



International Astronautical Federation

News

Connecting Space People

3/2015 (September 2015)

President's Welcome



Dear IAC Enthusiasts,

Welcome to your favorite Newsletter of the year!

This edition features a great deal of exciting news on IAC preparations, which will take place from 12-16 October in Jerusalem. The Congress already features a rich programme of plenary and technical sessions.

The IAC also places strong emphasis on youth development, for which we have the Emerging Space Leaders grants programme to support young talent to attend the Congress.

As you can imagine, with less than a month to go, we are focusing on making the 66th IAC an exciting meeting, networking and social point for the entire space community. Everyone involved in this event has been working extremely hard to make it a success. I would like to express my thanks, in advance, for what promises to be a stellar occasion.

We are looking forward to the Congress with great anticipation and hope all of you will attend and enjoy it.

I would also like to express my special appreciation to our IAF members for their contribution to this newsletter. The newsletter also features the latest on IAF activities and a selection of members' news in the Members' Corner. I encourage all of you to consider submitting short items for future newsletters, to share your valuable news with the wider IAF community. I hope you enjoy the newsletter and look forward to seeing you in Jerusalem!

See you online with #IAC2015.

Kiyoshi Higuchi

President

IN THIS ISSUE

PRESIDENT'S WELCOME

IAF NEWS

- IAC 2015
- IAC 2016
- GLIS 2016

MEMBERS' CORNER

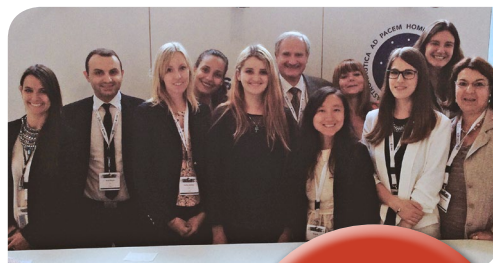
IN MEMORIAM: Andrea Boese

INTERVIEW WITH:

Charles Bolden - Administrator, NASA

IMPORTANT DEADLINE:

- IAC 2015 online registration fees – 4 October 2015



OUR GREAT TEAM!

**Discover
Israel**

**Book Your
Fun Night
at the
IAC 2015**





John M. Horack, Ph.D.
IAF Vice President: Technical
Activities and IAC Evolution
Vice President Global
Commercial Space
Teledyne Brown Engineering

IAC 2015

Dear colleagues:

With great anticipation for the 2015 IAC in Jerusalem, I heartily encourage you to attend! Much has happened since we met in Toronto. *Philae* landed on a comet. *New Horizons* accomplished the first-ever fly-by of Pluto. New and growing nations have announced or accomplished significant space activities. These and more will be part of the exciting program during the 2015 IAC.

Exceptional plenaries and new modes of sharing information are planned, to further enhance your experience. Plenaries discussing the evolving landscape of commercial space, and a comprehensive discussion on the state and evolution of the launcher industry and market, are just two of the exciting sessions on-tap. This year also marks the debut of the 'interactive presentation.' This innovation brings the ability to share, search, and explore submitted papers at any time, from abundant large-screen displays. Adapted as a best-practice from the medical conference community, the interactive presentation may revolutionize how we share, how we build collaborations, and significantly improve our overall exchanges of technical information.

Finally, Jerusalem is among the most significant cultural and historic venues on Earth; a city central to multiple faith traditions, whose spiritual - and space-related - history dates back millennia. Many familiar stars in the sky have Arabic names, a testament to the navigation and astronomy capabilities of the region's historical peoples. Western religious traditions hold special the story of the "Star of Bethlehem," announcing the birth of Jesus. Jewish scientists, Albert Einstein notably among them, have contributed fundamental discoveries in astronomy and astrophysics. Today, 'the brightest star in our sky' is the International Space Station; a global product of human minds, and the work of human hands. Jerusalem is truly a place for **all** - to celebrate, honor, and share. Please join us at the 2015 IAC!

MEDIA JOURNAL

Explore and read all
articles, tweets, posts,
and a summary of the
IAC 2015
in the news!

REGISTER NOW!

Check all Technical Tours

Check for more news on our Social Media

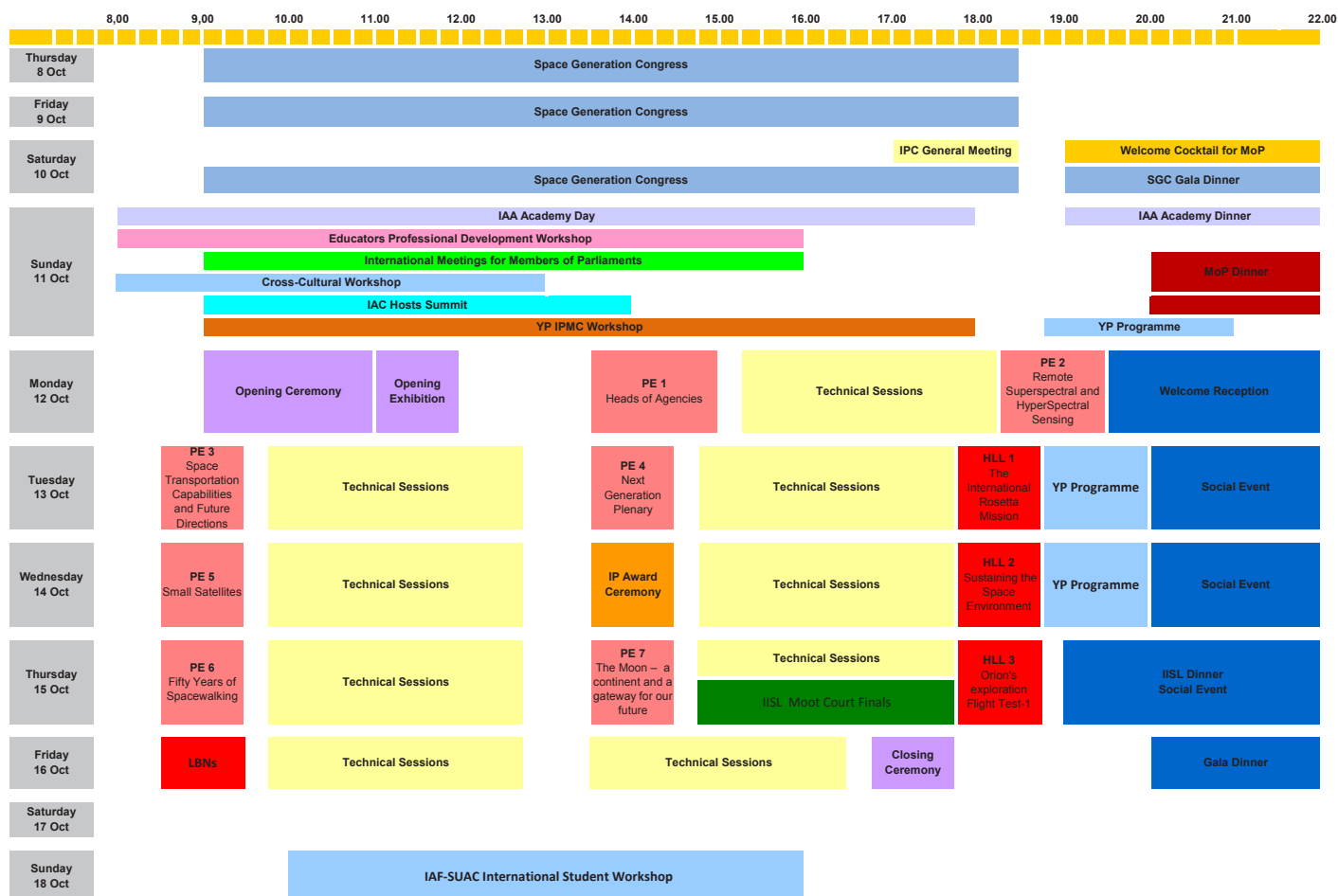


3 HIGHLIGHT LECTURES and 7 PLENARIES

PE/HLL	Timing	Title	Location
PE 1	Monday 13:30 – 15:00	Heads of Agency	Ussishkin Auditorium
PE 2	Monday 18:15 -19:30	Remote Superspectral and HyperSpectral Sensing From Space (Host Plenary)	Ussishkin Auditorium
PE 3	Tuesday 08:30 – 09:30	Space Transportation Capabilities and Future Directions to enable Commercial, Scientific, and Human expansion into space	Ussishkin Auditorium
PE 4	Tuesday 13:30 – 14:30	Next Generation Plenary: International Space Station as the Gateway for Humankind's Future in Space and on Earth	Ussishkin Auditorium
HLL 1	Tuesday 17:45 - 18:45	The International Rosetta Mission – First Historical Rendezvous and Landing on a Comet	Ussishkin Auditorium
PE 5	Wednesday 08:30 – 09:30	Small Satellites	Ussishkin Auditorium
HLL 2	Wednesday 17:45 - 18:45	Sustaining the Space Environment: The State of Space Situational Awareness, Conjunction Warning and Collision Avoidance	Ussishkin Auditorium
PE 6	Thursday 08:30 – 09:30	Fifty Years of Spacewalking - The Ultimate Human Space Adventure	Ussishkin Auditorium
PE 7	Thursday 13:30 – 14:30	The Moon – a continent and a gateway for our future	Ussishkin Auditorium
HLL 3	Thursday 17:45 - 18:45	Orion's exploration Flight Test-1 – Taking Human Spaceflight Beyond LEO for the Future of Mankind	Ussishkin Auditorium
LBN	Friday 08:30 - 09:30	LBNs TBD	Ussishkin Auditorium



CONGRESS AT A GLANCE



IAC 2015 MEDIA PARTNERS

Official Media Partner



Supporting Media Partners



IAC 2015 LATEST NEWS!

International Court of Justice Judges to Attend International Astronautical Congress in Jerusalem Jurists to Convene for “Moot Court” On International Space Law

In what promises to be a historic visit for Israel, three judges from the International Court of Justice (ICJ) in the Hague have announced their planned participation in the prestigious Manfred Lachs Space Law Moot Court Competition, a centerpiece of the annual colloquium held by the International Institute for Space Law (IISL) as part of the International Astronautical Congress (IAC) in October, 2015. The IAC, hosted by the Israel Space Agency, will welcome the participation of over 3,000 guests including the heads of all the major space agencies and leading researchers and space policy makers. Among the attendees will be Judge Peter Tomka of Slovakia, Judge Dalveer Bhandari of India and Judge Kirill Gevorgian of Russia; all judges on the International Court of Justice. They will preside over a special model session of the Court on the topic of “international space law.” The world finals of the moot court will take place October 15, 2015, at the Hebrew University and will be opened by the Vice President of Israel’s Supreme Court, Justice Elyakim Rubenstein followed by Prof. Tomer Broude Vice-Dean of the Law Faculty at the Hebrew University of Jerusalem. The proceedings will welcome the participation of law students, each of whom are winners of regional competitions in North America, Africa, Europe and the Asia Pacific region, debating a series of topics related to law and space. The subject of the debate concerns a proposed scenario whereby an asteroid headed for earth is intentionally diverted by one nation into international air space where it explodes. The shock wave produces damage in a second nation. The hearing will address how liability is determined and how damages are to be assessed and awarded. This will be the 24th successive year that this program will be taking place under the aegis of the IISL. In a prior meeting with then Israeli President Shimon Peres in The Hague, Judge Tomka said, “The relations with Israel are of great importance to us all and Israel has contributed a great deal to our global dialogue on issues of international law.” The IAC will take place October 12-16th at the International Convention Center – Binyanei Hauma in Jerusalem and will include 30 top-level symposia and over 2,000 additional presentations. Attendance is expected by participants from 70 nations with special attention to Israel’s contribution to the advancement of space as well as enabling guests to appreciate the unique history and society of Jerusalem.

About the IISL: www.iislweb.org

About the Manfred Lachs Space Law Moot Court Competition: www.iislweb.org/lachsmoot

About the Judges:

Peter Tomka is a judge of the International Court of Justice. Prior to joining the ICJ, Tomka was a Slovak diplomat. The judges of the ICJ elected Tomka as their vicepresident on 6 February 2009. In 2011 Tomka was re-elected to a second nine-year term on the ICJ by the UN General Assembly and the Security Council; his term now expires on 5 February 2021. In February 2012 Tomka was elected President of the Court for a three-year term from 6 February 2012. Dalveer Bhandari is a member of the International Court of Justice and was a judge of the Supreme Court of India. Judge Bhandari was nominated by the Government of India as its official candidate to the International Court in January 2012. Kirill Gevorgian is a Russian diplomat and jurist. From 2003 to 2009, he served as Russia’s ambassador to the Netherlands. In 2014, he was elected to the International Court of Justice for a term beginning the following year.

Orion and NASA's Mission to Mars at IAC 2015 - Critical Next Steps to be Discussed by Lead Programmers

NASA's groundbreaking Orion program will be discussed in-depth in a special "highlight lecture" on October 15th at the International Astronautical Congress hosted this year by the Israel Space Agency in Jerusalem. Considered one of the most vital steppingstones of NASA's Mars program, Orion is built to take humans farther into space than they have ever gone before. It will carry the crew to space, provide emergency abort capability, sustain the crew and provide a safe return to Earth. Having completed its first successful flight test in December 2014, Orion's next milestone will be a flight beyond the orbit of the moon. The challenges, problems and successes of this difficult mission, as well as the next steps in taking humans beyond Low Earth Orbit, will be explained at IAC by two top Program Managers, Associate Administrator Mr. William Gerstenmaier from NASA, and Dr. Michael Hawes, Lockheed Martin's Vice President and Orion Program Manager. Lockheed Martin is the prime contractor on the Orion mission. "NASA is working to develop the capabilities necessary to expand human presence into the solar system," said Mr. Gerstenmaier from NASA. "Together with the Space Launch System rocket, Orion is a critical part of our efforts, and sharing insights from last year's flight test of the spacecraft with others in the international space community is an important part of enabling humanity to explore deep space destinations and eventually sending astronauts to Mars." Dr. Hawes, Lockheed Martin's Vice President and Program Manager for Orion added that "every day we are making great progress on the design and build of the next Orion spacecraft. This is the spacecraft that will take humans to Mars one day, and I'm looking forward to sharing where we are on that journey with the IAC audience."

Rosetta Experts to Present the Mission at International Astronautical Congress in Jerusalem

The leaders of the famed Rosetta program will present their operational highlights during a special highlight lecture at the International Astronautical Congress (IAC) in Jerusalem October 12-16th hosted by the Israel Space Agency. The International Rosetta mission is a cornerstone of the ESA scientific programme. For the first time in the history of spaceflight, Rosetta achieved a rendezvous with a comet nucleus and delivered a lander module, Philae, onto its surface. The mission realization required almost 30 years to pass from the point of its initial conception. The interplanetary cruise took more than 10 years. The target, comet 67P Churyumov-Gerasimenko, was reached in August 2014. During the long cruise, the spacecraft had been put into a two and a half year hibernation before it dramatically awoke in January 2014 and began its main operational phase at the comet. "While Rosetta's highlights occurred last year, with the rendezvous with the comet and the landing of Philae, its mission continues today" said Dr. Paolo Ferri, Head of ESA Mission Operations and former Rosetta Flight Director, who will present the findings at IAC 2015. "The huge amount of information, pictures, scientific data and experience collected in more than one year around the comet is revolutionizing the science of comets and our knowledge of the history of the Solar System," he continued. Dr. Ferri will be joined in Jerusalem by Dr. Stephan Ulamec, the Philae Project Manager. "It was an extremely emotional moment to see after about 10 years of development of Philae and 10 years of cruise, data being received from the surface of a comet," recalled Dr. Ulamec. "After having reported regularly at various IAC conferences going back to 1995, it is with great satisfaction that I will now be able to present the actual results after a successful landing."

First International Space Camp for Arab and Jewish Pupils in Israel will take place at the 66th International Astronautical Congress

The International Astronautical Congress hosted by the Israel Space Agency to be held in Jerusalem will include a special Space Camp dedicated to children. IAC 2015 will take place from 12-16 October 2015 in Jerusalem. Space Camp is co-organized by the HE Space Children's Foundation (HESCF), a Dutch non-profit organization which provides all children access to education so that they can independently shape their own future; and the Hebrew University of Jerusalem, Youth Centre for Advanced Studies, which promotes dialogue between the University and the surrounding community; and co-sponsored by Lockheed Martin Corporation. Space Camp is a unique opportunity where pupils from 11-14 years old learn how rockets fly into space, and are taught how experiments in space are so different than those that take place here on Earth. This year it will be particularly special as children will be in attendance from different social, religious, and cultural backgrounds. Indeed, Space Camp will represent the great center where both Jewish and Arab Israeli students will enhance their desire to learn more about space. This opportunity will hopefully prepare them for future challenges and spark their interest in science. "Space for us at the HE Space Children's Foundation is not just a destination; it is our destiny, as we believe it is for all mankind" said HE Space's Chair Ms. Claudia Kessler. Furthermore, HE Space highlights the great importance they give to the multi-cultural aspect which they wish to see flourish in the future: "It begins on Earth, with education providing the universal tool to overcome all the meaningless artificial barriers like gender, race, cultural and social heritage" declares Ms. Kessler. "That is why we are especially proud to see that schoolchildren from Israel, sponsored by the HE Space Children's Foundation are participating in this Space Camp." Taking care of the next generation is an ambition shared

by the International Astronautical Congress, which welcomes each year students passionate about space, and gives them the opportunity to increase their knowledge and meet all the relevant space actors.

If you wish to be updated with IAC 2015 latest news write an email to media@iafastro.org and follow the conversation on social media with #IAC2015

SPONSORSHIP AND EXHIBITION OPPORTUNITIES

IAF welcomes the opportunity to customize a marketing package to communicate the individual strengths of companies and enhance awareness of products and services to a very important and influential group of delegates who will attend the IAC 2015.



IAC 2015 SPONSORS

The IAF and the Israel Space Agency would like to thank all IAC 2015 sponsors for their commitment in making the 66th International Astronautical Congress so successful. Your generous contribution is helping bringing to life one of the most exciting space event worldwide!

The expectations for the event are excellent and this is also thanks to your contribution.






If you too wish to become an IAC 2015 Proud Sponsor, please contact:

Giulia Maria Berardi – IAF Deputy Executive Director
giuliamaria.berardi@iafastro.org
 +33 1 80 05 24 31



	<p>LOCKHEED MARTIN CORPORATION - International Anchor Sponsor</p> <p>Lockheed Martin is a global security and aerospace company principally engaged in the research, design, development, manufacture, integration and sustainment of advanced technology systems, products and services. Our display will feature the Orion deep space exploration vehicle with highlights from its first orbital test flight. We will also highlight work being done on human and robotic space exploration missions, as well as our dedication to employing the latest advancements in technology to solve our customers' biggest challenges.</p>
	<p>IAI ISRAEL AEROSPACE INDUSTRIES - Local Anchor Sponsor</p> <p>IAI is a globally recognized leader in development and production of commercial and military aerospace and defense systems. IAI provides world leading unique solutions for a broad spectrum of needs in space, air, land, sea, cyber and homeland defense. With 60 years of experience IAI exports its products to over 90 countries and has over 30 subsidiaries worldwide.</p> <p>IAI's Defense and Commercial Products & Services: services include: the development, manufacture, overhaul, upgrading, repair and maintenance of aircraft and aerospace equipment, electronic systems, avionics suites, advanced radars, tactical weaponry and law enforcement systems, training and simulation systems, network and situational awareness systems.</p>

 AIRBUS DEFENCE & SPACE	AIRBUS Airbus Defence and Space Netherlands B.V. is supplier of high-tech products and services for the international aerospace industry. Since its founding in 1968, the company has build-up expertise in space technology in areas such as Earth observation, telecommunications and science. The portfolio includes solar arrays, launcher structures and instruments & systems.
	BOEING Boeing is a leading provider of human spaceflight and space exploration systems and services. Boeing leverages five decades of human spaceflight experience to provide reliable access to Low Earth Orbit, full utilization of the International Space Station, robust development of the Space Launch System, and an international cislunar exploration platform.
 RAFAEL ADVANCED DEFENSE SYSTEMS LTD.	RAFAEL Rafael develops and manufactures advanced defense systems for the Israeli Defense Forces and the defense establishment, as well as international customers around the world. The company offers its customers a diversified array of innovative solutions at the leading edge of global technology. Rafael's space activities are focused on Space Propulsion Solutions, Micro-Satellite Systems, Advanced light Weigh Composite Space Structures, and MEMS Technologies.
 SPACE FOUNDATION	SPACE FOUNDATION The Space Foundation is a full-time space advocacy organization with a core competency in large-scale conferences. Our goals align closely with those of the IAF and we are intimately engaged with the international space community and are accomplished at providing the kind of top quality conference events it requires.
 AIAA Shaping the Future of Aerospace	AIAA The American Institute of Aeronautics and Astronautics (AIAA) is more than 30,000 engineers and scientists from 88 countries dedicated to the global aerospace profession. AIAA convenes five yearly forums; publishes books, technical journals, and Aerospace America; hosts a collection of 140,000 technical papers; develops and maintains standards; honors and celebrates achievement; and advocates on policy issues. AIAA serves aerospace professionals around the world—who are shaping the future of aerospace—by providing the tools, insights, and collaborative exchanges to advance the state of the art in engineering and science for aviation, space, and defense.
 agenzia spaziale italiana	ASI The Italian Space Agency was founded in 1988. Its purpose was to coordinate all of Italy's efforts and investments in the space sector that had begun in the 1960s. Within over twenty years' time, ASI became one of the most significant players in the world in space science, satellite technologies and the development of mobile systems for exploring the Universe. Today, ASI has a key role at the European level where Italy is the third contributor country to the European Space Agency. It also is involved at the international level. For example, ASI has a close working relationship with NASA, which has led to its participation in many of the most interesting scientific missions of recent years. One of the most fascinating projects has been the construction and activities of the International Space Station where Italian astronauts are by now at home.
 EXCALIBUR • ALMAZ LIMITED	EXCALIBUR ALMAZ LIMITED Excalibur Almaz Limited (EA) is an international commercial space transportation company based in the Isle of Man. Its goal is the affordable and reliable transportation of humans and cargo to Low Earth Orbit, libration point, the Moon and beyond.
 ISERD המנהלת הישראלית למחקר ולפיתוח Israel-Europe R&D Directorate	ISERD ISERD - the Israel-Europe R&D Directorate promotes the participation of Israeli entities in R&D ventures within the European Research Area. ISERD is operated through the Office of the Chief Scientist of the Ministry of Economy, and is Israel's official contact point (NCP) with the EU, for all the activities of the Framework Programs.

	<p>SSL</p> <p>SSL is a leading provider of commercial satellites with broad expertise to support satellite operators and innovative space related missions. As a Silicon Valley innovator for more than 50 years, SSL's advanced product line also includes state-of-the-art small satellites, and sophisticated robotics and automation solutions for remote operations.</p>
	<p>THE HEINLEIN PRIZE TRUST</p> <p>The Heinlein Prize® honors the memory of Robert A. Heinlein™, renowned American author. The purpose of the Heinlein Prize is to encourage and reward progress in commercial space activities that advances Robert and his wife Virginia's dream of humanity's future in space. Efforts include: the Heinlein Prize for Accomplishments in Commercial Space Activities, the Microgravity Research Competition, the Heinlein Commercial Space Activity Prize, the "Flight Into the Future" international contests, the Have Space Suit — Will Travel educational program, and the online Heinlein Archives.</p>
	<p>TYVAK</p> <p>Terran Orbital is a leading provider of nanosatellite and microsatellite vehicles, services, and solutions. Terran Orbital invests in leading-edge solutions for customers focused on achieving world-class space-based research, observation and communications at a fraction of the cost of traditional spacecraft developers. Through their Tyvak and Tyvak International brands, based in the U.S. and Europe, Terran Orbital partners with customers to produce advanced mission solutions with industry leading turn-times and price-points.</p>

IAF CAPSULES

Dear IAF Community,
your favorite videos are once again out for your delight! Enjoy knowing your colleagues:

Andreas Rittweger	Scott Hubbard	Lulu Makapela
Piero Messidoro	Max Beaumont	Jean Dominique Coste
Michael K. Simpson	Alessandro Golkar	Luis Zea
Robie I. Samanta Roy	Laura Leon Perez	Ryan L. Kobrick
Ahmed Farid	Rene Michel	Watch all videos at http://www.iafastro.org/iaf-capsules/
Julia Stalder	Kingsley O. Ukaegbu	

If you too want to have your IAF Capsule to explain your work within the IAF, and/or your academic research, and/or your vision for the future, and/or your message to the IAF community, and/or your preferred topic quickly summarized, please do not hesitate and contact IAF Communications Manager at silvia.antolino@iafastro.org



The #IAC2016 logo is out!

On 27 September 2013 at the 64th IAC in Beijing, China, the IAF General Assembly convened and voted for Guadalajara, Mexico, to be the host city for IAC 2016. For the organisers, the Mexican Space Agency, this is the culmination of a four-year bid process. Guadalajara is the second biggest city of the country. Guadalajara will be provided the opportunity to show why it is called the “Silicon Valley of Mexico” and to show why it is also wellknown as the cultural heart of Mexico. The Director-General of 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.

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.



Watch AEM DG Francisco Javier Mendieta Jiménez talking about the #IAC2016:



GLIS 2016

The IAF is proud to announce its newest event in the frame of the IAF Global Series Conference, the **Global Conference on Space and the Information Society – GLIS 2016**, co-organised by the IAF and the International Telecommunication Unit (ITU). The GLIS 2016 will take place in Geneva, Switzerland, on 6 and 7 June 2016 and will feature an intense programme, comprising an Opening Event, 5 Plenary Sessions and a Wrap-up Session.

The main purpose of GLIS 2016 will be to examine and discuss the different means by which space allows people to connect worldwide. GLIS 2016 will analyse in details the impact that space policies, space technologies and space applications have on the daily life of people, organisations and governments communicating and exchanging information around the world.

Some of the topics that will be addressed during GLIS 2016 will include:

- The role of small satellites for the information society;
- The satellites and the internet;
- The new UN development goals and the role of satellite infrastructures;
- The interaction and competition between terrestrial and space telecom infrastructure;
- The role of operators;
- The privacy issue.

The exact topics of the 5 Plenary Sessions will be announced in the upcoming weeks.

IAF SUAC INTERNATIONAL STUDENT WORKSHOP 2015 – AGENDA

Sunday 18 October 2015 from 10:00 – 16:00

To be held at the Israel Institute of Technology- Technion, Asher Institute

INTRODUCTION

10:00 – 10:05	Introduction by Christian Feichtinger
10:05 – 10:10	Introduction by Pini Gurfil
10:10 – 10:15	Introduction by Pierre Rochus

PRESENTATIONS

10:15 – 10:30	Helene Ma , On the Computation of Preliminary Orbits for Space Debris with Radar Observations
10:30 – 10:45	Nicola Baresi , Bounded Relative Orbits about Asteroids
10:45 – 11:00	Irina Vorobiova , Engineering and Ballistic Researches of Satellites Group Injection to Different Initial Orbits by One Launch

COFFEE BREAK

11:00-11:15	Coffee break
-------------	--------------

PRESENTATIONS

11:15-11:30	Daniel Brack , In-orbit Tracking and Parameter Estimation of High Area-to-Mass Ratio Space Objects
11:30-11:45	Holger Nießner , Generic Model for Space Debris Mitigation for the CubeSat Constellation Missions
11:45-12:00	Josue Cardoso Dos Santos , Dynamics of Orbits for Space Missions Taking into account a Disturbing Body in an Elliptical-Inclined Orbit: Applications to Planetary Moons
12:00-12:15	Feras Mist , Mission to Europa

LUNCH

12:15-13:15	Lunch
-------------	-------

PRESENTATIONS

13:15-13:30	Taras Yemets , Clingfish Small Glue Catcher and Drag Deorbiter of Space Debris
13:30-14:00	Karishma Inamdar , Small Satellite Cubesat Based Reflectometry Using GNSS signals
14:00-14:15	Tomer Shtark , Tracking a Non-Cooperative Target Using a Real-Time Stereovision-Based Control Law
14:15-14:45	Deliberation

VISIT OF LABS

14:45-15:45	Distributed Space systems Lab and Electric Propulsion Lab
-------------	---

AWARD CEREMONY

15:45-16:00	Award ceremony
-------------	----------------

Rocket Research Institute's The Space Advocate E-Newsletter

The "Space Advocate" is the new e-newsletter prepared by the Rocket Research Institute, Inc., with the goal of helping spread "the message" to interested individuals in the fields of space research and education who do not regularly receive official space-related governmental and industry press releases, announcements and mailings.

Recent issues of **The Space Advocate** have included the full May 05, 2015 NASA press release 15-072 "Journey to Mars Challenge, Seeks Public Input on Establishing Sustained Human Presence on Red Planet;" Information on Astronaut Buzz Aldrin's new non-profit ShareSpace Foundation; the full NASA July 14th and July 15th press releases on the historic New Horizon's Pluto Fly-By; and the August 10th NASA press release "NASA Opens New CubeSat Opportunities for Low-Cost Space Exploration".

Free email subscriptions to **The Space Advocate** e-newsletter, are available by emailing the RRI, Inc., at rri@rocketresearchinstitute.org

Turning MAURITIUS into the FIRST SPACELAND

SpaceLand goes tropical!



The first public activities of the "SpaceLand Center of Excellence in Microgravity" are starting in the paradise of Mauritius, through "Astronaut Underwater Training Experiences" open to anybody from the end of September in top-level beachfront resorts. The program provides ground and underwater weightless training to prepare hardware and people to board scientific research, techno-innovation and educational flights in Mars-Gravity, Moon-G and Zero-G conditions, paving the way to developments

also in the field of sub-orbital hypersonic transportation and satellite low-cost aerial-launch services. All participants will soon be able to fly taking off from such paradise islands, to experience and/or work on any phenomenon where gravity and/or its absence are a factor. The program also facilitates the creation of new knowledge as well as high-tech and research-related academic and job opportunities.

School pupils, students and researchers as well as space-fans from 10 to 95 years of age are also being given user-friendly access to Microgravity Educational, Research and Development tools, establishing in Mauritius the first SPACE-KNOWLEDGE TROPICAL DESTINATION: also inspiring pharmaceutical, bio-medical and life-science entrepreneurs with unprecedented business opportunities, SpaceLand is generating long-term added-values for the African society, enabling international guests to enjoy a smart "Space holiday" in such a paradise Island where an unparalleled *aerospace research, education, underwater & ground tourism and test-flight "tropical hub"* is growing, in synergy with international key-players, basic and applied-research institutions and cultural organizations.

Welcome to Mauritius, welcome to SpaceLand !

Info on www.SpaceLand.it

TAI Space Systems AIT Center is serving for GÖKTÜRK-1...

President Erdoğan inaugurated Turkey's first Space Systems Assembly, Integration and Test (AIT) Center, which he described as a significant step toward self-sufficiency in telecommunications and satellite technology while allowing Turkey to participate in international projects



President Erdoğan pushes the ceremonial buttons for the launch of Turkey's first Space Systems Integration and Test Center. (Credit: TAI)

Turkey's first AIT Center (TAI – AIT Center) was officially inaugurated on May 21, 2015 as part of the GÖKTÜRK-1 Satellite Program.

With more than 3.800 square meters of the total* infrastructure, 100.000 class clean room equipped with state of art technologies, TAI - AIT Center is able to support simultaneous assembly, integration and test activities of both GEO and LEO Satellites up to 5 tons. (*~9.800 square meters)

GÖKTÜRK-1 which has been already transferred to TAI on May 7, 2015 is the first satellite that will be qualified by the TAI - AIT Center. The environmental test campaign of the GÖKTÜRK-1 satellite has been started with TAI's participation and after finalization of the test process, the satellite will be shipped to launch center from the integrated airport in TAI Facilities.

TAI - AIT Center consists of; Thermal Vacuum Test System, Compact Antenna Test System, Solar Array Deployment Test System, Electromagnetic Compatibility Test System, Vibration Test System, Acoustic Test System, Mass Properties Measurement System, Multi Layer Isolation Preparation Workshop, Harness Workshop and Battery Storage & Preparation Room.

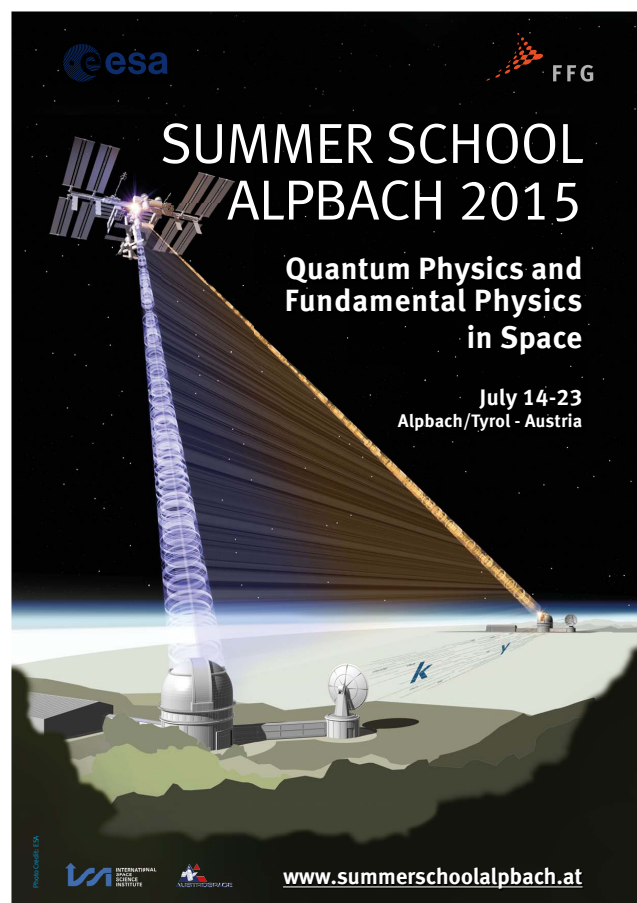
With numerous logistic advantages and TAI's ECSS compatible operation support TAI - AIT Center will be serving also for the international space programs.

For more information:
<http://www.tai.com.tr/en/project/ait-center>



TAI – Assembly, Integration and Test Center infrastructure. (Credit: TAI)

Designing space missions to enrich quantum physics research at Alpbach Summer School 2015



Sixty European students from 19 of ESA's 22 Member States attended the 2015 Alpbach Summer School from 14 to 23 July which focused on quantum and fundamental physics in space. The Alpbach students attended lectures and were asked to design their own innovative ideas to study how satellite missions could help enrich quantum physics research, and see how future satellite missions could benefit from quantum physics in general. The space missions designed by the students looked at how to make discoveries in gravitational wave astrophysics, as well as how to verify the fundamental principle of equivalence in Einstein's theory of General Relativity. On the last day of this 10-day learning experience, each team presented their mission design to an expert review panel.

The annual Alpbach Summer School provides in-depth teaching on different topics of space science and technology, with the aim of advancing the training and work experience of young European scientists and engineers. The Summer School is intended to enable students to apply the knowledge derived from lectures, to develop organisational and teamwork skills, and to encourage creativity. It is organised by FFG and co-sponsored by ESA and the national space authorities of its Member and Cooperating States, with the support of the International Space Science Institute and Austrospace.

45 Years of S.Korolev Space Museum

The S. Korolev Space Museum in Ukraine has recently celebrated its 45th anniversary!



According to experts, it is the third important space museum on the territory of CIS arranged in the best traditions of interactive museums, where visitors may 'touch' the history. And it is one of few space museums with an experimental exhibition "Human and Space", which deals with philosophic, moral and ethic problems of space exploration. The museum is the founder of the Association of Space Museums in Ukraine. Since September 2013 we are members of IAF.

On August 1, 2015, the date of our birthday we were honored and proud to welcome our guests from the National Academy of Sciences of Ukraine, the State Space Agency, Ukraine's largest and leading design office Yuzhnoye, and, of course, the first cosmonaut of the independent Ukraine Leonid Kadeniuk.

Our guests had an opportunity to travel more than 100 years back in time with guides dressed in costumes of different historical periods. With documentary clips and special sound effects the events of the story of the most secret Chief Designer of the Soviet Union Sergei Korolev became 'alive'. To mark the anniversary, special envelopes and postage stamps were issued. Another attraction was an exhibition of items dedicated to space, organized by a member of our Association Yuriy Shevela.



The Hungarian Astronautical Society (MANT)



**Hungarian
Astronautical
Society**

The Hungarian Astronautical Society (MANT) has been a member of IAF since 1959. This civil organization gathers space professionals as well as space enthusiasts in Hungary. Our main missions are to provide an interdisciplinary forum for space researchers, and to raise public awareness about space exploration and space applications, with a special emphasis on the young generations. In May 2015, we organized the Space Research Forum, which is a continuation and extension of a successful conference series started in the early 1970's. The first-ever Hungarian Space Academy took place in August, targeting university and PhD students and young professional at the age of 18 to 35 years. The significance of these events is enhanced by the fact that this year Hungary becomes the 22nd member state of the European Space Agency. The new level of European cooperation offers a great opportunity for the further development of the space sector in the country. Our summer Space Camp lasted for a week in July. The participants are students at ages of 13-18 years. Annual Space Camps have been organized since 1994. This tradition is long enough so that many of the former student participants are now working in space-related fields and are active members of our Society.



The First ASE AstroSat Challenge – A Success!



“Students often learn about the scientific method in the classroom but rarely have the opportunity to design an experiment for real-world use. Preparing for the ASE AstroSat Challenge helped my students make a connection between the scientific process and scientific discovery

through the stuff of dreams — a chance to go into space.” - Trevor Macduff

Challenge

Trevor Macduff teaches Physical, Earth, and Space Science at Three Rivers HomeLink School in Washington State. Macduff believes students should learn good experimental design as part of their science curriculum.

Solution

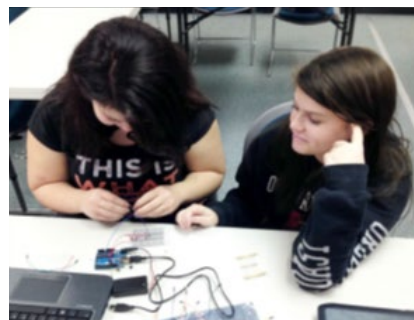
The Association of Space Explorers (ASE), in partnership with ArduSat and Northrup Grumman, offered student teams the opportunity to test their experiments in space in the ASE AstroSat Challenge. When Macduff heard about the challenge, he and his students were hooked. “What better motivator could my students have to design a well thought-out experiment than the possibility it could be sent into space?”

The students designed an experiment to measure variations in the earth’s magnetic field. “I was really pleased by the spirit of adventure my students displayed throughout this process,” says Macduff. “We rallied together to solve problems, worked side-by-side, and grew together as a team. We weren’t so much teacher and students as partners in learning.”

Results

Macduff and his students were thrilled when their team experiment was chosen. “We were one of fifteen experiments selected to test code on ArduSat’s high-altitude balloon,” says Macduff. State of Washington testing data shows that Macduff’s approach to science learning is also paying off — students in his class, some of whom had done poorly on previous state science exams, are meeting state standards at rate higher than the state average. He credits positive, hands-on learning for this achievement.

“Programs like the ASE AstroSat Challenge teach kids how to persevere, ask questions, and change course if needed,” says Macduff. “The project didn’t just teach them how to design an experiment, it gave them the skills to be successful both in their careers and in their lives.”



EcoMaT – the Bremen Center for Eco-efficient Materials & Technologies



Bremeninvest

For more than 100 years aerospace industry is based in Bremen, Germany with a high concentration of competencies within a small region. This manifests itself in more than 100 enterprises in the aerospace industry, many of them focus on innovative materials accompanied by strong scientific competence based at Bremen University of Applied Sciences, University of Bremen, and Jacobs University. Both, materials sciences and process engineering form the academic and research cluster of ‘Materials Sciences’.

Within this context, one key element in Bremen’s further advancement is the realization of innovative, market-based

projects in the Center for Eco-efficient Materials & Technologies (EcoMaT) in the Airport City of Bremen. Under one roof, about 500 people from the business and scientific sectors will jointly research and develop. Results from research and development activities are not only for improving future products and applications, but also benefitting training and teaching for future human resources.



New technologies for aerospace like additive manufacturing (3D-printing) are focal topics in EcoMaT. Not only to design parts for the Ariane or satellites, but also to define industrial processes and assure product quality using

cross-mentoring knowledge from industries like aerospace, automotive, or medical engineering is an important benefit in EcoMaT for the space industry.



NewSpace Ideas for Europe



A reality in North America, the NewSpace movement is an opportunity for young start-up companies to share innovative ideas among the space sector.

"This topic has not reached Europe yet," says Sebastian D. Marcu. The CEO of Cologne-based, Design & Data, is sure that *"within the next months and years something great will happen here"*. The movement started successfully with the first StartupWeekend Space in Bremen for which the communications expert acted as co-lead.

The event brought together 80 participants from 18 countries in the Bremen "Innovations- und Technologiezentrum" BITZ. Within 60 hours, creative minds from various backgrounds

developed new start-up concepts for the space sector.

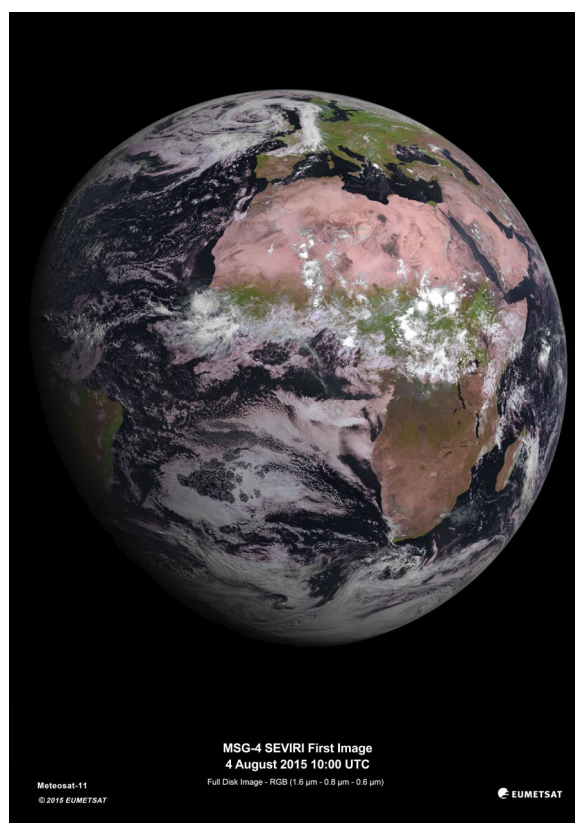
The groups received professional support from established mentors from industry who helped the teams to turn their ideas into feasible and solid business concepts.

The winners, other participants and organisers all agreed that the event was a terrific experience. It is evident that in the space sector a vast diversity of potential exists that needs to be tapped into and extracted.

"We want to make Bremen the hub for young entrepreneurs in space" said Hans-Georg Tschupke, Head of Innovation at Bremen Invest. "StartupWeekend Space was just the beginning."

Think big, be bold, #BeSpacial!

EUMETSAT launches last Meteosat Second Generation satellite (MSG-4)



MSG-4 First Image, 4 August 2015, 10:00 UTC

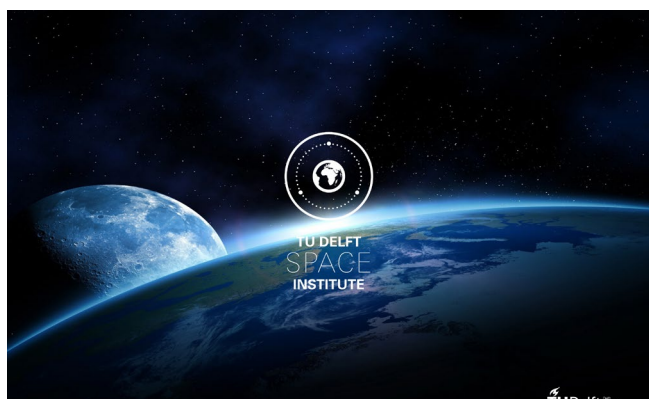
On 15 July 2015, EUMETSAT launched the last in the successful MSG series of geostationary satellites from Kourou, Europe's spaceport in French Guiana. The Meteosat services from geostationary orbit cover the European and African continents and parts of the Atlantic and Indian oceans. The Meteosat satellites also provide a unique observational input to Numerical Weather Prediction models, complementing the primary inputs

delivered by the polar-orbiting Metop satellites. The satellites have already accumulated climate data records of more than 35 years.

The EUMETSAT Director-General, Alain Ratier, said "Storing the satellite in orbit after launch and commissioning will save the additional costs of ground storage, de-storage and re-testing of the satellite. This will also ensure the satellite is immediately available to replace one of our ageing MSG satellites, whilst preserving the operational lifetime of MSG-4".

On 4 August, MSG-4 delivered its first image, a very significant step in the ongoing commissioning activities, the first part of which is dedicated to the satellite in-orbit testing. A long sequence of calibration activities, end-to-end testing, data dissemination and initial assessment of the meteorological products are now following. After commissioning, MSG-4 will be stored in orbit for 2.5 years, and will then be exploited until two MTG-I satellites become operational in orbit, in 2023.

Delft University of Technology opens TU Delft Space Institute: a new platform for knowledge exchange and cooperation in the space sector

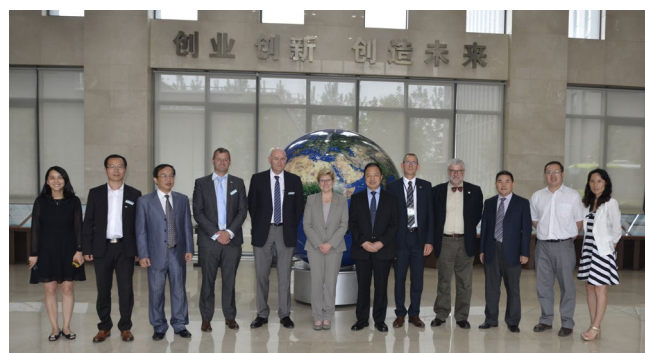


May 19th saw the official kick-off of the TU Delft Space Institute. As part of the Opening Symposium, a high-tech rover, developed jointly by TU Delft and ESA, was located at ESA/ESTEC in Noordwijk and operated remotely from TU Delft some 30 kilometres away. The new institute (www.spaceinstitute.tudelft.nl) is intended to bring together and strengthen cooperation and knowledge exchange with and between companies, institutes, and universities.

"TU Delft is engaged in various space activities and hosts immense knowledge and know-how on many space domains", says Eberhard Gill, Scientific Director of the new institute. "Our aim for this new institute is to bring together the various experts more efficiently and to present our specific expertise more clearly to government and industry primarily via three research themes: Distributed Space Systems, Space Robotics and Sensing from Space."

Besides research, the institute has a strong educational role. The broad Minor "Spaceflight" will be introduced for students from other faculties of the Delft University of Technology. The institute also works together with DARE, the Delft student rocketry society, aiming for its Stratos-II rocket to be the first student rocket to reach boundary of space.

Belgium and China jointly working on a new EO satellite mission!



VITO's Remote Sensing Department (BE) and RADI (CN) are jointly working on a new Earth Observation satellite mission for global vegetation monitoring. The main goal of this cooperation is to design, launch and operate 2 new satellites so that daily global coverage of the earth's landmass can be guaranteed.

The satellites will host both an optical and a thermal instrument. The mission will not only guarantee daily global coverage, but it will also guarantee the continuation of the time series archive that SPOT-VEGETATION and PROBA-V have built up since 1998, an important motivator as times series are of crucial importance for global vegetation monitoring.

PROBA-V already delivers 100 m images of the Earth every day. The 2 new satellites will continue delivering 100 m remote sensing data to users worldwide, but the data will now also contain thermal information hereby expanding the application possibilities. The mission is also complementary to the existing Chinese and European Space programs (like Sentinel).

This new satellite mission builds on the expertise of both coordinating partners. RADI, Institute of Remote Sensing and Digital Earth of the Chinese Academy of Sciences, built up experience with HJ-1-WSIRS and the SJ-9B-TIRS mission. VITO (Flemish Institute for Technical Research) on the other hand has more than 15 years of experience in remote sensing for global vegetation monitoring thanks to the SPOT-VEGETATION and PROBA-V missions.

With this new satellite mission VITO and RADI will both continue their contribution to global food security, vegetation monitoring and global change.

PROPULSION TECHNICAL COMMITTEE

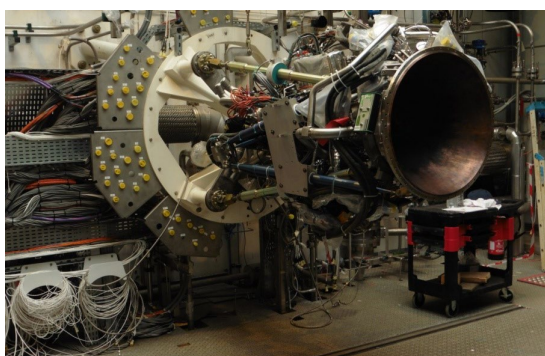


Dr. Toru Shimada, Professor of Space Flight Systems division at Institute of Space and Astronautical Science of Japan Aerospace Exploration Agency (JAXA) will become the new Chairman of the Propulsion Technical Committee at the Committee meeting in Jerusalem on Sunday 11th October. His particular expertise is in the modelling and CFD on flow dynamics inside solid/hybrid

rocket motors including multiphase flows, ablation, combustion instability, and related issues. His research and development activities also include low-cost nano launchers using hybrid rocket engines.

News from France is that the VINCI® rocket engine development is progressing toward qualification taking into account the requirements of the new Ariane 6 configuration. Two additional test campaigns with M4R2 and M5R engines are planned for the last quarter of 2015.

The M4R2 firing test campaign will take place in November 2015 at the new test cell PF52, devoted to VINCI® qualification and production tests in Vernon (France) and will contribute to the bench acceptance. The M5R campaign will start in October 2015 at P4.1 (Germany). Both campaigns will allow testing of new thermodynamic conditions at engine inlets as a result of the Ariane 6 requirements".

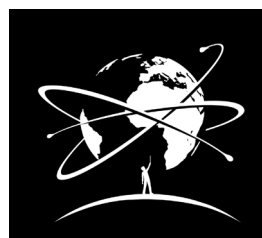


M4R2 VINCI® engine mounted in the new test cell PF52 (Vernon, France)



Another important objective has been reached in March 2015 in the Solid Propulsion field with the successful firing test of the POD-Y demonstrator in south west of France. Its goal was to reduce by a factor of 4 the pressure oscillation in a solid rocket booster compared to Ariane 5 booster. It shows the good understanding and mastering of this complex, physical phenomena by Safran Herakles.

TEDxESA



The first ever **TEDxESA** is taking place on Nov 11 at ESA's establishment in Noordwijk, The Netherlands! Under the theme of "Science Beyond Fiction", a diverse team of international speakers will look at the fascination of space from various points of view. Moderated by Dutch

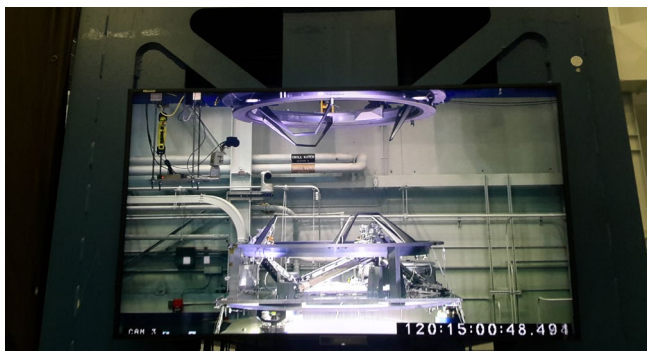
Astronaut André Kuipers, TEDxESA will point out to visionary space projects that will help to answer the most relevant questions about our universe, and TEDxESA will take a look at how space technology and space data can make a difference and give benefit to our lives here on earth already now. Furthermore, the event will show how creativity and fiction can spark our imagination and our eagerness to achieve new results in science, and will also look at space science from a humorous point of view. TEDxESA will be the perfect networking event to meet with innovators, entrepreneurs, forward thinkers and scientists from various different industries. More information can be found here: <http://tedx.esa.int>

QinetiQ Space successfully completes test campaign for a new European docking mechanism



In the summer of last year QinetiQ agreed a multi-million euro contract with the European Space Agency (ESA) to develop the International Berthing Docking Mechanism (IBDM), an actively controlled system for docking two space craft in orbit and in particular to the International Space Station (ISS). In contrast to existing docking systems, the IBDM absorbs all relative movements and minimises the impact loads between two spacecraft during docking. The test phase for this unique system has now been successfully completed.

QinetiQ's Krübeke-based team built a technical ground model for comprehensive testing in Europe and at the NASA Johnson Space Center in Houston, the reference test centre for NASA docking systems. The demonstration ran seamlessly and the mechanism satisfied the applicable International standard for without any problem. This International Docking System Standard (IDDS) is the result of a collaboration among the International Space Station (ISS) Partners to develop a standard docking mechanism that is suitable for various spacecraft and missions.



The team also successfully qualified the docking system in a simulation model. This was done under the supervision of NASA and Sierra Nevada Corporation, the American aerospace company that ESA is currently collaborating with to develop the Dream Chaser, a space transportation system candidate for cargo flights to the ISS. In case of NASA selection of the Dream Chaser, the IBDM will be used for docking this new spacecraft to the ISS in the future. The successful test results support QinetiQ Space supply of the docking mechanism for this cargo transport. The first launch of a space mission is planned for 2018.

HE SPACE - SPACE CAMP



Recently HE Space organised the first space camp in Bremen for pupils from 11-14 year old eager to discover space. This space camp offers us at HE Space the chance to pass on our passion for space to the wider community. In cooperation with DLR schoollab Bremen a varied programme was offered. The pupils learned how rockets can fly into space, why experiments in space are so different from on earth.

They also had a chance to look behind the scenes at Airbus, OHB, ZARM and DLR.

This is not the only space camp HE Space is organizing. As part of our HE Space Children's Foundation endeavour to support

projects that aim at the enhancement of education we will initiate a space camp in Israel at the same time as the 66th International Astronautical Congress (IAC) in October.

Pupils in Israel will get a chance to work with space experts. The camp is locally organised in cooperation with Hebrew University of Jerusalem, Youth Center for Advanced Studies who have lots of experience.

We hope that giving this opportunity to the younger generation prepares them for future challenges. Hopefully we will spark their interest and some of these talented pupils end up in the space sector.



NORTHERN LIGHT DOCUMENTARY WINS AWARDS

The new documentary "The Northern Lights - a Magic Experience" has received several international awards. The film won five awards at the Finisterra Arrábida Film Art & Tourism Festival in Portugal. One awards at the FilmAT Festival in Warsaw.

This new and spectacular documentary about the Northern lights is now available on DVD. "The Northern Lights - a Magic Experience" - was originally made for science museums/planetariums. This is the most complete story of the Northern lights and the DVD contains the following languages: English,

Norwegian, German, French, Spanish, Italian, Japanese and Chinese.



<https://vimeo.com/87472898>

The 25 minute documentary takes you on a breathtaking journey through space. By using pedagogic top-quality animations and spectacular solar imagery from NASA satellites it tells the full story of the northern lights from myth to science. The film is packed with interesting historical anecdotes and includes tips about how to take your own stunning aurora photos.

It includes some of the world's best photography and time lapse sequences of the northern lights. The film also contains brand new - never seen before - graphics and animations specially

made for this documentary. In particular how the particles from the Sun run along Earth's magnetic field - colliding with atoms - exciting them to emit light.

Bonus film: A five minute "relaxing"-film that includes very unique «real-time» video taken by the experienced photographer Ørjan Bertelsen (www.bertelsenfoto.no) using Sony's new super-sensitive camera equipment. The film also contains video from the Hurtigruten Cruiseline. Original music by composed by Herman Rundberg.

The documentary is produced by Pål Brekke, an international recognized solar physicist and public outreach expert with many years at NASA Goddard Space Flight Center and IAF-member (solarmax.no/Aurora/Home.html).

Co-producer is award-winning aurora photographer Fredrik Broms (<http://www.northernlightsphotography.no>). Contact one of us for a preview of the film and for license options.

The DVD can be obtained from:
<http://www.solarmax.no/Aurora/DVD.html>

For license options for science museums and Public Performance Rights (PPR) that allow screenings of DVDs for educational purposes please contact Pål Brekke, paal@spacecentre.no



WOMEN IN AEROSPACE EUROPE



'WIA-Europe Breakfast'

14th October 2015, 07:00 - 08:30

66th International Astronautical Congress, Jerusalem, Israel, Crowne Plaza Hotel, Dining Room

Interested men and women are kindly invited to attend this exclusive networking opportunity, meet and exchange with colleagues and friends and support WIA-Europe's Vision of

"A world where we Europeans collaboratively created an aerospace sector with an inclusive representation".

Programme

Welcome Message:
Simonetta di Pippo, WIA-Europe President

Introduction:
Claudia Kessler, Chair of WIA-Europe Board of Directors

Welcome Address by and Signing of WIA-Europe - IAF Cooperation Agreement with:
Kiyoshi Higuchi, President, International Astronautical Federation

Address by:
Prof. Johann-Dietrich Woerner, Director General, European Space Agency ESA

Speakers:
Dr. Dava Newman, NASA Deputy Administrator
Inbal Kreiss is the former program manager of the Israeli Arrow 3 exo-atmospheric interceptor – active defense system. In 2012 she was awarded the title of "Woman of the Year" by Lady Globes Magazine and in 2014 she was voted as one of the 10 most inspiring women in Tech in Asia & the Middle East.

Prof. Dr. Pascal Ehrenfreund, Chair of the Executive Board, German Aerospace Center DLR
Prof. Pascal Ehrenfreund obtained degrees in Astronomy and Biology at the University of Vienna, where she also earned her doctorate in 1990. Between 2001 and 2005, Ehrenfreund held a professorship in Astrobiology at the University of Amsterdam and the University of Leiden. In addition, between 2005 and 2008 she was a Distinguished Visiting Scientist at the Jet Propulsion Laboratory in Pasadena, USA. She obtained a Master of Arts in Management and Leadership in 2008. Since then, she has been Professor of Space Policy and International Affairs at the Elliott School of International Affairs, George Washington University, and Lead Investigator at the NASA Astrobiology Institute. She accepted the honorary position of President of the Austrian Science Fund (FWF) in 2013, from which she stepped down upon her appointment at DLR.

Inbal Kreiss, Deputy General Manager of MBT Space Division, Israel Aerospace Industries

Dr. Deganit Paikowsky, Senior Researcher, Yuval Neeman Workshop for Science and Security, Tel Aviv University
Dr. Deganit Paikowsky is a post-doctoral fellow at the Hebrew University and also a research associate at the Space Policy Institute at George Washington University. Since 2012 she serves as a consultant to the National Council for Research and Development, which operates under the auspice of the Ministry of Science, Technology and Space. Dr. Paikowsky is a member of the intergovernmental expert team for space policy. In 2010, Dr. Paikowsky was a member of the Israeli Presidential Team for national space policy initiating a new civil space program.










In Memoriam Andrea Boese:

"What we have once enjoyed, we can never lose. All that we love deeply becomes part of us."
Helen Keller

It is with great sadness that the IAF has to inform about the tragic news that our Vice-President, esteemed colleague and dear friend Andrea Boese passed away on 29 August 2015. Andrea has fought serious illness with extraordinary strength and discipline, but she finally lost this fight. We have lost a very dedicated Bureau member, an enthusiastic professional and a very dear friend.



After graduating in Nutrition Sciences in 2000, Andrea Boese worked at the German Aerospace Center (DLR) Institute for Aerospace Medicine. As an expert in protein biochemistry she led international, multidisciplinary studies on Human Physiology and supported space missions. In 2007 she joined the Main Department for Strategy and International Relations at DLR, focusing on space policy, exploration and strategic networks. During her secondment to NASA, she worked at Headquarters in Washington, D.C. and Johnson Space Center (JSC), Houston and received the NASA JSC Director's Innovation Team Award in 2011. She represented DLR on several advisory boards such as the International Space Exploration Coordination Group (ISECG).

Later she became Head of Diversity and Equal Opportunities and Chief Diversity Officer at DLR before moving to the European Space Agency as Special Advisor to the Director General. Andrea helped establishing the network Women in Aerospace-Europe (WIA-E) and served as WIA-Europe Director of International Relations. She was an elected member of the International Academy of Astronautics (IAA). Since 2012 Andrea served as IAF Vice-President covering the portfolios Outreach and Space Societies as well as Workforce Development and Global Conferences.

She was an enthusiastic member of the IAF Community bringing new life to all IAF activities, specifically with the younger generation. She was a true visionary and inspired many. Her positive, motivated and pleasant personality was an asset not only to the IAF but to the global space community.

We will dearly miss her. Our condolences to her family in this difficult time.



Interview with Charles Bolden - Administrator, National Aeronautics and Space Administration (NASA)

Maj. Gen. Charles Frank Bolden, Jr., (USMC-Ret.) was nominated by President Barack Obama and confirmed by the U.S. Senate as the 12th Administrator of the National Aeronautics and Space Administration. He began his duties as head of the agency on July 17, 2009. As Administrator, Bolden leads a nationwide NASA team to advance the missions and goals of the U.S. space program.

1. What themes does NASA intend to highlight at the IAC 2015?

We'll highlight our Journey to Mars and the continued strength of our international partnerships. In science, human spaceflight and aeronautics, international cooperation continues to be essential for enabling the next giant leaps in human exploration. Our work across borders continues to be integral to reaching farther into the solar system using the springboard of the International Space Station and enabling upcoming missions such as the Mars 2020 rover and many other science missions that have instruments and participation by other nations.

As always, we intend to reach out to students from across the world through events like the Space Generation Congress and activities specifically targeted at tomorrow's leaders so they can continue to be welcomed as colleagues in this wonderful aerospace community.

2. As NASA Administrator, Former Astronaut, and Military Veteran, what do you think of Space as the Gateway for Mankind's Future – this year's theme at the IAC?

The future is bright; in large part because of the potential that exploration continues to unfold each year for greater achievements, new discoveries and the peaceful exploration of our cosmos by many nations in partnership. I think science, human spaceflight,



aeronautics and all the technology development associated with them are providing the gateway to the future.

Certainly the International Space Station continues to be a model of how nations can work together for the betterment of humanity and it has enabled astronauts from many nations to fly to space and carry back that perspective and insight to their nations.

Everything we do off the Earth is for the Earth. As we continue to learn more about human health in space and apply those findings to Earth and transform the innovations of exploration to improve life for people worldwide, the value of exploration grows exponentially.

It's always my pleasure at the IAC to speak to young people from around the world who are pursuing careers in science, technology, engineering and mathematics. These young leaders are our future. The inspiration and opportunities we provide them today are going to be the foundation on which they build their own platforms for exploration and new discoveries.

3. Which role do you see for the IAF particularly now that all Space Agencies are expanding their outreach with international partners since human exploration needs a collective effort?

Our journey to Mars will require the efforts and expertise of many nations. One of the best things our space agencies can do is to communicate the great work they're undertaking so that the people in their nations are inspired and engaged. When we last landed on Mars with the *Curiosity* rover, for instance – a mission with international partners involved – millions of people worldwide were engaged and I'm certain a future scientist or engineer made up their mind that day to pursue a STEM career.

In space technology and aeronautics, people can really see the benefits in their lives as we improve the air transportation system worldwide and make it safer, greener and more efficient. Many technologies we develop for exploration are then spun off for commercial use on Earth, helping to improve the quality of life for people worldwide.

Gatherings like the IAC help provide a much-needed space for dialogue and exchange not just among the leaders of space agencies, but among the many scientists and engineers and others whose ideas might be the next breakthrough we need. NASA continues to participate in hundreds of agreements with other nations, many of them in science, and perhaps the language of exploration is the most universal of all. The partnership and friendship across borders inspired by gatherings like the IAC is helping to propel us forward as surely as technology breakthroughs.

4. You've flown on four shuttle missions and commanded two. Do you have any leadership advice to share with the Young Professionals, Emerging Space Leaders and Students attending the IAC 2015?

The young people of today are going to be the ones heading to Mars, so I want them to be inspired and enthusiastic about pursuing science, technology, engineering and mathematics. Because we need them! Even if they're not astronauts, the frontier just keeps pushing out and they could be helping us design a mission to Europa, or building the next space telescope to succeed the James Webb Space Telescope, or poring over the data now streaming in from Earth observation satellites helping us understand our planet and its changes.

The future is bright but the challenges are also huge. More than ever we need the young talent of today to apply their intellect and diplomacy, their creativity and their passion to the big problems of climate change, human health in space over the long term and, in general, making our exploration enterprise a platform to raise the bar of human potential as it improves life here on Earth. They can do it! I've been nothing but impressed and inspired by the energy and enthusiasm of young people across the globe who want to make their own giant leaps as they pursue STEM careers and lead the space agencies of tomorrow.

NASA is committed to STEM education and works to provide many diverse opportunities for students to become involved in our work, whether that's through internships, interaction with NASA professionals at gatherings like the IAC, participation in *FIRST* robotics or countless other ways we are striving to provide tangible and meaningful experiences that help cement the relationship of students with this incredible field. It's possibly our most worthwhile investment, since the students I meet today are going to be leading tomorrow's missions and helping to ensure that all nations around the world have a role to play in this great undertaking that involves everyone no matter where they live.

5. Can you tell us something about NASA that most people attending the IAC 2015 wouldn't know?

I think we're an open book, but perhaps all of the rockets and technology and fantastic discoveries obscure the fact that first and foremost we're about people. From the administrative professionals to the financial people to the program managers to the scientists and engineers and astronauts walking in space, we're a big team working together. The human connection and the drive to make things better for all humanity is the force behind all exploration. That certainly also means students and those who are just beginning to explore the possibilities of the aerospace field.

The next newsletter will be issued in December 2015