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1. Motivation: In May 2007 at the AGU Joint Assembly in Acapulco, Mexico, a new preliminary SIRGAS position and velocity solution was presented. After the introduction of the new ITRF2005 (IGS05, respectively) and the absolute phase centre variations, the IGS RNAAC SIR at DGFI is reprocessing weekly solutions since GPS week 1860 (July 1996). The new IGS RNAAC SIR solution DGF07P01 presented here contains 168 reprocessed weeks, 53 weeks more than the preliminary solution of May 2007.

weeks was presented at the AGU Joint Assembly in Acapulco, Mexico, May 2007, in order to analyse the changes produced by the new models. The adjustment of the new DGF07P01 solution is done with the Bernese GPS software 5.0, based on the daily reprocessed normal equation files. The datum realisation is done by positions and velocities of 18 global stations of the IGS05 solution. The positions and velocities of these reference stations were constrained by No Net Rotation (NNR) and No Net Translation (NNT) conditions such that the network optimally refers to the ITRF2005. The reference epoch is the middle of the time interval, 2004-06-01, 00:00:00.

Fig. 2a and 2b show the horizontal and vertical velocities of the solution DGF07P01 compared to the ITRF2005 solution. The agreement of these solutions is quite good, especially the vertical velocities of the Mexican stations are now much more meaningful.

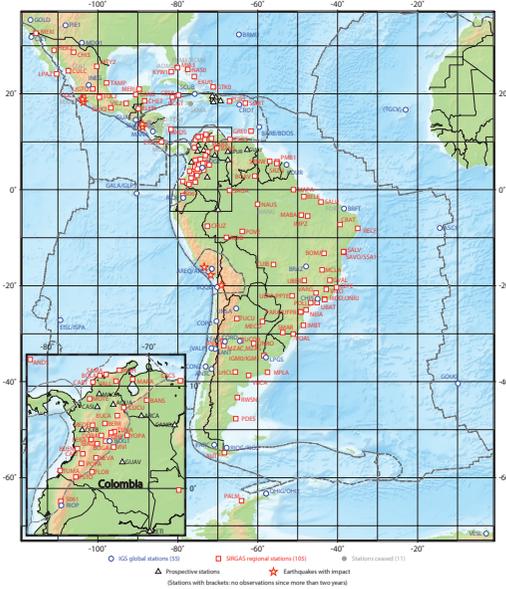


Fig. 1: Current IGS RNAAC SIR Network

2. Reprocessing: The IGS RNAAC SIR reprocessed 168 weeks between 2002 to 2007 (GPS weeks 1147 to 1450). The reprocessing of the missing weeks of 2003/2004, and of the second half of 2005 is in progress. All weeks are computed with the Bernese Processing Engine (BPE) version 5.0 using absolute phase centre corrections instead of relative. The reference frame is IGS05, with 18 IGS05 fiducial stations in the RNAAC SIR region (see Fig. 2a).

3. New coordinate and velocity solution DGF07P01: Combined solutions for estimating the kinematics of the network were performed almost regularly each year in the past. The preliminary realisation for 2007 using the reprocessed

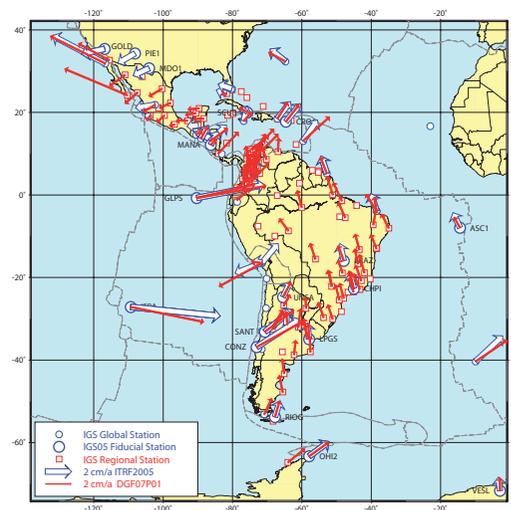


Fig. 2a: Horizontal velocities of RNAAC SIR stations

4. Time series: The changes of the coordinate solutions between the former and new results are shown by their time series, as an example the time series of station Maracaibo (MARA) demonstrates these differences (Fig. 3). The bold dots represent the time series of the reprocessed data. There are systematic offsets depending on stations antenna type / antenna radome type.

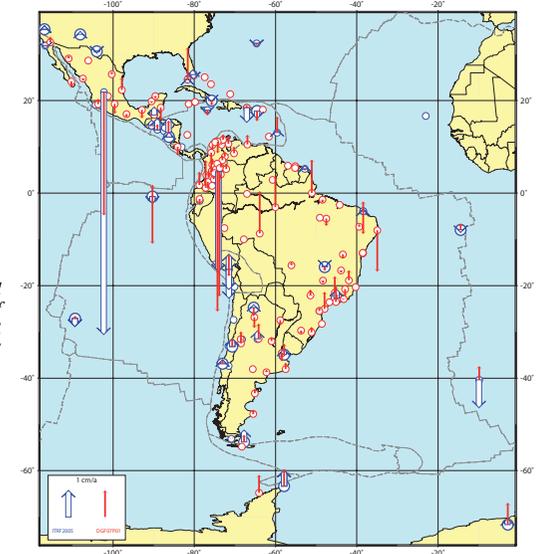


Fig. 2b: Vertical velocities of RNAAC SIR stations

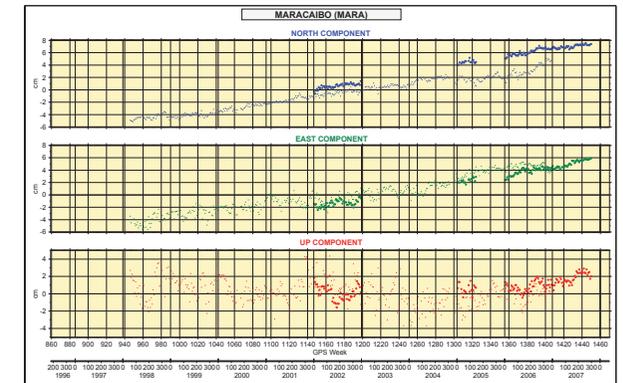


Fig. 3: Time series of Maracaibo (MARA)

5. Summary and conclusion:

- So far 168 GPS weeks are reprocessed, and the reprocessing will be continued.
- The solution DGF07P01 contains 108 stations with estimated velocities. All other stations have less than one year of observations, and therefore have no velocities.
- The SINEX file of the solution DGF07P01 is available at <ftp://ftp.dgfi.badw-muenchen.de/pub/gps/DGF>.
- The next position and velocity solution will be generated in 2008, containing at least all reprocessed GPS weeks since 2000.