

C-130 Investigators Handbook

Chapter 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 C-130 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 C-130 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 C-130 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 C-130 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 C-130. 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 C-130 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 C-130 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 C-130 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 C-130 (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 C-130 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.