

Standing Committee on Performance Simulations and Architectural Trade-offs (PLATO)

Status Report April 2017

D. Thaller and B. Männel

GGOS Standing Committee PLATO

- Also IAG Joint Working Group 1.1.2 (Sub-Commission 1.1)
- Chairs: Daniela Thaller (BKG Frankfurt, Germany), Benjamin Männel (GFZ Potsdam, Germany)
- Contributing Institutions (in alphabetical order):
 - AIUB (Switzerland)
 - BKG (Germany)
 - CNES (France)
 - DGFI-TUM (Germany)
 - ETH Zürich (Switzerland)
 - GFZ / TU Berlin (Germany)
 - GSFC / JCET (USA)
 - IfE University Hannover (Germany)
 - JPL (USA)
 - NMA (Norway)
 - TU Vienna (Austria)

PLATO meeting:
Thursday, 27.04.
11.00 – 13.00
TU Vienna, SEM 124

Achievements in 2016

- Several projects related to simulation studies became funded (DGFI-TUM, AIUB, TU Vienna, GFZ)
- Simulations for the planned E-GRASP/Eratosthenes mission were carried out by several institutions
- Several geodetic software packages have been augmented by the capability to carry out realistic simulation scenarios
- Simulations for improved global SLR network and an SLR station in Antarctica
- Simulations for improved SLR tracking of GNSS satellites
- Simulations (and analysis of data) for new VGOS telescopes
- Simulations and analysis of VLBI tracking data of GNSS satellites, i.e. using co-locations in space
- Simulations related to more LLR data

Presentations in 2016

- IVS General Meeting, Hartebeesthoek, South Africa
- EGU General Assembly, Vienna, Austria
- International Laser Ranging Workshop, Potsdam, Germany
- AGU Fall Meeting, San Francisco, USA

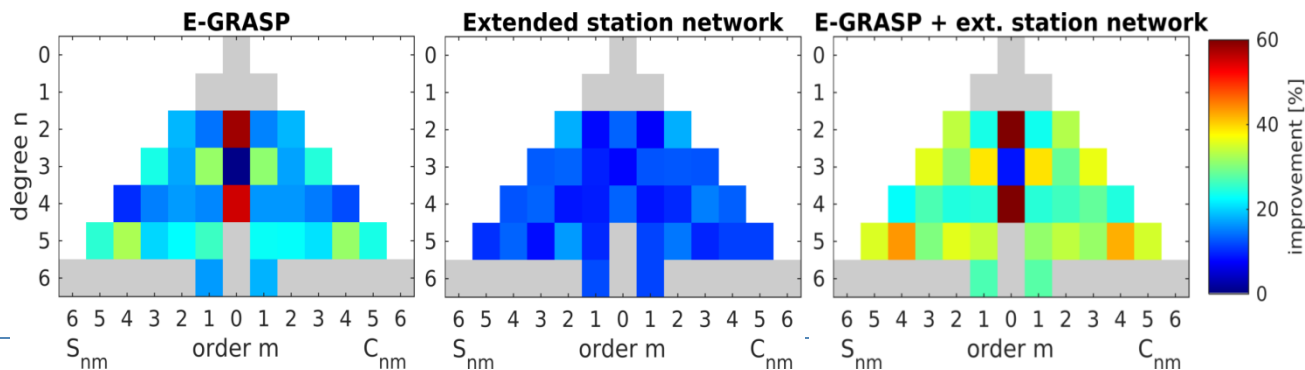
- Several papers in Journal of Geodesy and others

Plan for the next 2 years

Date	Milestone
December 31, 2017	Examine trade-off options for station deployment and closure, technology upgrades, impact of site ties, etc.
December 31, 2017	Simulation studies "ground" to assess impact on reference frame products of: network configuration, performance, technique and technology mix, co-location conditions, site ties
February 28, 2018	Project future network capability using projected network configuration in new system implementation
October 31, 2018	Simulation studies "space" to assess impact on reference frame products of: co-location in space, space ties, satellites
October 31, 2018	Develop improved analysis methods for reference frame products by including all existing data and available co-locations
December 31, 2018	Analysis campaign with exchanged simulated observations

Results: DGFI-TUM

- Future evolution of the SLR ground and space segments and its impact on the estimation of TRF, EOP and Stokes coefficients
- Improving the **performance** (increased pass performance of stations) of the existing network and improving the **network geometry** (new stations) of equal importance
- **E-GRASP** orbit will improve all Stokes coefficients, predominantly C_{20} , C_{40} and the tesseral and sectoral coefficients of degrees 3 and 5



Results: TU Vienna

- VLBI observations to GNSS satellites
 - from scheduling to analysis (Plank et al., 2017)
 - o-c at nano-second level
- VLBI observations to the APOD Satellite

