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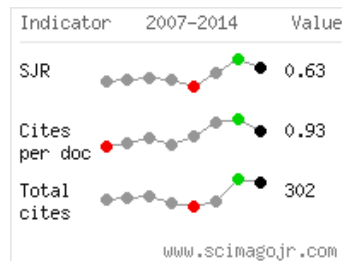
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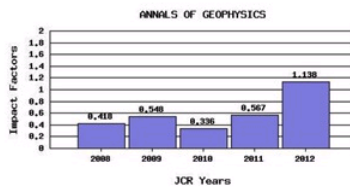
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Low frequency geomagnetic field fluctuations at cap and low latitude during October 29-31, 2003

S. Lepidi, L. Cafarella, L. Santarelli

Abstract

On October-November 2003 complex interplanetary structures, originated by a series of solar eruptions, hit the Earth, triggering violent Sun-Earth

connection events. In this paper we analyze the low frequency geomagnetic field fluctuations detected on the ground during Oct. 29-31, 2003, a time period characterized by extremely high solar wind speed values and by out-of-ecliptic interplanetary magnetic field orientation for intervals of several hours. We analyze geomagnetic field measurements at four high latitude stations located in the polar cap, three in the southern and one in the northern hemisphere. From a comparison with simultaneous measurements at low latitude, we address the question of the global character of the observed phenomena. The results show, for selected time intervals, the occurrence of simultaneous fluctuations at all the stations, with high coherence even between high and low latitude; it is interesting that these fluctuations are detected during open magnetospheric conditions, when the high latitude stations are situated well within the polar cap, i.e. far from closed field lines.

Keywords

magnetospheric ULF waves; sun-earth interaction; polar cap

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