

# **The Space Generation Congress 2009: Perspectives from University Students and Young Professionals in the Space Sector**

**The Space Generation Advisory Council**  
in Support of the UN Programme on Space Applications



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# Basic Facts on SGAC



**SGAC is a non-profit organisation that represents 18-35 year olds in international space policy at the United Nations, at agencies, in industry, and in academia**

- **Started as a result of the 1999 UNISPACE III conference**
- **SGAC has had permanent observer status in the UN COPUOS since 2001 and has been a member of the UN Economic and Social Council since 2003**
- **SGAC headquarters are in Vienna, Austria – hosted by the European Space Policy Institute**
- **Over 90 countries are represented by 65 National Points of Contact as of 2009**
- **SGAC has a volunteer network of ~4,000 members**



# Space Generation Congress



- **Held annually in conjunction with the International Astronautical Congress (IAC)**
- **Allows up to 100 of our top, selected members to congregate and network with each other and top space professionals**
- **Speakers from the world's top space organisations and companies address the Congress**
- **Delegates work together on projects to develop recommendations on pertinent space topics**



# Space Generation Congress 2009



- 75 delegates attended from 32 different countries
- 21 delegates were supported by SGAC to attend and additional 10 were IAF Youth Grant winners
- Male to female ratio was balanced: 60% male and 40% female
- Students and young professionals represented a wide spectrum of technical and non-technical space backgrounds
- Topics: Industry, Agency, Climate, Exploration, and Peace



# 2009 SGC Speakers



- **Ambassador Ciro Arevalo – Former Chairman of the UN COPUOS**
- **Berndt Feuerbacher – President of the International Astronautical Federation**
- **Jim Zimmerman – President of the International Space Services**
- **Soon Dal Choi – Founding Director of Satellite Technology Research Center**
- **Ray Williamson – Executive Director of the Secure World Foundation**
- **J.R. Edwards – Senior Business Development Analyst at Lockheed Martin**



# 2009 SGC Projects



**Pre**

- Selected delegates assigned to a project group
  - Preparatory pre-reading distributed
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**Day 1**

- Delegates split into designated groups and meet each other
  - Subject matter experts brief groups
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**Day 2**

- Discussion and brainstorming within groups
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**Day 3**

- Conclusions reached
  - Groups present
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**Post**

- Reports written
- Conclusions presented globally



# Topic: Industry



## Investigation into the Relationship between the Space Industry and the Global Youth

- What are key international workforce issues and how they vary by region
- What is the relationship between the space industry and the global youth and how it can be improved



# Conclusions: Industry



## **Five Global Space Workforce Issues Identified**

- **Lack of recognition by developed countries' employers of developing countries' employee qualifications**
- **Limited visibility/awareness of space careers and opportunities across the globe in developing countries**
- **Perceived cultural barriers across non-Western countries impacting motivation of foreign students to enter into the space sector**
- **Lack of collaboration within the developing regions even where opportunities exist**
- **Limited access to global opportunities due to restrictions in information transfer**



# Conclusions: Industry



## Five Recommendations Identified

- **Develop training programs for post-academia in the developing countries**
- **Raise awareness across the global youth in developing nations through the SGAC National Point of Contacts rather than space sector personnel**
- **Increase space sector's awareness of intercultural differences that impact the global youth's motivation into the sector**
- **Relieve the disconnect between government, industry and youth in different regions developing space programs**
- **Ease restrictions that limit entry into the space sector**



# Topic: Agency



## **Exploring GNSS Applications for Transport Needs & Infrastructure in Developing Nations**

- **How education and outreach tools can be used in order to increase awareness of Global Navigation Satellite Systems' (GNSS) applications**
- **How innovative ways to use this technology can help developing countries through a case study of India's transportation needs**
- **This India case study would be an optimal way to:**
  - **Summarize challenges in an urban transportation area**
  - **Highlight the benefits of GNSS technology in a way to which the public can relate**
  - **Focus on the use of GNSS for helping developing countries advance more quickly**



# Conclusions: Agency



## How GNSS Can Help

- From an urban design and quality of life perspective, the problem is to retain the benefits of the private automobile (particularly those that are driven in places with low automobile densities) while limiting the negative impact
- Examples of GNSS traffic tools include land surveying, traffic flow measurement, and real-time automobile monitoring
- When applied to India's and other countries' troubled transportation systems, benefits from GNSS could include:
  - Diminishing the number of traffic jams
  - Reducing travel time
  - Distributing traffic loads
  - Limiting air pollution
  - Decreasing the number of road accidents



# Topic: Climate



## What It Will Take for Space Technologies to Optimally Aid in Climate Change Mitigation?

- How to raise awareness among the general public and decision makers about the relationship between climate change and space technology
- How space technology can contribute to terrestrial technologies in the climate change mitigation efforts



# Conclusions: Climate



## Conclusions

- **Awareness of climate change is not satisfactory among the public**
- **There is a need to understand and predict in more detail the effects of climate change**
- **Climate change mitigation must be addressed internationally; key to this is global data sharing, which needs proper policies and data standards**
- **Space is not the overall solution to any climate change related problem**
- **Satellite data combined with good surface infrastructure is essential for calibrating climate models and constraining possible, negative, future scenarios**
- **To get proper long-term funding, one must have proper popular support and to get this support the public needs to be made aware of the issue**



# Topic: Exploration



## Developing Awareness to Develop Space Exploration

- How to improve the appreciation of the benefits of space exploration among the general public, decision-makers, and politicians
- How to build this awareness to improve *sustained* space exploration programs



# Conclusions: Exploration



## Recommendations

- Do “market research” of the existing initiatives in space education
- Organise the available web-based information related to space exploration
- Generate an information exchange platform
- Strengthen student-to-student knowledge exchange
- Promote free knowledge
- Promote bottom-up as well as top-down education
- Reinforce traveling education projects
- Create incentives for companies to support people with new ideas
- Develop prizes and competitions as motivational drivers to creativity
- Give space exploration “a face”
- Make space “cool” and break the “space nerd” image



# Topic: Peace



## Peace and Space

- Which issues need to be taken into account when talking about peace and space
- Which key players are involved
- What are the key players' incentives, motivations, and inhibitions



# Conclusions: Peace



## Key Issues to Address in Developing International Cooperation in Space

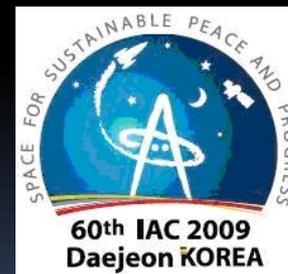
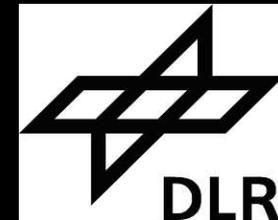
- **DRIVERS OF COOPERATION:** Incentives through cost-sharing, increased level of standardisation, “crowd-sourcing,” potential hi-tech sharing, and value added to security, prediction and, consequently, to peace issues
- **CONSTRAINTS TOWARDS COOPERATION** (issues that need to be overcome): unequal amount of costs and unequal resource sharing, issue of intellectual property, and national security
- **FUTURE COOPERATION PROJECTS** (optimal areas of where to begin): disaster monitoring constellations, medical applications, tele-education, and other projects that address terrestrial challenges



# Partners and Supporters



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(NASA)**



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# Thank You

