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UPDATE TO THE UN SUBCOMMITTEE ON GEODESY 5TH PLENARY SESSION

Gustavo Caubarrère, Chair, UN-GGIM: Americas WG GRFA/president, SIRGAS

Sandra Bolaños, Co Chair, UN-GGIM: Americas WG GRFA/vice president, SIRGAS

Sergio Cimbaro





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Structure of UN-GGIM: Americas



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Working Group on Geodesy
 Gustavo Caubarrère, Uruguay
 Sandra Bolaños, Canada



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Official Photo XI Session of UN-GGIM: Americas



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The president of SIRGAS participated as Chair of the #GRFA working group in the UNGGIM America sessions.



This session was key to strengthening regional cooperation and defining priority actions for the 2025 plan, addressing challenges in the generation of geospatial information.

Activities developed

Promotion of standards within SIRGAS countries

Education Capacity development through SIRGAS schools.	Work Real-time services based on SIRGAS infrastructure.
Standardization Consolidate the Continental Geodetic Reference Frame.	Interoperability Define a unified vertical reference system.

OCTOBER 7TH, 2024
MEXICO CITY

Challenges

Strengthen	Consolidation	Share
Integrate all the countries of America and the Caribbean.	Strengthen SIRGAS as a compact, precise and updated block.	Provide accessibility to geodetic data and maintain the global supply chain.

OCTOBER 7TH, 2024
MEXICO CITY

SIRGAS members

Miembros:
 SIRGAS
 Otro Sistema de Referencia

OCTOBER 7TH, 2024
MEXICO CITY



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SIRGAS Events 2024

"Real Time" School

The "Real Time" School was held from November 12 to 15, 2024 at the Francisco José de Caldas University, Bogotá, Colombia.

Its objective was to strengthen technical capacities, update knowledge and share experiences on Real-Time Precise Positioning Services in the SIRGAS region and globally.

The event had 30 participants from 14 countries and instructors from Ecuador, Venezuela, Spain, Canada and Uruguay.



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SIRGAS Events 2024



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SIRGAS Symposium 2024

The SIRGAS 2024 Symposium was held from 18 to 21 November, Bogotá, Colombia, hosted by IGAC. Organized by SIRGAS, IGAC and the International Association of Geodesy (IAG), the event addressed key topics over four days:

- Day 1: Atmospheric study and Earth system analysis.
- Day 2: Development and maintenance of the SIRGAS reference frame.
- Day 3: Applications of the SIRGAS reference frame.
- Day 4: Modelling the Earth's gravity field.

The Symposium brought together 400 in-person participants and was broadcast live on YouTube.

Over 50 papers and presentations were delivered.





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SIRGAS Training in 2024



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The course "**Processing of Continental GNSS Networks with Scientific Software BSW 5.4**", part of the activities of Working Group 1 (WG1), lasted 25 hours and was free of charge.

Representatives from the Military Geographic Institute of Chile and Bolivia participated.

The course addressed theoretical aspects of geodesy, GNSS and network processing, with emphasis on the SIRGAS-CON requirements. Processing strategies such as semi-free and fixed networks, the use of Galileo and the IGS Repro 3 standards were explored.

Upon completion, participants acquired the skills to process GNSS data accurately, contributing to the development of regional and national geodetic infrastructures.



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SIRGAS Training in 2024



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The in-person training course "**Non-linear Deformation Models Using GNSS Data**" was held from October 7-11, 2024, at the National University of Costa Rica, Heredia.

Led by Dr. Demián D. Gómez, Chair of SIRGAS Working Group 2, with assistance from Mara Figueroa and Franco Sobrero (Ohio State University), the course aimed to enhance geodetic capacity in key areas like Trajectory Prediction Models.

Topics covered included least squares theory, Extended Trajectory Models, kinematic, dynamic, and hybrid models, and deformation models.

The course, with 19 participants, received a 5/5 quality rating. On average, attendees rated their knowledge increase at 4/5, appreciating the well-organized content and balanced theory-practice approach.



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SIRGAS Plan 2025



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Continue **engagement** with member states (avoid lost of capacity and enhance infrastructure)

Maintain accuracy of geodetic products:

- Secure funding (IPGH, IAG)
- Increase redundancy of data repositories
- Document procedures (e.g. regional combination)
- Improve infrastructure: new GNSS stations and more AC
- Include non-linear deformation models in National networks

Stay **Visible**:

- Social media
- Conferences (e.g. IAG, PAIGH)
- Other communications (Geomail, UNGGIM, PAIGH)

Continue **Building Capacity**:

- Continuation of technical guide for gravimetry
- UNGGCE Americas workshop & VLBI/SLR training
- SIRGAS school: RF and their contribution to weather monitoring
- SIRGAS school: Reference Frames processing with Bernese 5.4
- Continue providing technical advice to new Analysis Centers



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SIRGAS Plan 2025



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- Integration of the Caribbean countries
- Formalize the incorporation of VLBI and SLR processing techniques in the different countries so that they become International Analysis Centers (IVS and SLR)
- Generate more GNSS Solution Combination centers in SIRGAS member countries
- Promote the combination of solutions from different geodetic techniques (GNSS, VLBI, SLR)
- Improve national and integrate regional dynamics models that allow geodetic reference frames to be maintained for a longer period of time



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WORKING GROUP I (REFERENCE SYSTEM) (SC 1.3.B IAG)

SIRGAS-IGS RELATIONSHIP (INTERNATIONAL GNSS SERVICE)

Coordinator: Laura Sánchez (DGFI-TUM, Alemania)

GNSS DATA CENTERS

Coordinator: Alberto da Silva (IBGE, Brasil)
1 Regional Center
1 Alternative Regional Center
13 National Centers

GNSS ANALYSIS CENTERS

Coordinator: Catalina Cáceres (USACH, Chile)
12 Official Analysis Centers: Argentina (IGN), Bolivia (IGM), Brasil (IBGE), Chile (IGM), Chile (USACH), Colombia (IGAC), University of Costa Rica (UCR), Ecuador (CEPEIGE), México (INEGI), Uruguay (IGM), Perú (IGN), Costa Rica (IGN).

2 Combination Centers: Alemania (DGFI-TUM), Brasil (IBGE)

1 Centro IGS RNAAC SIRGAS: Alemania (DGFI-TUM).

ATMOSPHERIC ANALYSIS CENTRES

1 Neutral Atmosphere Center: Virginia Mackern (UNCUYO/UMAZA, Argentina)

WORKING GROUP II (FOLLOW NATIONALLY)

NATIONAL REFERENCE FRAMEWORKS

Coordinator: Franco Sobrero (OSU, USA)
Deputy Coordinator: Dr. Jorge Moya Zamora (UNA-UCR, Costa Rica)

NATIONAL GEODETIC INFRASTRUCTURES

Coordinator: Mara Figueroa (OSU, USA)
Deputy Coordinator: MSc. Alonso Vega Fernández (UCR, Costa Rica)

REGIONAL COORDINATION IN NORTH AMERICA

Coordinator: Dana Caccamise (NGS, USA)

REGIONAL COORDINATION IN CENTRAL AMERICA AND THE CARIBBEAN

Coordinator:
Álvaro Álvarez (IGN, Costa Rica)

REGIONAL COORDINATION IN SOUTH AMERICA

Coordinator:
Virginia Mackern (UNCUYO/UMAZA, Argentina)

WORKING GROUP III (VERTICAL DATA) (SC 2.4.B IAG)

GRAVIMETRIC NETWORKS

Coordinator: Ezequiel Antokoletz (BKG, Germany)

LEVELING NETWORKS

Coordinator:
José Luis Carrión Sánchez (IGM, Ecuador)

GEOID MODELS

Coordinator:
Ana Cristina Oliveira Cancoro de Matos (USP, Brasil)

GЕOPOTENTIAL MODELS

Coordinator:
Ayelén Pereira (UNR, Argentina)



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YEAR	PLACE	TYPE OF MEETING	ATTENDANTS	COUNTRIES
1993	Asuncion, Paraguay	International Conference	N/A	
1994	Bogota, Colombia	Working Meeting GT II	12	7 Countries
	La Plata, Argentina	Working Meeting GT I y GT II	N/A	
	Organized by Milan	1st International School "Determination and Use of the Geoid"	N/A	
1995	Boulder, Colorado	UGGI General Assembly	N/A	
1996	Santiago de Chile	IV International Congress of Earth Sciences	30	12 Countries
1997	Rio de Janeiro, Brasil	IAG Scientific Assembly	N/A	
		2nd International School "Determination and Use of the Geoid"	N/A	
1998	Santiago de Chile	Working Meeting III	17	8 Countries
1999	Birmingham, Inglaterra	22nd UGGI General Assembly/GT III Meeting	N/A	



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YEAR	PLACE	TYPE OF MEETING	ATTENDANTS	COUNTRIES
2001	Nueva York, USA	Seventh United Nations Regional Cartographic Conference for the Americas	N/A	
	Cartagena de Indias, Colombia	IAG Symposium	29	9 Countries
	Budapest, Hungría	IAG Scientific Assembly	29	9 Countries
2002	Santiago de Chile	SIRGAS Project Meeting	37	12 Countries
2004	Aguascalientes, Mexico	Working Meeting	N/A	
2005	Caracas, Venezuela	Project Technical Meeting	23	13 Countries
2006	Rio de Janeiro, Brasil	Working Meeting, GT I Workshop	28	4 Countries
	Heredia, Costa Rica	Technical Meeting	26	10 Countries
2007	Bogotá, Colombia	SIRGAS meeting	19	
2008	Montevideo, Uruguay	SIRGAS meeting/GT I Workshop	N/A	



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YEAR	PLACE	TYPE OF MEETING	ATTENDANTS	COUNTRIES
2009	Bogota, Colombia	SIRGAS School	120	12 Countries
	Buenos Aires, Argentina	IAG Scientific Assembly/ SIRGAS meeting	49	13 Countries
	La Plata, Argentina	9th International School "Determination and Use of the Geoid"	N/A	
2010	Peru, Lima	SIRGAS School	112	13 Countries
	Peru, Lima	Meeting of the Board of Directors of the PAIGH	89	13 Countries
2011	Heredia, Costa Rica	SIRGAS School	116	17 Countries
	Heredia, Costa Rica	SIRGAS meeting	144	17 Countries
2012	Concepción, Chile	SIRGAS meeting	N/A	
		SIRGAS School	50	15 Countries
		Technical visit	135	
2013	Panamá, Panamá	SIRGAS meeting	184	28 Countries



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YEAR	PLACE	TYPE OF MEETING	ATTENDANTS	COUNTRIES
2014	La Paz, Bolivia	SIRGAS School	34	15 Countries
		SIRGAS Symposium	260	19 Countries
2015	Curitiba, Brasil	3rd SIRGAS GT III Workshop	N/A	
	Santo Domingo, Dominican Republic	VII SIRGAS School	60	19 Countries
		SIRGAS Symposium	148	19 Countries
2016	Quito, Ecuador	SIRGAS Symposium/ Reunión Consejo Directivo	217	14 Countries
		Two Technical Meetings GTI and GTII	N/A	
		SIRGAS Workshop GT III	45	10 Countries
2017	Mendoza, Argentina	SIRGAS Symposium	170	18 Countries
		SIRGAS Workshop	50	12 Countries
		Annual Meeting of the SIRGAS Board of Directors	N/A	11 Countries
	Heredia, Costa Rica	I-SIRGAS Workshop	35	5 Countries



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YEAR	PLACE	TYPE OF MEETING	ATTENDANTS	COUNTRIES
2017	Mendoza, Argentina	2-Real-Time GNSS Positioning Workshop	50	
	VIRTUAL	3-Workshop sobre SRL en América Latina	43	10 Countries
2019	Rio de Janeiro, Brasil	SIRGAS Symposium	163	16 Countries
	VIRTUAL	2º Workshop Satellite Laser Ranging en America Latina	25	8 Countries
2020	Santa Cruz, Bolivia VIRTUAL	Virtual Symposium on Covid-19	613	
	Webinar	"Activities and products of the SIRGAS Analysis Centers"	611	
	Webinar	"GNSS data processing with free software, from SIRGAS stations"	311	
	Webinar	"International Height System IHRS"	850	
	Webinar	"NRCAN PPP processing in Windows Desktop environment"	63	
	Webinar	"Earth surface motion model"	149	
2021	Lima, Peru VIRTUAL	SIRGAS Virtual Symposium	150	



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YEAR	PLACE	TYPE OF MEETING	ATTENDANTS	COUNTRIES
2022	Costa Rica	Course	22	5 Countries
		Vertical Reference System Workshop	14	7 Countries
		SIRGAS Symposium	90 In person	130 Remote
	Remote	Technical advice	IGN-RD	Rep. Dominic
		Remote support	IGN	PERU
		GT III Training	IGM	BOLIVIA
		GT III Training	IGN	COSTA RICA
		Technical advice	IGAC	COLOMBIA
	Webinar	Technical advice	IBGE	BRASIL
		Workshop on Reference System		
		Workshop "Height and Gravity Systems"		
		Workshop - Installation and operation of permanent GNSS stations		



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YEAR	PLACE	TYPE OF MEETING	ATTENDANTS	COUNTRIES
2023	Heredia, Costa Rica	8ª SIRGAS School "Reference Systems"	55	8 Countries
		Course BERNESE	8	
		Course GAMIT/GLOBK	14	
	Buenos Aires, Argentina	XIV International School "Determination and Use of the Geoid"	40	15 Countries
2024	Bogota, Colombia	"Real Time" School	30	16 Countries
		SIRGAS Symposium	400	23 Countries
		Meeting of the Board of Directors	22	22 Countries



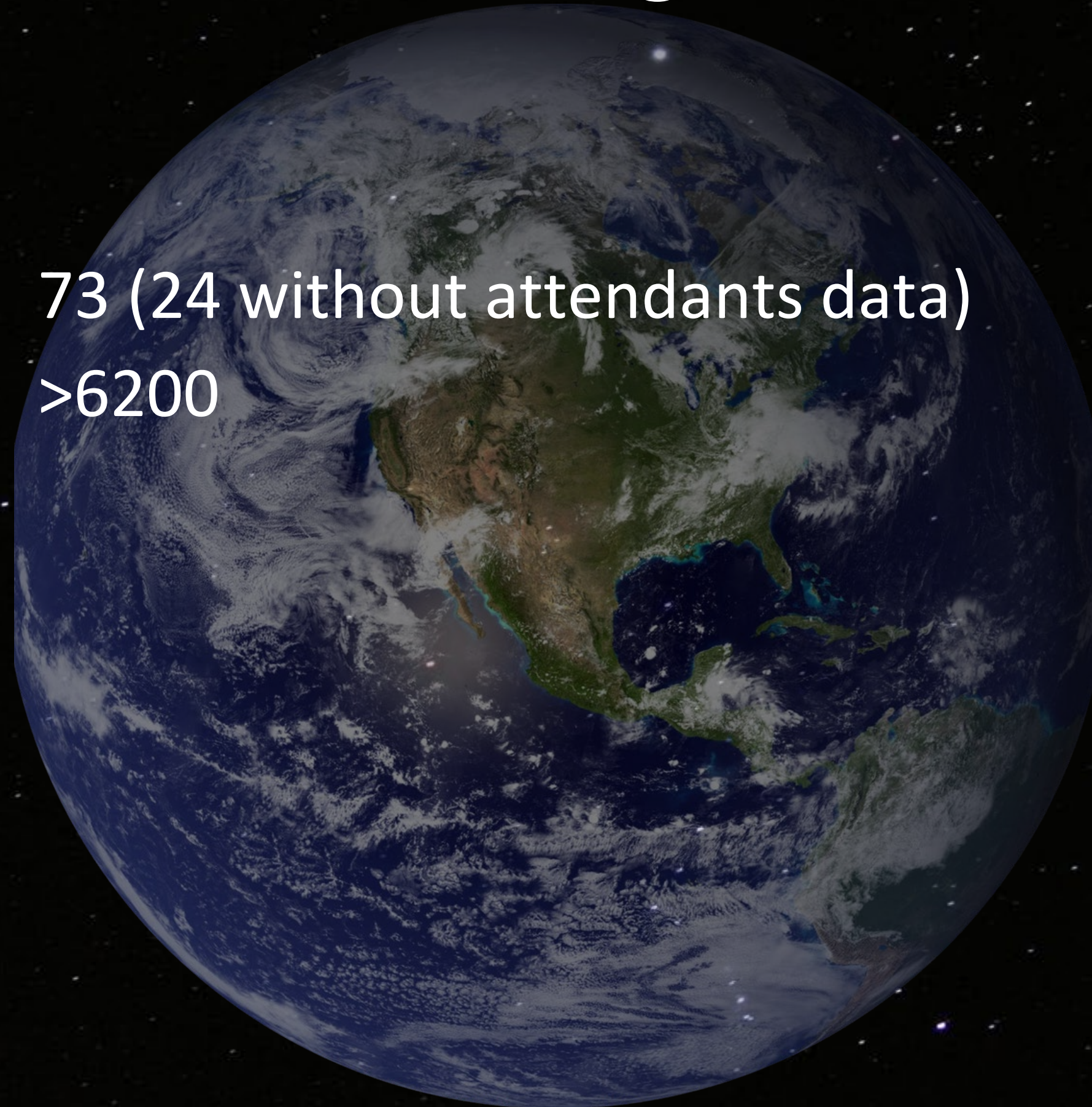
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Activities 73 (24 without attendants data)
Attendants >6200





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Participantes en la Reunión SIRGAS, Bogotá, Colombia, junio 7 y 8 de 2007. De izquierda a derecha, primera fila: Álvaro Hermosilla, Tomás Marino, Hermann Drewes, William Martínez, Rosa Anaya, Sonia Costa, segunda fila: Carlos Figeroa, Wilfredo Amaya, Claudio Brunini, Laura Sánchez, Carlos Fernández.





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4. Participants in the School on Reference Systems, Crustal Deformation and Ionosphere Monitoring and the SIRGAS2013 General Meeting. Panama City, Panama. October 21-26, 2013.

7. Participantes en el SIRGAS Workshop on Vertical Datum Unification llevado a cabo el 3 y el 6 de diciembre de 2012 en el IBGE, Rio de Janeiro, Brasil.



Reunión del SIRGAS-GTI y del proyecto SIRGAS-RT en el marco de la Reunión SIRGAS2013



Foto grupal de los participantes en la Escuela SIRGAS en Sistemas Verticales de Referencia, La Paz, Bolivia, noviembre 20-22, 2014.



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Participantes en la VII Escuela SIRGAS en Sistemas de Referencia, Santo Domingo, Dominicana, noviembre 16 y 17, 2015.



El Tercer Taller del Grupo de Trabajo III de SIRGAS, Curitiba, Brasil.



PARTICIPANTES SIRGAS 2016
Quito - Ecuador

Figura 1. Foto grupal de los participantes en el Simposio SIRGAS 2016.

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Figura 32. Participantes en el TALLER SIRGAS GT III-2017



Figura 33. Asistentes al Taller SIRGAS en posicionamiento GNSS a tiempo real 2017, Mendoza, Argentina, 22 al 24 de Noviembre, 2017



Participantes al Simposio SIRGAS2017, Mendoza, Argentina, 27 al 30 de noviembre 2017



Figura 1: Participantes SIRGAS 2019



Figura 2: Participantes Taller SLR 2019



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Figura 5: Asistentes Taller Internacional sobre la Implementación del Marco de Referencia Geodésico Global (GGRF) en América Latina



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Thank you!

sirgasipgh@gmail.com

No te olvides de comentar,
darle me gusta y compartir
este post si te gusto.

