



United Nations Basic Space Technology Initiative

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UNITED NATIONS
Office for Outer Space Affairs

Mission Statement

The core business of the Office is to promote **international cooperation** in the use of outer space to achieve development goals

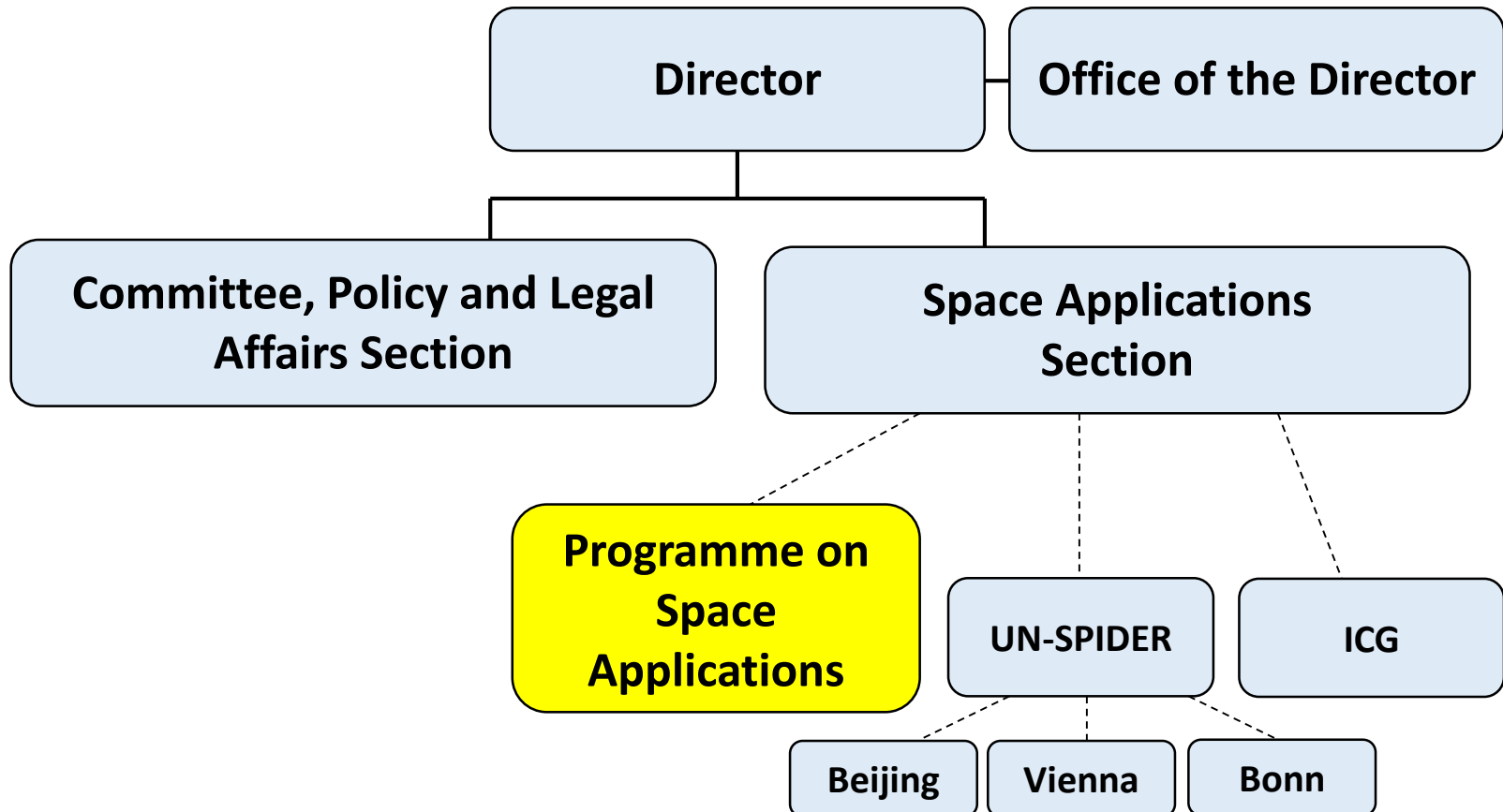
Vision

Bringing the benefits of space to humankind

* Space technology helps address global challenges and supports the **2030 Agenda for Sustainable Development**



Structure of the UN Office for Outer Space Affairs (UNOOSA)



Basic Space Technology Initiative (BSTI)

I. Respond to the growing interest in establishing indigenous space technology development capacities

II. Support capacity-building in space technology development, in particular through small-satellite activities

Mission:

Enhance access to space application tools for sustainable development through building capacity in basic space technology

III. Promote relevant standards and adherence to legal and regulatory frameworks

IV. Promote international cooperation and information exchange

Roles of UNOOSA



CAPACITY-BUILDER: Brings the benefits of space to humankind and supports sustainable development through advancement of basic space science and technology



GLOBAL FACILITATOR: Plays a leading and facilitating role in the promotion of the peaceful uses of outer space



GATEWAY TO SPACE: Facilitates the coordination of UN activities with space-based technology to support sustainable development on earth globally

Benefits of Small Satellite Development (1/2)

- Benefits derived from the actual operational use of small satellites
- Affordable approach to establish a capacity for space technology development
- Limited infrastructure and development cost
- Stepping-stone in developing and enhancing a country's space capacity

Benefits of Small Satellite Development (2/2)

- Train and educate engineers and project managers with transferable skills
- Acquisition of technical capabilities, with potential spin-offs into other industrial sectors
- Establishment of commercial businesses
- Opportunities for international space cooperation

Basic Activities: UN/Austria/ESA



- Series of three Symposiums held in Graz, Austria
- Co-sponsored by the Austrian Government and the European Space Agency
 - ❑ **2009:** “Small Satellite Programmes for Sustainable Development” (A/AC.105/966)
 - ❑ **2010:** “Payloads for Small Satellite Programmes” (A/AC.105/983)
 - ❑ **2011:** “Implementing Small Satellite Programmes - Technical, Managerial, Regulatory and Legal Issues” (A/AC.105/1005)

http://www.unoosa.org/oosa/en/ourwork/psa/bsti/events_activities.html

International Symposia on Basic Space Technology Development

2017



United Nations/South Africa Symposium on Basic Space Technology

11-15 December 2017
Stellenbosch, South Africa

Report A/AC.105/.../CRP.9 ➤

2014



United Nations/Mexico Symposium on Basic Space Technology

20-24 October 2014
Ensenada, Mexico

Report A/AC.105/1086 ➤

2013



United Nations/United Arab Emirates Symposium on Basic Space Technology

20-23 October 2013
Dubai, United Arab Emirates

Report A/AC.105/1052 ➤

2012



United Nations/Japan Nano-Satellite Symposium

10-13 October 2012
Nagoya, Japan

Report A/AC.105/1032 ➤

Contributions to UNISPACE+50 (1/2)

2018 marked the **50th anniversary** of the first United Nations Conference on the Exploration and Peaceful Uses of Outer Space (**UNISPACE**), held in Vienna in 1968.

The BSTI Symposiums provided manifold **contributions** to **TP 7: “Capacity-building for the 21st Century”** by:

1. **Reviewing** different capacity-building initiatives in the small satellite missions domain
2. **Dissemination** of lessons learnt from past and ongoing activities
3. **Recommending** actions towards progressively increasing countries’ access to space and their use of space assets

Contributions to UNISPACE+50 (2/2)

BSTI symposiums provided valuable inputs to three other Thematic Priorities of UNISPACE+50:

- TP 1:** Global partnership in space exploration and innovation
- TP 2:** Legal regime of outer space and global space governance: current and future perspectives
- TP 3:** Enhanced information exchange on space objects and events

International Symposia on Basic Space Technology Development

United Nations/Brazil Symposium on Basic Space Technology
"Creating Novel Opportunities with Small Satellite Space Missions"
11-14 September 2018 Natal, Brazil



Basic Activities: Technical Assistance



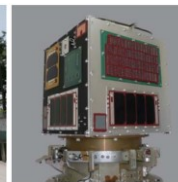
- BSTI organized special sessions on Capacity Building in Space Technology Development at the
 - Fourth African Leadership Conference on Space Science and Technology for Sustainable Development Mombasa, Kenya, 26-28 September 2011
 - VI Space Conference of the Americas, held in Pachuca, Mexico, 15-19 November 2010

Basic Activities: Technical Assistance

- BSTI is providing technical assistance to Member States on related issues such as
 - Registration of Space Objects
Session 3.2: Natercia Rodrigues
 - Frequency Coordination (International Telecommunications Union)
Session 3.1: Xiuqi Wang

Fellowship Programmes

United Nations/Japan Long-term Fellowship Programme (hosted by the Kyushu Institute of Technology)

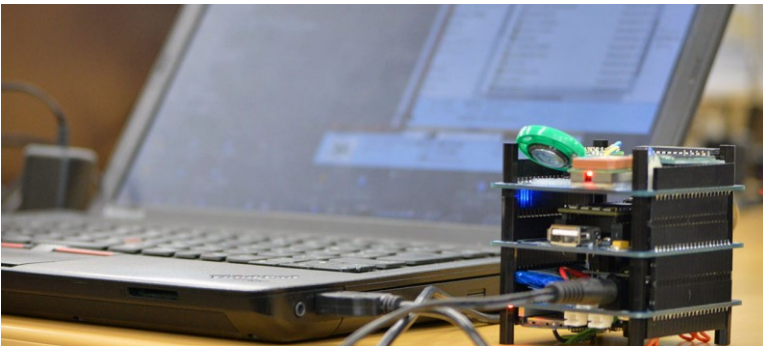


- Post-graduate study on Nano-Satellite Technologies (PNST)
- 3-year PhD and 2-years Masters programme, up to 6 students/year
- All cost (tuition, living cost, travel) covered
- <http://www.unoosa.org/oosa/en/ourwork/psa/bsti/index.html>

Space Law and Policy for Engineers

- Basic understanding of space law and policy is required for small satellite developers
- A course on "**The International Dimension of Space Activities: Space Law and Policy for Engineers**" was developed, with support from UNOOSA
- 2-credit course (16x90 minutes), including practical exercises on developing and drafting national space law and policy
- Taught to 38 MSc and PhD Students participating in the UN/Japan PNST long-term fellowship programme and in Kyutech's Space Engineering International Course (SEIC)
- Course will be further developed and offered at Kyutech

Hands-on Workshops



HEPTA Workshop 2017

➤ Organized by **Nihon University** and **UNISEC-Global**



➤ Hosted by Stellenbosch University (South Africa)

➤ 18 participants (%50 intl.)

Hands-on Workshops

CTEE / PG-ETE / INPE Workshop 2018

- 9-10 September 2018
- Organized by CTEE / PG-ETE / INPE
- Hosted by Brazilian Space Agency
- 25 participants (13 international)



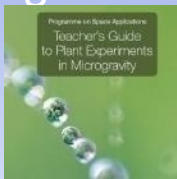
UNOOSA & Access to Space

Ground facilities

LEO

Beyond LEO?

Teachers' guides



2013-2016

DropTES



2013-2016
2016-2019

KiboCUBE



2016-2018

CMSA Station



2016-... Dreamchaser



2016-...



High Schools

Universities and Academics

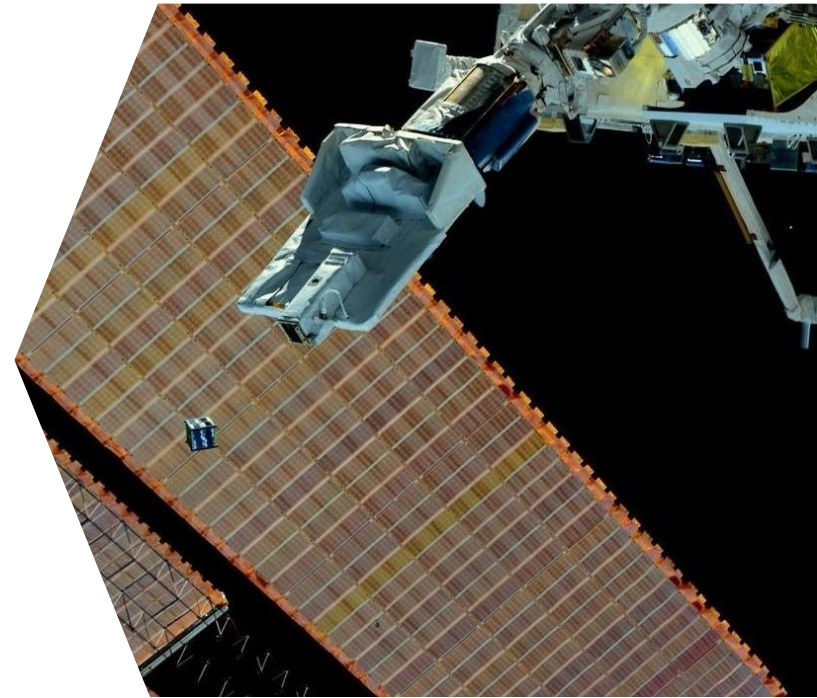
Research Centres / Institutions

Space Agencies

Governments and IGOs

KiboCUBE

- OOSA and JAXA provide access to space to non-space fairing member states
- Free deployments of 1U Cubesats from the Japanese ISS Kibo Module
- **First round**: University of Nairobi, Kenya
- **Second round**: Universidad del Valle de Guatemala
- **Third Round**: Mauritius Research Council, Mauritius



UN / China Cooperation on Utilization of China Space Station

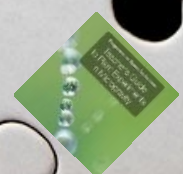


- Flight opportunities for experiments and space technology applications for Member States of the UN
- Flight opportunities for astronauts /payload engineers from other countries to conduct hands-on experiments
- Promote capacity building in human space technologies through facilities and resources from China's Manned Space Programme

UN / SNC Orbital Space Mission



- Collaboration agreement 2016
- Baseline: Two week free-flyer flight for 2022
- Experiments onboard **DreamChaser** in support of SDGs
- Use standard Middeck Locker (MDL) experiment racks from ISS/Shuttle
- Call for Interest (CFI)
- Next Step: Announcement of Opportunity (AO)



Objectives of the Symposium

- Review capacity-building related best practices
- Examine issues relevant to the implementation of capacity-building programs (such as testing infrastructure, launch opportunities, etc.)
- Review evolving capabilities and state-of-the-art applications of small satellite programmes
- Elaborate on legal and regulatory issues, such as frequency allocation, registration and space debris mitigation, in conjunction with emerging trends

Symposium Programme (1/2)

- Small Satellites and Capacity-Building in Basic Space Technology with a Focus on Latin America and the Caribbean (Sessions 1.1, 1.2 and 1.3, Panel)
- Evolving Capabilities and Operational Applications of Small Satellite Missions (Sessions 2.1, 2.2 and 2.3, Panel)
- Legal and Regulatory Issues (Sessions 3.1 and 3.2)

Symposium Programme (2/2)

- Evolution of a Local Data Collection System into an International Initiative (Session 4)

- Final Session: Review and Way Forward

- Poster Sessions
 - Starting from first day afternoon, during all coffee breaks
 - Check the programme for the designated times that you will have the chance to interact with the poster presenters.

Optional Social Activities

- 11th September: Welcome Reception – Cocktail
Venue: Imira Plaza Hotel
- 12th September: Symposium Dinner and Folk Show
Venue: Tábua de Carne - Via Costeira Restaurant
- 14th September: Field Trip to Hell's Barrier Launch Site
Only for a limited number of participants who have fulfilled security requirements

We wish you all a productive Symposium
and good time in Natal.

Thank you for your participation and contributions!

UNISPACE
+50 

THANK YOU



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