BDS Satellite Orbit and Clock Determination based on MGEX Data

ZH AO Chunmei, HE Zhengbin, LI Qian, LI Ran

Beidou satellite navigation system (BDS) is being implemented by China, which is a self-development and independent global satellite navigation system. At present, there are four satellites in geostationary Earth orbit (GEO), five satellites in inclined geosynchronous orbit (IGSO) and 4 satellites in Medium Earth Orbit (MEO). Based on BDS observation data of 24 MGEX stations, we determined BDS satellite precision orbit and BDS clock. The results reveal that: using the three-day orbit solution, the RMS of MEO and IGSO satellites of orbit determination is about 30cm and the orbit accuracy in radial direction could be better than 10 cm; the RMS of GEO satellites in orbit determination is about 150cm and the orbit accuracy in radial direction also could be better than 10 cm; IGSO / GEO / MEO satellite clock accuracy are all superior to 0.1ns.