DGFI Analysis Center Annual Report 2011

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Abstract

This report summarizes the activities of the DGFI Analysis Center in 2011 and outlines the planned activities for 2012.

1. General Information and Component Description

The German Geodetic Research Institute (Deutsches Geodätisches Forschungsinstitut, DGFI, http://www.dgfi.badw.de) is an autonomous and independent research institute hosted at the Bavarian Academy of Sciences (BAdW), Munich. It is run by the Free State of Bavaria. The research covers all fields of geodesy and includes participation in national and international projects as well as functions in international bodies. Since October 2010 the scientific geodetic institutions in Munich and Bavaria — namely the Institute of Astronomical and Physical Geodesy (IAPG) and the Forschungseinrichtung Satellitengeodäsie (FESG) including the personnel at the Geodetic Observatory Wettzell (both at Technical University Munich (TUM)), the Bayerische Kommission für die internationale Erdmessung (BEK) and the Deutsches Geodätisches Forschungsinsitut of the Deutsche Geodätische Kommission (both at the Bavarian Academy of Sciences) — have worked together in a cooperation called Center for Geodetic Earth system research (Centrum für Geodätische Erdsystemforschung, CGE; http://www.iapg.bv.tum.de/2791632- -∼iapg∼forschung∼boards∼cge.html). In 2011 the BEK and the Kommission für Glaziologie together founded the Kommission für Erdmessung und Glaziologie (KEG), while the geodetic part of this commission remains a part of CGE.

2. Staff

The DGFI IVS AC (http://www.dgfi.badw.de/index.php?id=126&L=2) is operated by Robert Heinkelmann and Manuela Seitz. In addition, Michael Gerstl works on development and numerical optimizations of the VLBI analysis software DOGS-RI (Radio Interferometry). Julian Andres Mora-Diaz (Figure 1) joined our VLBI group in March 2011. With his background (BSc in Physics, MSc in Astronomy), he is most of all interested in AGNs, astrometry, geodetic VLBI, and astrophysics. We are happy to welcome him onboard.

Figure 1. Our new team member: Julian Andres Mora-Diaz.

3. Current Status and Activities

- Rearrangement of the VLBI software used and developed at DGFI

  The VLBI analysis software used at DGFI is currently rearranged and will be part of the DGFI Orbit and Geodetic Parameter Estimation Software DOGS (Heinkelmann and Gerstl, 2010), named DOGS-RI (Radio Interferometry).

- IVS Operational Analysis Center at DGFI

  DGFI routinely processes the standard IVS sessions (currently the two IVS rapid turnaround sessions IVS-R1 and -R4) and additional sessions of the geodetic and astrometric program run by IVS and delivers datum free normal equations in SINEX format. For the operational analysis and for the preparation of normal equations in SINEX format, OCCAM and DOGS-CS are used. The operational processes now completely run on DGFI-owned hardware under the Linux OS.

- Atmosphere research

  In 2011 our main scientific work focussed on the atmosphere: we found very good agreement of VLBI VTEC with other space geodetic techniques during CONT08 (Dettmering et al., 2011a) and included VLBI-derived VTEC into a regional multi-level model over the South American continent (Dettmering et al., 2011b). The tropospheric estimates during CONT08 were compared among the techniques (Teke et al., 2011), and some new insights and conclusions could be drawn from intra-technique comparison and combination (Heinkelmann et al., 2011).

4. Future Plans

At DGFI IVS AC we want to continue our investigations concerning the atmosphere. The new VLBI analysis software DOGS-RI and DGFI's OCCAM version will be developed in parallel for a while. In 2012 we plan to switch all VLBI analysis to DOGS-RI.

References

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