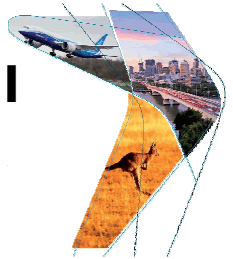


ICAS»2012

23-28 SEPTEMBER BRISBANE AUSTRALIA



28th Congress of the International Council
of the Aeronautical Sciences



CALL FOR PAPERS



Hosted by

Co-hosted by



Royal Aeronautical Society
AUSTRALIAN DIVISION



ENGINEERS
AUSTRALIA

Please submit your abstract online at
www.icas.org **before July 15th, 2011**

CALL FOR PAPERS

For more than half a century now, the International Council of the Aeronautical Sciences (ICAS) has provided for the world's aerospace engineers, scientists, technologists and managers, the pre-eminent forum to present and discuss the latest developments in aeronautics. This remarkable apolitical organization founded by Theodore von Karman and his international colleagues, continues to build on its impressive heritage, to be even more relevant to the global aerospace and aviation industries. This world congress staged biennially by ICAS is the key opportunity for those committed to serving those industries to meet, present, discuss and create opportunities that can only be done in such an international environment.

The pace of technological developments and the diversity of business challenges facing those working in aeronautics are greater than ever today. The knowledge, skills, facilities and finance necessary to progress our profession and associated businesses are no longer found in one place or even close to home. Therefore, in such an environment with seemingly limitless availability of unfiltered information from a diversity of sources, ICAS Congresses represent unique opportunities every two years to learn and interact with the leaders in the field from around 40 countries.

The topics addressed at ICAS Congresses are typically diverse and reflections of the challenges and opportunities of the day. The foundations of the industry, the aeronautical disciplines of aerodynamics and performance, stability and control, materials and structures, and propulsion and systems, always feature strongly, however every Congress brings new topics. In recent times, there has been considerable growth in sessions on air traffic management and systems, manufacturing and the supply chain, safety and security, and of course the environment and operations. As we prepare for the next Congress, it is clear that there will be increased focus on unmanned air vehicles and systems, and operational challenges for the global air transport system.

The 28th ICAS Congress is to be held in Brisbane, Australia, which will be only the second time for the Congress to be in the southern hemisphere. This part of the world is one of the most rapidly developing markets for aviation services, with MRO – maintenance, repair & overhaul, being a major segment of this. Therefore, in addition to our traditional topics, an emphasis on emerging technologies and challenges associated with the operation and sustainment of fixed and rotary wing aircraft and their complex systems, is being planned.

It is therefore with great pleasure that we invite you to consider participating in the next ICAS Congress, and at this time, to commence the preparation of an abstract detailing your most important work conducted over the past two-year period. As a guide to authors, the list of ICAS 2012 topic headings is appended. However, this list should not be regarded as exhaustive and papers from other relevant areas are welcome.

Authors are invited to provide an abstract for a potential paper before July 15th 2011

Congress Programme

The ICAS Programme Committee will assemble a Congress programme containing a number of parallel sessions and poster exhibitions. Student presentations (see page 4) will be embedded in the technical sessions. Based upon the experience of previous Congresses, the final programme is expected to contain over 400 oral presentations. In addition, there will be a number of high quality, invited lectures on topics of particular importance and general interest in the technical sessions. A number of "General Lectures" on subjects of major importance, delivered by leading experts, will be included in the morning and afternoon plenary sessions.

Congress Proceedings

All papers accepted for presentation (oral, standby and poster) will be included in the CD-ROM.

Congress venue

The 28th Congress will be held in Brisbane, Australia. The host and local organizer is the **Royal Aeronautical Society, Australian Division** – the ICAS Member Society in Australia. More information about the venue and the logistic arrangements is given on page 6.

We look forward to receiving your abstract and to welcoming you in Brisbane 2012.

Detlef Müller-Wiesner
President

Murray Scott
Chair Programme Committee

What is the International Council of the Aeronautical Sciences?

- It was founded by Theodore von Karman in 1957.
- It is a non-government, not-for-profit organization that facilitates and encourages the free exchange of information on aeronautical research and technology at a global level.
- It is the global organization supporting aeronautical engineering professional societies and associated organizations from around 30 countries.
- It organizes a major biennial Congress presenting timely, high quality work from the world-wide research community covering all aspects of aeronautical science and technology and their application to both military and aviation.
- More than 700 engineers and scientists from all over the world attended the last ICAS Congress in Nice, France, and about 450 papers were presented.
- All papers presented at the congress are included in the electronic publication available at the Congress. In addition, the ICAS electronic archive, containing over five thousand documents, is freely available to the world-wide aeronautics community.
- The ICAS Congress provides a unique forum for engineers and scientists from all over the world to meet, to hear the results of the latest research and to exchange ideas and information. It also provides an opportunity for young engineers and students to develop an international network of colleagues.

ICAS Contact information:

Axel Probst – Executive Secretary
ICAS Secretariat, c/o DGLR, D-53175 Bonn, Germany

Please submit your abstract online at ICAS website www.icas.org before July 15th, 2011.
(Opening of the Website to submit abstracts will take place in May 2011)

Authors are invited to pay careful attention to the presentation and content of their abstract. Knowing that there are more candidates than possible presentations, paper selection for the ICAS Congress is done based on the quality of the abstract only. Some important criteria for the abstract to be selected are scientific/technical content, importance to the field, style/clarity, and completeness.

Abstracts should be written concisely; include a preliminary title and the opening sentences should indicate the subjects dealt with and the objectives. The abstract should be intelligible and complete in itself. Abstracts should ideally have a length of about two pages including figures and diagrams. When uploading your abstract you will be requested to upload also a short version (about 50 words) to be used in the Congress final programme. Please indicate for which ICAS topic area the paper is intended.

Your abstract should also include author(s) name, affiliation, complete mailing address, telephone and fax numbers, and email address. Due to limited space in the printed programme the number of authors should be limited to three (use acknowledgements if applicable).

At the uploading of your abstract, you should indicate if your paper is intended as an oral or as a poster presentation. Furthermore, it should be indicated if your paper is intended as a student paper.

Abstract review by Member Societies

The abstracts will be made available to the national Member Societies by the ICAS Secretariat for screening and evaluation and the Member Societies will be asked to submit their recommendations ("not supported, supported, strongly supported") to the ICAS Programme Committee for final evaluation and selection.

NOTE: If there is no national ICAS Member Society in the country, the abstracts will be evaluated only by the ICAS Programme Committee.

The authors will be informed about the acceptance or not of their paper in November 2011.
Full papers should be delivered latest by July 1st, 2012 for inclusion in the CD-Rom proceedings.

Poster Presentations

Poster sessions will be organized for the cases where this mode of presentation is preferred by authors or considered more appropriate by the Programme Committee. There is in principle no limitation in number for poster papers and they are selected on their merit only.

Student Presentations

Undergraduate or postgraduate students, who will not have completed doctorate studies by the date of the Congress, may submit an abstract on any topic of the Congress. As far as possible, students must ensure before accepting selection in November 2011 that they can cover their travel and hotel expenses. The two best student papers will be awarded with the ICAS McCarthy Award. To be eligible to take part in the competition for the ICAS McCarthy Award, the abstract and subsequent paper is authored and presented by students only.

Paper review (optional)

For those authors who would wish it, ICAS will provide a paper review by experts from the ICAS Programme Committee. Authors have to indicate when uploading their abstract if they are interested in this process. These papers will be reviewed based on technical content, importance to field, completeness, style and clarity. Papers that successfully pass the review will obtain an ICAS Recommendation letter. Note that, due to the length of such a process, candidates will be requested to supply their full paper by March 15th, 2012. This process will enable a feedback from the reviewer(s) in time to make it possible for the author to improve the quality of the paper. Please note that this paper review is offered only for papers accepted for oral presentation.

ICAS 2012 TOPIC AREAS

- 1. Aircraft and Systems Integration**
 - Subsonic and Supersonic Transport Aircraft
 - Military Aircraft and Missiles
 - Non-Conventional Aviation Systems and Concepts
 - Unmanned Air Vehicles
 - Hypersonic Aircraft
 - Commuter and General Aviation Aircraft
 - Rotorcraft
 - Sailplanes and Ultra light Aircraft
 - Multidisciplinary Optimization
 - Design for Survivability
 - Design Education
 - New Aircraft Concepts - Military, Civil
 - Trans-atmospheric Vehicles
- 2. Aerodynamics**
 - Subsonic
 - Transonic and Supersonic
 - Hypersonic Aerothermodynamics
 - High Angle of Attack, High Lift
 - Computational Fluid Dynamics
 - Transition and Turbulence
 - Wind Tunnel and Flight Testing
 - Experimental Facilities and Techniques
 - Aero acoustics
 - Flow Control
 - Biologically-inspired flight
- 3. Materials and Structures**
 - Composite Materials and Structures
 - Applications and Issues
 - Metallic Alloys
 - High Temperature Materials and Structures
 - Structural Mechanics
 - Fatigue and Damage Tolerance
 - Structural Dynamics and Aeroelasticity
 - Dynamic Loading, Acoustic Loading and Impact
 - Structural Testing
 - Nanotechnology
- 4. Propulsion**
 - Gas Turbines
 - Propellers and Fans
 - Hypersonic Propulsion
 - Inlets and Nozzles
 - Propulsion / Airframe Integration
 - Noise and Emissions (Cf Topic No 10)
 - Experimental Facilities and Techniques
- 5. Flight Dynamics and Control**
 - Flight Dynamics
 - Control Techniques and Systems
 - Aircraft Handling Qualities
 - Flight Testing and Simulation
 - Performance and Trajectory Optimization
 - Missiles Guidance
 - Autonomous operations
 - Neural Networks
 - System and Parameter Identification
- 6. Systems, Subsystems and Equipments**
 - Integration of Equipment Systems
 - Power Optimised Aircraft Systems
 - Electrical, Hydraulic and Pneumatic Systems
 - Avionic Systems
 - Landing Gear and Braking Systems
 - Auxiliary and Emergency Power Generation
 - Aircraft Fuel Systems
 - Lightning, Cabin and Water/Waste
 - Ice and rain protection
 - Advanced Sensor Systems
 - Emerging Systems / New Technologies
- 7. Systems Engineering and Supply Chain**
 - Integrated Product / Process Development
 - Supply chain
 - Customer and Product Support
 - Life Cycle Value
 - CAD/ CAM and Computer Integrated Manufacturing
 - Information System Technology
 - Advanced Information Technology
 - Design, Development and Manufacturing
 - Engineering Management
 - Robotics
 - Total Quality
 - Automation and Concurrent Engineering
- 8. Air Transport System Efficiency**
 - Aircraft Operation
 - Flight Management
 - ATM and airspace capacity
 - Weather effects
 - Airport capacity
 - Intermodality issues
- 9. Safety and Security**
 - Accident prevention
 - Accident survivability, Crashworthiness
 - Human-Machine Interface
 - Airworthiness and Certification
 - Reliability and Maintainability
 - Ageing Aircraft
 - Aviation Medicine
 - Airborne aircraft security
 - Airport security
- 10. Challenge of the Environment**
 - Reduction of Noise
 - Reduction of Emissions
 - Alternate fuels
 - Operational procedures
 - Maintenance and disposal processes
- 11. Operations and Sustainment**
 - Maintenance, Repair and Overhaul
 - Logistics and Through-life Support
 - Reliability and Risk
 - Extreme Environmental Conditions
 - Continuing Airworthiness
 - Ageing Systems and Upgrade
 - Total Lifecycle Analysis

ICAS 2012 Brisbane, Australia

General Information

The 28th Congress of the International Council of the Aeronautical Sciences will be hosted by the Australian Division of the Royal Aeronautical Society (RAeS), in cooperation with Engineers Australia (EA), and will be held from 23 - 28 September 2012 in Brisbane, Queensland, Australia.

Brisbane - Australia's New World City

Welcome to Brisbane - Australia's New World City. Located in sub-tropical South-East Queensland, the Sunshine State of Australia, Brisbane is the country's third-largest city, nestled on the banks of the meandering Brisbane River. Offering visitors an enviable lifestyle with the laid-back, easy attitude of a small community - Brisbane is sure to surprise and inspire with the sights, sounds and cosmopolitan energy of a major international metropolis. Situated within an hour's drive to Australia's favourite holiday destination, Gold Coast, and its world famous beaches, Brisbane is renowned for its dynamic and down-to-earth way of life. Set amongst world-class arts, cultural and entertainment precincts, leafy parks and cycle and walk ways, this modern day city is rapidly emerging as one of the most desirable places to live in Australia. With a sub-tropical climate, the average temperature in September is a pleasant 25°C/ 77°F. Brisbane is easily accessible with direct flights from the west coast of the United States and one-stop flights from Europe. An extensive domestic network provides flights to other destinations in Queensland and the rest of Australia.

Congress Venue

Set amongst Brisbane's centrally located arts, cultural and entertainment precinct, South Bank, is the Brisbane Convention and Exhibition Centre. Ranked as one of the top three convention centres world-wide, this state-of-the-art purpose-built venue is renowned for its reputation of operational and service excellence. The Centre is recognised as one of Australia's leading meetings and events venues, offering complete flexibility and versatility to its guests. Over three impressive levels and within minutes walking distance to exceptional hotels, entertainment and dining venues, the Brisbane Convention and Exhibition Centre will set the stage for a successful ICAS Congress.

Social Programme

In addition to the Congress receptions and the banquet, the Local Organising Committee will offer interesting visits and excursions for accompanying persons. The present planning is ½ Day tours for Monday, Tuesday and Thursday and a full Day tour for Wednesday.

Technical visits

Technical visits will be arranged on the Friday after the Congress to aerospace industries in the Brisbane area. Technical visits to industries located in other Australian capital cities are also considered.

Registration fee

The Congress registration fee, including the CD-ROM Proceedings, is expected to be approximately one thousand AUD for early bird registration. Discounts will apply for members of ICAS member societies and associates. The registration fee for students is expected to be approximately one hundred and sixty AUD.

The International Council of the Aeronautical Sciences, the Australian Division of the Royal Aeronautical Society and Engineers Australia look forward to your participation in the 28th ICAS Congress. *See you in Brisbane!*

For further information please check the websites below or contact:

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