Improvement of the IGS station coverage in Latin America

Sistema de Referencia Geocéntrico para las Américas

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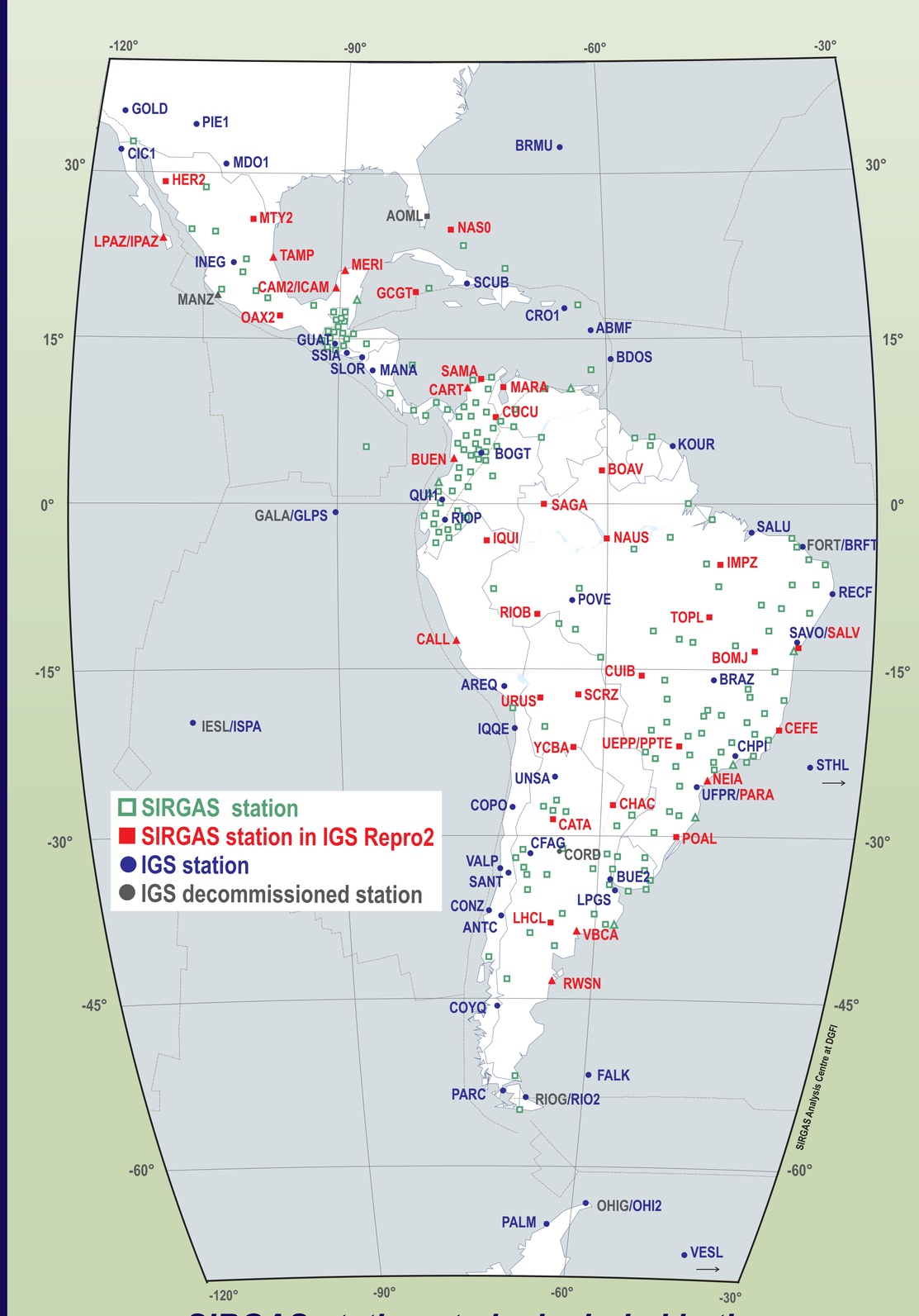
After the strong earthquake in the Chilean Region Maule on February 27, 2010, a huge percentage of existing IGS reference frame stations in South America suffered an irreparable discontinuity in their time series. Co-seismic displacements between 5 m at the Pacific Coast and 2 cm at the Atlantic Coast in Argentina and Uruguay were detected. Post-seismic movements after the main earthquake and its aftershocks are also evident in the station position time series. Thereby, the reliability of the recently launched ITRF2008 and IGS08 reference frames decreased considerably in South America; and the affected stations are no longer usable as a basis for the GNSS data analysis or to guarantee the long-term stability of the ITRF in this region.

Considering the achievements reached within the regional reference frame SIRGAS and the planned second reprocessing campaign of the IGS global network, a set of continuously operating SIRGAS stations satisfying the IGS requirements was proposed to be included in this reprocessing with the main objective of improving the IGS station coverage in Latin America. This selection was evaluated by the IGS Reference Frame Working Group, and after some interaction with the IGS Global Analysis Centres, it was decided to include 36 SIRGAS stations not only in the IGS reprocessing but also in the present routine IGS processing. Metadata and all existing observations (historical and present data) of these stations are available at the IGS data centres since January 2012. The next step is to manage, together with the IGS Network Coordinator, the formal integration of these stations in the IGS network.



SIRGAS stations to be included in the IGS Repro2.

Main characteristics of the SIRGAS stations selected to be included in the IGS Repro2.

CODE	DOMES	OPERATOR	LOCATION COUNTRY		TIDE GAUGE	GLONASS	DISCONTINUITY	TIME SPAN
BOAV	41636M001	IBGE	Boa Vista	BR		X		
BOMJ	41612M001	IBGE/INCRA	B. J. da Lapa	BR		X		
BUEN	41912S001	IGAC	Buenaventura	CO	X			
CALL	42205M001	DGFI/IGN-Pe	El Callao	PE	X	X		
CAM2	40514M001	INEGI	Campeche	MX	X		Station replacement	
ICAM	40514M002							
CART	41902M001	IGAC	Cartagena	CO	X			
CATA	41534M001	AGC/IGN-Ar	San Fernando	AR		X		
CEFE	41637M001	IBGE	Vitoria	BR		X		
CHAC	41553M001	APA/IGN-Ar	Resistencia	AR		X		
CUCU	41904S001	IGAC	Cucuta	CO		X		
CUIB	41603M001	IBGE	Cuiaba	BR				
GCGT	80401M001	CIG	Cayman Ids.	UK		X		
HER2	40522M001	INEGI	Hermosillo	MX				
IMPZ	41615M001	IBGE	Imperatriz	BR		X		
IQUI	42204M001	DGFI/IGN-Pe	Iquitos	PE		X		
LHCL	41518S001	CERI/IGN-Ar	Lihuel Calel	AR			Earthquake Feb. 2010	
LPAZ	40521M001	INEGI	La Paz	MX	X		Station replacement	
IPAZ	40521M002							
MARA	42402M001	DGFI	Maracaibo	VE			Equipment replacement	
MERI	40520M001	INEGI	Merida	MX				
MTY2	40518M001	INEGI	Monterrey	MX				
NAS0	43607S001	UCAR	Bahamas	BS				
NAUS	41614M002	IBGE	Manaus	BR				
NEIA	41620M002	IBGE	Cananeia	BR		X		
OAX2	40517M001	INEGI	Oaxaca	MX				
PARA	41610M001	IBGE	Curitiba	BR		X	Station replacement	
UFPR	41610M002							
POAL	41616M001	IBGE	Porto Alegre	BR				
RIOB	41645M001	IBGE	Rio Branco	BR				
RWSN	41513M001	UNLP	Rawson	AR	X		Earthquake Feb. 2010	
SAGA	41639M001	IBGE	São Gabriel	BR				
SALV	41618M001	IBGE	Salvador	BR		X	Station replacement	
SAVO	41643M001							
SAMA	41928S001	IGAC	Santa Marta	CO		X		
SCRZ	41801M001	IGM-Bo	Santa Cruz	BO				
TAMP	40516M001	INEGI	Tampico	MX	X			
TOPL	41648M001	IBGE	Palmas	BR				
UEPP	41611M001	IBGE	Presidente Prudente	BR		X	Station replacement	
PPTE	41611M002							
URUS	41802M001	DGFI/IGM-Bo	Oruro	BO		X		
VBCA	41512M001	DGFI/IGN-Ar	Bahia Blanca	AR	X		Earthquake Feb. 2010	
YCBA	41803M001	DGFI/IGM-Bo	Yacuiba	BO		X		