

RAL

DESIGN & DISCOVERY

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RUTHERFORD APPLETON LABORATORY
SCIENCE AND ENGINEERING RESEARCH COUNCIL

SPACE DATA CENTRE at RAL

The Space Data Centre (SDC) has been set up to provide an interface between RAL and the International Agencies (NASA, ESA), and the Higher Educational Establishments in the UK, also to optimise the use of manpower and funding by forming a consortium of projects which can share data-handling facilities and is the focus of space data capture activities at RAL.

Consortium members and associated Projects

A large number of astronomical, solar-system, space physics and Earth observation space projects are associated to a greater or lesser extent with the SDC. Here is a list of such projects, with an indication of the type of involvement with the SDC.

Project	Type of involvement	Launch date
IUE	new version of archive	1978
SMM	data archive	1980
IRAS	archive handling	1983
METEOSAT	image capture, transfer and processing	1985
ROSAT	data processing and distribution	1990
CRRES	data processing	1990
ERS-1 (ATSR-NRT)	data transfer	1990
SOLAR-A	data transfer	1991
FREYJA	data handling	1992
ISO	software development only	1993
JET-X	data processing and distribution	1993
SOHO	data processing	1995
CLUSTER	data processing	1996
Polar Platform	possible level 0 to 2 processing	Late 90's

Facilities

The SDC hosts a number of facilities required for the planning, development and management of satellite data systems, including

- Computer Software
 - mission analysis
 - electronic proposal handling
 - scheduling
 - orbital prediction and reconstruction

- attitude reconstruction
- CODE-V package for optical analysis
- image processing
- quick look facilities to rapidly check the quality of data received from satellites
- astronomical catalogue handling
- Hardware available and network access
 - cluster of VAX computers
 - standard magnetic tape, Exabyte tape
 - 6GB Optical disk
 - 64 kb/s link to ESANET and SPAN and JANET networks, and then via gateways to many other networks.
 - 12.5m S-band antenna (not currently being used operationally)
- Expertise accessible to the SDC
 - astronomical image processing
 - mission planning, control, analysis
 - data reduction packages IRAF, MIDAS, IDL
 - database management
 - knowledge about astronomical instruments
e.g. IRAS, IUE, ROSAT, HST
 - network monitoring

Connections

To supplement its own capabilities the SDC has strong and active connections to other organisations and facilities to lay the groundwork for the provision of a comprehensive service to users of space data, including how to store the data, how to find out about existing data – both at the SDC and elsewhere, and how to analyse the data.

- Consultative Committee for Space Data Systems (CCSDS) defines standards and services for data archives to allow easy interchange of data between centres. The SDC is the BNSC control authority for CCSDS.
- European Space Information System (ESIS) is a project to provide a system for querying databases Europe wide and gaining access to data in a distributed environment. The SDC is part of the ESIS Pilot Project and is helping develop the ESIS system.
- STARLINK is the UK astronomical data analysis facility.
- Geophysical Data Facility (GDF) at RAL provides services to users of geophysics data, some of which would have been archived in the GDF after reception and possibly some processing in the SDC; astrophysics data would be archived within the SDC itself

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