



Relevance of GPS Geocenter for Precise Point Positioning

U. Hugentobler (1), S. Schaer (2), R. Dach (1), C. Urschl (1), G. Beutler (1)

(1) Astronomical Institute, University of Bern, Bern, Switzerland, (2) Federal Office of Topography, Wabern, Switzerland

Precise Point Positioning (PPP) on the basis of precise information from the IGS requires full consistency between GPS satellite orbit and clock products in order to allow determination of high quality station coordinates in a well defined reference system. In this context it is particularly important how the geocenter offset between the orbit system and the ITRF origin is handled.

We investigate the differences between global solutions that (a) allow for a geocenter offset and (b) force the geocenter to coincide with the reference frame origin by application of additional no-net translation constraints. We show that adding of three additional translation constraints seems not to degrade the solution because a significant fraction of the geocenter signal observed with GPS may be caused, e.g., by radiation pressure mismodeling. In addition, consistency between products is easier to guarantee for solution (b). On the SINEX level geocenter information can be reconstructed for scientific investigations.