



SIRGAS

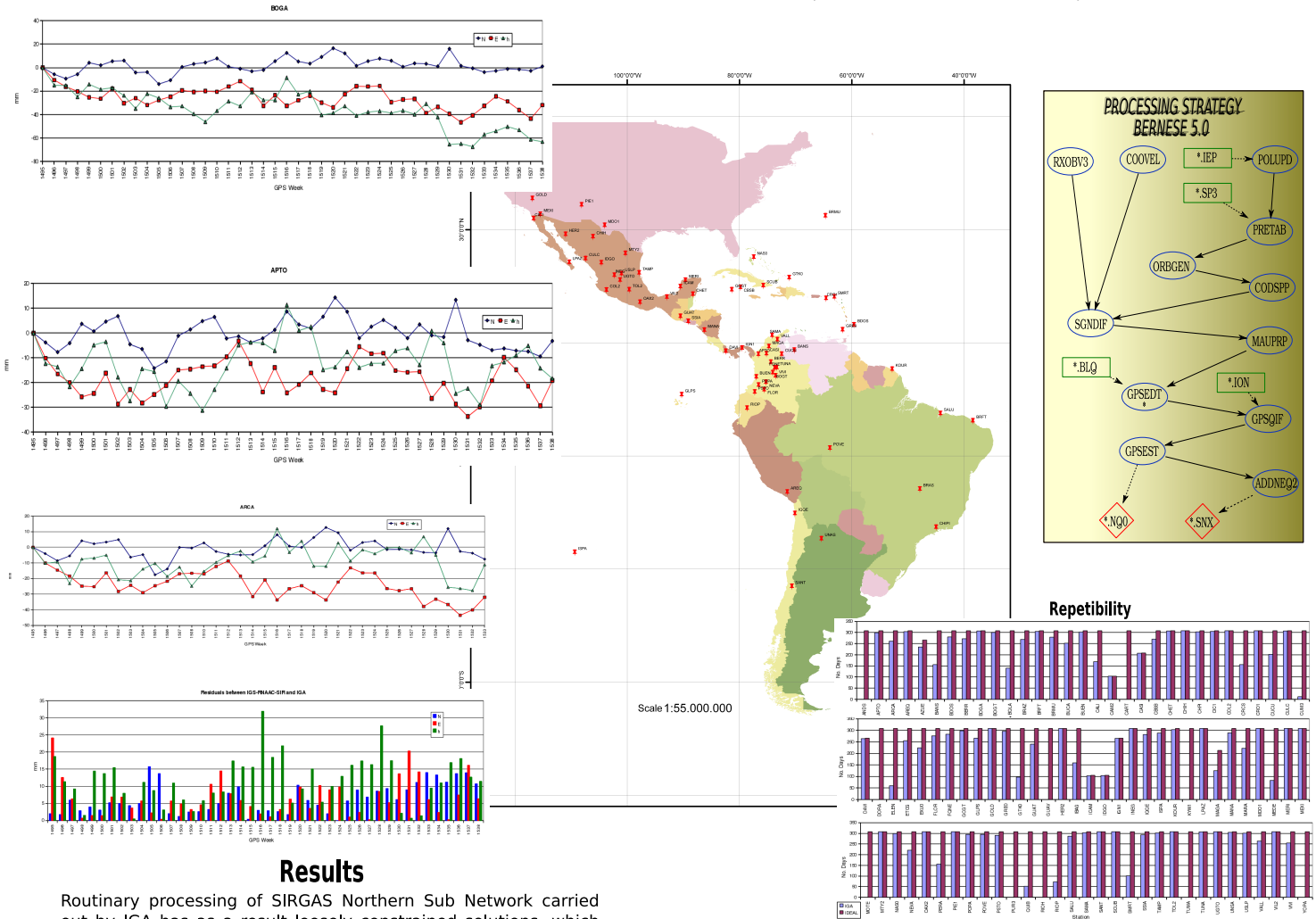
Summary of Activities Conducted by SIRGAS Local Processing Center IGA

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Introduction

SIRGAS project is materialized through a Continuously Operating GNSS Network (SIRGAS-CON) composed by more than 180 stations which is weekly processed by SIRGAS Analysis Centers to obtain precisely coordinates and velocities. Because of its large extension, SIRGAS-CON was divided into one core network (SIRGAS-CON-C), densification of ITRF in Latin America, and three sub-networks (SIRGAS-CON-D) composed by national continuously operating networks and labeled Northern, Middle and Southern.

During the second Workshop of Working Group I, at the SIRGAS 2008 General Meeting, the Instituto Geográfico Agustín Codazzi (IGAC) was formalized as a SIRGAS Analysis Center of the SIRGAS-CON network with the purpose of operating as a Local Processing Center for the Northern SIRGAS-CON-D sub-network. IGAC was commissioned to calculate daily solutions for ninety four stations and combine seven of these individual solutions corresponding to a GPS week into one loosely constrained weekly solution. IGAC's solutions are combined with the core network to provide the final SIRGAS-CON products.



Results

Routinary processing of SIRGAS Northern Sub Network carried out by IGA has as a result loosely constrained solutions, which are upload to disposition of Combination Centers through DGFI's FTP into daily normal equations and one weekly SINEX file. These SINEX contains all statistical information necessary to rebuild corresponding normal equation

Reliability of weekly reported solutions has been evaluated through:

- RMS repeatability's residuals of each station into weekly solution: $N=1.9$ mm $E=2.1$ mm $U=4.2$ mm wich shows higher consistence for horizontal components that for the vertical one.
- Residuals of time series: in this case, IGAC's weekly solutions has been transformed by mean of NNR and NNT conditions into IGS05 values.
- Comparison between IGAC's weekly solutions and IGS-RNAAC-SIR's solutions: $N=1.6$ mm $E=1.9$ mm $U=4.5$ mm.

Based on this comparisons can be said that accuracy of positions into IGAC's network is 2.0 mm in the horizontal component and better than 5.0 mm in vertical component.

Main Problems

Since week 1495, which was the first week of IGA as an official center, besides of administrative and economical issues, has been necessary to overcome following problems:

- Dificulties to download RINEX files due to communication problems.
- Insufficient computational resource compared with the number station processed.
- Lack of communications between local RINEX producers and IGA.

Future Activities

Furthermore the routinary processing, IGA is looking for setting a regional atmospheric (*Troposphere*) processing center. Its main objective is to obtain daily tropospheric maps (*wet component*) for SIRGAS region and incorporate its corrections into GNSS data.

