Geophysical Research Abstracts
Vol. 16, EGU2014-13720, 2014
EGU General Assembly 2014

Precise orbit determination of Beidou Satellites at GFZ

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In December 2012 the Signal-In-Space Interface Control Document (ICD) of the BeiDou Navigation Satellite System (BeiDou system) was published. Currently the initial BeiDou regional navigation satellite system consisting of 14 satellites was completed, and provides observation data of five Geostationary-Earth-Orbit (GEO)satellites, five Inclined-GeoSynchronous-Orbit (IGSO) satellites and four Medium-Earth-Orbit (MEO) satellites.

The Helmholtz Centre Potsdam GFZ German Research Centre for Geosciences (GFZ) contributes as one of the analysis centers to the International GNSS Service (IGS) since many years. In 2012 the IGS began the "Multi GNSS EXperiment" (MGEX), which supports the new GNSS, such as Galileo, Compass, and QZSS. Based on tracking data of BeiDou-capable receivers from the MGEX and chinese BeiDou networks up to 45 global distributed stations are selected to estimate orbit and clock parameters of the GPS/BeiDou satellites. Some selected results from the combined GPS/BeiDou data processing with 10 weeks of data from 2013 are shown. The quality of the orbit and clock products are assessed by means of orbit overlap statistics, clock stabilities as well as an independent validation with SLR measurements. At the end an outlook about GFZ AC's future Multi-GNSS activities will be given.