



# TECHNICAL NOTE

## Barometric Correction

### Using Baro Merge® Software

*Post-correction of absolute (non-vented) level sensor data*

Revised November 2009

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#### Overview

Baro Merge software can post-correct absolute (non-vented) level sensor data to eliminate barometric pressure effects from the measurements. Baro Merge provides three options:

- Fixed Correction – A single offset value that is applied to all selected log data. Use this option if you know the barometric pressure of the site during the log, and know that it did not change.
- Manual Entry – Specify two or more correction values to apply to the log data. Use this option if you wish to manually enter a data set of barometric pressure values.
- BaroTROLL® log file – Absolute level sensor data points are individually corrected to reflect barometric pressure changes that were logged by a BaroTROLL instrument during the same general time period.

#### Input

In the Fixed Correction and Manual Entry options, it is important to know the barometric pressure for the general time period covered by the log or logs you want to correct.

Baro Merge uses a Wizard-like interface consisting of three main steps, and it has three user preference options in the compensation table:

1. First, choose the type of compensation/correction you wish to use. Using Manual Entry or Baro TROLL log file will bring you into the compensation table which shows the barometric values with time stamps. The compensation table has three preference options:

- a. The first option, “Save calculated barometric adjustments in the new data file(s)” is the default option. It will add additional columns depending on which parameters were selected for the absolute/non-vented log in the corrected BaroMerge file that uses the compensation table values. See Figure 1. This is intended to show how the adjustments were done in the BaroMerge file. If you do not want to show these adjustments, uncheck this option.
  - b. When the second option, “Show time in UTC”, is selected, the compensation table time stamp displays in Universal Coordinated Time (UTC) time (formally known as Greenwich Mean Time (GMT)).
  - c. If the third option, “Ignore daylight saving time (DST)”, is selected, the compensation table time stamp format without the daylight savings time adjustment, will be shown.
4. Then, choose the absolute (non-vented) log file or files you wish to correct.
  5. Click OK and the barometric compensation is applied.

#### Output

Your original log file is not changed. A new, corrected log file with the same name and path is created. The original “.wsl” extension is replaced by “-Baro Merge.wsl”.

For more detailed information on barometric compensation see the tech notes on the In-Situ software CD, or at [www.In-Situ.com](http://www.In-Situ.com).

Log Data:  
Record Count: 171

Date and Time	Elapsed Time Minutes	Sensor: Pres 35.8ft SN#: 100596 Pressure (PSI)	Sensor: Pres 35.8ft SN#: 100596 Temperature (F)	Sensor: Pres 35.8ft SN#: 100596 Level Depth To Water (in)
7/27/2006 2:00:00 PM	0.000	12.516521	72.050110	1.000000
7/27/2006 3:00:00 PM	59.999	12.510550	72.128441	1.165441
7/27/2006 4:00:00 PM	119.999	12.505400	72.320755	1.308131
7/27/2006 5:00:00 PM	179.999	12.501888	72.567398	1.405424
7/27/2006 6:00:00 PM	239.999	12.495968	72.725983	1.569465
7/27/2006 7:00:00 PM	299.999	12.495880	72.868484	1.571896

Log Data:  
Record Count: 171

Date and Time	Elapsed Time Minutes	Sensor: Pres 35.8ft SN#: 100596 Pressure (PSI)	Sensor: Pres 35.8ft SN#: 100596 Temperature (F)	Sensor: Pres 35.8ft SN#: 100596 Level Depth To Water (in)	Sensor: Baro-Adj SN#: 100596 Pressure (PSI)
7/27/2006 2:00:00 PM	0.000	0.182220	72.050110	1.000000	12.33
7/27/2006 3:00:00 PM	59.999	0.184527	72.128441	0.936054	12.32
7/27/2006 4:00:00 PM	119.999	0.181259	72.320755	1.026609	12.32
7/27/2006 5:00:00 PM	179.999	0.183518	72.567398	0.964010	12.31
7/27/2006 6:00:00 PM	239.999	0.182809	72.725983	0.983670	12.31
7/27/2006 7:00:00 PM	299.999	0.181675	72.868484	1.015088	12.31

Figure 1. The adjusted file (bottom) shows the appearance of the data file when “Save calculated barometric adjustments in the new data file(s)” is selected. It adds additional columns based on which parameters were selected for the absolute/non-vented log in the corrected BaroMerge file that uses the compensation table values. Compare this to the top file for which the correction has not been made.

## Fixed Correction

A single correction is applied to all values in the log.

You will need—

- Barometric pressure from a reliable source—a single value that represents the actual ambient barometric pressure during the time period of the log
- The name(s) of the log file(s) you want to correct

### Procedure

1. Launch Baro Merge. Select the option Apply a fixed correction.
2. Key in the correction factor, select the unit, and click Next . For example, if ambient barometric pressure was 22.5 inches of mercury during the log, enter 22.5 and select “inHg” as the unit.
3. Select the log file(s) to which the correction will be applied and click OK .
4. Baro Merge applies the correction to the selected log file(s). A progress bar shows when processing is complete.
5. Compensated data files may be viewed or exported from the My Data tab in Win-Situ.

## Manual Entry

This can be a more accurate way to apply barometric compensation to a log file containing absolute data. Select this method when you have barometric data from a reliable source that indicates the barometric pressure changed during the time period of the log or logs you wish to correct.

You will need—

- Barometric pressure from a reliable source covering the time period of the log
- The name(s) of the log file(s) you want to correct

### Procedure

1. Launch Baro Merge. Select the option Enter one or more values manually, then click Next.
2. In the next window, build a table containing at least 2 barometric pressure values, with time stamps, select any other options you want, and click Next.
3. In the next window, select the log file(s) to which the correction will be applied and click OK.
4. Baro Merge applies the correction to the selected log file(s). A progress bar shows when processing is complete.
5. Compensated data files may be viewed or exported from the My Data tab in Win-Situ.

## Using a BaroTROLL File

Log files containing absolute data may be barometrically compensated using values logged by an In-Situ BaroTROLL. Select this method when you have access to a BaroTROLL log file covering approximately the same time period as the file to be corrected.

You will need—

- The name of the BaroTROLL log file
- The name(s) of the absolute log file(s) you want to correct

**Procedure**

1. Launch Baro Merge. Select the option Use a BaroTROLL file.
2. Click the ... button, select the BaroTROLL log file, and click OK. All BaroTROLL log files in your Win-Situ working directory are displayed. Only one file may be selected.
3. In the Baro Merge main window, click Next.
4. Values from the BaroTROLL file will be displayed in the next window. You can edit these values if you like. Click Next when ready.
5. In the next window, select the log file(s) to which the correction will be applied and click OK.
6. Baro Merge applies the correction to the selected log file(s). A progress bar shows when processing is complete.
7. Compensated data files may be viewed or exported from the My Data tab in Win-Situ.

**Description of Excel Output**

- Column C is the corrected water pressure reading.
- Column D is the temperature reading of the Level TROLL.
- Column E is the corrected Surface elevation reading.
- Column F is the Barometric pressure reading from the BaroTROLL.
- Column G is the equivalent depth correction, as determined by the pressure reading from the BaroTROLL.

	A	B	C	D	E	F	G
49							
50			Sensor: Pres 35.8ft	Sensor: Pres 35.8ft	Sensor: Pres 35.8ft	Sensor: Baro-Adj	Sensor: Baro-Adj
51		Elapsed Time	SN# 100596	SN# 100596	SN# 100596	SN# 100596	SN# 100596
52	Date and Time	Minutes	Pressure (PSI)	Temperature (F)	Level Depth To Water	Pressure (PSI)	Depth (in)
53	7/27/2006 14:00	0	0.18222	72.05011	1	12.334301	0
54	7/27/2006 15:00	59.999	0.184527	72.128441	0.936054	12.326022	-0.229387
55	7/27/2006 16:00	119.999	0.181259	72.320755	1.026609	12.324141	-0.281522
56	7/27/2006 17:00	179.999	0.183518	72.567398	0.96401	12.31837	-0.441414
57	7/27/2006 18:00	239.999	0.182800	72.725983	0.98367	12.313169	-0.485705

**For more information contact In-Situ Inc.**

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