

Presentation of data and definition of anomalies

A. Chimarach

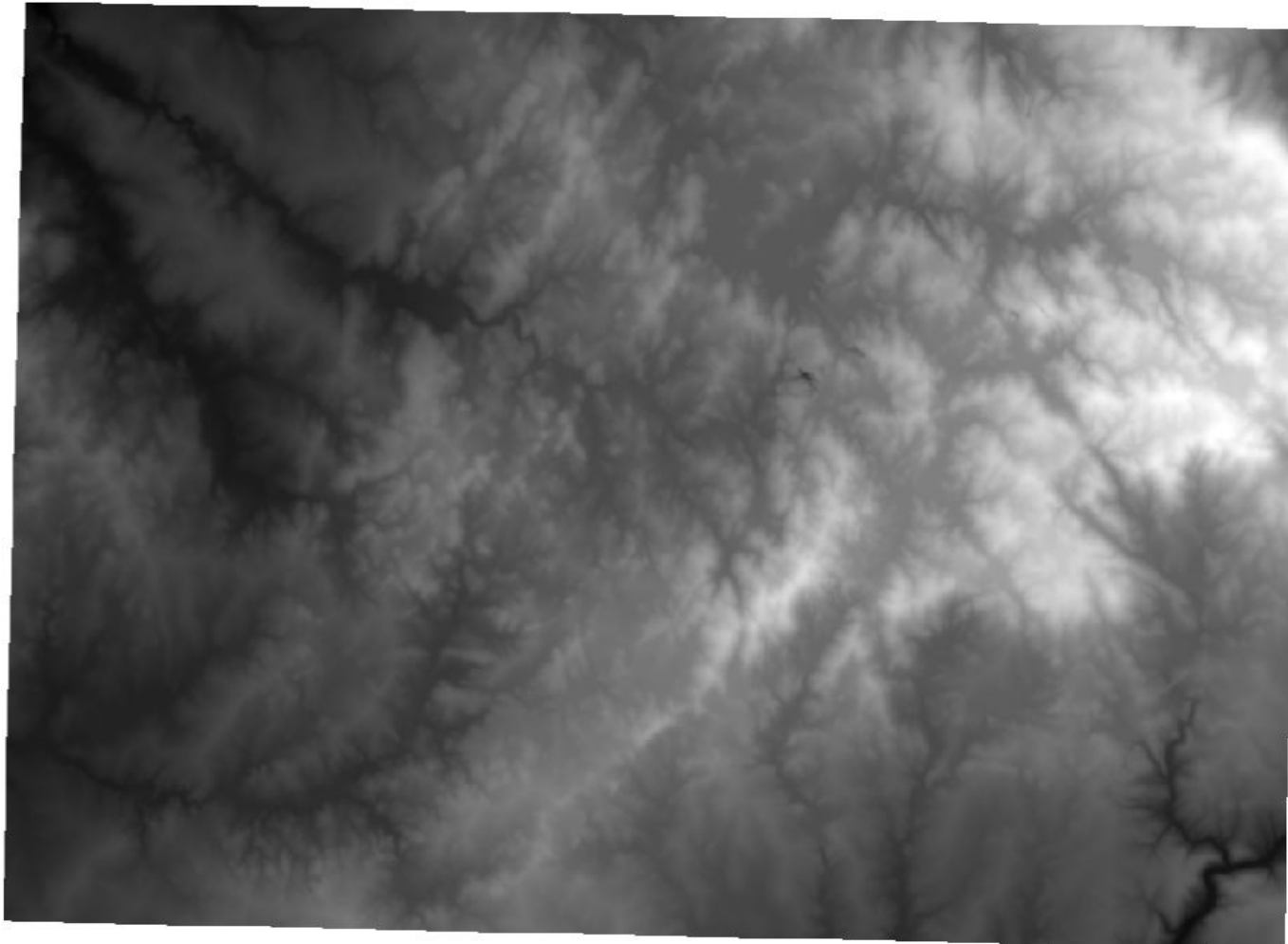


Presentation Overview

- 1) Data presentation
- 2) Definition of anomalies and example of results

The data is stored on a shared space

MNT :

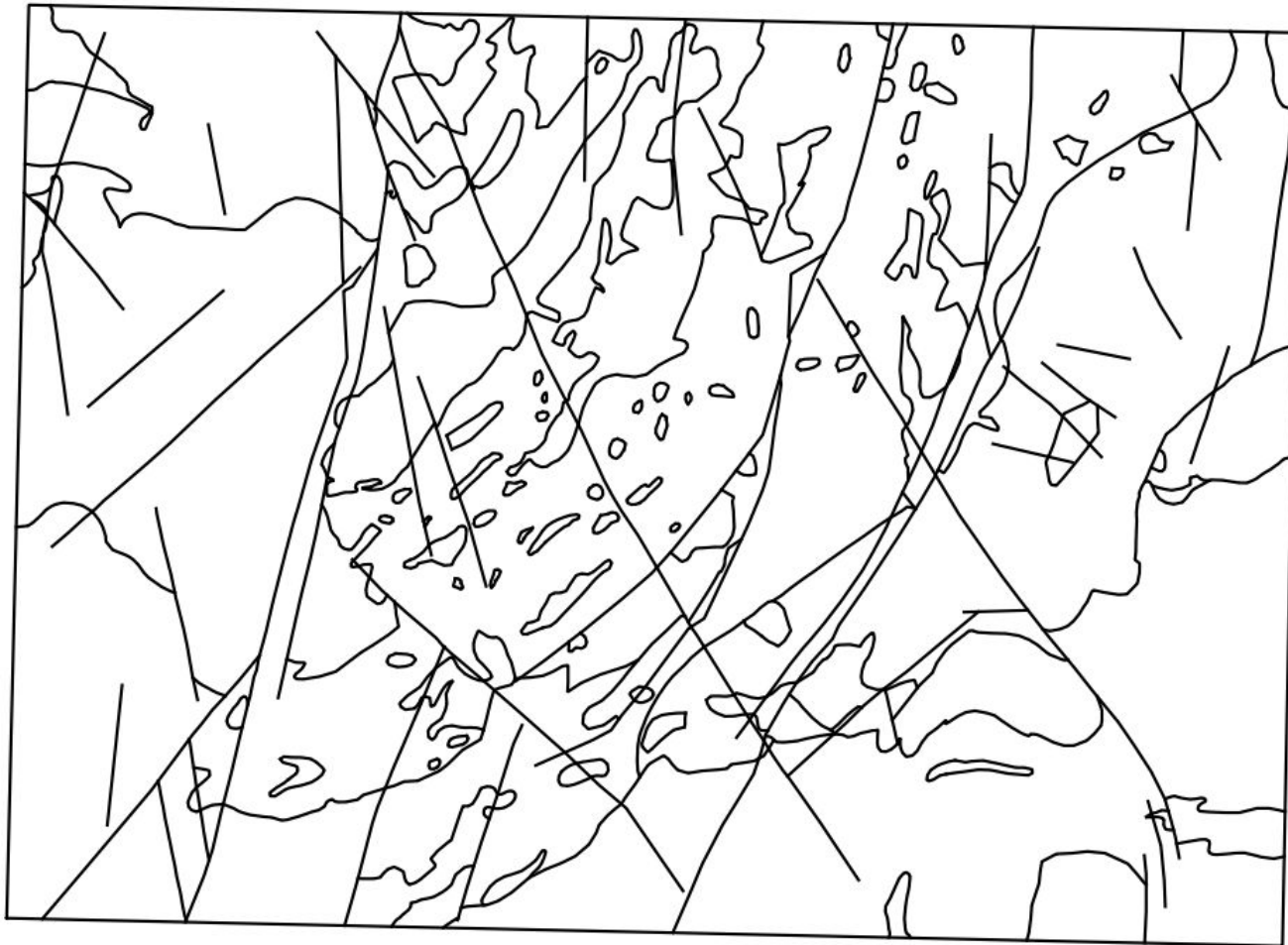


- A raster (which can be opened with python libraries such as rasterio).
- A raster is a grid of pixels containing information.
- Pixel measuring 25x25m providing altitude information (in metres)
- Surface geochemistry is strongly influenced by topography

Formatting in QGIS

The data is stored on a shared space

Geological structures (L_GEOL):



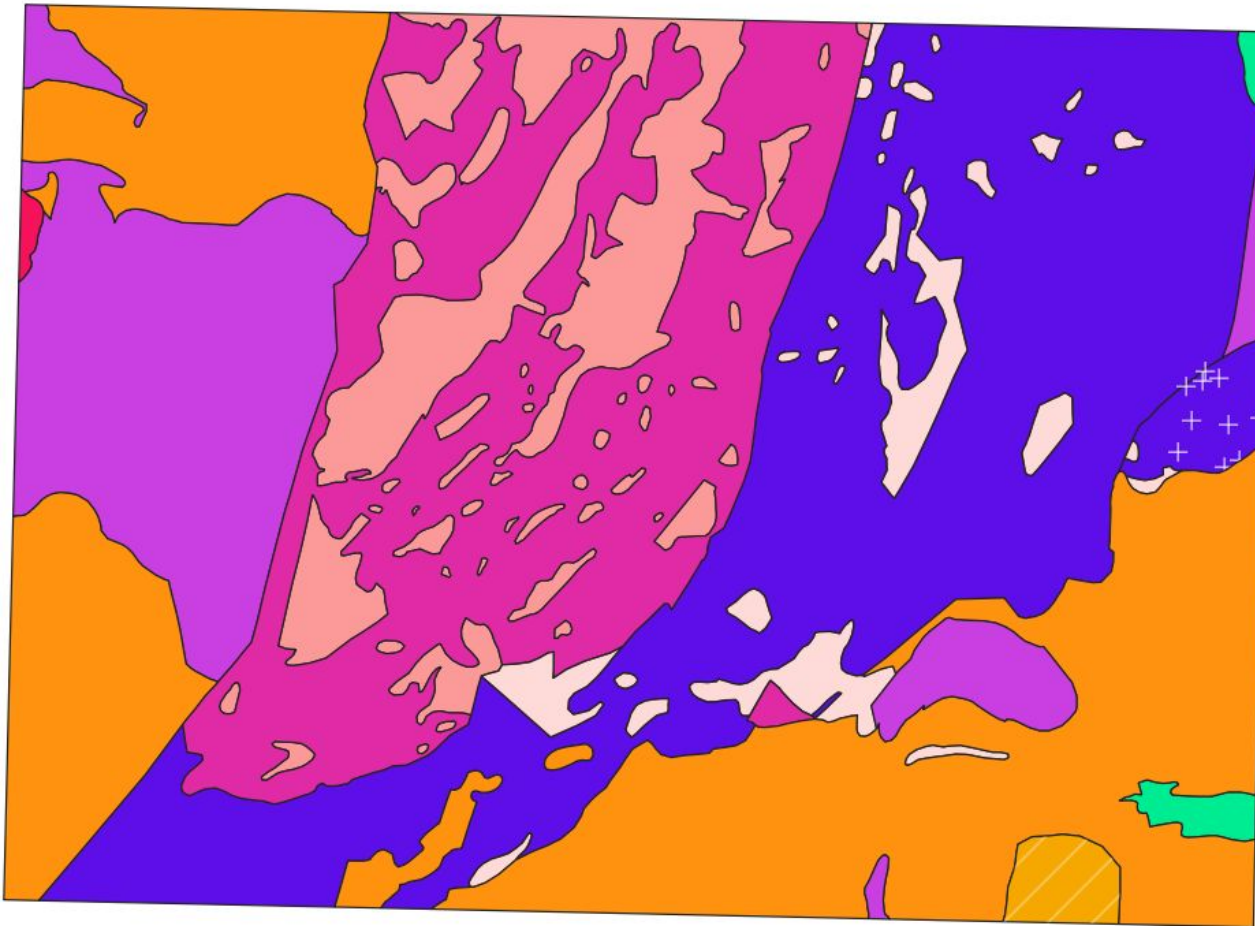
Formatting in QGIS 3.40

	Type
1	Contour de la carte
2	Contour de la carte
3	Faille normale
4	Faille de Nantiat
5	Faille de Nantiat
6	Faille

- GeoJSON
- Different geometries
- The most important thing is in the 'type': everything that contains 'Fault' and 'Geological outline'. The most important thing is in the 'type': everything that contains "Fault" and 'Geological outline'.
- The analysis points are therefore located more or less close to the geological structures.

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Geological layers (S_GEOL):



Formatting in QGIS 3.40

	CODE	Super_Grou	Groupe	Formation
1	72	Roches plutoni...	Suite alumineuse	Granite de Saint-Sylvestre
2	76	Roches plutoni...	Suite alumineuse	Granite de Châteauponsac
3	75	Roches plutoni...	Suite alumineuse	Granite de Vaulry
4	72	Roches plutoni...	Suite alumineuse	Granite de Saint-Sylvestre à gros quartz globuleux
5	71	Roches plutoni...	Suite alumineuse	Granite de la Brême
6	10	Unité s m t...	Unité Para-Autochtone (UPA)	Micaschistes
7	77	Roches plutoni...	Suite alumineuse	Granite de Fanay
8	74	Roches plutoni...	Suite alumineuse	Granite de Saint-Goussaud
9	23	Unité s m t...	Unité Inférieure des Gneiss (UIG)	Orthogneiss
10	70	Roches plutoni...	Suite alumineuse	Granite alumino-potassique
11	73	Roches plutoni...	Suite alumineuse	Granite de Blond
12	24	Unité s m t...	Unité Inférieure des Gneiss (UIG)	Orthogneiss - Migmatitiques

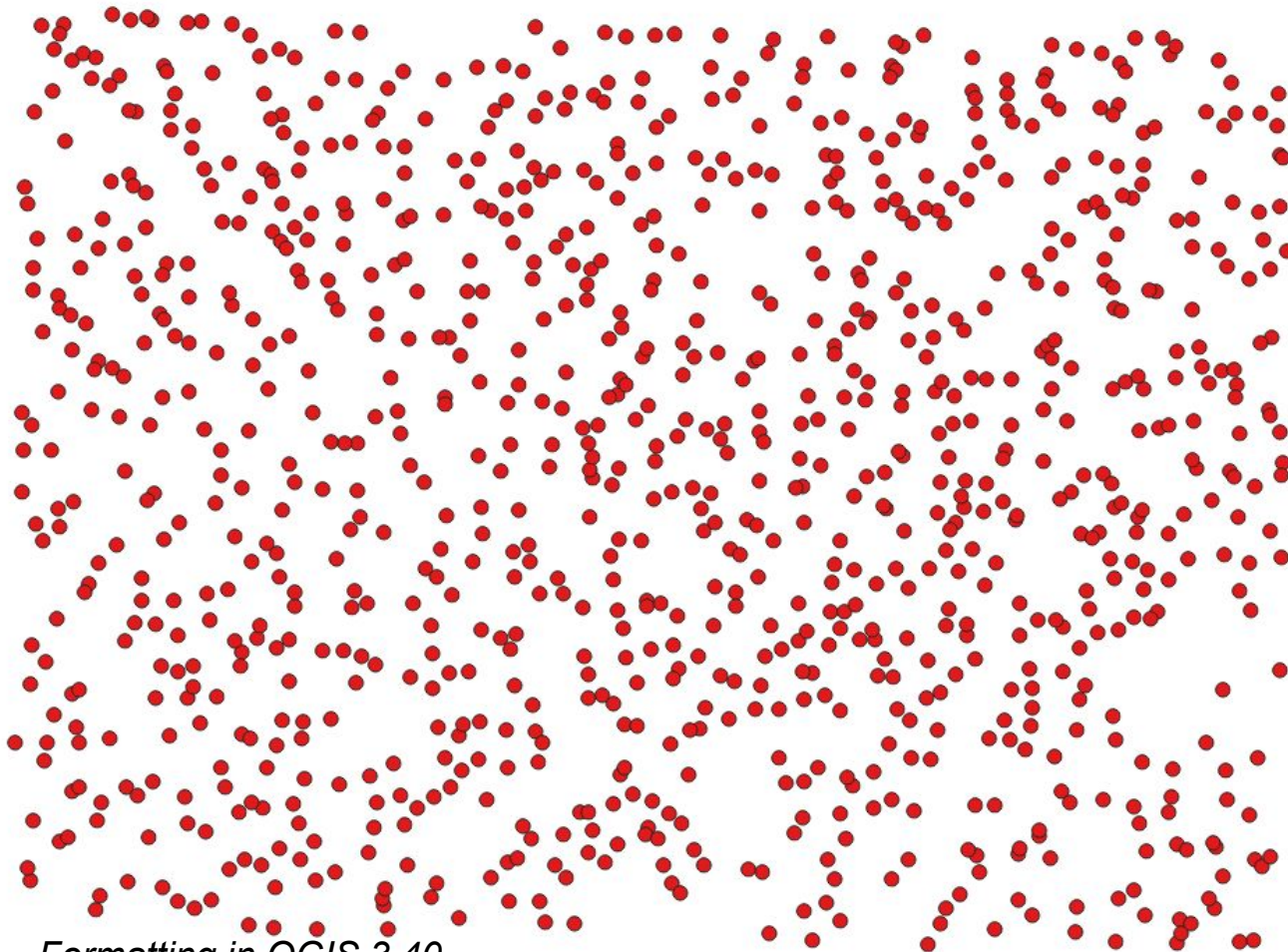
- GeoJSON
- Different geometries and polygons
- The most important attribute is 'Training'.
- The analysis points are therefore located/contained within polygons of different natures

Data presentation

The data is stored on a shared space

Geochemical points

	INDC_B	X	Y	Au_ppb	Ag_ppm	Al_pct	As_ppm	Ba_ppm	Be_ppm	Bi_ppm	Ca_pct	Cd_ppm	Ce_ppm	Co_ppm	Cr_ppm
1	0664/3214	578863	6553347	5,3	0,17	7,66	45,6	460	11,4	1,96	0,15	0,36	71,4	7	4



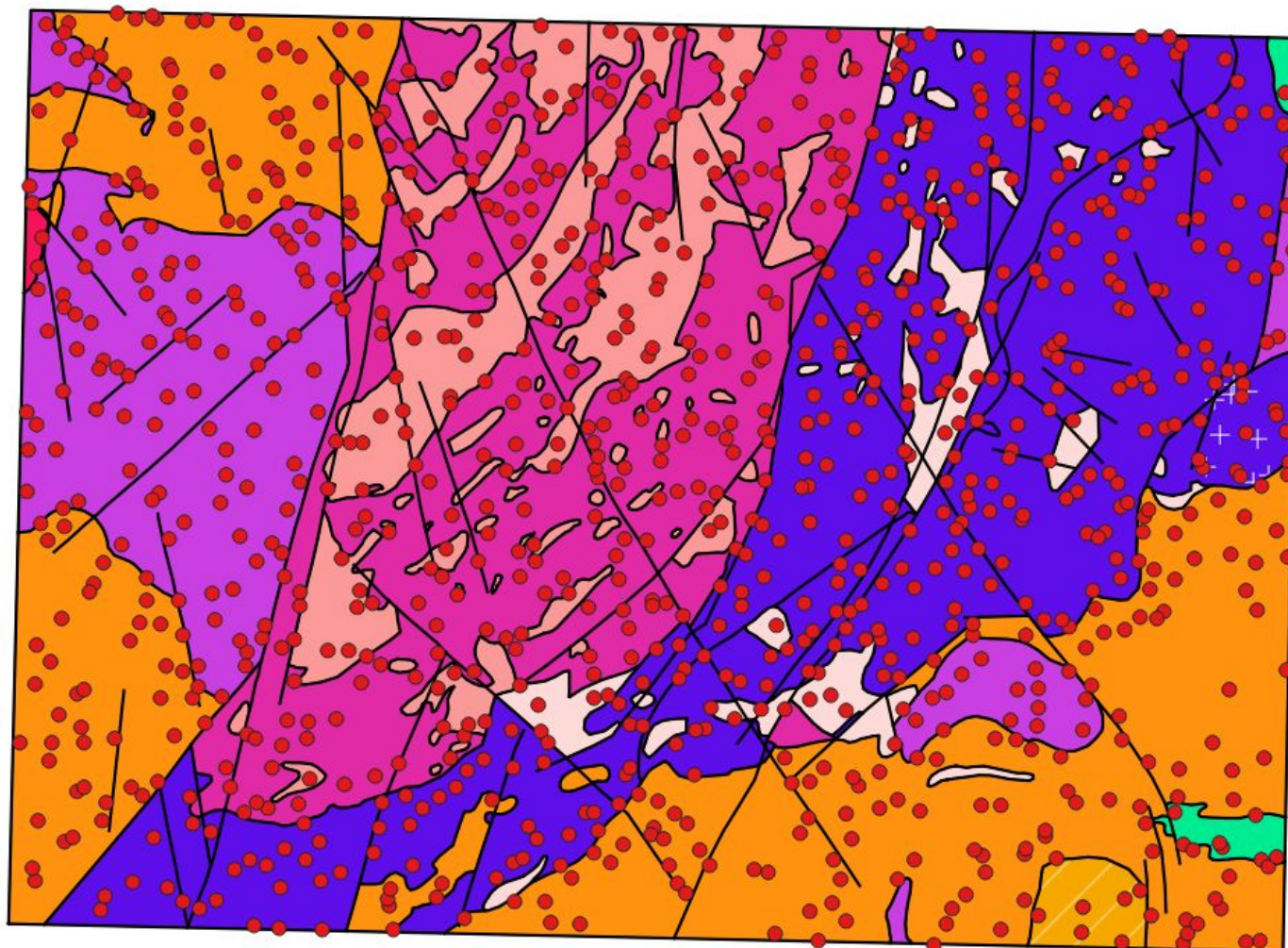
Formatting in QGIS 3.40

- GeoJSON
- Various attributes: the identifier (INDC_B), the coordinates (X and Y) and the 50 or so elements analysed (with their units)

Data Presentation

The data is stored on a shared space

Example with all the data (points, structures, geological layers)



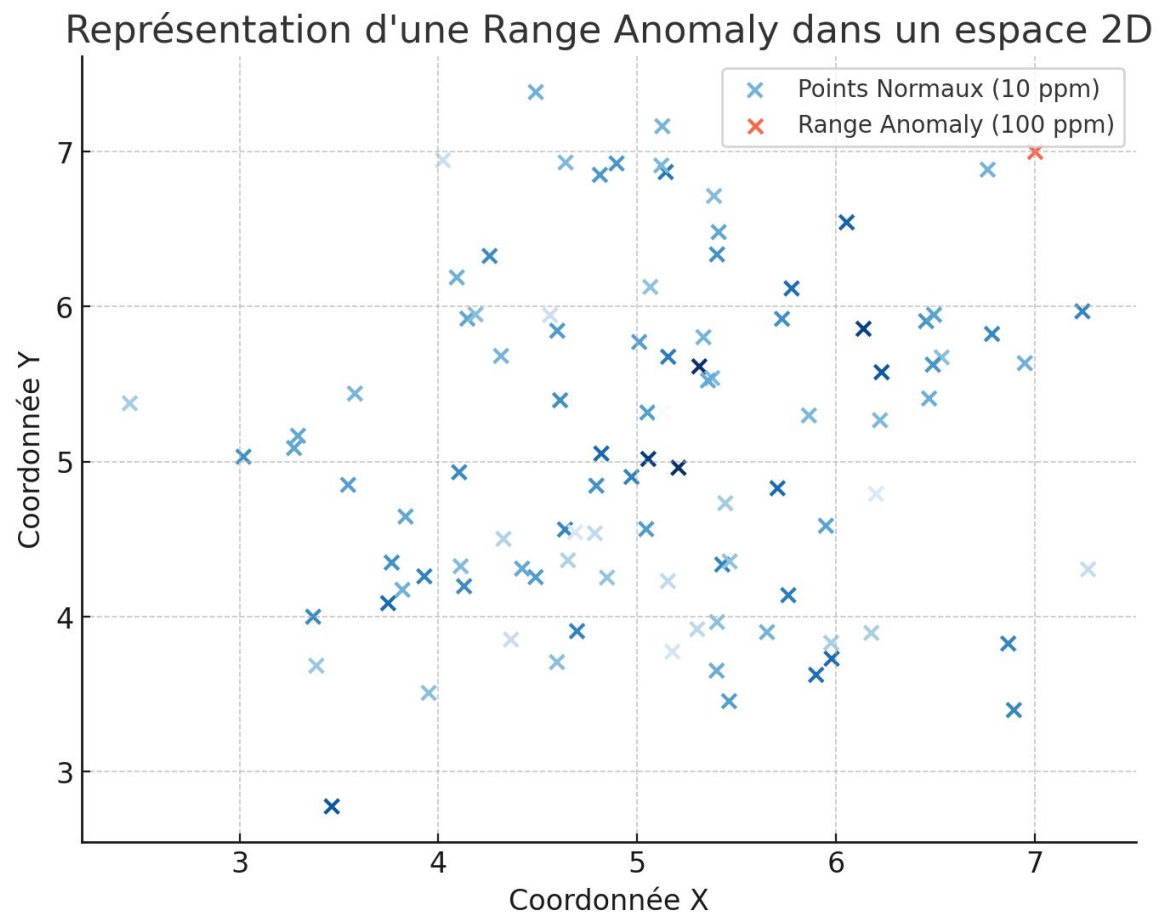
Formatting in QGIS 3.40

Primary objective: **To detect anomalies.**

Definition of anomalies and example of results

Range anomaly

A value that stands out strongly from the others in a series, often the maximum.

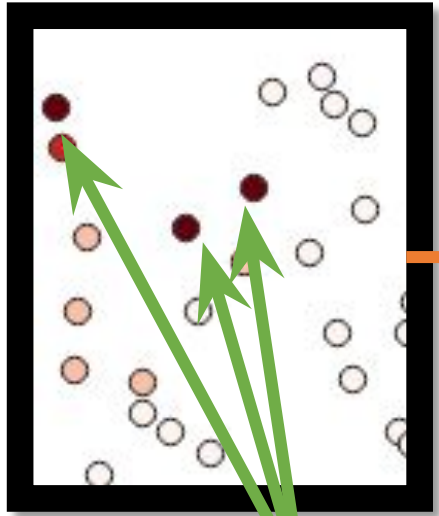


Any case where a point has a maximum value well beyond those of the data series

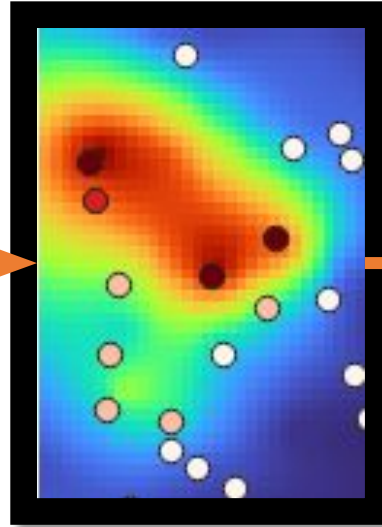
Definition of anomalies and example of results

Range anomaly

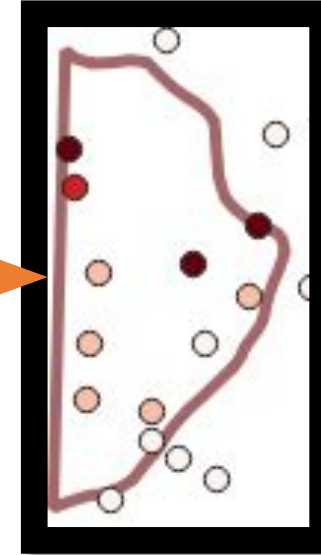
A value that stands out strongly from the others in a series, often the maximum.



Maximum tungsten values (W_ppm).
Descriptive statistics, graphs and thresholding ($\geq 95\%$ max. values)



Interpolation (IDW, Kriging,...)

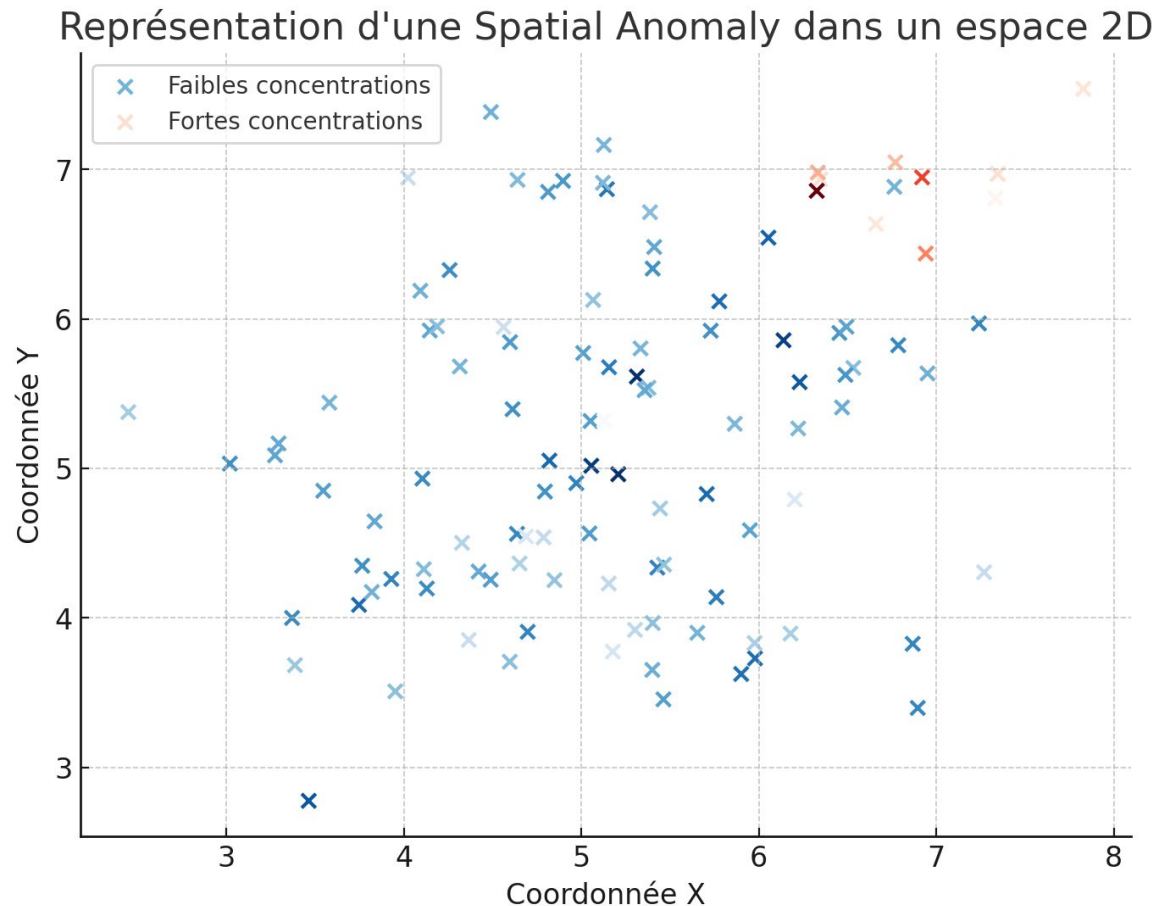


Example of tungsten anomaly tracing
(this is an expert's opinion and is open to debate and interpretation)

Definition of anomalies and example of results

Spatial anomaly

High (or low) value in relation to neighbouring points without necessarily being the extreme value in the series

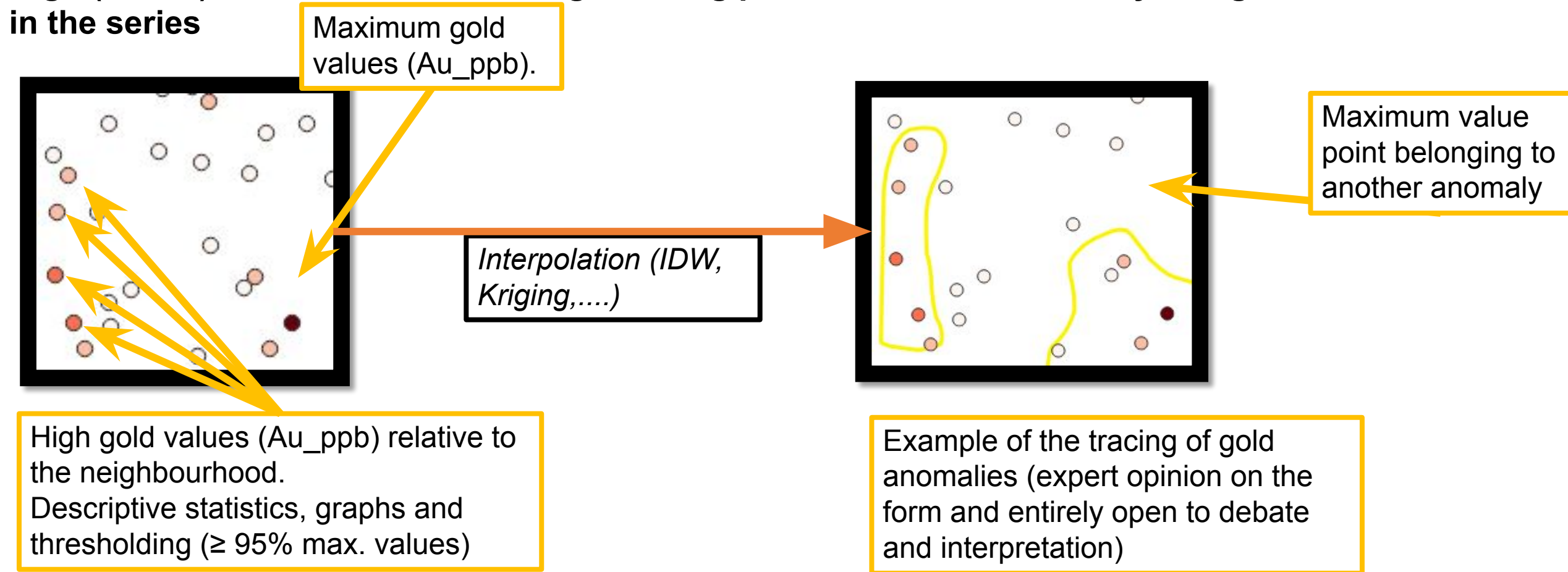


Any case where points have a high range of values compared with the surrounding area. Often the case in stream geochemistry

Definition of anomalies and example of results

Spatial anomaly

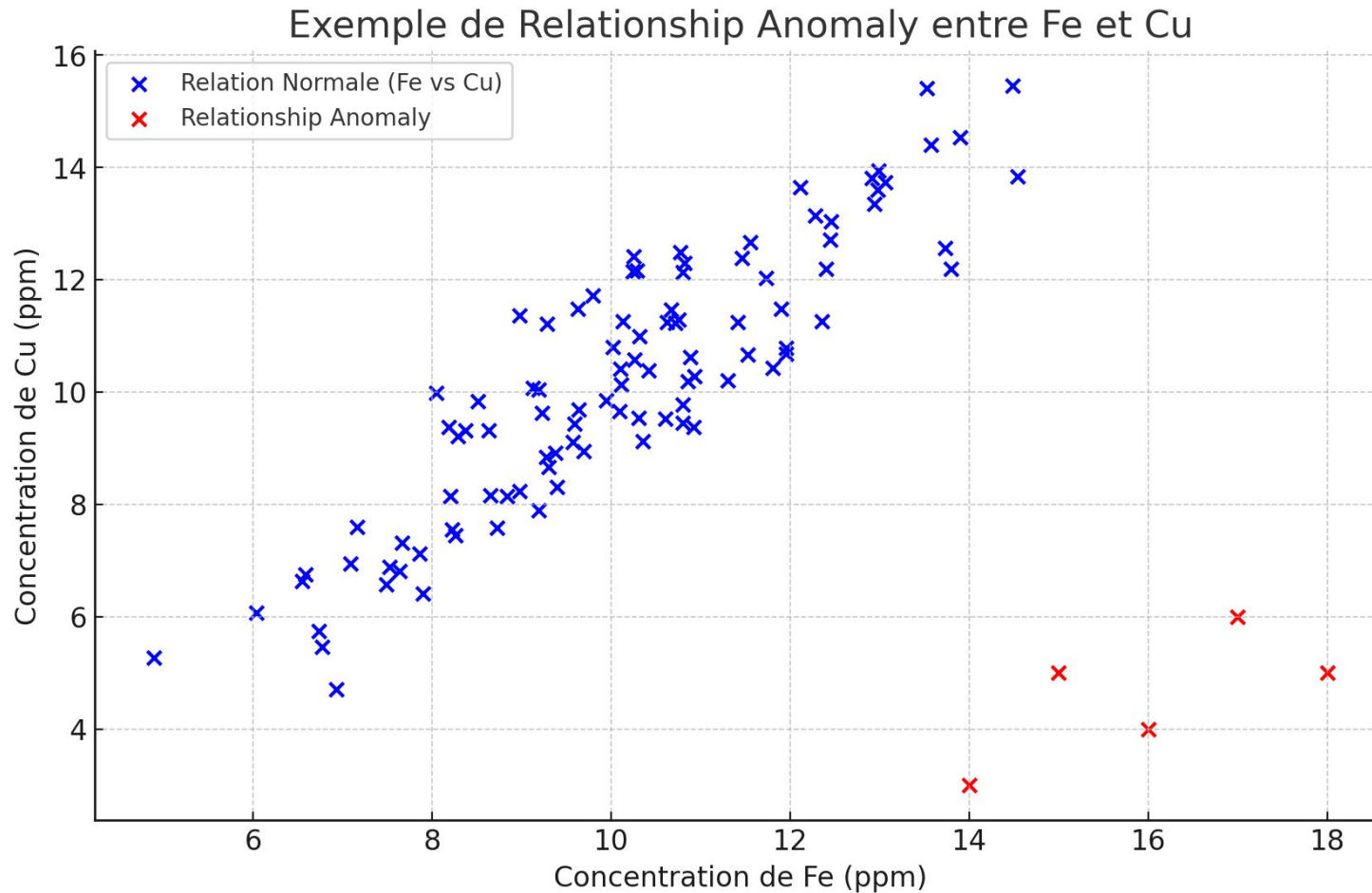
High (or low) value in relation to neighbouring points without necessarily being the extreme value in the series



Definition of anomalies and example of results

Relationship anomaly

Relationships between specific elements



Fe and Cu are often expected to be correlated. Cu generally follows the increase in Fe

The red dots illustrate the relationship anomaly, where although Fe is high, Cu remains low (any example).

To be tested on different combinations of elements. 2 or 3 or more (very little done in Ambazac with few concrete examples).