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Astronautical  
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# News

*Connecting Space People*

4/2013 (December 2013)



## Message from the President

"Dear colleagues,

Welcome to the December 2013 IAF newsletter. This edition focuses on the exciting news and your stories from the IAC, which took place in Beijing in September. I would like to thank each and every participant for helping to make IAC 2013 a record-breaking week. Over 3 700 Delegates took part and helped to make a hugely memorable event that brought together the global space community in a spirit of cooperation and learning.

We are also delighted to introduce the 34 new members who officially joined the IAF at this year's General Assembly meeting. Here at the IAF we are already hard at work ensuring success and innovation for future IACs, and recently were able to announce that Guadalajara has been chosen as the host city for 2016. Congratulations to Mexico!

Next on the calendar we have the Spring Meetings to look forward to, where technical papers for next year's IAC will be selected. I hope as many of you as possible will be able to join us in Paris for these meetings. This will be followed by the Global Space Applications Conference (GLAC), from 2 – 4 June 2014.

To end our newsletter we have an interview with the Director-General of the Mexican Space Agency, Mr Francisco Javier Mendieta Jiménez, on their recent successful IAC bid and Mexico's space activities.

The newsletter for the first quarter of 2014 will feature updates on GLAC and preparations towards IAC 2014 Toronto. In the meantime, I wish you an excellent end to 2013!"

Kiyoshi Higuchi  
President

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#### MEMBERS' CORNER

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Global Space Applications Conference - 'GLAC 2014'.

##### UPDATE ON IAC 2014

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IAC 2014 Call for Papers

**INTERVIEW** - with Dr Javier Mendieta Jimenez, head of the Mexican Space Agency

#### IN MEMORIAM

#### DEADLINE REMINDERS

##### 16 December:

- Call for Papers for GLAC 2014 closes

##### 10 January 2013:

- Call for Plenaries

##### 5 February 2014, deadline for applications for:

- Emerging Space Leaders Grant Programme.

##### 12 February 2014, deadline for nominations for:

- IAF World Space Award
- Frank J. Malina Astronautics Medal
- Allan D. Emil Memorial Award
- Young Space Leaders Recognition Programme



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## 64<sup>th</sup> International Astronautical Congress - Beijing, September 2013

**Highlights from IAC 2013** (click on image to activate )



**Were you unable to join us in Beijing?**

- Videos from IAC 2013 in Beijing are now on the IAF's YouTube channel at [www.youtube.com/iafastro](http://www.youtube.com/iafastro).
- You can also see all of the photos we took on the IAF's Flickr feed - <http://www.flickr.com/photos/iafastro>

## IAC 2013 BEIJING - NEWS AND EVENTS

### The AIAA at IAC

A delegation of AIAA senior volunteer and staff leadership, including Vigor Yang, Vice President – Publications; Susan Ying, Vice President – International Activities; Sandy Magnus, Executive Director; and Klaus Dannenberg, Deputy Director; attended this year's International Astronautical Congress. Many AIAA members participate in IAC each year but this year provided a great opportunity for the Institute leaders to participate in activities that increased visibility and furthered our international strategy. From hosting an AIAA member reception, to participating on panel discussions, and meeting with Chinese sister societies, the AIAA delegation's days were long ones. During the conference, AIAA and the faculty of the Beijing University of Aeronautics and Astronautics were able to organize an event

that brought together Sandy Magnus and Chinese astronaut Liu Yang. Appearing before an audience of middle, high school, and university students, the astronauts discussed their experiences during their individual space missions. Magnus focused on her time aboard STS-135 and Liu on the Shenzhou-9 mission. Following their discussion, both astronauts fielded audience questions, and then signed autographs for the crowd of future aerospace engineers and scientists. "AIAA was excited to take part in the 64th IAC, as these congresses foster conversations which shape the future of space exploration and development for the sake of all humanity," said Magnus. "We look forward to continuing these valuable conversations next year in Toronto during the 65th IAC, of which AIAA is a supporter."

### Centre National d'Etudes Spatiales

A delegation of CNES scientists, engineers and officials led by agency President Jean-Yves Le Gall attended the 64th IAC. This IAC confirms it has become a must-attend world event for everything to do with space. It offered an excellent balance between institutional meetings and events and sharp technical sessions.

Further, as CNES is putting forward France's candidacy to organize the 69th IAC in 2018, we particularly appreciated the "Hosts Summit" initiative. This premier platform to share experiences and best practices for the implementation of the IAC was a real opportunity of completing our knowledge and expertise from high level experienced representatives.

## The International Institute for Space Law (IISL)

The 56<sup>th</sup> Colloquium on the Law of Outer Space consisted of several sessions organized by the International Institute of Space Law, covering a wide variety of legal issues raised by human space activities. Several were of particular note.

The first session featured the annual Nandasiri Jasentuliyana Keynote Lecture, delivered by Dr. Tare Brisibe, chairman of the UNCOPUOS Legal Subcommittee. On the eve of the 50th anniversary of the Outer Space Treaty, he focused on the next 50 years of lawmaking for space activities.

Also noteworthy was a presentation by Attila Matas of the International Telecommunication Union, discussing the regulation of small satellites. He emphasized that ITU rules also apply to small satellites and their compliance with rules on the use of electromagnetic spectrum is mandatory. This paper was quoted in "Space News" on 27 September.

Additionally, the IISL continued its cooperative efforts with its partners IAF and IAA, by co-organizing two further sessions. The annual IAA/IISL Scientific-Legal Roundtable was held on "Space and the Polar Regions," and a panel on the Legal Framework for Cooperative Space Endeavors was organised by the IISL with the IAF. The IISL was pleased with the excellent arrangements by the LOC for the Beijing IAC!

The World Finals of the 22nd Manfred Lachs Space Law Moot Court Competition were conducted by the IISL in conjunction with the annual IISL Colloquium. Student teams from the University of Pretoria, South Africa, National Law University of Delhi, India, The International Institute of Air and Space Law, Leiden University, The Netherlands, and Georgetown University, Washington, D.C., U.S.A. represented the African, Asia Pacific, European and North American regions in the semi-finals. The hypothetical case concerns legal issues arising out of the operation of a facility on the Moon. Georgetown was declared the winner over Leiden in the Final Round, which was held at the Beijing Institute of Technology and judged by the distinguished panel of Judges Leonid Skotnikov, Xue Hanqin, and Julia Sebutinde of the International Court of Justice in the Hague.

The Moot Court was followed by the traditional IISL awards dinner at the Beijing Noble Club. Included in the festivities were the presentation of the Lifetime Achievement Awards to Dr. Marietta Benkoe, the Distinguished Service Award to Dr. Martha Mejia-Kaiser, and the Award of Appreciation to Mr. Philippe Clerc.

The IISL and its Moot Court Committee would like to thank the local sponsors, the Chinese Society of Astronautics, China Institute of Space Law and Beijing Institute of Technology, for their excellent support. In addition, we are grateful to the sponsors of the regional winners and other sponsors. For details about the competition, see <http://www.iislweb.org/lachsmoot/>

## Women in Aerospace-Europe at the 2013 IAF General Assembly in Beijing



WIA-E is proud to announce its membership of IAF. WIA-E delivered a brief presentation of its aims and goals, in line with standard IAF policy, during the IAF General meeting in Beijing.

WIA-E is the European arm of a global interest and networking group set up in 1985 in United States under the brand name Women in Aerospace, WIA and was established in Europe in 2009. Further national groups are now established in Africa and Canada. Each organisation is a separate entity, and WIA-E is currently the first and only member of IAF.

WIA-E forges alliances with stakeholders across the aerospace sector, from industry to agencies and institutions within Europe, working towards a balanced representation of women at all levels of professionalism and senior management. WIA-E is looking to extend this network further.

Further details of individual and corporate membership are available at <http://wia-europe.org>.

## WIA-E networking breakfast at the IAC

This year's breakfast took place under the sponsorship of one of its corporate members, DLR. Guests listened to the main morning address (this year, IAF Vice President, Andrea Böse, IAF President Kiyoshi Higuchi and Prof Johann-Dietrich Wörner, DLR) and met the young professionals who receive the WIA-E young persons grant to attend IAC.

WIA-E looks forward to collaborating with WIA Canada to continue this morning networking tradition. Join us for breakfast on the Wednesday of IAC 2014.

**Check for more news on our Social Media**





## The Space Generation Advisory Council (SGAC)

SGAC enjoyed another eventful and successful IAC in Beijing this year. Over 120 students and young professionals from 43 nations arrived in Beijing early in order to take part in the 12th annual Space Generation Congress (SGC) ([www.spacegenerationcongress.org](http://www.spacegenerationcongress.org)).

The IAC once again provided excellent exposure for the work of the SGAC, especially at the SGAC Booth, which welcomed hundreds of space professionals to learn more about the next generation activities and visions. SGAC, together with Space Foundation, invited all IAC attendees to our booth for the Next Gen Reception to network in a relaxed atmosphere.

SGAC contributed tremendously to the IAC Programme this year: SGAC members presented more than 40 papers at the technical sessions, participated actively in all the student and young professional activities and satisfied their curiosity around the Exhibition Hall. SGAC hosted the NEO Event at the Global Networking Forum (GNF), with a very high public attendance. SGAC members were also highlighted in many of the panels (Space Outreach, Space Debris, Industry Plenary, etc.) The Executive Director, Andrea Jaime was also an active member of four IAF Committees, and attended the IAF General Assembly together with SGAC Chair, Chris Vasko.



Finally SGAC would like to congratulate this year Young Space Leaders Award Winners, in particular Kat Coderre, Julio Aprea, Jacob Sutherlun and Thu Vu who are very active members of SGAC.

In addition to this hectic week, this year's IAC saw SGAC signing memorandums of understanding with World Space Week Association, Young ESA, Future Space Leaders, QB50 and the Council of Young Ukrainian Space Industry Workers.

SGAC saw many successes at the 2013 IAC, and has high hopes for IAC and SGC 2014 in Toronto.



## Educators Professional Development Workshop

VSSEC conducted a one day workshop for teachers at the Youth Science and Technology Centre of Xicheng, Beijing attended by Chinese and international teachers.

Anne Tweed (McREL) delivered a keynote address outlining the latest findings from research on the five most critical features of effective science teaching.

The participants then took part in four of the primary

school outreach activities which VSSEC runs in Victorian schools. The activities provided concrete examples of each of the five critical features.

A wrap up session to make sense of the day was conducted by Ian Christie (VSSEC) to emphasise the connections between the way VSSEC designs and runs lessons and the findings of the research. It was apparent that teaching practice and professional learning at VSSEC and SSC is at the leading edge of professional practice.





## Young Professionals IPMC Workshop

On September 20, 2013, more than 40 young professionals from government, academia, and industry came together from around the world to engage in a workshop about workforce development and project management. Organised by the IAF's International Project/Programme Management Committee (IPMC) in coordination with the IAF's Workforce Development-Young Professionals Programme Committee (WD-YPP), the workshop focused on the topics of mentorship programmes, exchanges and rotational assignments, knowledge exchange, networking, on the side projects and tools and methodologies for project management.

Delegates participated in pre-workshop sessions through GoToMeeting and collaborated online before attending the workshop, which was held in Beijing, China just before the 2013 International Astronautical Congress (IAC). They shared stories, insights and knowledge about their work experiences, career development and recommendations to help address the various topics. A full report summarizing the results of the workshop will become available in the near future.

ESA Young Professionals were selected to participate in the workshop and attend the IAC. This initiative supported by the Human Resources department was well received by the participants, as Sven Richter points out "The conference provided a high level view on all topics related to space, I think the IAC is one of the best places to update yourself with the latest trends/ideas in space engineering and it gives an excellent overview on what is happening outside ESA and its member states."

The results and recommendations from these discussions will help the IPMC, the IAF's 240 member organizations, and the workshop participants to consider what today's space organisations can do to develop and empower the workforce of tomorrow. What the next steps are for all parties to help improve and promote schemes for the continuing development of young professionals within the space sector, and how this progress can be assessed at future workshops.



ESA YPs with René Oosterlinck (former ESA Director of Navigation)

**From left to right:** Chris Runciman, Anne Pacros, Sven Richter, René Oosterlinck, Birgit Hartman, Giuseppe Ottaviani and Julio Aprea



## Tsinghua University IAF-SUAC International Student Workshop

The International Astronautical Federation in collaboration with Tsinghua University organized the Tsinghua University IAF-SUAC International Student Workshop in conjunction with the 64th International Astronautical Congress, at the Tsinghua University in Beijing, China on Saturday 28 September 2013. About 75 students and professors from all around the world, came together to compete for the best presentation and attend the workshop.



The one-day workshop was divided in 3 sessions headed by five session-chairs: Pierre Rochus, CSL, University of Liège, Belgium, Gangtie Zheng and Hexi Baoyin, Tsinghua University, China, Alfred Ng, Canadian Space Agency, Canada, and Jordi Puig-Suari, California Polytechnic State University, United States. Kiyoshi Higuchi, IAF President opened the workshop highlighting the cooperation between the IAF and the University. Then, Prof. Junfeng Li, Professor and Vice-Dean of the School of Aerospace at Tsinghua University, took the floor to underline the enthusiasm the University had to organize this event. The workshop ended by the award ceremony with the participation of the Chinese Society of Astronautics.

The aim of the workshop was to stimulate students to share their university background, displaying a 15 minutes presentation focused on one of those three following topics:

- Near earth orbit science and exploration projects with space station/lib and satellites,
- Deep space sciences and exploration projects with lunar/mars rover and others,
- Innovation in satellite/spacecraft technologies and applications.

The detailed programme of the workshop is available:

<http://www.iafastro.org/index.php/events/iac/iac-2013/associated-events-and-programme/2013studentworkshop>

The diversity and high-quality of the students' presentations made it very difficult for the judges to rank them. Among them, Xin Chen from Polytechnic University of Madrid, Spain, won the 3rd price, Takahiro Ito, from Osaka University, Japan, won the 2nd price, and Emilien Fabacher, brilliant student from SUPAERO, France, distinguished himself by winning the 1st price of the competition.



*Emilien Fabacher, SUPAERO, France*



*Xin Chen, Polytechnic of Madrid, Spain and Mr. Yang Junhua*



*Takahiro Ito, Osaka Prefecture University, Japan and Mr. Yang Junhua, Secretary General and Vice President of the Chinese Society of Astronautics*



## Young Professionals' Networking Events at the IAC

The Beijing IAC included three Young Professionals Networking Events specifically targeted for the next generation of global space leaders to meet peers as well as senior executives in the international space community.

On Sunday, September 22 prior to the opening of the Congress, the Welcome to Beijing event included talks by Dr. Li Ming the IPC Co-Chair for IAC Beijing and his journey from a student in China to leading this major international space Congress. In addition, Dr. Homa from JAXA, the sponsor of the event, addressed the young professionals with advice for the future.

On Tuesday, September 24, the IAC young professionals were addressed by an excellent panel of senior experts on the Future of Space Exploration. Senior space agency executives, Bill Gerstenmaier from NASA, Thomas Reiter from ESA, Masazumi Miyake from JAXA were joined by space explorers, Fei Junlong from China and Sandy Magnus from the US. Moderated by Kathy Laurini from NASA.

On Wednesday, September 25, the programme for the young professionals focused on Orbital debris, a high profile issue for the world's space community. A varied panel with stimulating discussion of the topic included Heiner Klinkrad, Head of ESA Space Debris Office, European Space Agency, Mr. Brian Weeden, Technical Advisor, Secure World Foundation. Tanja Masson-Zwaan, President IISL, Zhuoyan Lu, SGAC, Muriel Richard, École Polytechnique Fédérale de Lausanne, and Dr. Tetsuo Yasaka, Professor Emeritus, Kyushu University. Moderated by Agnieszka Lukaszczuk.

**The IAF Space Society Committee (SSC)**, together with World Space Week, also organised an event within the GNF entitled "How the public fell back in love with space". A lively debate upon the value of social media, tweetups, outreach and space education was joined by Jan Woerner from DLR,



Andrea Jaime of the SGAC, Remco Timmermans from WSW and on video by Chris Hadfield, former astronaut. It was moderated by Scott Hatton, chair of the SSC. Has the novelty of Facebook and Twitter worn off? Are they simply, these days, just tools in the modern communications armoury? The "jury was out" but the panel had a lot of fun discussing it.

## The IAF Alliance, bringing Space Societies together

*Scott Hatton, Chair, IAF Space Society Committee (SSC)  
Peter Buist, NVR representative at IAF, member of SSC*

At this year's IAC, details of the IAF Alliance concept were discussed at the Space Societies Committee meeting. This committee is dedicated to the development of space societies, professional associations and space museums from around the world - assessing what can be done to strengthen these alliances and share best practices and common interests. As part of this committee, one of the really exciting things we have been working on together for a few years is the 'IAF Alliance' concept. This establishes a series of reciprocal benefits to individuals who belong to participating societies, associations and museums. Amongst many other foreseen benefits, it will enable for members of one society to attend the events of other participating societies. There will also be an exclusive online network for individuals to join.

In Beijing, the British Interplanetary Society (BIS) and the Netherlands Space Society (NVR) agreed on their terms to enter the IAF Alliance and we expect others to join shortly.



*NVR Vice-President Tanja Masson-Zwaan signs an MoU with BIS President, Alistair Scott at the IAC exhibition hall in Beijing*

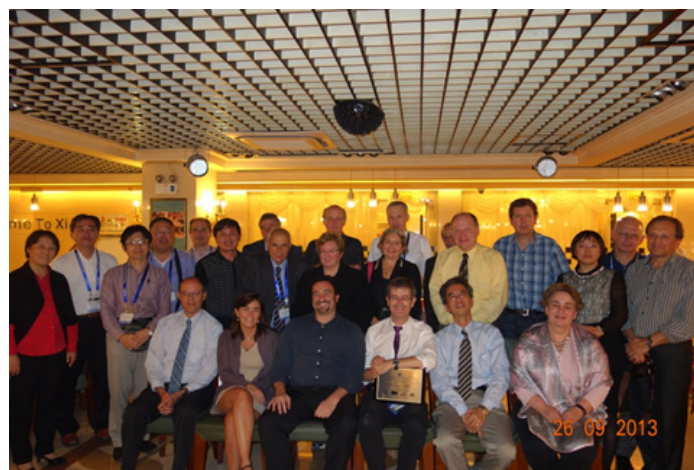


## UN/IAF workshop at the IAC



*Photo: The UN/IAF workshop that took place from 20-22 September.*

## Astrodynamics Committee Perspective



*Astrodynamics Technical Committee Family Portrait with our Keynote Speaker, Dr. Martin Lo*

At IAC 2013 the superb support by the participating committee members resulted in a flawless and successful Astrodynamics Symposium. With extremely low rate of withdrawn papers or no-shows, and very good attendance of the Congress participants, we had 96 high quality presentations given in 9 technical sessions plus the 19th John V. Breakwell Memorial Lecture delivered by Dr. Martin Lo of JPL. His talk entitled "One, two, three, many, ..." was a stimulating lecture on the many bodies problem in the galaxy scale. It is not exaggerating to say that the audience was all fascinated by his talk.

Our committee is fortunate to have a member who is a professor in the Beijing area. She found a restaurant within the walking distance from the conference and we had a wonderful Xinjiang flavor dinner filled with their ethnic entertainment. We also used this occasion to say thanks and to express our appreciation to our members and chairman who completed their terms.

Finally, a kudos to the host and the LOC of IAC Beijing. The venue is perfect for the IAC. It is easily accessible and the facility is well maintained everywhere. To top it off, the LOC staff, conference center staff, as well as the hundreds of student volunteers were all motivated to make sure the event was a success. Everyone left the conference with great satisfaction and hopefully we don't have to wait another 17 years before China hosts another IAC.

## The Propulsion Technical Committee

welcomed six new members at the meeting at the Beijing IAC on 22nd September. One new member is from China and two from India increasing the national representation on the Committee from 11 to 13 nations. The other three new members are female young professionals, representing a fourfold increase in the Committee's female membership. The Committee seeks to foster a homogeneous interchange between experienced members, young professionals and students across a wide international representation and these developments represent encouraging, positive progress.

The nine sessions of the 63rd IAC Propulsion Symposium were well attended and included many interesting presentations and good representation from Asia and China in particular. However about a third of the papers selected for presentation could not be presented. This was disappointing given the challenge of selecting papers from the record number of abstracts submitted. The main reason appeared to be difficulty in approving travel arrangements.

Judging and selection of a winning poster was a welcome new innovation. It may be helpful to let authors selected for a poster presentation know that there will be a competition for the best poster at the time of notification.

## Views on the IAC from Delegates:

*We asked for your short stories from the IAC - Here is a few of them*

**China Head Aerospace Technology Co.** (HEAD Aerospace) participated in its 3rd IAC in Beijing. As an active partner of European space enterprises, HEAD Aerospace exhibited their products and capabilities.

During the congress, there was much to celebrate. Still in the development process, HEAD Aerospace successfully achieved milestone events this time in front of government agencies, IAF members, media, exhibitors and visitors. Thanks to the solid team and hard work, HEAD Aerospace, along with Chinese and foreign space enterprises, established the first international Joint-Lab for space mechanisms, the first international Joint Lab for electric propulsion in China, and hold the ceremonies during the congress.



"Thanks to all the speakers of the plenaries and well-organized technical sessions which paved a path for many unique thoughts in developing and making new platforms for the satellites and space technology. It was a dream come true attending the Voyager lecture of Dr Ed Stone, who is a role-model to space enthusiasts across the globe. I sincerely convey my gratitude to the IAC team for organizing such an incredible event for all the space researchers and wish many more in the future."

**Mohammed Irfan Rashed, Masters student of Aerospace Engineering at Korea Advanced Institute of Science & Technology (KAIST), winner of the IAC 2013 BIS Prize for Best Technical Content Paper.**

"My country, Bolivia, is just entering the space community this year by launching its first satellite in December. The IAC allowed me and my colleagues to get more involved in the sector and gain ideas for future projects we have in mind such as Cubesats, for which we both heard experiences and we had the chance to get in touch with industry delegates for future cooperation. As part of a newly created space agency, we were able to hear from challenges, policies and the importance of the role of agencies from experiences of others. IAC was an inspiration to all of us; we leave Beijing with many ideas, projects and lots of motivation to work for the Space sector start in Bolivia and looking forward to next IAC."

**Kattia Flores Pozo, CAST / Bolivian Space Agency Scholar**

"Participation in the IAC offered unparalleled access and networking with experts in all fields of space science, and some highpoints included the following: Julie Robinson's Highlight Lecture 3 on her "Top 10 Results from the ISS"; Dr. Jeffery Sutton's reflections at the Global Networking Forum on space medicine; the inspiration provided by ALL panelists at the Global Networking Forum on social media and outreach; and the encouraging perspectives noted at the Plenary 4 regarding Women in Space.



Astronauts, such as Leland Melvin and Robert Thirsk, gave personal contributions to share with students, and South Korean educational booth was kind enough to supply rocket model kits for all of my students. Lastly, the IAC provided the opportunity to have ongoing contact with the China Great Wall



Industry Corporation (CGWIL), who launched Ecuador's first satellite, Pegasus, earlier this year. Since returning from the IAC 2013, our students have since participated in World Space Week and several Ecuadorian educators have taken on the challenge of implementing satellite education in their classrooms for the first time. In a nutshell, the objective of promoting space development for the benefits of mankind was reached with astronomical success."

**Margaret Solberg, Teacher, Academia Cotopaxi, Quito - Ecuador**

## "Association of Space Explorers - Networking pays off"

Networking is a proven important part of the International Astronautical Congress, as demonstrated by a chance meeting between John-David Bartoe, a member of the Association of Space Explorers (ASE), with Megan Kane, a member of NanoSatisfi, a small satellite company. ASE, the professional organization of flown astronauts from 37 countries, uses the unique perspective of its members to educate and inspire future generations. NanoSatisfi is a small startup that offers convenient, affordable, on-demand access to satellites. The two met by chance at the Women in Aerospace breakfast, and within two days they reached an agreement in principle to partner on a new educational program. It will give teams of students the opportunity to write software that will collect data from sensors of their choice on nanosatellites owned by NanoSatisfi and launched from the Japanese module of the International Space Station. Without the IAC's extensive networking opportunities, this partnership probably would have never occurred. This was ASE's first year as a member of the International Astronautical Federation, and it has already paid off!

## Shaanxi Engineering Laboratory of Microsatellites (SELM)

of Northwestern Polytechnical University (NPU) was honored to attend this IAC. The exhibition was a great chance to introduce the SELM to the public. QB50 Project is an international network of 50 double CubeSats for multi-point, in-situ, long-duration measurements in the lower thermosphere and for re-entry research. It is sponsored by VKI, ESA, ISIS, TU Delft, SELM, etc. As a mission control center of QB50 Project, SELM hosted the QB50 Asian-workshop to establish a platform for members to communicate and share information on the project. The workshop was very well attended, and afforded a great opportunity to contribute to mutual understanding among members of QB50 in Asia.

"I gave three talks in different sessions and for all of them the reactions about the topics were really helpful. This led me in releasing the talk videos under a free Creative Commons license, so that other people are able to watch them even though they haven't attended the conference. Personally the gathering of space enthusiasts in one big congress is a chance for collaboration even beyond space and tell the public how

space is important and influencing everyone's daily life. This is my way telling them and advocating space and there are much more!"

D3.2 - TYCHO communication satellite demonstrator mission to EML-4: <http://youtu.be/7RJSLEP7yyA>

B4.3 - Distributed Ground Station Network for tracking small satellites: <http://youtu.be/e8KySj2wH64>

E1.8 - SpaceUp unconferences: <http://youtu.be/UZh7FdvRu4c>

**Andreas Horning, AerospaceResearch.net**

"It has been a special pleasure to attend the IAC2013 in Beijing. There were high expectations for this conference and Beijing did not fail to deliver. My personal highlight was the Plenary "Women in Space - A 50-Year Success Story" and Julie Robinson's Highlight Lecture "Top 10 Research Results from International Space Station - How Can We Limit it to so Few?". Also, the exhibition was a suitable space for talks and making contacts. Not to forget about the ultimate attraction of a forum like the IAC which is to meet friends and partners and renew important contact. It was highly valuable to exchange opinions, collect new insights and gain a wider horizon on space matters. IAC2013 for me personally as well as the GoTaikonauts! team has been a big success."

**Jacqueline Myrrhe, Germany**

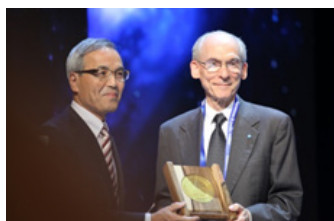
Beijing congress area seen from the Pleiades Satellite



credit CNES 2013



## IAF Awards at IAC 2013



The Opening Ceremony saw the IAF World Space Award presented to Dr Edward C. Stone, by IAF President Kiyoshi Higuchi, after a speech by Mr Greg Hamilton and Mr Frank Morring from Aviation Week Magazine.



The the Allan D Emil Memorial Award was then presented to Dr Ma Xingrui for his foundational work in the Chinese space programme over three decades.

## IAC 2013 Closing Ceremony – 27 September



The Frank J. Malina Astronautics Medal was presented to Dr John M. Logsdon. Dr Logsdon is receiving the award for his outstanding contributions to space policy decision-making, space history, policy analysis, and education.



The Luigi G. Napolitano Award, presented annually to a young scientist who contributed significantly to the advancement of aerospace science and gives a paper at the IAF Congress on such a contribution, was presented to Sreeja Nag.

The Young Space Leaders Julio Aprea, Kimberley Clayfield, Kathleen Coderre, Jacob Sutherlun and Trong Thu Vu were then presented with their awards.

<http://www.iafastro.org/index.php/activities/honors-awards/ysl>

## Undergraduate Student Awards:



Association Aeronautique et Astronautique de France Gold award, for his paper "Finding Multiple Sun-Earth Saddle=Pont Flybys for LISA Pathfinder", was awarded to Mr Emilien Fabacher from SUPAERO.



Herman Oberth Silver award, for her paper "New Options for the Mercury Orbit Insertion of Bepicolombo," Ms Anja Schuster from Technisches Universitet Darmstadt.

## Graduate Student Awards:



First prize for his paper "Design Test and Verification of a Miniature Attitude Control System for the Picosatellite UWE-3", was awarded to Mr Florian Reichel from the University of Wuerzburg.



3AF's Silver award, for his paper "End to end Monocular Simultaneous Localization and Mapping System for Planetary Rovers", Mr Abhinav Bajpai from the University of Surrey.

## British Interplanetary Society Prize for best technical paper:

For his paper on "Attitude Determination of Nano-Satellites Using Low-Cost, Quadrant Based Mems Sun Sensors for Creating Unique Sensor Fusion", from the Korea Advanced Institute of Science and Technology, Mr Mohammed Irfan Rashed.

## Hans von Muldau Team Award for the Best Team Project:

For their paper on "Investigation of the Surface Deformation and Dendritic Solidification of Titanium Alloy Melted in Miligravity", please welcome Ms Elena Srina Lupu for the team from the Polytechnic University of Bucharest.



## The Global Networking Forum (GNF) at IAC 2013

### Monday 23<sup>rd</sup> September



#### **Heads of Agencies Press Conference**

The Press Conference kicked off the week of GNF sessions, with a packed room hearing about China's launcher plans amongst other topics. The

heads of the US, Chinese, European and Canadian Space Agencies were present.

<http://www.youtube.com/watch?v=Zh6eytZCLcc>



#### **The needs of the Asian market in terms of satellites operators and launchers: How to respond.**

This round-table discussion saw top industry leaders such as Jean Max Puech

of Ariespace, and Barry Matsumori of SpaceX, discuss the vital need to develop the Asian space market, and the opportunities the region presents.

### Tuesday 24<sup>th</sup> September



#### **How to get the most from working with Chinese space partners**

Dr Ruan Zongze, Vice-President of the China Institute of International Studies, introduced key speakers who addressed issues from their

own perspectives between China and its foreign partners, as well as taking an overview of future opportunities. [http://www.youtube.com/watch?v=dTQ\\_AFJOP\\_A&feature=youtu.be](http://www.youtube.com/watch?v=dTQ_AFJOP_A&feature=youtu.be)

#### **Reception - "Space at ILA Berlin Air Show 2014"**

### Wednesday 25<sup>th</sup> September

#### **Symposium on Space Medicine and Health**

Speakers from both industry and academic research institutes addressed a number of topics that included discussing the prospects for future development of space life science and medical research. <http://www.youtube.com/watch?v=Z0DCUdBfcec>



#### **The Application and International Cooperation of Remote Sensing Satellites**

This event saw the participation of both Chinese and

overseas remote sensing agencies to discuss the future application and international cooperation aspects of remote sensing systems. <http://www.youtube.com/watch?v=IS9RyuhigrM>



#### **Q&A with Sandy Magnus – Former NASA Shuttle and International Space Station Astronaut.**

<http://www.youtube.com/watch?v=hhVKDZnBbVY>

### Thursday 26<sup>th</sup> September

#### **– NEOs and Planetary Defense - Where Do We Stand**

Thursday morning's GNF session included discussions on the development of technologies for deflection of NEOs, mission design, disaster mitigation, and political and policy issues associated with such a mission.

<https://www.youtube.com/watch?v=ekkTnP6pmN4>



#### **Social media and outreach - How the public has fallen back in love with space.**

The IAF Space Societies Committee organised this lively session with a video address from Christ Hadfield.

<http://www.youtube.com/watch?v=HzjsOZRlzyg>

### Friday 27<sup>th</sup> September



#### **Astronauts Outreach Event**

This session included ESA's Christer Fuglesang, JAXA's Chiaki Mukai and Dorin Prunariu, a former Intercosmos astronaut.

[http://www.youtube.com/watch?v=6di\\_MHRFacc](http://www.youtube.com/watch?v=6di_MHRFacc)



#### **Workshop on Space Policy and Law in Asia Pacific**

The final GNF session of the week emphasised co-operation among academic researchers, through the exchange of information and opinions concerning space policies of their regions. Speakers included Tanja Masson-Zwaan, President of the International Institute of Space Law, KR Sridhara Murthi, of Jain University, Motokko Uchitomo, of the University of Tokyo and Olga Volynskaya from Roscosmos.

<http://www.youtube.com/watch?v=bxVtKEgOE8>



## IAC members share their latest news and developments

### Göktürk-2 of Turkey in Orbit

Turkey's first indigenous high resolution earth observation and reconnaissance satellite, Göktürk-2, was launched from China's Jiuquan Satellite Launch Center on 18th of December, 2012 and it was successfully put into sun-synchronous orbit, approximately 686 kilometers above the Earth.

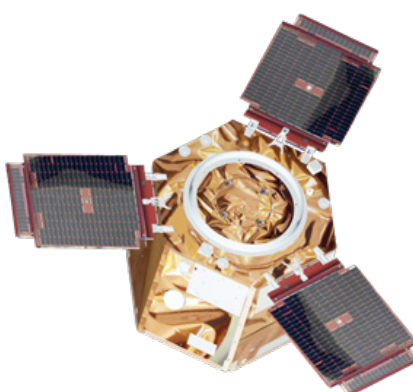
The Göktürk-2 project began on 13 April 2007 upon the signature of the contract. The satellite has been

designed, manufactured, assembled, integrated and tested by cooperation of Turkish Aerospace Industries, Inc. (TAI) and TÜBİTAK Space Technologies Research Institute (TÜBİTAK UZAY) with the coordination of Ministry of National Defense.

The Göktürk-2 satellite, with 2.5 meters of resolution, will be used for the image requirements of the Turkish Armed Forces as well as other institutions that require

satellite images for disasters management, emergency situations, agriculture, transportation and urban development, etc. Göktürk-2 will not be subject to any international limitation in taking images and sending them to the stations.

After the In Orbit Tests (IOT), Göktürk-2 satellite is successfully receiving clear images from all over the world by the operation of Ground Station in Ankara. (Photos credit: TAI)



## Gumus Uzak Savunma Havacılık Ltd. ('GUMUSH') updated us on 2 new products:

### NART-ST

NART-ST is a generic and modular nano-cube satellite structure to perfectly meet your CubeSat design specifications. NART-ST structure family is basically equipped with one to three mono-block cube structure cells with a length of 100 mm. Each cube cell (1U) can be connected with others by 'Link Plates' to build up 1U to 10U platforms with easy assembly-disassembly process to build up your own custom design satellite platforms. NART-ST family is designed and developed by GUMUSH to satisfy related ESA Standards.

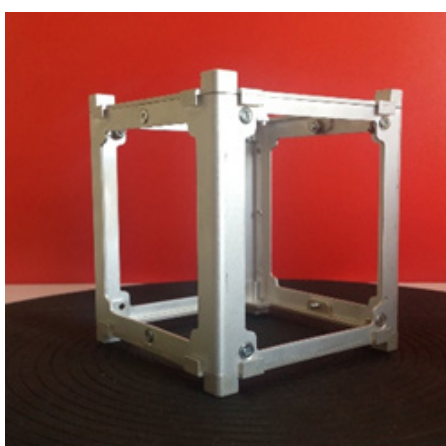


Figure 1: NART-ST 1U



Figure 3: NART-ST 3U



## NART-EPS

NART-EPS Electric Power Subsystem (EPS) provides superior life cycle, depth of discharge, efficiency and reliability. NART-EPS provides 3 individual high efficient MPPT's to supply the CubeSat. The wide input range of the MPPT allows developers to use different solar cell configurations on their CubeSat or another non-standard spacecraft. Software configurable output modes have the ability to charge various battery and super capacitors. Super capacitors provide far better life-cycle and robust thermal operating envelope compared to popular battery options. High efficient converters can supply 3,3 and 5V power bus, with output capability limited to standard bus connector current capacity



Figure 4: NART-EPS

with low-ripple, high accuracy and fast transient response. Power bus is monitored and controlled continuously by analogue and digital circuits and accessible via data bus. NART-EPS has



Figure 5: NART-EPS with Super-Capacitors

different options for development and flight models, allowing users to conveniently develop and launch their satellite on a cost and time effective manner.

## The Australian National University Advanced Instrumentation and Technology Centre (AITC) to host Australian Space and Spatial Innovation Partnership

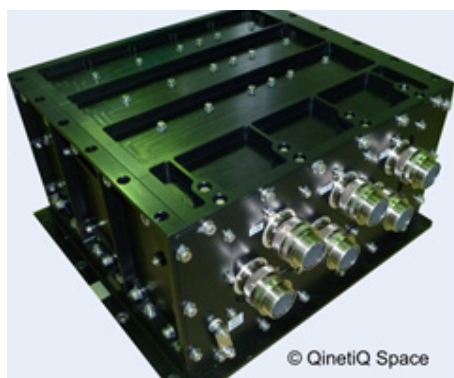
On the 29th August, the Australian Minister responsible for Space Activities, announced \$6 million for an Australian Space and Spatial Innovation Partnership. The Partnership brings together industry, government, defence, research and education organisations to increase Australia's competitiveness in the global space market. The Partnership will

be headquartered in Canberra at the ANU Advanced Instrumentation and Technology Centre (AITC) with nodes in other states. By leveraging Australian expertise and linking capability across the full value chain from precision engineering, to data management and storage, and finally to the development of products and services, the Partnership

will provides critical support for a broad range of strategic industries including mining, agriculture, defence, emergency management, communications, transport and more.

<http://rsaa.anu.edu.au/news-events/news/anu-hosts-space-innovation-partnership>

## QinetiQ Space - Intermediate eXperimental Vehicle On-Board Computer



The Intermediate eXperimental Vehicle (IXV) project tackles the atmospheric re-entry, identified as a cornerstone technology in view of European programmatic objectives. As part of this prestigious end-to-end European mission, QinetiQ Space NV (Belgium) was selected for supplying the On-Board Computer (OBC). In the past QinetiQ Space has delivered various high-reliable advanced data and power management systems for integration into the Proba satellite family. Based on this huge experience, QinetiQ Space developed in-house the On-Board Computer, led the manufacturing and performed the testing. After a successful environmental

campaign, the OBC was delivered well ahead of schedule, to the consortium led by Thales Alenia Space (Italy). The On-Board Computer is now being integrated smoothly, together with the other electronic equipment, into the avionics bay of the IXV vehicle. The project is well on its way, thanks to a timely delivery of the OBC, to a launch with VEGA in 2014. Thanks to its ingenious design, it allows for fast and optimal spacecraft design and a consequent reduction in development time and cost. This makes the OBC very suitable for other spacecraft integrators as well and it is therefore also sold as a separate product by QinetiQ Space.

## GMV - First use of EGNOS in civil aviation



October 17 was a red-letter day for air navigation in Spain. Santander airport (Parayas) became the first in Spain's AENA network (Air Navigation and Airports Authority) authorized to use the European satellite system EGNOS. For the first time ever in Spain an aircraft fitted with the necessary technology will be able to land at an airport using the European satellite navigation system EGNOS. This represents a far-reaching advance in terms of safety, operability and cost-saving, especially for regional airlines and general aviation. GMV has played a key role right from the start of the EGNOS program, participating actively in the phases of system design and definition. GMV's main contribution to the EGNOS system has been development of the EGNOS Central Processing Facility Processing Set (CPFPS), often dubbed the "heart" of the EGNOS System since it calculates all the corrections to be sent to users, including the integrity message. GMV has also played an active part in the development of test beds

(System Test Bed), simulators (EGNOS End to End Simulator), analysis and monitoring tools and system qualification tools (such as ASQF- Application Specific Qualification Facility), plus a great number of auxiliary activities.

## GMV - New subsidiary

GMV, multinational technological group, has now set up a new subsidiary in Malaysia as part of its ongoing project of expansion abroad. GMV's steady build-up of business in the area, especially in the aerospace and transport sectors, and also the important clients it has won there, now call for a more stable, on-the-spot presence. The new subsidiary in Kuala Lumpur, Malaysia's biggest city, will enable it to improve its coverage and get to know the Malaysian market better as well as the market of the whole ASEAN region

## UND Spacesuit team showcased in new global test program

The NDX planetary exploration system, designed and built at the University of North Dakota, was recently invited to participate in a new international test series dubbed "World Space Walk 2013." The test series took place in October as a highlight of World Space Week 2013, which this year had the theme of 'Exploring Mars, Discovering Earth'. "It was certainly a great honor to work with an international team on this project," said Pablo de León, an aerospace engineer, faculty member in the Department of Space Studies. De León is director of the UND Human Spaceflight Lab, which is the home of the NDX planetary exploration system, including several spacesuits, a rover and an inflatable habitat. The tests were designed and led by the Austrian Space

Forum, which also provided the mission control center for the test campaign. The 'World Space Walk' spacesuit testers performed agility and mobility tasks wearing the following equipment: the NDX-2 suit developed by the UND Aerospace Human Spaceflight Laboratory; the Aouda.X suit developed by the Austrian Space Forum; and several analog suits at the Mars Desert Research Station in Utah. "We were able to integrate our systems easily and work cooperatively on a scientifically valuable project, learning a lot from each other," said de León. "This test series once again showed that space, and in particular the human exploration of Mars, should be an international venture where we can all benefit from each other's expertise."



## University of North Dakota

**The Department of Space Studies at the University of North Dakota, U.S.A., received the NASA "Johnson Space Center's Certificate of Appreciation" on July 23, 2013 in a special ceremony attended by UND dignitaries, students and alumni. The award was given for 25 years of outstanding leadership in university education in space studies, aerospace workforce development and for accomplishments in interdisciplinary aerospace research. Space Studies is part of the School of Aerospace Sciences and was launched 25 years ago by the school's founder and first dean John D. Odegard. In the 25 years since its inception, Space Studies has educated hundreds of graduates with advanced degrees in space studies. It's also home to a distinguished NASA program that's currently developing an innovative system for space explorers, including a suit, a rover and a habitat. That kind of pioneering work has earned Space Studies an enviable worldwide reputation in space education. "I believe this is the highest non-individual, group award given by Johnson Space Center, and we are indeed very honored and proud to receive this award," said Dr. Santhosh Seelan, current department chair. "Of course an award of this nature for sustained excellence over 25 years is not possible without the dedicated work of all former and current students, former and current faculty and staff, and all the support we have received from various entities within the University of North Dakota."**



## The Space Association at the University of the Western Cape, South Africa presented a Mars Driving Licence to Nomathemba Cynthia Kontyo.

This was to honour her in being a winner in a NASA competition to fly to JPL where she learnt at simulation workshops how to steer Mars rovers. This inspired her to enroll for a B.Sc in Applied Geology. The licence is handed over by Keith Gottschalk, an executive member of the South African Space Association.



## New IAF Members

### Association of Space Explorers



The Association of Space Explorers is the world's professional association of flown astronaut and cosmonauts with members in 35 countries. As a technical and educational association, the mission of ASE is to apply the unique perspective of our members to promote the global benefits of space science, exploration and international cooperation.

<http://www.space-explorers.org/>

### Association Dedicated to Development in Astronautics (ADDA)



The Association was founded in 1959, and currently employs about ten university professors, research engineers and students. The fields of expertise of ADDA through her personnel are studies, designs and manufacturing technologies in the fields of Astronautics, Energy, Aeroacoustics and Information Technology.

<http://www.addastronautica.ro/>

### Cosmoexport Aerospace Research Agency



Cosmoexport Aerospace Research Agency provides its customers with a wide range of services in the aerospace and related high-

tech areas including carrying out the research and development and delivering the elements for creation of ground and space infrastructure.

<http://www.cosmoexport.com/>

### Curtin University



Curtin University is part of the Australian Technology University network and is Western Australia's largest and most multi-cultural university. We have a strong commitment to international engagement with Australia's third largest international student population. Curtin University is a key player in the International Square Kilometre Array (SKA) project through leadership of the Murchison Widefield Array (MWA) pathfinder project.

[www.curtin.edu](http://www.curtin.edu)

### Denel Dynamics: Denel Spaceteq



Denel Spaceteq, a new business unit in Denel Dynamics became operational on the first of July 2013. It will use the IP from DST, the ex-Sunspace staff, and the heritage from work previously done by Houwteq, Sunsat and Sunspace as a solid foundation on which to build an organisation that will continue to develop and build satellite systems for the South African Government and also for International Clients.

<http://www.spaceteq.co.za/home/>

### Desà Engineering srl

Desà Engineering focuses on Design and Production Engineering, with specific regard to primary and secondary structures by means of CAD/CAE including linear and nonlinear static analysis, dynamic analysis, modal analysis, modal analysis and frequency response, fatigue analysis, and vibration-acoustic analysis.

<http://www.desaengineering.it/>



## Dnipropetrovsk National University



Oles Honchar Dnipropetrovsk National University is one of the leading establishments of higher education in Ukraine. It was founded in 1918, and has 63 agreements with higher education institutes and research centers from many countries of Europe, Asia, the USA, and Canada.

<http://www.dnu.dp.ua/en>

## DTU Space, National Space Institute



DTU Space is the driving force of Danish public space activities. The mission of the institute is to conduct research, development, public sector consultancy, education and innovation at the highest international level within the following areas: Earth and space physics, astrophysics and related space technologies.

<http://www.space.dtu.dk/english>

## EMMEPLUS



In the frame of Aerospace Sector, Emmeplus provides assistance and support to prime contractors and operators at secondary levels of the supply chain in its diversified lines of business acquisitions, management, R&D activities and approach to new markets.

<http://www.emmeplus.eu/home>

## Faculty of Aviation and Space Sciences, Necmettin Erbakan University



Academic Education in Aviation, Space Sciences, Aeronautical and Satellite Engineering.

With 12 faculties, 4 institutes, 2 vocational schools, 1 conservatory, coordination offices, 7 applied Research Centers.

<http://www.konya.edu.tr/fakulteler/havacilikuzayfakultesi?lang=en>

## Fisher Institute



The Fisher Institute for Air and Space Strategic Studies is an Israeli NGO, established by the Israeli Air Force Association. Its main objective is to promote public awareness towards air and space issues, to hold conferences, conduct researches and organize educational activities. The Fisher Institute is collaborating with Israeli space agency to organize the International Ilan Ramon space conference, held annually on January. Several scientific experiments by the institute's staff were launched to the international space station. We welcome any cooperation and collaboration by our fellows to the IAF.

<http://www.fisherinstitute.org.il/eng/>

## Future Space Leaders Foundation



The Future Space Leaders Foundation is dedicated to the advancement of career development opportunities for the next generation of space and satellite industry professionals.

<http://www.futurespaceleaders.org/>

## German Aerospace Industries Association



The German Aerospace Industries Association (Bundesverband der Deutschen Luft- und Raumfahrtindustrie e.V. – BDLI) with more than 210 members represents the interests of an industrial sector which, owing to international technology leadership and world-wide success, has become a significant driver of economic growth in Germany.

<http://www.bdli.de/>

## Gumush Aerospace & Defense



Gumus Uzay Savunma Havacılık Ltd. was established in 2012 and is the first pico and nano satellite design (mainly CubeSat and CanSat) and manufacturing private company for academic and civil industrial use in Turkey & Middle East Region. The company is R&D center of satellite subsystems and works over R&D incentives in Turkey.

<http://www.gumush.com.tr/#/>

## Instituto de Geofisica



The Instituto de Geofisica (IG), is a leading Mexican research centre on geomagnetism and paleomagnetism, natural resources, seismology, space sciences and volcanology. It is part of the Universidad Nacional Autonoma de Mexico. Research is carried out on the sun, magnetospheres, high atmosphere, cosmic rays, planetology and space weather.

<http://www.geofisica.unam.mx/>

## Intelligent Materials and Systems Lab, University of Tartu



The main aim of the lab is, by bringing together knowledge from diverse fields of expertise, to develop new materials and their control methods. Exploitation of innovative materials will in turn permit building devices, different and in many ways superior to conventional machines.

<http://www.tuit.ut.ee/164241>

## Iranian Space Agency



The ISA is Iran's governmental space agency. Iran is an active participant in the Asian space race and became an orbital-

launch-capable nation in 2009. Iran is one of the 24 founding members of the United Nations Committee on the Peaceful Uses of Outer Space, which was set up in 1958.

<http://www.isa.ir/>

## Japan Manned Space Systems Corporation (JAMSS)



The principal activities of JAMSS are the operation and utilization support of JEM (Japanese Experiment module "Kibo") / ISS (International Space Station), the Safety and Product Assurance of space systems, Utilization of satellites (such as earth observation, communication and navigation satellites) and promotion of commercial space utilization.

<http://www.jamss.co.jp/en/>

## Kenya National Space Secretariat



The Kenya National Space Secretariat (KNSS) was established by the Government of the Republic of Kenya in 2009 with the objective of creating a central body to advise, co-ordinate and regulate space activities in the country. The secretariat is currently working with stakeholders in the space sector to explore and implement national space programmes to promote sustainable development in Kenya.

## Kyiv Polytechnic Institute (NTUU KPI)



The National Technical University of Ukraine, 'Kyiv Polytechnic Institute' is one of the oldest and largest technical universities in Europe. It was founded in 1898. NTUU KPI is famous for its academic excellence and leading innovative research. NTUU KPI ranks first nationally, and is world recognized in the number of graduate academic and research programs in the top ten in their field. 40 500 students study at 29 University Colleges. NTUU KPI has drawn 1 500 students from all over the world.

Since 2011 the team of researchers and students from NTUU "KPI" have been developing the first in Ukraine 1Unit CubeSat – "Polytan-1".

<http://kpi.ua/en/>



## National Aerospace Educational Centre of Youth, Ukraine



The strategic directions of the Centre's activities are the practical implementation of the Government's youth policy in the aerospace education domain; the creation of favorable conditions for intellectual growth of the young generation, searching and all-round support of talented young people; and the formation of scientific-and-technical elite of Ukraine.

<http://www.unaec.dp.ua/en/>

## PJSC "Elmiz"



ELMIZ is specialized in production of complex electronics, control systems and automation devices for space vehicles, lighting engineering and measuring. Among their projects are "KURS", a navigation complex of "SOYUZ" and "Progress" space vehicles docking with International Space Station; magnetometers; Inertia-less laser navigation systems and radio communication systems.

[www.elmiz.com](http://www.elmiz.com)

## Samara State Aerospace University



Samara State Aerospace University (SSAU) was founded in November 1942, and trains students in the different aspects of rocket and space technologies (design and manufacturing of spacecraft, carrier rockets, engines, radio equipment, materials science etc). More than 700 professors teach about 12000 students at the University.

<http://www.ssau.ru/english/>

## Space Foundation



Founded in 1983, The Space Foundation is a global, nonprofit leader in space awareness activities, educational programs

that bring space into the classroom and major industry events, including the Space Symposium, all in support of our mission "to advance space-related endeavors to inspire, enable and propel humanity."

<http://www.spacefoundation.org/>

## SpaceLand



SpaceLand conducts a range of activities related to microgravity science research & technology innovation as well as preparing people as professional astronaut candidates to fly on microgravity and sub-orbital flights and assist researchers, payload developers and spaceflight providers with mission planning, operations support and flight campaign implementation.

<http://www.spaceland.biz/>

## The State Scientific and Productive Center of National Space Agency of Ukraine('SPCC Pryroda')



"Pryroda" was created in 1992 with the purpose of archiving and distributing remote sensing data and satellite information. The organization gathers, analyzes and generalizes requests of satellite image users, processes, archives and distributes remote sensing (RS) data and satellite information, amongst other activities.

<http://pryroda.biz/about-us/>

## State Enterprise Production Association, 'KYIVPRYLAD'



The enterprise has taken part in the development and production of devices and equipment for Bion, Foton, Interkosmos, Kosmos, Soyuz-TM, Progress, Energiya-Buran, Proton, Gorizont, Ekran, Okean-0, Sich, Alfa ISS, and other programmes. At the same time, the association manufactures production equipment and consumer goods. In the last years, Kyivprylad Industrial Association works upon high technology equipment for power industry.

<http://www.kievpribor.com.ua/>

## STM Turkey



STM Savunma Teknolojileri Mühendislik ve Ticaret A.Ş. was established in 1991, and its main objectives are to provide systems engineering, technical support, project management, technology transfer, logistics support services and to develop necessary software technologies for defence systems. STM has now more than 500 employees.

<http://www.stm.com.tr>

## AMSAT-TR (TAMSAT), the Society of Amateur Satellite Technologies of Turkey



The main purpose of TAMSAT is to advance the design, development and production of communication modules, and operation of small size satellites for research and educational purposes. . TAMSAT organizes trainings and seminars in its fields, in order to increase the number of young people with the basic knowledge and skills on the small satellites.

<http://www.tamsat.org.tr/tr/>

## The Sergei Korolev Space Museum



The S. Korolev Space Museum in Ukraine was established in 1970 in the home city of the Chief Designer of first soviet space systems. The museum's collection numbers more than 10,000 items.

<http://discover-ukraine.info/places/central-ukraine/zhytomyr/338>

## Vishay Precision Group



The Vishay Foil Resistors portfolio comprises products in a variety of resistor configurations and package types to meet the needs of a wide range of applications: discrete resistors and resistor networks in surface mount and through-hole (lead) configurations; customized chip resistor networks; precision trimming potentiometers; and discrete chips for use in hybrid circuits.

<http://www.vishaypg.com/>

## VITO Nv



VITO (Flemish Institute for Technological Research) is a leading European independent research and consultancy centre in the areas of cleantech and sustainable development. VITO's Remote Sensing Department develops and operates new and improved remote sensing systems and produces innovative services and products for end users in the field of vegetation, agriculture, biodiversity and environmental applications.

<http://www.vito.be/VITO/EN/HomepageAdmin/Home/>

## Women in Aerospace Europe



WIA Europe are passionate about expanding women's opportunities for leadership and increasing their visibility in the aerospace sector. WIA-E offers mentoring programmes, awards, grants, training workshops, networking local groups and much more.

<http://wia-europe.org/>





## 2 – 4 June 2014, Paris: The Global Space Applications Conference (GLAC).

Far from being just the organizer of the yearly International Astronautical Congress (IAC), the IAF also organizes a highly successful series of shorter conferences known as the 'Global Series'. They are specialised biennial conferences dealing with a particular topic in space science. The first of these was *GLUC* 2010, the Global Lunar Conference held in Beijing, China, with over 400 papers accepted. This was followed by *GLEX* 2012, the Global Space Exploration Conference in Washington DC, which attracted over 600 participants.

The next in the series is *GLAC 2014*, which will take place from 2 – 4 June in Paris. The conference will bring together the global satellite-based services stakeholder community, including senior representatives of the major space agencies, industry, governments, academia and NGOs. The comprehensive programme will include high-level round tables and technical sessions that will address the most recent achievements in satellite-based applications and explore how industry, politics, and law will help shape the future environment for this exciting domain of astronautics.

GLAC is being organized in partnership with **UNESCO**, home to major scientific projects such as the International Geoscience Programme, the Intergovernmental Oceanographic Commission World Heritage Sites, Biosphere Reserves and Global Geoparks. Cross-cutting themes in UNESCO's scientific work include natural disaster reduction, biodiversity, engineering, science education, climate change and sustainable development developing states. Satellite technology is both fundamental and at the forefront of advances in each of these areas. A number of other international bodies are supporting GLAC, including UNOOSA, ESA, the World Meteorological Office, the Group on Earth Observations, the International Telecommunications Union and the International Institute for Space Law.

The conference will feature **8 different topics, each with up to 3 sessions**. Sessions will include introductory lectures, poster-based presentations and panel discussions. The 8 topics and their coordinators are:

- 1. Integrated satellite-based applications** - Amnon Ginati (ESA) & John M. Horack (Teledyne Brown)
- 2. Legal and regulatory aspects, including management of radio frequency issues** - Yvon Henry (ITU) & Tanja Masson-Zwaan (IISL)
- 3. New services from satellite-based mobile telecommunication and positioning** - Otto Koudelka (Graz University of Technology) & Manfred Wittig (Retired - European Space Agency)

- 4. Services combining satellite-based remote sensing and positioning** - Werner R. Balogh (UNOOSA) & Robert Missotten (Retired - UNESCO)
- 5. Satellite-based observations in the global monitoring of climate changes** - Filipe Duarte Santos (University of Lisbon) & Natarajan Ishwaran (International Center on Space Technologies for Natural and Cultural Heritage)
- 6. Satellite-based services and products in support of disaster management** - Larry Paxton (Johns Hopkins University) & Stuart Marsh (University of Nottingham)
- 7. Solutions for barriers to access to application services, requirements for capacity building and knowledge management** - Brent Smith - National Oceanic and Atmospheric Administration (NOAA) & Mario Hernandez (International Society of Photogrammetry and Remote Sensing)
- 8. Initiatives taken by universities to foster education in satellite-based applications** - Philippe De Maeyer, (Gent University) & Shinichi Nakasuka (Tokyo University)

The conference provides an excellent opportunity to explore cutting-edge satellite-based applications from a holistic viewpoint. We have already received many interesting and thought-provoking abstracts to contribute to what will be a lively scientific debate. In order to give those of you who have not yet submitted an abstract chance to participate, we are extending the deadline for submissions. **The new deadline for abstracts is 18:00 GMT on 16 December.**

The conference will also feature a varied and lively social programme, including evening excursions in Paris, and activities for Accompanying Persons.

Key deadlines in the run-up to GLAC 2014 are as follows:

- 16 December 2013 - Call for Papers closes**
- 15 February 2014 - Paper Acceptance Notification to Authors**
- February 2014 - Online Registration opens**
- 2-4 June 2014 - GLAC 2014**

For any enquiries, please contact Lisa Antoniadis at the IAF Secretariat: [glac2014@iafastro.org](mailto:glac2014@iafastro.org)  
Tel: +33 1 45 67 68 48



## IAC updates for 2014 and 2015

### 65<sup>th</sup> IAC Toronto 2014



The big news story from the Canadian Aeronautics and Space Institute will last a full year: we are preparing for your arrival in Toronto as our guests at IAC 2014 from 29 September through 3 October. CASI has hosted the IAC twice before – 1991 in Montreal and 2004 in Vancouver – and we are eager to welcome everyone to Canada for a third Congress next year!

To launch our year of organizational and promotional activities, we held a reception on the Wednesday evening of the Beijing Congress that was very well-attended and proved to be an excellent networking event. We would like to thank Lockheed Martin Corporation for co-hosting the reception and for taking on their unprecedented role as Industry Anchor Sponsor of IAC 2014.

Several members of the IAC 2014 Local Organizing Committee of IAC 2014 attended the 64th Congress in Beijing, and we would like to heartily congratulate our gracious hosts for a superlative event.

We would like to invite anyone with a question, a concern, or an idea for some special activity while in Toronto for the Congress, to get in touch with us soon. We will be happy to respond to your inquiry promptly and to assist with any arrangements you require to make the very most of your time with us.

More information and updates can be found at [www.iac2014.org](http://www.iac2014.org)



### 66<sup>th</sup> IAC Israel 2015

Message from new Minister of Science, Technology and Space.



MINISTRY OF SCIENCE,  
TECHNOLOGY and SPACE



ISRAEL SPACE AGENCY

### ISRAEL SPACE HERITAGE and PROSPECTS

Space exploration and science are very important to me personally and to the Ministry I represent, the Ministry of Science, Technology and Space.

**Israel Space Agency-ISA** is affiliated with the Ministry of Science, Technology and Space. Our goals are to pursue the following strategic objectives: To promote Israel's national goals for the civilian space industry; to coordinate between the various space exploration entities and industries, and between scientific, academic and commercial communities.

**Israel Space Agency's vision** is set forth in the following manner: *"Space exploration and exploitation is an essential instrument for the protection of life on earth; it is the key to understand the cosmos and planet earth; a leverage for technological advancement; a source and basis for the development of modern economy based on knowledge and excellent scientific human resource."*

**My goal as a Minister** is to emphasize and promote research and development, supporting scientific R&D with feasible economic potential. Within this goal we need to encourage new innovative and unique technologies; produce and manufacture new lines of products; create and establish a new generations of scientists in the field of space science and exploration, and to support and encourage expansion and growth of related space industries.

**The Ministry and ISA's** objectives are to preserve and expand Israel's competitiveness, and to advance and place Israel within the top five leading countries in space science and exploration.

Yaakov Perry  
**Minister of Science, Technology and Space**



## Interview with Dr. Francisco Javier Mendieta Jiménez, Director General of the Agencia Espacial Mexicana (AEM).



### 1. What does it mean for Mexico, and the city of Guadalajara, to host IAC 2016?

Mexico is in a new era regarding space, and the Mexican Space Agency (AEM) will look to contribute to the solution of the great social challenges in matters of competitiveness, education, equity, health, digital inclusion and environmental sustainability. Such challenges will be best met with the application of science and advanced technology, strengthened through the use and exploration of space. AEM is working towards the implementation of efficient mechanisms for the development, appropriation and adaptation of space technologies for the development of solutions for the benefit of the population and the positioning of Mexico in the global space economy.

For all nations, but particularly for the Latin American countries, access to space is a door to progress, new technologies and inspirational science for a region where the young population is a vast majority. But to make the space accessible, it needs to be done in an affordable way, where international collaboration must be the hearth of the inclusion of this region in the space age.

Latin American countries are currently making great efforts in developing their space programs, always searching for collaboration both with advanced countries as well as with developing countries; important results are being observed both in the use of space for tackling their societal challenges as well as in building their space industries.

This is why Mexico proposed to host the IAC2016 under the motto: “Making space accessible and affordable to all countries”. The AEM believes that bringing the IAC in 2016 to this region of the world will contribute positively and give an additional boost to the efforts of involved emerging nations into a new era of international collaboration to solve common problems using space science and technology.

Guadalajara will be provided the opportunity to show why it is called the “Silicon Valley of Mexico” and to show why it is also well-known as the cultural heart of Mexico.

### 2. How will the AEM aim to make IAC 2016 the best ever?

Guadalajara and Mexico both have great experience hosting world-class events. Just to mention two of them: The plenipotentiary meeting from ITU and the Pan-American Olympic Games are examples of Mexican hospitality combined with outstanding service, facilities and cultural offerings. The venue also provides a great value-for-money ratio compared to others.

We have already begun to work toward the IAC 2016 and the main goal of the planning is how to offer the best quality of service, facilities, hotels, food and experiences. We are sure that we will be able to provide an unforgettable week to every one of the IAC Delegates.

### 3. What did you learn from IAC 2013 Beijing about how to hold a successful Congress?

We learned that people and teamwork is the key to success. You need to assemble a group of motivated, hard working and dedicated people such as the team we saw in Beijing, that share the main goal in terms of offering the best response to every request.

Planning and creativity is also a key to be ready for any situation, and being ready to solve any last-minute glitches in order to have a smooth running congress. The experience of past IACs will help us to do this.



## 4. How can the IAC help Mexico to achieve its objectives in space advances?

We truly believe that the IAC will mark a before and after in our efforts to be active part of the space science and technology community. The IAC will help to support the interaction between the Mexican members of the international space community, based on a perspective of international cooperation and support of the regional efforts to be more integrated as a region in order to support solutions and innovation to common problems. The congress will help us to show our capabilities and build trust to support future participation of Mexican scientists and academicians, and also be able to offer grants for Latin-American countries to also support its participation.

## 5. What are the key objectives of Mexico's space sector for the next 5 years?

Based on the vision of the AEM that reads: *"The AEM will be an enabler to allow that Mexico could be a recognized nation in the development and use of space science and technology to improve the quality of life of all Mexicans"* and supported by its Mission Statement to *"Transform Mexico into a country with scientific activities and world-class space technology developments, focused on social needs and articulated to leading edge industrialization programs, contributing to the country's competitiveness"* the AEM has been working on the development of national strategies, supported by the national space policy, to respond to two main challenges:

- Using space science and technology to contribute to solving national social and economic challenges, and generating a positive social impact for the Mexican population.
- Supporting Mexico's economic development by developing innovation, technology transfer and attracting investment.

From this baseline, the vision for 2030 will be to, in summary:

- Develop Mexico to become a significant international space player;
- Develop a space infrastructure built mostly with local capabilities;
- Increase the Mexican population's awareness of the social and economic benefits of space exploitation; The development of human capital;
- Find niche areas of space science in which Mexico can excel on the international stage;
- Contribute actively to space exploration and research.

## In Memoriam

The IAF joins the global space community in expressing its sadness at the passing of Dr Mustapha Masmoudi, who died on September 26 2013. A former Tunisian Secretary of State and Ambassador to UNESCO, Dr Masmoudi was Chairman of the IAF's Africa Regional Group, created in 2011, and a nominee for the IAF 60th Anniversary Award. He was a permanent member of International Astronautical Academy (IAA) since 1995, being a member of the Academy's Social Sciences Section.



Dr Masmoudi received his Doctorate from Université Paris-II, and later specialized in distance learning and tele-education at the University of Quebec. He was energetically involved in the development of space assets in his own country and further afield. Dr Masmoudi founded and became the first chairman of the Tunisian Space Commission in 1984, and was a Tunisian Member of Parliament between 1986 and 1994. He was Chair of the intergovernmental conference on communication development (DEVCOM) and co-founder of the mechanism adopted in this conference (PIDC). He was formerly Chairman of Council of Ministries of Information of Non-Aligned States (1976-1978) and a member of the African Steering Committee NGO for the preparation of WSIS from 2002.

Dr Masmoudi published numerous books on communications challenges and maintained a lifelong academic career as a professor of communication science. The legacy of his work, in particular his efforts towards strengthening information and communication networks for emerging countries and regional coordination and cooperation in Africa, will be enduring.