

ICAS at 50 Years – A Summary

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The first ICAS congress was held in Madrid, Spain, from 8 to 13 September 1958. The 26th congress will open in Anchorage, Alaska 50 years and one day later, on 14 September 2008. In those 50 years there have been great advances in aeronautics and in the aeronautical sciences and, in parallel, ICAS itself has evolved into a truly international organisation, the pre-eminent forum for the world community in aeronautical science and engineering. In this note we look back at its birth and reflect on its evolution and accomplishments over its first 50 years.

The history of ICAS begins in 1956, little more than a decade after the end of World War II. The distinguished American industrialist and philanthropist Harry Guggenheim, an Honorary Fellow of the Institute of the Aeronautical Sciences (the IAS, now the AIAA), had for more than 30 years been a supporter of aeronautical activity in the USA. One of his most significant actions in the 1920s was to found the Guggenheim Aeronautical Laboratory at the California Institute of Technology (GALCIT) and in 1930 to recruit the Hungarian Theodore von Kármán to be its director.

Over the next two decades von Kármán emerged as a leader of aeronautical research, advisor to governments, promoter of international co-operation and one of the most outstanding figures in the history of aeronautics. In 1956, at the age of 75, he was Chairman of AGARD. Harry Guggenheim, who had recently donated the proceeds of the sale of the Guggenheim Estate at Sands Point, Long Island to the IAS, suggested to von Kármán and Paul Johnston, Director of the IAS, that these funds be used to support a programme of international co-operation in the aeronautical sciences. He shared von Kármán's strong commitment to fostering better understanding among all nations of the world and the idea emerged that the funds might be used to develop an International Congress.

The first ICAS meeting was an informal discussion, over dinner but lasting five hours, on January 29 1957 during the IAS Annual Meeting. At von Kármán's suggestion, representatives of the aeronautical societies of eight other countries had been invited to join representatives of the IAS to consider the possibility of establishing such a congress. With von Kármán in the chair, the meeting agreed on a set of principles which have remained the guiding ideals of ICAS ever since. It was agreed that a series of international congresses would be initiated in order to encourage the interchange of information on all phases of flight. Every country having a recognized national organisation dedicated to the advancement of the aeronautical sciences, technology, and engineering would be invited to participate without regard to immediate military or political interest. The congresses would be held at about two year intervals. Harry Guggenheim expressed the wish that the fund should be used "with a pioneering intent" and that "we should be looking ahead 100 years, not just on a short term basis". At a time when there was strong political and military tension between the countries of NATO and the Warsaw Pact, the creation of an International Congress open to all countries irrespective of politics, in a field such as aeronautics with its strong military overtones, did indeed show pioneering intent.

It was agreed during the discussions in January 1957 that the governing body of the organisation would be a Council, consisting of one representative of each participating country, which would meet at the time of the bi-annual congress. An Executive Committee, formed of 5 to 7 members of the Council, would be the main working body of the organisation. The Executive Committee was formed immediately from among those present, with Maurice Roy, Director of ONERA, as its first Chairman. The fund from the sale of the Long Island estate was named "The Daniel and Florence Guggenheim Memorial Fund for the Promotion of International Co-operation in the Aeronautical Sciences" in honour of Harry Guggenheim's parents. The income from it, approximately \$20,000 every two years, would be used to support the congresses, with administrative support being provided by the IAS. On von Kármán's recommendation, it was agreed that at each congress there would be a lecture by a person of distinction, reviewing the state of the art in a particular research field. It would be known as "The Daniel and Florence Guggenheim Memorial Lecture" and would carry an honorarium.

To keep up momentum, von Kármán proposed that a follow-up meeting be held in Paris in May 1957. This was attended by representatives of ten countries, with Maurice Roy chairing. Those assembled revised and then adopted the document, first drafted in February 1957, which was, in effect, an outline constitution. Further, they agreed that they formed the "Provisional International Council of the Aeronautical Sciences". They also elected von Kármán Honorary President of the First International Congress and a permanent member of the Council in his own right. The principal objective of the meeting was to set up an organization to prepare the first congress. This congress was to be held in September of the following year in Europe, and if possible in a non-NATO country. Out of three candidate locations, Madrid in Spain was chosen.

The first congress attracted some 500 delegates from 23 countries. Forty-four invited papers were presented including the first Daniel and Florence Guggenheim Memorial Lecture, given by von Kármán, on "Some Significant Developments in Aerodynamics since 1946". When the Provisional Council met in Madrid it decided that it was no longer "Provisional". It further decided that each participating society may have two Council members, but only one vote. It also adopted the proposal that all the original Council members should become ICAS "Life Members", an astute move to ensure the support of the member organisations for future congresses.

Some of the basic principals set out in the first meetings have held good for the past 50 years, with the rules and structure evolving slowly without departing from the clear vision of the founding fathers. The outline proposal of January 1957, as revised in May 1957, was not formally a constitution but it did set out simply and clearly the objectives and framework of governance of ICAS and served as the organisation's navigation aid for its first 18 years. In 1975 a formal Constitution was adopted. In 1985 this was revised and issued in booklet form. In 1994, in response to external changes, particularly as regards litigation, ICAS was incorporated under Dutch law as an Association with its seat in Amsterdam. Although this required a complete re-write of the Constitution, including the re-naming of the Council as the General Assembly, all the key aspects of the original ICAS vision were preserved and the status and Constitution of ICAS have remained unchanged for the past 14 years. From the beginning the final authority in ICAS has always rested with the Council (now General Assembly) with, since the first Constitution of 1975, two standing committees, the Executive and Programme Committees, reporting to it.

Roughly speaking it is possible to define three periods in the ICAS history so far:

In the first twenty years, up to and around 1977, all papers given were invited papers. During this period, the Guggenheim funds sufficed to cope with the costs of the Secretariat at AIAA and of publishing the Proceedings.

In 1977 some important changes took place in the ICAS organization. The Secretariat moved from the AIAA to the DGLR in Germany and, to supplement the DGLR financial support and to ensure future financial security, the membership fee was raised and a rebate from the delegates' congress fee was introduced. However, the most important change was to open the congress to all through the introduction of the Call for Papers. The result was a steady growth in the size of the congresses through the 1980s, with the number of papers more than doubling.

The following decades have been a period of consolidation but also of continuing evolution. The Secretariat has rotated from Berlin to London, then to Amsterdam, Paris and now Stockholm. Papers by post-graduate students were included in the congress for the first time in London in 1986, and are now an integral part of congress programmes, with the John McCarthy Awards for student papers being presented from 1990 onwards. Congresses are now held from time to time in the Pacific region: Beijing (1992), Melbourne (1998) and Yokohama (2004). Poster sessions were introduced in 1998 and in the same year the Proceedings were produced on CD-ROM for the first time.

The number of Membership Associations, which increased rapidly at first, from 10 in 1957 to 23 in 1962, has grown steadily and stands today at 30. Paper and delegate numbers have also increased, with some 400 papers and 800 delegates at Hamburg in 2006.

Fifty years ago, at the time of the first congress, the delegates from across the Atlantic travelled in piston-engined aircraft. By the time of the second congress, travel across the Atlantic by jet was the norm and Kuchemann of the RAE gave a paper on aircraft shapes for flight at supersonic speeds. By the third congress, in Stockholm in 1962, there were some ten papers dealing with supersonic aircraft, including the Guggenheim Lecture given by Bo Lundberg, a founding father of ICAS and an opponent of supersonic air travel.

The third congress also heard a lecture by E.J. Richards prophesying that by the 1970s noise would become a limiting factor in the design of civil aircraft. His prophecy proved well founded, with noise featuring prominently in ICAS congresses in the 1970s. Today, as we progress into the 21st Century, noise remains a key element in the environmental impact of aviation which is emerging as a primary driver of future civil aircraft design.

With Concorde came the trend for major projects in Europe, military and civil, to be multi-national. The Airbus A300, marked the beginning of a European challenge to the American civil aircraft industry that has developed into the intense competition between Boeing and Airbus that now dominates the civil aircraft market. Over this period, international collaboration on projects has broadened to include almost all nations with a significant aircraft industry and all large projects are now built from components manufactured all over the world. The competition between Boeing and Airbus, and also between European and US military projects, has enlivened many ICAS congresses in the past 30 years.

The growth of collaborative international activity led the Council to institute the ICAS von Kármán Award for International Collaboration in Aeronautics. It was first awarded in 1982 to the Tornado project and, since then, not only to major aircraft and engine projects but also to collaborative programmes in research and infrastructure. In 1988, in commemoration of the second ICAS President, the Maurice Roy Award was introduced, in the form of a medal presented to an individual who has made an outstanding contribution to collaboration in aeronautics. In 2002 the John J Green Award, commemorating the third ICAS President was introduced for outstanding international achievement by a person under 35 and in 2006 the ICAS Award for Innovation in Aeronautics was introduced.

Looking back over 50 years, we can say with confidence that ICAS has fulfilled the hopes of its founding fathers. It has established itself as the leading international forum for exchange between scientists and engineers working in aeronautics in all countries of the world. Without doubt many friendships and co-operative activities across national boundaries have grown from contacts first made at an ICAS congress. Today it is very much alive and equipped for the next 50 years - the second half of the century that was in Harry Guggenheim's vision.