IFAR – International Forum for Aviation Research

Declaration Summit 2014

8 to 12 November 2014, Zhuhai, China

The International Forum for Aviation Research (IFAR) is the world's only aviation research establishment network connecting the government-supported global aviation community.
The purpose of IFAR is to connect research organizations worldwide to enable the exchange of information in the field of aviation research, with the overall objective to identify areas for mutually beneficial collaboration. In addition to its scientific and technical expertise, IFAR promotes interactions among young aviation scientists and engineers. IFAR was founded in 2010, and formally established by a Charter in 2011.

The Members of IFAR met in **Zhuhai, China** on the occasion of the **5th International Forum for Aviation Research Summit, held in conjunction with the China International Aviation & Aerospace Exhibition.** Members came together on the invitation of the **Chinese Aeronautical Establishment (CAE).** Discussions focused on current and future technical collaborative activities in areas of importance to the global aviation community, including the impact of aviation on the environment; alternative fuels for aviation; global approaches to air traffic management research, addressing regulatory barriers to civil supersonic aircraft flight over land, and wind tunnels testing and other test capabilities. **The Council for Scientific and Industrial Research (CSIR) of South Africa, and the Centre of Engineering and Innovation (CEIIA) of Portugal** were accepted as new Members, bringing the total number of participating IFAR nations to twenty-six (26).

The 2014 IFAR Summit included the following highlights and accomplishments:

- IFAR participated in the **7th China International Aviation & Aerospace Forum** by providing keynote lectures and joining panel discussions. The Forum was presented by State Administration of Science, Technology and Industry for National Defence of China. Members discussed with senior industry and government leaders from around the world about global challenges and opportunities facing Aviation industry, and reaffirmed the importance of global cooperation to achieve common objectives. **Li Yuanchao, Vice President of the People´s Republic of China** invited the IFAR leaders to update him on IFAR activities, and discuss the *importance of global collaboration to meet the future aviation challenges*. This theme was also discussed at a meeting of the Summit participants with **Lin Zuoming, President of Aviation Industry Cooperation of China.**

- The Summit recognized the Terms of Engagement document (ToE) that was signed during the **2014 International Council of the Aeronautical Sciences (ICAS) Congress** in St. Petersburg, Russia. The Members endorsed the continued work between IFAR and ICAS to further develop elements of the ToE, including the work plan.

- The Members welcomed the idea of working with **International Civil Aviation Organization (ICAO)** to develop international standards and recommended practices, such as providing technical and scientific data and information.

- It was noted that there have been several web based improvements to the full public **IFAR webpage, the IFARLink** for use by Members, and an increased use of the internal IFAR webpage over the past year.

- The **Japan Aerospace Exploration Agency (JAXA)** assumed leadership of the Young Researchers Network (YRN), and appreciation was expressed for the contributions of **Von Karman Institute for Fluid Dynamics** as the founding leader of the Working Group. The Members approved the YRN working groups overall objective of stimulating experiences of international collaboration and promoting exchanges among young scientists and engineers working at IFAR organizations or those having a close a relation to IFAR Members.

- The successful multilateral cooperation between the **National Aeronautics and Space Administration (NASA), German Aerospace Center (DLR), and National Research Council of Canada's** on the alternative fuel effects on contrails and cruise emissions-II (ACCESS -II) flight research campaign, was exemplified as an model for future collaborations. The Members endorsed the continuation of the Alternative Fuels Working Group, and expressed a desire to leverage experiences and investments in complementary research. Future plans in the area of alternative fuels could include:

    - Further analyzing data obtained from the ACCESS-II flight experiments;
    - Co-writing and publishing papers and data sets on the results; and
    - Hosting a public workshop and working group meeting on the margins of the American Institute of Aeronautics and Astronautics conference that will be held in Florida in January 2015.

- The Members discussed opportunities for IFAR to address global challenges in air transportation efficiency, with a particular focus on enhancing efficient airspace operations in busy airport terminal areas. The Members endorsed the creation of a Working Group that will leverage existing bilateral agreements and collaborations wherever possible, and explore new agreements as appropriate. It was agreed that initial efforts would focus on the development and integration of air traffic management tools related to airport arrivals, departures, and surface traffic to enable improved operations at airports around the world, and opportunities to inform development of future global standards and recommended practices associated with the **ICAO** future Aviation System Block Upgrades.

- **DLR** invited interested Members to nominate points of contact to define topics of common interest in the field of Climate Change. The next step is to hold a workshop to identify specific areas for collaboration with IFAR specialists in 2015.

- **The French Aerospace Lab (ONERA)** requested Members to provide points of contact for possible cooperation in area of Noise Research. Prior to the Summit, a WebEx was held to initiate discussions, and identify collaboration. ONERA will organize meetings among experts on the margins of scientific and technical meetings in 2015, such as the **American Helicopter**

Society meeting in Virginia, USA in May 2015, and/or the **American Institute of Aeronautics and Astronautics (AIAA) Aeroacoustics** conference in Texas, USA in June 2015.

- Members were encouraged to express interest in the topic of Reducing the Adverse Impact of Weather and nominate points of contact. The **National Aerospace Laboratory of the Netherlands** will organize a WebEx to present activities, define common challenges, and identify areas of common interest.

- The Summit noted the progress that has been made in the area of Research Technical Capabilities**,** and interested Members were encouraged to provide points of contact. The next step is to establish a Working Group and terms of reference to further explore collaboration related to research and development technical capabilities such as wind tunnels, flight test ranges etc. It was recognized that the capabilities and involvement of non-IFAR Members may be needed/requested, which could increase networking opportunities with other national organizations.

- **NASA** briefed the Summit on the status of Supersonic aircraft in the U.S. related to activities associated with enabling civil supersonic flight over land, with special focus on informing future global sonic boom standards. The presentation highlighted opportunities for IFAR Member collaboration, including the areas of:

    - Models for sonic boom atmospheric propagation;
    - Models and metrics for measuring indoor and outdoor community response; and
    - Community response test methods and tests.

- **CAE** introduced its plan for a **joint workshop of CAE and German-Dutch Wind Tunnels (DNW)**, in the area of wind tunnel and computational fluid dynamics that will be held in 2015. The goal of this workshop is compare several computational fluid dynamics codes to evaluate results and outcomes. Interested Members were encouraged to provide points of contact to initiate discussions. It was noted that there could be also interest from universities, industry, and/or IFAR Members in this activity, as well as possible synergy with similar efforts conducted through the **AIAA**.

- **Vienna University of Technology** introduced a proposal to collaborate in the area of integration of vertical lift as part of global transport system. The Members encouraged the continuing and development of this initiative, and to work through the Steering Committee to solicit interest among Members and develop a work plan.

- The creation of a Future of Aviation Working Group was endorsed, which is a continuation of the discussions that took place during the 2013 Summit in Moscow. Members welcome the IFAR Café 2 discussions that focused on global challenges and opportunities facing aviation, which reaffirmed the importance of global cooperation to achieve common objectives. Considered were the five questions:

    1. The regional developments the IFAR members see in the future?
    2. Will global mobility change in the Future?
    3. Mobility on a global scale?

4. Five years of IFAR operations – what and how to improve? and
5. What is your (the Members') most important problem?

The discussions will serve as basis for future exchanges of the Working Group, and the further development of the IFAR Vision Document "Future of Aviation." The unique format of IFAR Café at Summits was welcomed and encouraged by the Members. **Professor J. Szodruch IFAR Past Chair** will assess the inputs provided during Café No. 2 and make recommendations for next steps.

- The next IFAR Summit will be hosted by **NASA** from 6 to 10 October 2015, at Ames Research Center in Moffet Field, California, USA.

The results of the Summit 2014 as well as further information on IFAR area available at http://www.ifar.aero