



pysasplot_utils

April 16, 2023

Abstract

Set of basic plotting utilities to directly plot FITS files. The package also includes some functions that are used by other Python packages in SAS, specifically those related to plotting. .

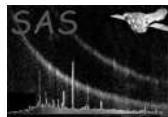
1 Description

The package contains several tools made to make plotting easier for FITS files. Alongside these functions, other functions have been written in order to make it easier for other plotting utilities to perform different tasks, such as processing FITS data into dictionaries or to export all given figures into PDF

1.1 Current functions

The following is a summary of the functions present in the package:

- *text_plot*: prepares a one line text containing the basic information obtained from reading basic keywords from the input FITS file.
- *ingest_data*: Prepares the data in a key-value system, ready to be used by the other functions. To navigate the FITS file, will use the card argument, as in 'EXTENSION:CARD'.
- *is_iterable*: Returns True or False depending on whether the passed argument is an iterable other than a string class object.
- *get_time_deltas*: Finds the separation intervals for rebinning in a FITS file, relying on the input number of points and which keywords to evaluate.
- *TS_rebin*: Performs the rebinning of the input data, using the relation between points passed in the arguments (DTin, DTout).
- *saves_in_pdf*: Saves several figures (passed as a list) into a single pdf.
- *simple_1d_histogram*: Creates a simple histogram using 1D data in several format. The data and plotting details are passed as arguments.
- *simple_2d_plot*: Creates a simple 2D plot using the input data and labels passed.
- *ingest_table*: Similar to ingest_data, but prepared to work with AstroPy Table objects



- *load_figures*: Loads a list of pickled matplotlib figures into a new list consisting on the figures.
- *merge_pdf*: Joins several PDF files into a single PDF.
- *plot_image*: Plots an image from a FITS file.
- *check_format_compatibility*: Checks if the input format can be used in matplotlib.
- *reg_to_list*: Given a region file as string based on ds9 formatting, returns the information as Python values.
- *plot_region_box*: Given an AxisSubplot object, returns the axis with an implemented box region.

1.2 Errors

Python exceptions: as a full Python library, errors related to matplotlib are expected, specially for non supported formats.

Several Python warnings similar to the above, more specifically present when the arrays do not present the needed dimensions.

While some errors and warnings have been prevented, the user should be aware that other errors may rise related to third party packages, mostly AstroPy, NumPy and matplotlib.

References