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A APPROACH TO IMPROVE THE IONOSPHERIC DELAY CORRECTION ACCURACY OF BEIDOU B11 SIGNAL IN THE SOUTHERN HEMISPHERE

Abstract

For single-frequency BeiDou Navigation Satellite System (BDS) users, the accuracy of ionospheric B1I signal time delay correction between northern and southern hemisphere is different. Presently BeiDou ground stations are all built within China, and the Klobuchar model algorithm given in "Beidou Navigation Satellite System Signal In Space Interface Control Document Open Service Signal B11 (Verion 1.0)" (BDS-SIS-ICD-B1I-1.0) is based on geographic latitude, hence the accuracy of ionospheric delay correction for southern hemisphere users is lower than for northern hemisphere users. This paper proposes one method to improve the accuracy of ionospheric delay correction for users who only use B1I signal in the southern hemisphere, and compares the ionospheric time delay values calculated by two models with actual ionospheric time delay values provided by Center for Orbit Determination in Europe (CODE) respectively. The results indicate that the correction accuracy of the improved model is higher than of the model given in BDS-SIS-ICD-B1I-1.0 in the southern hemisphere.