

FITS HEADER DESCRIPTION

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Introduction

This document is a summary of the meaning and usage of each keyword in the FITS header for the data cube we are currently working on.

Header Keywords Description

	keyword	Value	Description
	SIMPLE	T	Standar FITS compliance
	BITPIX	-32	32-bit floating point data
	NAXIS	3	Number of data axes (3D cube)
	NAXIS1	25	Axis 1 length (RA or x-axis pixels)
	NAXIS2	22	Axis 2 length (Dec or y-axis pixels)
	NAXIS3	94	Axis 3 length (spectral/velocity channels)
	BMAJ	0.0111	Beam major axis in degrees
	BMIN	0.0111	Beam minor axis in degrees
	BPA	0.0	Beam position angle in degrees
	BTYPE	Intensity	Data type (typically flux or brightness)
	OBJECT	SoFiA J234703.61+292835.6	Target name
	BUNIT	Jy/beam	Unit of the image data
	EQUINOX	2000.0	Equinox for celestial coordinate system
	RADESYS	FK5	Celestial coordinate reference frame
	LONPOLE	180.0	Native longitude of celestial pole
	LATPOLE	29.071	Native latitude of celestial pole
	$PC1_1$ $PC3_3$	(values)	Rotation matrix elements of WCS transformation
	CTYPE1	RA—TAN	Right Ascension (TAN projection)
	CRVAL1	357.249192398	World coordinate at reference pixel (RA)
	CDELT1	-0.001666667	RA increment per pixel (deg/pix)
	CRPIX1	-248.5	Reference pixel (axis 1)
	CUNIT1	deg	Units for axis 1
	CTYPE2	DEC—TAN	Declination (TAN projection)
	CRVAL2	29.071002088	World coordinate at reference pixel (Dec)
	CDELT2	0.001666667	Dec increment per pixel (deg/pix)
	CRPIX2	-205.0	Reference pixel (axis 2)
	CUNIT2	deg	Units for axis 2

	Keyword	Value	Description
CTYPE3	VRAD		Radial velocity axis (line-of-sight)
CRVAL3	9820483.591		Reference radial velocity (m/s)
CDEL3	-7729.2898		Velocity increment per channel (m/s)
CRPIX3	-575.0		Reference pixel (axis 3)
CUNIT3	m/s		Units for axis 3
RESTFRQ	1.42040575177e9		Rest frequency of spectral line (Hz)
SPECSYS	BARYCENT		Spectral reference frame
ALTRVAL	1.37387665804e9		Alternate spectral coordinate (frequency)
ALTRPIX	-575.0		Alternate spectral reference pixel
VELREF	258		Velocity reference code (LSR = 1, Radio = +256)
CELLSCAL	CONSTANT		Pixel scaling is constant across the cube
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