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Very high resolution paleosecular variation record for the last ~ 1200 years from the Aral Sea

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Abstract

A record of geomagnetic paleosecular variation (PSV) spanning the last ~1200 years has been obtained from two lacustrine sediment cores from the north part of Aral Sea (Kazakhstan). Magnetic susceptibility and NRM intensity have been used for correlating between cores and reconstructing composite core data. The main swings and fine details of declination and inclination records correlate well between both cores. A very high sedimentation rate (up to 25 mm per year) due to recent tectonic activity of the region provides a very high resolution PSV record for the interval from 450 ± 100 years BP to 655 ± 65 years BP. The results which have been dated by eight AMS radiocarbon age determinations, suggest that a 200-400 years secular variation period with amplitudes in declination and inclination up to 10-15° existed regularly during the time interval 0-1200 BP. Amplitudes of the PSV record from Aral Sea are not reduced and smoothed by postdetrital magnetization processes. They adjoin to the historical data model and are considered to represent a reliable paleosecular variation record for the Aral Sea region for the last ~1200 years.