

RAL

DESIGN & DISCOVERY

Open Days July 1990

RUTHERFORD APPLETON LABORATORY
SCIENCE AND ENGINEERING RESEARCH COUNCIL

The SERC GEOPHYSICAL DATA FACILITY

Designed to meet the data requirements of the Atmospheric Science and Solar Terrestrial Physics communities.

The Geophysical Data Facility (GDF) helps UK researchers to access a wide range of datasets in the fields of Atmospheric Science and Solar Terrestrial Physics. Data can be selected, browsed, plotted or transferred to another computer for further processing over electronic networks.

These data help researchers to increase their understanding of the processes that occur in the atmosphere. The data come from satellite missions, aircraft campaigns, ground-based instruments such as radars and also from computer prediction models. Examples of the data include ozone and related measurements that have helped us to understand the depletion of ozone over Antarctica (the 'Ozone Hole'), temperature and chemical constituents in the stratosphere, plasma and magnetic field data in the solar wind and data from three highly sophisticated models of the different height regions in the atmosphere from the ground up to 400 km. In the future, it will be the main UK depository of data from the Upper Atmosphere Research Satellite (UARS), which is due for launch in 1991.

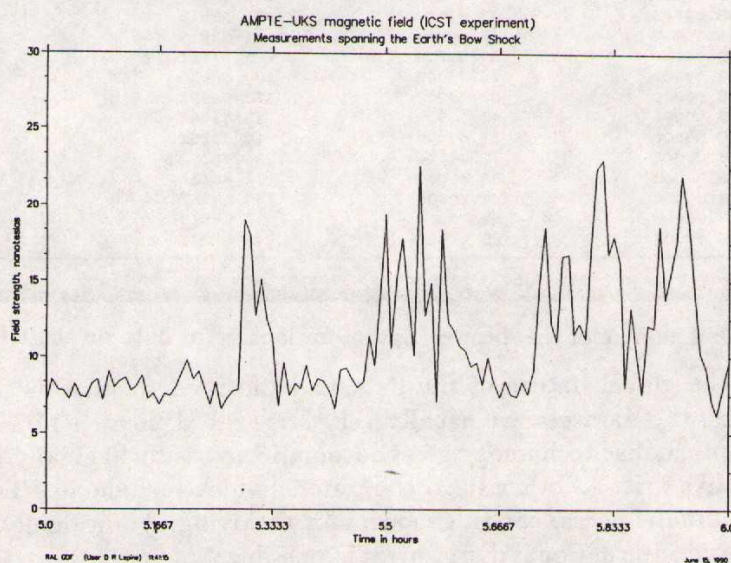


Figure 1: Example plot from the GDF showing magnetic field measurements spanning the Earth's bow shock from the AMPTE-UKS satellite instrument.

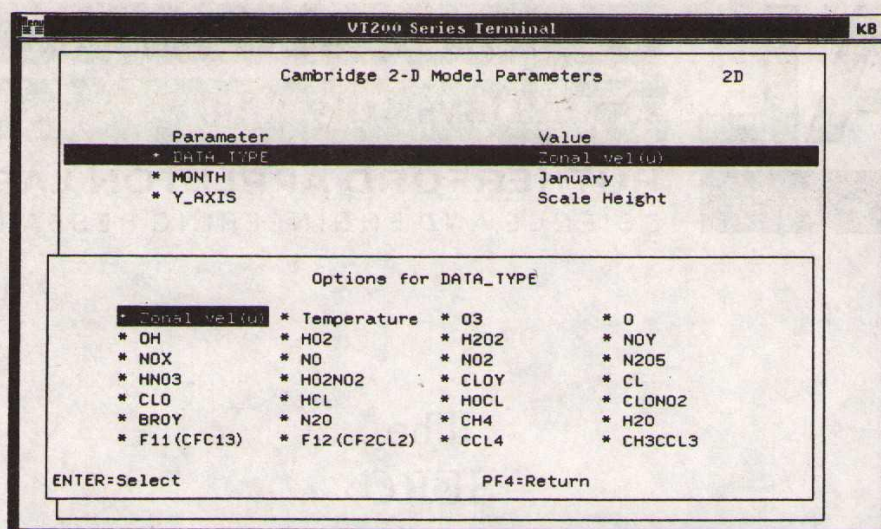


Figure 2: Example of the user-friendly menu options to select data from the GDF.

The data are selected by logging onto a dedicated computer at the Rutherford Appleton Laboratory and compiling a request for data, with the help of a menu system. This has been designed to be as straightforward and 'user-friendly' as possible, to help the researcher find exactly what he/she needs quickly (see figure 2). The computer has many help files that describe in detail the datasets that are available and how to make the best use of the GDF. For the more advanced user, a Do-It-Yourself option is available to make direct use of powerful database software.

The data may be plotted using UNIRAS, a widely used graphics package (see figure 1) or it may be listed (see figure 3). Default plots are drawn which may then be customized by the user. Customizing options include false colour, polar projections and zoom in/zoom out.

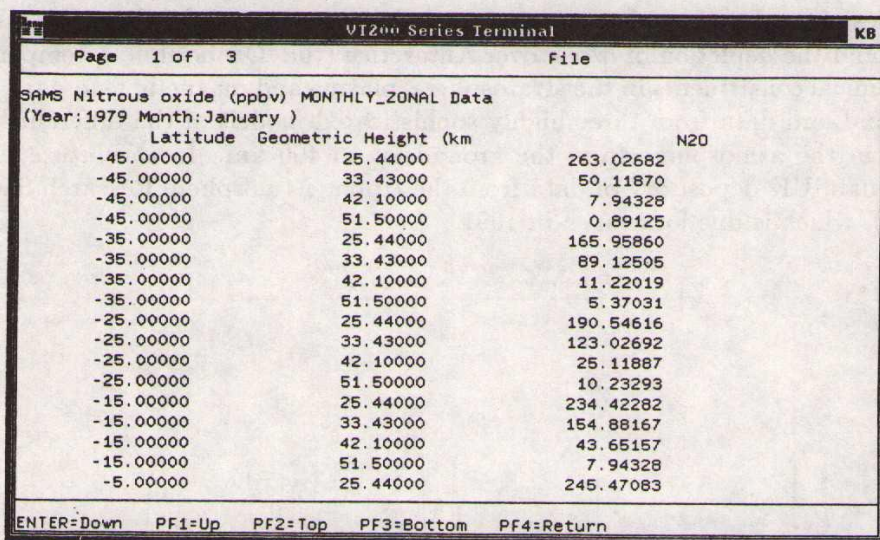


Figure 3: Example of the 'browse' option for looking at data on the GDF

Because of the global nature of the data and the need to take measurements over many years, the datasets are usually very large. A dedicated Microvax 3900 together with optical disc technology gives automatic access to 40 gigabytes of data. Fast ethernet links exist to other RAL computers, which include an IBM with 40 gigabytes of automatic-access cartridge media for archiving. Additionally, access to other national and international datacentres is possible.

For further information, contact: Dr. L.J. Gray or Mr. D.R. Lepine, Rutherford Appleton Laboratory, Chilton, Didcot, Oxon. OX11 0QX. Telephone 0235 821900 ext. 6745.

