



**Session Ionosphere and Upper Atmosphere**

**Presentation type:** Oral

**Presenting author:** Mauricio Gende

## Ionospheric response on geomagnetic storms for near high- and mid-latitudes in South America

**M. Gende (1),** A.J. de Abreu (2,3) , E. Correia (2,4), R. de Jesus (2), K. Venkatesh (5), E.P. Macho (4), M. Roberto (3), P.R. Fagundes (6)

(1) Facultad de Ciencias Astronómicas y Geofísicas, Universidad Nacional de La Plata (UNLP), La Plata, Argentina

(2) Instituto Nacional de Pesquisas Espaciais (INPE), São José dos Campos, SP, Brazil

(3) Instituto Tecnológico de Aeronáutica (ITA), Divisão de Ciências Fundamentais, São José dos Campos, SP, Brazil

(4) Centro de Rádio Astronomia e Astrofísica Mackenzie, Universidade Presbiteriana Mackenzie, SP, Brazil

(5) Physical Research Laboratory, Navrangpura, Ahmedabad, 380009, India

(6) Laboratório de Física e Astronomia, Universidade do Vale do Paraíba (UNIVAP), São José Dos Campos, SP, Brazil

The geomagnetic storms that occurred during the last two decades will be analyzed regarding their impact on the ionosphere for latitudes that cover Antarctica, and the southern parts of Argentina and Chile. The Dst index will be used as a criteria for selecting disturbed time periods, Vertical Total Electron Content derived from five CORS GNSS receivers with long historical records will characterize the ionospheric behavior.

This study shows increasing plasma density changes, when compared to mean values obtained during geomagnetically quiet periods, that have a preponderance during autumn, winter, and spring at mid- latitudes and in winter at near high-latitudes. These positive changes are observed more frequently during daytime. On the other hand, decreasing plasma density changes do not present a seasonal pattern for any latitude sector and they occur predominantly at nighttime.

A pattern of solar activity dependence of the geomagnetic storms was also found. Results achieved from this study will contribute to a better understanding of the space weather in the upper Antarctic atmosphere.