



Experience from combination of the GPS and GLONASS observations in the Precise Point Positioning algorithms

Jan Hefty and Lubomira Gerhatova

Slovak University of Technology, Department of Theoretical Geodesy, Bratislava, Slovakia (jan.hefty@stuba.sk 00421 2 5292 5476)

The Precise Point Positioning (PPP) technique using the un-differenced GPS observations and the precise IGS orbits and satellite clock products is recently a frequently used approach for geocentric coordinate determination. Until now, only the GPS observations are used for PPP mainly due to fact, that for the other GNSS the precise satellite clocks were not generally available. Recently the ESOC GLONASS Data Analysis Centre besides the GLONASS orbits provides regularly also the satellite clocks estimates in 5-minute intervals. In the paper will be introduced the model for computing real-valued ambiguities form code and phase GPS and GLONASS un-differenced observations as well as the procedures for reduction of observed GPS and GLONASS ranges. The models for separate GPS and GLONASS coordinates, clocks and troposphere delays estimates are mutually compared. Finally, the combination of GLONASS and GPS un-differenced data will be demonstrated. The role of additional parameters which are necessary to be introduced for combined solution will be investigated. The results from PPP processing based on separated GNSS observations as well as from their combination in joint adjustment will be discussed. All the procedures mentioned are examined by using the software package ABSOLUTE which is developed for the PPP GNSS processing at the Slovak University of Technology in Bratislava.