Image Metadata

FITS Images

The keywords listed below are required, recommended, or suggested for all FITS files that contain images. In simple FITS files, all keywords must appear in the primary (P) header, but for images in IMAGE extensions these keywords should appear in the relevant extension (E) header. (Note: WCS related keywords must only appear in the extension for which they apply.) Recommended keywords, if absent, will be computed and inserted prior to ingest; suggested keywords would be beneficial to archival users if present.

The following table(s) of HLSP metadata, to be included in science products, are color-coded:

	Required
	Recommended
	Suggested

Headers must also include the basic structural FITS keywords and the list of common keywords.

	Keyword	HDU	Notes
	APERTURE	P or E	Name of aperture used for exposure (if any)
	BUNIT	P or E	Brightness unit for array values
	CD***i_j***	P or E	Transformation matrix between pixel axis j and intermediate coordinate axis ***i***. The indicies range from 1 to the value of NAXIS. Note that if the alternative PC***i_j*** notation is used (see below), these keywords must not appear in the header.
	CDELT***i***	P or E	Increment of the world coordinate at the reference point for axis ***i***, in units of deg/pixel. Used in conjunction with PC notation for transformation matrix; ignored for CD notation.
	CRPIX***j***	P or E	Location of the reference point in the image for axis ***j***, in array pixel units.
	CRVAL***i***	P or E	World coordinate value at the reference location for axis ***i***
	CTYPE***i***	P or E	World coordinate type for axis ***i***
	CUNIT***i***	P or E	Physical units of CRVAL for axis ***i***. Note: units for celestial coordinate systems **must** be degrees.
	DETECTOR	P or E	ID of detector used for exposure
	FILTER	P or E	Name of filter used, or 'MULTI' if more than one defined the passband
	FILTER***nn***	P or E	Name(s) of filter(s) used to define the passband, if more than one was used, with ***nn*** incrementing from 1 (and zero-pad if ***nn*** >9)
	PC***i_j***	P or E	Alternative to CD notation for transforming pixel axis ***j*** to intermediate coordinate axis ***i***. Must be used with CDELT***i*** and **must not** be used with CD***i_j***.
	DEC_TARG	P or E	Declination coordinate of the target or field, in degrees
	PSFSIZE	P or E	Typical spatial extent of the point-spread function, in pix
	RADESYS	P or E	Mnemonic for celestial coordinate reference system (typically 'FK5' or the preferred 'ICRS')
	RA_TARG	P or E	Right Ascension coordinate of the target or field, in degrees
	WCSAXES	P or E	Number of axes in WCS description, which may exceed the number of pixel array axes

For Further Reading...

- Common Metadata
- Provenance Metadata