

IDL Procedure To Create Data Files

IDL software is available that creates data files which are required by the DOE open access requirements. The files created are in the HDF5 format, with a structure for the data and metadata corresponding to our recommended specs – available in “Recommendations for format of data associated with publications”. This should allow any user to readily use the information contained. Questions or suggestions should go to Martin Greenwald (g@psfc.mit.edu).

Location of the IDL procedures/files on the C-Mod linux cluster:

```
/usr/local/cmod/idl/hdf5_new  
/usr/local/cmod/idl/hdf5_test
```

What the files contain:

hdf5_new contains 2 procedures.

- hdf5_new is called to create a new data file and load the file-level metadata.
- hdf5_add adds a data group to an existing data file

hdf5_test is a simple example of the use of these two procedures.

How to use the procedures:

For each data file, corresponding to each figure, the user would first call hdf5_new. Then, each time a new trace or group of data points is added (for example with plot, contour, surface, or oplot) hdf5_add. The arguments to hdf5_add provide the x, y (and z) data. For both procedures, keywords containing the metadata are used. hdf5_add can be used as many times as needed, the file is opened and closed automatically each time it is called.

Full listing of keywords/metadata names used in the procedures:

file level metadata

file = string - name of hdf5 file you wish to write (don't include
file extension in name
example: if file='fig_3' then filename will be fig_3.hdf5

fig_description = string describing figure (could be caption for manuscript)

fig_source = string - identifies which manuscript/paper the figure is part of
examples: 'JA-14-21' or 'NF 55 023012 2015'

comment = string - anything else you want to say about the figure

user_fullname = string - full name of person creating file

verbose = set to get more feedback on keywords and arguments

date = date when this hdf5 file was created

Group/dataset level metadata

group_name = string - name of data group

legend = string description of this data group that distinguishes it from other data groups in same plot

plot_graphics = string - optional description of plot style for this data group
example 'red filled circles' or 'blue solid line'
similar to what might appear in the figure caption

Trace level metadata

x = float or integer array

x_units = string

x_axis = string - label for x axis

x_name = string - optional longer description of x data

x_type = string - optional data type

y = float or integer array - should be same size as x in 2d plot

y_units = string

y_axis = string - label for y axis

y_name = string - optional longer description of y data

y_type = string - optional data type

optionally for 3D plot

z = float or integer array - should be same size and shape as x#y

z_units = string

z_axis = string - label for z axis

z_name = string - optional longer description of z data

z_type = string - optional data type