

# **Basic Field (GPS) Directions**

## **Using Trimble's TSC1 data logger**

### **Winnemucca Field Office, BLM**

1) Determine what needs to be GPS'ed. Keep in mind that almost all GPS data can be imported in to the Geographic Information System (GIS) and should be collected with GIS in mind for your final product. It is also the policy of the district that all GPS data entered in to the GIS be collected as 3D data that is differently corrected with a "Position Dilution of Precision" (PDOP) of 8 or less. There are a few circumstances where slightly higher PDOP's will be acceptable. If you have any questions about the policy please ask Rick Crawford. Most anything can be GPS'ed. Lines, Points, and Areas. The GPS'ing can be done by walking, driving a truck, driving a ATV, flying in a helicopter, or taking points while flying in an airplane.

2) Check out a GPS unit from the computer room. Enter your name and date on the sign out sheet. **Don't forget the batteries.** You will need to take at least two camcorder batteries from the battery chargers. If you are doing a large job or will be out more then one day take four batteries so that you will have an extra set with you.

3) Set up the GPS unit for use. Hook up all the cables and place the antenna in a usable place.

A. Hook up the power to the batteries.

-In the yellow backpack open the top zipper.

-The two batteries fit in a pouch to the side of the black receiver box.

-Fasten the power clips to the top of the batteries and make sure that the power is plugged in to the pig tail coming off the top of the receiver.

-Close the top zipper

B. Hook up the antenna.

-Place the antenna in a place where it has a view of the sky. The magnet can be used on the roof of a car or on the rack of a ATV. If you are going to walk the short GPS pole fits in the side of the yellow back pack. If you are going to fly you will have to put the antenna on the dash of the helicopter or plane or hold the antenna up in the roof bubble of the helicopter. Some helicopters have built in antennas you can pug in to.

-In the yellow backpack open the side zipper and pull out the amount of antenna cable you need.

-Fasten the antenna cable to the antenna. Be sure that the **threads are not cross threaded and that it is screwed all the way down.**

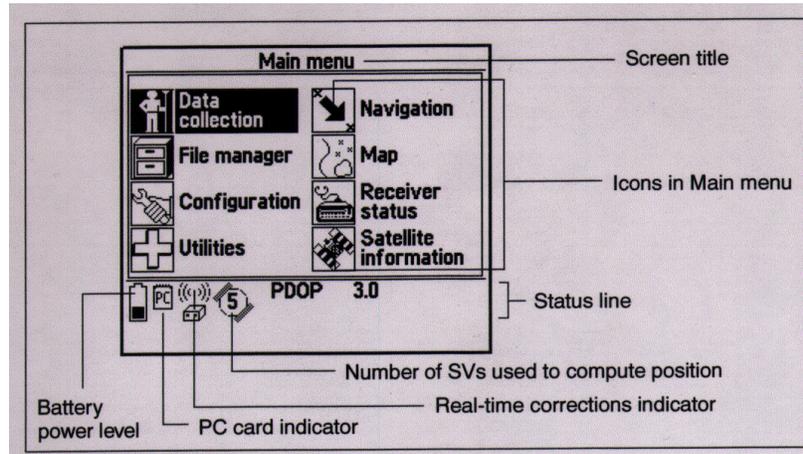
-Close the side zipper with the cable out the top.

C. Hook up the data logger.

-In the yellow backpack open the front zipper and pull out the data cable.

-Plug the data cable in to the data port on the data logger. You can use either the top back port or the bottom port.

4) Turn the GPS unit on with the green bouton in the lower left corner on the data logger. The main menu should appear on the screen in a few moments.

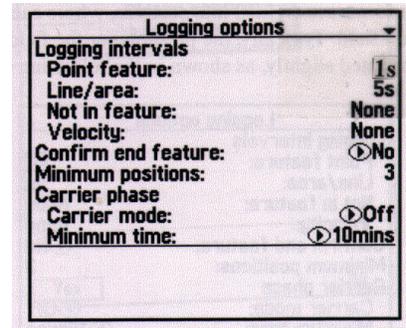


5) Check and set the configuration of the GPS unit.

A From the main menu select “Configuration” then “GPS rover options”.

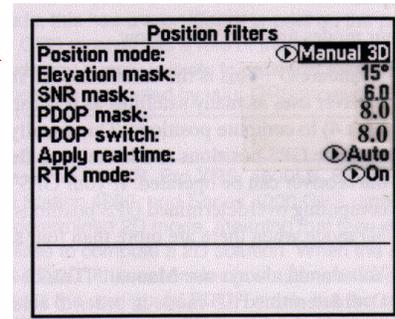
B. From the “GPS rover options” menu select “Logging options”

C. In the “Logging options” menu under “Logging intervals”, “Point feature should be set to 1 second and “Line/area should be set to 1,5,10, or 15 seconds. The interval should be 1 for driving or flying and set to 5,10, or 15 for walking. This is how often the position should be logged. The number must be divisible by 5 unless it is 1. This is so you are in sync with the base station. Press “Enter” to accept any changes or “Esc” to return to the “GPS rover options” menu



D. From the “GPS rover options” menu select “Position filters”.

E. In the “Position filters” menu “**Position mode**” should be “**Manual 3D**”, “**Elevation mask**” should be **15**, “**SNR mask**” should be **6.0**, “**PDOP mask**” should be **8.0**, and “PDOP switch” should be 8.0. Press “Enter” to accept any changes or “Esc” to return to the “GPS rover options” menu.



F. Press “Esc” twice to return to the main menu.

## 6) Log data

A. From the “Main Menu” select “Data collection”.

B. From the “Data collection” menu select “Create new file”. Note you can “Open a existing file”. The existing file can not be older then seven days. If you open a existing file you will need to select the file then select “New” (The F2 key). Then you will be ready for step 4G.

C. Rename the default file name. The default file name will be something like R102313A. Give this file a name that is more descriptive like: weed1001, or fence1101. The name can not have more then eight characters.

D. Select the “Data dictionary” you will be using. If you do not have a dictionary specifically for your project use the “Generic” data dictionary. To change the dictionary high lite the current dictionary and arrow to the right with the large round button in the middle. Data dictionaries can be created for your project in the office before you go to the field.

E. Press “Enter” to create the file. The “Antenna options” window may appear.

F. If the “Antenna options” window appears Press “Enter” to accept all the defaults. The “Start feature” window” appears.

G. In the “Start feature” menu select the type feature you are GPS’ing. If your data dictionary was generic the choices here are:

- Point generic (Use for points like sites)
- Line generic (Use for lines like roads, fences, and trails)
- Area generic (Use for areas like fires, treatment areas, Large areas of weeds)

If you are using a different dictionary the list will be what ever the features are in that dictionary. Press “Enter”. The “Antenna options” window may appear.

H. If the “Antenna options” window appears Press “Enter” to accept all the defaults. The data collection window opens and you are now collecting data.

- The number of points collected shows in the lower right corner and should be rising.
- The status line should say something like “PDOP 2.3”. (Less then what it was set at.)
- The battery level is displayed in the lower left
- The “Pause” lines up with the F1 key. ( Use to pause the logging)
- If you are GPS’ing lines or areas you can nest points along the line with the “Nest” option. This is lined up with F3 key.

I. Enter all the attribute fields. If you are using the “Generic” dictionary the only attribute is the “Comment”. For comment type in the name of the point, line, or area.

J. **End the feature by pressing the “Enter” key.** Note: If you end the feature any other way like using the “Esc” key, **this will cause the feature to be abandoned and will be lost!!!!**

K. Either Start a new feature with step 4G or use the “Esc” key to “Exit Data Collection”. Answer “Yes” to the question “Please confirm Exit Data collection” by pressing the F1 key.

L. Press the “Esc” key to return to the “Main” menu.

M. Shut the power off by holding the green button. (Lower left.)

N. Put all the equipment back in the travel case and return to the office.

## **Troubleshooting and comments**

Message “To few SV’s” (To few satellites)

-The antenna cable is not hooked up correctly. This is most likely if there are 0 satellites. Check the antenna cable.

Or

-If you have some satellites you may need to wait for more to become available.

Or

-Corrupt almanac file on the receiver. This is likely if the message persists. Reset the receiver. From the “Main” menu select “Utilities”. In the “Utilities” menu select “Reset GPS receiver”. This can take ten minutes for the GPS unit to find it’s location again after resetting.

Message “PDOP to High”

-If the PDOP is under 30 you may need to just wait for it to change. It should drop back down within a few minutes.

Or

-If the PDOP is very high like 100 or 300 the receiver may need resetting. From the “Main” menu select “Utilities”. In the “Utilities” menu select “Reset GPS receiver”. This can take ten minutes for the GPS unit to find it’s location again after resetting.

Message “No GPS detected”

-The cable to the data logger has become unplugged some place. Check the cables.

Or

-The main batteries have failed or are not connected. Check the batteries in the top zipper of the yellow backpack.

Message “Data logger not properly shut down”. After this message the data logger will reboot and display the same message again repeatably.

-Caused by a failure of the data logger cable while logging data or the batteries in the data logger failed. With the data logger off unplug the main batteries in the top zipper of the backpack for ten seconds. This will clear the message for the next time you power up the data logger.