

**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):

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A. Jud Joanneum Research
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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 Remarks¹

- *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. Piffel-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	<i>Deborah Rugbere (Ms.), Nigeria</i>
09:45	Spin-offs of space technology for energy generation: solar, wind and wave energy generation	<i>Lawrence Friedl, United States of America</i>
10:05	Systems Analysis for Policy	<i>Sten Nilsson and Michael Obersteiner, Austria</i>
10:25	A digital Earth framework for regional autonomy in energy supply	<i>Josef Strobl, Austria</i>
10:45	<i>Coffee/Tea break</i>	
11:05	Discussion: <ul style="list-style-type: none"> ○ Low-cost space-based technologies and informational resources available for addressing air pollution and energy use 	<i>All participants</i>
12:00	<i>Lunch</i>	
<i>Afternoon</i>		
13:30	<u>Addressing the impact of energy use on air pollution using space applications</u> <i>Chairperson: M. Schardt, Austria</i> <i>Rapporteur: A. Randrianarivony, Madagascar</i>	
13:35	Aerosol climatology over India and radiative implications: initiatives under ISRO geosphere biosphere programme	<i>Krishnamoorthy Krishna, India</i>
13:55	Challenges in the use of space applications for monitoring air pollution: experience from Pakistan	<i>Badar Munir Khan Ghauri, Pakistan</i>
14:15	Challenges in monitoring air pollution: experience from Cambodia	<i>Rithirak Long, Cambodia</i>
14:35	Questions and answers	
15:00	<i>Coffee/Tea break</i>	
15:20	Discussion: <ul style="list-style-type: none"> ○ The strategy for including space technology based tools and information in the decision-making process in monitoring air pollution and energy use 	<i>All participants</i>
18:30	<i>Transfer</i>	
19:00	<i>Reception by the Mayor of Graz</i>	<i>City Hall, Old Town Graz</i>

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*
- A functional partnership that could be established in order to promote the use of space technologies for monitoring air pollution and energy use and production
- 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*

- 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

- *Patience Owa Ogodo (Ms.), Nigeria*
- *Adetunji Adeleke, Nigeria*

Panel members:

- *Nezakete Hakaj (Ms.), Bosnia and Herzegovina*
- *Bouchra Dahri (Ms.), Morocco*
- *Erdenetsetseg Radnaabazar (Ms.), Mongolia*
- *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*

- *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:

- *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*