



Human Capacity-Building in Space Science and Technology for Sustainable Social and Economic Development

*A joint Workshop of the United Nations Office of Outer Space Affairs,
the Russian Federation and Samara National Research University
- with support from the European Space Agency -*

**Samara National Research University
Samara, Russian Federation
30 October-2 November 2017**

Tentative Agenda

About the Workshop

The Workshop is expected to foster dialogue among a diverse group of stakeholders in the field of capacity building for space science, technology and its applications, and to take stock and discuss about various ideas and proposals for improving coordination and cooperation in the future. One such idea is the proposal by the Office for Outer Space Affairs to establish a Capacity Building Network (CBN) to help upscale as well as better coordinate and link to the 2030 Agenda for Sustainable Development the presently fragmented approaches towards space capacity building.

The outcomes and recommendations identified will provide inputs for the United Nations Report on Thematic Priority 7, capacity building for the 21st century, to be delivered in June 2018 for [UNISPACE+50](#), an event celebrating the 50th anniversary of the first United Nations Conference on the Exploration and Peaceful Uses of Outer Space, and an opportunity for the international community to gather and consider the future course of global space cooperation for the benefit of humankind.



Honorary Committee (in alphabetical order):

D.I. Azarov Samara Region Governor, Russian Federation
S. Di Pippo Director, Office for Outer Space Affairs, United Nations
E. Shakhmatov Rector, Samara National Research University
A. Vuchkovich Executive Director for Human Resources and Social Policy
J.D. Woerner Director General, European Space Agency

Programme Committee (in alphabetical order):

W. Balogh Office for Outer Space Affairs, United Nations
I. Belokonov Samara University, Russian Federation
J.-C. Bigot European Space Agency
S. Chernikov Samara University, Russian Federation
M. Cho Kyushu Institute of Technology, Japan
L. Czarán Office for Outer Space Affairs, United Nations
J. Del Rio Vera Office for Outer Space Affairs, United Nations
R. Kawashima UNISEC-Global
S. Mostert SCS Aerospace Group, South Africa
L. St.-Pierre Office for Outer Space Affairs, United Nations

Local Organizing Committee:

A. Kirilin Director General, RSC Progress
A. Kobenko Vice-Governor, Minister for economic development, investments and trade, Samara Region
D. Ovchinnikov Vice-Governor, Head of Samara Region Governor's Administration
E. Shakhmatov Rector, Samara National Research University
A. Antonevich Vice-rector for Campus Development, Samara National Research University
I. Belokonov Head of Inter-University Department of Space Research, Samara National Research University
V. Bogatyrev Vice-rector for Educational and Foreign Affairs, Samara National Research University
M. Kovalev Vice-rector for General Matters, Samara National Research University
E. Kosmodemyanskiy Deputy Chief Designer, RSC Progress
D. Pashkov Vice-rector for IT, Samara National Research University
A. Prokofiev First Vice-rector, Science and Innovations, Samara National Research University
V. Pylev Minister of Education and Science of Samara Region
S. Chernikov assistant Vice-rector, Academic and International Affairs, Samara National Research University
G. Shestakov Head of Innovative Activities Support Department, Samara National Research University

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 Russian Federation



Sunday, 29 October 2017 - Arrival of participants, meeting at the airport and transfers to hotel

Day 1 - Monday, 30 October 2017 (Samara National Research University)

8:00 - 9:00	Registration
9:00 - 9:30	Opening Ceremony Remarks by Samara National Research University <i>Evgeniy Schakhmatov, Rector</i> Remarks by United Nations Office of Outer Space Affairs <i>Simonetta Di Pippo, Director</i> Remarks by the Samara Region <i>Dmitry Azarov, Governor</i> Remarks by the European Space Agency <i>Rene Pischel, ESA Permanent Mission, Head</i> Remarks by ROSCOSMOS <i>Alla Vuchkovich, Executive Director for Human Resources and Social Policy</i> Remarks by JSC Space Rocket Center "Progress" <i>Aleksander Kirilin, Director General</i> ISS Greetings
9:30 - 10:10	Keynote: Capacity-Building in the Context of UNISPACE+50 <i>Simonetta Di Pippo</i> <i>United Nations Office of Outer Space Affairs</i> Keynote: Samara National Research University - 75 years of human capacity building in aerospace science and technologies <i>Evgeniy Schakhmatov</i> <i>Samara National Research University</i>
10:10 - 10:40	Coffee Break and Group Photo
10:40 -	High Level Panel on Human Capacity Building Session Chair:



11:40 A panel discussion bringing together major actors in the field of human capacity-building in space science, technology and applications to discuss latest capacity-building trends and needs *Simonetta Di Pippo*
Director, UNOOSA

Panelists:

- **Vladimir Bogatyrev** - Vice-Rector, Samara University, Russian Federation
- **Rei Kawashima**- Director, UNISEC Global
- **Preethi Panawenage** - Director General/CEO, Arthur C. Clarke Institute for Modern Technologies
- **Rene Pischel** - Head, ESA Permanent Mission in Russian Federation
- **Jingnong Weng** - Dean, Beihang University, China

11:45 - Followed by:
13:00 **Opening of the Exhibition**

Guided Tour of the University

13:00 - Transfer to Hotel (workshop continues at Holiday Inn Hotel premises)
14:30 Lunch Break

14:30 - **Goals, Objectives and Logistics of the Workshop**
14:45 *Lorant Czarán, UNOOSA*
Anton Gulbis, Samara University

14:45 -
16:00 **Inaugural Session (1): From Sputnik to UNISPACE+50**
Session Chairs:
Alla Vuchkovich, Executive Director Human Resources, Social Policy, ROSCOSMOS
Rene Pischel, Head of ESA Permanent Mission

- **The importance of Sputnik in the United Nations context and for the global space agenda**
Simonetta Di Pippo, UNOOSA
- **Role of Samara in developing of Russian and World cosmonautics**
Aleksandr Kirilin, Director General, JSC Space Rocket Center "Progress



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- **Roscosmos role in capacity-building in space science and technologies**
Alla Vuchkovich, Executive Director for Human Resources and Social Policy, ROSCOMOS
 - **ESA Training Activities in Earth Observation in Member States, ECS countries and worldwide**
Rene Pischel, Head, Permanent Mission, European Space Agency

Discussion

16:00 -
16:30

Coffee Break

16:30 -
18:00

Session 2: Global, regional and national initiatives to enhance space-related human capacity-building

Session Chairs:

Evgeny Schakhmatov, Rector, Samara University

Rei Kawashima, Director, UNISEC-Global

- **UNISEC-Global Challenge: How can we contribute to Capacity Building?**
Rei Kawashima, UNISEC Global, Japan
- **Alliance of Regional Centres**
Jingnong Weng, Regional Centre for Space and Technology Education in Asia and the Pacific, China
- **Progresses and Challenges of Building Capacity for Space Science and Technology in East Africa**
Stephen Taabu, Bugema University, Uganda
- **Samara Summer Space School: outlooks of 15 years of human international capacity building and cooperation**
Igor Belokonov, Samara University, Russia
- **The Intersputnik International Organization of Space Communications and its contribution to human capacity-building in space science and technology**
Iaroslav Vasianin, Intersputnik International Organization of Space Communications, Russian Federation

Discussion

19:00

**Workshop Reception
(hosted by the Samara National Research
University)
Location: Hotel Holiday Inn.**



Day 2 - Tuesday, 31 October 2017 (Holiday Inn Hotel)

9:00 - **Session 3: New Methodologies and the Way Forward for Capacity Building**

10:30 Session Chairs:

Igor Belokonov, Samara University, Russia

Jingnong Weng, Beihang University, China

➤ **Space Technology Education & Training Exchange Platform of CAST Open to the World**

Wang Jie, China Academy of Space Technology, China

➤ **Innovative technology for training foreign students in the area of space engineering**

Vadim Salmin, Samara University

➤ **Education through research like effective way for capacity building in space science and technique**

Andrey Kramlikh, Samara University, Russia

➤ **Say bye to garage bands, say hi to garage satellites: Future School and Needs Theory for Space Science and Technology Capacity-Building in the 21st Century**

Nadia Kornijezuk, Brazilian Space Agency

➤ **The BIRDS Paradigm of Kyutech**

Jojj Maeda, Kyushu Institute of Technology, Japan

Discussion

10:30 - **Coffee Break**

11:00 **Poster Session UN-01**

11.00 - **Session 4: Role of Universities and Industry in Supporting Capacity-Building**

12.50 **Activities**

Session Chairs:

Evgeny Kosmodemiansky, JSC Space Rocket Center "Progress", Russia

Ganapathy, VIT University, India

➤ **UN Capacity-Building Network Proposal**

Lorant Czarán, UNOOSA

➤ **Experiments and prospects for development of science and educational AIST micro-satellites**

Ivan Tkachenko, Samara University, Evgeny Kosmodemiansky, JSC Space Rocket Center "Progress", Russia



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- **Space Activities at the Satellite Research Center**
Amal Chandran Ramachandran Nair, Nanyang Technological University, Singapore
 - **Space radar technologies of the earth remote sensing for detecting subsurface structures and water reserves**
Oleg Goriachkin, Volga State University for Telecommunication and Informatics, Russia
 - **Consolidating Bulgaria's capacity in the space technology R&D and Industry applications sectors. Opportunities and role of academia and small business in the new wave of space exploration in Europe**
Vesselin Vassilev, Cluster for Aerospace Technologies, Research and Applications, Bulgaria
 - **Use of piggyback payload launching systems manufactured by Space Rocket Center "Progress"**
Tatiana Lipatnikova, JSC Space Rocket Center "Progress", Russia
 - **A global initiative of International Space University, Stanford and Next-Gen Alliance (SAP) in capacity building**
Victor Taratukhin, SAP

Discussion, comments on Poster session UN-01

12:50 - Lunch Break

14:00 Poster Session UN-02

14:00 - Session 5: Best Practices and Challenges of Promoting Space Education

15:30 Session Chairs:

Loredana Santo, University of Rome Tor Vergata, Italy

Vesselin Vassilev, Director, Cluster Aerospace Technologies, Research and Applications, Bulgaria

- **Tunisian Capacity-Building Experience in Space Technology Engineering**
Kamel Besbes, Center for Research on Microelectronics and Nanotechnology, Tunisia
- **Experience of participation in international scientific and educational space projects by the example of QB50 project**
Davydov Denis, Samara University, Russia
- **Implementation of the educational program on the specialty of "Space Engineering and Technology" in al-Farabi Kazakh National University: experience and sustainable development**
Maktagali Bektemessov, Zaure Rakisheva, Al-Farabi Kazakh National University, Kazakhstan
- **Educational trainings for specialists from emerging countries for space**



technologies and their applications

Denis Avariaskin, Samara University, Russia

- **Space science and technology development in Costa Rica: Achievements and challenges for local human capacity-building**

Melania Guerra Carrillo Estrategia Siglo XXI, Costa Rica

Discussion, comments on Poster session UN-02

15:30 - **Coffee Break**
16:00

16.00 - **Session 6: The Role of Regional Centers on Capacity Building in Space Science and Technology**
17.10

Session Chairs:

Lorant Czarán, Office for Outer Space Affairs, United Nations

Sergey Chernikov, Samara University, Russia

- **ARCSSTEE Activities Update (1998 - 2017)**
Ganiyu Agbaje, African Regional Centre for Space Science and Technology Education, Nigeria
- **RCSSTEW/UN Activities and Program (via Skype or video link)**
Ibrahim Baddawi, Jordan
- **Study and analysis the current situation of earth observation in the African French-speaking countries in benefit of the training program of CRASTE-LF**
Anas Embran, African Regional Centre for Space Science and Technologies, Morocco
- **CREACTEALC: Challenges and future prospects for the integration of Latin America and the Caribbean countries in space education and technological development towards UNISPACE +50 (via Skype, video link or recorded)**
Sergio Camacho Mexico Regional Centre

Discussion

17.10 - 18.10	Panel Discussion: proposal on Capacity Building Network	Chair: <i>Sergey Chernikov, Samara University</i>
	<ul style="list-style-type: none"> - Concrete new methods and way forward for capacity-building in the context of the 2030 Agenda and UNISPACE+50, relevant partnerships - The UN Capacity Building Network proposal - Expected outcomes of the Workshop 	



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- Introduce topics for the working groups sessions
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19:00

Social program

Option 1: Samara Space Museum

Option 2: Technical Tour of the Samara University



Day 3 - Wednesday, 1 November 2017 (Holiday Inn Hotel)

9:00 - **Session 7: Capacity Building for Space Technology and Applications**

10:30 Session Chairs:

Preethi Panawennage, Arthur C Clark for Modern Technologies, Sri Lanka

Ilya Kudriavtsev, Samara University, Russia

- **Experiences in student capacity-building in the area of space engineering and technology**
Priyadarshnam, Indian Institute of Space Science and Technology
- **Acquisition of National Capacity in Space Technologies and Concurrent Use of Space Technology Applications in National Development: The Early Stage Experience of a Developing Nation: Sri Lanka**
Preethi Panawennage, Arthur C Clarke Institute for Modern Technologies, Sri Lanka
- **Teaching GNSS technologies at Samara University**
Ilya Kudriavtsev, Samara University, Russia
- **Remotely sensed data use for providing of strong socio-economic development**
Alexander Fedoseev, JSC Space Rocket Center "Progress", Russia
- **Samara center for nanosatellite testing: opportunities and services**
Alexander Ivliev, Samara University, Russia

Discussion

10:30 - **Coffee Break**

11:00 **Poster Session UN-03**

11.00 - **Session 8: Enhancing Public Awareness and Increasing Support for Space Activities**

12.30 Session Chairs:

Ganiyu Agbaje, African Regional Center Space Science and Technology Education, Nigeria

Victor Lagutov, Central European University, Hungary

- **Results from the UN/Austria Symposium on Access to Space**
Jorge Del Rio Vera, United Nations Office for Outer Space Affairs
 - **Space Generation Forum Activities**
Nebiyu Mohammed, Space Generation Advisory Council, Ethiopia
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- **CANSAT Workshops and Rocket Competition in Thailand**
Sawat Tantiphawadi, Pattani Industrial and Community Education College, Thailand
 - **Regional cooperation in Western Balkans: a joint approach to Space sector?**
Milan Mijovic, Law School, Union University Belgrade, Serbia
 - **Experience with schoolchildren in developing interest in space education**
Starinova Olga, Samara University, Russia

Discussion, comments on poster session UN-03

12:30 - 14:00 **Lunch Break**

14:00 - 16:20 **Working Group Discussions (3 groups form)** Moderators:
TBD

- **Space economy: the development of space-derived economic benefits**
Topic: Strengthening partnership with industries, private sector, NGOs for sustainable socio-economic development of emerging countries
- **Space society: the evolution of society and societal benefits stemming from space-related activities**
Topic: Role of universities and public sector in supporting capacity-building activities. New tools and technologies to achieve Sustainable Development Goals
- **Space accessibility: all communities using and benefiting from space technology and applications**
Topic: Enhancing public awareness and promoting space education

16.30 - 19.00 **Social program at the Philharmonic House**
“Songs of Old Russia”



Day 4 - Thursday, 2 November 2017 (Holiday Inn Hotel)

9:00 - 10:30	Working Group Discussions (continued)	Moderators: <i>TBD</i>
10:30 - 11:00	Coffee Break Poster Session UN-04	
11.00 - 12.45	<p>Session 9: Collaboration for Space Exploration and Earth Safety in 21st Century Session Chairs: <i>Vladimir Shychev, Institute for Biomedical Problems of RAS, Russia</i> <i>Maktagali Bektemessov, Al-Farabi Kazakh National University, Kazakhstan</i></p> <ul style="list-style-type: none"> ➤ Towards an Eastern European Space Organization (EESO): basing a multilateral governance model on space science, technological innovation and industry <i>Julie Patarin-Jossec, University of Bordeaux, France</i> ➤ Establishing the Philippine Space Program: From Technology Development to Policy Legislation <i>Rogel Mari Sese, National Space Development Program, Philippines</i> ➤ The international cooperation in projects of biological satellites BION <i>Denis Rakov, Institute for Biomedical Problems of RAS, Russia</i> ➤ Program of fundamental and applied experiments and investigations during flight tests of "BION-M2" space vehicle <i>Vladimir Shychev, Institute for Biomedical Problems of RAS</i> <i>Valery Abrashkin, JSC Space Rocket Center "Progress"</i> <i>Kostantin Elkin, TsNIIMASH, Russia</i> ➤ Integrating space technology with social media for quick disaster response: a case study from India and adjoining areas <i>Ganapathy, Center for Disaster Mitigation and Management, VIT University, India</i> ➤ Sustainability of the in-Space Manufacturing <i>Loredana Santo, University of Rome Tor Vergata, Italy</i> <p><i>Discussion, comments on poster session UN-04</i></p>	
12:45 - 14:00	Lunch Break	
14:00 -	Closing Session	Moderators:



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| 15:30 | <ul style="list-style-type: none">● Presentation of Working Group chairs on observations and recommendations agreed● Discussion on proposed recommendations | <i>TBD UNOOSA</i> |
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| 15.30 - | Closing Remarks | |
| 16.00 | <ul style="list-style-type: none">- SNRU- United Nations Office for Outer Space Affairs- RSC Progress- Roscosmos- Reg Government | |
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END of WORKSHOP

18:00	Gala Dinner
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Location: Holiday Inn Hotel



Poster Presentations

Please note recommended guidelines for poster presentations:

Authors are provided with A0 format stands, which will include the title of the poster presentation, the authors and the Organization. In order to increase the informative nature of posters, please consider the when preparing the posters:

- Posters should reflect the purpose, main provisions and results of work;
- the texts on the posters should be in English;
- Posters should be concise, clear, colorful;
- the sheet on which the poster will be reproduced must have a format not exceeding A0 of the vertical orientation (841 × 1189 mm) or two sheets of the A1 format of the horizontal orientation (841 × 594);
- the top and bottom margins should be 30 mm, the left and right margins should be 25 mm;
- to represent text information, you must use Arial font;
- inscriptions to photographs, diagrams, tables should be read from a distance of 1.5-2 m;
- illustrations on posters can be both black and white, and color;
- The bottom of each poster should include the title of the poster, the names of the authors and the names of the organizations (the height of the letters is not more than 10 mm).

No.	Last Name	First Name	Institution	Country	Poster Title
UN-01	Activity in space technologies and science for socio-economic development				
UN-01.1	Ashilevi	Prosper	Ghana Space Science and Technology Institute	Ghana	Ghana Space Science and Technology institute cubesat
UN-01.2	Lamsal	Jeevan	Pokhara Astronomical Society	Nepal	New methods of teaching space science in Nepal
UN-01.3	Koudmani	Marwan	Environmental Protection and Sustainable Development Society	Syrian Arabic Republic	Human Capacity-Building in Space Science and Technology for Sustainable Social and Economic Development in Syria
UN-01.4	Kara	Ozan	KOC University – Space Generation Advisory Council	Turkey	Future Mars Mission Demonstration with Gamification: Next Generation Workforce Development and



					Self-Knowledge Management for Space Education
UN-01.5	Khurana	Shashank	Brila Institute of Technology, Space Generation Advisory Council	United Arab Emirates	Preparing Human Resource Pool in Space Era: An Asia-Pacific Perspective
UN-01.6	Busakwe	Turcia	Space Advisory Company	South Africa	Achieving operational capability with nano-satellite HCD programs
UN-01.7	Islam	MD Shahidul	Department Disaster Science and Management, University of Dha,	Bangladesh	Status of Space Education and its Applications in Bangladesh and Possibility of International Support to Enhance the Present Situation
UN-01.8	Pimprikar	Milind	CANEUS International	Canada	Presentation on Center of Excellence on Space Sciences & Technologies for Development
UN-01.9	Lagutov	Victor	Central European University	Hungary	ISEPEI: ICTs Capacity Building for achieving and monitoring SDGs
UN-01.10	Kajo	Asia	Institute of Space Research and Aerospace	Sudan	Challenges face developing countries use high technology in Nano-Satellite field
UN-02	Examples of best results in space science and technologies				



UN-02.01	Konovalov	Sergey	Samara University	Russia	Development and investigation of coatings for the protection of spacecraft elements
UN-02.02	Thomas Jayachandran	Aurthur	Samara University	Russia	Space mining Corporation: The Pseudo-Economic and Technology model
UN-02.03	Lutoshin	Aleksandr	JSC Space Rocket Center "Progress"	Russia	Technological space experiments under microgravity and research of outer-space effects on bio-objects on "Bion"-based spacecrafts
UN-02.04	Barulina Fomin	Marina Dmitry	Institute of Precision Mechanics and Control of RAS Amur State University	Russia	Advanced software for simulation of temperature fields for university training course of nanosatellite design.
UN-02.05	Maslov Spodobaev	Mikhael Yuri	R&D Institute of Radio, Samara Branch	Russia	Electrodynamics problems place in space researches of scientific and educational orientation
UN-02.06	Zabolotnov	Yuri	Samara University	Russia	Tether systems as an innovative direction of development of space technology



UN-02.07	Andreev-Andrievskiy	Alexander	Institute for biomedical problems RAS	Russia	Animal studies in Bion-M1 mission: benefits of scientific cooperation
UN-02.08	Ouattara	Nebiyu	Universite Koudougou	Burkina Faso	Contribution of Burkina Faso researchers in ionosphere study from 2006 to 2014
UN-03	Law for space activity				
UN-03.01	Chernykh	Irina	Peoples' Friendship University of Russia	Russia	Long-term Sustainability of Space Activities as an Integral Part of Space Science and Technology for Sustainable Social and Economic Development
UN-03.02	Mitryanin	Aleksandr	JSC Space Rocket Center "Progress"	Russia	Actual problems of the international space law
UN-03.03	Komleva	Aleksandra	Immanuel Kant Baltic University, Kaliningrad, Russia	Russia	Main issues of legislative support of the international legal regime of mining in outer space, including the Moon and other celestial bodies
UN-03.04	Arguelles Arredondo	Carlos	Universidad del Mar, California	Mexico	International Cooperation and Space Law as a benefit to the social and economic growth of developing countries



UN-03.05	Taha	Hind	Space Research Center	Sudan	Space technology , SDGs and Open data -Reflections from small satellite project
UN-03.06	Klimov	Stanislav	Space Research Institute of RAS	Russia	Development of the method of the creation of micro-satellite (~ 50 kg) platforms for the fundamental and applied space research of the Earth
UN-04	GNSS and GIS technologies applications				
UN-04.01	Kudriavtsev	Ilya	Samara University	Russia	Teaching FPGAs and microcontrollers within master's program in nanosatellites
UN-04.02	Ponvert Delisles Batista	Dimaso	National Union of Architectures and Engineers	Cuba	Inter-institutional Capacity-Building on Geoinformatics applied to the Management of Risks of Disasters in Iberian-American Countries Based on Short Training Courses. 10 years of Experiences
UN-04.03	Mirmakhm Udov	Erkin	National University of Uzbekistan	Uzbekistan	Use of GNSS for geodesy and cartography of Uzbekistan



UN-04.04	Mohd Noor	Norzailawati	International Islamic University Malaysia	Malaysia	The development of Remote sensing technologies in supporting Sustainable Development Goals (SDGs) Indicators in Malaysia
UN-04.05	Ashilevi	Prosper	Ghana Science & Technology Institute	Ghana	Cubesat development programme for tracking illegal gold mining operations in Ghana
UN-04.06	Akbar	MD. Shawkat	National Land Zoning Project, Ministry of Land	Bangladesh	Monitoring Socioeconomic Development of Keraniganj Upazila, Bangladesh based on Space Science and Technology
UN-04.07	Mathew	Tony	Paradigm Technologies Pvt. Ltd	India	LiDAR for smart planning and governance for a smarter city
UN-04.08	Romero Alva	Victor	Universidad de Ciencias y Humanidades	Peru	Planning the Urban Growth of Chinchero (Cusco) Using Satellite Images
UN-04.09	Kirichenko	Aleksey	JSC Space Rocket Center "Progress"	Russia	Earth Remote Sensing Space System: Development Perspectives