

IDL_HS “Handy hints”

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This document is intended to collect together a quick guide on how to perform certain operations which are non-obvious. It is not comprehensive. If you think of something that needs describing and that you think will be useful for others, please let me know.

1 General

Copying a dataset If you have a dataset and want another one with similar channels etc. then the easiest way to do this is to save the dataset to a file (e.g. `tmp.sav`) and then restore it. If you don't need to keep the channel list, then you can just create a new dataset while the previous one is the currently selected dataset and most other properties will be inherited.

Adding paths When adding to data search paths, the chooser menu produced by the picker is initialized to the currently selected path, or to the current directory if no path has been selected. So if you want to add a subdirectory (or a sibling) of a directory that is already in the path, then click on that directory before clicking on “Pick”. Equally if you want to add a subdirectory of the current directory, then make sure no paths are selected.

Warning (IDL/Motif problem) Sometimes if you make an action that will produce a modal widget (e.g. a file selector) and then click on another button before that widget has appeared, this will lock up IDL (and temporarily the window manager) and cause it to crash out to the shell prompt. I do not know if this is a problem in IDL or in Motif, but it's not something that can be resolved by IDL_HS. The only work around is to take care to wait for widgets to appear (unless you know that the widget being created is not modal).

Track Maps At present the selection of track maps is manual. The recommended maps are:

- HISCALE 90/318-92/40 Map 8
- HISCALE 92/40-02/260 Map 9
- HISCALE 02/260-??? Map 12
- EPAM whole mission Map 11

2 Rate datasets

Selecting several channels at once To select several channels from the same group, there are two options:

1. If you want (say) all the DE channels, then: click on DE1 and then shift-click on DE4.
2. If you want a selection of channels, then just control-click on each channel that you want.

Note that it is not possible to select multiple ranges at one go.

3 Spect datasets

Colouring In spect datasets, when there is only a single channel group on each panel, then the different sectors are given different colours, however for datasets where there are several channel groups on one or more panels, then the colours are used for the channel groups and sectoring is only useful to show the spread.

4 PAD datasets

Averaging In PAD datasets, long averaging intervals can produce misleading results if the magnetic field changes significantly during the averaging interval. Better is either (if the fluxes are high enough) to use a spacing setting to only show every n^{th} spin, or to select the shortest averaging time that will give reasonable statistics and a longer spacing (e.g. 5 minute averages calculated once per hour).

Complex stream lists Since generating the stream list for a PAD dataset may involve a large number of mouse clicks (unfortunately the stream combinations typically used mean that multiple selection is not practical), it is possible to save stream selection lists and then restore them to another dataset.

Stream ordering If you are combining 4 & 8 sector streams in the same panel of a PAD dataset, it is usually best to put the 8-sector stream first so that its sectors are denoted by numbers.

ULEIS PADS The ULEIS data that are used by IDL_HS do not have merged magnetic fields. Therefore, field data must be provided from an external source, the default is to use the mag files from FunTech which have just a date, the 3 components (in spacecraft coordinates) and the total field. If you need to use ACE mag data from other sources, then you will need to modify the `UMAG_ACE.SPEC` file in the `Data/specfiles` directory of the distribution. The field files need to be in the UDS search path (not the ULEIS search path) as the reading uses the same routines as for UDS rate datasets.

5 Other datasets

Examining files If you have a current dataset, then the initial search in the “Examine file” selector is restricted to the time range of that dataset. This can save a lot of time in searching for the correct file to examine (especially if you are after ula files!).