

Development of a System to Generate QZSS Orbit and Clock with the Processing Software MADOCA

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SUMMARY

Precise Point Positioning (PPP) is an outstanding positioning technique for GNSS processing. In order to enhance redundancy of monitoring of crustal deformation in Japan, the Geospatial Information Authority of Japan (GSI) has developed the PPP analysis system using the software, MADOCA (Multi-GNSS Advanced Demonstration tool for Orbit and Clock Analysis) and started its test operation. The system showed comparable performance with that of the already operational GEONET system in post processing, but it is noted that the performance of PPP positioning and accuracy of its solution are strongly dependent on the number of visible/available satellites, especially in real-time processing. If the number of visible satellite decreases, the performance degrades rapidly. Quasi Zenith Satellite System (QZSS) of Japan, along with the other satellite systems, is useful in increasing the number of visible satellites especially in the area around Asia Oceania. In order to improve the performance of the PPP analysis system, GSI has started to develop system which generates satellite orbits and clocks of QZSS. The system is designed to generate real-time, rapid and final orbits and clocks, which are to be utilized for PPP processing to improve its performance mainly in monitoring crustal deformation in Japan. The initial results and evaluation will be reported in the presentation.

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