Equatorial Pacific Paleointensity Stack EPAPIS-3Ma

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We have conducted a paleomagnetic study of six sediment cores taken from the equatorial Pacific, three from the West Caroline Basin and three from the Manihiki Plateau, in order to make a relative paleointensity stack during the Matuyama and late Gauss Chrons. The age of the bottom of the cores range from 1.2 to 3.0 Ma. The sediments show little downcore changes in the proxies of magnetic grain size and mineralogy, and are hence suitable for estimating relative paleointensity. The age of the cores is controlled by correlating variations in magnetic concentration (magnetic susceptibility and/or anhysteretic remanent magnetization (ARM)) to target oxygen-isotope curves. All cores from the Manihiki Plateau show an upward decrease of the natural remanent magnetization (NRM) intensity normalized by ARM and isothermal remanent magnetization (IRM) with a decrease in sedimentation rate. Such a trend was removed before being converted to relative paleointensity. This observation implies that a sedimentation-rate change can affect relative paleointensity estimation. Relative paleointensity records from the six cores coincide well with each other within uncertainty of age. We constructed a stacked curve between 0.8 and 3.0 Ma (the equatorial Pacific paleointensity stack EPAPIS-3Ma) after adjusting age; the number of cores stacked are three to four throughout the record. Quasi-periodic paleointensity lows occur in the EPAPIS-3Ma, and corresponding paleointensity lows can be found in previously published records with some shifts in age. At least, parts of the paleointensity minima seem to be accompanied by geomagnetic excursions. The asymmetric sawtooth pattern of paleointensity variations is not observed at the Matuyama-Gauss boundary and thereafter in our record. A spectral analysis shows that ˜100 kyr orbital eccentricity frequency may exist in paleointensity variations during the Matuyama and late Gauss Chrons.