



International Astronautical Federation **News**

Connecting Space People

4/2015 (December 2015)

President's Welcome



Dear colleagues,

It is a great pleasure to welcome you to this December edition of the IAF newsletter.

This edition focuses on the exciting news and your stories from the IAC 2015, which took place in Jerusalem in October, and on the upcoming Global Conference on Space and the Information Society (GLIS 2016), preparations for the 2016 Spring Meetings and IAC 2016 in Guadalajara. We are also delighted to introduce the new members who officially joined the IAF at this year's General Assembly meeting.

There is also the usual members' news highlighting the achievements and events of our member organizations, and an interview with Yvon Henri GLIS 2016 IPC Co-chair. I would like to thank the IAF community for their hard work throughout a very successful 2015. I look forward to working with our IAF community in 2016, with best wishes for the holiday season,

Kiyoshi Higuchi

President



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- Closing of applications for Emerging Space Leaders Grant Programme – **6 February 2016**
- Closing of nominations for Young Space Leaders Recognition Programme – **12 February 2016**
- Closing of call for IAF Awards – **12 February 2016**
- Closing of abstract submissions for IAC2016 – **29 February 2016**
- Closing of IAC2015 Call for Plenaries – **29 January 2016**
- Deadline for notices of intent to submit proposals to host IAC 2019 - **26 February 2016**





Dear IAF Community,

The #IAC2015 has been a groundbreaking congress of more than 2300 prominent thought leaders, researchers, decision makers, academicians, media representatives, experts, students, and young professionals from more than 60 countries, energizing an international movement working to advance the dialogue between scientists around the world and to lay the foundation for international space cooperation.

Please find below all videos and photos of the wonderful moments we spent together:



[Click here to see all pre #IAC2015 pictures](#)

[Click here to see all pictures from Monday](#)



[Click here to see all pictures from Tuesday](#)

[Click here to see all pictures from Wednesday](#)



Check for more news on our Social Media



[Click here to see all pictures from Thursday](#)



[Click here to see all pictures from Friday](#)



[Click here to watch all IAC 2015 videos](#)

Important Decisions of IAF General Assembly at IAC 2015

(Jerusalem, October 16, 2015) The International Astronautical Federation General Assembly has gathered during the International Astronautical Congress, IAC 2015, in two sessions (Monday, 12 October 2015, and Friday, 16 October 2015).

Several important decisions have been taken. Among these, the following:

2015 Elections of IAF Officers



The IAF General Assembly at its meeting on 16 October at IAC 2015 in Jerusalem elected Mr. Jean-Yves Le Gall for the position of Incoming President who will assume IAF presidency in September 2016. Mr. Le Gall is the President of Centre National d'Etudes Spatiales (CNES) and IAF Vice-President for Future IAF.

Jean-Yves Le Gall is a trained engineer and scientist who has devoted his entire career to the European space programme, holding positions within the French national scientific research agency CNRS, several French ministries, at Novespace and a first with CNES before joining Starsem and Arianespace, where he was Chairman & CEO until his appointment as President of CNES.

“IAF distinguishes itself because we foster dialogue between different mindsets. Above all, we support international cooperation. Not just scientists, space agencies, societies, associations, institutes and companies in the countries where we are already present – but also of our potential new partners around the globe and, most importantly, of those willing to advance knowledge and foster the development of space.”

Based on the IAF Constitution which was adopted in its revised version at last year's IAC in Toronto, the IAF elects its Incoming President every 3 years. After one year in this position, Mr. Le Gall will assume full presidency for a term of 3 years. The current President of IAF is Mr. Kiyoshi Higuchi, who was elected in 2012 in Naples and whose term was renewed in 2014 in Toronto, bringing to the IAF an enthusiast, with a great sense of altruism.

In addition, 4 new Vice-Presidents have been elected by the General Assembly: **Prof. Otto Koudelka**, Head of the Institute of Communication Networks and Satellite Communications at Graz University of Technology will be serving as VP for Publications and Communication; **Mrs. Mary Snitch**, Senior Manager, University and Industry Relations, Lockheed Martin Corporate Engineering,

Technology and Operations will be serving as VP for Global Membership Development and Global Conferences; **Prof. Chris Welch**, Professor of Space Engineering and Director Masters Programs at International Space University will be serving as VP for Education and Workforce Development, and **Dr. Alexander Degtyarev**, General Designer – General Director of SDO Yuzhnoye will be serving as VP for Industry Relations.

They will join the team of 8 Vice-Presidents presently in office. Together they will collaborate in furthering the mission of the Federation for the benefit of humanity.

Selection of Host City for IAC 2018

After careful review of the three proposals to host IAC 2018, received for Bremen (Germany), Vienna (Austria), Punta del Este (Uruguay), the IAF General Assembly at its second session on 16th October selected **Bremen** as Host City for **IAC 2018**. The Hosting Organization is the ZARM Drop Tower Operation and Service Company, a member of IAF since 1997.

New IAF Members

The IAF General Assembly also approved the applications of **31 new Member Organizations from 18 countries worldwide**. With this, the IAF Membership comprises 306 Member Organizations from 66 countries, confirming IAF's position as a truly global Federation.

The General Assembly in its second session revoked its earlier resolution of Monday 12 October 2015 relating to the approval of the DPR Korea's National Aerospace Development Administration's application for membership to the IAF, based on new information received and unknown to the General Assembly at its first session.



The banner features a blue background with a globe and satellite imagery. On the left, there are logos for IAF and ITU. The central text reads: "GLIS 2016 GLOBAL CONFERENCE ON SPACE AND THE INFORMATION SOCIETY". To the right, it says: "Global Conference on Space and the Information Society", "6 - 7 June 2016", "Geneva, Switzerland, ITU Headquarters", "Connecting the World via Space - Policies, Technologies, Applications", and "www.glis2016.org".

The International Astronautical Federation (IAF) is pleased to invite you to the **Global Conference on Space and the Information Society (GLIS) 2016** to take place in the Headquarters of the International Telecommunication Union (ITU) in Geneva, Switzerland, 6 and 7 June 2016.

This latest edition of IAF Global Conferences, co-organised by the **International Astronautical Federation (IAF)** and the **International Telecommunication Union (ITU)** will propose an optimal series of discussions addressing the issue of a worldwide connection allowed by Space through Policies, Technologies and Applications.

A detailed analysis on the impact that space policies, space technologies and space applications have on the daily life of people, organizations and governments communicating and exchanging information around the world will be undertaken.

The conference will feature an Opening Event, a Wrap-up Session, and 5 Plenary Sessions (PE):

- PE 1 - The ITU and its Impact on Space Activities
- PE 2 - Sustainable Development Goals (SDG) and the Contributions of Satellite Communications
- PE 3 - Space Services and Security
- PE 4 - Space Economy meets Information Economy
- PE 5 - Big Data – Information Society

For more information on GLIS2016, click [here](#).

Looking forward to meeting you in Geneva at #GLIS2016!



THE CALL FOR PAPERS FOR IAC 2016 IS NOW OPEN!

Join the world's premier global space event at the 2016 67th International Astronautical Congress.

#IAC2016 will be held on 26-30 September, 2016 in Guadalajara, Mexico and is a unique opportunity to share knowledge, expertise and research with the Space Community.



The IAC regularly attracts more than 3,000 attendees from all over the world including scientists, researchers, engineers, decision-makers, prominent community members, and so many more.

Individuals are encouraged to submit abstracts covering one of the following topics:

- Science and exploration
- Space life sciences
- Space debris
- Applications and operations
- Earth observation
- Space communication and navigation
- Integrated applications
- Technology
- Astrodynamics
- Space propulsion
- Infrastructure
- Space systems
- Space transportation
- Space and society
- Space education and outreach
- Space policy, regulations and economics
- Space law



For guidance, the IAC2016 session list is available online:
<https://iafastro.directory/iac/browse/IAC-16/catalog-technical-programme>

The Call for Papers closes on 29 February 2016.

Please consult the Q&A which should answer any questions you may have. If you need any more information, please do not hesitate to contact us at support@iafastro.org

We look forward to receiving your abstracts!

Registration will be soon open at www.iac2016.org, where you can also see the latest updates on the Congress from the local organiser, the Mexican Space Agency (AEM).

There are a variety of sponsorship and publicity opportunities available for IAF member organisations, all of which are detailed on the IAC 2016 website.

IAC 2016 - CALL FOR PLENARIES AND HIGHLIGHT LECTURES NOW OPEN!

We would like to inform you that the IAC 2016 Call for Plenary Events and Highlight Lectures for the 67th IAC in Guadalajara, Mexico is now open and will close on Friday 29 January 2016 (CET time). [You can download the submission form as well as the explanation of the selection criteria here.](#)

BREMEN, GERMANY TO HOST IAC 2018



After careful review of the three proposals to host IAC 2018, received for Bremen (Germany), Vienna (Austria), Punta del Este (Uruguay), the IAF General Assembly at its second session on 16th October selected Bremen as Host City for IAC 2018.



The Hosting Organization is the ZARM Drop Tower Operation and Service Company, a member of IAF since 1997.

The #IAC2018 will be 1 – 5 October 2018



CALL FOR HOSTING THE IAC 2019



Each year the International Astronautical Federation (IAF) – in collaboration with the International Academy of Astronautics (IAA) and the International Institute of Space Law (IISL) – organises the International Astronautical Congress (IAC). The IAC is held in different countries of the world with an IAF member organisation serving as its host. In recent years the event attracted more than 3500 participants including up to 2000 full paying participants, retired participants and press representatives as well as approximately 800 students and young professionals. The IAF is seeking proposals from IAF member organisations interested in serving as the host of the 70th IAC which will be held in 2019.

The schedule for the selection of the site of the 70th IAC is as follows:

- Announcement of Call for Proposals:** 4 November 2015
- Deadline for notices of intent to submit proposals:** 26 February 2016
- Deadline for submission of proposals:** 29 April 2016
- Selection of finalist candidates (if applicable):** 30 June 2016
- Site Inspections:** July – August 2016
- Deadline for submission of updated proposals from the candidates:** 9 September 2016
- Finalist presentations: during the 67th IAC in Guadalajara, Mexico:** 26 – 30 Sept. 2016
- Selection of the Host by the IAF General Assembly:** 30 September 2016

Note: The IAF may – at its discretion – modify the above schedule and notify the concerned organisations of the schedule changes.



IAF Spring Meetings

The Spring Meetings will take place at the CAP-15 Conference Centre in Paris, from 22 – 24 March 2016. The 3 days begin with IAF committee meetings on Tuesday 22nd and Wednesday 23rd, followed by a Global Networking Forum (GNF) event and the IAF cocktail on the Wednesday evening. The International Programme Committee (IPC) general meeting and papers selection for IAC 2016 take place on Thursday. There will also be 2 sessions of the IAF Bureau. [For more on this year's IAF Spring Meetings, click here.](#)



NEW IAF MEMBERS

ASTROSCALE Pte Ltd



ASTROSCALE is a Singapore based private space company, which mission is to address the growing threat of space debris by incubating Active Debris Removal (ADR) solutions and on-orbit services, and at the same time by raising public awareness to space environmental issues. In order to make space more approachable for global citizens, the company actively participates in different public outreach events, provides technological support and the global alliance necessary for private companies to be involved in space missions.

AUSTROSPACE



AUSTROSPACE, the association of Austrian Space Industries and research Associations, is a non-profit organization focusing on:

Comprehensive information about Austrian space activities

Representation of common interests of Austrian suppliers and users of Space technologies vis-à-vis Austrian authorities and international organizations.

The members of AUSTROSPACE account for the predominant part of Austrian contributions to space programs and cover a broad spectrum of space technologies and applications in the areas of telecommunications, navigation, earth observation, meteorology, space transportation, and space science.

Bauman Moscow State Technical University



BMSTU has 19 departments providing full-time education. University provides postgraduate and doctorate programs and has two affiliated secondary schools. More than 19,000 students study in BMSTU and specialties cover all range of modern machine and instrument building. More than 320 doctors of science (Russian degree higher than PhD) and 2000 candidates

of science (similar to PhD) teach and do research in BMSTU. Main parts of the University are eight scientific and educational divisions. Each of them consists of scientific and educational branch. Several branch departments also exist, they deal with particular fields of industry. They are based on big factories and organizations, situated in Moscow, Moscow suburbs (Reutov, Krasnogorsk and Korolev) and in Kaluga. BMSTU has unique experience of teaching hearing-impaired students since 1934.

Canadian Space Commerce Association (CSCA)



The Canadian Space Commerce Association (CSCA), Canada's national space industry association, is a registered not-for-profit industry organization existing to advance the economic, legal and political environment for Canadian space focused companies.

We host bi-monthly meetings, an annual national conference and a new symposium series. We work with industry, government, academia and other organizations to support the Canadian Space Industry.

Center of Space Exploration, Ministry of Education (COSE)



Center of space exploration, Ministry of Education (referred to as "COSE") is supported by Chongqing University and has 28 key domestic universities as its participating institutions, such as Beijing University, Tsinghua University, Beijing University of Aeronautics and Astronautics, Nanjing University, Chongqing University, Tongji University, Zhejiang University, Southeast University, Shandong University, Sichuan University and so on. Its main work is to coordinate research on deep space exploration field among universities, and is dedicated to the research and popularization of deep space exploration and actively promote application and development of space just as IAF.

COSE integrates the resources of colleges and universities and undertake the research tasks of deep space detection technologies and projects, so as to serve the Ministry of Science and Technology, the State Science, Technology and Industry for National Defense, General armaments department and other departments and enterprises such as China Aerospace Science and Technology Corporation and so on, as well as to make contributions to the development of deep space detection of China;

COSE explores the mechanism of graduate student education and cultivate applied professional high-level talents. It will strengthen the construction of related disciplines of deep space detection, establish the disciplines such as the mechanical structure, environmental science and engineering (space environment), aerospace strategy and so on.

COSE tracks the development trend in the aerospace field, and promote the integration of enterprises, education and research. COSE will work on the popularization of deep space exploration; invite both domestic and foreign well-known experts to give lectures on a regular basis, so as to improve the aerospace science literacy of students and citizens

Central American Association for Aeronautics and Space (ACAE)



The Central American Association for Aeronautics and Space (ACAE) is a non-profit organization belonging to the field of science, technology and innovation, which aims to position Costa Rica and the Central American region on the map of the aerospace sector. The association was born in Costa Rica of the initiative of a group of professionals in the new paradigm of technological development that has been brewing in Central America in recent years.

Our mission is to promote and develop the Central American talent in the aerospace field, and our vision to be the entity of reference leading the active participation of Central America in this global endeavour.

ACAE in Costa Rica has 4 main lines of action: Industry, Political advisory, Technological projects and Outreach.

European Test Services (ETS) B.V.



European Test Services (ETS) is maintaining and providing test facility services to European industry by managing and operating the environmental test centre of the European Space Agency (ESA) located in Noordwijk, The Netherlands.

ETS is active in mechanical testing, EMC testing, thermal

vacuum testing, altitude simulation and more. In addition to the test services, ETS also provides test-related engineering and consultancy services.

Besides testing of spacecraft and space applications, ETS has also become a major supplier of testing services to railway-, marine- and power/electricity industry.

Flinders University



Department of Archaeology: research and teaching in Space archaeology and heritage.

Flinders Centre for Nanoscale Science and Technology: aerospace materials research

National Research Centre Airborne Research Australia: research and consulting in Earth observation and remote sensing

Centre for Science Education in the 21st Century: space and space science education programs

Department of International Tourism: research in space tourism.

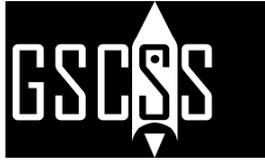
G.A.U.S.S. Srl



G.A.U.S.S. Srl – The company business is mainly related to the design and realization of microsatellites, which are also intended as CubeSat, Pocketcube and releasing platforms. The main project of the Company is called UniSat. In the frame of the UniSat program, 3 satellites have been launched starting from -2000. In the most recent launches, UniSat was also a platform and it was able to release 4 CubeSats, thus letting G.A.U.S.S. being a small satellites launch provider. G.A.U.S.S. activities include also structural design, realization and integration of the main subsystems and payloads and all the ground segment operations.

The scientific and educational mission of the company is also very important: several experiments are boarded on the microsatellites, ranging from space debris observation instruments to space biomedicine.

Global Student Commercial Space Society (GSCSS)



The Global Student Commercial Space Society's (GSCSS) mission is to captivate and engage STEAM (science, technology, engineering, arts, and math) focused high school / gymnasium students to become advocates for the development of commercial and private space, empowering those students as catalysts for, and future leaders of, a permanent private human presence in space.

Founded by a current high school student attending gymnasium in Finland, the GSCSS will serve as a way of connecting like-minded youth from across the globe to discuss, and promote, their shared vision of the robust, commercially based, and economically viable human settlement of space.

To accomplish this, the GSCSS will publish a semi-annual journal of articles and artworks sourced globally, written and created by international high school students. Using a panel of experts from National Space Agencies, universities, and the private space sector, submissions will be evaluated for inclusion in each semi-annual Journal. Feedback and encouragement will be provided to each student regardless of their ultimate selection for publication. As the Society grows, other events will be developed in partnership with likeminded organizations internationally.

Hermann-Oberth-Raumfahrt Museum e.V.



Museum dedicated to life, work and effectively of Space pioneer Hermann Oberth. Museum has its main focus at beginning era of the German and international space flight movement in the 1920s and 1930s.

Institut d'Estudis Espacials de Catalunya – IEEC



The IEEC is focusing its efforts in studying the Earth as a planet (atmosphere, oceans, crust, etc...) and the Cosmos (solar physics, planetology and interplanetary medium, stellar and galactic astrophysics, cosmology, fundamental physics, astroparticle physics, etc...) using space platforms. This work is complemented with the vigorous program of theoretical, experimental I observational and numerical modeling activities to obtain the maximum profit of the data. Furthermore, the IEEC is also involved in the definition and construction of ground based instruments with the purpose to give support to the space activities and to acquire new skills able to be used in space activities.

The general objectives of the institute are to:

- Promote astronomical and space research.
- Become an internationally recognized center in order to attract talent and foster collaborations both national and worldwide.
- Be an efficient agent of knowledge, innovation and technology transfer in its Field.

Carry out science awareness to society by communicating scientific culture.

International Space Center – Space Park Israel Ashdod



The International Space Center – Ashdod — a Center were studies and R&D takes place, where an exchange of ideas between scientists and students from all over the world occurs, who want to promote, explore and develop new technologies internationally in many areas: where the promotion of exploration, and the development of new research programs; organized workshops and scientific collaborations with international science and space communities shall be promoted and thrive.

Intersputnik International Organization of Space Communications



Founded on November 15, 1971 under the Agreement on the Establishment of the Intersputnik International System and Organization of Space Communications, the Intersputnik International Organization of Space Communications

(Intersputnik) is an intergovernmental satellite organization headquartered in Moscow, Russian Federation.

Intersputnik can be joined by the Government of any state, which shares the principles of its activity.

Presently, Intersputnik has twenty six member countries, which represent virtually all geographic regions from Central America to South-East Asia, and from Europe to Africa. The Governments of the Intersputnik member countries appointed twenty four Signatories from among national telecommunications organizations and telecommunications administrations.

Intersputnik's mission is to contribute to the consolidation and expansion of economic, scientific, technological and cultural relations using satellite telecommunications, video and audio broadcasting, and to support cooperation and coordination of the efforts of the member countries aimed at designing, procuring, operating and expanding an international satellite telecommunications system.

Mc Gill Institute for Aerospace Engineering (MIAE)



MIAE intends to derive several benefits by joining the IAF. The most important benefit is related to participation. MIAE personnel will be eligible to serve on the Technical and Administrative Committees of IAF.

In addition, several members of MIAE attend the IAC every year. They will be eligible for special registration fee if MIAE joins the IAF.

MIAE will also be able to increase its visibility in the space sector internationally. Finally, by joining the IAF, MIAE members will have greater opportunity for networking.

Max-Planck-Institute for Ornithology



At the Department of Migration and Immuno-Ecology, we study how living animals move across the globe, how they survive their perilous journey through time and space, and how and

why they die. This includes investigations into the physiology, social interactions, and environmental parameters influencing the individual decisions of animals on the move.

The results from our studies will allow us to understand how interconnected life is, from viruses at Lake Constance to cranes crossing the highest Himalayan mountains to Galapagos giant tortoises embarking for centuries on long return migrations. Our results and technical developments support the basic scientific understanding of wild animals and are applied to safeguard a healthy planet.

NGC Aerospace Ltd.



NGC Aerospace Ltd is a Canadian high-tech SME recognised for the design and deployment of artificial vision, guidance, navigation and control systems for the autonomous operation of space, aeronautical and terrestrial vehicles.

The analyses, algorithms, simulators and real-time software developed by NGC aim at increasing the autonomy, performance, reliability and safety of these intelligent vehicles while at the same time reducing their operational cost. From theoretical concepts and innovations to satellites and autonomous rovers currently in operation, NGC has demonstrated creativity, quality, excellence and performance consistent with its motto of bridging the gap between theory and practice.

Purple Mountain Observatory



The PMO's (Purple Mountain Observatory) research focuses on high-energy astrophysics, solar physics and space astronomy exploration technology; star formation through the universe and corresponding terahertz technology; artificial satellite orbital dynamics and probe methods; planetary science, ephemeral astronomy and deep space exploration; and observational cosmology and galaxy formation.

By 2020, PMO aims to use a space-based probe of dark matter to solve major scientific problems; develop technology related to Antarctic astronomy in order to construct related "big science" facilities; and improve the system for observing objects and debris in space in order to support the nation's aerospace programs.

Sapienza University of Rome



SAPIENZA
UNIVERSITÀ DI ROMA

Since its founding, over 700 years ago, Sapienza University of Rome has contributed of science and culture in all areas of knowledge and to the development of the knowledge society through research, high quality education and international cooperation.

Simeon Technologies



Simeon Technologies makes research and Innovation technologies based on Electromagnetism. We have actually 2 sectors:

Development of heating devices to fight against cooling

Development of Protection against cosmic and solar radiation, gamma and X-Ray

Our next sector will concern spaceship engine. We are specialized in Aerospace

Solar MEMS Technologies S.L.



Design and development of sun sensors for satellites: SSOC and nanoSSOC; for med and big satellites, and for nano-satellites (cubesats). TEST IN SPACE full service: it provides a unique opportunity to achieve in-orbit demonstration and validation of innovative devices for research or commercial purposes through a short schedule, straightforward approach and an economical price, offering dedicated and hosted payload slots inside MPSAT nano-satellites, and including all the steps for the mission: assembly, integration, launch and in-orbit operations.

Space Florida



Space Florida is an Independent Special District of the State of Florida for the purposes of fostering the growth and development

of a sustainable and world-leading space industry in Florida

As the State of Florida's aerospace economic development agency, Space Florida fosters bold economic development activities to expand and diversify domestic and international opportunities that support talent development, enhance infrastructure and support governments and organizations in improving the state's competitive business climate.

Talinn University of Technology



Tallinn University of Technology (TUT) is the biggest public university, educating degreed engineers in Estonia. TUT was founded in 1918 and it has currently 13 200 students, of which 10% from foreign countries. TUT has 120 departments under 8 faculties with the total staff of ca 2000 people.

In 2014, Mektory Space Centre was established under the TUT Innovation and Business Centre MEKTORY. The purpose of the Space Centre is to coordinate interdisciplinary space related activities within TUT. The biggest space related initiative is the TUT-MEKTORY Nano-Satellite Programme for master level students. The satellite programme is carried out with 15 academic supervisors from 7 departments, ca 30 master level students from various disciplines and also partners from other academic institutions and companies from Estonia and abroad. TUT is also actively involved in research projects with European Space Agency.

Technology and Engineering Center for Space Utilization (CSU)



中国科学院空间应用工程与技术中心
Technology and Engineering Center for Space Utilization, Chinese Academy of Sciences

Technology and Engineering Center for Space Utilization (CSU) formally established in August 2011. Before 2011, CSU has also been known as GESSA, i.e. General Establishment of Space Science and Application, Chinese Academy of Sciences, which was founded in 1993. The name GESSA is still referred to today.

On behalf of the Chinese Academy of Sciences (CAS), CSU has participated China's Manned Space Program (CMSP), acting as an organizer, coordinator and integrator of the Space Utilization System of CMSP. Institutes and universities inside and outside CAS have been involved in the Space Utilization System.

China's Manned Space Science and utilization has long been playing an important role in serving the national major strategic demands and gaining world-class competitive capabilities. With 20 years of unremitting endeavour, tens of scientific research projects have been successfully implemented, by utilizing the

"S2" series spacecraft and "T G-1" space laboratory. Fruitful achievements have been attained in these researches. With the significant contribution to the progress of CMSP, especially to the space science and application, a number of awards and reputation were gained, such as National Prize of Scientific and Technological Progress, National May 1 Labor Award, Outstanding Contributions to the Manned Spaceflight and more.

The Federal University of Technology, Akure (FUTA)



FUTA activities are mainly:

1. Develop and offer academic and professional programmes leading to the award of certificates, diplomas, first degrees and postgraduate degrees
2. Acts as agent and catalyst, through postgraduate research and training for efficient, effective and economic utilization, exploitation and conservation of Nigeria's natural and human resources
3. Identify technological problems and needs of the society and solve them within the context of national needs
4. Provide and promote sound basic scientific training reflecting indigenous culture and enhancing national unity.

The Ohio State University College of Engineering



Ohio State's College of Engineering and Knowlton School of Architecture strive to foster a learning culture that prepares students to be key contributors to society through their technological, professional and personal skills. Our faculty and our students thrive in an environment of new ideas and concepts that expand the understanding of science, engineering and architecture.

In addition to being an innovative leader in engineering and architecture education, we endeavor to fulfill our university's land-grant mission of advancing Ohio's economic mobility, competitiveness and standard of living through our contributions toward technology and creativity, continuous improvement, a diverse workforce and lifelong learning. The college also is firmly committed to and a catalyst for the University's Discovery Themes: Energy and Environment; Food Production and Security; and Health and Wellness.

United Rocket and Space Corporation



The URSC was created on March, 2014 as a result of the national space industry restructuring effort. It is 100 % state-owned and includes most of the Russian space industry enterprises: 10 large integrated structures built of 48 smaller companies and 14 separate firms, of these 8 JSC's and 6 Federal Unitary Enterprises (to be privatized as 100-% state-owned JSC's). And the main goals of the URSC are:

- To integrate rocket and space industry companies in a single integrated structure and implement the centralized management;
- To develop technical and manufacturing capabilities, to attract and concentrate intellectual, industrial, financial and other resources required for the implementation of priority programs for rocket and space technology development, to enhance the competitiveness of the national rocket and space technology in the world market;
- To develop and implement an unified corporate industrial policy;
- To maintain and develop the scientific and industrial potential of the URSC and its subsidiaries;
- To draw an income, including dividends in stocks of affiliated subsidiaries.

University of Colorado, Colorado Center for Astrodynamics Research



The Colorado Center for Astrodynamics Research (CCAR) is dedicated to the study of astrodynamics and the application of satellites to science, navigation, and remote sensing of the Earth and planets. Hosted by the Department of Aerospace Engineering Sciences in the College of Engineering and Applied Sciences, CCAR was established in 1985 as a key component of the University of Colorado at Boulder's emphasis on space science. CCAR brings together a multidisciplinary group of faculty, staff, and students to enhance our understanding of the Earth and the solar system through satellite missions and observations. Research emphasis areas include astrodynamics, which involves orbital and attitude motion of Earth satellites, interplanetary spacecraft, and planetary bodies; global navigation satellite systems (GNSS) used for orbit determination, remote sensing, and vehicle navigation, and remote sensing of the Earth's surface, gravity field, oceans, atmosphere and space.

Vieira de Almeida & Associados



VdA is a Portuguese full-service law firm highly specialized on TMT (Telecommunications, media and Technology) matters and in this context it has also been advising clients on space matters, including on policy contractual and law mailing issues, especially in African countries.

Xovian Research & Technologies Pvt. Ltd



Xovian is an instigator for the research and development aiming to acknowledge and empower each and every innovator to serve for the betterment of humankind in advancing and promulgating knowledge and implementing the parameters all across the globe in an incredible manner. We are pioneer in research and development to provide our superior and sustainable services for the Manufacturing Industry, Aerospace & Defence market.

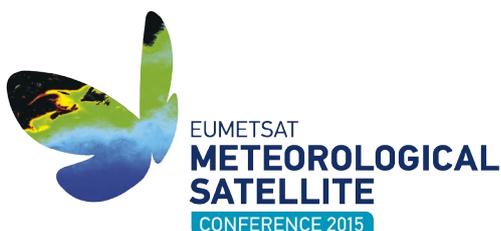
Zero2infinity



High altitude ballooning for scientific and technical customers. The project is to carry passengers to 36 km on our balloons, and in another configuration to carry a small launcher for nanosatellites (rockoon concept).

MEMBERS NEWS

EUMETSAT Satellite Conference



On 21-25 September 2015, the EUMETSAT Meteorological Satellite Conference, organised jointly with Météo-France, took place in Toulouse, France, attracting 400 experts from 40 countries. In anticipation of the innovative satellite systems of the future, the conference launched a discussion on how future satellite observations can fulfil the requirements of innovative high resolution weather models. The 2016 conference will take place in Darmstadt, Germany, the headquarters of EUMETSAT. It will celebrate the 30th anniversary of the organisation with a series of round table discussions dedicated to key themes of satellite meteorology.

GCOS Conference on "Global Climate Observation: the Road to the Future"



The conference *Global Climate Observation: the Road to the Future*, organised by GCOS with support of EUMETSAT, is being held to allow producers and users of climate observations and other stakeholders the opportunity to discuss the current monitoring of the Essential Climate Variables (ECVs) and to highlight possible new areas for ECVs. These discussions provide a key input into the new GCOS Implementation Plan that is now being prepared for UNFCC in 2016. The conference *Global Climate Observation: the Road to the Future* will take place from **2-4 March 2016 at the Royal Academy of Arts and Sciences, Amsterdam, the Netherlands**. For more information please visit the webpage: www.gcos-science.org

David Willetts joins SSTL's Board as a Non-Executive Director



David Willetts, former UK Minister for Science and Universities, has joined the Board at Surrey Satellite Technology Ltd (SSTL) as a non-Executive Director.

David Willetts was appointed to the UK Government Cabinet Office as Minister of Science and Universities in 2010 and during his tenure, which came to an end in 2014, he was a strong supporter of the UK space sector and visited SSTL on numerous occasions. In August of this year David Willetts was nominated for a life peerage in the House of Lords.

Sir Martin Sweeting, Executive Chairman of SSTL, commented on the appointment of Mr Willetts to SSTL's Board, saying "David has long been an advocate of British science and technology excellence, and a tireless ambassador for promoting and encouraging the growth of the UK space sector. We are delighted that he has accepted the appointment to our Board, and we believe that David's breadth of experience in the fields of education and science will be beneficial to SSTL's strategic goals and our focus on innovative solutions to space-based applications."

David Willetts views his new appointment with enthusiasm, stating "I enjoyed working with the British space industry during my time as Science Minister and am delighted to be taking up this post with SSTL, one of our innovative world leading space companies."

2015 has been a momentous year for SSTL. In February the Company appointed Patrick Wood as Group Managing Director, and in May unveiled its new Spacecraft Operations Centre at its Guildford Headquarters site. In June SSTL celebrated its 30th anniversary, and in July the Company secured its first geostationary satellite platform contract, and launched the DMC3/TripleSat Constellation of 1 metre Earth Observation satellites, together with Carbonite-1, a micro-satellite mission to demonstrate new Earth Observation technologies, including HD video from orbit.

SSTL has issued a press release:
[David Willetts joins SSTL's Board as a non-Executive Director](#)

GomSpace's Third CubeSat in orbit



The GOMX-3 mission is a collaboration between the European Space Agency (ESA) and GomSpace to demonstrate new capabilities of nano-satellites focusing on attitude control, RF sensing, and high-speed data downlink.

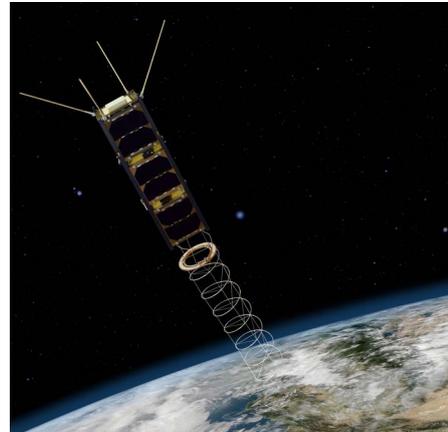
Work on the mission began in June 2014 under the In-Orbit Demonstration element of the ESA General Support Technology

Programme and the flight model was delivered one year later. The satellite was developed in compliance with the ESA tailored ECSS engineering standards and product/quality assurance requirements for IOD CubeSat projects. It was deployed from the International Space Station (ISS) on the 5th of October.

GOMX-3 is a 3U CubeSat and hosts the following payloads:

- A number of next-generation GomSpace subsystems including on-board computer and radio
- A three-axis attitude control system with reaction wheels for 2-degree pointing
- Reconfigurable Software Defined Radio demonstrating spectrum & interference monitoring in the L-band
- An ADS-B receiver for tracking aircraft from space - updated version from the payload first flown on GOMX-1
- X-band Transmitter and antenna contributed by Syrlinks to demonstrate high-speed (3Mbps) downlink from a CubeSat

Contact was established with the satellite at the first opportunity from the ground station in Aalborg and basic health was confirmed. In the weeks that followed, the UHF data rate has been increased to 19200 bps, 3-axis pointing in both nadir and ram-tracking has been achieved, worldwide ADS-b data has been collected, and the software-defined radio has analyzed the RF environment over a wide range of frequencies. In the coming weeks, the Xband transmitter will be tested via coordination with multiple CNES ground stations.



*Illustration of GomSpace's satellite GOMX-3 in space.
Credit: NASA and GomSpace*

Andreas Mogensen - first Dane in Space

On September 2, 2015, the Soyuz (TMA-18M) was launched from Baikonur, Kazakhstan with the Danish astronaut Andreas Mogensen, Aydan Akanovich Aimbetov from Kazakhstan and the Russian commander Sergei Alexandrovich Volkov. They reached the International Space Station on September 4. During the IRISS mission Andreas Mogensen worked hard on completing a number of experiments. Andreas and Aydan returned to the Earth on September 12, 2015 with Gennady

Padalka from Russia as commander. The IRISS mission was followed in Denmark with great interest. The project "Rumrejsen 2015", www.rumrejsen.dk coordinated the direct involvement of about 30.000 schoolchildren. Eight science-centers arranged Mission Launch events and Meet a Space-Researcher events. Competitions relating to space were arranged for different age groups and the CanSat competition will take in place in Denmark in 2016 for the first time. New teaching material in Danish was developed about weightlessness, rockets, the Body and Space and Life in Space. A number of courses addressing teachers were held to inspire them how to integrate space topics in their teaching. In this school year Andreas Mogensen will visit a number of schools and science centers in Denmark and give a presentation about the IRISS mission.



Photo: ESA-S. Corvaja, 2015

S.Korolev Museum Celebrated World Space Week



The celebration of science and technology was exciting and eventful at S.Korolev Space Museum in Ukraine. This year, the museum launched an interactive project dedicated to the World Space Week.

The project "Eyes on the Universe" had peculiarities of its own. First, it was astronomical, which is more usual for planetariums than space museums. Second, it was interactive, which meant active participation of visitors in the events taking place within the framework of the project. Third, the project supposed involvement of institutions, organizations, and private persons active in space sector.



As a result, the museum could offer an attention-grabbing program to different audience. The traditional workshop provided kids with an opportunity to create their first aircraft. Students and schoolchildren met with a Ukrainian applicant to participate in the project Mars One Sergey Yakimov. Astronomy fans were able to see and try out some old research tools, see old maps and books on astronomy and science fiction dating back to 1800, to hear the Universe inside the *Cosmic Egg* and endeavor 3D voyage to Mars. Students and teachers of secondary schools had a wonderful opportunity to participate in the "Lesson for the Curious" with Ivan Kryachko, a co-author of Astronomy textbook for 11th graders and a leading research scientist of the Main Astronomical Observatory of Ukraine.



The 'Lights of the World' conference, dedicated to the International Year of Light, took place in Bucharest

From 30 October to 1 November 2015 the Parliament Palace in Bucharest hosted the 'Lights of the World' conference, an event that brought together personalities from Romania and from abroad, people with outstanding results in science, art and culture, UNESCO representatives, successful businessmen, but also the interested public, including middle- and high-school students and teachers, researchers and university professors.

The event aimed to develop the concept of “light (of the world)” from a transdisciplinary perspective, highlighting its multiple facets and symbols in science, education, space and culture as a vector of sustainable development in the 21st century society.

Dr. Marius-Ioan Piso, President of the Romanian Space Agency (ROSA) opened the conference along with a prestigious presidium. His talk presented the central role the light plays in space research.



Details:

<http://rosa.ro/index.php/en/news-menu/evenimente/1346-presedintele-agentiei-spatiale-rom-ne-rosa-dr-marius-ioan-piso-deschide-conferinta-lights-of-the-world-dedicata-anului-international-al-luminii>

FB+Linkedin: From 30 October to 1 November 2015 the Parliament Palace in Bucharest hosted the ‘Lights of the World’ conference, dedicated to the International Year of Light. Details: <http://rosa.ro/index.php/en/news-menu/evenimente/1346-presedintele-agentiei-spatiale-rom-ne-rosa-dr-marius-ioan-piso-deschide-conferinta-lights-of-the-world-dedicata-anului-international-al-luminii>

Twitter: A conference dedicated to the International Year of Light #IYL2015 - ‘Lights of the World’ - took place in Bucharest. Details: <http://rosa.ro/index.php/en/news-menu/evenimente/1346-presedintele-agentiei-spatiale-rom-ne-rosa-dr-marius-ioan-piso-deschide-conferinta-lights-of-the-world-dedicata-anului-international-al-luminii>

Romanian astronomers have determined the mineralogical composition of an asteroid that intersects Earth’s orbit

The Astronomical Institute of the Romanian Academy and the Astronomical Observatory in Cluj-Napoca together with international partners initiated and ran observational campaigns devoted to the study of asteroid 2004 BL86 and have succeeded in establishing its physical and mineralogical properties. The new information is valuable mainly because the asteroid presents a potential danger due to its proximity to Earth and because its orbit is chaotic.



Details:

<http://rosa.ro/index.php/en/news-menu/stiri/1307-astronomii-rom-ni-au-determinat-compozitia-mineralogica-a-unui-asteroid-care-intersecteaza-orbita-pamantului>

FB+Linkedin: Romanian astronomers have determined the mineralogical composition of an asteroid that presents a potential danger to Earth not only because it gets close to it, but because its orbit is chaotic. Details: <http://rosa.ro/index.php/en/news-menu/stiri/1307-astronomii-rom-ni-au-determinat-compozitia-mineralogica-a-unui-asteroid-care-intersecteaza-orbita-pamantului>

Twitter: Romanian astronomers have determined the mineralogical composition of an asteroid that intersects Earth’s orbit. Details: <http://rosa.ro/index.php/en/news-menu/stiri/1307-astronomii-rom-ni-au-determinat-compozitia-mineralogica-a-unui-asteroid-care-intersecteaza-orbita-pamantului>

Humans in Space - The Space Conference 2015

On 10th November 2015 the German Society for Aeronautics and Astronautics (DGLR – Deutsche Gesellschaft für Luft- und Raumfahrt) hosted the 3rd Space Conference in Stuttgart. Themed “Leaving the blue dot” the conference covered several important space topics from the past to the future.

“Last year brought us some exiting and very important happenings”, said Claudia Kessler, vice president of DGLR and CEO of HE Space. “We need to use these achievements to develop new possibilities. One of the most important questions of this conference is: where will space research take us in the future?” About 200 participants had registered for the conference hoping to gain an insight from noted speakers like ESA’s director general Johann-Dietrich Wörner.



Special guest of the conference was 83 year old Alfred Merrill "Al" Worden. In 1971 Worden was part of the Apollo 15 mission to moon. Worden himself did not land on the moon but was the first one to do an EVA (Extra Vehicular Activity) outside of earth's orbit.



Together with Wörner and the German astronauts Reinhold Ewald and Ernst Messerschmid he discussed the future of human spaceflight. The experts talked about a possible human outpost on the moon which could replace the International Space Station ISS as a scientific lab.

The question whether humans should continue travelling into space or be substituted by robots found a unanimous statement: robots cannot replace human astronauts. "Once a container of tomato soup was destroyed and a big bubble of soup escaped", Worden explained as an example. "It was in danger of harming our sensitive instruments in the capsule. We couldn't just catch it or we might have disturbed the surface tension, causing the bubble to break into countless of smaller bubbles floating towards our instruments. So we took a towel, wrapped it around it and had it soak up the tomato soup. A robot couldn't have done that!"

Another important topic of the space conference was the Rosetta mission to comet 67P/Churyumov-Gerasimenko. As former manager of the Rosetta mission Dr. Gerhard Schwehm explained background and challenges of the mission. Current head of the Philae lander team Dr. Stephan Ulamec talked about the landing of Philae on November 12th November 2014 and the data the scientist have analysed so far.

Further topics were the airborne infrared observatory SOFIA (Stratospheric Observatory for Infrared Astronomy) and the Cassini mission to Saturn.



The Hungarian Astronautical Society (MANT)



**Hungarian
Astronautical
Society**

The Hungarian Astronautical Society (MANT) is a civil organization of space experts and enthusiasts, a member of IAF since 1959. The main event organized by our Society this autumn was the annual Space Day (2 October). This is a traditional conference aimed at reaching the space researchers from various fields as well as the general public. The topics of this year's presentations were clustered around the accession of Hungary to the European Space Agency as a full member state. For the generation of young professionals at the age of 18 to 35, we continued our bimonthly series of Space Academy Club. These events are organized at various universities, in collaboration with the international Space Generation Advisory Council. The short presentations cover different aspects of space research and applications, followed by an informal discussion. We also sponsored a one-day conference commemorating the 25th anniversary of the first professional GPS receivers in Hungary, and the huge advances achieved in the applications of satellite navigation since then.

CIDA-E's 40TH ANNIVERSARY

The CIDA-E celebrated the 40th anniversary of its establishment, organizing, on 27 November, an Academic Meeting.

Dr. Marta Gaggero, head of CIDA-E, referred to what has been done by the Centre in this period of time. Concerning the space area, and in respect to recent times, she pointed out, in relation to the postulation of Uruguay to host IAC 2018, that it should be reconsidered the possibility of bidding again, what would imply improving the proposal. She also emphasized the need for Uruguay to approve the project that proposes the creation of a space agency which would facilitate more developments in the space field since greater possibilities for international cooperation would be submitted.

Afterwards, national experts in the field of air and space law, and space science and technology, referred to current issues related to these disciplines.

It was presented the last issue of the CIDA-E Review, the only publication in Latin America containing aerospace literature that has kept its continuity since the appearance of its first number in 1976.

CIDA-E is also collecting all the articles written by its members and research members from 1975 to date that will be reproduced in a computing device.

QinetiQ on a mission to save the Earth

QinetiQ is examining what it would take to save the world from an asteroid impact, under an €840,000 contract awarded by the European Space Agency (ESA).

Scientists from QinetiQ's Space business, in partnership with GMV, are defining the requirements for ESA's Asteroid Impact Monitoring (AIM) mission, part of the Asteroid Impact & Deflection Assessment (AIDA) collaboration between ESA and NASA. AIDA will investigate the possibility of altering an asteroid's course to prevent a collision with Earth.

According to the AIDA mission proposal, in 2022, two years after launch, NASA's Double Asteroid Redirection Test (DART) spacecraft will collide with the 150m 'Didymoon' while ESA's AIM satellite observes its effect on the asteroid's trajectory. Its proximity to Earth in October 2022 will offer a unique opportunity to test advanced platform technologies and asteroid deflection techniques.



Photo: ESA



Photo: ESA

In carrying out the feasibility study for the AIM mission, QinetiQ is examining challenges such as navigation, propulsion, power and communications, before making recommendations to ESA on technical requirements.

The concept is being considered for discussion at the ESA ministerial conference in November 2016.

Frank Preud'homme, Commercial Director for QinetiQ's Space business, said: "The number of known accessible near-earth objects has more than doubled in five years. However, while we are better equipped than ever to detect threats from asteroids, we are not yet able to defend our planet against them. The AIDA mission could be the first step in creating that line of defence.

"We are acting as the architects of the AIM mission, which is a very exciting prospect. Our experience in developing ESA's Proba small satellites makes us uniquely placed to meet the complex technical and budgetary challenges of this study. This role also puts us in a strong position for the next phase if it gains approval at the ministerial conference in 2016."

More information can be found on: www.esa.int/aim

IAC Space Camp

"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."



During IAC 2015 pupils in Israel had the chance to work with real space experts at the specially organized Space Camp. This unique opportunity was made possible thanks to the generous support of the HE Space Children's Foundation and Lockheed-Martin. The group was a good mix of female and male pupils with ages between 14-16. The pupils gathered from Jerusalem, Modi'in, Haifa, Biq'at Ha'yarden, Mazkeret Batiya and Tiberias. The program included selected activities in space science,

suitable for the pupil's age and skill level, and a visit to the IAC. All activities, apart from the visit to the IAC, were coordinated and carried out by professional instructors of the Hebrew University. Activities on the first day, Thursday October 15th, included: introduction to space science and astronomy, comet workshop, speed of light workshop and an outdoor stargazing activity. The next day participants visited the IAC 2015 and participated in different activities and workshops.

The program was a success and we received very positive feedback from students and parents alike. 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.



Claudia receives a picture as a thank you with the text:

To HE Space

With many thanks and hopes for good cooperation.

*The Joseph Meyerhoff Youth Center for advanced Studies
The Hebrew University of Jerusalem*

Professor Sir Martin Sweeting awarded Honorary Fellowship by the Royal Aeronautical Society



Professor Sir Martin Sweeting, Executive Chairman of Surrey Satellite Technology Ltd (SSTL) and the Surrey Space Centre at the University of Surrey, has been admitted to Honorary Fellowship of the Royal Aeronautical Society (RAeS).

Sir Martin Sweeting's award of Honorary Fellowship was made in recognition of his leadership and exceptional contribution in pioneering the use of Commercial-Off-The-Shelf (COTS) technologies in space and in particular the use of small, low-cost satellites for practical applications, as well as new forms of international collaboration in space that recognise the inherently global nature of satellites.

Sir Martin received his certificate of Fellowship at the Royal Aeronautical Society's annual Wilbur and Orville Wright lecture,

held on the 9th December at the Society's headquarters in London.

Sir Martin commented "Over a span of many years, I have both attended and delivered many lectures at the Society, and these have proved to be invaluable opportunities to exchange insights and nuggets of information with both Members and the general public. It is therefore a tremendous honour to be elected to Honorary Fellowship of the RAeS, an institution which I greatly admire for its dedication in promoting the aerospace industry all over the world, and for its commitment to sharing knowledge and ideas."

Martin Broadhurst OBE FRAeS, President of the RAeS, said: "For over a century, the Royal Aeronautical Society has been honouring outstanding achievement, innovation and excellence in aerospace and the admittance of Sir Martin Sweeting to the Society as an Honorary Fellow is no exception. Thanks to Sir Martin's leadership and entrepreneurial spirit, SSTL have pioneered the development of small, affordable satellites for a huge range of applications giving the UK a leading position in this arena. Sir Martin has also been at the forefront of increasing awareness of the economic and social value of the space industry in the UK and promoting the sector to government."



Martin Broadhurst, President of the RAeS, presenting the Honorary Fellowship to Sir Martin Sweeting, on 9 December 2015 at the Society's Headquarters in London

The Coronal Architecture



The Coronal Architecture, an original electromagnetism winding concept for: energy production (Delta Prime Heating model) and radioprotection (Sirius model).

SIMÉON Jean-Luc, President of SIMÉON Technologies, France. Member of the Competitiveness Pole Astech. Member of the International Astronautical Federation (IAF).

E-mail: simeon.technologies@laposte.net

SIMÉON Technologies makes Research, Innovation (R&I) and Development in magnetic, electromagnetic, spintronic technologies for the Aerospace industry. Its technology is based on an original and innovative electromagnetic concept named "Coronal Architecture". This innovation results from an unconventional scientific approach which considers that electromagnetic is inseparable from movements and particles. It exploits, at first, the Foucault's systems and the "Vortex Principle" (developed by SIMEON Technologies), secondly the Hall phenomenon.

This technology is used in a device working as a micro thermal power plant. The device is formed by thin layers of several inorganic materials, among which a paramagnetic material, CaCO₃+ (or Thorium), and a strategic material named "SNM-

Gab". This micro thermal power plant (call "Delta Prime Heating or Delta Prime H") is an innovation which works by electrical pulses. Recent experiments were done to measure the Thermal Power Deliver (TPD) in different conditions. These measurements were done using the equation $Q=mc\Delta T$, calculate in W/m³ with very interesting data. SIMÉON Technologies uses the Coronal Architecture for two main developments: heat production and protection against solar and cosmic radiations, such as Gamma and X rays. Additional projects are now being reviewed, as spacecraft engines. The specific characteristics of this technology are: a multifunctional device, low electrical power consumption and no emission of micro waves to the external environment, depending on the device configuration.

WIA-Europe Breakfast at IAC 2015, Jerusalem

WIA-Europe has made it a tradition to organize its main global networking event – the WIA-Europe Breakfast – on Wednesday of the IAC week. Also this year, on 14 October 2015, WIA-Europe has invited a global community to come together early morning and enjoy a rich programme of speeches by most prominent speakers as well as the networking in a relaxing atmosphere during breakfast.

An unprecedented number of 250 men and women participated – an outstanding success that could not have been predicted. A great thanks to the entire community!



Sponsored by:



The attractive programme was moderated by WIA-E Executive Director, **Elena Feichtinger**, and started with a welcome address by the WIA-E Chair of the Board of Directors, **Claudia Kessler**. She also read a greeting message from the WIA-E President, Simonetta di Pippo, who could unfortunately not join. Present at the event were also WIA-Europe's Director of Individual Membership, **Paola Belingheri**, and Director of Professional Development, **Christina Giannopapa**.

After a welcome address by the President of the International Astronautical Federation (IAF), Kiyoshi Higuchi, a cooperation agreement between the IAF and WIA-E was signed, based on the mutual desire to formalise and strengthen cooperation and in order to explore the potential for collaboration in areas of mutual interest.

The series of exciting speeches was initiated by a lively presentation by **Prof. Jan Woerner**, Director General of the European Space Agency, and WIA-Europe's continuous supporter and frequent guest at these events. Further prominent speakers were **Dr. Dava Newman**, Deputy NASA Administrator, **Prof. Pascale Ehrenfreund**, Chair of the Executive Board of the German Aerospace Center DLR, **Dr. Inbal Kreiss**, Deputy General Manager of MBT Space Division, Israel Aerospace Industries, and **Dr. Deganit Paikowsky**, Senior Researcher, Yuval





Neeman Workshop for Science and Security, Tel Aviv University.

Finally, as a small surprise to the audience, representatives of the Institute for Biomedical Problems (IBMP) in Moscow presented 2 members of the female crew of 6 volunteers to participate in the "Luna2015" isolation study, a project to simulate an 8-day mission to the Moon.

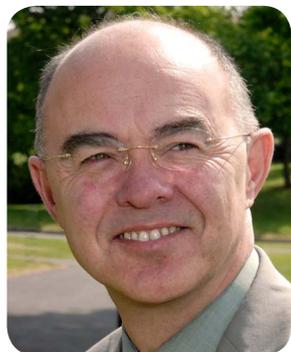
WIA-Europe would like to express sincere thanks to the distinguished speakers, all participants and the sponsors, DLR and IAF, for making this event such a great success. We are looking forward to welcoming you all at our next WIA-Europe Breakfast events:

- 22 March 2016 at the IAF Spring Meetings in Paris
- 8 April 2016 at the Space Innovation Congress in London



Committee Broadcasts

The Honors & Awards Committee is pleased to introduce its new list of members:



Chair: Martin Sweeting - Surrey Satellite, **Vice-Chairs: Pierre Bescond** - Association Aéronautique & Astronautique de France (3AF), **Claudia Kessler** - HE Space, **Maria Antonietta Perino** - Thales Alenia Space Italia. **Members: Christophe Bonnal** - Centre National d'Etudes Spatiales (CNES), **Karl H. Doetsch** - Doetsch International Space Consultants, **Ming Li** - China Academy of Space Technology (CAST), **Naomi Mathers** - Advanced Instrumentation and Technology Centre (AITC), **Clayton Mowry** - Future Space Leaders Foundation, **Garri A. Popov** - Research Institute of Applied Mechanics and Electrodynamics, **Kuniaki Shiraki** - Japan Aerospace Exploration Agency (JAXA), **Chris Welch** - International Space University (ISU), **Lyn Wigbels** - American Astronautical Society (AAS), **Ex-Officio: Elena Feichtinger** - International Astronautical Federation (IAF), **Emma Huis** - International Astronautical Federation (IAF), **V. Koteswara Rao** - Indian Space Research Organization (ISRO).

Newly Elected IAF Administrative Committees Chairs



IAF African Regional Group

– Ahmed Farid (joined two other co-Chairs), Spacecraft Controller/Commander in the Dlight Control Team at the German Space Operations Centre, Telespazio VEGA Deutschland GmbH



IAF Asia-Pacific Regional Group

– Eunsup Sim, Former Vice President, Research Fellow, Korea Aerospace Institute (KARI)

	<p>IAF Committee for Liaison with International Organisations and Developing Nations (CLIODN) – Christina Giannopapa, Senior Advisor in the Department for Relations with Member States in the Cabinet of the Director General of the European Space Agency (ESA)</p>
	<p>IAF Industry Relations Committee – Robie Samanta Roy, Vice President Technology and Innovation, Lockheed Martin Corporation</p>
	<p>IPC Steering Group – Naomi Mathers, Industry Liaison Engineer at the ANU Advanced Instrumentation and Technology Centre (AITC); IPC Co-Chair (2015-2017)</p>
	<p>IAF Space Museums and Science Centres Committee (New IAF Administrative Committee) – Jean-Baptiste Desbois, Managing Director, SEMECCEL Cité de l’Espace</p>

Renewed IAF Administrative Committee Chairs

	<p>IAF/IAA/IISL Advisory Committee on History Activities (ACHA) – Ake Ingemar Skoog</p>
	<p>IAF International Project/Programme Management Committee (IPMC) – Edward Hoffman, Chief Knowledge Officer and Director, National Aeronautics and Space Administration (NASA)</p>
	<p>IPC Steering Group – Sandra Ramirez, Vice President, Universidad Nacional Autónoma de México</p>
	<p>IAF Space Societies Committee – Scott Hatton, Editor, The British Interplanetary Society</p>
	<p>IAF Space University Administrative Committee (SUAC) – Pierre Rochus, Professor, University of Liège</p>
	<p>IAF Technical Activities Committee – John M. Horack, Vice President, Teledyne Brown Engineering; IAF Vice-President for Technical Activities and IAC Evolution</p>

	<p>IAF Workforce Development - Young Professionals Programme Committee – Kevin Stube, Advisory Board, The Planetary Society</p>
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Newly Elected IAF Technical Committees Chairs

	<p>IAF Committee on Space Security – Serge Plattard, Resident Fellow, European Space Policy Institute</p>
	<p>IAF Earth Observation Committee (EO) – Günter Schreier, Business Development & Copernicus; Deputy Director, German Aerospace Center (DLR)</p>
	<p>IAF Enterprise Risk Management (New IAF Technical Committee) – Maria-Gabriella Sarah, Strategic Planning and Strategic Control Office Policies, Planning and Control Directorate European Space Agency (ESA)</p>
	<p>– Rüdiger Süß, Strategic Initiatives - Deutsches Zentrum für Luft- und Raumfahrt (DLR)</p>
	<p>IAF Microgravity and Processes Committee – Nickolay N. Smirnov, Professor, Head of Lab., Faculty of Mechanics & Mathematics at Moscow Lomonosov State University</p>
	<p>IAF Material and Structures Committee – Paolo Gasbarri, Professor, Università di Roma “La Sapienza”</p>
	<p>IAF Space Economy Committee – Henry R. Hertfled, Research Professor of Space Policy and International Affairs, George Washington University</p>
	<p>IAF Space Education and Outreach Committee (SEOC) – Naomi Mathers, Industry Liaison Engineer at the ANU Advanced Instrumentation and Technology Centre (AITC); IPC Co-Chair (2015-2017)</p>
	<p>IAF Space Power Committee – Koji Tanaka, Associate Professor, Department of Spacecraft Engineering, The Institute of Space and Astronautical Science, Japan Aerospace Exploration Agency</p>

	<p>IAF Space Propulsion Committee – Toru Shimada, Professor, Space Flight Systems, ISAS, Japan Aerospace Exploration Agency (JAXA)</p>
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Renewed IAF Technical Committees Chairs (2015 - 2018)

	<p>IAF Astrodynamics – Alfred Ng, Manager, Control & Analysis, Canadian Space Agency</p>
	<p>IAF Commercial Spaceflight Safety Committee – John Sloan, Senior Policy Analyst, Federal Aviation Administration Office of Commercial Space Transportation (FAA/AST)</p>
	<p>IAF Entrepreneurship and Investment Committee (EIC) – Ken Davidian, Director of Research Federal Aviation Administration (FAA)</p>
	<p>IAF Global Workforce Development Subcommittee – Amalio Monzón Vázquez, Head of Engineering Quality, A350XWB-900 Program Airbus Group</p>
	<p>IAF Human Spaceflight Committee – Cristian Bank, Head of Process Mgmt & Certifications + Proposal Manager MPCV ESM, Airbus Defense and Space</p>
	<p>IAF Knowledge Management for Space Organisations (KMTC) – Roberta Mugellesi-Dow, Integrated Applications Manager, Directorate of Telecommunications and Integrated Applications, European Space Agency (ESA)</p>
	<p>IAF Space Communications and Navigation Committee (SCAN) – Otto Koudelka, Head of Institute, Institute of Communications Network & Satellite Communications, Graz University of Technology (TU Graz), IAF Vice-President for Publications and Communication, Coordinator for IAC Technical Programme/Category B on Applications and Operations</p>
	<p>IAF Space Systems Committee – Reinhold Bertrand, Head of Research and Technology Mgmt. Office, European Space Agency (ESA)</p>
	<p>IAF Space Transportation Committee – John M. Horack, Vice President, Teledyne Brown Engineering; IAF Vice-President for Technical Activities and IAC Evolution</p>



– Ulf Palmnäs, Dep. VP Business Development and Marketing at GKN Aerospace Sweden AB - Volvo Aero Corporation

For the following committees we still await their 2015 election results:

- Congress and Symposia Advisory Committee (CSAC)
- Committee for the Cultural Utilisation of Space (ITACCUS)
- Committee on Integrated Applications
- Committee on Near Earth Objects (NEO)
- Policy Advisory Committee (PAC)
- Space Astronomy Technical Committee (SATC)
- Space Exploration Committee
- Space Life Sciences Committee
- Space Operations Committee
- Student Activities Subcommittee
- Subcommittee on Global Earth Observation System of Systems (GEOSS)

A Year-end Review of 2015 Astrodynamics Committee

This is a year full of activities for Astrodynamics Committee. In fact, it all started in 2014 when our former committee member, Prof. Eberhard Gill, accepted the responsibility to host the 8th International Workshop on Satellite Constellation & Formation Flying (IWSCFF) at Technical University of Delft. The workshop was held in June 8-10. It was a great success with over 80 participants from 16 countries. A special issue of Acta Astronautica is currently under preparation for the best technical papers from the workshop. In IPC 2016, the committee will decide the host for the 9th edition of the workshop.

In the IPC 2015, the committee was pleasantly surprised to know that Dr. Jean-Pierre Marec of ONERA received the Outstanding Service Award. Dr. Marec coordinated astrodynamics sessions in



Jean-Pierre Marec (2nd left) with three of our members after receiving his award

1967 and from 1975 to 1983. Because of his dedication, it became logical that he was appointed as the first Astrodynamics Committee Chairman in 1983 when it was created by the IAF. He was also the Chief Editor of Acta Astronautica from 1980 to 2007. For many young members of committee, we heard his name before but we have never met him. Obviously, we could not miss this opportunity of



A fun Georgian dinner in Jerusalem for the Astrodynamics Committee

having a photo of memory with such an outstanding personality.

IAC Jerusalem finally arrived and we had a full week of work. The committee settled the chairmanship and membership issues that comply with the new IAF Bylaws and Constitution. We now have 30 members from 12 countries. Besides it is a well balanced mix of experts from the academia,

government, and industry. To wrap up the IAC, we had our committee dinner in the Kangaroo Restaurant. It is a strange name for a restaurant and it is tucked into an alley. Still, our spirit overcame all the negative impression. It turns out to be a fantastic place for Georgian cuisine and not Australian dishes! Because of

the geographical location of Georgia, its dishes represent a tasty mix of eastern and western cultures. We were glad that we made the bold choice and we all had good memory of Jerusalem. There is no better proof without a photo.

The IAF is pleased to announce 2 new Committees:

Enterprise Risk Management Technical Committee:

Enterprise Risk Management is “a process, effected by an entity’s board of directors, management and other personnel, applied in strategy setting and across the enterprise, designed to identify potential events that may affect the entity, and manage risk to be within its risk appetite, to provide reasonable assurance regarding the achievement of entity objectives”[1].

Taking into account today’s economic and industrial challenges, it is quite clear that, to conduct space activities, efficient management of resources through a sound understanding of inherent risks represent a major instrument to ensure success in activities.

Establishing an Enterprise Risk Management Committee (ERMC) at the International Astronautical Federation (IAF) will thus allow building a network of experts in Enterprise Risk Management whose representatives will:

- promote ERM implementation, by facilitating discussions on best practices and lessons learned
- provide a cooperative forum for discussions among public and private organisations.
- work supportively to assist in solving ERM peers issues,
- Exchange ideas, methods, and experiences to enhance the ERM practice of ERM within the aerospace community
- Propose and promote the adoption or adaptation, if required, of standards in Enterprise Risk Management (e.g. ISO, ECSS).

Space Museums and Science Centres Committee

Space Museums and Science Centres are important actors in the space field. Museums are the custodians of much of the material cultural heritage of space activities. Space Museums and Science Centres are main players in informal education towards a large public. They are essential actors when it comes to increase public understanding of space activities. In many societies where the interest of the younger generation for taking on scientific and space related careers is decreasing Space Museums and Science Centres have a vital role to play, in close interaction with all space actors.

The constitution of a Museums and Science Centres Administrative Committee within the IAF follows the eligibility of these institutions to become IAF members.

The Administrative Committee is a platform of exchange between its members and friends. It fosters interactions between its members, but will also reinforce the links between its members and players of the major space agencies and industries.

In the Committee, Space Museums and Science Centres (MSC) debate about their specific issues and challenges. They share and develop joint projects, in the area of exhibitions, curatorial affairs, educational initiatives, marketing etc.

This Committee shall also be a vehicle for promoting space activities in space-developing countries.

The Committee will very closely work with the Space Societies Committee, both structures being dedicated to encourage and develop space awareness and education.

International Programme/Planning Management Committee (IPMC)

On 10 October 2015 space agency and company representatives of the IAF’s

International Programme/Planning Management Committee (IPMC) met

in Jerusalem, Israel in connection with the 2015 International Astronautical



Congress (IAC).

During the day-long meeting the IPMC representatives reviewed the Committee's recent activities and exchanged information on recent programme and knowledge management and technical workforce development activities of the participating organizations. The IPMC members also discussed recent committee activities

including participation in an International Project Management course held twice yearly at NASA's Kennedy Space Center, holding an annual Young Professionals Workshop held in conjunction with the IAC and exchanging information on space agency processes and procedures. The IPMC also discussed plans for the "Enabling the Future – Developing the Space Workforce" technical session that the Committee organizes in collaboration with the Space Education and Outreach and YP/Workforce Development Committees.

The IPMC's 2015 Young Professionals Workshop took place on 11 October bringing together 25 early career employees representing 17 organizations in 4 continents. During the one-day



session the YP Workshop participants discussed a variety of topics including the business case for mentoring, decision factors for remaining in the space workforce and rapid engagement and accelerated learning. A report containing the observations and recommendations of the YP Workshop participants is in preparation and will be available for downloading on the IAF website.

Space Propulsion Committee

The Propulsion Technical Committee is in continuous evolution! At the 66th IAC in Jerusalem, the space propulsion committee elected a new chair and four new co-chairs. Prof. Toru Shimada, new chair, is Professor of Space Flight Systems Division at Institute of Space and Astronautical Science of Japan Aerospace Exploration Agency. Mr. Christophe Bonhomme, a new co-chair, is Head of Department of Engine and Propulsive Stage at Centre National d'Etudes Spatiales. Dr. Riheng Zheng, a new co-chair, is Deputy Chief Designer of 31st Beijing Power Machinery Institute at Chinese Society of Astronautics (CASIC). Dr. Helen Webber, a new co-

chair, is the leader of performance and aerodynamics team at Reaction Engines Ltd. UK. Mr. Giorgio Saccoccia, a new co-chair, is Head of Propulsion and Aerothermodynamics Department at European Space Agency. The recent appointment of a new Chair and four co-chairs, together with the candidatures of several new international members in different categories, highlights the level of importance given to this discipline by the Space community and the interest in supporting the IAC Propulsion Symposium for the years to come.

The ten sessions, including an interactive one, of the 66th IAC Propulsion

Symposium were well attended with many good papers and presentations. We invited a keynote speaker, Prof. Peijin LIU from Northwestern Polytechnical University of China, on the topic of the rocket-based combined cycle technology. Further trials will be conducted in Paris and Guadalajara next year.

The IAF Space Propulsion Committee – a truly dynamic international team with creative spirit, friendly atmosphere, supportive culture and cooperative tradition, will surely play a very active role in fulfilling the dream of the International Astronautical Federation.

Space Education and Outreach Committee (SEOC)

The Space Education and Outreach Committee (SEOC) delivered another full program in Jerusalem including nine technical sessions in E1, three technical sessions in E2, 1 joint virtual session with the Young Professional Program (YPP) in E2, and supporting the new interactive presentation session. These technical sessions promote excellence in space education and workforce development,

and provide a platform for students to present their research.

The SEOC recognised excellence in space education through the awarding of the Frank J. Malina Astronautics Medal, and excellence by young researchers through the Luigi G. Napolitano Award and awards in the student competition for undergraduate, postgraduate, team

and best technical paper. The recipient of the Malina Medal, Prof. Boris Pshenichner, delivered the E1 Keynote Address, sharing his experience in space education in Moscow since 1955 with an enthralled audience.

The SEOC also partnered with the ISEB to offer a Teacher Professional Development Workshop and Student

Program, and partnered with the YPP to organize the Next Generation Plenary. A huge thank you goes to the volunteer members of the SEOC, YPP and ISEB for making these activities possible. The

SEOC would like to thank outgoing SEOC Chair, Prof Chris Welch for his many years of service to the committee and wish him luck in his new roll as IAF VP Education and Workforce Development.

A reminder to all educators and students to join the SEOC program in Guadalajara and check the IAF website for guidelines and deadlines for each of the activities.

Industry Relations Committee Launches 2016 Activities

At the October IRC meeting in Jerusalem, Dr. Robie I. Samanta Roy, VP-Technology and Innovation, Lockheed Martin, was designated the new Committee Chair, succeeding Sir Martin Sweeting. Committee Vice-Chairs are Clay Mowry, Arianespace and Mark Mulqueen, Boeing. The Committee has already established a regular teleconference meeting schedule and has initiated a plan for activities in 2016. The IRC is reviewing opportunities to identify IAF corporate member organizations to serve on panels or in other speaking roles at the June GLIS in Geneva. The IRC is also developing a plan to conduct an "Industry Day" in September at the Guadalajara IAC. This will be a newly designed full day of activities which will be directly relevant and provide high value to technical and policy business interests of the global space industry attendees. Watch for more detail on these IRC-led activities during the Paris Spring Meetings in March.

Interview

Interview with Yvon Henri, Chief, Space Services Department, Radiocommunication Bureau, International Telecommunication Union (ITU)



Before joining ITU in 1995, I have held various management positions at France Telecom (Paris, France) and INTELSAT (Washington DC, USA) and have been involved in the satellite business for more than 30 years.

ITU is the United Nations specialized agency for information and communication technologies – ICTs. We allocate global radio spectrum and satellite orbits, develop the technical standards that ensure networks and technologies seamlessly interconnect, and strive to improve access to ICTs to underserved communities worldwide. ITU is based in Geneva, Switzerland, and its membership includes 193 Member States and more than 700 Sector Members and Associates.

Within the ITU, the Space Services Department is responsible for managing the procedures for registration of all space system frequency assignments (satellite and Earth and Radioastronomy stations) in accordance with the ITU Constitution and Convention, including the Radio Regulations.

The Department is also providing assistance and support to administrations, operators and frequency assignment customers on all issues related to space service frequency management.

1. Why are international space events such as GLIS 2016 important fora to discuss space activity and information economy?

GLIS 2016 will bring together a unique audience of public and private sectors from emerging and developed markets throughout the world. Policy makers and regulators will have the opportunity to meet CEOs from all sectors of the space and ICT ecosystem, SMEs, entrepreneurs, leaders of international agencies, academics and media on a wide scale and share their knowledge and best practices, discuss challenges and solutions on the means by which space policy, technology and applications will better connect the world.

2. What are the main advantages that GLIS 2016 will bring to the participants present such as space agencies, information society communities and telecommunications experts?

Participants will learn during the two-day event from international leading senior experts during interactive presentation including informal discussions over coffee or tea about the latest developments and innovative solutions in the field of space communication. It will also include the outcomes of the last ITU World Radiocommunication Conference (WRC-15), which represents a major contribution in making the world a better – and safer – place for all, by maintaining a stable, predictable and universally applied regulatory environment that will help secure long-term investments for the multi-trillion dollar ICT industry.

3. How can satellite communication contribute in achieving the United Nations Sustainable Development Goals today?

From the ITU perspective, ensuring the equitable, rational, efficient and economic use of the radio-frequency spectrum and of the geostationary satellite and other satellite orbits contributes in many significant ways in leveraging the goals of sustainable development. This means that countries should pay particular attention to the long-term sustainability of space activities and sustainable development on Earth and to facilitating the prompt resolution of harmful radio-frequency interference.

As provided for in Article 44 of the ITU Constitution, radio frequencies and any associated orbits, including the geostationary-satellite orbit, are limited natural resources that must be used rationally, efficiently and economically, in conformity with the provisions of the Radio Regulations, so that countries or groups of countries may have equitable access to those orbits and frequencies, taking into account the special needs of developing countries and the geographical situation of particular countries. States and international intergovernmental organizations should ensure that their space activities are conducted so as to fulfil obligations under the ITU Radio Regulations, in such a manner as not to cause harmful interference to the space radio services or communications of other States and international intergovernmental organizations, and as one of the means of promoting the long-term sustainability of outer space activities.

States and international intergovernmental organizations should fully respect the principle that outer space shall be free for exploration and use by all States without any discrimination, taking into account the needs and interests of developing countries, in compliance with the established principles in the normative framework and the decisions made by both ITU and other relevant bodies of the United Nations system. Moreover, States and international intergovernmental organizations should promote equitable and rational utilization of the various satellite orbits.

Spacecraft, launch vehicle orbital or transfer stage components that have terminated their operational phases in orbits and represents hazard to functioning spacecraft in the LEO region should be removed from orbit in a controlled fashion. If this is not possible, they should be disposed of in orbits that avoid their long-term presence in the LEO region. The lifetime of Spacecraft, launch vehicle orbital or transfer stage components that have terminated their operational phases in elliptical transfer orbits with the apogee at or near GEO altitude should be shortened to avoid their long-term interference with the active satellite in the GEO region. For space objects in or near the GEO region, the potential for future collisions can be reduced by transferring objects at the end of their mission to a graveyard orbit removal above the GEO region, so that they will not interfere with, or return to, the GEO region.

4. What is ITU's impact on space activities?

ITU is the United Nations specialized agency for information and communication technologies – ICTs. We allocate global radio spectrum and satellite orbits, develop the technical standards that ensure networks and technologies seamlessly interconnect, and strive to improve access to ICTs to underserved communities worldwide.

ITU plays a vital role in the global management of the radio-frequency spectrum and satellite orbits – limited natural resources which are increasingly in demand from a large and growing number of services such as fixed, mobile, broadcasting, amateur, space research, emergency telecommunications, meteorology, global positioning systems, environmental monitoring and communication services – that ensure safety of life on land, at sea and in the skies.

Our mission is to ensure the rational, equitable, efficient and economical use of the radio-frequency spectrum by all radiocommunication services, including those using satellite orbits, and to carry out studies and approve Recommendations on radiocommunication matters. Our primary objective is to ensure interference-free operations of radiocommunication systems. This is ensured through implementation of the Radio Regulations and Regional Agreements, and the efficient and timely updates of these instruments through the processes of the World and Regional Radiocommunication Conferences. Furthermore, radio standardization establishes 'Recommendations' intended to assure the necessary performance and quality in operating radiocommunication systems. It also seeks ways and means to conserve spectrum and ensure flexibility for future expansion and new technological developments.

ITU manages the detailed coordination and recording procedures for space systems and earth stations. ITU also develops and manages space-related assignment or allotment plans and provides mechanisms for the development of new satellite services by locating suitable orbital slots. ITU accommodates the launch of new satellites as quickly and efficiently as possible. It facilitates any new developments and the continuation of satellite services in a safe way. It also squeezes more into the frequency bandwidth, which is a limited, finite resource. Our main concerns centre on bringing high speed satellite networks into service as well as the regulatory steps required for registering satellite network frequency assignments.

ITU is committed to connecting all the world's people – wherever they live and whatever their means. Through our work, we protect and support everyone's fundamental right to communicate.