



The Bolivian Gravimetric Network – Operations, Processing, & Results

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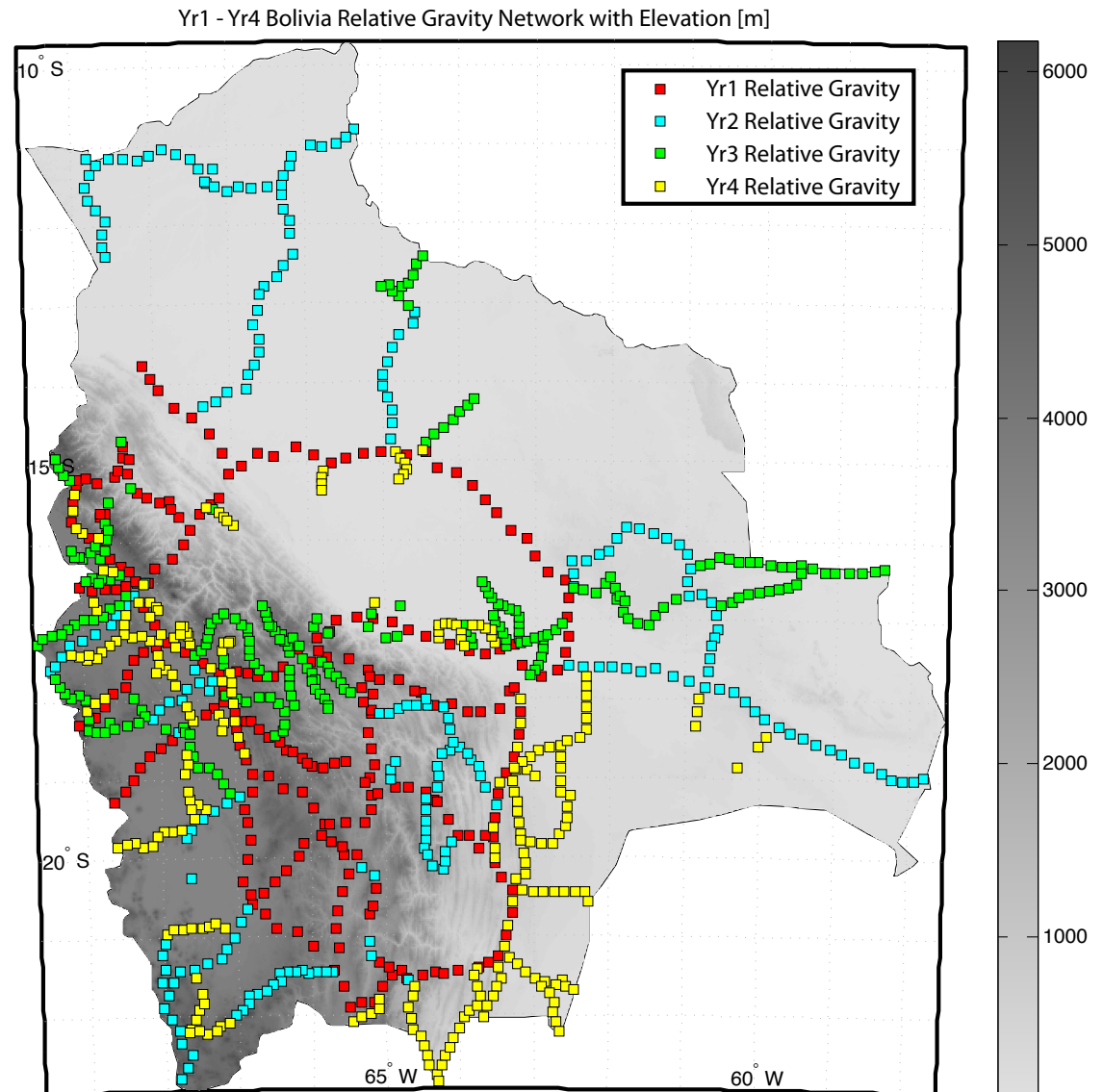
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Simposio SIRGAS 2014 - La Paz, Bolivia 24 Nov.



Network Overview

- roughly: 250 pts./yr
- Yr1, Yr2, Yr3, Yr4 – 959
- Yr5: Currently Processing → 250
- Total: 1200 points



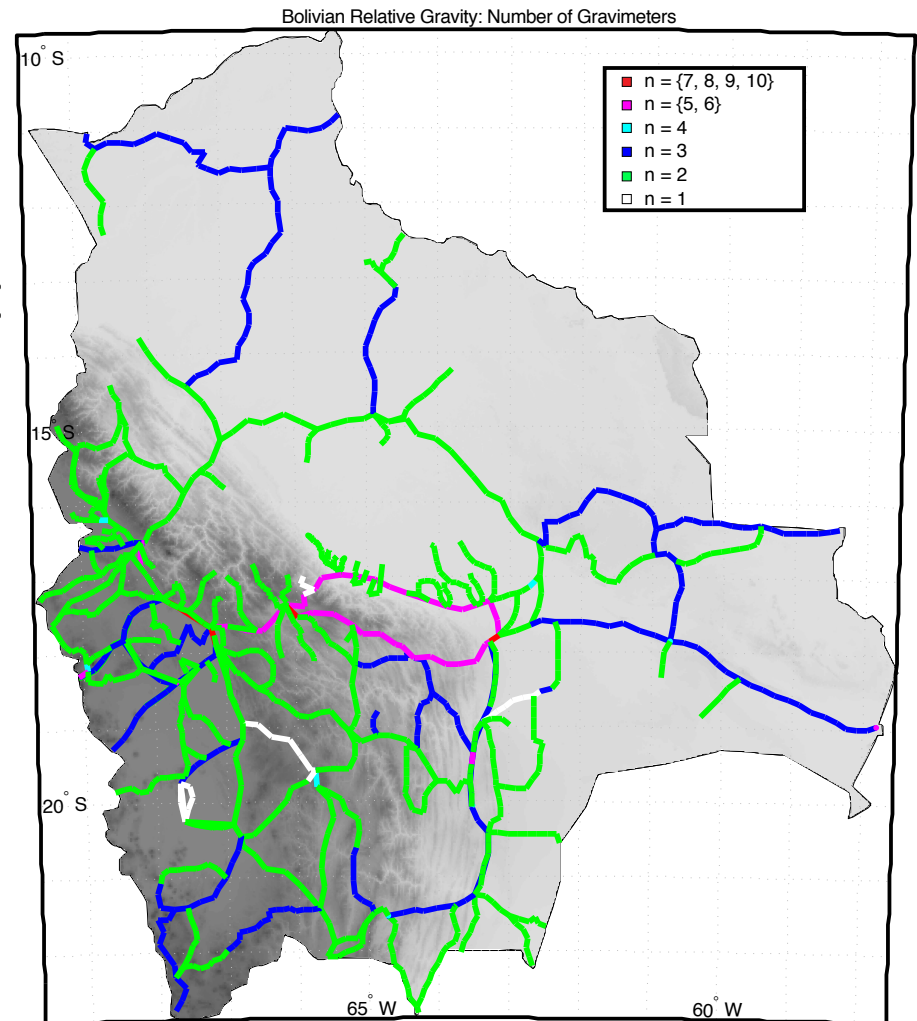


- Positioning:
 - 1+ hr. static GPS
 - CGPS sites: Bolivia, Brazil, Chile, Argentina, & Peru.
 - Very long baselines (200+ km) and Δh (2000+ m)
- Processing → TRACK (MIT)
 - Estimate of XYZ from each CGPS – individually & independently
 - Compare XYZ's
 - $h = \pm 0.20$ m



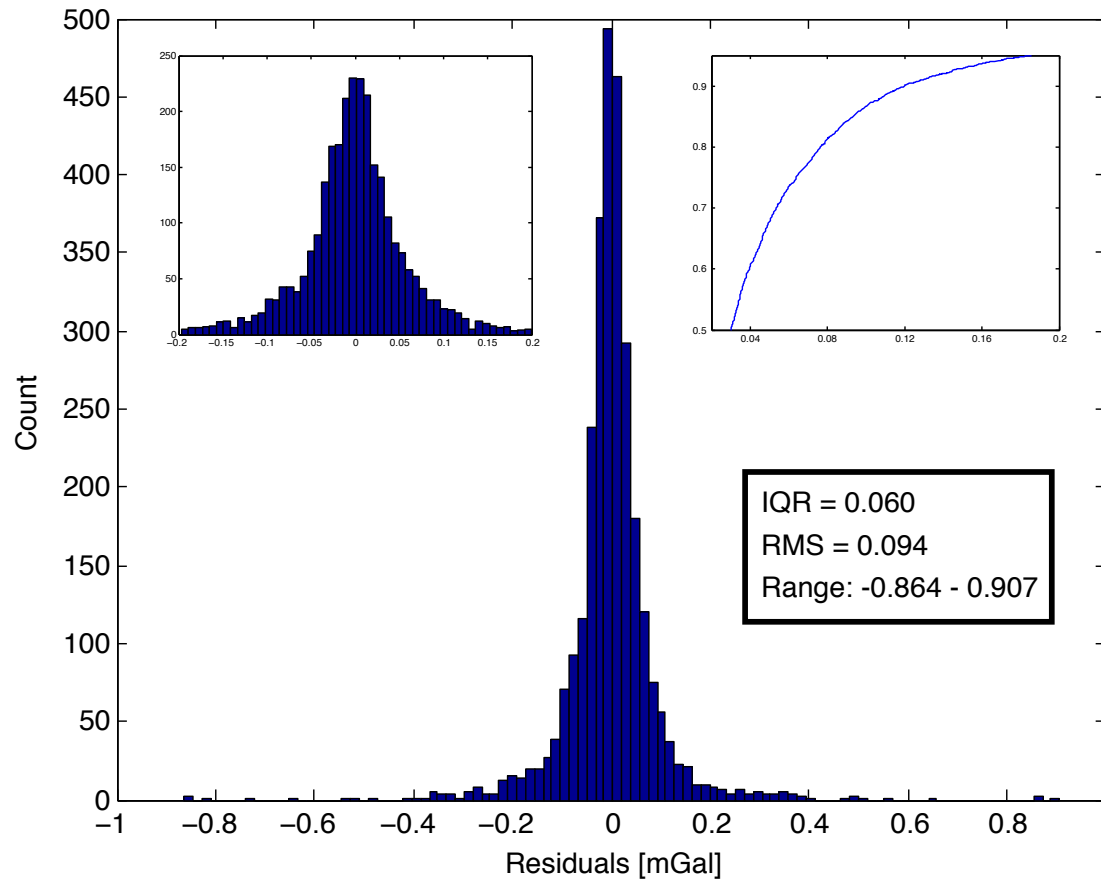
Operations

- 2+ relative gravimeters
 - LaCoste & Romberg Model G
- Observations at every point in Forward and reverse survey (Double-Run)
- Added redundancy, drift correction, & precision





- Estimate/Remove biases:
 - Linear drift rate
 - Tidal components
- Network Adjustment
 - Observation equations
 - Equally weighted

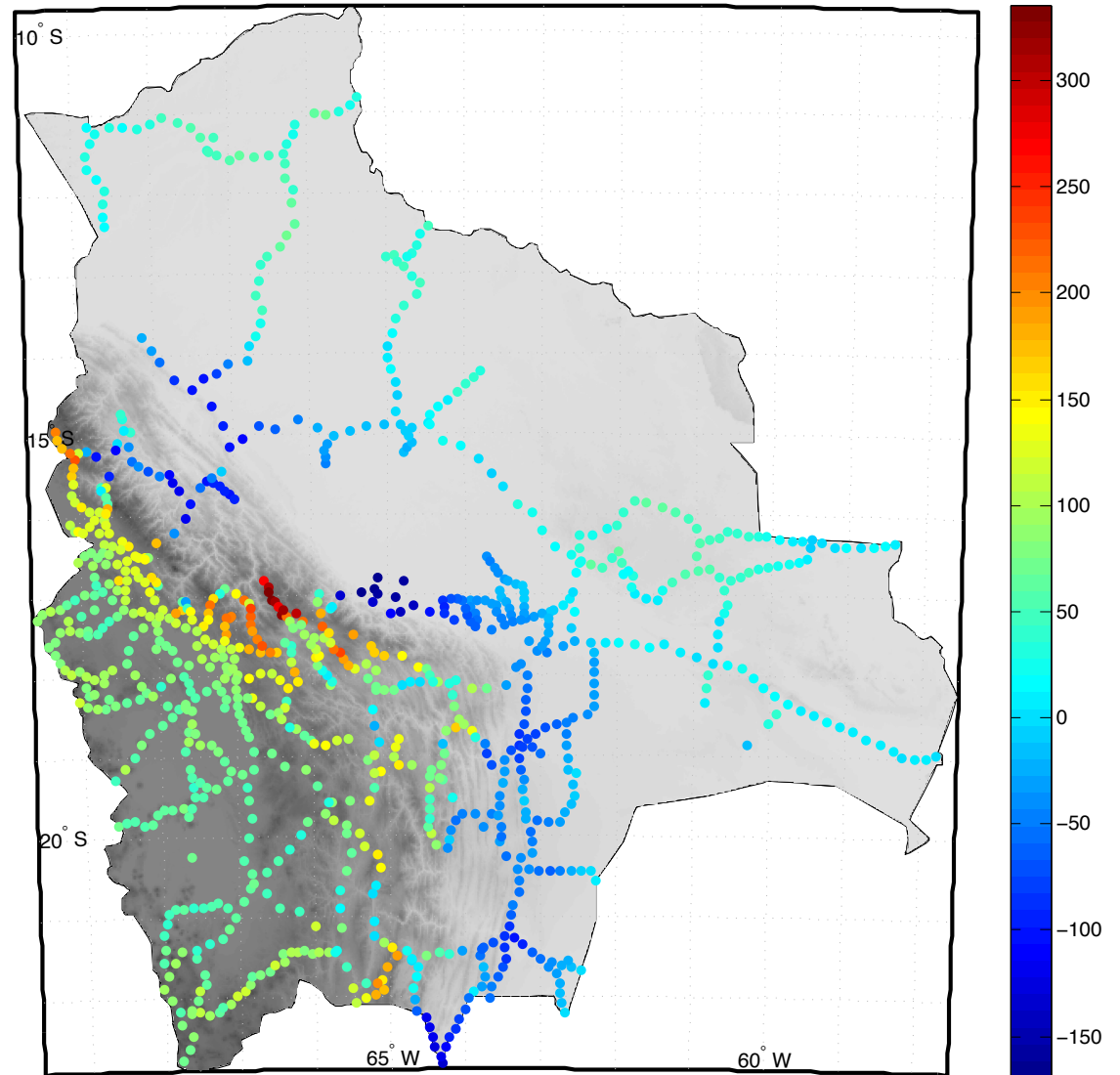
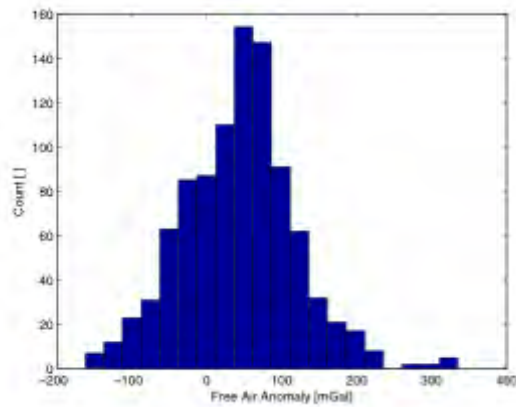




Results: Free-Air Anomaly

Yr1-Yr4 Bolivia Relative Gravity Network: Free-Air Anomaly [mGal]

Mean	Std. Dev.	Min.	Max.
42.38	75.69	-162.51	335.07

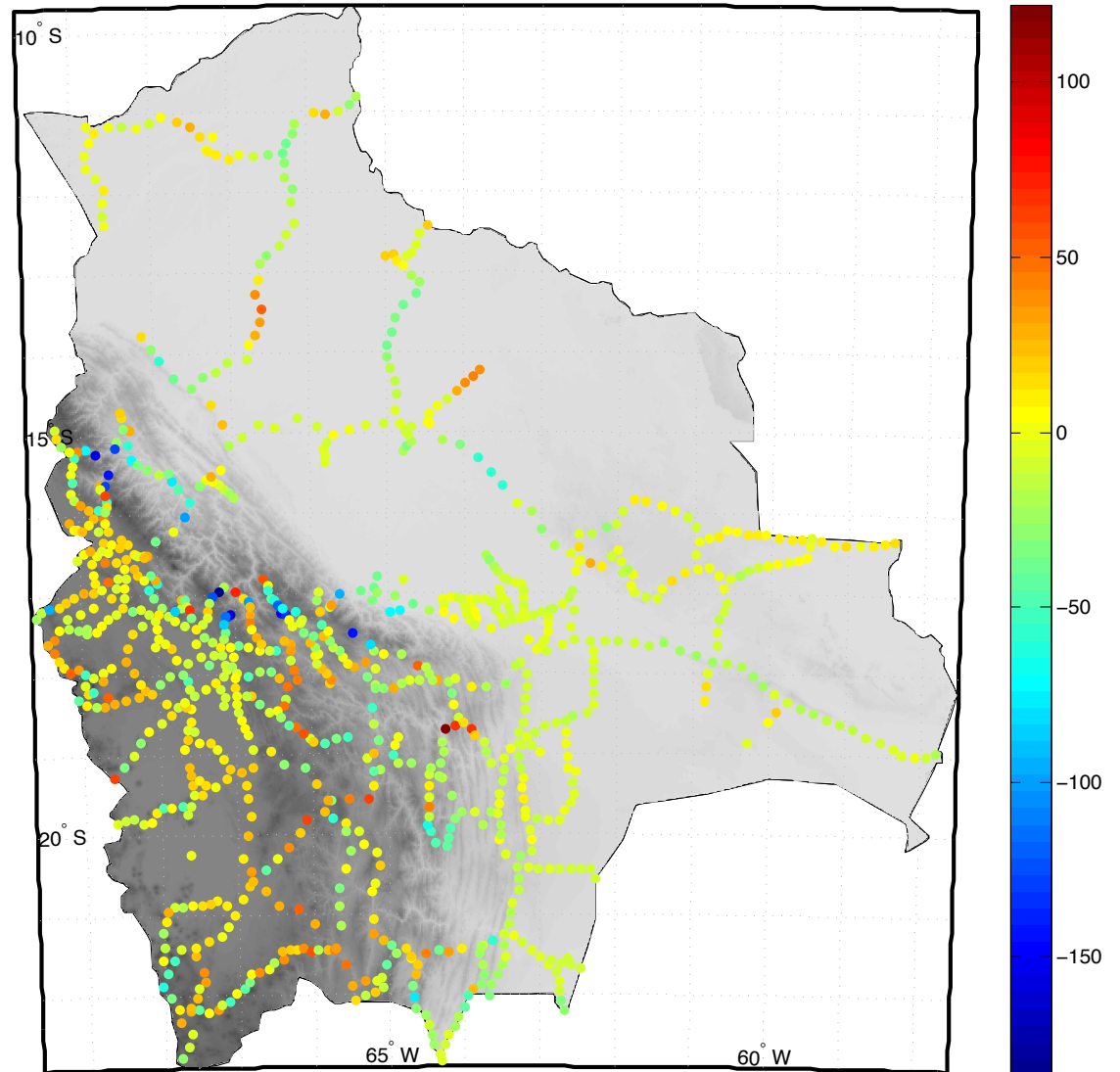
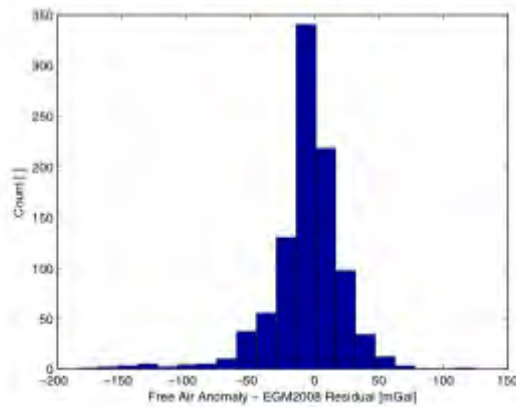




Residuals: Free-Air Anomaly – EGM2008

Free-Air Anomaly - EGM2008 Model Residual [mGal]

Mean	Std. Dev.	Min.	Max.
-6.01	28.45	-184.08	124.21

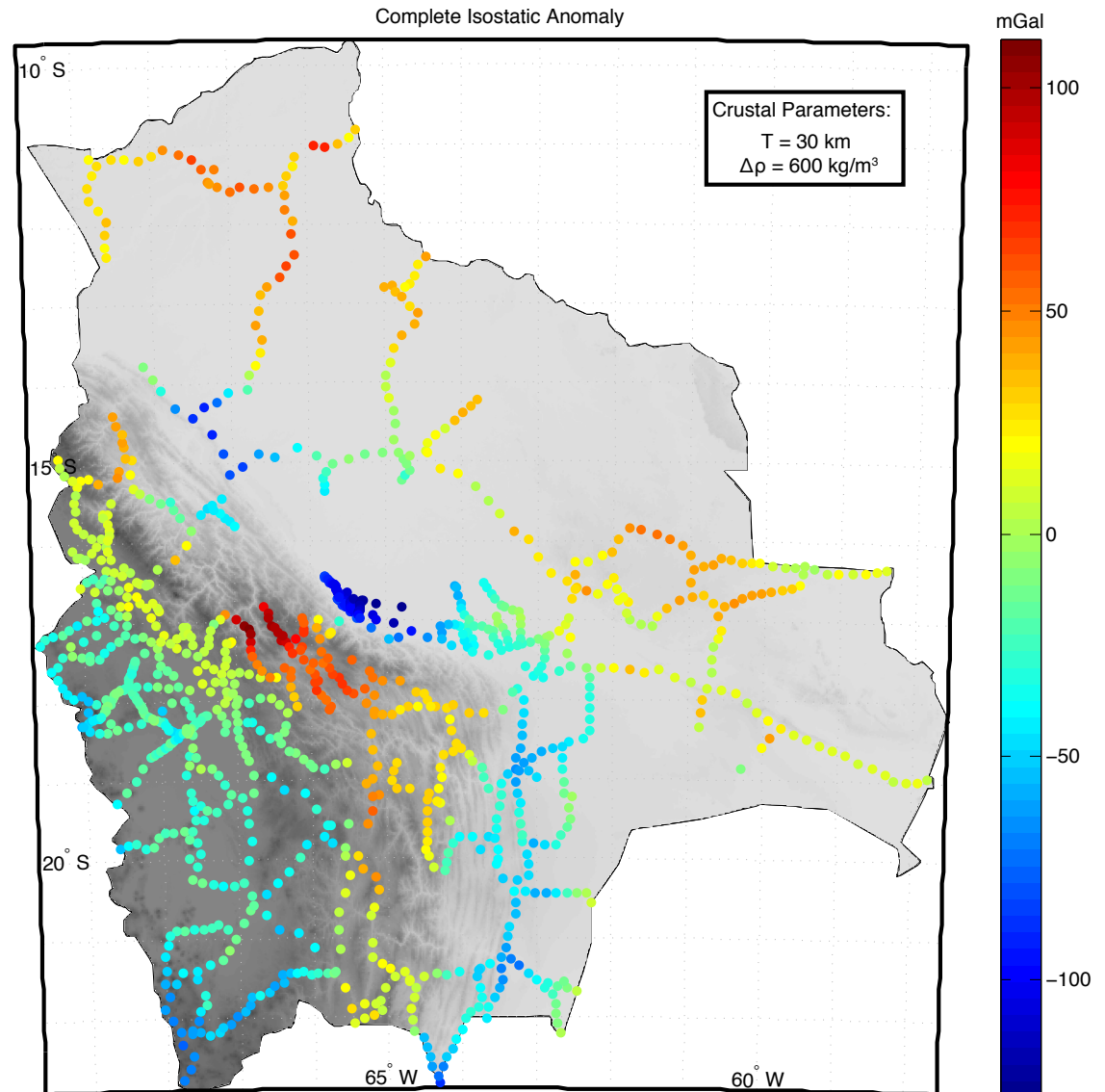




Implications: Isostasy

- Airy-Heiskanen Isostasy
- Terrain Correction
 - 20 mGals
 - Max: 55 mGals
- Hammer Zones
 - 166.7 km

Mean	Std. Dev.	Min.	Max.
-12.14	42.81	-126.18	111.05





Future Plans

- Establish ties to South American neighbors:
 - Argentina, Brazil, Chile, Paraguay, & Peru
- Continued densification and expansion
 - Eastern Cordillera
 - Altiplano
 - Northern & Eastern Bolivia
- Further investigate tectonic implications



Questions / Preguntas





Implications: Isostasy

- Terrain Correction

