

Quiet time changes of the magnetic local time of the contributing station to the AL index

Nobuyuki Fujita [1], Toyohisa Kamei [2], Tohru Araki [3], Masahisa Sugiura [4]

[1] Department of Geophysics, Kyoto University, [2] WDC-C2 Geomag., Kyoto Univ., [3] Geophysics, Kyoto Univ., [4] Res. Inst. of Sci. & Tech., Tokai Univ.

We call the station which contributes to the AL index the "AL station", and its geomagnetic local time (MLT), the "AL geomagnetic local time" (ALMLT). The ALMLT distribution has a peak in the early morning near 3h MLT during disturbed periods and another peak at noon during quiet periods. While the former has been extensively analyzed, the peak at noon is not well understood. The cause of the peak at noon is thought to be Sq at middle latitudes. However, the field-aligned current systems over the polar cap at quiet times may be another cause of this peak. Plots for the AL station show that ALMLT shifts from noon to the morning hours preceding storms. Analyses of these events and their relations to the solar wind and interplanetary parameters are discussed.

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