

## GPS Data Collection (ArcGIS Pro)

### Introduction

The following instructions provide best practices for capturing location data in the field using GPS and translating that data to a map using ArcGIS mapping and analysis software.

### Preparing a Garmin etrex 20 or 30 GPS for Field Data Collection

#### Setting Units

1. From the HOME screen, click **Setup** and access the **Units** settings.
2. Confirm that **Metric** is selected and click **Back**.
3. Select **Position Format** and make the following selections:

	<u>Small Scale Mapping</u>		<u>Large Scale Mapping</u>
➤ <b>Position Format:</b>	Hddd.dddd (decimal degrees)	<b>OR</b>	UTM UPS (metres)
➤ <b>Map Datum:</b>	WGS 84		NAD 83

4. Click Back twice to return to the HOME screen.

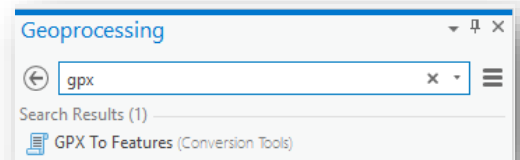
Your GPS is now ready to capture locational information in the field using waypoints.

#### Marking a Waypoint

5. In MAP view, press and hold the “Rocker/Select” button until the **Mark Waypoint Page** appears.
6. Assign a unique name (i.e. “Tree001”).
7. Click **Done**.
8. Click **Done** again to return to the map view.
9. Repeat steps 5 to 8 to add another waypoint.


### Getting Field Data FROM the GPS TO the GIS

1. Connect the GPS to a computer with access to **ArcGIS Pro**.
2. Run ArcGIS Pro.
3. When prompted, sign in to ArcGIS Online using your Brock Organizational login. (Contact [maplib@brocku.ca](mailto:maplib@brocku.ca) for access)
4. Create a new project.
5. Go to **Analysis > Tools**
6. Enter ‘GPX’ as a search term (this is the native format for GPS data).
7. Click the **GPX to Features (Conversion)** tool.
8. Beside Input GPX File, browse to the Garmin unit that you connected in step 1.  
**HINT: After clicking the Browse button, click This PC. You should see Garmin eTrex 30 listed as a drive. Navigate to Garmin > GPX >**
9. Select the file dated the day you captured waypoints in the field and click Open.
10. Enter a name for the output feature class (start with a letter and do not include spaces or special characters).
11. Click Run. This process may take several minutes.
12. The waypoints appear on the map.



### Displaying a Table of X,Y Coordinates

If a table (.csv, .txt, .xls) exists with X,Y coordinates, follow these steps to display the data in ArcGIS. This example uses an Excel file (.xls) of Latitudes and Longitudes in decimal degrees. [Download sample XY coordinates here.](#)

1. Run **ArcGIS Pro** and create a new project or open an existing project.
2. From the Insert menu, select New Map.
3. Click Map > **Add Data** button .
4. From the Connections pane, navigate to the directory...
5. Select the table file, in this case, double-click the XY\_coordinates.xls, select **Sheet1\$** and click **ok**.
6. The table will be added to the *Table of Contents* on the left of the map window. Right-click on the table and select "**Open**" to view the data. Notice the **X** and **Y** columns representing Latitude and Longitude values. Close the table by clicking the **X** beside the table name.
7. To create points, right-click the table listed in the *Table of Contents* and select **Display XY data...**
8. In the **Make XY Event Layer** pane to the right, ensure the *X Field* indicates **X** and the *Y Field* indicates **Y**. If the indicated fields are incorrect, use the drop-down menu to select the correct values.

**\*\*TIP for future use: See the following table for a summary of X, Y formats.\*\***

Latitude	43 degrees	UTM-Y	4,763,000 metres N
Longitude	-79 degrees	UTM-X	623,000 metres E

9. The spatial reference is automatically applied.
10. Click Run.

The XY data is displayed in the map window as a temporary 'event' file.

11. To make a permanent shape file, right-click on the point data layer and choose **Data > Export Features**.
12. The output feature class is automatically set to save in the current project's geodatabase. Provide an appropriate name (no spaces or special characters) and click **Run**.
13. The feature class is automatically added to the map.

Continue with [From the Field to the Map: Part Two](#) for instructions regarding prepping a table in Excel that can be used in ArcGIS and joined with GPS data to facilitate thematic mapping.

Here is a [troubleshooting guide](#) for cleaning up GPS data.

