



UNITED NATIONS
Office for Outer Space Affairs

Status of the Basic Space Technology Initiative (BSTI)

of the United Nations Programme on Space Applications

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UN Programme on Space Applications



- Established in response to recommendations of the first UNISPACE conference in 1968
- Operational since 1971
- Implemented by UNOOSA
- United Nations Expert on Space Applications
- Initiatives:
 - Basic Space Science Initiative
 - Basic Space Technology Initiative
 - Human Space Technology Initiative

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

BSTI Work Programme

I. Basic Activities

II. International Space
Technology
Symposiums

III. Space Technology
Education Curriculum

IV. Establishment of
Long-term Fellowship
Programmes

I. Basic Activities: UN/Austria/ESA Symposia



- Series of three Symposia 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/SAP/bsti/fundamentals.html>

I. 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
- BSTI is providing technical assistance to Member States on issues such as
 - Registration of space objects
 - Frequency coordination (in cooperation with International Telecommunications Union)

<http://www.unoosa.org/oosa/en/SAP/bsti/news.html>

II. International Space Technology Symposiums

- Symposiums will be held in the regions that correspond to the United Nations Economic Commissions:
 - Africa (TBD, 2015)
 - Asia and the Pacific (Japan 2012)
 - Latin America and the Caribbean (Mexico 2014)
 - Western Asia (UAE 2013)
- Symposium Objectives:
 - Address international and regional aspects of small satellite programmes and capacity building in basic space technology
 - Develop a United Nations Space Technology Education Curriculum in cooperation with educators and experts
 - Launch and implement BSTI Projects
- The Symposiums build on the recommendations of the UN/Austria/ESA series of Symposiums 2009-2011

UN/Japan 2012



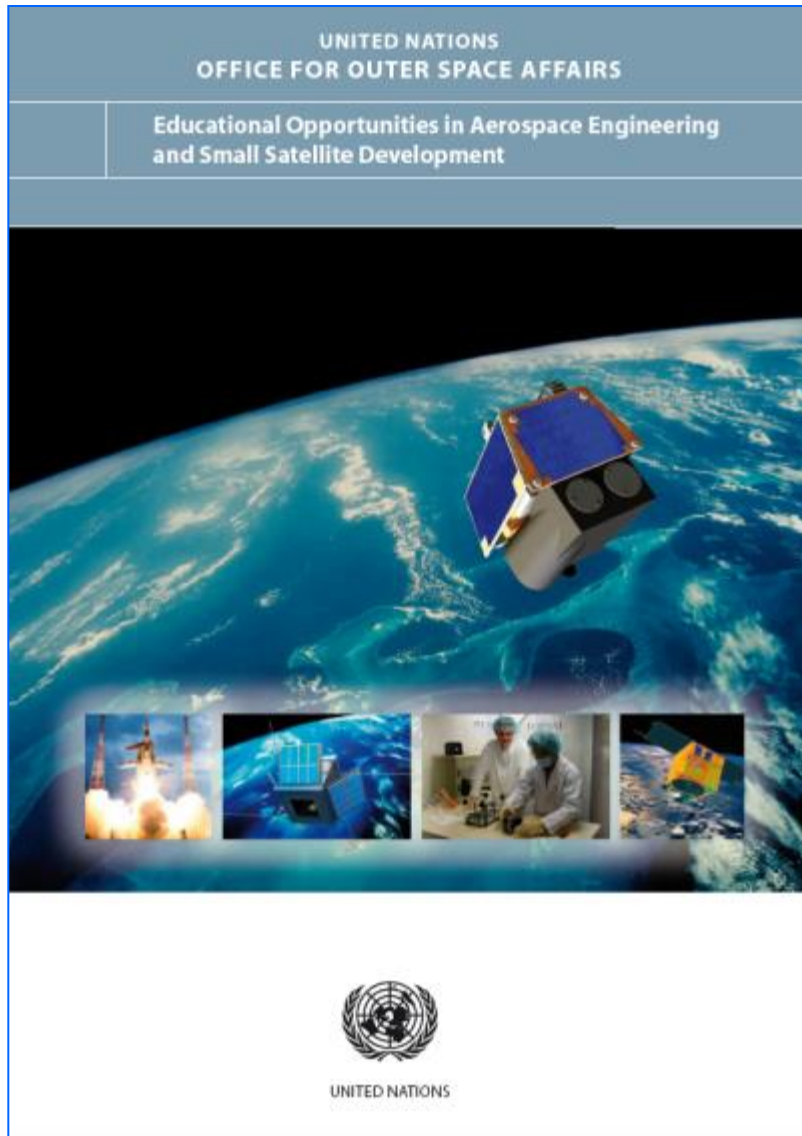
- Report on the United Nations/Japan Nanosatellite Symposium: "Paradigm Shift — Changing Architecture, Technologies And Players“, Nagoya, Japan, 10-13 October 2012 (A/AC.105/1032)
- See <http://www.unoosa.org/oosa/en/SAP/bsti/japan2012.html>

UN/United Arab Emirates 2013



- Report on the United Nations/United Arab Emirates Symposium on Basic Space Technology: Small-Satellite Missions for Developing Space Nations, Dubai, United Arab Emirates, 20-23 October 2013 (A/AC.105/1052)
- See <http://www.unoosa.org/oosa/en/SAP/bsti/uae2013.html>

III. Space Technology Education Curriculum



- Development of a Space Technology Education Curriculum for use in academic institutions, such as the Regional Centres for Space Science and Technology Education, affiliated to the United Nations
- As a first step, BSTI conducted a survey of world-wide academic programmes in aerospace engineering and small satellite development (ST/SPACE/53)
- Meetings of educators to develop the Space Technology Education Curriculum will be held alongside the international workshops

III. Space Technology Education Curriculum

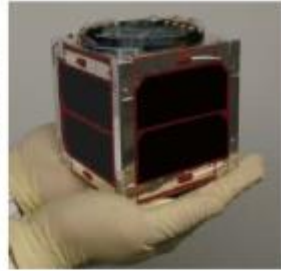


- United Nations education curricula and education modules have been and are being developed for
 - Remote Sensing and Geographical Information Systems
 - Satellite Communications
 - Satellite Meteorology and Global Climate
 - Space and Atmospheric Sciences as well as data management
 - In preparation: Space Law, GNSS

IV. Fellowship Programmes

United Nations/Japan Long-term Fellowship
Programme on Nano-Satellite Technologies
Hosted by Kyushu Institute of Technology, Japan

Doctorate in Nano-Satellite Technologies



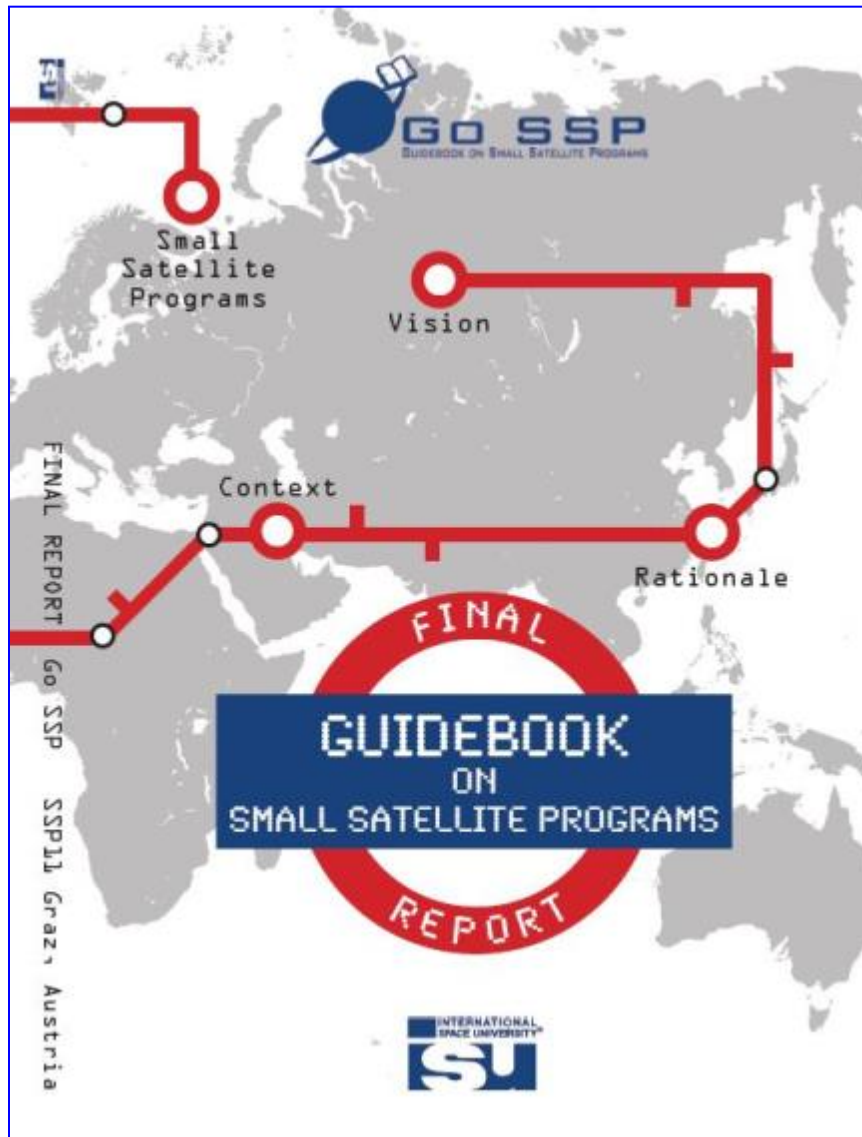
- United Nations/Japan Long-term Fellowship Programme, hosted by the Kyushu Institute of Technology at its Center for Nanosatellite Testing
- Post-graduate study on Nano-Satellite Technologies (PNST)
- 3-year PhD and 2-years Masters programme, up to 6 students/year
- All cost (tuition, living cost, travel) covered
- Application package available from <http://www.unoosa.org/oosa/en/SAP/bsti/fellowship.html>
- Application deadline: 28 February 2014

V. BSTI Projects

- BSTI is also used as a framework to implement regional or international projects related to capacity building in space technology
- Examples of projects being implemented:
 - Support to the HUMSAT Constellation Project led by the University of Vigo, Spain. 1st launch 13 February, see <http://www.humsat.org/>
 - Development of a Best Practices Handbook for Small Satellite Programmes in cooperation with the International Space University



Guidebook on Small Satellite Programmes



- Developed by participants of the 2011 Space Studies Programme of the International Space University, held in Graz, Austria
- Project conducted as part of the Basic Space Technology Initiative
- Project background and presentations see <http://www.unoosa.org/oosa/en/SAp/bsti/isu-ssp2011.html>
- Final report and executive summary <http://gosp.isunet.edu>
- Considerations to develop a comprehensive guidebook under the Basic Space Technology Initiative

BSTI Resources

- BSTI Website <http://www.unoosa.org/oosa/en/SAP/bsti/index.html>
- Basic Space Technology Initiative (BSTI) - Activities in 2011-2012 and plans for 2013 and beyond, A/AC.105/2012/CRP.16, 23 May 2012
- Basic Space Technology Initiative (BSTI) - Activities in 2012-2013 and plans for 2014 and beyond, A/AC.105/2013/CRP.14, 30 May 2013
- M.Cho and W.Balogh, “UN/Japan Long Term Fellowship Programme on Nanosatellite Technologies”, Proceedings of the 3rd Nano-Satellite Symposium, Kitakyushu, Japan, 12-14 December 2011
- W.Balogh, “Capacity Building in Space Technology Development: A New Initiative within the United Nations Programme on Space Applications”, Space Policy 27, Elsevier, p. 180-183, 10.1016/j.spacepol.2011.04.014, August 2011
- W.Balogh and H.Haubold, “Proposal for a United Nations Basic Space Technology Initiative”, Advances in Space Research 43, Elsevier, p. 1847-1853, 10.1016/j.asr.2009.01.035, 15 June 2009

Thank you for your attention!

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Past Symposium Programme Components

- Opening Ceremony (Standard)
- Keynote Addresses (Standard)
- Observations and Recommendations (Standard)
- Closing Session (Standard)
- Poster Session (optional but recommended)
- Panel Discussions (optional but recommended)
- Example Session/Panel Topics:
 - Capacity Building in Basic Space Technology Development
 - Infrastructures for Basic Space Technology Development
 - Launch Opportunities for Small Satellite Missions
 - Small Satellite Platforms for Earth Observations
 - Regulatory and Legal Issues
 - Space Technology Development Activities in Western Asia

Past Symposium Programme Components

- Example Session/Panel Topics:
 - Education Curriculum on Space Engineering
 - Satellite Architecture and Technologies
 - Innovation in Satellite Development Process
 - International Space Education using Nano-Satellite
 - Utilization/Applications of Micro- and Nano-Satellites
 - Standardization and Regulatory Issues
 - Strategies for Capacity Building
 - Small Satellites and Space Debris
 - How to keep good quality without increasing cost and time for development
 - Review of Small Satellite Activities
 - Programmatic and Managerial Issues
 - Small Satellites and Long-term Sustainability of Outer Space Activities