imsample

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Abstract

This task takes as inputs a fits image and a list (fits table) of positions in the image pixel coordinates. The task samples the image at each of the positions and writes the result to a specified column in the fits table.

1 Instruments/Modes

The task is not XMM-specific.

2 Description

Given an image covering some part of the sky, and a list of sky positions, it can be useful to know the value of the image at each of the positions in the list. The image might be a sensitivity or an exposure map for example: one might want to translate this into sensitivity or exposure at each of the positions. This is what **imsample** does.

The datatype of the output column is 32-bit real. If any position falls outside the image boundary, a null is written to the corresponding value in the list.

At present, the list of positions (which must be a binary table extension in a FITS file) must contain columns which give the position in image pixel coordinates. This has the advantage that image WCS keywords are not required, but it must be admitted that RA and dec values are a more universal currency. In future I'll probably modify the task to allow this option (in which event the image would of course have to contain WCS keywords).

3 Parameters

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

Parameter	Mand	Type	Default	Constraints
imageset	yes	dataset	dummy_default	

The dataset containing the image which is to be sampled at each of the input positions.

srclisttab	yes	table	dummy_default	

The dataset+binary table which contains the list of positions.

xcol	no	string	X_IMA	

The name of the column in `srclisttab` which contains the x coordinate of the position (in image pixels).

ycol	no	string	Y_IMA	

The name of the column in `srclisttab` which contains the y coordinate of the position (in image pixels).

outcol	no	string	IMG	

The name of the column in `srclisttab` in which to store the sampled image value.

4 Input Files

1. A FITS dataset containing a 2-dimensional image array in the primary extension. The datatype of the image may be 8-bit integer, 16-bit integer, 32-bit integer, 32-bit real or 64-bit real.
2. A FITS dataset containing a list of image positions in the form of a binary table extension. The position values must be in image pixel coordinates but may be real-valued: in this case the pixel indices are generated by calculating the nearest integer values. The names of the columns with, respectively, x and y coordinates must be those specified via the `xcol` and `ycol` parameters.

5 Output Files

1. A column of datatype 32-bit real and name specified via the parameter `outcol` is created (or overwritten, if already existing) in the input position table.

6 Algorithm

References