

Tips and Tricks for Using a GPS Unit to Record Locations

GPS units are valuable tools for mapping locations. Follow these three steps to ensure that your GPS is providing accurate information about your location.

First, confirm the settings of your GPS unit:

- ✓ **Format of coordinates:** Set the format of the coordinates so that the unit is collecting and displaying. Decimal degrees is recommended.
- ✓ **Datum:** Confirm the GPS unit's datum setting. This is typically set to NAD83 or WGS84. It is important to know what datum is being used by the GPS unit.
- ✓ **WAAS:** Many units are "WAAS enabled", which is a GPS signal correction system. Ensure that this feature is switched on, as it can significantly increase accuracy.
- ✓ **Units of measure:** Set units of measure (for distance, speed, elevation) to units that you are comfortable using.
- ✓ **Time:** Verify that the GPS unit has correct local time.



Next, collect GPS location information:

- ✓ Ensure that the GPS antenna has an unobstructed view of the sky.
- ✓ Confirm that the unit is actively receiving signals from satellites.
- ✓ Remain still at the point of interest until the GPS unit determines a location.
- ✓ Record the latitude and longitude coordinate values in a simple format.
- ✓ Maintain written descriptions of important locations.



Finally, record the information from your GPS:

- ✓ Record a written description about the locations that you are mapping. Be sure to note the presence of permanent fixtures that are near the waypoint and could be used to confirm the location's coordinates. Buildings, intersections, dune crossovers or jetties make ideal reference points for noting positions along a shoreline.
- ✓ Most GPS units are capable of displaying latitude and longitude coordinates in three formats. The formats and their differences are highlighted below. The first, decimal degrees, is recommended as it is the simplest to record. The other formats require additional notation to indicate the minutes and seconds portions of the values. The inclusion of these special characters is critical when recording the data. No one format is "more accurate" than another. The critical point is that the user must be aware of the format of the data being provided by the GPS. Latitude and longitude values are typically reported in one of the following formats:

Decimal Degrees (may be noted as DD or DDD.ddddd)

- Coordinates are recorded as degrees and parts of degrees (e.g., -86.27978).
- This is the simplest format to use, as no spaces or special characters are used in this numeric format.

Degrees Minutes (may be noted as DM or DDD MM.mmm)

- In this format, the first three digits are degrees, followed by a space, then minutes and parts of minutes. (e.g., -86° 16.7868')
- Degrees are followed by the degree (°) symbol, as well as a space. Minutes are followed by the minutes (') symbol.

Degrees Minutes Seconds (may be noted as DMS or DDD MM SS.ss)

- This format is similar to the previous, but parts of minutes are converted to seconds and parts of seconds (e.g., -86° 16' 47.208")
- Seconds are preceded by a space and distinguished by the seconds (") symbol.



- ✓ In each example above, the same longitude value was used; note how the values changed as the format of the coordinates changed.
- ✓ Coordinates can be accompanied by direction (e.g., N or W) or preceded by a negative sign where appropriate. Southern latitudes and western longitudes are negative values.
- ✓ GPS units often provide coordinates with higher precision than necessary. For most uses, decimal degrees values recorded to the nearest 5 or 6 decimal places are sufficient.