

1. Using GPS devices or GPS exchange (GPX) files to position the data (GPS Data Download Wizard)

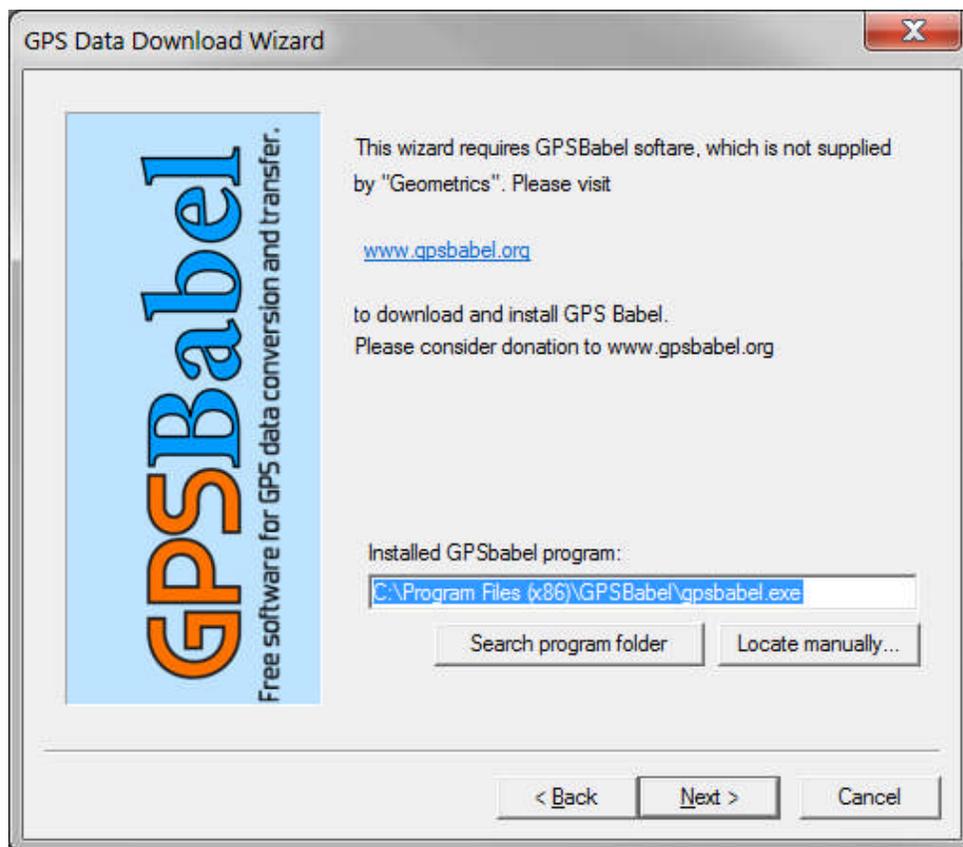
This is a brief description how new MagMap2000 feature can be used to position data using an arbitrary GPS receiver with internal logging feature.

1.1. Requirements

1. Arbitrary data source supported by MagMap2000. This could be 856, 858 or any other file or device we support. The time in the device console should match the GPS receiver time. The user is responsible for manually setting the console time to match the GPS time. After the survey is completed the data should be downloaded in MagMap2000 as usual, and filtered or spike edited in the normal procedure. A base station correction could be applied at this time and the data exported as a time tagged SURFER data file. This file is necessary to perform re-positioning using external the GPS receiver.
2. The GPS receiver must be supported by GPSBabel software. Please visit www.gpsbabel.org to download and install GPSbabel. Typically GPS devices have either one or both of two main modes to log the track information : internal memory or mass storage memory (memory card). In the first case the track information can be downloaded using an RS232 or USB protocol; in the second case the GPS device will appear as an external flash drive with a set of GPX files.

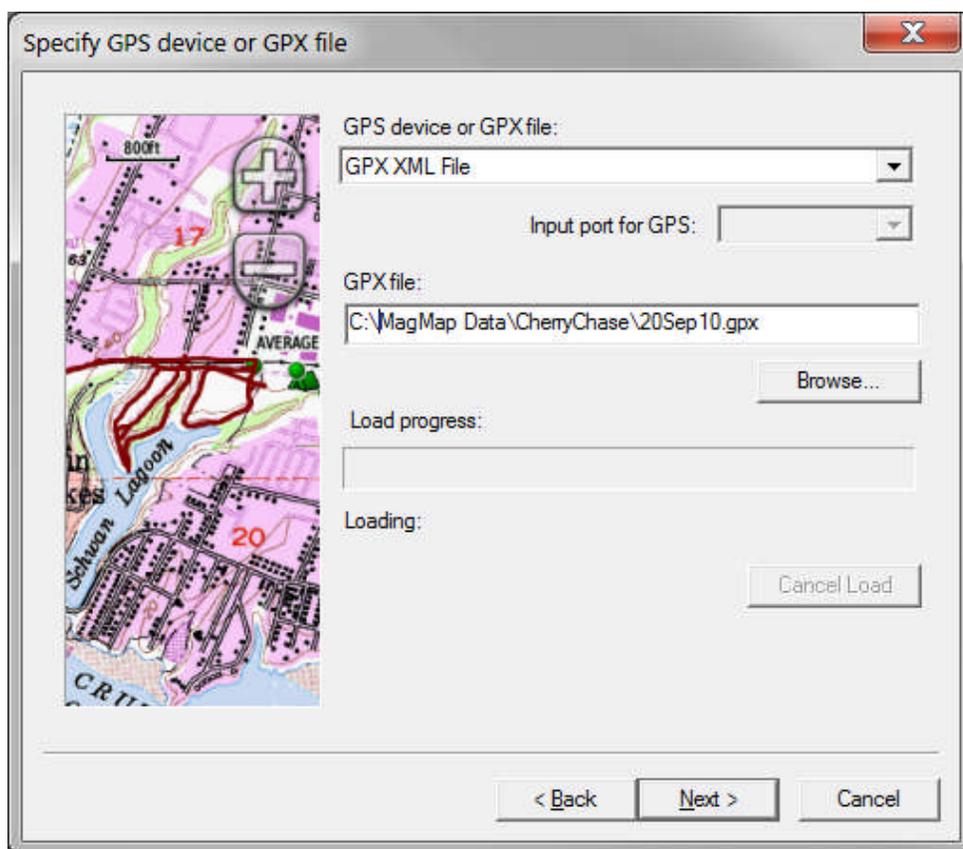
1.2. Operation.

The GPS Data Download Wizard presents data the same manner as for airborne or marine surveys. This means that only one GPS file can be opened at the time, so all windows should be closed prior starting the wizard. The wizard is available from File / GPS data download wizard menu. The first screen is shown below:



“Installed GPSbabel program” should point to the valid gpsbabel.exe file. If the program is not installed click on the link above and visit the GPSBabel web site. Then locate the program install folder manually or use “Search program folder” button. Then press “Next”

This is the next screen: Here is next screen:

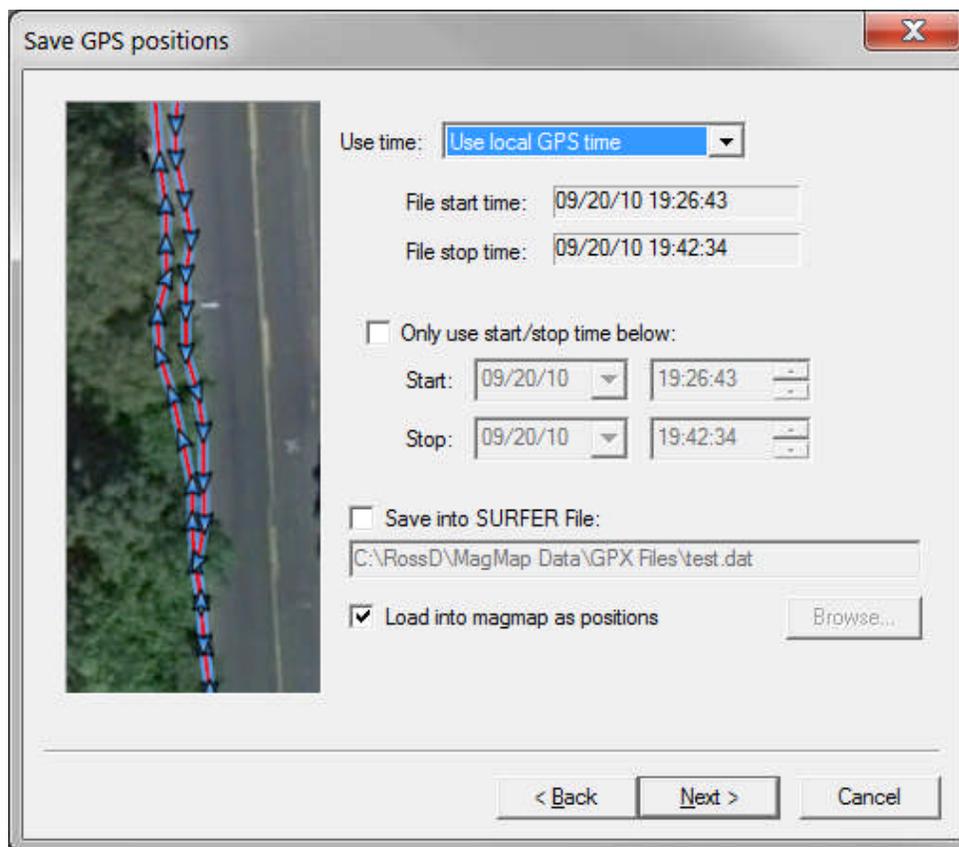


The purposes of this screen is to tell Magmap where and how obtain GPS data. There are two ways that data can be obtained: 1) Downloading data from the device or 2) reading the transferred GPX file.

In the first case the device should be properly connected with an appropriate cable (USB or serial). It should also be turned on and running. Device mode (USB or Serial Com port) should be selected in the appropriate fields. When the user presses “Next”, MagMap2000 will start gpsbabel.exe and then download and re-format the data.

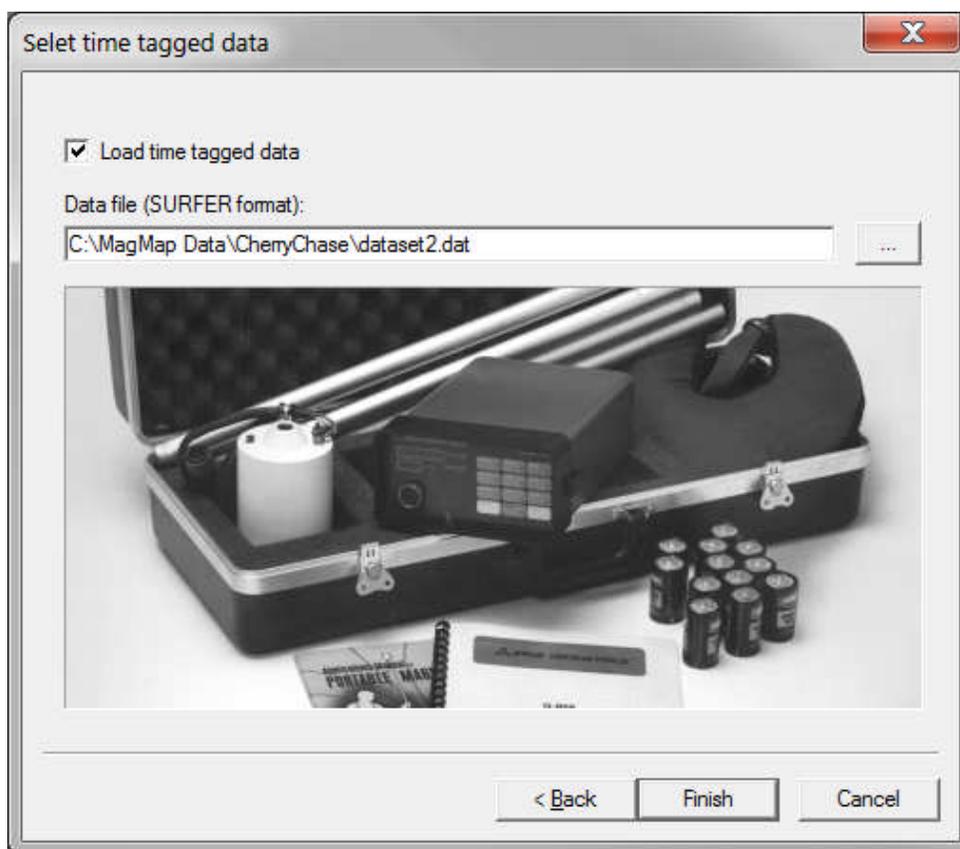
In case number 2, the proper GPX file should be selected. When the “Next” button is pressed the GPX file is retrieved and re-formatted.

In both cases a progress window will be displayed and success or error messages appear on the screen. If the operation is successful the program advances to the next screen.



This screen presents a summary about the downloaded track information. The user has the following choices:

1. Use GPS based local time or use UTC time.
2. Select start / stop window for GPS data or use all data.
3. Optionally save downloaded GPS data into SURFER file for future reference. The file has 4 columns: longitude, latitude, altitude (in meters), date and time. The last column is in local or UTC time depending on the selection in the dialog box. If the file is not saved, the GPS data is discarded after the wizard completes.
4. Ability to load GPS information as soon as wizard is complete. If this is checked, MagMap reads the positions at the wizard completion and loads them into an airborne data type GPS window. If this button is checked MagMap advances to the next screen.



In this screen the user has an option to select his or her data file, as described in the requirements section above. MagMap2000 will load this file along with the GPS position thus enabling aGPS position export. However the user must specify the data structure of the file. The following dialog is displayed after “Finish” button is pressed:

Data file definition

Data file name: C:\data\g-858\gpx\barnon395-time-shift.dat

Position information:

X: 1: X Y: 2: Y

Check here if X and Y represent longitude and latitude

Time information:

Time: 5: TIME Date: 6: DATE

No time stamps, assign by default Format: US (month,day,year)

Line information:

Don't use lines (all data in one line) Line: 4: LINE

Split data file into lines by distance Split distance: 10000

Data channels:

3: READING_1

Add data channel...
Remove data channel...
Remove all channels

How to load: Data ONLY Use advanced settings Advanced...

OK Cancel

This is a typical MagMap2000 SURFER file dialog import box with some limitations. The User can load “Data ONLY” and must select valid TIME and DATE fields. “X” and “Y” fields are not available. It is also recommended to use a LINE field if available. If the “line” field is selected, the program will remove all GPS data which does not belong to lines, thus cutting the survey to the actual grid. To complete the procedure at least one data channel should be added (typically Reading_1).

After the wizard is complete the GPS and data windows will be displayed on the screen. This is similar to the way done in the MagLog2000 airborne survey mode. Note that the user can load his or her magnetometer data file after completing the GPS Download Wizard, i.e, it need not be loaded during GPS wizard processing. Thus there are different sequences of operation available and for instance generic prefixed serial data could be loaded in place of the SURFER *.dat file, etc.