



## **New Results from GIOVE: The CONGO-Network and the Potential of Tracking Networks with Multiple Receiver and Antenna Types**

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Four years have gone since the start of the first Galileo In Orbit Validation Element (GIOVE)-A and nearly two years since the start of the second validation satellite GIOVE-B. Although results from the Galileo Experimental Sensor Stations (GESS) are published in several studies, the access to the GESS observation data is still limited to European Space Agency (ESA) project partners only.

To overcome this situation, the Deutsches Zentrum für Luft- und Raumfahrt (DLR, Oberpfaffenhofen, Germany) initiated the installation of the COoperative Network for Giove Observations (CONGO) two years ago. In a joint effort with Bundesamt für Kartographie und Geodäsie (BKG, Frankfurt, Germany) it grew to a global network with currently 10 stations. Whereas the GESS network operates the same receiver and antenna type at all sites, the CONGO stations include equipment from different manufacturers. This heterogeneous configuration more closely resembles a future GNSS network for scientific applications where hardware biases will play an important role.

The observation data of CONGO is recorded and archived at the Institut für Astronomische und Physikalische Geodäsie (IAPG, Technische Universität München, Germany). IAPG computes precise GIOVE orbits and clocks in post processing using a modified version of the Bernese GPS Software.

For a test campaign of one month the Institute of Physical Geodesy (IPGD, Technische Universität Darmstadt, Germany) and European Space Operations Centre (ESOC, Darmstadt, Germany) computed precise GIOVE orbits and clocks using the ESOC software NAPEOS. The poster shows the capabilities of the CONGO network, discusses the processing strategies, and compares the results from the two different software packages.