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Study of Sudden Impulses and the Influence of the Magnetic Anomaly in South America

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Abstract

The solar wind interacts with the magnetic field through the Earth's magnetic reconnections, and consequently, the magnetosphere is configured. Thus, different plasmas and current systems could exist in such times. This behavior changes in the pattern of this recognition and magnetosphere parameters. A first response to solar plasma changes in the magnetic field is an increase of the H component of the field, called Sudden Impulse (SI) or Sudden Commencement (SC), that precedes a geomagnetic storm. Additionally, in the Brazilian sector, there is an important peculiarity concerning the Earth's magnetic field called the South American Magnetic Anomaly (SAMA). In this context, the present work analyzes the morphological characteristics of four SC events in stations inside and outside of the SAMA for the year 2021.