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CORONAL DIAGNOSTIC SPECTROMETER

**SoHO**

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CDS SOFTWARE NOTE No. 35

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## CDS TEMPERATURE MONITORING

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# 1 Introduction

The CDS science stream telemetry contains data from 48 temperature-related sensors. These data are contained in the Engineering A and B packets. In order to make the temperature history of CDS easily accessible, the temperature data can be extracted from the telemetry files using the IDL procedure `EMON_TEMP_LOG`. That procedure samples the telemetry stream and saves the selected data in an IDL save set. The procedure requires write access to a directory in order to create the log. The system `MASTER` user will have write access to the 'official' log directory, but other users may define the environment variable `CDS_ENG_DATA_W` to point to a `PRIVATE` directory and the log may then be written.

## 2 Running the log creation program

The procedure `EMON_TEMP_LOG` takes a single parameter which specifies the files from which the telemetry is to be read. A variety of formats is possible. See the header documentation for details. Since the telemetry is only sampled twice hourly (at approximately 15 and 45 minutes past the hour), the logging process is fast and takes just a few seconds to cover a complete day's tm files. Each time the logger is run, it appends the new data to any already there.

## 3 Accessing the temperature log

### 3.1 Using `SHOW_CDS_TEMP`

The simplest way to access the temperature log in order to inspect single, or variable groups of, temperatures is to use the IDL procedure `SHOW_CDS_TEMP`

This will present the user with a widget interface in which any of the temperature parameters can be selected and plotted. The on-line help describes each of the features in more detail.

One advantage of using this method is that the data are calibrated before being plotted.

It is possible to limit the time range of data plotted both within the program (using the cursor) and also on the command line (using the `timerange` keyword).

### 3.2 Using `CDS_TEMP_ATLAS`

The routine `CDS_TEMP_ATLAS` creates plots of nine specific groups of temperatures, all using selections from the 32 'BTM' temperature monitors. The data are taken from the temperature log. The start time and duration of the plot can be specified at run time - see the header documentation.

### 3.3 Using the saved structure directly

The temperature log is stored as an IDL `SAVE` file in the file:

```
$CDS_ENG_DATA/temperature_log
```

This file can be RESTORED directly and the information will be in a variable called CDS\_TEMP\_LOG. That is a structure with three tags which give the item's name, the time of the data sample and the raw telemetry data.

### **3.4 EMON**

Remember also that the temperatures can be displayed directly from the telemetry using suitable parameter selection within the general engineering monitor program EMON (see software note 26).