



INFORMATION NOTE

United Nations/South Africa Symposium on Basic Space Technology "Small satellite missions for scientific and technological advancement"

Cape Town, South Africa, 1-4 September 2015

1. Introduction

Space technology and its wide range of applications contribute essential information and services to many aspects of sustainable development, that is, economic and social development and environmental conservation and protection. Small satellite missions are becoming increasingly important in supporting these roles of space technology, as well as in the advancement of basic space science and technology, notably through capacity building. In 2009, the United Nations Programme on Space Applications, implemented by the United Nations Office for Outer Space Affairs, launched the Basic Space Technology Initiative (<http://www.unoosa.org/oosa/en/ourwork/psa/bsti/index.html>), or BSTI, in support of capacity building for the development of basic space technology.

From 2009 to 2011 a series of three United Nations/Austria/European Space Agency Symposia on Small Satellite Programmes for Sustainable Development were held in Graz, Austria. Starting from 2012, BSTI is organizing international symposia on basic space technology in the regions that correspond to the United Nations Economic Commissions for Africa, Asia and the Pacific, Latin America and the Caribbean, and Western Asia.

The first Symposium was held as the United Nations/Japan Nano-Satellite Symposium, hosted by the University of Tokyo and the University Space Engineering Consortium (UNISEC) in Nagoya, Japan, from 10-13 October 2012. The second Symposium was held as the United Nations/United Arab Emirates Symposium on Basic Space Technology, hosted by the Emirates Institution for Advanced Science and Technology (EIAST) in Dubai, United Arab Emirates, from 20-23 October 2013. The third Symposium was held as the United Nations/Mexico Symposium on Basic Space Technology hosted by the Center for Scientific Research and Higher Education (CICESE) and the Mexican Space Agency in Ensenada, Baja California, Mexico, from 20-23 October 2014.

The present and fourth Symposium will be held as the United Nations/South Africa Symposium on Basic Space Technology in Cape Town and will focus on the African region. It is organized by the United Nations Office for Outer Space Affairs in cooperation with the Department of Science and Technology and the University of Cape Town through its Spacelab programme, on behalf of the Government of the Republic of South Africa.

2. Symposium Objectives

The Symposium objectives will build on the outcomes of the aforementioned BSTI Symposia held from 2009 to 2013. The relevant symposium reports, containing the objectives, symposium summaries, observations and recommendations made by participants are available from <http://www.unoosa.org/oosa/en/ourwork/psa/bsti/resources.html>

The objectives of the UN/South Africa Symposium will be to:

- Review the status of capacity building in basic space technology for small satellites (<150 kg) including lessons learned from the past and on-going development activities with a focus on regional and international collaboration opportunities, in particular for countries in Africa;
- Examine issues relevant to the implementation of small satellite programmes, such as organizational capacity building, development and testing infrastructure and launch opportunities;
- Review state-of-the-art scientific applications of small satellite programmes and their associated supporting technological developments;
- Elaborate on regulatory issues of space technology development programmes, such as frequency allocation and space debris mitigation measures for enhancing the long-term sustainability of outer space activities as well as import/export controls;
- Elaborate on legal issues and responsibilities related to space technology development programmes, such as those emanating from the relevant provisions in international space law;
- Continue the development of an education curriculum for space engineering;
- Discuss the way forward for the Basic Space Technology Initiative (BSTI).

3. Symposium Programme

The Symposium programme will be structured around a series of dedicated topical sessions. **Presentations will be solicited through a Call for Papers.** In addition, renowned experts in the field will be invited to make some of the presentations. The participants will consider specific topics and discuss observations and recommendations on the basis of which a United Nations General Assembly report will be prepared for the Committee on the Peaceful Uses of Outer Space. Appropriate time will be set aside for discussions and for short presentations by the participants on their own relevant activities.

The following sessions will be considered in the symposium:

- **Space Technology Development and Capacity Building in Basic Space Technology Development with a focus on Africa**
Space technology has a huge potential to contribute to Africa's development. This session will address space technology development and capacity building activities, including know-how transfer programmes and opportunities for regional and international cooperation with a focus on, but not limited to, activities in Africa.
- **Small Satellite Missions in Support of Key Scientific Projects and Questions**
Small satellites, including Cubesat platforms, are becoming increasingly more capable to support science and application missions. The present session will address the role of small satellite platforms for science missions. For example, the possible use of small satellites in support of key scientific projects, such as the Square Kilometre Array (SKA) in South Africa, shall be discussed.
- **Applications of Small Satellite Missions**
Small satellites have been developed for a wide range of application missions, including telecommunication, navigation and Earth Observation services. They can offer cost-efficient solutions to replace or complement more expensive, larger satellite missions. This session will also consider the development of small satellite standards, and cost and reliability issues of small satellite missions in comparison to those of larger satellite platforms.

- **Small Satellite Missions Ground Segment**

For many universities and research institutions, the set-up of a ground station is the first step towards further small satellite development activities. This session will consider aspects of ground segment development for small satellite missions, including ground stations, technical equipment, software tools and procedures for mission development and operations.

- **Small Satellite Projects for Engineering Education**

Over the last few years a large number of small satellite missions, by a growing number of space actors, have been launched and hundreds more are expected to be launched in the near future. This session will provide a review of small satellite projects worldwide in support of capacity building and engineering education. Challenges such as testing facilities and launching opportunities will also be discussed. The session will also include an update on the Education Curriculum on Space Engineering to be developed under the Basic Space Technology Initiative.

- **Legal and Regulatory Issues**

Legal and regulatory considerations play an important role in the conduct of outer space activities. The session will include a workshop on frequency coordination offered by the International Telecommunications Union (ITU) and presentations and discussions on relevant national and international legal and regulatory issues.

- **Long-term Sustainability of Outer Space Activities**

The international space community is discussing measures that may be necessary to assure the long-term sustainability of outer space activities. In these discussions, the growing number of small satellite missions, in particular in the context of space debris mitigation, is increasingly under scrutiny. This session will provide an update on the status of these discussion in the Committee on the Peaceful Uses of Outer Space as well as presentations on operational and technical means in support of space debris mitigation.

Kindly note that the Symposium organizers may modify the number and themes of sessions of the final programme.

In addition to the topics described above, there will be panel discussions to share experiences and lessons learned through capacity-building activities in space technology development as well as to promote opportunities for international and regional collaborations among the participants. The sessions will be supplemented by a **poster session** as well as by an exhibition, demonstrations of relevant software tools, technical visits and practical hands-on exercises.

The co-sponsors will also organize an attractive programme of side-events for all Symposium participants. The detailed Symposium programme will be made available on the Symposium website at http://www.unoosa.org/oosa/en/ourwork/psa/schedule/2015_symposium_south_africa_bst.html

4. Participation Requirements and Qualifications

Symposium participants should be involved in the planning or implementation of space technology development activities in international or national space agencies, governmental or non-governmental organizations, research institutions, industry, universities or other academic institutions. Participants are expected to have obtained university degrees in relevant fields of study or should be enrolled in relevant studies. Professional working experience in one of the fields related to the theme of the Symposium is desirable. Applications from qualified female applicants are particularly encouraged. **Invited participants will receive a formal invitation letter.**

5. Financial Support

Applicants and their nominating organizations are strongly encouraged to find their own sources of sponsorship to participate in the Symposium. However, within the limited financial

resources available to the co-sponsors, **a number of qualified applicants from developing countries expressing the need for financial support will be offered financial support to attend the Symposium.** This may include the provision of a round-trip air ticket between Cape Town and the applicant's international airport of departure and/or room and board for the duration of the Symposium. En-route and other expenses or any changes made to an air ticket provided by the co-sponsors must be borne by the participants.

Applicants expressing the need for funding support will be selected on a competitive basis based on their qualifications and expected contributions to the Symposium. All funded applicants are required to make a presentation related to the Symposium theme. Successful applicants will be notified in July 2015.

6. Dates and Location

The Symposium will be held from 1 to 4 September 2015 at the University of Cape Town in Cape Town, South Africa.

7. Language of the Symposium

Applicants must have a good working knowledge of English, which will be the official working language of the Symposium. Invited participants will receive information with details on board and lodging and other local arrangements.

8. Life and Health Insurance

Life and major health insurance is the responsibility of each selected participant or his/her nominating institution or government. The co-sponsors will not assume any responsibility for life and health insurance, nor for any expenses related to medical treatment or accidents.

9. Deadline for Submission of Applications

Please use the online application form available at:
http://www.unoosa.org/oosa/en/ourwork/psa/schedule/2015_symposium_south_africa_bst.html

Applications must be received by the Office for Outer Space Affairs at the latest by 21 June 2015. Only complete applications with all the requested information and signatures will be considered.

10. Points of Contact

For questions related to the Symposium programme in general and to co-sponsorship opportunities, please contact **Mr. Werner Balogh** (werner.balogh@unoosa.org, Tel: +43-1-26060-4952) and **Mr. Daniel García-Yárnoz** (daniel.garcia-yarnoz@unoosa.org, Tel: +43-1-26060-5631).

Applicants selected for participation will receive information with details the local arrangements. For any further questions related to the local logistics, please contact **Mr. Kaizer Moroka** (kaizer.moroka@dst.gov.za, Tel +27-12-843-6635) and **Ms. Margaret Kumalo**, (margie.kumalo@uct.ac.za, Tel: +27-21-650-4659).

Please frequently check <http://www.unoosa.org/oosa/en/ourwork/psa/bsti/index.html> and http://www.unoosa.org/oosa/en/ourwork/psa/schedule/2015_symposium_south_africa_bst.html for the latest information on the Symposium.