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A study of pc5 geomagnetic pulsations in the South Atlantic Region

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ULF geomagnetic pulsations in the period range 180 to 1000 seconds following sudden commencement impulses are examined for the stations situated at low latitudes and also in the South Atlantic magnetic anomaly - SAMA region in Brazil. We selected for this study for few large pulsation events following SC impulses during the period of September 2000 to December 2001. When a sudden increase of the solar wind dynamic pressure following an interplanetary shock compresses the Earth's magnetosphere, the magnetopause moves inward towards the Earth and intensifies the currents at the magnetopause. It is sensed by the ground magnetometers as a sudden increase of the geomagnetic field intensity. It is also known that electric fields are generated in the ionosphere as a result of the interaction of hydromagnetic waves of SC impulses with the ionosphere and these electric fields drive the ionospheric currents to which ground magnetometers respond during sudden impulses and sudden commencements. Power spectra and polarization characteristics of these pulsation events are presented and discussed in the light of the physical processes due to the Equatorial Ionization Anomaly - EIA and possible enhancement of electric fields in the SAMA region. In order to investigate the relationship of the pulsation events on the interplanetary shock parameters, plasma and IMF data from the satellite ACE are used.

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