The SIRGAS Reference Frame is composed currently by 389 continuously operating GNSS stations and it comprises two hierarchy levels: a core network (SIRGAS-C) providing the primary link to the global ITRF, and national reference networks (SIRGAS-N) improving the geographical density of the reference stations and ensuring the accessibility to the global reference frame at national and local levels. The SIRGAS reference stations are processed by 10 SIRGAS Processing Centres (CEPGE Ecuador, CNPDG-UNA Costa Rica, CPAGS-LUZ Venezuela, DGFi-TUM Germany, IBGE Brazil, IGAC Colombia, IGN Argentina, IGM Chile, INEGI Mexico, SGM Uruguay), who generate loosely constrained weekly solutions to be integrated in a unified solution for the entire network. The individual solutions are combined by the SIRGAS Combination Centres: DGFi-TUM and IBGE. As responsible for the IGS Regional Network Associate Analysis Centre for SIRGAS (IGS RNAAC SIRGAS), DGFi-TUM processed the entire SIRGAS network since June 1996 until August 2008. Now, DGFi-TUM supports SIRGAS by
1) processing the SIRGAS-C core network (Fig. 1)
2) combining the core network with the national reference networks (Fig. 2)
3) ensuring that the SIRGAS processing strategy conforms the IERS standards and IGS guidelines (Fig. 3)
4) developing strategies to guarantee the reliability of the reference frame through time, this includes - estimation of the reference frame kinematics (Fig. 4) - evaluation of the seismic impacts on the reference frame (Fig. 5) - modelling the crustal deformation in the SIRGAS region (Fig. 6)
5) making available the SIRGAS products via www.sirgas.org and ftp.sirgas.org.
This report summarizes the main activities carried out by DGFi-TUM as IGS RNAAC SIR during the last year.

Further reading
Sánchez L., Drewes H.: Quality control post-seismic crustal deformation after the 2010 earthquakes in Latin America. IUGG2015, Prague, Czech Republic, June 22 - July 2, 2015

Fig. 1 – Core and national networks within the SIRGAS Reference Frame.
Fig. 2 – Quality control of the individual solutions delivered by the SIRGAS Analysis Centres as well as of the combined solutions computed by the IGS RNAAC SIRGAS (time span GPS weeks 1810 – 1865).
Fig. 3 – Inventory for the second SIRGAS reprocessing. It is necessary for computing all daily and weekly normal equations of the reference frame applying the new IERS and IGS guidelines. This inventory was performed from 1997 until 2014; as an example the RINEX availability for the year 2014 is shown.
Fig. 4 – Multi-year solution SIR15P01. It covers the time span from 2010.2 to 2015.2, includes 303 stations and refer to the KB08, epoch 2013.0. Its accuracy is estimated to be ±1.8 mm in the horizontal position, ±3.5 mm in the vertical position, ±1.0 mm/a in the horizontal velocities and ±1.2 mm/a in the vertical velocities.
Fig. 5 – Station discontinuities (left) and post-seismic relaxation movements (right) identified in the SIRGAS region from March 2010 to April 2015.
Fig. 6 – Post-seismic deformation model VEMOS2015 and its comparison with the pre-seismic model VEMOS2010.