

Ministry of Justice of Georgia
National Agency of Public Registry
(NAPR)

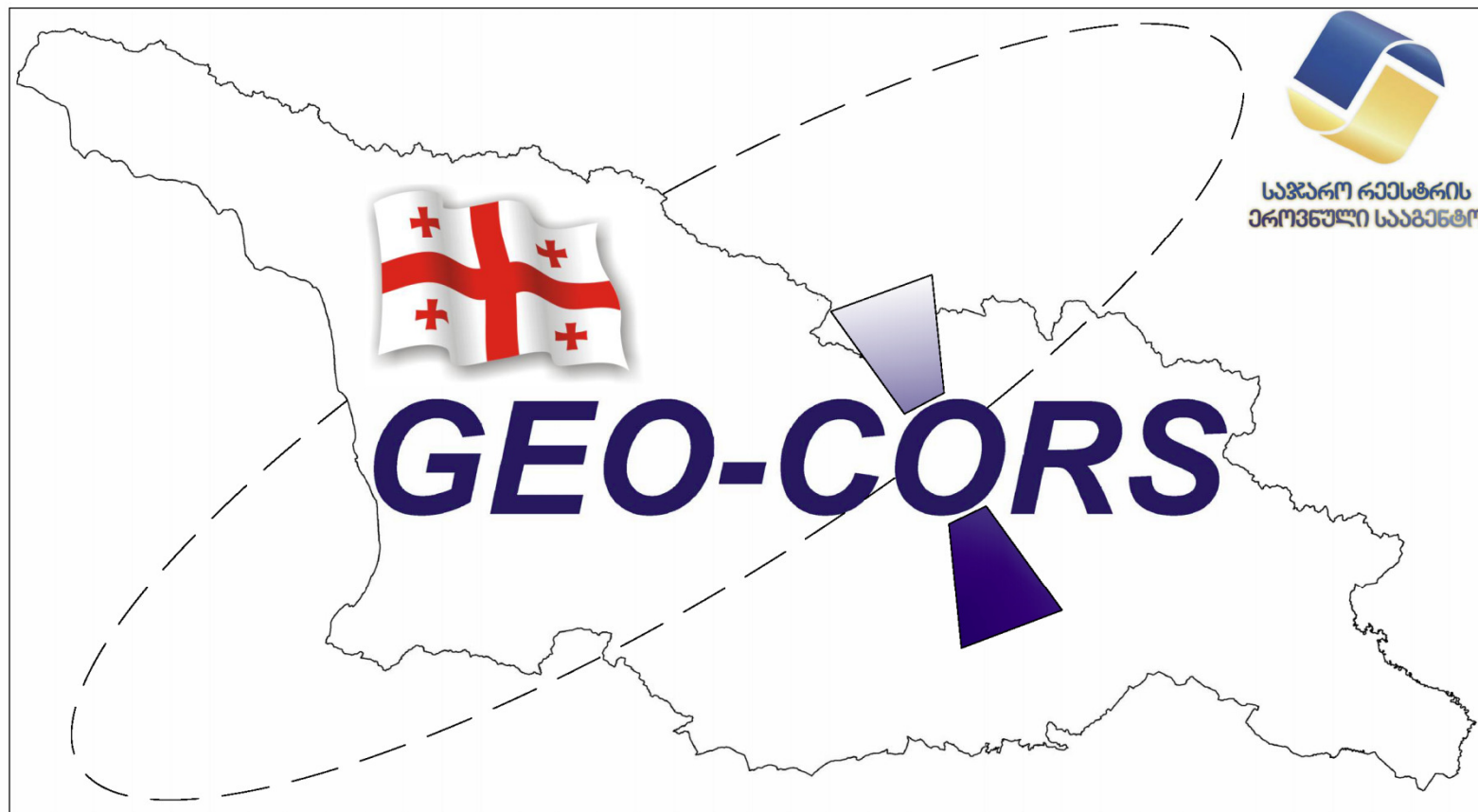


www.napr.gov.ge

Head of Geodesy and Cartography Division
Galaktion Hahubia

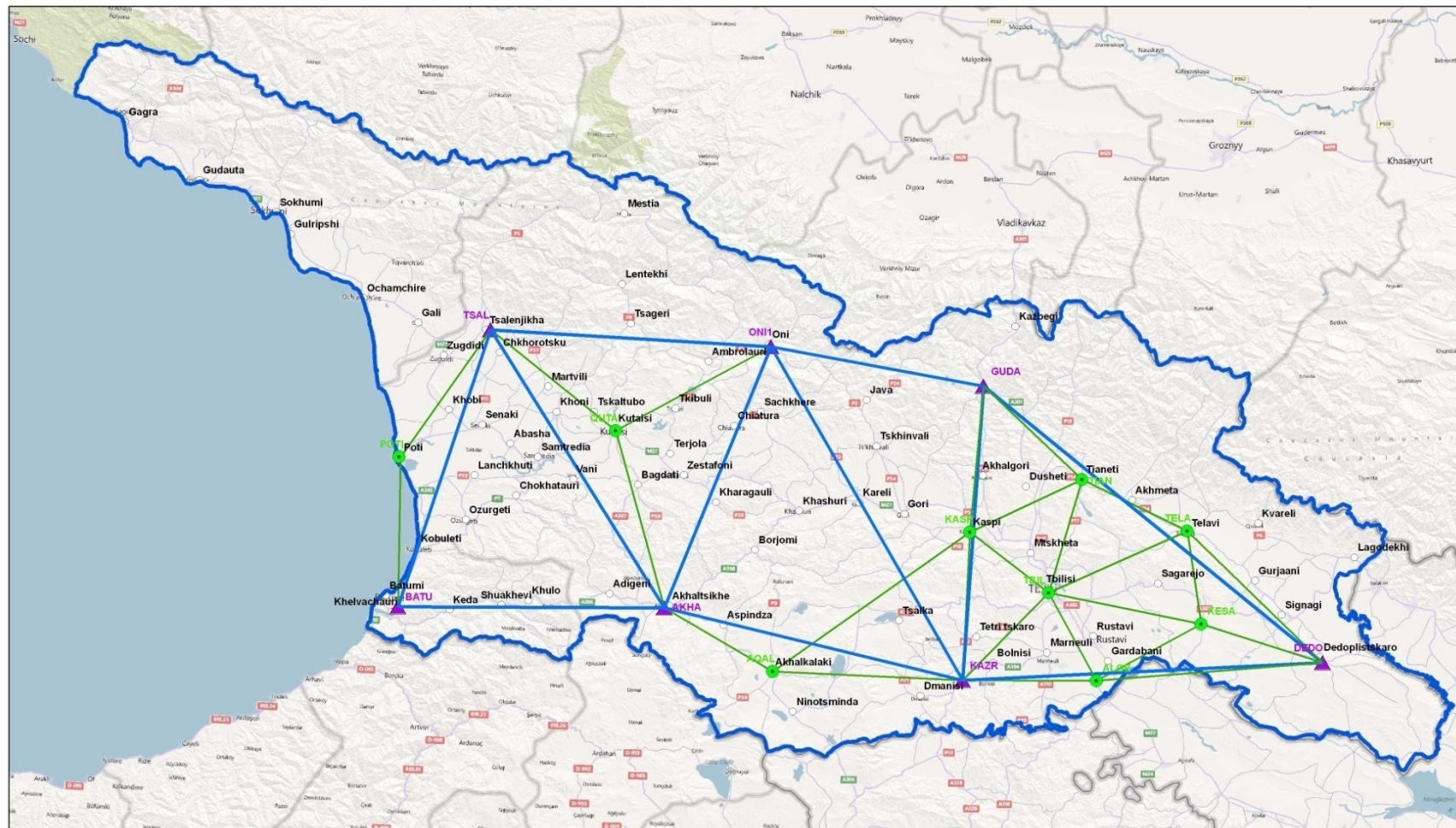


**NATIONAL AGENCY
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16 A&B-class stations



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7 A-class stations

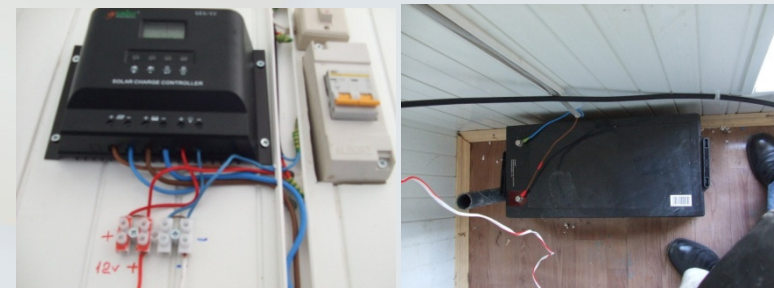


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A-class solar power system for 2 weeks without active sun



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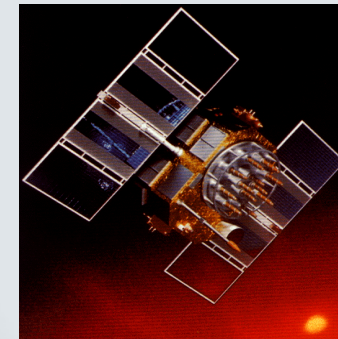
9 B-class stations



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GNSS signals

- Navstar/GPS – USA
- GLONASS – Russia
- Galileo – EU (in a futures)



US - GPS



Russia - GLONASS

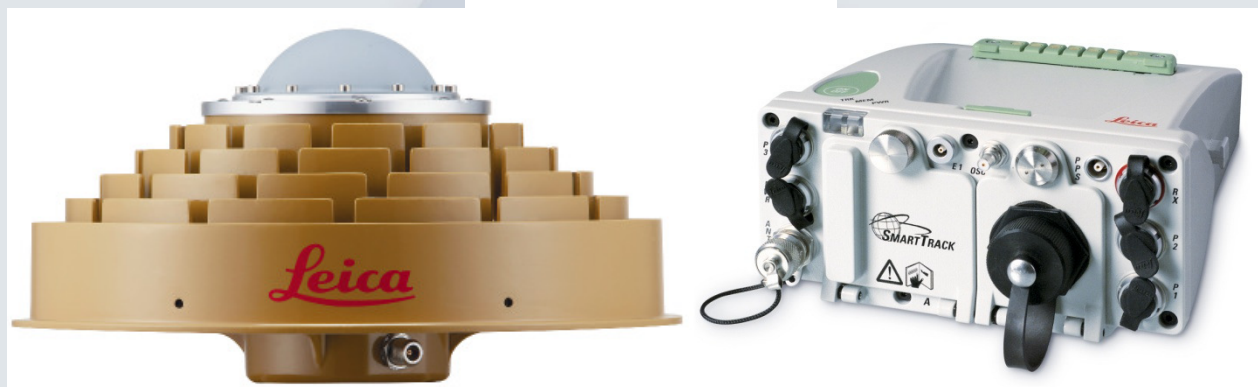


EU - Galileo



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Antenna and Receiver

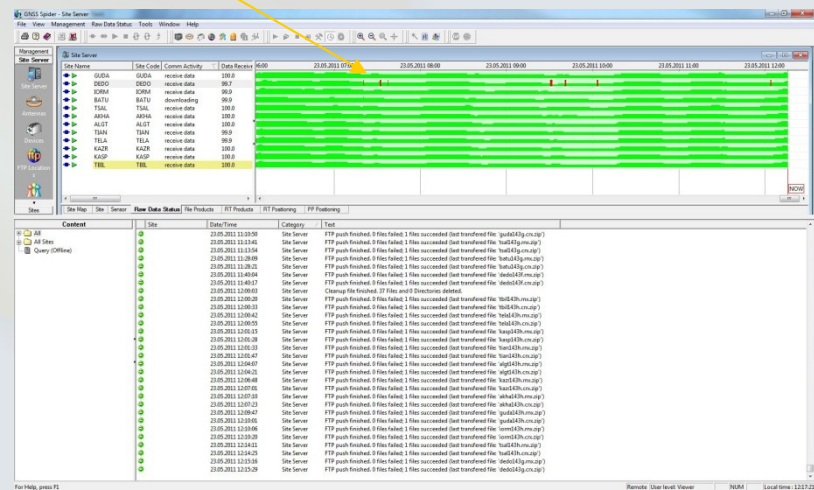
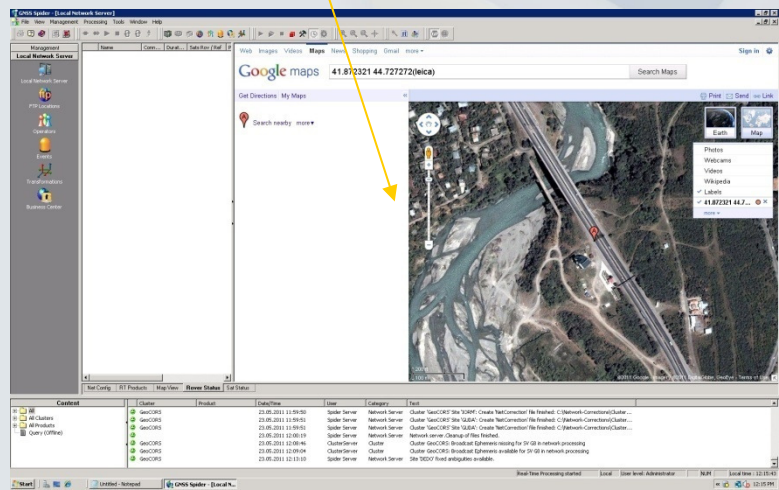
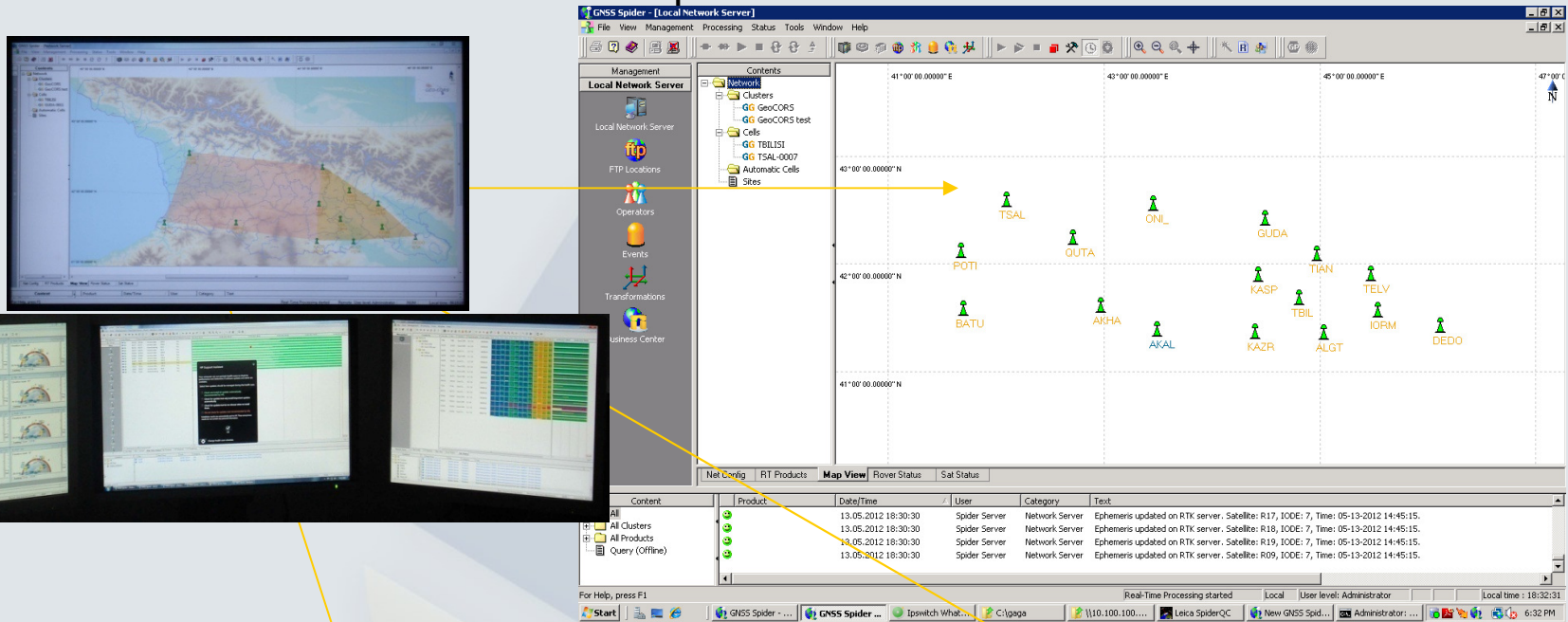


- 14 Leica GRX1200+
- 14 Leica GNSS AR25
- 1 Trimble GNSS R8
- 1 Trimble GPS NETRS

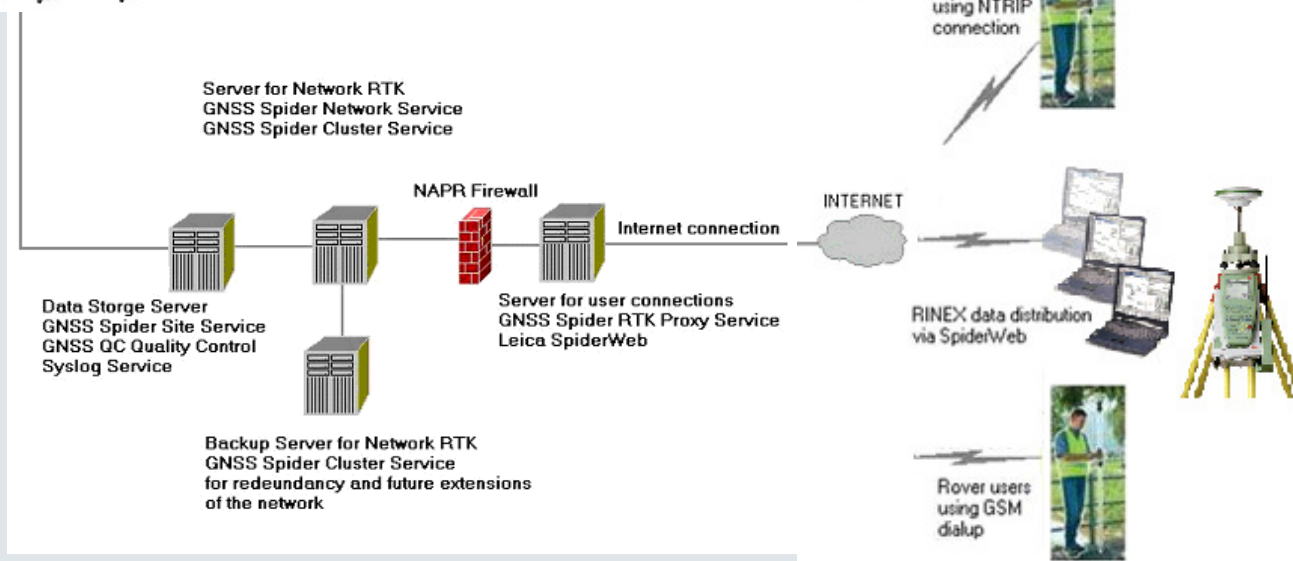


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Control Center Spider NET



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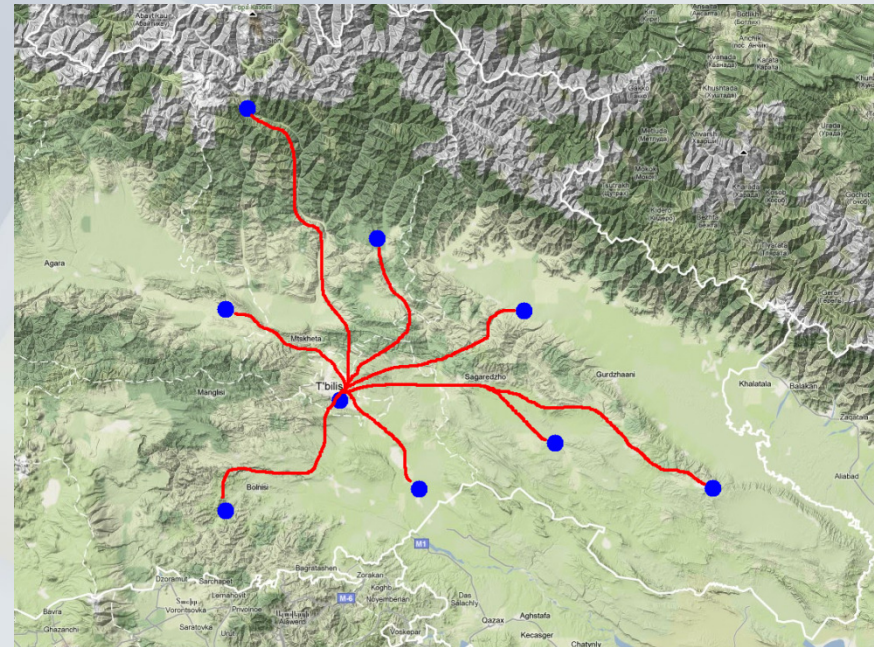
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Leica GNSS Spider – data flow

Site Server :

- Control & Management of CORS
- Collecting measurements continuously by streaming IP

CORS Control Centre



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Leica GNSS Spider – data flow

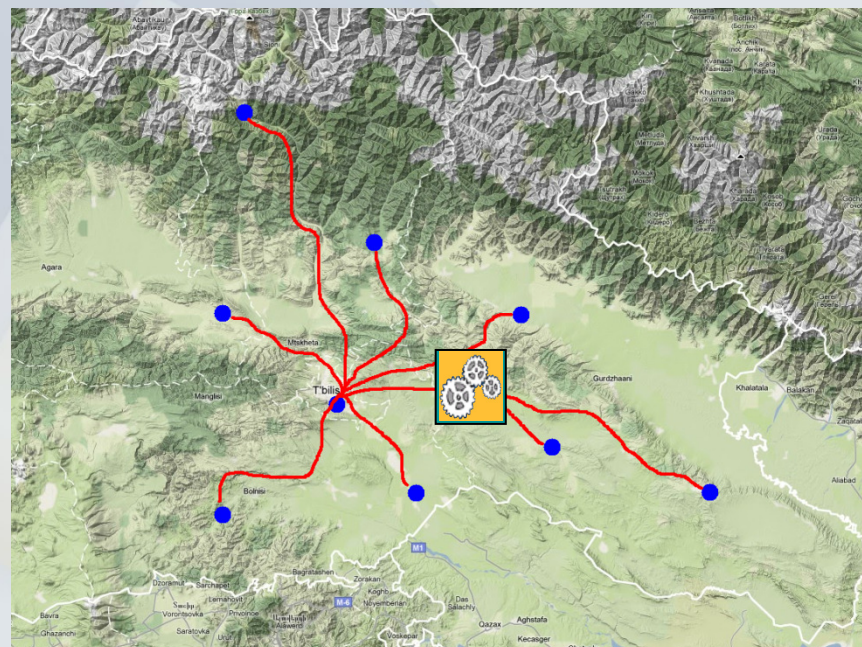
Site Server :

- Control & Management of CORS
- Collecting measurements continuously by streaming IP

CORS Control Centre

Network Server :

- Processing network solution
- Creating user corrections



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Leica GNSS Spider – data flow

Site Server :

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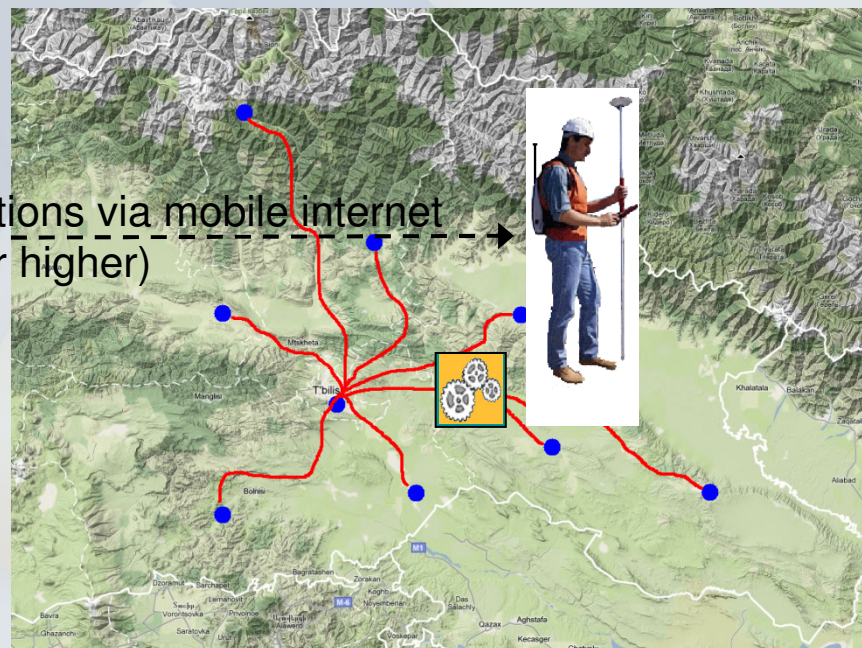
← RTCM corrections via mobile internet
(GPRS, 3G or higher) →

Network Server :

- Processing network solution
- Creating user corrections

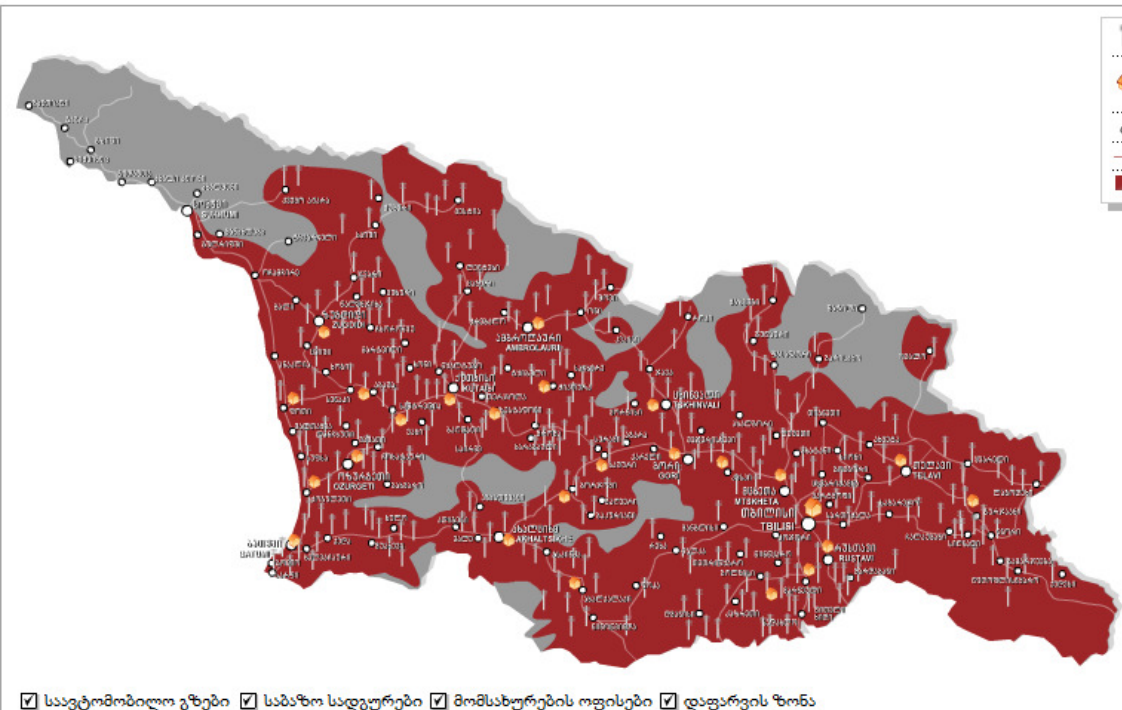
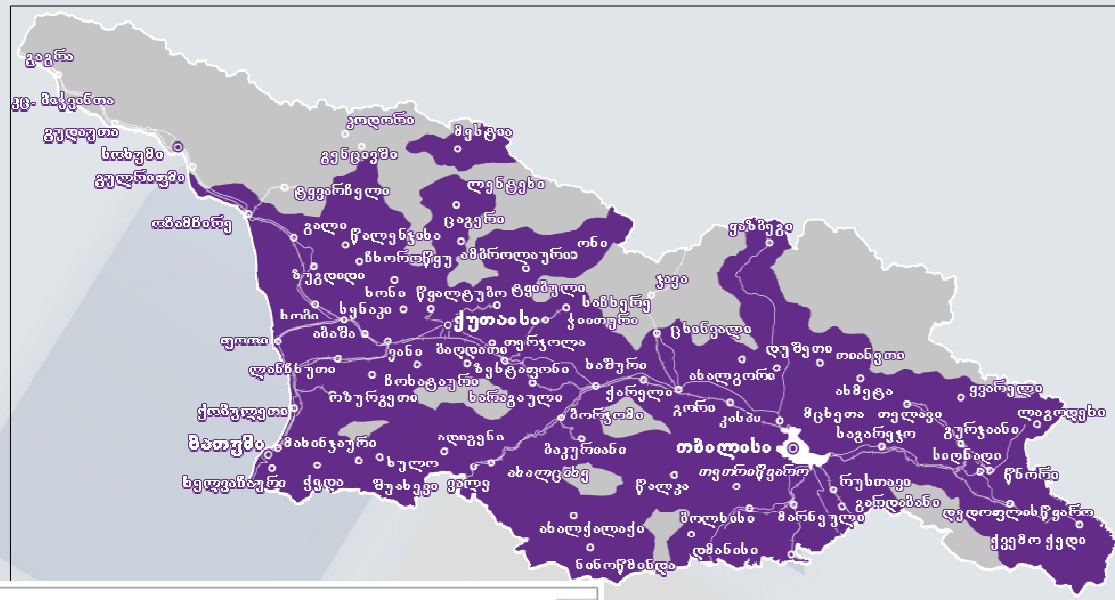
RT Proxy Server :

- Distribution corrections



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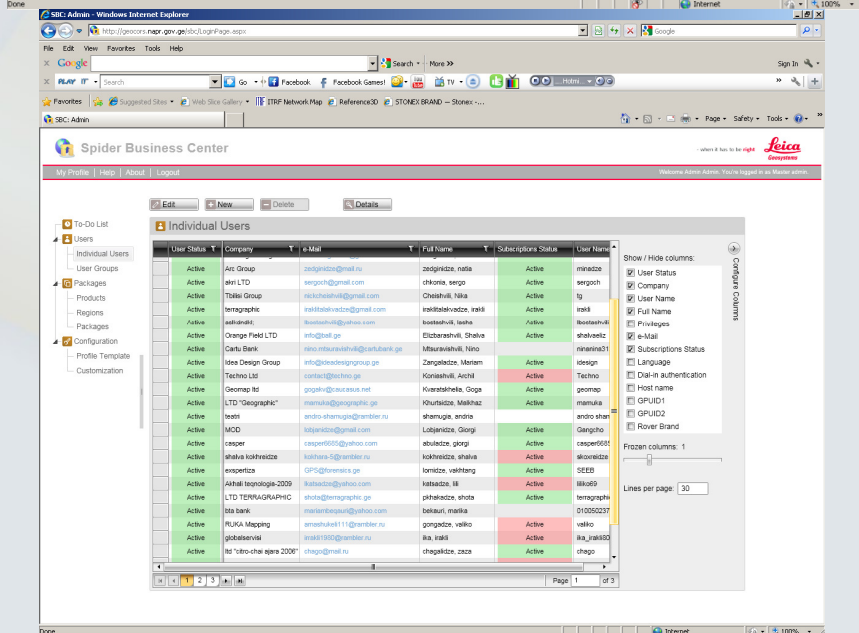
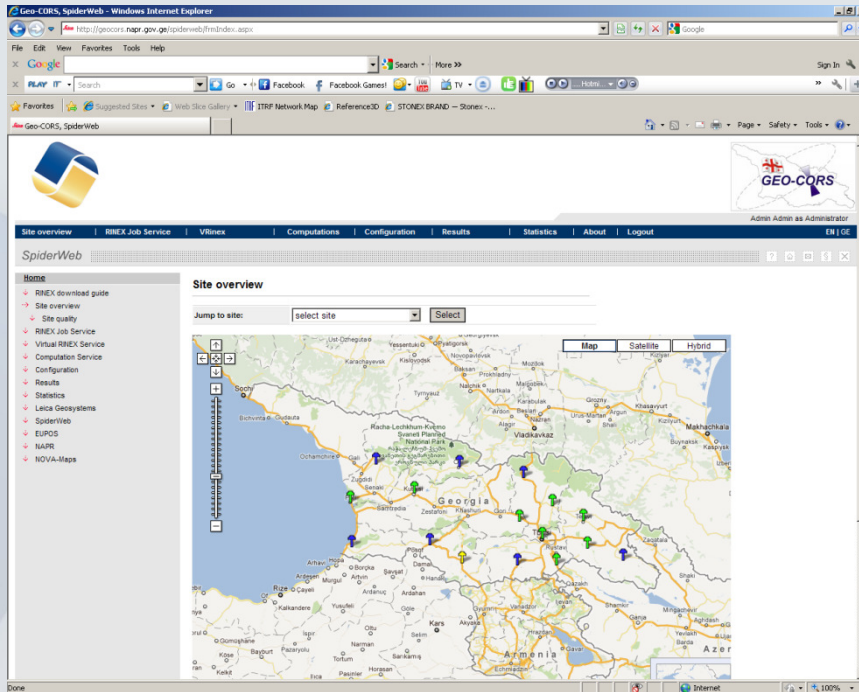
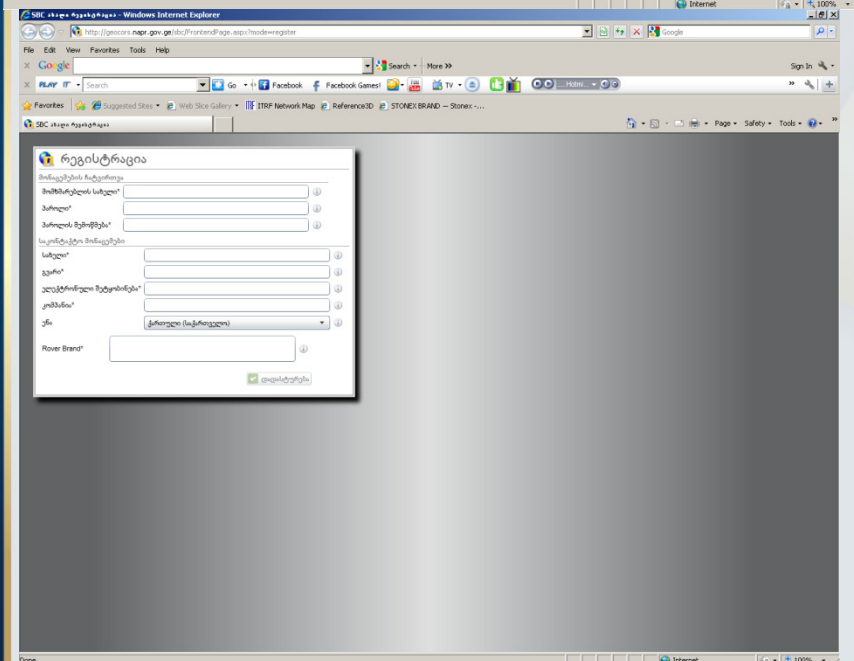
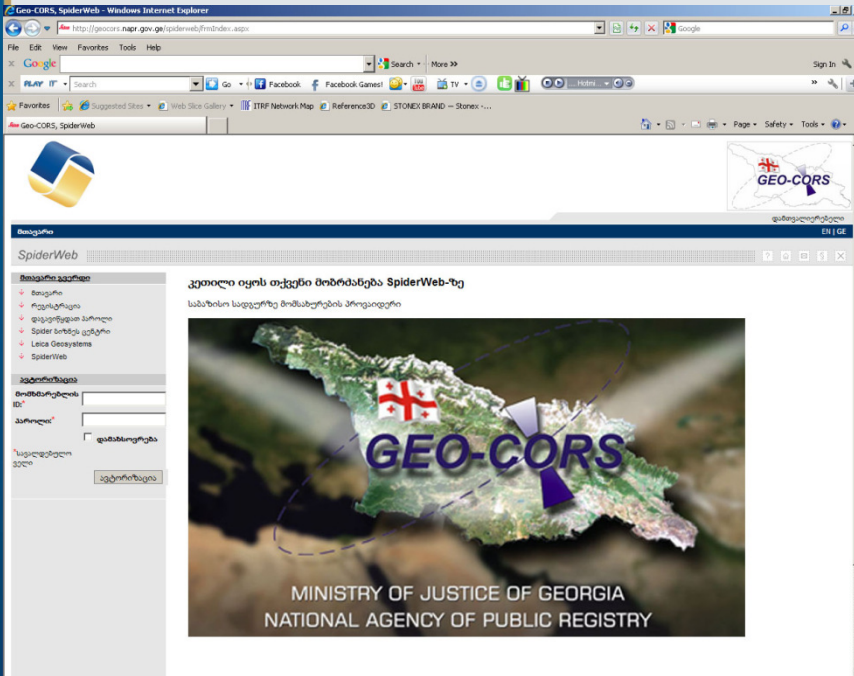
GSM coverage



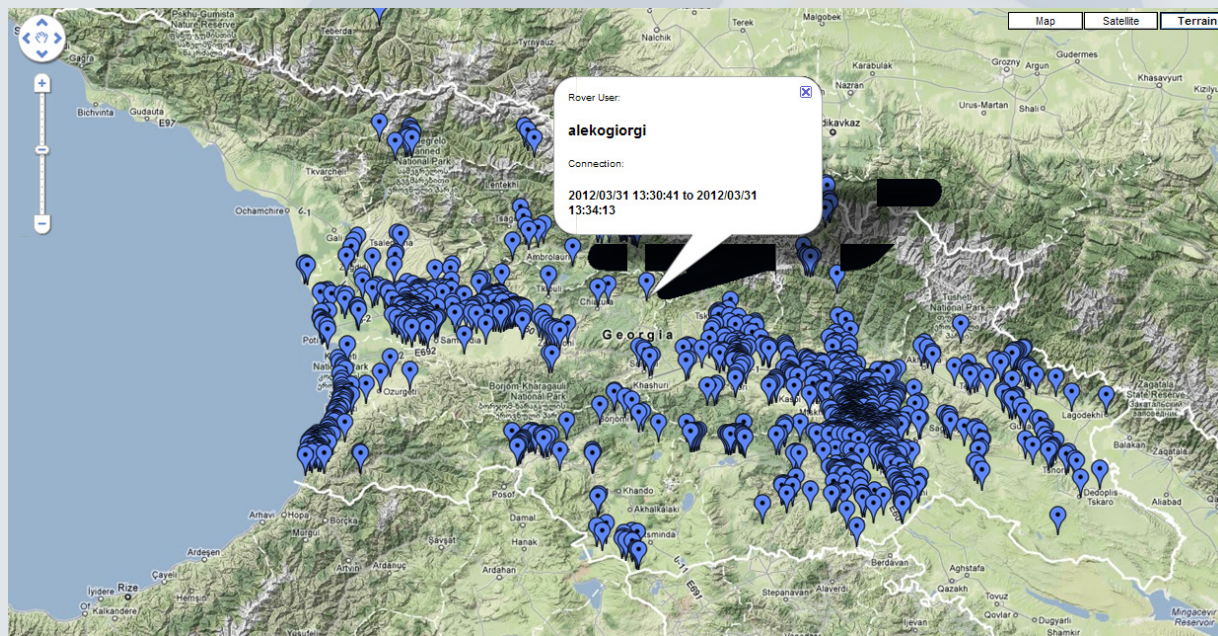
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- ☒ საავტომობილო გზები ☒ საბაზო სადგურები ☒ მომსახურების ოფისები ☒ დაფარვის ზონა

geocors.napr.gov.ge



Last Connection:	2012/05/11 10:50:10.00	Month	Author ised Conne ctions	Author ised Conne ctions (%)	Unauth orised Conne ctions	Unauth orised Conne ctions (%)	Total Conne ction Time (hrs)	Averag e Conne ction Time (min)
Authorised Connections:	9,072	2011.11	616	6.8	5	100.0	241.04	23.5
Unauthorised Connections:	5	2011.12	971	10.7	0	0.0	255.44	15.8
Connections shown in map:	1,614	2012.1	1,053	11.6	0	0.0	211.65	12.1
Customers:	49	2012.2	1,286	14.2	0	0.0	289.86	13.5
Products:	17	2012.3	1,602	17.7	0	0.0	436.51	16.3
Skipped Records:	21	2012.4	2,474	27.3	0	0.0	584.16	14.2
Total Connection Time:	2,276.6 hrs	2012.5.07	1,070	11.8	0	0.0	257.95	14.5
Average Connection Time:	15.1 min							



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GNSS Spider - [Local Network Server]

File View Management Processing Tools Window Help

Management Local Network Server

User-ID Rover User Name Connec

zura janashvili zura 13.05.12

Search Images Videos Maps News Shopping Gmail More

George Lobjanidze

Google 41.728392 41.734994(zura)

Map Photos

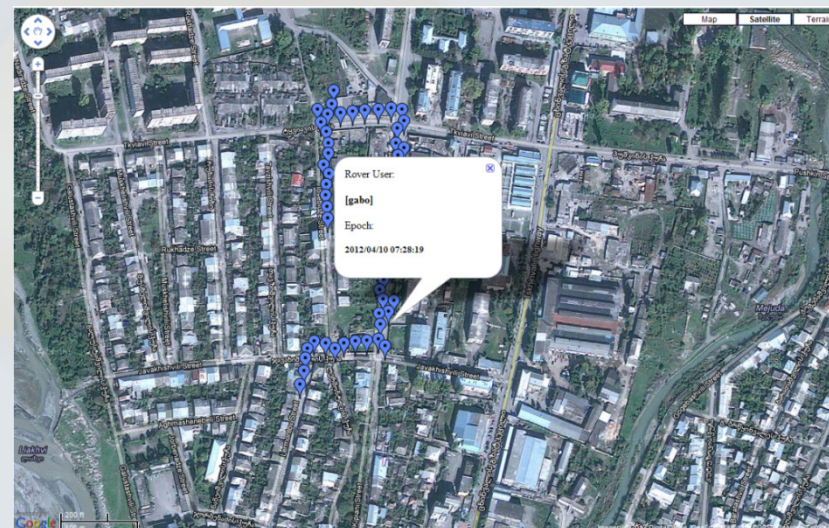
2000 ft 500 m

Net Config RT Products Map View Rover Status Sat Status

Content	Product	Date/Time	User	Category	Text
All		13.05.2012 19:00:30	Spider Server	Network Server	Ephemeris updated on RTK server. Satelike: R19, IODE: 9, Time: 05-13-2012 15:15:15.
All Clusters		13.05.2012 19:06:27	ClusterServer	Cluster	Cluster GeoCORS: Broadcast Ephemeris missing for SV G2 in network processing
All Products		13.05.2012 19:06:52	Spider Server	Network Server	Ephemeris updated on RTK server. Satelike: G02, IODE: 86, Time: 05-13-2012 16:00:00.
Query (Offline)		13.05.2012 19:06:52	ClusterServer	Cluster	Cluster GeoCORS: Broadcast Ephemeris available for SV G2 in network processing

Done Real-Time Processing started Local User level: Administrator Local time : 19:07:14

Start GNSS Spider - ... GNSS Spider ... Ipswitch What... C:\gaga W10.100.100... Leica SpiderQC New GNSS Spid... Administrator: ... 7:07 PM



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GeoCORS services

- Positioning services:

- Positioning in Real-Time

- Positioning via Rinex file download from SpiderWeb server

- Automatic computation in SpiderWeb server

- Business center

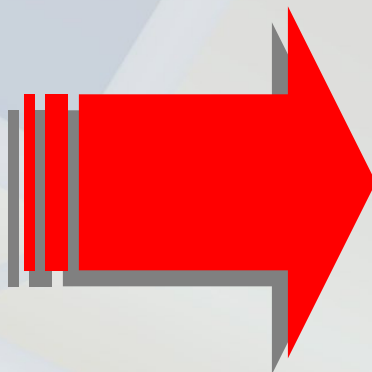
- Registration



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The values of this new infrastructures

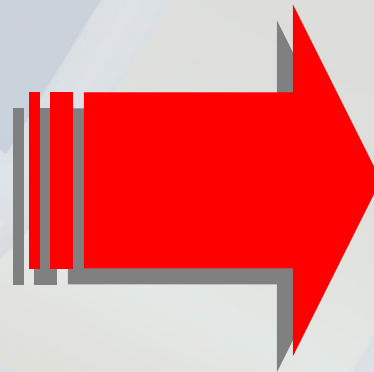
- With Geo-CORS, large improvement in productivity, as **no more** need to:
 - Find a control points where to set up a Base Station
 - Perform daily set up of Base Station
 - Take care for the Base Station



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The values of this new infrastructures

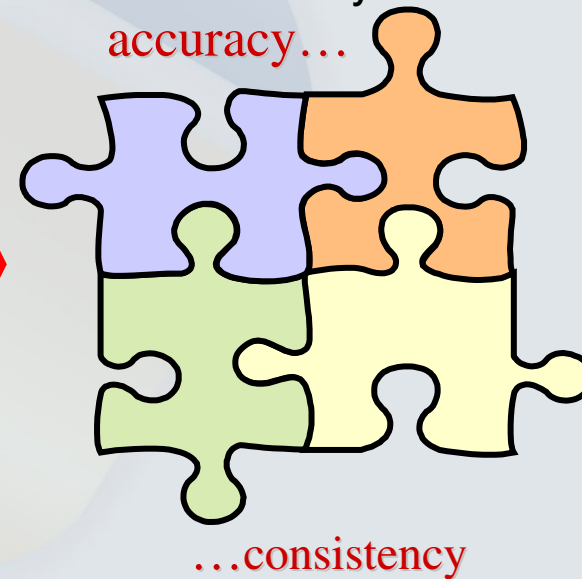
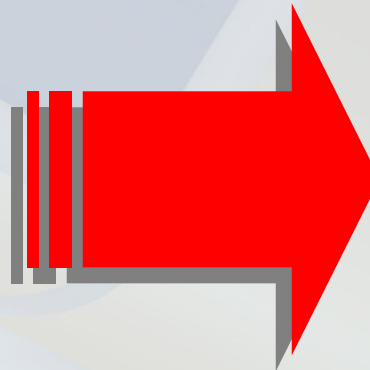
- With Geo-CORS, large improvement in reliability:
 - All GPS surveys are performed with the same “Base Station”
 - No more errors or blunders in Base Station set up or identification



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The values of this new infrastructures

- With Geo-CORS, large improvement in consistency & accuracy:
 - All GPS surveys are automatically done in grid coordinates with the same accuracy everywhere
 - Unique and consistent coordinate system for the whole country



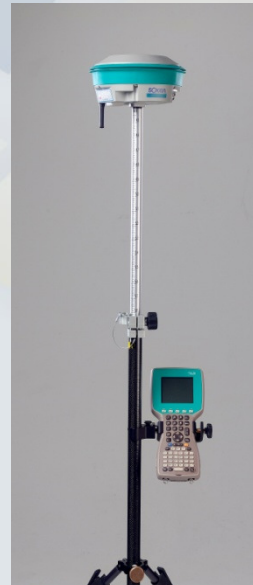
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SUMMARY OF BENEFITS

- Continuous operation 365/24/7
- Provides data & corrections in consistent national datum
- Provides positioning with higher accuracy reliability everywhere in Georgia
- Allows center control and monitoring all station
- Provides fundamental infrastructure for all positioning in Georgia
- Full control on all Surveys / Users



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10 Rovers Trimble R7 with TSC3 controler



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Geo-CORS

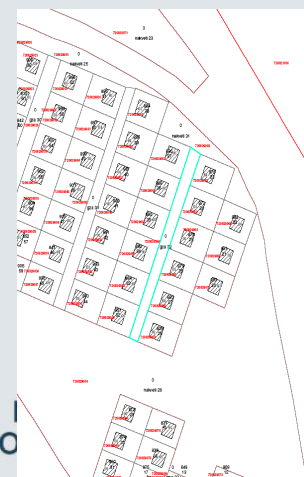
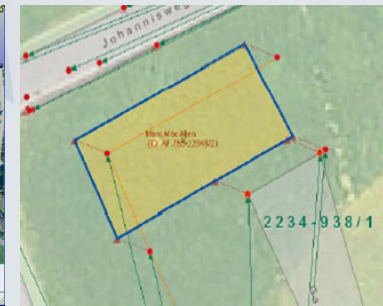
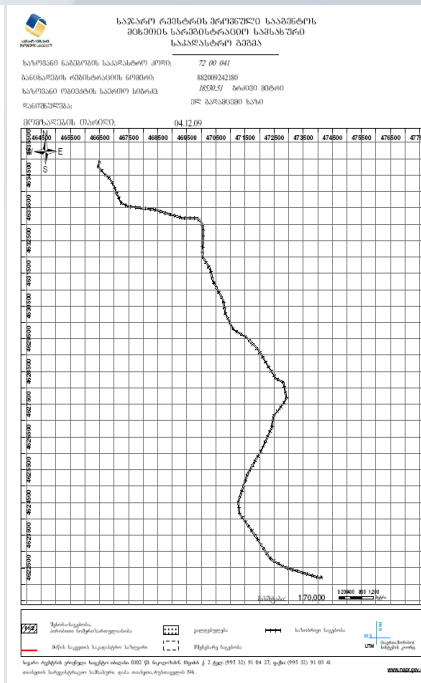
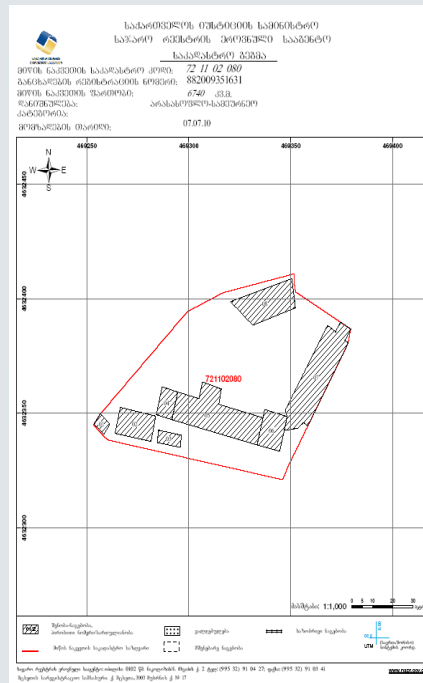
Summary : Ideal Support for Multiple Applications

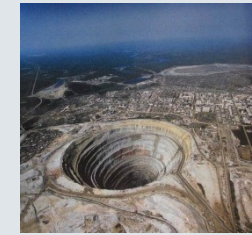
- National Mapping Producers

- Cadastre
- GIS
 - Utility Companies
 - Telecoms
 - Transport Departments (fleet management...)
- Infrastructure & Road construction
- Natural Resource Management (Mining, Exploration)
- Scientific (atmospheric modelling, seismic monitoring,...)
- Meteorological Agency, Weather forecasts
- Environmental Agencies
- Agriculture
- Natural Hazards & Disaster Management



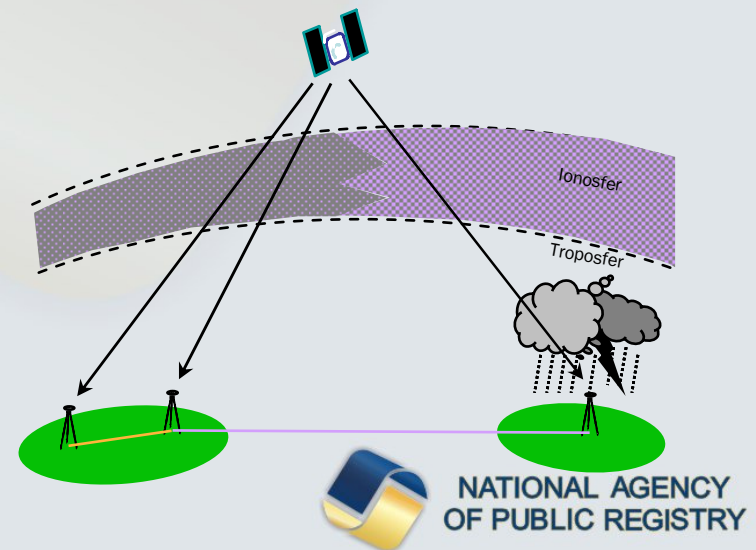
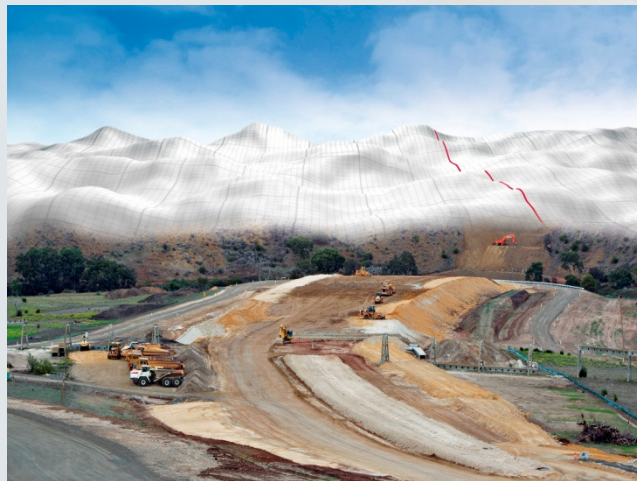
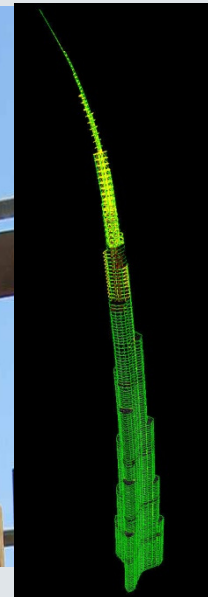
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Station DataBase



Geo-CORS, SpiderWeb - Windows Internet Explorer

http://geocors.napr.gov.ge/spiderweb/fmIndex.aspx

File Edit View Favorites Tools Help

Google Search

PLAY IT Search Go Facebook Facebook Games! YouTube TV Hotmail

Favorites Suggested Sites Web Slice Gallery ITRF Network Map Reference3D STONEX BRAND - Stonex

Geo-CORS, SpiderWeb

Page Safety Tools

Site overview

SpiderWeb

Home

- Site overview
- Register
- Forgotten Password
- Spider Business Center
- Leica Geosystems
- SpiderWeb
- EUPOS
- NAPR

Login

User Name:

Password:

☐ Remember me

*Required field

Session timeout/invalid. Please login.

EUPOS
European Position Determination System

Station DataBase

Map of EUPOS Reference Stations

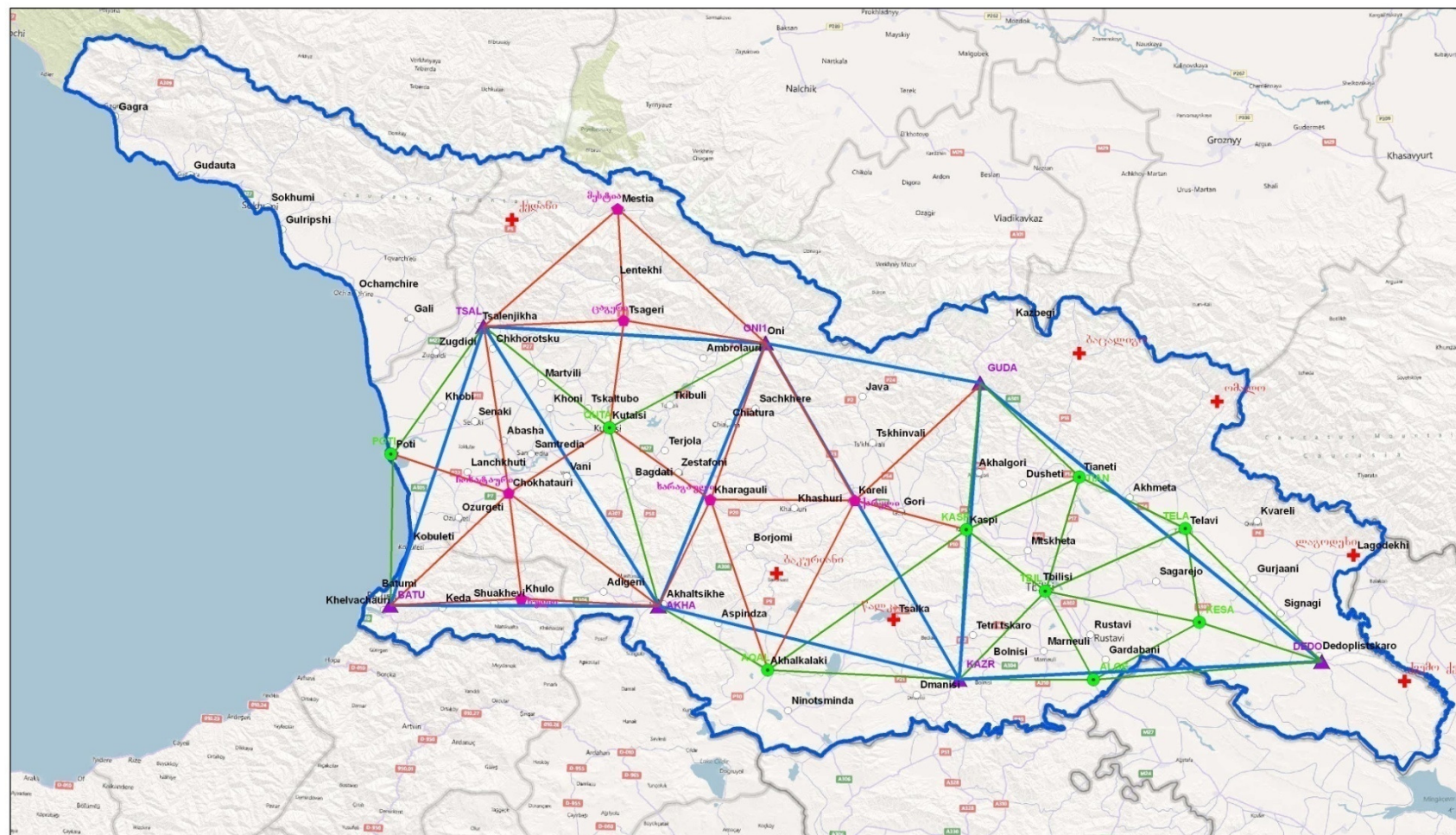
Map Satellite Terrain

Internet 95%



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Plane for 2012 year 22 stations



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- **Creation of new reference frame “CEONET”**
- **Establishment of new modern geoid model for Georgia**

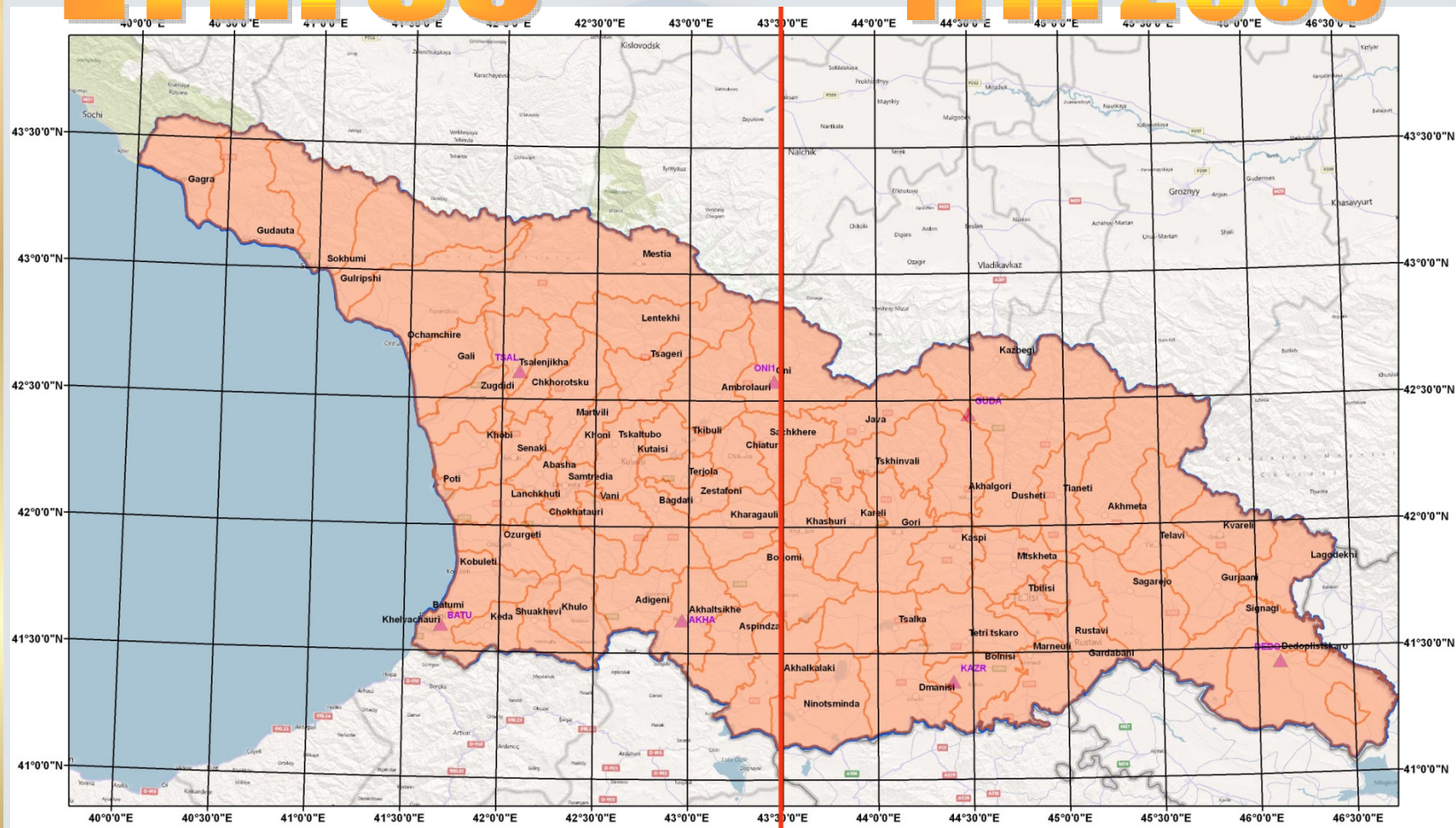


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GEONET12TM

ETRF89

ITRF2008



Central meridian 43,5 degrees
1:10 000.....1:1 000 000— scale factor 0,9996



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Rehabilitation and creation of new height benchmarks for the leveling model



I class

II class

3963 height benchmarks.

65 are 1 class

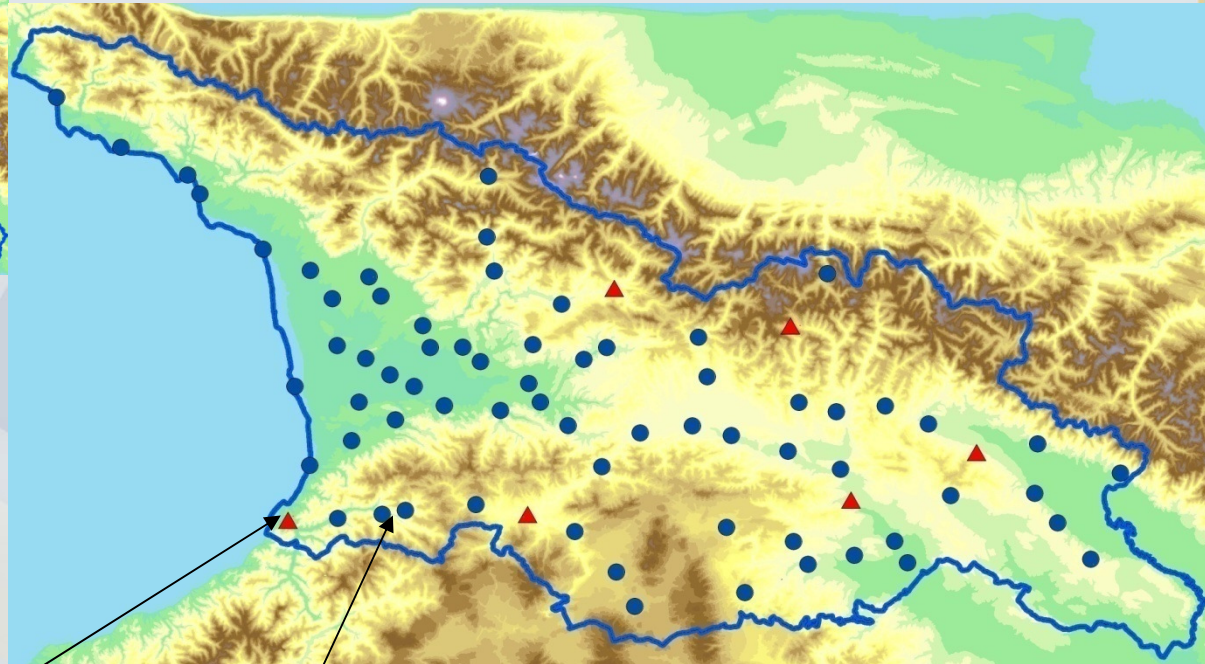
674 are 2 class



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Gravimetric work

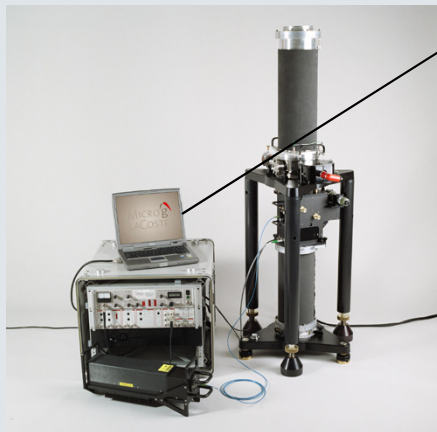
New gravimetric map



Old gravimetric map

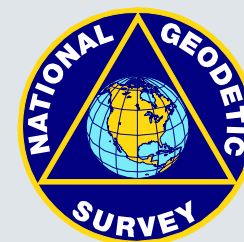
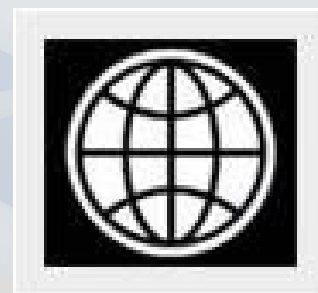


Absolute Gravity for ties



Relative Gravity for expanding local regions where airborne shows significant mismatch with existing terrestrial





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GOOD LAND REGISTRATION BEGINS WITH
GOOD COORDINATES

Thank You for your Attention !!!



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