Extension of EGNOS ionospheric correction

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EGNOS corrections are distributed over most European countries. Unfortunately, the current ground infrastructure saves the correction accuracy only for limited area of Europe. On the edge of that area, the usefulness of the EGNOS corrections is questionable. That problem occurs in Poland. In Space Research Centre there were prepared the analyses of possibilities of extension EGNOS ionospheric correction to the east. Prepared investigations showed that using statistical method of semivariogram calculations is possible to extend the ionospheric corrections with satisfying accuracy. Because of some restrictions, we could work only with values of ionospheric delay transmitted by EGNOS system, not with real GPS observations collected by RIMS stations. The method reproduces two rows of EGNOS nodes within the accuracy greater than the accuracy of the measurement. Local variability of TEC and random errors of measured parameters are much greater than these created by the TEC’s semivariograms. Obtained results show that for proposed method gives the possibility to extend the ionospheric corrections with satisfying accuracy. The difference between the EGNOS and the new correction in grid point is not bigger than 1TECU.