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## **OVERVIEW OF THE RECENT STUDIES ON MAGNETIC STORMS AND EQUATORIAL PLASMA BUBBLES OVER AMERICAS BASED ON IONOSPHERIC INDICES**

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In order to improve our knowledge on the effects of Magnetic Storm and Equatorial Plasma Bubbles (EPB) over the ionosphere at equatorial and low latitude regions in the American sector, several efforts have been made recently to develop new tools based on ionospheric

indices derived from the Global Navigation Satellite System (GNSS) data. In the present work, we initially provide a review of the methodology behind two indices, i.e., ROTI and DIX. Thereafter, we present and discuss results from studies recently published and under preparation related to the use of these tools. We especially have been focusing on studies about the detection (or detectability), and measurement of parameters related to EPBs (latitudinal extension and velocity). We also intend to present results related to the degree of ionospheric perturbation as measured by ionospheric indices caused by magnetic storms over the American sector. Supporting information such as ionograms and all sky-image obtained at different ionospheric stations in Brazil are used to corroborate the presented results.