



## **Assessment of individual and combined gravity field solutions from Swarm GPS data and mitigation of systematic errors**

Adrian Jaeggi (1), Ulrich Meyer (1), Lucas Schreiter (1), Veerle Sterken (1), Christoph Dahle (2,1), Daniel Arnold (1), Joao Encarnacao (3,4), Pieter Visser (3), Jose van den IJssel (3), Xinyuan Mao (3), Elisabetta Iorfida (3), Ales Bezdek (5), Josef Sebera (5), Torsten Mayer-Gürr (6), Norbert Zehentner (6), Ck Shum (7), Christina Lück (8), Roloef Rietbroek (8), and Jürgen Kusche (8)

(1) Astronomical Institute, University of Bern, Bern, Switzerland (adrian.jaeggi@aiub.unibe.ch), (2) German Research Centre for Geosciences, Potsdam, Germany, (3) Faculty of Aerospace Engineering of the Delft University of Technology, Delft, The Netherlands, (4) Center for Space Research, University of Texas at Austin, Austin, Texas, (5) Astronomical Institute of the Czech Academy of Sciences, Prague, Czech Republic, (6) Institute of Geodesy of the Graz University of Technology, Graz, Austria, (7) School of Earth Science of the Ohio State University, Columbus, Ohio, (8) Institute of Geodesy and Geoinformation, University of Bonn, Bonn, Germany

Although ESA's Earth Explorer Mission Swarm is primarily dedicated to measure the Earth's magnetic field, it currently also serves as a gravity field mission. Equipped with GPS receivers, accelerometers, star-tracker assemblies and laser retro-reflectors, the three Swarm satellites provide the necessary instrumentation to be used as a high-low satellite-to-satellite tracking (hl-SST) observing system. Since GRACE-B, one of the two satellites of the GRACE mission dedicated to measure the time-variability of the Earth's gravity field, has been decommissioned on 12 Oct 2017, Swarm is now in the focus to close the gap between the GRACE and its Follow-On (GRACE-FO) mission.

In this presentation we will report the current state of Swarm gravity field determination as performed at various analysis centers. Besides the individual contributions we will also present combined Swarm solutions computed by the scientific combination service established in the frame of the European Gravity Service for Improved Emergency Management (EGSIEM) initiative. Besides this, we will assess the various efforts made to mitigate systematic errors in the Swarm Level-1B GPS data related to ionospheric activity that are affecting the Swarm gravity field solutions.