

SPACE SOLUTIONS TO EARTH'S GLOBAL CHALLENGES

First Announcement and Call for Papers

12TH ISU ANNUAL INTERNATIONAL SYMPOSIUM

20th - 22nd February 2008, ISU Central Campus, Strasbourg, France

*«To see the Earth as it truly is, small and blue and beautiful in that eternal
silence where it floats, is to see ourselves as riders on the Earth together...»*

(Archibald MacLeish)

Scope of the Symposium

In each academic year the International Space University (ISU) organizes a three-day symposium at its Central Campus in Strasbourg on a topical theme. Our previous symposia have addressed subjects as diverse as commercialization of the International Space Station, small satellite design and applications, and future navigation systems. At our 10th Annual Symposium in late 2005, we posed the set of questions 'Space Exploration: Who, What, When, Where, Why?' since exploration of the solar system had become, by then, the most exciting topic on the space agenda. Building on the success of that event, our most recent symposium in early 2007 took the title 'Why the Moon?' and focused attention on our nearest neighbor recognizing the central role it occupies in the program plans of the main space-faring nations.

Our 12th Annual Symposium in early 2008, proclaimed by the United Nations as The International Year of Planet Earth, will emphasize the benefits of the space program for society. This time we are asking the question 'How can space address Earth's global challenges in the 21st century?'. In this context 'space' can be interpreted in a wide sense encompassing observations of our home planet and more distant worlds by human and robotic missions as well as the technologies developed in support of these programs.

As for Earth's global challenges, we think first of areas where knowledge and technology gained from space are most directly transferable in addressing issues such as climate change and environmental degradation, or im-

pending energy crises and resource depletion. But there are many other potential problems facing our planet, even threatening the very survival of our civilization, if we look at the darker prophecies of scientists such as Lord Rees ('Our Final Century') or James Lovelock ('The Revenge of Gaia'). On the other hand, a more positive view of our future prospects can be found in recent books by William Burroughs ('The Survival Imperative: Using Space to Protect Earth') and by Charles Cockell ('Space on Earth: Saving our World by Seeking Others').

Professor Cockell, himself an alumnus of ISU's Summer Session Program, makes the point that "Many environmentalists think going into space detracts from solving problems here on Earth. Many astrophysicists feel environmentalism hampers their exploration and settlement of space. Actually environmentalism and space exploration have one and the same objective: to ensure humanity has a home". He calls for a fusion of the two movements as the only way forward – and it is that theme that we want to explore at our 12th Annual Symposium. Our objective is to attract members of both the environmental and space communities which, though sometimes seen as being at cross purposes, may well offer different yet complementary solutions to global challenges that we all face.

Participants will include members of agencies, industry and academia, plus enthusiasts and students with interests in space activities, in global problems of Earth's environment, energy and resources, and especially the links among them. ■

- 5: Cleaning Up Our Own Act - 'Green Space'
6: Where Do We Go from Here?

Presentations selected from abstracts received in response to this Call for Papers will each be allocated 15 minutes followed by 5 minutes for questions. At the end of each session attention will be drawn to the associated Posters and a Panel Discussion will provide further opportunities for questions and for interaction by the session participants. The Poster Session will be held on the first evening in conjunction with a Reception and posters will then be displayed throughout the following two days. All sessions will be plenary and in English, and will take place in ISU's Boeing Auditorium, with capacity for 250 participants.

Symposium Structure

Following the Welcome and Keynote Address, Session 1 on the first morning will present a series of case studies by leading experts describing how space is already playing a role in tackling global problems for our home planet. Subsequent half-day sessions will address the potential of the space program to contribute further to solving current and projected future problems.

- 1: Where Are We Now?
- 2: Looking Earthward
- 3: Moving Outward
- 4: Using Space Technology 'Back Home' on our Toughest Challenges

KEY DATES

- ♦ CALL FOR PAPERS
FRIDAY, 27 JULY 2007
- ♦ DEADLINE FOR ABSTRACTS
FRIDAY, 5 OCTOBER 2007

- ♦ NOTIFICATION TO AUTHORS
Wednesday, 31 October 2007
- ♦ PRELIMINARY PROGRAM ISSUE
Friday 7 December 2007

- ♦ EARLY REGISTRATION DEADLINE
Friday, 25 January 2008
- ♦ SYMPOSIUM
Wednesday 20 - Friday 22
February 2008

Program Outline and Call for Papers

We invite you to submit an abstract of up to 500 words for any of the sessions below. Please include the title with the authors' names, affiliations and contact addresses and send it to symposium12@isu.isunet.edu by 5 Oct 2007 also indicating for which session it is proposed, or tell us if it is intended as a poster. You will be notified by 31 October as to whether your contribution has been accepted for oral presentation or offered a place as a poster and further instructions to authors will be provided later in the year.

■ WEDNESDAY, 20 FEBRUARY

♦ WELCOME AND KEYNOTE ADDRESS

Following a welcome by ISU's President and an introduction to the Symposium by the Program Chair, the Keynote Address will set the scene for the sessions that follow.

♦ SESSION #1: WHERE ARE WE NOW?

Recognizing a problem is the first step to solving it. In this session we will invite leading experts to describe the main global challenges that we face and the extent to which space missions and technologies are currently playing a part in addressing them. Major areas to be covered here include climate change, sustainable development, natural and other disasters, energy, security, transport and communications, health, resource depletion, and the threat of asteroid impact.

♦ SESSION #2: LOOKING EARTHWARD

We are all aware of the main contributions that Earth-orbiting spacecraft make to our daily lives - but are we doing enough? Should there be some change in priorities to place more emphasis on tackling Earth's problems before setting off to colonize the Moon and planets. In this session we invite abstracts for papers describing how more might be done in the coming decades to ensure that the space program continues to directly benefit humankind 'back home' in communications, navigation, meteorology, disaster mitigation or other major areas of application.

♦ POSTER VIEWING & SYMPOSIUM RECEPTION IN THE EVENING

■ THURSDAY, 21 FEBRUARY

♦ SESSION #3: MOVING OUTWARD

The first stop on our journey outward beyond Earth orbit is the Moon where some space advocates claim there are solutions a plenty to be exploited. In this session we would like to hear from those who feel strongly that this is the case – or from those who don't, since differing views and debate are strongly encouraged in all sessions. Then, from the Moon, we venture further. This session provides an opportunity for contributors to describe how scientific results from space missions may offer solutions to problems 'down here' through improved understanding of planets and their atmospheres, minor bodies, the Sun, and worlds beyond the solar system.

♦ SESSION #4: USING SPACE TECHNOLOGY 'BACK HOME' ON OUR TOUGHEST CHALLENGES

In this session we would like to hear about space technologies that might be used, directly or indirectly, in efforts to make this world a better place. We prefer to look ahead to what could be accomplished in coming decades rather than simply presenting well-established space applications or areas of technology transfer. Furthermore we would prefer to focus on the major global challenges here rather than minor improvements to quality of life. For example, how realistic are concepts for harnessing solar power, or potential uses of closed loop life support systems, improved materials, or other projected advances in space engineering, medicine and technology? What about space-based schemes to combat global warming, or to defend the Earth by deviating threatening asteroids? Let's hear about such concepts and reactions to them.

♦ SYMPOSIUM CONCERT AND DINNER IN THE EVENING

■ FRIDAY, 22 FEBRUARY

♦ SESSION #5: CLEANING UP OUR OWN ACT - 'GREEN SPACE'

Are we in the space community doing enough to ensure that our activities do not harm the environments in which we operate? In particular, we think of various areas where we might be charged with irresponsibility relating to orbital debris, weapons in space or, closer to 'home', pollution of the stratosphere associated with projected fleets of suborbital transport. Given the record of the human species here on Earth, do future explorers and settlers have the moral right to mine the Moon or asteroids, or attempt to terraform other planets? Contributions are invited addressing such issues from technical, social, ethical or other perspectives.

♦ SESSION #6: WHERE DO WE GO FROM HERE?

At ISU's last Symposium a lively debate took place on how to project the positive aspects of space to the public, best summed up in the phrase 'What do we tell the taxi driver?' In other words, given limited time to put across our views, how do we convince others of the usefulness of our missions. In this session we will return to education and outreach issues, this time in the context of the links between space activities and the health of our world and its inhabitants. Can space activities, through the images and knowledge they provide, shift the thinking of vast numbers of humans so we might better protect and preserve our home and allow us to ride together on this «small and blue and beautiful» planet as MacLeish so eloquently described it?

♦ CLOSING SESSION (ENDS AT 1700)

Further Information

REGISTRATION FEE (PRELIMINARY)

Before the deadline of 25 January 2008, the 'early-bird' registration fee will be 500 EUR with further reductions for students, ISU alumni and affiliates. Further details will follow in the Preliminary Program in early December 2007. The fee includes:

- Access to all conference facilities during the Symposium.
- Transport to/from the city center.
- Welcome reception, lunches and refreshments over the three days.
- Symposium Dinner and Concert.
- Book of abstracts.
- CD ROM containing papers and presentations.



ISU LOCATION

The ISU Central Campus is located in the Parc d'Innovation at Illkirch-Graffenstaden, in the southern part of Strasbourg Urban Community. It is about 30 minutes from the city center by public transport. Full details of how to get to ISU appear at <http://www.isunet.edu/>.



ACCOMMODATION

ISU has made block bookings at preferential rates at a number of local hotels as listed at our Web site. For a complete list of Strasbourg hotels, contact the local tourist office:

Tel: +33 (0)3 88 52 28 28
Fax: +33 (0)3 88 52 28 29
<http://www.strasbourg.com>

Updated Symposium information will appear in the coming months at <http://www.isunet.edu/> or e-mail us directly at: symposium12@isu.isunet.edu or use ISU contact details at right.

STRASBOURG AND ITS SURROUNDINGS

There will be an opportunity to sample some of the delights of Strasbourg itself on the second evening when all participants are invited to join us at a short concert in a historic church before enjoying Alsatian cuisine at the Symposium Dinner. The city and surrounding region offer a range of attractions to suit all tastes throughout the year. Those who don't already know the region (and those who do!) may well be tempted to extend their stay into the weekend to discover more of its character and charm. Take a look at the tourist office website (<http://www.ot-strasbourg.fr/>) to find more about the many historic and cultural opportunities on offer including the famous cathedral, the 'European district', where many international institutions are based, and many other interesting places to visit while you are here.



PROGRAM COMMITTEE

CHAIR OF PROGRAM COMMITTEE

- ♦ **Walter Peeters**,
ISU Dean

The Program Committee is being established presently and will include recognized experts in the field of space and Earth's environment.

ORGANIZING TEAM

- ♦ **John Farrow**,
*Resident Faculty and
Chair of Organizing Team*
- ♦ **Nadia Repussard**,
*Symposium Logistics
Coordinator*
- ♦ **Caroline Ritter**,
*Coordinator for External
Relations and Development*
- ♦ **Steve Brody**,
*ISU Vice-President, North American
Operations*
- ♦ **Yoshiki Morino**,
ISU Resident Faculty/JAXA
- ♦ **Nikolai Tolyarenko**,
*Director, ISU Masters of Space
Studies*
- ♦ **Jim Burke**,
The Planetary Society
- ♦ **Ian Pryke**,
*Senior Fellow, Center for Aerospace
Policy Research, George Mason
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- ♦ **David Raitt**,
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