



United Nations/Austria Symposium

**Integrated Space Technology Applications
for
Climate Change**

Programme

**Austrian Academy of Sciences, Institute for Space Research
Schmiedlstrasse 6, Graz, Austria**

With the support of

The European Space Agency

Co-sponsored by

City of Graz, State of Styria, European Space Agency,
Austrian Ministry for Transport, Innovation and Technology, AUSTROSPACE

Graz, Austria, 12 - 14 September 2016

**United Nations/ Austria Symposium on Integrated Space Technology Applications
for Climate Change
Organizing Committee**

Honorary Committee (in alphabetical order):

W. Baumjohann	Director, Space Research Institute, Austrian Academy of Sciences
S. Di Pippo	Director, Office for Outer Space Affairs, United Nations
M. Kowatsch	President, AUSTROSPACE
S. Nagl	Mayor, City of Graz
W. Pribyl	CEO, JOANNEUM RESEARCH
I. Schädler	Deputy Director General, Ministry of Transport, Innovation and Technology
H. Schützenhöfer	Governor, Federal State of Styria
C. Stix-Hackl	Ambassador, Ministry for Europe, Integration and Foreign Affairs

Programme Committee (in alphabetical order):

J. C. Bigot	European Space Agency
D. García Yárnoz	Office for Outer Space Affairs, United Nations
G. Götz	Ministry for Europe, Integration and Foreign Affairs
O. Koudelka	JOANNEUM RESEARCH and Graz University of Technology
J. Ortner	EURISY
J. C. Villagrán de Leon	Office for Outer Space Affairs, United Nations

Local Organizing Committee (in alphabetical order):

A. Fuchs-Fehringner	Graz Tourism
N. Hofer	City of Graz
O. Koudelka	JOANNEUM RESEARCH and Graz University of Technology
D. Müller	JOANNEUM RESEARCH
C. Santo Domingo	Office for Outer Space Affairs, United Nations
E. Tschachler	Austrian Academy of Sciences

General Information

Climate change has been recognized as a major challenge that needs to be addressed globally, through an integrated approach involving mitigation efforts as a way to keep green-house gas emissions under control, and through adaptation efforts as a way to minimize the impacts and effects of climate change in communities around the world.

The United Nations recognizes the benefits and applications of space technologies in addressing the challenges to sustainable development, as well as the effectiveness of space instruments for dealing with the challenges posed by climate change and effects of natural and anthropogenic disasters. To this end, it places a great importance to enhance capacity building of the developing countries that could be accomplished through international cooperation in various aspects such as: the development of human and budgetary resources, adequate coordination among the technical and research organizations that are in charge of global climate change monitoring and evaluation, and the development of infrastructures and policy regulations in this area.

The Symposium will address the above issues and will discuss a wide range of space-related technologies, services and information resources available for monitoring and analysis of climate change related matters and environmental hazards such as flood, drought, and desertification, with the following primary objectives:

- 1) To discuss ways in which countries affected by climate change, especially developing countries, can make better use of space applications to assess vulnerability to climate change and potential losses and damages;
- 2) To become aware of recent advances in the use of integrated space technology applications in the context of mitigation and adaptation to climate change;
- 3) To improve synergies among space agencies and organizations targeting efforts on climate change.
- 4) To strengthen international and regional cooperation in this area.
- 5) To raise awareness on the recent advances in space-related technologies, services and information resources which can be used to assess the impacts of climate change and the effects of measures implemented to reduce such impacts.

The proposed Symposium will allow participants:

- To become aware of the most recent examples regarding the use of space-based applications and solutions targeting climate change, and its impacts on the environment, on livelihoods and on natural resources.
- To become aware of the activities being conducted by a variety of agencies on the issue of climate change and its impacts (environment, remote sensing, meteorology, agriculture, water resources, etc).
- To network with representatives of a variety of countries and regional and international institutions engaged in these types of activities.

The Symposium will enable UNOOSA:

- To identify strategies to bridge the gap between the different communities that target efforts on the use of information to assess the impacts of climate change in natural resources required for sustainable development.
- To improve the communication and coordination among institutions in different regions of the world regarding access to and use of space-based technologies and information for climate change.
- To implement its strategy focusing on the use of remote sensing applications in adaptation to climate change.

Monday 12 September 2016

TIME	ACTIVITY	Lead/Moderation
8:30 – 9:00	Registration of Participants	Otto Koudelka
9:00 – 10:00	<p align="center">Opening Remarks [8']</p> <p>Short Opening Remarks by Organizers and Co-sponsors:</p> <ul style="list-style-type: none"> - Wolfgang Baumjohann, Space Research Institute - Wolfgang Pribyl, JOANNEUM RESEARCH - Hans Steiner, AUSTROSPACE - Mark Doherty, European Space Agency - Peter Piffel-Percevic, City of Graz - Gerhard Götz, Ministry for Europe, Integration and Foreign Affairs - Simonetta Di Pippo, Director, UNOOSA 	
10:00 – 11:00	<p align="center">PLENARY SESSION 1: Keynote Presentations [25'+5']</p> <p>Juan Carlos Villagrán, Space Applications Section, UNOOSA, <i>UNOOSA's efforts in climate change</i></p> <p>Mark Doherty, Head EO Services and Exploitation Division, ESA, <i>Space and Climate.</i></p>	
11:00 – 11:30	Coffee Break	
11:30 – 13:00	<p align="center">PLENARY SESSION 1 (cont.): Keynote Presentations [25'+5']</p> <p align="center"><i>“Remote Sensing and Climate Change”</i></p> <p align="center"><i>Climate Change impacts tracked through remote sensing applications./</i> <i>Focusing on Remote Sensing methods</i></p> <p>Brilliant Petja, Water Research Commission, South Africa, <i>Characterizing ecosystem response to changing climate using earth observation technology</i></p> <p>Alberto Moreira, DLR, <i>Tandem-L: A Highly Innovative Radar Satellite Mission for Climate and Environmental Monitoring</i></p> <p>Danling Tang, South China Sea Institute of Oceanology, Chinese Academy of Science, <i>Remote Sensing of effects of climate change on marine and coastal ecosystems</i></p>	Moderator: Daniel García Yárnoz
13:00 – 14:00	Lunch Break and Discussions	

Monday 12 September 2016 - continued

TIME	ACTIVITY	Lead/Moderation
14:00 – 15:00	<p align="center">PLENARY SESSION 2: Keynote speeches [25'+5']</p> <p align="center"><i>“Space Applications and Climate Change”</i></p> <p>Klaus Radunsky, Umweltbundesamt, Austria, <i>The work of the Adaptation Committee on adaptation planning</i></p> <p>Mark Doherty, ESA, <i>Copernicus - a game changer in Earth Observation</i></p>	Moderator: Johannes Ortner
15:00 – 15:30	Coffee Break	
15:30 – 17:00	<p align="center">DISCUSSION SESSION</p> <p align="center"><i>“Remote Sensing and Climate Change”</i></p> <p>Group discussions concerning strengths and limitations on the use of remote sensing to track the impacts of climate change and recommendations</p>	Moderators: Juan Carlos Villagrán, Daniel García Yárnoz, Otto Koudelka
17:15	Transfer to the Hotel	
18:45	Transfer from the Hotel to the “Andreas-Hofer-Platz” (Centre of Graz)	
19:30	Reception hosted by the Mayor of the City of Graz Siegfried Nagl (Rathaus)	

End of day 1

Tuesday 13 September 2016

TIME	ACTIVITY	Lead/Moderation
9:00 – 10:30	<p align="center">PLENARY SESSION 3 [30']</p> <p align="center"><i>“Climate change and the Environment”</i></p> <p>André Obregón, GEO, <i>The cross-cutting role of climate in GEO's next decade</i></p> <p>Eleonora Semakova, Uzbekistan Academy of Sciences, <i>Applications of the integrated remote sensing technologies to monitor the state of glaciers</i></p> <p>Christoph Kiemle, DLR, <i>Tracking Greenhouse Gas Concentrations from Space: The French-German Methane Mission MERLIN</i></p>	<p>Moderator: Juan Carlos Villagrán</p>
10:30 – 11:00	Coffee Break	
11:00 – 12:30	<p align="center">PLENARY SESSION 3 (continued) [20']</p> <p align="center"><i>“Climate Change and the Environment”</i></p> <p>Barbara Theilen-Willige, TU Berlin, <i>Impact of Climate Change on Natural Hazards and on Landscape Development in the Black Hills and Adjacent Areas, South Dakota, Montana and Wyoming, USA, using Remote Sensing and GIS-Methods</i></p> <p>Irfan Rana, Asian Institute of Technology, Thailand, <i>Risk and Vulnerability Assessment of Flood Prone Urban Areas of Pakistan</i></p> <p>Stavros Solomos, National Observatory of Athens, IAASARS, <i>The importance of desert dust for weather and climate in the Mediterranean</i></p> <p>Amjad Ali, SUPARCO, <i>Characterization of land cover composition and its changes using hyper-temporal remote sensing</i></p>	<p>Moderator: Juan Carlos Villagrán</p>
12:30 – 13:30	Lunch Break and Discussions	

Tuesday 13 September 2016 - continued

TIME	ACTIVITY	Lead/Moderation
13:30 – 15:00	<p align="center">PLENARY SESSION 4 [30'] “Climate Change and Livelihoods”</p> <p>Soumya Bandyopadhyay, ISRO, <i>Space Technology Applications for Monitoring Climate Change Impacts on Water Resources</i></p> <p>Francis Ohemeng, Irrigation Development Authority, Ghana, <i>Integrated Flood water Harvesting for Multipurpose Use in 3 Districts of the Upper East Region of Ghana</i></p> <p>Ashok Hanjagi, Bangalore University, <i>Landuse Change and Transformation Study of Bangalore Metropolitan Region and Plan for Sustainable Development</i></p>	<p>Moderator: Daniel García Yárnoz</p>
15:00 – 17:00	Extended Coffee Break / Poster Session	
	<p>“Climate change solutions” *List of posters at the end of Programme</p>	
17:15	Transfer to the “Burgring” (Centre of Graz)	
17:45	Guided Tour through the Old City	
19:30	Reception hosted by the Governor of the State of Styria Hermann Schützenhöfer (Orangery in the Gardens of Graz Burg)	

End of day 2

Wednesday 14 September 2016

TIME	ACTIVITY	Lead/Moderator
9:00 – 10:30	<p align="center">PANEL [10' + discussion]</p> <p align="center"><i>“Climate change – From science to policy to application”</i></p> <p>Panel session on ways to advocate the use of integrated space technology applications at the international and national levels as a way to contribute to the implementation of the Paris climate change agreement in the context of systematic observations:</p> <ul style="list-style-type: none"> • Institutionalizing the use of integrated space-based applications in mitigation, adaptation, loss and damage and mitigation; <p>Franz Pretenthaler, JOANNEUM RESEARCH, Austria Soumya Bandyopadhyay, ISRO , India Lincoln Muniz Alves, INPE, Brazil Francis Ohemeng, Irrigation Development Authority, Ghana Olayiwola Agoro, Federal Ministry of Science and Technology, Nigeria</p>	Moderator: Otto Koudelka
10:40 – 11:10	Coffee Break	
11:10 – 12:10	<p align="center">PLENARY SESSION 5 [20']</p> <p align="center"><i>“Capacity building and Information Management for Climate change applications”</i></p> <p>Discussions concerning how to use existing and innovative IT applications in capacity building efforts on the use of integrated space technology applications in climate change.</p> <p>Jiancheng Shi, State Key Laboratory of Remote Sensing Science, Chinese Academy of Science, <i>Observing Earth's water cycle from space</i></p> <p>Todisoa Manakasina, Ministry of Environment, Ecology and Forest, Madagascar, <i>Application and enhancement of Global Forest Watch 2.0</i></p> <p>Muhammad Malik, SUPARCO, <i>Improving Land Surface Model simulations via advancements in parameterizations and assimilations of satellite-retrieved estimates</i></p>	Moderator: Juan Carlos Villagrán
12:10 – 13:10	Lunch Break and Discussions	

Wednesday 14 September 2016 - continued

TIME	ACTIVITY	Lead/Moderator
13:10 – 13:30	PLENARY SESSION 6: “Future Trends” [20’] Cristina Cerioni / Mr. Bruce Clarke / Ms. Melissa Mirino, ISU, <i>Sensing Progress: Space Solutions for Climate Change and Food Security</i>	Moderator: Daniel García Yárnoz
13:00 – 15:00	Wrap up session Reporting on discussion sessions Distribution of diplomas and USB sticks Summary of the sessions UNISPACE+50 recommendations Closing Remarks	Moderator: Otto Koudelka, Juan Carlos Villagrán
15:30	Transfer to the Hotel End of the Symposium	

*** List of Posters**

Carlene Boodoo, Trinidad and Tobago, *It's My Data!*

Henry Rivera, Ecuadorian Space Institute, *Information for disaster assessment through remote sensing.*

Lincoln Muniz Alves, INPE, *Future climate change in Brazil: progress and challenges towards environmental governance*

Melissa Mirino, ISU, *Southern Hemisphere Space Studies Program (2016) Stratospheric Satellite Project: The Water and Food Security in Relation to Climate Change*

Rodrigo Alejandro Arroyo Hernandez, Chilean Weather Office, *Chilean Weather Service Satellite Network: Description, products and current updating.*