

LT variation of amplitude of geomagnetic sudden commencement in low and middle latitudes.

Tohru Araki[1]

[1] NOTHING

The diurnal variation of the averaged amplitude of geomagnetic sudden commencements (SCs) observed at the geosynchronous orbit shows a clear diurnal variation with the maximum around noon and the minimum at midnight [Kokubun; 1983]. It is reasonable because SCs in low latitudes are produced by the magnetopause current which is dominant in the dayside. A statistical study of the SC amplitude at Kakioka (Geomag. lat. = 26.9 deg), however, revealed that the averaged amplitude is larger in night side than day side.

In our SC model, the main impulse of the SC is caused by a pair of field aligned currents (FACs) which flow into the morning side polar ionosphere and flow out from the afternoon side. This FAC can produce northward magnetic field on the night side ground. The substorm wedge current system which also flows into high latitude ionosphere in post-midnight and flows out from pre-midnight can produce northward magnetic field in night side ground.

In this paper we present results of further analyses on the diurnal variation of the SC amplitude and discuss possible mechanisms which can cause larger night time amplitude.