7. General Information

7.1 Aircraft Requests

EOL manages and operates the majority of NSF's Lower Atmospheric Observing Facilities (LAOF) and makes them available on a competitive basis to qualified researchers from universities, NCAR, and other government agencies. Deployment decisions for each facility are driven by the scientific merit of the proposed use, the capabilities of a specific facility to carry out the proposed observations, and availability of the facility for the requested time period. The NSF/NCAR GV is part of the LAOF group. Correspondingly, proposed usages of the aircraft for research are eligible for NSF deployment pool funding support.

Procedures for requesting use of the GV and other NSF-supported facilities are outlined in the *NSF Lower Atmospheric Observing Facilities User Guide*. This document may be directly retrieved on-line at www.eol.ucar.edu/dir_off/OFAP/info/UserGuide.pdf, or from the EOL Field Project Services website at www.atd.ucar.edu/requests.html.

7.2 Project Support Services

Investigators interested in requesting usage of the NSF/NCAR GV for support of their research program can expect comprehensive, end-to-end field project support from EOL. Personnel within the Field Project Services (FPS) and Computer and Data Services (CDS) groups and the RAF are available to provide assistance at all stages of a project's lifecycle, from the early planning phase, through the deployment period, and extending out beyond the final data processing and distribution phase.

The sections below provide more detailed information about the specific types of programmatic support provided by EOL staff members.

7.2.1 Basic and Specialized Research Instrumentation

Several basic and specialized instrument packages can be made available to GV users upon request. Standard instruments available on the aircraft are described in Chapter 6 of this handbook. EOL personnel assume responsibility for installing and maintaining these instruments. In addition, EOL staff members will help investigators with the installation of user-supplied instrumentation on the GV. All user-furnished equipment will need to comply with specified EOL design and interface requirements. Requirements for the integration of investigator equipment packages are detailed in Chapter 5 of this handbook.

EOL personnel supervise the installation of user-supplied equipment on the GV in order to ensure compatibility with existing aircraft operations and instrumentation systems and to ensure that all safety of flight and engineering requirements are met.

EOL/RAF staff members provide in-flight oversight of equipment operation. However, this does not normally include the operation of user-supplied instrumentation. If investigators will require EOL personnel to provide in-flight sensor operation assistance, this requirement must be identified on the aircraft request form.

7.2.2 Data Recording and Processing

As discussed in Chapter 2 of this handbook, the GV is equipped with a data acquisition and display system for the recording of data products and the provision of graphical and tabular data outputs during research flights. While in the field, EOL personnel perform post-flight data processing and quality analysis using on-site computer equipment and data processing and display software packages. The processing of data in the field is not intended for the provision of final data sets but is, instead, intended to provide investigators with the chance to perform preliminary, "quick look" analyses of collected GV data.

Prior to the field deployment phase of a project, arrangements can be made for the transfer of "quick look" data products from the field to NCAR and/or investigator home institutions via the Ethernet or other technologies. Investigators wishing to have such data transfer capabilities in the field must indicate this on their submitted aircraft request document.

Requests for the support of specialized NCAR computing resources must also be detailed in the submitted aircraft request form.

7.2.3 Engineering Support

EOL can provide aeronautical, mechanical, and electrical engineering support services to investigators in order to ensure that user-supplied equipment meets all design and fabrication requirements set forth for the GV (see Chapter 5 of this handbook). Requests for such assistance must be clearly identified on the aircraft request form and should also be discussed with EOL personnel during the pre-project planning phase.

Specific questions about aeronautical, mechanical, and electrical engineering support services available within EOL should be addressed to RAF Aeronautical Engineering (lord@ucar.edu), the EOL/DFS Manager (jfox@ucar.edu), and the RAF Electrical Engineer (spowart@ucar.edu), respectively.

7.2.4 Operational and Scientific Support

An EOL/RAF Project Manager is assigned to each GV program to serve as a point of contact for platform investigators and to work with them to plan the most effective scientific experiment possible. Based on his/her knowledge of the program's scientific requirements, the Project Manager may assist in defining particular sensors for the instrumentation package, the design of flight profiles, or the most applicable data processing techniques. At a minimum, EOL staff members are normally responsible

forproject planning (in close cooperation with project investigators), conduct of project operations, quality control oversight for EOL-supported sensors, oversight of data system performance, EOL data processing, and final EOL data delivery to the user. Delivery of user (non-EOL) data is normally not a responsibility of EOL personnel. More in-depth scientific participation is dependent on the specific needs and wishes of the requesting scientists and should be discussed with EOL scientists at the time the aircraft request form is submitted. For general information about RAF project management services, investigators should contact the leader of the RAF Scientific Project Management Group, Jorgen Jensen, (jbj@ucar.edu).

Project principal investigators are required to guide and participate in the in-flight conduct of research. This may be done through delegation to another qualified member of the investigator's group or through delegation to a qualified member of the RAF support team. In all such cases, it is necessary for the principal investigator and the investigator's group to visit the RAF prior to the start of the field program to receive orientation and training in the safe operations of instrumentation and any associated data recording equipment. Project investigators normally participate in the instrumentation flight tests, which are conducted prior to the scientific field phase of the program.

A mission scientist is normally required on the GV to perform in-flight mission coordination and to handle communications with pilots, scientific crew members, and ground support personnel. Because the mission scientist communicates directly with the pilots during flight operations, specialized training in cockpit and flight procedures/protocol is required. The RAF pilots will provide this training to project investigators who wish to serve as mission scientists, provided there are no impediments (e.g., language barriers) to the investigator being able to communicate effectively. Alternatively, EOL can supply a trained mission scientist. It should be noted that mission scientists are normally not able to operate cabin instrumentation during flight.

The RAF pilots work with investigators and with the assigned RAF GV Project Manager to plan missions, obtaining FAA flight clearances, and to address special requests pertaining to flight operations. Requests for diplomatic clearances – which are required when operating in most foreign countries – are initiated by EOL personnel.

7.2.5 Insurance – Liability Coverage, Bodily Injury/Property Damage

Aircraft operations conducted by UCAR/NCAR personnel, its officers, trustees and member institutions, the Government of the United States, and user organizations are insured – to the extent of the policy coverage – for legal liability arising from third-party claims.

This coverage does not extend to any cloud or atmospheric seeding operations. If such operations are desired, UCAR/NCAR will not participate until or unless adequate cloud seeding insurance is arranged and paid for by the investigator. Such insurance will

require review and approval by UCAR and must name both UCAR and the U.S. Government as additional parties to be insured. In addition, if special dropsonde or radar chaff-seeding insurance is needed, such insurance must be arranged and the cost will be charged to the user organization.

UCAR also is insured for legal liability involving operation of motor vehicles and general liability hazards.

All UCAR/NCAR staff members and other authorized persons flying aboard NCAR-operated aircraft are covered by the UCAR Travel Accident Policy as stated in the *UCAR Benefits Manual*.