

Magnetostratigraphy: A Tool for Precise Correlation of Time Horizons

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The polarity of the earth's magnetic field can be determined from the orientation of magnetic minerals in fine-grained sedimentary rocks. Because the polarity reverses at irregular intervals, and the transition period is only a few thousand years, systematic magnetostratigraphic sampling can locate polarity-boundary global time "horizons" that have narrow constraints. Polarity zones are put in stratigraphic order with the use of fossils and radiometric dating to produce a Geomagnetic Polarity Time Scale (GPTS).

Example sections of Campanian, Maastrichtian and Paleocene age in Alberta show that polarity changes during this interval of time have been more frequent than are shown in present GPTSs. Hence, it is anticipated that detailed magnetostratigraphy of older rocks, e.g., the Mannville in the "Cretaceous Long Normal" would produce similar polarity subzones and allow the development of detailed intraformational correlations.