

GUIDELINE FOR COLLECTING GPS LOCATIONS AND DIGITAL PHOTOGRAPHY

Background: This document is designed to address the bare minimum settings on an autonomous, non-differential GPS receiver, and GPS transfer software, to ensure the best data for GIS purposes. This is not designed to address every aspect of GPS Collection.

Pre-Field - GPS:

- Fresh Batteries are loaded and extra sets available.
- Initialize and download a fresh almanac if more than 1 week has transpired since last collection or you have moved more than 150 miles. This takes 20 minutes in the open, away from buildings, canopy and obstructions.
- Old Waypoints and Tracks are cleared from memory. Download any data you don't need, make a copy and clean up waypoints in list and clear all saved tracks and active tracklogs.
- Turn off active tracklog.
- Set Logging (Tracklog) Interval to Time.
- Set Tracking Interval Value (1-5 seconds).
- Ensure Simulator Mode is OFF when collecting data.
- If collecting data in a new area, transfer Background maps using MapSource for the area of mapping
- Check Time and Date (Ensure Daylight savings time if needed).
- Set the Coordinate System (LAT/LONG, Decimal Degrees, DDD.DDDD) and Datum (WGS84) to ensure compatibility with any written coordinates you may need to navigate to or Maps.
- Set Heading to Magnetic or True. If set to True, ensure compass has same declination.
- If possible plan GPS sky conditions using Trimble Planning Software and ensure best time of day.

Suggested GPS Receiver Settings:

<u>Name</u>	<u>Standard</u>
Almanac	acquired within 10 days
Altitude reference	Height above Ellipsoid (HAE) or Mean Sea Level (MSL); if MSL is used, indicate Geoid Model
Antenna heights	1.0 – 2 meters
Datum	WGS-84
Coordinate System	Decimal Degrees DDD.DDDD
Elevation mask	15 degrees
Feature types	point, line, area (polygon)
Logging intervals	Point 1 second Line / Area Walking 5 seconds Driving 1 second
Minimum number of positions for a point feature	4
Mode	2D / 3D
PDOP Mask	6.0 or less
Position mode	manual 3D
Satellite vehicles	3 (for 2D collection) / 4 (for 3D collection)
SNR Mask	6.0 or greater
Unit of Measure	meters or feet

Pre-Field – Digital Camera Setup:

- Make sure any pictures have been downloaded.
- Clear images from memory.
- Check time on Camera to something close to local time.
- Settings for resolution appropriate for job.

Field – GPS Data Collection:

- Electronically store all data (waypoints and tracks). Writing down a position is just backup.
- A Garmin will collect Data no matter what the GPS quality is. It's up to you to monitor the GPS Satellite Page continuously for anomalies and Accuracy.
- Collect only when "3D GPS" is shown. Do not collect data in 2D unless absolutely necessary. 2D Differential is not to be trusted either.
- Waypoints:
 - Collect all waypoints in Averaged Position mode if you are standing still. Minimum of 10 positions, maximum of 20 minutes. Somewhere in between is enough to generate a quality position in most cases.
 - Collect and instantaneous waypoint only when moving or in a hurry.
- TrackLogs:
 - The track log contains information about points along its path, including time, location, elevation and depth for each point.
 - Use "Stop when Full" or "Fill" Record Mode to prevent overwriting tracklog points when Active Tracklog becomes full.
 - Begin collecting Active Tracklog when you know where you need to go and immediately begin moving when Tracklog begins collecting.
 - Stop Active Tracklog when stopped.
 - Always Stop Active Track when nearing the beginning point of a polygon area you want closed.
 - Always turn Active Tracklog to OFF when finished collecting.
 - NEVER store an Active Tracklog unless you need to save space. Garmin will generalize any active track to save space, thereby degrading data.

Field – GPS Camera Data Collection:

- Be sure to be collecting an active Track or storing a waypoint when taking a picture.
- Take more than one photo per job of the GPS screen showing time, just in case. Always ensure you preview the picture so you can see to the SECOND (9:15:23).
- Always be collecting an active Track or waypoint when you take photos of mapping features.
- Never save an active track at end of mission, or you will lose all timing data associated with the Camera.
- When all data is collected fill out the Incident Metadata Form, download all data and pictures.