



National Snow and Ice Data Center
Supporting Cryospheric Research Since 1976



Database Design for Points, Grids, and the Pole: The Searchlight Project Case Study

Circumpolar Conference on Geospatial
Sciences and Applications (GeoNorth 2009)
4 August 2009

Julia Collins (collinsj@nsidc.org)
<http://nsidc.org/>

NSIDC's Searchlight project: *A quick introduction*

- * Web-based data discovery and access interface
- * Redesigned metadata+data database
- * Cryospheric data
- * Current focus on point and gridded data management and distribution
- * Core technologies:
 - Dojo, GDAL, Hibernate, Java, jQuery, JSP, Spring, Struts 2
 - PostgreSQL with PostGIS extension

NSIDC's Searchlight project: *A quick introduction*

- * Web-based data discovery and access interface
- * Redesigned metadata+data database
- * Cryospheric data
- * Current focus on point and gridded data management and distribution
- * Core technologies:
 - Dojo, GDAL, Hibernate, Java, jQuery, JSP, Spring, Struts 2
 - PostgreSQL with PostGIS extension

NSIDC's Searchlight project: *A quick introduction*

- * Web-based data discovery and access interface
- * Redesigned metadata+data database
- * Cryospheric data
- * Current focus on point and gridded data management and distribution
- * Core technologies:
 - Dojo, GDAL, Hibernate, Java, jQuery, JSP, Spring, Struts 2
 - PostgreSQL with PostGIS extension

NSIDC's Searchlight project: *A quick introduction*

- * Web-based data discovery and access interface
- * Redesigned metadata+data database
- * Cryospheric data
- * Current focus on point and gridded data management and distribution
- * Core technologies:
 - Dojo, GDAL, Hibernate, Java, jQuery, JSP, Spring, Struts 2
 - PostgreSQL with PostGIS extension

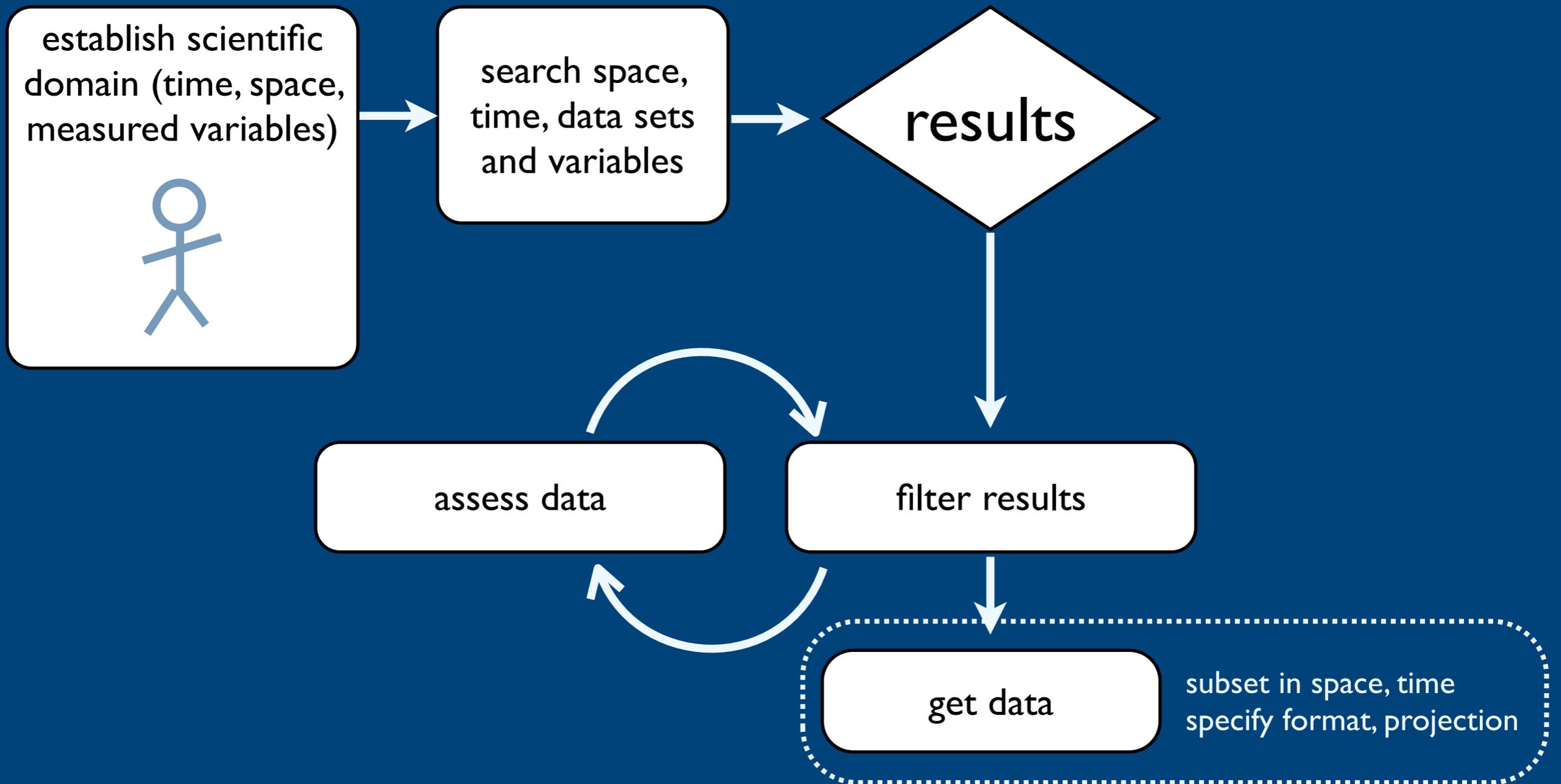
NSIDC's Searchlight project: *A quick introduction*

- * Web-based data discovery and access interface
- * Redesigned metadata+data database
- * Cryospheric data
- * Current focus on point and gridded data management and distribution
- * Core technologies:
 - Dojo, GDAL, Hibernate, Java, jQuery, JSP, Spring, Struts 2
 - PostgreSQL with PostGIS extension

NSIDC's Searchlight project: *A quick introduction*

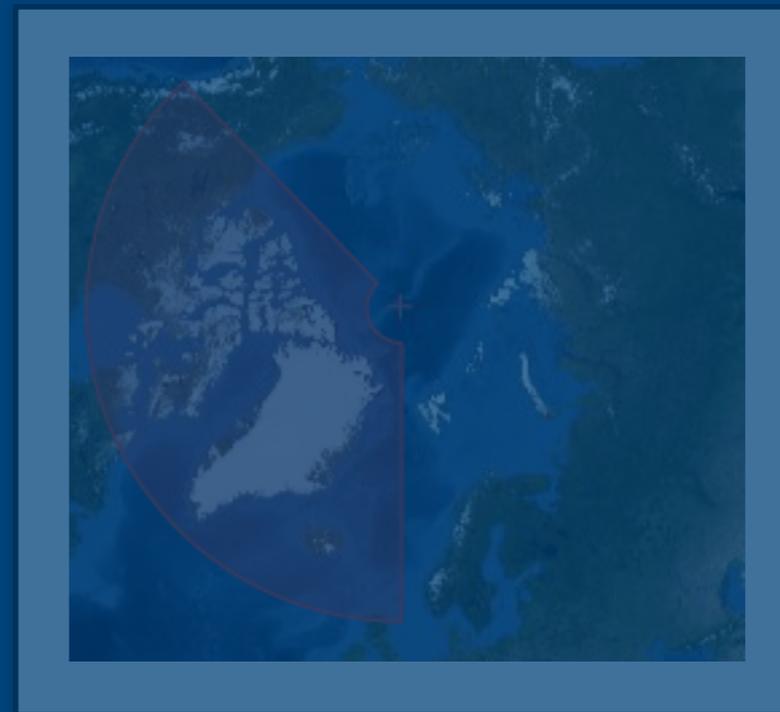
- * Web-based data discovery and access interface
- * Redesigned metadata+data database
- * Cryospheric data
- * Current focus on point and gridded data management and distribution
- * Core technologies:
 - Dojo, GDAL, Hibernate, Java, jQuery, JSP, Spring, Struts 2
 - PostgreSQL with PostGIS extension

NSIDC's Searchlight project: *Example use case*



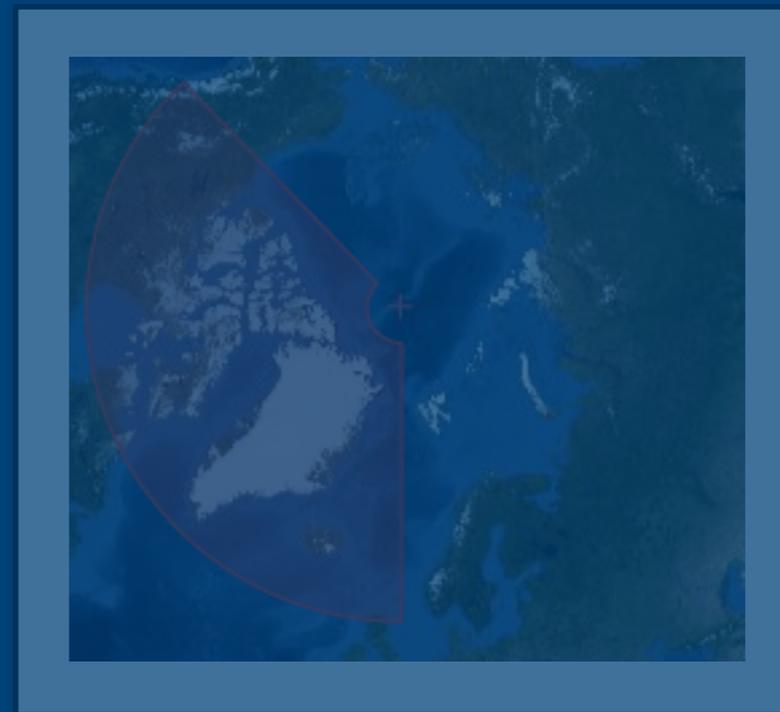
Challenges

- * Ingesting and managing metadata at a much finer level of granularity.
- * Ingesting, managing, and using low-level metadata for a variety of scientific data types (raster, point...).
- * User interface for selection of geospatially located data over the pole: *What does that bounding box really mean?*



Challenges

- * Ingesting and managing metadata at a much finer level of granularity.
- * Ingesting, managing, and using low-level metadata for a variety of scientific data types (raster, point...).
- * User interface for selection of geospatially located data over the pole: *What does that bounding box really mean?*



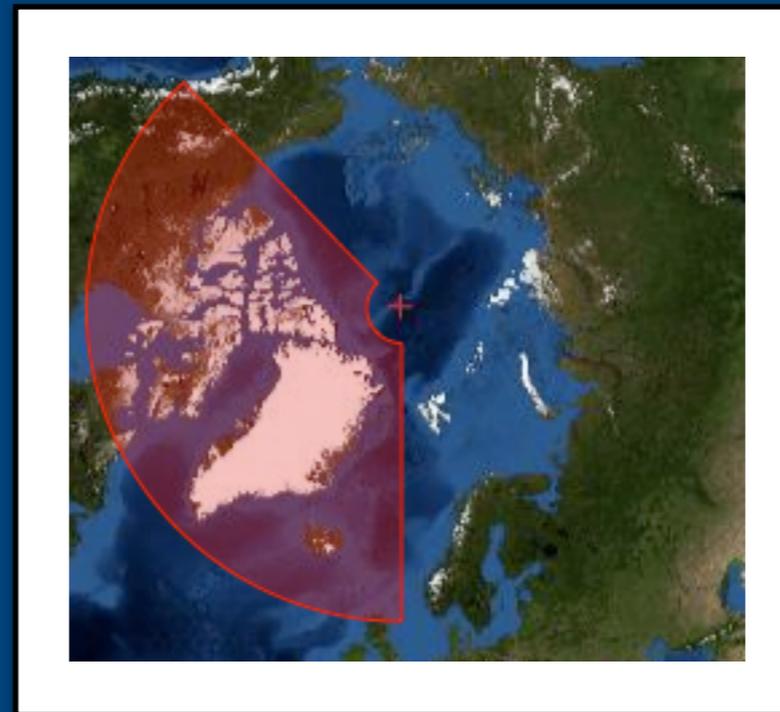
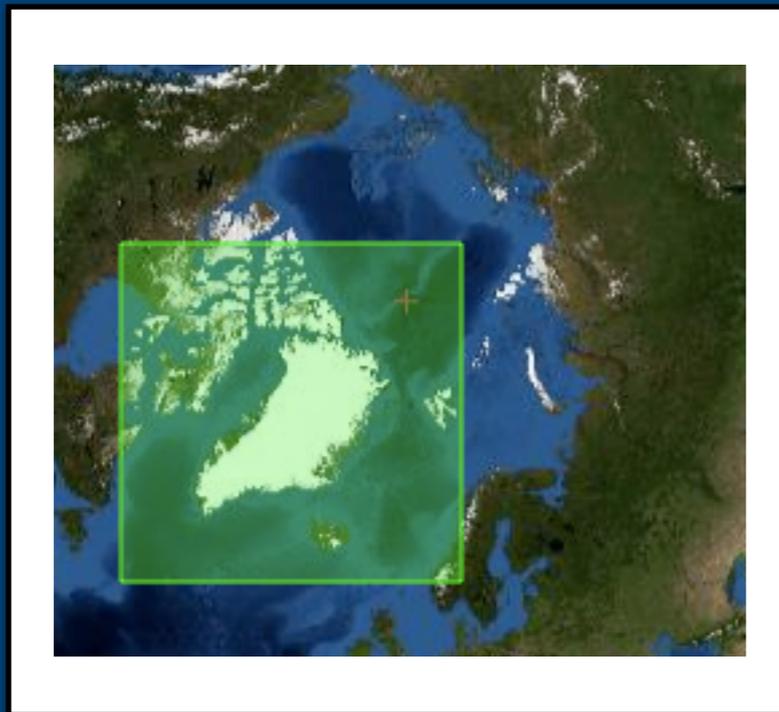
Challenges

- * Ingesting and managing metadata at a much finer level of granularity.
- * Ingesting, managing, and using low-level metadata for a variety of scientific data types (raster, point...).
- * User interface for selection of geospatially located data over the pole: *What does that bounding box really mean?*



Challenges

- * Ingesting and managing metadata at a much finer level of granularity.
- * Ingesting, managing, and using low-level metadata for a variety of scientific data types (raster, point...).
- * User interface for selection of geospatially located data over the pole: *What does that bounding box really mean?*



Guiding principles

- * Reduce the distance between user and data.
- * Allow the user to retrieve only the data they need, in the format they desire.
- * Storage strategies determine flexibility and efficiency of access.
- * Users (data consumers) don't care, nor need to know, about storage details.
- * Users have their own mental map of how they think data are stored.
- * Our physical and logical storage may be different from user's model, as long as they can support the user's model.

Guiding principles

- * Reduce the distance between user and data.
- * Allow the user to retrieve only the data they need, in the format they desire.
- * Storage strategies determine flexibility and efficiency of access.
- * Users (data consumers) don't care, nor need to know, about storage details.
- * Users have their own mental map of how they think data are stored.
- * Our physical and logical storage may be different from user's model, as long as they can support the user's model.

Guiding principles

- * Reduce the distance between user and data.
- * Allow the user to retrieve only the data they need, in the format they desire.
- * Storage strategies determine flexibility and efficiency of access.
- * Users (data consumers) don't care, nor need to know, about storage details.
- * Users have their own mental map of how they think data are stored.
- * Our physical and logical storage may be different from user's model, as long as they can support the user's model.

Guiding principles

- * Reduce the distance between user and data.
- * Allow the user to retrieve only the data they need, in the format they desire.
- * Storage strategies determine flexibility and efficiency of access.
- * Users (data consumers) don't care, nor need to know, about storage details.
- * Users have their own mental map of how they think data are stored.
- * Our physical and logical storage may be different from user's model, as long as they can support the user's model.

Guiding principles

- * Reduce the distance between user and data.
- * Allow the user to retrieve only the data they need, in the format they desire.
- * Storage strategies determine flexibility and efficiency of access.
- * Users (data consumers) don't care, nor need to know, about storage details.
- * Users have their own mental map of how they think data are stored.
- * Our physical and logical storage may be different from user's model, as long as they can support the user's model.

Guiding principles

- * Reduce the distance between user and data.
- * Allow the user to retrieve only the data they need, in the format they desire.
- * Storage strategies determine flexibility and efficiency of access.
- * Users (data consumers) don't care, nor need to know, about storage details.
- * Users have their own mental map of how they think data are stored.
- * Our physical and logical storage may be different from user's model, as long as they can support the user's model.

Guiding principles

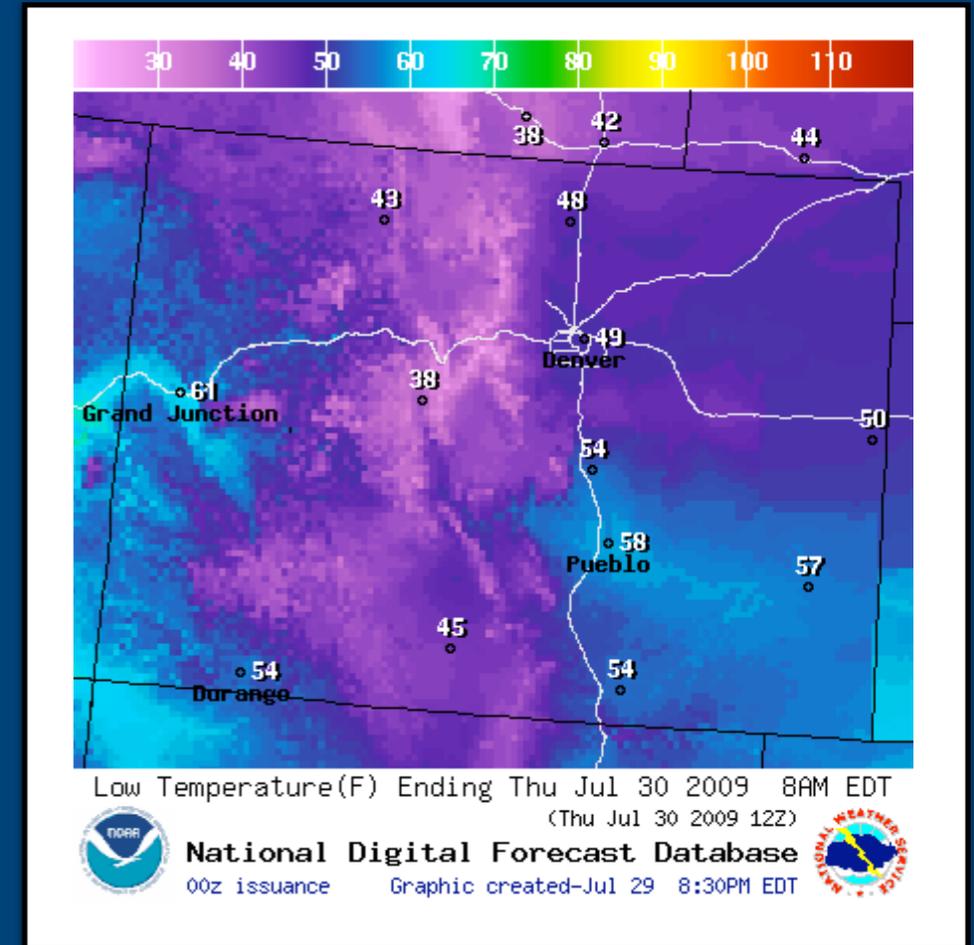
- * Reduce the distance between user and data.
- * Allow the user to retrieve only the data they need, in the format they desire.
- * Storage strategies determine flexibility and efficiency of access.
- * Users (data consumers) don't care, nor need to know, about storage details.
- * Users have their own mental map of how they think data are stored.
- * Our physical and logical storage may be different from user's model, as long as they can support the user's model.

Point data

- * Typical example: Station data

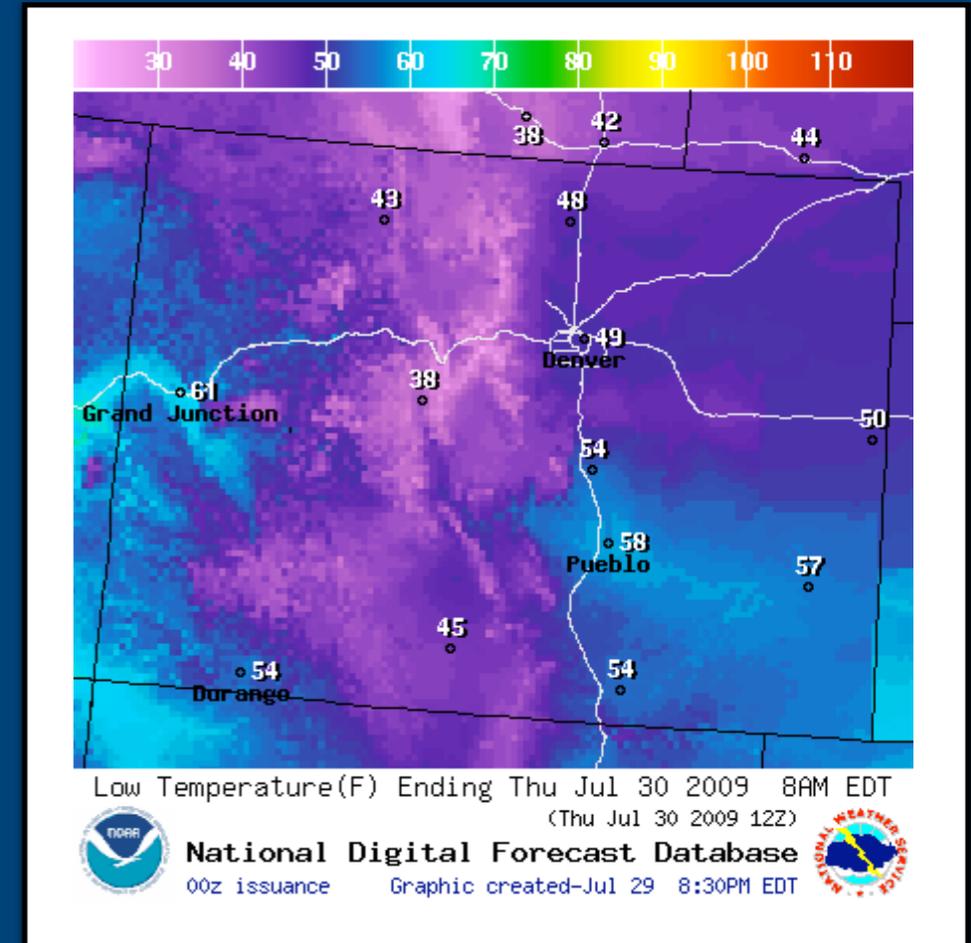
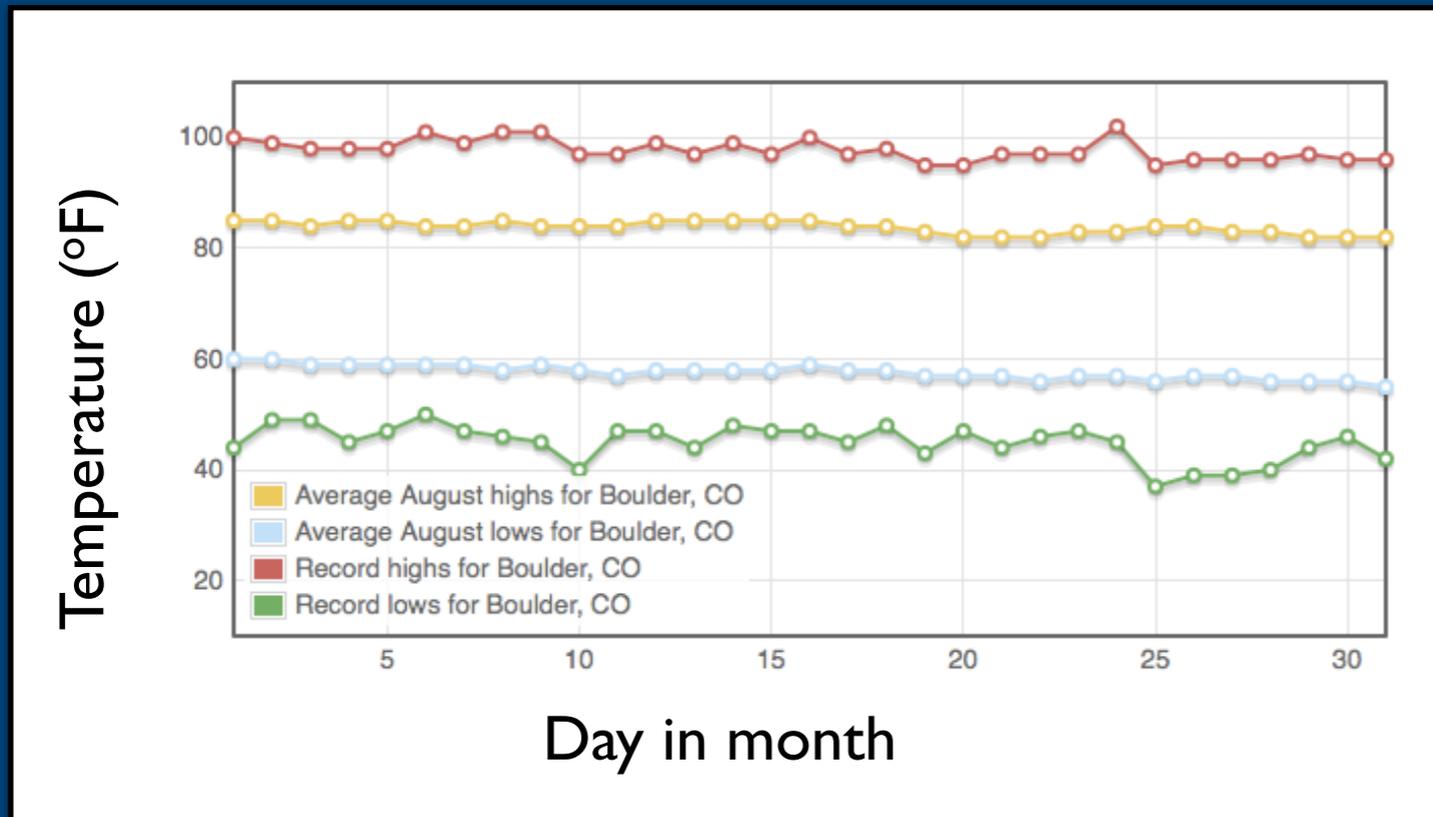
Point data

- * Typical example: Station data



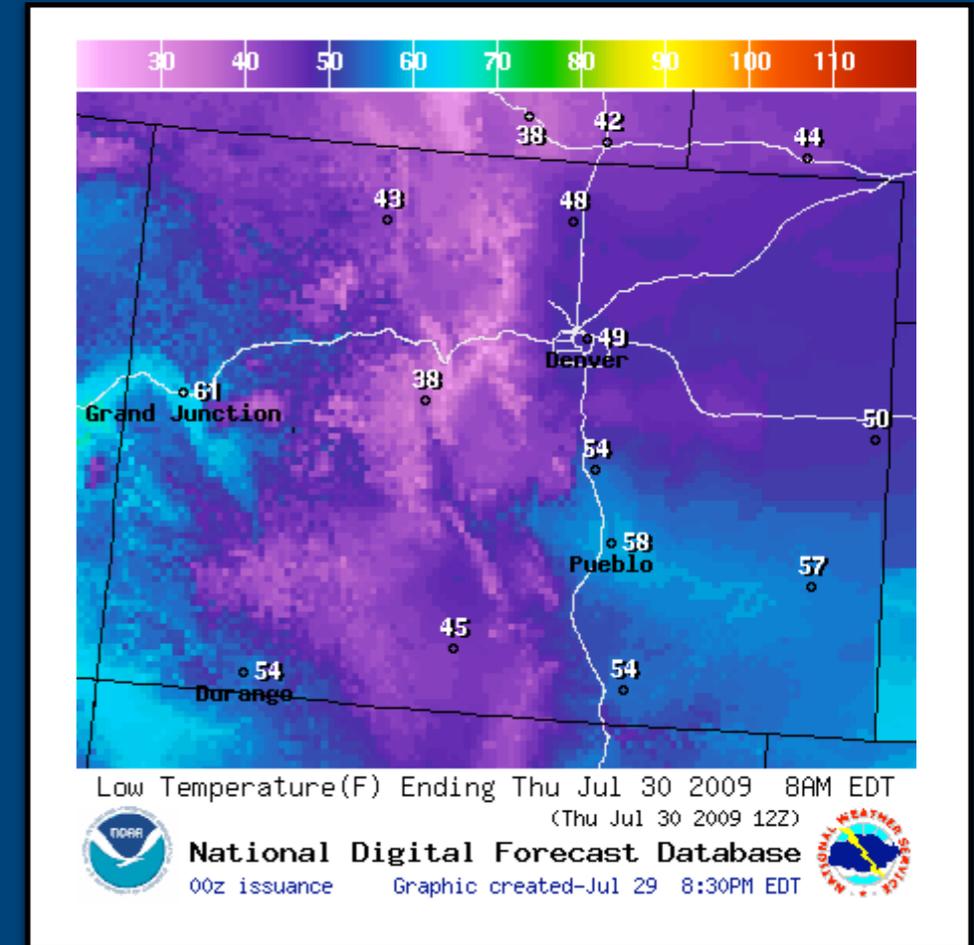
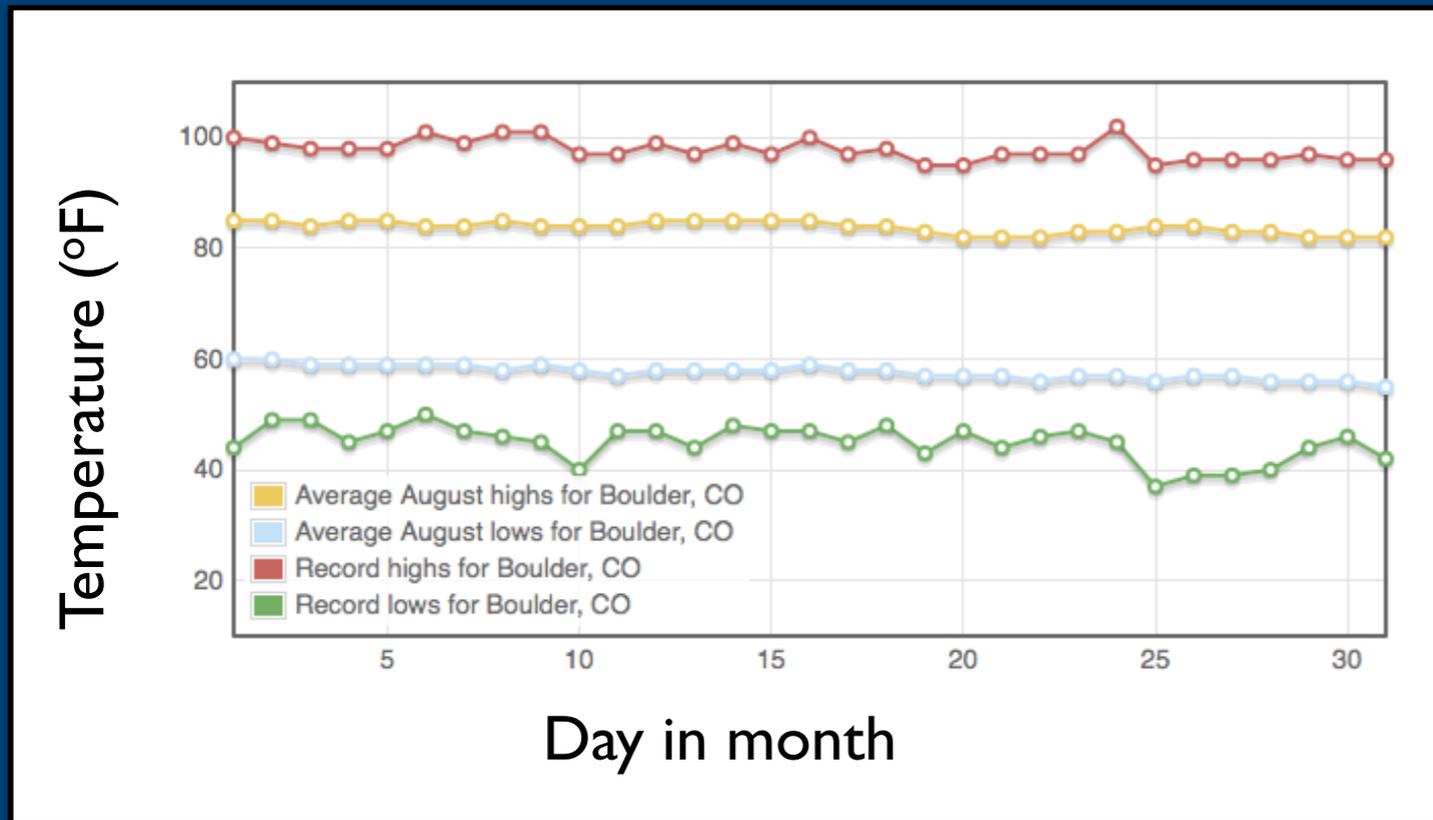
Point data

- * Typical example: Station data
- * Typical view: Time series at a single location



Point data

- * Typical example: Station data
- * Typical view: Time series at a single location
- * Also need to handle moving stations

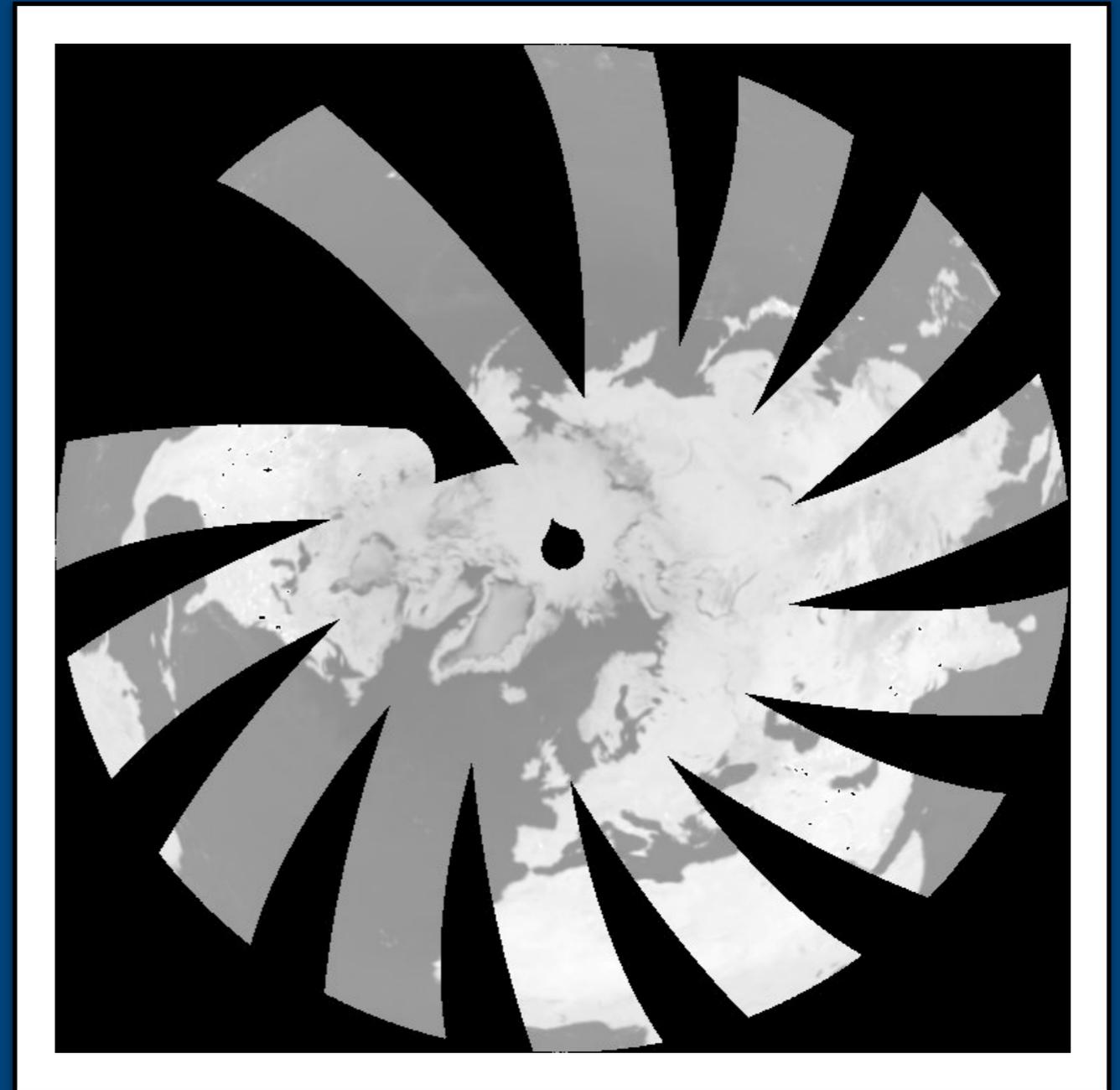


Gridded data

- * Examples: Raster image, model output

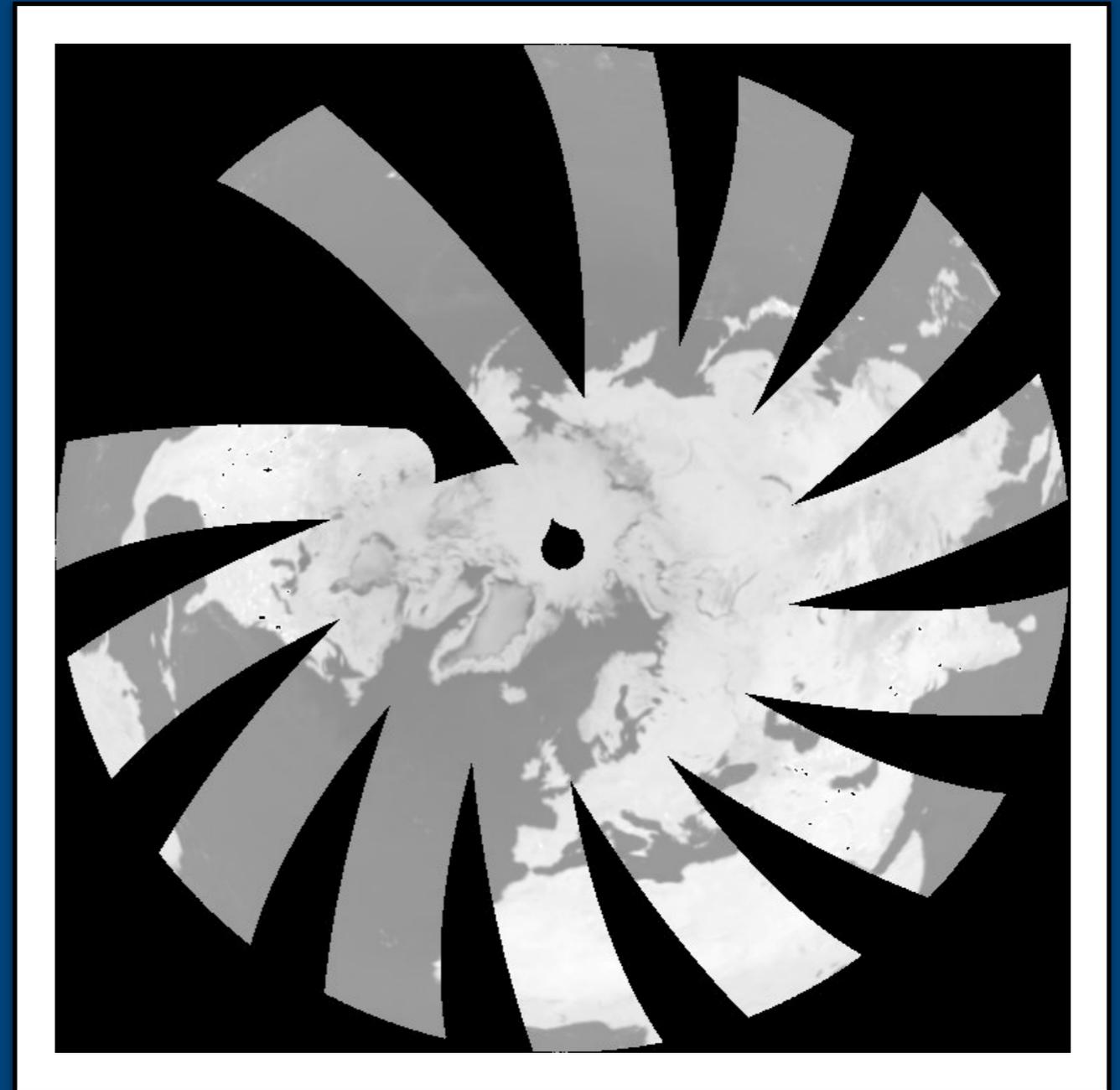
Gridded data

- * Examples: Raster image, model output

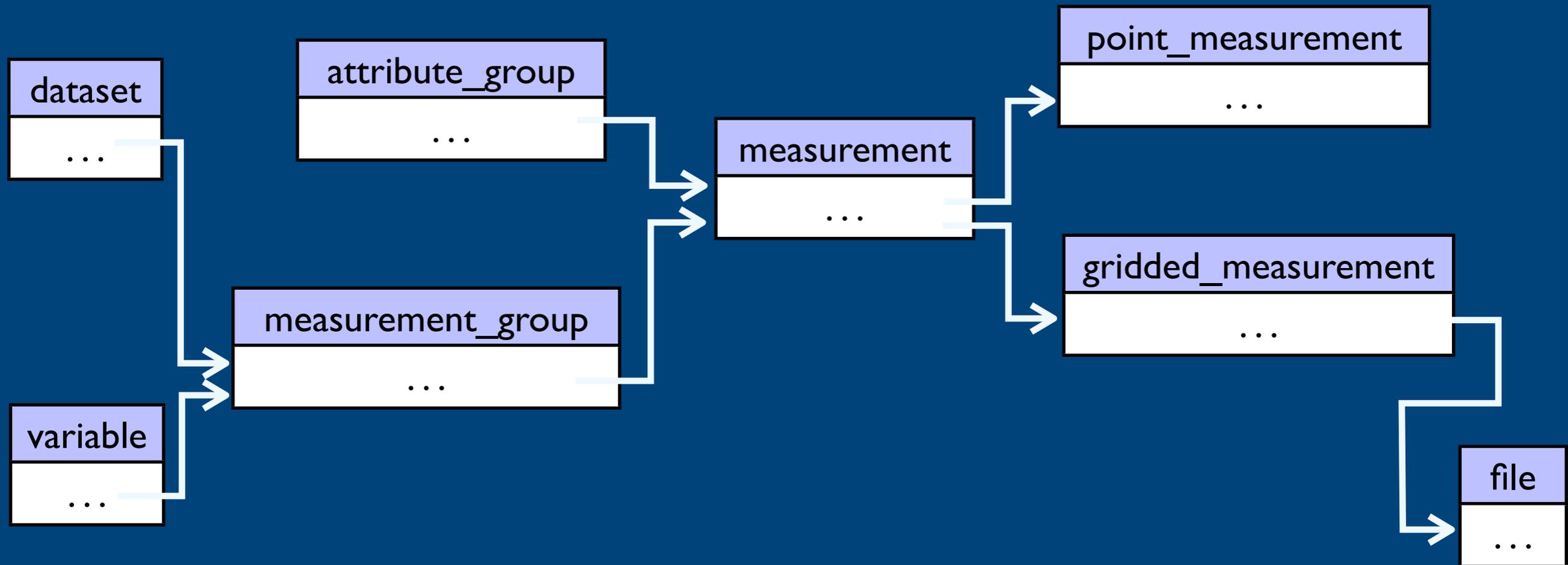


Gridded data

- * Examples: Raster image, model output
- * Generally: Matrix of cells

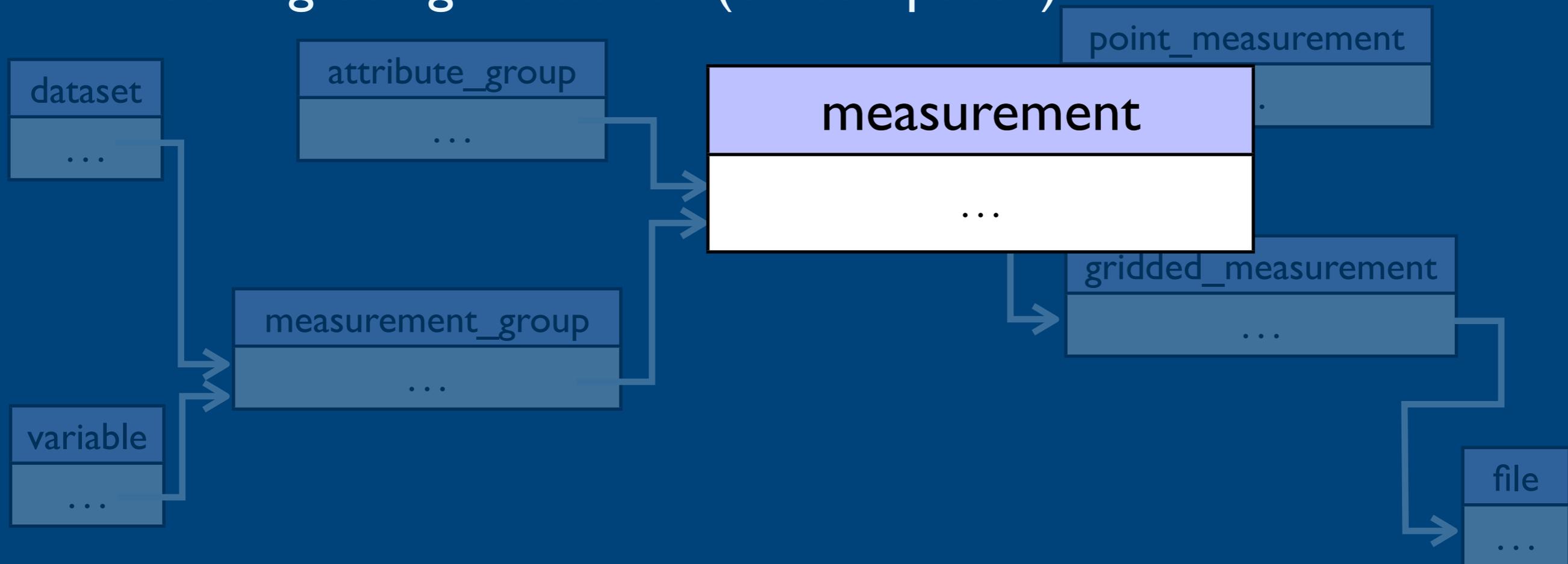


Database schema summary



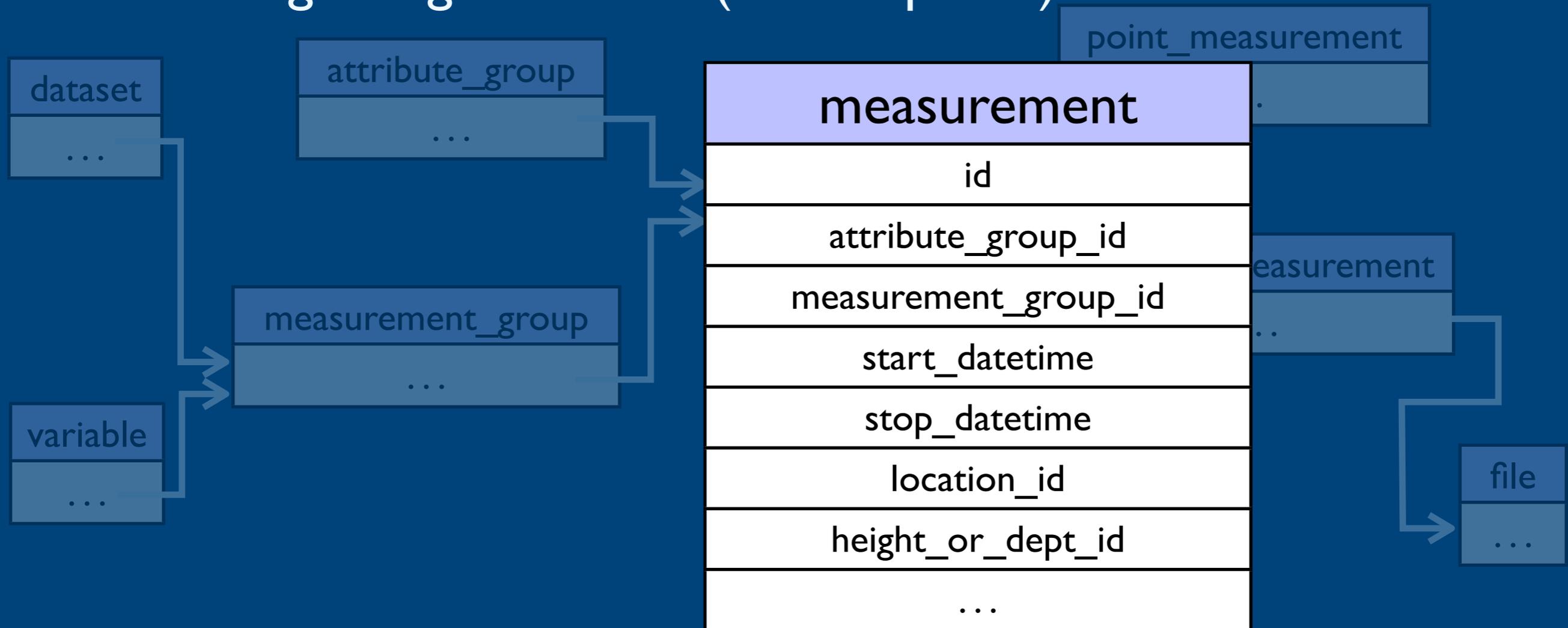
Database schema summary

- * Measurement: *aka* variable or parameter.
- * The thing being measured (or computed)



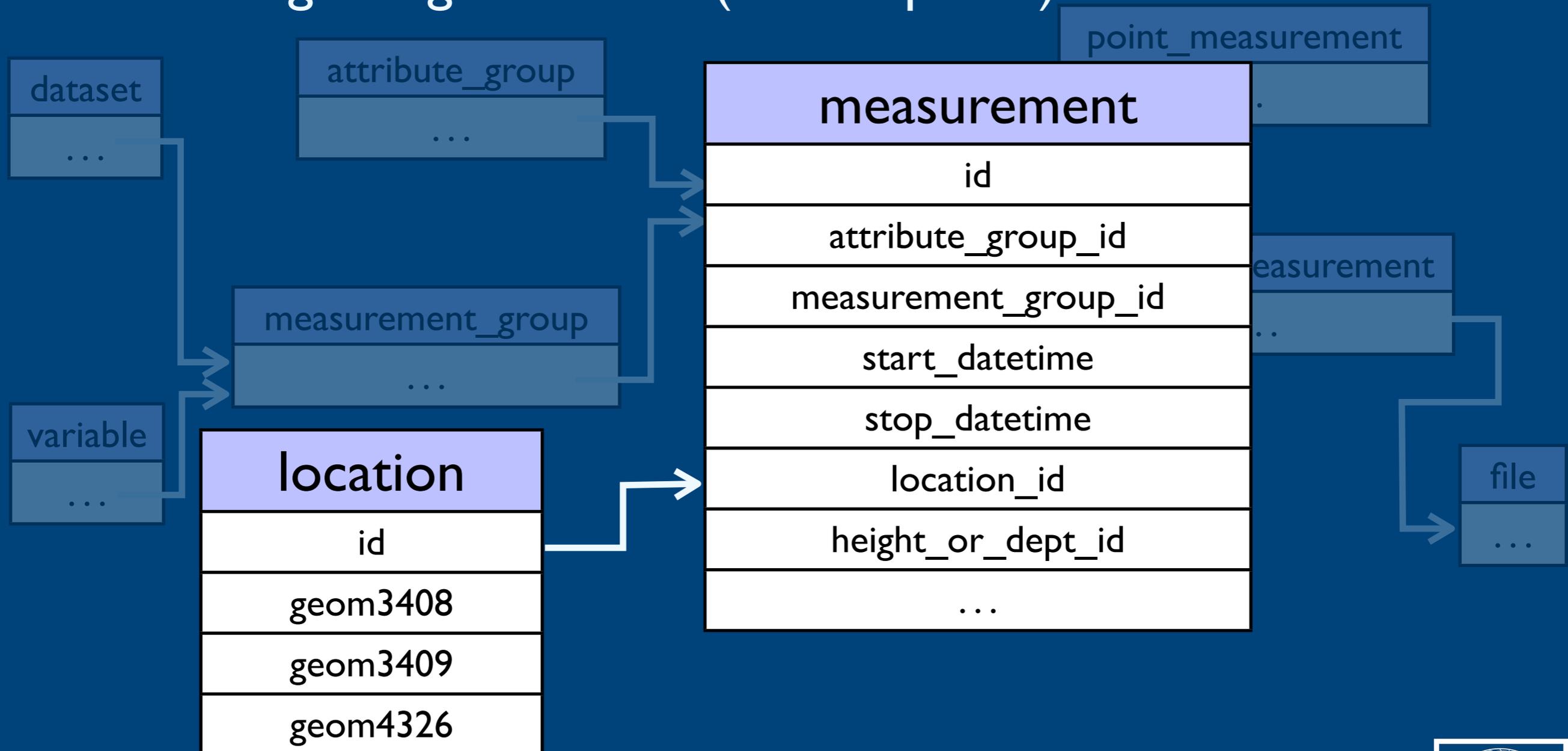
Database schema summary

- * Measurement: *aka* variable or parameter.
- * The thing being measured (or computed)

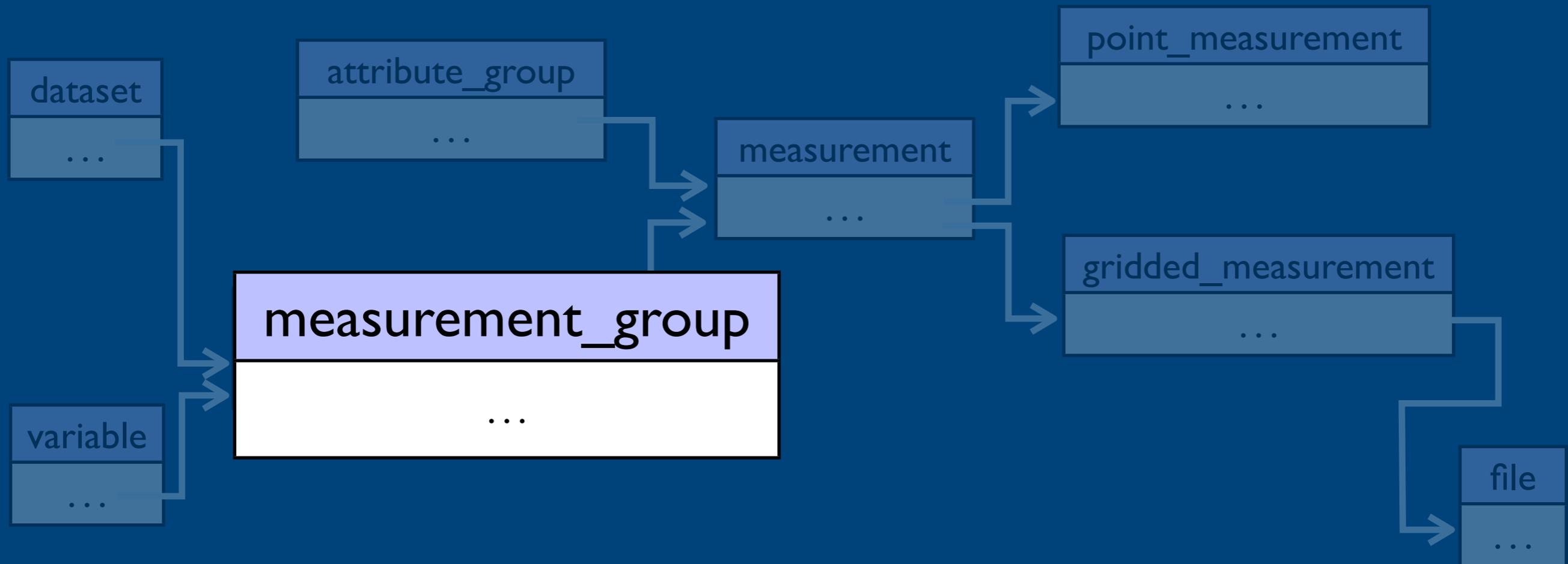


Database schema summary

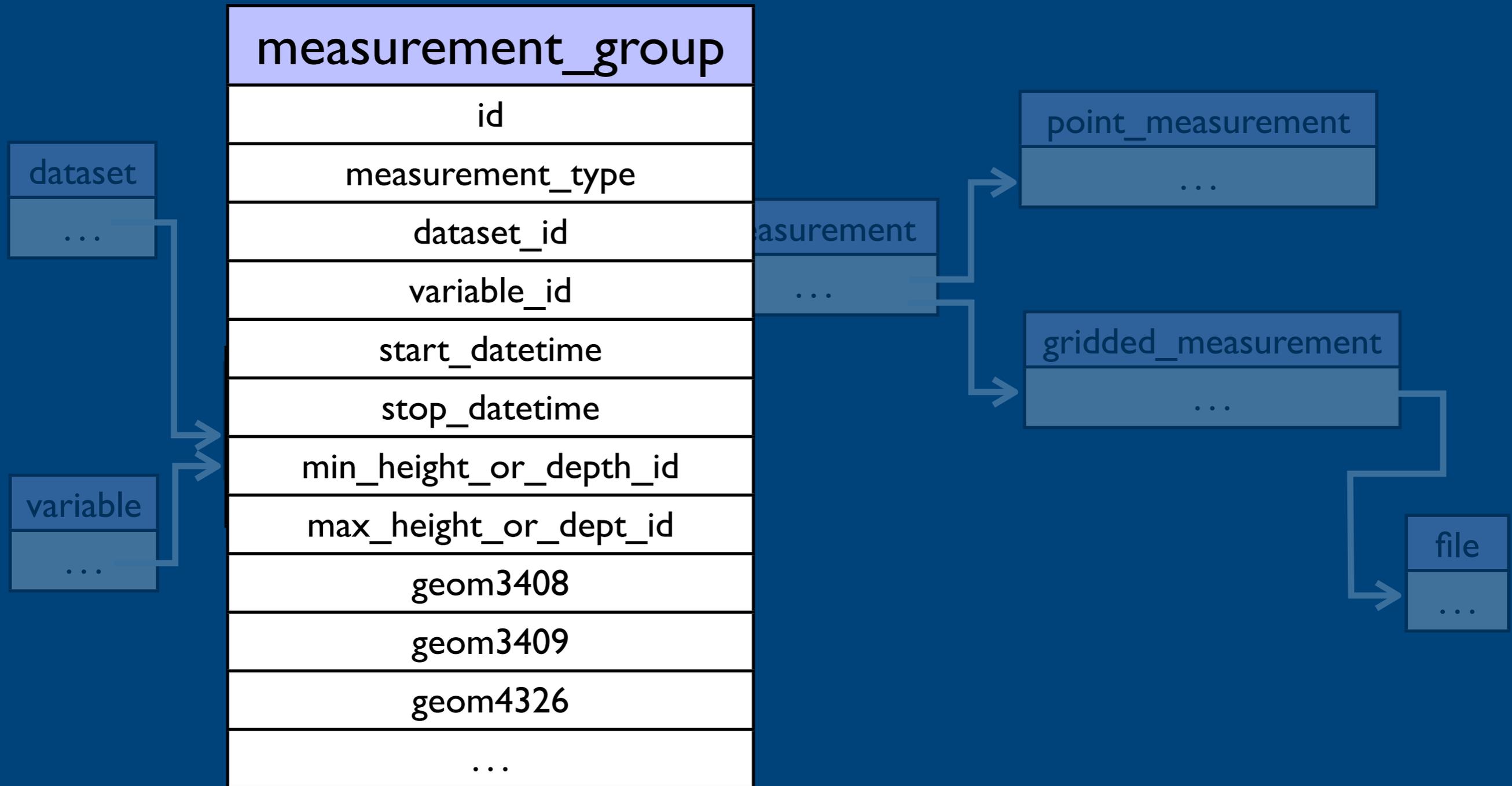
- * Measurement: *aka* variable or parameter.
- * The thing being measured (or computed)



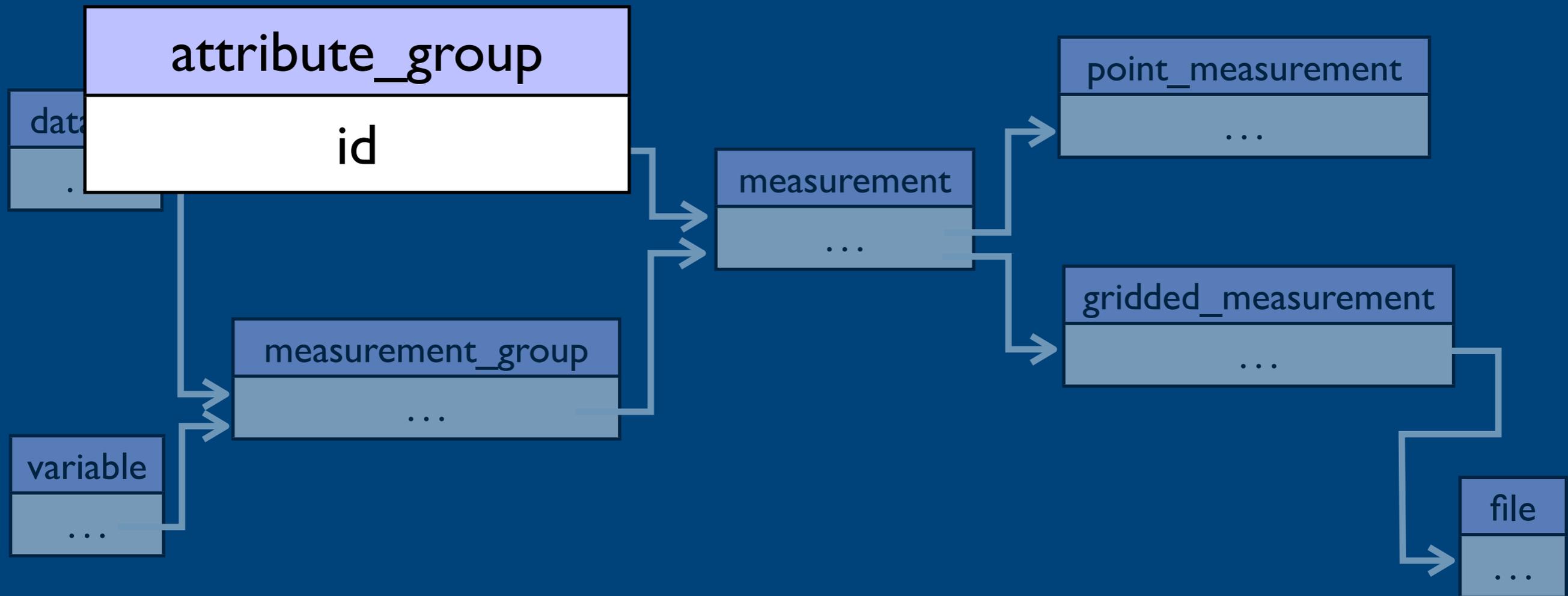
Database schema summary



Database schema summary



Database schema summary



The current interface

- * Datasets
- * Variables
- * Temporal criteria
- * Spatial criteria
- * No free text (yet!)

The screenshot displays the NSIDC Searchlight web interface. At the top, there is a navigation bar with the NSIDC logo, the word "Searchlight", and the tagline "Find and use NSIDC data". A search box and links for "Education Center" and "Photo Gallery" are also present. Below the navigation bar, there are tabs for "Data", "Centers & Programs", "Science", "Publications", "News & Events", and "About". A yellow notification bar indicates "(0) Requests in Your Queue".

The main content area is titled "Search" and includes a "Reset" button and a "Submit" button. It is divided into three main sections:

- Dataset and variable selections:** This section contains two columns of scrollable lists. The "Datasets" column lists various satellite and ground-based data products, such as "AMSR-E/Aqua Daily EASE-Grid Brightness Temperatures" and "AVHRR Polar Pathfinder Twice-Daily 1.25 km EASE-Grid Composites". The "Variables" column lists parameters like "Albedo", "Brightness Temperature", and "Cloud Fraction".
- Temporal criteria:** This section allows users to specify time ranges. It includes fields for "Start Date" (set to 1978-10-01) and "Stop Date" (set to 2009-02-28). It also has fields for "Periodic Search Criteria", including "Day of Year Start/Stop" and "MM-DD Start/Stop".
- Geospatial criteria:** This section provides options for selecting a geographic area. It includes a "Reset Map & Selection" button and a "Select Entire Map" button. Below these are input fields for latitude and longitude coordinates: North (83.898), West (-134.402), East (-0.569), and South (58.768). To the right is a satellite map of the Arctic region with a red shaded area indicating the selected search region. At the bottom, there are radio buttons for "Selection Method" (set to "Lat/Lon Bounds") and "Corner Points", and radio buttons for "Choose view" (set to "North Polar").

At the bottom right of the search area, there are "Reset" and "Submit" buttons.

Search space

Geospatial criteria: ?

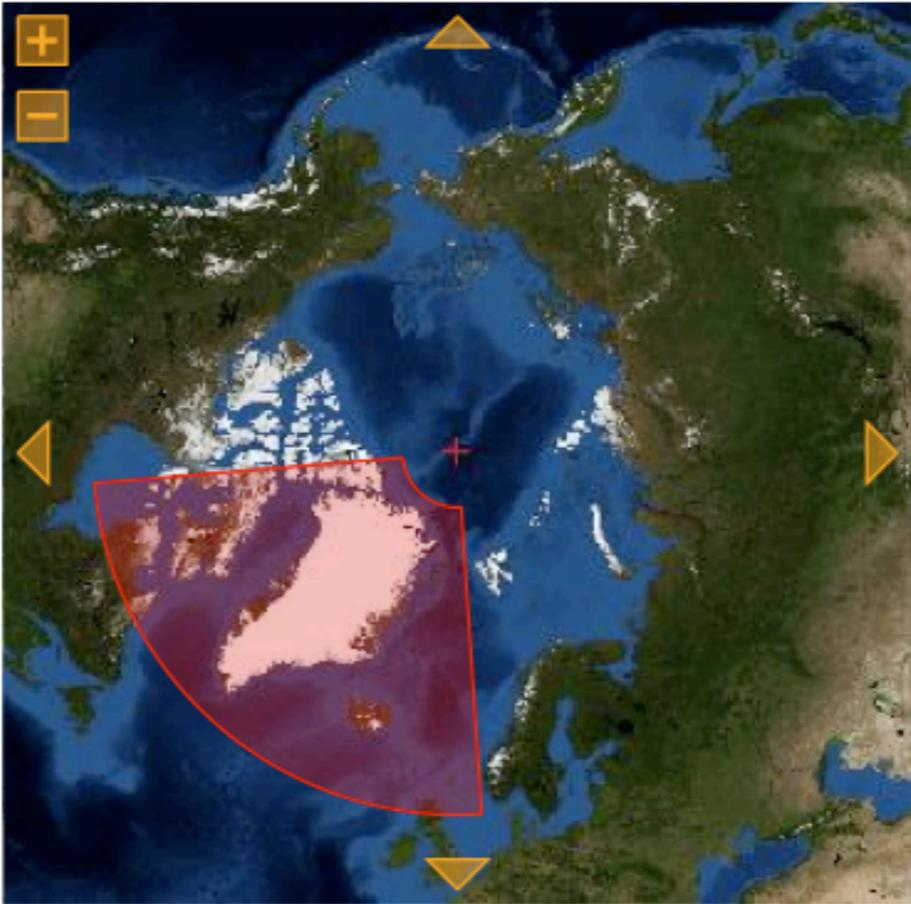
Reset Map & Selection Select Entire Map

N
85.122

W -85.221 3.811 E

57.079

S

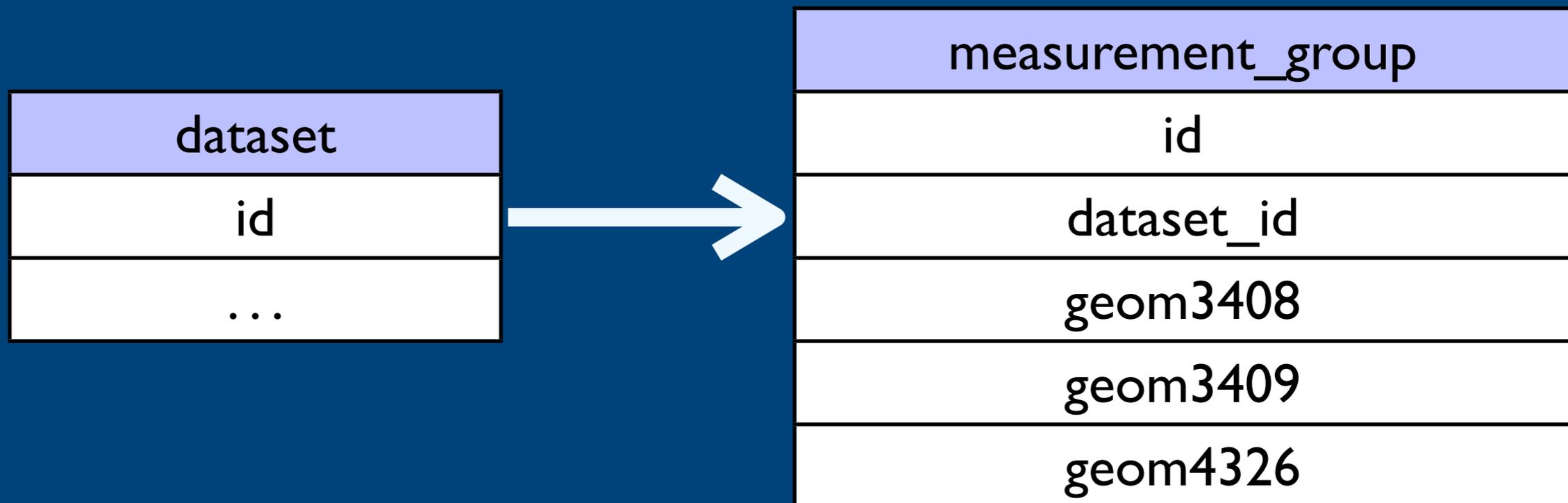


Selection Method: Lat/Lon Bounds Corner Points

Choose view : North Polar Global South Polar

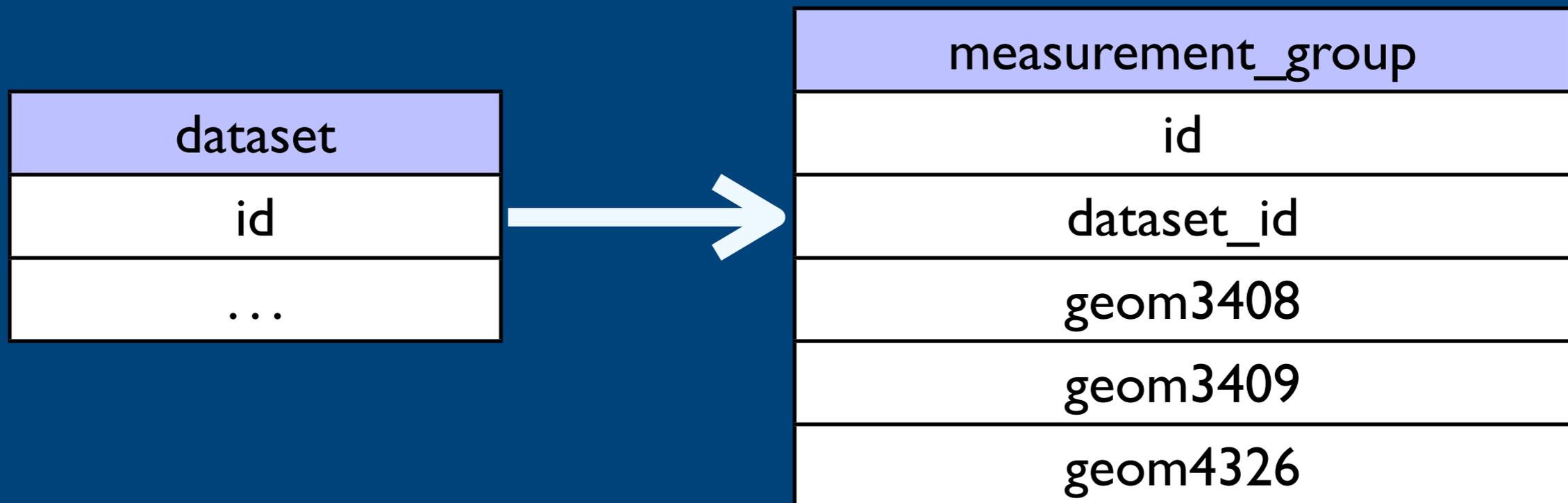
Search space: *Underlying database architecture*

- * PostGIS “geometry” columns store the extents of the data being described, transformed into the projections of Lambert Azimuthal Equal-Area (northern hemisphere and southern hemisphere), and Cylindrical Equidistant. These postGIS geometry columns are used to facilitate spatial searches.
- * Currently the transformations to these projections are corrected by hand for gridded data that cross the pole. Automated transformations from polar projections to global projections are not reliable.



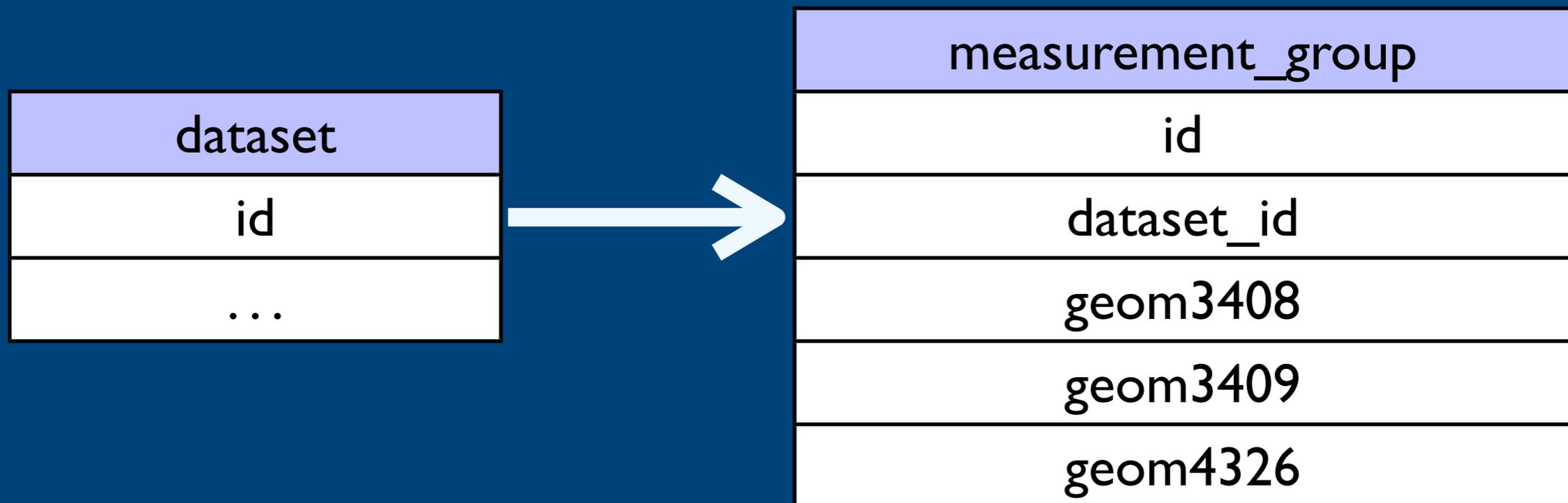
Search space: *Underlying database architecture*

- * PostGIS “geometry” columns store the extents of the data being described, transformed into the projections of Lambert Azimuthal Equal-Area (northern hemisphere and southern hemisphere), and Cylindrical Equidistant. These postGIS geometry columns are used to facilitate spatial searches.
- * Currently the transformations to these projections are corrected by hand for gridded data that cross the pole. Automated transformations from polar projections to global projections are not reliable.



Search space: *Underlying database architecture*

- * PostGIS “geometry” columns store the extents of the data being described, transformed into the projections of Lambert Azimuthal Equal-Area (northern hemisphere and southern hemisphere), and Cylindrical Equidistant. These postGIS geometry columns are used to facilitate spatial searches.
- * Currently the transformations to these projections are corrected by hand for gridded data that cross the pole. Automated transformations from polar projections to global projections are not reliable.



Search time

Temporal criteria: ?

Time ranges:

Start Date: (yyyy-mm-dd)

Stop Date: (yyyy-mm-dd)

Periodic search criteria:

Day Of Year Start: Stop:

MM-DD Start: Stop:

dataset
id
...



measurement_group
id
start_datetime
stop_datetime

Search data sets and variables

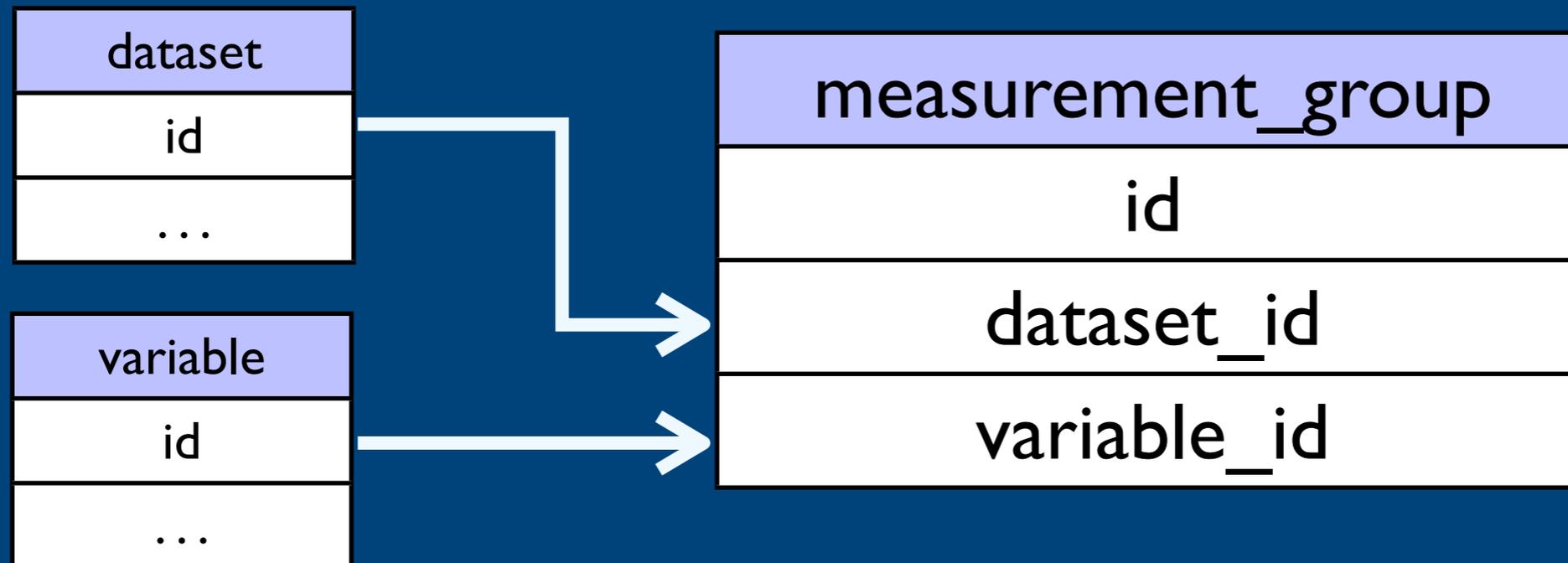
Data set and variable selections: ?

Data sets:

- All
- AMSR-E/Aqua Daily EASE-Grid Brightness Temperatures
- AMSR-E/Aqua Daily Global Quarter-Degree Gridded Brightness Temperature
- AVHRR Polar Pathfinder Twice-Daily 25 km EASE-Grid Composites
- AVHRR Polar Pathfinder Twice-Daily 5 km EASE-Grid Composites
- DMSPP SSM/I Pathfinder Daily EASE-Grid Brightness Temperatures
- GLAS/ICESat 1 km Laser Altimetry Digital Elevation Model of Greenland
- Global EASE-Grid 8-day Blended SSM/I and MODIS Snow Cover
- Greenland Ice Sheet Melt Characteristics Derived from Passive Microwave
- Near Real-Time DMSPP SSM/I Daily Polar Gridded Sea Ice Concentration
- Near Real-Time DMSPP SSM/I Pathfinder Daily EASE-Grid Brightness Temperatures
- Nimbus 7 SSM/I Pathfinder Daily EASE-Grid Brightness Temperatures

Variables:

- All
- Albedo
- Brightness Temperature
- Cloud Fraction
- Cloud Mask
- Glacier Elevation/Ice Sheet Elevation
- Mean Distance
- Reflectance
- Sea Ice Concentration
- Snow Cover Area
- Snow Melt
- Snow Water Equivalent
- Surface Temperature



Presentation of search results



Searchlight

Find and use NSIDC data

Google Site Search

[Education Center](#) | [Photo Gallery](#)

[Data](#) [Centers & Programs](#) [Science](#) [Publications](#) [News & Events](#) [About](#) (0) Requests in Your Queue

Search Results: Found 3 groups

Data Sets: All
All
Nimbus-7 SMMR Pathfinder Daily EASE-Grid Brightness Temperatures

Variables: All
All
Brightness Temperature

Temporal Criteria: 1978-10-01 to 2009-07-26

Spatial Criteria: -180,90,-180,-90,180,-90,180,90,-180,90

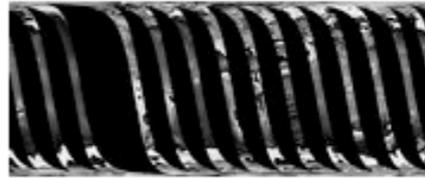
[Nimbus-7 SMMR Pathfinder Daily EASE-Grid Brightness Temperatures](#) 30452 matches

Brightness Temperature

Date Range of Matches:
1978 Oct 25 24:00 - 1987 Aug
20 23:59

Spatial coverage for this data set is shown in red.





1978 Oct 25 24:00

[Show Data Groups](#)

Presentation of search results

The screenshot shows the NSIDC Searchlight interface. At the top left is the NSIDC logo and the text 'Searchlight Find and use NSIDC data'. To the right is a 'Google Site Search' box with a 'Search' button. Below this is a navigation menu with links for 'Data', 'Centers & Programs', 'Science', 'Publications', 'News & Events', and 'About'. A notification bar on the right indicates '(0) Requests in Your Queue'. The main content area displays 'Search Results: Found 3 groups'. The first result is highlighted with a yellow border and contains the following information:

- Data Sets:** All, All, Nimbus-7 SMMR Pathfinder Daily EASE-Grid Brightness Temperatures
- Variables:** All, All, Brightness Temperature
- Temporal Criteria:** 1978-10-01 to 2009-07-26
- Spatial Criteria:** -180,90,-180,-90,180,-90,180,90,-180,90

The highlighted result details include:

- Title:** Nimbus-7 SMMR Pathfinder Daily EASE-Grid Brightness Temperatures (30452 matches)
- Variable:** Brightness Temperature
- Date Range of Matches:** 1978 Oct 25 24:00 - 1987 Aug 20 23:59
- Spatial coverage:** Spatial coverage for this data set is shown in red. (Accompanied by a world map with red highlights)
- Thumbnail:** A satellite image of a coastline, labeled '1978 Oct 25 24:00'.
- Buttons:** 'Show Data Groups' and 'Configure and Add Data to Queue'.

Presentation of search results

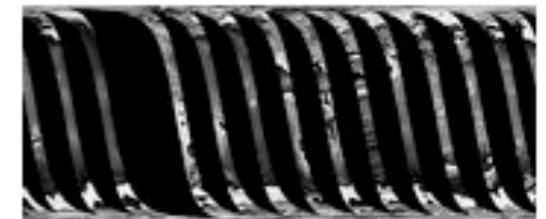
Nimbus-7 SMMR Pathfinder Daily EASE-Grid Brightness Temperatures

30452 matches

Brightness Temperature

Date Range of Matches:
1978 Oct 25 24:00 - 1987 Aug
20 23:59

Spatial coverage for this data set is
shown in red.



1978 Oct 25 24:00

Show Data Groups

Configure and Add Data to Queue

Presentation of search results

Nimbus-7 SMMR Pathfinder Daily EASE-Grid Brightness Temperatures
Brightness Temperature

Date Range of Matches:
1978 Oct 25 24:00 - 1987 Aug
20 23:59

Spatial coverage for this data set is
shown in red.



Show Data Groups

Configure and Add Data to Queue

measurement_group
id
measurement_type
dataset_id
variable_id
start_datetime
stop_datetime
min_height_or_depth_id
max_height_or_dept_id
geom3408
geom3409
geom4326
...

atches



Presentation of search results

Nimbus-7 SMMR Pathfinder Daily EASE-Grid Brightness Temperatures

Brightness Temperature

Date Range of Matches:
1978 Oct 25 24:00 - 1987 Aug 20 23:59

Spatial coverage for this data set is shown in red.



Show Data Groups

attribute_group
id
...

measurement_group
id
measurement_type
dataset_id
variable_id
start_datetime
stop_datetime
min_height_or_depth_id
max_height_or_dept_id
geom3408
geom3409
geom4326
...

Presentation of search results

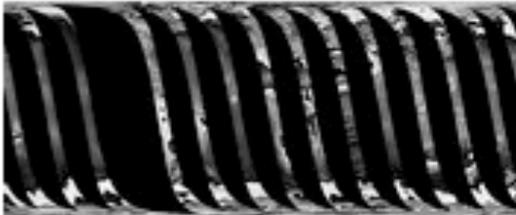
Nimbus-7 SMMR Pathfinder Daily EASE-Grid Brightness Temperatures 30452 matches

Brightness Temperature

Date Range of Matches:
1978 Oct 25 24:00 - 1987 Aug
20 23:59

Spatial coverage for this data set is
shown in red.





1978 Oct 25 24:00

Show Data Groups

Configure and Add Data to Queue

Presentation of search results

Nimbus-7 SMMR Pathfinder Daily EASE-Grid Brightness Temperatures 30452 matches

Brightness Temperature

Date Range of Matches:
1978 Oct 25 24:00 - 1987 Aug
20 23:59

Spatial coverage for this data set is shown in red.





1978 Oct 25 24:00

Hide Data Groups

	Frequency	Polarization	Pass	Matches
<input type="checkbox"/>	6 GHz	Vertical	Ascending	1610
<input type="checkbox"/>	6 GHz	Horizontal	Ascending	1610
<input type="checkbox"/>	6 GHz	Vertical	Descending	1610
<input type="checkbox"/>	6 GHz	Horizontal	Descending	1610
<input type="checkbox"/>	10 GHz	Vertical	Ascending	1610
<input type="checkbox"/>	10 GHz	Horizontal	Ascending	1610
<input type="checkbox"/>	10 GHz	Vertical	Descending	1610
<input type="checkbox"/>	10 GHz	Horizontal	Descending	1610
<input type="checkbox"/>	18 GHz	Vertical	Ascending	1622
<input type="checkbox"/>	18 GHz	Horizontal	Ascending	1622
<input type="checkbox"/>	18 GHz	Vertical	Descending	1620
<input type="checkbox"/>	18 GHz	Horizontal	Descending	1620
<input type="checkbox"/>	21 GHz	Vertical	Ascending	1151
<input type="checkbox"/>	21 GHz	Horizontal	Ascending	1151
<input type="checkbox"/>	21 GHz	Vertical	Descending	1151
<input type="checkbox"/>	21 GHz	Horizontal	Descending	1151
<input type="checkbox"/>	37 GHz	Vertical	Ascending	1622
<input type="checkbox"/>	37 GHz	Horizontal	Ascending	1622
<input type="checkbox"/>	37 GHz	Vertical	Descending	1620
<input type="checkbox"/>	37 GHz	Horizontal	Descending	1620

Configure and Add Data to Queue

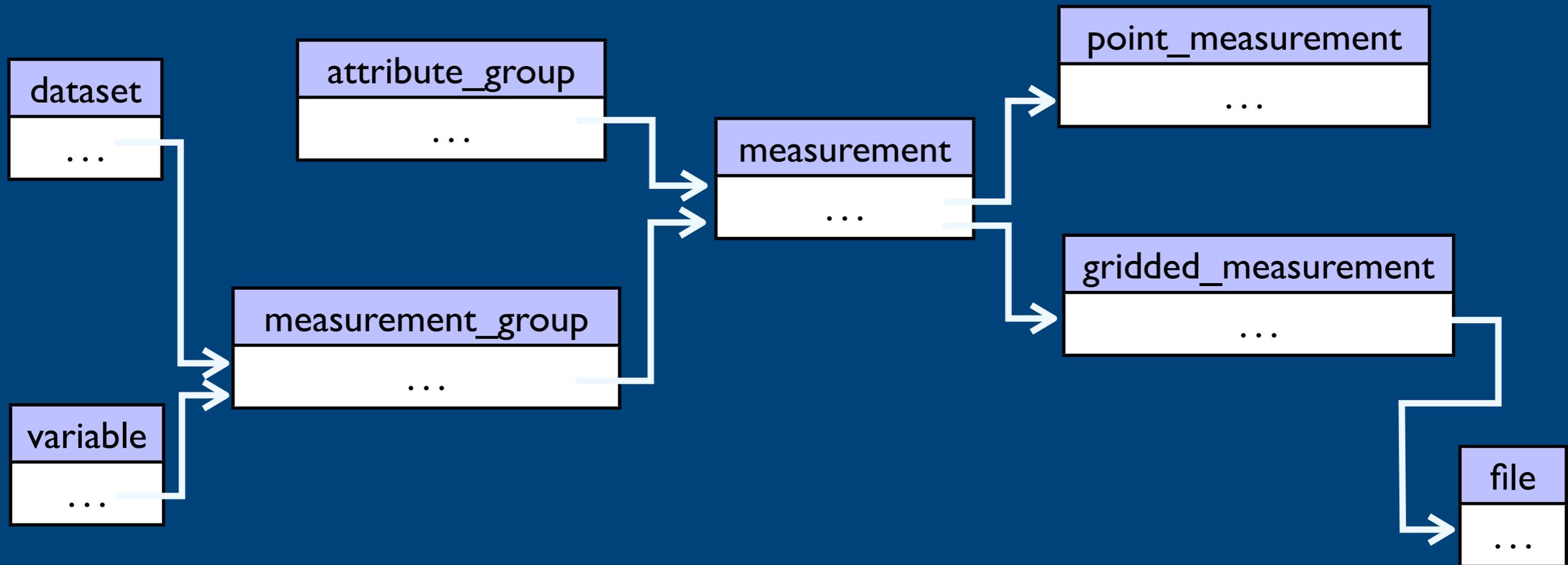
Presentation of search results

	Frequency	Polarization	Pass	Matches
<input type="checkbox"/>	6 GHz	Vertical	Ascending	1610
<input type="checkbox"/>	6 GHz	Horizontal	Ascending	1610
<input type="checkbox"/>	6 GHz	Vertical	Descending	1610
<input type="checkbox"/>	6 GHz	Horizontal	Descending	1610
<input type="checkbox"/>	10 GHz	Vertical	Ascending	1610
<input type="checkbox"/>	10 GHz	Horizontal	Ascending	1610
<input type="checkbox"/>	10 GHz	Vertical	Descending	1610
<input type="checkbox"/>	10 GHz	Horizontal	Descending	1610
<input type="checkbox"/>	18 GHz	Vertical	Ascending	1622
<input type="checkbox"/>	18 GHz	Horizontal	Ascending	1622

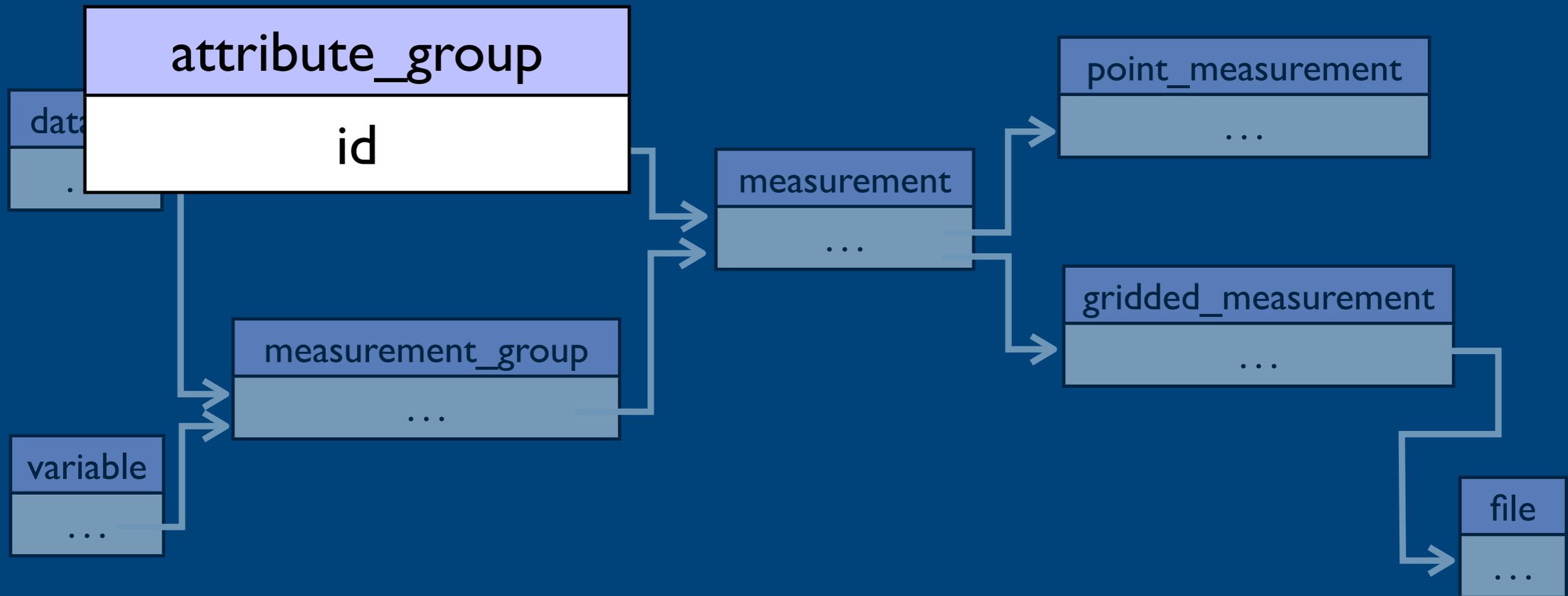
Presentation of search results

	Frequency	Polarization	Pass	Matches
<input checked="" type="checkbox"/>	6 GHz	Vertical	Ascending	1610
<input type="checkbox"/>	6 GHz	Horizontal	Ascending	1610
<input type="checkbox"/>	6 GHz	Vertical	Descending	1610
<input type="checkbox"/>	6 GHz	Horizontal	Descending	1610
<input type="checkbox"/>	10 GHz	Vertical	Ascending	1610
<input type="checkbox"/>	10 GHz	Horizontal	Ascending	1610
<input type="checkbox"/>	10 GHz	Vertical	Descending	1610
<input type="checkbox"/>	10 GHz	Horizontal	Descending	1610
<input type="checkbox"/>	18 GHz	Vertical	Ascending	1622
<input type="checkbox"/>	18 GHz	Horizontal	Ascending	1622

Database schema summary



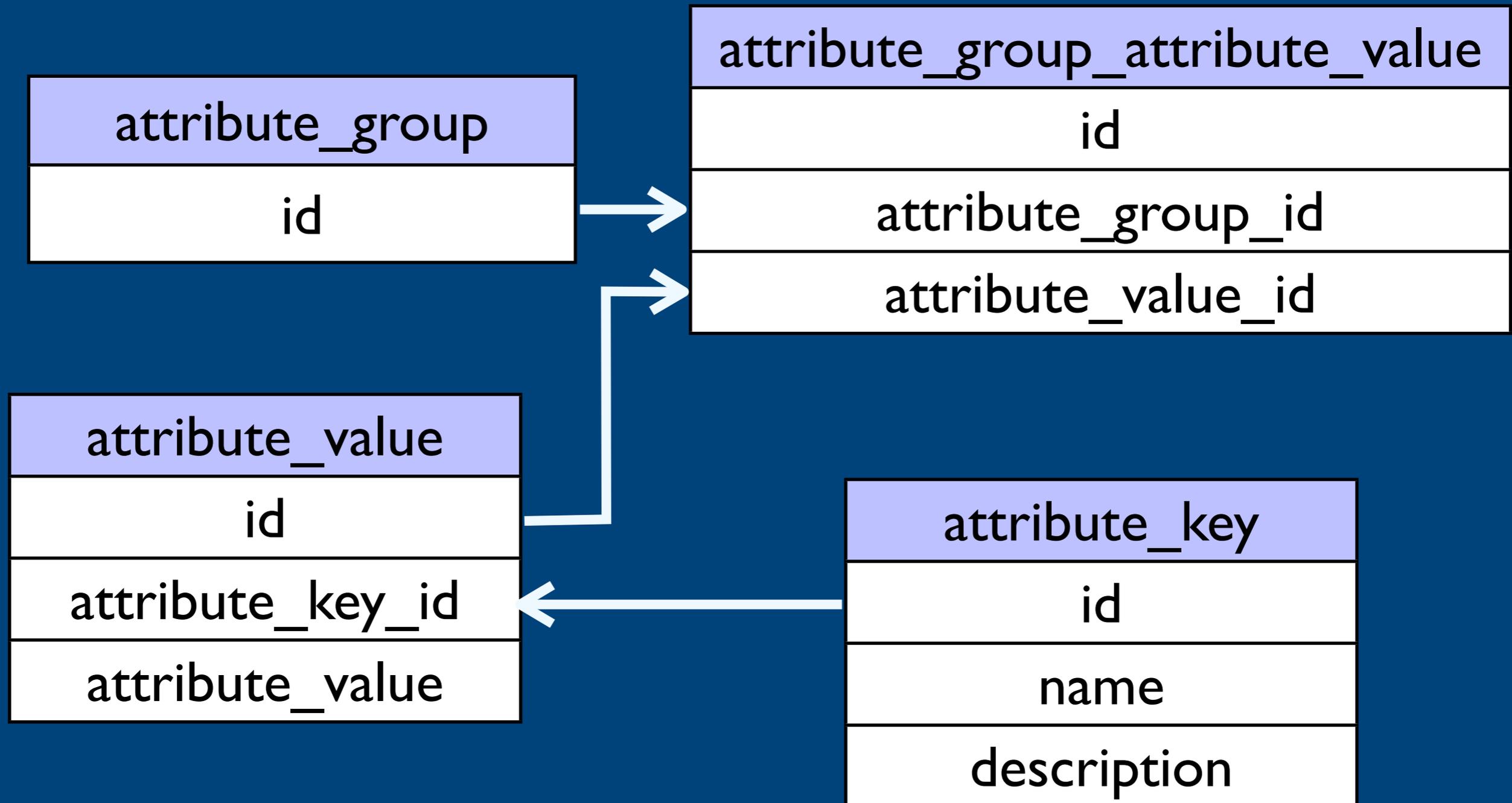
Database schema summary



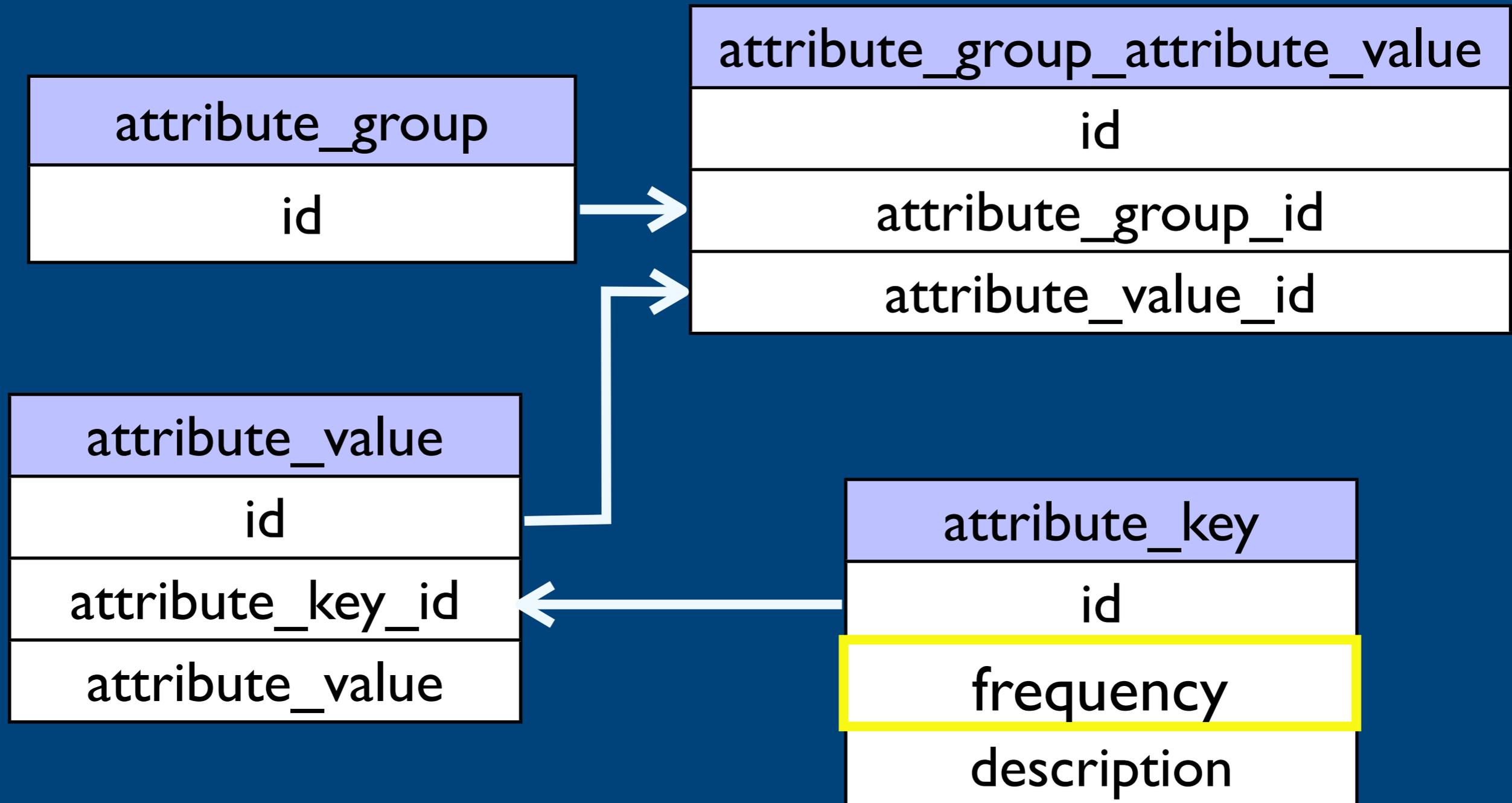
Database schema summary

attribute_group
id

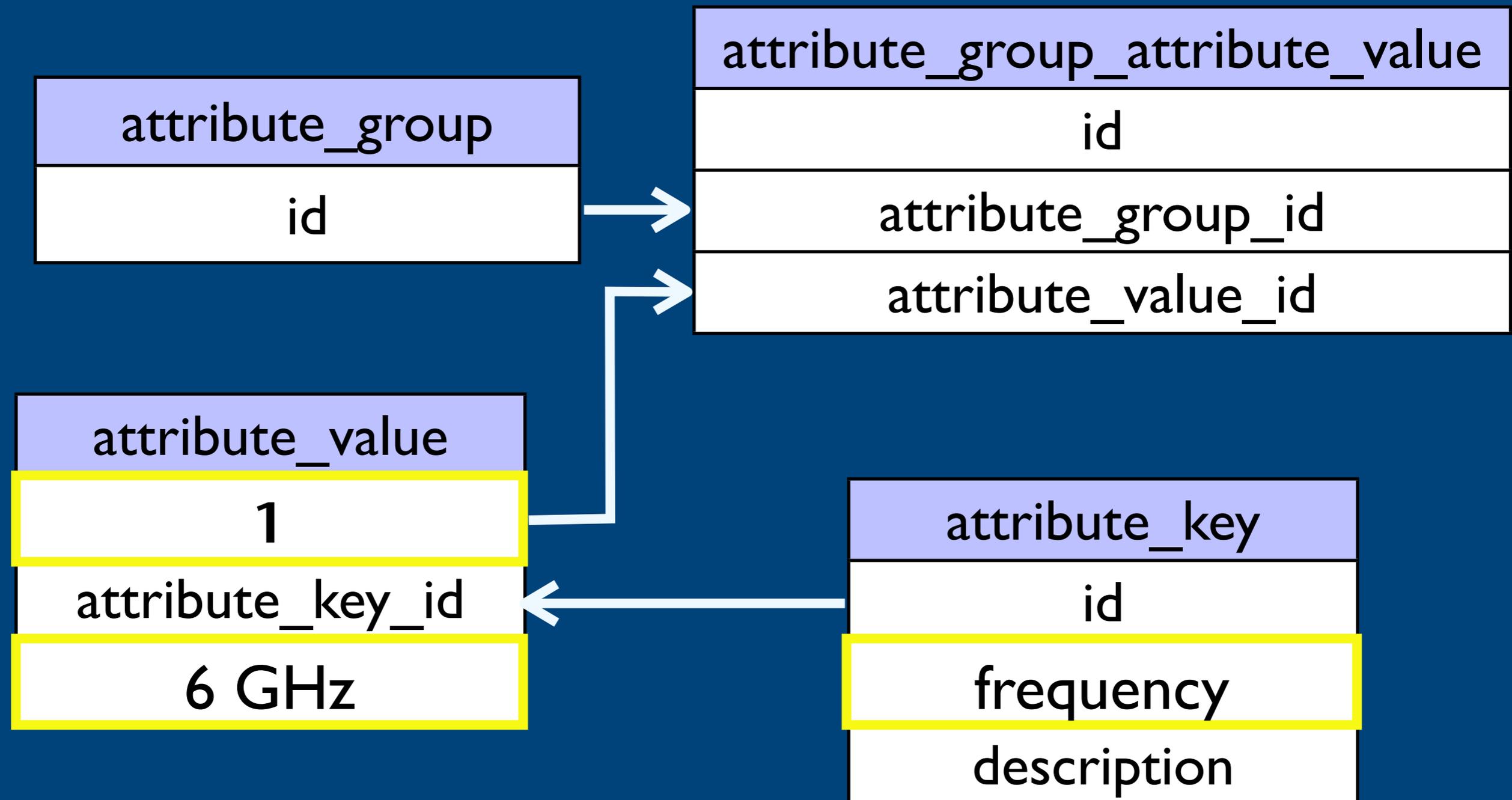
Database schema summary



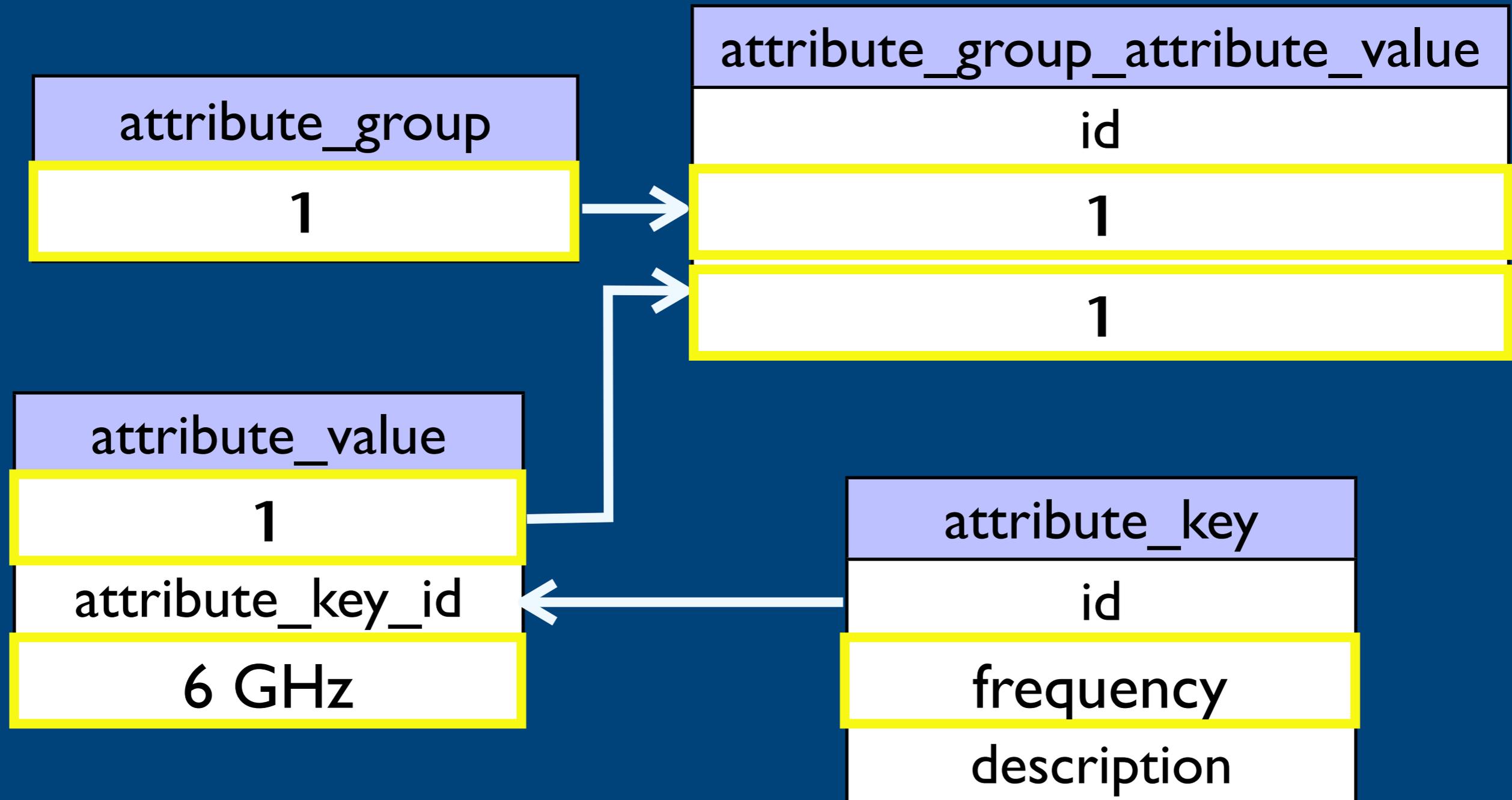
Database schema summary



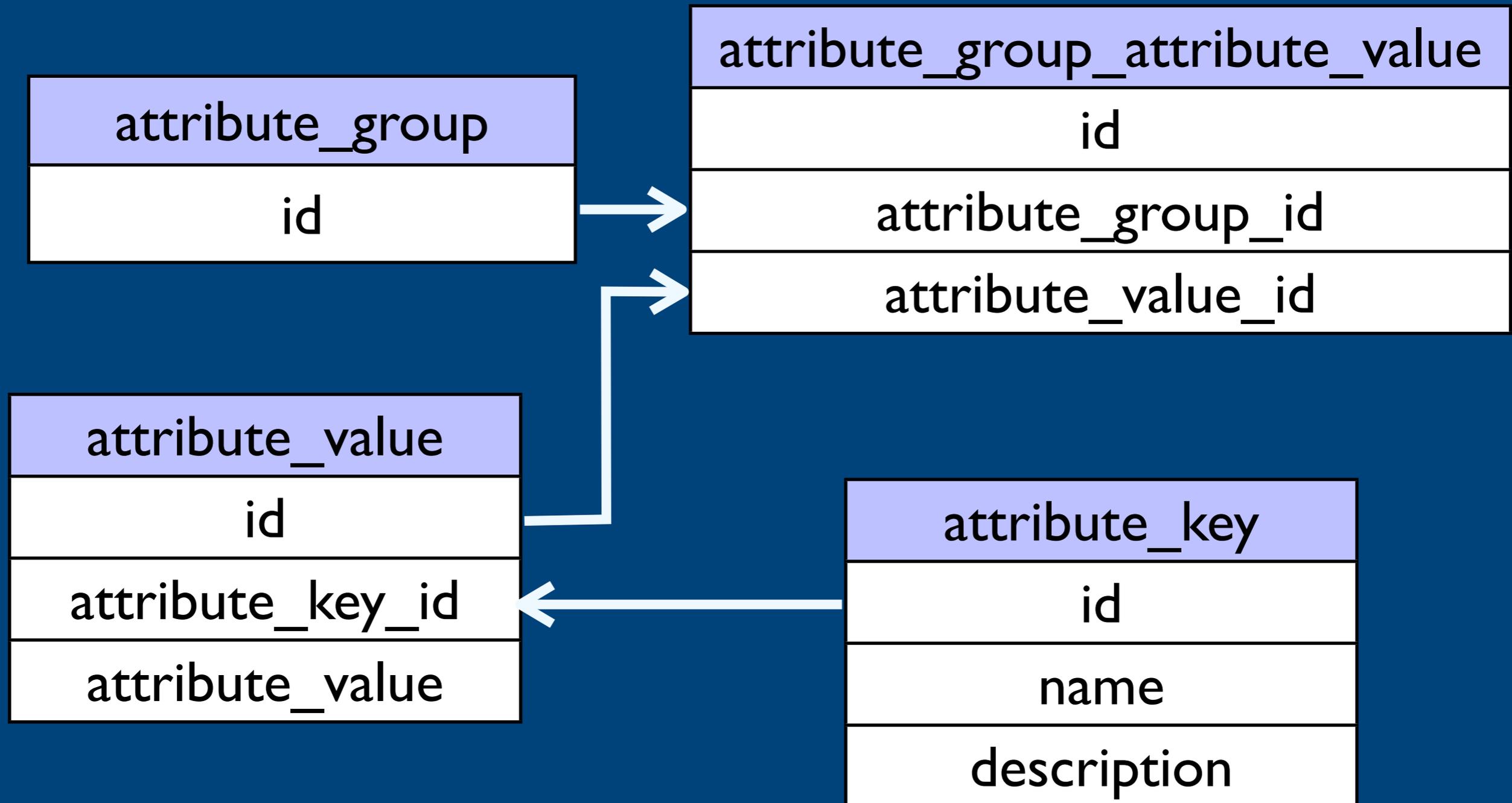
Database schema summary



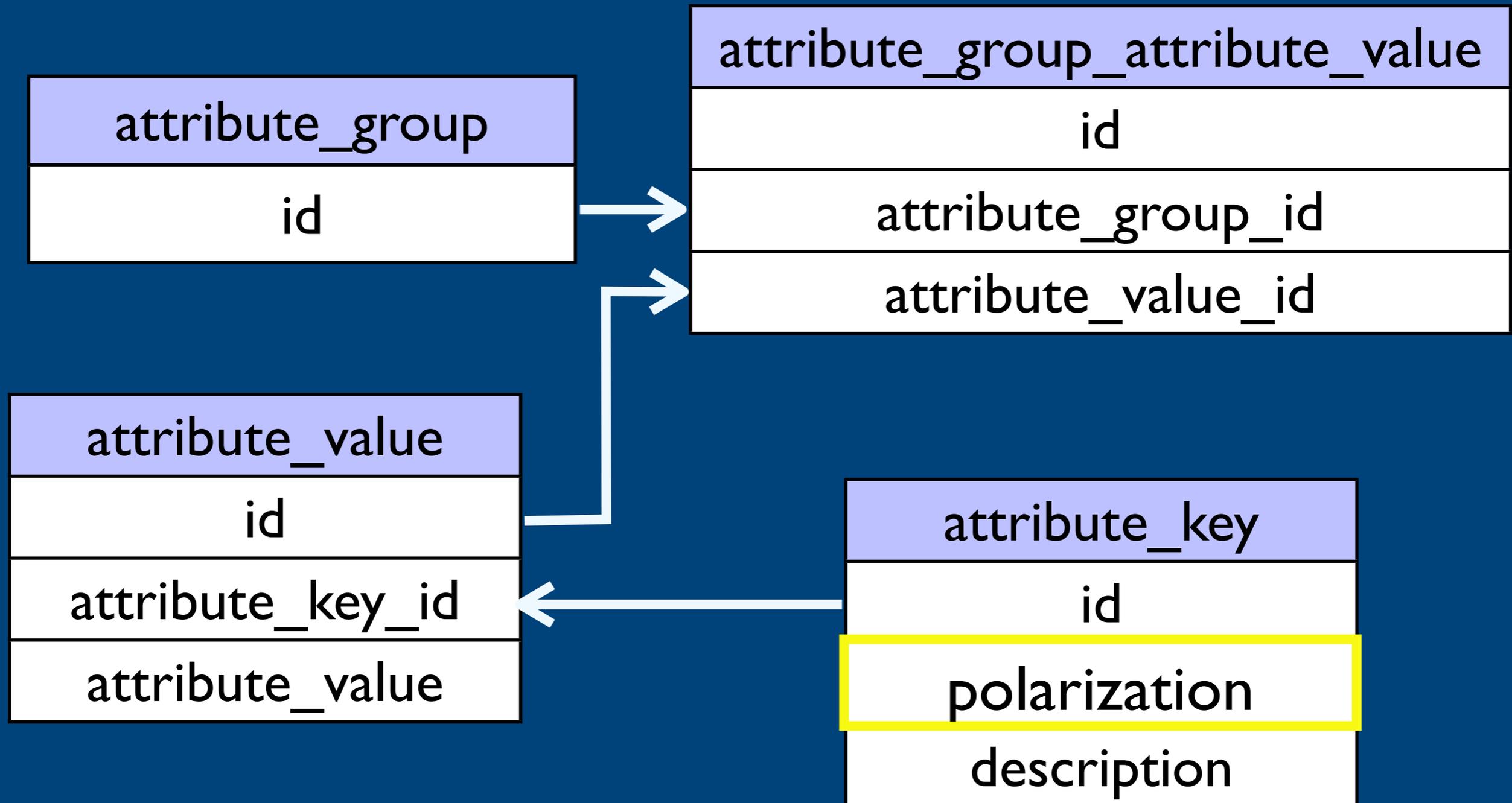
Database schema summary



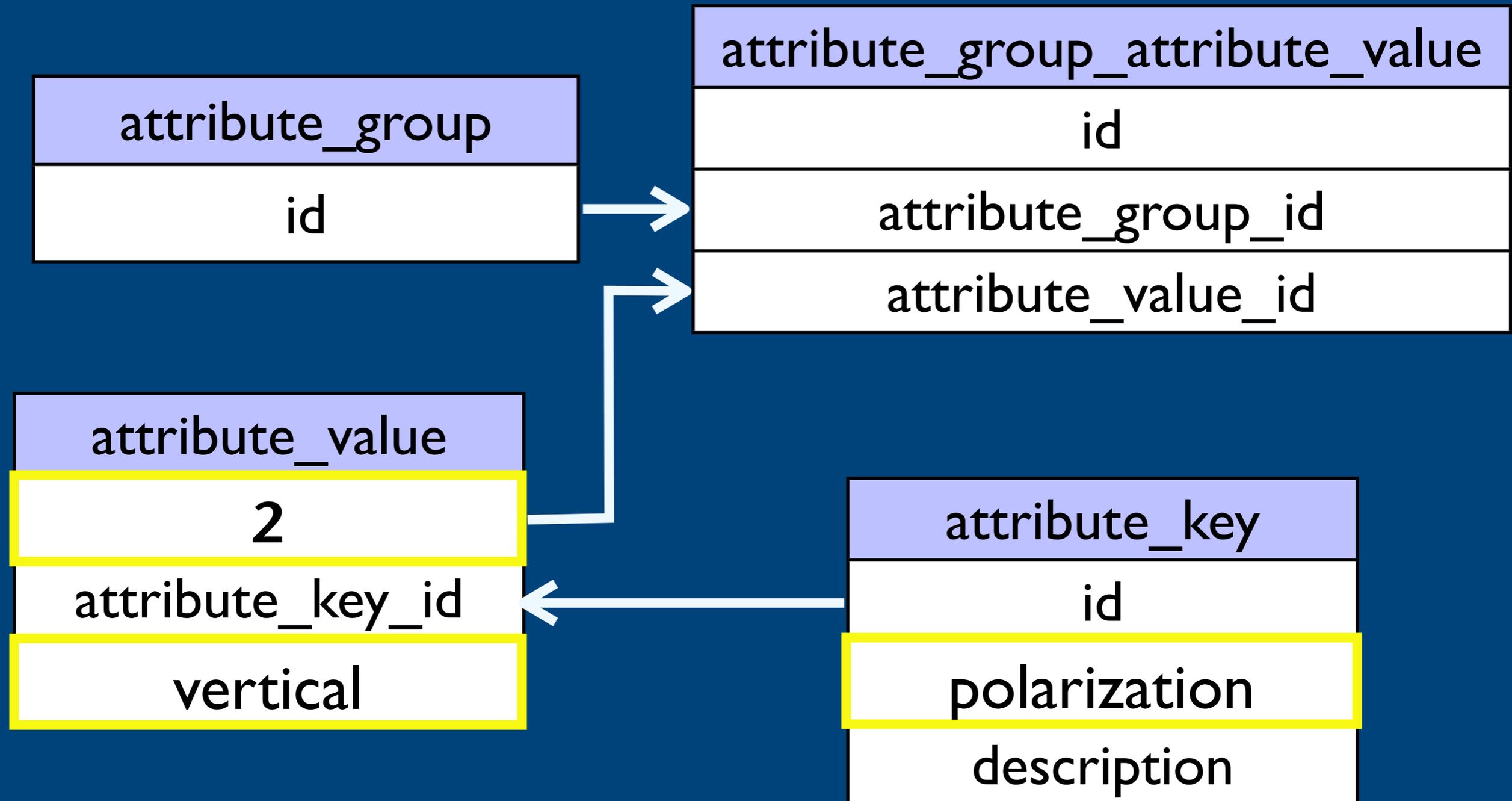
Database schema summary



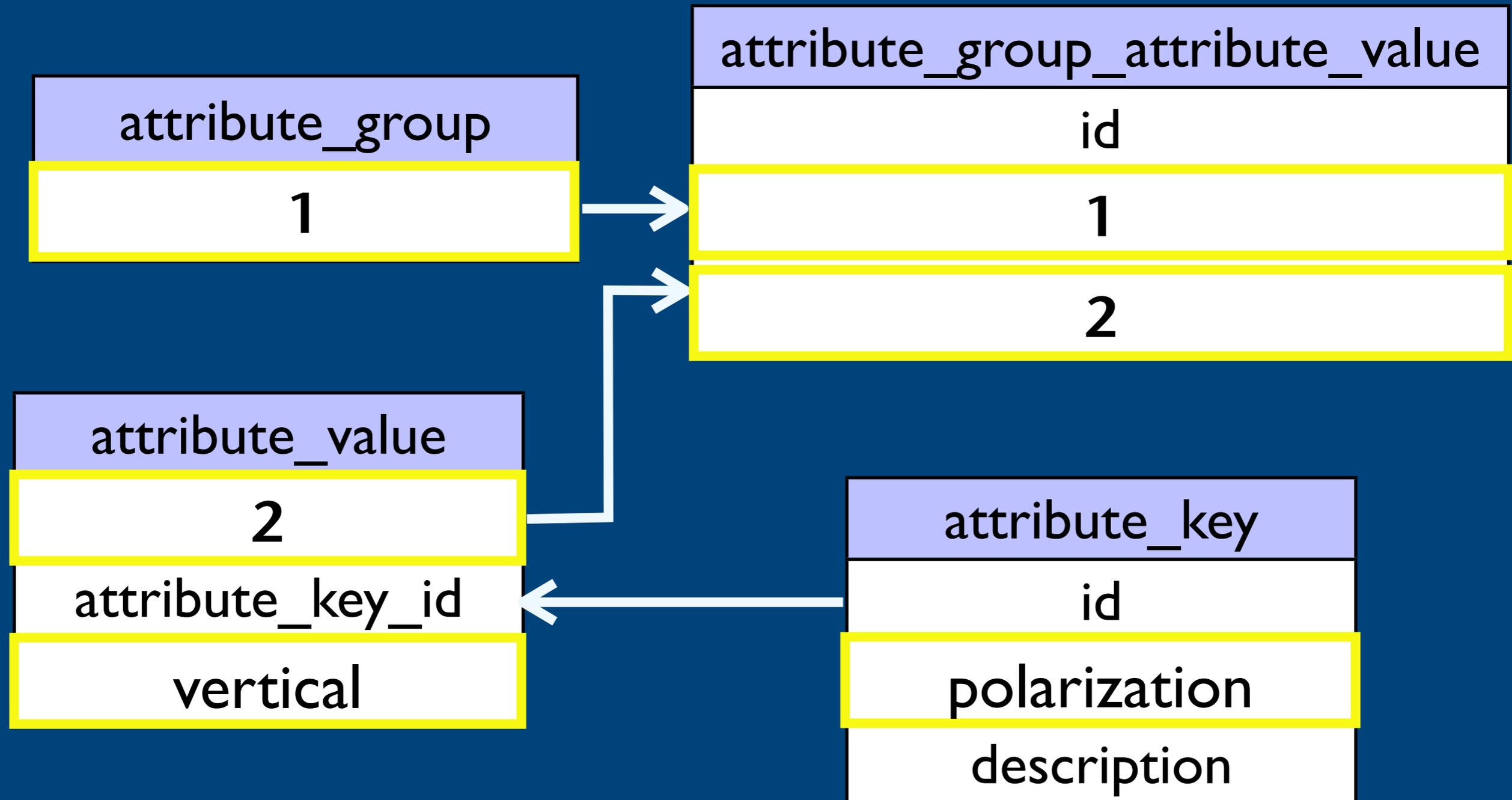
Database schema summary



Database schema summary



Database schema summary



Get data

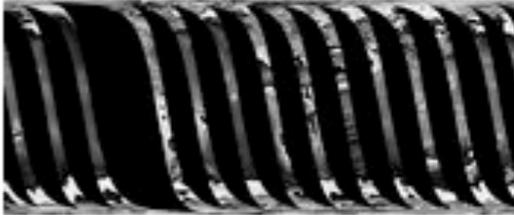
Nimbus-7 SMMR Pathfinder Daily EASE-Grid Brightness Temperatures 30452 matches

Brightness Temperature

Date Range of Matches:
1978 Oct 25 24:00 - 1987 Aug
20 23:59

Spatial coverage for this data set is
shown in red.





1978 Oct 25 24:00

Show Data Groups

Configure and Add Data to Queue

Get data

- * Subset in space and time
- * Specify format and projection
- * Create tar file with compressed data, README

Configure Download

Adding Nimbus-7 SMMR Pathfinder Daily EASE-Grid Brightness Temperatures (25 KM Global) 10 GHz Brightness Temperature to download queue.

Request size: 19 granule(s).

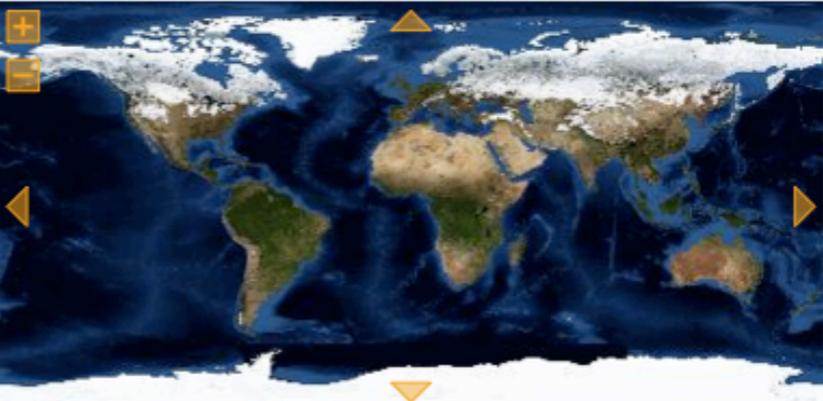
Download Format: Binary with Header (Stored in this format)

Output Grid and Projection: EASE-Grid Global 25km (Native Grid & Projection)

Perform Spatial Subsetting:

Reset Map & Selection Select Entire Map

Lat: NaN	Lat: NaN
Lon: NaN	Lon: NaN
Lat: NaN	Lat: NaN
Lon: NaN	Lon: NaN



Add request to queue Cancel

Get data

- * Subset in space and time
- * Specify format and projection
- * Create tar file with compressed data, README

Configure Download

Adding Nimbus-7 SMMR Pathfinder Daily EASE-Grid Brightness Temperatures (25 KM Global) 10 GHz Brightness Temperature to download queue.

Request size: 19 granule(s).

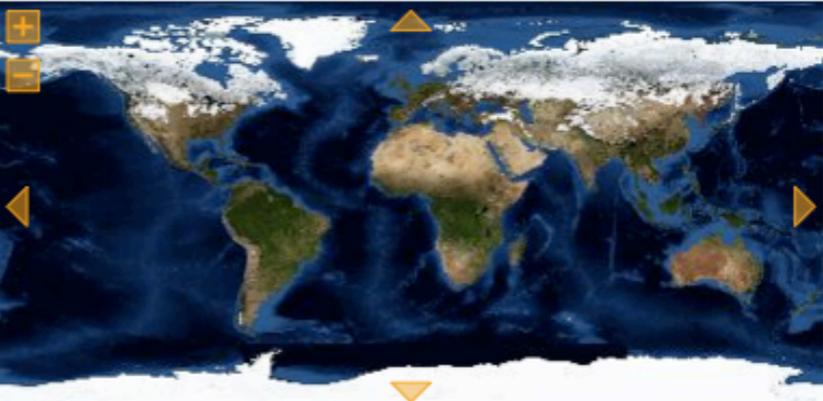
Download Format: Binary with Header (Stored in this format)

Output Grid and Projection: EASE-Grid Global 25km (Native Grid & Projection)

Perform Spatial Subsetting:

Reset Map & Selection Select Entire Map

Lat: NaN	Lat: NaN
Lon: NaN	Lon: NaN
Lat: NaN	Lat: NaN
Lon: NaN	Lon: NaN



Add request to queue Cancel

Get data

- * Subset in space and time
- * Specify format and projection
- * Create tar file with compressed data, README

Configure Download

Adding Nimbus-7 SMMR Pathfinder Daily EASE-Grid Brightness Temperatures (25 KM Global) 10 GHz Brightness Temperature to download queue.

Request size: 19 granule(s).

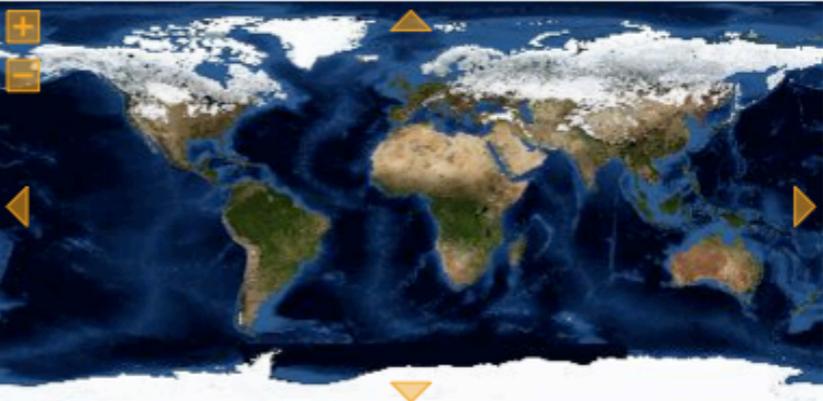
Download Format: Binary with Header (Stored in this format)

Output Grid and Projection: EASE-Grid Global 25km (Native Grid & Projection)

Perform Spatial Subsetting:

Reset Map & Selection Select Entire Map

Lat: NaN	Lat: NaN
Lon: NaN	Lon: NaN
Lat: NaN	Lat: NaN
Lon: NaN	Lon: NaN



Add request to queue Cancel

Get data

- * Subset in space and time
- * Specify format and projection
- * Create tar file with compressed data, README

Configure Download

Adding Nimbus-7 SMMR Pathfinder Daily EASE-Grid Brightness Temperatures (25 KM Global) 10 GHz Brightness Temperature to download queue.

Request size: 19 granule(s).

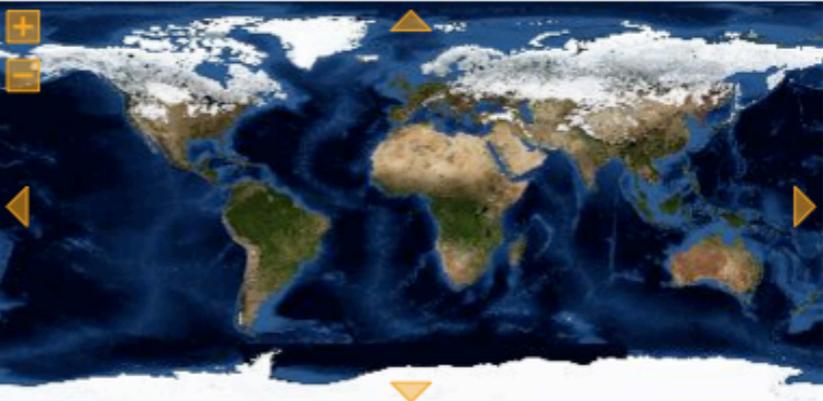
Download Format: Binary with Header (Stored in this format)

Output Grid and Projection: EASE-Grid Global 25km (Native Grid & Projection)

Perform Spatial Subsetting:

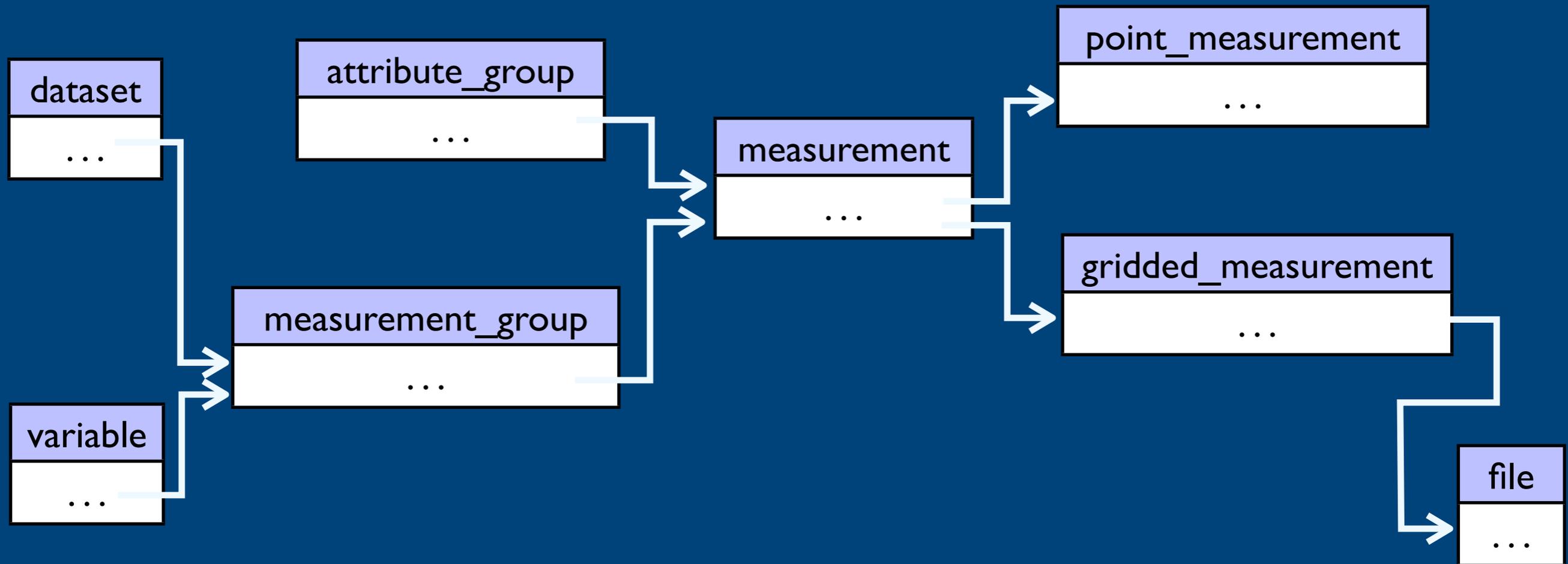
Reset Map & Selection Select Entire Map

Lat: NaN	Lat: NaN
Lon: NaN	Lon: NaN
Lat: NaN	Lat: NaN
Lon: NaN	Lon: NaN

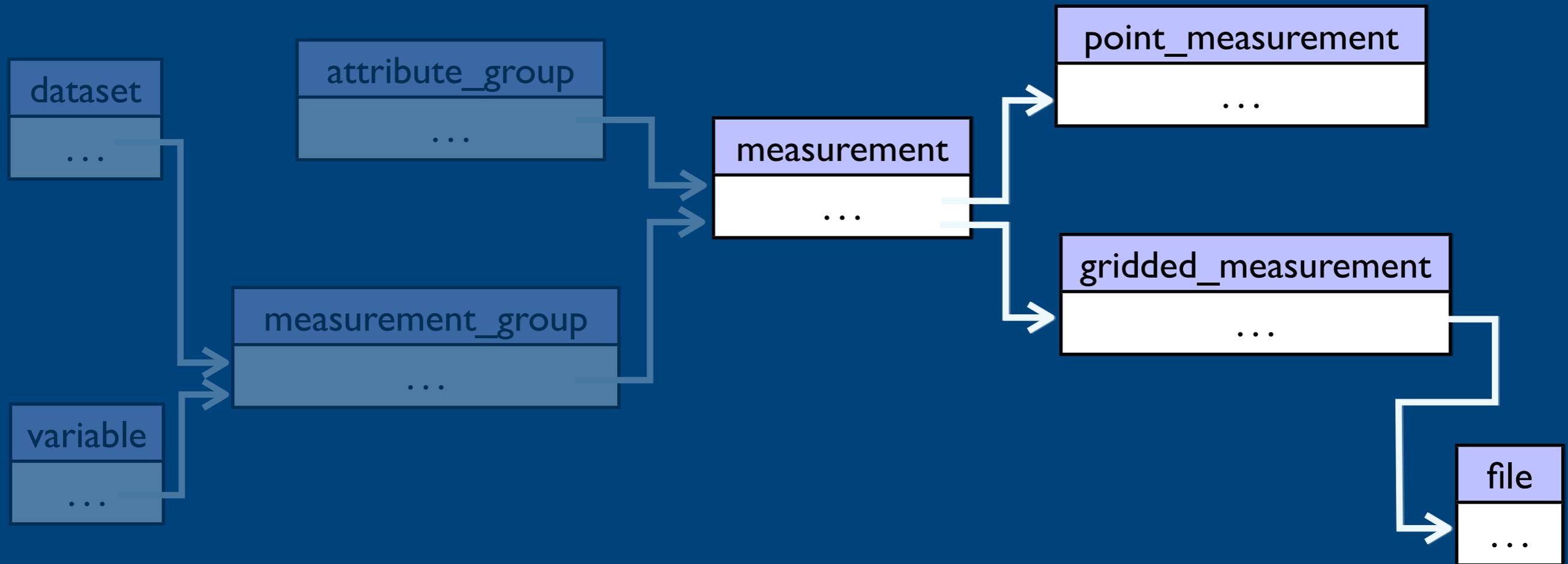


Add request to queue Cancel

Get data

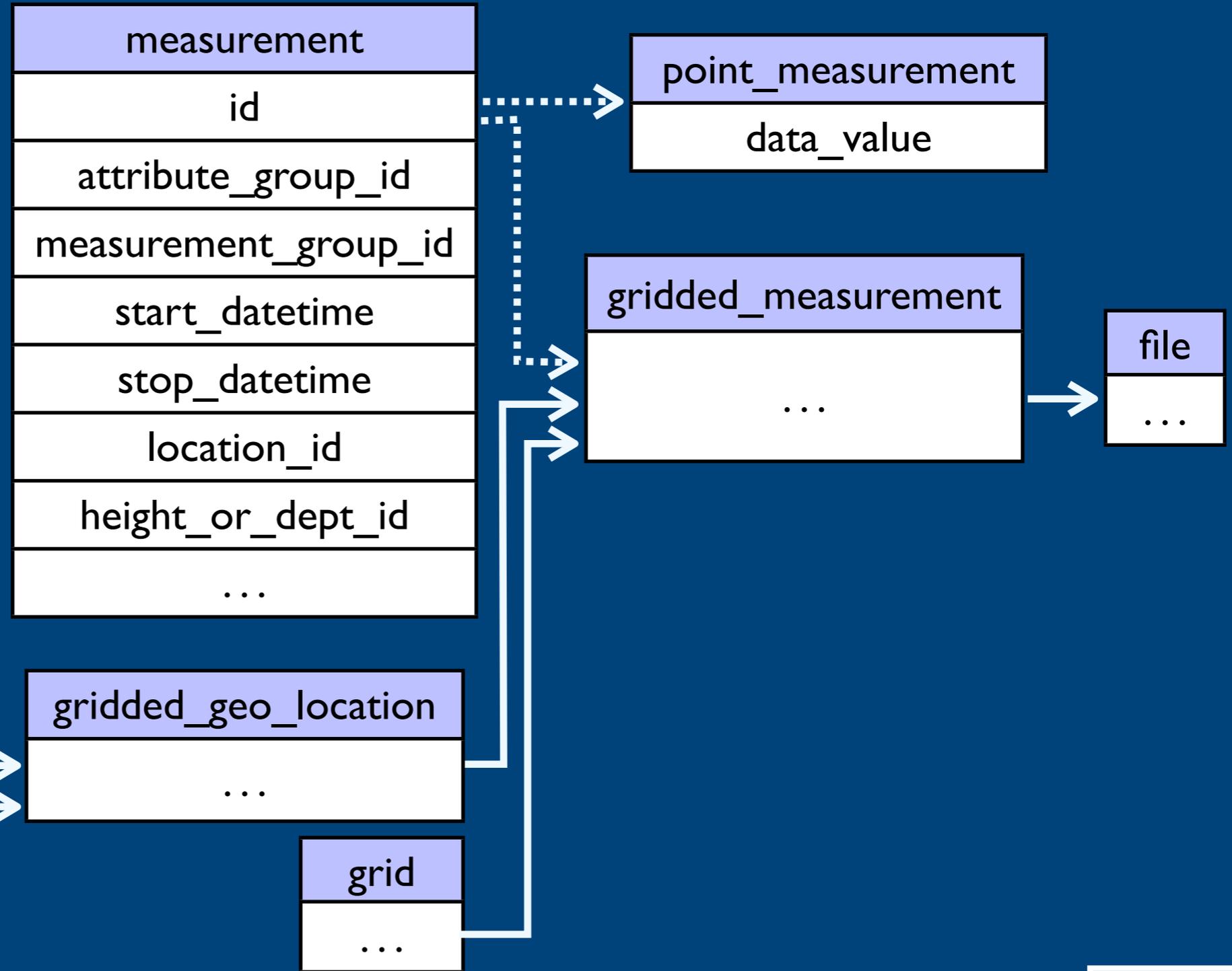


Get data



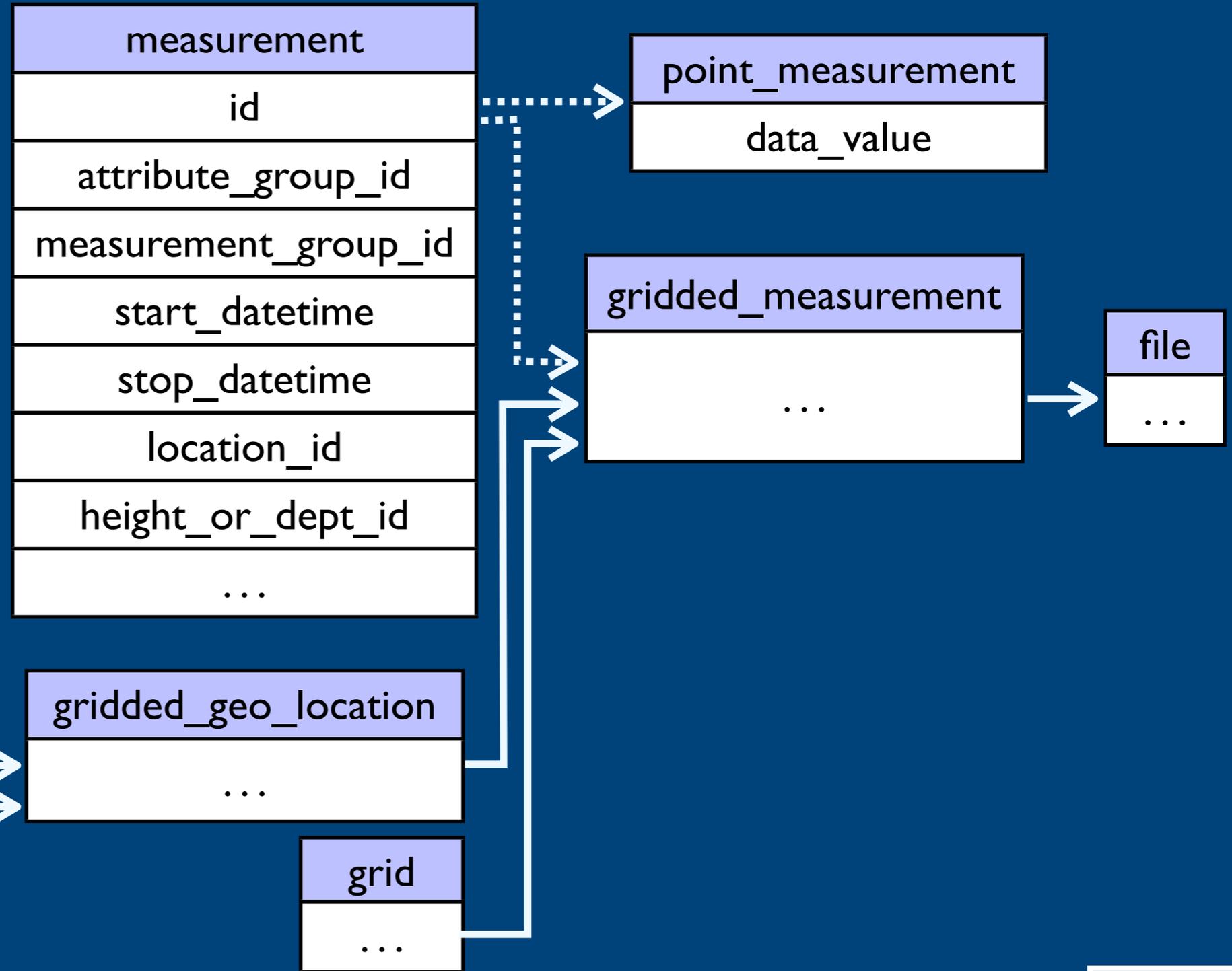
Get data

- * Subset in space and time
- * Specify format and projection



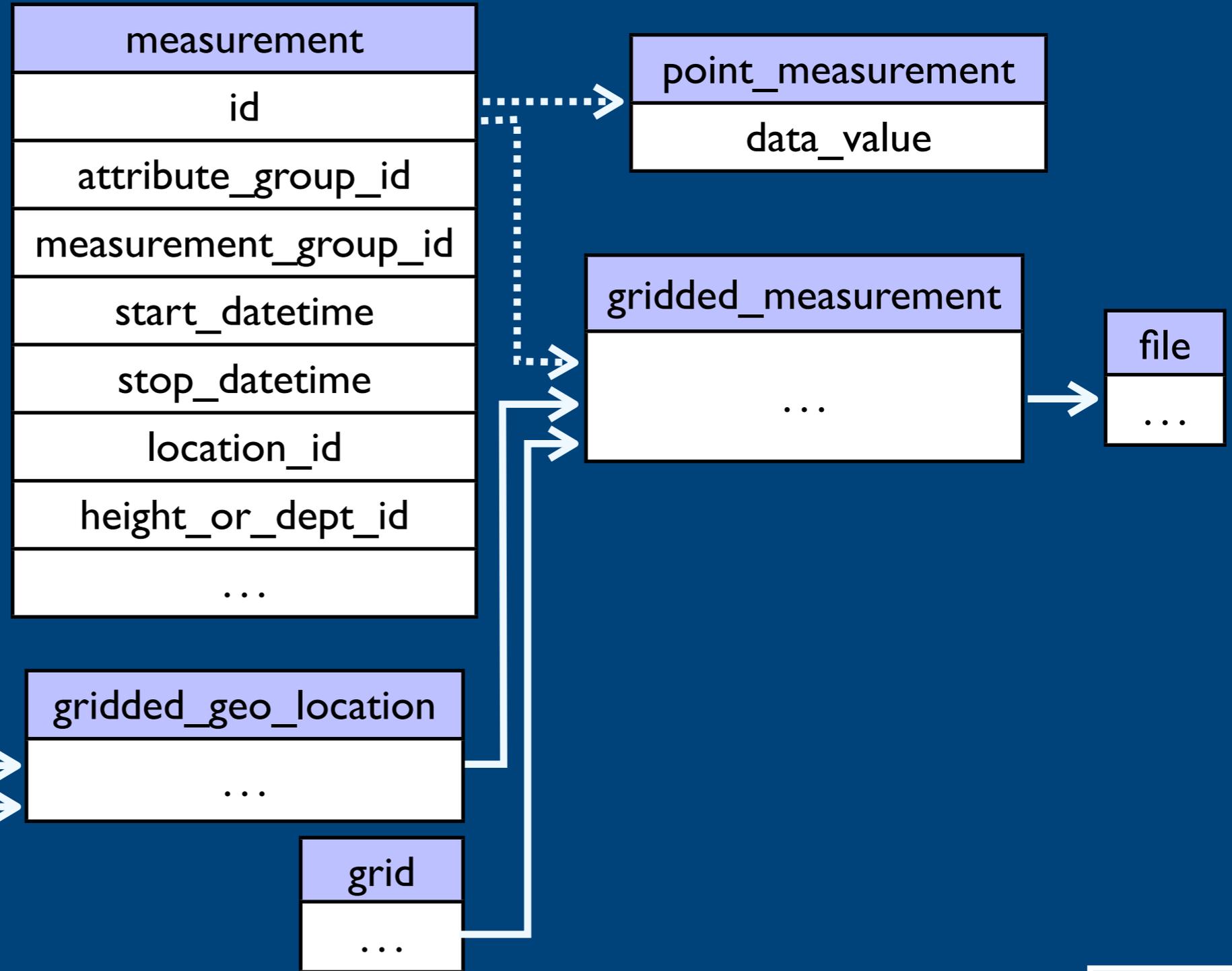
Get data

- * Subset in space and time
- * Specify format and projection



Get data

- * Subset in space and time
- * Specify format and projection



Searchlight and the Arctic Spatial Data Infrastructure

- * Provides/manages metadata+data at a level of detail necessary for comparison with data not archived at NSIDC
 - physical dimension details (space, time, height/depth)
 - provenance, quality information
 - flexible export of metadata+data with regard to format and projection
- * Deliver metadata+data machine-to-machine
- * Deliver metadata+data to human

Searchlight and the Arctic Spatial Data Infrastructure

- * Provides/manages metadata+data at a level of detail necessary for comparison with data not archived at NSIDC
 - physical dimension details (space, time, height/depth)
 - provenance, quality information
 - flexible export of metadata+data with regard to format and projection
- * Deliver metadata+data machine-to-machine
- * Deliver metadata+data to human

Searchlight and the Arctic Spatial Data Infrastructure

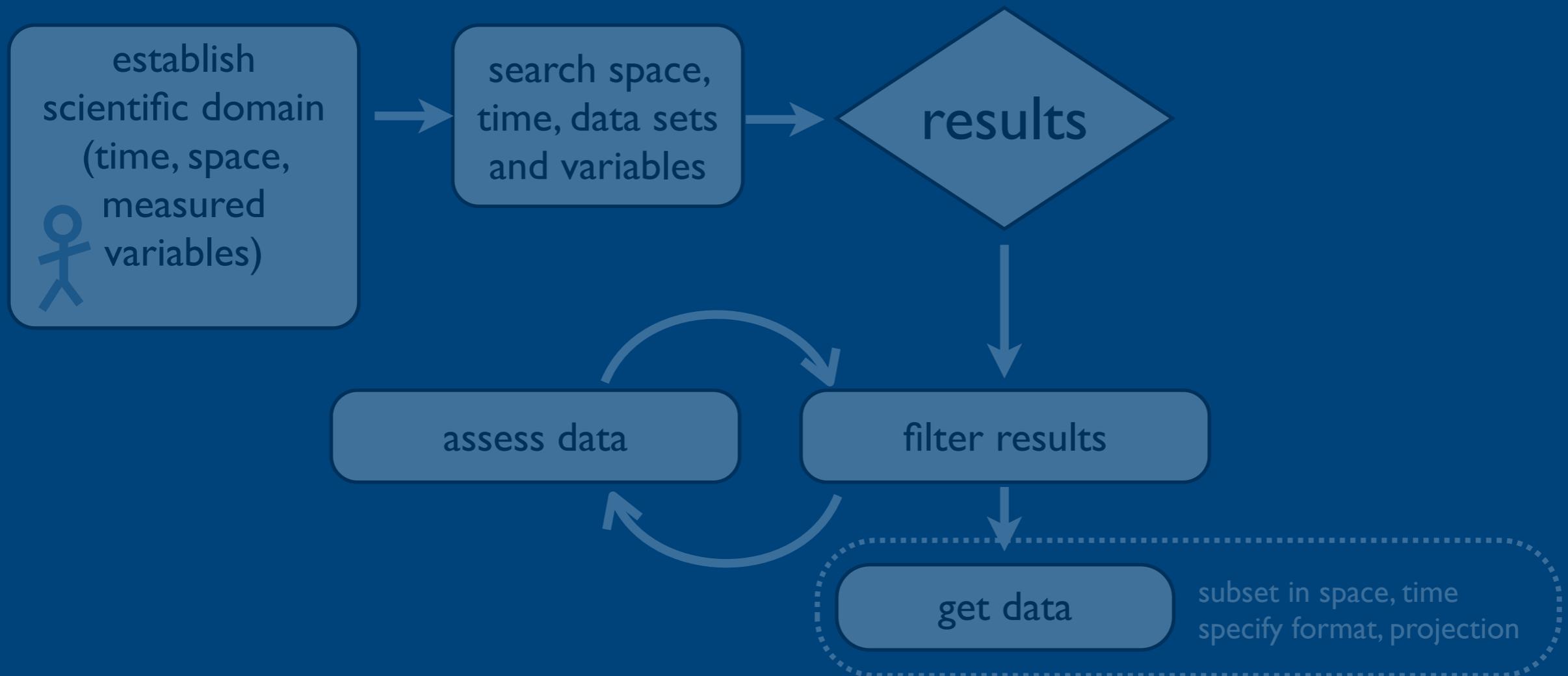
- * Provides/manages metadata+data at a level of detail necessary for comparison with data not archived at NSIDC
 - physical dimension details (space, time, height/depth)
 - provenance, quality information
 - flexible export of metadata+data with regard to format and projection
- * Deliver metadata+data machine-to-machine
- * Deliver metadata+data to human

Searchlight and the Arctic Spatial Data Infrastructure

- * Provides/manages metadata+data at a level of detail necessary for comparison with data not archived at NSIDC
 - physical dimension details (space, time, height/depth)
 - provenance, quality information
 - flexible export of metadata+data with regard to format and projection
- * Deliver metadata+data machine-to-machine
- * Deliver metadata+data to human

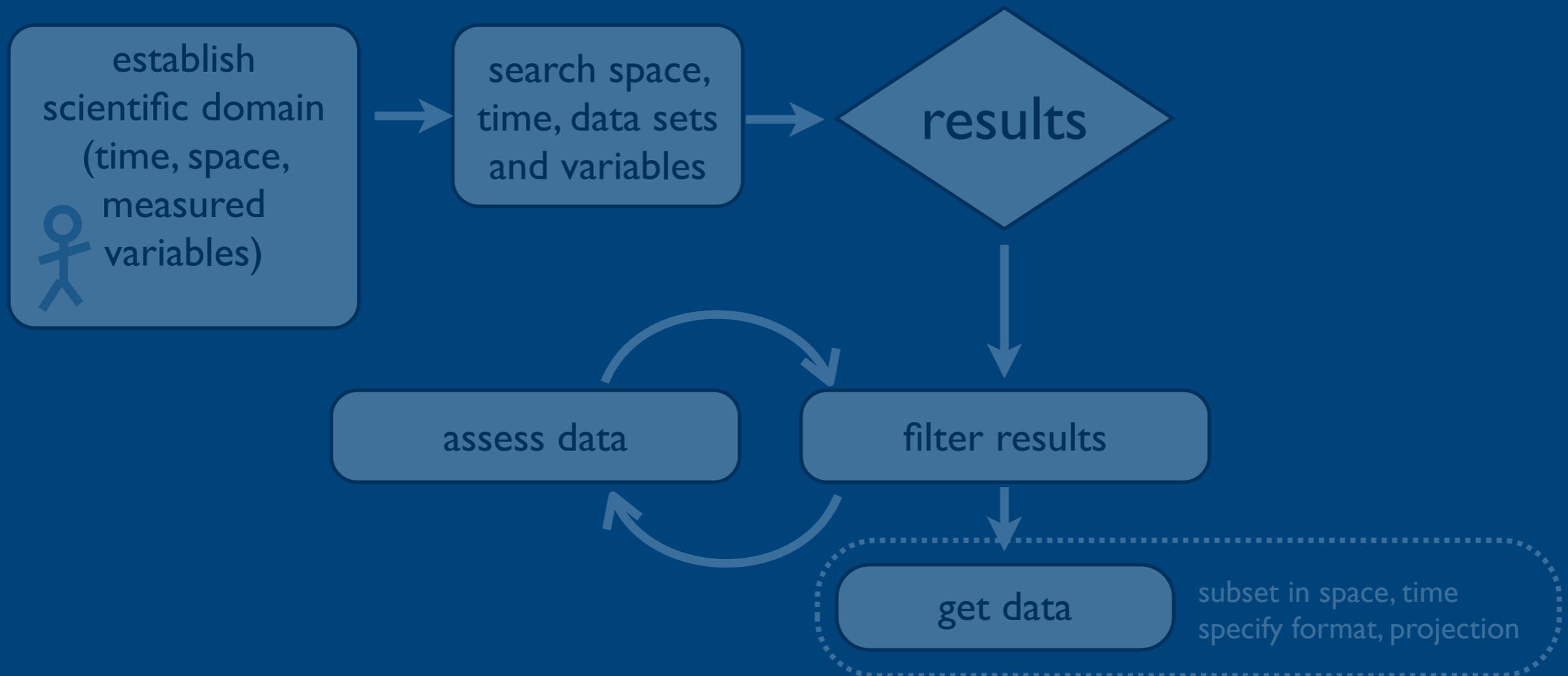
ASDI Use case

- * What might the process be in an ASDI-enabled environment?
- * No changes from the user's perspective!



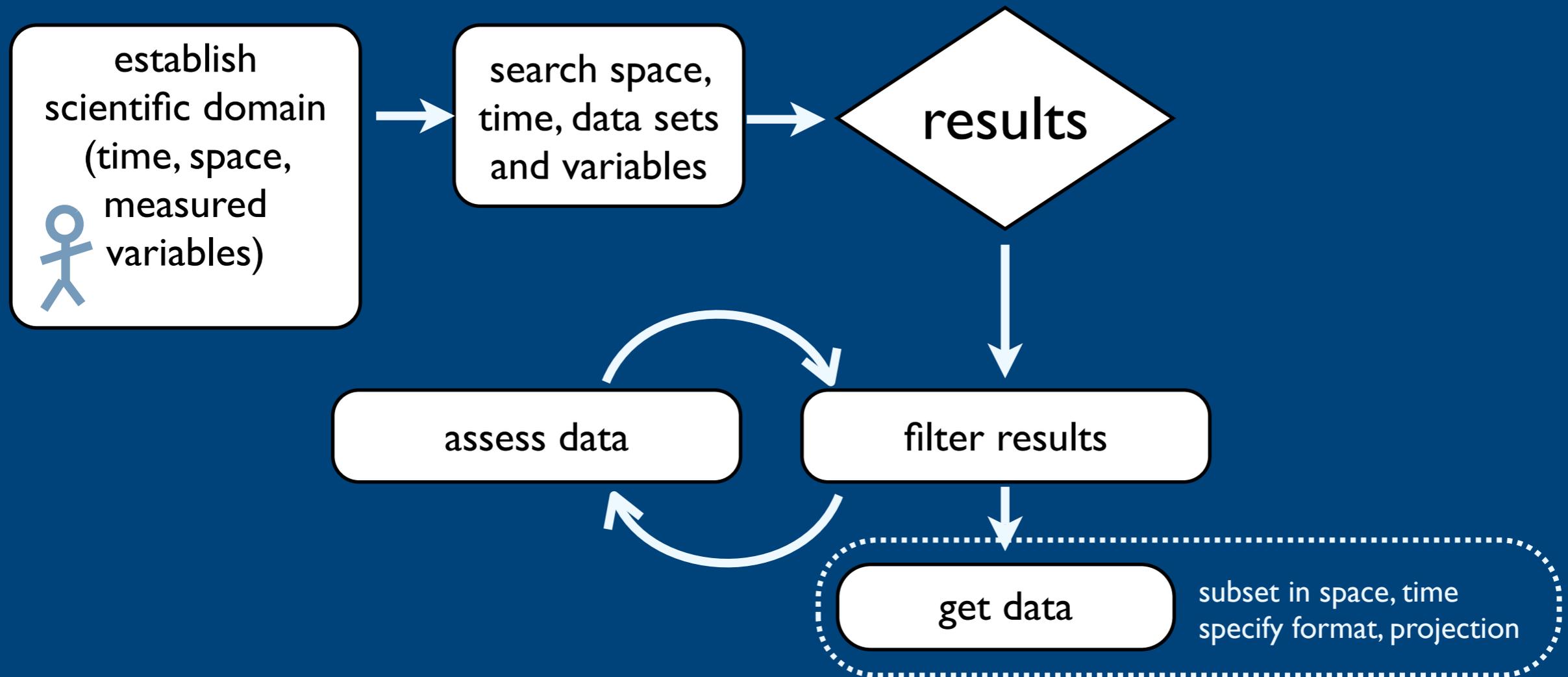
ASDI Use case

- * What might the process be in an ASDI-enabled environment?
- * No changes from the user's perspective!



ASDI Use case

- * What might the process be in an ASDI-enabled environment?
- * No changes from the user's perspective!



In conclusion...

- * Interested in providing user feedback? Contact NSIDC User services at nsidc@nsidc.org or Mary Jo Brodzik at brodzik@nsidc.org (include “Searchlight user testing volunteer” in the subject line).
- * Searchlight team: Brendan Billingsley, Mary Jo Brodzik, Julia Collins, Scott Lewis, Deann Miller, Barbara O’Barr, Donna Scott, Stephen Truex, I-Pin Wang.
- * My contact information: Julia Collins, collinsj@nsidc.org.

In conclusion...

- * Interested in providing user feedback? Contact NSIDC User services at nsidc@nsidc.org or Mary Jo Brodzik at brodzik@nsidc.org (include “Searchlight user testing volunteer” in the subject line).
- * Searchlight team: Brendan Billingsley, Mary Jo Brodzik, Julia Collins, Scott Lewis, Deann Miller, Barbara O’Barr, Donna Scott, Stephen Truex, I-Pin Wang.
- * My contact information: Julia Collins, collinsj@nsidc.org.

In conclusion...

- * Interested in providing user feedback? Contact NSIDC User services at nsidc@nsidc.org or Mary Jo Brodzik at brodzik@nsidc.org (include “Searchlight user testing volunteer” in the subject line).
- * Searchlight team: Brendan Billingsley, Mary Jo Brodzik, Julia Collins, Scott Lewis, Deann Miller, Barbara O’Barr, Donna Scott, Stephen Truex, I-Pin Wang.
- * My contact information: Julia Collins, collinsj@nsidc.org.

In conclusion...

- * Interested in providing user feedback? Contact NSIDC User services at nsidc@nsidc.org or Mary Jo Brodzik at brodzik@nsidc.org (include “Searchlight user testing volunteer” in the subject line).
- * Searchlight team: Brendan Billingsley, Mary Jo Brodzik, Julia Collins, Scott Lewis, Deann Miller, Barbara O’Barr, Donna Scott, Stephen Truex, I-Pin Wang.
- * My contact information: Julia Collins, collinsj@nsidc.org.