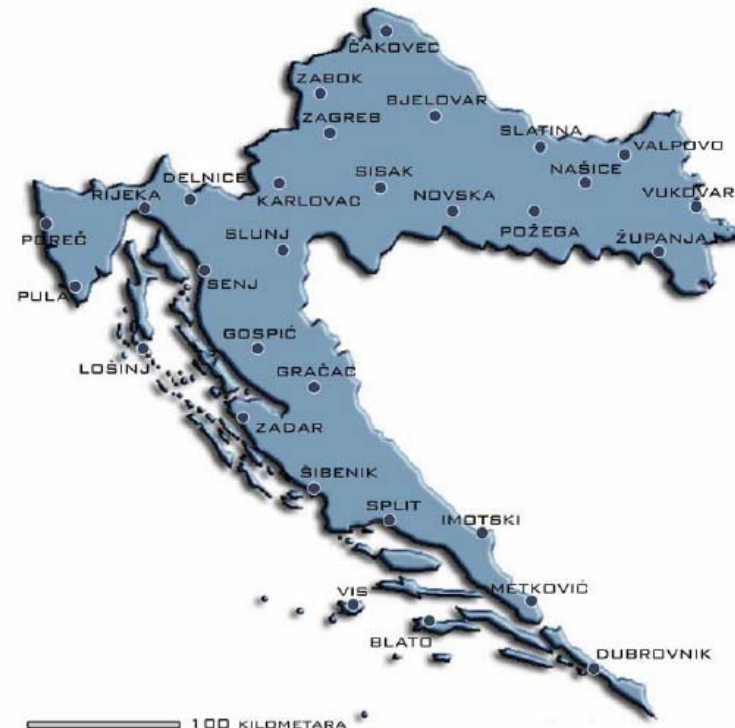


Dr.sc. Marijan Marjanović

Dr.sc. Marijan Marjanović
Marinko Bosiljevac, Dipl.Ing.

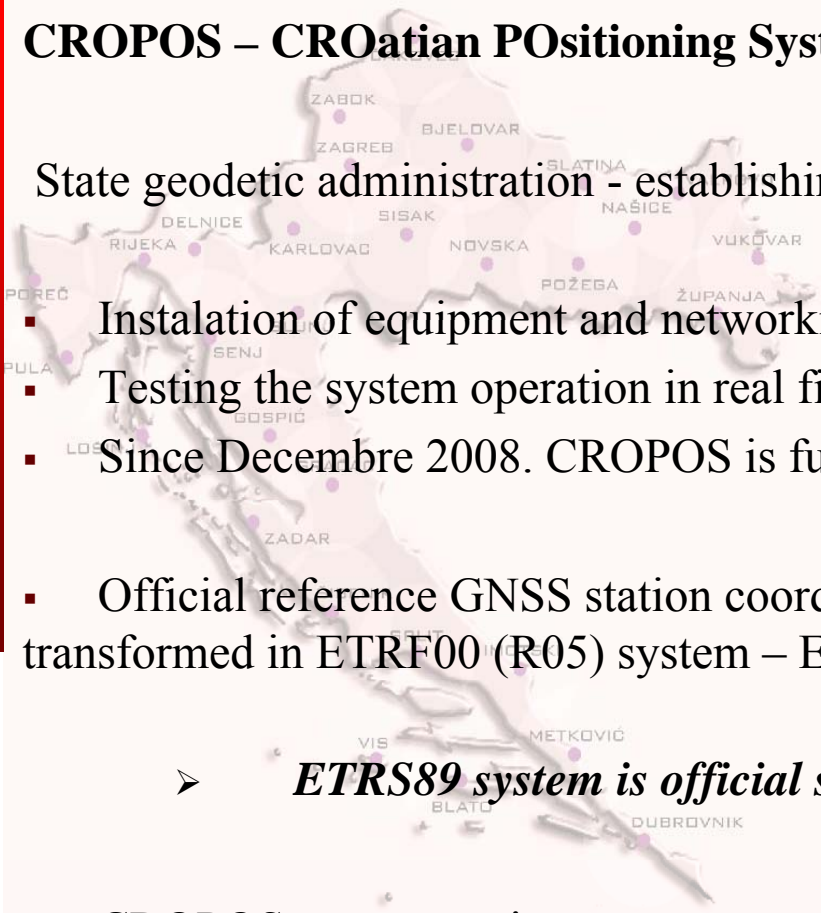
CROPOS – CROatian POsitioning System

- **CROPOS** - launched on **9th of December 2008**. in official usage.
 - enables practical usage of new official Croatian geodetic reference system *HTRS96*
- *accuracy of 2 cm positional and 4 cm vertical in real time*
- **over 200 companies - 550 licences**
- State survey, real estate cadastre, engineering geodesy
- GIS, navigation

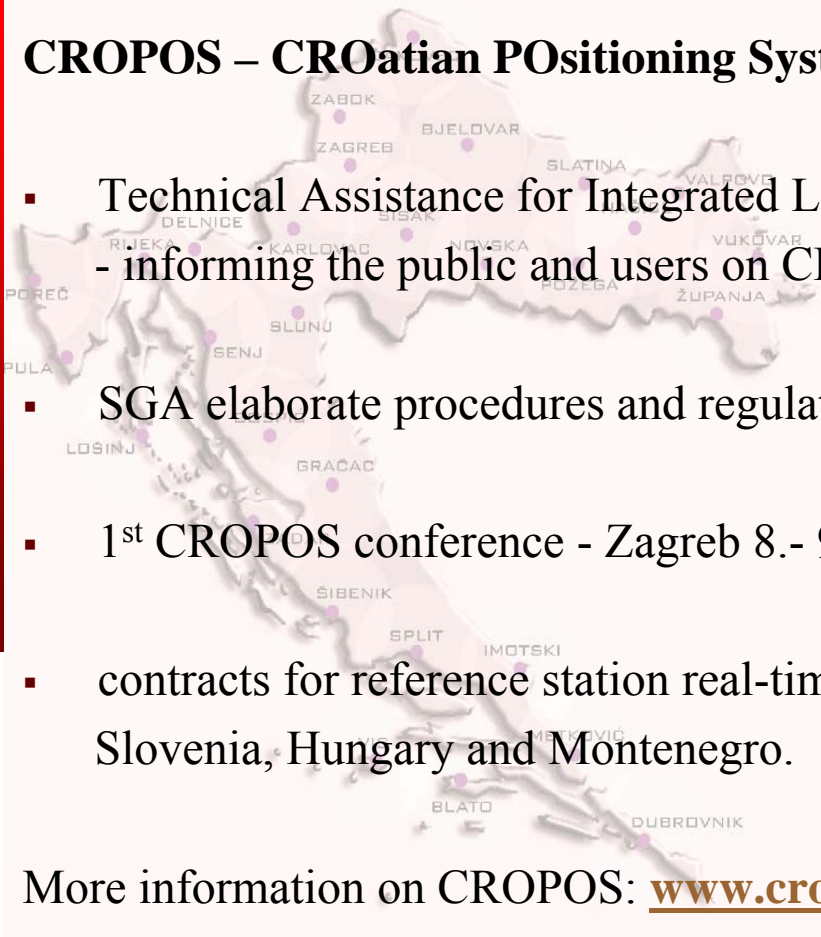


CROPOS – CROatian POsitioning System

State geodetic administration - establishing the CROPOS system in 2008:

- 
- A map of Croatia is shown in the background, with numerous purple dots indicating the locations of GNSS stations. The dots are distributed across the country, with a higher concentration in the northern and central regions. Some of the labeled cities on the map include ZABOK, BJELOVAR, ZAGREB, SLATINA, NAŠICE, RIJEKA, DELNICE, SISAK, KARLOVAC, NOVSKA, VUKOVAR, POŽEGA, ŽUPANJA, POREČ, PULA, SENJ, GOSPIĆ, ZADAR, VIS, METKOVIĆ, BLATU, and DUBROVNIK.
- Instalation of equipment and networking the system – September 2008.
 - Testing the system operation in real field conditions – November/December 2008.
 - Since Decembre 2008. CROPOS is fully operational.
 - Official reference GNSS station coordinates – calculated in ITRF2005, $e = 2008.83$; transformed in ETRF00 (R05) system – ETRS89.
 - ***ETRS89 system is official system for GNSS measurements with CROPOS.***
 - CROPOS system testing measurements on GNSS reference network of 1st and 2nd order

CROPOS – CROatian POsitioning System

- 
- A faint map of Croatia is visible in the background of the slide. It shows the coastline and major cities marked with purple dots and labels. The cities labeled include ZABOK, ZAGREB, BJELOVAR, SLATINA, VAL BOVO, RIJEKA, DELNICE, SISAK, KARLOVAC, NOVSKA, VUKOVAR, POZEGA, ŽUPANJA, POREČ, PULA, SENJ, SLUNJ, LOSINJ, GRACAC, SIBENIK, SPLIT, IMOTSKI, TROKUVIĆ, BLATO, and DUBROVNIK.
- Technical Assistance for Integrated Land Administration System in Croatia:
 - informing the public and users on CROPOS capabilities
 - SGA elaborate procedures and regulations for practical usage of CROPOS
 - 1st CROPOS conference - Zagreb 8.- 9.June '09
 - contracts for reference station real-time GNSS data exchange with Slovenia, Hungary and Montenegro.

More information on CROPOS: www.cropos.hr

Unique transformation model HTRS96/HDKS

- GNSS measurements of trigonometric points using CROPOS
 - over 3000 trigonometric points on the entire territory of Croatia
- New grid based transformation model

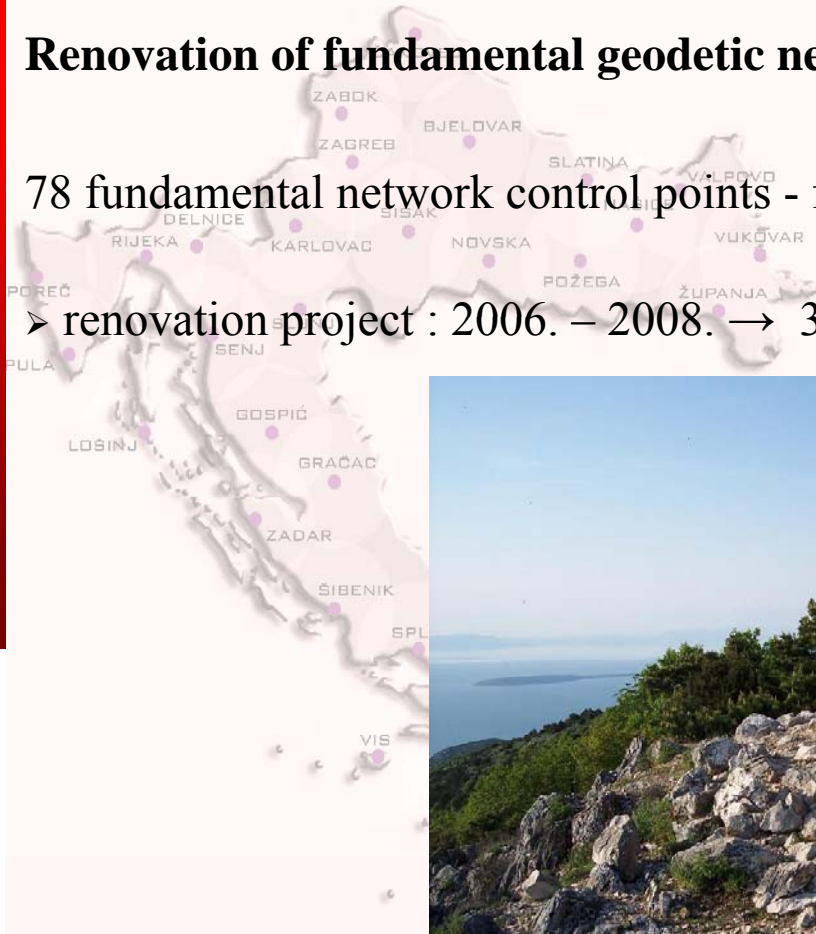
Croatian State Coordinate System HDKS ↔ Croatian Terrestrial Reference System HTRS96

- uniform, reliable and simple transformation between inherited local and new official geocentric reference system available to all users

Renovation of fundamental geodetic network control points

78 fundamental network control points - foundation for *Croatian Terrestrial Reference System*
HTRS96

➤ renovation project : 2006. – 2008. → 31 pillars



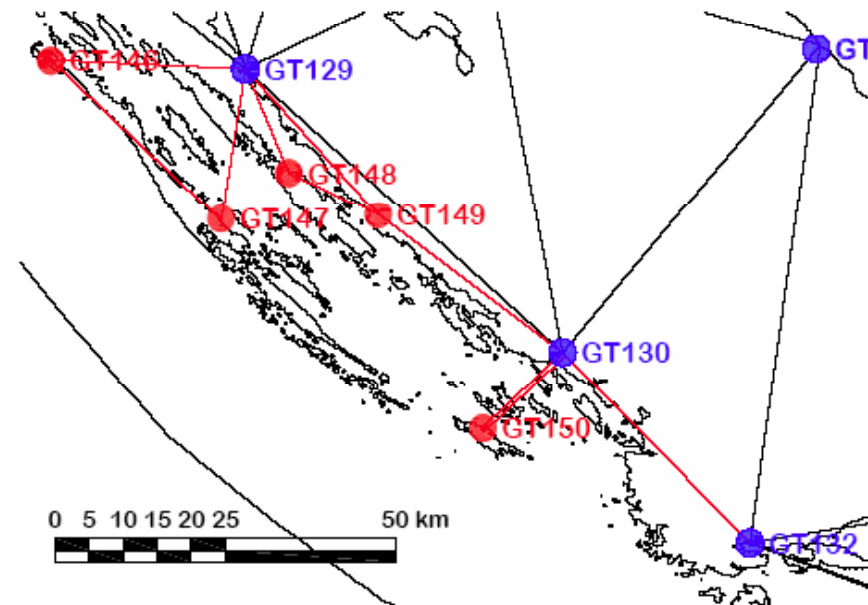
SGA plan to renovate new 5 pillars in 2009.

Extension of 1st order gravity network on middle Croatian islands

- Croatian geodetic institute accomplished measurements of gravity network points on middle Croatian islands in 2008:

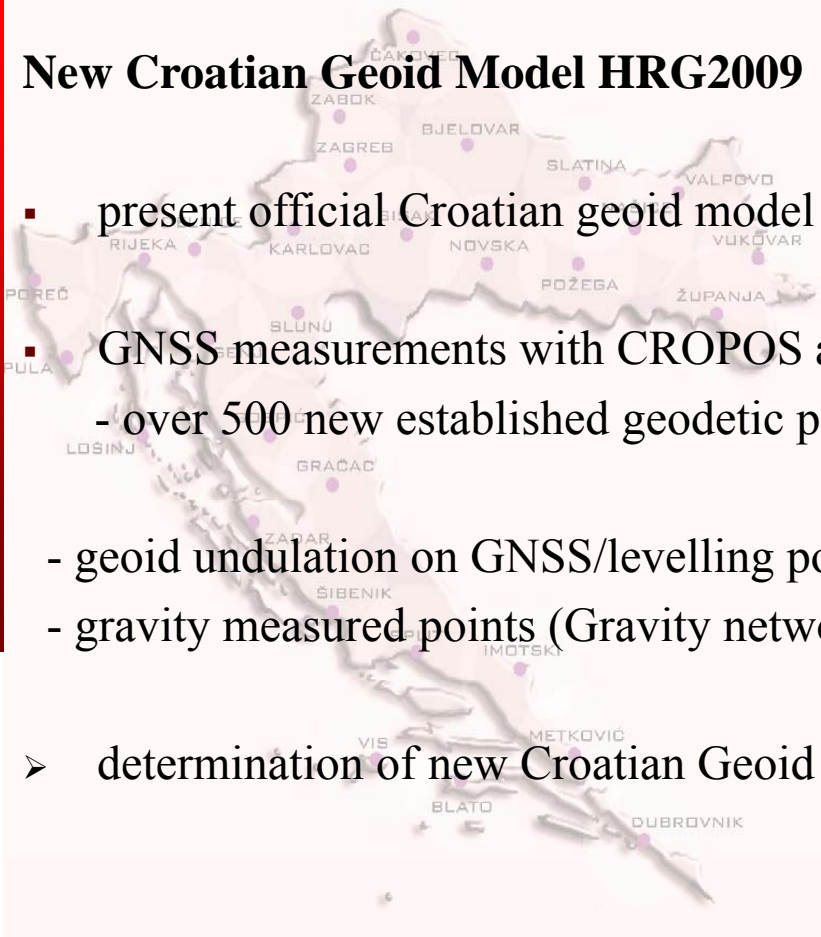
- 3 existing gravity points of 1st order
- 5 new established gravity points of 1st order

- GNSS measurements with CROPOS system
- relative gravity measurements

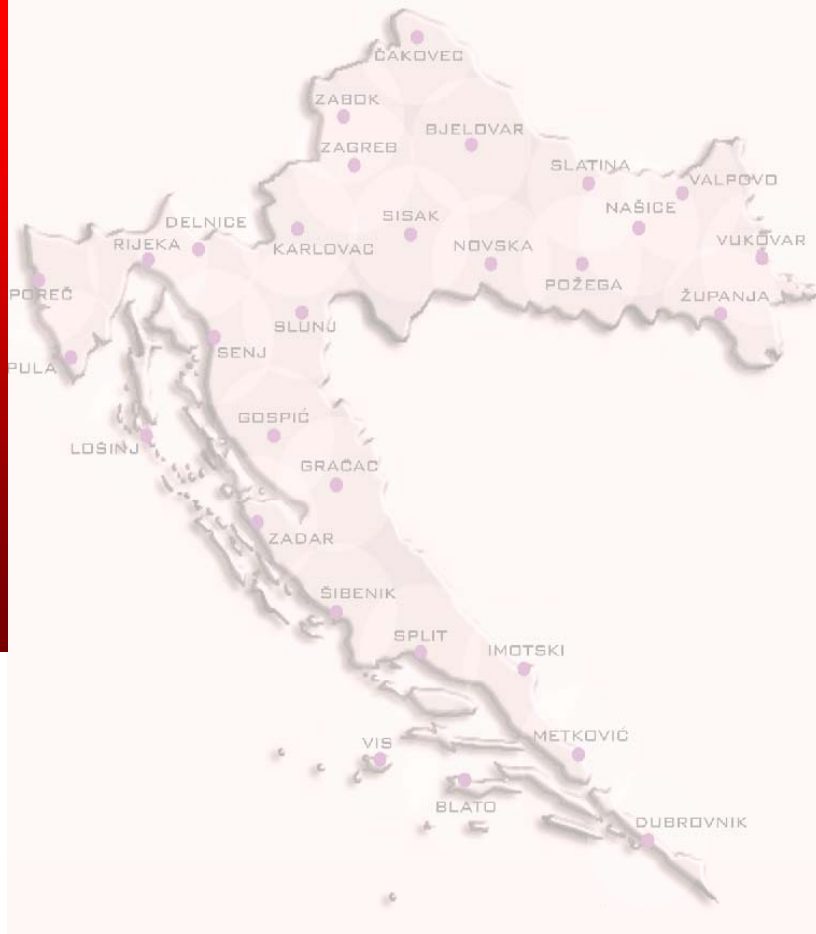


Further activities: Extension on south Croatian islands

New Croatian Geoid Model HRG2009

- 
- A map of Croatia is shown in the background of the text. It is marked with numerous purple dots representing geodetic points. Major cities like Zagreb, Rijeka, and Dubrovnik are labeled. The map covers the entire territory of Croatia, including its islands.
- present official Croatian geoid model is HRG2000
 - GNSS measurements with CROPOS and levelling measurements
 - over 500 new established geodetic points in raster app. 10x10 km
 - geoid undulation on GNSS/levelling points
 - gravity measured points (Gravity network points of 0, 1, 2 order and EUVN network points)
 - determination of new Croatian Geoid Model HRG2009

Information on gravimetry works: www.cgi.hr



Thank you for your attention!