



NATIONAL REPORT REPUBLIC OF MACEDONIA



Agency for Real Estate Cadastre

- *Stojanovska Brankica*
- *Tasevski Srechko*
- *Arsovski Aleksandar*

REVIEW OF AREC

National Cadastral and Mapping Agency

**Founded in 1947 as Republic Geodetic Authority,
later State Authority for Geodetic works, now Agency for Real Estate Cadastre**

- The Agency for Real Estate Cadastre (AREC) is an entity of the state administration authorized for:

- basic geodetic works
- survey
- cadastre
- registration of the real property rights
- maintenance of the survey and the real estate cadastre



- cartographic production
- establishment, maintenance, public display of the NSDI
- establishment and maintenance of the spatial unit registry ...

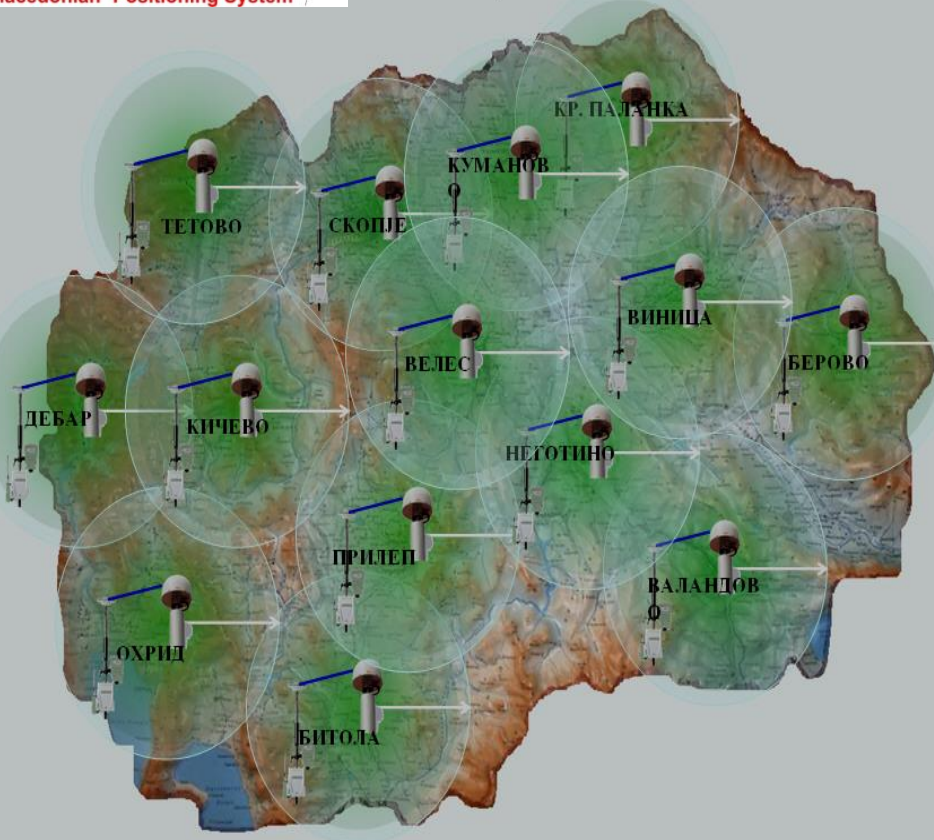
Department for Geodetic Works:

- Unit for geodetic networks, survey, and land classifications
- Unit for photogrammetry
- Unit for cartography

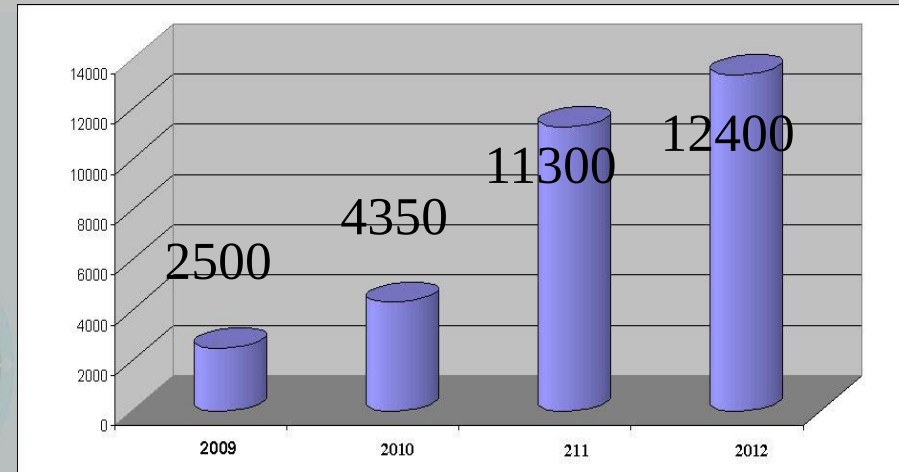
Responsibilities:

- Establishment, maintenance and development of geodetic reference networks (trigonometric, network of permanent GNSS stations, passive GNSS network, levelling network, gravimetric network etc ...)
- Maintenance and marking of the Macedonian state border
- Geodetic works of special importance for R. Macedonia
- Geodetic survey
- Land classifications
- Production of digital topographic maps and Orthophoto productions

ACTIVE GNSS NETWORK - MAKPOS



Working hours / year



Status May, 2013

- Registered companies: **121**
- RTK rover users: **138**
- DGNSS rover users: **10**

INTRODUCTION OF NEW COORDINATE SYSTEM

- **DEFINITION**



Choise of new optimal coordinate system.



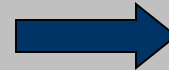
The optimal choise reprezents **ETSR89**

- **REALIZATION**



- Active GNSS network - MAKPOS *14 stations*

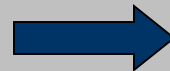
- Passive GNSS network ~ *200 points*



Realization done
from 2008 - 2011

- **LEGISLATION**

- Change of law and regulations needed



Planned in 2014

Introduction of ETRS89 in official use in MACEDONIA planned for 01.01.2015

COORDINATE TRANSFORMATION PROJECT

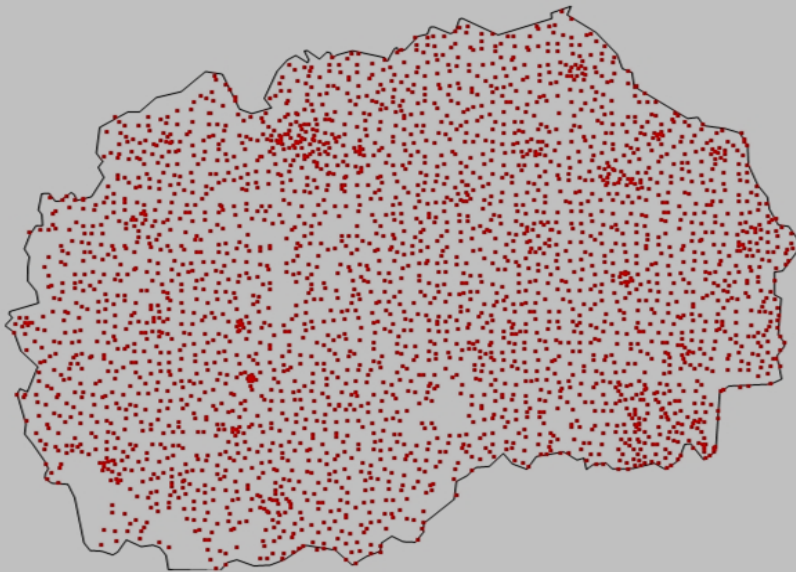
- **TRANSFORMATION MODEL** → Seven parameters Helmert similarity transformation + Making grid of residuals

- **REALIZATION (from 2008 – 2012)**

- *EUREFMAKPOS '2010 (14+7+4), total 25 points*
- Passive GNSS network **166 points**
- All order trigonometric network **2600 points**
- City trigonometric network **275 points**

TOTAL 3066

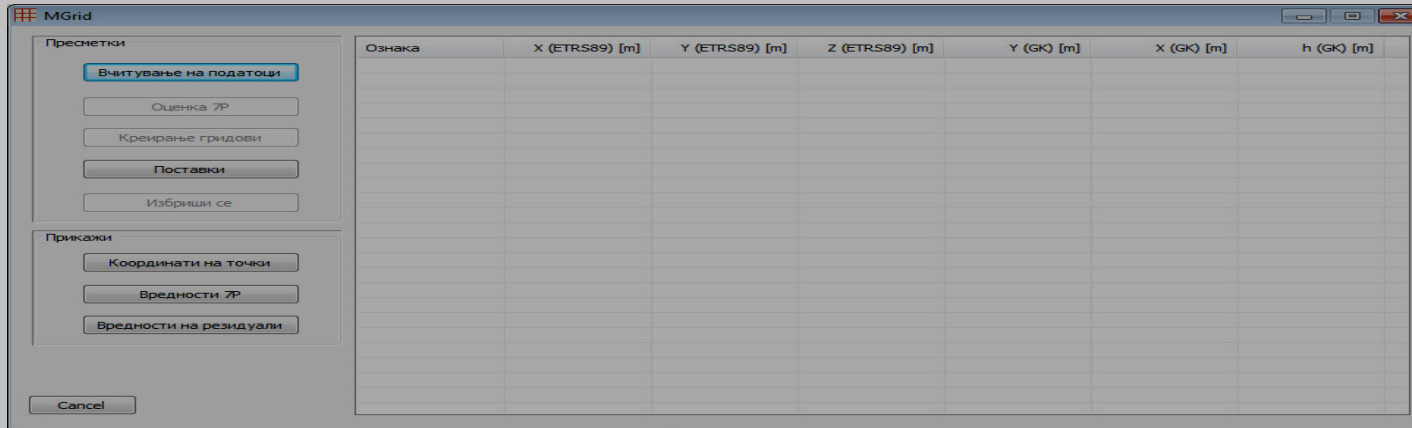
- Density 1 Point / 8 km²
- Accuracy ~ 2-3 sm
- Measured/Adjusted - ETRS89



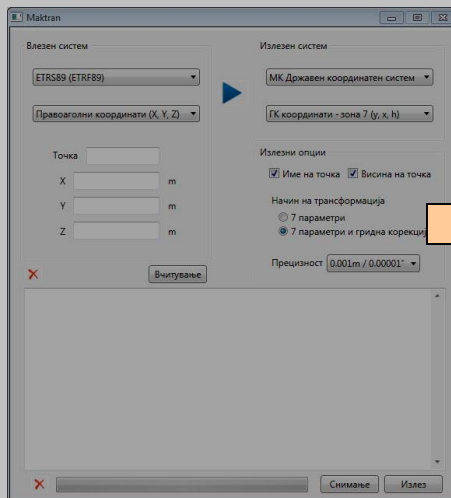
COORDINATE TRANSFORMATION PROJECT

SOFTWARE

- **MGRID** (software for trans. parameters and griding the residuals)



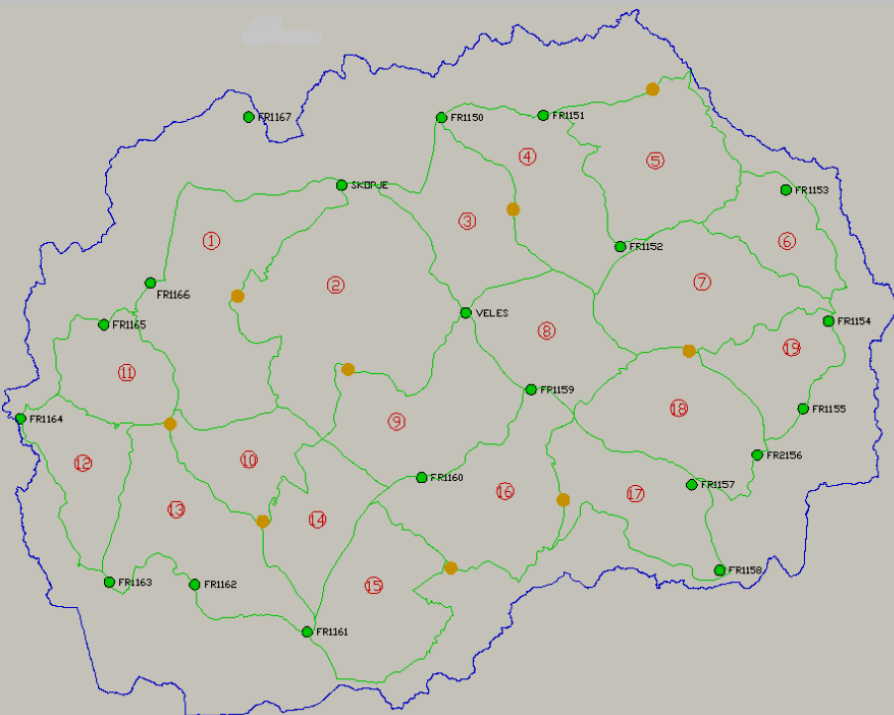
- **MAKTRAN** (software for transf. of coordinate)



1. ETRS89 (ETRF89);
2. ETRS89 (ETRF2000);
3. MKD (Old State Coord. System).

NEW LEVELLING NETWORK

Period for realizations August, 2012 – December, 2013



Status May 2013

Benchmark reconnaissance **80 %**

Benchmark monumentations **75 %**

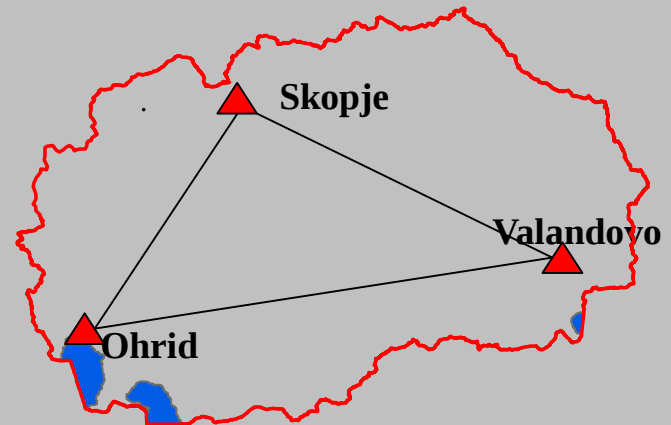
Measurement of leveling lines **40 %**

Total length of lines [km]	2200
Number of polygons	17
Average length of polygons [km]	156
Number of benchmarks – interdistance 2 km	1100

NEW GRAVIMETRIC NETWORK

Absolute gravimetric network

- Number of points : 3



Relative gravimetric network

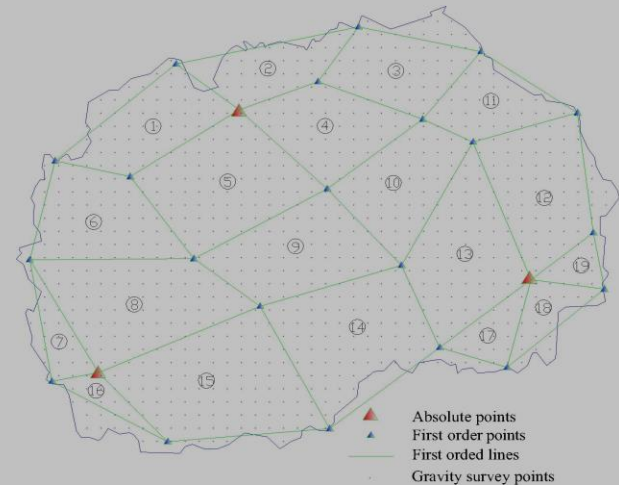
Planned for realization in 2013

- Number of points : 24

Gravity Survey

Planned for realization in 2014

- Resolution: 3 - 5 km grid
- Number of points ~ 2000



THANK YOU FOR YOUR ATTENTION

REPUBLIC OF MACEDONIA | AGENCY FOR REAL ESTATE CADASTRE



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our
services



questions
and answers



search of property
list by address



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portal



info-lines



viewing application
status

MAKPOS

macedonian
positioning system



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