Detection of Spatiotemporal Changes of Water Vapor based on Large-scale BDS Reference Stations in China Area

Qinglan Zhang1,2
1National Geomatics Center of China, Geodesy, China (qlzhang@ngcc.cn)
2Wuhan University, GNSS Research Center, China

China has built national BDS reference stations (≥210) covering the entire territory and has been operating continuously for more than 3 years. In 2020, BDS satellite navigation and positioning system will be fully built and provide global services, providing a good source of data for the use of ground-based BDS observations for water vapor detection and analysis. The author used national BDS reference stations observation data which covered China area in 2019, combined with sounding observation data, to detect and analyze the temporal and spatial changes of water vapor, and given preliminary analysis results of the water vapor detection performance and accuracy based on BDS observation. The results show that the detection results of atmospheric precipitation between BDS and sounding system are more consistent, which can reflect the change of atmospheric precipitation. The system errors and standard deviations of the calculation results which based on the BDS observations and the sounding observations are relatively large, which may be related to orbit model and the system stability of BDS needs to be improved.