

The United States Interagency Coordinating Committee For Airborne Geosciences Research and Applications

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Abstract - The United States Interagency Coordinating Committee for Airborne Geosciences Research and Applications (ICCAGRA) was formed in the late 1990s to improve cooperation, foster awareness, and facilitate communication among the partner agencies within the United States government. The original membership of National Aeronautics and Space Administration (NASA), National Oceanic and Atmospheric Administration (NOAA), National Center for Atmospheric Research (NCAR)/National Science Foundation (NSF), and Office of Naval Research (ONR) has been expanded to include the Department of Energy (DOE), National Suborbital Education and Research Center (NSERC), Naval Research Laboratory (NRL), and the United States Geological Survey (USGS). These agencies oversee roughly 35 different manned and unmanned aircraft dedicated to geosciences research. ICCAGRA recently has been involved in overseeing standardization of instrument interfaces and data formats within the United States to improve access across the different agencies. An overview of the United States geosciences aircraft and how ICCAGRA increases the effective utilization of these aircraft will be presented.

Keywords: Atmosphere, Facilities, Airborne in situ measurements, Airborne science platform

1. INTRODUCTION

In the late 1990s, the Interagency Coordinating Committee for Airborne Geosciences Research and Applications (ICCAGRA) was established to improve cooperation, foster awareness, facilitate communication among partner agencies and serve as a resource to management on airborne science issues. The founding members were NASA, NOAA, NCAR/NSF, and ONR. Since the founding, DOE, NSERC, NRL, and the USGS have become members. The committee addresses collaboration and encourages cooperation on the use of airborne platforms and instruments in interagency and international field campaigns.

The primary purpose of the ICCAGRA is to increase the effective utilization of the Federal airborne fleet in support of airborne geoscience research programs conducted by the individual agencies. Specifically, the ICCAGRA will:

- Identify interagency needs and exchange research program schedules
- Improve coordination of airborne programs between agencies
- Enhance opportunities for interagency sharing of aircraft resources, airborne instrumentation and data to minimize duplication, and to expand science investigators' access to interagency assets

- Evaluate the coordination processes and develop, as appropriate, interagency agreements to facilitate the transfer of airborne platforms or the purchase of reimbursable or cooperative flight time between cooperating agencies
- Establish and maintain an ICCAGRA homepage to include the agencies' research aircraft capabilities, a review of research aircraft usage covering the previous fiscal year and the expected flight plan for subsequent years, recommendations to improve research aircraft utilization, and pointers to agency-specific airborne science net sites
- Convene a two-day program review where agency representatives present a review of their airborne program and plans.

ICCAGRA members meet twice a year rotating meeting locations amongst the agency facilities. Over the past decade, the ICCAGRA committee has established a set of recommendations for US agencies to follow for the standardization of data formats and standardization of aircraft telemetry data. The aforementioned standardization is the focus of the ICCAGRA Interagency Working Group for Airborne Data and Telecommunications Systems (IWGADTS). Decisions made by ICCAGRA are not binding and are implemented by the US agencies on a voluntary basis. Recently members of ICCAGRA have started working closely on international standardization with colleagues around the globe as part of the ISPRS WG I/1: Standardization of Airborne Platform Interface.

2. GEOSCIENCE RESEARCH AIRCRAFT IN THE UNITED STATES OF AMERICA

The ICCAGRA member agencies operate roughly 35 different manned and unmanned geoscience research aircraft. The aircraft are often highly modified and designed to meet the research requirements of the respective agency. NASA operates a broad range of aircraft including the ER-2 and WB-57 high altitude aircraft often used to validate and calibrate satellite sensors. NOAA operates a multitude of aircraft including two P-3 aircraft and a Gulfstream IV for hurricane research. NRL operates a broad range of aircraft including C-12s and P-3s that can operate in military zones. The NCAR/NSF's Gulfstream V and C-130 often serve the university community. The DOE G-1 and other aircraft leased by the agency often conduct flight operations in close proximity to the Atmospheric Radiation Measurement (ARM) Climate Research Facility (ACRF) fixed and mobile sites. The ONR conducts a variety of atmospheric research for universities, US Navy, and other USA agencies. The USGS focuses on land remote sensing measurements of the United States using an airborne LIDAR.

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As discussed above, each agency has specific roles that their aircraft fill to answer their agencies respective focus on geoscience research. In addition several agencies limit who can propose to use their aircraft for research. This has placed barriers to access for scientists within the USA. However several agencies have started to try to break down these barriers. The DOE ARM Aerial Facility will lease an aircraft from another USA agency or a private company to fit the needs of their researchers. NASA also offers a similar program by establishing MOUs with other agencies for the use of their aircraft for airborne research. In addition the standardization of instrument interface, procedures, and data has made it easier for researchers to integrate their instruments on a variety of research aircraft.

Recently ICCAGRA has started to become successful in fostering strong collaborative efforts amongst the member agencies. Often multiple agencies are conducting research in similar areas within the US. The meetings give insight into how the agencies can work together to accomplish a larger scientific objective than one agency can accomplish alone. A recent example is the cooperation between the NOAA CalNex project and the DOE Carbonaceous Aerosol and Radiative Effects Study in the summer of 2010.

3. INTERNATIONAL COLLABORATION

Over the past 3 years, ICCAGRA has started to meet regularly with members of the European Facility for Airborne Research. The goal of these meetings was to establish collaborative efforts with EUFAR and to try to establish international standards for airborne geoscience instrumentation and data. These discussions led to the formation of the ISPRS WG I/1: Standardization of Airborne Platform Interface. Members of both ICCAGRA and EUFAR are working to facilitate easier integration of instrument on any airborne platform within the USA or Europe. This will be a cost savings and will help encourage international collaboration.

4. CONCLUSION

ICCAGRA has strived since its formation in the late 1990s to improve cooperation, foster awareness, facilitate communication among partner agencies and serve as a resource to management on airborne science issues. The committee meets twice a year with agencies presenting a review of their airborne program and plans. The committee has been successful in these initial goals. In addition, the ICCAGRA has focused on standardization of instrument interfaces, procedures, and data. This has enabled researchers to design instrumentation that can operate on most airborne geoscience aircraft within the United States. ICCAGRA is also striving for the establishment of international standards for instrumentation and data, which will facilitate international collaborative efforts in geosciences.

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