

EGU2020-20227

<https://doi.org/10.5194/egusphere-egu2020-20227>

EGU General Assembly 2020

© Author(s) 2022. This work is distributed under the Creative Commons Attribution 4.0 License.



Simulations of VLBI observations to satellites enabling co-location in space

Nicat Mammadaliyev^{1,2}, Patrick Schreiner², Susanne Glaser², Karl Hans Neumayer², Rolf Koenig², Robert Heinkelmann², and Harald Schuh^{2,1}

¹Technische Universität Berlin, Chair of Satellite Geodesy, Straße. des 17. Juni 135, 10623 Berlin, Germany(nicat.mammadaliyev@campus.tu-berlin.de)

²Helmholtz Centre Potsdam, GFZ German Research Centre for Geosciences, Potsdam, Germany (nicat@gfz-potsdam.de)

The exceptional situation of simultaneously observing a dedicated near-Earth orbiting satellite via the four main space geodetic techniques opens the unique opportunity to investigate the additional benefits on the realization of global terrestrial reference frame using co-location in space. Applying co-location in space requires a precise orbit determination (POD) of dedicated satellites for all techniques. In this regard, current VLBI infrastructure is extended by the observation to satellites and the impact of such observation concept on the VLBI estimates is assessed. Thus the main geodetic products including the terrestrial reference frame are investigated within the GGOS-SIM-II project. In this study, the potential influence of orbital errors on the estimates and capability of VLBI observations to satellites within the POD are investigated for different scenarios with varying networks, observation time and measurement noise.