



# Using GPS Data with QGIS

---

## Using QGIS

**Tutorial ID: IGET\_GIS\_012**



This tutorial has been developed by BVIEER as part of the IGET web portal intended to provide easy access to geospatial education. This tutorial is released under the Creative Commons license. Your support will help our team to improve the content and to continue to offer high quality geospatial educational resources. For suggestions and feedback please visit [www.dst-iget.in](http://www.dst-iget.in).

# Using GPS data with QGIS

---

**Objective:** To download the waypoints collected from the hand held GPS in the field and conversion into \*.shp or \*.Kml / \*.kmz file format.

**Software:** Quantum GIS

**Level:** Beginner

**Time required:** 1 Hour

**Prerequisites and Geospatial Skills:**

1. Quantum GIS and Map Source should be installed on the computer
2. Basic knowledge about the Quantum interface
3. Should have completed Exercise ID: IGET\_GIS\_001

**Reading:**

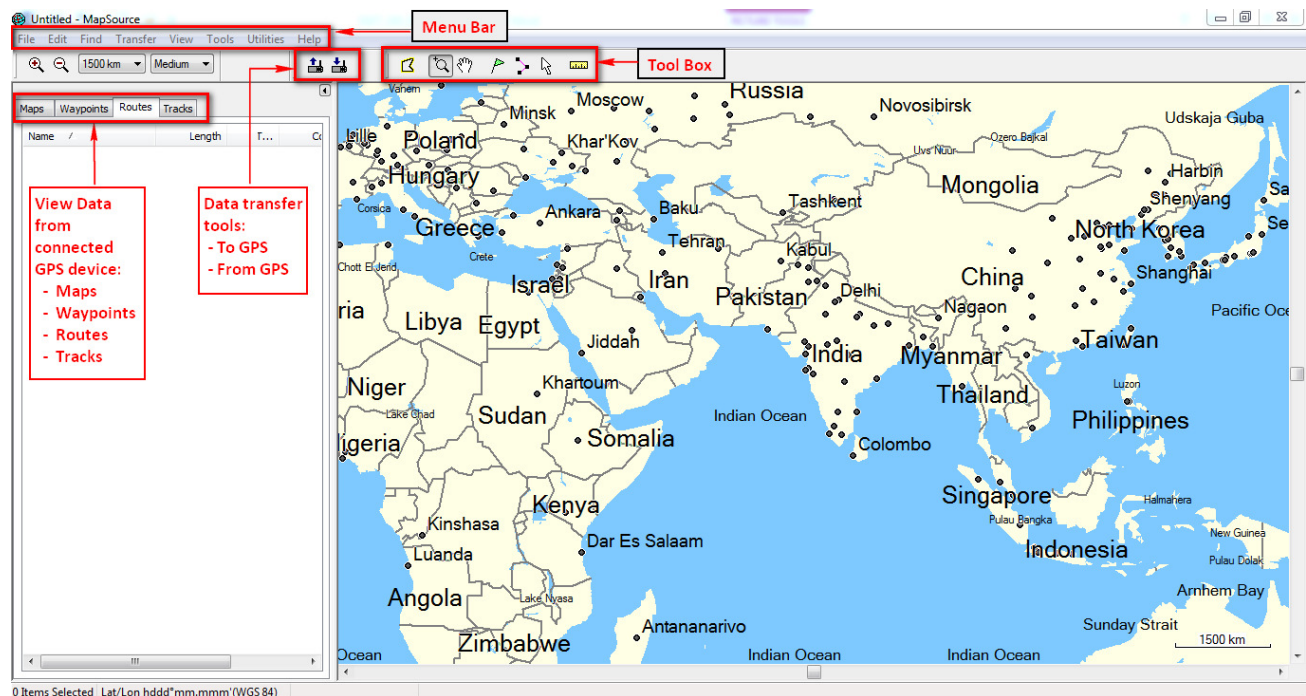
1. [http://sites.fcps.org/trt/garmin\\_mapsource](http://sites.fcps.org/trt/garmin_mapsource).

## Introduction:

This tutorial mainly aims at describing the detailed steps involved in downloading the waypoints collected from the hand held GPS in the field and conversion into \*.Kml /\*.kmz or \*.shp file format. In order to carry out this task, we need a GPS, a computer loaded with MapSource (prepackaged software with handheld GPS devices), Google Earth and Quantum GIS.

### A. Launching Map Source Software:

1. Start the map source software: Start → All Programs → Garmin → Mapsource or You can launch the MapSource by simply double clicking on the Icon on the desktop
2. Now the Graphical User Interface (GUI) of Map Source will open in a new window as shown below.



### B. Connecting GPS to Computer

We can connect our GPS by two ways. First, you can connect your GPS unit by using the PC interface cable provided by the vendor to the serial communication port of your computer and the GPS.



Fig: PC Interface cable



Fig: Serial Communication Port

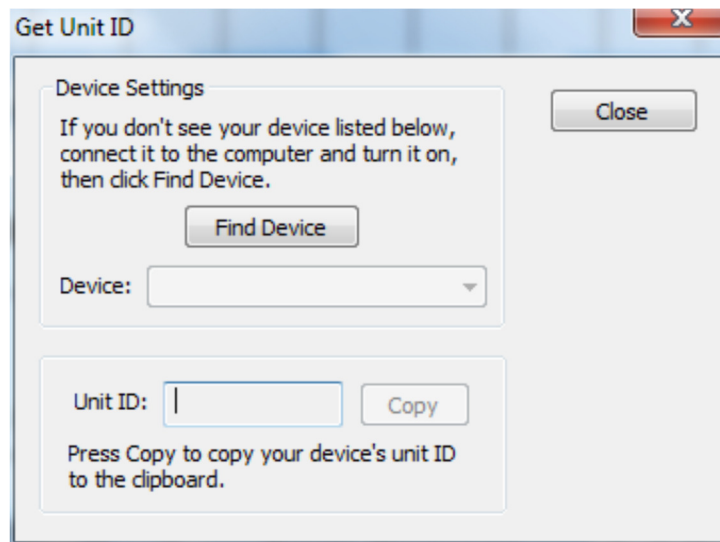
The second way of connecting your GPS device to PC is by using the USB data port. After connecting the GPS to the computer, switch on the GPS unit.



Fig: USB data Cable

### C. Verifying the Connection

1. Go to the GUI of MapSource and then click on **“Utilities → Get Unit ID”**.
2. You will then find the following Dialog Box (DBX).

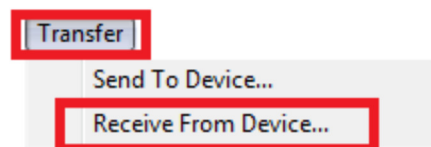


3. If your device is connected to the computer then you will find your GPS device name in the device field. If not you will find it blank.

*Note: If your device name not found. Check if you have turned on the GPS. If so, check the connections once again and hit the Find Device tab.*

### D. Transferring Data from GPS to Computer

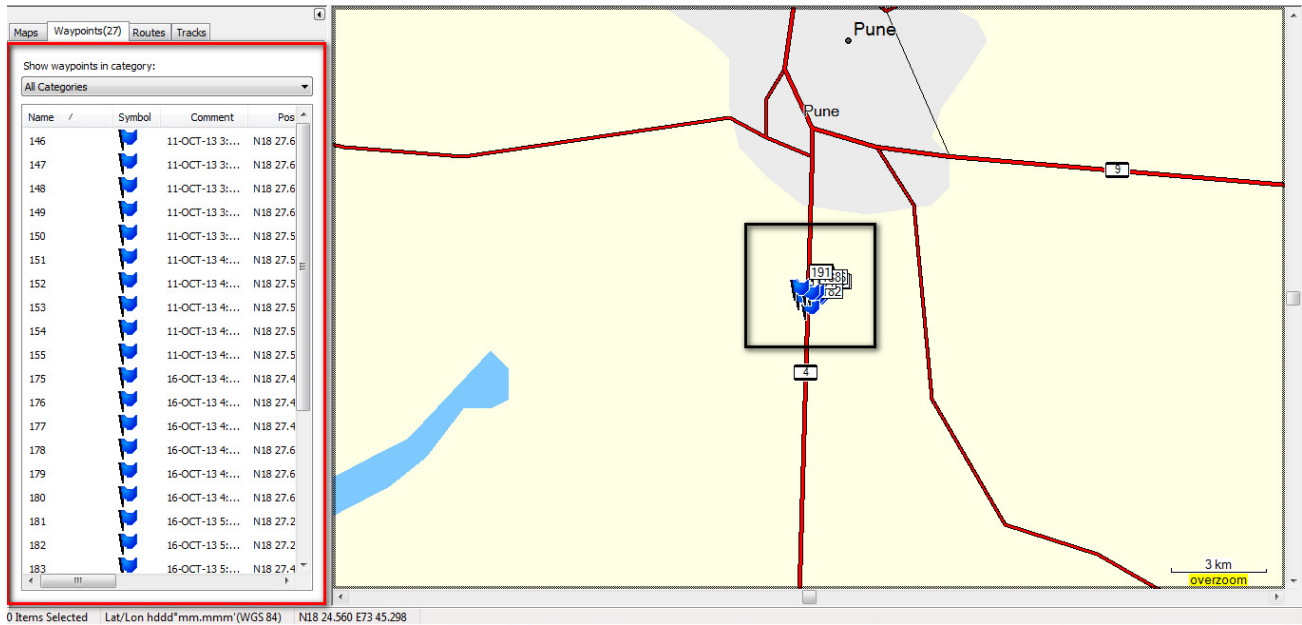
1. Main menu Bar → Transfer → Receive From Device



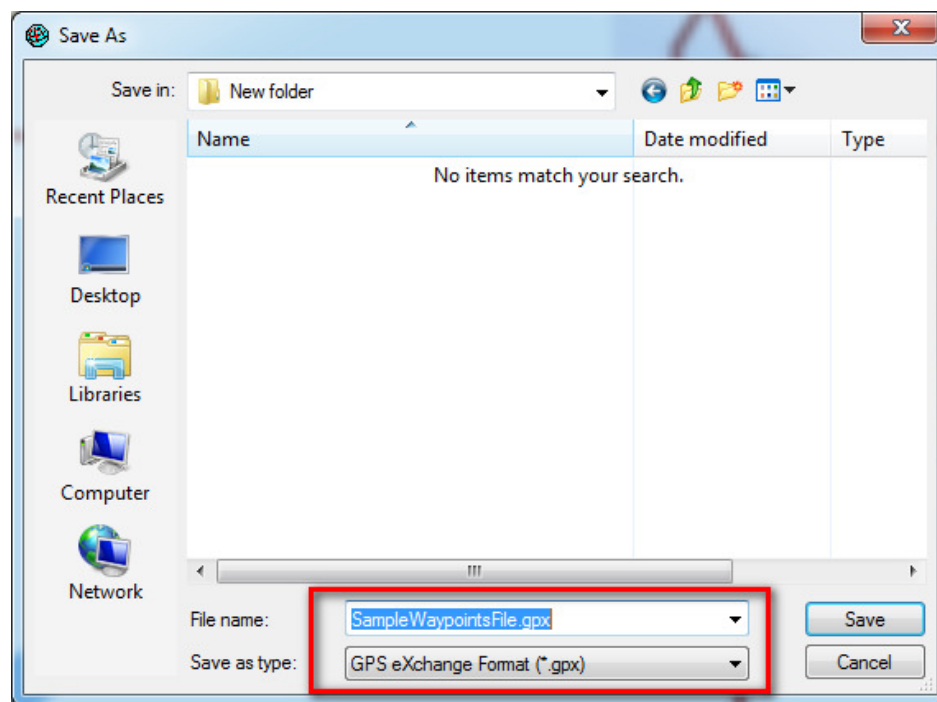
Or

Simply click on the icon in Tool Bar.

2. Wait for computer to find your device → choose appropriate file (Waypoints) to receive → click Receive.
3. Now your data will appear in the left window of the screen and in the map.




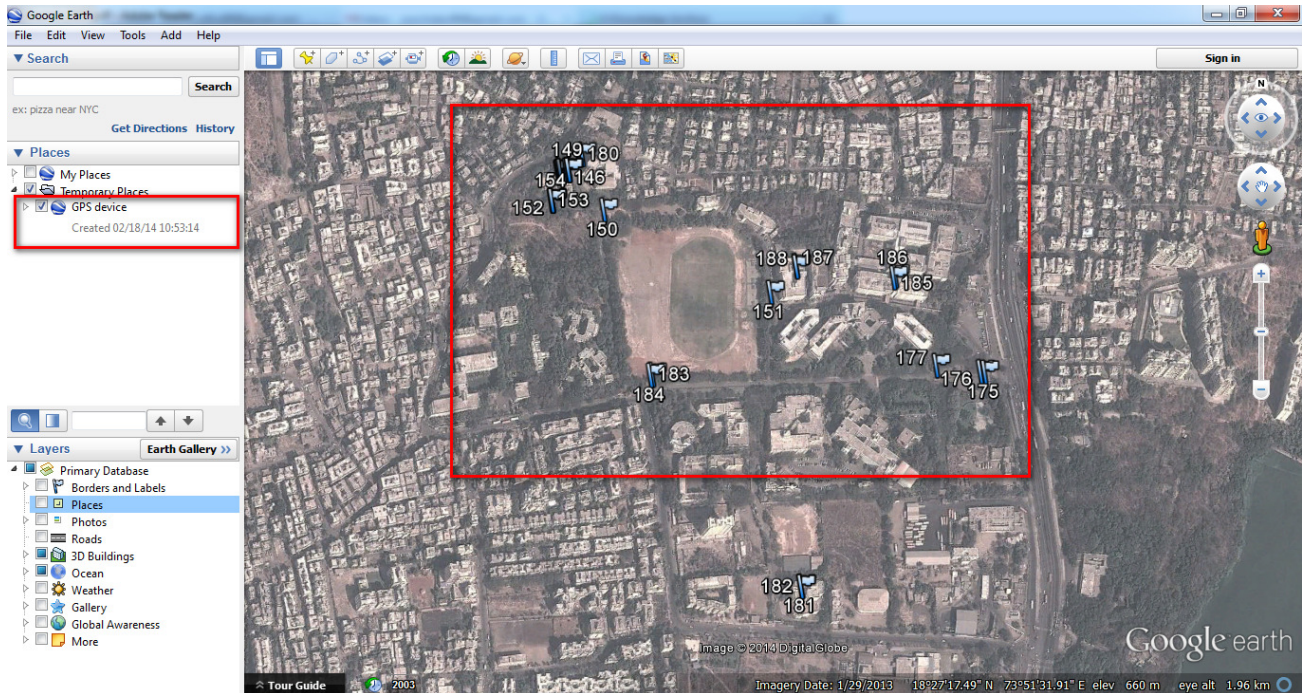
4. Now save the data by clicking File → Save → you will get a 'Save As' dialogue box → change the 'Save as type' to GPS exchange Format (\*.gpx) → Give appropriate name → Save.



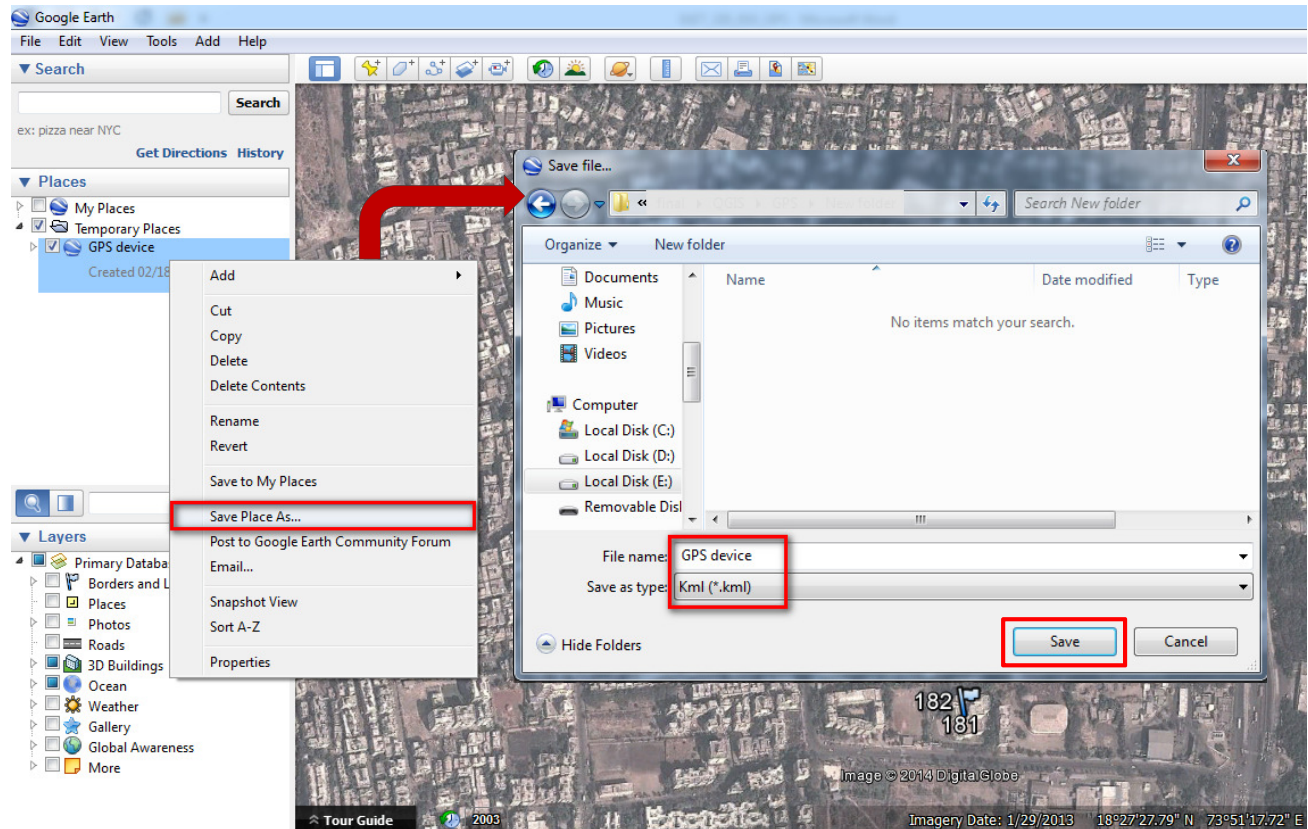
## E. View Data from GPS in Google Earth Using MapSource

Once data has been transferred to your computer from the GPS device, you can use MapSource to view the way points, tracks, and routes in Google Earth.

1. Open Google Earth by double click on the icon  Or Start → All Programs → Google Earth → Google Earth.
2. From Map source → Main Menu Bar → View → View in Google Earth. Points are seen as below in google earth.



3. This waypoints are collected using Garmin GPS from Bharti Vidyapeeth Campus Dhankawdi Pune. Thus fitting perfectly in the area of capture.
4. If necessary, you can save your data in Google Earth format i.e., KMZ or KML from the “My Places” area of the Google Earth as follows:
5. Right click on the “GPS data” (the data you loaded from MapSource) under Temporary Places → Save As → chose the right path → give appropriate name → Save.
6. The main purpose behind saving this file in \*.kml/\*.kmz is; we can use this in GIS environment. It can work efficiently with all the GIS softwares once the file is converted to kml/kmz format.

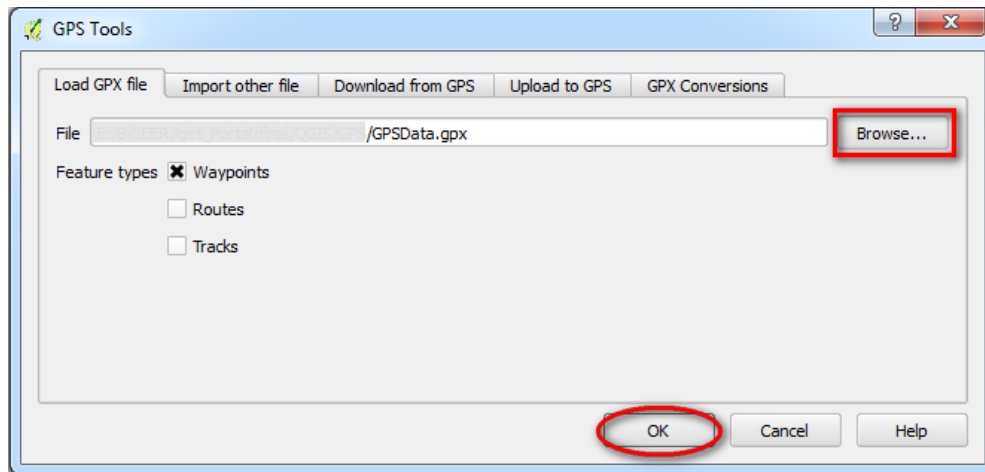


## F. View Data from GPS in Google Earth without Using MapSource

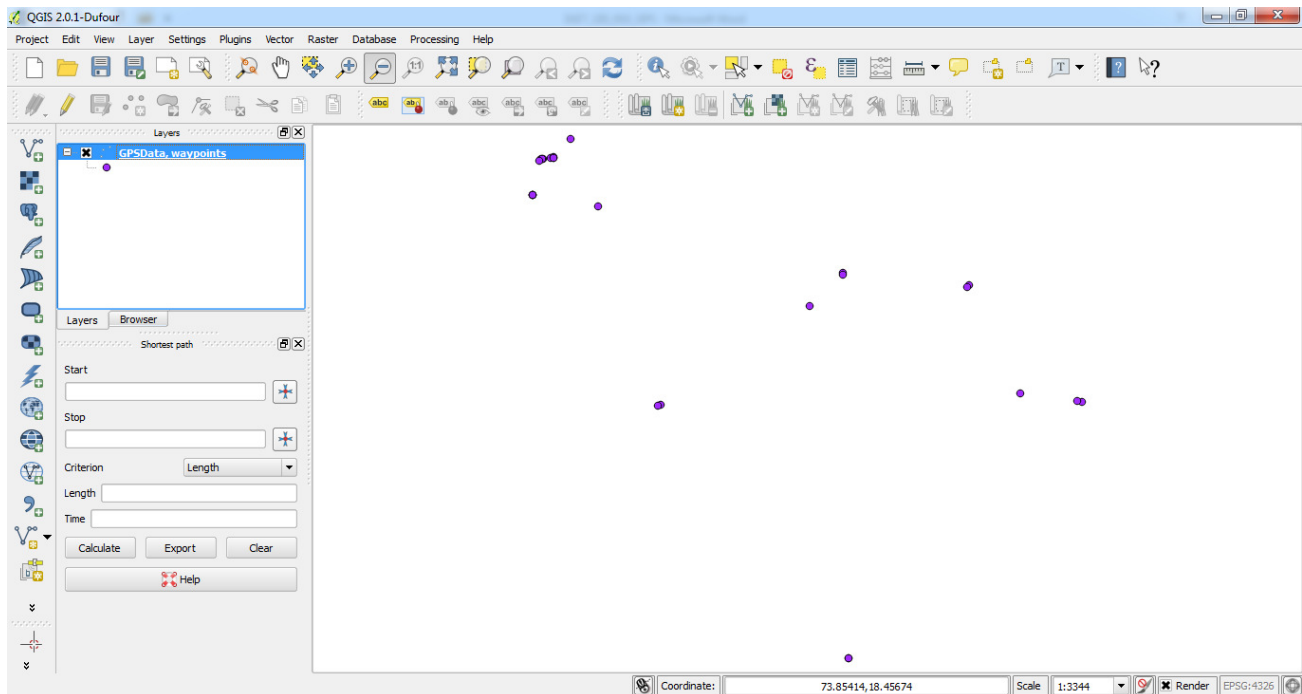
1. Open Google Earth
2. Main Menu Bar → File → Open → Select file type as \*.gpx → now select the saved file in step D.5 → Open → OK.'

## G. Use of GPS Data directly in QGIS without using MapSource or Google Earth

1. Open QGIS. Go to "**menu bar → Vector → GPS → GPS Tools**"
2. A new GPS Tool window will open up. Browse through all the tabs. The names are self-explanatory.
  - i. Load GPX file: To load the saved GPX file directly in QGIS
  - ii. Import other file: To import files in other formats.
  - iii. Download from GPS: To download waypoints directly from GPS to QGIS.
  - iv. Upload to GPS: To upload the data back to the GPS as and when required.
  - v. GPX conversions: To convert the waypoints to routes/tracks or vice versa of a .gpx file.
3. Now we will load the same .gpx file directly in QGIS. Goto Load GPX file tab of GPS tools window. Browse the saved GPS data file. And Click OK.

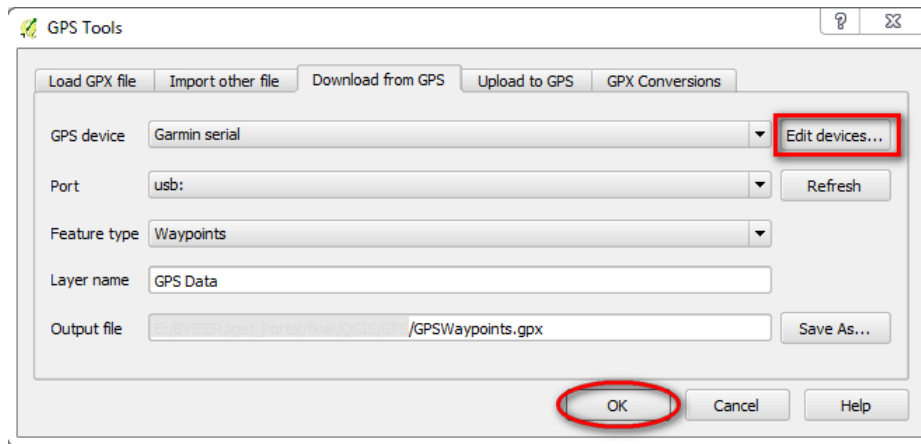


4. Uncheck Routes and Tracks since we have only waypoints in our datasets. You can check or uncheck required features depending on dataset available.
5. The points are loaded in QGIS as shown below.



6. Similarly we can directly import GPS waypoints data using "**Download from GPS**" without using mapsource for conversion to .gpx format.
7. Click on Edit devices to find connected device. Select the appropriate device from drop down list.
8. Then select the appropriate port USB or serial port through which you have connected the device to the system.
9. Click refresh if the device is not detecting or some error in device identification.





10. So GPS data can be directly imported to GIS environment without involving any complicated conversions.

11. Once the data is imported to QGIS, you can save or export the files to shapefile format using Right click → Save as. Save the layer in appropriate folder in \*.shp format.

Exercise:

Q. Compute routes and tracks from the given waypoints. (*Hint: Use GPX Conversions*)

Q. Upload the data back to GPS device. (*Hint: Use Upload to GPS*)