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GEO-CRADLE: Coordinating and integrating state-of-the-art Earth Observation Activities in the regions of North Africa, Middle East, and Balkans and Developing Links with GEO related initiatives towards GEOSS

GEO-CRADLE
Regional Workshop in Romania

Addressing regional needs by enhancing Earth Observation uptake and relevant business performances

May 9th 2017

National Institute of Research and Development for Earth's Physics (NIEP)
Calugareni st, no 12, Magurele, Ilfov county, 077825, Romania

MINUTES

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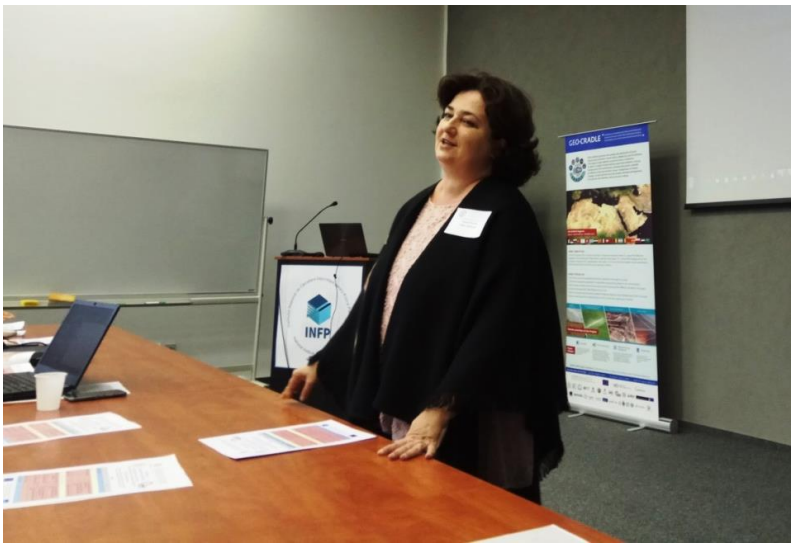
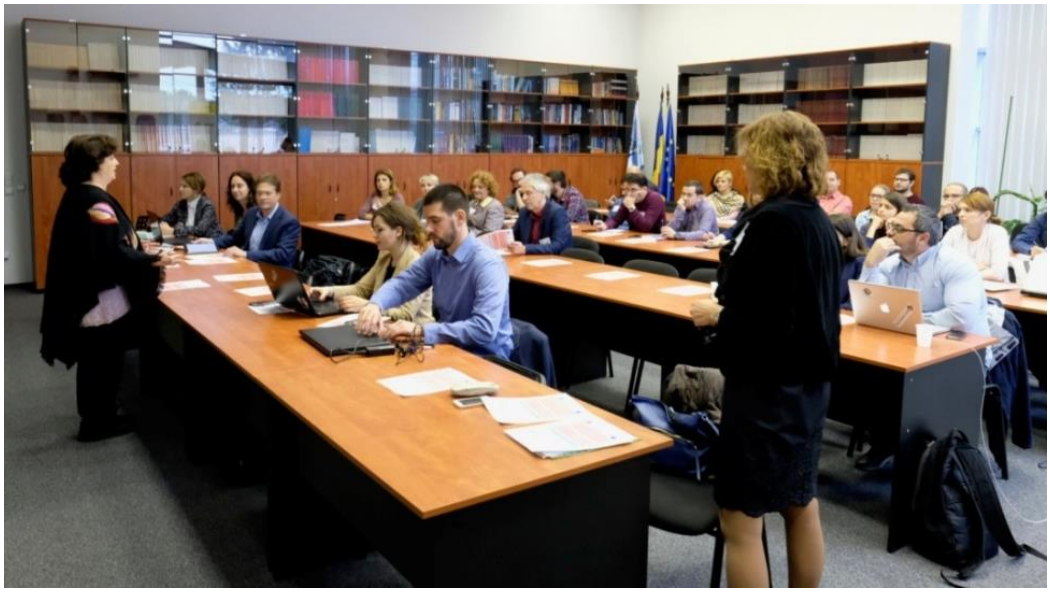
Introduction

This regional workshop for the Balkans was jointly organized by the Project Coordinator National Observatory of Athens (NOA) and the Project Partner National Institute of Research and Development for Optoelectronics (INOE), and it was kindly hosted by the National Institute of Research and Development for Earth's Physics (NIEP) in Magurele city.

Opening

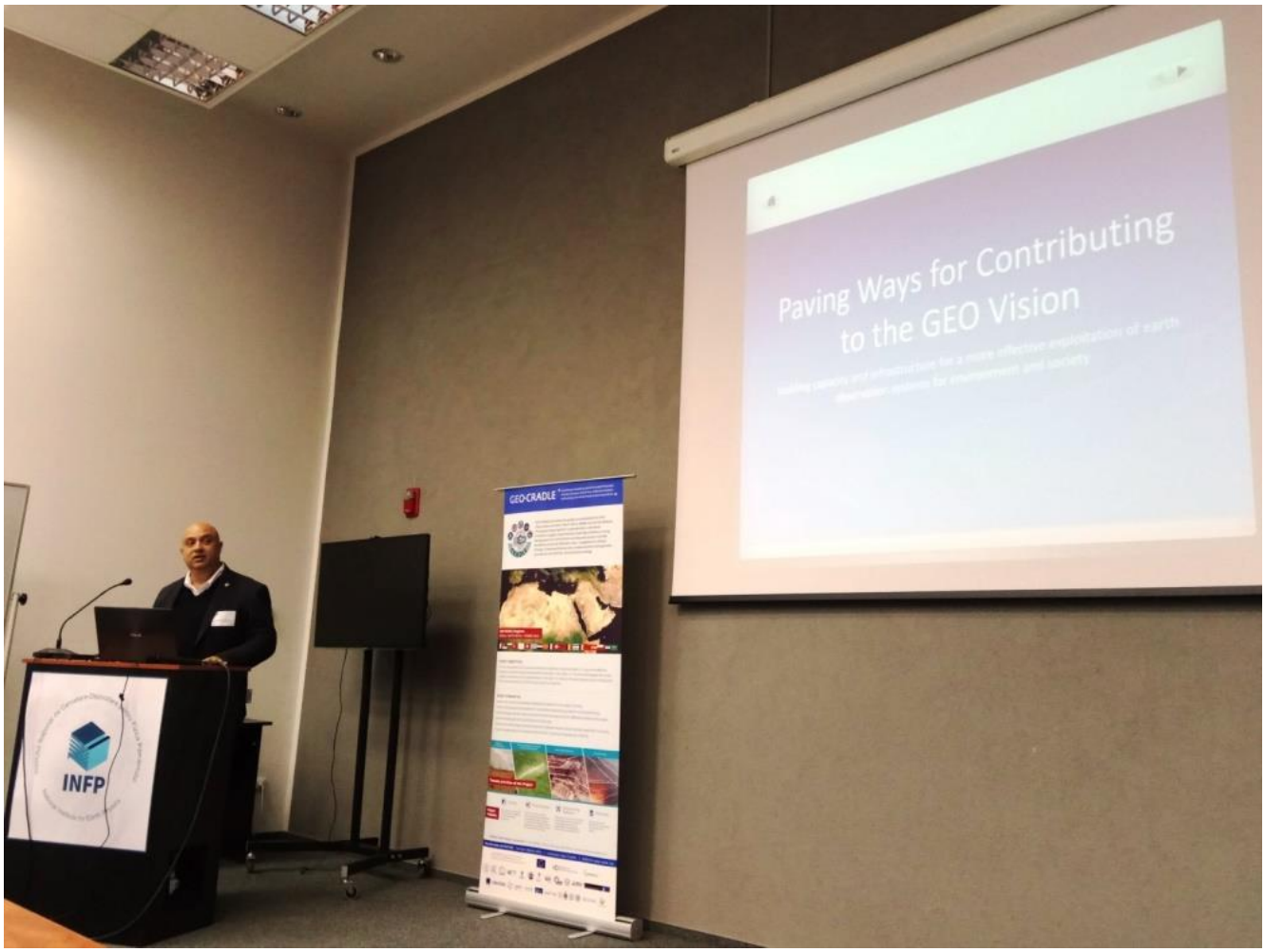
Welcome notes were given by **Dr. Doina Nicolae**, the Leader of the Remote Sensing Department of INOE, who highlighted the need for the project's sustainability, and **Dr. Haris Kontoes**, the Coordinator of the GEO-CRADLE project and Research Director of the Institute for Astronomy, Astrophysics, Space Applications and Remote Sensing of NOA, who emphasized the importance of EO uptake based on GEO and Copernicus products and services to cover real needs of end-users.





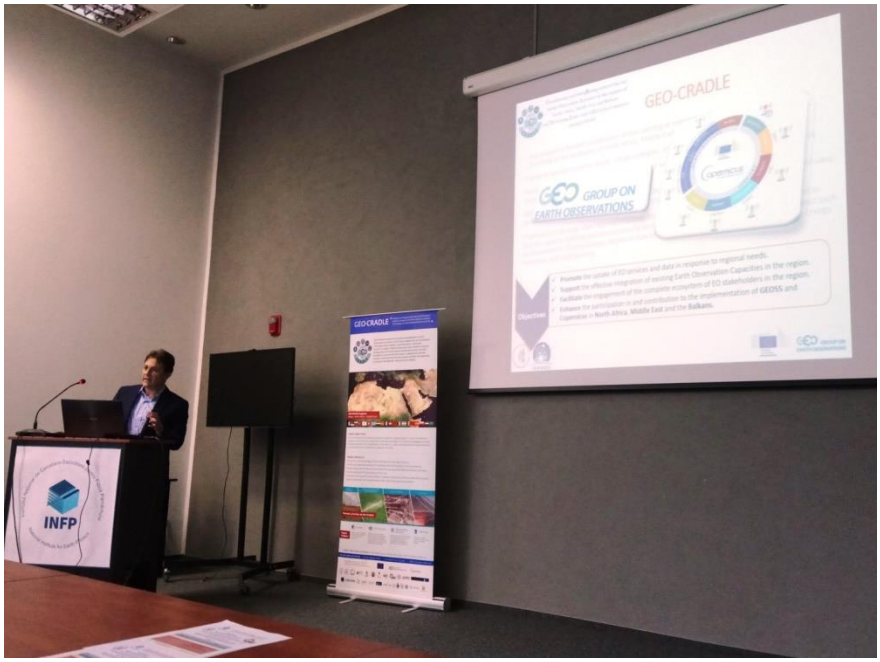
Dr. Doina Nicolae introduced **Ms. Anca Nemuc**, from INOE, as the Chairwoman of the workshop.

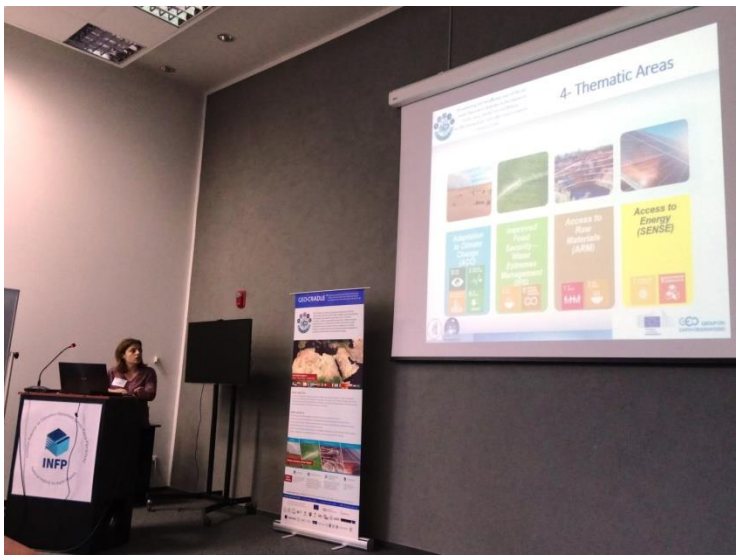
The keynote speech was given by **Mr. Ion Nedelcu**, representative of the Romanian Space Agency (ROSA), and GEO Principal Alternate in Romania. Mr Nedelcu spoke about paving ways for contributing to the GEO Vision, building capacity and infrastructure for a more effective exploitation of earth observation systems for environment and society. He presented the importance and added value of GEO, as well as the contribution of its members, highlighting the contribution of Romania so far. Currently Romania's main contribution to the GEO at European level is the national program for space technology STAR Romania, which is developing a number of competence centres and infrastructure nodes in support of future activities. Mr. Nedelcu presented the national interest perspective in the Earth Observation activities, and the ongoing effort towards a national ground segment. Mr. Nedelcu closed his presentation with an invitation to the 6th edition of the Council of European Aerospace Societies (CEAS) Conference, which will take place in Bucharest, Romania, between 16-20 October 2017.



Session I: GEO-CRADLE contribution to the region

The first session started with **Dr. Haris Kontoes**, GEO-CRADLE Project Coordinator, NOA, who presented the GEO-CRADLE project in context of regional needs. Dr. Kontoes gave a general overview of the GEO-CRADLE project, including its objectives and thematic areas, pinpointing its importance in the North Africa, Middle East and Balkans regions for the implementation of GEOSS and Copernicus. These regions are represented by 25 partners spread in the 3 continents, and are all integrated in one team, under the coordination of NOA. Dr. Kontoes presented the pillars of the project, focusing on the Networking Platform and the Regional Data Hub. He invited all the participants to visit them online and join. Last but not least, Dr. Kontoes presented the available EU funding opportunities, which are also available on the website of GEO-CRADLE, and invited the audience to check the calls which are open or upcoming.





Then **Ms. Luminita Marmureanu**, from INOE, presented the GEO-CRADLE pilot studies which cover 4 thematic areas: Adaptation to Climate Change, Improved Food Security - Water Extremes Management, Access to Raw Materials, and Access to Energy. Ms Marmureanu referred to the scope and the connections of each thematic area with specific UN Strategic Development Goals. She also presented the first results of the pilots, and highlighted the end-users who have expressed interest in each pilot. It's also important that there is synergy among these studies.

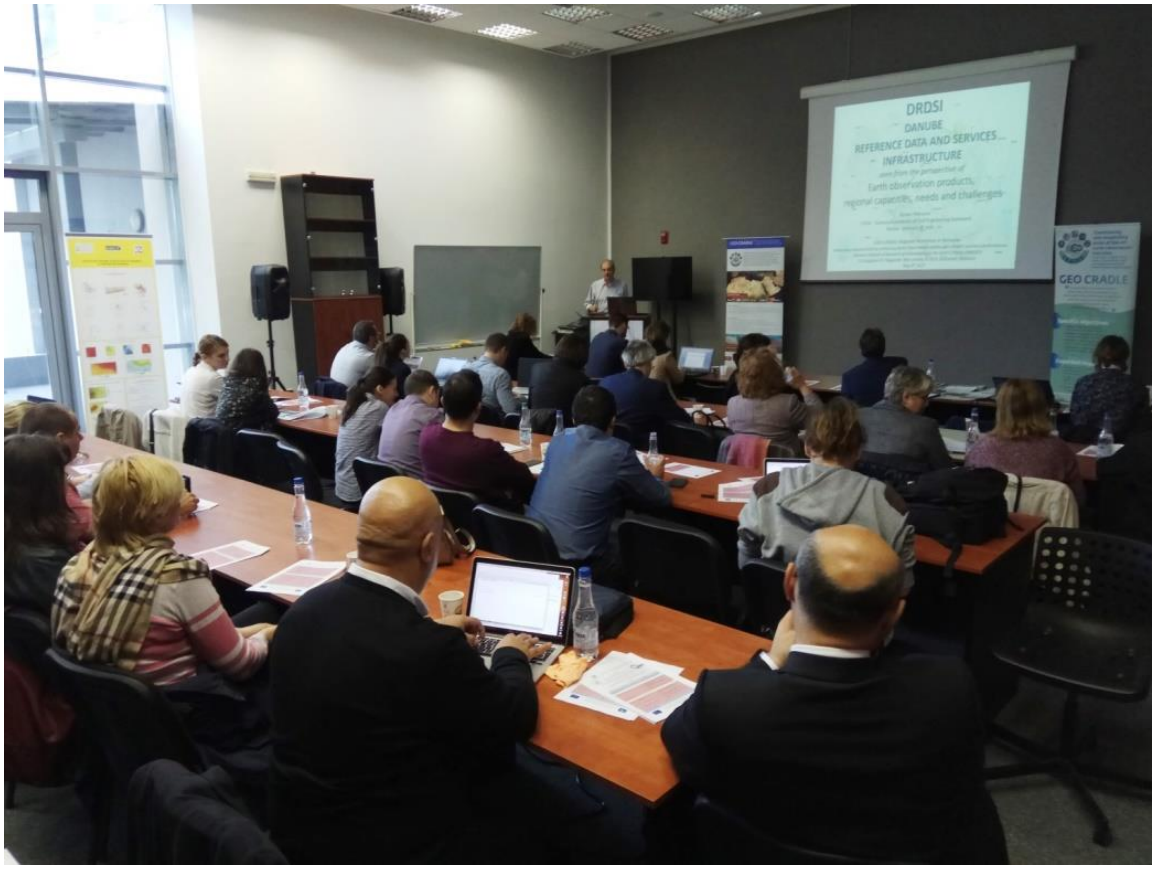
Ms. Alexia Tsouni, from NOA, presented the GEO-CRADLE portal and focused on the Networking Platform. She explaining the scope and the functionality of the Platform and the possibilities it provides (search by filters or keywords, advanced search, registration, login). Ms. Tsouni also presented the statistics of the responses to the relevant survey so far (236) and highlighted the importance of filling in the survey and providing all the relevant information in order to join this regional network of stakeholders and keep up-to-date with current collaboration and business opportunities in the region, networking events and EO-related news. In the end she handed to the audience hard-copies of the survey and invited them to fill them in by the end of the workshop. The response of the participants was very positive and indeed several new registrations were made.

Q&A – Discussion

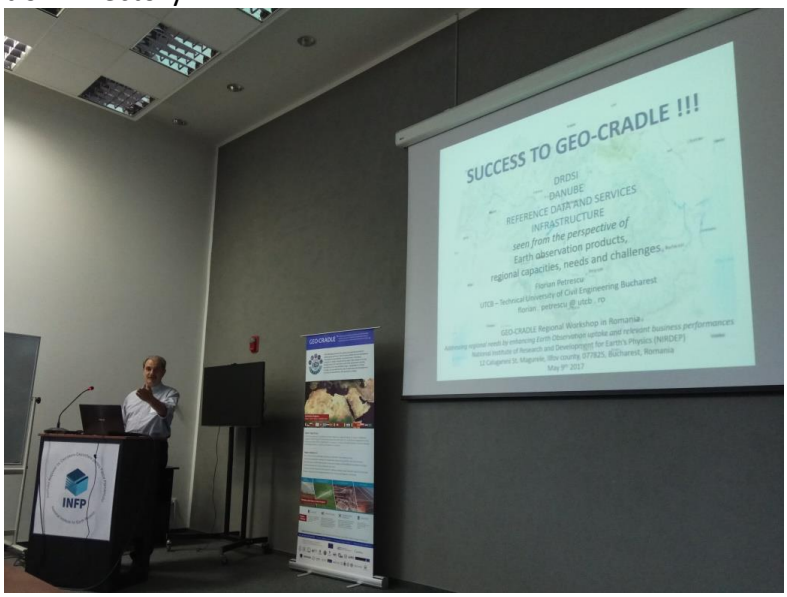
The possibility to make a link between the GEO-CRADLE web portal and other stand alone or regional portals and/or databases was discussed.

An idea was also expressed to convert the GEO-CRADLE web portal into a virtual research infrastructure after the end of the project.

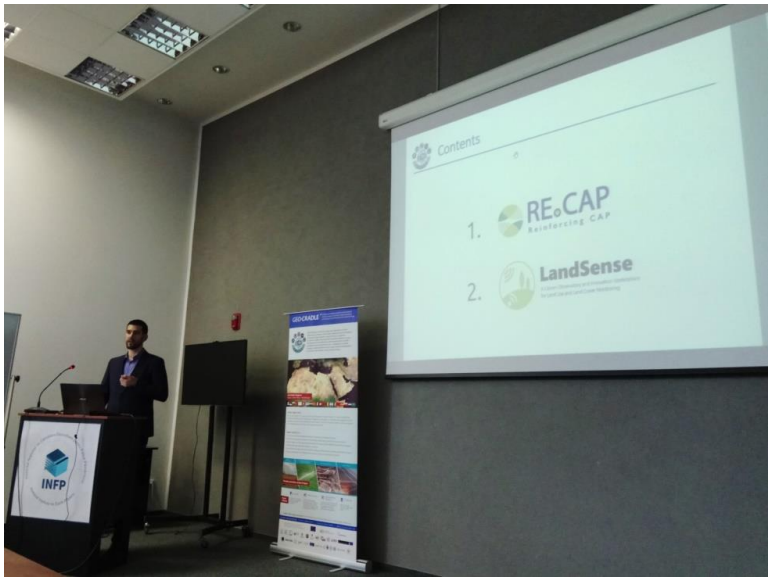
Session II: Regional EO perspective



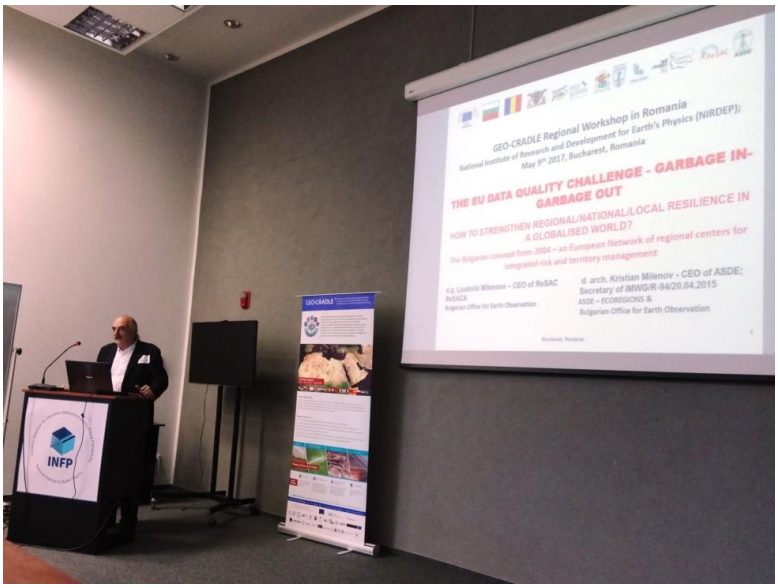
Mr. Florian Petrescu, from the Technical University of Civil Engineering Bucharest and the EU Joint Research Center (Romania), opened the session with a presentation on the Danube Reference Data and Services Infrastructure (DRDSI) seen from the perspective of earth observation products, regional capacities, needs and challenges. DRDSI is a JRC project within the framework of JRC scientific support to the European Union Strategy for the Danube Region. Mr. Petrescu explained that DRDSI helps to create a data-sharing infrastructure in support of the Danube strategy, and referred to its main results by now: the data platform, the value-added pilots, the user stories. He mentioned the main challenges faced by DRDSI and conclusions so far, and how GEO-CRADLE, another inter-regional project, can learn from this experience. He highlighted the importance of the community which is built around DRDSI, and praised the GEO-CRADLE Networking Platform as an on-going activity to create an attractive, user-friendly and comprehensive platform where regional stakeholders can be informed on existing capacities, complementary skills and collaboration opportunities. Mr. Petrescu suggested that the GEO-CRADLE Networking Platform is developed and promoted to become the Global Earth Observation Directory.



Mr. Igor Milosavljevic, from InoSens (Serbia), continued with success stories from EO projects in the Balkan Region – best practices, needs and challenges. He selected two projects: RE.CAP and LandSense. RE.CAP is about reinforcing CAP: peRsonalised sErvices in support of the implementation of the Common Agricultural Policy. Its main objective is to develop and test an ICT (Information and Communications Technology) platform for delivery of public services that will enable improved CAP implementation. LandSense is a Citizen Observatory and Innovation Marketplace for Land Use and Land Change Monitoring. LandSense aims to aggregate innovative EO technologies, mobile devices, community-based environmental monitoring, data collection, interpretation and information delivery systems to empower communities to monitor and report on their environment. Mr. Milosavljevic emphasized that the farmers can use these services in their day-by-day activities.



Then **Mr. Kristian Milenov**, from the Agency of Sustainable Development and Eurointegration (ASDE) - Ecoregions (Bulgaria), gave a presentation about the EU data quality challenge, and how to strengthen regional/national/local resilience in a globalised world. Mr. Milenov showed the importance of the quality of the data used in different projects and how the end- users can be influenced by wrong interpretations. He underlined the need for decentralization, prevention and strategy planning, data harmonization, regular monitoring of changes based on integrated Copernicus and in-situ data, as well as a user-oriented approach on management. Mr. Milenov also presented an overview of Bulgaria's infrastructure and capacity regarding Earth Observation. He highlighted the Bulgarian concept since 2004: a European Network of regional centers for integrated risk and territory management.

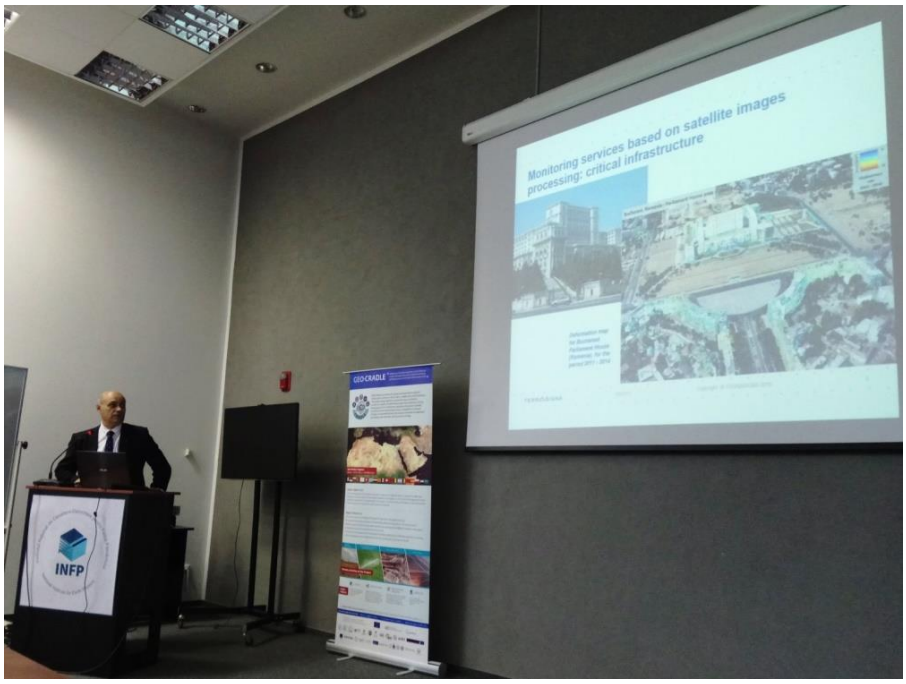


Q&A – Discussion

Mr. Petrescu was asked which is the most appropriate authority to take over the DRDSI. He replied that it is a challenge for an authority to assume this responsibility to have infrastructure, people, and administration which need to be sustainable, to produce something useful for others. He praised DRDSI underlining that it is a successful effort and the best until now to harmonise a transnational data base. A good example is the bilateral cooperation between Romania and Bulgaria since 2004.

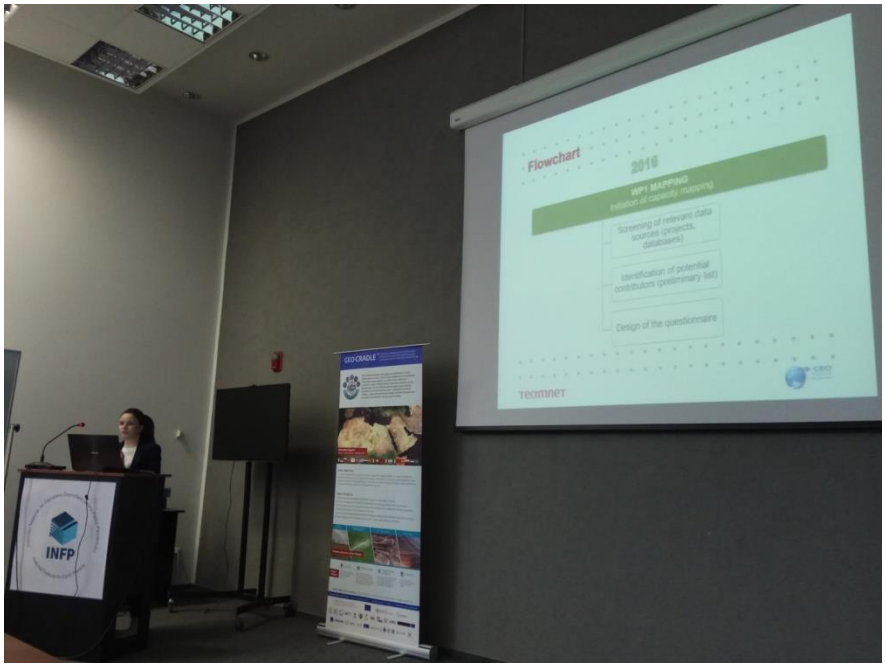
Session III: Success stories: Projects in Romania

Mr. Florin Serban, from Terrasigna, presented EO monitoring solutions developed by this Romanian company. These included: Monitoring services based on satellite and in situ data processing (e.g. land deformation maps; digital elevation model, change detection, flooding, deforestation, urban monitoring maps, etc), Big data / data mining (Analytics Tools, Satellite Image Time Series e.g. for forestry and agriculture, Content Based Image Retrieval and active learning e.g. for forest, Suitability Coverage Engine), Desktop and web applications for geospatial data management (e.g. Black Sea Geoprocessing Portal – ESSPOS, ESA C-TEP, EO4SEE Platform), EO Tablet and Smart Phone Applications (e.g. EO Datasets App, EO Educational App, Collaboration with NASA on the development of its new virtual globe framework Web World Wind, Vegetation App, Accounting and Monitoring System prototype for the Thematic Exploitation Platforms, Mobile application for land cover changes C-LAND), and Ground based data acquisition sensors (radar).

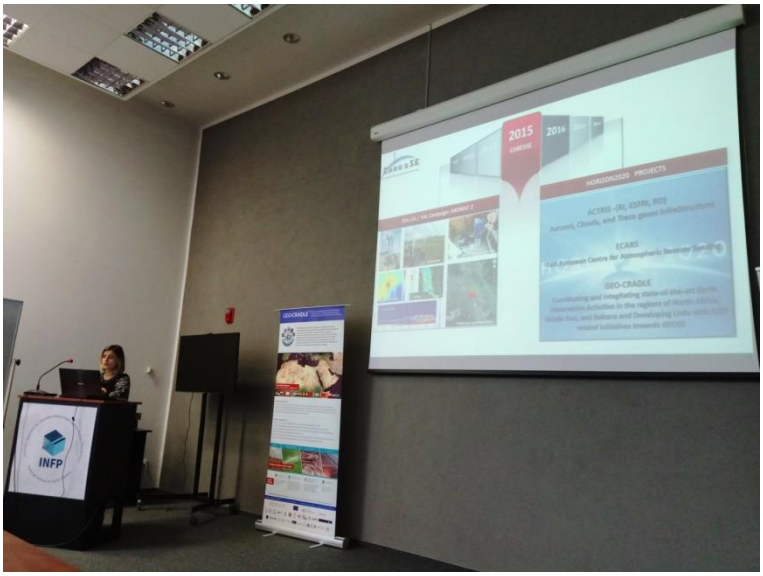


Then **Mr. Florin Iosub** and **Ms. Cristina Vrînceanu**, from Teamnet, another Romanian company, gave a presentation about the Romanian Cluster for Earth Observation (RO-CEO). Its scope is to increase the capacity of Romanian organizations to contribute to ESA's EO programs, to promote the specific interests and relevant capacities at national level, to improve the provision of services to end-users, and to ensure the sustainability of the EO sector in Romania. Mr. Iosub presented the partners and the on-line portal, and Ms. Vrînceanu the flowchart from 2016 to 2019.

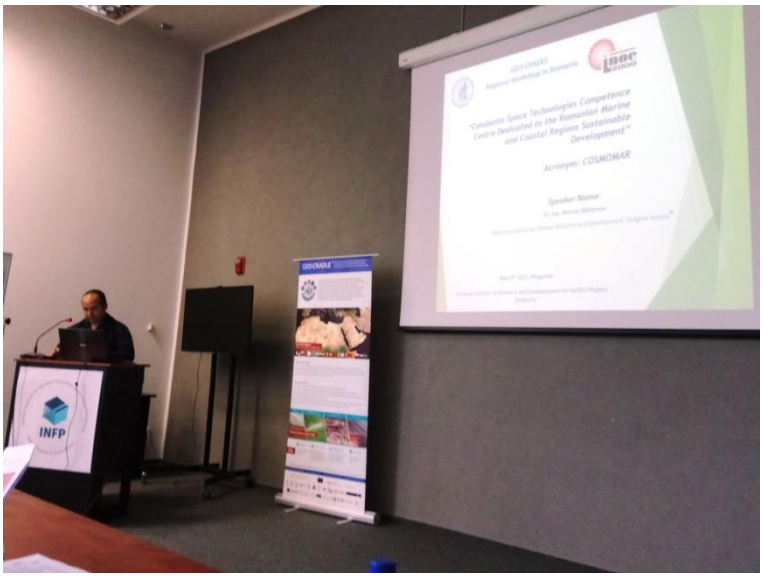
The expected results include a preliminary list of relevant organizations, existing infrastructures and competences (tools, projects, data and information sources/portals, experts/frameworks), Romanian Earth Observation portal, database with existing capacities, overview on the current situation, recommendations on alternative paths of development, recommendations for the national strategy in Earth Observation, and the Romanian Cluster for Earth Observation.



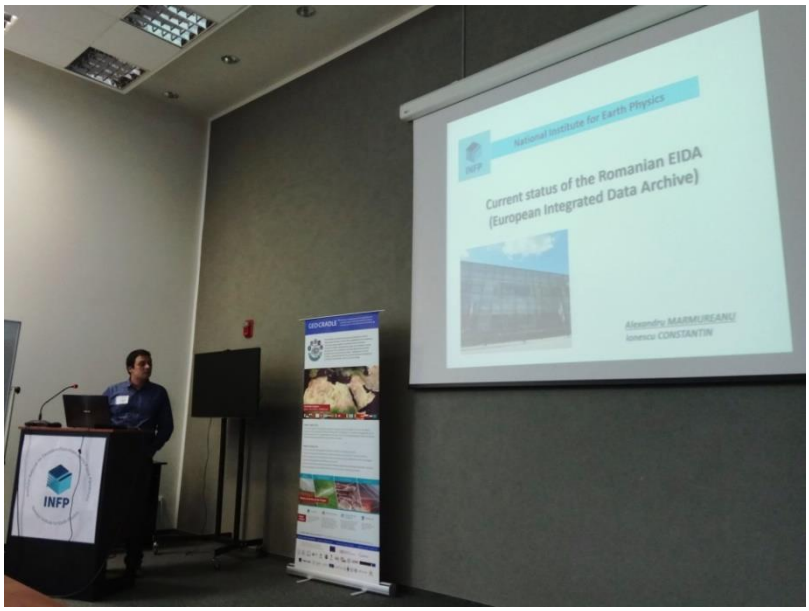
The next presentation was given by **Ms. Simona Andrei**, from INOE, about the Centre for Atmospheric REmote Sensing and Space Earth observation (CARESSE). Its objectives are to create a sustainable high-quality research and training nucleus for atmospheric remote sensing in view of future EO missions; to develop, organize and harmonize the existing scientific and technological capacities for space-related applications of atmospheric remote sensing; and to prepare to fulfill the specific requirements of ESA, and strengthen international collaboration. Ms. Andrei presented the activities of CARESSE and underlined the current agenda and the new directions: observation capacities, Cal/Val campaigns, implementation of the Fiducial Reference Measurement System, ESA EO program, operation of the Magurele center for Atmosphere and Radiation Studies (MARS). She also highlighted that CARESSE participated to international Cal/Val activities with the PRE-TECT campaign, a GEO-CRADLE experiment to evaluate dust forecasting service developed for the ACC pilot.



Dr. Razvan Mateescu from the National Institute for Marine Research and Development (NIMRD) "Grigore Antipa" presented the Constanta Space Technologies Competence Centre Dedicated to the Romanian Marine and Coastal Regions Sustainable Development (COSMOMAR). Dr. Mateescu concluded that although it has a broad spectrum of RS & space technologies development activities through its components, the COSMOMAR Competence Center is functional / materialized as entity within the NIMRD Constanta. CCTS is developed through its extending project activities/new and existent work capacity and research infrastructure, and also by its data and information flows/exchange that will be extended both internally and externally, through cooperative web platform of the Romanian National Oceanographic and Environmental Data Center (RoNODC).



Mr. Alexandru Marmureanu, from the National Institute for Earth Physics (INFP), gave the last presentation of this session, regarding the current status of the Romanian European Integrated Data Archive (EIDA). Mr. Marmureanu emphasized that EIDA is a contributor to the GEOSS (Global Earth Observation System of Systems) through the European Plate Observing System (EPOS), the research infrastructure for the monitoring and observation of the geophysical and seismic phenomena. EIDA goals include the safe, persistent archival and dissemination of high quality seismic waveform data collected by European datacenters via distributed archives; the easy access for scientists to support multiple access methods and standards; the open access where possible, or closed / restricted access, with all stations requiring standardised metadata; and the distributed archives allowing robust system independent of each individual node.



Q&A – Discussion

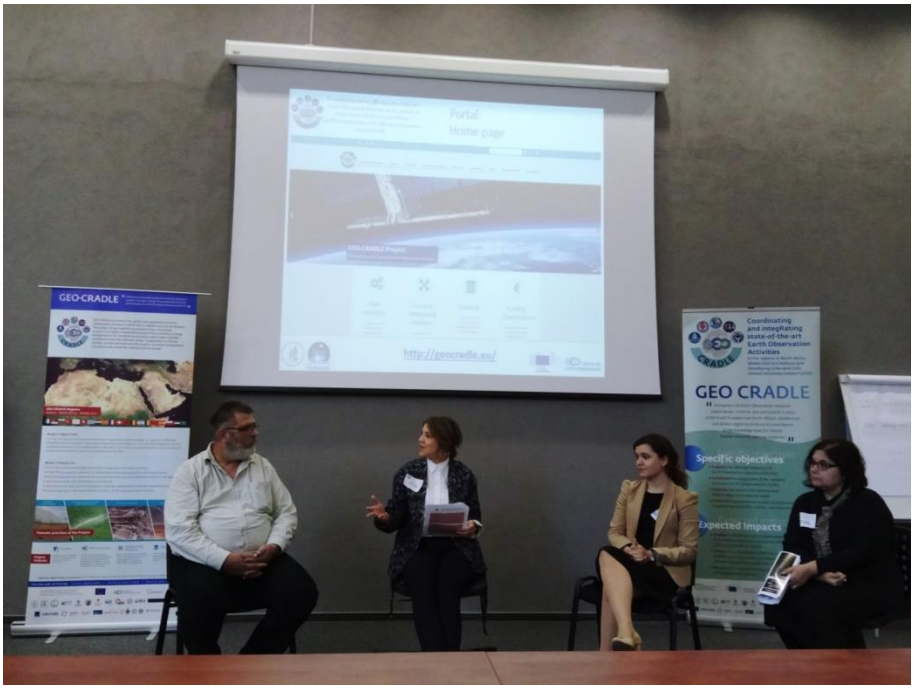
Concerns were raised by the representatives of the private sector companies (both Terrasigna and Teamnet) regarding data availability and access, when they need data owned by the public sector (mainly in-situ data).

The Romanian Cluster for Earth Observation (RO-CEO) will support GEO-CRADLE.

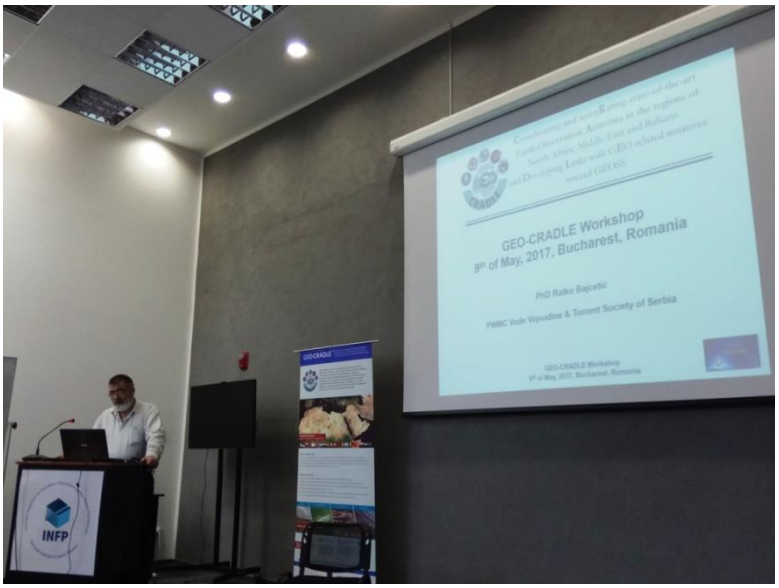
Session IV: Next steps – The User Perspective

The last session of the regional workshop was a stakeholders' round table discussion about the EO data in support of national and regional challenges in climate change, food security and water extremes management, raw materials and renewable energy. The session was chaired by **Ms. Teodora Secara** and **Ms. Alexandra Jercaianu**, from Eurisy, and the speakers were:

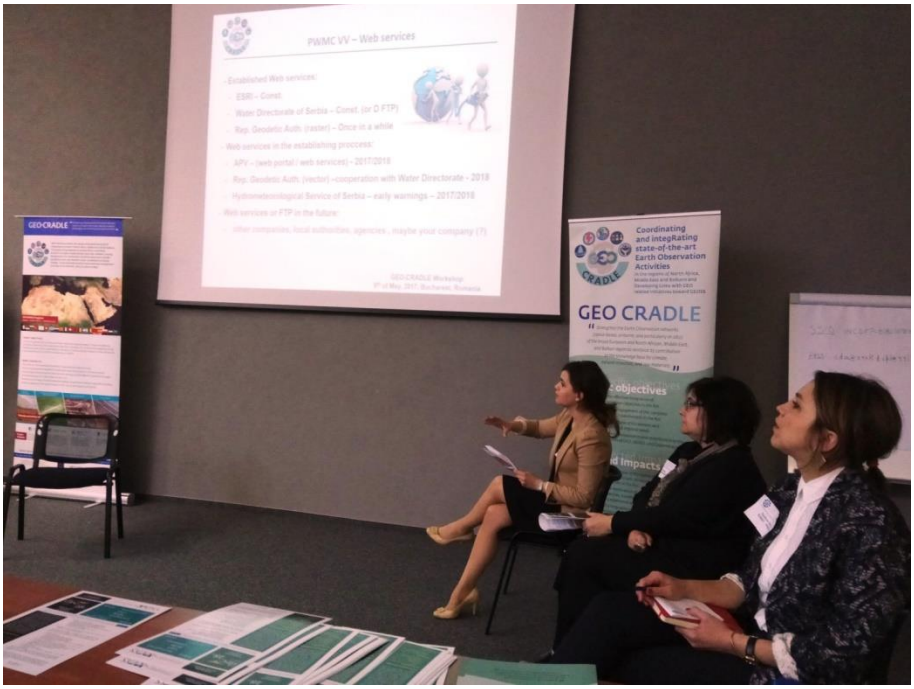
- **Dr. Ratko Bajcetic**, from the Public Water Management Company (PWMC) Vode Vojvodine & Torrent Society (Serbia);
- **Ms. Atena Adriana Groza**, from the Climate Change Adaptation for North Dobrogean Plateau – DAKIA Association for Sustainable Development (Romania);
- **Mr. Kristian Milenov**, from the Agency of Sustainable Development and Eurointegration (ASDE) - Ecoregions (Bulgaria).



Dr. Bajcetic first presented the Vode Vojvodine, a Public Water Management Company, in terms of establishment, mandate, scope and structure. He focused on the Web GIS Application and the web services already established, in the establishing process or to be established in the future. Dr. Bajcetic then presented the Torrent Society of Serbia, a professional NGO providing policy of torrent flood risk prevention; torrent flood protection; early warning systems; and protection against landslides and all kinds of erosion. He explained that the required early warning system inputs are radar images in real time (cloud reflection, speed, course, ...); measuring stations on the ground in real time (real values); and calibrated precipitation-runoff models (land cover, hydrology, hydraulics, ...). Dr. Bajcetic referred to the early warning system of Topciderska river; a pilot project which implements ground measurements using telemetric water stations and telemetric pluviometer stations. He underlined the need to develop river basin management plans, to develop GIS based android applications for monitoring, and to raise the capacity of the sector for emergency situations.

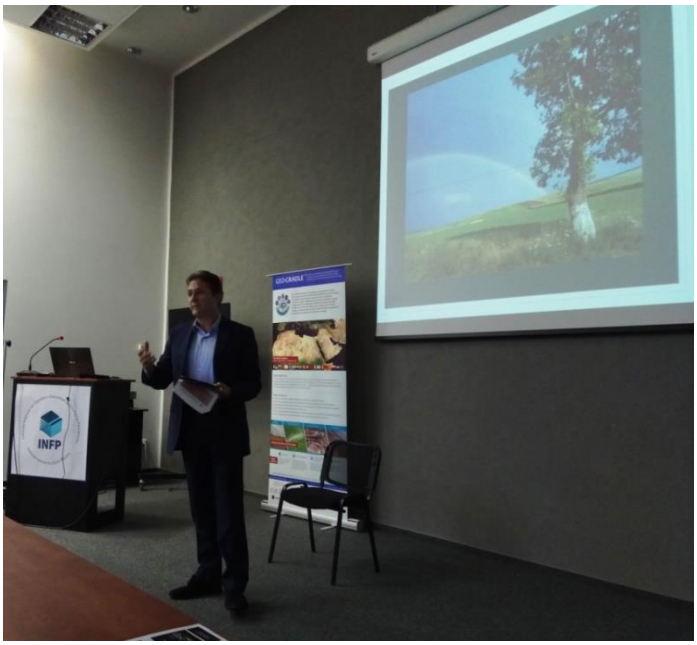


Ms. Groza first introduced DAKIA Association for Sustainable Development and explained that the first step was to take the administration of the natural protected areas from the North Dobrogean Plateau in Romania. The main threat is the climate change, as Dobrogea is the most exposed region to desertification and at the same time it is the most important area from the Steppic Biogeographic Region. Therefore the adaptation is crucial to assure that the biodiversity will have the capacity to cope with the impacts of climate change. Ms. Groza referred to the data that are required for the implementation of the management plan; both for the structural and the functional analysis of the territory. She focused on the GIS database, which is the main instrument for the analysis of the territory, and mentioned the main resources that will be purchased (Eight-Band High Resolution Satellite Imagery; Digital Surface Model; 46 Smartphones for data collection; Q GIS software) and the resources that will be developed by DAKIA (mobile app for data collection from citizens; multicriterial instrument for impact assessment).



The discussion which followed was related mostly with the availability and the access to the data, and the special needs of the end-users. For example in the case of Vojvodine it is possible to see the data, but it is not possible to download them, nor sell them.
It was pointed out that the main problems in the Balkan region are the lack of cooperation between the national institutions, the bureaucracy and the limited relation with local authorities.
A big question which was raised was whether the end users need technical education, or the output data need to be easier to interpret.

Conclusions



Dr. Haris Kontoes, GEO-CRADLE Project Coordinator, NOA, wrapped up the workshop and thanked all the participants for the interesting presentations and the fruitful discussions. He concluded that important databases and infrastructures were presented during this workshop, like the Danube Database and the Romanian Cluster for Earth Observation, which will add valuable data to GEO-CRADLE. Dr. Kontoes underlined that it is important to use the existing expertise in international projects, and to work closely with national authorities and end-users to maximise the sustainability of the services and their actual impact. For example the available methodology to classify the land cover is widely used in agriculture, one of the thematic areas of GEO-CRADLE. Dr. Kontoes also acknowledged the high level of capacities in the countries that were presented at the workshop, which can be transferred to all the countries in the region and beyond. He emphasized that we need to facilitate the end users to better understand and use the data. Dr. Kontoes invited the participants to visit the portal and closed the workshop with a call for collaboration in the context of GEO-CRADLE.

Visit to the laboratories of INOE & INFP

An interesting guided visit to the laboratories of the National Institute of Research and Development for Optoelectronics (INOE) and the National Institute for Earth Physics (INFP) was organised after the end of the workshop, offering an overview of the products and services provided by these Institutes.