

HIP Catalog

Catalog Specifications

- Keep consistent units.
- Confirm proper motion in "/yr.
- Shorten catalog column names for common columns such as RA, Decl, JMag, etc.
- RA and DEC in both sexagesimal, radians, and degrees (6 sig figures)
 - o this is to avoid the need for translation later.
- Two Tables: hip and hip_errors_flags

Tables

hip			
ColumnName	Datatype	Units	NullValues
HIP_ID	INT	id	-
RA	VARCHAR(13)	sexag	-
Decl	VARCHAR(13)	sexag	-
RA_Deg	DOUBLE	deg	-
Decl_Deg	DOUBLE	deg	-
RA_Rad	DOUBLE	rad	-
Decl_Rad	DOUBLE	rad	-
Vmag	DOUBLE	mag	Blank
Parallax	DOUBLE	mas	Blank
pm_RA	DOUBLE	mas	Blank
pm_Dec	DOUBLE	mas	Blank
BT_Mag	DOUBLE	mag	Blank
VT_Mag	DOUBLE	mag	Blank
Hip_Mag	DOUBLE	mag	Blank
BV_Color	DOUBLE	mag	Blank
VI_Color	DOUBLE	mag	Blank

hip_errors_flags				hip_errors_flags (cont.)			
ColumnName	Datatype	Units	NullValues	ColumnName	Datatype	Units	NullValues
HIP_ID	INT	id	-	N_Obs_Hip_Mag	INT	-	Blank
Prox_10asec	VARCHAR(10)	-	Blank	Hip_Mag_Ref_Dbl	VARCHAR(10)	-	Blank
Var_Flag	VARCHAR(10)	-	Blank	Hip_Mag_Max	DOUBLE	-	Blank
Vmag_Source	VARCHAR(10)	-	Blank	Hip_Mag_Min	DOUBLE	-	Blank
Astrom_Ref_Dbl	VARCHAR(10)	-	Blank	Var_Period	VARCHAR(10)	-	Blank
RA_Error	DOUBLE	-	Blank	Hip_Var_Type	VARCHAR(10)	-	Blank
Dec_Error	DOUBLE	-	Blank	Var_Data_Annex	VARCHAR(10)	-	Blank
Parallax_Error	DOUBLE	-	Blank	Var_Curv_Annex	VARCHAR(10)	-	Blank
pm_RA_Error	DOUBLE	-	Blank	CCDM_Id	VARCHAR(10)	-	Blank
pm_Dec_Error	DOUBLE	-	Blank	CCDM_History	VARCHAR(10)	-	Blank
CrI_Dec_RA	DOUBLE	-	Blank	CCDM_N_Entries	VARCHAR(10)	-	Blank
CrI_Plx_RA	DOUBLE	-	Blank	CCDM_N_Comp	INT	-	Blank
CrI_Plx_Dec	DOUBLE	-	Blank	Dbl_Mult_Annex	VARCHAR(10)	-	Blank
CrI_pmRA_RA	DOUBLE	-	Blank	Astrom_Mult_Source	VARCHAR(10)	-	Blank
CrI_pmRA_Dec	DOUBLE	-	Blank	Dbl_Soln_Qual	VARCHAR(10)	-	Blank
CrI_pmRA_Plx	DOUBLE	-	Blank	Dbl_Ref_ID	VARCHAR(10)	-	Blank
CrI_pmDec_RA	DOUBLE	-	Blank	Dbl_Theta	VARCHAR(10)	-	Blank
CrI_pmDec_Dec	DOUBLE	-	Blank	Dbl_Rho	VARCHAR(10)	-	Blank
CrI_pmDec_Plx	DOUBLE	-	Blank	Rho_Error	VARCHAR(10)	-	Blank
CrI_pmDec_pmRA	DOUBLE	-	Blank	Diff_Hip_Mag	VARCHAR(10)	-	Blank
Reject_Percent	DOUBLE	-	Blank	dHip_Mag_Error	VARCHAR(10)	-	Blank
Quality_Fit	DOUBLE	-	Blank	Survey_Star	VARCHAR(1)	-	Blank
BT_Mag_Error	DOUBLE	-	Blank	ID_Chart	VARCHAR(10)	-	Blank
VT_Mag_Error	DOUBLE	-	Blank	Notes	VARCHAR(10)	-	Blank
BT_Mag_Ref_Dbl	VARCHAR(10)	-	Blank	HD_Id	INT	-	Blank
BV_Color_Error	DOUBLE	-	Blank	BD_Id	VARCHAR(20)	-	Blank
BV_Mag_Source	VARCHAR(10)	-	Blank	CoD_Id	VARCHAR(10)	-	Blank
VI_Color_Error	DOUBLE	-	Blank	CPD_Id	VARCHAR(10)	-	Blank
VI_Color_Source	VARCHAR(10)	-	Blank	VI_Color_Reduct	DOUBLE	-	Blank
Mag_Ref_Dbl	VARCHAR(10)	-	Blank	Spect_Type	VARCHAR(20)	-	Blank
Hip_Mag_Error	DOUBLE	-	Blank	Spect_Type_Source	VARCHAR(10)	-	Blank
Scat_Hip_Mag	DOUBLE	-	Blank				

Figure 5.1: Name, SQL Datatype, Units and Values to be replaced with NULL for the hip and hip_errors_flags tables.

Database Implementation

- The HIP database is stored in a single .csv file
- HIP is a small catalog, with just over 118,000 stars, meaning it does not need to be split into a visible and not visible table.

Data Cleaning

- RA (sexagesimal) was constructed from the RA_deg column.
- RA_rad (radians) was constructed from the RA_deg column.
- Decl (sexagesimal) was constructed from the Decl_deg column.
- Decl_rad (radians) was constructed from the Decl_deg column.
- For stars without a provided RA_deg or Decl_deg value RA_deg was constructed from RA in sexagesimal
- All errors and flags were checked, all blank values replaced by NULL