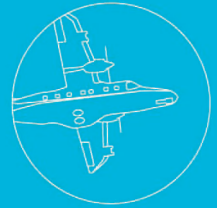


AIRBORNE RESEARCH AND SURVEY FACILITY DATA ANALYSIS NODE (ARSF-DAN)



Serving UK environmental science and supporting international operations through aircraft data processing

The Natural Environment Research Council (NERC) Airborne Research and Survey Facility (ARSF) provides quantitative remote sensing of the Earth and is an essential contributor to the development and validation of Earth-system models. The ARSF offers a high quality, cost-effective means of observation of terrestrial, freshwater, marine, cryospheric and atmospheric environments at high temporal, spatial and spectral resolution.

Since 2007, PML has operated the ARSF Data Analysis Node (DAN) which involves processing hyperspectral imagery, LIDAR topographic data and medium-format camera imagery, runs a help desk for user enquiries, archives data in collaboration with NEODC and provides service development.

Research support priorities:

- Providing cost-effective data for scientists focussing on atmospheric, terrestrial, fresh water, Earth and polar sciences;
- Provision of a fixed set of primary optical and digital remote sensing instruments capable of simultaneous data acquisition, including hyperspectral observation in the visible and infra-red (for spectral surface characteristics) and a LIDAR for topographic mapping;
- Ability to operate in an international framework and support strategic research programmes; with operational flexibility; rapid opportunistic deployment and long-range, self-sufficient campaigns;
- Repeatability of observations at user-specified spatial, temporal and spectral resolutions;
- Ability to mount additional new instruments on an opportunistic or thematic basis (e.g. atmospheric sensors);
- Providing synergy with the Facility for Airborne Atmospheric Measurements (FAAM);
- Providing a dedicated data processing system (ARSF-DAN) including high levels of user-support;

Research priorities (continued)

- Improvement and development of operational data analysis procedures and new products/ systems (such as the new full-waveform LiDAR);
- Undertaking a combination of research and development of scientific data products in collaboration with NERC and UK scientists to maximise the scientific output from ARSF acquired data.

Role in society

Contributing towards science across all of NERC strategic priority areas;

Providing PhD training and knowledge exchange;

Responding opportunistically to nationally significant events such as the 2010 volcanic ash cloud disruption;

Contributing to science publications across a wide range of disciplines including refereed journals such as Nature;

Contributing to a large range of national projects and increasingly supporting international atmospheric campaigns.

International operations



ARSF is a contribution to NERC's funding for National Capability.



ARSF undertakes regular overseas campaigns (recently in Greenland, Iceland, Ethiopia, and Chile) in response to high quality, direct-access peer-reviewed applications or in support of NERC responsive mode and consortium grants;

ARSF is also part of the European Commission Framework 7 EUFAR (European Facilities for Airborne Research) project, providing access to the facility to overseas researchers, through peer-reviewed applications to EUFAR. On account of its extensive range of instruments it is the most popular EUFAR aircraft;

ARSF-DAN supports data processing for all data from overseas campaigns.

Data access & management

- Data processed by the Data Analysis Node at PML are provided for archiving to the NERC Earth Observation Data Centre (NEODC) and are accessible to the environmental research community. ARSF data are the most popular data source from NEODC;
- The license concerning the use of the data and software falls under the terms and conditions of the NERC Data Policy Management;
- The PML team of experts provides user support via the web and a helpdesk.

Contact details:

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