20 years of SIRGAS, The Geocentric Reference System for the Americas

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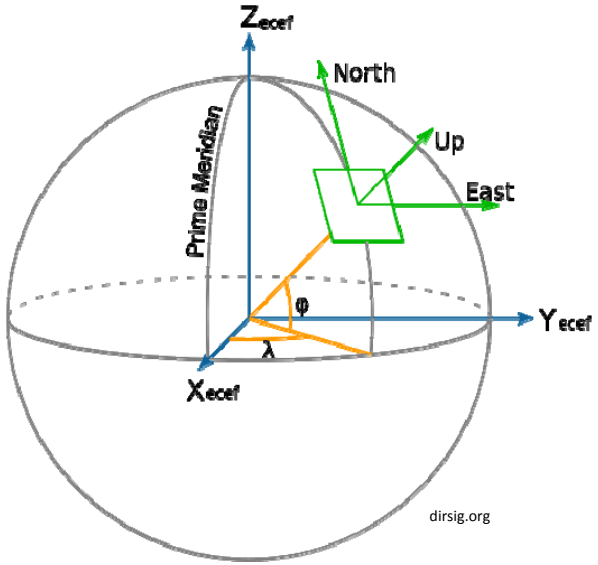
Meaning

The definition, realization and maintenance of the 3D geocentric reference system for the Americas, including a gravity field-related vertical reference system.

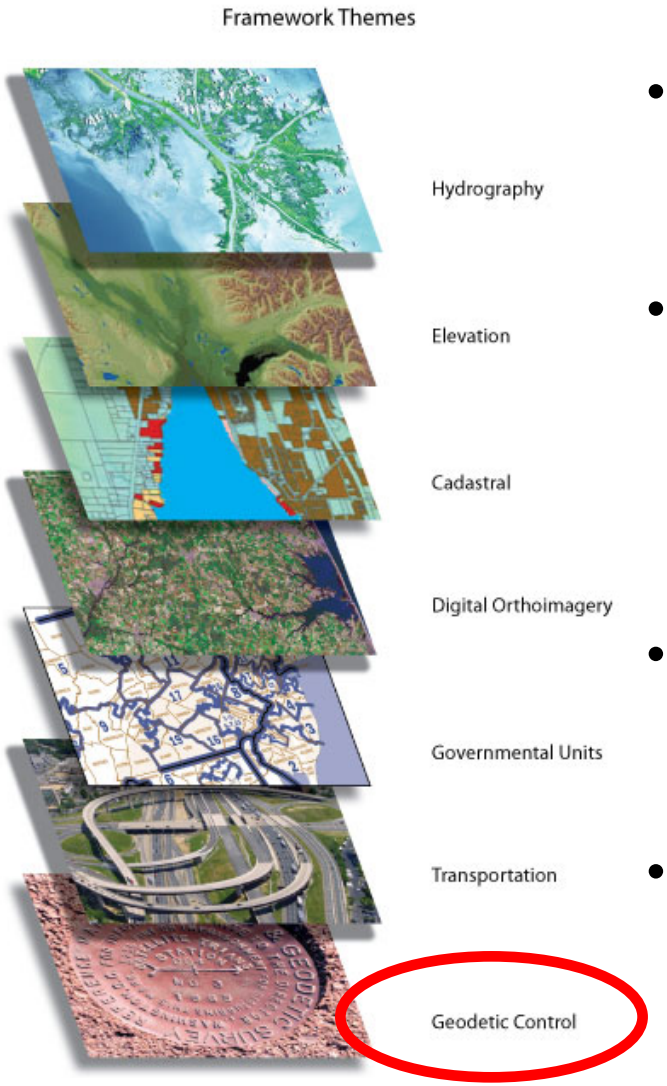


It is concentrated on a continuous improvement of its components to be consistent with the state-of-the-art in geodetic issues and to satisfy in a better way the user needs.

Mission

To create and make available for Latin America and the Caribbean geodetic data and products that contribute to the understanding of the complex and changing relationship between humans and nature.

SIRGAS implies...

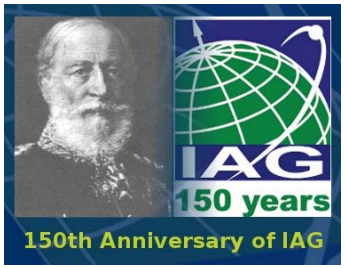


http://www.fgdc.gov/library/whitepapers-reports/

- To be the backbone for all projects based on the generation and use of geo-referenced data
- To provide the reference coordinates for the development of practical applications: engineering projects, digital administration of geographical data, spatial data infrastructures, etc.
- To be the platform for a wide range of scientific applications: monitoring of the global change
- **But, mainly, the SIRGAS is a strong, friendly and rigorous cooperation network that operates across the Americas and provides the spatial reference for everyone**

Review

- The SIRGAS was created at the "International Conference to Define a Geocentric Reference System for South America", held in 1993 in Asuncion (Paraguay)
- 1993: South America
- 2000: México, Central America and the Caribbean
- 2001: the 7th UNRCC-A (2001) recommended the adoption of the SIRGAS as the official reference system for all the countries of the Americas.
- Present: SIRGAS is a member of the **IAG** Commission 1 (Reference Frames), through the Sub commission 1.3 (Regional Reference Frames), and it is responsible for the Regional Reference Frames for South- and Central America (1.3b). SIRGAS is also a Working Group of the Cartography Commission of the **PAIGH**



SIRGAS 20 años 20 years 1993 - 2013

Member countries

- Argentina
- Bolivia
- Brazil
- Chile
- Colombia
- Costa Rica
- Ecuador
- El Salvador
- Guatemala
- Guyana

- Guyana Francesa
- Honduras
- Mexico
- Nicaragua
- Panama
- Paraguay
- Peru
- Uruguay
- Venezuela

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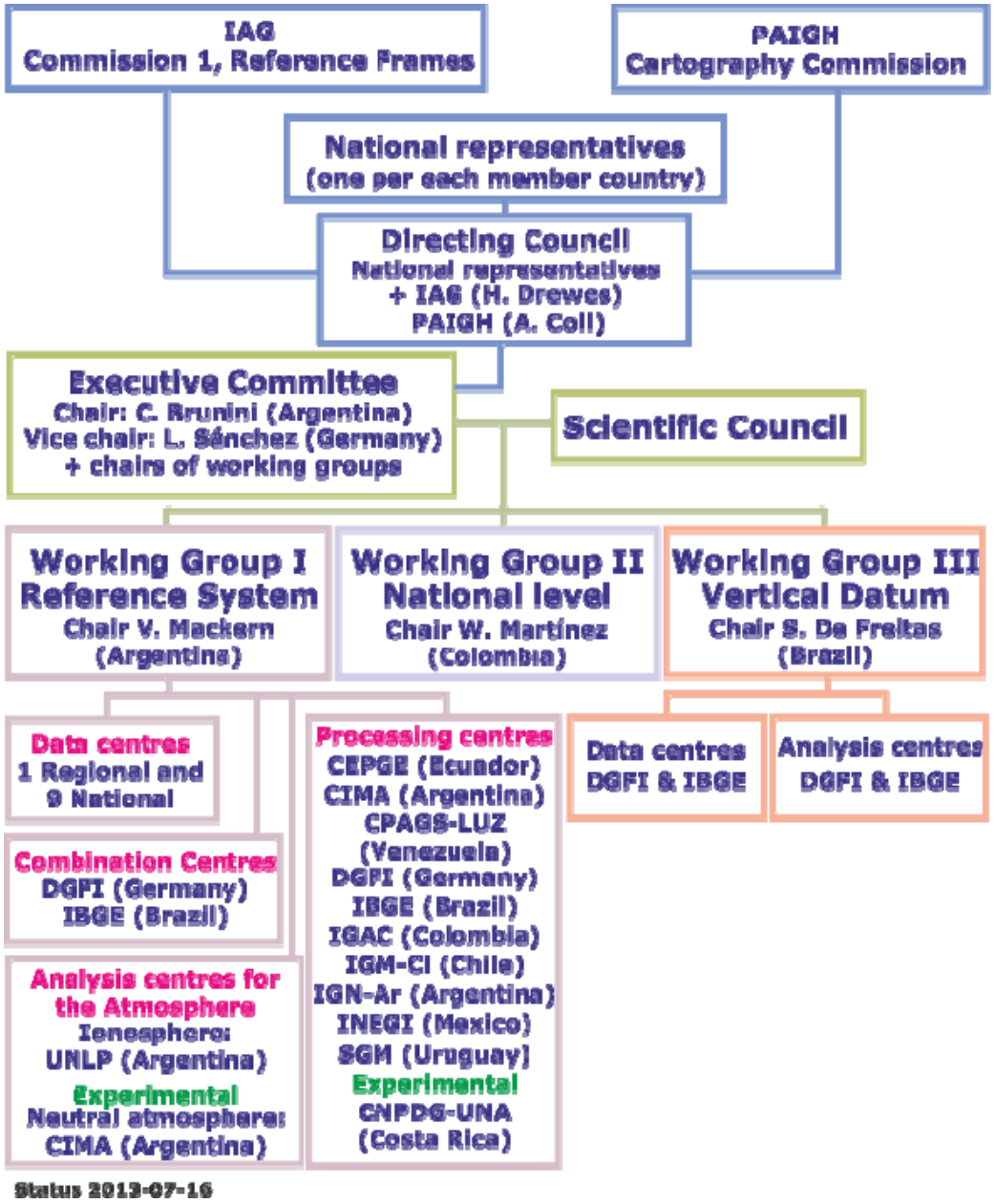
Present structure



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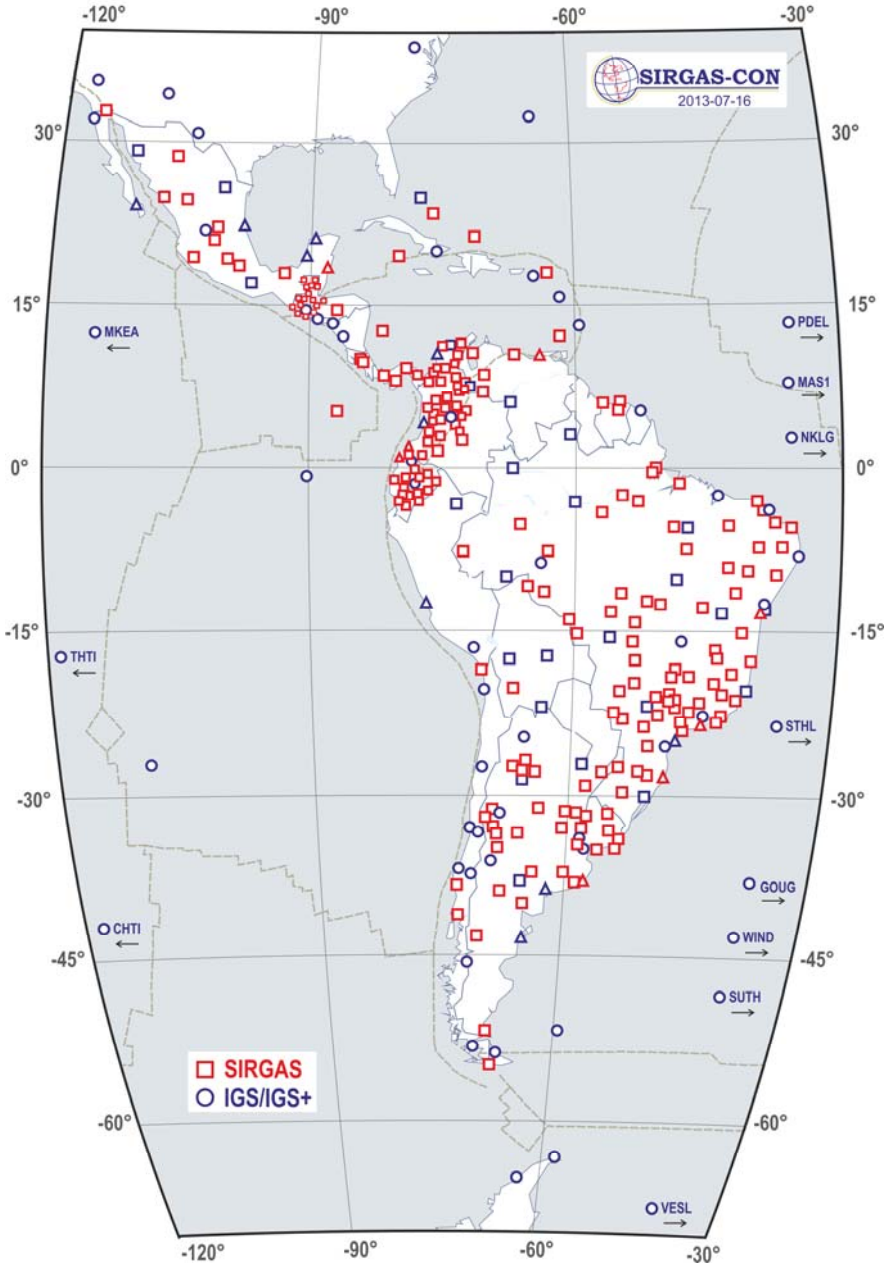
Stations



- The SIRGAS was initially realized by two GPS campaigns: 1995 (58 stations), and 2000 (184 stations).
- The SIRGAS Continuously Operating Network (**SIRGAS-CON**) is currently composed by about 300 permanently operating GNSS sites, 58 of them belonging to the global reference network:
  - Positions
  - Epoch
  - Changes in time (station velocities).

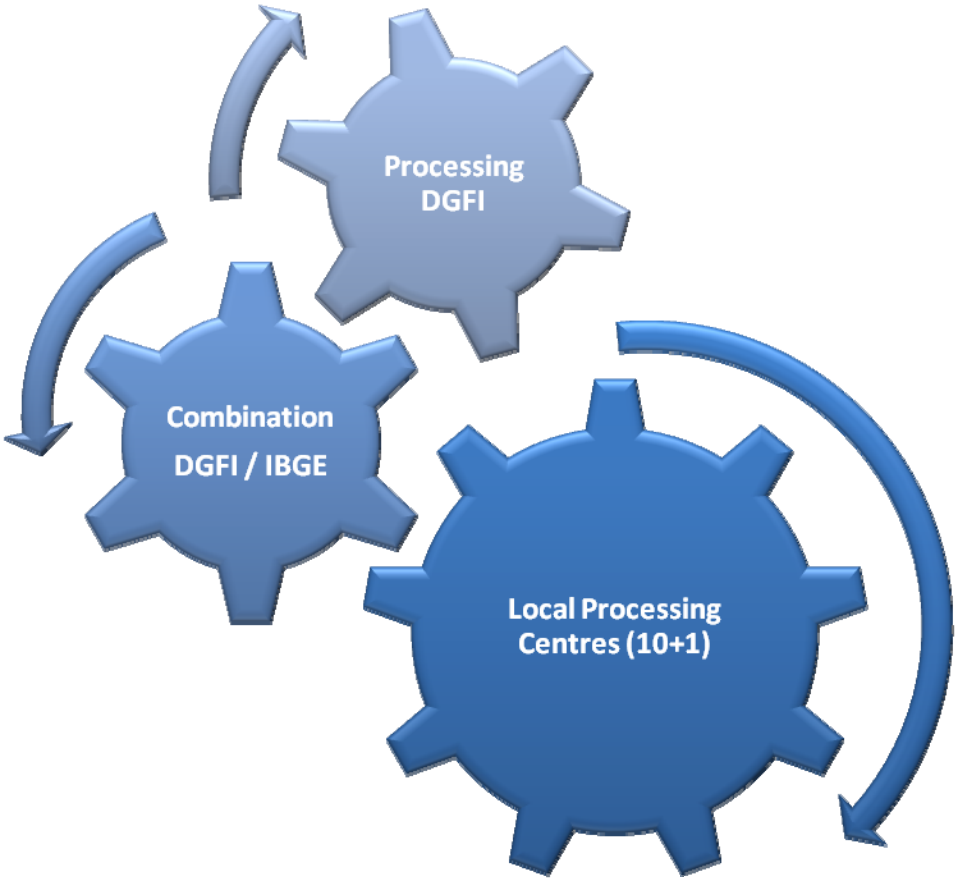
Processing

•More than 50 organizations install and operate the permanent stations and **voluntarily** provide the tracking data for the weekly processing of the network.

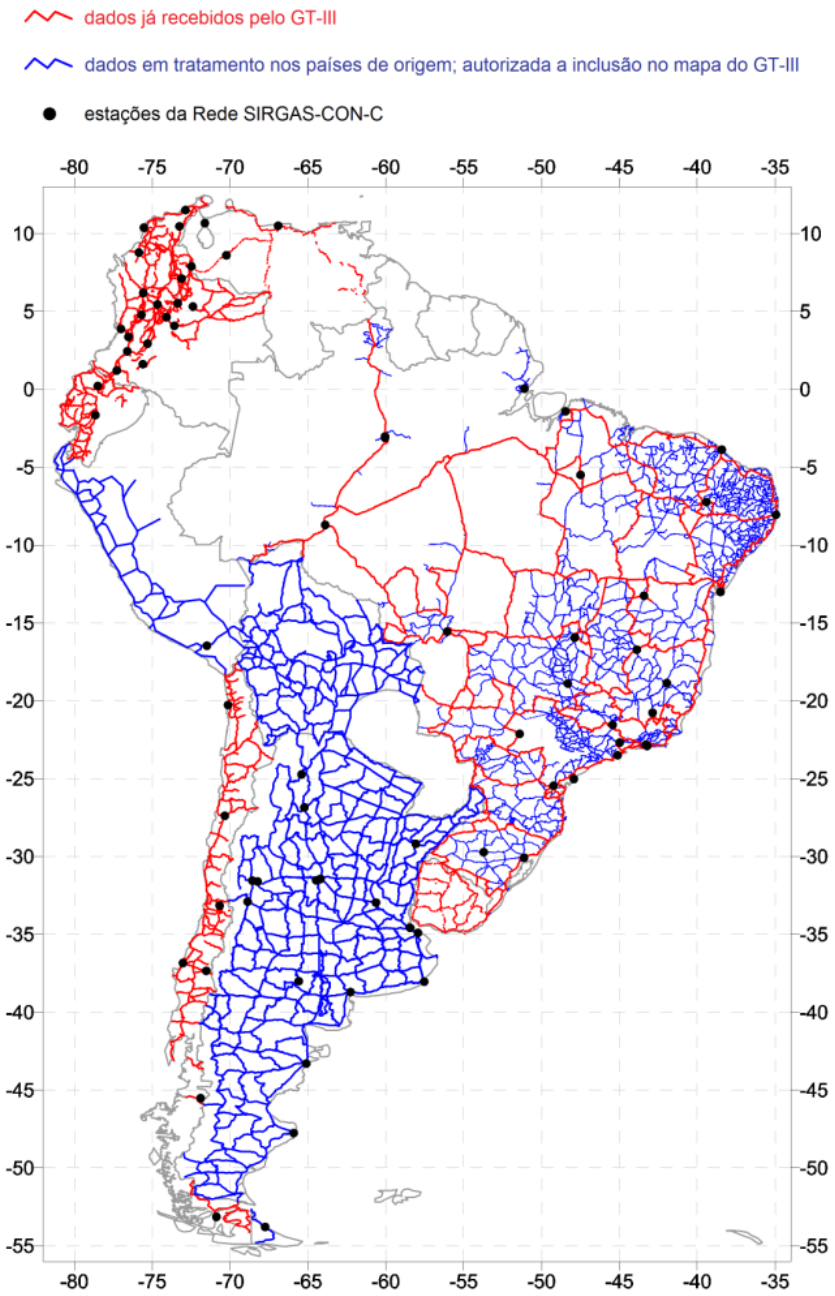
•The Increasingly number of GNSS stations given by each country has led to define a Core Network (SIRGAS-C) and National Networks (SIRGAS-N).

•The national networks are densifications of the core network, and they provide reliable reference stations to any user at any place.

•Each station is processed by three analysis centres.



Vertical



The new vertical reference system is based on the combination of:

- Data from the SIRGAS 2000 campaign and SIRGAS-CON
- First order levelling networks
- Gravity data
- Geopotential numbers
- Tide gauge records
- Satellite altimetry data.

These data have been provided by the member countries and are kept and analyzed by the WG-III.

Real Time (RT)

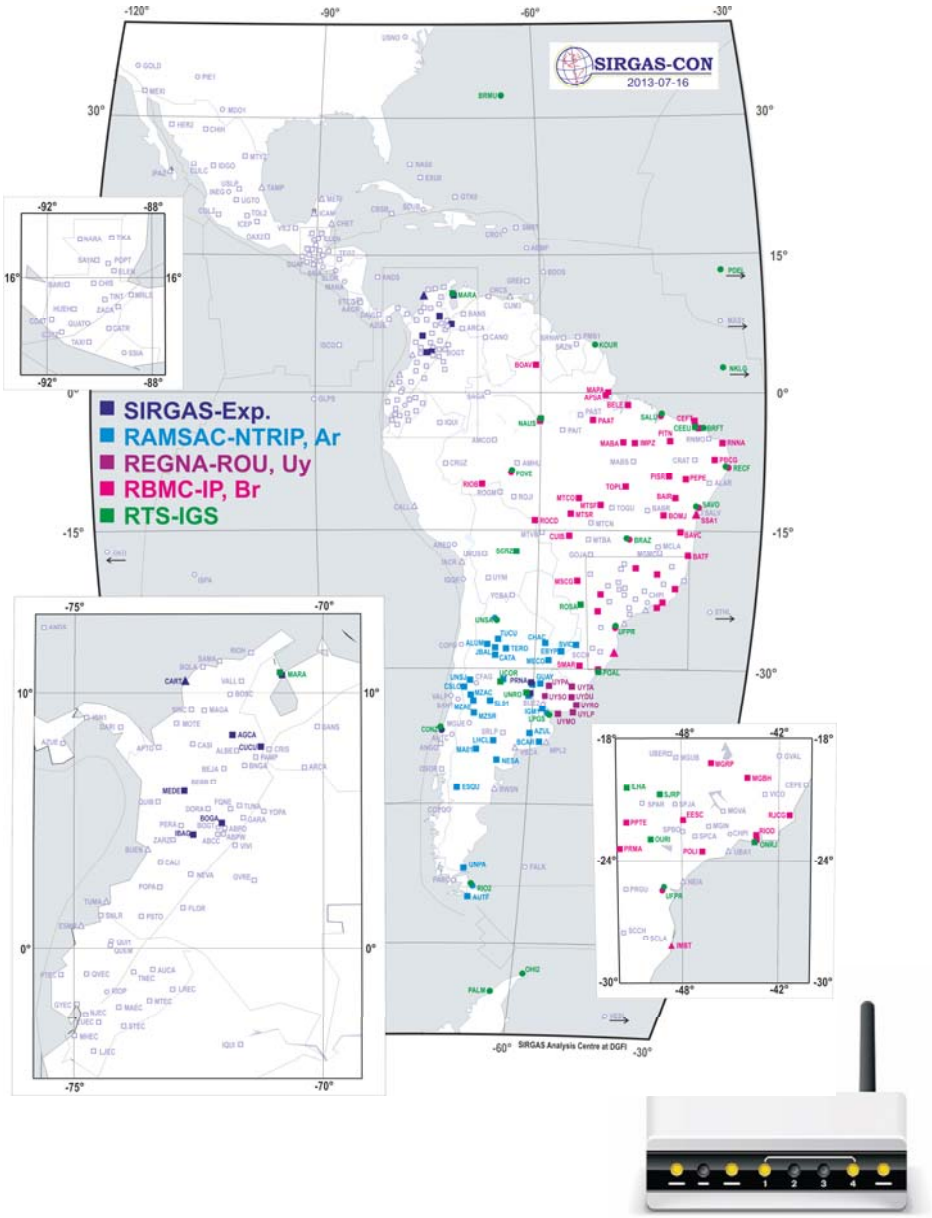
- Established in the General Meeting of 2008 (Montevideo).

- The **Experimental SIRGAS Caster** service has been implemented with the main purpose of publishing GNSS data in real time using NTRIP.

- The caster is hosted by the Laboratorio del Grupo de Geodesia Satelital de Rosario at the Universidad Nacional de Rosario, Argentina.

- Caster IP: 200.3.123.65 Port: 2101.

- Bundesamt für und Kartographie Geodäsie (BKG), Germany
- Universidad de la República, Uruguay
- Members of the SIRGAS-RT project
- National institutions involved in SIRGAS RT



Capacity - building

- First SIRGAS/IAG/PAIGH School: Geodetic Reference Systems. Bogotá, 2009. Instituto Geográfico Agustín Codazzi. 120 participants from 12 countries.

- Second SIRGAS/IAG/PAIGH School: Geodetic Reference Systems. Lima, 2010. Instituto Geográfico Nacional. 112 participants from 13 countries.

- Third SIRGAS/IAG/PAIGH School: Geodetic Reference Systems. Heredia. Universidad Nacional Costa Rica. 2011. 116 participants from 17 countries.

- Fourth SIRGAS/IAG/PAIGH School: Real Time GNSS Positioning. Concepción. 2012. Universidad de Concepción, Instituto Geográfico Militar of Chile and the contribution of BKG. 50 participants from 16 countries.

The Joint Action Plan (1)

SIRGAS

Fosters the participation of the region on the international geodetic front

Provides concrete solutions for the geodetic-based problems of the region

International scientific and technological vanguard in the field of geodesy

Agenda 2010 – 2020: Territorial management, disaster effects mitigation and global climate change processes

The Joint Action Plan (2)

The mission of the PC-IDEA is to promote the development of SDI in the Americas and that of GeoSUR is to facilitate access to and management of geospatial information

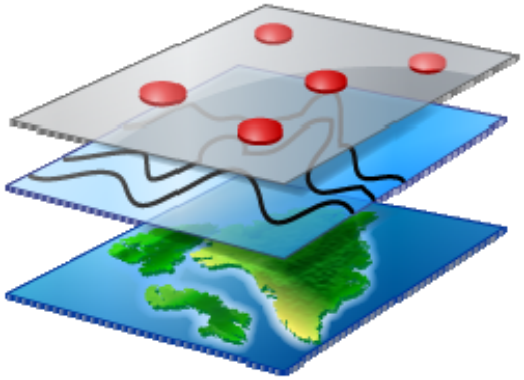
SIRGAS mission is to coordinate the efforts of more than fifty institutions in 20 countries to provide products, data, knowledge and services to georeference SDI in the Americas

CP-IDEA

GeoSUR

SIRGAS

To guarantee the alignment of the spatial information layers, it is essential their georeferencing with regard to a **single** reference frame. It means, to SIRGAS and its national definitions.



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Thank you very much.

REUNION SIRGAS 2013

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Ciudad de Panamá, Panamá

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