CORONAL DIAGNOSTIC SPECTROMETER
SOHO

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STUDY DURATIONS

William Thompson
Applied Research Corporation
NASA Goddard Space Flight Center
Laboratory for Astronomy and Solar Physics
Code 682.1
Greenbelt, MD 20771, USA

William.T.Thompson.1@gsfc.nasa.gov

1 Overview

When a raster is defined in MK_RASTER, then an estimate is made about how long this raster takes to run. This estimate is then used in estimating the duration of any study built with this raster, together with whatever information can be determined about pointing delays at that time. Finally, when the plan is put together, the final duration is calculated, using the final pointing values and any other information, such as the need to load a GIS lookup table.

2 Raster durations

The raster durations are stored in a parameter called DURATION in the raster database. The routine UPDATE_RAS_DUR can be used to modify this parameter if the method used for estimating the durations has changed. However, a more important technique for maintaining the raster values involves observing the actual durations as seen on the flight instrument.

The FIND_DURATION routine produces a report of raster durations as read from the FITS file headers. For example, entering the command:

```
IDL> find_duration,'s3398r*.fits'
```

produces the output

```
Filename  Study    Raster    Duration

s3398r00  SYNOP_F   10/ 7        2508
s3398r01  SYNOP_F   10/ 7        2506
s3398r02  SYNOP_F   10/ 7        2506
s3398r03  SYNOP_F   10/ 7        2502
s3398r04  SYNOP_F   10/ 7        2505
s3398r05  SYNOP_F   10/ 7        2503
s3398r06  SYNOP_F   10/ 7        2506
s3398r07  SYNOP_F   10/ 7        2504
s3398r08  SYNOP_F   10/ 7        2512
```

This shows that the raster given by RAS_ID=10, RAS_VAR=7, which is used by the SYNOP_F study, has a duration of a little over 2500 seconds.

Once the duration of the study is established, it is possible to enter this value into the database. The routine to do this is called FREEZE_RAS_DUR. When you enter this command, a widget appears as shown in Figure 1. The user can then do one of three things:

1. If known, the raster ID and variation number can be entered into the appropriate boxes, together with the new duration.

2. The raster can be selected by browsing through the raster database.

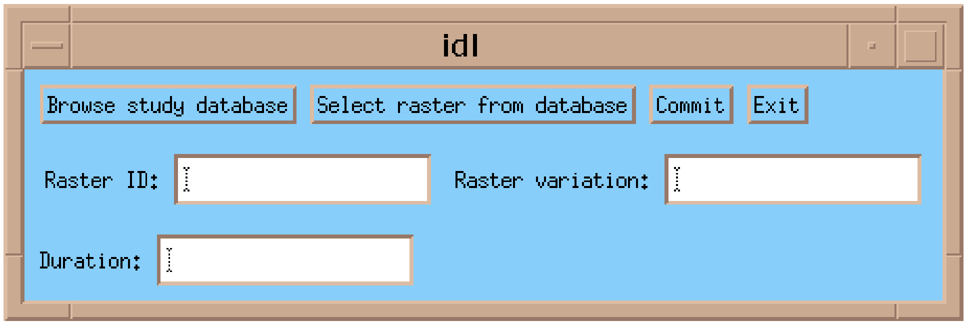

Figure 1: The FREEZE_RAS_DUR widget program.

3. The raster can be selected by browsing through the study database. This only really works for studies that consist of single (possibly repeated) rasters. For studies which use multiple rasters, only the first raster in the study is selected.

When either of the last two options are used, then the current value of the duration is displayed. The user can then enter in the new duration and put it in the database with the `Commit` button.

When a new raster duration is committed to the database, it is set negative to signal that it is a measured value rather than an estimated one. Negative values are not modified by the UPDATE_RAS_DUR routine. In the widget box, however, always enter in a positive value.

3 Study durations

There are two parameters in the study database related to duration, called DURATION0 and DURATION1. After modifying the raster duration with FREEZE_RAS_DUR, the routine UPDATE_STUDY_DUR should be called to update the study durations. Calling UPDATE_STUDY_DUR without any parameters will update all studies—optionally, one can pass a study ID number as a parameter.

However, it may not be absolutely necessary to call UPDATE_STUDY_DUR, since it appears that MK_PLAN recalculates the study durations from the raster durations (**TBC**).