Analysis of the EGNOS ionospheric corrections accuracy

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Abstract
As it is well known, Satellite Based Augmentation Systems (SBAS) enhances accuracy, integrity and availability levels of stand alone GPS navigation. The European Geostationary Navigation Overlay Service (EGNOS) will be an important European contribution into global satellite navigation. Since January 2002 the Research Group of Astronomy and Geomatics of the Technical University of Catalonia (gAGE/UPC) has been gathering data from the EGNOS System Test Bed (ESTB), which is a full scale EGNOS prototype, during 24-hour periods once per week. A set of tests for the ionospheric performance analysis were proposed in a previous work, being applied over four months of ESTB data collection (from January to April 2002). The goal of this paper is to expand those test ideas as well as the ESTB analysis period, in order to study the performance of the ESTB broadcast ionospheric corrections during year 2002 and early 2003, coinciding with some updates of the ESTB signal. In such a way, vertical TEC comparisons with the TOPEX POSEIDON altimetric satellite (which measures ionospheric vertical delays directly over oceans and wide water surfaces covered by the ESTB service volume), as well as additional comparisons with other test techniques are presented.

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