

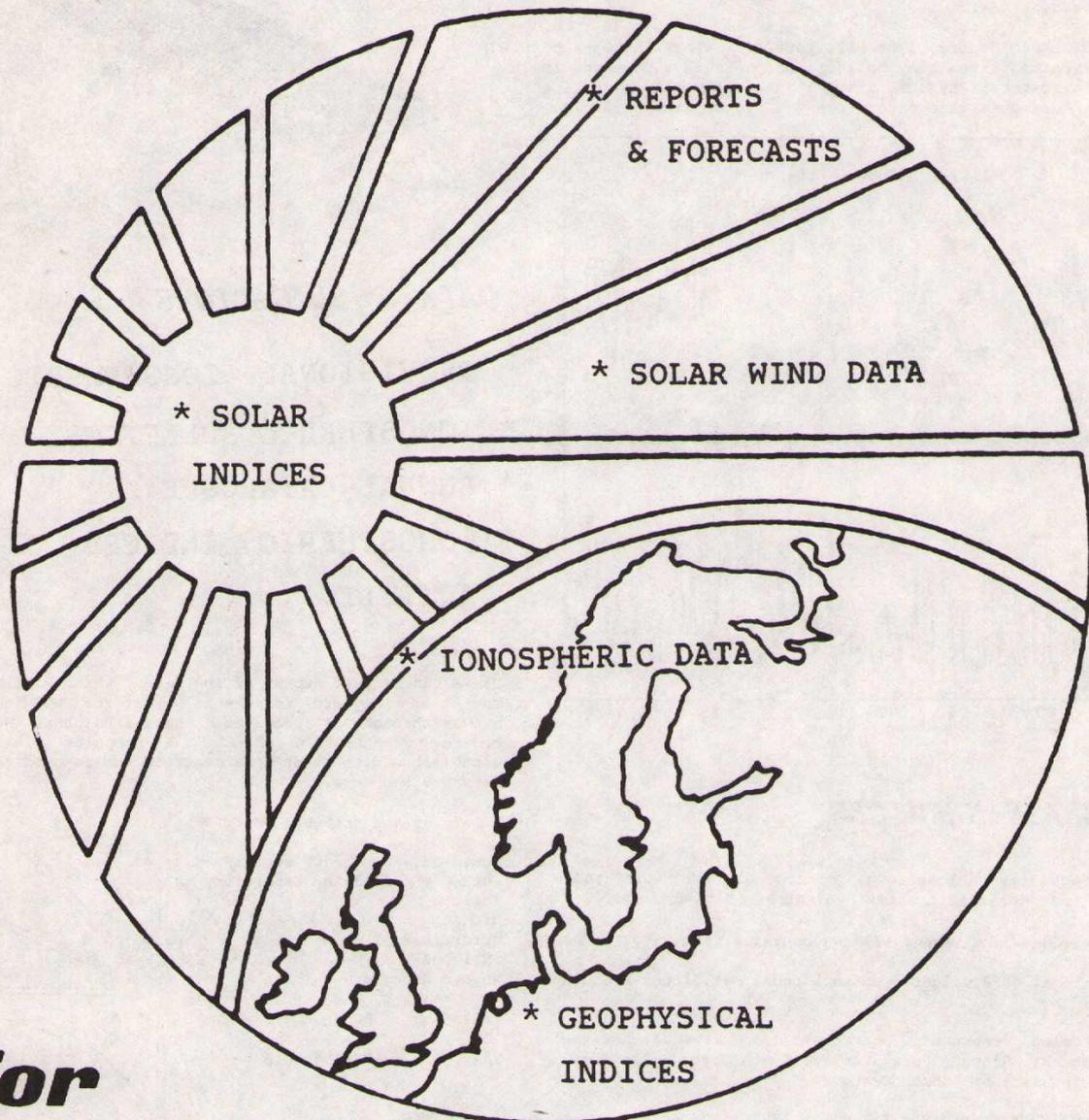
# RAL

DESIGN & DISCOVERY

Open Days July 1990

RUTHERFORD APPLETON LABORATORY  
SCIENCE AND ENGINEERING RESEARCH COUNCIL

## **WORLD DATA CENTRE C1**



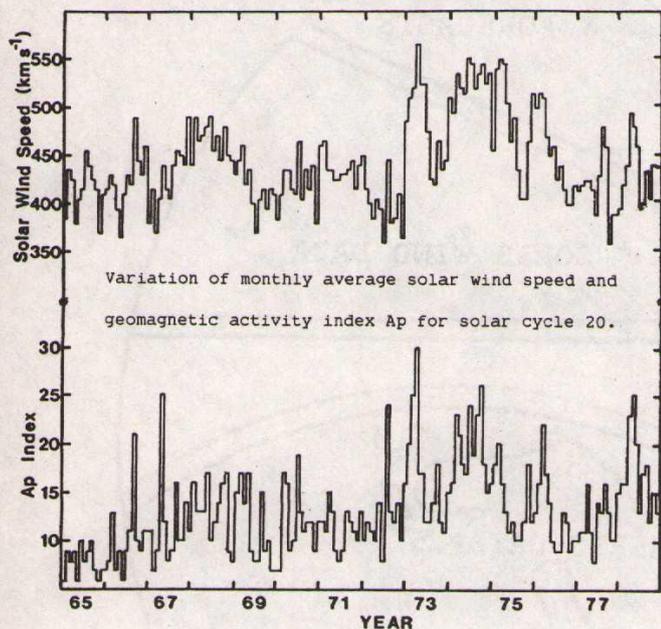
**for  
Solar-Terrestrial  
Physics**

*at Rutherford Appleton Laboratory*

# WORLD DATA CENTRE C1 for Solar-Terrestrial Physics

Solar-Terrestrial Physics is the study of the transfer of energy between the sun and the earth. Especially of interest are the origin of transient energetic eruptions on the sun, known as solar flares; the generation of solar cosmic rays and the solar wind plasma; and subsequent effects at the earth, such as aurora and ionospheric and geomagnetic disturbances.

The World Data Centre C1 at RAL, part of a global network of geophysical data centres, collects and holds a wide range of Solar-Terrestrial Physics data. It also provides an on-line computer-based service accessible via public data networks.



## DATABASE SERVICES

- \* Solar activity indices (e.g. sunspot number, solar radio flux) and geomagnetic activity indices (e.g. Ap, Kp).
- \* Information about recent solar-geophysical activity.
- \* Provisional foF2 values from ionosondes at Slough & South Uist.
- \* Full scaled ionospheric characteristics from UK-operated ionosondes: Slough, Port Stanley, South Uist, Halley Bay, Argentine Islands, South Georgia.
- \* Solar wind data from the IMP-J and ISEE-3 spacecraft.
- \* Catalogue of all ionospheric vertical soundings data held in the WDC.
- \* Information about UK meetings in Solar-Terrestrial Physics.
- \* An on-line implementation of the MSIS model of the temperature and composition of the neutral atmosphere at heights of 85-700km, coupled to the database of solar-geophysical indices.

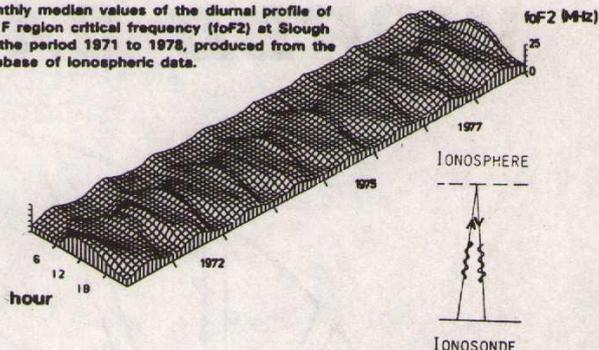
## IONOSONDE SERVICE

The ionosphere is the layer of ionised air above the stratosphere and extending from about 50 km to over 1000 km above the earth. The air molecules are split into atoms, ions and electrons by solar radiation. Radio waves may be reflected from these regions of charged particles to achieve radio transmission over large distances.

Ionosondes transmit radio waves upward and these waves are reflected at different frequencies for different heights above the earth, ranging from the lowest reflected frequency (known as fmin) up to the 'critical' frequency (usually foF2 or fxF2) for the F-region at more than 150 km.

Recent hourly values of foF2 from ionosondes in the UK are available via the WDC Database Services.

Monthly median values of the diurnal profile of the F region critical frequency (foF2) at Slough for the period 1971 to 1978, produced from the database of ionospheric data.



## DATA PUBLICATIONS

- \* PROVISIONAL IONOSPHERIC DATA
- \* IONOSPHERIC BULLETINS
- \* ANNUAL CATALOGUE
- \* IONOSPHERIC INDICES OF SOLAR ACTIVITY

Users can request copies of the data, which will be sent by post, or they are welcome to visit the WDC in order to browse through the archives. Data from other WDCs can be ordered via the WDC at RAL. A computer link has been established with other data centres and is used to exchange messages and data.

Enquiries and requests to:

World Data Centre C1 for STP  
Rutherford Appleton Laboratory  
Chilton  
Didcot  
Oxfordshire  
OX11 0QX  
United Kingdom

Telephone : 0235-446579

Fax : 0235-445848

Electronic Mail

- a) via JANET; CMD @ UK.AC.RL.IB
- b) via EARN; CMD @ UKACRL

These services are also accessible from outside the JANET network - via public X.25 computer networks such as PSS, TRANSPAC, DATEX-P, TELENET.

