



Deriving PWV from BDS Observations with PPP approach and Precision Analysis in China Region

Min Li

China (limin@whu.edu.cn)

The precipitable water vapour (PWV) is the key parameter of the weather analysis and numerical weather prediction. And it is now widely adopted to derive PWV with the zenith tropospheric delay (ZTD) estimated from GNSS observations. The BeiDou System (BDS) now has 14 satellites in service and provides a good coverage over the China region with its GEO and IGSO constellations. In this contribution, we concentrate on PWV inversion using only BDS observations and its precision evaluation with the PANDA software developed at Wuhan University. The BDS/GPS dual-frequency dual-mode data from June 1 to September 1 2013 are collected at 8 stations in the China region. By the PPP approach, the ZTDs are estimated every 2-hour at each station using a piecewise constant model with BDS precise orbit and clock products, which are generated from the BETS (BeiDou Experiment Tracking Stations) network with 14 stations distributed globally. Then the PWVs are obtained by the conversion factor and zenith wet delays (ZWDs) retrieved from the estimated ZTDs. Firstly the PPP-inferred BDS-PWV is compared to that provided by the AERONET. And then the 3-month GPS-PWV at these 8 stations is also estimated in the same way, and used as reference values for BDS-PWV comparison. Their precision differences are further discussed.