

Filière Génie de l'Environnement & Géosciences (S3)

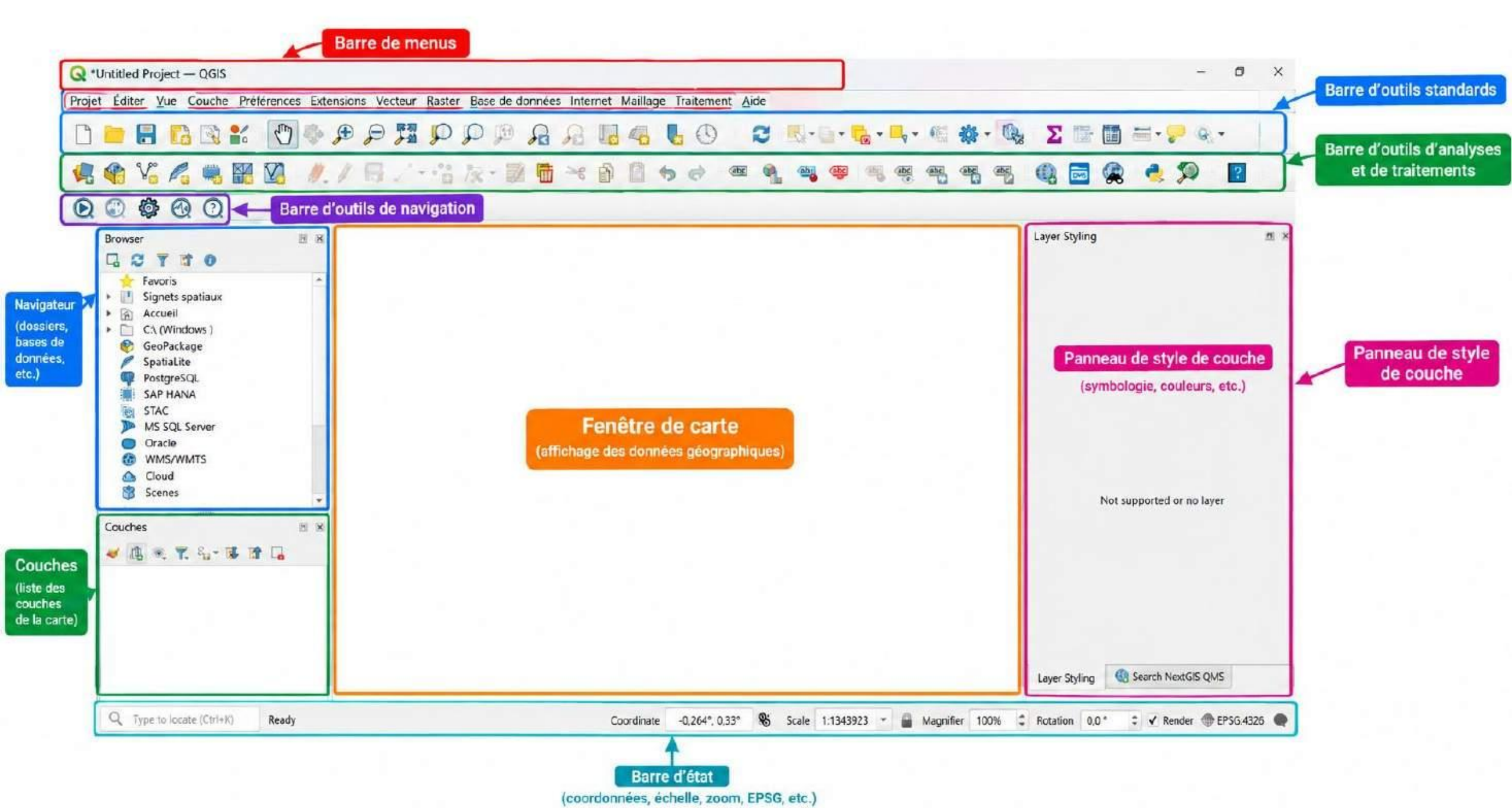
Module : Géomatique

TP N°1 : Installation de QGIS et géoréférencement de la carte

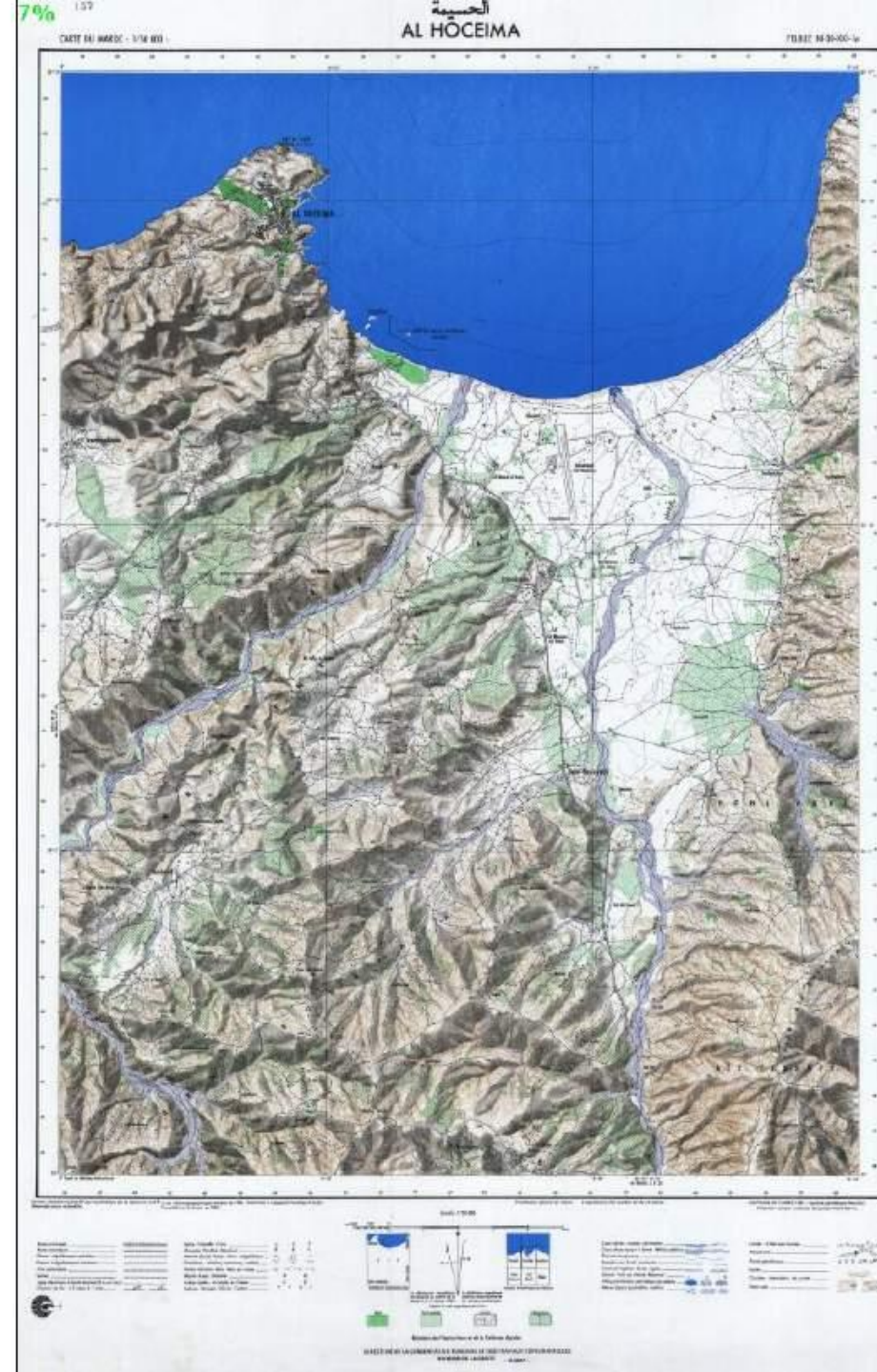


Prof. Morad TAHER

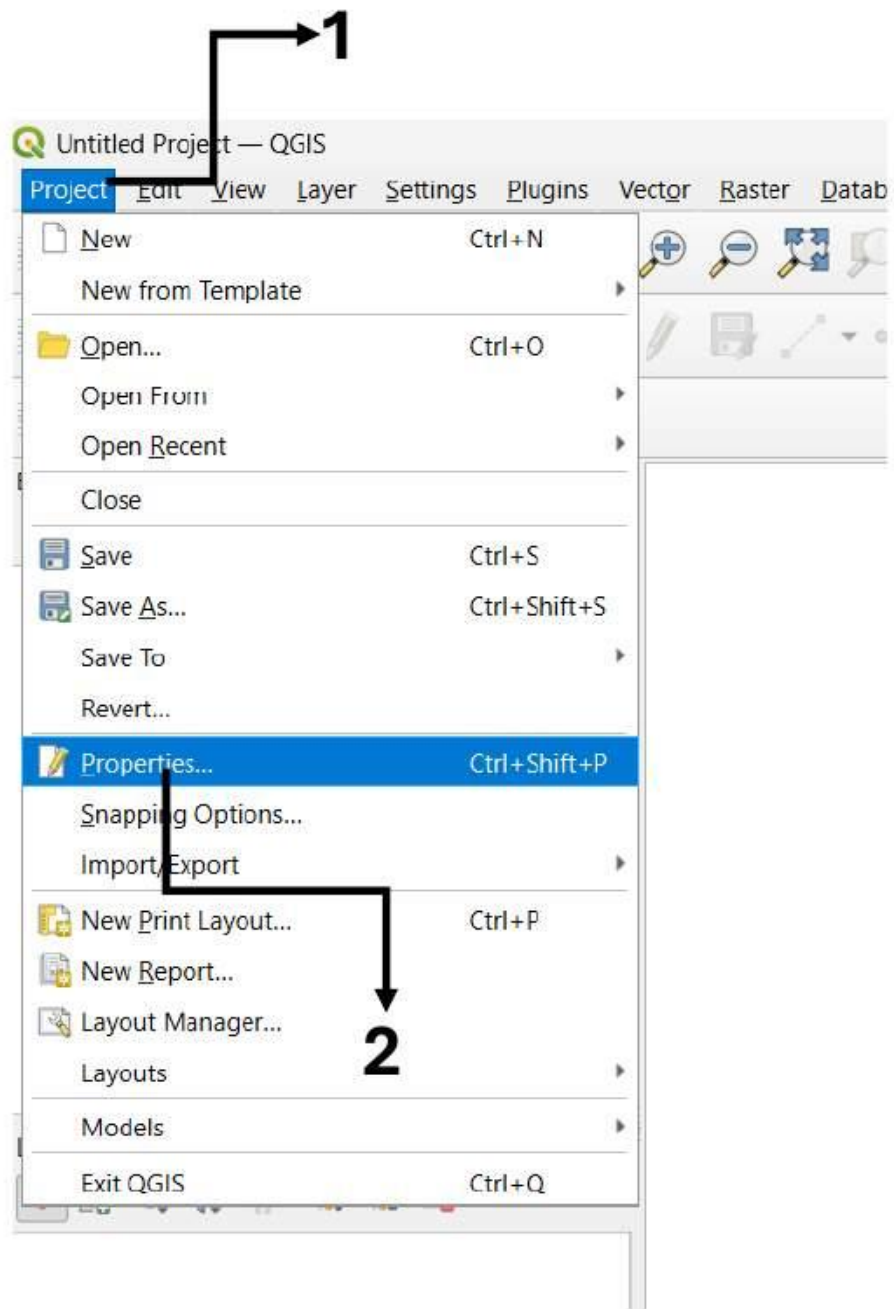
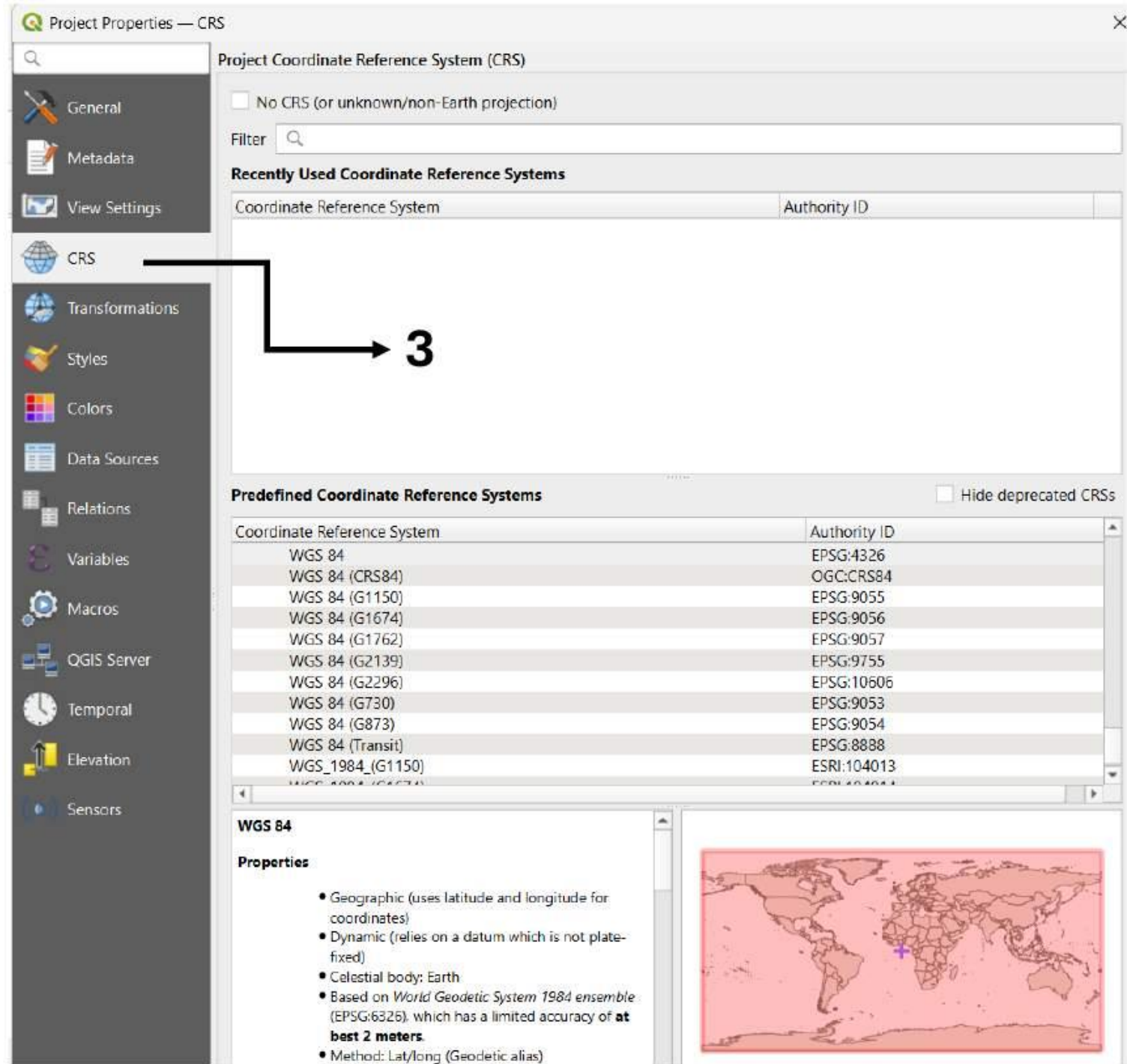
Géoréférencer une image raster



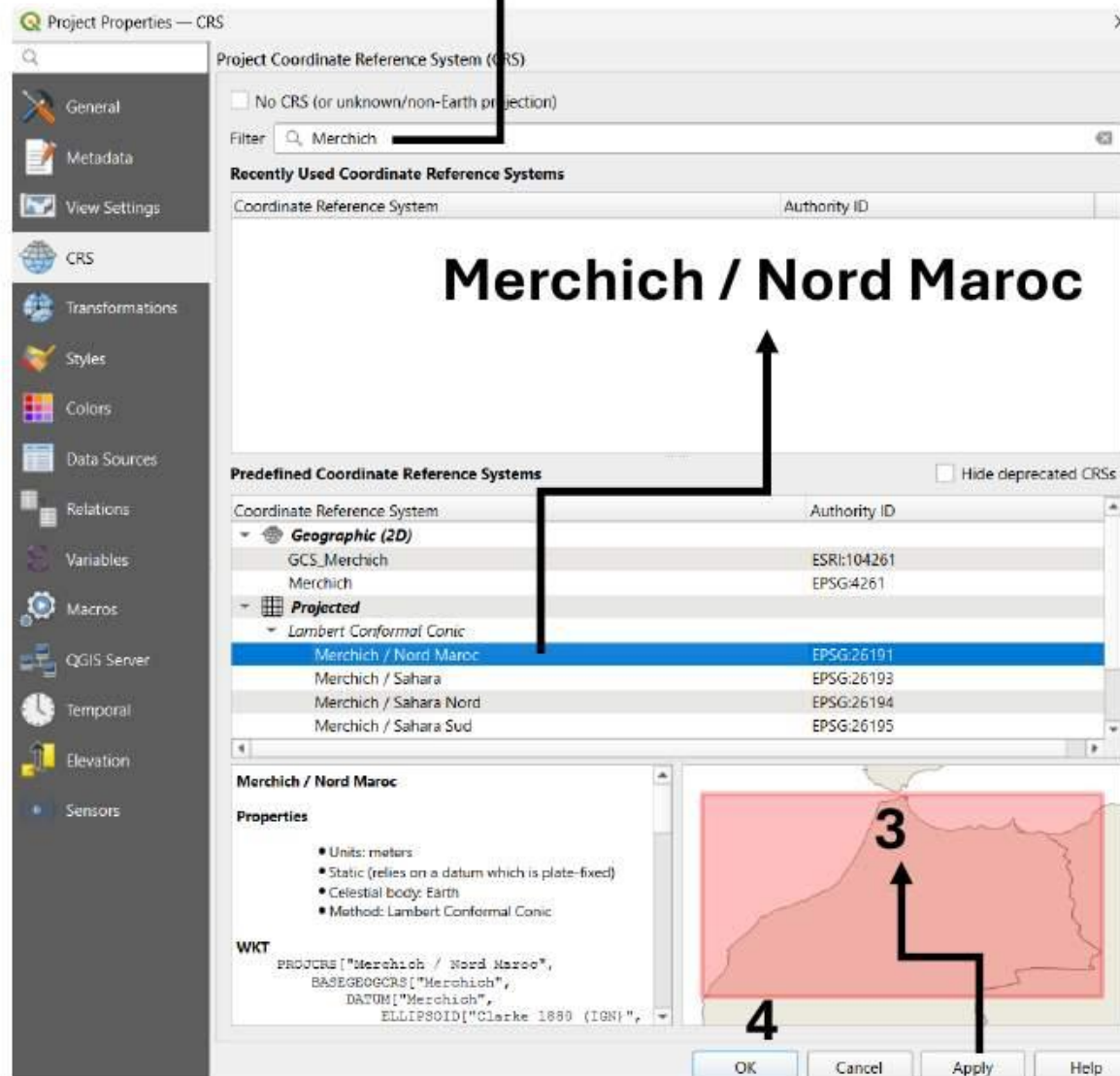
Carte topographique d'Al Hoceima



Définir le système de coordonnées de référence (SCR) du projet QGIS.

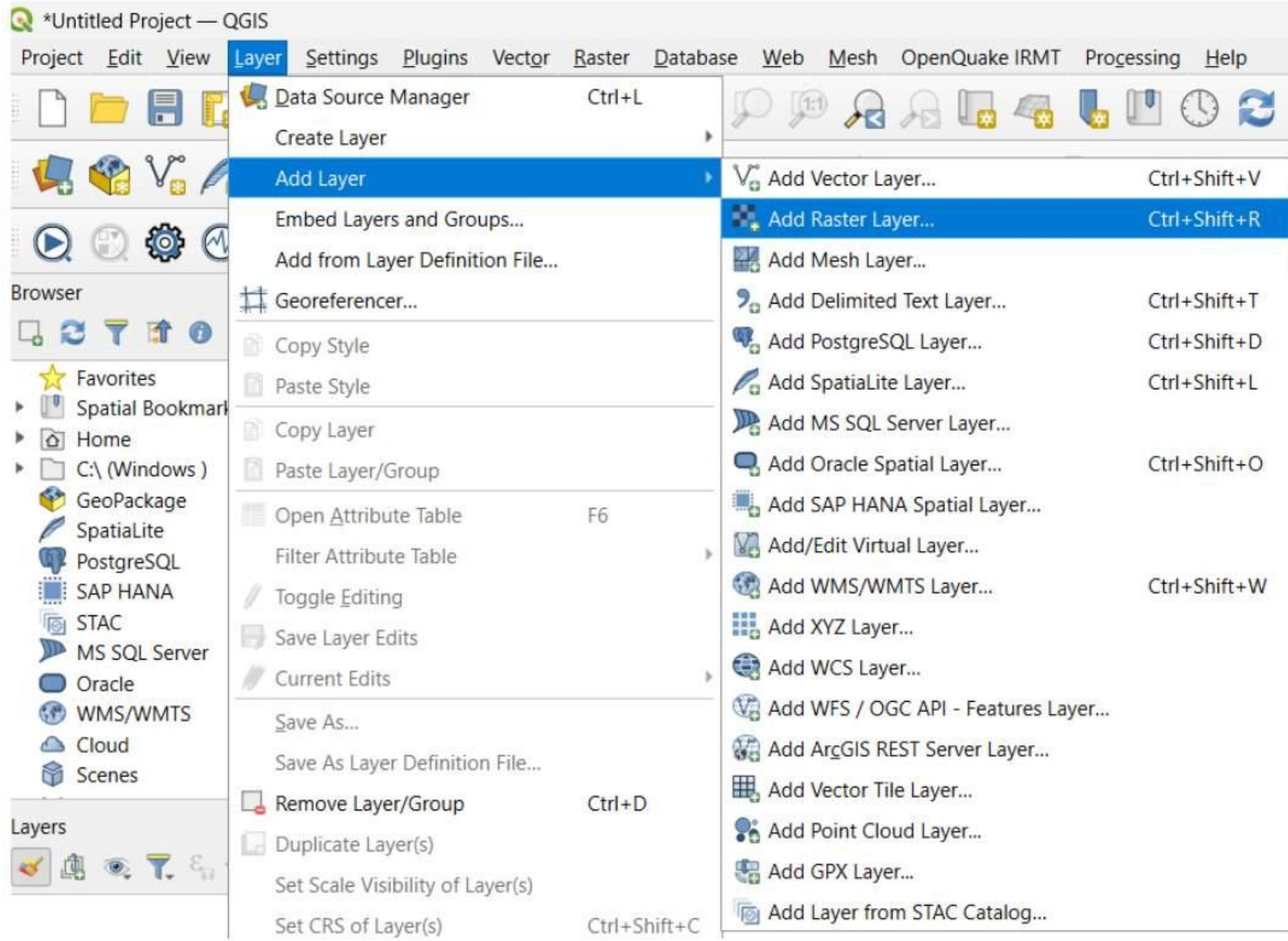


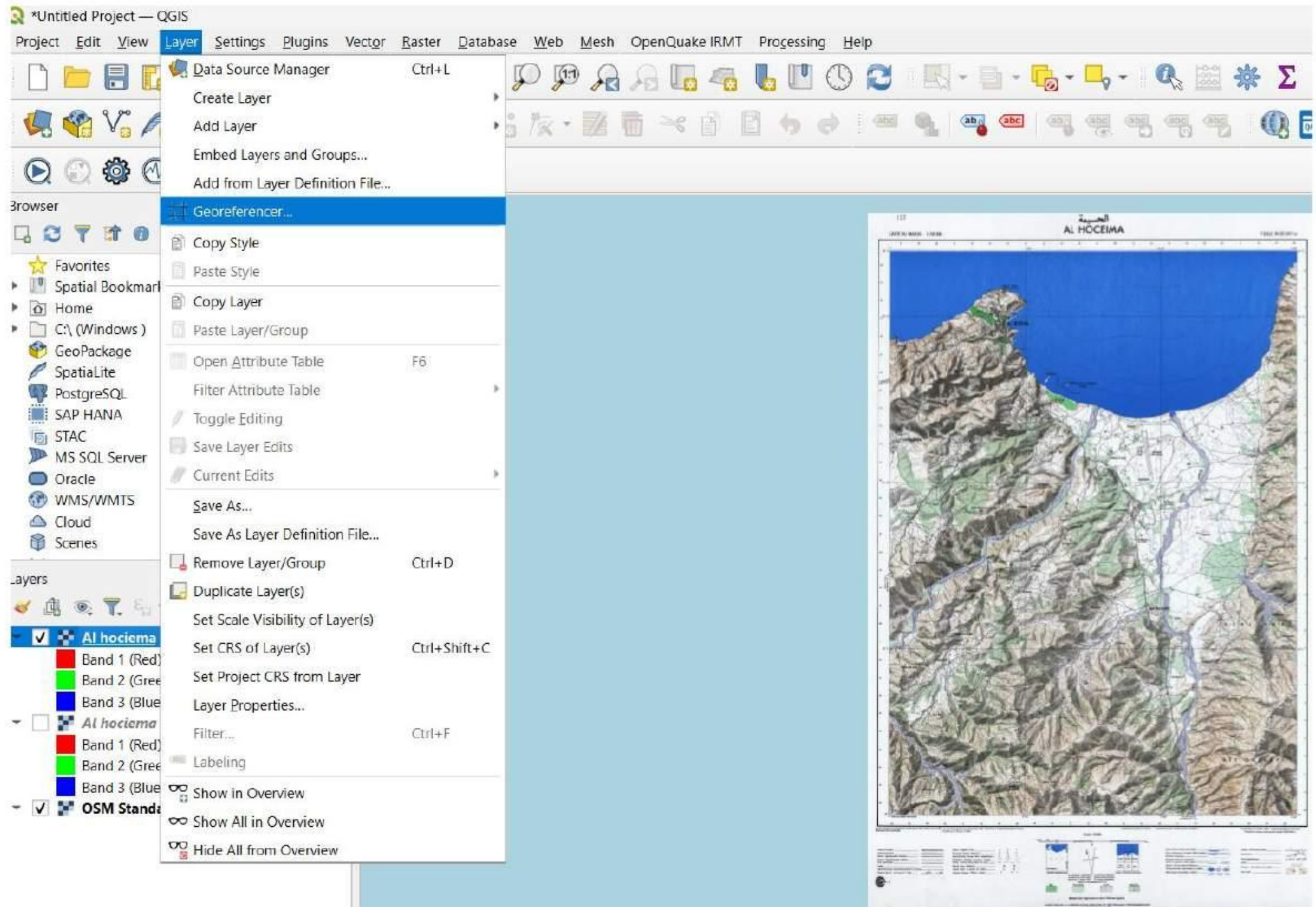
Merchich



Méthode 1 : Géoréférencement à partir de points de coordonnées

Ajouter Image raster







Georeferencer - Al hociema.jpg

File

Edit

View

Settings



Reset Georeferencer



Open Raster...

Ctrl+O



Open Vector...



Start Georeferencing

Ctrl+G



Generate GDAL Script

Ctrl+C



Load GCP Points...

Ctrl+L



Save GCP Points as...

Ctrl+S

Close Georeferencer

Ctrl+Q



Open Raster



« TP géomatique » TP QGIS » TP N°1



Search TP N°1



Organize ▾

New folder



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Desktop

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Al hociema



Al hociema.jpg.aux



Al hociema.wld



Al hociema_modifie
d



TP N°1

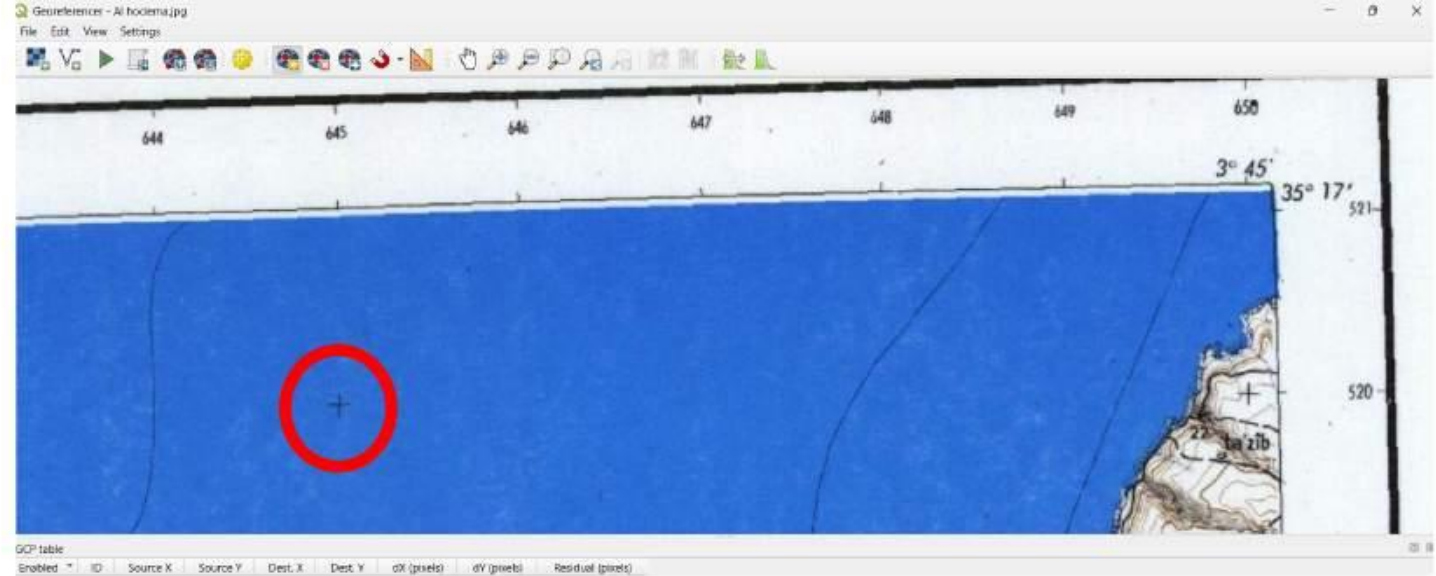
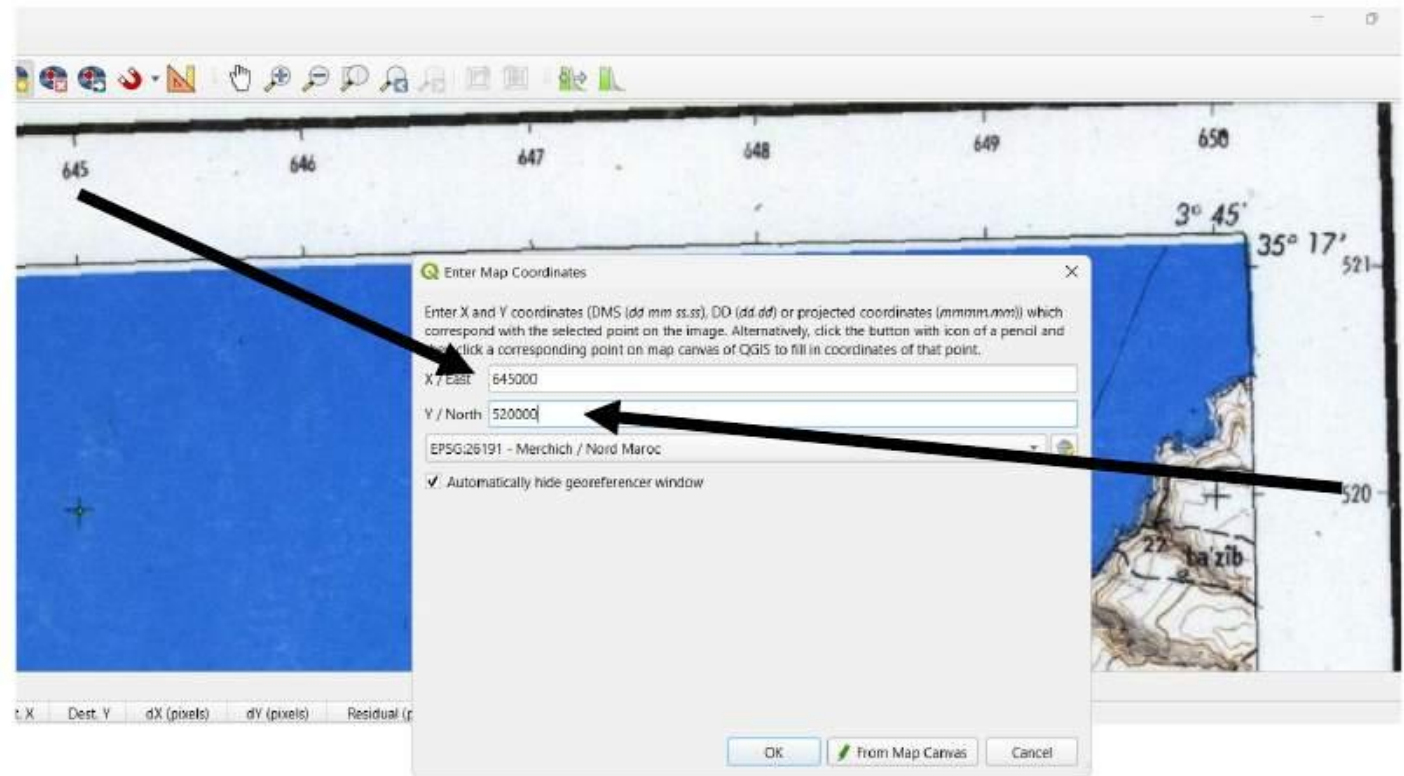
File name:

All other files

Open



Cancel



Transformation géométrique de l'image

Appliquer une transformation géométrique afin d'ajuster l'image raster aux coordonnées des points de contrôle et de minimiser les écarts entre les points correspondants.



Transformation Settings...

Source Properties...

Configure Georeferencer... Ctrl+P



GCP table

Enabled ▾	ID	Source X	Source Y	Dest. X	Dest. Y	dX (pixels)	dY (pixels)	Residual (pixels)
☒	0	1752.0251	-1512.8069	637405.31	513505.55	0.000000	0.000000	0.000000
☒	1	1338.8788	-916.226291	634768.99	517126.44	0.000000	-0.000000	0.000000
☒	2	1401.5885	-803.611002	635062.64	517969.59	n/a	n/a	n/a

Transformation Settings

Transformation Parameters

Transformation type: **Helmert**

Target CRS

Output Settings

Output file

Resampling method: Nearest Neighbour

Transformation Settings

Transformation Parameters

Transformation type: Helmert

Target CRS: **Project CRS: EPSG:26191 - Merchich / Nord Maroc**

Output Settings

Output file: e/TP QGIS/TP N°1/AI hociema_modified.tif

Resampling method: Nearest Neighbour

Vertical: -999999.00000

Reports

Generate PDF map

Generate PDF report

☐ Save GCP points

☒ Load in project when done

OK Cancel Help

Georeference AI hociema.jpg

File Edit View Settings



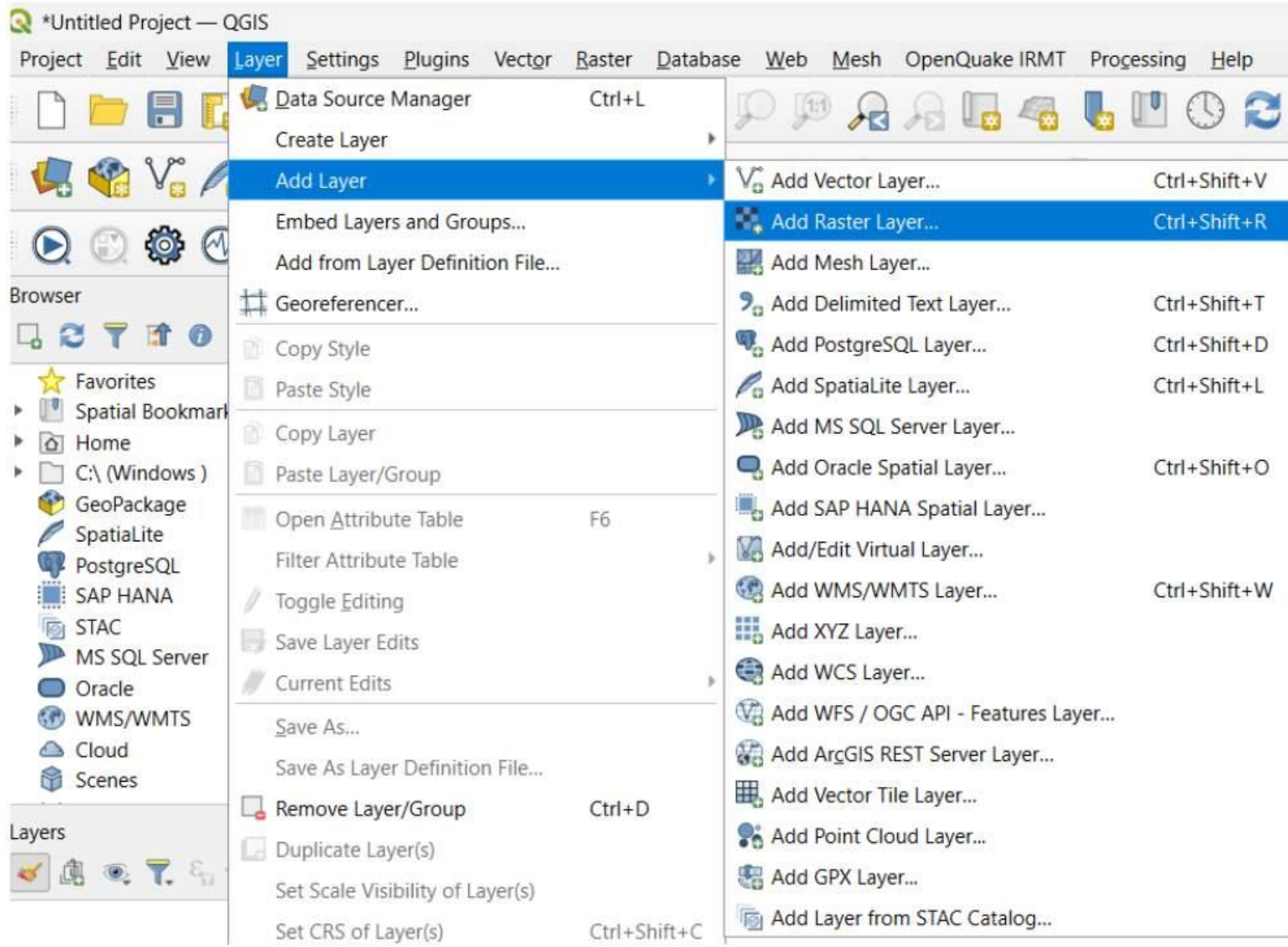
GCP table

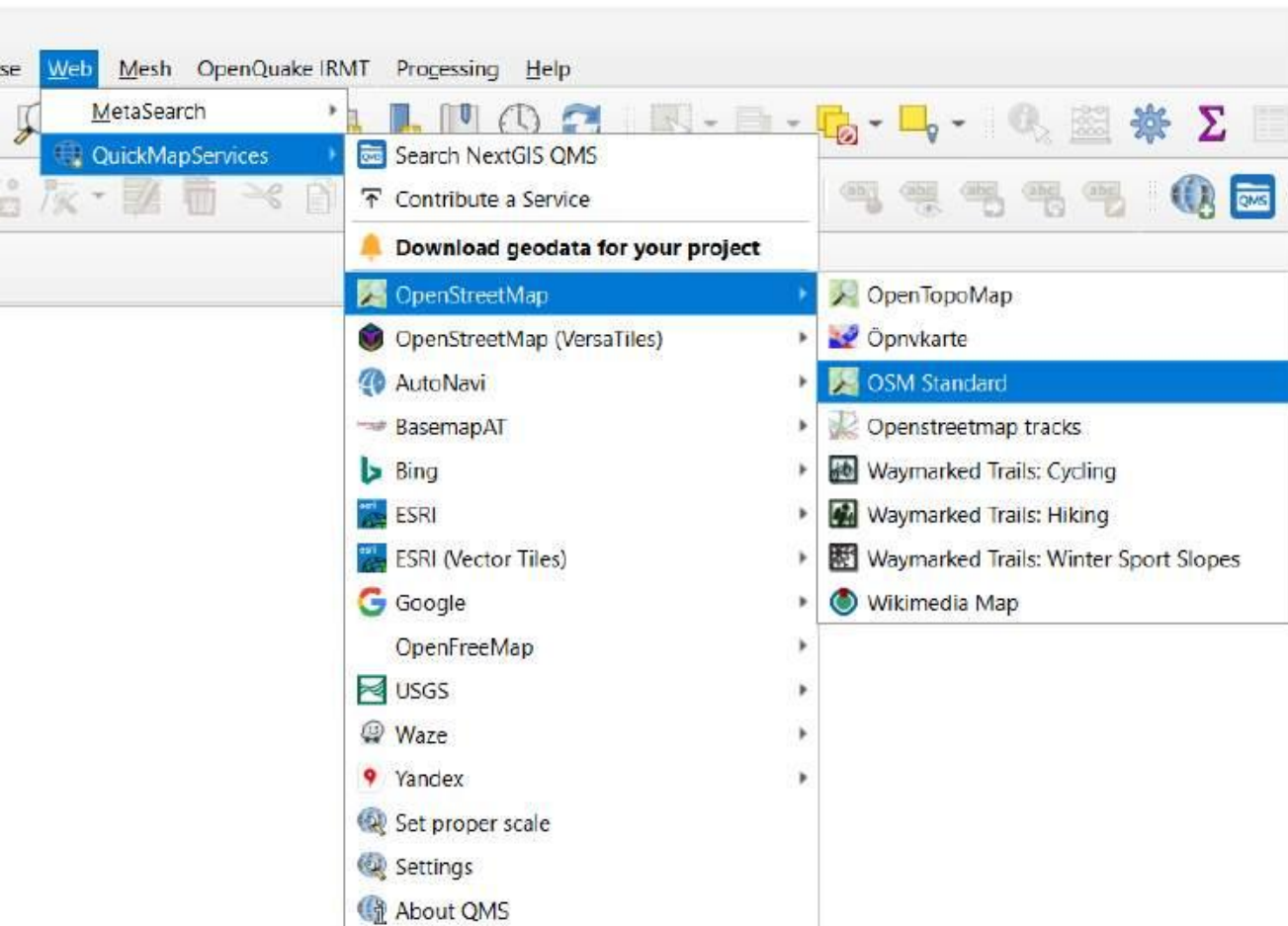
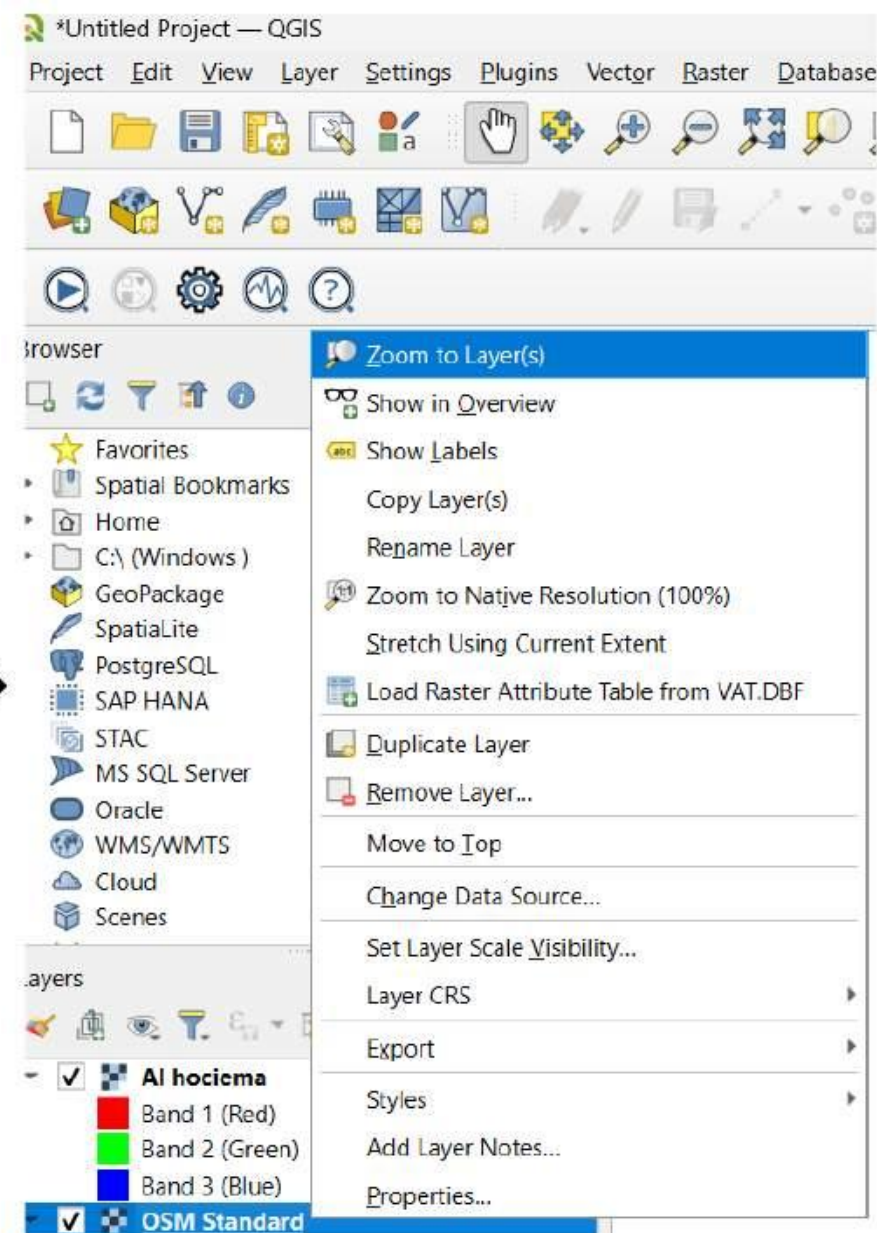
Enabled	ID	Source X	Source Y	Dest. X	Dest. Y	dX (pixels)	dY (pixels)	Residual (pixels)
☒	0	1752.0251	-1512.8069	637405.31	513505.55	-2.021677	0.043407	2.022143
☒	1	1338.8788	-916.226291	634768.99	517126.44	7.263410	10.062326	12.409977
☒	2	1401.5885	-803.611002	635062.64	517969.59	-5.241733	-10.105733	11.384270

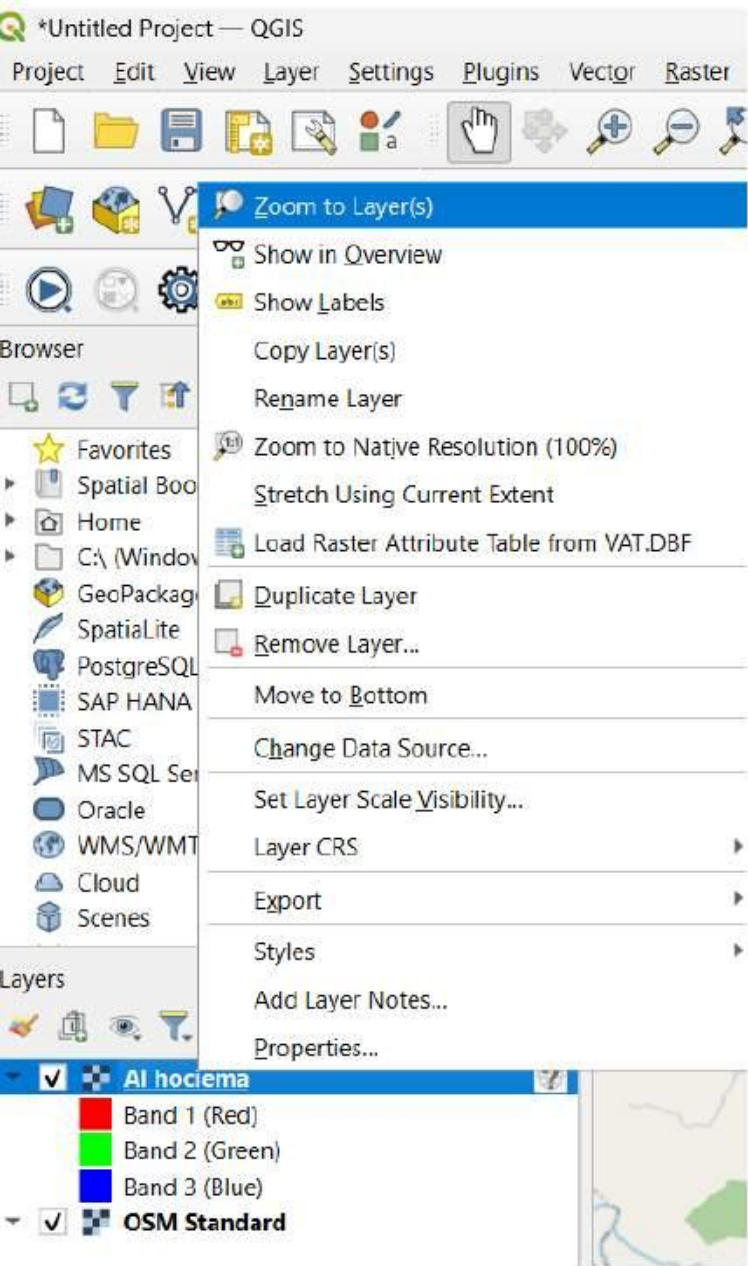
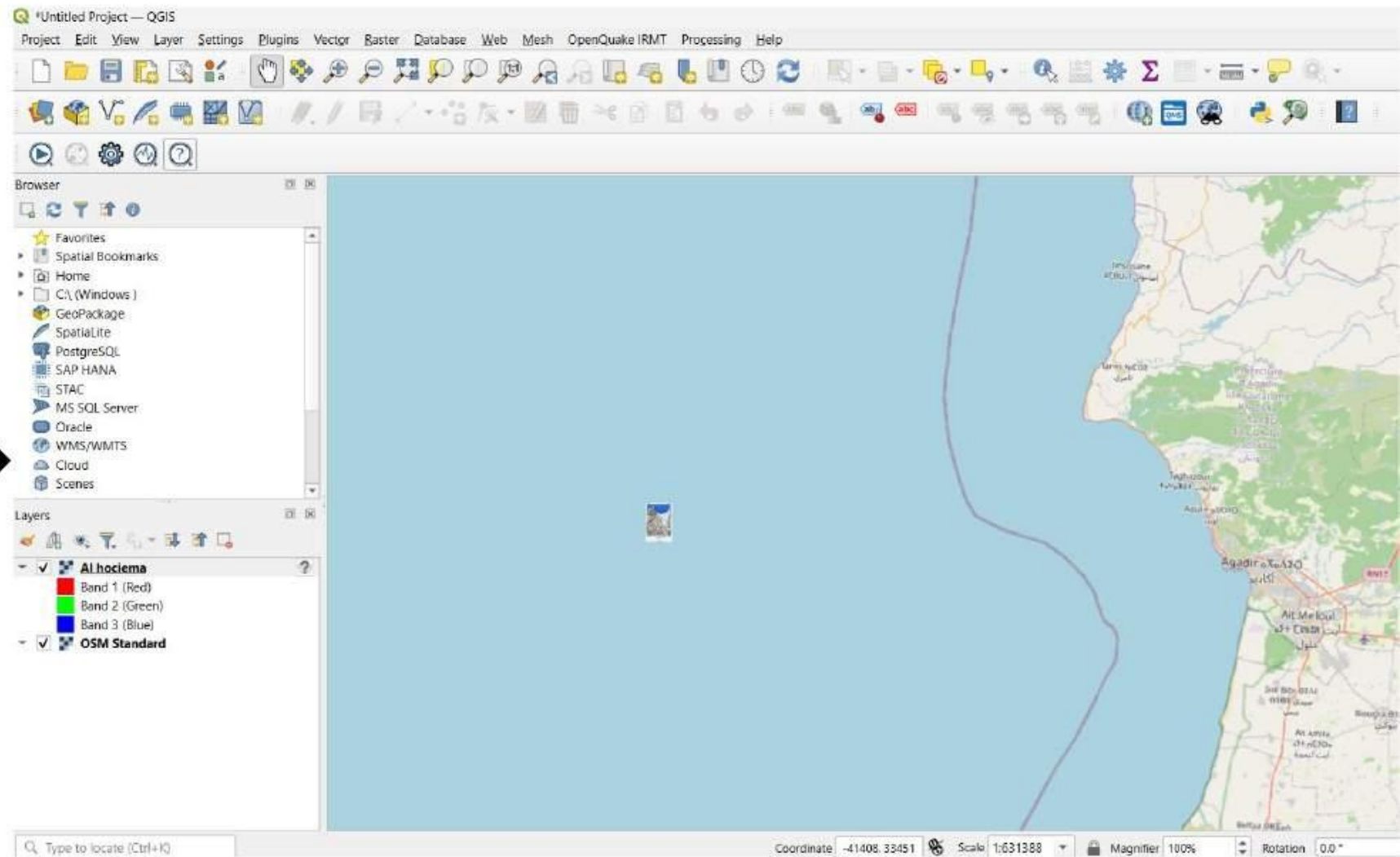
Rotation: 0.0° Transform: Helmert Translation (626152, 522727) Scale (6.28934, 6.28934) Rotation: 1.50953 Mean error: 16.9617 1330.1,-788.7 None

Méthode 2 : Géoréférencement à partir de points de contrôle et d'OpenStreetMap (OSM)

Ajouter Image raster



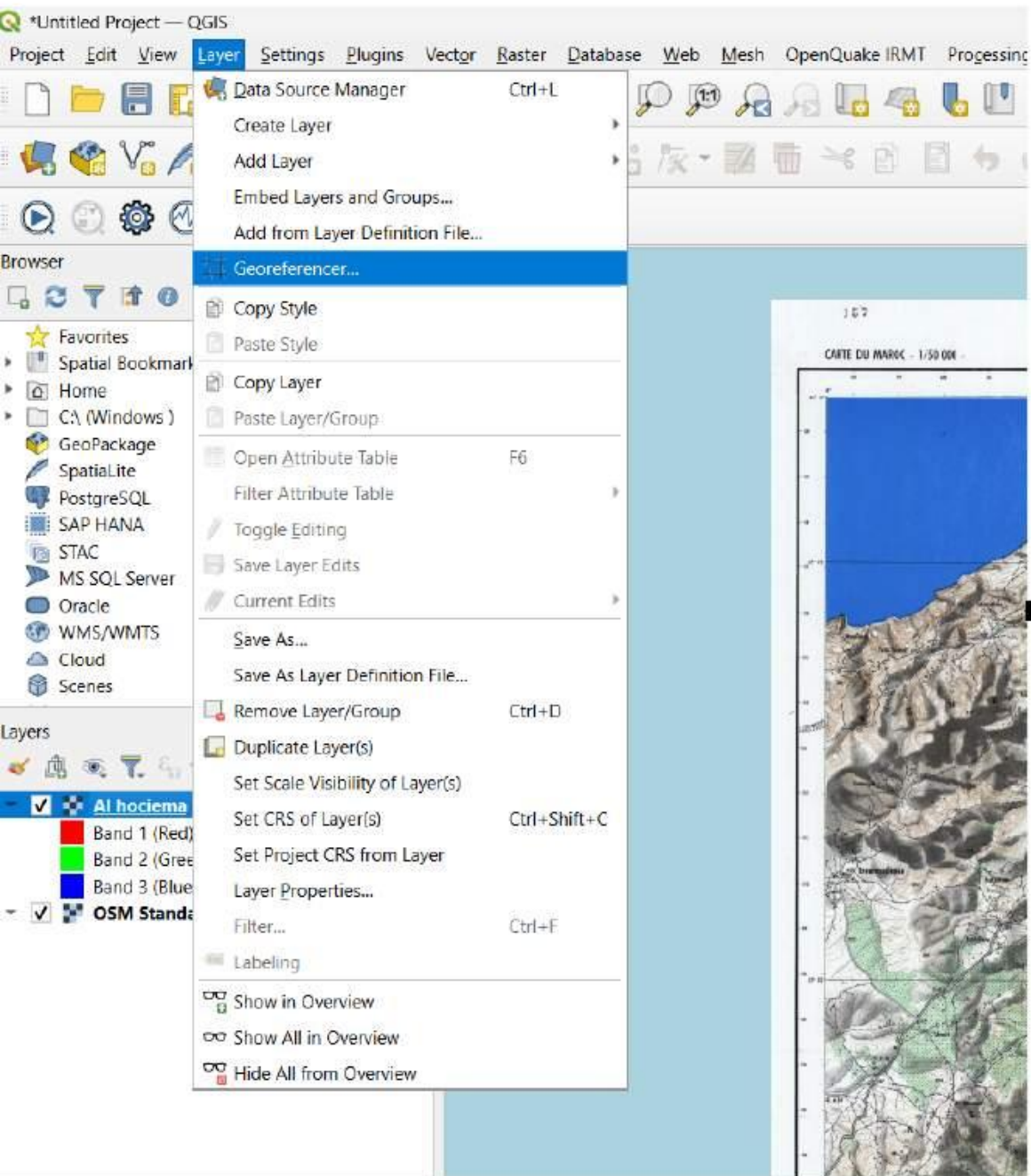
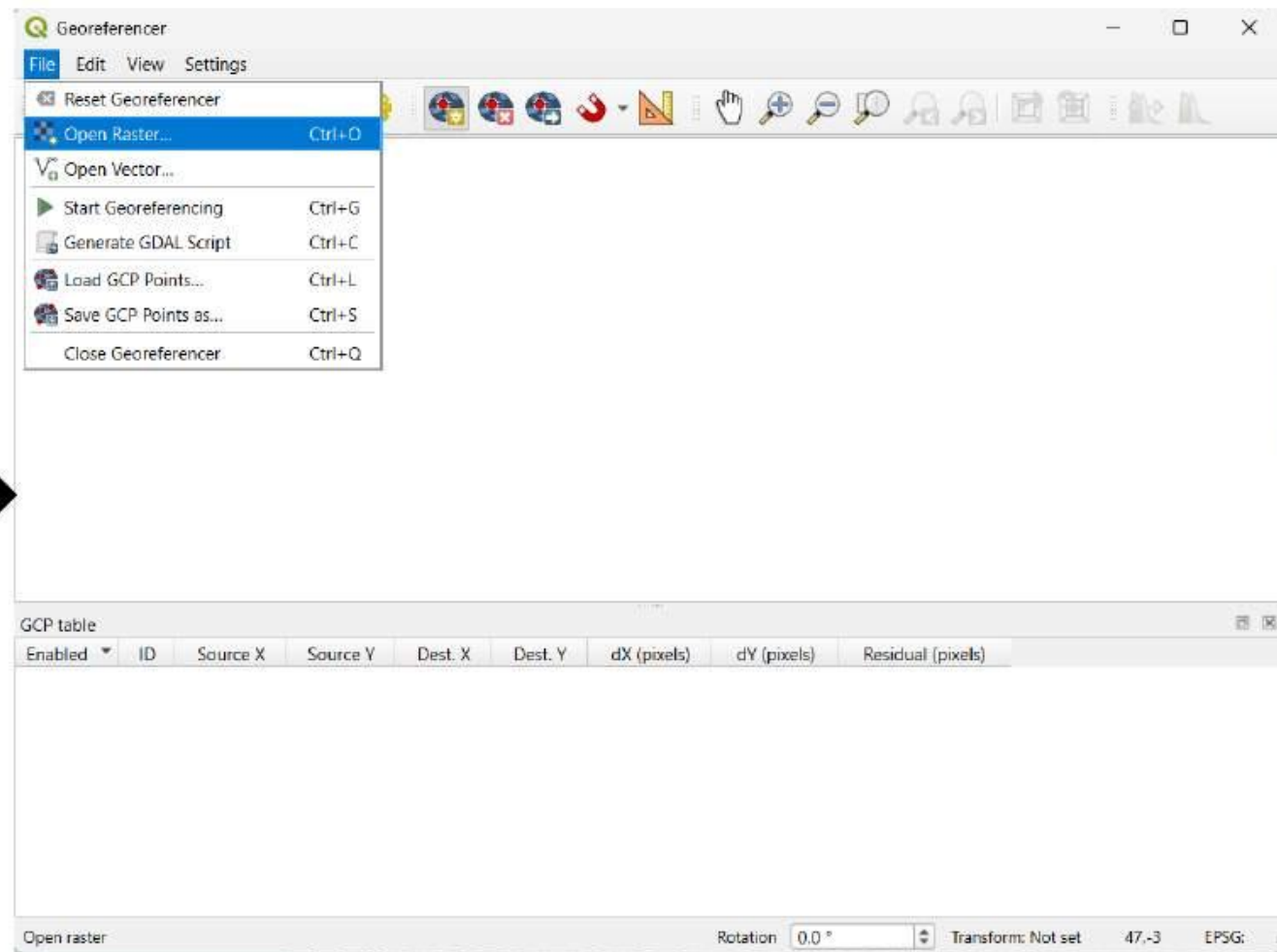


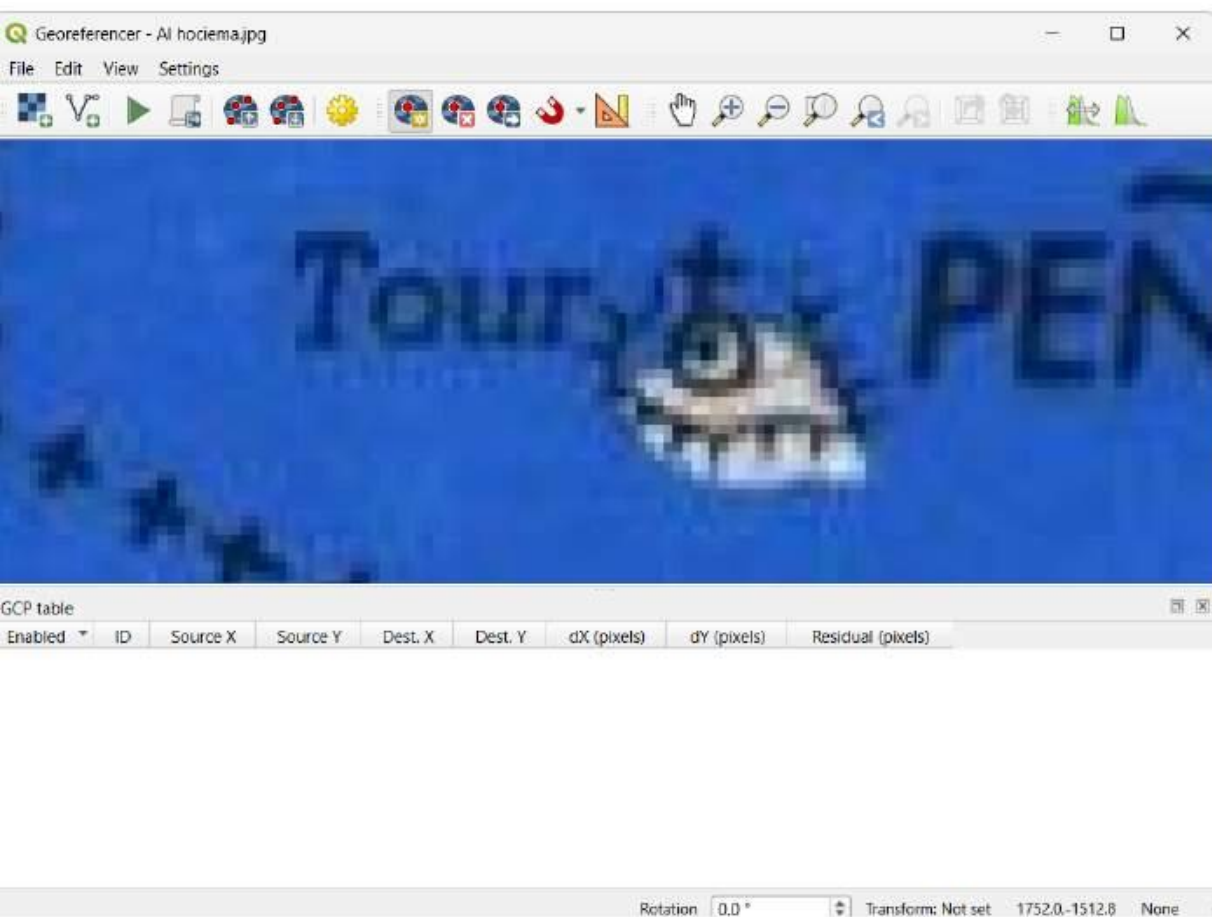
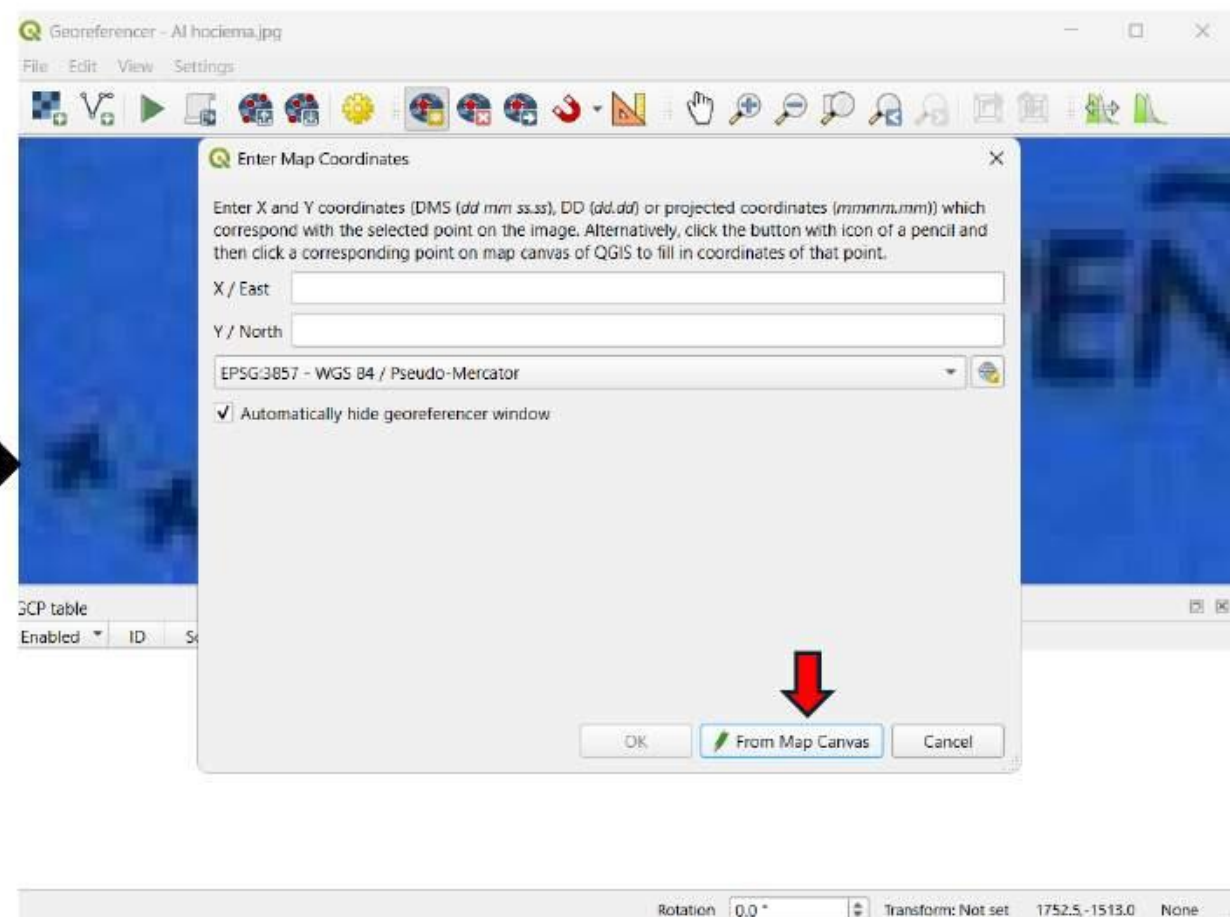


Identification des points de contrôle

Identifier au **moins trois points de contrôle** (GCP) communs à la carte topographique et au fond de carte OpenStreetMap (OSM).

- Choisir des points facilement reconnaissables et bien répartis sur la carte.
- Exemples : intersections de routes, ponts ou points remarquables.
- Relever les coordonnées de chaque point sur OpenStreetMap.
- Utiliser ces points pour établir la correspondance entre la carte raster et le système de coordonnées géographiques.





Georeferencer - AI hociema.jpg

File Edit View Settings

Transformation Settings...
Source Properties...
Configure Georeferencer... Ctrl+P



GCP table

Enabled	ID	Source X	Source Y	Dest. X	Dest. Y	dX (pixels)	dY (pixels)	Residual (pixels)
☒	0	1752.0251	-1512.8069	637405.31	513505.55	0.000000	0.000000	0.000000
☒	1	1338.8788	-916.226291	634768.99	517126.44	0.000000	-0.000000	0.000000
☒	2	1401.5885	-803.611002	635062.64	517969.59	n/a	n/a	n/a

Transformation settings

Rotation: 0.0 °

Transform: Polynomial 1 Mean error: 0 1335.9,-789.0 None

Transformation Settings

Transformation Parameters

Transformation type: Linear
Helmert
Polynomial 1
Polynomial 2
Polynomial 3
Thin Plate Spline
Projective
Nearest Neighbour

Target CRS

Output Settings

Output file

Resampling method

Transformation Settings

Transformation Parameters

Transformation type: Helmert

Target CRS: EPSG:3857 - WGS 84 / Pseudo-Mercator
Project CRS: EPSG:26191 - Merichich / Nord Maroc
Default CRS: EPSG:4326 - WGS 84

Output Settings

Output file: e/TP QGIS/TP N°1/AI hociema_modified.tif

Resampling method: Nearest Neighbour

Vertical: -999999.00000

Reports

Generate PDF map

Generate PDF report

☐ Save GCP points

☒ Load in project when done

OK Cancel Help

Georeference AI hociema.jpg

File Edit View Settings



GCP table

Enabled	ID	Source X	Source Y	Dest. X	Dest. Y	dX (pixels)	dY (pixels)	Residual (pixels)
☒	0	1752.0251	-1512.8069	637405.31	513505.55	-2.021677	0.043407	2.022143
☒	1	1338.8788	-916.226291	634768.99	517126.44	7.263410	10.062326	12.409977
☒	2	1401.5885	-803.611002	635062.64	517969.59	-5.241733	-10.105733	11.384270

Rotation: 0,0 ° Transform: Helmert Translation (626152, 522727) Scale (6.28934, 6.28934) Rotation: 1.50953 Mean error: 16.9617 1330.1,-788.7 None

Browser

★ Favorites

📁 Spatial Bookmarks

🏠 Home

📁 C:\ (Windows)

📁 GeoPackage

📁 Spatialite

📁 PostgreSQL

📁 SAP HANA

📁 STAC

📁 MS SQL Server

📁 Oracle

📁 WMS/WMTS

☁ Cloud

📁 S

Layer

☐ **Al hociema**

🔴 Band 1 (Red)

🟢 Band 2 (Green)

🔵 Band 3 (Blue)

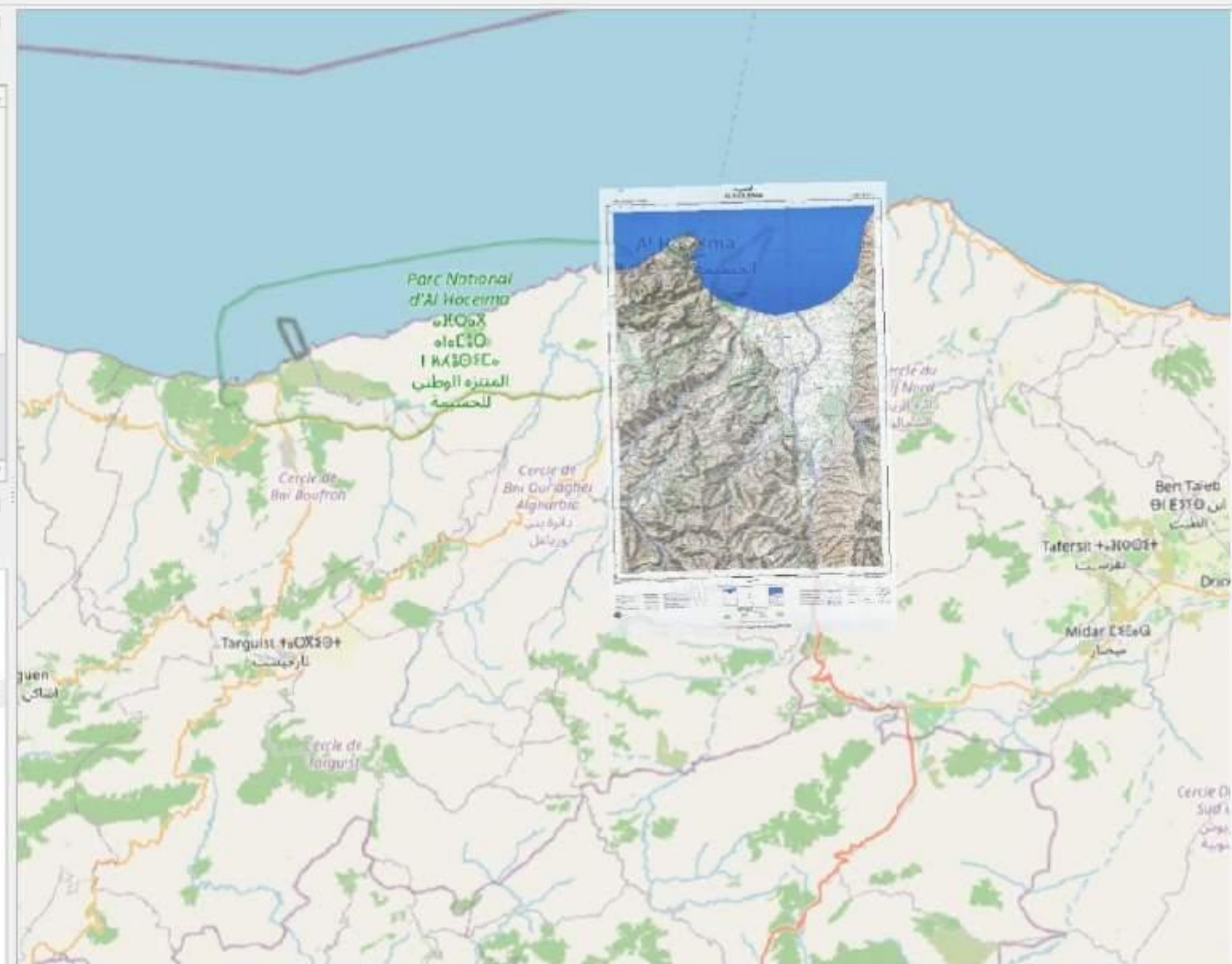
☑ **Al hociema**

🔴 Band 1 (Red)

🟢 Band 2 (Green)

🔵 Band 3 (Blue)

☑ **OSM Standard**



Layer Styling

Al hociema

▼ Global Opacity

75.2 %

▼ NoData Value

☐ NoData value not defined

Additional NoData value

Display NoData as

▼ Custom Transparency Options

Transparency band Band 4 (Alpha)

Transparent Pixel List

Red	Green	Blue	Tolerance	Opacity [%]
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☑ Live update Apply