35TH CONGRESS OF THE

INTERNATIONAL COUNCIL OF THE AERONAUTICAL SCIENCES

ICAS2026

SYDNEY | AUSTRALIA

CALL FOR PAPERS

MESSAGE FROM ICAS

It is with great pleasure that we invite you to participate in the 35th Congress of the International Council of the Aeronautical Sciences (ICAS). ICAS was established in 1957 under the leadership of Professor Theodore von Kármán. Today ICAS continues to support the work of aerospace professional Member Societies around the world. Through Associate Memberships, ICAS brings together aerospace companies, national laboratories and educational institutions.

The ICAS 2026 Congress will be held in Sydney, Australia, from 13 to 18 September 2026: we will be hosted by one of the premier aerospace nations in an iconic city famed for its vibrant cosmopolitan melting pot of culture and technology. In Sydney we will build on the great success of the 2024 Florence Congress and our global aerospace community will meet and address the theme of SHAPING AVIATION FOR SOCIETY. The Florence program was boosted by the invited participation of leading researchers, designers, managers and policymakers who were able to share their strategic vision for the future of aerospace with our delegates. The same will happen in Sydney, as our world faces challenges where our industry continue to strive for a sustainable future while experiencing rapidly changing conditions.

The ICAS Congress has three distinctive characteristics: it is multi-disciplinary, recognising that major advances must involve experts working together across a range of specialisms; it recognises that social interaction and conviviality are essential ingredients of knowledge exchange, and are enhanced by selecting culturally rich settings for our Congresses; and it offers unparalleled opportunities for early career researchers to develop their network and to make a real contribution to international collaboration. The unique atmosphere of an ICAS Congress builds life-long collaboration, mutual understanding and international friendship, while sending a strong message to society that our global community is working together to solve global challenges.

For 2026 we particularly welcome papers supporting the theme, SHAPING AVIATION FOR SOCIETY, which cross over between the traditional topic areas listed later in this call, and which bring in ideas from other sectors, especially novel concepts in energy, control, materials and the increased gathering and use of data, particularly where the certification of these disruptive technologies is addressed.

We very much look forward to seeing you in Sydney in 2026 and to hearing about your contribution to solving the challenges facing our industry, be it novel ideas or new ways of working. Please respond to this Call for Papers and share your latest work at our biennial celebration of the aeronautical science, innovation and creativity – in the vibrant city of Sydney.

Christopher Atkin
ICAS President

Gunnar Holmberg
Chair Programme Committee

Authors are invited to submit an abstract for a potential paper before 10 January, 2026

MESSAGE FROM THE ROYAL AERONAUTICAL SOCIETY AUSTRALIAN DIVISION

Dear Colleagues,

On behalf of the Royal Aeronautical Society Australian Division (RAeS AD) I am honoured to invite professionals from academia, industry and government to attend the 35th Congress of the International Council of the Aeronautical Sciences (ICAS) in Sydney, Australia.

Since the first ICAS Congress in Madrid in 1958, this has become the world´s primary forum for aeronautical technology. The long-lasting success of the ICAS Congresses will be confirmed and strengthened in Sydney in 2026, due to the participation of leading experts and leaders of top aerospace industries, research centres, universities, and government representatives.

Australia has a strong aeronautical heritage, going back to the 1890s when Lawrence Hargrave designed and flew some of the first heavier-than-air kites and flying machines. Our national airline Qantas pioneered key aspects of airline travel and recently Boeing Australia designed and built an advanced stealth unmanned aerial vehicle, the MQ-28 Ghost Bat. This fascination and ingenuity in aeronautical engineering continues to this day, and we are looking forward to showcasing this to you at ICAS 2026.

We look forward to welcoming you to Sydney, Australia.

Margaret Staib
President of the Royal Aeronautical Society
Australian Division (RAeS AD)

TIMELINE FOR AUTHORS

- Upload your abstracts on **www.icas.org** until **10 January 2026**
- Authors receive an answer by **1 March 2026**
- Upload your full paper prior to **1 June 2026**
- Register to the Congress prior to **15 June 2026**
- Please check out **www.icas.org/next_events/call_for_papers.php** frequently for updates concerning submission/paper handling till the congress.

CONGRESS PROGRAM

The ICAS Programme Committee (PC) will assemble a Congress program containing approximately fourteen parallel sessions and interactive presentation exhibitions. Student presentations (see **page 6**) will be embedded in the technical sessions. Based upon the experience of previous Congresses, the final program is expected to contain some 1000 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 interactive presentations) will be included in the Congress Proceedings online which will be published in the German national library. Please note that a paper will not be included in the Proceedings if it is not presented at the Congress. ICAS Proceedings are indexed in the Scopus database as serial conference proceedings. We will offer all authors to index their paper with a DOI number. The best papers will be proposed for special issues in the partner journals from the ICAS Member Societies.

CONGRESS VENUE

The 35th ICAS Congress will be held in Sydney, Australia. The host and local organiser is the Royal Aeronautical Society Australian Division (RAeS AD) – the ICAS Member Society in Australia. More information about the venue and the logistic arrangements are given on **page 8** and at **www.icas2026.com**.

SUBMISSION REQUIREMENTS

Please submit your abstract online at ICAS website www.icas.org before 10 January 2026.

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 based on the quality of the abstract. Some important criteria for the abstract to be selected are scientific/technical content, importance to the field, style/clarity, and completeness. There is no required format, or suggested template, for the abstract.

Abstracts must be written in English. They should be written concisely and they must include a title for the proposed paper. The abstract must be an extended abstract or draft manuscript with a minimum of 500 words and a maximum of 4 pages. The submission should include sufficient detail to demonstrate the purpose of the paper, the technical foundation for the topics to be discussed, any preliminary results to date, and the expected results of the final paper, including key figures, equations, tables, and references, as appropriate. Sufficient information should be included in the submission to convince the ICAS Programme Committee that, besides the scientific/technical value of the proposed paper, the author(s) will have a strong likelihood of completing the work by the final manuscript submission deadline.

Your abstract should also include author name, affiliation, complete mailing address, telephone number and email address. Due to limited space, only the first three authors will be shown in the final program. However, all authors should be included in the paper. Moreover, authors should adhere to the good practices in the writing of technical papers, such that only those directly involved with creation of the material should be listed as authors. Please use acknowledgements otherwise.

At the uploading of your abstract, you should indicate if your paper is intended as an oral or as an interactive presentation. Furthermore, it should be indicated if your paper qualifies as a student paper. Please note the details for the student paper submission on the upload-page. When uploading your abstract, you will be requested to also upload a very short summary to be used in the Congress final program. This should contain a maximum of 50 words. Please indicate for which ICAS topic area the proposed paper is intended. If you are unsure please take the best choice but it may be moved to another topic area by the Programme Committee.

FURTHER INFORMATION

Authors will be informed about the acceptance/rejection of their paper by 1 March 2026. Full papers must be delivered at the latest by 1 June 2026 for inclusion in the Congress proceedings.

INTERACTIVE PRESENTATIONS

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

STUDENT PRESENTATIONS AND STUDENT AWARDS

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. To participate in the McCarthy-Student-Award, students must check the participation request upon uploading their abstract. The two best student papers will be awarded with the ICAS McCarthy Award at the banquet of the ICAS Congress, which also includes a financial prize and free admission to the banquet. To be eligible to take part in the competition for the ICAS McCarthy Award, the abstract and subsequent paper is to have the student as a lead author and the paper is to be presented by the lead author only. The precise rules are listed on the upload-page.

FEEDBACK ON THE ABSTRACTS

The ICAS Programme Committee may provide individual feedback when screening the abstracts. This should enable the submitters of the abstracts to provide a better presentation at the Congress and a paper with a higher quality for the ICAS archive. Furthermore the Panel chairs may request feedback or preliminary versions of the paper from the authors prior to the final paper submission deadline. Authors are expected to reply promptly and accurately to such requests.

FULL PAPER REVIEW

Full papers submitted to ICAS will be reviewed by the Programme Committee and the authors may be contacted with requests to perform modifications and/or improvements to their respective papers.

CONTACT INFORMATION

ICAS Secretariat
Axel Probst, Executive Secretary
Bodo Heinrichs, ICAS Coordinator
Godesberger Allee 70
D 53175 Bonn, Germany
+49 228 308 0519
icas@icas.org
www.icas.org

ICAS 2026 Congress Secretariat
c/o MCI Australia
Phone: +61 7 3858 5400
info@icas2026.com
program@icas2026.com
www.icas2026.com

ICAS 2026 TOPIC AREAS

1. Aircraft Design and Integrated Systems

1.1. Aircraft Design and Integrated Systems (Theory, Methods and Tools)

- Advanced aircraft design theory, tools and methodologies (MDO, digital twinning, PLM, etc – see also Manufacturing)

1.2. Aircraft Design and Integrated Systems (Use cases and Applications)

- Innovations for classical air vehicle configurations from subsonic to hypersonic speeds
- Integrated designs focusing on top-level system objectives, especially if addressing multiple, possibly conflicting objectives
- Design for electric or alternative fuel or propulsion concepts
- Unconventional aviation systems and concepts

2. Systems Engineering and Integration

- Advances in Systems Engineering
- Advances in Systems Integration and architecting
- Systems of Systems and Heterogenous Systems
- Integrated product and process development
- Innovations in engineering management
- Model-based, data-driven and distributed development

3. Aerodynamics

- New insights into flow physics (all speed regimes; high angle-of-attack; unsteady flow; instability; transition and turbulence; shock waves; plasma and aerothermal effects; etc)
- Aeroacoustics and fluid-structure interaction
- Applied aerodynamics, especially for unconventional concepts
- Control of flow phenomena, loads and noise
- Measurement facilities, techniques and results (wind tunnel, acoustic and flight testing)
- Computational facilities, techniques and results (CFD and analytical approaches applied to representative flow regimes and configurations)
- Biologically inspired flight

4. Materials and Structures

4.1. Aerospace Grade Materials, Structural Analysis, Fatigue and Damage Tolerance

- Novel aerospace materials, including additively manufactured structures
- Structural mechanics
- Structural repair
- High temperature and extreme environments
- Fatigue and damage tolerance
- Nanotechnology

4.2. Aerostructures Design, Structural Dynamics, Aeroelasticity

- Structural dynamics
- Aero-servo-elasticity
- Structural design
- Impact
- Smart structures and health monitoring
- Test facilities, techniques and results

5. Propulsion and Energy

- Classical propulsors and components (propellers, fans, inlets, nozzles, jets, ramjets, scramjets, etc)
- Propulsion / airframe integration
- Propulsion system acoustics and emissions
- Test facilities, techniques and results
- Electrical and alternative energy sources, propulsion systems and infrastructure

6. Flight Dynamics and Control

- Advances in flight dynamics and handling qualities
- New control techniques and systems
- System and parameter identification
- Flight testing and simulation techniques and results
- Performance and trajectory optimisation
- Autonomy and AI-assisted control

7. Systems, Subsystems and Equipment

- Advances in, and optimisation of, classical aircraft systems (electrical, hydraulic, pneumatic; avionics, fuel, power generation and distribution, landing gear; ice, rain and lightning protection; cabin and hygiene; emergency)
- Integration of equipment systems
- Test facilities, techniques and results
- Advanced sensor systems

8. Manufacturing and Supply Chain Management

- Digital manufacturing (CAD/CAM, computer integrated manufacturing, digital twinning, VR/AR, cognitive manufacturing, product lifecycle management and other information system technology)
- Robotics, automation and assistive technologies
- Additive and other low-waste manufacturing
- Supply chain management
- Total quality management
- End-of-life management

9. Crewed and Uncrewed Aircraft Operations and Traffic Management

- Aircraft operation and flight management
- ATM, airspace and airport capacity
- Mitigation of environmental and weather effects
- ATM for mitigating environmental impact
- New concepts for aerial mobility
- Intermodality and required physical/digital infrastructure

10. Safety and Security

- Accident prevention, survivability and crashworthiness
- Human factors
- Airworthiness and certification (see also Operations and Sustainment)
- Aviation medicine
- Physical security, airborne and on ground
- Cyber security during design, manufacture and operation

11. Operations and Sustainment

- Through-Life Support: Maintenance, Repair, Overhaul and Upgrade
- Total lifecycle analysis
- Reliability and maintainability
- Condition Based Maintenance, Prognostics and Big Data
- Ageing Aircraft and Continuing Airworthiness
- Customer and Product Support Systems

12. Education and Training

- Design education
- Activities for students: hands-on and project work, including design, build and fly
- Continuing professional development, including digital up-skilling

GENERAL INFORMATION

The 35th ICAS Congress will be held in Sydney, Australia. The host and local organiser is the Royal Aeronautical Society Australian Division, **www.raes.org.au**.

CONGRESS VENUE

ICAS 2026 will be hosted at the International Convention Centre (the ICC) in Sydney, Australia. Situated at the intersection of Sydney's academic, cultural and technology precincts, The ICC Sydney affords delegates, exhibitors and visitors convenient access to Australia's most cosmopolitan city. The centre is easily accessible by lightrail, train bus or water taxi. The emerging financial, dining and retail precinct of Barangaroo is nearby; there are numerous galleries, theatres and concert halls within easy reach; and the bustling city centre is only a short walk away. Visit icas2026.com for more information about the ICC Sydney.

Sydney is Australia's most iconic city, offering hundreds of direct international flights that seamlessly connect Australia to the world. The airport is conveniently located just 20 minutes from the Central Business District (CBD) and the Convention Centre, with excellent public transport options, including buses and trains, to easily connect you to the city. For your convenience, we will offer a selection of discounted congress hotels within walking distance of the Convention Centre, along with over 200 additional accommodation options in the surrounding city centre.

ACCOMPANYING PERSONS PROGRAM AND POST CONGRESS TOURS

Enhance your stay with accompanying person programs and post-congress tours. Sydney offers beautiful beaches, historical sites, fantastic restaurants, and stunning natural attractions, providing countless memorable experiences.

From the iconic Sydney Opera House to Bondi Beach, you'll find amazing activities all year round. Customisable tour options to add to the technical tours will be available post-congress.

TECHNICAL TOURS

Technical tours will be available starting Friday, 18 September 2026. Sydney offers a prime location for exploring both Civil and Military aerospace facilities, with a variety of exciting options on offer. Participants will have the opportunity to visit Australia's newest airport, Nancy Bird-Walton (formerly Western Sydney) Airport, where they can explore the airport's state-of-the-art Air Traffic Management systems, MRO facilities, and the flow of human, baggage, and cargo traffic, as well as the surrounding supporting industries. Additional tours will highlight Sydney's world-class university research facilities, showcase the city's dynamic start-up ecosystem, and offer insights into local manufacturing and MRO capabilities.

If you would like to be a presenter at ICAS 2026 Congress in Sydney, 13-18 September 2024, then upload your abstract on www.icas.org before 10 January 2026.

WHAT IS ICAS?

What is the International Council of the Aeronautical Sciences?

- It was founded by Theodore von Kármán in 1957.
- It is a non-government, not-for-profit organisation that facilitates and encourages the free exchange of information on aeronautical research and technology at a global level.
- It is the global organisation supporting aeronautical engineering professional societies and associated organisations from around 30 countries.
- It organises a major biennial Congress presenting timely, high quality work from the world-wide research and development community covering all aspects of aeronautical science and technology and their application to both military and aviation.
- More than 1000 engineers and scientists from all over the world attended the last ICAS Congress in Florence, Italy and about 800 papers were presented.
- All papers presented at the congress are included in the electronic publication available after 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 opportunity for early career professionals and students to develop an international network of colleagues.