UNITED NATIONS
Office for Outer Space Affairs

INFORMATION NOTE (DRAFT)

The United Nations / Romania
International Conference on Space Solutions for Sustainable Agriculture and Precision Farming

co-organized by the
United Nations Office for Outer Space Affairs
and the
Romanian Space Agency on behalf of the Government of Romania

Hosted by the Cluj-Napoca University of Agricultural Sciences and Veterinary Medicine

Venue: The premises of the USAMV Cluj-Napoca, Cluj, Romania
Dates: 6 to 10 May 2019 (6-8 May – conference sessions, 9 May – Optional field visit, 10 May –hands-on workshop on education)

1. Introduction

The United Nations Office for Outer Space Affairs (UNOOSA) and the Government of Romania through the Romanian Space Agency (ROSA) are jointly organizing the above Conference to promote the use of space technology and solutions for sustainable agriculture and precision farming, to address key issues related to global food security.

The Conference will be held in Cluj, Romania, from 6 to 10 May 2019, hosted by the University of Agricultural Sciences and Veterinary Medicine (USAMV) in Cluj-Napoca and supported by the Office for Soil Science and Agrochemistry (OSPA) Cluj and Romanian Society for Photogrammetry and Remote Sensing (SRFT).

The Conference is aiming to address key issues related to utilization of space technologies and solutions for a sustainable agriculture, addressing number of indicators and targets under the sustainable Development Goals framework and considering the challenges related to food security worldwide, with increasing populations and corresponding pressures on the available agricultural land.

2. Background

Space technologies, including satellite remote sensing integrated with geospatial technologies and location-based services, have demonstrated the capabilities in addressing challenges related to sustainable agriculture, be it from a stress created due to increasing demand for food, conversion of

productive land to a different purpose, impacts of natural disasters or long-term impacts of a changing climate. Continuous Earth observation from space is crucial to manage and monitor agricultural resources for the benefit of humankind and the environment, as well as to provide important forecasting services to prevent water-related disasters such as floods and droughts that could increasingly affect agricultural production and food security. Remote sensing satellites that provide data on several key variables related to soil, crop, water or weather at various spatial and temporal scales are highly appropriate for reliable agricultural planning and management. Satellite-based navigation systems are widely used for expansion of precision farming and more efficient use of resources. Precision farming technologies often use global navigation satellite systems (GNSS) to improve efficiency with products and techniques that can cut unnecessary expenses on seed, fuel, agrochemicals and time.

The Office for Outer Space Affairs, through its Programme on Space Applications, addresses space technology applications in various workshops and conferences organized at the request of Member States. Results of those events also provides a means to review progress and address unmet needs. Most recently, food and water security were addressed in a workshop organized with the Government of Pakistan in 2013[1].

Furthermore, as the Committee on the Peaceful Uses of Outer Space (COPUOS), to which the UNOOSA serves as the secretariat, is defining a Space2030 vision in support of the 2030 Agenda for Sustainable Development with the related Sustainable Development Goals (SDGs), based on a mandate received during UNISPACE +50 in June 2018[2], the importance of space technologies and related applications in supporting the implementation of the SDGs and other international agreements, along with related monitoring and reporting activities at the national level increases further.

The Conference provides an opportunity to reflect on common interests in line with the aforementioned global agendas, identify gaps, and discuss how space technologies can contribute to improved management of agricultural resources in general, as well as specific issues such as precision farming, water availability and irrigation challenges, combating desertification, floods and drought monitoring when impacting agricultural production, or managing food-security related challenges in developing countries.

3. Objectives:

The following primary objectives have been identified for this conference:

- To share practices and tools on space-based solutions for improved sustainable agriculture and precision farming;
- To promote space technologies for food security research and early crop yield forecasts
- To raise awareness on international, regional and national initiatives, monitoring frameworks and international or interregional cooperation in the domains of agriculture and food security;
- To share opportunities for education, training and capacity building relevant for various target groups on using space technologies to address water- or food-related challenges in agricultural processes, as well as public awareness initiatives in the area;
- To demonstrate use cases on successful applications of space technologies for improving agricultural processes and food security in developing countries;
- To discuss new or emerging technologies and approaches in these domains; and

[1] http://www.unoosa.org/oosa/en/ourwork/psa/schedule/2013/workshop_pakistan_use_of_space_tech.html
[2] http://www.unoosa.org/oosa/en/ourwork/unispaceplus50/index.html

- To highlight ‘space in agriculture’ in support of the 2030 Agenda for Sustainable Development.

4. Programme

The Conference will comprise a series of keynote presentations and technical sessions with sufficient time set aside for discussion. Each technical session will be followed by an open discussion focusing on specific topics of interest and providing additional opportunities for participants to voice their opinions. The programme of the Conference will include sessions addressing, among others, the following themes:

1) Pedometrics, precision farming, sustainability and adaptation to climate change;
2) Space applications for water security and risk management;
3) Integrated applications of space technologies providing cost-effective solutions and essential information for planning and implementation of programmes or projects to enhance management, protection and restoration of water resources;
4) Space technologies in coping with the effects of climate change;
5) Use of space-based technologies in mitigating water-related emergencies, agricultural water use and storage or in combating desertification and drought;
6) Emerging technologies: Big data, geo-statistics, radar, LiDAR, UAVs, automation, agricultural drones and satellite imagery for building inclusive agriculture ecosystems;
7) Spatial analysis and soil classification, monitoring of soil functions and proximal soil sensing;
8) Land productivity assessment: current global soil and humus status and monitoring solutions;
9) Capacity building related to space solutions in agriculture and food security, including development of human resources, establishing technical infrastructures and legal frameworks, and access to financial resources;
10) Agro-environmental governance and policies;
11) Integrated tools combining earth observation and other technologies in support of small-scale agriculture and subsistence farming; and
12) Crop yield and productivity forecasts.

The Conference discussions will address ways of expanding the use of space technologies and information/data towards more sustainable agriculture practices, as well as identifying the priority areas where specific pilot projects could be launched, while considering potential partnerships that could be established.

5. Participation

The Conference is expected to bring together up to 150 decision-makers, technical experts, researchers and educators drawn from the following groups: international, regional, national and local institutions, academic institutions, multi-lateral and bilateral development agencies, non-governmental organizations (NGOs) and industry. Experts and professionals from both space-related and agricultural research institutions and authorities will be invited, providing an opportunity to exchange experiences and strengthen networks and partnerships that will contribute to the increased use of space technology-based solutions for more sustainable agriculture.

6. Participation requirements

Applicants should have a university degree and well-established professional working experience in a field relevant to the theme of the Conference. Applicants should be in managerial, decision-making,

technical or academic positions within governmental agencies, international, regional and national institutions, universities, NGOs or industry with responsibilities for carrying out programmes or projects in the areas related to the theme of the Conference.

Applicants who demonstrate that the Conference is central to their professional activities/responsibilities as well as qualified female applicants will be selected on a priority basis. The organisers will short-list presentations that are relevant to the theme of the conference and may invite the abstract.

The co-sponsors of the Conference will jointly select participants, on a competitive basis. Selected participants will be notified the **latest** by the 5th of April 2019.

All selected and invited participants will receive an information package with details on boarding, lodging and other local arrangements. Accommodation options will be recommended around the conference site

7. Language of the Conference

The working language of the Conference will be English.

8. Financial support

Within the limited financial resources available, only few of the selected participants will be offered financial support for travel expenses to attend the Conference. This financial support will defray the cost of travel (round trip air ticket – **most economic fare** – between the airport of international departure in their home country and Cluj, Romania) and/or room and board expenses for the duration of the Conference.

Due to limited availability of financial support, not all applicants for travel support can be accommodated. In this respect, applicants and their nominating organizations are strongly encouraged to also identify additional sources of sponsorship to allow them to attend the Conference.

Sponsored participants will receive detailed information upon notification of their selection.

9. Deadline for submission of applications

The completed applications should be submitted through the online system via the link provided below to the United Nations Office for Outer Space Affairs **no later than 24th of March 2019 in case of applicants seeking funding, and the 1st of April for self-funded applicants.** Applications received after the deadline will not be considered. Pre-selected applicants will be requested to submit proper endorsement by the applicant's government/institution in support of their applications. The online application form can be accessed here.

Only complete applications, with all the requested information, will be considered for financial support.

10. Life and health insurance

Life/major health insurance for each of the selected participants is necessary and is the responsibility of the candidate or his/her institution or government. The co-sponsors will not assume any

responsibility for life and major health insurance, nor for expenses related to medical treatment or accidental events.

11. Points of contact

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