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Holocene palaeomagnetic data from Kälksjön, a varved lake sediment sequence in Sweden.

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Annually-resolved archives allow the determination of high-resolution, temporal, palaeomagnetic reconstructions, with a resolution generally higher than those derived from lavas and archaeological archives. Records such as these allow us to: test models of geomagnetic behaviour; correlate spatially separate sequences; and look at the effect of the Earth's magnetic field on cosmogenic nuclide production. Studies so far have detected sub-millennial changes in geomagnetic field strength and palaeomagnetic studies of annually-laminated (varved) lake sediments in Fennoscandia in particular, have proved remarkably successful.

Further work has been carried out on these highly resolved archives, which suggests that there are indeed centennial changes within the geomagnetic field; some of these changes can be attributed to dipole variation, while others indicate a change in the local field. We have carried out palaeomagnetic analyses on two 6.5 m cores containing four overlapping sequences from a varved lake in Sweden, Kälksjön. This sequence has some of the best magnetic data to be found in sediments from Scandinavia, with a stable, strong and reliable single component of natural remanent magnetisation. Its chronology was obtained from varve counting, and was validated using existing palaeosecular variation curves, lead pollution history and statistical correlation.