Global Heat Flow Database

Entity relationship diagram

Parent-related entities

HeatFlowSite	
id: int	Primary key
location_id : int FK	Geographic coordinates
name: string	Site or survey name
elevation: decimal	Surface elevation
length: quantity	Total measured depth (MD)
vertical_depth: quantity	True vertical depth (TVD)
environment: string	Geographic environment type
explo_method: string	Exploration method
explo_purpose: string	Purpose of exploration
country: string	Country location
region: string	Regional location
continent: string	Continent
domain: string	Geological domain
IGSN: text	Sample identifiers (IGSN)

ParentHeatFlow	
id: int	Primary key
sample_id : int FK	Associated heat flow site
value: quantity	Surface heat flow density (mW/m²)
uncertainty: quantity	Uncertainty (1 sigma, mW/m²)
corr_HP_flag: boolean	Heat production correction applied
is_ghfdb: boolean	Part of official GHFDB
comment: text	General comments

ParentChildRelation	
id: int	Primary key
parent_id : int FK	Parent heat flow
child_id : int FK	Child heat flow
is_relevant: boolean	Used in parent calculation

Point	
id: int	Primary key
x: decimal	X-coordinate (longitude)
y: decimal	Y-coordinate (latitude)
crs: string	Coordinate reference system

Child-related entities

IntervalConductivity	
id: int	Primary key
sample_id : int FK	Depth interval (via Measurement)
value: quantity	Mean thermal conductivity (W/mK)
uncertainty: quantity	Conductivity uncertainty (W/mK)
source: string	Sample source type
location: string	Conductivity data location
method: string	Determination method
saturation: string	Sample saturation state
pT_conditions: string	Pressure-temp conditions
pT_function: string	pT correction technique
strategy: string	Averaging methodology
number: int	Number of measurements

HeatFlowCorrection	
id: int	Primary key
heat_flow_id : int	Associated heat flowt
correction_type: s	Type of correction (IS, T, ...)
status: string	Correction status

GeoDepthInterval	
id: int	Primary key
sample_id : int FK	Parent heat flow site
top: quantity	Top depth of interval
bottom: quantity	Bottom depth of interval
vertical_depth: quantity	Vertical depth
vertical_datum: string	Vertical datum (MSL)
lithology: string	Lithology of the interval
age: string	Geologic age of the interval
stratigraphy: string	Stratigraphic unit
notes: string	Additional notes

ThermalGradient	
id: int	Primary key
sample_id : int FK	Depth interval (via Measurement)
value: quantity	Temperature gradient (K/km)
uncertainty: quantity	Gradient uncertainty (K/km)
corrected_value: quantity	Corrected gradient (K/km)
corrected_uncertainty: quantity	Corrected uncertainty (K/km)
method_top: string	Top temperature method
method_bottom: string	Bottom temperature method
shutin_top: quantity	Top shut-in time (hours)
shutin_bottom: quantity	Bottom shut-in time (hours)
correction_top: string	Top correction method
correction_bottom: string	Bottom correction method
number: int	Number of temperature recordings
score: float	Quality score (0.0-1.0)

HeatFlow	
id: int	Primary key
thermal_conductivity_id : int FK	Thermal conductivity data
thermal_gradient_id : int FK	Temperature gradient data
value: quantity	Heat flow density (mW/m²)
uncertainty: quantity	Uncertainty (1 sigma, mW/m²)
method: string	Calculation method (Fourier, Bullard, etc.)
expedition: string	Expedition/cruise/vessel name
water_temperature: quantity	Bottom water temperature
date_acquired: date	Date of data acquisition
U_score: char	Uncertainty quality (U1-U4, Ux)
M_score: char	Methodological quality (M1-M4, Mx)
c_comment: text	General comments

ProbeMetadata	
id: int	Primary key
heat_flow_id : int FK	Associated heat flow measurement
penetration: quantity	Marine probe penetration depth
probe_type: string	Type of probe used
length: quantity	Length of probe
tilt: quantity	Tilt angle of probe