

Estimation of high-rate GPS/GNSS satellite clock and application to the kinematic-PPP

Tomoji Takasu[1]

[1] none

<http://gpspp.sakura.ne.jp>

Precise Point Positioning (PPP) (Zumberge, 1997) is a high-accurate positioning solution using GPS/GNSS undifferenced carrier phase observables and the precise GPS/GNSS satellite orbit/clock products without any reference stations. By the recent improvement of the satellite orbit/clock qualities, the PPP has been able to provide almost the same level accuracy as conventional double-differenced relative positioning. The PPP, however, degrades the precision in case of high-rate kinematic positioning because of the satellite clock interpolation error. This study evaluates estimation schemes of the precise high-rate GPS/GNSS satellite clock derived from the ground-station network observation data with the interpolated precise orbit/clock. The Applications of the kinematic-PPP with high-rate GPS/GNSS satellite clock also be shown including detection of crust movement by earthquakes and LEO satellite POD (Precise Orbit Determination) equipped with GPS/GNSS receiver.