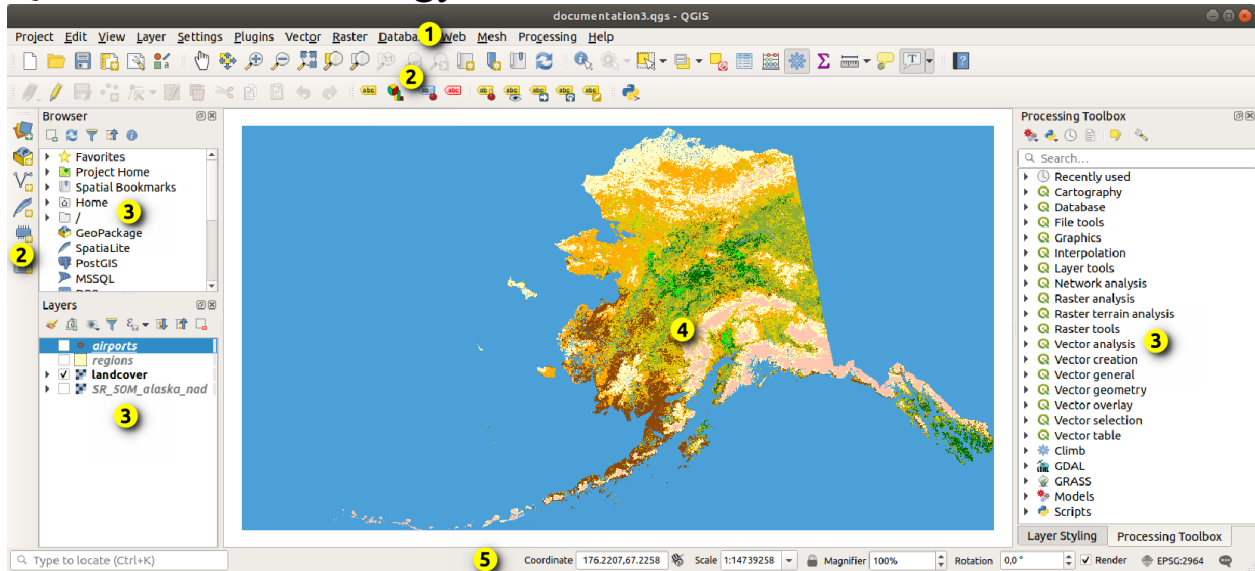


# Field Validation Data Tutorial

## QGIS GUI terminology:

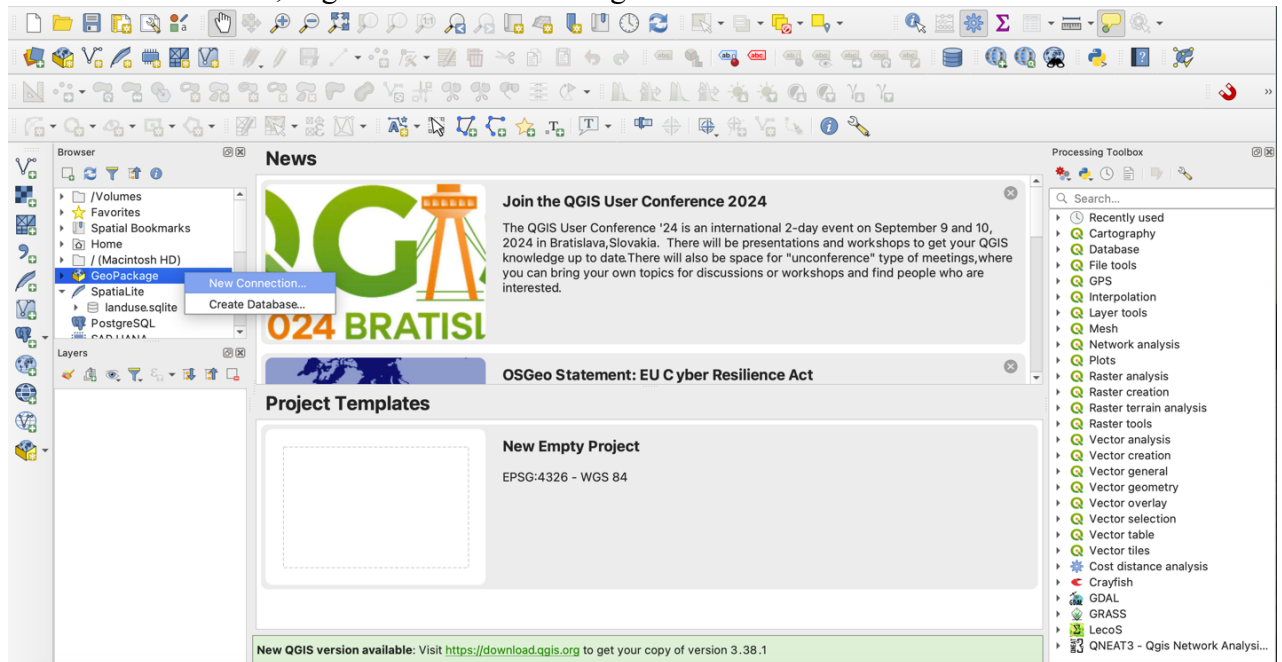


Source: [QGIS.org](https://qgis.org)

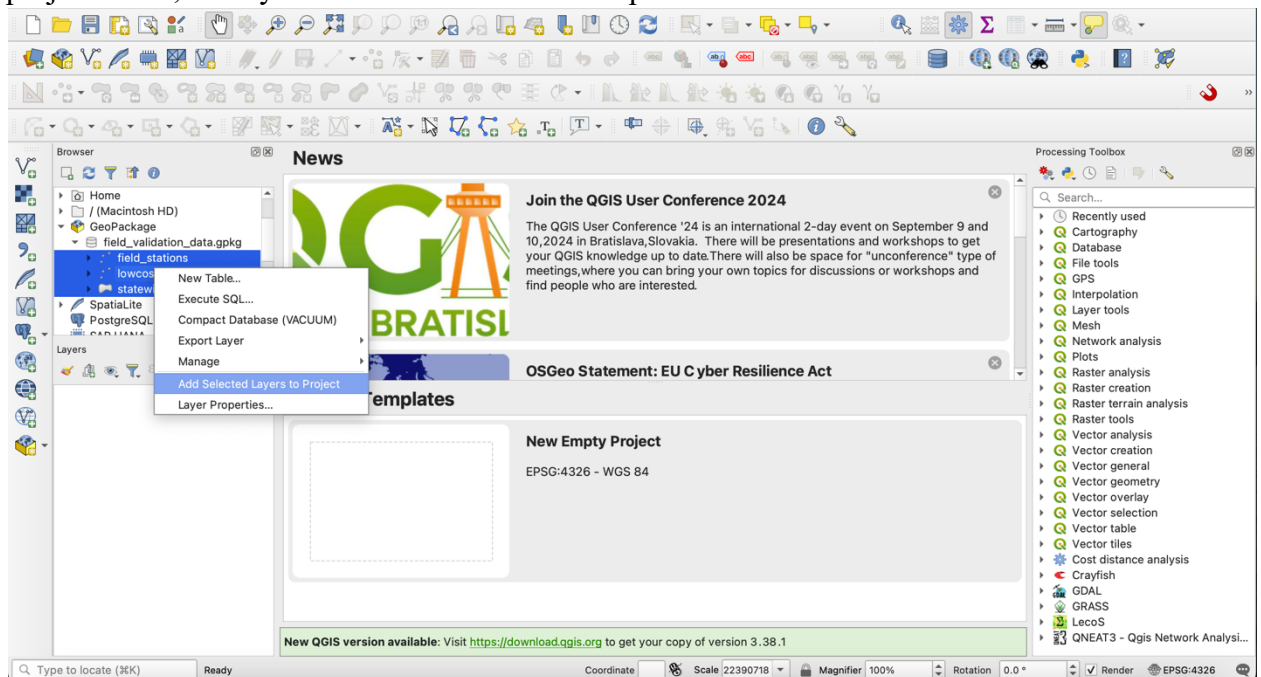
1. Menu
2. Toolbar (Can change visible toolbars in Menu-View-Toolbars)
3. Panels (Browser, Layers, Geoprocessing)
4. Map Canvas
5. Status Bar

# To open data and visualize in the map canvas

1. Open QGIS
2. In the Browser Panel, Right click on GeoPackage and Add a Connection



3. In the file browser window that opens, navigate to where the field\_validation\_data.gpkg file is stored and select it.
4. Select the layers in the geopackage, right click the layers, and add the selected layers to project. Now, the layers will be visible in the map canvas

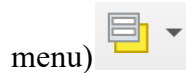


5. **OPTIONAL:** To add a basemap to the map canvas (to better visualize locations of the stations), in the browser panel right click on XYZ Tiles and click new connection. We recommend the Open Street Map basemap, which can be added by pasting the URL

<https://tile.openstreetmap.org/{z}/{x}/{y}.png> in the designated field. Name the basemap whatever you wish, then click OK. Right click on your new XYZ tile layer and add it to the canvas. In the layers panel, you may need to drag the layer to place it below the other layers.

## To Select Data Based on Features in Map Canvas.

1. Ensure that the desired layer is selected in the layer panel.
2. Click the Select features by value tool. (Ensure the selection toolbar is visible in the View

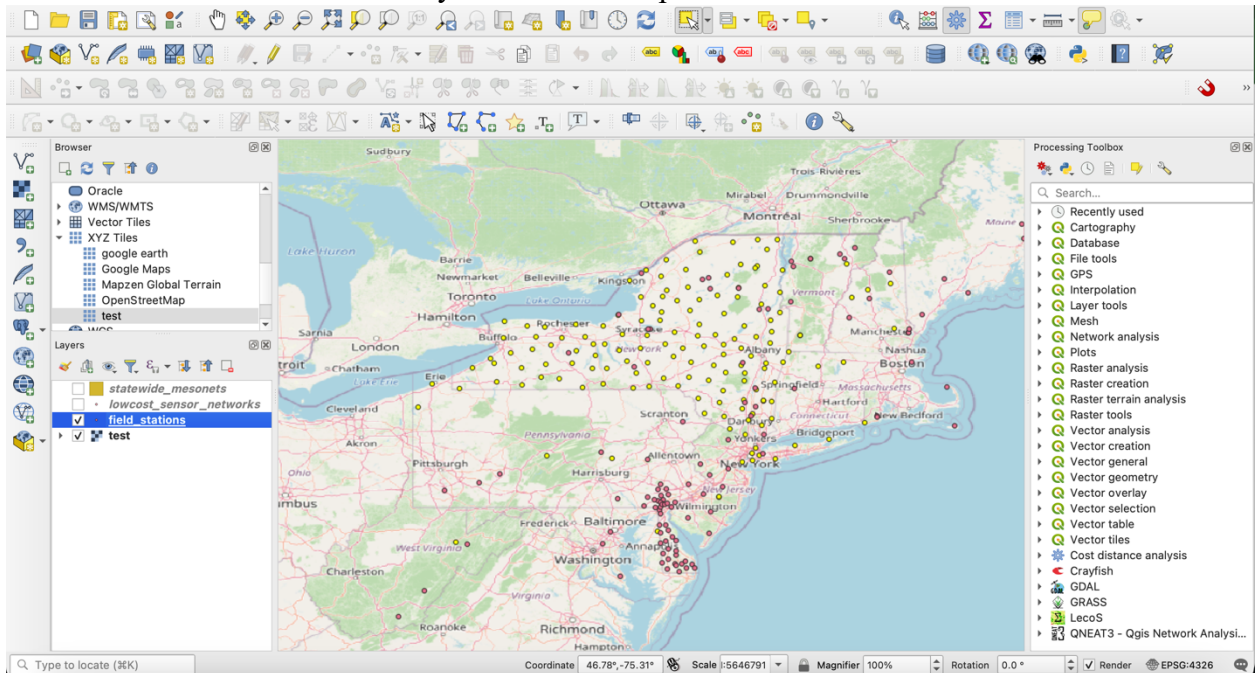


menu)

3. Input the desired features you want selected. In this example, we input true for the AirTemperature and Precipitation field to filter for field\_stations that collect air temperature and precipitation data.

Field Name	Value	Case sensitive	Action
AirTemperature	TRUE	<input type="checkbox"/>	Contains
Precipitation	TRUE	<input type="checkbox"/>	Contains
WindSpeedDirection		<input type="checkbox"/>	Exclude Field
BarometricPressure		<input type="checkbox"/>	Exclude Field
VaporPressureDeficit		<input type="checkbox"/>	Exclude Field
RelativeHumidity		<input type="checkbox"/>	Exclude Field
SolarRadiation		<input type="checkbox"/>	Exclude Field
SoilMoistureContent		<input type="checkbox"/>	Exclude Field
SoilTemperature		<input type="checkbox"/>	Exclude Field
SoilChemistry		<input type="checkbox"/>	Exclude Field
SoilHeatFlux		<input type="checkbox"/>	Exclude Field
LatentHeatFlux		<input type="checkbox"/>	Exclude Field
SensibleHeatFlux		<input type="checkbox"/>	Exclude Field
NetEcosystemExchange		<input type="checkbox"/>	Exclude Field

4. All the selected features will turn yellow on the map canvas.



## To Select Data with the Database Query Tool (SQL)

1. In the database menu, select DB Manager,
2. Expand the Geopackage Provider and select the database and expand it.
3. Click the SQL Window tool to open up a querying window.
4. Write any SQL query to any table in the geopackage.



### SAMPLE QUERY:

```
SELECT t.Name, t.Address, t.Website
FROM field_stations t
WHERE t.AirTemperature='TRUE'
& t.Precipitation='TRUE'
& t.website notnull
& (t.DataAccessTier='1' OR t.DataAccessTier='2')
ORDER BY st_distance(t.geom, st_point(-74.00, 41.00));
```

This query gives the name, address, and website of field stations that collect real time air temperature and precipitation data, with results ranked by the proximity to 41° N, 74° W.

5. To add this layer to the QGIS map canvas, add 'geom' as column to select in the query, check the 'Load as new layer box', execute the query, and press load

Providers

- GeoPackage
  - field\_validation\_...
    - field\_stations
    - statewide\_m...
  - Oracle Spatial
  - PostGIS
  - Spatialite
  - Virtual Layers

Info Table Preview Query (field\_validation\_data\_V2.gpkg) X

Saved query Name Save Delete Load File Save As File

```
1 SELECT t.Name, t.Address, t.Website, t.geom
2 FROM field_stations t
3 WHERE t.AirTemperature='TRUE'
4 & t.Precipitation='TRUE'
5 & t.website notnull
6 & (t.DataAccessTier='1' OR t.DataAccessTier='2')
7 ORDER BY st_distance(t.geom, st_point(-74.00, 41.00));
8
```

Execute 155 rows, 0.013 seconds Clear Query History

	Name	Address	Website	geom
1	Suffern	Rockland, NY	https://...	b'GP\x00\x0...
2	Bronx	Bronx, NY	https://...	b'GP\x00\x0...
3	Manhattan	New_York, NY	https://...	b'GP\x00\x0...

☒ Load as new layer

☐ Column with unique values  ☒ Geometry column

Layer name (prefix)

☐ Avoid selecting by feature id

Retrieve columns Set filter Load Cancel

6. This layer can be saved by right clicking the layer in the layers panel, and saving it in a desired spatial format (GeoJSON recommended).