GPS Devices

Cabled USB GPS unit:

In 2012 Globalsat developed a new GPS (BU-353 S4) with accuracy twice as high (< 2.5 meter 2D RMS SBAS corrected) versus 5 meters 2D RMS SBAS corrected, and position times much faster than their previous BC 337 GPS (below). These advantages stem from the fact that the BU-353S4 uses a newer GPS module using the SiRF Star IV instead of the former SiRF Star III technology. However, the new unit requires a cable that connects it through a USB port for power and communication. The BU-353-S4 is also waterproof as it is a sealed unit combining the GPS module and the GPS antenna into a single circular disc. It is best used with the GPS receiver antenna module attached to the shoulder of a mapping vest so that the antenna always points upwards to the GPS satellite constellation even when the pen tablet is being carried within the mapping vest pocket. In this fashion, there is no reduction in accuracy nor retardation in signal acquisition upon removing the tablet from the pocket to map. As far as receiving WAAS differential corrections in order to experience the < 2.5 meter accuracy, Satellite # 35 is used for the WAAS geostationary satellite. An unobstructed view to satellite # 35 is necessary to receive WAAS corrections. In its absence, the autonomous GPS accuracy will be about 5 meters.

Order from US Globalsat on sales form and email it to: sales@usglobalsat.com

You may wish to remove the magnet from the base of the BU-353 S4 GPS. A video Tutorial by Globalsat is available showing how this is done, but in my experience, even a strong ¾ by 1 inch long cylindrical NdFeB magnet alone is insufficient. However, if you unscrew the 5 screws at the bottom of the circular housing on the GPS, then open the "cap" of the device, move the module around while applying the magnet at the same time in a circular fashion, you should be able to pry off the magnet.

Non-Cable GPS unit:

Before the advent of the BU-353S4 USB GPS device, the most cost effective GPS units for general geological mapping above ground that work well with GeoMapper/PenMap were “card” GPS units that slide into the PCMCIA card slot of pen tablets. We have tested many different card GPS units, and one such unit that we have used extensively is manufactured by US GlobalSat. The current model BC 337 GPS uses a SiRFstarIII GPS 20 channel chip set which is characterized by its ability to acquire and maintain a signal lock in urban or densely covered
forest environments, and also by a short time to finding a location while working at a relatively low power during continuous operation. The **GlobalSat BC 337 GPS** is a 20 channel, WAAS differential correction enabled, compact flash interface GPS unit. It usually can be found on the Internet for less than $75 U.S including the AT-65 external antenna that allows a geologist to carry the tablet in an inside vest pocket while still having continuous GPS locations with the external antenna affixed to the shoulder of their mapping vest. Typical WAAS corrections give locations with an accuracy of 3 to 5 meters in plan view. The elevations are not as accurate and typically are 2.5 times the error of the plan view measurements. 

http://www.usglobalsat.com/p-140-bc-337.aspx

One supplier  

**US GlobalSat  BC 337 GPS**

http://www.usglobalsat.com/p-140-bc-337.aspx

**Frequency: L1, 1575.42MHz**

**US Globalsat BC-337 GPS receiver with compact flash**

**20 channel**

**AT-65 external antenna**

The plug end of the external antenna has a very small MMCX connector that snaps into the female connector on the edge of the GPS card. This connector is in practice too small for rugged field conditions, and must be treated with care. It can be held in place by using a rubber band taped around the wire and secure din place by looping it around the GPS unit.

In GeoMapper the device driver for a card GPS uses NMEA protocol so select NMEA (Comms Configurable) after clicking on the purple SetUp GPS button.
Click on the **Init** button to set the baud rate to 4800 and select the communication port being used. Sampling time should be set to 1 or 2 seconds.