

Combination of space-geodetic techniques on the observation level: estimation strategies for common parameters

Thomas Hobiger^{1*}, Toshimichi Otsubo²

¹NICT, ²Hitotsubashi Univ.

A multi-technique space-geodetic analysis software, named "c5++", has been developed over the recent years. The software provides consistent geodetic and geophysical models which can be accessed by single technique space-geodetic applications or can be used to combine several techniques on the observation level. Satellite Laser Ranging (SLR) and Very Long Baseline Interferometry (VLBI) stand-alone applications have been realized in the last two years. With the introduction of an option to utilize local-tie information as well as the possibility to estimate common parameters the software enables rigorous combination of space-geodetic techniques on the observation level. Moreover, the inclusion of GNSS as a third space-geodetic technique since 2012 has increased the choice of analysis strategies tremendously. Thus, we are discussing the advantage of estimating common parameters (clock, troposphere) and show how technique specific offsets/biases need to be treated in order to achieve optimum performance of this approach.

Keywords: VLBI, GNSS, GGOS, Space Geodesy, Combined Analysis