

Geomagnetic coordinates and geomagnetic time

V. O. Papitashvili

Space Physics Research Laboratory, University of Michigan¹

A b s t r a c t: A brief review of existing geomagnetic coordinates and magnetic local time (MLT) definitions are given. It is noted that a strong influence of near-surface magnetic anomalies on configuration of geomagnetic field lines does not allow computing corrected geomagnetic (CGM) coordinates in the vicinity of the Earth's geomagnetic equator. Thus, the common definition of MLT, introduced by analogy with the "mean sun" local time, is applicable only for the dipole approximation of geomagnetic field. Another definition of MLT is suggested where the spherical angle between geographic and CGM meridians, which is open in the direction of geomagnetic pole, is taken into account. The applications of such definition for magnetospheric studies and transformation between the geographic and geomagnetic coordinates are also considered.

Key words: geomagnetic field, geomagnetic coordinates, geomagnetic time

¹2455 Hayward St., Ann Arbor, MI 48109-2143, U.S.A.
e-mail: papita@umich.edu