

UN/USA INTERNATIONAL MEETING ON THE USE AND APPLICATIONS OF GLOBAL NAVIGATION SATELLITE SYSTEMS (GNSS)

OOSA, UNOV December 13 – 17 / 2004

PRESENT STATUS OF SIRGAS PROJECT

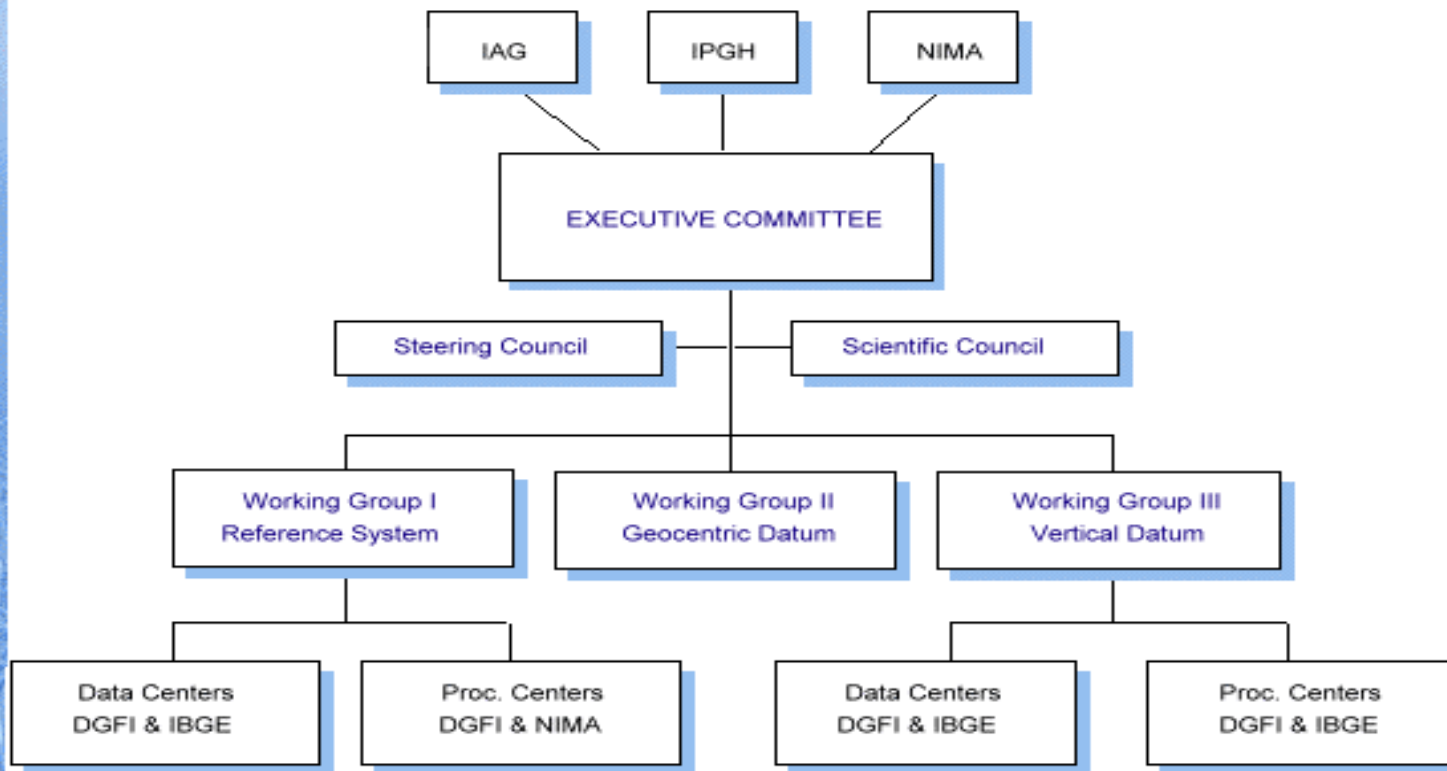


AGUSTIN CODAZZI GEOGRAPHIC INSTITUTE
Colombia

WILLIAM MARTÍNEZ-DÍAZ
Geodesy Division
wamartin@igac.gov.co
December 14/2004

-
- SIRGAS Project Overview**
 - Permanent Stations**
 - Velocity Field for South America**
 - Vertical Datum Definition**
 - PAIGH**

SIRGAS Project Overview: Organizational Structure



SIRGAS Project Overview: Scientific Objectives

To define, materialize and maintain a 3D Geocentric Reference System for the Americas

- ❑ Standardized horizontal and vertical reference
- ❑ Consistent physical and geometric parameters
- ❑ Variations with respect to time

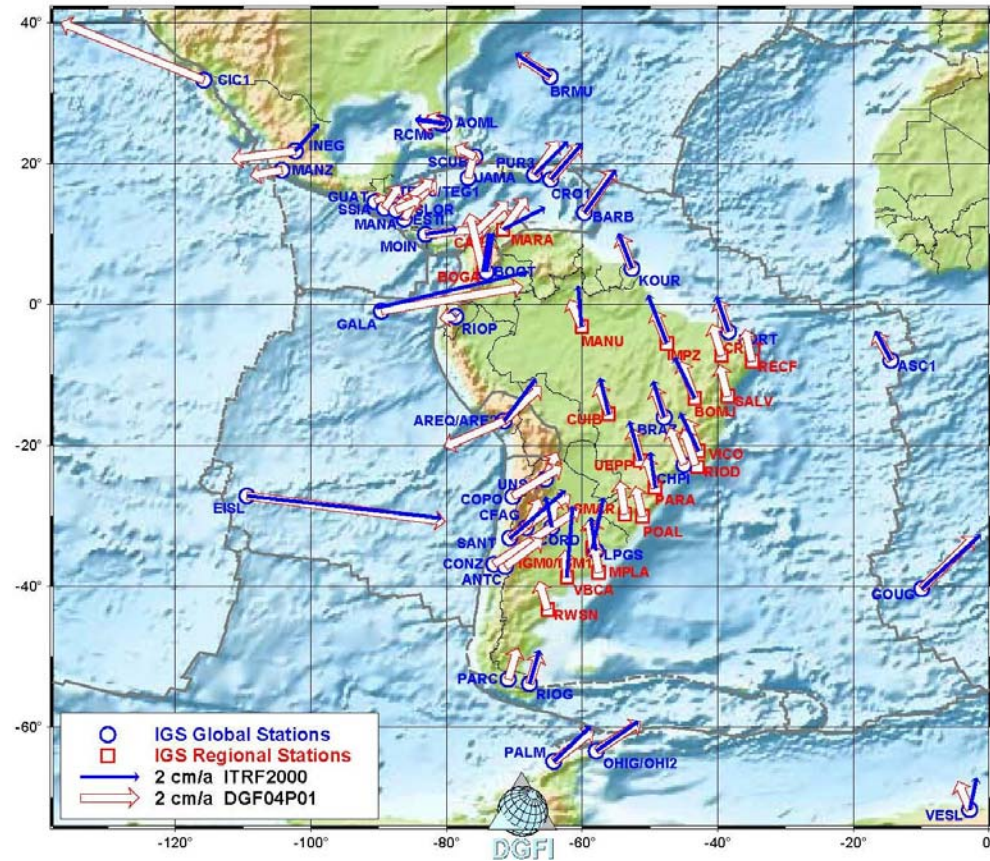
SIRGAS Project Overview: Capacity Building

- Establishment of agreements of mutual benefits
- Definition of roles and responsibilities
- Creation of thematic networks
- Formulation of strategies for financing
- Promotion of awareness and outreach
- Sharing best practices

SIRGAS Permanent Stations: December 2004

IGS Regional Network Associate Analysis Centre for SIRGAS (RNAAC SIR) at DGFI

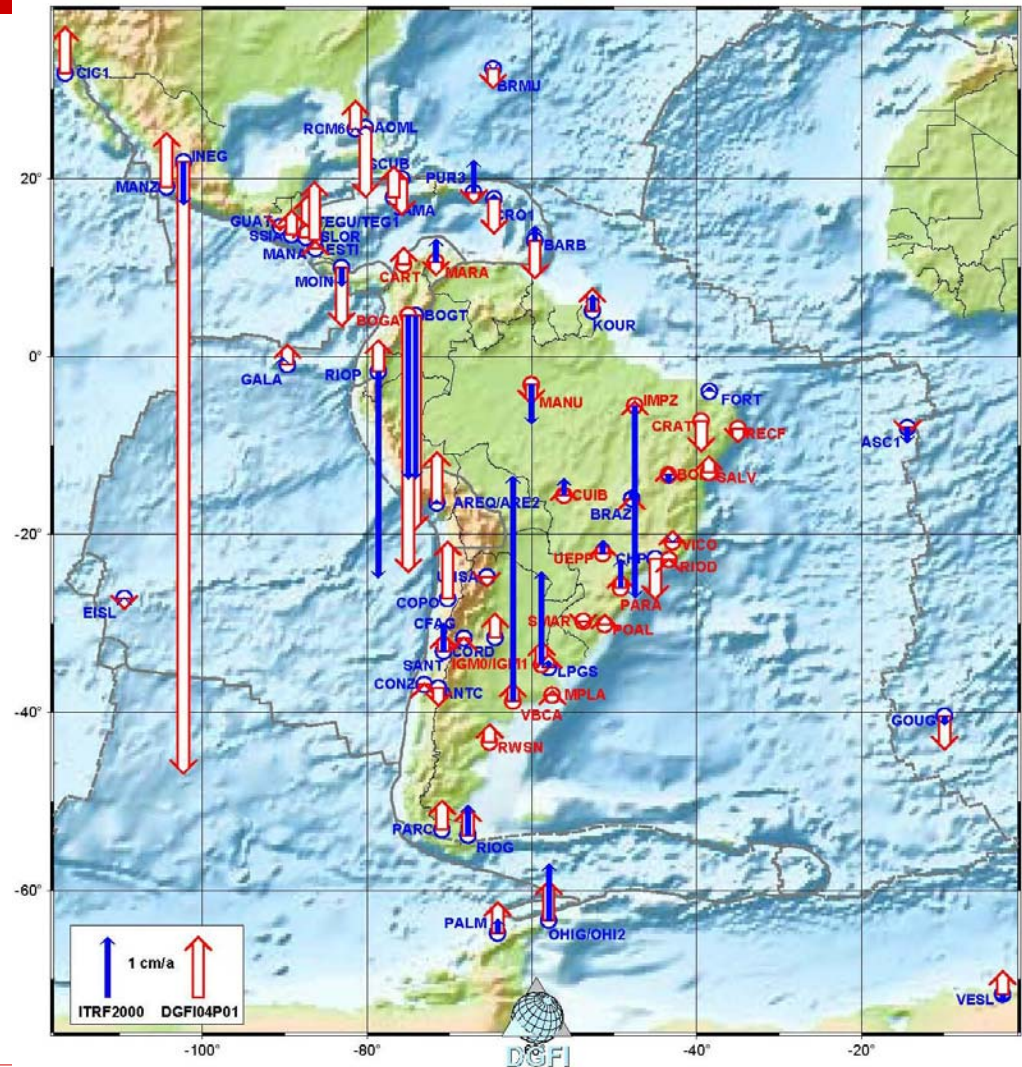
- The number of processed stations is increasing continuously. By the end of November 2004 the RNAAC network consists of 84 stations (53 global and 31 regional stations).
- The processing software used at RNAAC SIR is the Bernese Processing Engine (BPE). Currently, version 4.2 is installed, and in the near future it will be replaced by the latest version 5.0.



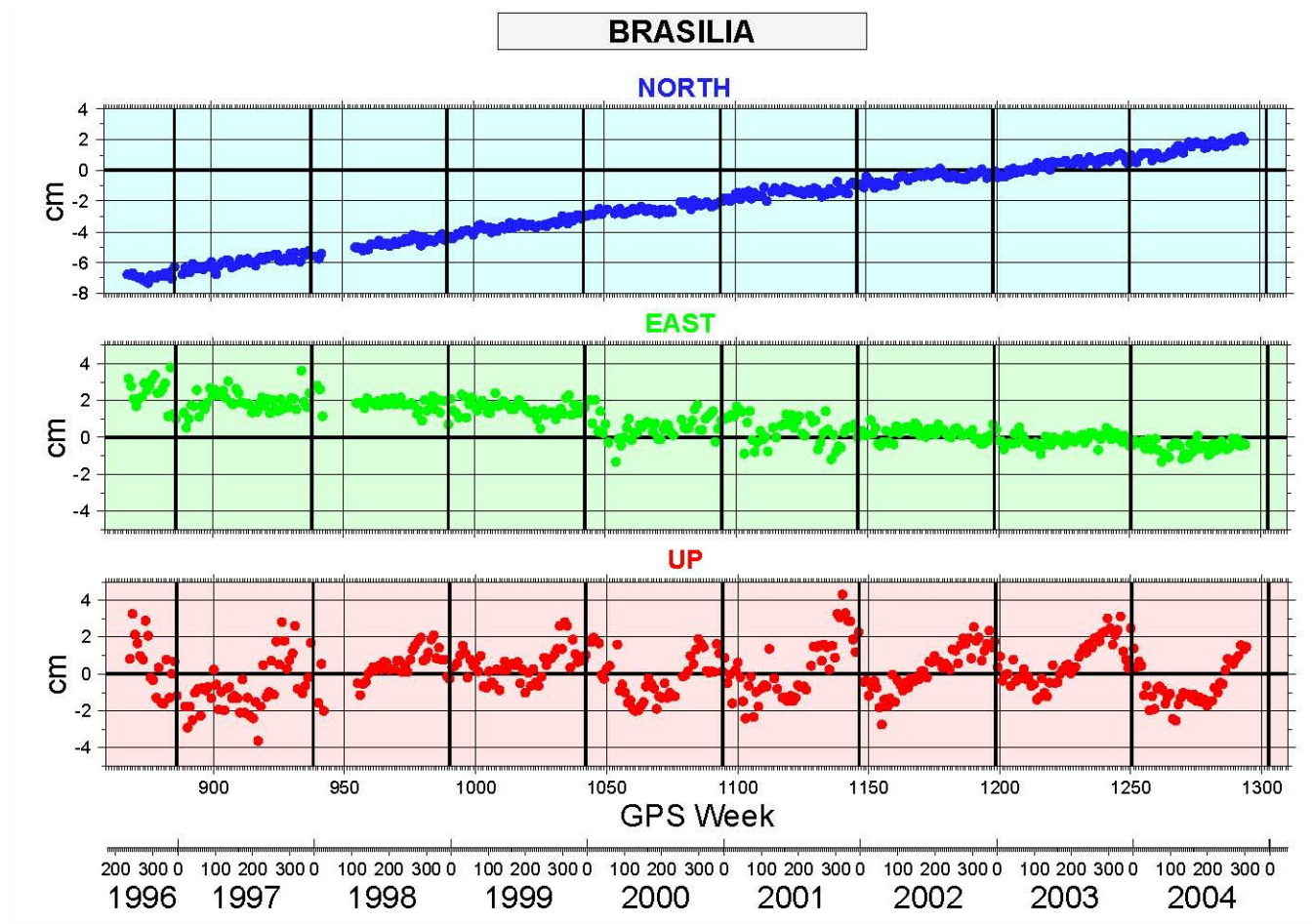
SIRGAS Permanent Stations: December 2004

□ IGS Regional Network Associate Analysis Centre for SIRGAS (RNAAC SIR) at DGFI

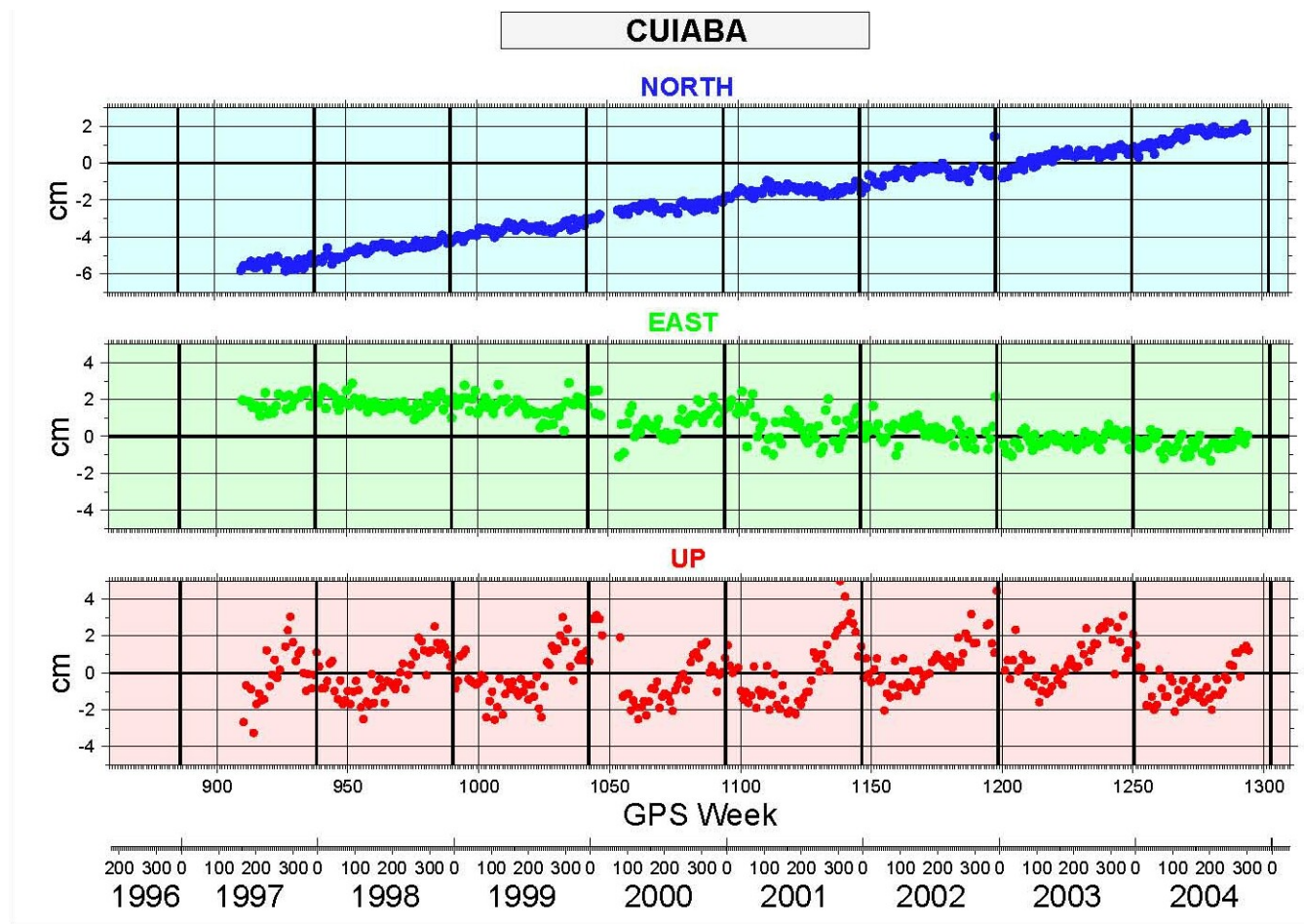
- The processing software used at RNAAC SIR is the Bernese Processing Engine (BPE). Currently, version 4.2 is installed, and in the near future it will be replaced by the latest version 5.0.



SIRGAS Permanent Stations: December 2004



SIRGAS Permanent Stations: December 2004



SIRGAS Velocity Field

- ❑ Calculated from 1995 and 2000 Campaigns.
- ❑ Vel-inter software released: Velocity interpolator by least squares ($1^\circ \times 1^\circ$ grid interval).
- ❑ Adopted strategy for coordinates computation: Reduction to ITRFxx based on observed velocities, or default, on the Velocity Field.



SIRGAS Vertical Datum

- ❑ Old national vertical datums defined by local tide- gauges
- ❑ Geometric meaning of the leveling networks
- ❑ Satellite based techniques as new data sources, e. g. GNSS / Satellite Altimetry / CHAMP, GRACE, GOCE, etc.
- ❑ Towards a Unified Physical Height System: gravity observations have to be involved
- ❑ Computation of Geopotential Numbers
- ❑ Normal, orthometric and dynamic heights (a choice)
- ❑ Geometric meaning: ellipsoidal heights; physical meaning: Normal heights

SIRGAS Vertical Datum: TASKS

- ❑ Spirit Levelling ties among SIRGAS area countries
- ❑ Geopotential Numbers computation (gravity measurements and or interpolation)
- ❑ Physical heights
- ❑ Vertical reference surface: Unified Quasi-Geoid

SIRGAS Project and PAIGH

- ❑ SIRGAS is at the core of the fundamental spatial data definition the Americas (CP-IDEA)
- ❑ Concrete projects (mainly on levelling networks) on international cooperation are being developed
- ❑ Fundamental (accurately geo-referenced) data have to be produced and shared in the SIRGAS region. To bring reliable Decision Support Systems, and to reduce the digital gap among the members.
- ❑ SIRGAS is a key factor for integration, sustainable development and decision making for the Americas



Thank you...