

PALEOMAGNETIC INVESTIGATIONS IN LATE PROTEROZOIC ROCKS FROM THE RÍO DE LA PLATA CRATON: A PROGRESS REPORT

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The Late Proterozoic global paleogeographic evolution was determined by the break-up of Rodinia and the later assembly of Gondwana. In particular, the assembly of Western Gondwana was apparently a complex and long process that involved the diachronous collision of several independent crustal blocks. The lack of preserved ocean basins and hot spots and the highly diminished biogeographic evidence, turn paleomagnetic studies an essential tool to unravel the paleogeographic evolution in the Late Proterozoic. The Río de la Plata craton (or La Plata plate, LP) is very important in any kinematic reconstruction of continental dispersion after the break-up of Rodinia and during the assembly of Gondwana. In order to determine its paleogeographic evolution, systematic paleomagnetic studies have been started in different Late Proterozoic to Early Paleozoic rocks exposed in this region. From these studies we have obtained two paleomagnetic poles of ca. 550 Ma (from the Sierra de Animas, Uruguay; and Los Barrientos, Argentina) and one pole of ca. 520 Ma (Sierra de Animas, Uruguay), that define a long apparent polar wander path for LP for this interval and suggest that by 550 Ma most of Gondwana main cratonic blocks were close to each other or already assembled. Preliminary data from Playa Hermosa Fm., Uruguay (~600 Ma?) is consistent with a previously computed pole from the Campo Alegre lavas, Brasil (595 Ma), suggesting a long polar path of LP for the 600-520 Ma interval and a low latitude deposition for the Playa Hermosa sediments. If confirmed, the Playa Hermosa data may indicate another case of Neoproterozoic low latitude glaciation. A paleomagnetic study of the Arroyo del Soldado limestones (Vendian), Uruguay, indicated that these rocks are mostly remagnetized, probably in the Mesozoic. Paleomagnetic results from the ca. 550 Ma La Paz and Santa Teresa granites, Uruguay, showed that most samples lacked any paleomagnetic stability, and are therefore useless. Ongoing paleomagnetic study on the Neoproterozoic sedimentary Rocha Fm, Uruguay, is aimed at determining the tectonic relationships between the suspect Rocha terrane and the Río de la Plata and Kalahari cratons. This abstract is a contribution to IGCP 436 – Gondwana margin structure and development.