

Appendix B

Detailed Database Specification

This appendix contains diagrams for the database tables that were not shown in section 3.3 and the contents of the domain tables.

B.1 Database Table Diagrams

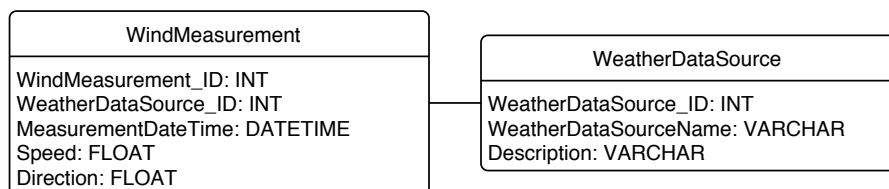


Figure B.1. Diagram illustrating the database tables used for storing wind speed data.

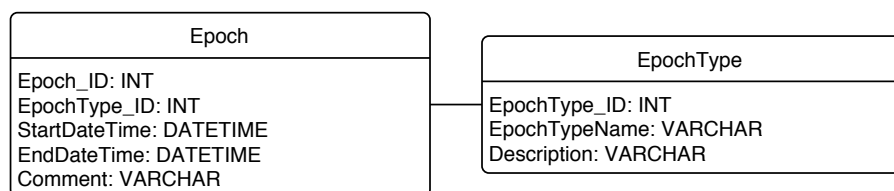


Figure B.2. Diagram illustrating the database tables used for storing epoch definitions.

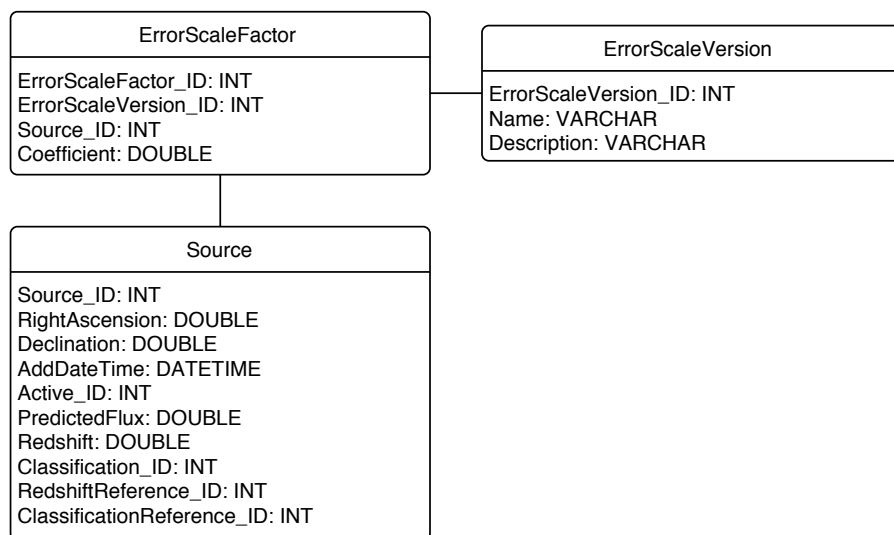


Figure B.3. Diagram illustrating the database tables used for storing error scale factors.

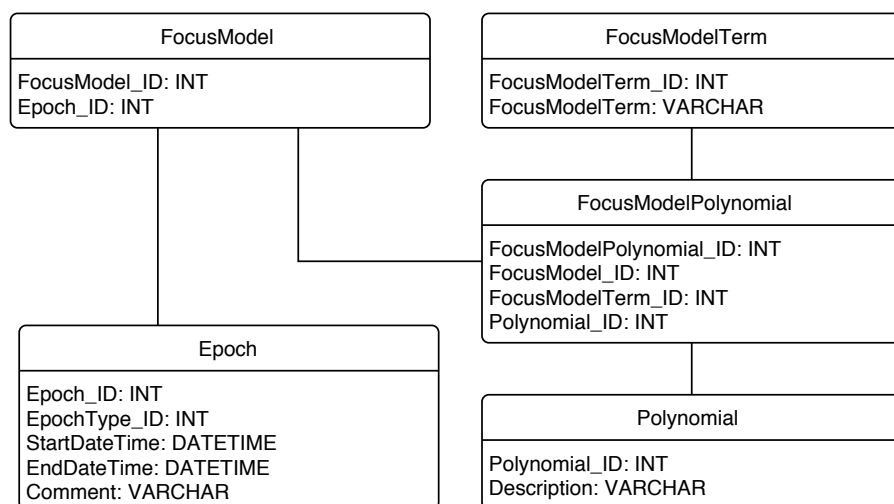


Figure B.4. Diagram illustrating the database tables used for storing focus model data.

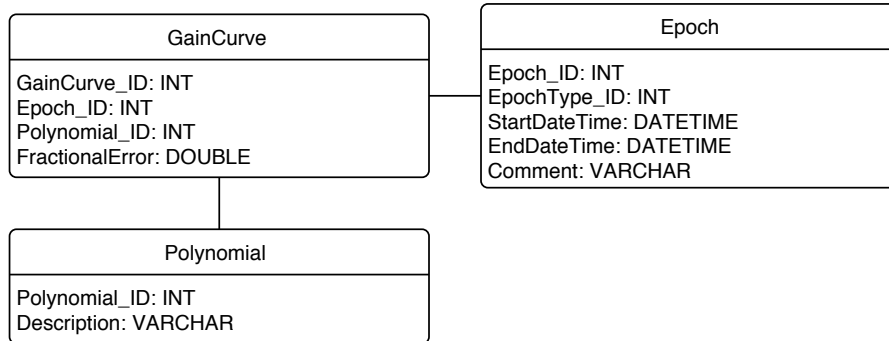


Figure B.5. Diagram illustrating the database tables used for storing gain curves.

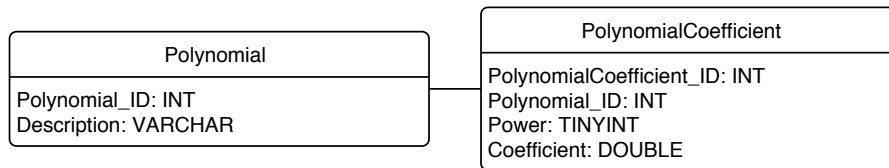


Figure B.6. Diagram illustrating the database tables used for storing polynomial definitions.

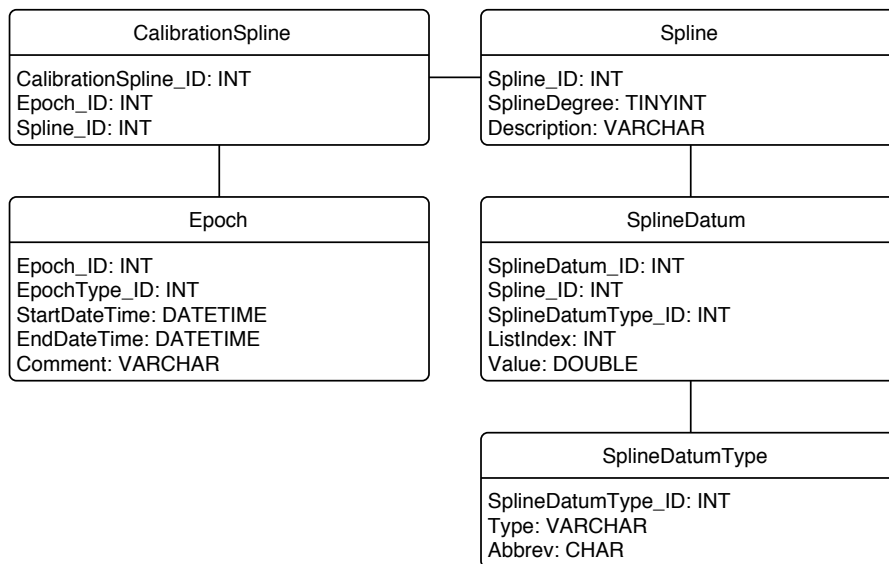


Figure B.7. Diagram illustrating the database tables used for storing calibration spline definitions.

Table B.1. Contents of the `Active` table

Active_ID	Code	Description
1	Active	Source is currently being observed.
2	Inactive	Source is not currently being observed.

Note: This table defines the options for describing whether a source is being actively observed.

Table B.2. Contents of the `Catalog` table

Catalog_ID	Code	Description	Reference_ID
1	OVRO	Name used in OVRO 40m schedules	NULL
2	OVRO.Obsolete	Obsolete name used in old OVRO 40m schedules	NULL
3	1FGL	First Fermi-LAT Catalog	3
4	0FGL	Fermi/LAT Bright Source List	4
5	CGRaBS	Candidate Gamma-Ray Blazar Survey	5
6	CRATES	Combined Radio All-Sky Targeted Eight GHz Survey	6
7	3C	Third Cambridge catalog	7
8	CRTS	Catalina Real-Time Transient Survey	11
9	1LAC	The First Catalog of AGN Detected by the Fermi LAT	9
10	1LAC_CLEAN	Clean subset of First Catalog of AGN Detected by the Fermi LAT	9

Note: This table defines the catalogs to which source names can belong.

B.2 Domain Table Contents

Table B.3. Contents of the `Classification` table

Classification_ID	Code	Description
1	AGN	Active Galactic Nucleus
2	BLL	BL Lac
3	FSRQ	Flat-Spectrum Radio Quasar
4	GAL	Galaxy
5	NLRG	Narrow-Lined Radio Galaxy
6	PN	Planetary Nebula
7		Unclassified

Note: This table defines the recognized source classifications.

Table B.4. Contents of the `Reference` table

Reference_ID	Code	URL	Comment
3	1FGL	2010ApJS..188..405A	First Fermi-LAT catalog
4	0FGL	2009ApJS..183...46A	Fermi/LAT Bright Source List
5	CGRaBS	2008ApJS..175...97H	Candidate Gamma-Ray Blazar Survey
6	CRATES	2007ApJS..171...61H	Combined Radio All-Sky Targeted Eight GHz Survey
7	3C	1962MmRAS..68..163B	Third Cambridge catalog
9	1LAC	2010ApJ...715..429A	The First Catalog of AGN Detected by the Fermi LAT
11	CRTS_WEB	http://crts.caltech.edu/	Catalina Real-Time Transient Survey web page

Note: This table stores the references used for source catalogs, redshifts, and classifications.

Table B.5. Contents of the `FluxType` table

FluxType_ID	FluxType
1	FL
2	SP
3	TP

Note: This table defines the types that can be associated with entries in the `FluxResults` table.

Table B.6. Contents of the `ReductionParameterName` table

ReductionParameter-Name_ID	ReductionParameterName	ParameterDataType_ID	PythonParameterName
3	DB_IMPORT_VERSION	4	NULL
4	DETECTION_THRESH	2	no_detection
5	EPOCH_LIST_ID	4	NULL
16	POINT_TEST_MAX_DELAY	2	max_delay
24	FLUX_SWD_THRESH	2	thresh
25	FLUX_SWD_SWD0	2	swd0
26	FLUX_SWD_SIG0	2	sig0
27	FLUX_SWD_KAPPA_S	2	kappa_s
28	FLUX_SWD_KAPPA_T	2	kappa_t
29	FLUX_SD_THRESH	2	thresh
30	FLUX_SD_KAPPA	2	kappa
31	DATEFLAG_SET_NAME	4	setname
32	PDIST_THRESH	2	max_pdist
33	MOON_ANGLE_THRESH	2	min_angle
34	SUN_ANGLE_THRESH	2	min_angle
35	WIND_THRESH	2	max_wind
36	ZA_LIMIT_MIN	2	za_min
37	ZA_LIMIT_MAX	2	za_max
38	FOCUS_MISS_MAX	2	focus_miss_max

Note: Several obsolete entries are not shown.

Table B.7. Contents of the `ReductionType` table

Reduction-Type_ID	ReductionType	Description
1	DB_IMPORT	Loaded log file into CMBPROG, applied low-level cuts/calibration, dumped, and inserted into database.
2	INTERNAL_CALIBRATION	Performed high-level calibration and corrections.

Table B.8. Contents of the `ParameterDataType` table

Parameter- DataType_ID	ParameterData- TypeName
1	bool
2	float
3	int
4	string

Table B.9. Contents of the `DataSource` table

Data- Type_ID	DataSource- Name	DataSourceDescription
1	vax	Data from “old” VAX-based control system, reduced via CMBPROG.
2	mcs_simple	Data from MCS control system, reduced using 1-second sample processing.
3	db	Data from the database.

Table B.10. Contents of the `FlagType` table

Flag- Type_ID	FlagTypeName	Comment	PythonFlag- TypeName
4	DATE_FLAG	Flag fluxes by date/time intervals. Parameter is name of FlaggedDateSet	dateflag
5	FLUX_SD	Flux SD outlier filter. Parameter is “thresh,epsilon” where thresh is the SD threshold and epsilon is the FLUX->SD coefficient.	flux_sd
6	FLUX_SWD	Flag FLUXes with SWD outside a threshold. Arguments is string with values “thresh,swd0,sigma0,eps_s,eps_t”	flux_swd
11	NO_DETECTION	FLUX below detection threshold. Param is number of measured SD required for detection.	no_detection
12	POINTED	Indicates a POINT was performed on-source before the FLUX.	pointed
13	POINTING_DISTANCE	Limit on distance between FLUX and POINT, in degrees.	pdist
14	POINTING_MODEL_ONLY	FLUX was observed without a correction from a preceding POINT.	pointing_model_only
15	POINT_TEST	FLUX was measured as part of a test of the pointing model. Parameter is max time in minutes after the FLUX where the POINT can occur.	pointtest
18	SUN_ANGLE	Cut measurements too near the sun.	sun_angle
19	MOON_ANGLE	Cut measurements too near the moon.	moon_angle
20	WIND	Cut windy measurements.	wind
21	ZA_LIMIT	Cut measurements outside ZA range..	za_limit
22	FOCUS_MISS	Cut measurements with bad focus.	focus_miss
23	NEGATIVE_POINT_FLUX	flux depends on a POINT that had negative flux	negative_point_flux

Note: Several obsolete entries are not shown.

Table B.11. Contents of the `FlaggedDateType` table

FlaggedDate- Type_ID	FlaggedDate- TypeName	Description
1	OUT_OF_PROGRAM	Periods where the monitoring program was not operating. All data should be dropped entirely.
2	INTERFERENCE	Periods where severe atmosphere, RFI, or other interference render the data entirely untrustworthy. All data should be dropped entirely.
3	WIND	Periods of heavy or gusty wind.
4	POINTING_3C161	3C 161 frequently has major pointing failures. These flag instances of this problem.
5	OTHER	Miscellaneous problems.
6	BAD_POINTING	Bad measurement on a pointing calibrator, flag period should include entire region.

Table B.12. Contents of the `EpochType` table

Epoch- Type_ID	EpochType- Name	Description
1	ABS.CAL	Indicates a shift in the flux density calibration, e.g., due to a change in the ratio of the CAL diode to astronomical inputs.
2	FOCUS	Indicates a change in the focus curve.
3	POINTING	Indicates a change in the pointing performance.
4	GAIN.CURVE	Indicates a change in the gain versus elevation behavior.
5	CAL.SPLINE	Interval of applicability for a particular systematic calibration correction spline.

Table B.13. Contents of the `FocusModelTerm` table

FocusModel- Term_ID	FocusModelTerm
1	ZA
2	SUN_ANG
3	SUN_ZA
4	ERROR_POLY

Note: The entries define the names for the polynomial components of the focus model. These are the zenith angle-dependent term, the solar elongation and zenith angle terms, and the polynomial to estimate the gain error due to missed focus.

Table B.14. Contents of the `SplineDatumType` table

SplineDatum- Type_ID	Type	Abbrev
1	Knot	t
2	Coefficient	c

Table B.15. Contents of the WeatherDataSource table

WeatherData-Source_ID	WeatherData-SourceName	Description
1	Legacy	“Old” weather station in use from before inception of program until April, 2010.
2	Capricorn	Columbia Weather Systems Capricorn 2000EX installed Nov 2009.
3	TCS	Data from the telescope control system.