

Geology from points and lines

This QGIS plugin incorporates a GIS methodology for generating topologically correct geological maps from vector point data (centroids with geological attributes) and linear data (geological boundaries). The process involves: converting lines into polygons, spatial join with centroids for attribute inheritance, and topological verification to ensure the absence of gaps, overlaps, and duplicates.

Software installation

Installation is performed directly from the QGIS plugins section (Figure 1. QGIS Plugins Section) by entering the keyword "Geology" in the search box (Figure 2. Plugin Search and

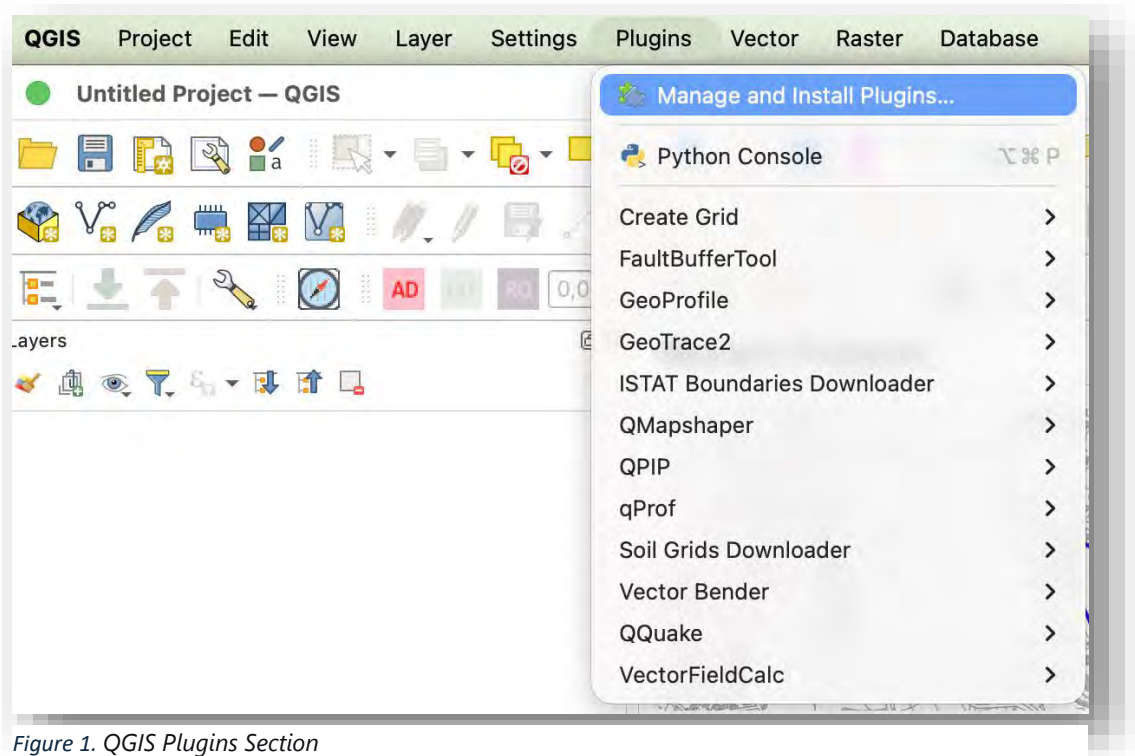


Figure 1. QGIS Plugins Section

Installation)..

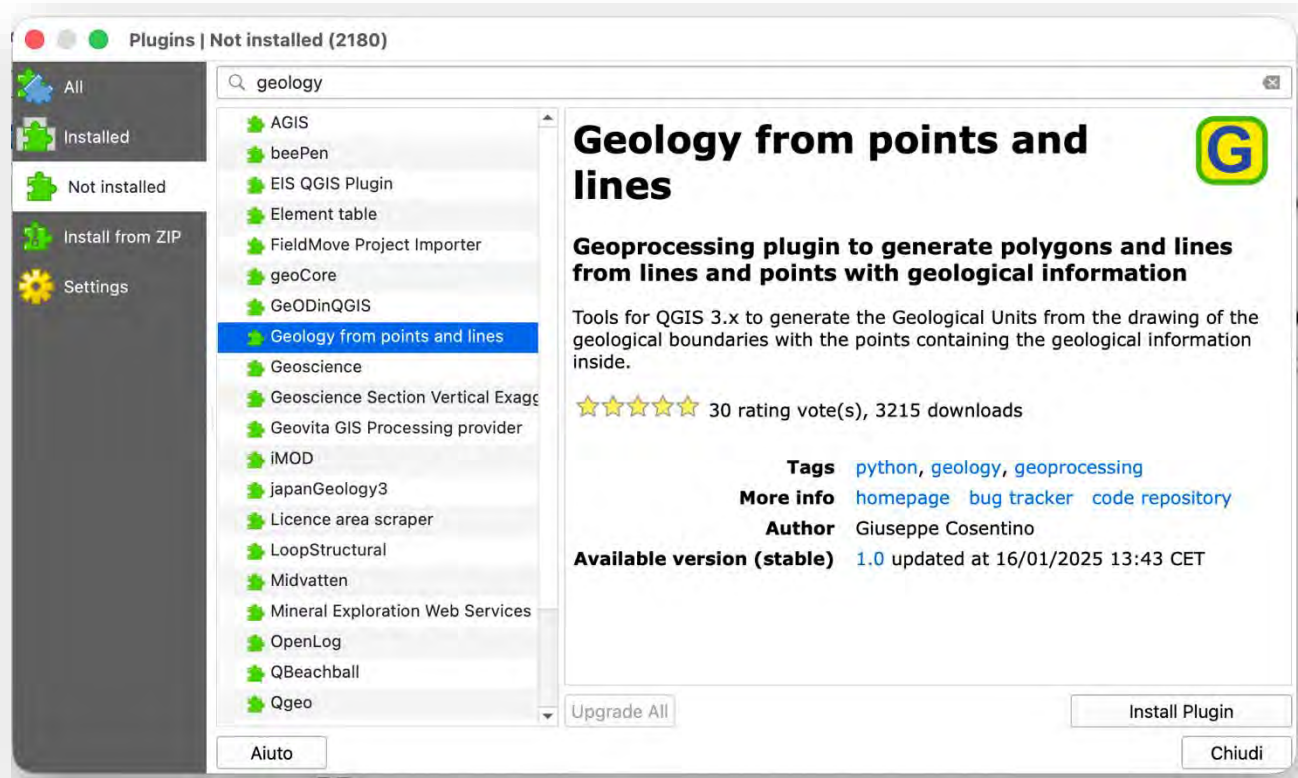


Figure 2. Plugin Search and Installation

Once installed, the plugin will be available in the Processing Tools section (Figure 3. QGIS Processing Tools Section). Clicking on the tool will open the interface for selecting input files and configuring the geoprocessing operations that will generate the geological map files. (Figure 4. Plugin Input and Output data entry form)

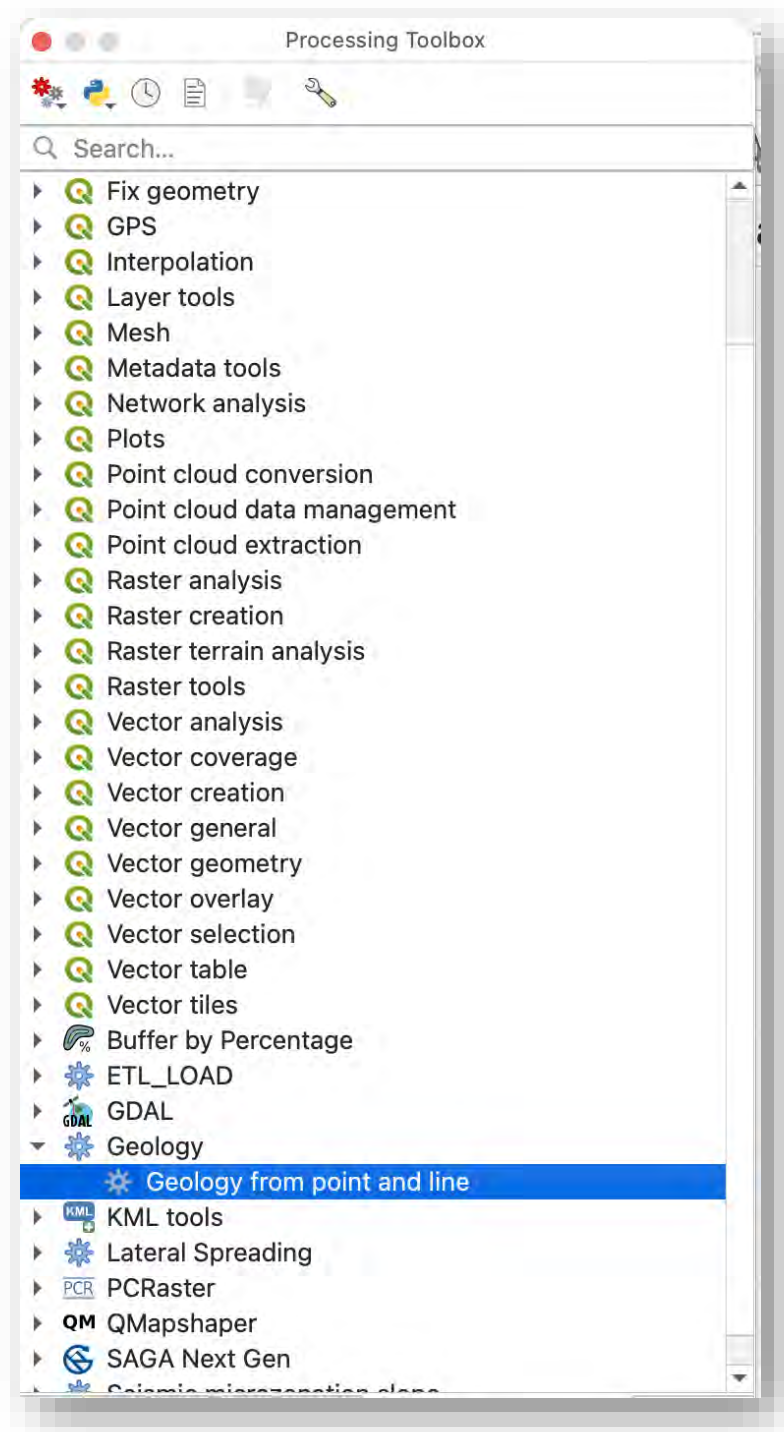


Figure 3. QGIS Processing Tools Section

Geological drawing - Geology from point and line

Parametri Log

Points with geological information (centroid)

[Crea layer temporaneo]

☐ Solo elementi selezionati

Geological Attribute INPUT

[Crea layer temporaneo]

Line drawing (geological contacts)

[Crea layer temporaneo]

Polygons

[Crea layer temporaneo]

☒ Apri il file risultante dopo l'esecuzione dell'algoritmo

clean points

[Crea layer temporaneo]

☒ Apri il file risultante dopo l'esecuzione dell'algoritmo

Segments of the drawing of geological contacts

[Crea layer temporaneo]

☒ Apri il file risultante dopo l'esecuzione dell'algoritmo

Geological polygons

[Crea layer temporaneo]

☒ Apri il file risultante dopo l'esecuzione dell'algoritmo

Geology contacts (point attributes)

[Crea layer temporaneo]

☒ Apri il file risultante dopo l'esecuzione dell'algoritmo

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Aiuto Avanzato Esegui come Processo in Serie... Chiudi Esegui

Geology from point and line

This method allows for the creation of a digital geological map starting from point and line data, automating the process of generating geological units and simplifying the creation of detailed geological maps. Geoprocessing tools for QGIS 3.x to generate Geological Units from the drawing of geological boundaries, with points containing geological information (ID code of the Geological Units).

Esempi

1) Create the lines: Use QGIS editing tools to draw the lines (geological contacts) that define the boundaries of the future polygons. Ensure that the lines intersect or touch correctly to form closed areas.

2) Insert the points: Add the points that represent geological information you want to use to create the polygons.

3) Generate the polygons and lines (geological contacts): Use the plugin 'Geology from points and lines' to generate polygons and geological contacts. This tool connects the points and lines to create enclosed areas and attributes the geological information contained in the points.

[Schema link](#)

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Figure 4. Plugin Input and Output Data Entry Form

Geological Editing Method

- 1) Create the lines: Use QGIS editing tools to draw the lines (geological contacts) that define the boundaries of the future polygons. Ensure that the lines intersect or touch correctly to form closed areas.
- 2) Insert the points: Add the points that represent geological information you want to use to create the polygons.
- 3) Generate the polygons and lines (geological contacts): Use the plugin 'Geology from points and lines' to generate polygons and geological contacts. This tool connects the points and lines to create enclosed areas and attributes the geological information contained in the points.