# Exercise – Displaying Data Using Quantum GIS

In this exercise you will work with familiar existing Raster (Image) and Vector (Point, Line, Polygon) data and display these data on QuantumGIS or QGIS. This exercise is designed to provide the basics of getting data into Qunatum GIS and to familiarize users with the QGIS Interface. It will take you briefly through the display of Raster satellite imagery (IKONOS) and Vector polygon, line, and point data (shapefiles) provided by the city on New York planning department.

Step 1: Open Quantum GIS User Interface get a feel for the layout and set your project parameters.

- Create a new project.

- Click on SETTINGS and then PROJECT PROPERTIES.

- Click on the PROJECTION tab.

- Click on PROJECTED COORDINATE SYSTEMS and then expand UNIVERSAL TRANSVERSE MERCATOR.

- Select WGS 84 / UTM zone 18N in PROJECTED COORDINATE SYSTEMS.

- Place a checkmark in the box next to ENABLE ON THE FLY PROJECTION.

- Click on APPLY and then OK.
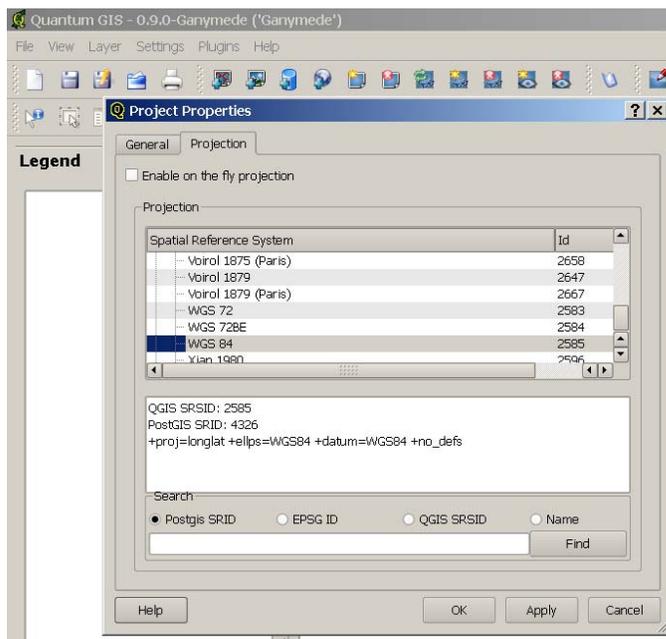
REMEMBER: If layers do not line up it is most likely the "Enable on the fly projection" is turned off or the projection specified is incorrect!!

Now that you have your base projection set to WGS 84 / UTM zone 18N, you should be able to add your NYC image, add your shapefiles and whatever your shapefile contains should place correctly on the image.

Step 2: Add a Raster data layer.

- Click on the [icon] icon or go to **Layer**-> **Add a Raster Layer**. **(IMPORTANT -You will be using the exact same raster and vector data from the GPS Exercise)**

- Navigate to the QGIS_Data Folder and open the data folder.

- Open the Raster_data folder and add the po_242243_rgb_0000000.tif image in the corresponding folder.

Note: Computer speeds vary and tif files are large so it may take some time to load.

- Once loaded, right click the layer in the legend and select "Zoom to layer extent" (*you may already be able to see the image*).

- Use the magnifier Zoom tool to zoom to the United Nations Headquarters area so you can see the complex and the ENTIRE surrounding area. This will be the area of interest.

Now we will add the Vector data layers.

Step 3: Add a Vector Layer.

- Click on the [icon] icon or go to **Layer**-> **Add a Vector Layer**.

- Navigate to the QGIS_DataDisplay_Exercise Folder and open the data folder.

- Open the Vector_data folder and add the vector layers titled:
  "MN_ST.shp";
  "MN_TB.shp" ;
 "nycNeighborhood.shp";
  "Waypoints.SHP".

Note:
"MN_ST.shp" layer is a street database for NYC
"MN_TB.shp" layer is a block level database for NYC
"nycNeighborhood.shp" is a neighbourhood level database for NYC
"Waypoints.SHP" is a waypoint dataset using a GARMIN GPS12 (waypoints converted to a shapefile using GPStoGIS free software
*http://www.arcprogramming.com/Product_GPS2GIS.htm).*
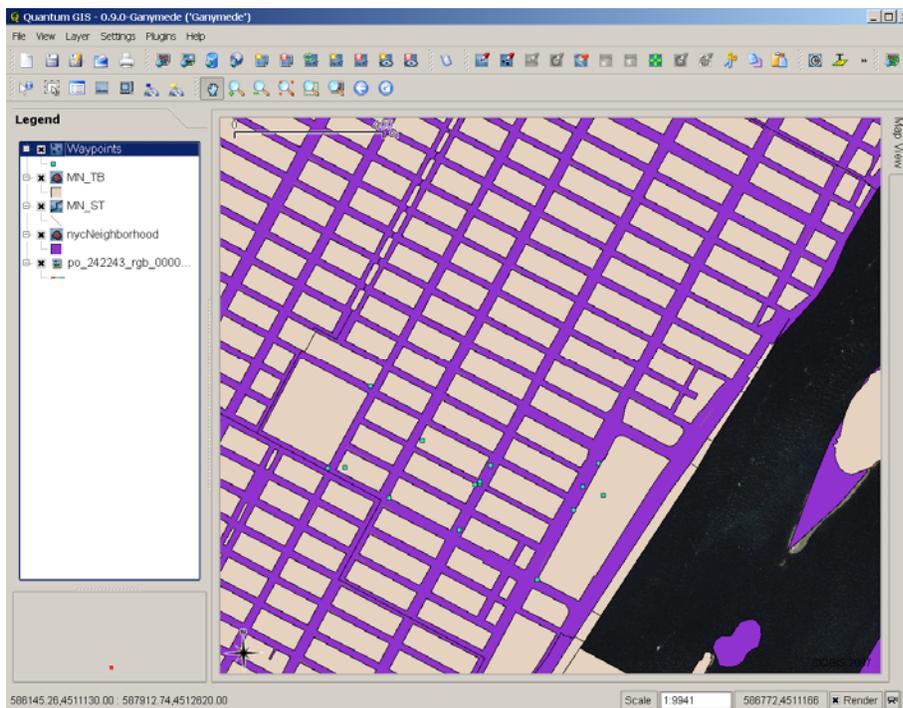
**Now we will change the View Properties for the different feature classes we have just imported.**

Step 4: Changing and Exploring the View Properties

- In the legend, Right-Click the feature class titled **MN_TB** and select **properties**

- Change the **outline width** to 2

- Change to **Fill Color** to the no fill with outline so you can see the image as indicated in the picture below.

- Click **Apply** then **O.K.**

- **Repeat this process with the "nycNeighborhood" layer also.**
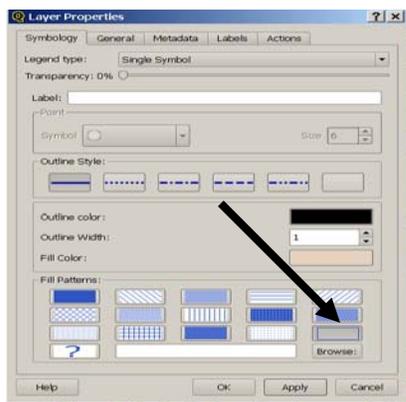
Step 5: Exploring Labels and Symbology

- In the legend, Right-Click the feature class titled **MN_ST** and select **properties.**

- Select the **Labels** tab. Make sure **Display Labels** is checked.

- Under **Source** click the **Field containing label** drop-down list and choose **Street Name.**
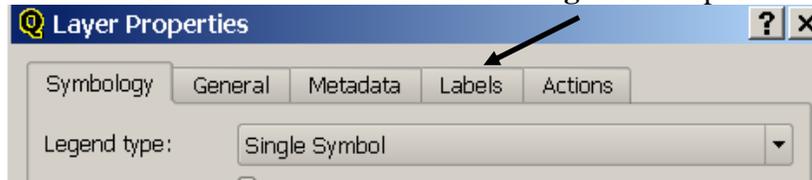
- Also within the Labels tab select the **Font Styles** tab and select the **Font** option.

- Change the **Font** to Arial Bold 10 pt. Below the font select change the **Color** to RED. *(you may also want to change the font alignment as well. Use the tab next the to font titled "font alignment")*
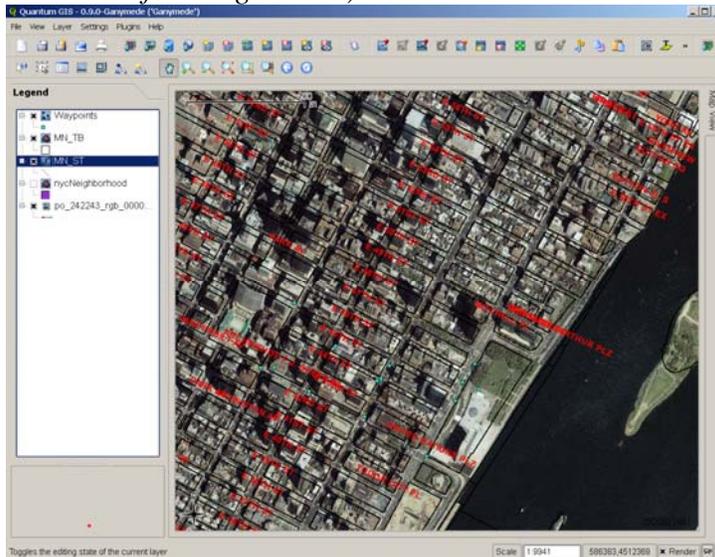
Next we will edit the Waypoints view to express the altitude recorded from the GPS using graduated symbols.

- In the Legend, Right Click the Waypoints layer select the **Symbology** tab.

- Under Legend Type Select **Unique Value** in the drop-down list.

- Under **Classification Field** select **Altitude** in the drop-down list.

- Click **Classify** and the classes are given a unique color. *(this will display the waypoints used in this exercise- strictly for the purpose of this exercise)*

- Click **Apply** them **O.K.** *(each class should now be given a different color. You can turn on and off the imagery layer in the legend to better see the points if needed)*

For more on the use of QGIS please visit the userguide Archives:
http://lists.qgis.org/pipermail/qgis-user/ or the website containing user guides
http://qgis.org/index.php?option=com_content&task=view&id=106&Itemid=79

We have now imported Raster data as well as polygon, line, and point data into QGIS which has projected the layers on the fly. It is important to explore other features in the QGIS interface.

Thanks to

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for data and materials for this exercise.

Data note: data was modified to fit the scenario of this exercise. The imagery is IKONOS satellite sensor at 1meter resolution. The street, block and neighbourhood data are available free online. The GPS waypoints recorded for purposes of this exercise.

Note:
There are a number of formats you can use for uploading and impoting your waypoints into QGIS. For more information refer to the user manual or explore the GPS tool in the Plugins drop down menu located on the main display.