

MILLENNIAL-SCALE QUASI-PERIODICITIES RECORDED AT PERMO-CARBONIFEROUS RHYTHMITES (PARANÁ BASIN, BRAZIL): ARE ‘BOND CYCLES’ A PERMANENT FEATURE THROUGHOUT THE PHANEROZOIC?

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Magnetostratigraphic data series (ChRM and bulk magnetic susceptibility) from two Late Paleozoic glacial rhythmite successions from the Itararé Subgroup (Paraná Basin, southern Brazil) were examined by means of spectral analysis for paleoclimate variations recorded by sedimentation. Astronomical calibration through orbital spectral peak ratios predicted for Permian times leads to recognition of variations with millennial-scale quasi-periodicities, reminiscent of abrupt climate changes during Late Quaternary times, and suggestive of Dansgaard-Oeschger and Heinrich events (Bond cycles) and the ~2.4-kyr solar cycle. This remarkable evidence could indicate a prevalence of these harmonic features in the atmosphere-ocean system that is not restricted to the Quaternary Period, and would help to advance discussions about forcing mechanisms that are a common source for large climatic changes throughout geological time.

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