



The use of system-dependent antenna phase center models in a global multi-GNSS analysis

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Due to the increasing number of active GLONASS satellites and the improved density of multi-GNSS tracking stations in the IGS network, the quality of the GLONASS orbits has drastically improved during the last years. It has reached the 3 cm level by the end of 2008. On the other hand, there are indications of modeling deficiencies when processing GLONASS measurements.

One of the simplifications in the combined GPS/GLONASS processing – as it is introduced by the IGS today – is that the receiver antenna phase center models obtained from GPS are also used for GLONASS. In addition, the GLONASS satellite antenna phase center model was computed in early 2006 when the GNSS tracking network of the IGS was much sparser than today. Furthermore, many satellites from the constellation at that time are replaced by the latest generation of GLONASS satellites in the meantime.

The GEO++ GmbH is calibrating GNSS antennas using the robot technology. Separate receiver antenna phase center corrections for each GNSS are available today. So, it is possible to assess the impact of different model parameters for GPS and GLONASS with respect to the IGS standard procedure using the same GPS receiver antenna phase center variations for all available GNSS.

In a second step, we verify the currently used GLONASS satellite antenna phase center corrections. Furthermore we plan to update and extend the model for the current constellation of GLONASS satellites.