Geophysical Research Abstracts
Vol. 14, EGU2012-9694, 2012
EGU General Assembly 2012

Assessment of Integer Precise Point Positioning performances at different temporal scales

F. Fund (1), F. Perosanz (1), F. Mercier (1), and S. Loyer (2)
(1) CNES, France (francois.fund@get.obs-mip.fr), (2) CLS, France

Recent improvements in Precise Point Positioning (PPP) including ambiguity resolution (Integer PPP; IPPP) make this technique a potential alternative to the classical differential approach. Single epoch positioning is also a powerful strategy to make GPS observation data screening. If all local earth deformations are correctly taken into account, residuals of position time series might be used to assess the processing quality in terms of receiver performance and local environment, constellation orbits and clocks error projection, and processing options pertinence.
The aim of this presentation is to quantify current performances of PPP and IPPP at various temporal and spatial scales. We present what user should expect with respect to the classical double difference approach and what are the current noise characteristics of residual PPP time series.
We use several geodetic GPS receivers located to different latitudes and suffer from different multipath situations and meteorological conditions. First, every situation is evaluated in terms of PPP performance with respect to double differences approach. Results are presented as a function of batch durations from hours to several days. Then, we show that GPS IPPP time series still suffer from various spurious signals (random, periodic, jumps...). Sometimes, errors clearly have a sidereal orbital period and a frequency analysis is provided. Also, artificial "midnight jumps" can be introduced when processing 24-hours batch solutions.