

## P r e f a c e

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The 15th Congress of the International Council of the Aeronautical Sciences (ICAS), of which these two volumes are the Proceedings, is being held in London from September 7 to 12, 1986. The host society for the 15th Congress is the Royal Aeronautical Society, the oldest aeronautical society in the world, which already hosted an earlier ICAS Congress in its Centenary year 1966.

ICAS was founded in 1957 by the late Theodore von Kármán, its first President, to encourage free interchange of information on all those aeronautical problems in which the scientific aspect is of significant interest and to promote international cooperation in the study of such problems. These objectives have been fostered and cherished by all ICAS Presidents following von Kármán.

ICAS, today, is a federation of the aeronautical societies of twenty-eight countries and is additionally supported by aerospace companies and technical and scientific institutions from all over the world, elected as Associate Members.

The ICAS Congresses have become the primary international forum for aeronautical scientists and engineers. This is demonstrated by the growing number of papers submitted for presentation at recent ICAS Congresses and in particular this 15th Congress. A total of 170 papers and lectures, chosen by the ICAS Program Committee from over 350, are scheduled for delivery in the four days of the Congress. After many discussions in the ICAS Program Committee, we, for the first time, have student sessions at this congress, comprising thirteen additional student papers.

In the ICAS tradition, the program highlights critical problem areas in aeronautical development and progress and assembles the world's outstanding experts for lectures and discussions.

The Opening Session, commencing at 9:30 a.m. on Monday, September 8, 1986, will feature welcome addresses by distinguished representatives of the host country, as well as by the President of the Royal Aeronautical Society and the ICAS President. Following the opening ceremonies, the Daniel and Florence Guggenheim Memorial Lecture, "The Aerodynamic Potential of Anti-Sound", will be delivered by Professor J.E. Ffowcs Williams from the University of Cambridge.

On Wednesday, September 10, 1986, the ICAS-von-Kármán-Award for International Cooperation in Aeronautics will be presented to Mr. Fausto Cereti,

President and Chief Operating Officer, Aeritalia S.p.A., Napoli/Rome, Italy, Mr. Kenji Uchino, Vice President, Commercial Airplane Co., Tokyo, Japan, and Everette L. Webb, Vice President and General Manager, Boeing Commercial Airplane Co., Seattle, WA, USA. Then the third ICAS-von-Kármán-Lecture on "The 767 Program: A 'First' in International Cooperation" will be delivered by Mr. F. Cereti.

Other important areas are reviewed in three additional General Lectures: "Aeroelasticity Today and Tomorrow" by M. Coupry from France, "Future Trends in Propulsion" by S.C. Miller and H.W. Bennett from the UK, which will open the Tuesday and Thursday sessions, and "Atmospheric Disturbances Affecting Safety of Flight" by A.R. Mulally and C.R. Higgins from the USA, which will close the Thursday sessions.

On Friday, September 12, seven groups of Technical Visits to the prominent industrial and research facilities in the London area and Southern England have been arranged by our hosts.

The other 165 papers are presented in five parallel sessions, beginning Monday afternoon. On Tuesday, September 9, there will be two parallel sixth sessions, the Student Sessions. The specialist sessions can broadly be divided into six main areas. Aerodynamics and Aerodynamic Design and Testing are covered in eighteen sessions with special emphasis on computational aerodynamics, high angle of attack aerodynamics, airfoil design, unsteady aerodynamics, hypersonics, and wind tunnel and flight test methods. Structures and Materials are discussed in ten sessions with special emphasis on composite structures and materials and their design, on aeroelasticity, fatigue and damage tolerance. Flight Mechanics, Stability and Control are dealt with in four sessions with emphasis on active control theory and handling qualities. Design, Manufacturing and Systems are covered in four sessions with emphasis on CAD-CAM, new production concepts and subsystems. Propulsion is discussed in five sessions with emphasis on new technologies, engine controls and engine materials. Operations are dealt with in seven sessions with emphasis on navigation, noise, windshear, safety, maintenance and regulations. Finally, two sessions are devoted to Prop-fans considering the potential and problems of prop-fan aircraft and systems.

ICAS has, in the last two years, lost two of its founders: our second president and then Honorary President, Professor Maurice Roy from France, one of the central figures of ICAS for many years, and a long-time council member, Richard Greinacher, from Switzerland. We also lost our Past President, Raymond L. Bisplinghoff, from the USA, and an active member of the ICAS Program Committee, Dr. John F. McCarthy, also from the USA. Their great contributions to ICAS will live on and will not be forgotten.

On behalf of the Council of ICAS, I offer its sincere thanks to the authors of the papers and to the lecturers, without whose efforts no congress would be successful. To Dr. J.W. Fozard, President of the Royal Aeronautical Society and Chairman of the UK Congress Planning Committee, to Professor A.D. Young, its Deputy Chairman, to Mr. G.C. May, the Secretary of the Royal Aeronautical Society, as well as to the other members of the Committee, ICAS tenders its sincere thanks not only for the warm invitation to hold the 15th Congress in London, but for the great effort invested in its organization. Very special thanks are offered to the many people who attend to the multitude of arrangements and services which allow the smooth running of a congress of this nature, in particular to the Secretariat of the Royal Aeronautical Society.

To Professor P. Santini, Chairman of the ICAS Program Committee, and all the members of the Committee, the thanks of the Council are tendered for the excellence of the program devised and for the devotion with which they executed their tasks. Thanks also to Professor P. Santini for graciously hosting the ICAS Program Committee in Siena in August 1985.

Finally, it is an extreme honour and pleasure to extend cordial thanks and appreciation to Professor Dr.-Ing. Rolf W. Staufenbiel, Executive Secretary of ICAS, and the Deutsche Gesellschaft für Luft- und Raumfahrt e.V., which provided the ICAS Secretariat for many years, for their strong leadership and support of all aspects of the work of ICAS. Mrs. Helga Will of DGLR has earned our warmest gratitude for the outstanding service she has rendered on behalf of ICAS.

Josef Singer  
President, ICAS

June 18, 1986