



26th Workshop "Space Technology for Socio-Economic Benefits: "Industry, Innovation and Infrastructure for Development (3Is4D)""

28-30 September 2018, Bremen, Germany



Programme

Bremen, Germany, 28 – 30 September 2018

Honorary Committee (in alphabetical order):

- S. Di Pippo, Director, Office for Outer Space Affairs, United Nations
- J.-Y. Le Gall, President, International Astronautical Federation (IAF)
- P. Ehrenfreund, Chair of DLR Executive Board
- J.-D. Wörner, Director General, European Space Agency (ESA)

Programme Committee (in alphabetical order):

- C. Feichtinger, International Astronautical Federation (IAF)
- C. Giannopapa, IAF- Committee for Liaison with International Organisations and Developing Nations (CLIODN)
- K.-U. Schrogl, International Institute of Space Law (IISL)
- D. Tilmans, EURISY
- I. Duvaux-Béchon, European Space Agency (ESA)
- J. Post, DLR
- J. Del Rio Vera, Office for Outer Space Affairs, United Nations
- S. Ravan, Office for Outer Space Affairs, United Nations
- C. Welch, IAF/International Space University (ISU)

Local Organizing Committee (in alphabetical order):

- Corinna Harms, ZARM

General Information

Objectives

The Workshop will discuss space science, technologies and applications in support of economic, social and environmental development with a focus on the role of industries as key player to offer innovation and infrastructure needed for sustainable development. In particular, the Workshop will be a forum to share experiences of leaders in space industries, for networking amongst decision-makers in governments and opportunities for start-ups and emerging space related business in developing countries.

The main objectives of the Workshop are to:

1. Raise awareness on how space exploration and innovations can trigger new partnerships and help develop capabilities that create new opportunities in addressing global challenges;
2. Examine space applications for developing countries and, in particular, for the African region;
3. Foster dialogue amongst space industry and the public sector;
4. Share experiences of space-related start-ups and emerging industries especially from developing countries;
5. Discuss the role of space industry for development and contribution to Sustainable Development Goals (SDGs), in particular SDG 9 (Industry, Innovation and Infrastructure) and SDG 17 (Partnerships for the Goals); and
6. Bring together policy and decision makers and the research and academic communities to help integrate space solutions into policy and decision-making process

The role of industry in the access to space is increasing and strengthening the cooperation with the space industry is a way to increase the opportunities for developing countries to access space technologies and services. This workshop shall provide inputs on potential areas for partnerships considering the needs of developing countries, in particular Africa;

- Propose actions to progress in the definition of pilot projects that could foster collaboration;
- Promote collaboration in capacity-building at regional and international levels;
- Exploring the role of space industry in cooperation on the use of space for global health; and
- Exploring the role of space industry towards building resilient space technologies and applications.

Programme of the Symposium

The program is designed to cover the aforementioned objectives and deliver the expected outputs. Sessions might be added or modified depending on the availability of speakers.

The programme includes plenary sessions and sufficient time for discussions among participants. The programme is as follows. **Please note that is a draft version and the order of speakers and split in sessions may be subject to some changes:**

PROGRAM

Friday, 28 September 2018
Morning

08:30 – 09:00	Registration of Participants
Morning Session	Master of Ceremony: Jorge Del Rio Vera
09:00	Opening Addresses & Opening Ceremony
9:05	Christian Feichtinger IAF Executive Director
9:15	Shirish Ravan United Nations Office for Outer Space Affairs
9:25	Peter von Kampen CFO of the Center of Applied Space Technology and Microgravity (ZARM)
9:35	Christina Giannopapa Chair CLIODN Committee, IAF & Head of Political Affairs, Strategy Department, ESA
	Keynote speech
9:45	Setting the Scene Shirish Ravan Chief of UN-SPIDER, United Nations Office for Outer Space Affairs
10:15 – 11:00	Coffee Break
Session 1	Space for Socio-Economic Development Moderator: Alessandra Vernile / Rapporteur: Ayami Kojima
11:00	Serbia's roadmap to space Milan Mijovic Serbian Office for Space Sciences, Research and Development
11:15	Ethiopian Space Program: Challenges and Opportunities Beza Zewdie Ethiopian Space Science Society
11:30	Bhutan's Journey into Space: Story of a Developing Country Cheki Dorji Ministry of Information and Communications Bhutan

11:45	<u>Space technology as means to achieve greater socio-economic benefits: the recent experience in Colombia</u> Hector Guerrero Berrio Ministry of Foreign Affairs Colombia
12:00	Discussion
	<u>Keynote speech</u> (Master of Ceremony: Jorge Del Rio Vera)
12:15	Pascale Ehrenfreund Chair, German Aerospace Center (DLR)
12:45 – 14:00	Lunch Break

**Friday, 28 September 2018
Afternoon**

Session 2	Space Applications for Developing Countries Moderator: Funmilola Oluwafemi / Rapporteur: Hui Du
14:00	<u>Space Generation Advisory Council activities in developing countries: the socio-economic benefits of space technology applied to the blue economy</u> Alessandra Vernile and Swetha Kotichintala Space Generation Advisory Council
14:15	<u>Innovating in Mexican Emergency/Early Warning Systems</u> Norma Hernandez Autonomous University of Mexico State
14:30	<u>Space-Aided Climate Change Adaptation</u> Kelly Mulvay International Space University
14:45	Discussion
15:00 – 15:30	Coffee Break
Session 3	Experience-sharing of space-related industries, start-ups and emerging industries from developing countries Moderator: Isabelle Duvaux Bechon / Rapporteur: Aimin Niu
15:30	<u>Trends for Entrepreneurship in Southern Africa to Support the Sustainable Development Goals Using Space Technology</u>

	<p>Minoos Rathnasabapathy Space Enabled Research Group, Massachusetts Institute of Technology</p>
15:45	<p><u>Brazilian Success Start-Ups derived from university space programs</u> Fernando Stancato Universidade de Sao Paulo</p>
16:00	<p>Satellite Technology Transfer: An engine for Sustainable Growth Oluseyi Adewumi Centre for Satellite Technology Development</p>
16:15	<p><u>The growing emergence of NewSpace in Africa</u> Leehandi De Witt NewSpace Systems</p>
16:30	<p>Strengthening economic development in Africa through technological startup ecosystem support Marc Lange Challengers</p>
16:45	<p>Discussion</p>
17:00	<p>Closure</p>

Saturday, 29 September 2018
Morning

08:30 – 09:00	Registration of Participants
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Session 3 (cont'd)	Experience-sharing of space-related industries, start-ups and emerging industries from developing countries Moderator: Isabelle Duvaux Bechon / Rapporteur: Aimin Niu
09:00	<u>Low cost open source hardware and software technologies, integrated as a payload in a high-altitude balloon, a tool for STEM education and industry development in Paraguay, a case study</u> Jorge Kurita Paraguay Space Agency
09:15	<u>Using GIS and remote sensing data to identify priorities for construction of rural roads infrastructure to promote agricultural growth in Guatemala</u> Carlos Duarte Carranza Universidad Rafael Landivar
09:30	Microgravity Platforms as Biotechnology Scaffolds for Socio-Economic Benefits Funmilola Oluwafemi National Space Research and Development Agency
09:45	<u>The Kenya Space Program and relations with industry for social economic development</u> John Kimani Kenya Space Agency
Session 4	Space industries for supporting specific Sustainable Development Goals Moderator: Vincezo Aquaro / Rapporteur: Shirish Ravan
10:00	<u>ESA Supporting the UN SDGs – the catalogue of activities</u> Isabelle Duvaux Bechon, Head of Member States Relations and Partnerships European Space Agency
10:15	<u>UN Sustainable Development Goals – Contributions of weather and cloud independent radar satellite monitoring and services</u> Alexander Kaptein Airbus Defence and Space
10:30	Collaborative innovation by industry, academia and the public sector to apply space technology toward achievement of the Sustainable Development Goals Danielle Wood Massachusetts Institute of Technology

10:45 – 11:15	Coffee Break
Session 4	Space industries for supporting specific Sustainable Development Goals (continued) Moderator: Vincezo Aquaro / Rapporteur: Shirish Ravan
11:15	<u>The sciux and virtual education. The experience of Change the World</u> Dousdebes Chia Universidad Distrital Francisco Jose de Caldas Colombia
11:30	<u>Empowering women to create space workforce in Nepal</u> Manisha Dwa Nepal Astronomical Society/Women in Astronomy in Nepal
11:45	<u>Private Aerospace initiatives helping to reach UN sustainable Development Goals in developing Countries: Ecuadorian experience analysis</u> Juan Jaramillo Rojas Ecuadorian Civilian Space Agency
12:00	<u>A Global Space Partnership for the Sustainable Development Goals: Working with Multi-stakeholders to Bring More Socio-Economic Benefits</u> Hui Du United Nations Office for Outer Space Affairs
12:15	Discussion
12:30 – 14:00	Lunch Break

Saturday, 29 September 2018
Afternoon

Afternoon Session	Key Note Speech
14:00	<u>Space utilisation and new legal challenges</u> Kai-Uwe Schrogl President of International Institute of Space Law (IISL)
	Breakout Sessions
14:20	Breakout Session 1: Improving access to Earth observation technologies and data for socio-economic benefits Moderator: Hui Du / Rapporteur: Norma Hernandez Improved access to Earth observation inspires innovation and allows application of EO in more countries and sectors. Benefits, obstacles and efficient ways of improving access to EO will be explored. Keywords for the discussion: Sustainable Development Goals, Data Sharing, Cloud Computing, Artificial Intelligence, Cubesats, In-Orbit Data Processing, Data Policy

14:20	<p>Breakout Session 2: Developing Programmes to help developing countries with technical advisory services and capacity building support to develop space-based applications</p> <p>Moderator: Shirish Ravan /Rapporteur: Aimin Niu</p> <p>Technical advisory services support can assist countries in addressing challenges and benefit from opportunities. The coupling of technical advisory services with capacity-building can assist to develop the in-house expertise to fully utilise space services and applications</p> <p>Keywords for the discussion: technical advisory services, capacity-building, space data and applications, awareness raising</p>
14:20	<p>Breakout Session 3: Space investments and socio-economic impacts- Raising awareness amongst decision-makers to invest more in space related industries</p> <p>Moderator: Jorge Del Rio Vera /Rapporteur: Ayami Kojima</p> <p>Not only national agencies but also numbers of start-ups and industries are investing in space-related activities. The session would discuss on methods to raise awareness among decision-makers.</p> <p>Keywords for the discussion: Start-ups, Space investments, socio-economic impacts, decision-makers, involvement of general public, outreach</p>
15:40 – 16:00	Coffee Break
16:00	Breakout Session 1: Improving access to Earth observation technologies and data for socio-economic benefits
16:00	Breakout Session 2: Developing programmes to help developing countries with technical advisory services and capacity building support to develop space-based applications
16:00	Breakout Session 3: Space investments and socio-economic impacts- Raising awareness amongst decision-makers to invest more in space related industries
Afternoon Session	Presentations of results of breakout sessions - Plenary
16:30	Presentation Breakout session 1
16:40	Presentation Breakout session 1
16:50	Presentation Breakout session 1
17:00	Discussion
17:15	Closure
17:30	Bus transfer (Meeting Point Central Area)
18:30	Reception hosted by ZARM

Sunday, 30 September 2017
Morning

08:30 – 09:00	Registration of Participants
Session	HSTI Session Moderator: Ayami Kojima / Rapporteur: Jorge Del Rio Vera
09:00	<u>UNOOSA HSTI Program</u> Aimin Niu United Nations Office for Outer Space Affairs
09:15	<u>DreamChaser Mission Supporting the SDGs</u> Neeraj Gupta Sierra Nevada Corporation
09:30	<u>New Space Mission Opportunities available through the Airbus Bartolomeo Platform on the International Space Station</u> Katherine Pegg Airbus Defence and Space
09:45	<u>UN-HSTI Fellowship Program DropTES - Hands-on Experience in Microgravity Research</u> Thorben Koenemann ZARM FAB mbH
10:00	<u>The first Space Systems Engineering Laboratory of Central America: ongoing and future project of cost/effective missions for environmental monitoring</u> Adolfo Chaves-Jimenez Costa Rica
Special Session	HSTI session: focus on kiboCUBE Moderator: Ayami Kojima / Rapporteur: Shirish Ravan
10:15	<u>KiboCUBE winner 1rd Round</u> John Kimani Kenya Space Agency
10:30	<u>KiboCUBE winner 3rd Round</u> Faraaz Shamutali Mauritius Research Council
10:45	<u>KiboCUBE winner 3rd Round</u> Sunartoto Gunadi Surya University Indonesia

11:00	<p><u>JAXA's representative</u></p> <p>Hiroki Akagi Japanese Aerospace and Exploration Agency</p>
11:15	<p>UNOOSA's representative</p> <p>Ayami Kojima United Nations Office for Outer Space Affairs</p>
11:30– 11:45	<p>Coffee Break</p>
	<p>High Level Panel</p> <p>Moderator: Shirish Ravan</p>
11:45-12:45	<p><u>Simonetta Di Pippo</u> Director, United Nations Office for Outer Space Affairs</p> <p><u>Johann-Dietrich Woerner</u> Director General, European Space Agency</p> <p><u>Pascale Ehrenfreund</u> Chair, German Aerospace Center (DLR)</p> <p><u>Vincezo Aquaro</u> Chief of Digital Government Branch, UNDESA Division for Public Institutions and Digital Government</p>
	<p>Closing Remarks</p> <p>Master of Ceremony: Shirish Ravan</p>
12:45	<p>Thorben Koenemann ZARM FAB mbH</p> <p>Christina Giannopapa, Chair CLIODN Committee, IAF & Head of Political Affairs, Strategy Department, ESA</p> <p>Christian Feichtinger IAF Executive Director</p> <p>Simonetta Di Pippo Director, United Nations Office for Outer Space Affairs</p>