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Influence of ionospheric anomalies in the positioning

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GNSS observables depend on the satellite-receiver distance, atmospheric effects, satellite and receiver offsets and phase ambiguities, as well as satellite and receiver equipment delays. GNSS observations specific to a receiver and a satellite (undifferenced observations) can be used to estimate the ionospheric effect.
In this study, different procedures are used to estimate the ionospheric delay from GNSS data belonging to permanent GPS stations. In particular, these tests intend to detect ionospheric anomalies under certain conditions in equatorial geographical latitudes. From the Slant Total Electron Content (STEC) estimated between one GPS station and several satellites the contribution of the anomalies is isolated and its amplitude and duration are computed.
Finally, an analysis of the possible influence of these anomalies in the positioning estimation is carried out.