
A 2000-yr long absolute paleointensity record for South America: new data from NW Argentina

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Résumé

A good characterization of geomagnetic field strength changes in the Southern Hemisphere is crucial to disentangle the multi-centennial evolution of the South Atlantic Anomaly, one of the most important geomagnetic features observed on the Earth's surface nowadays. High-quality records of the absolute paleointensity of the geomagnetic field can only be retrieved from baked archaeological materials and volcanic rocks. However, and despite recent efforts, the number of absolute paleointensities from the Southern Hemisphere remains very low, data are concentrated in the last 1000 years and the majority of available results do not meet modern standard criteria of quality. As a consequence, a considerable grade of uncertainty surrounds geomagnetic field intensity reconstructions from the Southern Hemisphere. Here, we present 41 new high-quality absolute paleointensities obtained from the study of archaeological materials from central South America (Figure 1). The new dataset reveals relatively low and steady intensities during the first millennium AD, contrasting with several periods of fast (multi-decadal) intensity changes during the second millennia AD, including the dramatic decay of field intensity observed since about two centuries and associated to the strengthening of the South Atlantic Anomaly in South America.

Mots-Clés: archeomagnetism, secular variation, paleointensity

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