

GPS Tips

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You've decided to go high tech and get a GPS receiver but are bewildered by the huge array of models. Here are some things to consider before you buy:

1. Learning how to use a GPS is like mastering a computer; if you don't use it, you'll lose it! Best plan is to buy a unit that will mount in your car. Get a dashboard mount and cigar-lighter plug-in so you can practice setting waypoints, save track data and master other operations without running down batteries. You won't become proficient if you use your GPS just a few times a year!
2. Large size GPS units are generally more user-friendly than small ones. Miniature receivers often have awkwardly placed controls, and their tiny antennas don't access satellites as fast or reliably as large antennas-a concern if you canoe mountain rivers or hike where there is thick tree cover.
3. Not all "waterproof" GPS units have waterproof battery compartments!
4. Every GPS should have a "simulator" mode so you can learn the intricacies of operation more quickly.

THINGS YOU DON'T NEED IN A GPS

1. **Electronic compass:**
An electronic compass is no more accurate (most are less accurate!) than a good needle compass. Unlike a needle compass, an electronic compass must be re-calibrated every time you change batteries or move very far from its currently calibrated location. To re-calibrate, you rotate the instrument (usually twice) 360 degrees-full circle. The compass must be held dead-level during rotation. If you "go out of calibration range" and forget to re-calibrate, you're lost! Running by e-compass also consumes battery power. Needle compasses "point for free".
2. **Barometer:**
A barometer must be frequently re-calibrated in order to provide accurate air pressure readings and elevations. Yes, you will get a "relative read-out" without calibration, which is useful to determine weather trends.
3. **Thermometer:**
Electronic thermometers are slow to register readings. You need a special (extra cost) probe. They're just another thing to drain battery power.
4. **Color:**
A color screen is nice but it consumes battery power and it doesn't add accuracy or utility. Some color units are difficult to read in bright sunlight and/or ambient light. Most color screens depend upon a back-light (which draws battery power) for visibility.

Tip: Alkaline batteries don't work in sub-zero weather. Choose lithium batteries instead. Lithium's are lighter than alkalines and they last much longer too.

TIPS AND CONCERNS

1. Don't take GPS elevation readings seriously. The earth blocks enough important satellites to prevent accurate readings. Elevations can be off by many feet! If you want accurate elevations, use a calibrated barometer or the contour lines on your map.
2. Your GPS will convert UTM coordinates to latitude/longitude and vice versa. Simply change the coordinate system in the set-up menu. You can avoid serious number errors when programming UTM coordinates if, after you've programmed the coordinates, you switch to latitude-longitude mode and "eye ball" plot their location on your map. If the Latitude/longitude of your waypoint is roughly correct, your UTM coordinates are probably correct too. If not, you've made a serious UTM number error.

If you have a computer online, you can use the "UTM Converter"

(www.cellspark.com/utmconverter.html) to convert UTM values to Latitude/Longitude and vice versa.

3. You can use your GPS to determine the magnetic compass declination of your area. Simply go to the "set-up" menu in the instrument and read the declination value directly.

For units that don't have this feature, do this:

- 1) Set your GPS to read "True North" bearings, then set a "go to" heading to any waypoint. Write down the bearing to this waypoint (example, 40 degrees).
 - 2) Next, go back into the set-up menu and set your GPS to read "Magnetic North bearings, then set a "go to" heading to the same waypoint. Read the magnetic bearing (example 60 degrees). The magnetic declination for your area is 20 degrees west. Note: the declination is west if the magnetic bearing is greater than the true bearing. The declination is east if the magnetic bearing is less than the true bearing. Most GPS units round off the declination value to the nearest whole number, which is plenty accurate for compass navigation.
4. If you want to share UTM coordinate information with someone, be sure you reference your eastings and northings to the map sheet you are using. Technically, you should provide the horizontal datum, complete grid zone designation, and the full easting and northing. The map datum and grid zone designation are given in the margin of every topographic map.

Example: Nad 27 /16U / 332,300E / 5,849,500N.