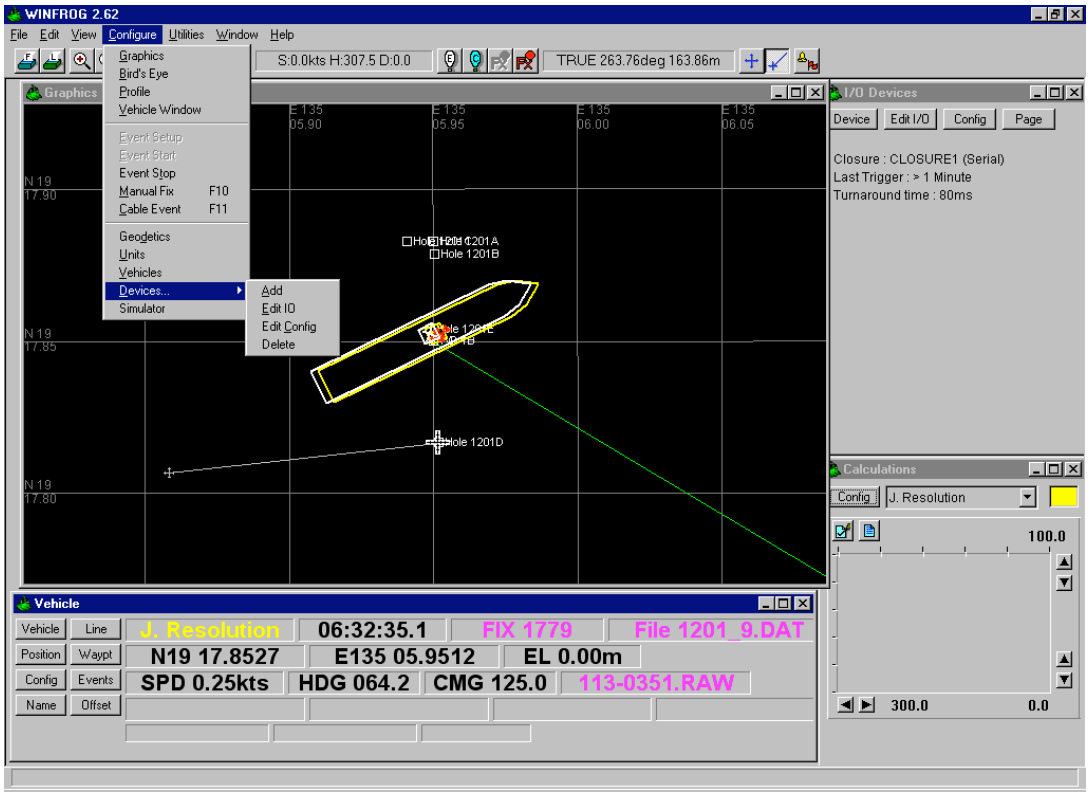
CONFIGURING DEVICES ON THE VEHICLE
JOIDES RESOLUTION
Updated Nov. 2003

Once you have configured the Vehicle (in our case, the J. Resolution), you are ready to add devices. The four devices covered in this section are GPS, gyro, echo sounders (3.5 and 12.0 kHz) and magnetometer. There are three basic steps to adding a device.

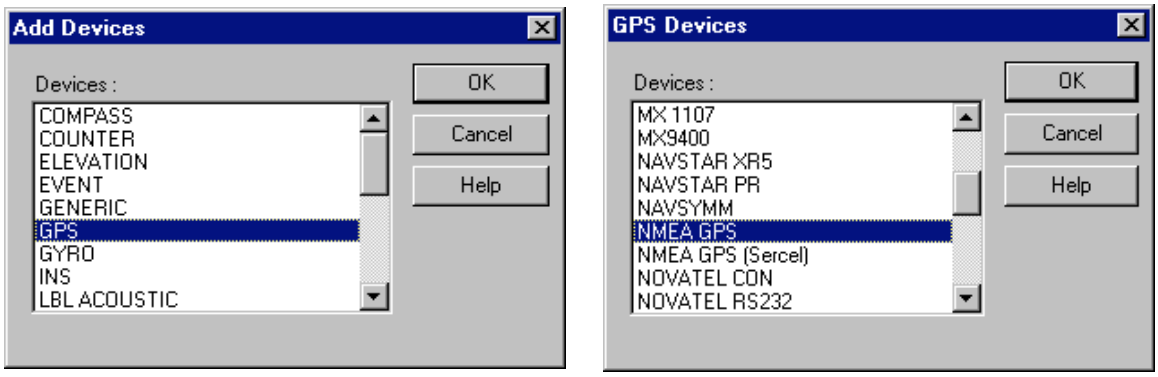
1. From Configure in the top menu bar you must add the device and assign the com data port and baud rate.
2. Next, you must go to the Vehicle window, select the Position button and add the device.
3. Finally, you must assign each device definable features via Config in the I/O Devices window.

Ashtech GPS

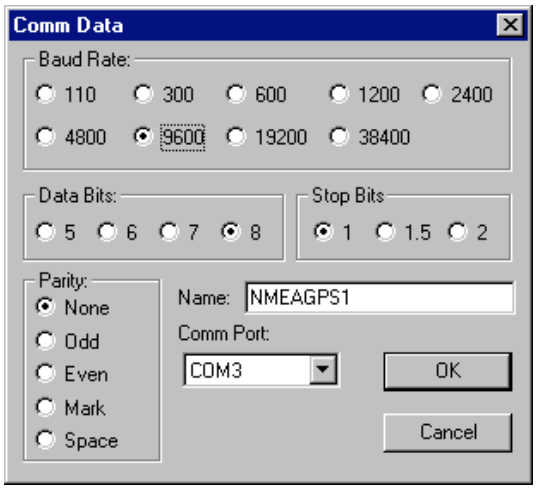
The GPS fixes are collected during all transits and while on site. From the upper menu bar select Configure>Devices>Add.



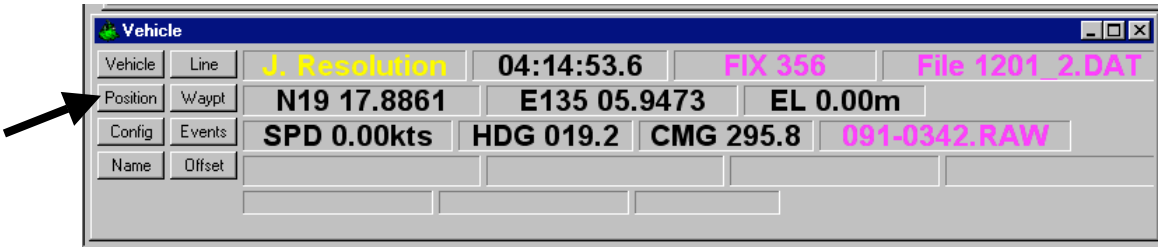
In the Add Devices screen, select GPS. The next screen is GPS Devices. Select NMEA GPS.



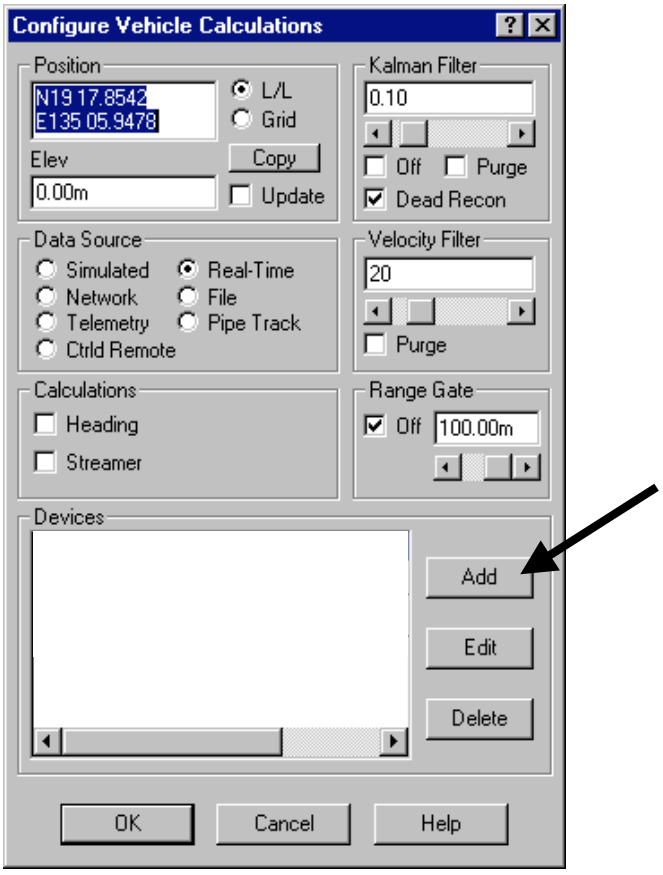
Next, the Com data screen appears. Enter a Baud Rate of 9600 and the Com Port, in this case, COM5. Click OK. If you want to use the Omnistar GPS, change the Com Port to COM3 with Baud Rate of 4800. You will also have to change the GPS Antenna offset to +3.05 m (got to Vehicle Configuration section for instructions). The Ashtec GPS Antenna is mounted on the Port side so has an offset of –3.05 m.



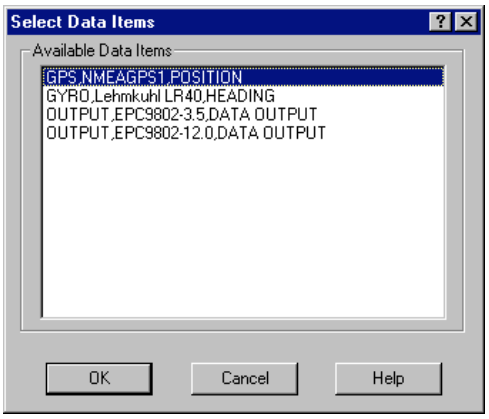
From the Vehicle Box in the lower left part of the screen, select the Position button.



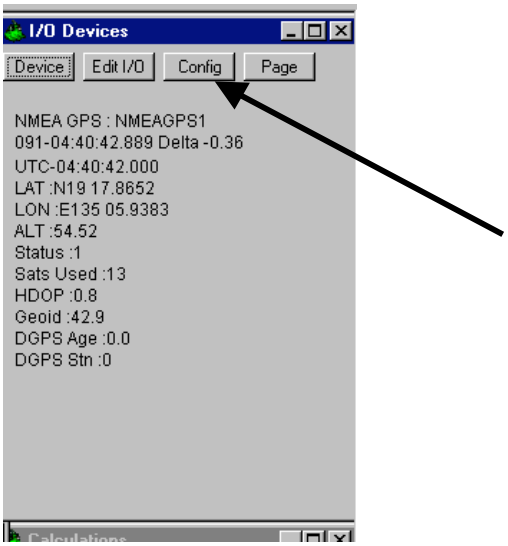
The Configure Vehicle Calculations screen will pop up. Click on the Add button in the bottom right part of the screen.



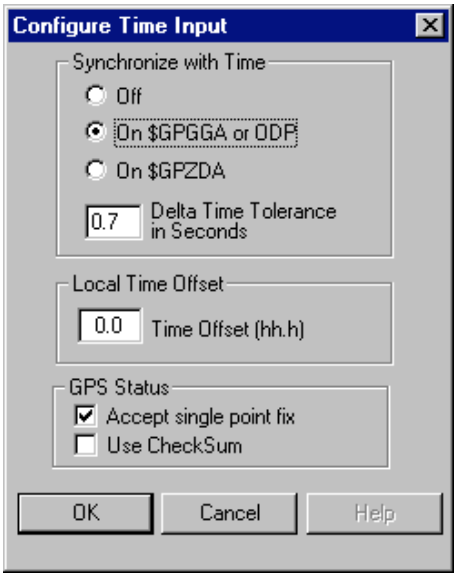
In the Select Data Items screen, add the GPS. Click OK



In the upper right part of the main screen, go to I/O devices. Scroll to NMEAGPS1 and click on Config.

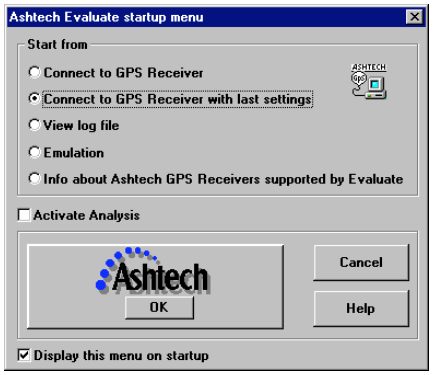


The Configure Time Output screen will appear. Synchonize with Time should be set to "On $GPGGA or ODP" and GPS status set to "Accept single point fix".



If GPS data does not begin in WinFrog you may need to run Ashtech Evaluate. To do this, first disconnect the cable that goes from the back of the Asthech (labeled Port B) into WinFrog1 Com 3 port (on the extension port board) and connect it directly to the back of the WinFrog1 machine via Com2.

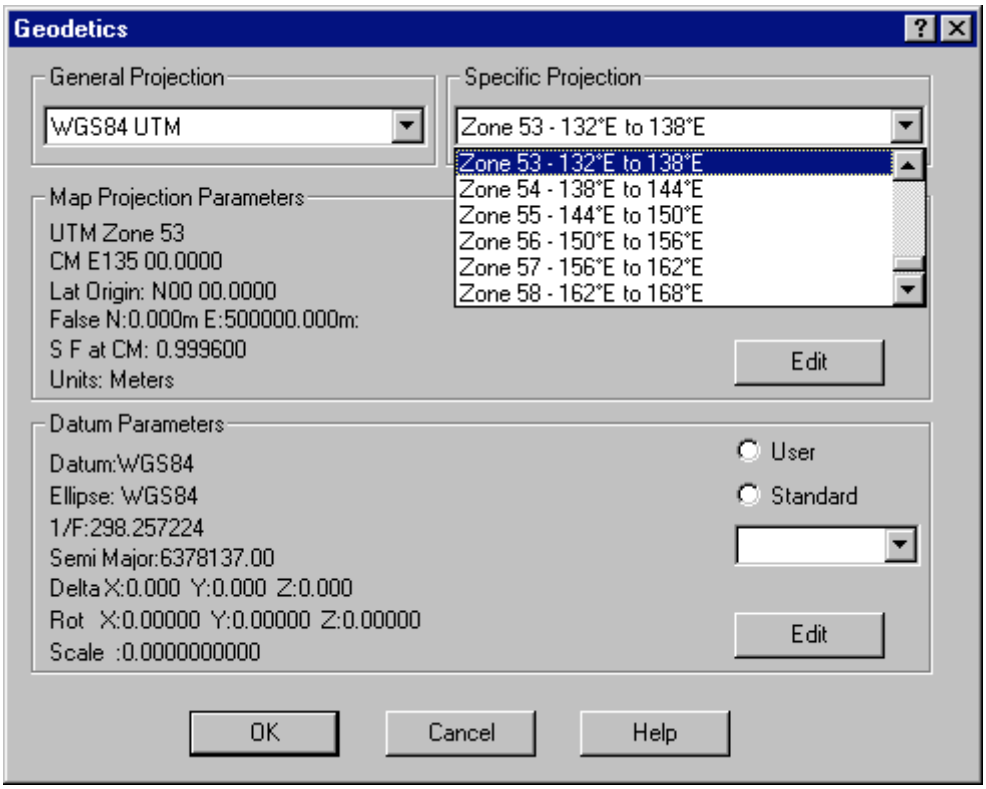
From the Windows start menu, choose Programs>Ashtech Evaluate. Click on Connect to GPS receiver with last settings.



Go to the GPS>Terminal to see if the actual fixes are coming in. If they are, close Ashtech Evaluate. Remove the cable from Com2 in the back the WinFrog1 computer and reconnect it to Com3 in the extension port board.

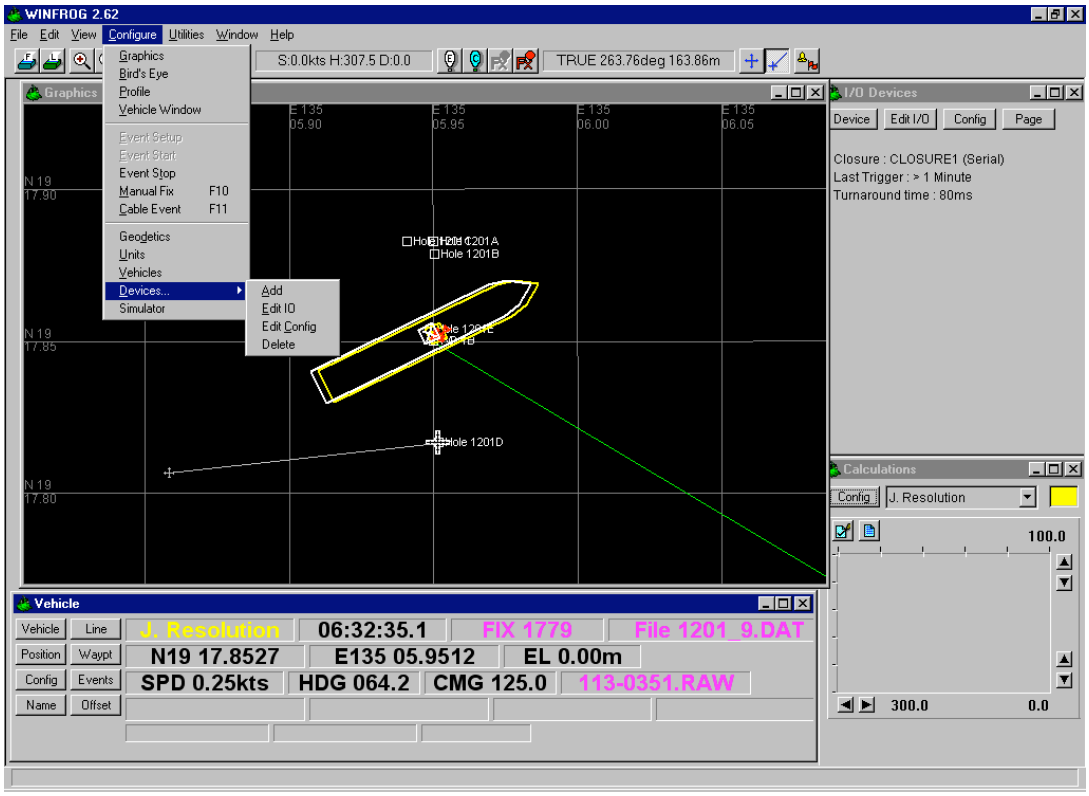
If not, see chapter on Ashtech Evaluate (not written yet….so for now, go talk to the DP Operator, May 2001).

You may also need to configure the geodetics. Do to this, go to Configure>Geodetics from the top menu bar. The Geodetics screen will open. Select the General Projection. We will almost always be using WGS84 UTM, except in very high latitudes. Select the Specific Projection Zone that corresponds to your longitude. Click OK.

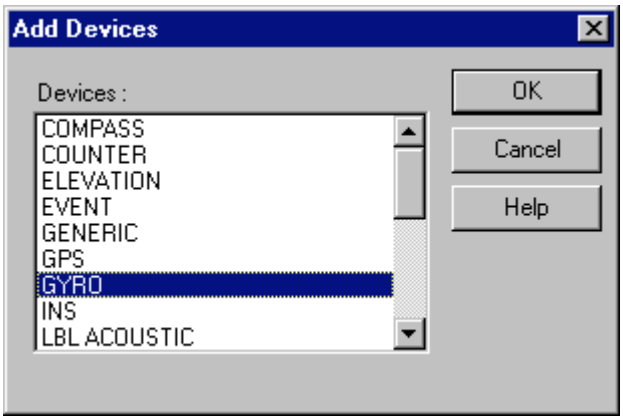


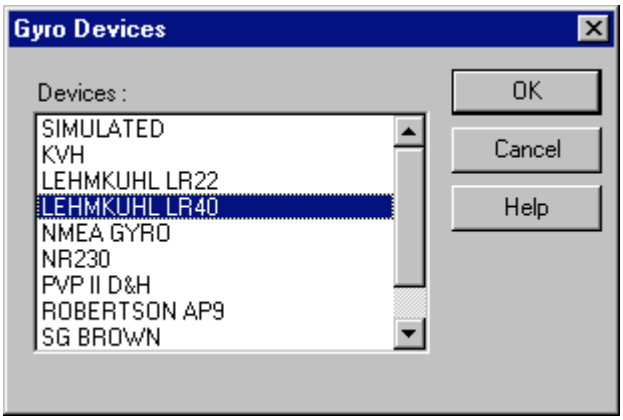
Lehmkuhl GYRO

From the upper menu bar select Configure>Devices>Add.

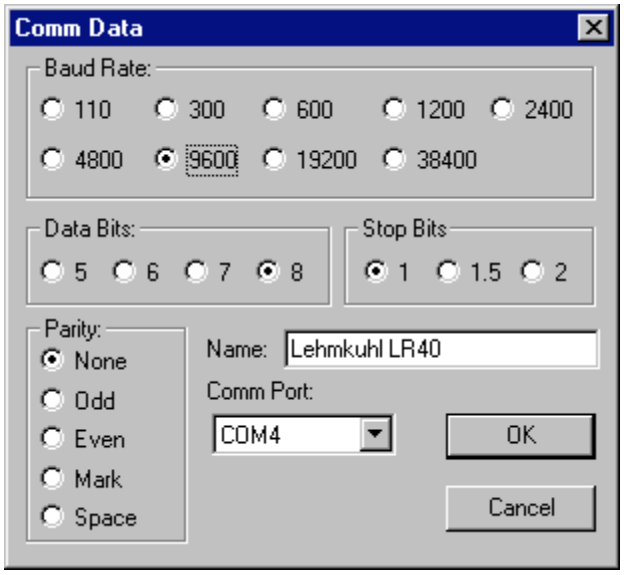


The next screen is Gyro Devices. Select LEHMKUHL LR40.

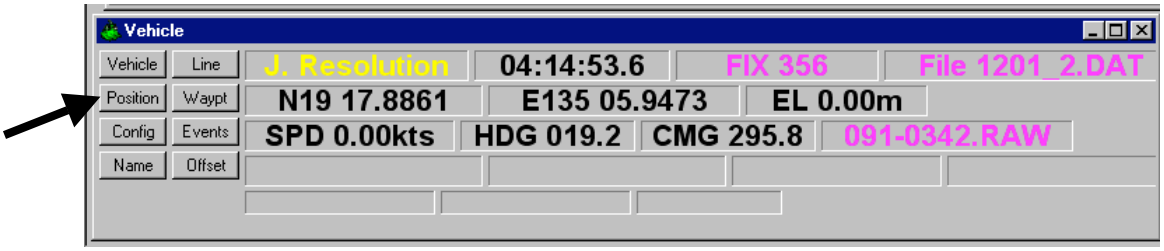




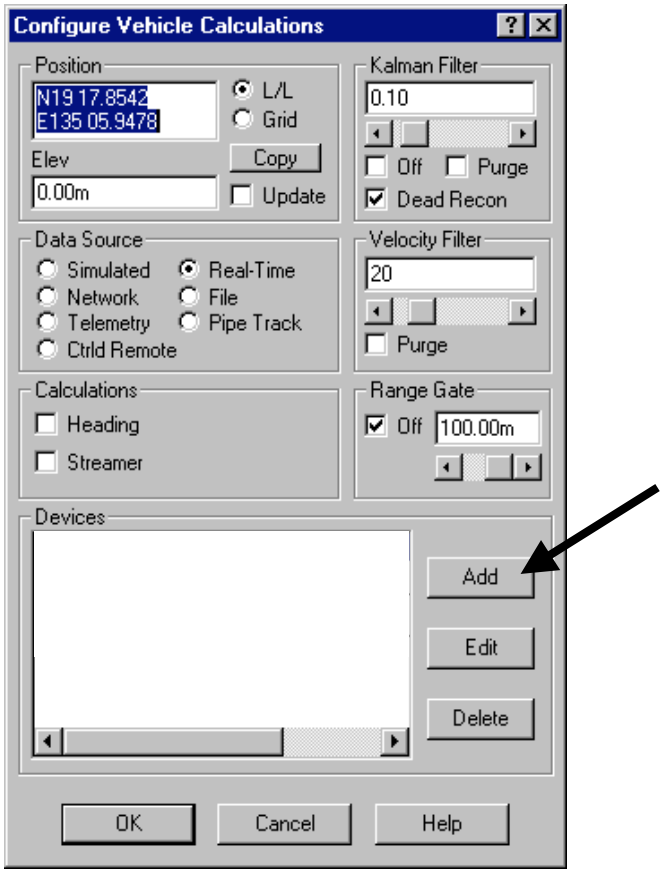
Next, the Com data screen appears. Enter a Baud Rate of 9600 and the Com Port, in this case, Com 6. Click OK.



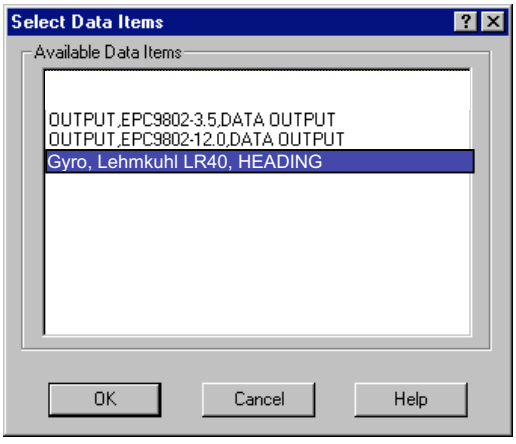
From the Vehicle Box in the lower left part of the screen, select the Position button.



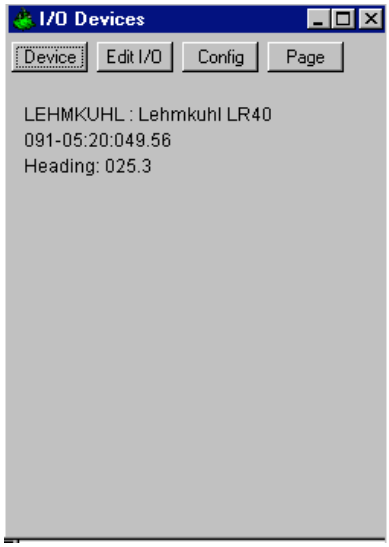
The Configure Vehicle Calculations screen will pop up. Click on the Add button in the bottom right part of the screen.



Add the Gyro. Click OK.



At this point, the Gyro installation is complete. It should appear in the I/O Devices window in the upper right.



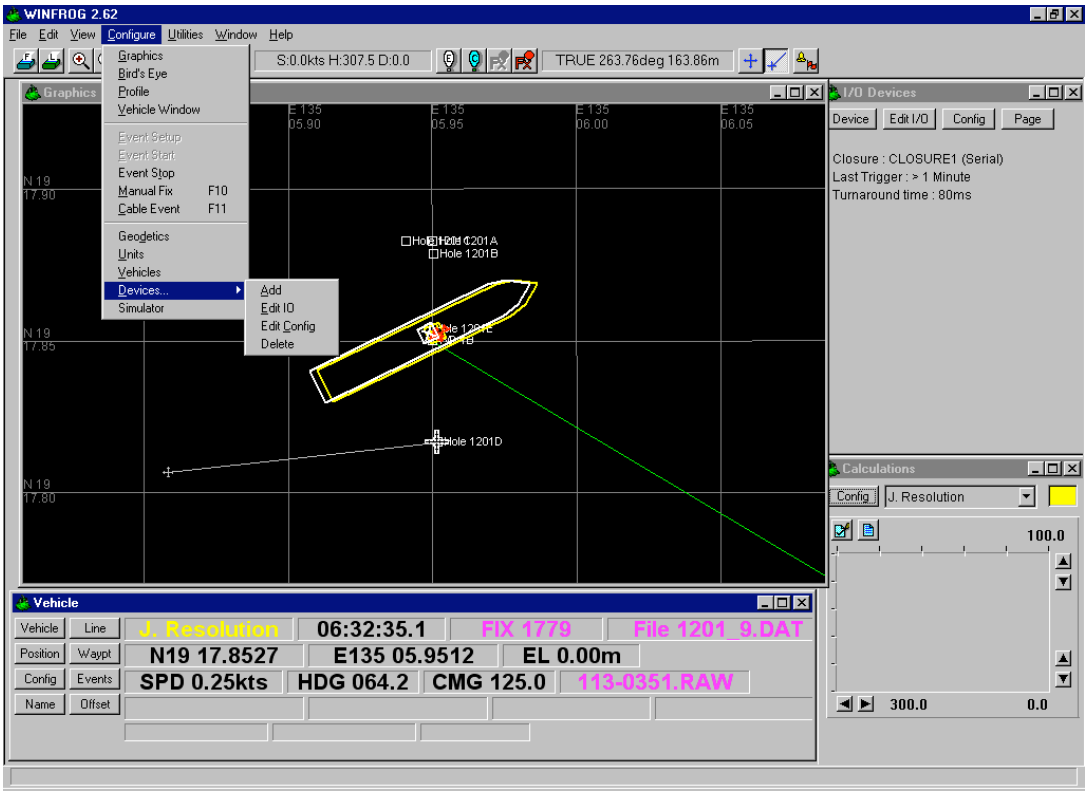
Note on the Gyro: The gyro in the Underway Lab is a repeater of Gyro # 2 on the bridge. It is possible that WinFrog gyro settings will be lost several times during a cruise. A good way watch for this is to run the DP WinFrog vehicle "Sedco 471" (using a different color) in background to the UW WinFrog vehicle "J. Resolution". If the gyro has lost its setting the outline of "J. Resolution" will have a different heading from the outline of "Sedco 471".

Resetting the gyro is done as follows: first call the Bridge to get the correct gyro heading. Then hold down the central button while pushing one of the arrow buttons to the right or left of the central button on the digital gyro repeater display. If the gyro doesn't respond to pressing the keys (and the display seems to dim), try unplugging, then replugging and pressing the buttons again.

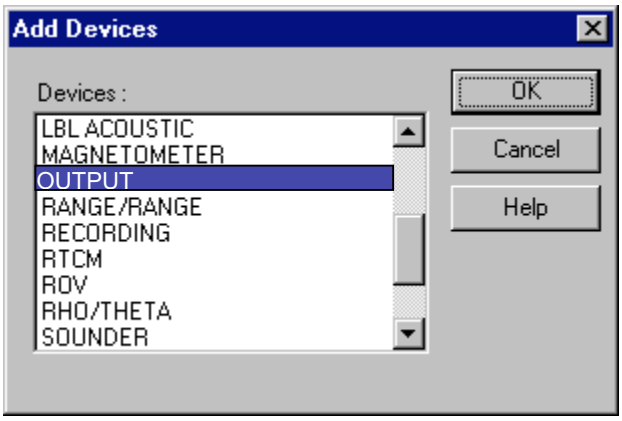
3.5 and 12.0 kHz Echo Sounders

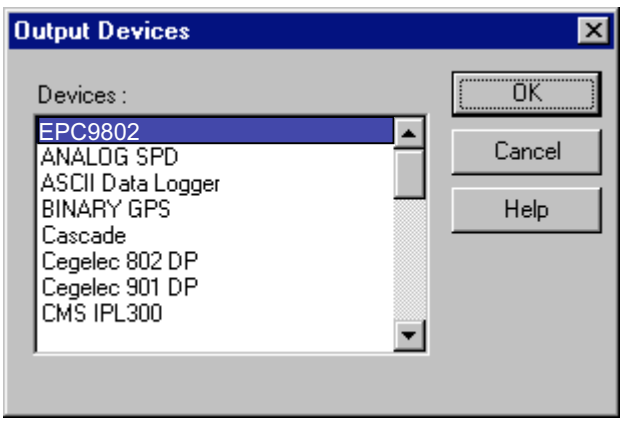
***Currently the Echo Sounders are run with the UW Watch Software but if it is necessary to use WinFrog, follow these instructions.

From the Upper menu bar select Configure>Devices>Add.

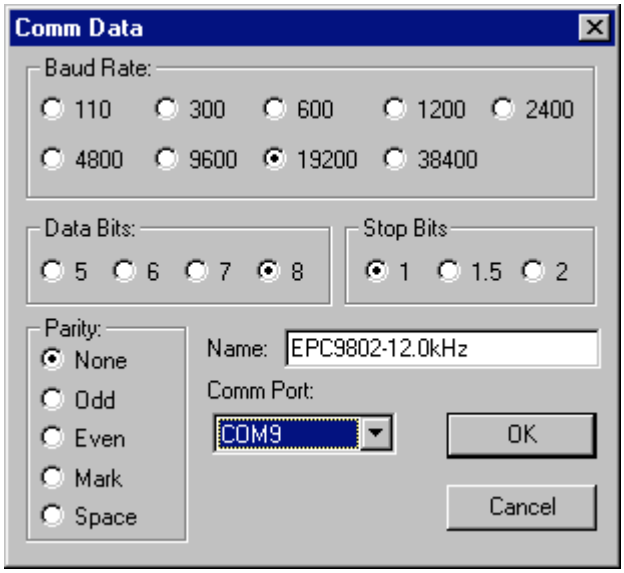


In the Add Devices screen select Output. The next screen is Output Devices. Select EPC9802.

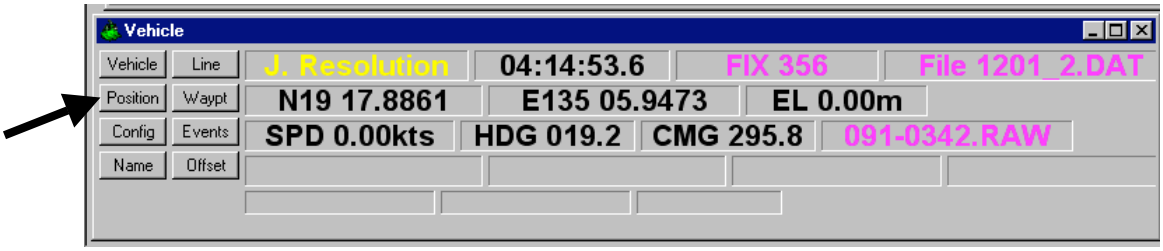




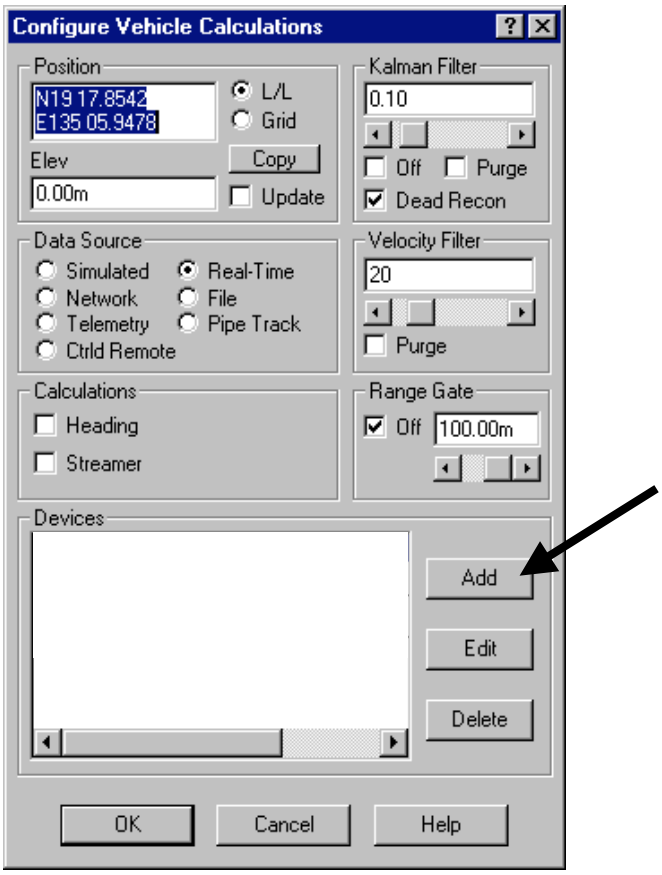
Next the Com data screen appears. Enter the Baud Rate of 19200. Enter the name as EPC9802 - 3.5kHz (or 12.0kHz) and the corresponding Comm Port (Com10 for 3.5 and Com9 for 12.0).



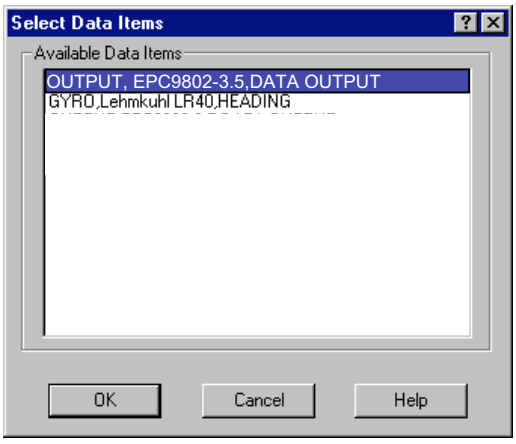
From the Vehicle Box in the lower left part of the screen, select the Position button.



The Configure Vehicle Calculations screen will pop up. Click on the Add button in the bottom right part of the screen.



Add the EPC9802-3.5,DATA OUTPUT (or EPC9802-12.0,DATA OUTPUT) . Click OK.



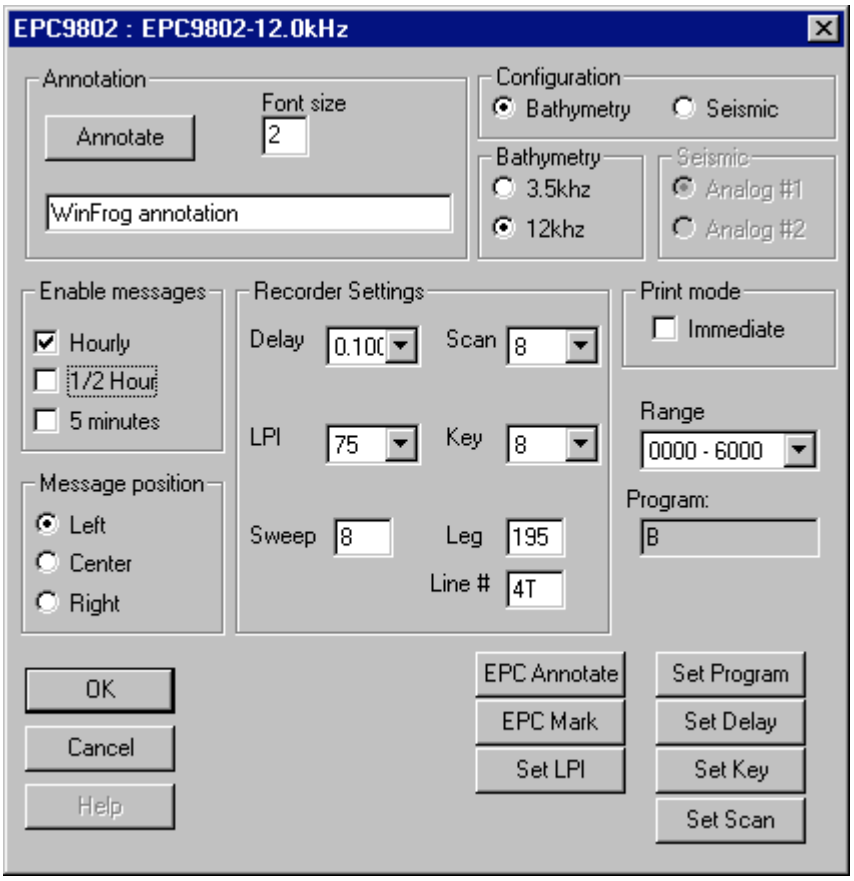
In the I/O Devices in the upper right hand, scroll through the devices by clicking the Device button until you reach EPC9802-3.5 (or 12.0). Click on the Config button.

For the 3.5kHz, set the range to the whatever your current depth range is. Have messages set to print hourly, _ hourly and 5 minutes. Set messages to print on the side opposite the bottom profile on the line scan recorder. The other parameters for the 3.5 should be set up as follows:

Font - 2
Delay - .100 (=100ms)
Scan – 1
LPI - 75
Key - 1
Sweep - 1
Print Mode - OFF
Leg - XXX
Line # - XX

For the 12.0 kHz, set the range in depth check mode (0000-6000m), with messages printing hourly. Set messages to print on opposite side of bottom profile on the line scan recorder. The other parameters for the 12.0 should be set up as follows:

Font - 2
Delay - .100 (=100ms)
Scan – 8
LPI - 75
Key - 8
Sweep - 1
Print Mode - OFF
Leg - XXX
Line # - XXX



TROUBLESHOOTING

WHEN WINFROG IS NOT RECEIVING ECHO SOUNDER SIGNALS

If WinFrog does not appear to be receiving (the line scan recorder will be printing a 1-750 type record showing an "outgoing pulse" and there will be no rotation of parameters in the I/O Devices window for the recorder in question) it is likely that communication between the recorder and WinFrog has been lost. In this case, try deleting and then adding the device in WinFrog as follows:

- Go to POSITION (in VEHICLE box at bottom of screen).
- Highlight the device in question (3.5 or 12.0 kHz) and click DELETE.
- Go to CONFIGURE (top menu bar).
- Scroll down to DEVICE and choose DELETE.
- Go to CONFIGURE again (top menu bar).

- Scroll down to DEVICE and choose ADD.
- In the ADD DEVICES box, scroll down and choose OUTPUT, select EPC9802. Define the Com port (Com 10 for 3.5 and Com 9 for 12.0) and name the device by adding 3.5kHz or 12.0kHz to EPC9802 (e.g. EPC9802 – 3.5kHz).
- Go back to POSITION (in VEHICLE box at bottom of screen).
- Highlight DEVICE and click ADD. Click OK.

- Go to the I/O DEVICES window in right hand corner. Select the device in question and click on CONFIG..Set the appropriate depth range). Set up as follows for the 3.5 kHz:

  Font - 2
  Delay - .100 (= 100ms)
  Scan – 1
  LPI - 75
  Key - 1
  Sweep - 1
  Print Mode - OFF
  Leg - XXX Check messages – hr, _ hr and 5 mins

- Use the following settings for depth check mode on the 12.0 kHz:

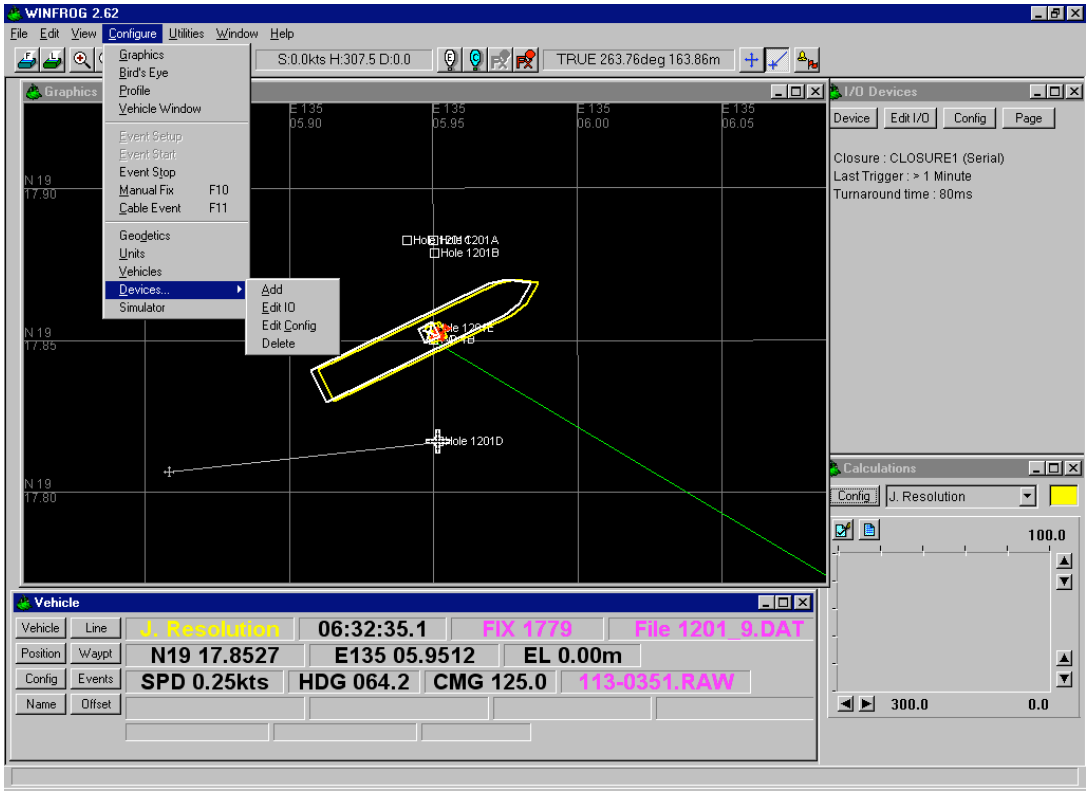
  Font - 2
  Delay - .100 (= 100ms)
  Scan – 8
  LPI - 75
  Key - 8
  Sweep - 1
  Print Mode - OFF
  Leg - XXX

- Click “EPC Annotate” and see if the recorder readout is correct and note whether the I/O parameter file rotates/moves. Click “set program.”
- Turn on Transducer.

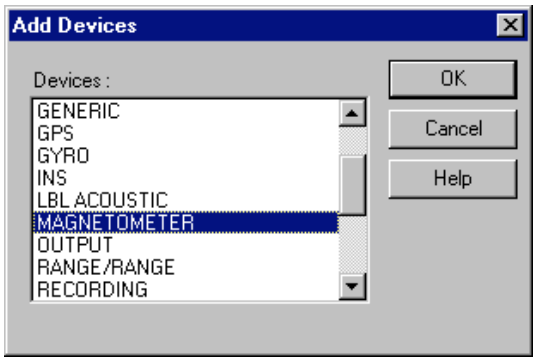
Magnetometer

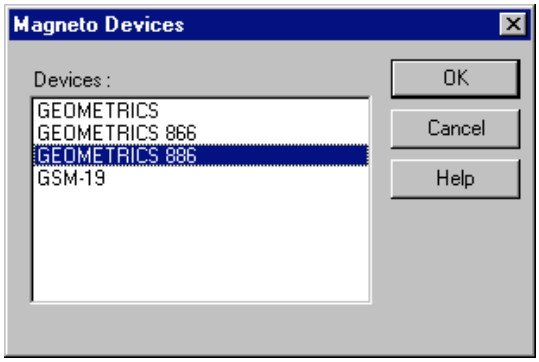
Note: before deploying the magnetometer(s), call the bridge to get the ok. If the ship is up to speed and the bridge gives the ok, deploy the magnetometer. Come back into the lab and turn the power switch on and then flip the toggle (above the power switch) to either the port or starboard maggie depending on which one is in use.

In WinFrog go to the upper menu bar select Configure>Devices>Add.

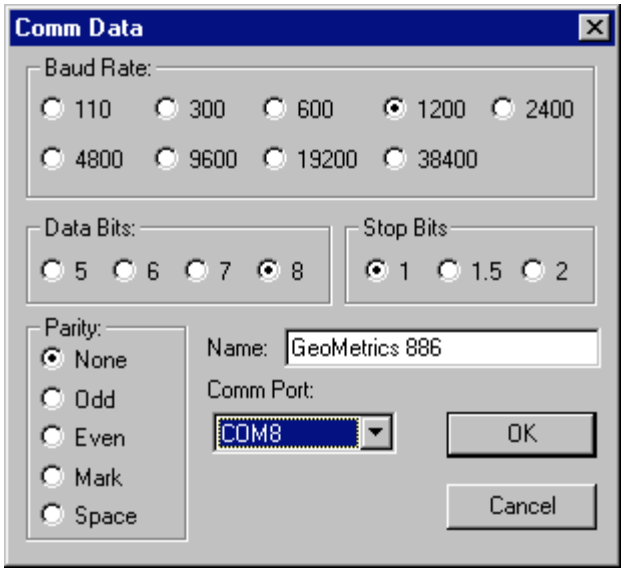


In the Add Devices screen select MAGNETOMETER. In the Magneto Devices screen, select GEOMETRICS 886.

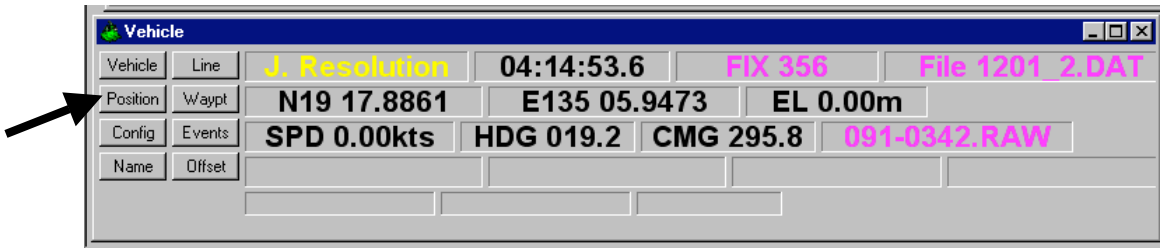




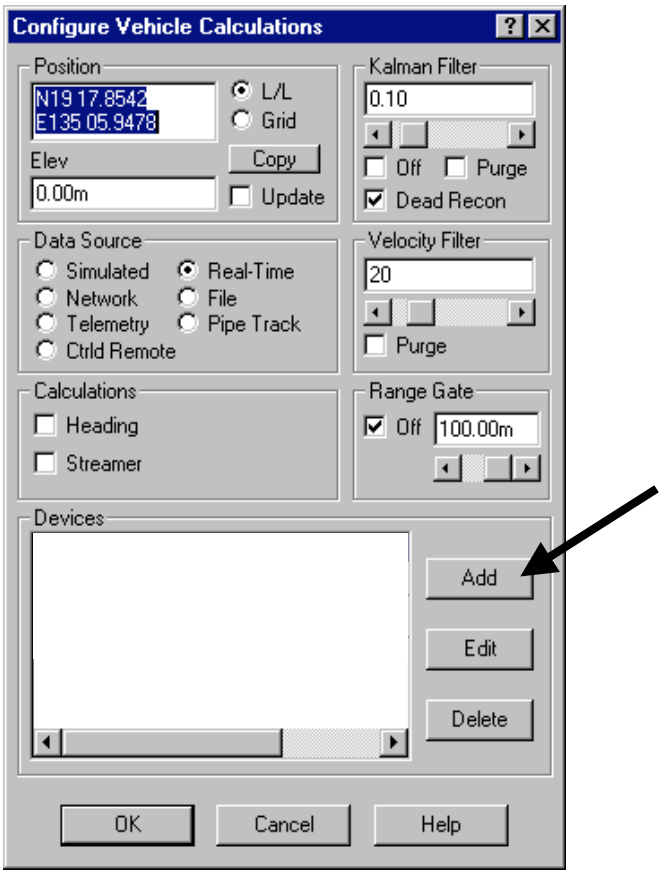
Next, the Com data screen appears. Enter a Baud Rate of 1200 and Com8 for the Comm Port. Click OK.



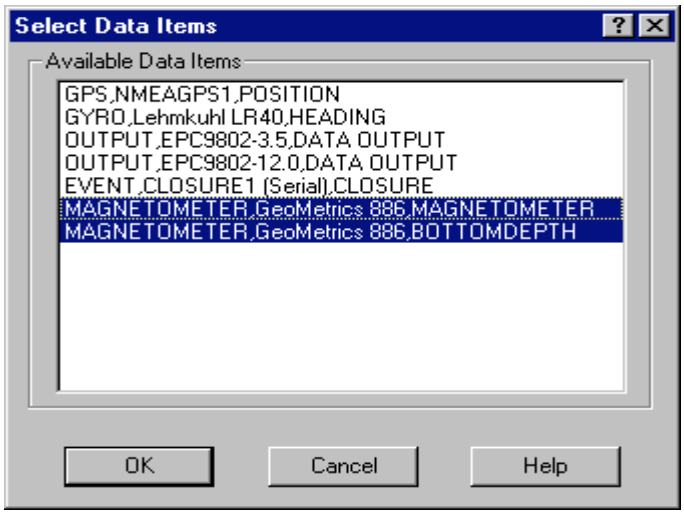
From the Vehicle Box in the lower left part of the screen, select the Position button.



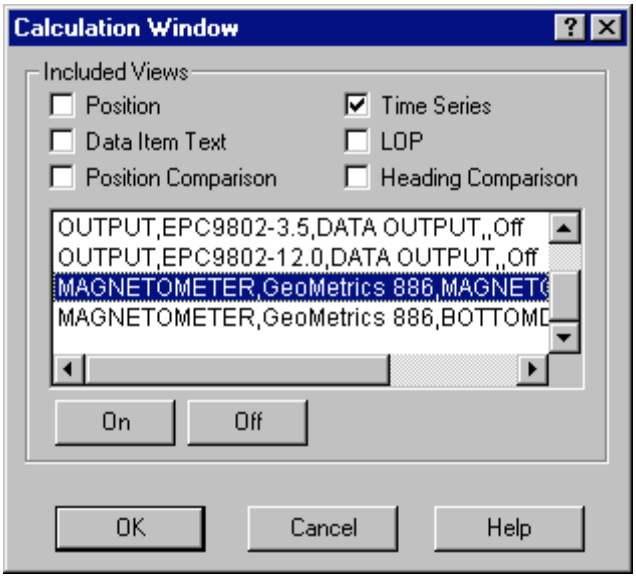
The Configure Vehicle Calculations screen will pop up. Click on the Add button in the bottom right part of the screen.



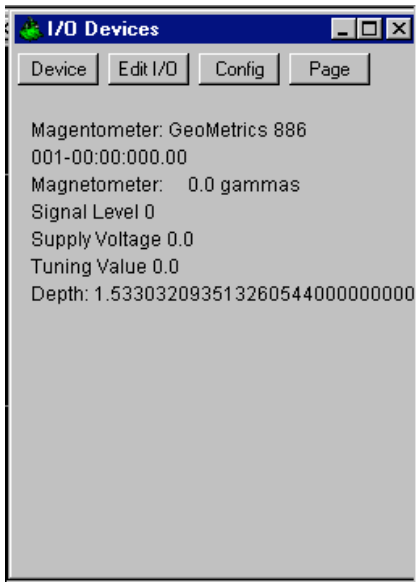
From the Select Data Items screen, add both MAGNETOMETER, Geometrics 886, MAGNETOMETER and MAGNETOMETER, Geometrics 886, BOTTOMDEPTH. Click OK.



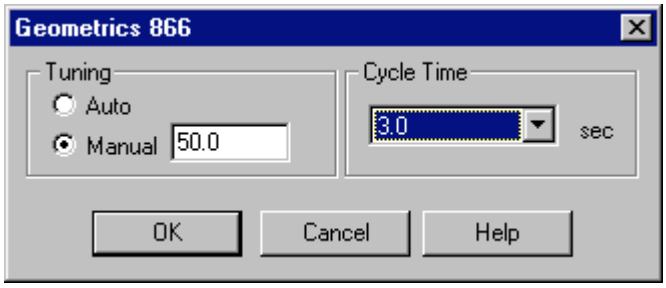
Go to the Calculation Window in View. Check time series and then highlight both Magnetometer and Bottom Depth. Click on ON and OK.



Go to I/O devices in the upper right part of the screen. Scroll to Magnetometer Geometrics 886. Click on the Config button.



The Geometrics 886 configuration window appear. Make note of your Lat/Long, look at the map of the earth's magnetic field posted on the starboard bulletin board. Find the value in gammas (earth's total magnetic field strength units) of the magnetic field for your location. Add 5 to that value. Enter this number into the tuning portion of the Geometrics 886 window. Leave Cylce time at 3.0 sec and click OK.



Go to the I/O Devices screen again. Your signal value should be in the vicinity of 200. If not, go back into Config and change the tuning value manually by +5.0 in an attempt to optimize the signal. Click OK and wait a few seconds to see if the signal level changes. Repeat until until the signal level is somewhere near 200.

In the Calculations window just below I/O devices, a sprinkling of red dots should be visible. To set the "plot scale" click on the button with the check mark. The scale should be from 0.0-100.0 gammas. Hopefully if ll is well, the values should start plotting in a tight line. The more scattered the display the more noise there is from the sensor or it is a reflection poor tuning. If the dots are still scattered, switch maggies and repeat to see if it is a sensor related problem. Note: there is a 25 gamma offset when switching from port to starboard maggies. The port is 25 gammas higher due to more noise.