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Customization of Magnetic and Ionospheric Scales for Latin America

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Abstract

Several efforts have been made recently to develop new tools based on ionospheric indices and magnetic index to improve our knowledge of the space weather effects at the global and regional scales. In this regard, our research group has work for develop the DIX (Disturbance Ionospheric) Index and the Ksa (K for South America). The first is an ionospheric index derived from the Global Navigation Satellite System (GNSS) data and the second a local geomagnetic index developed to overcome the need for observatories in the South American sector providing data for binding the “planetary” Kp index. Concerning the ionospheric indices, we have primarily focused on studies about the detection (or detectability), and measurement of parameters related to EPBs (latitudinal extension and velocity) a low-latitude phenomena that is particularly present in the Brazilian sector. The regional magnetic index was also designed to obtain the regional geomagnetic peculiarities of the Brazilian sector such as the influence of the South America Magnetic Anomaly (SAMA). Thus, in the present work, we present and discuss results from studies recently published and under preparation related to the use of these indices.