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Monitoring the variability of the ionosphere and troposphere over Argentina

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Currently, there are about fifteen GPS Permanent Stations (PS) building up an active network with the main goal of materialising the terrestrial reference frame in Argentina. The y are working within an international project which aims to create an International GPS Service regional centre to contribute to the density of the ITRS and the development of the Tide Gauge Bench Mark Monitoring project (tide gauge control with GPS for the mean sea level study). Some of the GPS PS have meteorological stations installed.

The main objective of the GPS stations is the precise geodetic positioning: station coordinates and velocities. Nevertheless, we can also obtain, through a scientific processing of data, the vertical electron content as well as, and the vertical wet tropospheric delay. Based on Argentinean GPS PS observations, we will analyze the variability of the Ionosphere and Troposphere through the Total Electron Content (TEC) and Integrated Pressure Water Vapor (IPWV) parameters respectively. These results will be very positive either in the national environment with the atmospheric products useful to positioning users or in the international environment with the VTEC and IPWV monitoring over the Southern American continent.

In this work we show hourly 2-dimensional ionospheric maps, VTEC variability over GPS stations and IPWV variability over GPS station were there are meteorological measurements.