GAIA Catalog

Catalog Specifications

- Keep consistent units.
- Confirm proper motion in "/yr.
- RA and DEC in both sexagesimal, radians, and degrees (6 sig figures)
    - this is to avoid the need for translation later.
- watch for nulls, often defined as a number but referenced elsewhere.
    - Set null floats for values like magnitude and proper motion.
    - Remove any null coordinates.
- Look at how to read the file and ingest into DB.
    - How is the file indexed, data split between files, etc.
- Two tables: gaia and gaia_not_visible
    - _not_visible: Not visible from Keck Observatory (Declination < -70°)

Tables

gaia			
ColumnName	**Datatype**	**Units**	**NullValues**
GAIA_ID	INT	id	-
RA	VARCHAR(13)	sexag	-
Decl	VARCHAR(13)	sexag	-
RA_rad	DOUBLE	rad	-
Decl_rad	DOUBLE	rad	-
RA_deg	DOUBLE	deg	-
Decl_deg	DOUBLE	deg	-
PmRA	REAL	mas/yr	0
PmDec	REAL	mas/yr	0
Gmag	REAL	mag	999.9
BpMag	REAL	mag	999.9
RpMag	REAL	mag	999.9

Figure 4.1: Name, SQL Datatype, Units and Values to be replaced with NULL for the gaia table.

Database Implementation

- The GAIA catalog was constructed from 307 folders from “aa” through “lu” in the order aa, ab, ac, etc.
- Each folder contains additional files listing the GAIA_ID values they contain.
    - Ex: GaiaExtracted_1000424601954531200_1000677322125743488.csv

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.
- All magnitudes were updated (999.9 changed to NULL)
    - GMag
    - BpMag
    - RpMag