. For the intrusive complexes the main susceptibility K1 axes delineate planes in approximately NW (northern area) and NE (southern area) directions, although most directions are vertical to subvertical.