Processing temperature data in HOBOware so that it can be run through the ContDataQC HOBOware Reformat function without manipulation

1. Water or air temperature only
2. Both water and air temperature data in the same file

Pendant	Water Temp Pro v2	Tidbit v2
		

Processing water or air temperature files (one at a time, in separate files) in HOBOware

Note: you do not need HOBOware Pro to process temperature data; you can use the free version, which can be downloaded online – http://www.onsetcomp.com/hoboware-free-download

Steps

- Set up your **default settings** (see ‘HOBOware_DefaultSettings’ file); you should only have to do this once
- **Open the sensor file** in HOBOware
- **Plot** the data
- **Change the Temp series name** to ‘Water Temp’ or ‘Air Temp’
- **Export as .csv**

File naming scheme

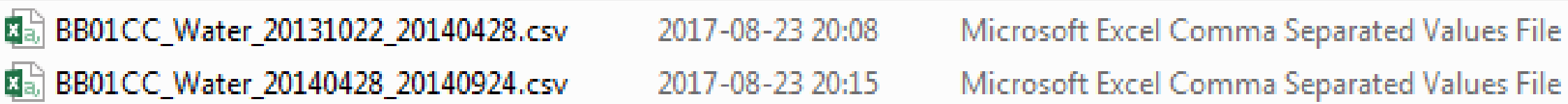
If you're going to use the ContDataQC R package, you need to use the following file naming scheme:

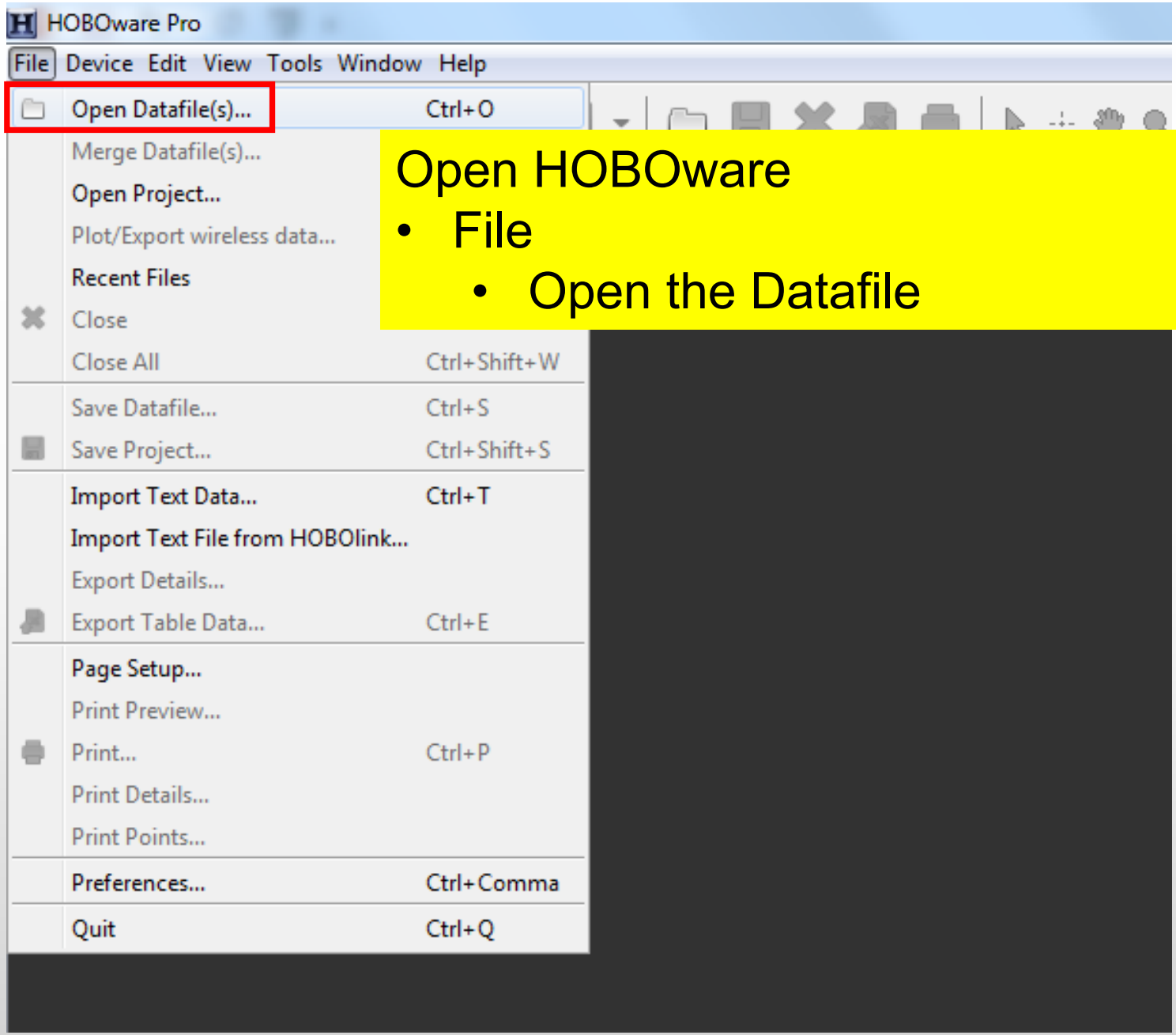
SiteID_SensorType_StartDate_EndDate

- Site ID (no spaces or underscores) = BB01CC
- Data Type (Water/Air/AW) (AW = Air + Water sensor data in same file)
- Date, Start (YYYYMMDD)
- Date, End (YYYYMMDD)
- Each element separated by underscore ("_").

Example:

- **BB01CC_Water_20131022_20140428.csv**

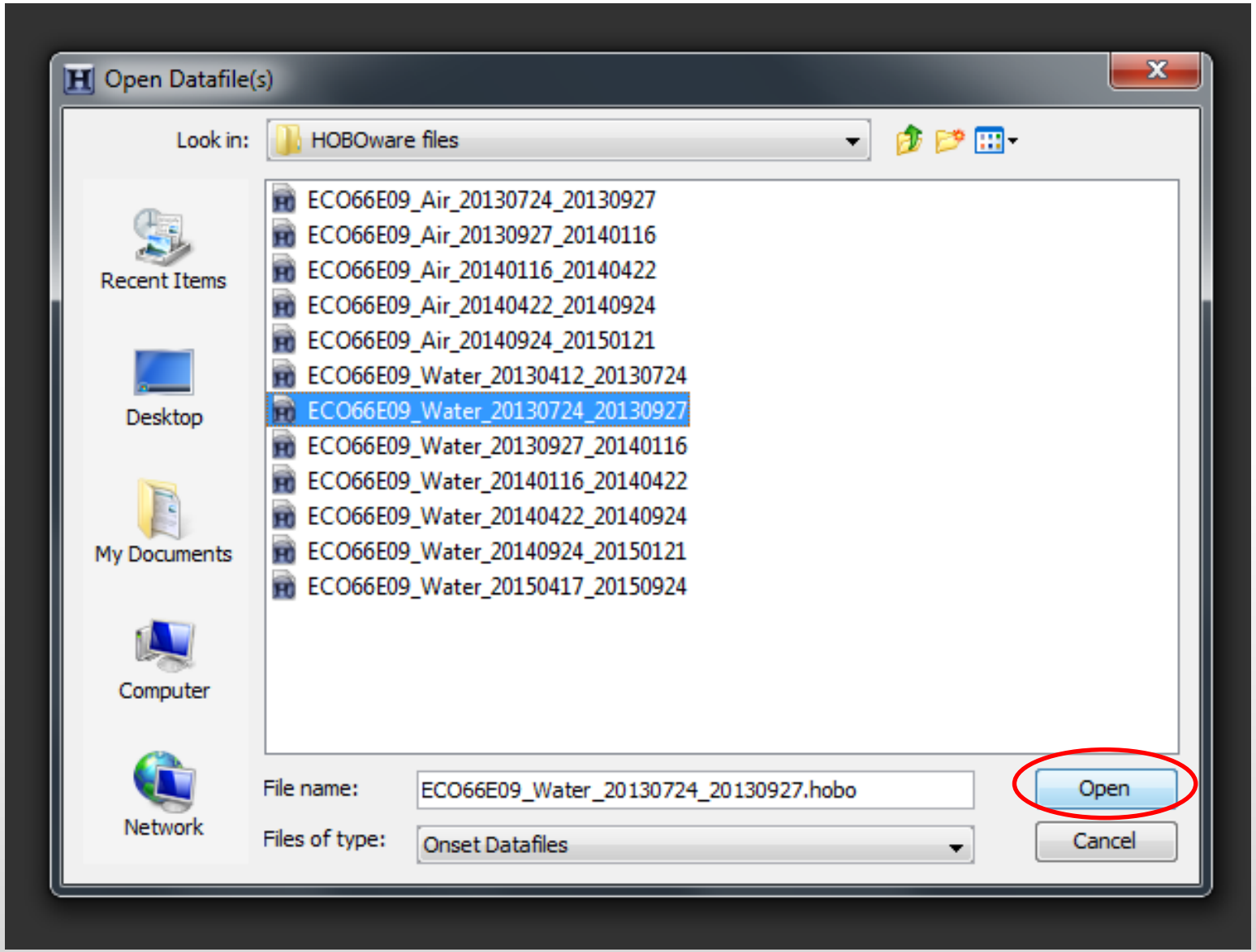




Open HOBOware

- File
  - Open the Datafile

1. Open the HOBO Datafile



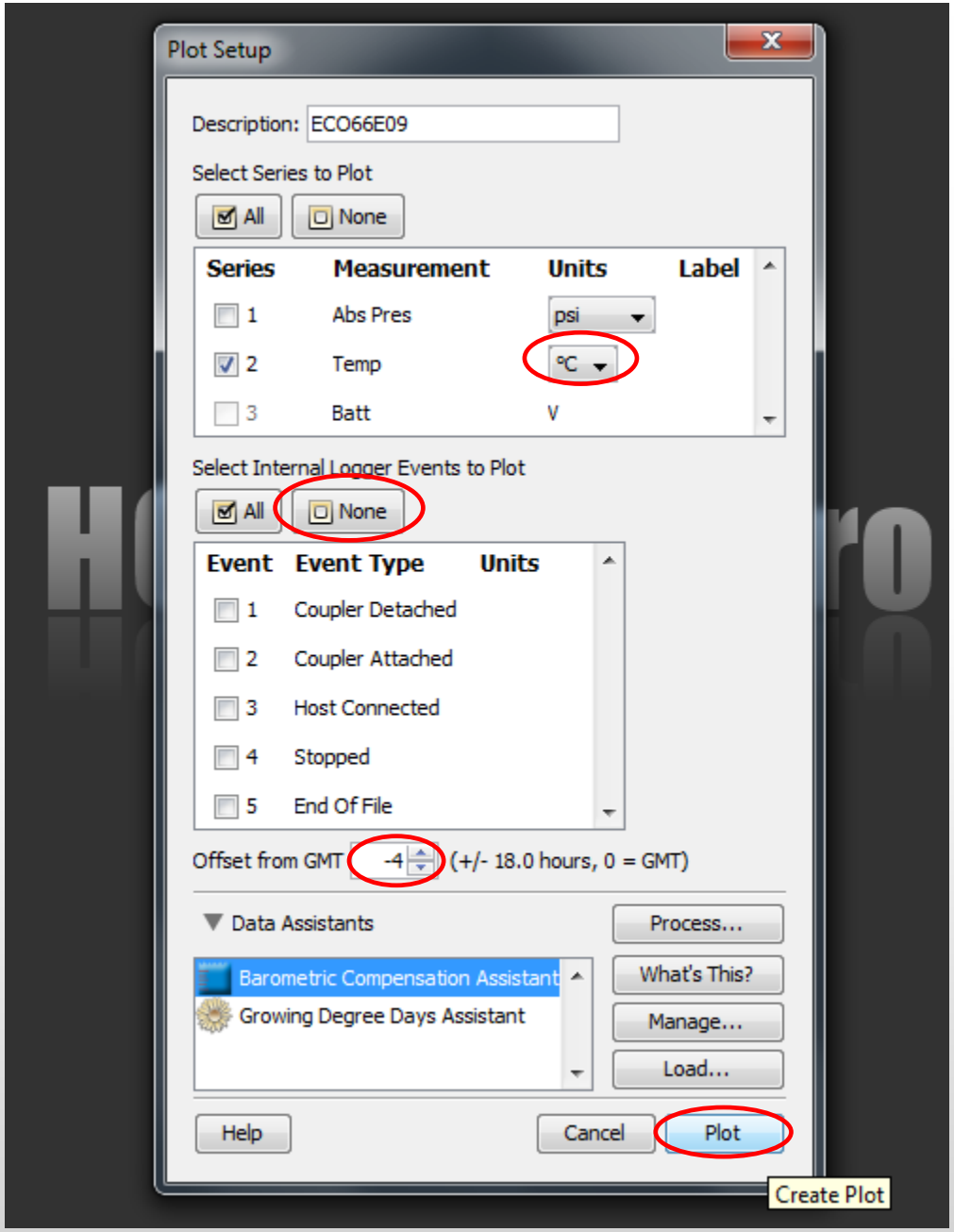
Browse/select the appropriate water sensor file

Click ‘Open’

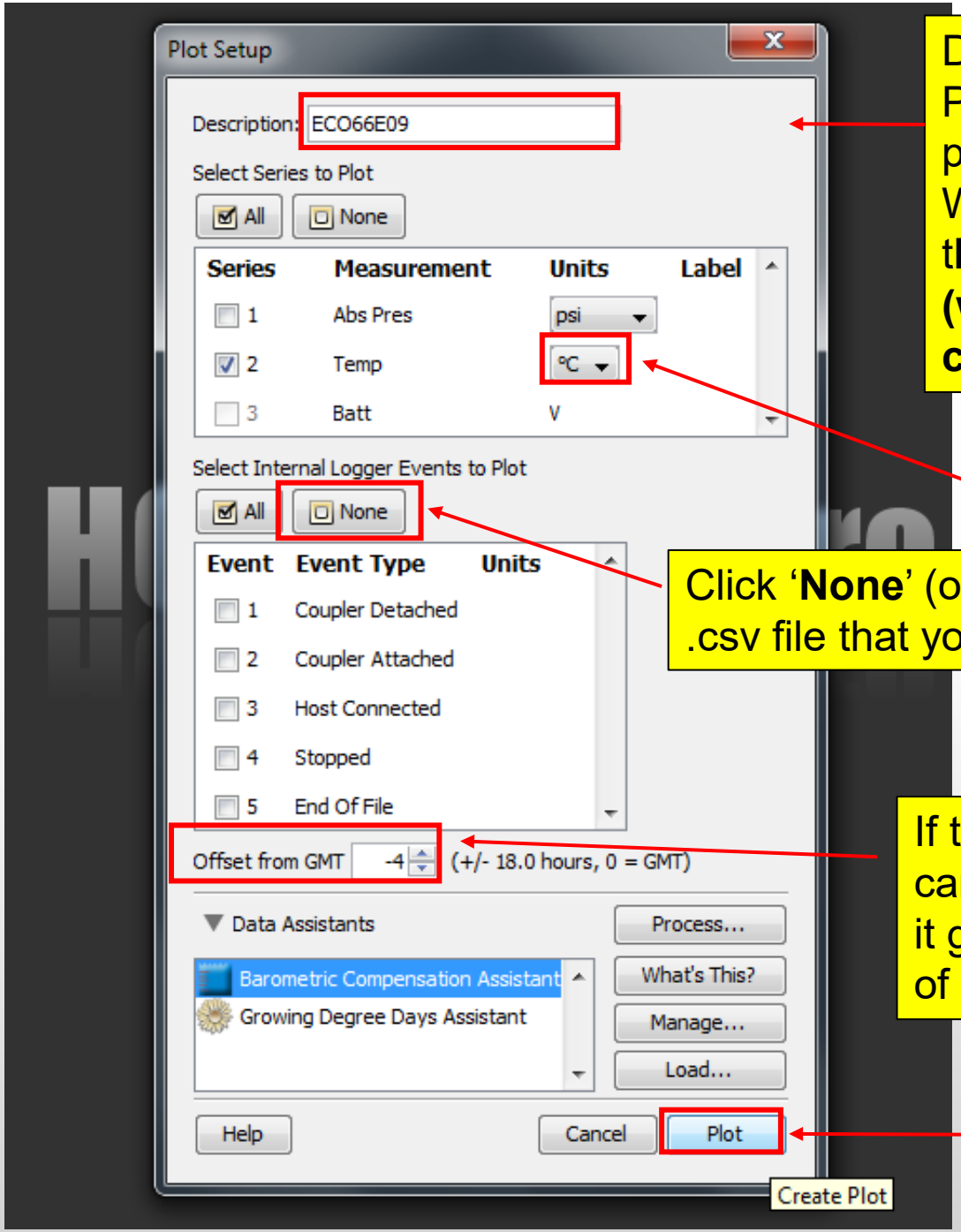
Open the sensor file in HOBOware

Tip: if you want to use the ContDataQC R package, you can reduce the data preparation time by making the following entries –

- Description: enter **SiteID**
- Selecting **°C** for **units**
- Clicking **'None'** under Internal Logger Events to Plot
- Making sure the time offset from GMT is appropriate for the site
- Click '**Plot**'



Plot Setup



Description: whatever is entered here becomes the Plot title but the R code doesn't pay attention to the plot title so you should be able to leave this as is. What's key is getting the file name correct because **the R code reads the first part of the file name (whatever comes before the first underscore) and creates a SiteID column based on that.**

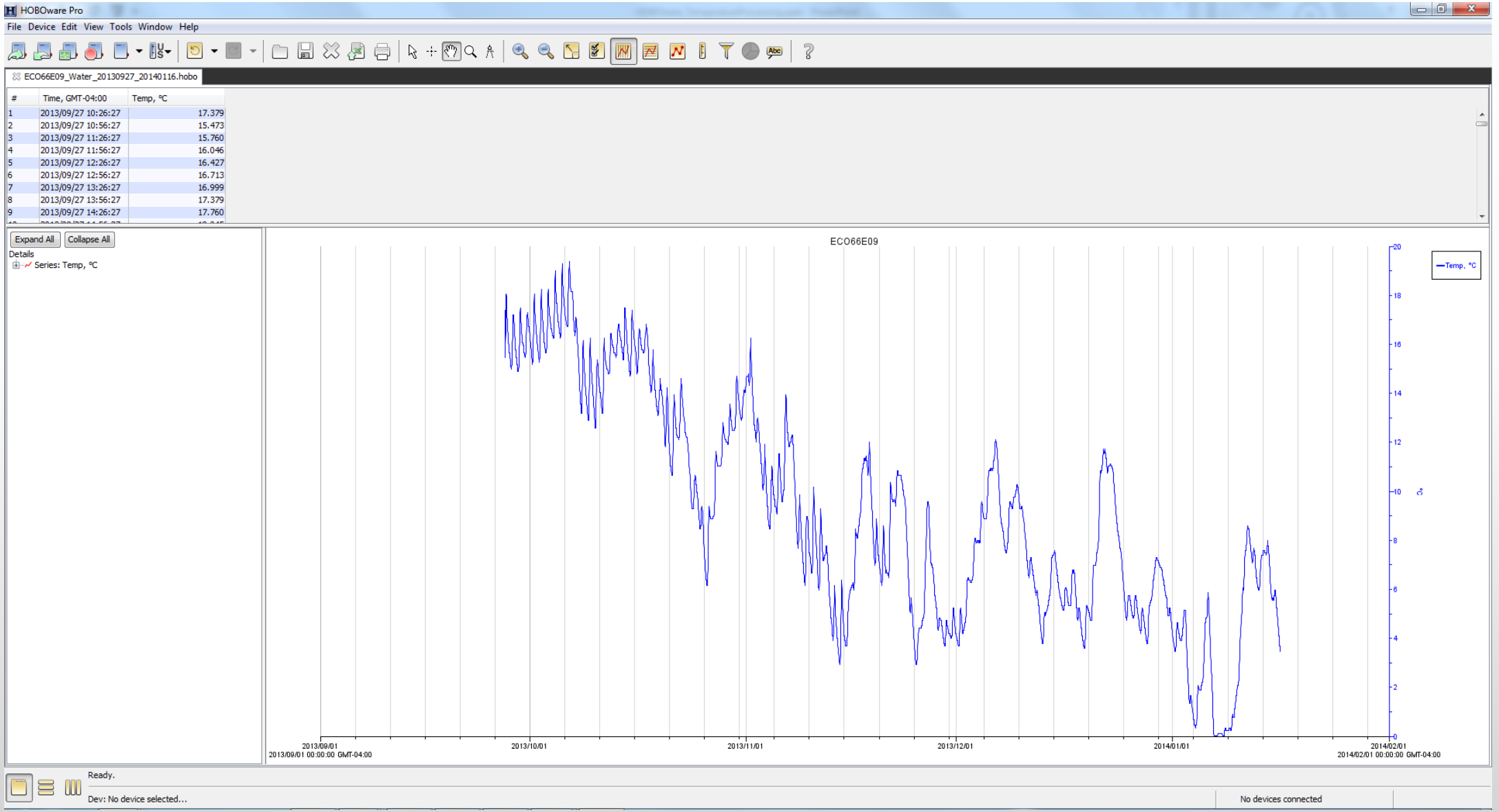
Temperature units °C

Click '**None**' (otherwise you'll get unwanted 'logged' entries in the .csv file that you'll need to delete later)

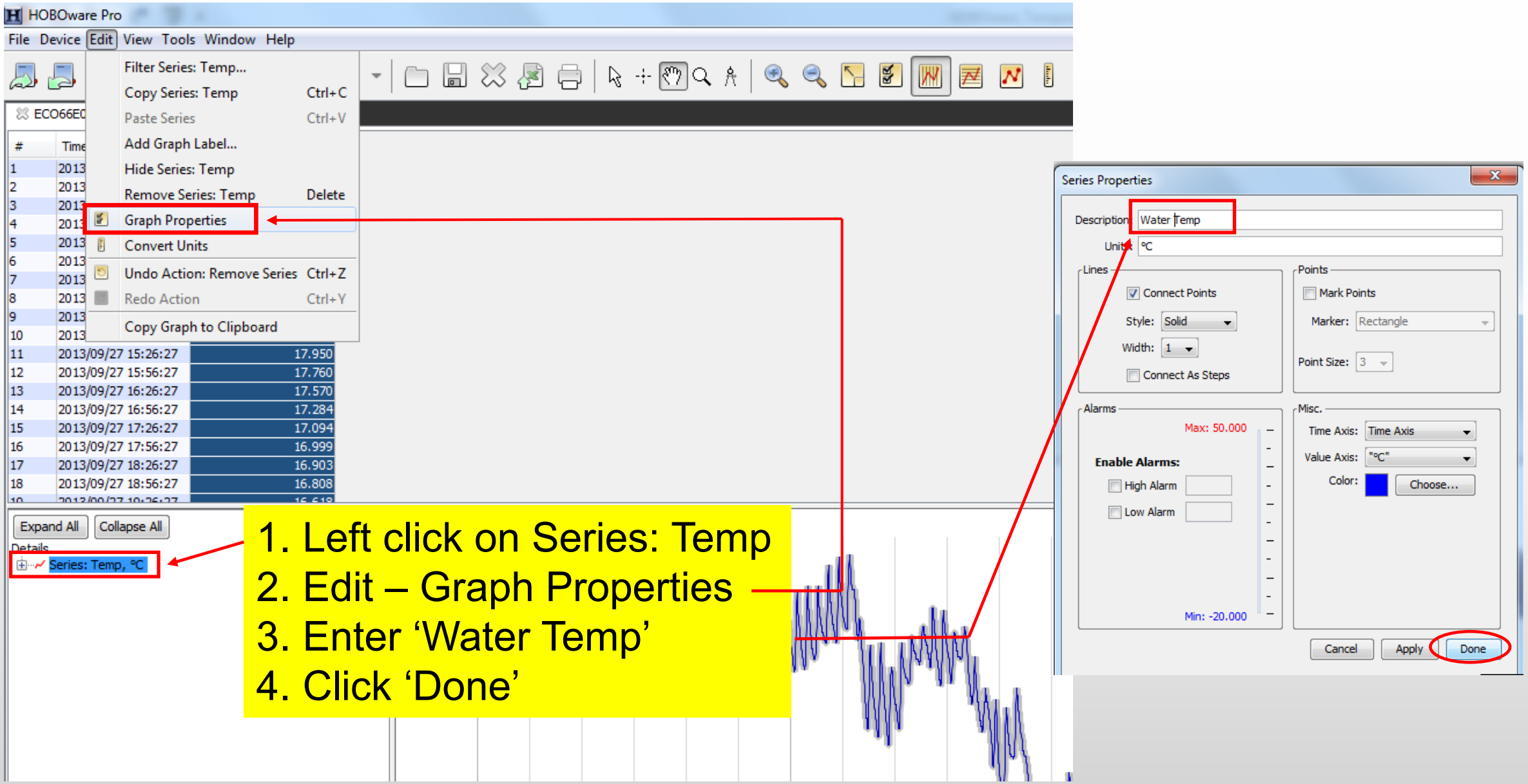
If the time zone for the site is incorrect, you can change that here (when you open the file, it goes to the default, which is the time zone of the computer that launched the sensor)

Click 'Plot'

A time series plot will then appear

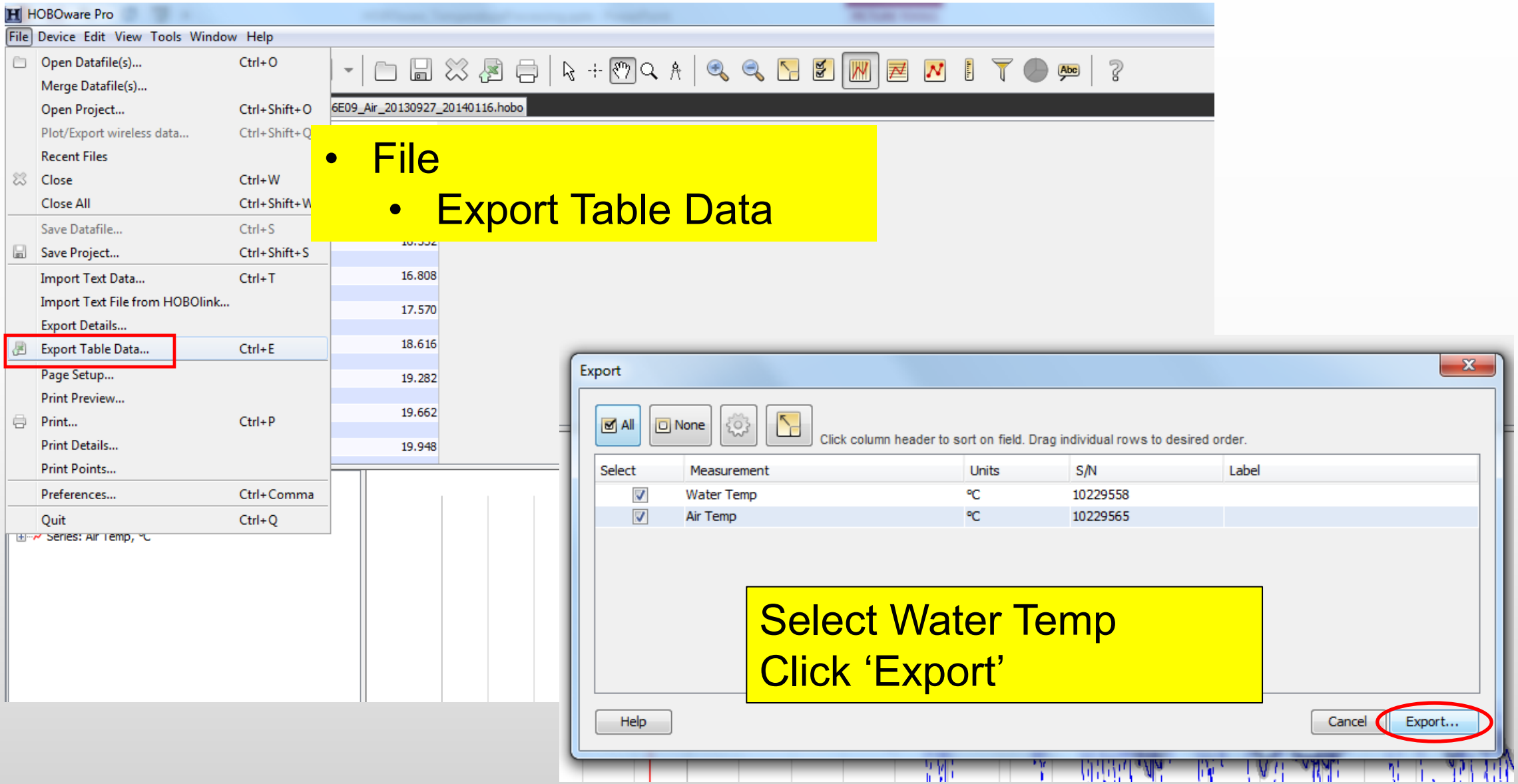


Change the Temp series name to ‘Water Temp’ or ‘Air Temp’

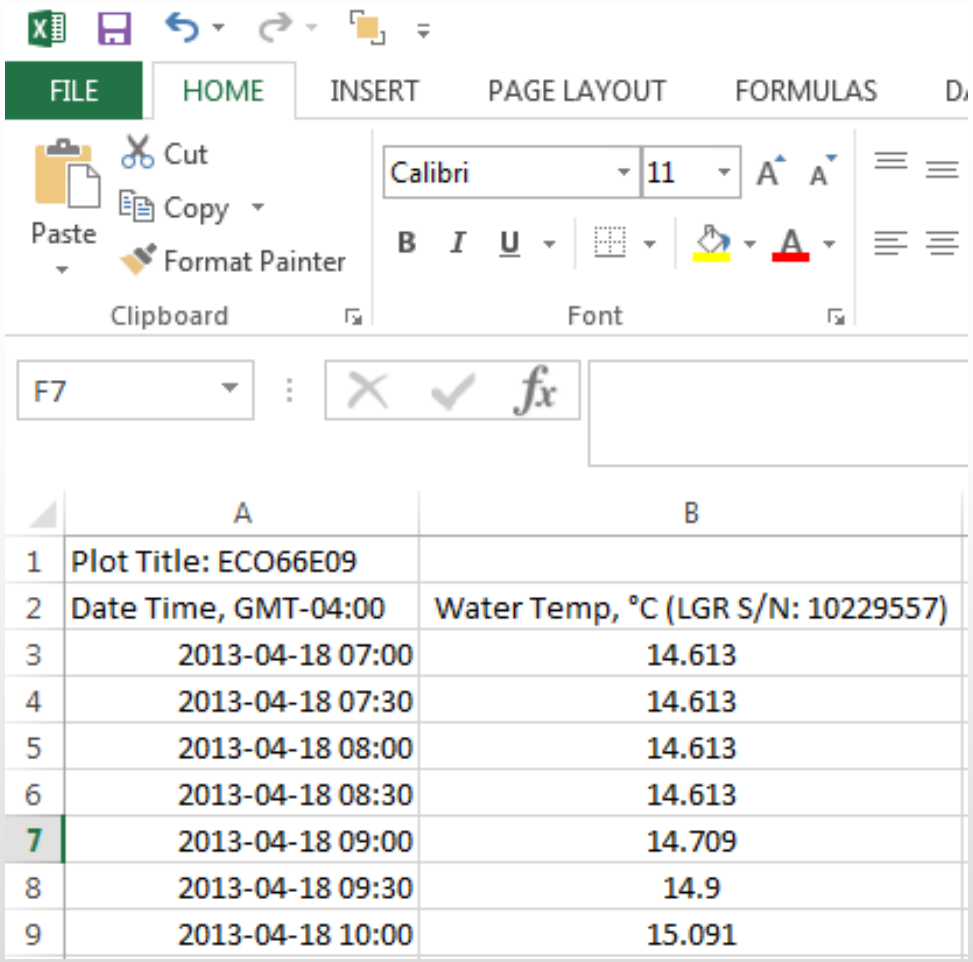


#	Time	
11	2013/09/27 15:26:27	17.950
12	2013/09/27 15:56:27	17.760
13	2013/09/27 16:26:27	17.570
14	2013/09/27 16:56:27	17.284
15	2013/09/27 17:26:27	17.094
16	2013/09/27 17:56:27	16.999
17	2013/09/27 18:26:27	16.903
18	2013/09/27 18:56:27	16.808

Export the .csv file



Save the .csv file in the Data0_Original folder.
The file should look like this…



	A	B
1	Plot Title: ECO66E09	
2	Date Time, GMT-04:00	Water Temp, °C (LGR S/N: 10229557)
3	2013-04-18 07:00	14.613
4	2013-04-18 07:30	14.613
5	2013-04-18 08:00	14.613
6	2013-04-18 08:30	14.613
7	2013-04-18 09:00	14.709
8	2013-04-18 09:30	14.9
9	2013-04-18 10:00	15.091

Processing air and water temperature data so that they are merged into the same file in HOBOware

Pendant	Water Temp Pro v2	Tidbit v2
		

Note: you do not need HOBOware Pro to process temperature data; you can use the free version, which can be downloaded online – http://www.onsetcomp.com/hoboware-free-download

Steps

- Set up your **default settings** (see ‘HOBOware_DefaultSettings’ file); you should only have to do this once
- **Open the air or water sensor file** in HOBOware
- **Plot** the data
- Change the **Temp series name** to either ‘Water Temp’ or ‘Air Temp’
- **Open the other sensor file – change the Temp series name** to either ‘Water Temp’ or ‘Air Temp’; then **copy the temperature data series and paste into the first file**; both air and water temperature data are now in one file*
- **Export as .csv**
- Save as an Onset Project File; retain original Onset HOBO Data files too!

*We recommend doing this! It is easy and saves you time later on.

File naming scheme

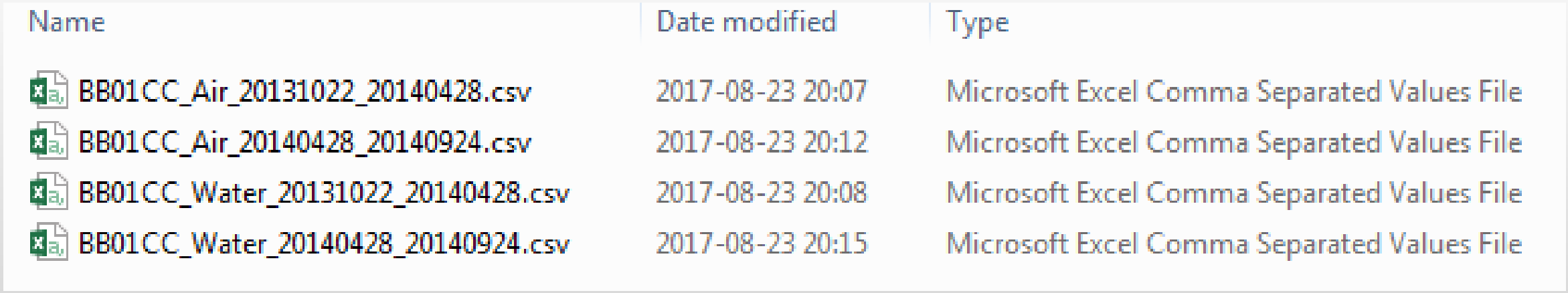
If you're going to use the ContDataQC R package, you need to use the following file naming scheme:

SiteID_SensorType_StartDate_EndDate

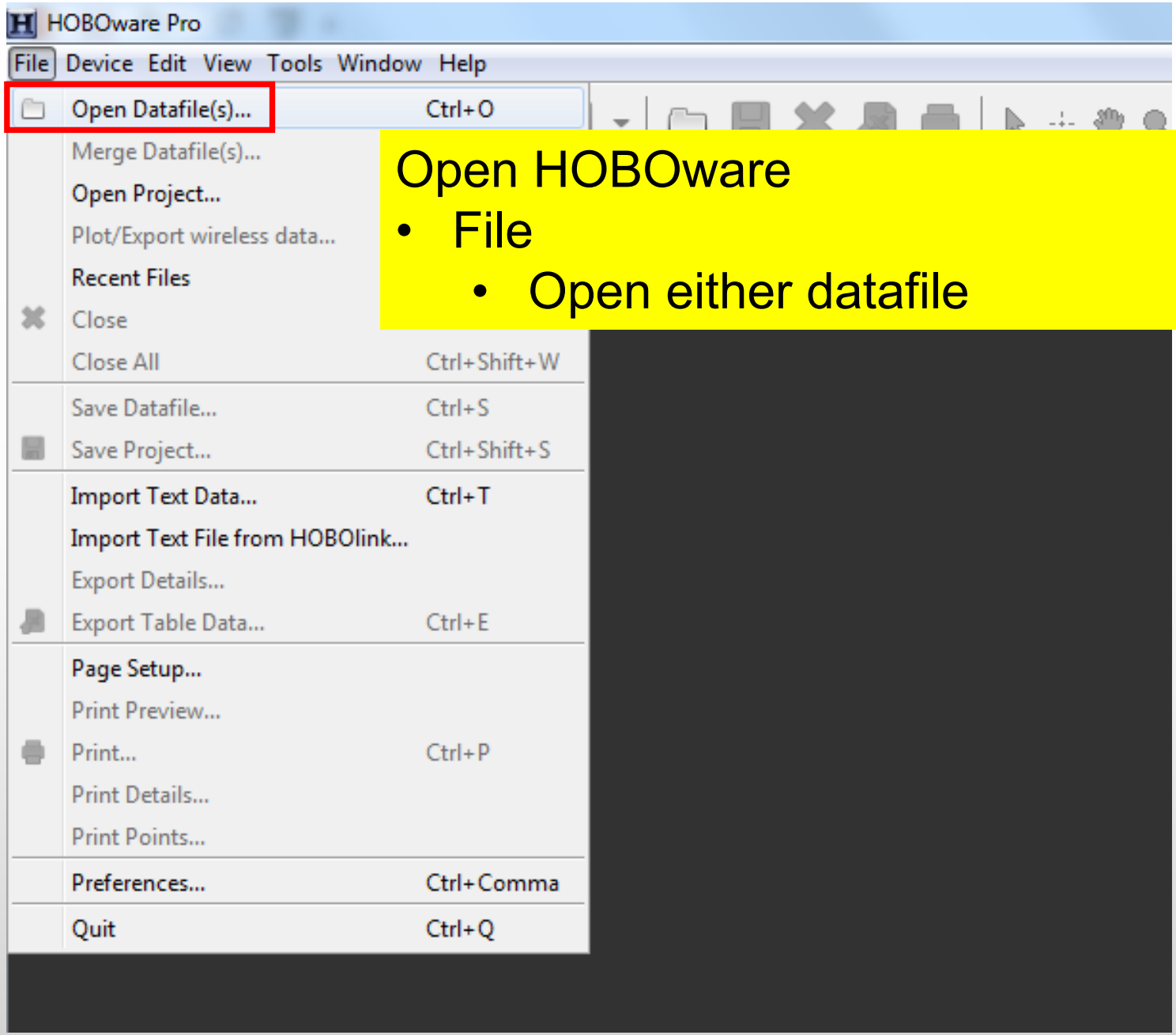
- Site ID (no spaces or underscores) = BB01CC
- Data Type (Water/Air/AW) (AW = Air + Water sensor data in same file)
- Date, Start (YYYYMMDD)
- Date, End (YYYYMMDD)
- Each element separated by underscore ("_").

Example:

- **BB01CC_Air_20131022_20140428.csv**



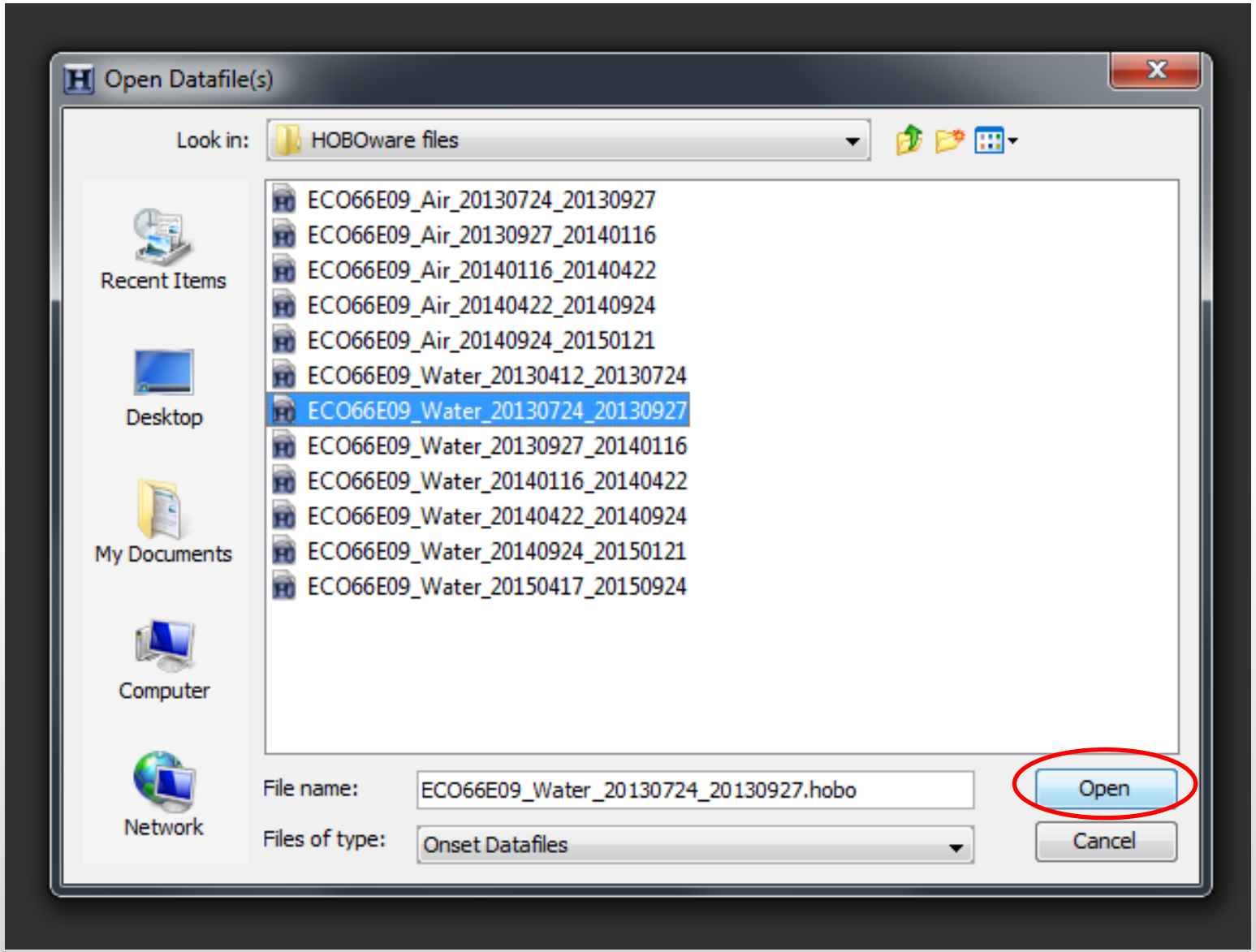
Name	Date modified	Type
BB01CC_Air_20131022_20140428.csv	2017-08-23 20:07	Microsoft Excel Comma Separated Values File
BB01CC_Air_20140428_20140924.csv	2017-08-23 20:12	Microsoft Excel Comma Separated Values File
BB01CC_Water_20131022_20140428.csv	2017-08-23 20:08	Microsoft Excel Comma Separated Values File
BB01CC_Water_20140428_20140924.csv	2017-08-23 20:15	Microsoft Excel Comma Separated Values File



Open HOBOware

- File
  - Open either datafile

1. Open the HOBO Datafile (in this example, we start with the for the water sensor)



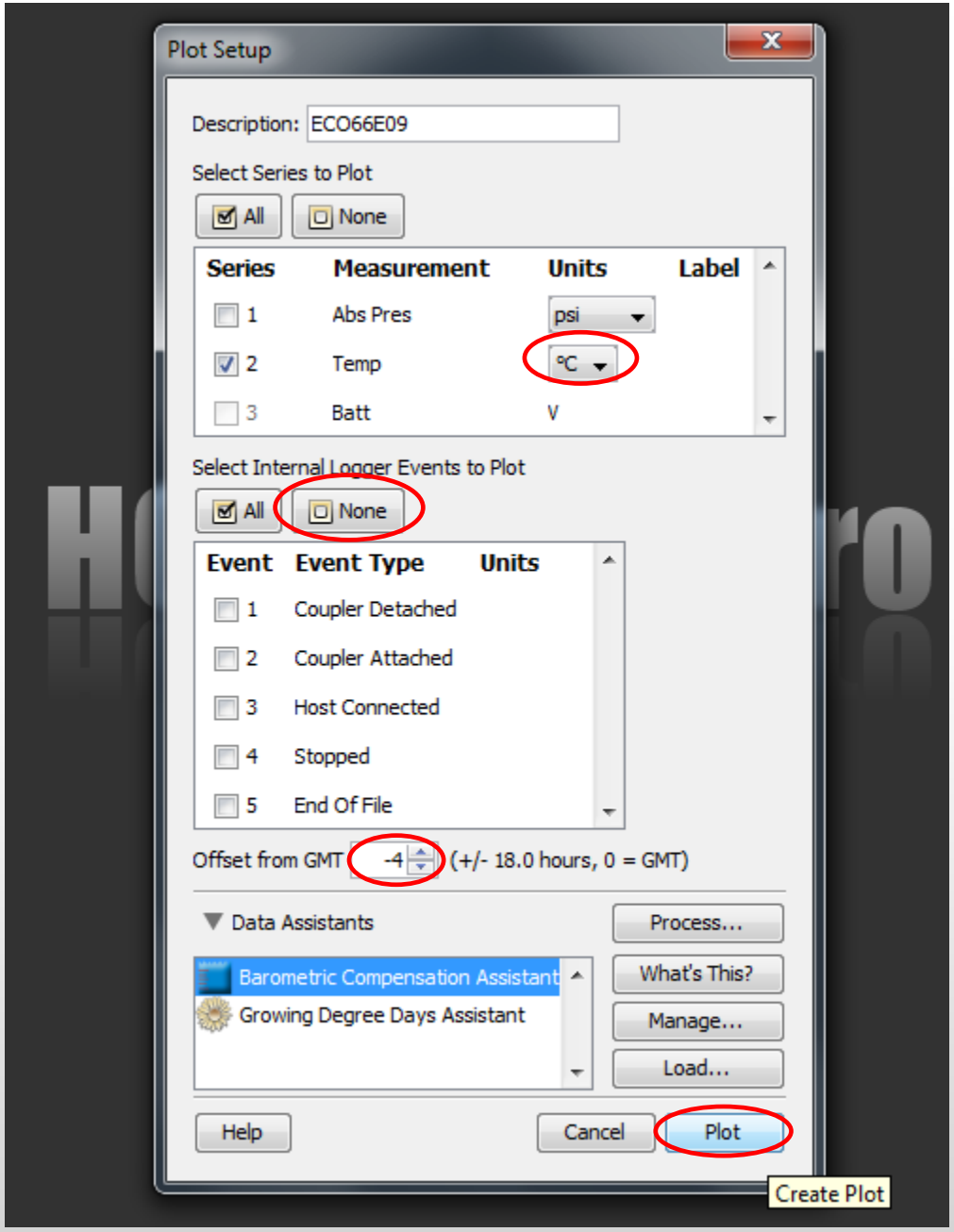
Browse/select the appropriate water sensor file

Click ‘Open’

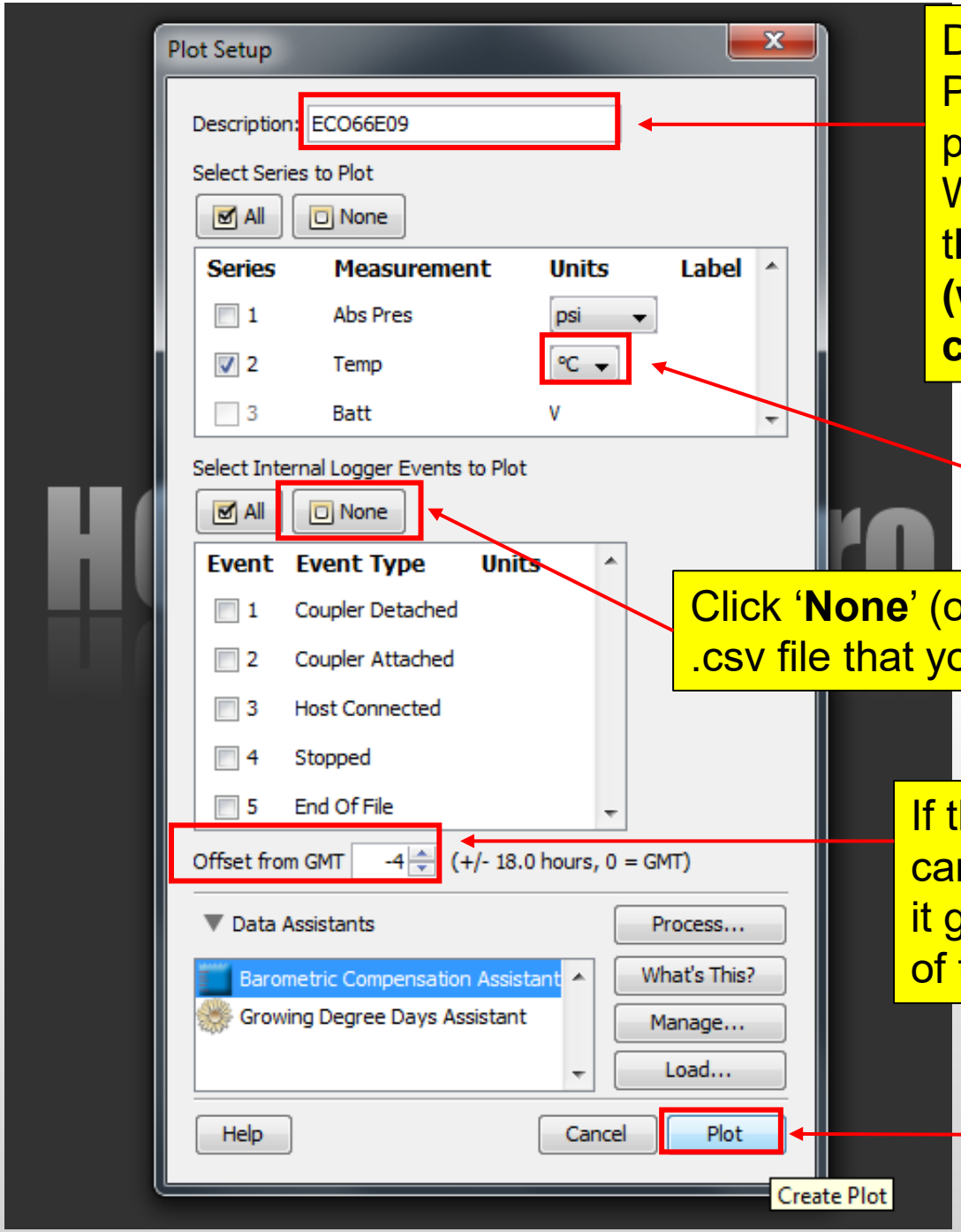
Open the water sensor file in HOBOware

Tip: if you want to use the ContDataQC R package, you can reduce the data preparation time by making the following entries –

- Description: enter **SiteID**
- Selecting **°C** for **units**
- Clicking **'None'** under Internal Logger Events to Plot
- Making sure the time offset from GMT is appropriate for the site
- Click '**Plot**'



Plot Setup



Description: whatever is entered here becomes the Plot title but the R code doesn't pay attention to the plot title so you should be able to leave this as is. What's key is getting the file name correct because **the R code reads the first part of the file name (whatever comes before the first underscore) and creates a SiteID column based on that.**

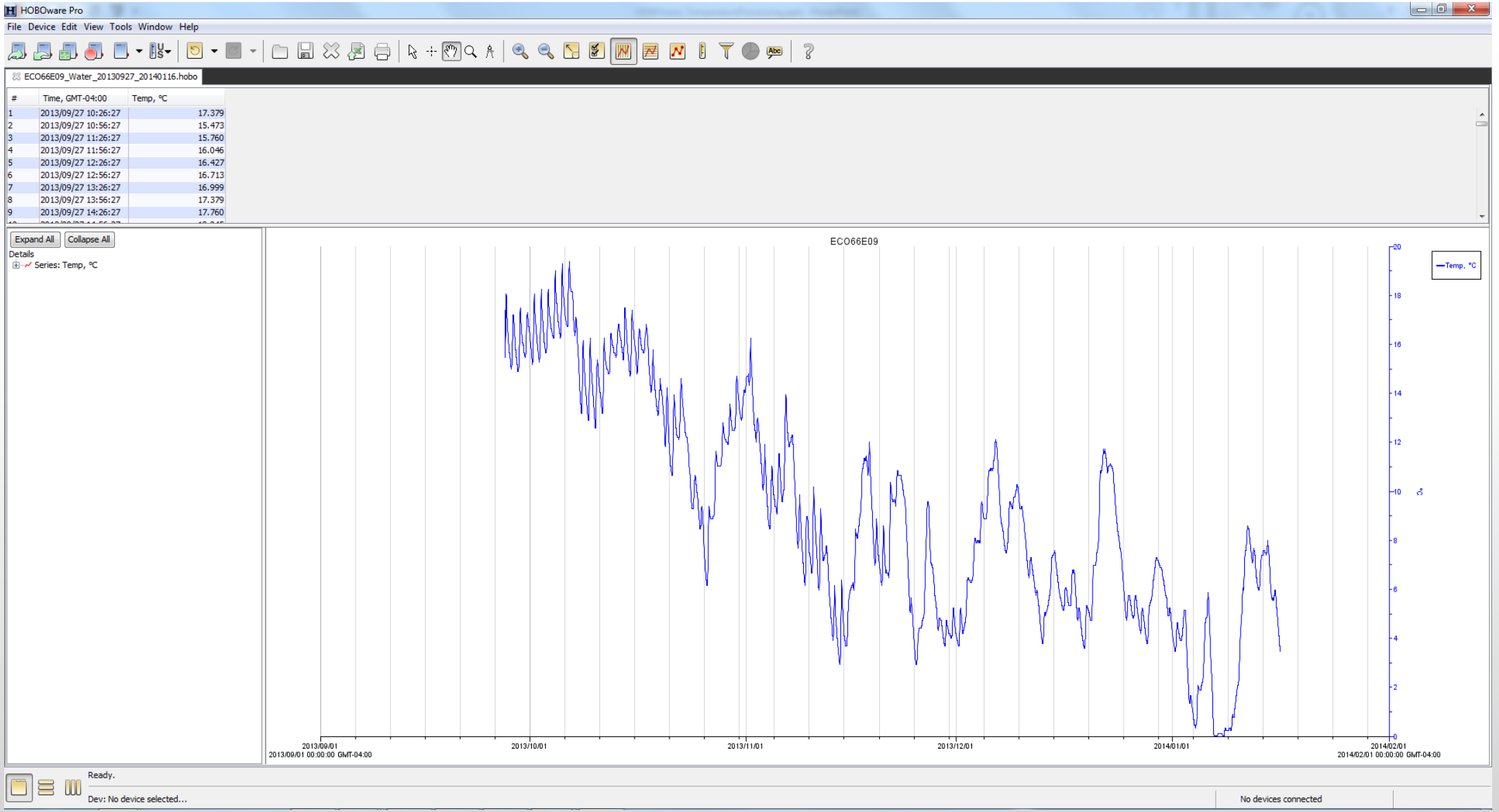
Temperature units °C

Click '**None**' (otherwise you'll get unwanted 'logged' entries in the .csv file that you'll need to delete later)

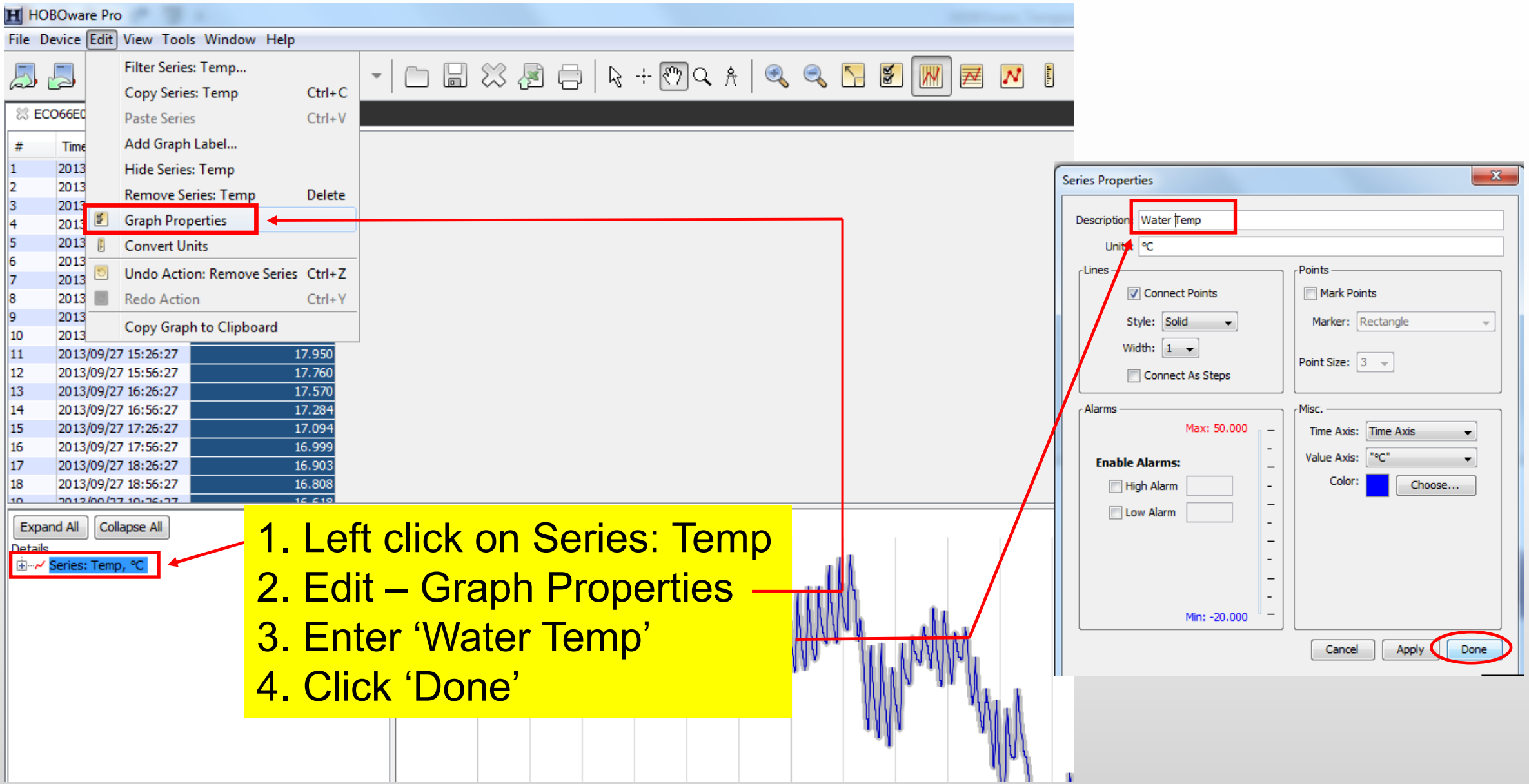
If the time zone for the site is incorrect, you can change that here (when you open the file, it goes to the default, which is the time zone of the computer that launched the sensor)

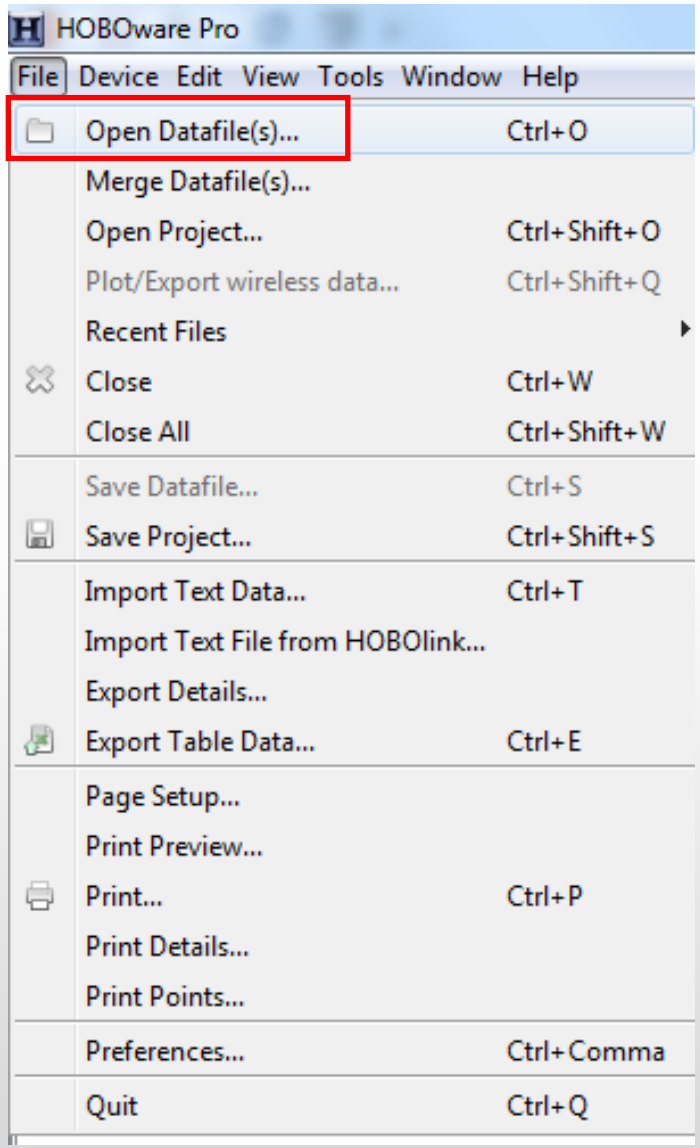
Click 'Plot'

A time series plot will then appear



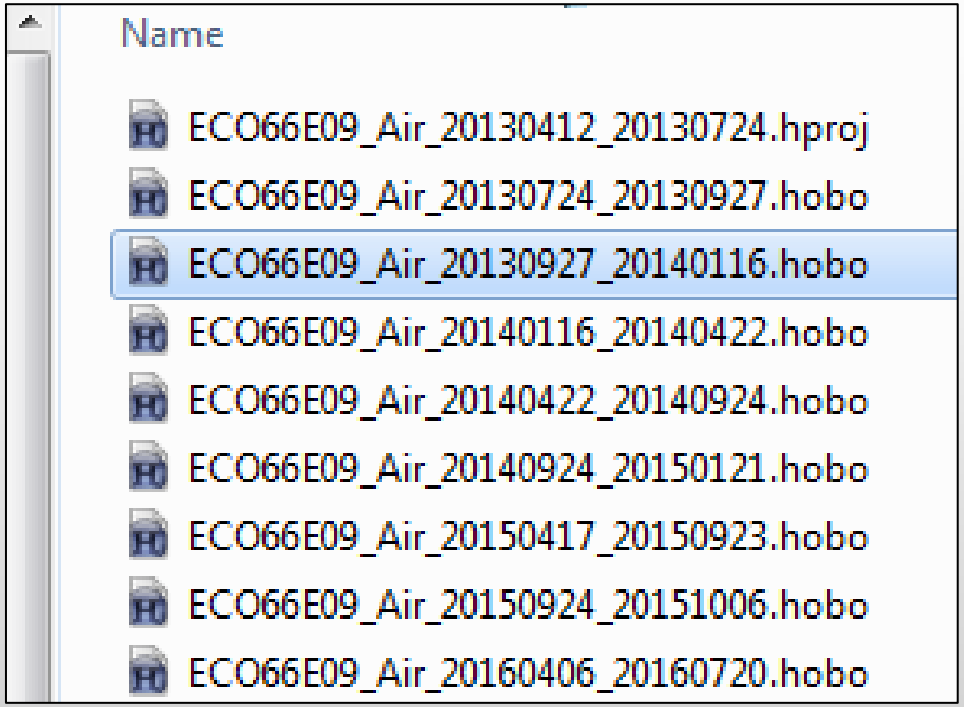
Change the Temp series name to ‘Water Temp’



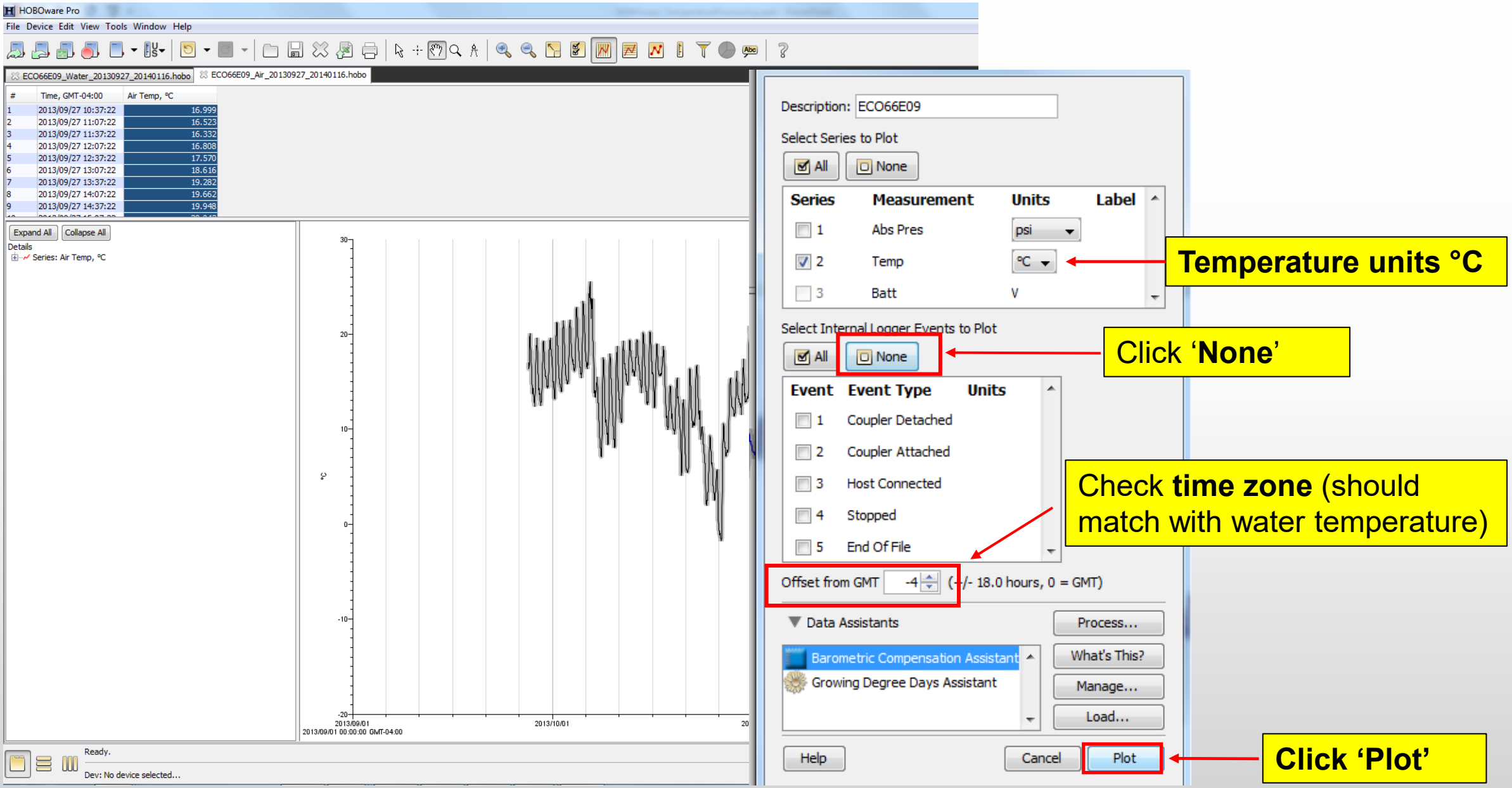


Now bring in the air temperature data.

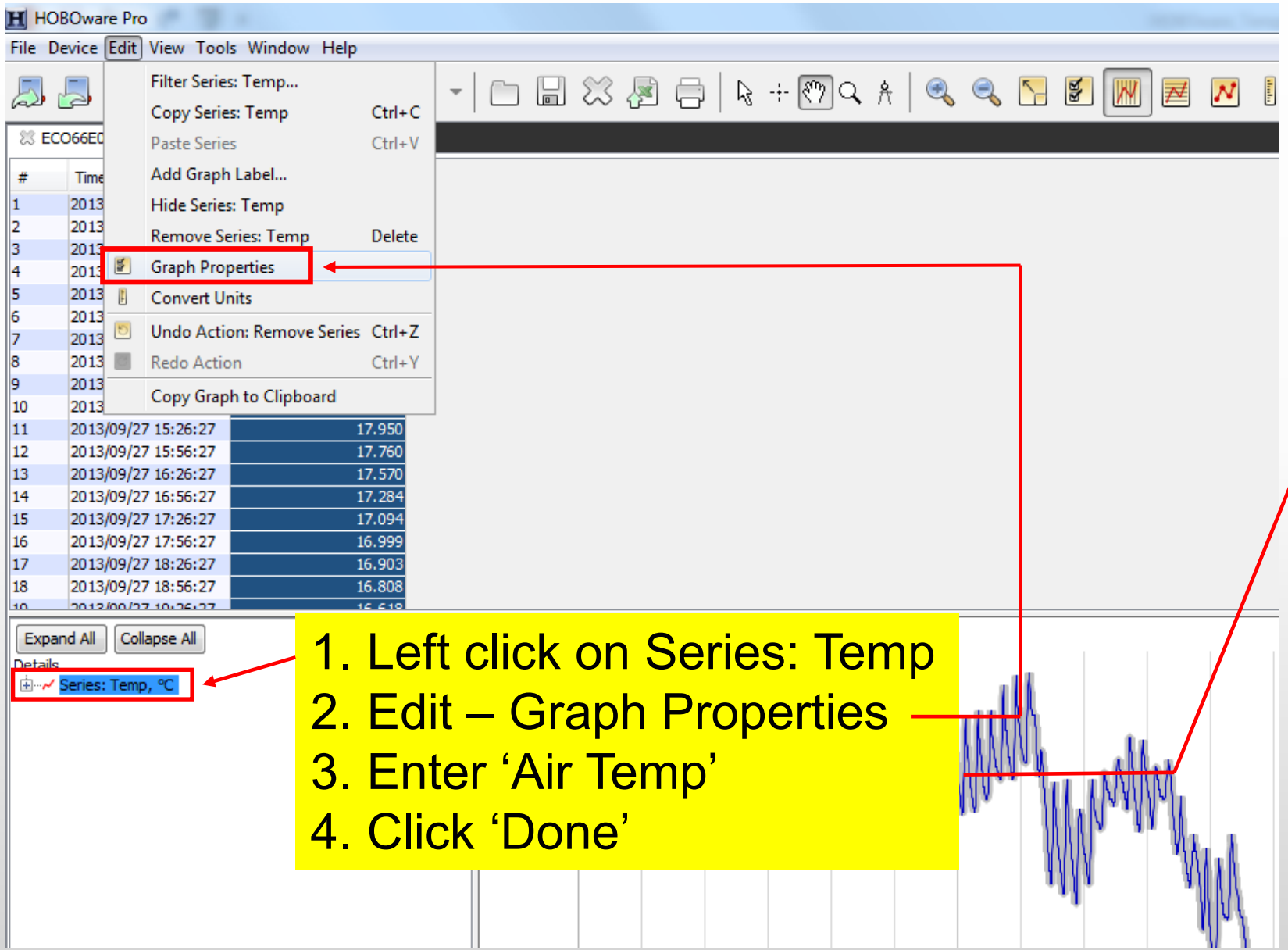
While keeping the water sensor file open in HOBOware, **open the air sensor file (File – Open Datafile)**.



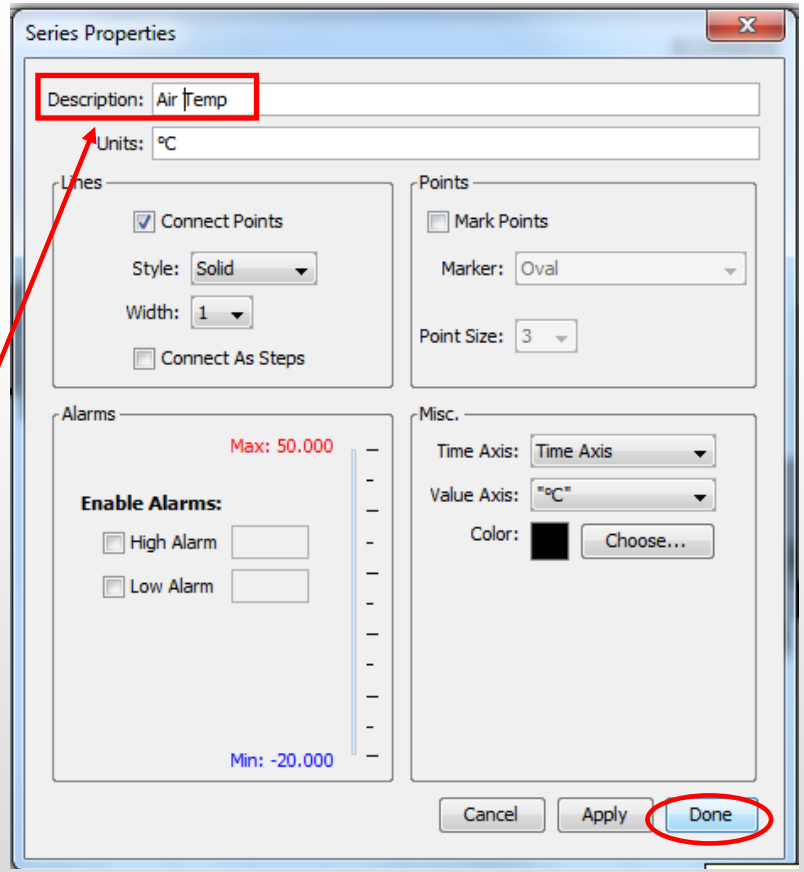
Air sensor file – Plot Setup



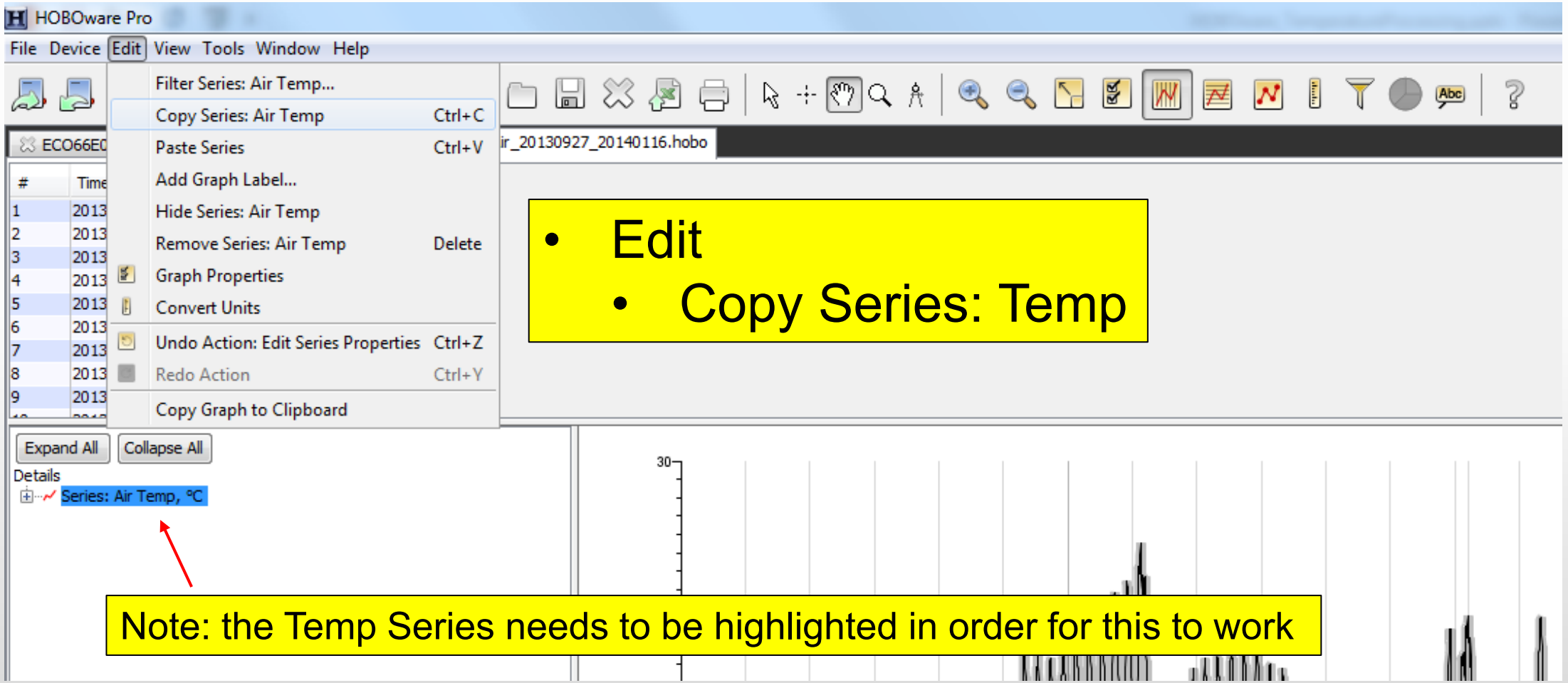
Change the Temp series name to ‘Air Temp’



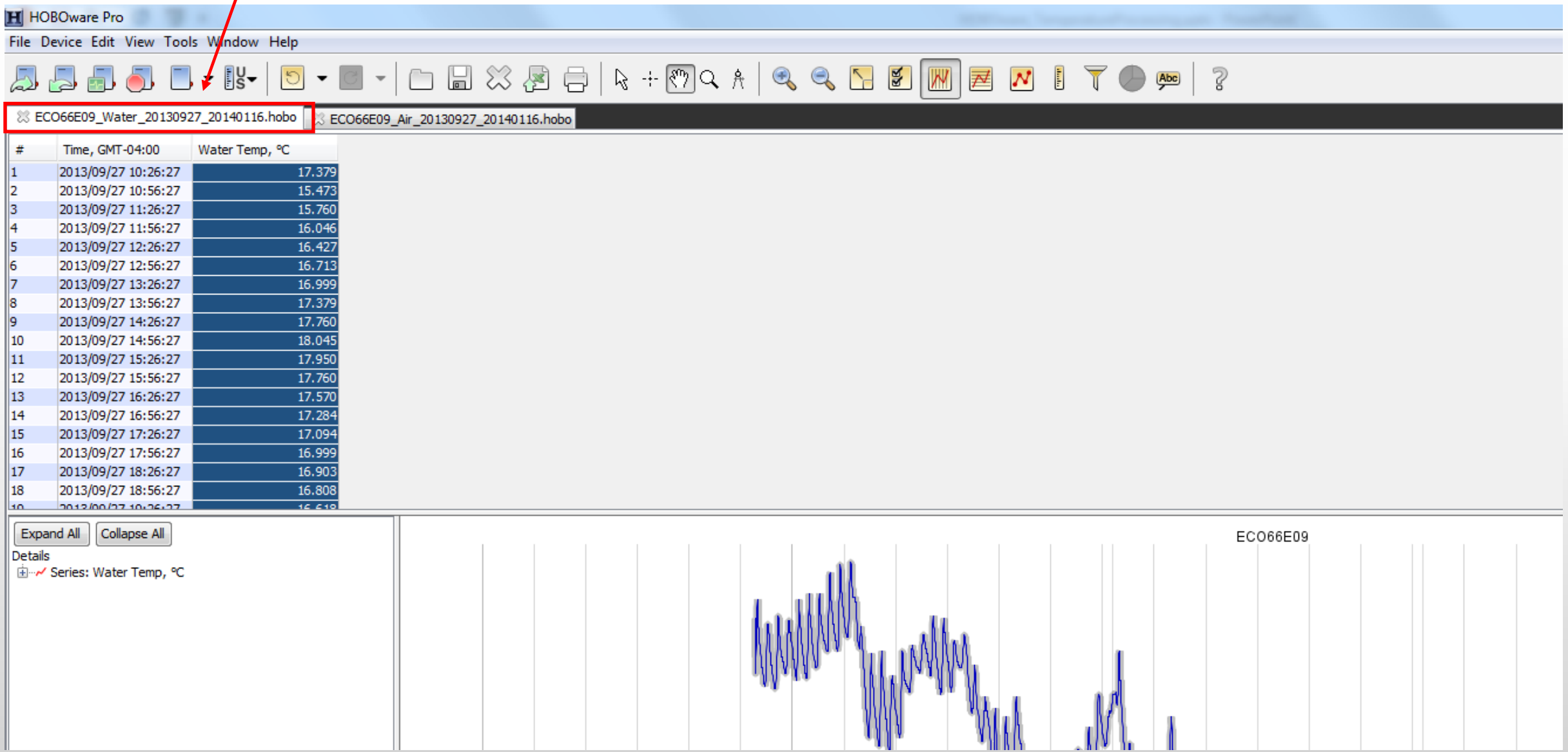
1. Left click on Series: Temp
2. Edit – Graph Properties
3. Enter ‘Air Temp’
4. Click ‘Done’



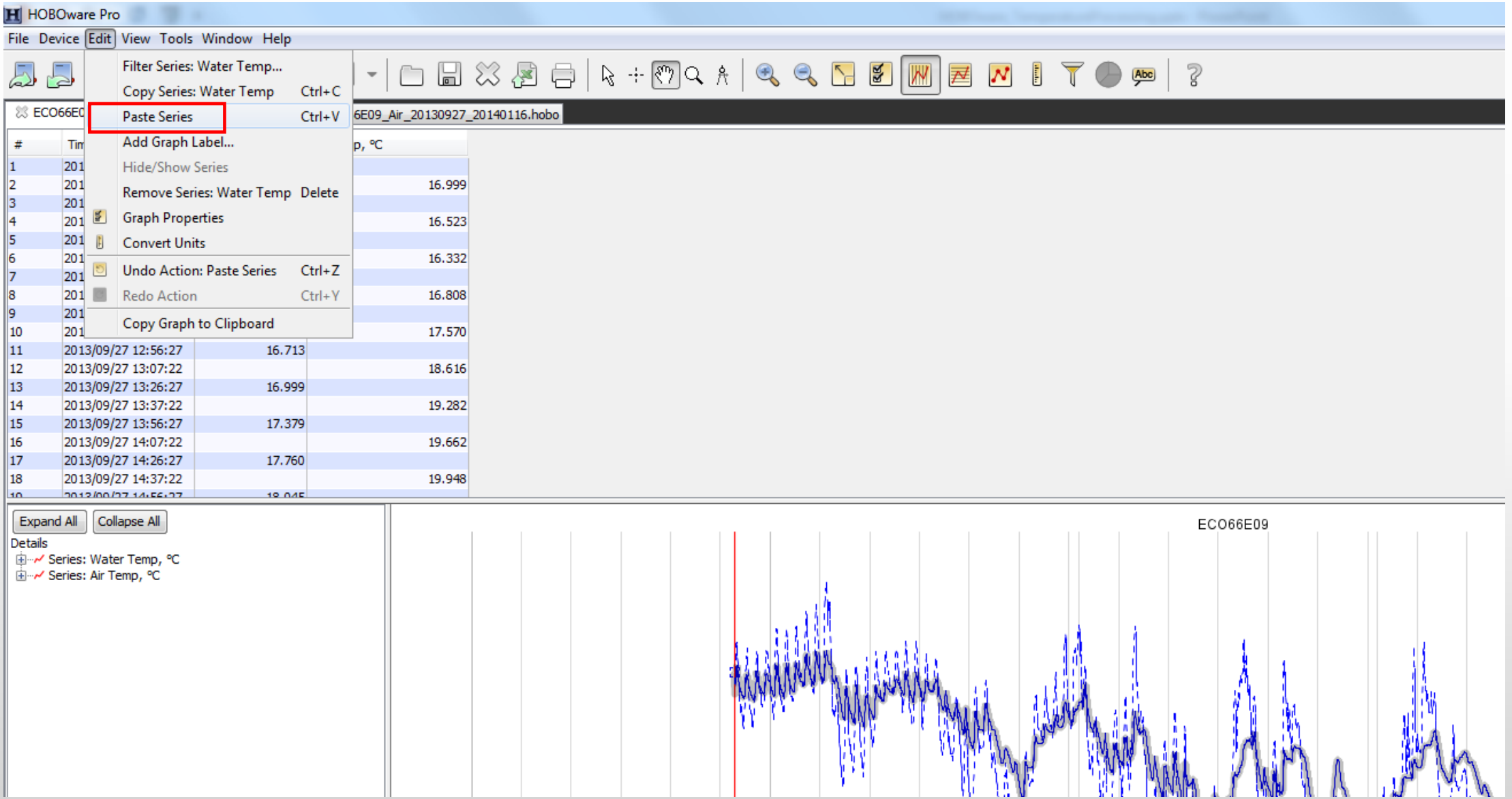
Copy the air temperature series



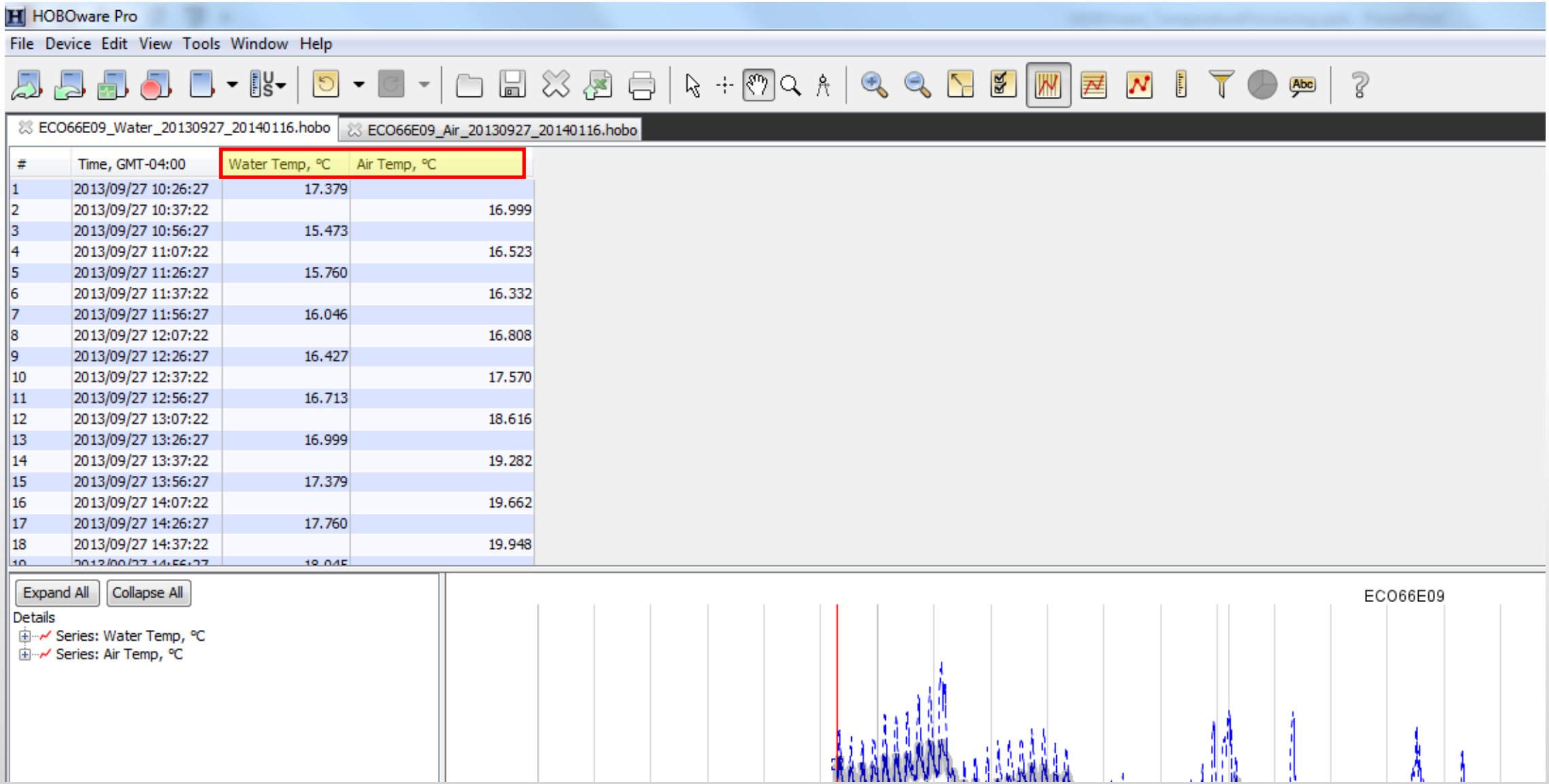
While keeping the air sensor file open, **reopen the water sensor file**



Paste the air temperature series into the water sensor file

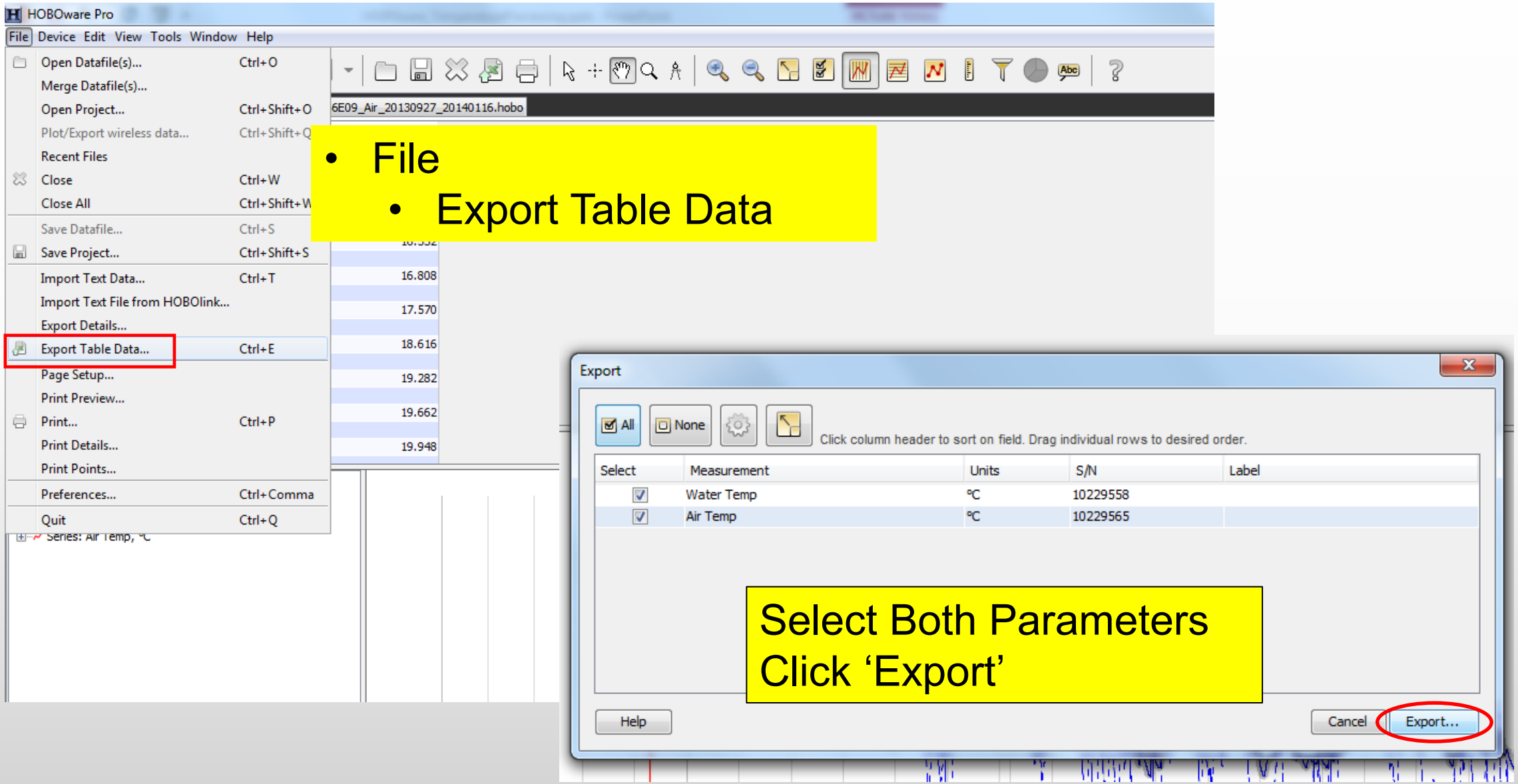


Both air + water temperature data are now in one file, ready for export!

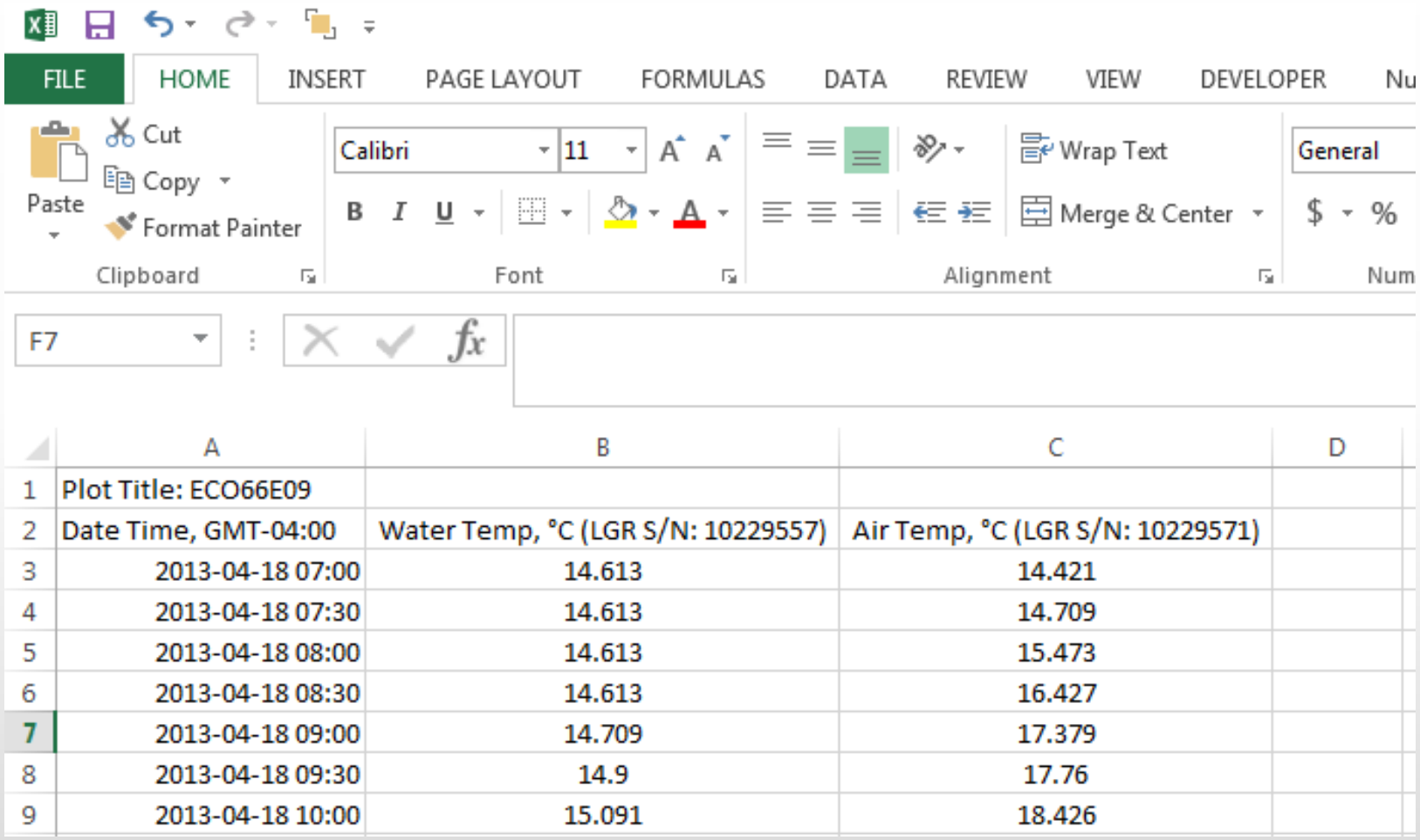


#	Time, GMT-04:00	Water Temp, °C	Air Temp, °C
1	2013/09/27 10:26:27	17.379	
2	2013/09/27 10:37:22		16.999
3	2013/09/27 10:56:27	15.473	
4	2013/09/27 11:07:22		16.523
5	2013/09/27 11:26:27	15.760	
6	2013/09/27 11:37:22		16.332
7	2013/09/27 11:56:27	16.046	
8	2013/09/27 12:07:22		16.808
9	2013/09/27 12:26:27	16.427	
10	2013/09/27 12:37:22		17.570
11	2013/09/27 12:56:27	16.713	
12	2013/09/27 13:07:22		18.616
13	2013/09/27 13:26:27	16.999	
14	2013/09/27 13:37:22		19.282
15	2013/09/27 13:56:27	17.379	
16	2013/09/27 14:07:22		19.662
17	2013/09/27 14:26:27	17.760	
18	2013/09/27 14:37:22		19.948

Export the .csv file

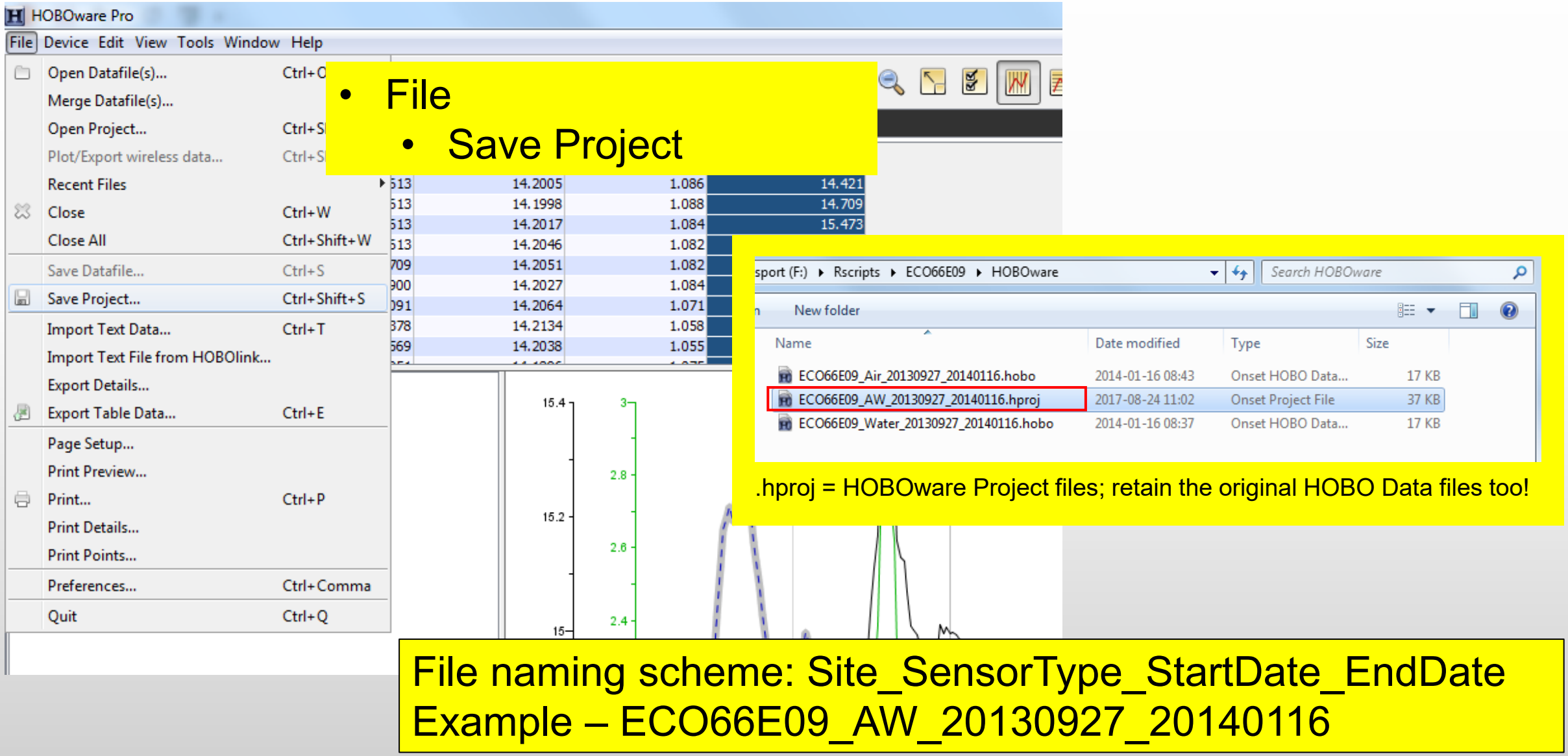


Save the .csv file in the Data0_Original folder.
The file should look like this…



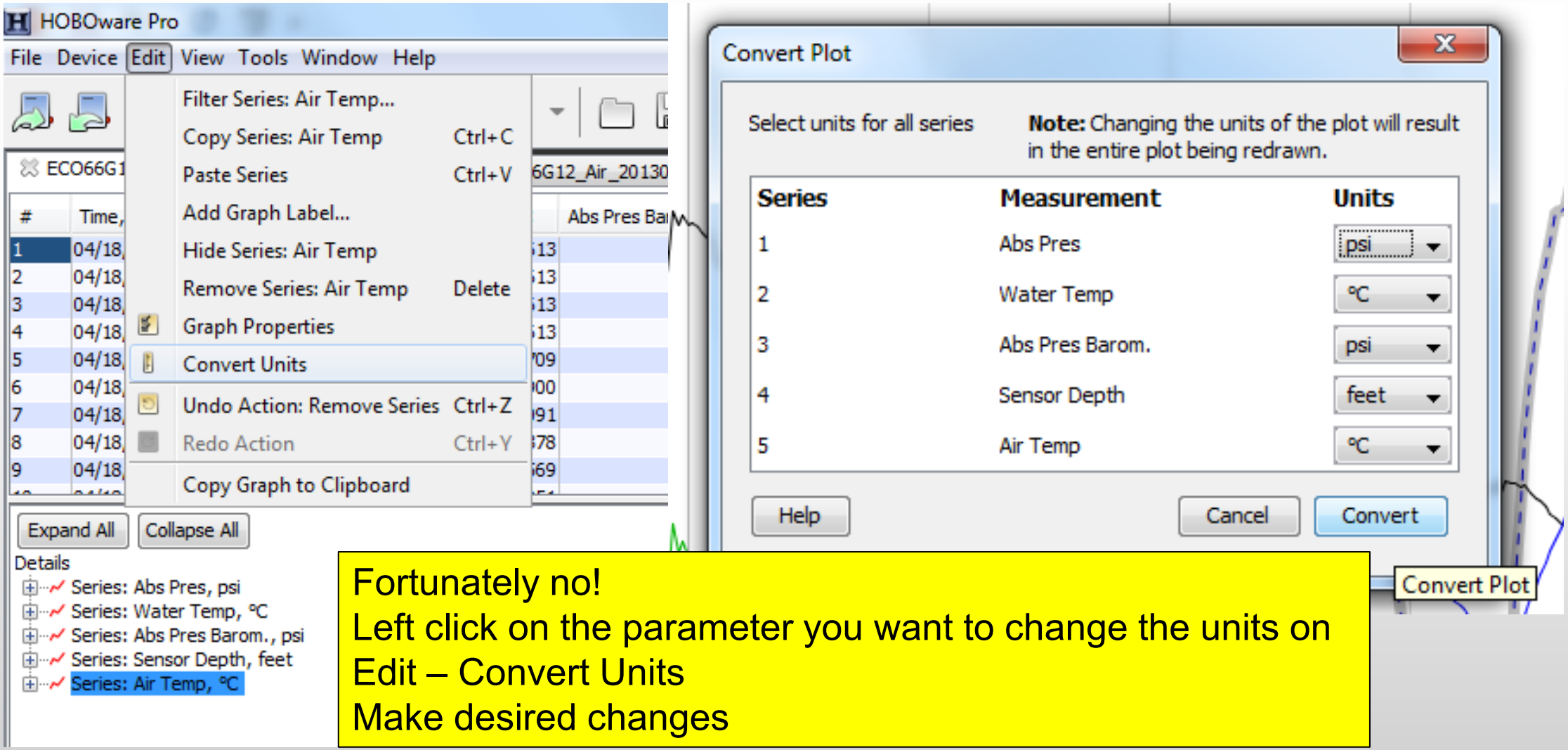
	A	B	C	D
1	Plot Title: ECO66E09			
2	Date Time, GMT-04:00	Water Temp, °C (LGR S/N: 10229557)	Air Temp, °C (LGR S/N: 10229571)	
3	2013-04-18 07:00	14.613	14.421	
4	2013-04-18 07:30	14.613	14.709	
5	2013-04-18 08:00	14.613	15.473	
6	2013-04-18 08:30	14.613	16.427	
7	2013-04-18 09:00	14.709	17.379	
8	2013-04-18 09:30	14.9	17.76	
9	2013-04-18 10:00	15.091	18.426	

Before you close HOBOware, save the file with the combined air and water sensor data as a HOBO Project File.



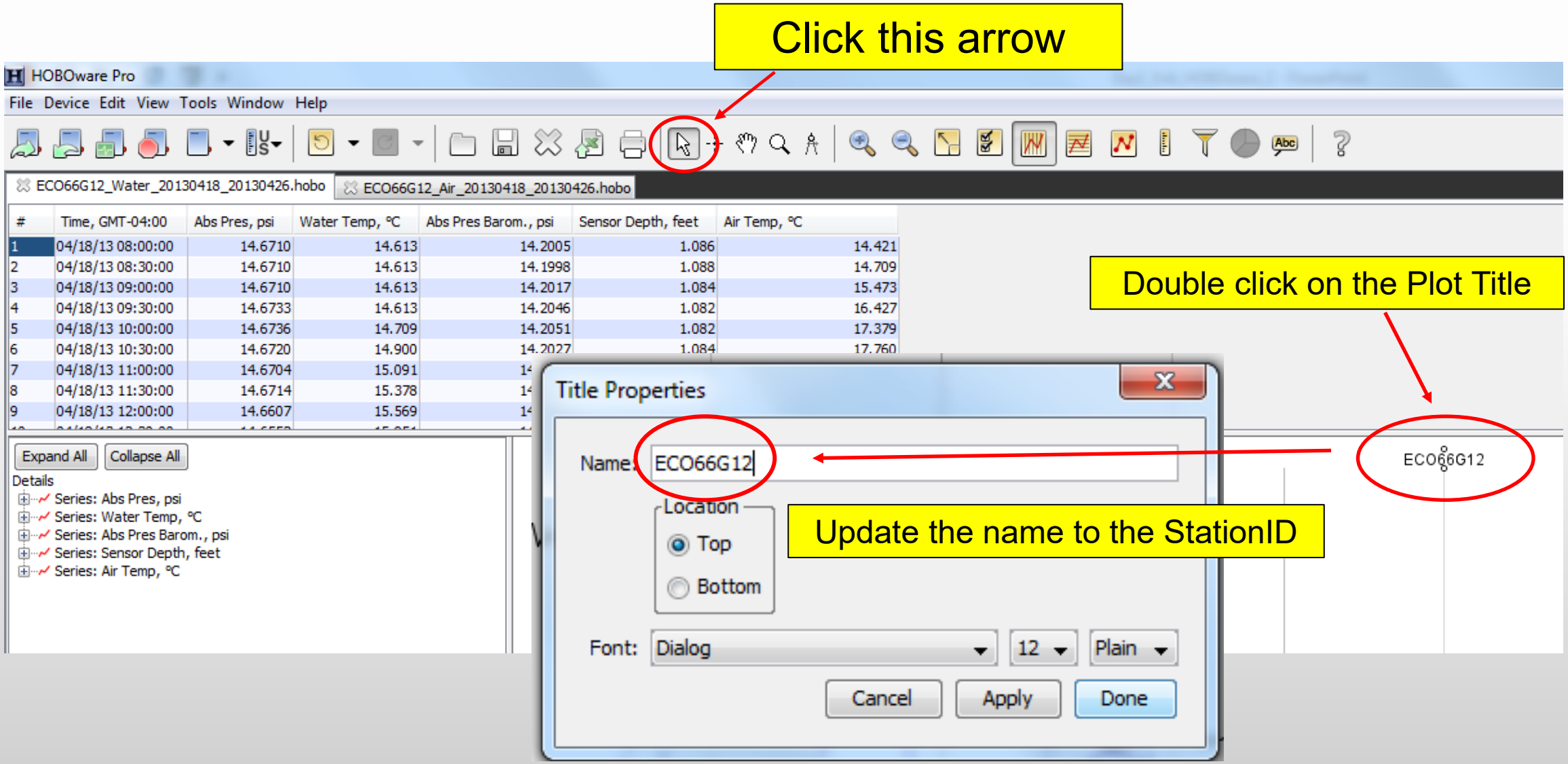
Extra tips

What if you forget to convert temperature to °C during the initial upload? Do you have to go back and do this all over again?



Fortunately no!
Left click on the parameter you want to change the units on
Edit – Convert Units
Make desired changes

What if I forgot to remove sensor type (air/water) from the Plot Title? (e.g., ‘ECO66G12_Water’ instead of ‘ECO66G12’)
You can change it by doing this…



Acknowledgements

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Tetra Tech developed the materials with assistance from David Gibbs (EPA ORISE fellow: gibbs.david@epa.gov), Paul Gannett (Onset: Paul_Gannett@onsetcomp.com), Michelle Craddock (MA RIFLS), Nick Murray (WV DEP) and other RMN partners.

Questions can be directed to Jen Stamp (Jen.Stamp@tetratech.com).