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 FOR MONITORING AIR POLLUTION AND
ENERGY USE FOR SUSTAINABLE DEVELOPMENT

12-15 September 2006
Austrian Academy of Sciences, Institute for Space Research
Schmiedlstraße 6, Graz, Austria

Hosted by the Austrian Federal Ministry for Foreign Affairs,
Federal Ministry for Transport, Innovation and Technology,
State of Styria and City of Graz
and co-sponsored by the European Space Agency

12 - 15 September 2006
Honorary Committee (in alphabetical order):

- H. Böck: Ambassador, Federal Ministry for Foreign Affairs, Austria
- S. Camacho: Director, 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
- I. Schädler: Deputy Director General, Federal Ministry for Transport, Innovation and Technology, Austria
- F. Voves: Governor, State of Styria, Austria
- M. Wegscheider: Member of the Government, State of Styria, Austria

Programme Committee (in alphabetical order):

- E. Ackerler: Federal Ministry for Transport, Innovation and Technology, Austria
- H. Böck: Federal Ministry for Foreign Affairs, Austria
- J. Bruston: EURISY, France
- S. Camacho: Office for Outer Space Affairs, United Nations, (Chairman)
- M-E. De Vel: European Space Agency, France
- S. Gadimova: 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
- A. Kleinsasser: Federal Ministry for Transport, Innovation and Technology, Austria
- O. Koudelka: Joanneum Research and Graz University of Technology, Austria
- P. Martinez: South African Astronomical Observatory, South Africa
- W. Riedler: Austrian Academy of Sciences, Austria

Local Organizing Committee (in alphabetical order):

- A. Fuchs-Fehringer: Graz Tourism
- A. Jud: Joanneum Research
- G. Haubenhofer: City of Graz
- O. Koudelka: Joanneum Research
- B. Reisenberger: Joanneum Research
- W. Riedler: Austrian Academy of Sciences, (Chairman)
- A. Rupprecht: State of Styria

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Tuesday, 12 September 2006

Morning

09:00  Opening session

Master of Ceremony: W. Riedler, Austrian Academy of Sciences

09:10-10:00  Opening Ceremony

Welcome / Opening Remarks
- W. Riedler, Austrian Academy of Sciences
- W. Baumjohann, Austrian Academy of Sciences
- H. Böck, Federal Ministry for Foreign Affairs
- A. Kleinsasser (Ms.), Federal Ministry for Transport, Innovation and Technology
- K. Edlinger-Ploder (Ms.), State of Styria
- P. Piffi-Percevic, City of Graz
- M.-E. De Vel (Ms.), European Space Agency
- S. Camacho, United Nations Office for Outer Space Affairs

Objectives of the Symposium  H. Böck, Federal Ministry for Foreign Affairs / S. Camacho, United Nations Office for Outer Space Affairs

10:00  Keynote addresses

Chairperson: S. Gadimova (Ms.), United Nations Office for Outer Space Affairs
Rapporteur: T. Peralta (Ms.), The Philippines

10:00  Space applications to monitor the impact of energy generation and use on air pollution  Lawrence Friedl, National Aeronautics and Space Administration, United States of America

10:30  European contribution to the Global Earth Observation System of Systems (GEOSS) in the context of the Framework Programme of Community Research  Pascal Le Grand, European Commission, Belgium

11:00-11:30  Coffee/Tea break

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

1 Music: ARS MUSICA TRIO, University of Music and Dramatic Arts, Graz, Austria
11:30 Air pollution and energy use: a challenge for sustainable development
Chairperson: D. Rugbere (Ms.), Nigeria
Rapporteur: C.E. Mansilla Mejia, Guatemala

11:35 Combating air pollution resulting from energy use in Asia
Thi Kim Oanh Nguyen (Ms), Thailand

11:55 Impact of air pollution caused by energy use on public health: a case from Mongolia
Tugsbayar Sundui, Mongolia

12:15 Lunch

Afternoon
13:30 Air pollution and energy use: a challenge for sustainable development (continued)
Chairperson: D. Rugbere (Ms.), Nigeria
Rapporteur: C.E. Mansilla Mejia, Guatemala

13:35 Data needs for monitoring energy use and its impact on air pollution
Françoise Mukaklisa (Ms.), Rwanda

13:55 Energy production: a global overview
Cedric Philbert, France

14:15 Climate Change, Energy and Greenhouse Gas Emission Assessment
Katia Simeonova (Ms.), Germany

14:35 Questions and answers

15:00 Coffee/Tea break

15:20 Discussion:
All participants

- The uses of the demonstrated capabilities of space technology to support the actions called for in the Plan of Implementation of the World Summit on Sustainable Development related to monitoring air pollution and energy production and use

17:00 Transfer

17:45 Guided Tour through the Old Town of Graz

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

Wednesday, 13 September 2006

Morning
09:00 Space applications for exploration and production of energy
Chairperson: O. Koudelka, Austria
Rapporteur: S. K. Prabotosari, Indonesia

09:05 Challenges associated with the use of space
Joseph Akinyede, Nigeria
applications for monitoring air pollution resulting from energy use, production and generation

09:25 Use of renewable energy resources in developing countries  Deborah Rugbere (Ms.), Nigeria

09:45 Spin-offs of space technology for energy generation: solar, wind and wave energy generation  Lawrence Friedl, United States of America

10:05 Systems Analysis for Policy  Sten Nilsson and Michael Obersteiner, Austria

10:25 A digital Earth framework for regional autonomy in energy supply  Josef Strobl, Austria

10:45 Coffee/Tea break

11:05 Discussion:  All participants
  o Low-cost space-based technologies and informational resources available for addressing air pollution and energy use

12:00 Lunch

Afternoon

13:30 Addressing the impact of energy use on air pollution using space applications  
Chairperson: M. Schardt, Austria  
Rapporteur: A. Randrianarivony, Madagascar

13:35 Aerosol climatology over India and radiative implications: initiatives under ISRO geosphere biosphere programme  Krishnamoorthy Krishna, India

13:55 Challenges in the use of space applications for monitoring air pollution: experience from Pakistan  Badar Munir Khan Ghauri, Pakistan

14:15 Challenges in monitoring air pollution: experience from Cambodia  Rithirak Long, Cambodia

14:35 Questions and answers

15:00 Coffee/Tea break

15:20 Discussion:  All participants
  o The strategy for including space technology based tools and information in the decision-making process in monitoring air pollution and energy use

18:30 Transfer

19:00 Reception by the Mayor of Graz  City Hall, Old Town Graz
Thursday, 14 September 2006

Morning
09:00  **Remote sensing for monitoring sources of air pollution in urban and rural areas**  
*Chairperson: L. Beckel, Austria*
*Rapporteur: T. M. Dang, Viet Nam*

09:05  Industrial and household energy consumption and air pollution in developing countries: a case from Georgia  
*Nino Lazashvili (Ms.), Georgia*

09:25  Household energy consumption and air pollution in developing countries: data and information needs of decision makers  
*Teresita Peralta (Ms.), The Philippines*

09:45  Air pollution from lignite-based electricity generation: a case study from Kosovo  
*Nezakete Hakaj (Ms.), Bosnia and Herzegovina*

10:05  Air pollution forecasting system from country to urban scale implemented in Romania  
*Michaela Caian (Ms.), Romania*

10:30  **Coffee/Tea break**

10:50  **Discussion:**  
*All participants*

12:00  **Lunch**

Afternoon
13:30  **Affordable space technologies and information resources for addressing air pollution and energy use**  
*Chairperson: Lawrence Friedl, United States of America*
*Rapporteur: Ajwad Musthafa, Maldives*

13:35  Remote sensing based methods for the inventory of woody biomass  
*Mathias Schardt, Austria*

14:55  Affordable space-based telecommunications for monitoring air pollution and energy use  
*Otto Koudelka, Austria*

14:35  Dissemination of space-based information related to air pollution and energy use to rural population: experience from India  
*Madhava Rao Vasala, India*

14:15  Education opportunities in space applications: UN-affiliated regional centres for space science and technology education  
*Sharafat Gadimova (Ms.), United Nations Office for Outer Space Affairs*

15:00  **Coffee/Tea break**
15:20 Discussion: All participants
   o Type and level of training required in using space technologies for addressing air pollution and energy use and production

17:30 Transfer
18:00 Reception at the Brewery Puntigam

Friday, 15 September 2006

Morning
9:00 Enhancing participation of women in decision-making related to monitoring air pollution and energy use

Panel discussion to be moderated by All participants
   o Patience Owa Ogod (Ms.), Nigeria
   o Adetunji Adeleke, Nigeria
Panel members:
   o Nezakete Hakaj (Ms.), Bosnia and Herzegovina
   o Bouchra Dahri (Ms.), Morocco
   o Erdenetsetseg Radnaabazar (Ms.), Mongolia
   o Sharafat Gadimova (Ms.), United Nations Office for Outer Space Affairs

10:30 Coffee/Tea break

10:50 Informal discussions/drafting of session reports and recommendations in groups lead by chairs of sessions
   Chairperson: S. Camacho, United Nations Office for Outer Space Affairs

Organization of work

11:00 – 12:00 Informal consultations of the chairpersons Chairpersons in cooperation with interested participants
12:00 – 12:00 Preparation of the reports by the chairpersons of the sessions
12:00 Lunch

Afternoon
13:30 Conclusions and recommendations of the Symposium
   Chairperson: S. Camacho, United Nations Office for Outer Space Affairs

Reports by the chairpersons All participants

Discussion:
   o Assess the practical benefits of the follow-up actions resulting from the symposium and its contribution to the Plan of Implementation of the World Summit on Sustainable Development

Conclusions and recommendations
15:00  Coffee/Tea break

15:20  Closing ceremony

Master of ceremony: W. Riedler, Austrian Academy of Sciences

Closing remarks

- A. Kleinsasser (Ms.), Federal Ministry for Transport, Innovation and Technology
- H. Böck, Federal Ministry for Foreign Affairs
- M.-E. De Vel (Ms.), European Space Agency
- S. Camacho, United Nations Office for Outer Space Affairs

16:30  Transfer to the Hotel