Data analysis of GEONET network data applying Galileo Satellite System

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GEONET tracking data is analyzed applying Galileo and/or GPS satellite systems, using GAMIT/GLOBK software. We adopt ITRF2014 reference frame and CODE precise orbit obtained in the GMEX experiment. For the fiducial sites, we use 14 IGS sites in and around East Asia both Galileo and GPS analyses. At the IGS sites in this area, number of sites, whose coordinates and velocity are determined in Altamimi et al.(2016) and also tracking Galileo satellites, is very limited. In the current version of the GAMIT/GLOBK program, the solar radiation pressure model of the Galileo satellites has limited accuracy, which results in large errors in the analysis using the Galileo satellites. Preliminary results from 10-day Galileo satellites analysis of the 2018 DOY 300-309 show that the weighted rms of the N-S component of the repeatability of 1276 GEONET site coordinates is 5.5 mm, the E-W component 4.5 mm, and the U-D component 9.0 mm. On the other hand, for those from GPS satellites show that those weighted rms of the N-S component is 1.6 mm, E-W component 1.3 mm, and U-D component 3.5 mm. Therefore, the repeatability of the GEONET site coordinate solution of the composite solution of GPS and Galileo satellites has hardly improved: the weighted rms of the N-S component is 2.7 mm, E-W component 2.0 mm, and U-D component 3.7 mm. The presentation will show the results applying the new Galileo satellite solar pressure model (ECOMC model) included in the updated GAMIT/GLOBK program released in the near future, as well as the period of analysis more than one year.

Keywords: Galileo satellite system, GEONET network, GAMIT/GLOBK program

