

Methodology for Utilization of the AATR and DIX Indexes in South America Region for Space Weather Alerts

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Space Weather encompasses the conditions and processes occurring in space, which have the potential to affect the near-Earth environment and/or human beings or the current technological assets (Denardini et al., Adv. Space Res. 2016). In this context the Ionosphere plays an important role for the satellites based positioning systems as the American GPS. GPS signal does not travel along a perfectly straight line in the ionosphere owing to non-uniformity of the propagation medium whereas the free electrons affect the speed and displacement direction of propagation of these signals. Therefore, we present in this paper two ionospheric activity indicator for South American Region, the AATR which is defined based in the weighted Along Arc TEC Rate and the Disturbance Ionosphere Index (DIX). Both indexes describes the perturbation degree of the ionosphere as a proxy for space weather alerts purpose, providing a quickly assessment of signal propagation conditions through the ionosphere. Firstly, we will present the criteria for evaluating the AATR and DIX, we compared the temporal variation in the sunspots number, the solar flares, with the Kp, Ap and Dst indexes for the same periods.