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Rome, Italy 6–10 May

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Evaluate the cultural heritage



Establishment of MOLDPOS- a Continuously Operating Reference Stations Network for Moldova (5663)

Dr. Maria OVDII,
Agency for Land Relations and Cadastre of the
Republic of Moldova
E-mail ovdii@agency.cadastre.md

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Summary:

1. The Republic of Moldova-general data
2. Agency for Land Relations and Cadastre Overview
3. Geodetic Datum and System's condition
4. Background to MOLDPOS CORS Net
 - 1.1. Project funding
 - 1.2. Project parties and contractors
 - 1.3. Project outcomes
4. MOLDPOS CORS Net Infrastructure
5. Current status MOLDPOS Net
6. MOLDPOS Services
7. MOLDPOS Applications
8. Cross border data exchange
9. The future direction
10. Summary
10. References



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The Republic of Moldova ... General data



- Total area - 33,7 thousand km²
- Capital - Chisinau
- Population - 4,3 mln
- Real Estate - 5,7 mln

Territorial division

- 32 regions
- 65 cities
- 1 548 localities

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Historical review

- Declaration of Independence of the Republic of Moldova (1991);
- Mass distribution of national property (1992);
- Foundation of the Agency for Land Relations and Cadastre (1994);
- Law of Real Estate (1994);
- Signing of an agreement concerning the credit for further development between Republic of Moldova and Agency for International Development (AID), (June 8, 1998);
- Law of Land Code (1998)
- Law of geodesy and mapping (2002)
- Implementation of the First Cadastral Project in Moldova (1999 – 2007).



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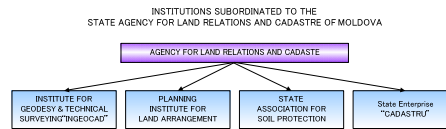
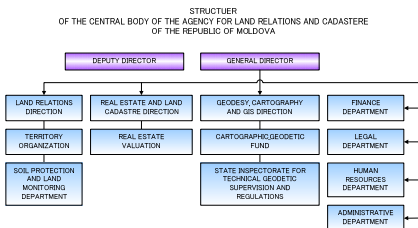
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Agency for Land Relations and Cadastre Overview



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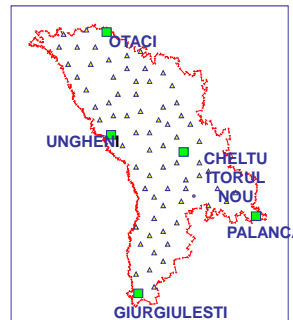
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GEODETIC DATUM IN MOLDOVA

- The rectangular coordinate reference system for Moldova: MOLDREF99.
- The geodetic datum for MOLDREF99: ETRS89 and GRS80
- There are totally 495 points available based on MOLDREF99. These are divided into 3 classes/orders:
 - 5 points of 0 class/order
 - 72 points of 1st class/order
 - 418 points of 2nd class/order;
- The vertical datum is Baltic Sea Level based on Kronstadt zero point
- Connection of the National Geodetic Network with the European Geodetic Frame EUREF was done.



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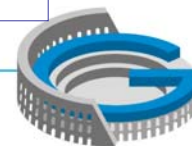




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OBJECTIVES OF MOLDBOS Net

- The main objective - Establishment of a system for cost-effective utilization of satellite based (GPS) surveying for ownership registration and other field activities: MOLDBOS;
- To maintain and develop the National coordinate reference system and associated geodetic infrastructure;
- To work closely with international Geodetic GI and GNSS communities;
- To provide a GNSS and Geodesy services to and on behalf of Government;
- To promote the science of geodesy and positioning and its value to policy makers, the scientific community and wider society.

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PROJECT FUNDING

- **Norwegian Ministry of Foreign Affairs granted to the project "Moldova - Line Maps for Development: NOK 8 470 000 - to be implemented over 2 years**
- 2 main components:
 - i) line maps for 5 000 km²
 - ii) 10 Permanent Reference Stations and Control Centre

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PROJECT PARTIES AND CONTRACTORS

- **Norway:**
 - Norwegian Ministry of Foreign Affairs
 - Norwegian Mapping Authority - Statens kartverk
- **Moldova:**
 - Agency for Land Relations and Cadastre of Moldova
- **Contractors:**
 - Leica Geosystems
 - Servalux Ltd, Moldova
 - MoldTelecom, Moldova
 - Local Public Authority of Moldova

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MOLDPOS CORS Network

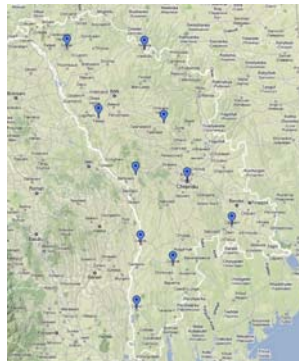
National network of 10 GNSS receivers:

Cahul	Causeni
Chisinau	Comrat
Edinet	Falesti
Leova	Nisporeni
Soroca	Telenesti

- GPS + GLONASS + Galileo /
Compass ready
- Designed as a backbone geodetic /
network RTK infrastructure

The type of the receivers is:

- Leica - 16 (10 Moldova, 5 Romania, 1 Ukraine)
- All of them are GPS/GLONASS.



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Network design

- Good spacing/70 km
- Similar altitudes
- Good observation conditions



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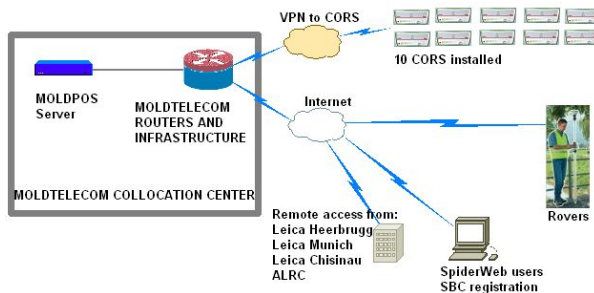
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CORS Control Center



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MOLDPOS 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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CROSS BORDER DATA EXCHANGE

MOLDPOS -10 Operations
Reference Stations

ROMPOS – 6 Operations
Reference Stations

ZAKPOS – 1 Operation
Reference Station



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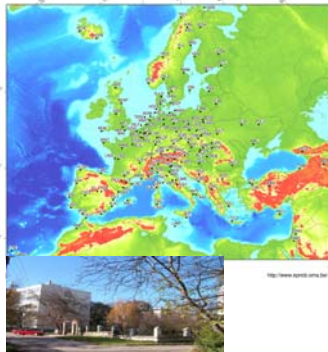
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Integration with EPN

EUREF Permanent Tracking Network



Starting from August 2007 the Agency of Land Relations and Cadastre in collaboration with BKG installed and jointly operate a GNSS permanent tracking station IGEO (Chisinau)

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MOLDPOS AS A PART OF EUPOS®

- To enforce the interest of the Republic Moldova to be a part of the European partnership in GNSS services, since 23 April 2008 the country is member of the EUPOS initiative.
- As a part of **EUPOS®** MOLDPOS support precise positioning and navigation with high accuracy - fulfill all accuracy requirements for geodesy and navigation, and guaranteed continuity, availability, and quality of the services.



European Position Determination System

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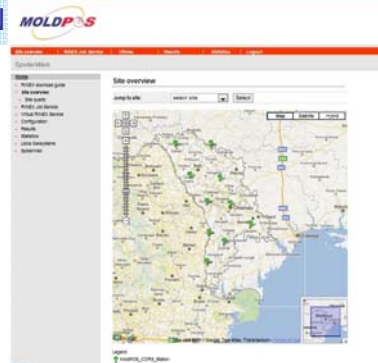
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CORN MOLDPoS: THE FUTURE DIRECTION

1. Official open CORN MOLDPoS - 1 November 2011
2. Good Management of CORN MOLDPoS:
 - ensure maximum network quality at all costs
 - minimize downtime (telecom, data centre)
 - maximize data quality
 - maintain the cross border data exchange
4. Marketing
 - develop www.moldpos.md



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CORN MOLDPoS: THE FUTURE DIRECTION

Market

- Market potential: ~ 150 companies
- 4 up to 8 big players are equipped with more than one receiver

Target Groups

- Agriculture companies, construction companies, railways, real estate owners/operators, engineering companies, rescue services, architects, building workers, ecologist, armed forces, cadastre and land properties, municipalities, authorities etc. →

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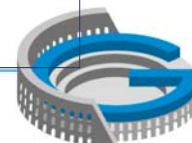




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Summary

- Agency for Land Relations and Cadastre of Moldova have developed a national GNSS infrastructure
- Going forward, there is a need to look outside of our traditional community to those who may need MOLDPOS Net as part of their future requirements

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ovdii@agency.cadastre.md

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