United Nations / Austria / European Space Agency
Symposium on
Space Applications for Sustainable Development to Support
The Plan of Implementation of
The World Summit on Sustainable Development

SPACE TOOLS AND SOLUTIONS FOR MONITORING THE
ATMOSPHERE AND LAND COVER

9-12 September 2008

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

Hosted by the Austrian Federal Ministry for European and International Affairs,
Federal Ministry for Transport, Innovation and Technology,
State of Styria and City of Graz
And co-sponsored by the European Space Agency
Honorary Committee (in alphabetical order):

H. Böck  Head of the Department for International Organizations  Federal Ministry for European and International Affairs, Austria
H. Haubold  Office for Outer Space Affairs, United Nations
K. Edlinger-Ploder  Member of the Government, State of Styria, Austria
S. Nagl  Mayor, City of Graz, Austria
M. Othman  Director, Office for Outer Space Affairs, United Nations
I. Schädler  Deputy Director General, Federal Ministry for Transport, Innovation and Technology, Austria
M-E. De Vel  European Space Agency, France
F. Voves  Governor, State of Styria, Austria
M. Wegscheider  Member of the Government, State of Styria, Austria

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G. Agbaje  National Space Research and Development Agency (NASRDA), Nigeria
W. Balogh  Office for Outer Space Affairs, United Nations
H. Böck  Federal Ministry for European and International Affairs  (Chairman of the Programme Committee)
L. Canturk  Office for Outer Space Affairs, United Nations
H. Haubold  Office for Outer Space Affairs, United Nations
J. Higgins  National Aeronautics and Space Administration, United States of America
T. Eisingerich  Federal Ministry for European and International Affairs
A. Kleinsasser  Federal Ministry for Transport, Innovation and Technology, Austria
O. Koudelka  Joanneum Research and Graz University of Technology, Austria
J. Ortner  EURISY, France
W. Riedler  Austrian Academy of Sciences, Austria

Local Organizing Committee (in alphabetical order):

A. Fuchs-Fehringer  Graz Tourism
A. Edler  Joanneum Research
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O. Koudelka  Joanneum Research
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A. Rupprecht  State of Styria
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Tuesday, 9 September 2008

Morning

09:00 Opening session
Master of Ceremony: Willibald Riedler, Austrian Academy of Sciences

09:05 Opening Ceremony

Opening Remark
Willibald Riedler, Austrian Academy of Sciences

Welcome Remarks
- Wolfgang Baumjohann, Austrian Academy of Sciences
- Otto Koudelka, Joanneum Research
- Siegfried Nagl, City of Graz
- Christa Kranzl (Ms.), Federal Ministry for Transport, Innovation and Technology
- Mazlan Othman (Ms.), United Nations Office for Outer Space Affairs

10:15 NASA Video on the 15th Anniversary of the Symposia

10:25 15th Anniversary
Coffee/tea break

11:00 Keynote Addresses

Chairperson: Otto Koudelka, Austria
Rapporteur: Ahmed Zegrar, Algeria

11:05 A Benefit Assessment of GEOSS: Results from the Geo-Bene project
Steffen Fritz, International Institute for Applied Systems Analysis

11:35 Vulnerable Mountains from Space
Harald Egerer, United Nations Environment Programme (UNEP)

12:05 Coffee/Tea Break

11:00-12:30 Press Conference
(by invitation)

12:25 Lunch
**Afternoon**

14:00 **Objectives of the 2008 Symposium and Review of the 2007 Symposium**  
Chairperson: Sevda Ibrahimova (Ms.), Azerbaijan  
Rapporteur: Md. Atiar Rahman, Bangladesh

14:05 Objectives and Organization of the Symposium  
Mazlan Othman (Ms.), United Nations Office for Outer Space Affairs  
Levent Canturk, United Nations Office for Outer Space Affairs

14:30 2007 UN Graz Symposium: Review  
Sundar Christopher, University of Alabama in Huntsville, United States

15:00 **Global and Regional Initiatives**  
Chairperson: Larysa Areshkina (Ms.), Belarus  
Rapporteur: Andrea Ferraz Young (Ms.), Brazil

15:05 Contribution of Global Monitoring of Environment and Security (GMES) for monitoring Land Cover and atmosphere  
Josiane Masson (Ms.), GMES Bureau

15:30 PROMOTE Project  
Eleni Paliouras (Ms.)  
German Aerospace Center (DLR)  
German Remote Sensing Data Center (DFD)  
Climate and Atmospheric Products (KA)

16:00 Coffee/Tea Break

16:30 Presentations by participants

Present Status of NEPAL on Space Tools for Sustainable Development  
Rajendra Kumar Manandhar, Ministry of Environment, Science & Technology, Nepal

Integration of Remotely Sensed Data Into a Geographical Information System of Soil Resources  
Diana Hanganu (Ms.), National Research and Development Institute for Soil Science, Agrochemistry and Environmental Protection (ICPA-Bucuresti)

Satellite Applications in Aerosol and Glacier Monitoring in Pakistan  
Badar Ghauri, Pakistan Space and Upper Atmosphere Research Commission (SUPARCO)

Monitoring Land Cover Changes in the Arab Region Using High Temporal Resolution NDVI Time Series Images  
Ghaleb Faour, National Council for Scientific Research of Lebanon

Measuring Impacts of Urban Growth on Urban Travel and Implications for Air Quality: Canadian Case  
Ying Zhang (Ms.), Canada Centre for Remote Sensing
Concept of Space System For Global Radio Occultation Monitoring of Lower Atmosphere and Ionosphere Based On Super-Small Satellites With GLONASS/GPS Navigation Signal Receivers

Proposal for the Establishment of a Centre of Data Excellence

18:00 Transfer

19:30 Reception by the Governor of the State of Styria

Valery Vishnyakov, Russian Institute of Space Device Engineering (FUSUE “RISDE”)

Mumba Dauti Kampengele, National Institute for Scientific and Industrial Research, Zambia

Weißer Saal
Wednesday, 10 September 2008

Morning

09:00  **Overview of Earth Observations, Satellite Applications, and Atmospheric Monitoring**
Chairperson: Rosario Alfaro (Ms.), Costa Rica
Rapporteur: Pier Carlo Sandei, UNEP

09:05  Climate Change Monitoring From Space
   Hartmut Grassl, Max-Planck-Institute for Meteorology, Hamburg, Germany

09:30  Earth Observations for Air Quality and Land Applications
   Amy Huff (Ms.), Battelle Memorial Institute, United States

Overview of Earth Observations: Principles of Satellite Remote Sensing and Applications to Particulate Matter Air Quality
   Sundar Christopher, University of Alabama in Huntsville, United States

10:20  Coffee/Tea Break

Agriculture, Land and Rural Development

10:40  Experiences of Mapping Land Use/Land Cover and Deriving Trends Over the Vast West African Region
   Gray Tappan, U.S. Geological Survey-EROS (Earth Resources Observation and Science Center)

Introduction to the Rapid Land Cover Mapper Tool

11:00  Presentations by participants

Monitoring Land Cover in Interests of an Agriculture with Use of the Remote-sensed Data
   Larysa Areshkina (Ms.), United Institute of Informatics Problems of the National Academy of Sciences of Belarus

Capacity Building for Sustainable Agriculture Development in Cambodia
   Nhean Choch, Ministry of Agriculture, Forestry and Fisheries, Cambodia

Space Tools and Solutions for Monitoring the Atmosphere and Land Cover for Rural Development Projects: Geo-Spatial Technology Processes and Application Models
   Madhava Rao Vasala, National Institute of Rural Development (Ministry of Rural Development), India

Multitemporal Analysis of the Urban Growth of the City of Sapucai, Paraguay
   Silvia Barbara Burgos Sosa (Ms.), Paraguaian Institute for Environmental Protection (IPPA)

Environmental Risks and Social Dissimilarities: Facing the Challenges of Global Changes in the Baixada Santista Metropolitan Region (Brazil)
   Andrea Ferraz Young, Population Studies Centre, Brasil

12:00  Lunch
Afternoon

13:30  **Interactions Between Atmosphere and Agriculture, Particularly in Developing Countries**  
*Chairperson: Choch Nhean, Cambodia*  
*Rapporteur: Ying Zhang (Ms.), Canada*

13:35  Mountains as early indicators of Climate Change-The role of space technologies on monitoring our changing climate  
*Pier Carlo Sandei, United Nations Environment Programme (UNEP)*

14:00  Land Cover Contextual Classification Using Space Imagery for Wetland and Forest Monitoring  
*Mykhailo Popov, National Academy of Sciences of Ukraine / Scientific Centre for Aerospace research of the Earth (CASRE)*

14:25  Land Cover/Land Use Change and Vulnerability  
*Marco Leidel  
Z_GIS Centre for Geoinformatics, Salzburg University, Austria*

14:50  **Coffee/Tea Break**

15:10  Presentations by participants:

- Spatial Variability of Soil Properties on Kame Field of Poznan Lakeland  
  *Hussam H.M. Husein, General Commision for Scientific Agricultural Research, Syria*

- Variability of Atmospheric and Land Surface Biophysical Parameters Retrieved Using Satellite Based Measurements over India  
  *Raghavendra Pratap Singh, Space Applications Centre (ISRO) India*

- GIS Technology for Dynamic Monitoring Land Cover/Land Use Changes for all of Azerbaijan Using High Resolution Space Images  
  *Sevda Ibrahimova (Ms.), National Aerospace Agency of Azerbaijan*

- Land Cover and Environmental Hazards; Satellite Remote Sensing Approach and Solutions in Bangladesh  
  *Atiar Rahman, Bangladesh Space Research and Remote Sensing Organization (SPARRSO)*

- Challenges of Obtaining Land Use Data Using Conventioanal Methods: Opportunities for Remote Sensing  
  *Mphete Tongwane, Lesotho Meteorological Services, Agricultural Meteorology*

- The Utilization of Remote Sensing and GIS Technology in Various Applications for Sustainable Development in Malaysia  
  *Azman Ahmad, Malaysian Remote Sensing Agency  
  Ministry of Science, Technology and Innovation (MOSTI)*

17:00  **Transfer**

17:30  **Visit of the Armoury "Landeszeughaus" (15th century)**

19:00  **Reception by the Mayor of Graz**  
*City Hall, Old Town Graz*
Thursday, 11 September 2008

Morning

09:00  Space Tools and Solutions for Combating Drought and Desertification
       Chairperson: Silvia Barbara Burgos Sosa (Ms.), Paraguay
       Rapporteur: Madhava Rao Vasala, India

09:05  Forest Monitoring
       Manuela Hirschmugl (Ms.), Joanneum Research, Austria

09:30  Operational Drought Monitoring
       with METOP-ASCAT and ENVISAT-ASAR
       Stefan Hasenauer, Institute of Photogrammetry and Remote Sensing (IPF), Vienna University of Technology (TU Wien)

09:55  Topographic correction of satellite images for improved LULC classification in Mountainous areas
       Petra Füreder (Ms.), Z_GIS Centre for Geoinformatics, Salzburg University, Austria

10:20  Satellite Based Data Communication and Dissemination
       Otto Koudelka, Joanneum Research, Austria

10:40  Coffee/Tea Break

11:00  Presentations by participants:

       Spatial Analysis of Forest Regeneration Post Fire in Algeria By Using High Spatial Images Resolution and GIS
       Ahmed Zegrar, Centre of Spaces Techniques, Algeria

       Integrating Remote Sensing Data and Energy Balance Modeling for Detection of Drought and its Publication in the Internet
       Adi Witono, Indonesian National Institute of Aeronautic and Space (LAPAN)

       The Flush Flood Guidance System for Central America: A useful Tool to Improve Flash Flood Warnings and Alerts
       Rosario Alfaro, Instituto Meteorologico Nacional of Costa Rica

       RS/GIS Multi-criteria Zoning of 200,00 ha Land Area for Detailed Feasibility Study, Survey and Design of 5,000 ha for Irrigation Project
       Francis Danquah Ohemeng, Irrigation Development Authority (IDA), Ghana

12:00  Lunch
Afternoon

13:30 **Education, Training and Institutional Capacity Building**

Interactive Training on Satellite Tools and Applications (Theme: Air Quality and Land)
Trainers: Sundar Christopher, Amy Huff (Ms.)

13:35 Hands-on training session features data access and image analysis techniques and use of relevant resources to convey the benefits and challenges of using space-based tools in assessing land changes and air quality events

*All participants*

13:50 Coffee/Tea Break in between

16:40 Discussion
Participants discuss the training activities, their approaches, and the benefits and challenges to accessing data and using space-based tools

*All participants*

17.30 Transfer

18:30 Reception at the Brewery Puntigam

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Friday, 12 September 2008

Morning

9:00 **Education, Training and Institutional Capacity Building**
Follow-Up Activities and Working Group Meetings
Chairperson: Valery Vishnyakov, Russian Federation
Rapporteur: Anusha Rashanthie Warnasooriya (Ms.), Sri Lanka

09:05 United Nations-affiliated Regional Centres for Space Science and Technology Education (Brazil/Mexico, India, Morocco, Nigeria, Education Curricula)

*Levent Canturk, United Nations Office for Outer Space Affairs*

09:30 Preparation of Working Group Splinter Meetings

- Working Group 1: Training and Capacity Building
  Chairperson: Amy Huff (Ms.)

- Working Group 2: Availability and Use of Data & Tools for Atmosphere and Land Cover Monitoring
  Chairperson: Sundar Christopher

*All participants*

10:15 Coffee/Tea Break

10:35 Working Group Splinter Meetings

*All participants*

12:00 Lunch
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<th>Time</th>
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<tr>
<td>12:00-</td>
<td>Informal consultations of the Working Group Chairpersons and Rapporteurs over lunch break to finalise the Working Group presentations, including Working Group conclusions and recommendations</td>
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| 13:30 | Conclusions and Recommendations of the Symposium  
**Chairperson:** Raghavendra Pratap Singh, India |
| 13:35 | Working Group presentations  
**Working Group Spokespersons**|
|       | Followed by Discussion:  
- Approval of Symposium conclusions and recommendations  
- Feedback to Symposium organizers |
| 15.20 | Coffee/Tea Break |
| 15:20 | Closing Ceremony  
**Master of Ceremony:** Willibald Riedler, Austrian Academy of Sciences  
- Distribution of Certificates and Closing Remarks  
  - Willibald Riedler, Austrian Academy of Sciences  
  - Levent Canturk, United Nations Office for Outer Space Affairs |
| 16.30 | Transfer to the Hotel and end of Symposium |