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Magnetostratigraphic results from a sedimentary section at the Urumaco fossil sanctuary in western Venezuela

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One of the places with a larger and best preserved paleobiodiversity of Neogene fossils in South America is the Urumaco county in northwestern Venezuela. We report results of the first magnetostratigraphic study ever done in this region. Samples were taken from 33 sites through a 200 meters-thick column of shales and silts that correspond to the top of the Urumaco Formation. The SouthAmerican continental mammal ages: “Chasiquense” and “Huayqueriense” (late Miocene) are used as chronostratigraphic constraints for the magnetostratigraphic data. After tilt corrections we distinguish four polarity reversals that seem to be associated with subchrons C3Br2n, C3Br2r, C3Br1n, C3Br1r and C3Bn. Thus, sedimentation rate for this part of the Urumaco Formation would be about 400 m/Ma, 34% over the average sedimentation rate roughly calculated via biostratigraphic evidence for the whole Formation. Rock magnetic data (S-ratio, initial susceptibility, Curie and hysteresis curves) were used to monitor the primary nature of the characteristic remanences. Primary magnetite in small percentages seems to be the main NRM carrier. A pervasive paramagnetic contribution in most of the hysteresis curves for these samples could be due to clay content. This result contrasts with the diamagnetic contribution detected in similar samples from a distant location that was previously presumed to be part of the same upper Urumaco Formation.