



## Message from the President

The very successful Spring Meetings in March inaugurate a year which will break all records, starting with the 3 675 abstracts received for the 64<sup>th</sup> IAC. In this issue, you will find the reports of the latest headlines from the IAF Committees that met during this event.

Last January's site visit of the next IAC venue (China National Convention Center, in Beijing) confirmed that the preparation for this most outstanding annual event continues developing smoothly.

Another IAF expanding event, the Global Networking Forum, attracted many participants during the Spring Meetings. I hope this wide interest will continue to rise at the next IAF GNF events this year.

You will also discover the most recent news from IAF members, including many anniversary celebrations and interesting on-going studies.

Finally, a joint interview of two prominent figures of Chinese space organisations emphasizes the importance of the upcoming IAC which will be held in Beijing.

I would like to express my special appreciation to our IAF members and committees for their presence and contribution to this newsletter. Many thanks to all for your contributions and enjoy the reading!

**Mr. Kiyoshi Higuchi**  
President

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#### DEADLINE REMINDERS

##### IAC 2013

- Early Registration before: **15 June**
- Notification call for Authors: **4 September**
- IAC Papers and call for Presentation submissions: **18 September**
- IAC 2013 Regular Registration before: **5 August**

##### IAC 2016

- Deadline for submission of proposals: **26 April 2013**

#### UPCOMING EVENTS

**Paris Airshow** 17-23 June 2013

**EUCASS** 1-5 July 2013 Munich, Germany

**ICASM** 6-10 October 2013 Jerusalem, Israel

**20<sup>th</sup> Young Scientists' Conference on Astronomy and Space Physics** 22-27 April 2013 Kiev, Ukraine



## IAF Global Networking Forum

IAF's Global Networking Forum (GNF), under the motto "Meet. Share. Connect", has been developing fast since its last edition at the IAC 2012 in Naples, Italy. The IAF GNF is expanding outside the IAC frame and is going global, in order to have an even broader possibility to enhance the IAF missions:

- ✓ Encouraging Cooperation
- ✓ Promoting International Development
- ✓ Sharing Knowledge
- ✓ Recognising achievements
- ✓ Raising awareness
- ✓ Preparing the workforce of tomorrow

The GNF represents the best opportunity to accomplish these goals: a flexible platform that can be adapted to each member's wishes is exactly what the IAF needs.

The evolution of the GNF has just been initiated. We are sure that more ideas and more suggestions will arrive once we proceed with the project. We like to imagine the IAF GNF to be a place where in a few years from now everybody would want to be.

It is exactly because of its large scope that we need the help of all IAF community members to create something outstanding. We would like to involve IAF Committees in the organisation of the GNF events and we would like to have suggestions from them for additional events.

## GNF Events for 2013

### IAF Spring Meetings – 19 March 2013

An IAF GNF event on **Human Space Exploration**, comprising two panels, took place in Paris during the past IAF Spring Meetings.

Mr. Higuchi, IAF President, gave the welcome speech, followed by enlightening opening remarks by Mr. Gerstmaier, Associate Administrator for Human Exploration and Operations, NASA. Mr. Dordain, Director General, ESA, contributed with highly interesting concluding remarks. At the panels participated representative of DLR, Mitsubishi Heavy Industries, Sierra Nevada, China Academy of Space Technology, ROSCOSMOS, KARI, and Astrium.

### 29<sup>th</sup> National Space Symposium 8 – 11 April 2013

An IAF GNF event to promote the IAF within the North American space community and to attract new members from the region.

### Paris Airshow 17 – 23 June 2013

An event focusing on Public Outreach, potentially involving astronauts to attract general public and journalists.

### IAC 2013 Beijing 23 – 27 September

An entire week of events and activities is foreseen in an IAF dedicated booth in the centre of the exhibition at the upcoming 64<sup>th</sup> IAC in Beijing.

## IAF Awards and Grants

### Awards

The IAF received two nominations for its **new World Space Award**, two nominations for the **Allan D. Emil Memorial Award** and thirty nominations for the second edition of the **Young Space Leaders Recognition Programme** dedicated to students and young professionals.

The selection took place during the IAF Spring Meetings and will be announced in April 2013 on our website.

The Call for the **Frank J. Malina Astronautics Medal** will open soon.

The Honours and Awards committee decided to create two subcommittees for the selection of recipients of the **IAF Hall of Fame** and the **IAF Fellowship**. It will open the call for nominations for the chairs of these two subcommittees in April 2013.

### Emerging Space Leaders Grant Programme

The IAF received 131 applications from 38 countries all over the world. The distribution is 55 young professionals (42%) and 76 students (58%).

This programme funds up to 12 grants to participate in the 64<sup>th</sup> IAC in Beijing, as well as in the Space Generation Congress and the 2013 UN/IAF Workshop held the week prior to the Congress.

Results will be available on 30 April 2013 on our website.

## 64<sup>th</sup> Call for Papers

In March 2013, the International Programme Committee (IPC) met in Paris at the IAF Spring Meetings to shape the technical programme for IAC 2013. Over the three days, 450 members of the IPC carefully reviewed 3 675 abstract submissions we received, sent in from all over the world.

Given the record number of abstracts received from all over the world (3675), a very challenging selection process was expected. But, thanks to the hard work and commitment of 400 IPC members, all papers were carefully reviewed and 2000+ of the best were selected.

The IAC 2013 will again be the annual most comprehensive event, where all space-related topics will be discussed among all stakeholders worldwide.

## 50<sup>th</sup> STSC UN COPUOS

In February 2013, an IAF delegation attended the 50<sup>th</sup> session of the Scientific and Technical Subcommittee of the United Nations Committee on the Peaceful Uses of Outer Space (UN COPUOS) in Vienna, Austria. An IAF Symposium on Active Orbital Debris Removal was organised on Monday 11 February, following a statement by Mr Kiyoshi Higuchi who presented IAF activities as well as future events and collaborations with UNOOSA and UNESCO. In the evening, an extremely successful cocktail reception with more than 200 guests was hosted by both IAF and Chinese Society of Astronautics (CSA) to present the status of preparations for the 64<sup>th</sup> IAC in Beijing and promote the event among the different delegations.



## National Space Symposium



The IAF this year was present at the main exhibition of the 29<sup>th</sup> National Space Symposium, on 9-11 April, in Colorado Springs. This conference was of high interest to the Federation in order to promote its activities among North America and develop relations with U.S. and Canadian space industry. In this context, IAF hosted a networking breakfast on 11 Thursday April, where existing and potential members of the Federation were able to share thoughts and to network.

### Find out more news on our Social Media

Thanks to the Social Media such as Facebook and Twitter, the IAF is constantly increasing the number of people that it is reaching out to and who show interest in the Federation. On 1 March, the IAF went beyond the symbolic figure of 3000 followers on Facebook.



IAF members from around the globe announce recent news, noteworthy accomplishments, forthcoming events or programmes and other items of interest affecting their organisation.

## CVA's 15<sup>th</sup> Anniversary

This year will see the **CVA (Communauté des Villes Ariane)** celebrating its 15<sup>th</sup> Anniversary. The association, new IAF member, is establishing a special programme of activities in conjunction with the Presidency held by Mulhouse Alsace Agglomération (m2A), with the support of the City of Kourou and the Guiana Space Centre (CSG). This anniversary is an important stage in the life of the CVA, but the association will of course also be looking well beyond that. The Council of Mayors of 19 October 2012, chaired by Jens Böhrnsen, Mayor and President of the Senate of the Free Hanseatic City of Bremen, voted in favour of the CVA Presidency of 2014 being held by Salon-de-Provence and the French Air Force Academy and that of 2015 being held by Kourou in partnership with CNES, the French space agency.

## DGLR's new Board of Directors elected

The convention of **DGLR (German Society for Aeronautics and Astronautics)** Senators has elected a new board of directors for the years 2013 until end of 2015. Former First Vice-President Prof. Rolf Henke (DLR) takes the position of President from Dr. Detelf Müller-Wiesner (EADS). Mrs. Claudia Kessler follows Prof. Henke as First Vice-President. Her position as Director of Finance has been taken over by Heiko Lütjens (Liebherr Aerospace Lindenberg). The other members of the new board of directors are Dr. Cornelia Hillenherms (DLR Cologne), Christoph Hohage (DLR Bonn), Prof. Dr. Mirko Hornung (Bauhaus Luftfahrt), and Prof. Dr. Rainer Walther (MTU Munich).



## EUMETSAT's Launches



At 23:36:07 CEST on **5 July 2012**, **MSG-3** was successfully launched to replace the ageing Meteosat-8 and secure continuity of EUMETSAT operational services from the geostationary orbit. The Meteosat service covers the European and African continents as well as parts of the Atlantic and Indian oceans where tropical

cyclones develop. It also provides input to Numerical Weather Prediction models, complementing those delivered by the polar-orbiting Metop satellites. Meteosat-10 is scheduled to become the prime operational satellite on 21 January after moving to 0°.



**Metop-B:** On **17 September 2012** at 18:28 CEST, Metop-B was successfully launched. Metop-B's role is to ensure continuity of observations from polar orbit which are vital to Numerical Weather Prediction, as well as climate and environmental monitoring. Metop-B is performing well and is on its way to replacing the ageing Metop-A as EUMETSAT's prime operational satellite in polar orbit at the end of April 2013. Once Metop-B is operational, it will be the second European satellite in the Initial Joint Polar System (IIPS) shared by Europe and the USA.

## FFG Summer School Alpbach 2013

Sixty European science and engineering students converge annually for stimulating 10 days of work in Alpbach. Students learn how to approach the design of a satellite mission and explore new, startling ideas. The Summer School is organised by **FFG (Austrian Research Promotion Agency)** and co-sponsored by the European Space Agency (ESA), the International Space Science Institute (ISSI) and the national space authorities of ESA member and cooperating states. The topic of the Summer School Alpbach 2013, held from **16-25 July**, is: "Space Weather: Sciences, Missions, and Systems". The objective is to enable students to design a space mission that would contribute to a better understanding of the science of space weather and to its more effective monitoring for better forecasting systems. Four teams supported by experts will compete to design a space mission each, judged by a jury. The Summer School Alpbach is open to students and graduates from ESA member and cooperating states. More information: [www.summerschoolalpbach.at](http://www.summerschoolalpbach.at)

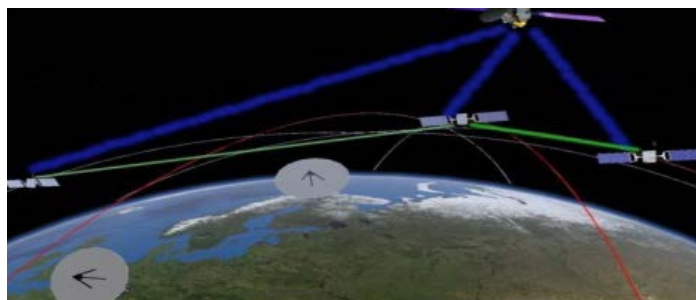
## University of Würzburg (UWE): Huge Grant for Small Satellites



*The original pico-satellite UWE-1 (launched in 2005) carried by Prof. Dr. Klaus Schilling*

One of the highest valued European grants was awarded for the first time to spacecraft engineering: computer scientist Klaus Schilling received a 2.5 million Euro research grant from the European Research Council to investigate innovative technologies for cooperating, distributed pico-satellite networks.

The field of satellite technology seems to face an evolution similar to computers: the mainframe computers of the 70ies have evolved into networks of small computers connected via Internet. "A similar paradigm change might be possible for satellite technology:



*Multiple satellites and ground stations are controlled to cooperate efficiently in an integrated network*

away from the current traditional, large, multifunctional satellites to networked systems of distributed, cooperating pico-satellites", predicts Professor Klaus Schilling from IAF member **University of Würzburg**. Since **March 2013**, his team analyzes and implements interdisciplinary advanced methods from telematics (= *telecommunications* + *automation* + *informatics*). Finally, four **University Würzburg's Experimental** pico-satellites (UWE) will demonstrate such team behavior in-orbit to explore application potential in Earth observation and telecommunications.

More information: [http://www7.informatik.uni-wuerzburg.de/no\\_cache/news/artikel/erc-advanc/](http://www7.informatik.uni-wuerzburg.de/no_cache/news/artikel/erc-advanc/)

## 70<sup>th</sup> Anniversary of the Rocket Research Institute (RRI)

The **Rocket Research Institute, Inc. (RRI)** began seventy years ago on 6 January 1943 as the Southern California Rocket Society. Today, the Institute - which subsequently evolved into a non-profit consulting organisation - is staffed by professionally employed individuals who volunteer their services to guide the development and application of safe and effective space-related motivation and experiential education programs.

The present name, Rocket Research Institute, was adopted by the founding members in 1949 to more clearly define the nature of the organisation and its research programs. Earlier, it had been the Glendale Rocket Society (1943-1946) and the Reaction Research Society (1946-1949). In 1968, the Rocket Research Institute, Inc., became a member of the IAF. Many of the supervised youth rocket and space-related experiential educational activities initiated by the Institute years ago are now common place within the educational student and educator programs of NASA and also of CNES.



## University Space Network

The Universidad Nacional Autonoma de Mexico, through the **University Space Network (RUE)**, organized on **7-11 January 2013** the Course-Workshop Introduction to the Advance Space Propulsion, aimed to researchers and graduate students. There were 46 participants. This course was particularly useful for the attendants, as the current university syllabus of studies related to space technology do not include this topic which is of great importance in the field. The teacher of the course, Dr. Paulo Lozano, is currently Associate Professor of Aeronautics and Astronautics and Associate Director of the Space Propulsion Laboratory of the Massachusetts Institute of Technology. More information: <http://rue.unam.mx/>

## ISA's report on The Eighth Ilan Ramon International Space Conference

The Annual International Ilan Ramon Space Conference, held each year in remembrance of the Colombia Mission tragedy, took place on **29-31 January 2013**, marking its 10<sup>th</sup> Anniversary. Partners to the Conference are the Ramon family, The Fisher Institute for Air & Space Strategic Studies and the **Israel Space Agency (ISA)**, affiliated to the Ministry of Science & Technology. Were participating at the 2013 Conference: International Heads of Space Agencies; senior Israel's Government official; heads of all related space industries, domestic and international; senior scientists; the diplomatic corps, university students and many others. It covered the following subject matters: Space Security; International Space Cooperation; Space Exploration; Space and Science; Space Policy; Space Technology and Industry; The Next Generation: Innovation, Entrepreneurship, and Non-Traditional Space Application.

This year's conference introduced the Round tables event, where dynamic discussions and exchange of ideas took place between distinguished and renowned international lecturers as well



*Head of Space Agencies with: Ministry of Science and Technology, Prof. Daniel Hershkowitz and ESA DG Jean-Jacques Dordain; Mr. Menachem Greenblum; ISA Chairman Prof. Isaac Ben Israel and DG Mr. Menachem Kidron; Mr. Asaf Agmon, CEO Fisher Institute*

as the attending public. It was unique and impressive, as 13 Heads of Space Agencies and delegations participated, including: NASA, ASI, CNES, ESA, Roscosmos, NSO, NKAU, KazKosmos, CSA, JAXA, NSC, DTU Space, and the EU Commission. Also attending were Prof. Berndt Feuerbacher, IAF Past President, jointly with Dr. Christian Feichtinger, IAF Executive Director; Dr. Mazlan Othman,

Deputy Director General UNOOSA; Lt. General Susan J. Helms, 14 Air force Space Strategic Command; Dr. Valerie Neal, Curator, Air and Space Museum Smithsonian Institute, and many other notables. Participating in a corresponding Space Week endeavors—educational and community events were Astronauts from NASA, JAXA, and Kazakhstan.

Conference and its lectures: <http://www.fisherinstitute.org.il/Eng/?CategoryID=7&ArticleID=34&Archive=1>

## University of the Western Cape and South African Space Association

Over one hundred and eighty enthusiastic students launched a chapter of the **South African Space Association** at the **University of the Western Cape**, both IAF members, on **18 February**. The students, supported by academics ranging from the Information Systems to the Political Studies Departments, intend to party with Yurisnight.net. The chapter has started fortnightly star-gazing sessions, with the support of the Physics Department. Workshops to build a model rocket and a cansat are next on their agenda.

## NASA's new Space Technology Mission Directorate

As part of U.S. Administration's recognition of the critical role that space technology will play in enabling both future space missions and bettering life here on Earth, **NASA** Administrator Charles Bolden announced on **21 February** the creation of the new NASA Space Technology Mission Directorate. The directorate will develop the cross-cutting, advanced and pioneering new technologies needed for NASA's current and future missions. "A robust technology development program is vital to reaching new heights in space", NASA Administrator Charles Bolden said. Associate Administrator Michael Gazarik will head the organisation. The

new directorate will employ a portfolio approach, spanning a range of discipline areas and technology readiness levels, and will involve work conducted within NASA centers, in academia, and industry, and leverage collaboration with other government and international partners. NASA's Chief Technologist Mason Peck will continue to serve as the NASA Administrator's principal advisor and advocate on matters concerning agency-wide technology matters. Peck's office will lead NASA's technology transfer and commercialization efforts. It will continue to develop strategic partnerships, manage agency-level competitions and prize activities, as well as document and communicate the societal impacts of the agency's technology efforts. More information: <http://www.nasa.gov/spacetechnology>

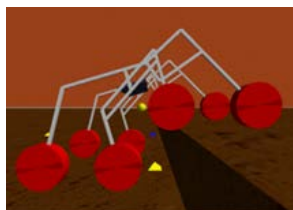
## OA O NPO Energomash

"NPO" Energomash and RSC "Applied Chemistry" continue activities to develop technology to produce new high-performance fuel "acetum" using experimental plant built in 2011-2012. The first experimental lots of acetam have been made. Chemical compound of one of the lots met the required compound. Modes and parameters of operational mode, as well

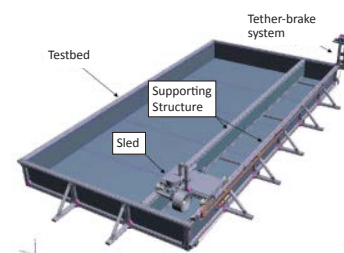
as methods to control concentration of the product produced, are under consideration. The last preparation works to conduct tests to determine physical stability of acetam under environmental conditions are being conducted. At the same time the activities to prepare test stand base with the purpose to conduct hot fire test of demonstration LPRE.

## China HEAD Aerospace Technology Co.

China HEAD successfully support the cooperation between RUAG Space and Shanghai Academy of Spaceflight Technology (SAST). With the support of **China Head Aerospace Technology Co.**, Rover Chassis Evaluation Tool & Test Facility Project, the first collaboration between RUAG Space and Shanghai Academy of Spaceflight Technology (SAST) was successfully established.



The RCET was developed by RUAG Space as prime contractor in the frame of an ESA project (ESA ExoMars project). The RCET tools enable a user to design and develop an efficient and



optimal configuration for a planetary exploration rover as far as the mobility aspect is concerned for a variety of terrains. The design and hardware can be evaluated at wheel level and at rover chassis level. After acquiring ESA's approval, the RCET tool has been updated by RUAG Space teams as per the requirement of China lunar rover mission from SAST. The rover evaluation tool & test facility has been delivered **early 2012**. With the assistance of rover evaluation tool & test facility, it has made a significant progress in qualification test of rover locomotion system. Currently, the system assembly of China lunar rover has been completed and it will be launched in the near future.

## 2013 Space Generation Fusion Forum

The **Space Generation Advisory Council (SGAC)** is proud to announce that the 2013 Space Generation Fusion Forum (SGFF) will take place **7 and 8 April** in Colorado Springs, USA, in conjunction with the 29<sup>th</sup> National Space Symposium. The Fusion Forum is an opportunity for the next generation of leaders in the space sector to come together and exchange views on current space issues. Participants of the SGFF will take part in interactive panels, moderated and attended by current leaders in the

space sector. They will also take part in the Space Foundation's New Generation Leadership Exchange, a networking event with current leaders in the space sector. Fifty participants will be selected for the SGFF, based on their knowledge of one or more of the Fusion Forum topics. The 15-20 top applicants will be invited to serve as young subject matter experts on the three panels. More information: [www.spacegenerationfusionforum.org](http://www.spacegenerationfusionforum.org)



*Participants at the 2012 Space Generation Fusion Forum*

## Inflatable Lunar Habitat Development (University of North Dakota)

The Planetary Exploration Initiative is in development at the **University of North Dakota (UND)**. Students and faculty in the Department of Space Studies, along with other UND departments, are constructing an analog planetary (Moon/Mars) simulation base with an Inflatable Lunar Habitat (ILH), electric rover, and spacesuits. The ILH has been designed so it can be relocated to



*UND planetary rover with attached spacesuits*

any place of research interest, and will support 4 crewmembers for missions up to 30 days. The electric rover and pressurized spacesuits will allow for simulated planetary missions up to 30 km from the base. After initial testing, the Department of Space Studies will open its use to national and international institutions who may be interested in joint research. With this project, the team is developing a comprehensive research program as an analog for long-duration human space missions. More information: [www.human.space.edu](http://www.human.space.edu)

## HE Space

The year 2013 will bring lots of new and exciting challenges for HE Space, inspired by this quote from Peter Diamandis: "The best way to predict the future is to create it yourself". This is what HE Space will try to do again this year. With offices in four locations across Europe and employees in 12 different locations, it wants to grow in all these areas and expand into new ones like the UK. After a very turbulent 2012 – not only for HE Space but for Europe and space programmes in general – 2013 will be more stable and peaceful. The ministerial conference laid out some important directions for HE Space. The cooperation between ESA and NASA on the [Orion crew vehicle](#) not only for the ISS but also for future exploration missions will create a lot of new jobs in Bremen where the European part will be developed. More information: [www.hespace.com](http://www.hespace.com)



*HE Space new logo*

## Brazil's new National Program of Space Activities (2012-2021)

The **Brazilian Space Agency (AEB, in Portuguese acronym)** launched **last November** the new National Program of Space Activities (PNAE), valid for ten years, with the commitment of updating it annually. The document is presented by the Ministry of Science, Technology and Innovation, Marco Antonio Raupp, and by the President of AEB, José Raimundo Braga Coelho. It's the first PNAE (among the three previous ones) that establishes the "industrial progress" as its "highest priority". Accordingly, its most important strategic guidelines are: "Consolidate the Brazilian space industry, by increasing its competitiveness and innovation capacity, also through the use of the States purchasing power and the partnerships with other countries; develop an intensive program of critical technologies in order to foster the capacity building in the space sector, with great participation of academia, S&T governmental institutions and the industry; expand the partnerships with other countries, by prioritizing joint development of technological and industrial projects of mutual interest; and encourage funding of programs based on public and/or private partnerships."

New PNAE on [www.aeb.gov.br](http://www.aeb.gov.br)

## GW's SPI and the SWF Publish Inaugural Guide to Space Law Terms

The Elliott School of **International Affairs' Space Policy Institute (SPI)**, in conjunction with the **Secure World Foundation (SWF)**, published the first guide to space law terms in **December 2012**. Edited by Henry R. Hertzfeld, research professor of space policy and international affairs, the guide is an important initial step to clarifying more than 80 space law words, terms, and phrases. "The project evolved naturally from students' concerns about the breadth and complexity of these terms. Foreign and non-law students especially experienced difficulties navigating space law phrases and words, many of which have no standard definition and can vary widely across contexts. It was our goal to create an accurate, user-friendly guide that addresses the space law vernacular in a variety of settings," said Professor Hertzfeld. The guide outlines seven categories of definitions so that the reader can understand usage in different situations. For example, a variety of approaches to definitions are provided for space law terms and phrases such as: international liability, space object, and space flight participants, among others. SPI and SWF view the publication of this first guide as launching the process to forming an authoritative and comprehensive continuously updated and thoroughly cited guide to space law terminology. This process, as encouraged by Professor Hertzfeld, will be open to all readers and students who wish to provide revisions or commentary.

Book available for downloading in PDF format at <http://www.gwu.edu/~spi/assets/docs/AGuidetoSpaceLawTerms.pdf> or at: [http://swfound.org/media/99172/guide\\_to\\_space\\_law\\_terms.pdf](http://swfound.org/media/99172/guide_to_space_law_terms.pdf)

## Yuzhnoye State Design Office (SDO) Information

- Cyclone-4 launch vehicle Upper Stage propellant prefilling tests passed to satisfaction on Yuzhnoye SDO bench. Such tests were carried out earlier at Russian Federation companies.
- Design documentation was issued on 120 and 200 t liquid-propellant rocket engines. Yuzhnoye SDO has developed about 40 LRE that are used successfully on its rockets.
- In October, the National Academy of Sciences in Ukraine Presidium meeting was held in Kiev with participation of Yuzhnoye SDO. At the meeting, Boris Paton, President of the Academy and Alexander Degtyarev, General Designer-General Director of Yuzhnoye SDO, signed an agreement on scientific and technical cooperation in space rocketry. The priority research trends are defined as follows:
  - general questions under prospective projects;
  - ballistics, aerodynamics and heat transfer;
  - load and structural strength;
  - advanced materials and technologies;
  - solid-propellant and liquid propulsion systems;
  - scientific/special-purpose satellite systems, telemetry measurement systems;
  - control systems;
  - economy and control;
  - history of space rocketry.

NASU operating departments are charged, as of 2013, to forecast the expansion of basic and applied research under their subject plans for R & D in the interests of Ukraine space industry.



*Test of Cyclone*

Двигатель РД 801 (сечение в одной плоскости)



*RD 801*



*Alexander Degtyarev and Boris Paton*

## Google Lunar X PRIZE

With less than three years to go, the race is hotting up for the **Google Lunar X PRIZE**, the \$30 million challenge for a privately funded team to land a robotic rover on the surface of the Moon. Recent months have seen an exciting spate of talks between teams about future partnerships, official mergers and acquisitions, as well as field tests of hardware. In November, Odyssey Moon and SpaceIL announced that they would be working together towards winning the competition under the SpaceIL banner. One month later, Moon Express acquired Rocket City Space Pioneers in a teaming agreement with Dynetics. This doubling up of resources and expertise can only accelerate innovation and achievement in the race to the Moon. Through February, Hungarian Team Puli has been conducting remote tests of its rover's navigation system and solar panels in the Moroccan Sahara desert, controlled from Budapest Town Hall. Team Angelicum will be hosting the annual Team Summit in Santiago, Chile, from **3-5 April**. Representatives of 20 of the 23 teams remaining in the competition will be attending – expect more news to follow. More information: [www.googlelunarxprize.org](http://www.googlelunarxprize.org)



*Team Puli's rover during field tests with the Austrian Space Forum in Morocco.  
Credit: Puli/Katja Zanella-Kux/OeWF*

## The 1<sup>st</sup> COSPAR Symposium

is now open for the abstract submission and exhibition, and will open for early registration on 1 May 2013. GISTDA with NARIT are proud to host the first event of this new series initiated by COSPAR, which is entitled "Planetary Systems of our Sun and other Stars, and the Future of Space Astronomy", from **11-15 November 2013** at Centara Grandat Central Plaza Ladprao Hotel, Bangkok, Thailand. This Symposium will consist of keynote and plenary lectures, solicited and contributed papers, and posters. The scientific program includes seven sessions and a concurrent training program of topics and current issues in space science and astronomy addressed by renowned scientists and astronomers. A Capacity Building Workshop will also take place in Bangkok before the symposium from 4-8 November 2013 for which participants from the Asian region will be selected by application. Young scientists and students are highly encouraged to participate.

More information: [www.cospar2013.gistda.or.th](http://www.cospar2013.gistda.or.th)



## Italian Space Agency (ASI) Activities

**JUICE:** JUICE is the first Large-class mission in ESA's Cosmic Vision 2015–2025 programme. Planned for **launch in 2022** and arrival at Jupiter in 2030, it will spend at least three years making detailed observations of the biggest planet in the Solar System and three of its largest moons, Ganymede, Callisto and Europa. On 21 February 2013, ESA's Science Programme Committee approved a complement of instruments that includes cameras and spectrometers, a laser altimeter and an ice-penetrating radar. The mission will also carry a magnetometer, plasma and particle monitors, and radio science hardware. Italy will provide the high-definition camera JANUS, the Radio Science experiment 3GM, the radar RIME and finally spectrometer MAGIS.

**Luca Parmitano:** Luca Parmitano was selected as an ESA astronaut in May 2009. In February 2011, Parmitano was assigned as a flight engineer to a long duration mission called "Volare" to the International Space Station, scheduled on **May 2013**. He will head into orbit aboard a Soyuz TMA on Expedition 36/37 and will work on the Station for over six months. This will be his first spaceflight and the fifth long-duration mission for an ESA astronaut. The flight opportunity has been provided by Italian Space Agency in agreement with NASA.

## IABG opened new office for space projects in Kazakhstan

**IABG (Germany's Industrieranlagen-Betriebsgesellschaft mbH)** inaugurated on **3 December 2012** its new office in Astana, Kazakhstan. About 70 distinguished guests were welcomed during the opening ceremony, among them high-ranking representatives from politics and business. In its newly opened office, IABG predominantly focuses on space-related projects. Since the launch of the first Kazakh telecommunications satellite, KazSat1, on 18 June 2006 and the founding of the national space agency on 27 March 2007, Kazakhstan has consistently pursued its national space programme. IABG co-operates with Kazakh organisations in several projects and strives to develop that co-operation strategically. In choosing Kazakhstan as a location, IABG consistently continues its strategy of increasing internationalisation.

With its presence in Kazakhstan, IABG will be able to constantly develop the business relations with this country, especially with respect to the space sector. The opening of the new office in Astana was preceded by two years of intensive co-operation between IABG and the Kazakh partner enterprise JSC "Kazakhstan Gharish Sapary (KGS)". The name IABG has been closely linked with the space industry. This is due, among other things, to its Space Test Centre, which is coordinated by the European Space Agency ESA. Many years of experience and the adaptability of its facilities make IABG an ideal partner for demanding product tests.



*Signing of a consulting agreement between IABG and the National Kazakh Space Company – KGS on occasion of the opening of IABG's Representative Office in Astana, Kazakhstan (People represented, left to right, back row: Ambassador of the Federal Republic of Germany in Kazakhstan, Dr. Guido Herz; Chairman of the National Kazakh Space Agency, Professor Talgat A. Musabayev; Managing Partner of IABG, Professor Rudolf F. Schwarz; front row: President KGS, Dr. Gabdullatif Murzakulov; Head of IABG's Space Division, Mr. Stefan Kupczyk)*

## Fifth European Conference for Aero-Space Sciences (EUCASS)

The fifth **Eucass (European Conference for Aero-Space Sciences)** will take place in Munich **1-5 July 2013**. This conference is dedicated to cutting edge innovation and breakthroughs in the enabling sciences and the R&T. The very first issue was held in Moscow (2005), followed by Brussels (2007), Versailles (2009) and St Petersburg (2011). It covers System Integration, Flight Physics, Flight Dynamics, Structures and Materials, and Propulsion Physics. One of its strengths lies in its multidisciplinary character and the cross-fertilization between space and aeronautics activities. It is the very first and the premier conference on the Continent with, this time, 650 papers submitted distributed in 12 parallel sessions over four full days. This year, the conference visits the German air and space heartland, Bavaria. It will be opened by Tom Enders CEO of EADS, Jean-Jacques Dordain Director General of ESA, Johann-Dietrich Woerner Chairman of DLR and other major players from EU and Russia.



*Munich Frauenkirche in front of Alps* - Photo by Reinald Kirchner, CC BY-SA 2.

If you need to know where Europe is going as regards to its R&D programmes and discover the revolutionary ideas that will fly in 20 years hence, join EUCASS in Munich in July.

## The First Austrian Satellites launched into orbit on 25 February 2013

UniBRITE and BRITE-AUSTRIA, a network of Nanosatellites to investigate the properties of the brightest stars, were launched on **25 February** by the Indian Space Research Organization from Sriharikota, India. The satellites were developed by the Institute of Communication Networks and Satellite Communications of the Technical University of Graz, the Institute for Astronomy of the University of Vienna, and the University of Toronto.

BRITE-AUSTRIA and UniBRITE are the first two satellites operated autonomously by AUSTRIA.

BRITE-AUSTRIA is funded by FFG (Austrian Research Promotion Agency) and was built under the responsibility of the Technical University of Graz. The instrument is sensitive to a BLUE wavelength range.

UniBRITE is financed by the University of Vienna and built under the responsibility of the Institute for Astronomy. The instrument of this satellite is sensitive to a RED wavelength range.

Both satellites will be operated from Graz, where a ground station and the operations centre are supported by an additional ground station built at the Technical University Vienna. The two spacecrafts are a 20cm cube with a mass of 7 kg. The inter-disciplinary project was carried out by space experts with strong involvement of diploma and PhD students.

More information: <http://www.tugsat.tugraz.at/>  
[http://www.univie.ac.at/brite-constellation/html/DE/html/brite\\_osterreich.html](http://www.univie.ac.at/brite-constellation/html/DE/html/brite_osterreich.html)

**Should you wish to promote your organisation's latest news towards the 30 000 Newsletter readers, please submit a 200 words text to [newsletter@iafastro.org](mailto:newsletter@iafastro.org)**

**Please note that this service is offered only to IAF members.**

## IAC 2013 Site Visit

From 21 to 25 January 2013, an IAF delegation travelled to Beijing to meet with the upcoming IAC host and visit the congress venue. This extensive site inspection was coupled with a very dense programme composed of discussions concerning the global IAC programme, the review of requirements, the main congress venue visit, social events presentation, hotels inspections and a few bilateral meetings with existing and potential member organisations. The on-site programme developed by the CSA representatives was excellent, enabling both teams to have fruitful discussions.

China National Convention Centre (CNCC) is Beijing's largest and newest multi-functional congress centre. It is located next to the Olympic Stadium (the "Nest") built for the Olympic Games in 2008. A 5-hour visit took place on the first day

of our meetings and allowed staff members to check every single corner of the venue. The visit helped to identify potential issues and was an excellent basis for the discussion which occurred on the following days. The visit confirmed that the venue is able to host all IAC programme as well as side events identified in the contract without difficulties. The standard was considered as very high.

The site visit was also an opportunity for IAF President, IAF Executive Director and Secretariat to meet key stakeholders from China's space sector. A very successful meeting took place with Mr. Weimin Bao, Science & Technology Chair at CASC,



to discuss the preparation of the 5<sup>th</sup> International Meeting for Members of Parliament. Earlier that day, a meeting took place with China Great Wall Industry Corporation CEO and Vice-President Mr. Liming Yin, to discuss industry participation and programme at the IAC as well as potential technical visits opportunities for delegates.

Find more on the congress venue, the China National Convention Centre (CNCC), on the host's recommended hotels, registration forms for participants and accompanying persons, as well as social events at [www.iac2013.org](http://www.iac2013.org)

Regularly updated throughout the year, this website will also inform you on the exhibition and sponsorship opportunities.

## IAF Spring meetings



The annual IAF Spring Meeting took place recently in Paris and has seen the participation of more than 400 volunteers. The objective of this meeting is the preparation of the upcoming IAC which highlighted again this year the set-up of more than 50 experts committee meetings and the abstracts selection which has been more challenging than in previous years because of a record number of abstracts submitted, 3 675.

An IAF Global Networking Forum on "Human Space Exploration" took place with the successful organisation of 2 high-level round table showcasing some of the most influential organisations worldwide.

This very noteworthy event again underlined the fact that it is the most outstanding networking event of the year, with more than 70 countries attending the different organised meetings and events.



## Future IACs

- **IAC 2014 in Toronto, Canada:** The IAF Spring Meeting was also the opportunity for IAC 2014 Local Organising Committee General Manager, Mr. Geoffrey Languedoc, to present a report to IAF Bureau and volunteers on the progress made so far hosting the 65<sup>th</sup> IAC in Toronto in 2014. Mr. Languedoc presented highlights of the Metro Toronto Convention Centre (MTCC) that has been selected to host delegates. A very attractive set of social events and tours will take place during and after the IAC welcoming the participation of Cirque du Soleil at the Opening Ceremony. The IAF already looks forward to working closely with CASI to set-up a new edition of its IAC in North America.



*Toronto*

- **IAC 2015 in Jerusalem, Israel:** Mrs. Orna Marie Orshan, member of the Local Organising Committee presented the venue that would host the 66<sup>th</sup> IAC in Jerusalem in 2015. Jerusalem highlights were presented to delegates attending the IAF Spring Meeting, which enabled all of them to start looking forward to a very exciting IAC in the Middle East.



*Jerusalem*

- **IAC 2016:** Two towns have already addressed their letters of intent in hosting the IAC: Kiev, Ukraine and Guadalajara, Mexico. The deadline for submission of proposals closes on 26 April 2013.

## IAF welcomes new committee chairs

We are pleased to announce the nominations of the following committee Chairs and Co-Chairs, approved by the IAF Bureau

- **Human Space Endeavours Committee:** Cristian Bank
- **Microgravity Sciences and Processes Committee:** Marcus Dejmek
- **Space Communications and Navigation Committee (SCAN):** Otto Koudelka
- **Space Education and Outreach Committee (SEOC):** Chris Welch
- **Student Activities Subcommittee:** Marco Schmidt
- **Global Workforce Development Subcommittee:** Olga Zhdanovich and Amalio Monzon
- **Space Propulsion Committee :** Richard Blott
- **Space Transportation Committee:** Ulf Palmnäs and John M. Horack
- **Workforce Development – Young Professional Programme Committee:** Kevin Stube
- **Space Societies Committee:** Scott Hatton

## IAF Workforce Development/Young Professionals Committee

The IAF Workforce Development/Young Professionals Committee is pleased to welcome seven new members to its committee. Some are new to working with the IAF and some have been regular contributors. They are: Carol Carnett, Emmanuelle David, Patrick Hambloch, Jeffrey Hendrikse, Gong Jinyu, Scott Madry and Lewis Peach.

The committee is working on plans for the YPP activities for IAC 2013 in Beijing. Following the successful events of the last few years, there will be three receptions for Young Professionals. The Sunday evening event will be a networking session and a chance for everyone to meet before the congress begins, so we encourage young professionals to remember this when booking

their travel. Tuesday evening, Lockheed Martin is sponsoring a discussion panel of senior agency leaders to discuss the future of human exploration and the American Astronautical Society will help organize this. There will be an event Wednesday evening still being planned.

The Virtual Forum team is working hard to ensure that the five VF sessions being organised for Beijing will run smoothly. These forums give those who cannot make the trip an opportunity to present their work at the IAC. It also allows the session to reach a wide audience as anyone can register and join in through the webinar software.

## News from the Astrodynamics Committee

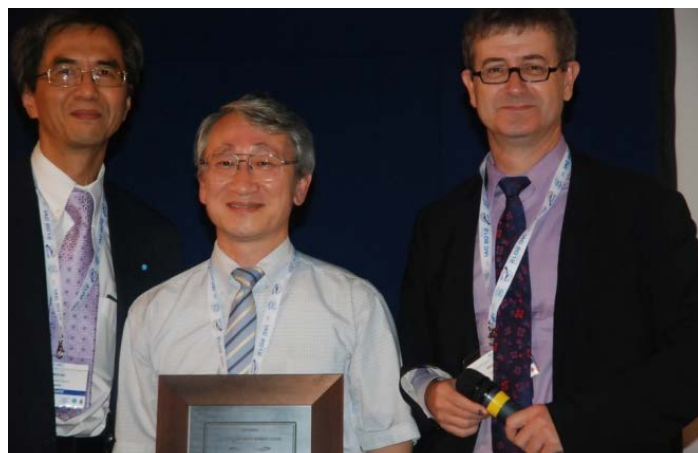
The Astrodynamics Symposium held in IAC Naples was a great success with 98 high quality presentations given in 9 technical sessions. Prof. Junichiro Kawaguchi from the JAXA Institute of Space Astronomical Sciences gave the 18<sup>th</sup> John V. Breakwell Memorial Lecture. The lecture entitled "Expansion of Our Sphere of Activity with Astrodynamics and Cutting-Edge Technology" fascinated a full house of audience.

For IAC Beijing, the committee anticipates a high number of abstracts for IAC Beijing and will continue using the MS Excel based tool to allow the committee compile and rank the abstracts in an efficient and effective way. Also, the committee has invited Dr. Martin Lo of JPL to give the 19<sup>th</sup> John V. Breakwell Memorial Lecture. Dr. Lo is the pioneer in the Interplanetary Superhighway Systems (IPS) concept. The committee is pleased to announce that he has accepted the invitation and the lecture entitled "One, Two, Three, Many..." will sure be one of the highlights of IAC Beijing.

The 7<sup>th</sup> IWSCFF "International Workshop on Satellite Constellation and Formation Flying" took place in Lisbon on 13-15 March 2013. Besides the keynote lecture and the round

table discussion, there were 62 presentations by participants from more than 10 countries.

Final program at <http://iwsccf.astrodynamics.org.pt>



*Professor Junichiro Kawaguchi (center) received the Certificate of Appreciation from the Astrodynamics Committee Chair Erick Lansard (right) and Co-Chair Alfred Ng (left)*

## Propulsion Technical Committee Report January 2013

Twenty members, and one candidate member, of the Propulsion Technical Committee met on Sunday 30 September 2012 in Naples. Eight more attended the 63<sup>rd</sup> IAC. The membership list was reviewed and updated. There had been no response from five members for some time and they are deemed to have left the Committee. A ballot between the two Co-Chairs for election to the chair was proposed. Subsequently Dave Micheletti stood aside and Richard Blott was elected Chairman. Giorgio Saccoccia volunteered to be a second Co-chairman.

The growth in the Propulsion Symposium will be continued at the 64<sup>th</sup> IAC. At the 63<sup>rd</sup> IAC and over 90% of the papers selected were presented in 9 sessions. This was a significant reduction in withdrawals and 'no shows' from previous years. The Symposium also included a new session on Advanced and Combined Propulsion Systems.



Richard Blott



Giorgio Saccoccia



David Micheletti

## Subcommittee on Dual Use now operational

The Dual Use Subcommittee, set in 2010, is now fully operational. The Terms of Reference have been discussed with and issued by the IAF Bureau and the organisation, rules for membership and chairmanship have been documented.

The subcommittee meets regularly, twice a year, during each IAF spring meeting and IAF congress, allowing the registered committee members (about 20) and the interested observers to exchange information and views on dual use issues and discuss committee initiatives.

It has defined a strategy of joint sessions with the other committees during each IAC to address the dual use aspects of the various relevant themes: it has covered Earth Observation in 2012, will deal with Navigation Systems in 2013 and are in the discussion phase to set a joint session during the IAC 2014.

The subcommittee folder on the IAF web site (<http://www.iafastro.net/iac/folder/tc/dual/>) is continuously updated for giving access to all the issued documentation.

## Endeavours Committee

### Membership:

- Three new members from Canada and the USA were elected to the Committee, and one member resigned, maintaining the HSE's tradition of ensuring a vibrant, current Committee membership.
- The Committee intensified contacts to representatives of the Chinese manned spaceflight activities, aiming at identifying a future Committee member from that country.
- At the IAC 2012, the Chairmanship was handed over after three very successful and vivid years from John J. Uri, NASA, to Cristian Bank, Astrium ST. John will remain available as Symposium Coordinator along with Cristian.

### IAC 2013 Preparation:

- Apart from pursuing its standard sessions, the Committee was actively engaged in the establishment of a Virtual session together with the Young Professionals Committee.
- Furthermore, three detailed proposals for Plenary Events/Highlight Lectures were submitted to the IAF Secretariat.
- Further Activities: Together with two other Technical Committees, the HSE Committee supported the preparations of the IAF Global Networking Forum event on March 19 in Paris.

## Technical Activities Committee

Technical Committees are the backbone of the International Astronautical Federation. While originally intended to coordinate the IAC Technical Programme among IAA, IISL and TCs, they have developed year round activities to foster space research, development and applications. They pursue this goal by fostering international cooperation and identifying new promising topics for study.

24 Technical Committees and 4 Subcommittees are currently working daily toward their missions. Experts in respective area are appointed as TC members, basically from the IAF member societies.

The TAC meets twice a year at the IAF Spring Meetings and in conjunction with the International Astronautical Congress. Almost all Committees are actively participating in the IAC, either hosting their own Symposium or jointly hosting Symposia with other groups.

The nomination of Dr. Maria Antonietta Perino as the Technical Activities' Vice-President gives a new impulsion for the Technical Activities Committee. The main challenge of her agenda is to reduce overlap and interference among Symposia and Sessions.

**Based on the President's Agenda, a Reflection Team is working on the revision of the IAF Constitution. Inputs from member organisations would be welcome, so please send your ideas to the IAF Secretariat at [constitution@iafastro.org](mailto:constitution@iafastro.org) before August.**

**As this year's IAC is taking place in Beijing, this newsletter's interview focuses on two high level space representatives of China.**



**Zhaoyao WANG,**  
*Director General of the  
China Manned Space  
Agency (CMSA)*

**Q: What is the specific role of CMSA in the structure of the space world in China?**

**A (Z. Wang):** China Manned Space program is directly led by Chinese government and is managed by CMSA that represents the government. CSMA is responsible for project planning, system technology, engineering development, construction of supporting facilities, allocation of funds and international cooperation.

**Q: Why is the IAC important in the global promotion of Chinese space achievements?**

**A (Z. Wang):** IAF is an earlier founded and most influential non-governmental space organisation. IAC is an international and academic conference initiated by IAF. The world space agencies and enterprises seek cooperation and progress on the platform established by IAC. By attending IAC, Chinese space agencies, organisations and institutions will have more opportunities to demonstrate China's space achievements to the world, exchange ideas and discuss topics of common concern and the possibility of future cooperation with international counterparts. These exchanges and communications will lay a foundation for extensive international cooperation.

**Q: CAST is China's largest non-governmental organisation, what does the IAC represent for such a stakeholder?**

**A (Q. Zhang):** CAST is the largest non-governmental organisation of scientific and technological workers in China. One of the major tasks of CAST and its member societies is to participate in the international organisations on behalf of China's scientific and technological community. CAST has always encouraged its member societies to be involved in activities of international organisations, play their roles and make corresponding contributions. CAST supports its member societies to hold influential and high-level international conferences to promote global cooperation. Today, space exploration has become more and more important with many countries engaging in exploration, development and utilization. IAC is one of the most prominent academic events of world space community, and it is also a high-end platform to display achievements, know current development, discuss future trend and broaden international cooperation.

**Q: Which aspects of the IAC are most attractive for CAST?**

**A (Q. Zhang):** For CAST, the most attractive aspects of IAC are its long history, high academic level exchange, extensive academic and social influence. Particularly, the keynote lectures of IAC will play a guiding role of knowing the latest space development and promoting China's space program. In addition, the Meeting for Members of Parliaments bridges the political world and space community, which plays an active role in promoting international cooperation and peaceful utilization of outer space.



**Qin ZHANG,**  
*Executive Secretary of  
the China Association  
for Science & Technology  
(CAST)*

**The next Newsletter will be issued in July 2013.**