

Characterization of magnetic polarity boundaries

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Magnetic polarity stratigraphy is often used for dating various kinds of sediments. Magnetic polarity data can easily provide reliable chronostratigraphy to the cores of deep-sea and lake bottom sediments that have relatively uniform accumulation rates. To the contrary, it is often difficult by the magnetostratigraphic method to reliably date terrestrial sediments that span short times and have no absolute age control. However, if a magnetic polarity boundary has distinctive characters, we can confidently correlate it with the standard geomagnetic polarity time scale. We review detailed paleomagnetic and paleoclimatic data across polarity boundaries, and examine if they uniquely characterize a polarity boundary, with respect to the polarity boundaries for the last 2.6 Ma (the Gauss-Matuyama, upper and lower boundaries of the Reunion, Olduvai, Cobb Mountain, and Jaramillo Subchrons, and Matuyama-Brunhes). We also review the magnetostratigraphic investigations for anthropologically important *Homo erectus* fossils outside Africa, and discuss their reliabilities.

Keywords: geomagnetic polarity boundary, magnetostratigraphy, climatostratigraphy, hominid dispersion