hkstrip

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Abstract

Remove unneeded columns from housekeeping data.

1 Instruments/Modes

Instrument	Mode
EPIC	ALL
RGS	ALL
OM	ALL

2 Use

pipeline processing	yes
interactive analysis	yes

3 Description

This task takes as input a housekeeping file from any of the instruments, and removes from it any 'columns' whose data is determined to not be useful for subsequent data processing. It is assumed that which HK parameters are useful could change over the life of the mission. Thus the list of parameters to be retained is taken as an input to the task. The output of the task should be an OGIP compliant FITSfile, suitable for producing GTI files.

The TIME column of ODF compliant house keeping files will be a string in the format `yyyy-mm-ddThh:mm:ss`. In order for the HK data to be in a useful format for plotting, producing GTI files, etc., **hkstrip** will convert the TIME column of ODF files to seconds since the XMM reference time. Note that this conversion is done only for ODF files, ie. when the parameter `useodf` = *true*. If the input to the task is an ODF file (`useodf` = *true*), then the ODF directory (designated by an enviormental variable or on the command line) is searched for the file. In this case the `set` parameter can be either an ODF compliant file name, or an OAL style ODF file specification.

It would also be useful if this task could check all HK columns to see if they are constant throughout the HK data. If they are, the column could be deleted and replaced with a keyword value in the binary table extension, resulting in a potentially large space savings. This check could be fairly cpu intensive, and is

not viewed as crucial to the task. Thus it is possible this feature may be deferred to a later version of the task.

4 Parameters

This section documents the parameters recognized by this task (if any).

Parameter	Mand	Type	Default	Constraints
set	yes	set	None	valid data set name

Filename of the full house keeping file.

outset	yes	set	`hkfile.fits`	valid data set name

Filename of the stripped house keeping file.

paramnames	yes	string	`TIME`	None

Space separated list of HK parameter columns to retain.

table	yes	string	`PERIODIC_HK`	None

Name of extension containing the HK table.

useodf	no	boolean	true	true—false

Take the input file to be an ODF file specification

5 Errors

This section documents warnings and errors generated by this task (if any). Note that warnings and errors can also be generated in the SAS infrastructure libraries, in which case they would not be documented here. Refer to the index of all errors and warnings available in the HTML version of the SAS documentation.

BadODFname *(error)*
The file name in `set` is not a valid ODF file specification.

6 Input Files

1. EPIC MOS HK data (from EPIC MOS Periodic Housekeeping File).
2. EPIC p-n HK data (from EPIC p-n Periodic Housekeeping File).
3. RGS p-n HK data (from RGS p-n Periodic Housekeeping File).
4. OM HK data (from OM Periodic Housekeeping File).
5. OM non-Periodic HK data (from OM non-Periodic Housekeeping File).
6. ERM data (from ERM Count Rate File).
7. Spacecraft Attitude data (from Spacecraft Attitude History File).
8. Spacecraft HK data (from Spacecraft Periodic Housekeeping Files).

7 Output Files

1. Stripped version of input HK file (for input to HKSELECT and HKPLOT).

8 Algorithm

```
subroutine hkstrip

  Read_Parameters
  Make_Column_List

  Open_Input_File

  Open_Output_File
  Initialize(Output_File)
  Copy_Keywords(Input_File, Output_File)

  do
    Move_to_next_column
    Get_Column_Name
    if (Column_Name == "TIME" && input_is_odf_file && column_type == string)
      convert_column_to_seconds
    for each Column_List entry
      if (Column_Name == Column_List(entry))
        Copy_Column(Column_Name, Input_File, Output_File)
      end if
    next
  next

  Close_Files

end subroutine  hkstrip
```

9 Comments

None.

10 Future developments

It would also be useful if this task could check all HK columns to see of they are constant throughout the HK data. If they are, the column could be deleted and replaced with a keyword value in the binary table extension, resulting in a potentially large space savings.

References