



IAC 2015
Jerusalem

www.iac2015.org

66th IAC

International Astronautical Congress

12 - 16 October 2015, Jerusalem, Israel

Press Kit



Space – The Gateway for Mankind's Future

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IAC 2015 (Jerusalem, Israel, 12-16 October 2015)

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About the IAC 2015

The world's premier global space event

The International Astronautical Congress has always been THE place where space issues - from scientific and technical topics to industry R&D and advancements, international cooperation, education and career development are discussed in a convivial spirit and among worldwide experts. IAC attendees come from very diversified and complimentary backgrounds and experiences and all of them greatly contribute to making the IAC the ideal platform for exchanging ideas and knowledge for:

- ❖ **scientists, engineers and technicians**
- ❖ **agency officials, including Heads of Agencies**
- ❖ **industry representatives, including CEOs of the leading space companies**
- ❖ **university and research centres' staff**
- ❖ **representatives of associations, professional societies and musea**

At the same time the Congress introduces **students and young professionals** to the field.

The previous IAC in 2014, in Toronto, Canada, attracted close to 3500 participants, including more than 2000 delegates and press representatives and more than 1000 students and young professionals.

In 2015, for the second time in 20 years, the IAC comes to Israel, a country where many high-tech companies, with their diverse space industrial facilities, space technology, expertise, and know-how, have much to offer to the international space community.

The theme of this year's congress is "**Space – the Gateway for Mankind's Future**". The promise – to give all attending delegates a profound knowledge of all the primary aspects of space science and exploration for peaceful purposes, and all the benefits it can provide to mankind.



About International Astronautical Federation

Connecting space people

Created in 1951 to establish a dialogue between scientists around the world and to lay the foundation for international space cooperation, the IAF continues to connect space people to this day.

The Federation is the **world's leading space advocacy body with almost 300 members** including all leading space agencies, industries, societies, associations, universities and R&D institutes worldwide.

Over **40 experts' committees** support the Federation in its mission to advance knowledge about space and to foster the development of space assets by facilitating global cooperation.

At its annual International Astronautical Congress (IAC) and other thematic conferences, the IAF brings its **multidisciplinary and international network** to life.

IAF's mission

❖ Promoting Cooperation

The IAF's International Astronautical Congress and various IAF committees provide unique collaborative platforms for experts from space agencies, industry and research

❖ Advancing International Development

The IAF is building a future of cooperation, development and international friendship, bringing together experts from experienced and emerging space nations alike

❖ Sharing Knowledge

The Federation has many well-established channels to disseminate information within its global network and the wider space community

❖ Recognising Achievements

The Federation's prestigious awards are presented annually to individuals and groups who have distinguished themselves in the global space community

❖ Preparing the Workforce of Tomorrow

To nurture new talent, the Federation has many activities for students and young professionals to facilitate their attendance at IAF events and connect them with senior experts

❖ Raising Awareness

The global network of the IAF and its dedicated publications help to promote the public appreciation of space activities worldwide

International Astronautical Federation

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IAC 2015 Co-organisers

INTERNATIONAL ACADEMY OF ASTRONAUTICS (IAA)

The International Academy of Astronautics (IAA) was founded in 1960 by Theodore von Karman. The Academy is an independent international community of leading experts committed to expanding the frontiers of space, the newest realm of human activity. To foster the development of astronautics, the Academy undertakes a number of activities, including the recognition of outstanding contributors through elections and awards. It also facilitates professional communication, develops and promotes new ideas and initiatives, engages the public, and fosters a sense of community among the members. The IAA is a unique nongovernmental organisation established in 1960 and recognised by the United Nations in 1996. It is an honorary society with an action agenda. With 1200 elected members and corresponding members from 87 nations, it works closely with space agencies, industry, the academic community and the national science and engineering academies to determine needs and objectives and to help shape policy and forge cooperation by means of studies, position papers, conferences and publications. The IAA has published 52 studies to date and is engaged in the preparation of 40 others. The Academy also publishes the journal *Acta Astronautica* containing refereed papers. The Academy now organises 20 conferences per year and regional meetings focused on the development and promotion of new initiatives. This activity also includes, in cooperation with the International Astronautical Federation and the International Institute of Space Law, the traditional contribution to the International Astronautical Congress (IAC), where the Academy organizes 13 Symposia. The Academy also continues to enjoy its participation in the COSPAR Assemblies by sponsoring and co-sponsoring symposia. Although the IAA has many connections to these and other similar organisations, it is distinctive as the only international Academy of elected members in the broad area of astronautics and space.

International Academy of Astronautics

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INTERNATIONAL INSTITUTE OF SPACE LAW (IISL)

Founded in 1960, the International Institute of Space Law (IISL) is an independent non-governmental organisation dedicated to fostering the development of space law. The membership of the Institute is composed of individuals and institutions from more than forty countries, elected on the basis of their contributions to the field of space law or other social sciences related to space activities. Additionally, prospective membership is open to students and young professionals with a demonstrated interest in space law. Since 1992, the IISL has organized the annual Manfred Lachs Space Law Moot Court Competition. The competition is based on a hypothetical space law case, and is written by IISL members. Approximately sixty student teams from universities in Africa, the Asia Pacific, Europe, and North America participate. The competition is an important part of the organisation's outreach programme, and is its principal mechanism for engaging future generations of space law experts. The regional champions compete in the World Finals, which take place at the IAC and are judged each year by judges of the International Court of Justice. This unique feature makes the Manfred Lachs Moot Court one of the most prestigious moot court competitions in the world. The IISL is an officially recognized observer at sessions of the United Nations Committee on the Peaceful Uses of Outer Space, and its Scientific & Technical and Legal Subcommittees. In cooperation with the European Centre for Space Law (ECSL), the IISL organizes an annual space law symposium for the delegates and staff attending the sessions of the UNCOPUOS Legal Subcommittee. In addition the Institute organises a variety of conferences on space law throughout the year in locations all over the world. It publishes an annual volume of IISL Proceedings with papers and reports of all these activities during the year. As one of its main activities, the IISL holds an annual Colloquium at the International Astronautical Congress (IAC). During these Colloquia, the IISL strives to address topics that are of interest to all space actors and invites all IAC attendees to attend and participate in its sessions. The themes of the sessions of this year's Colloquium are:

- E7.1: 7th Nandasiri Jasentuliyana Keynote Lecture on Space Law and Young Scholars Session
- E7.2: The relationship of international humanitarian law and territorial sovereignty with the legal regulation of outer space
- E7.3: The portrayal of Space (Law) in Media and Movies
- E7.4: Legal Issues of Space Traffic Management
- E7.5: Recent Developments in Space Law

During the IAC, the IISL also co-organises annual Scientific-Legal Roundtables with the International Academy of Astronautics (IAA), the 30th of which will be held this year in Jerusalem (E7.6-E3.5 – Universities as Actors in Space). Furthermore, the IISL co-organises a session each year with the IAF (E7.7-B3.8 – Session on the Legal Framework for Collaborative Space Activities).

International Institute of Space Law

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LOCAL ORGANISING COMMITTEE (LOC)

The 2015 IAC Local Organising Committee is composed by the following institutional representatives:

- ❖ **Menachem Kidron** – LOC Chair and Director General, Israel Space Agency
- ❖ **Daniel Barok** – Adviser, International Collaborations, Israel Space Agency
- ❖ **Igal Patel**, *IPC Co-Chair*
- ❖ **Ran Ber** – Senior Deputy Director General , Ministry of Science, Technology & Space
- ❖ **Nurit Yirmiya** – Chief scientist, Ministry of Science, Technology & Space
- ❖ **Amir Barak** – Director of security, emergency & cyber, Ministry of Science, Technology & Space
- ❖ **Ambassador Yaffa Ben-Ari** – Deputy Director-General, Head of Economic Affairs Division, Ministry of Foreign Affairs
- ❖ **Micah Pearlman** – Manager of Higher Education and R&D, Sector Ministry of Finance – National, Budget Department
- ❖ **Pini Shani** – Deputy Director in the Marketing, Administration & Director of the Overseas Department at the Ministry of Tourism

- ❖ **Gabby Bar** – Senior Regional Director, Middle East & North Africa Division, Foreign Trade Administration, Ministry of Economy
- ❖ **Libi Oz** – Spokesperson, Israel Space Agency, Ministry of Science, Technology & Space
- ❖ **Ilanit Melchior** – Tourism Director The Jerusalem Development Authority
- ❖ **Opher Doron** – VP & General Manager, IAI / MBT Space Division
- ❖ **Ehud Behar** – Professor of Physics, Technion, Israel
- ❖ **Eyal Ben Dor** – Director: Geography and Human environment Department, Tel Aviv University, Head: The Remote Sensing Laboratory
- ❖ **Tsvi Piran** – Schwartzman Chair for Theoretical Physics, The Hebrew University of Jerusalem
- ❖ **Dan G. Blumberg** – Vice President and Dean for Research and Development, Prof. of Remote Sensing, Ben Gurion University
- ❖ **Eran Ofek** – Senior researcher at the Weizmann Institute of Science
- ❖ **Chaim Eseh** – ISA Steering Committee
- ❖ **Haim Rousso** – Member, National Council for Research & Development
- ❖ **Eyal Halevy** – Conference Organizer, Co-Managing Director, Paragon Group

Local Organising Committee

IAC 2015 Secretariat

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IAC 2015 at a glance

- ❖ **7 Plenary Events, 3 Highlight Lectures, and 1 Late Breaking News** (the exact topic of the LBN will be announced at the congress).

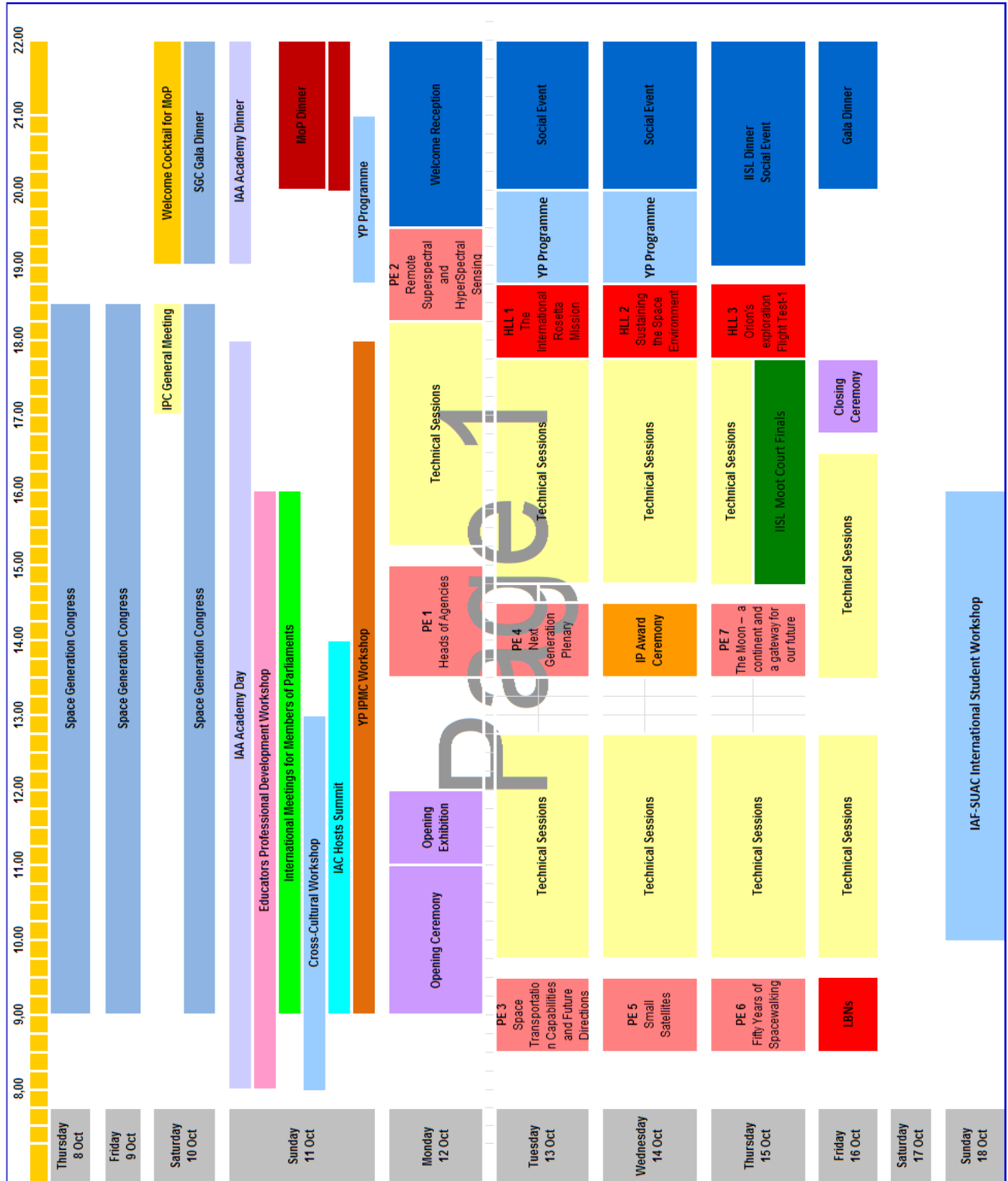
- ❖ **180 Technical Sessions** in the fields of
 - ❖ **Science and Exploration**
 - ❖ **Applications and Operations**
 - ❖ **Technology**
 - ❖ **Infrastructure**
 - ❖ **Space and Society**

- ❖ As in past years, the IAF is organizing a **Global Networking Forum (GNF)** and this year it will feature a very intense programme all along the IAC week. Some of the highlights of this year's GNF programme include:
 - ✓ Exclusive top level keynote presentation by Lockheed Martin's President, Ms Marillyn A. Hewson;
 - ✓ Several Press Conferences including Heads of Space Agencies, the New ESA Director General, and Zero2Infinity project;
 - ✓ Overviews on the Chinese and Russian Space Programmes;
 - ✓ An exclusive workshop on Vega launcher brought by ASI;
 - ✓ Several panels touching upon a variety of topics such as: Climate and Earth Observation, New Space Economy, Nanosat and Microsatellite, emerging health issues in Space and propulsion;
 - ✓ Events dedicated to the Young Professionals (SGAC and NASA Ames Q&A);
 - ✓ Events for the general public including a lively session of Q&A with Astronauts from all over the world and an amazing documentary on the Northern Lights

- ❖ **IAC 2015 Exhibition** with over 100 exhibitors from industry, space agencies, research centres and universities, associations and space societies



IAC 2015 at a glance





IAC 2015 Agenda

PRE CONGRESS EVENTS

Space Generation Congress (SGC)

The Space Generation Congress (SGC) is the annual meeting of the Space Generation Advisory Council (SGAC) held in conjunction with the International Astronautical Congress. SGC gathers a select group of top university students and young professionals from various areas of the international sector – government, industry, and academia, who have a passion for space.

Thursday 8 – Friday 9 October, 9:00 – 18:00

Saturday 10 October, 9:00 – 18:30

Venue: Bloomfield Science Museum, Sderot HaMuze'onim, 91904 Jerusalem, Israel (1.3km from IAC venue)

Website: www.spacegenerationcongress.org

Cross-Cultural Communications and Presentation Workshop

The Cross-Cultural Presentation Workshop is organised for Emerging and Future Space leader Grants recipients and Next Generation Plenary speakers to provide them with the opportunity to improve their oral skills for their presentations and to sensitize them to the issues of speaking at large multi-cultural events.

Sunday 11 October, 8:30 - 13:30

Room 310 and 311, ICC

IPMC Young Professionals Workshop

In connection with the IAC, the IAF's International Project Management Committee (IPMC), the Young Professionals Programme organizes an annual workshop for young professionals in the international space community to discuss topics of mutual interest with a view toward nurturing and empowering the next-generation workforce.

Sunday 11 October, 9:00 – 18:00

Room Oranim 3-B, ICC

Young Professionals Networking Events: Welcome Reception

Speakers include:

- IAF President, Kiyoshi Higuchi
- Director General ISA, Menachem Kidron, (invited)
- Chair Israeli Astronomical Association, Dr. Ygal Pat-El (invited)

Cocktails and light appetizers will be served.

Sunday 11 October, 19:00-21:00

Room Teddy A, ICC



IAF/ISEB Educators Professional Development Workshop

Ian Christie, Outreach Co-Ordinator and Curriculum Designer, Victorian Space Science Education Centre (VSSEC), Melbourne, Australia, will introduce participants to the nine classroom techniques for which there is real evidence that student outcomes are improved by teachers who use these techniques.

Sunday 11 October, 8:00-16:00

Room 312, ICC

IAC OPENING CEREMONY

Monday 12 October, 9:00-11:00, Ussishkin

Come and enjoy the IAC Opening Ceremony at the Ussishkin Auditorium at the ICC Congress Center. The IAC Opening Ceremony will feature a good mix of artistic performances from Israeli artists and high-level speeches from top-level international representatives.

PRESS CONFERENCES

Buzz Aldrin Press Conference

Monday 12 October, 12:00-13:00, Oranim 1, ICC

Presentation of Astronauts' Original Space Suits & New Space Education Program, 13:00-13:30

Heads of Agency Press Conference

Monday 12 October 15:15 – 15:45, Small Dulzin, ICC

ESA Director General Jan Woerner Press Conference

Tuesday 13 October, 12:15 – 13:00, Small Dulzin, ICC

Bloostar, the shortcut to orbit Press Conference

Thursday 15 October, 16:45 – 17:45, Small Dulzin, ICC

PLENARY EVENTS

Plenary panellists are carefully chosen so as to be experts within their respective fields. The events last one hour, but in the special case of the Heads of Agency Plenary and the Host Country Plenary they are extended up to a maximum of one hour and thirty minutes. Depending on the number of participants (4 to 8 panellists), they take the form of debate or round-table discussion with a moderator.

For more information on the speakers of the plenaries please visit:

<http://www.iafastro.org/events/iac/iac-2015/plenary-programme/>



PLENARY 1: HEADS OF AGENCIES

Monday 12 October, 13:30 - 15:00, Ussishkin Auditorium

The Heads of Agencies plenary event will bring together the leaders of major space agencies worldwide. Following the structure of previous years, this year's Heads of Agencies Plenary will begin with an introductory presentation on latest developments, followed by a discussion on specific topics as well as an interactive Q&A session with the audience.

Panellists:

- **Isaac Ben-Israel**, Chairman, *Israel Space Agency (ISA), Israel*
- **Charles Bolden**, Administrator, *National Aeronautics and Space Administration (NASA), United States*
- **Xu Dazhe**, Administrator, *China National Space Administration (CNSA), China*
- **Igor Komarov**, Head, *Federal Space Agency (ROSOSMOS), Russia*
- **A.S. Kiran Kumar** (invited), Chairman, *Indian Space Research Organisation (ISRO), India*
- **Naoki Okumura**, President, *Japan Aerospace Exploration Agency (JAXA), Japan*
- **Jan Woerner**, Director General, *European Space Agency (ESA)*

Moderator:

- **Uli Bobinger**, Journalist, *UV Media Production, Germany*

Co-Moderator:

- **Elizabeth Seward**, Head of Marketing, Earth Observation, Navigation & Science, *Airbus Defence and Space, United Kingdom*

PLENARY 2: REMOTE SUPERSPECTRAL AND HYPERSPECTRAL SENSING FROM SPACE

Monday 12 October, 18:15 - 19:30, Ussishkin Auditorium

Panellists:

- **Pierric Ferrier**, Project Manager, *Centre National d'Etudes Spatiales (CNES), France*
- **Ehud Hayun**, System Engineer, *MBT SPACE, Israel*
- **Arnon Karnieli**, Researcher, *Ben Gurion University, Israel*
- **Jose Moreno**, Professor, *University of Valencia, Spain*
- **Andreas Mueller**, Head Land Surface Department, *German Aerospace Center (DLR), Germany*
- **Stefano Pignatti**, Researcher, *Institute of Methodologies for Environmental Analysis (CNR-IMAA), Italy*

Moderator:

- **Eyal Ben Dor**, Head of *Remote Sensing Laboratory, Tel Aviv University (TAU), Israel*



PLENARY 3: SPACE TRANSPORTATION CAPABILITIES AND FUTURE DIRECTIONS TO ENABLE COMMERCIAL, SCIENTIFIC, AND HUMAN EXPANSION INTO SPACE

Tuesday 13 October, 8:30 - 9:30, Ussishkin Auditorium

This plenary session is dedicated to a comprehensive discussion of the current state and future directions of launch systems. We are in the midst of substantial change in the paradigms of how humans and hardware get to space – from technical, programmatic, and commercial perspectives. In the technical realm, for example, we are now seeing the first-attempts to re-land booster rockets gently for re-use of all or large parts of the hardware.

Panellists:

- **John Elbon**, Vice President and General Manager, *The Boeing Company, USA*
- **Tsutomu Fukatsu**, Director, Management and Integration Department Space Technology Directorate, *Japan Aerospace Exploration Agency (JAXA), Japan*
- **Robert Hauser**, Business Development Director, *United Launch Alliance (ULA), USA*
- **Stéphane Israël**, Chairman and CEO, *Arianespace, France*
- **Yuriy Makarov**, Director of Strategy Planning Department, *Federal Space Agency (ROSCOSMOS), Russia*
- **Lee Rosen**, Vice President, Mission and Launch Operations, *SpaceX, USA*
- **Lin Shen**, Deputy Chief Researcher, *China Academy of Launch Vehicle Technology (CALT), China*
- **Gaele Winters**, Director of Launchers, *European Space Agency (ESA), France*

Moderator:

- **Geir Hovmork**, Deputy Director, *Norwegian Space Center, Norway*

PLENARY 4: NEXT GENERATION PLENARY: INTERNATIONAL SPACE STATION AS THE GATEWAY FOR HUMANKIND'S FUTURE IN SPACE AND ON EARTH

Tuesday 13 October, 13:30 - 14:30, Ussishkin Auditorium

This plenary highlights the active work on the International Space Station (ISS) of students and young professionals who were competitively selected through YouTube auditions. These Next Generation panellists will discuss the reasons for performing research in space vs. on Earth and will discuss results and benefits of their research – not only for deep-space exploration but also for improving life on Earth. This plenary examines new research that will take firm hold in a future when the panellists will be in the prime of their careers, executing the decisions of the day and ultimately driving the space community.

Panellists:

- **Jean-Dominique Coste**, ESA Systems Engineer, *Airbus Defence & Space, France/Germany*
- **Jason Dunn**, Founder, *Made In Space, United States*
- **Norah Patten**, Communications and Outreach Manager, *Irish Centre for Composites Research (IComp), Ireland*
- **Jun Shimada**, Payload Engineer, *Japan Aerospace Exploration Agency (JAXA), Japan*



- **Julia Stalder**, *University of California in Los Angeles (UCLA) and National Aeronautics and Space Administration (NASA) JPL, USA*
- **Luis Zea**, *University of Colorado, University of Colorado, Boulder, Guatemala / United States*

Moderator:

- **Julie Robinson**, *ISS Program Scientist, National Aeronautics and Space Administration (NASA), USA*
- **Andrea Boyd**, *Flight Controller for ISS, European Space Agency (ESA)*

PLENARY 5: SMALL SATELLITES – BIG OPPORTUNITIES IN THE NEW AGE

Wednesday 14 October, 8:30 - 9:30, Ussishkin Auditorium

Nano satellites, privately owned satellites constellations, start-ups companies for new launchers, space tourism, are all signs of a revolution coming onto the conservative space industry and space organizations worldwide. The motto of the revolution is; “an affordable space” – space which is available to everyone, any time, and all of the time. The proposed sessions will present elaborately the ways of the start-up nation to an affordable space and space use, in research, technology, “conventional space industry” and SME’s.

Panellists:

- **Ofir Azriel**, *MBT Space, Israel*
- **Opher Doron**, *General Manager, MBT Space, Israel*
- **Steven Freeland**, *IISL, Professor of International Law, Australia*
- **Yvon Henri**, *Chief, Space Services Dept., ITU Radiocommunication Bureau, Switzerland*
- **Steve Isakowitz**, *President, Virgin Galactic, USA*
- **Mike Safyan**, *Director of Launch and Regulatory Affairs, Member of the Founding Team Planet Labs, USA*

PLENARY 6: FIFTY YEARS OF SPACEWALKING – THE ULTIMATE HUMAN SPACE ADVENTURE

Thursday 15 October, 8:30 - 9:30, Ussishkin Auditorium

Since the first Spacewalk by Alexey Leonov in 1965, people have left the confines of a spacecraft to walk in space more than 700 times. This ultimate human space experience of turning a human into a spaceship has required numerous technical achievements to overcome the dangers. Spacewalkers have worked for thousands of hours to build spaceships and save missions. Beyond achieving mission objectives, they have had a profound societal impact; millions of images of people in spacesuits can be found in every walk of life today. The spacewalkers will discuss their personal reactions to this adventure, as well as the future role of spacewalking in human exploration.

Panellists:

- **Buzz Aldrin**, *Moonwalker, Astronaut, Apollo 11, Gemini 12, USA*
- **Christer Fuglesang**, *Most European Spacewalking, Sweden*
- **Alexei Leonov**, *First Spacewalker, Russia*
- **Michael Lopez-Alegria**, *Most US Spacewalking, USA*



- **Sunita Williams**, Most Female Spacewalking, *USA*

Moderators:

- **Soichi Noguchi**, Japanese Spacewalker, President, *Association of Space Explorers, Japan*

PLENARY 7: THE MOON – A CONTINENT AND A GATEWAY FOR OUR FUTURE

Thursday 15 October, 13:30 - 14:30, Ussishkin Auditorium

The panel will review discoveries and key results from recent lunar missions, and the plans for upcoming lunar exploration. They will discuss how this serves as a gateway for scientific studies, technical validation and development, the next generation of landers, buildup of facilities in a lunar robotic village, the use of lunar resources, and the Moon as a platform for biological studies and observation of the cosmos, and sustainable human activities. They will address also the social, education, peaceful inspirational and economical values of lunar exploration for humankind. Also technologies, life support systems and human operations can be validated on the Moon, as a gateway to Mars and other solar system destinations.

Panellists:

- **Peter Batenburg**, Young Lunar Explorers Representative, Selected Recipient of the *SGAC/ILEWG Competition, The Netherlands*
- **William Gerstenmaier**, Associate Administrator, Human Exploration and Operations, *National Aeronautics and Space Administration (NASA), USA*
- **Oleg Gorshkov**, Director General, *Central Research Institute of Machine Building (TSNIIMASH), Russia*
- **Robert (Bob) Richards**, Founder & CEO, *Moon Express, Inc, USA*
- **Jan-Dietrich Woerner**, Director General, *European Space Agency (ESA)*

Moderator:

- **Bernard Foing**, Chair ESA/ESTEC Staff Committee, *Senior Exploration Officer HSO-I, The Netherlands*

HIGHLIGHT LECTURES

The Highlight Lectures (HLL) are devoted to topics of broad interest to all congress participants as well as external audience. An invited speaker introduced by a moderator gives a 40-minute presentation, generally adapted to a non-specialist audience. The event ends with 15 – 20 question/answer session.

HIGHLIGHT LECTURE 1: THE INTERNATIONAL ROSETTA MISSION – FIRST HISTORICAL RENDEZVOUS AND LANDING ON A COMET

Tuesday 13 October, 17:45 -18:45, Ussishkin Auditorium

The Rosetta international mission is a cornerstone of the ESA scientific programme which, for the first time in history of spaceflight, achieved a rendezvous with a comet nucleus and delivered a



lander module, Philae, onto its surface. The mission realization required almost 30 years since its initial conception. The interplanetary cruise took more than 10 years. The target, comet 67P Churyumov-Gerasimenko, was reached in August 2014. The lecture will emphasize on the operational challenges of the long mission, of flying Rosetta at short distances from an active comet nucleus of 2 km radius, and of the delivery and operations the Philae lander. Latest status of both Lander and Orbiter will be presented.

Speakers:

- **Paolo Ferri**, Head, ESA Mission Operations, Former Rosetta Flight Director, *European Space Agency (ESA), Germany*
- **Stephan Ulamec**, Philae Project Manager, German Aerospace Center (DLR), *Germany*

HIGHLIGHT LECTURE 2: SUSTAINING THE SPACE ENVIRONMENT: THE STATE OF SPACE SITUATIONAL AWARENESS, CONJUNCTION WARNING AND COLLISION

Wednesday 14 October, 17:45 - 18:45, Ussishkin Auditorium

Sustaining a productive near Earth space environment is critical. As the number of satellites in low and geosynchronous Earth orbits increases, collisions become more likely. Avoiding collisions has been a priority for two decades, but there has not been much progress. Space situational awareness has actually declined in the past few years. The quality of orbit data, particularly debris orbits, is neither sufficient nor timely. Fortunately, collisions are not likely, although the consequences might be severe.

This presentation will assess the capabilities of the world's space situational resources. One of the most significant impediments is the diversity of conjunction assessment and collision warning among stakeholders. Each must be able to understand and employ data provided by others. International Standards and best practices provide the environment for collaboration and improvement. Verifiable, measureable, and enforceable guidelines, codes of conduct, treaties, and laws are required. Many proposed and implemented thus far do not satisfy these criteria.

Speaker:

- **David Finkleman**, *Ph.D., Aeronautics and Astronautics, Massachusetts Institute of Technology (MIT), United States*

HIGHLIGHT LECTURE 3: ORION'S EXPLORATION FLIGHT TEST-1 – TAKING HUMAN SPACEFLIGHT BEYOND LEO FOR THE FUTURE OF MANKIND

Thursday 15 October, 17:45 - 18:45, Ussishkin Auditorium

Orion's first flight test last December took the spacecraft to an altitude of 3600 miles, farther than any human spacecraft has been in 42 years. The nearly flawless flight tested the heat shield, separation systems, launch and entry environments, avionics, and critical re-entry systems. 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 by two top Program Managers from NASA and Lockheed Martin, the prime contractor.



Speakers:

- **William Gerstenmaier**, Associate Administrator, *Human Exploration and Operations Mission Directorate, National Aeronautics and Space Administration (NASA), USA*
- **W. Michael Hawes**, Vice President and Orion Program Manager, *Lockheed Martin Space Systems Company, USA*

EVENTS AT THE IAF GLOBAL NETWORKING FORUM

MONDAY 12 OCTOBER

Heads of Agencies Press Conference, 15:15 - 15:45

(see panellists on page 11)

The Heads of Agencies Press conference will give the audience (mainly press representatives) the opportunity to directly address the Heads of Agencies asking relevant and challenging questions.

Nanost's Success: Innovative Lessons for the Entire Space Community, 16:30 - 17:15

China Manned Space Program, 17:30 - 18:15

TUESDAY 13 OCTOBER

Climate and Earth Observation – Challenges and Possibilities of Satellite Missions, 9:30 – 10:45

New Space Economy – the dawn of a new era or the next economic bubble? 10:45 - 12:00

ESA Director General Jan Woerner meets the Press, 12:15 - 13:00

NA 1 July 2015 ESA has a new Director General: Jan Woerner. He took up duty at ESA Headquarters in Paris, France. Mr Woerner called for the continuation of ESA's ongoing programmes, projects and missions in cooperation with Member States, as well as preparing for ESA's future, among the many important tasks he has to fulfil. Referring to this future as 'Space 4.0', Mr Woerner considers that ESA has already started to enter this new phase, in which space has become a day-to-day business and in which interaction with society, the commercialisation of space, resulting new roles for industry and a fostered, cooperative relation with the European Commission all play important roles. The ESA Council unanimously appointed Mr. Woerner on 18 December 2014 for a period of four years. Previously, he was Chairman of the Executive Board of the German Aerospace Center (DLR), from March 2007 to June 2015.

Speaker:

- **Johann-Dietrich Woerner**, Director General, European Space Agency (ESA)

Moderator:

- **Franco Bonacina**, Director General's Spokesperson and Head of the Protocol Office
Director General's Cabinet, European Space Agency (ESA)

Vega Small Launcher: the best workhorse answer to your LEO needs, 14:45 - 17:45



WEDNESDAY 14 OCTOBER

Hybrid - and full Electric Propulsion – what is changing orbital propulsion? 9:30 - 11:45

There are No Borders in Space: International Cooperation Will Drive the New Space Age, 12:00 - 12:30

Prospects of Human Spaceflight – Russian view, 13:15 - 14:15

Rafael's Microsatellites Enhanced Capabilities Utilizing Electric Propulsion Systems, 15:45 – 17:45

THURSDAY 15 OCTOBER

NASA Ames and Future of Space Exploration, Science, and Aeronautics, 10:00 - 11:00

Visual Impairment and Intracranial Pressure (VIIP) – an emerging health issue in Space, 11:30 -13:30

Memorial Event for Andrea Boese, 15:00 - 15:30

Bloostar, the shortcut to orbit – Press Conference, 16:45 - 17:45

More microsatellites are being built every day, and many companies are basing their business around constellations of nanosatellites. Flying technical, scientific and commercial payloads using high-altitude balloons to over 30km altitude is our current operational activity. The natural next step is to aim higher. We are now ready to transform the launch industry for small payloads. The objective of bloostar by zero2infinity is to design and develop a high-altitude balloon assisted launcher (or rockoon – a rocket fired from a balloon).

Speakers:

- **José Mariano López Urdiales**, Founder and CEO, zero2infinity
- **Dimitris Bountolos**, COO, zero2infinity
- **Michael López-Alegria**, Senior Advisor, and former NASA Astronaut, NASA
- **Guillaume Girard**, Advisor and Partner

Moderator:

- **Franco Bonacina**, Director General's Spokesperson and Head of the Protocol Office
Director General's Cabinet, European Space Agency (ESA)

FRIDAY 16 OCTOBER

Astronaut Event, 9:30 - 11:30

Astronauts from all over the world will be sharing their experiences in space and answering questions from the audience. This event will be open to the general public.

Speakers:

- **Buzz Aldrin**, Apollo 11 Moonwalker, United States
- **Reinhold Ewald**, Germany
- **Alexei Leonov** (Invited), First Spacewalker, Russia



- **Sunita Williams**, Most Female Spacewalking, United States

The Northern Lights – a Magic Experience, 12:00 - 12:45

TECHNICAL PROGRAMME

The IAC technical programme is structured in more than thirty symposia, themselves broken down into different technical sessions. Technical Sessions are devoted to scientific and technical presentations, done either orally or during an interactive presentation.

IAC 2015 has 180 Sessions, each composed of up to twenty presentations. A list of the symposia includes:

- ❖ **Space life sciences symposium**
- ❖ **Microgravity sciences and processes symposium**
- ❖ **Space exploration symposium**
- ❖ **44th symposium on the search for extraterrestrial intelligence (seti) – the next steps**
- ❖ **Human exploration of the solar system symposium**
- ❖ **Space debris symposium**
- ❖ **Earth observation symposium**
- ❖ **Space communications and navigation symposium**
- ❖ **Human spaceflight symposium**
- ❖ **22nd IAA symposium on small satellite missions**
- ❖ **Symposium on integrated applications**
- ❖ **Space operations symposium**
- ❖ **Astrodynamics symposium**
- ❖ **Materials and structures symposium**
- ❖ **Space power symposium**
- ❖ **Space propulsion symposium**
- ❖ **Space systems symposium**
- ❖ **Space transportation solutions and innovations symposium**
- ❖ **Symposium on building blocks for future space exploration and development**
- ❖ **13th IAA symposium on visions and strategies for the future**



- ❖ **48th symposium on safety and quality in space activities**
- ❖ **Symposium on commercial spaceflight safety issues**
- ❖ **Space education and outreach symposium**
- ❖ **45th student conference**
- ❖ **28th symposium on space policy, regulations and economics**
- ❖ **49th IAA history of astronautics symposium**
- ❖ **26th IAA symposium on space activity and society**
- ❖ **Business innovation symposium**
- ❖ **58th IISL colloquium on the law of outer space**
- ❖ **Young professionals virtual forums**

IAC EXHIBITION

Location: Exhibition Area

The IAC2015 Exhibition will feature over 100 exhibitors from industry, space agencies, research centres and universities, associations and space societies.

Opening

Monday 12 October, 11:00 – 12:00

Kick-off with a cutting of the ribbon to open the Exhibition Hall, followed by the **IAC customary Exhibition VIP tour**, including the presence of Head of Agencies.

Weekly opening hours

Monday, 12 October 12:00 - 18:00

Tuesday, 13 – Thursday, 15 October 9:00 - 18:00

Friday, 16 October 9:00 - 14:00

IAC CLOSING CEREMONY

Friday 16 October, 16:30-17:30, Small Dulzin

The Closing Ceremony provides a formal closing of the activities of the 66th IAC.

The IAF President will present the **IAF's annual awards**, given to individuals and groups that have distinguished themselves in space cooperation and space activities at the global level.

- ❖ **Allan D. Emil Memorial Award**, presented for an outstanding contribution to space science, space technology, space medicine or space law, this year goes to **Virendra Jha**, in



recognition to his outstanding long-term contributions to space technology and international cooperation in astronautics.

- ❖ **Frank J. Malina Astronautics Medal**, awarded to an educator who has demonstrated excellence in taking fullest advantage of the resources available to promote the study of astronautics and related space science, this year goes to **Boris Pschenichner**, who has presented an outstanding contribution to space education and promotion to the study of astronautics and space science.
- ❖ **IAF Hall of Fame** is this year awarded to **Paolo Ferri** and **Hans E.W. Hoffmann** in recognition to contribution during the course of their careers to the progress of astronautics within the framework of the IAF activities.
- ❖ **Luigi G. Napolitano Award** is presented by the Space Education and Outreach Committee of the IAF to a young scientist under the age of 30 years, who has contributed significantly to the advancement of aerospace science and has given a paper at the IAC on the contribution.
- ❖ **The Young Space Leaders Recognition Programme** awarded to six students and young professionals for their contributions in promoting astronautics.
- ❖ **IAF Student Awards** recognise the best papers presented by students at the IAC in the undergraduate and graduate categories

At the end of the ceremony, the **Congress flag** will be handed over to the next host country – Mexico.



Israel and Space

The State of Israel has a long history in space. By the 1960s, Israel had already established the National Committee for Space Research and Israeli scientists were involved in the study of the cosmos. The national space program, established in the early 1980s, led to numerous Israeli accomplishments.

The development of an independent space program in a small country like Israel is very significant. It required vision and the investment of significant resources. At the time that the Israeli space program was established, it represented vision and foresight – the belief that it was possible to create an impressive infrastructure in academic institutions and industry, enabling scientific research and technological development. Today, the Israeli space program is a success story, primarily in the area of miniaturization. However, the State of Israel cannot allow itself to lower its guard and rest on its laurels.

Israel Space Agency (ISA), a part of Israel's Ministry of Science and Technology, coordinates and supervises the national civil space program. Its objectives include establishing national space policy, and developing external relations and collaborations with other space agencies. ISA also coordinates scientific research activity and space exploration initiatives that involve Israeli academic institutions and industries.

Israel has a long and successful legacy in space, having developed robust and competitive space industries and applications. Israel's space program was established in the early 1980s. Israel's prime target was, and still is, to continue building an extensive space infrastructure. Originally motivated by national-security needs and lack of resources, Israel is focused on miniaturization and developing national capabilities in the area of lightweight, small satellites of high resolution, remote sensing and communications, a field in which it is acknowledged as a world leader.



IAC 2016 Guadalajara, Mexico, 26-30 September

Making space accessible and affordable to all countries

The IAC 2016 will for the very first time, take place in the beautiful country of Mexico. More information will soon be available on the IAF website: <http://www.iafastro.org/evenements/iac-2016/> and on the IAC 2016 website: www.iac2016.org.

67th IAC
International Astronautical Congress

**Making space accessible and
affordable to all countries**

September **26th - 30th** 2016
Guadalajara, Mexico

**Call for Papers
& Registration
of Interest**





www.iac2016.org



Practical information

PRESS BRIEFING

Sunday, 11 October 18:00 – 19:00

Location: Oranim 3-A

MORNING MEETINGS

Monday, 12 October – Friday 16, October 8:00 – 8:30

Location: Teddy D

You will also receive daily agenda emails every morning.

Please, note that there will be the media booth next to the registration area.

CONGRESS VENUE



The **Jerusalem International Convention Center (ICC)** has been a household name for more than 60 years. Its lounges, halls and interior rooms tell the story of a center that has seen everything: from receptions for presidents and VIPs to professional fairs and exhibitions, from mammoth business events to intimate social events, from local and international conventions and conferences to spectacular performances on the biauditorium stage.

A floorplan is available on the next page.

For more information on the venue, visit:

<http://www.iac2015.org/congress/venue/>

For information on bus transportation to the venue, visit:

<http://www.iac2015.org/transportation-to-jerusalem/>

INTERNATIONAL PRESS CENTRE

Location: Teddy D

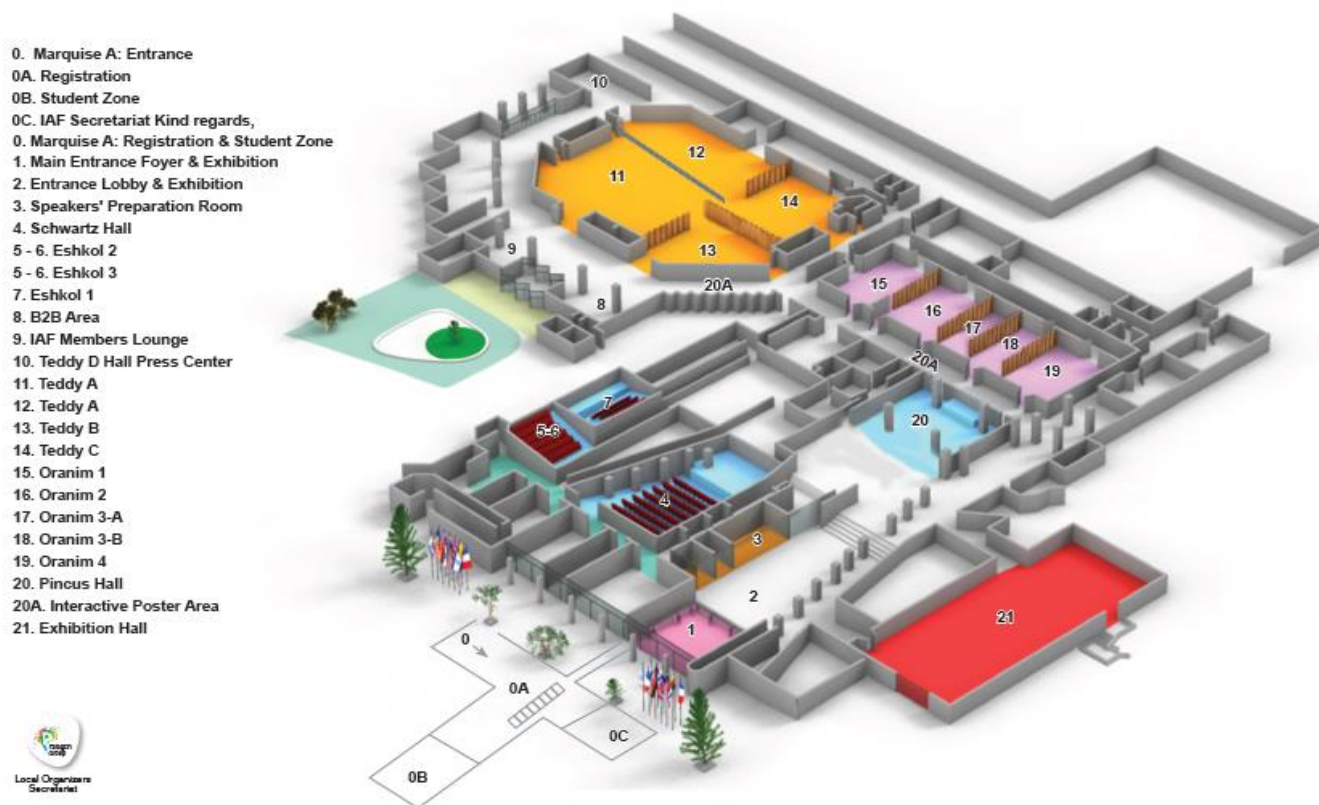
Opening hours:

Saturday, 10 October 13:00 – 20:00

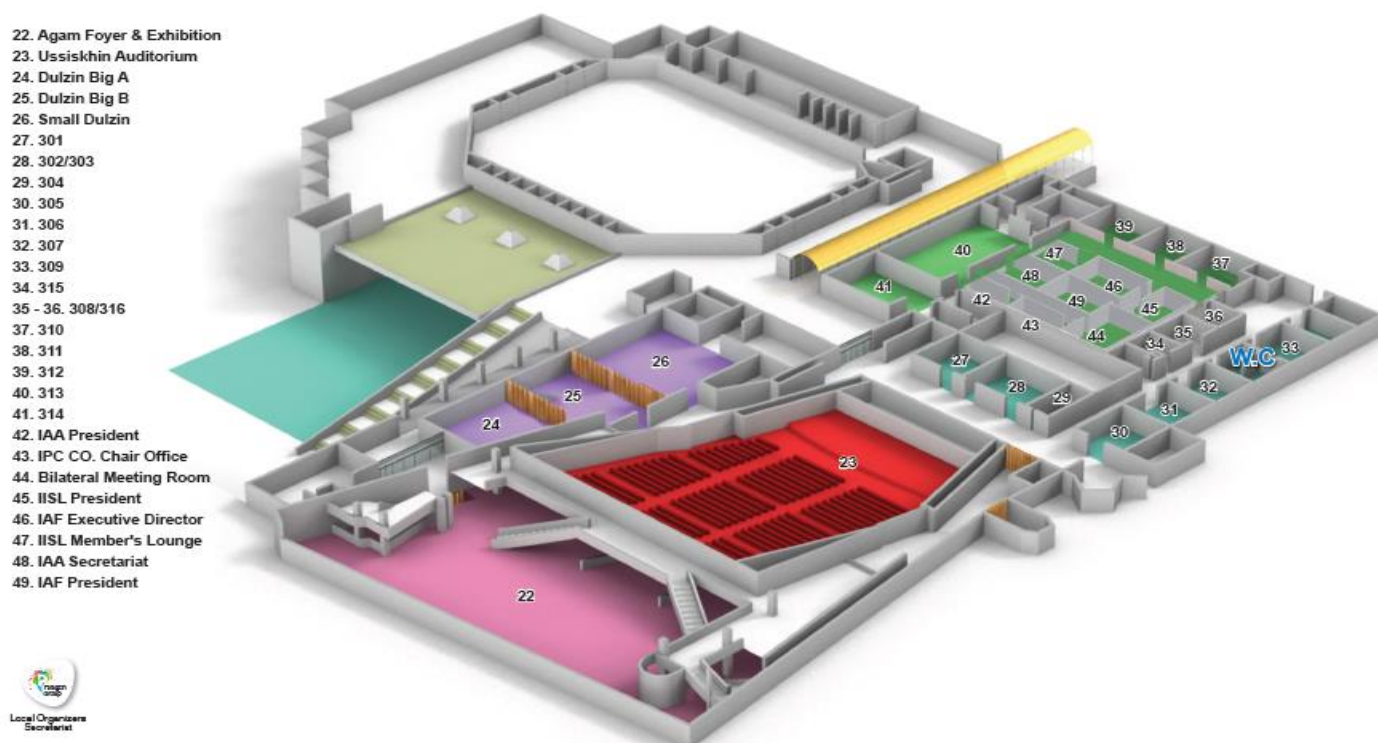
Sunday, 11 October – Thursday, 4 October 07:30 – 20:00

Friday, 16 October 07:30 – 17:00

ICC LOWER LEVEL



ICC UPPER FLOOR





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Useful Publications*

❖ [IAC final programme](#)

http://www.iafastro.org/wp-content/uploads/2014/04/IAC2015_FP_PRINTlowres.pdf

❖ [GNF brochure](#)

http://www.iafastro.org/wp-content/uploads/2014/12/GNF_Programme_Leaflet_2015Sept03_FINAL.pdf

❖ [IAF newsletter \(September 2015\)](#)

http://www.iafastro.org/wp-content/uploads/2014/04/IAF_NL-Sept2015_online.pdf

❖ [IAF corporate brochure](#)

http://www.iafastro.org/wp-content/uploads/2014/04/IAF-Corporate-Brochure_-_Apr201513_FINAL_online2.pdf

**Note: The IAC2015 Media press kit is published on 1 October 2015 and doesn't take into account any subsequent changes in the IAC programme or participants.*