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Performance of the Galileo broadcast NeQuick model: Comparison with GPS and JASON TEC

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Performances of Galileo NeQuick model are analyzed over the continental and oceanic regions for the whole year of 2013. The three broadcast coefficients of NeQuick are computed from 23 globally distributed tracking stations of the International GNSS Services (IGS), by ingesting the Global Positioning System (GPS) derived ionospheric total electron content (TEC) into the original NeQuick 2 model. In continental regions, the ionospheric TEC derived from 34 IGS stations are used as references for the comparison. In oceanic regions, where the IGS stations are sparse,high-quality vertical TEC sources provided by JASON 1 and 2 altimeters are used as references. GPS broadcast Klobuchar, the original and broadcast NeQuick can mitigate the ionospheric delay by 56.8%, 63.3% and 72.4%, respectively, when compared to GPS TEC. The three models can correct 51.1%, 61.2 % and 68.6% of the ionospheric delay when compared to JASON TEC. Galileo NeQuick model outperforms Klobuchar by 15.6% and 17.5% over the continental and oceanic regions, respectively, for the test period.