

UNITED NATIONS / UNITED ARAB EMIRATES / UNITED STATES OF AMERICA
WORKSHOP ON THE APPLICATIONS OF GLOBAL NAVIGATION SATELLITE
SYSTEMS

**AN INITIATIVE FOR DEVELOPING A TRAINING
STRUCTURE ON GNSS AND GEOMATICS AT
NATIONAL AND REGIONAL LEVEL**

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GENERAL CONSIDERATIONS

AT national level Romanian Space Agency (ROSA) as coordinator of Space Applications activities identified the educational system as a conservative element having a negative influence for the assimilation, progress and operational implementation of useful GNSS services and EO projects.

It is evident that implementation of GNSS and EO technologies (both based on satellite data) are more dynamic than the transformation and/or adaptation of the decision and education systems (generally proven as unable to rapidly react face to the evolution of R&D activities and industrial implementation).

RECENT HISTORY

In Romania, the Earth Measurements domain was influenced by the departmental affiliation:

- Until 1989 as Directorate of the Ministry of Agriculture;
- 1989-1997 as part of the Directorate for Land Reclamation and Cadastre belonging the Ministry of Agriculture. In parallel, the Ministry of Public works had a Directorate for Urban Cadastre;
- 1996 : creation in of the National Office for Cadastre, Geodesy and Cartography as structure subordinated to the Prime Minister (at this moment the expert's community was confident in regarding the evolution of the domain ...). In parallel, the Ministries of Agriculture and Public Works kept important internal structures for so named "specialty cadastre"

RECENT HISTORY

- 2001 : the agricultural cadastre structure moves to the NOCGC;
- 2002 : the affiliation of NOCGC was transferred from the Prime Ministre to the Ministry of Administration;
- 2004 : NOCGC is transformed in National Agency of Cadastre and Land Registration (NACLR) having a self financing organization. During this period a group of professors was responsible for building up the ROMPOS system.
- 2009 : NACLR suffers a change of financing status and a part of public servants had to leave the Agency (as result, the ROMPOS system remaining without internal technical support)

OTHER CONSIDERATIONS

Step by step, the general approach regarding the geodetic science was subordinated to the notions “cadastre” and “land registration”. As consequences, the technical community has problems for convincing that the cadastre is a simple application of the earth measurements domain and the geodetic network is conditioning the cadastral activity.

There are not direct governmental investments for the geoid determination or gravity and orbitography studies. Or, the realization and maintenance of the ROMPOS system has to take into account the fact that by solving the main problems regarding the height, scale, orientation and gravity, the general cadastre will find the easiest and correct way for implementation.

Activities of Romanian Space Agency for Implementing the GNSS Concepts

Having as argument the space segment, Romanian Space Agency (ROSA) tried to develop a sustainable research segment able to interact with the contemporary development in the GNSS field.

A team constituted by young experts in geodesy and geography was involved in many national and international projects (EC- FP 6 / FP 7 and ESA PECS activities).

In fact, by involving these scientists in the educational activity too, the experience previously acquired is now transferred to the students of Cadastre specialization at the Faculty of Land Reclamation and Environmental Engineering of Bucharest (FIFIM).

ROSA adopted this strategy in view of transferring the basic knowledge to a significant number of future engineers. After the graduation they have to be prepared for a useful implication in R&D activities or participation at the implementation of the increasing number of GNSS applications and services.

The “Earth Measurements and Cadastre” specialization offers the basic training for engineers at license level by using modern methods in the field of Digital Cartography, GIS and Earth Observation technologies.

Today, based on a collaboration agreement signed by ROSA and FIFIM it is possible to link the R&D activity with the educational system.

The agreement contains several compulsory conditionalities :

- A graduated engineer has to understand and apply the recommendations of UNISPACE III conference;
- A graduated engineer has to understand what is the GNSS;
- A graduated engineer has to be educated as a future GNSS user;
- A modern thematically adapted infrastructure has a decisive contribution for learning and practicing ;
- A multidisciplinary group of professors (practitioners and not only theoreticians) should ensure o coherent educational act.

The project “EGNOS Extension to Eastern Europe (EEGS)” sustains the collaborative effort of ROSA and FIFIM

Romanian Space Agency, is currently involved as a partner in a project co-founded by EC under the FP7 2nd call.

The consortium of the EEGS project led by is composed of 8 partners :

- GMV (Spain) -leader**
- Russian Space Systems (RSS –Russian Federation),**
- Romanian Space Agency**
- Space Research Centre (SRC-Poland),**
- GMV Systemas (GSY-Spain)**
- Main Astronomical Observatory (MAO – Ukraine),**
- AENA (Spain),**
- AENI (AENA International – Spain)**

OBJECTIVES of EEGS

- to demonstrate that EGNOS can be “easily” extended to Eastern Europe and provide the straight-forward actions to be undertaken in order to accomplish this.
- to assess the level of interoperability between EGNOS and SDCM (Russian SBAS) and prove through demonstrations that these two systems or improved versions of them can be interoperable.
- to promote EDAS (EGNOS SBAS messages and raw GPS, GLONASS observations over the internet) on the GNSS market in Russia in order to provide a high precision positioning service (PPP).
- To study the impact of Galileo in scenarios implying extending EGNOS in Eastern Europe and making EGNOS and SDCM interoperable.

ROSA and FIFIM Regional Activities

The long term partnership established in 2010 by FIFIM and Technical University of Moldova in the Earth Observation domain was concluded by a intensive Remote Sensing course held in Kishinev.

The discussions with the members of the Earth Measurements Chair offered the possibility to analyze the possibility to involve the local experts and the university as partners in the elaboration of a new extended EEGS project to be submitted at the occasion of a new FP7-Space call.

FIFIM Regional Activities

Answering the request of local authorities, and tacking profit of the presence of the author in Moldova, an informative meeting regarding the use of Earth Observations in case of major disasters was organized.

On behalf of the Romanian UN SPIDER Regional Support Office (RSO), the discussions promoted the role of OOSA and International Charter on Major Disasters, as well as the GEO initiatives for helping the countries around the world to implement and use mechanisms for a sustainable use of space technologies.

FINAL REMARKS

In fact, during the floods happened in 2010 the Romanian Regional Support Office produced data and intermediated direct contacts between the UN-SPIDER Office in Berlin and the Cadastre Agency of Moldova in view of a better reaction in the benefit of citizens.

This is an other example of positive partnership between the R&D segment and the education system both at national and regional level.

Thanks for your attention !