QGIS 2D-2.5D Geovisualization
Practical exercices

https://www.qgis.org/en/site/forusers/download.html

- Latest 3.22.2 “Białowieża”
- Most Stable: 3.16.15 “Hannover”

- Dataset: http://piece-jointe-carto.developpement-durable.gouv.fr/NAT002/QGIS/formations/data/Data_foad_qgis.zip

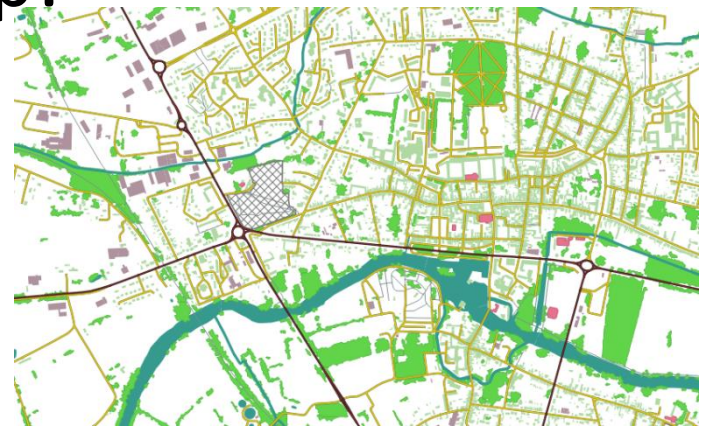
- Tutorial:

https://docs.qgis.org/3.16/en/docs/user_manual/index.html

Vector map design

- BD_TOPO
  - A_RESEAU_ROUTIER
    - ROUTE.SHP
    - ROUTE_PRIMAIRE.SHP
    - ROUTE_SECONDAIRE.SHP
  - D_HYDROGRAPHIE
    - HYDRONYME.SHP
    - POINT_EAU.SHP
    - RESERVOIR_EAU.SHP
    - SURFACE_EAU.SHP
    - TRONCON_COURS_EAU.SHP
  - E_BATI
    - BATI_INDIFFERENCIE.SHP
    - BATI_INDUSTRIEL.SHP
    - BATI_REMARQUABLE.SHP
    - CIMETIERE.SHP
    - CONSTRUCTION_LEGERE.SHP
    - CONSTRUCTION_LINEAIRE.SHP
    - CONSTRUCTION_PONCTUELLE.SHP
    - PISTE_AERODROME.SHP
    - RESERVOIR.SHP
    - TERRAIN_SPORT.SHP
  - F_VEGETATION
  - H_ADMINISTRATIF
  - I_ZONE_ACTIVITE

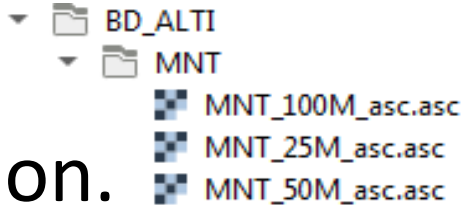
1. Open vector data in BD_TOPO
2. Order layers properly
3. Make a (nice and efficient) topographic data representation
4. Make a map!



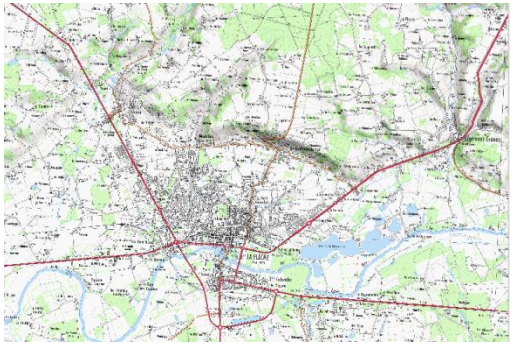
https://docs.qgis.org/3.16/en/docs/user_manual/working_with_vector/index.html

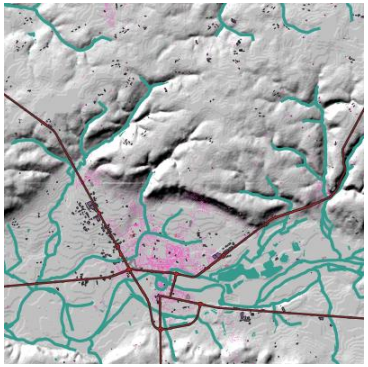
https://docs.qgis.org/3.16/en/docs/user_manual/style_library/index.html

DTM & relief perception



1. Open DTM 25m in BD_ALTI.
2. Manage Pseudo-colors representation.
3. Add Extension Value Tool for rasters.
4. Calculate: Hillshade, Slope, Aspect, Contour lines.
5. Overlay hillshade or contour lines & SCAN25 (extrait_72_Topo.tif)
6. With Style panel, explore Hillshade properties (azimuth) and observe Hillshade result.
7. Create a map!

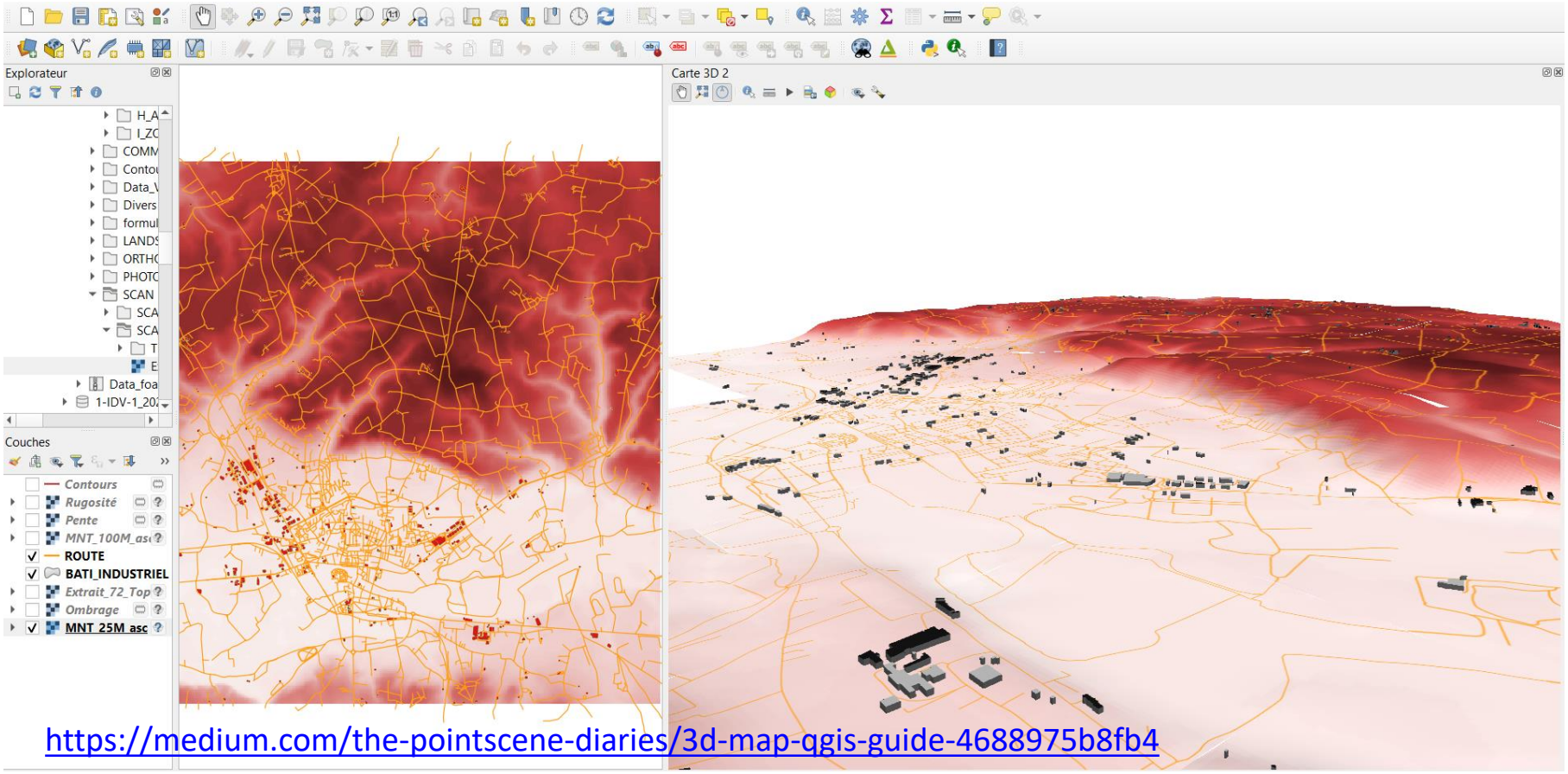




https://docs.qgis.org/3.16/en/docs/user_manual/working_with_raster/index.html

3D Cartographic View

- With the current scene, open a new 3D cartographic view to explore the DTM.
- Configure Terrain properties
- Add buildings -> Symbology -> 2.5D with HEIGHT
- Export your image or video animation.

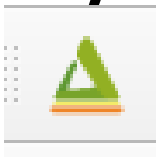


https://medium.com/the-pointscene-diaries/3d-map-qgis-guide-4688975b8fb4

QGIS2ThreeJS

Push 2D data into 3D vis (extrusion)

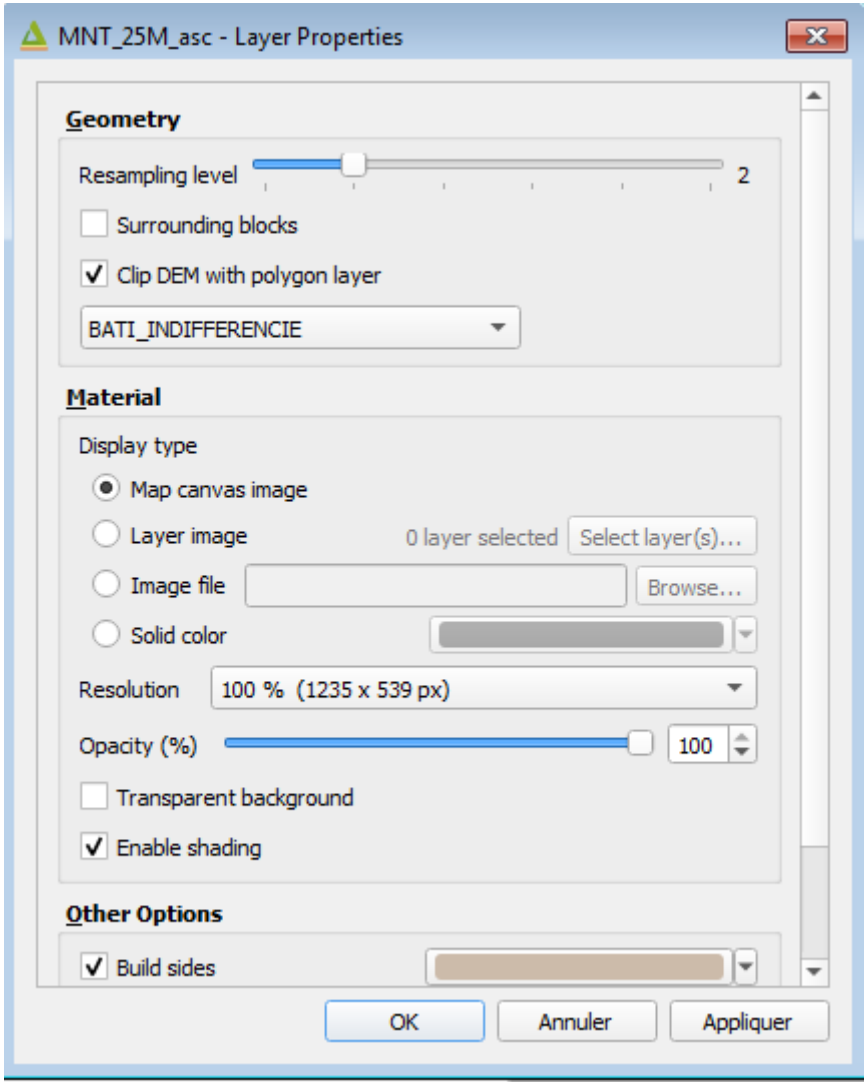
- Install QGIS2ThreeJS plugin

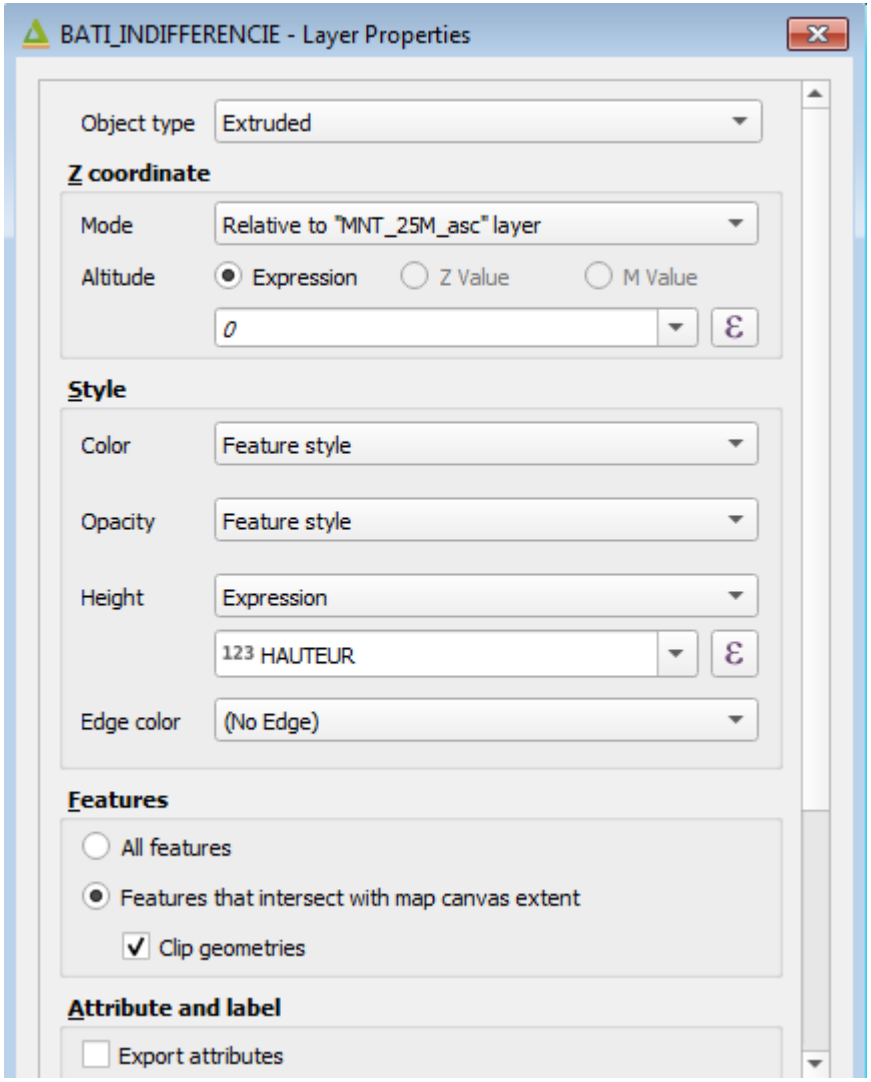


https://docs.qgis.org/3.16/en/docs/user_manual/plugins/plugins.html#the-not-installed-tab

QGIS2ThreeJS

- Display DTM 25m + Extrude buildings (BATI_INDIFFERENCIE) according to HEIGHT

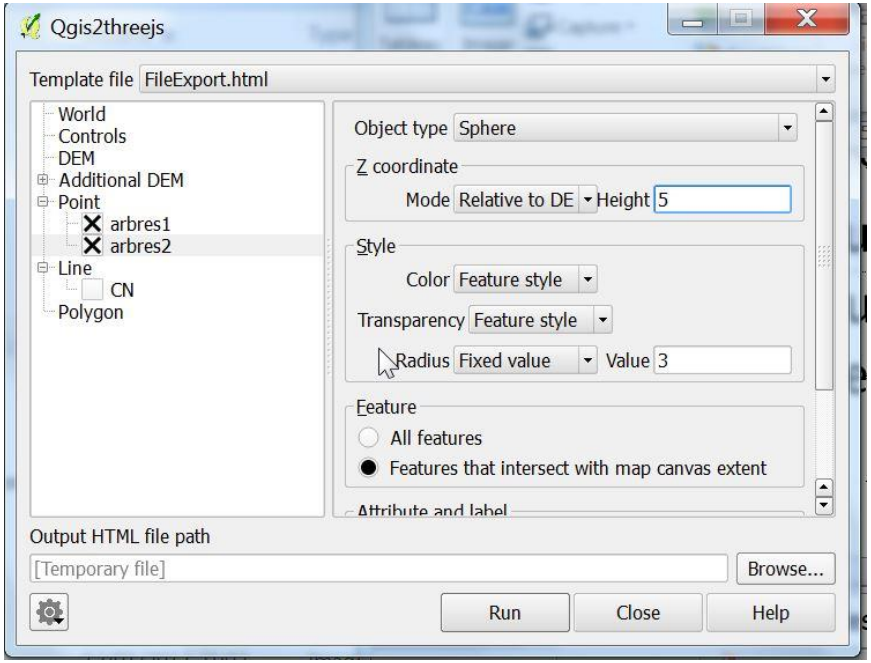


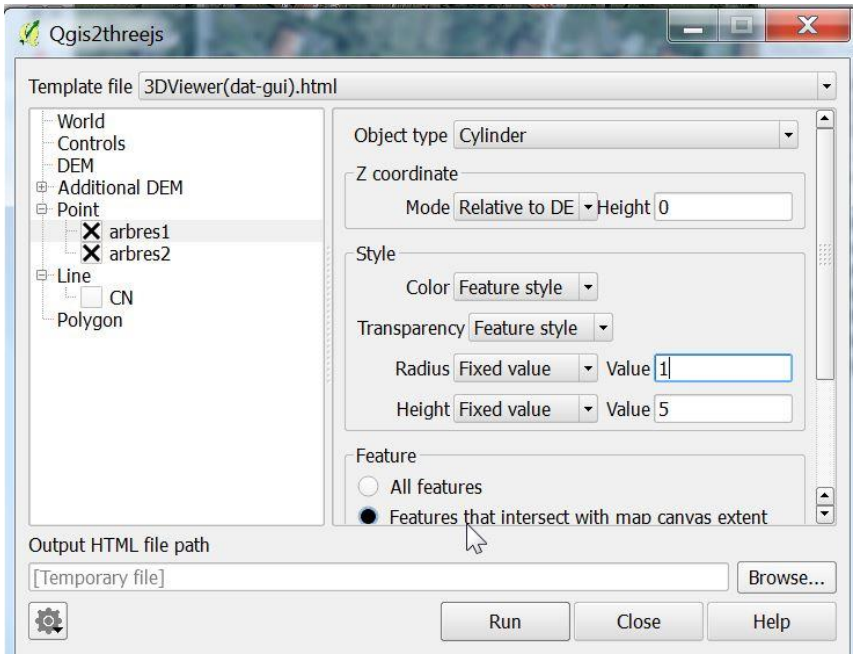


QGIS2ThreeJS

- **Create Vegetation to visualize in 3D**
  - Create 1 point layer « tree_canopy » and capture some points representing tree locations.
  - Copy this first layer into another and rename it « tree_trunk »

QGIS2ThreeJS





Use « tree_canopy » to the tree tops, as: spheres of 3m of radius, at 5m from the ground

Use « tree_trunk » to design trunks: cylinders of 1m radius and 5m height.

QGIS2ThreeJS

- **QGIS2ThreeJS Exporter -> HTML page**

https://qgis2threejs.readthedocs.io/en/docs/Exporter.html