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RAGA - AAGN (Argentine Absolute Gravity Network)

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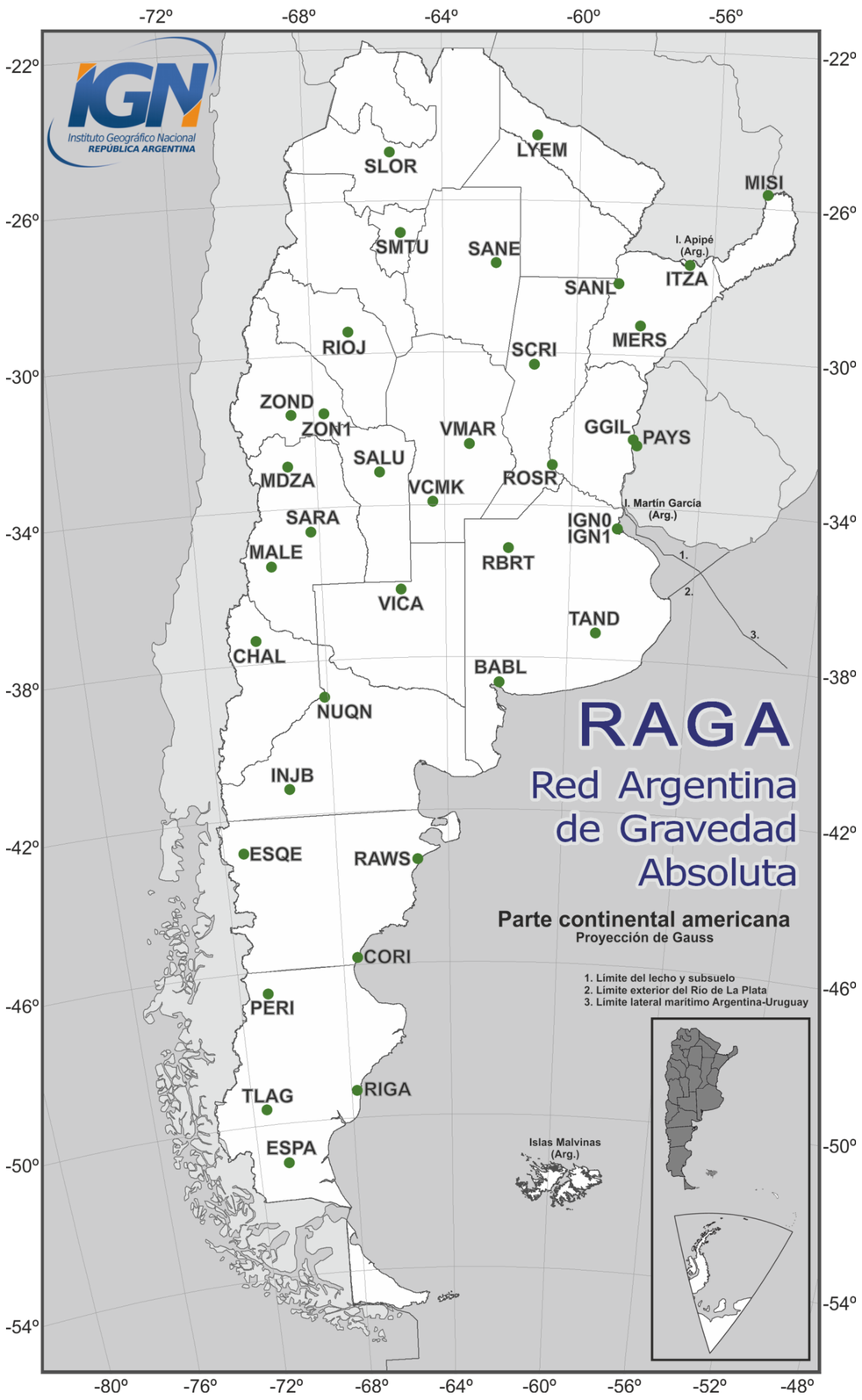
Argentine Absolute Gravity Network (RAGA)



Final Values

Nro	Station	Latitude (dec)	Longitude (dec)	Gravity (mGal)
1	LYEM	-24.2808056	-61.2363333	978882.640
2	SLOR	-24.7212778	-65.5046389	978409.389
3	MISI	-25.6382222	-54.5389722	978905.491
4	SMTU	-26.8434167	-65.2301667	978886.042
5	ITZA	-27.5842500	-56.6881944	979122.745
6	SANE	-27.6448611	-62.4138333	979123.329
7	SANL	-28.1375833	-58.7688333	979165.409
8	MERS	-29.2271111	-58.0725556	979239.943
9	RIOJ	-29.4253333	-66.8622500	979042.376
10	SCRI	-30.3100000	-61.2422778	979327.540
11	ZON1	-31.5452778	-68.6843611	979141.662
12	ZOND	-31.5452778	-68.6843611	979141.679
13	GGIL	-32.2165556	-58.1470278	979517.779
14	PAYS	-32.3782778	-58.0299444	979523.523
15	VMAR	-32.4093889	-63.2166667	979473.584
16	MDZA	-32.8936389	-68.8763056	979199.554
17	ROSR	-32.9478333	-60.6305833	979548.444
18	SALU	-33.1208333	-66.0252778	979316.985
19	VCMK	-33.9165000	-64.3681111	979580.009
20	IGN1	-34.5726667	-58.5163333	979688.239
21	SARA	-34.6320833	-68.2596944	979495.707
22	RBRT	-35.1409167	-61.9727222	979723.693
23	MALE	-35.4828611	-69.5856944	979325.663
24	VICA	-36.2169722	-65.4366667	979752.736
25	TAND	-37.3235278	-59.0820000	979903.712
26	CHAL	-37.3889722	-70.2564722	979653.626
27	BABL	-38.6674167	-62.2323333	980046.225
28	NUQN	-38.9629444	-68.0981111	979965.718
29	INJB	-41.3211667	-69.5034444	980021.640
30	ESQE	-42.8983333	-71.2968889	980231.722
31	RAWS	-43.2994167	-65.1071944	980458.033
32	CORI	-45.8246389	-67.4635000	980663.760
33	PERI	-46.5896944	-70.9263611	980624.557
34	RIGA	-49.2996111	-67.7716944	980993.919
35	TLAG	-49.5986389	-71.4448889	980959.907
36	ESPA	-51.0296389	-70.7771667	981084.686

Background

The zero order Argentina gravity network was established in 1991 and was formed of five absolute gravity stations. Modern geodesy, integration of geodetic regional frames and improvements in vertical reference systems, among other factors, require gravity networks with better precision parameters.

In 2013, the National Geographic Institute, the National Universities of Rosario, San Juan and La Plata in Argentina, together with the Universidad de São Paulo (Brazil) and IRD France initiated the RAGA – AAGN project in order to provide a new absolute gravity network formed by 35 stations well distributed along the Argentine territory.

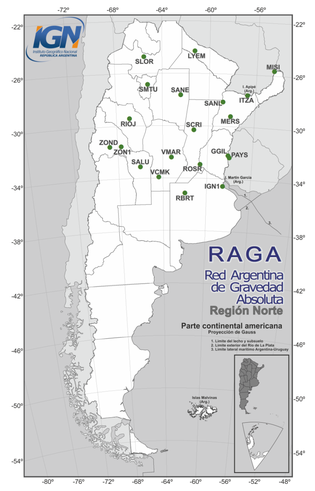
Current requirements of Geodesy

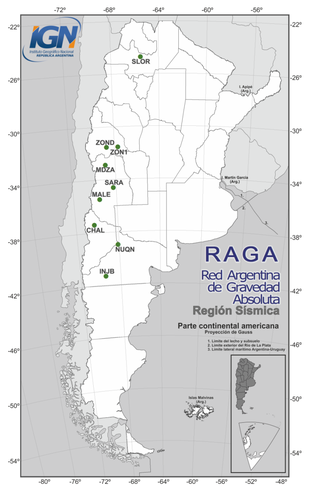
- ✓ To meet the accuracy requirements according to the new methodologies for measuring and geodetic data processing.
- ✓ To contribute to the integration of continentals networks into a single reference frame agreement as proposed and implemented by the SIRGAS Project
- ✓ To participate in determining the equipotential surface W0 at local and regional level
- ✓ To validate and adapt the results of the determination of geopotential numbers of fixed points of the Height National Network and SIRGAS points .
- ✓ To obtain a homogeneous distribution allowing efficient link with the nodal points of the height network and the adjustment of gravity existing network

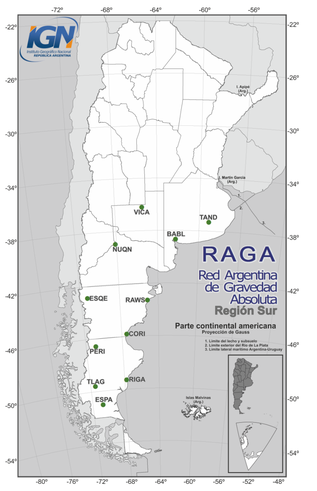
Running Network

The network was developed in three stages of measurement: “North”, “South” and “Seismic zone” according to the scheme presented below and taking out a total of 43 measurements of absolute gravity with 36 final points, 4 of them with double measurements, 2 with triple measurements, and one with 4 measurements.

In 2015 the National Geographic Institute officially adopted RAGA as the National Zero Order Gravimetric Network for Argentina.







Stage	Start date	Participants	Gravimeter	Measured points
North	January 6, 2014	Instituto Geográfico Nacional – Universidade de São Paulo	MicroG Lacoste A10 #032	21 points in Argentina – 1 in Uruguay
Seismic	February 14, 2014	Instituto Geográfico Nacional – IRD France	MicroG Lacoste A10 #014	11
South	March 28, 2014	Instituto Geográfico Nacional – Universidade de São Paulo	MicroG Lacoste A10 #032	11

Future tasks|

In order to consolidate and to improve the network, the National Geographic Institute and the Universidade de São Paulo have agreed to undertake extra measurements measuring. In October 2015 a new campaign will be carried out in order to:

- Initiate a systematic reobservation of the points already measured in order to detect possible changes and analyzing their causes and effects.
- Densify the network to progressively improve the fit of existing points.
- Measure at least one point of absolute gravity at the Isla Grande de Tierra del Fuego.