Processing U20 series water level data in HOBOware Pro

U20 water level

HOBOware Pro

(Need the Barometric Compensation Assistant)

8/24/2017

Steps

- Set up your **default settings** (see ‘HOBOware_DefaultSettings’ file); you should only have to do this once
- **Open the water sensor file** in HOBOware Pro
- **Barometric Compensation Assistant**
  - Check ‘Derived from Temp.Channel, assuming fresh water’
  - ‘Use Barometric Datafile’ – browse/select the matching air sensor file
  - Enter reference level measurement (if available) – only one entry at a time; if no measurement was taken, leave box unchecked
  - Create New Series
- **Change the Temp series name** to ‘Water Temp’
- **Open air sensor file – change the Temp series name** to ‘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

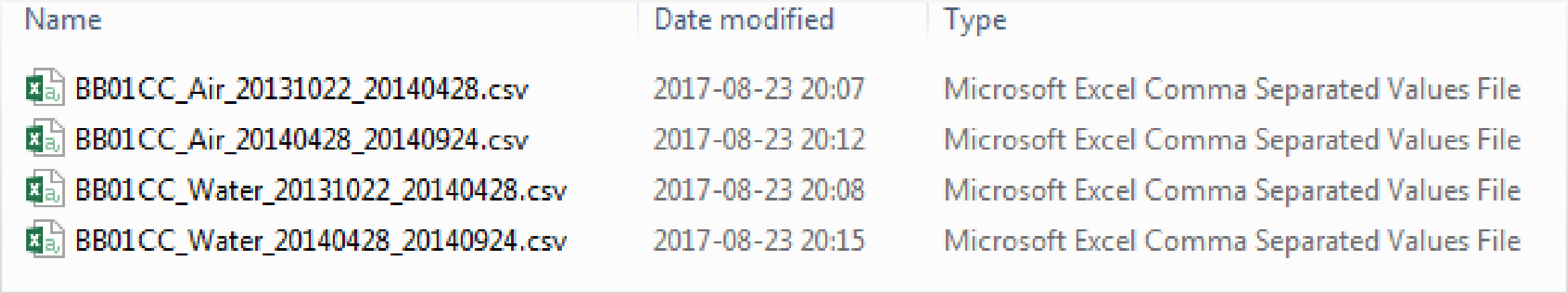
If you're going to use the ContDataQC R package, you need to use the following file naming scheme:

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:

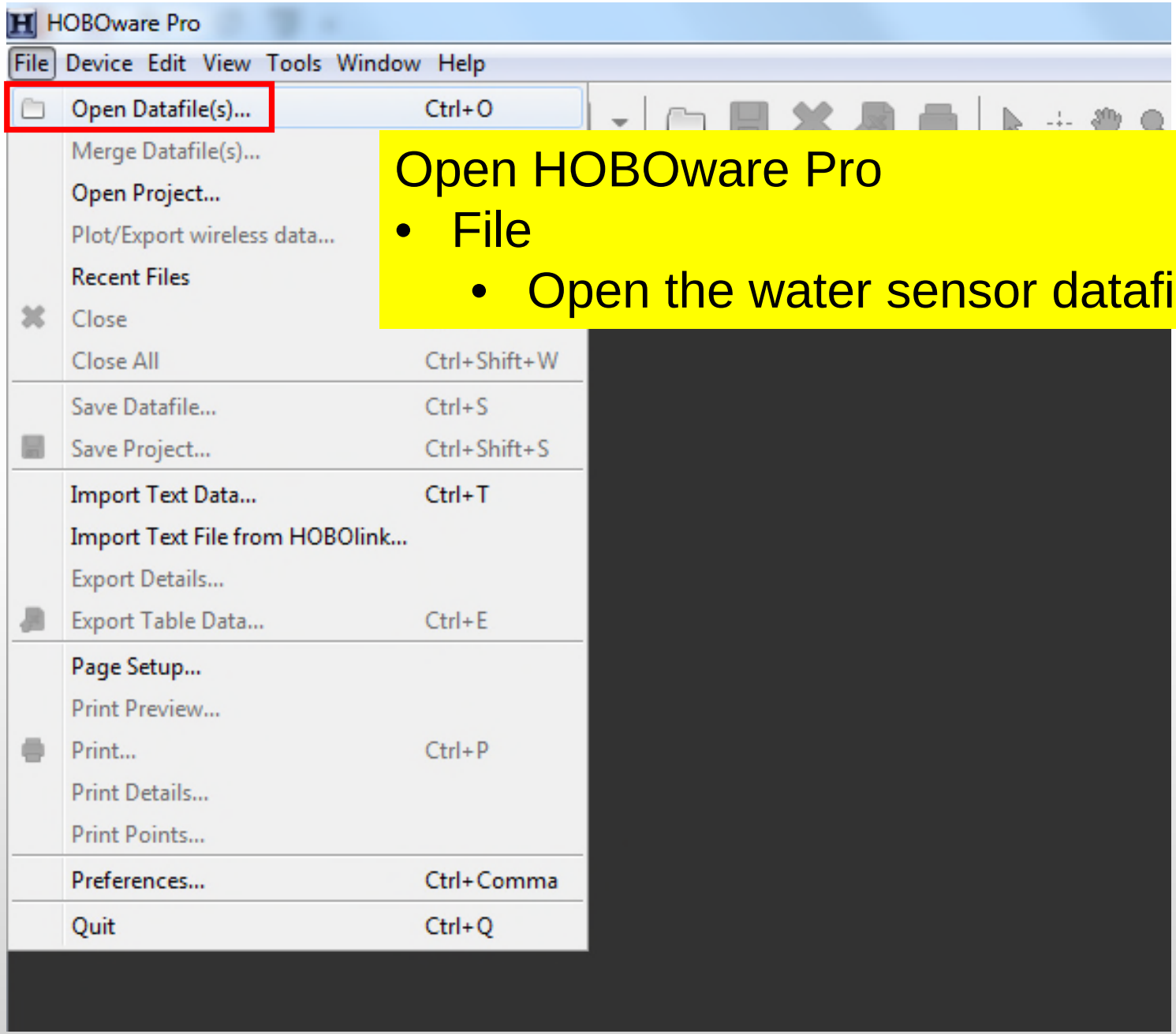
- **BB01CC_Air_20131022_20140428.csv**



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

Other tips

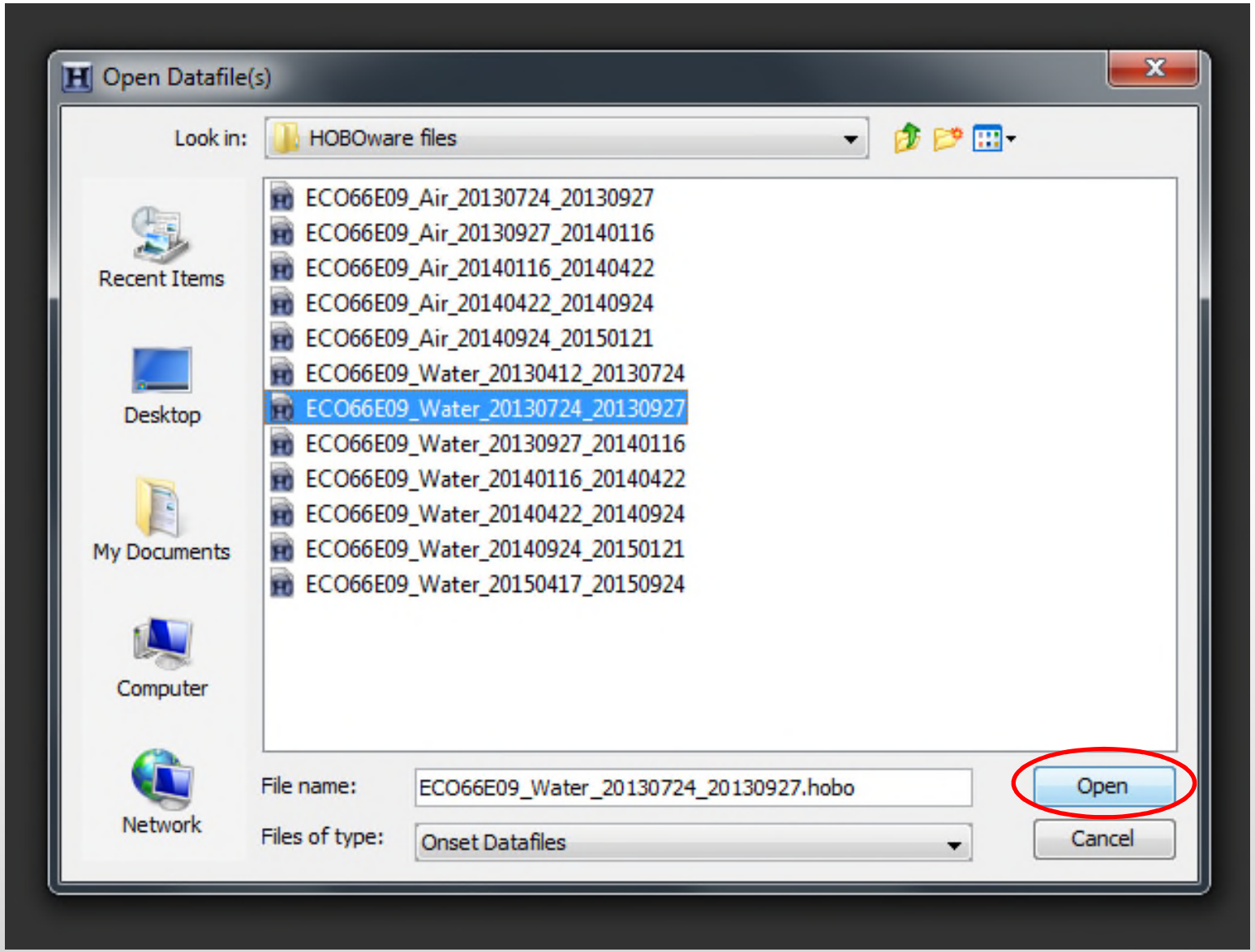
- **StationIDs** – after you come up with a name, stick with it!
- Consider setting up a **folder for each long-term monitoring site**.
- Within each site folder, consider setting up the folder structure described in the '**DataManagementTips**' PowerPoint



Open HOBOware Pro

- File
  - Open the water sensor datafile

1. Open the HOBO Datafile for the water sensor



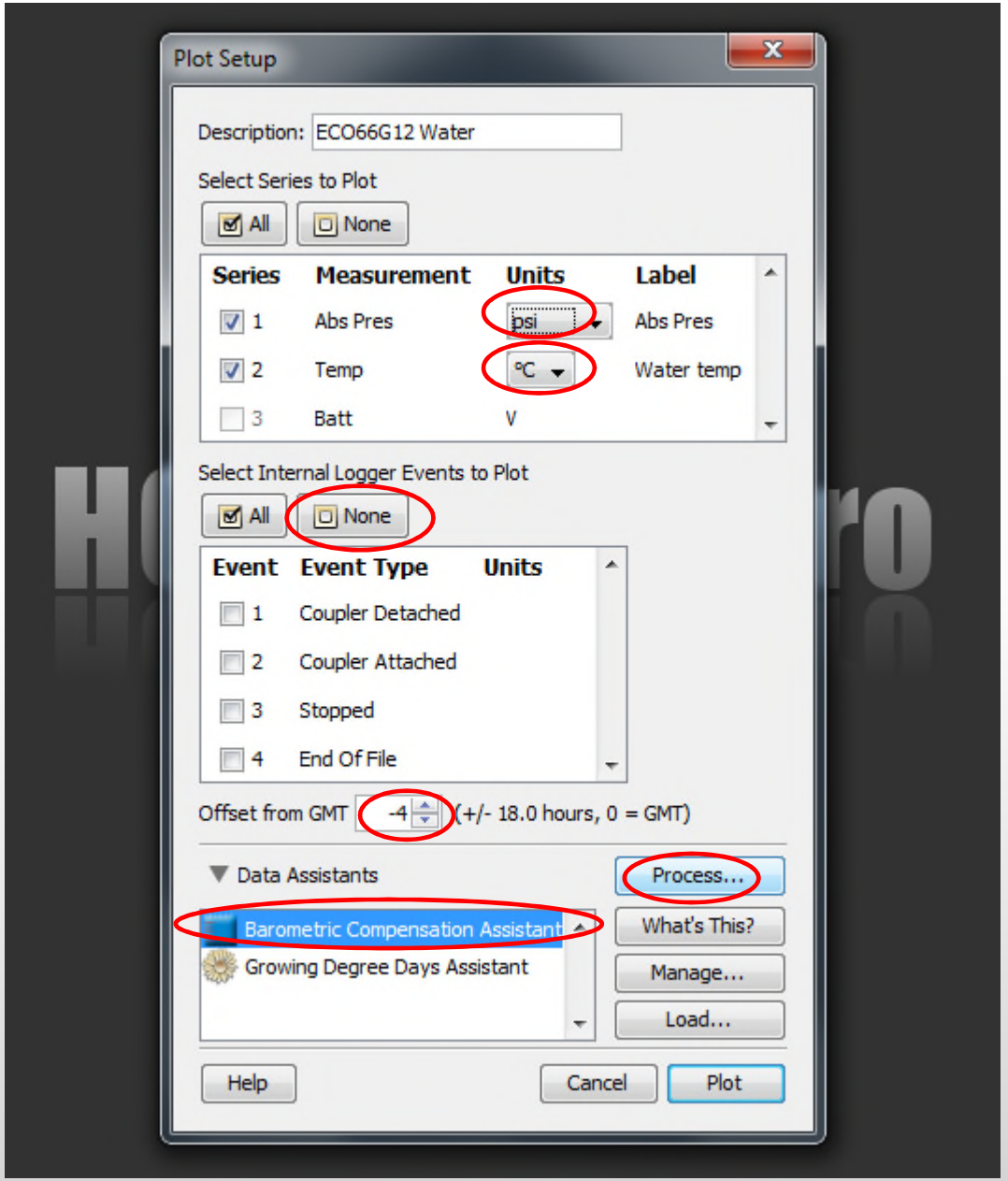
Browse/select the appropriate water sensor file

Click ‘Open’

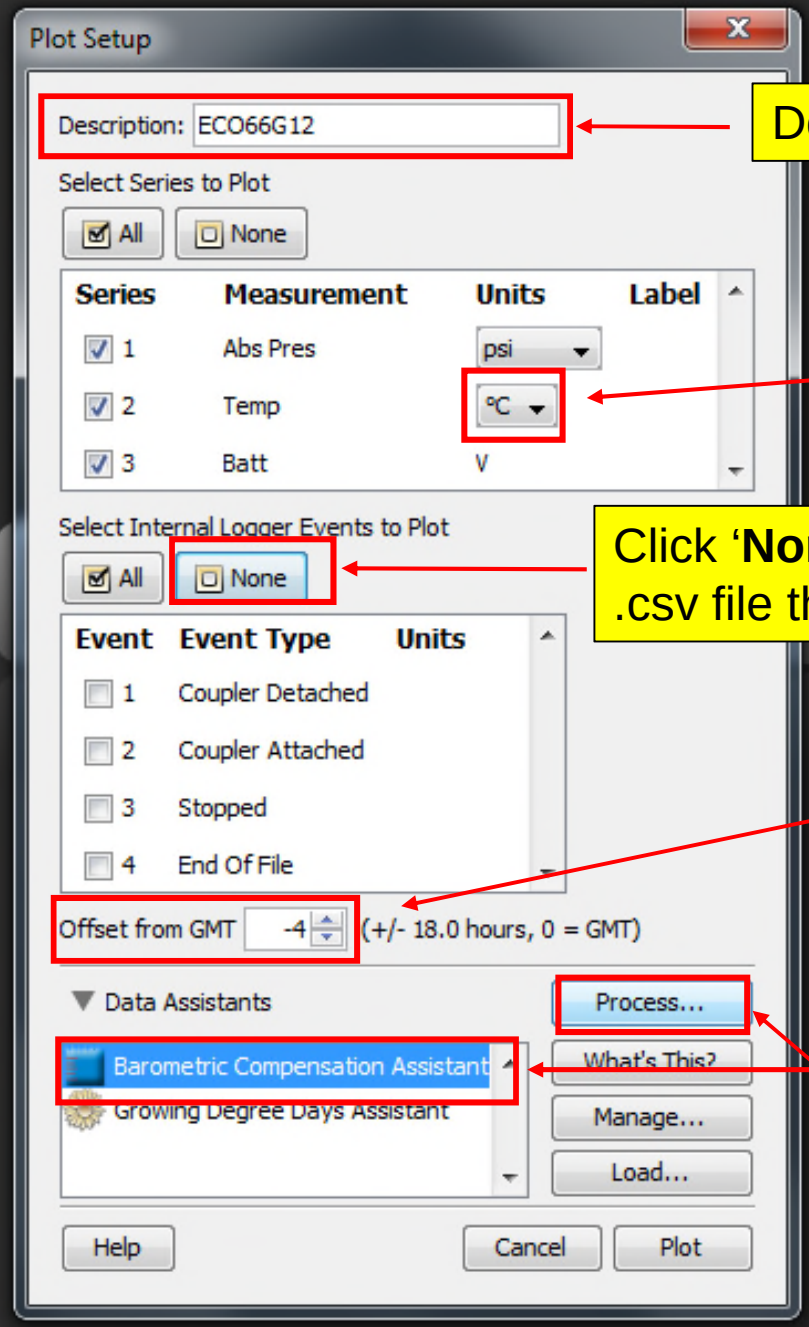
Open the water sensor file in HOBOware Pro

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 the following **units**:
  - Abs Pres – **psi**
  - Temp – **C**
- Clicking **'None'** under Internal Logger Events to Plot
- Making sure the time offset from GMT is appropriate for the site
- **Barometric Compensation Assistant should be highlighted**.
- Click '**Process**'



Plot Setup



Description: **StationID** (in this example, ECO66G12)

Change temperature units to °C
(you won't need to change the default units for the other parameters)

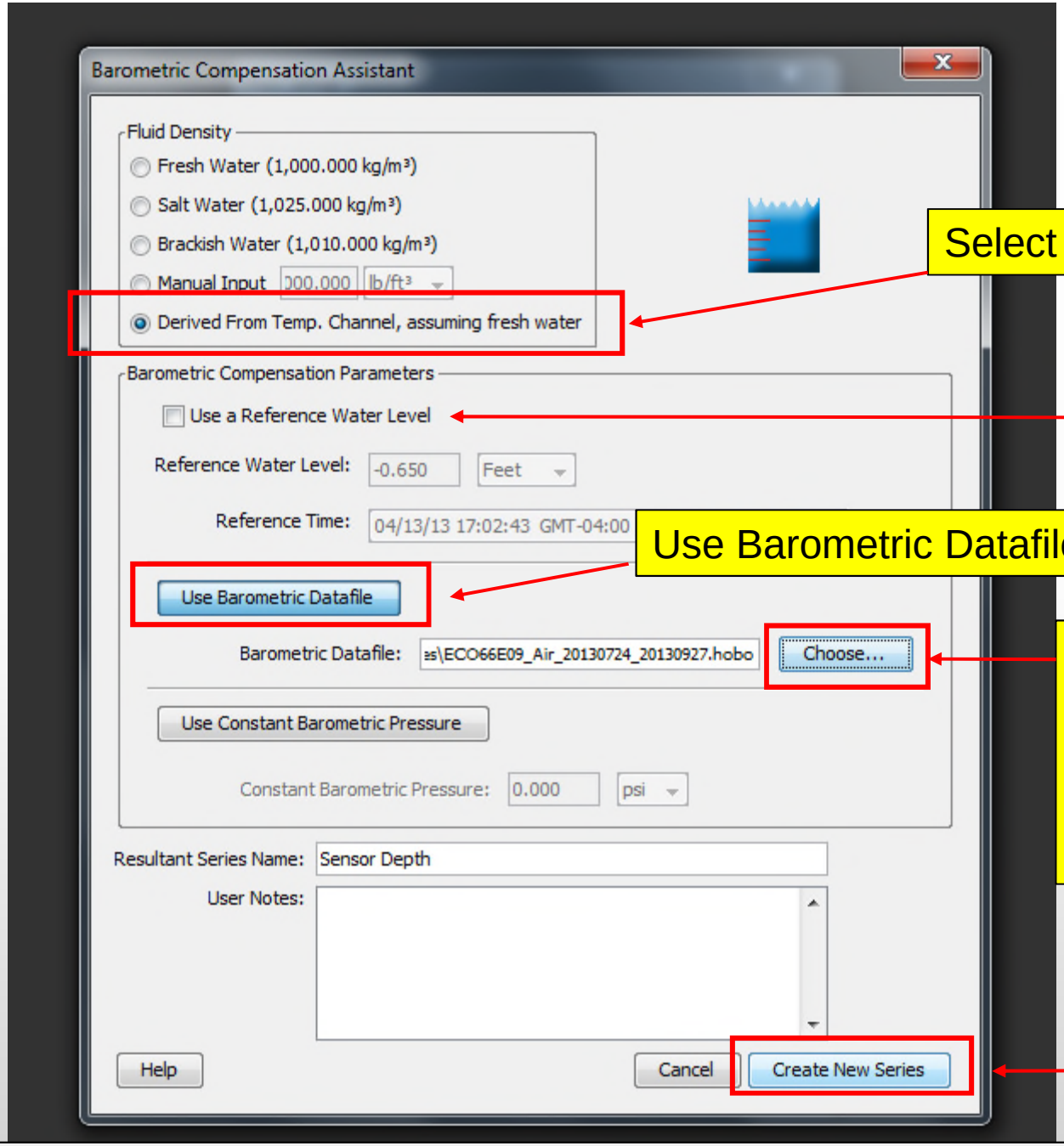
Click '**None**' (otherwise you'll get unwanted 'logged' entries in the .csv file that you'll need to delete later)

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)

Select Barometric Compensation Assistant

Click 'Process'

Barometric Compensation Assistant

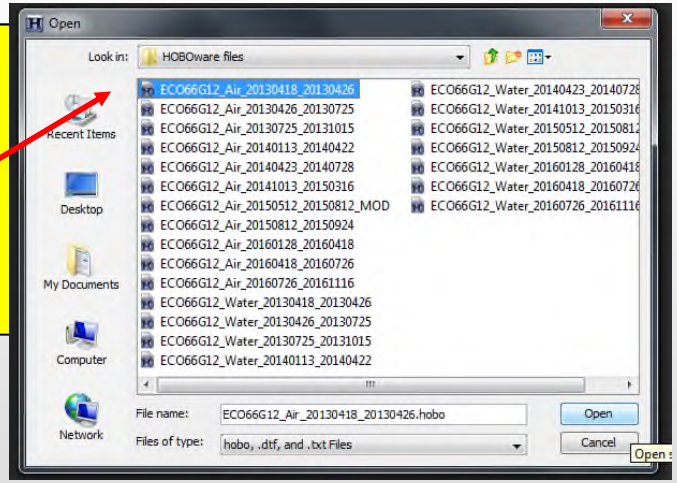


Select 'Derived from Temp.Channel, assuming fresh water'

If appropriate, check 'Use a reference water level' and enter the value (only one entry at a time); if no measurement was taken, leave box unchecked

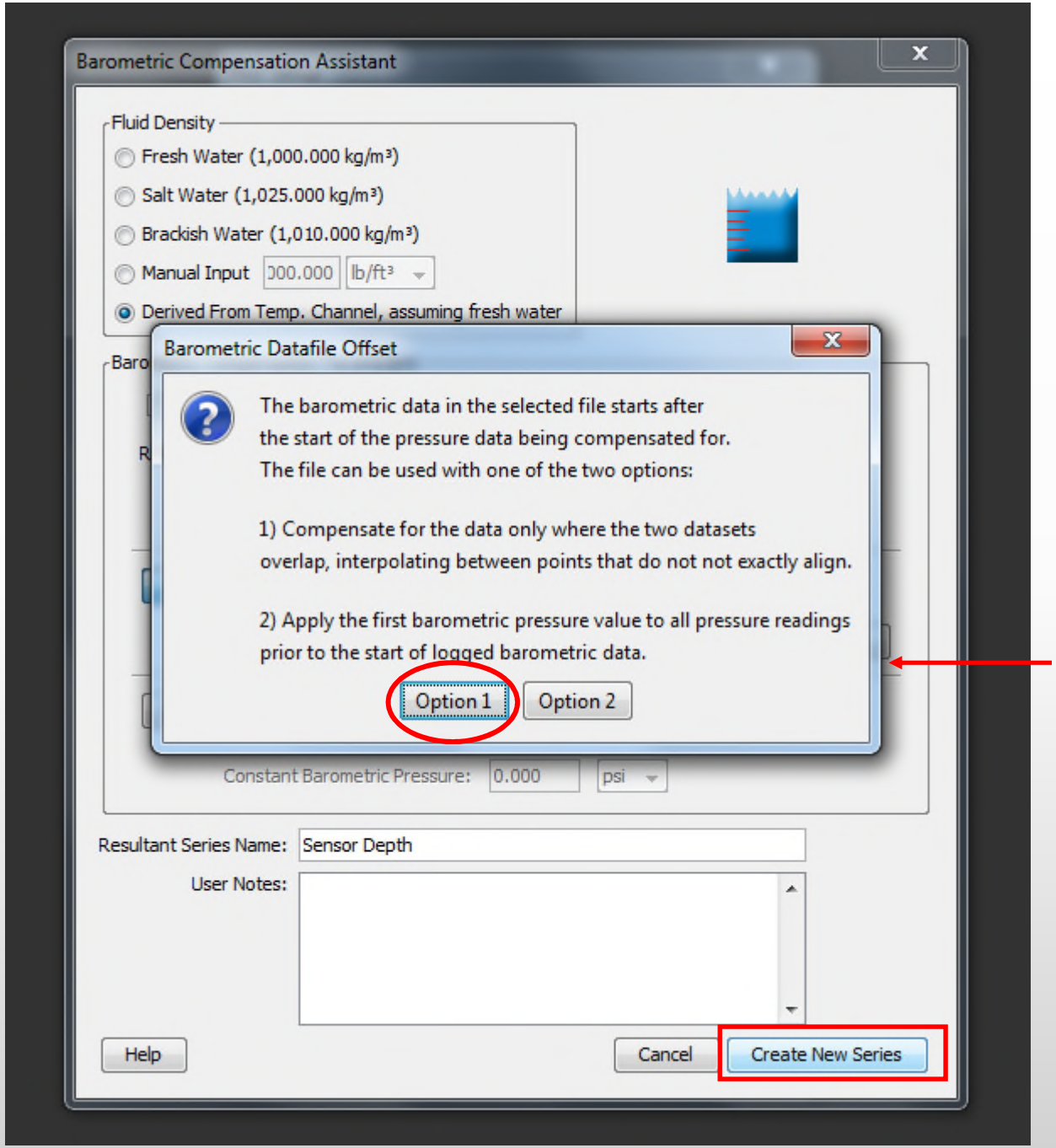
Use Barometric Datafile

- Click on 'Choose'
- Browse to the appropriate folder
- Select the matching air sensor file



Click 'Create New Series'

Side note: if you *don't* enter a Reference Water Level, the Resultant Series Name will say 'Sensor Depth'; if you *do* make an entry, it will say 'Water Level' (like in the screenshot above)



You may or may not see this message…

Barometric Datafile Offset

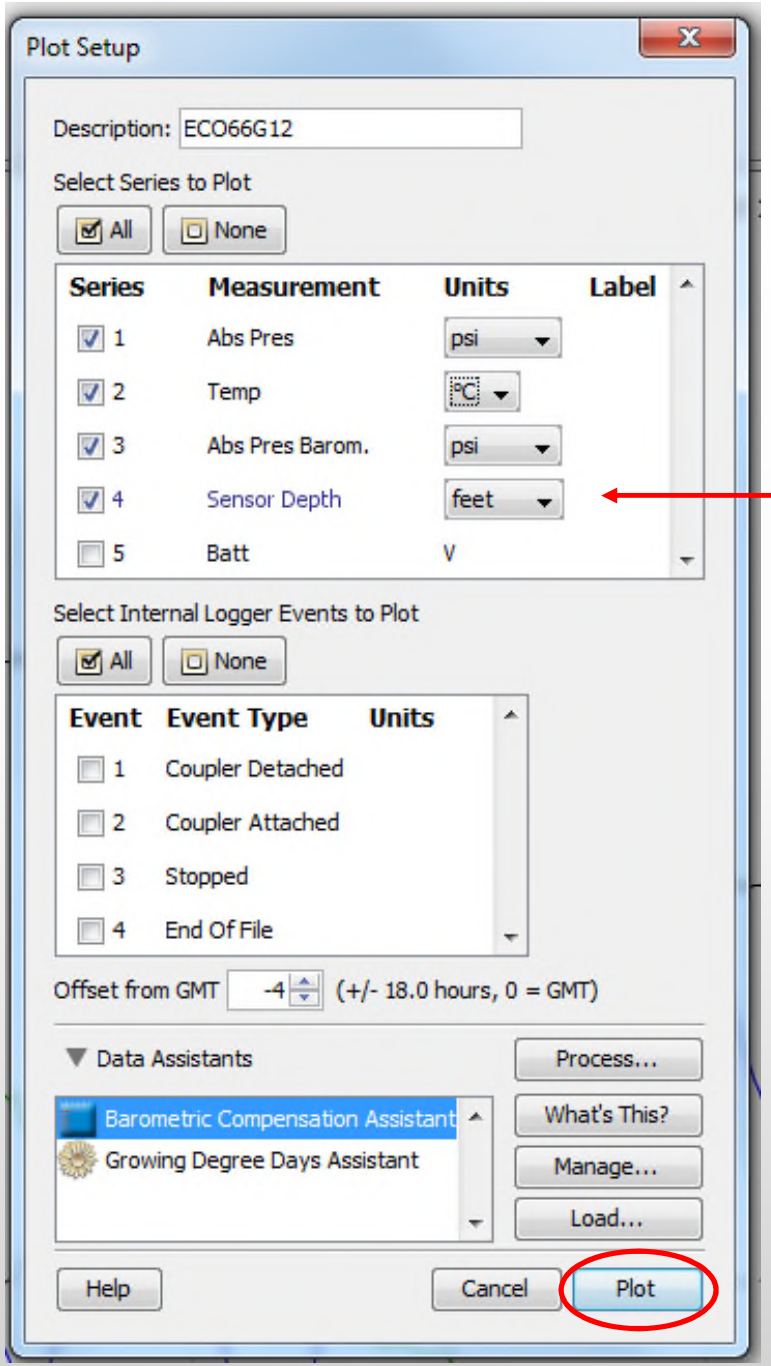
With some files, air and water sensors are out of sync (e.g., one records at 11:03 and the other records at 11:18). This happens when the user selects ‘Start Logging: Now’ and then deploys one sensor and then the other (at that point, recording times are usually spaced about 10-15 minutes apart).

If the air and water times are out of sync, you will receive this prompt. For our purposes -

Select Option 1– compensate for the data only where the two datasets overlap, interpolating between points that do not exactly align.

Click ‘**Create New Series**’

See ‘ConfigLaunch_HOBO_20170803’ file for ways to avoid this!

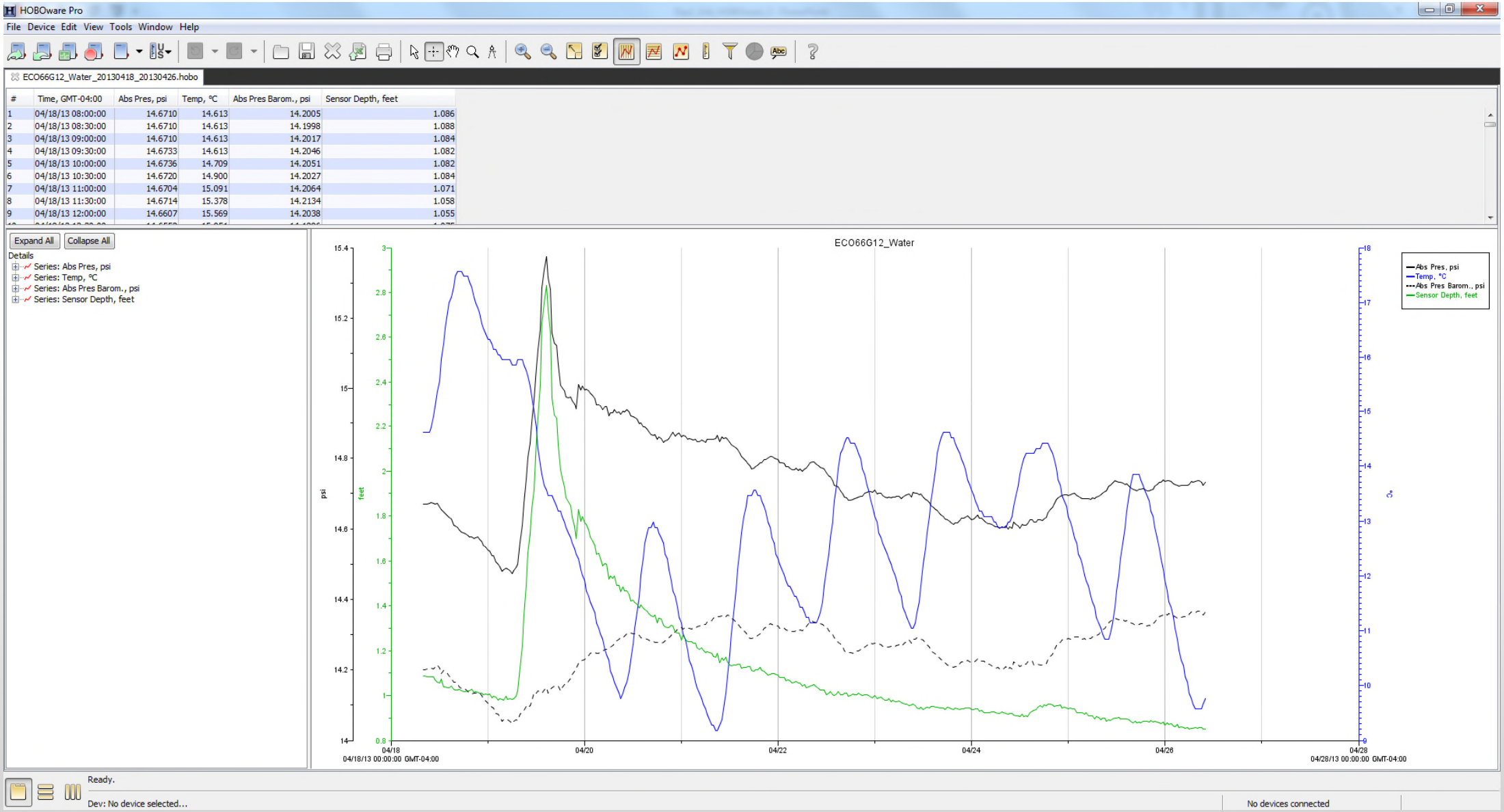


This screen will then appear

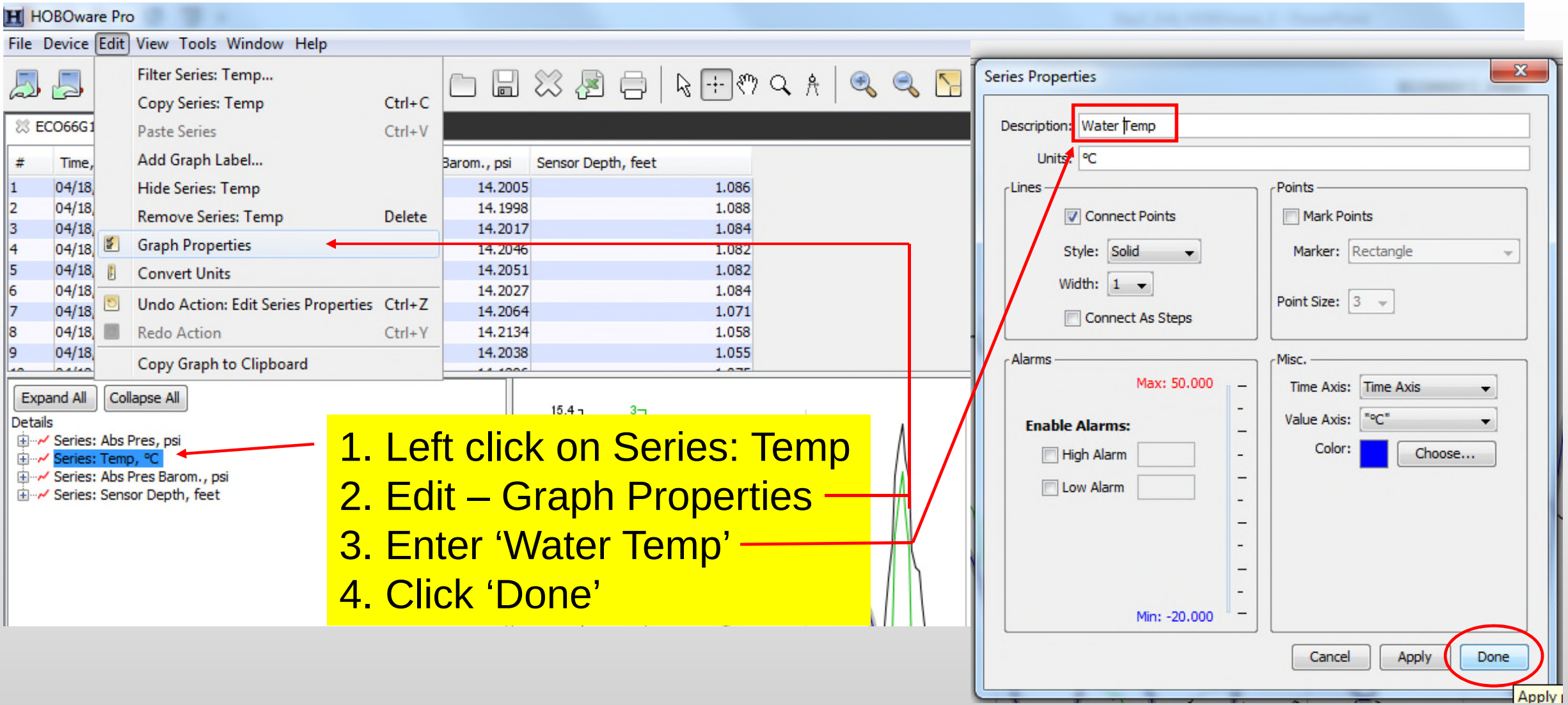
Sensor Depth has been added to the parameter list

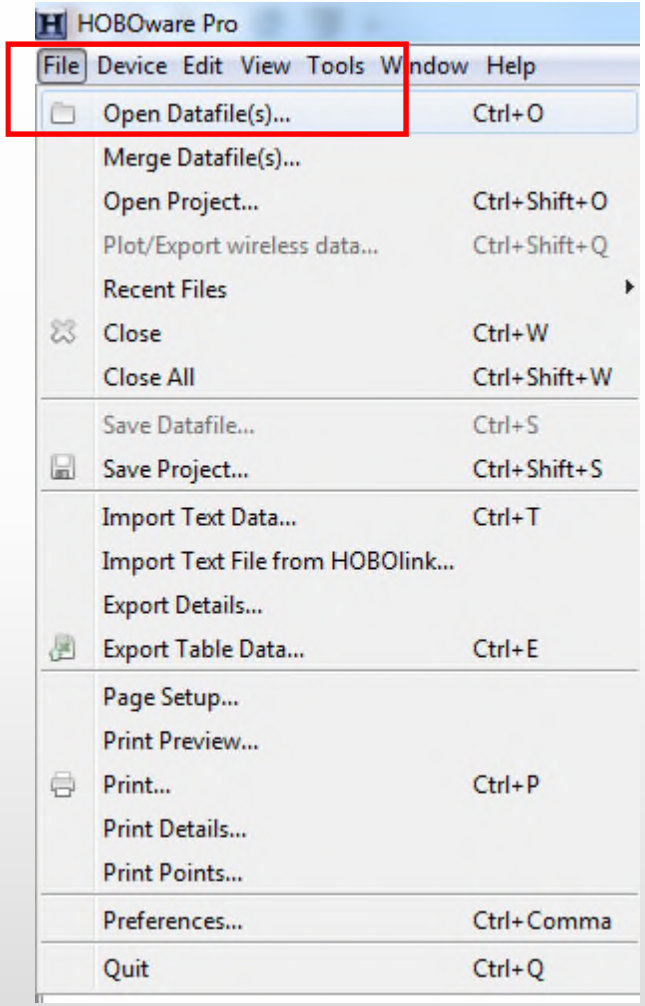
Click ‘Plot’

A time series plot will then appear



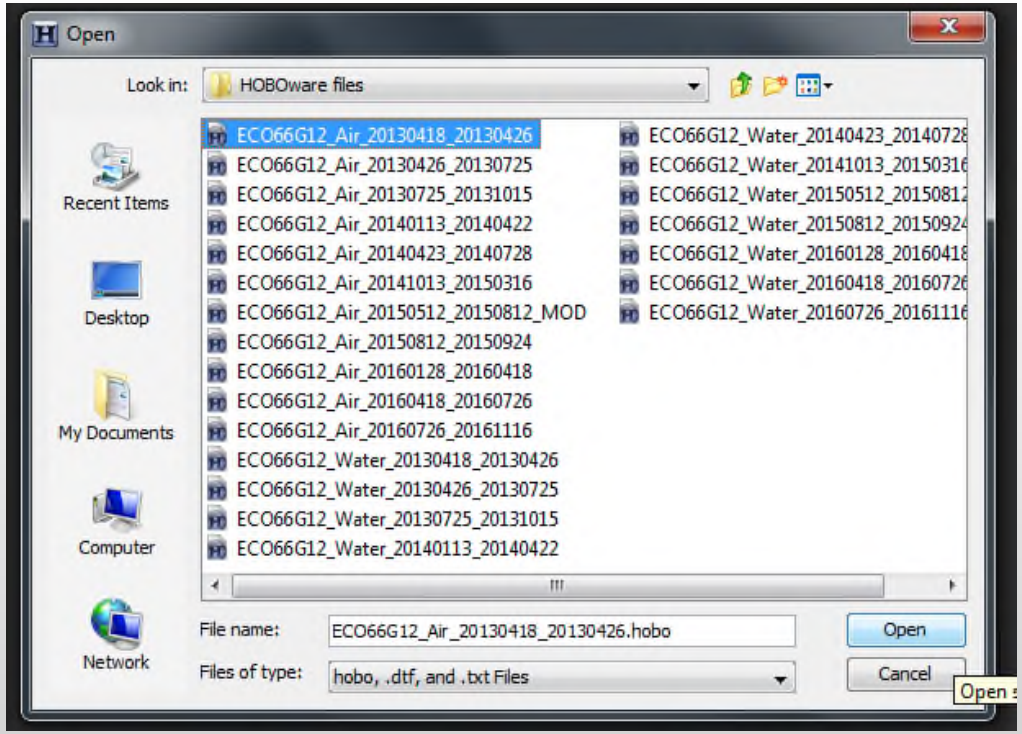
Change the Temp series name to ‘Water Temp’



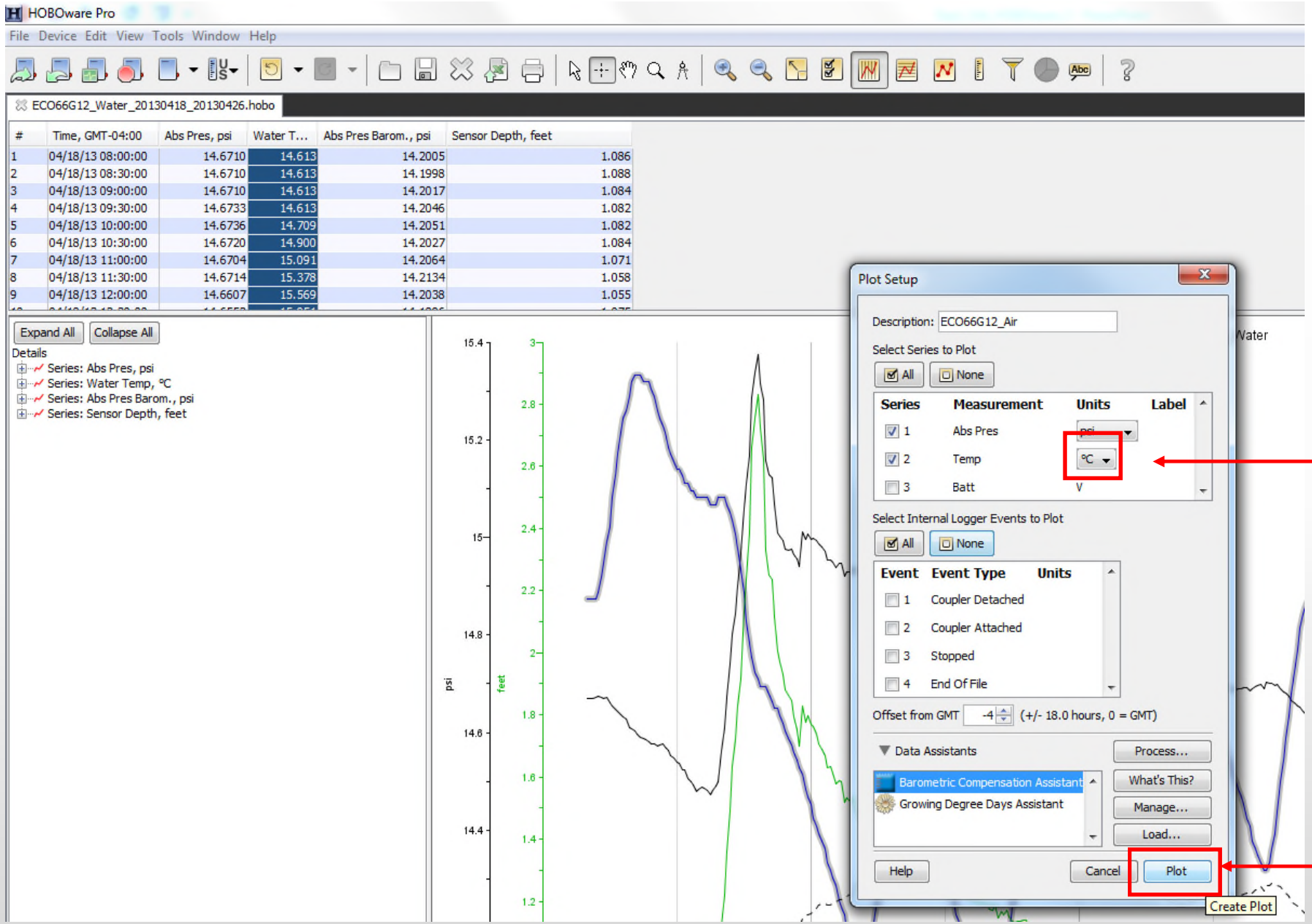


Now bring in the air temperature data.

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



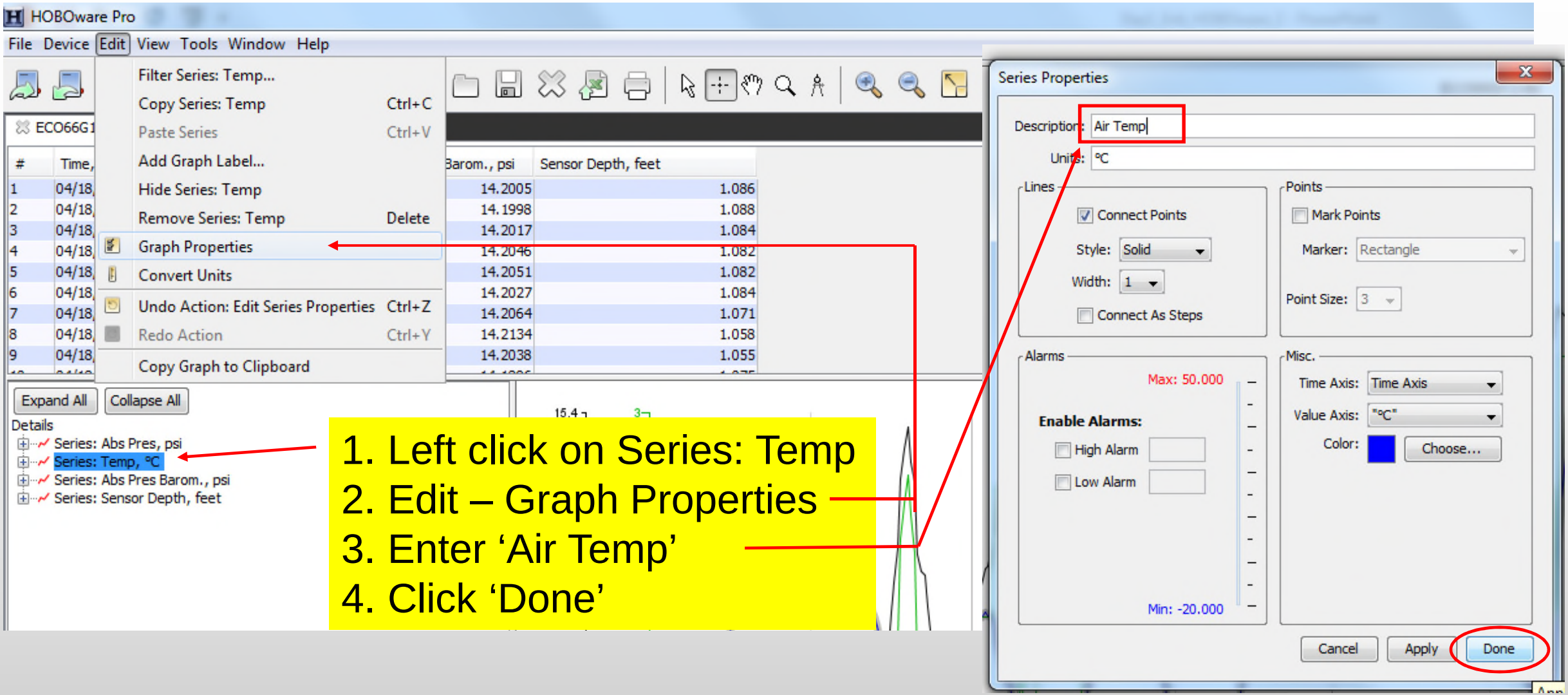
Air sensor file



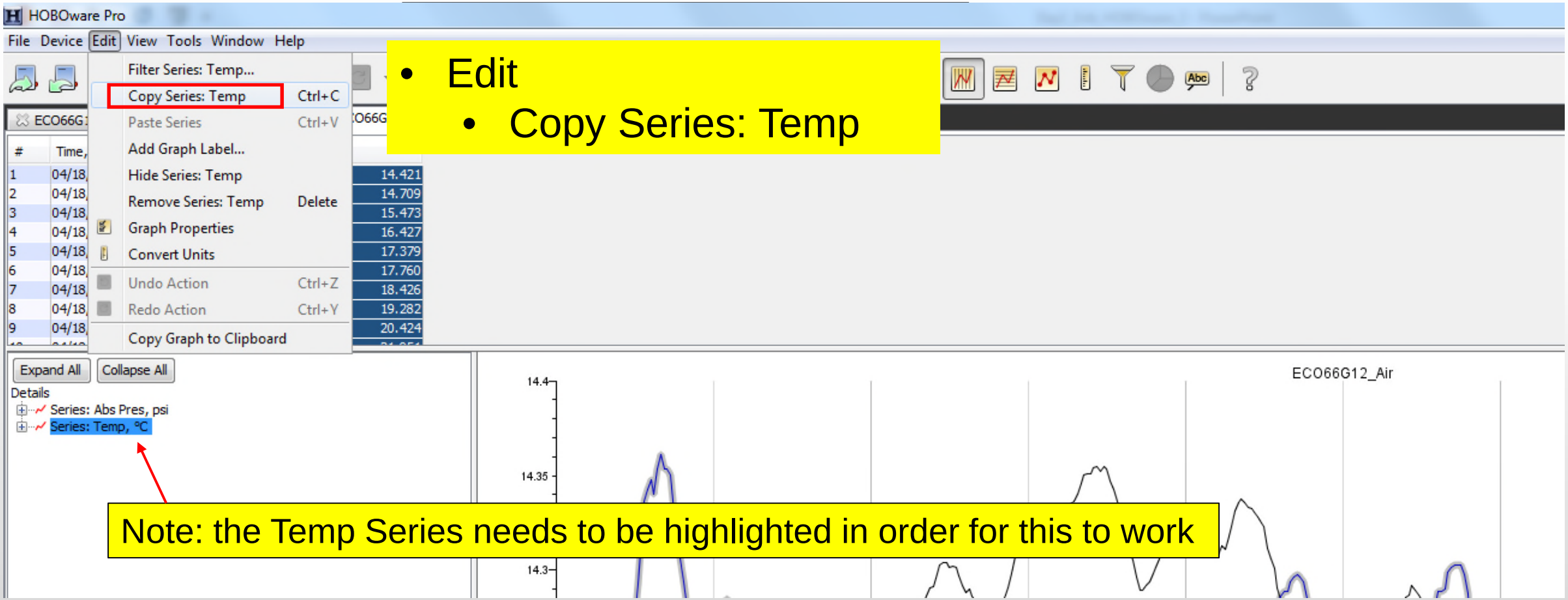
Change temperature units to °C

Click ‘Plot’

Change the Temp series name to ‘Air Temp’



Copy the air temperature series

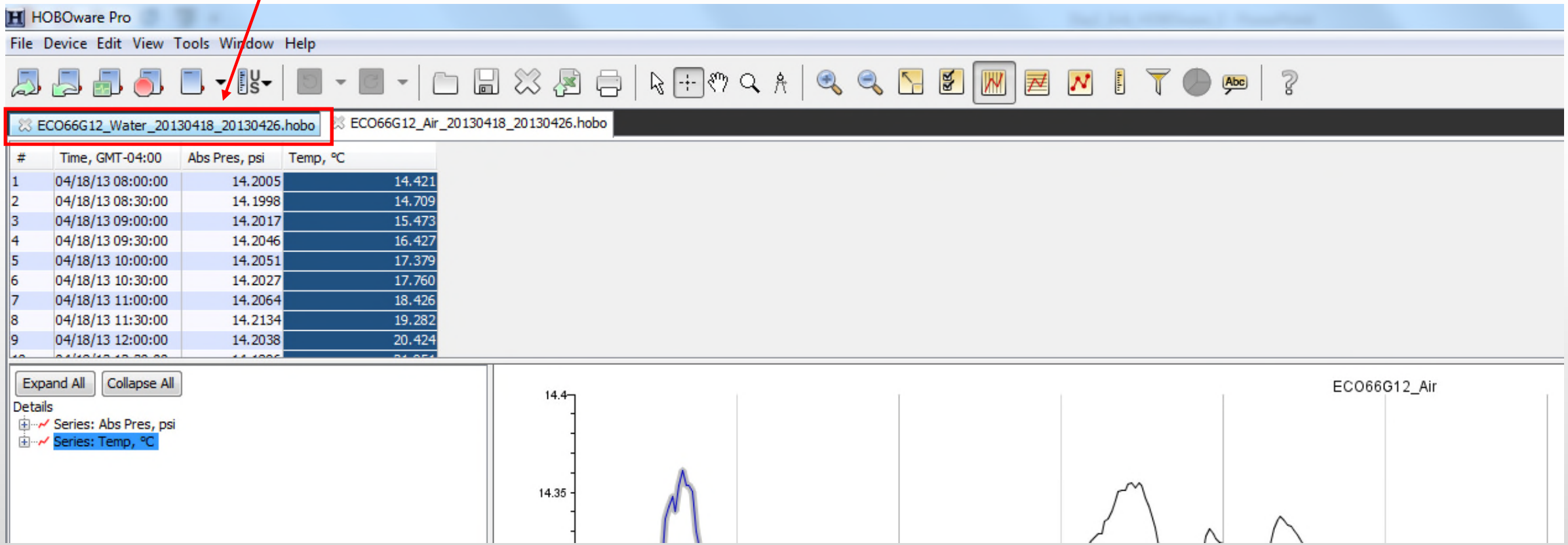


- Edit
  - Copy Series: Temp

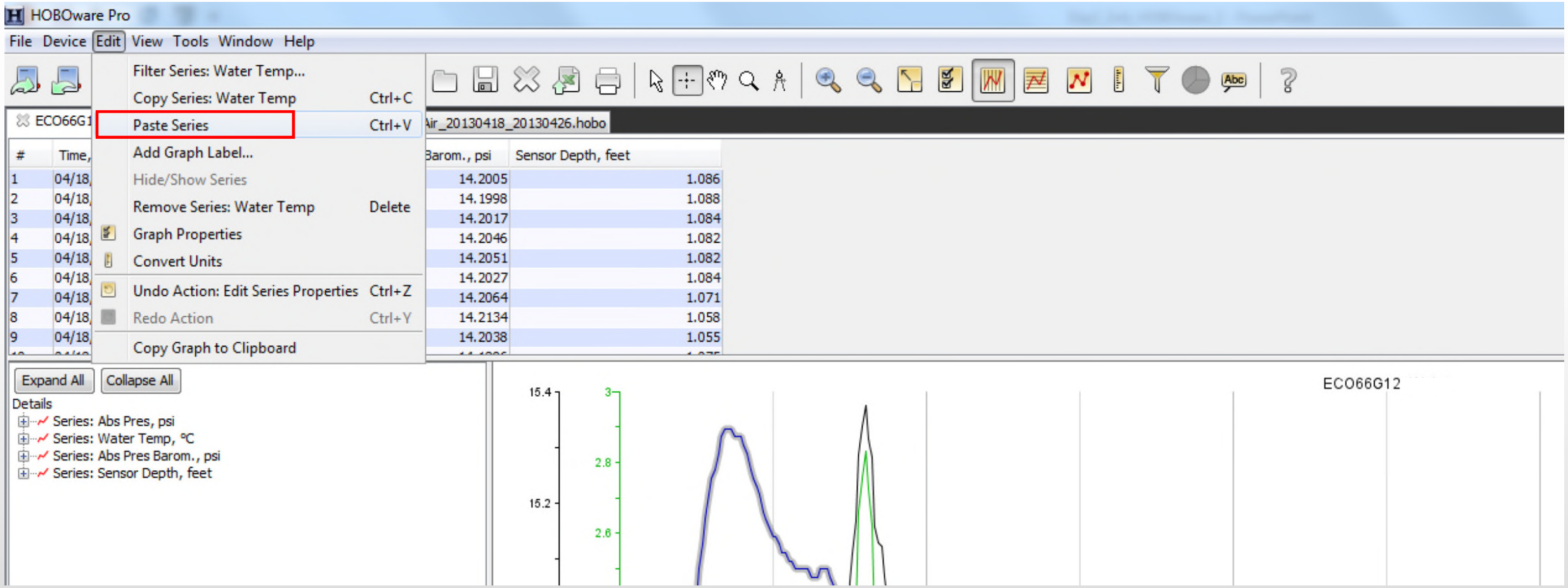
Note: the Temp Series needs to be highlighted in order for this to work

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

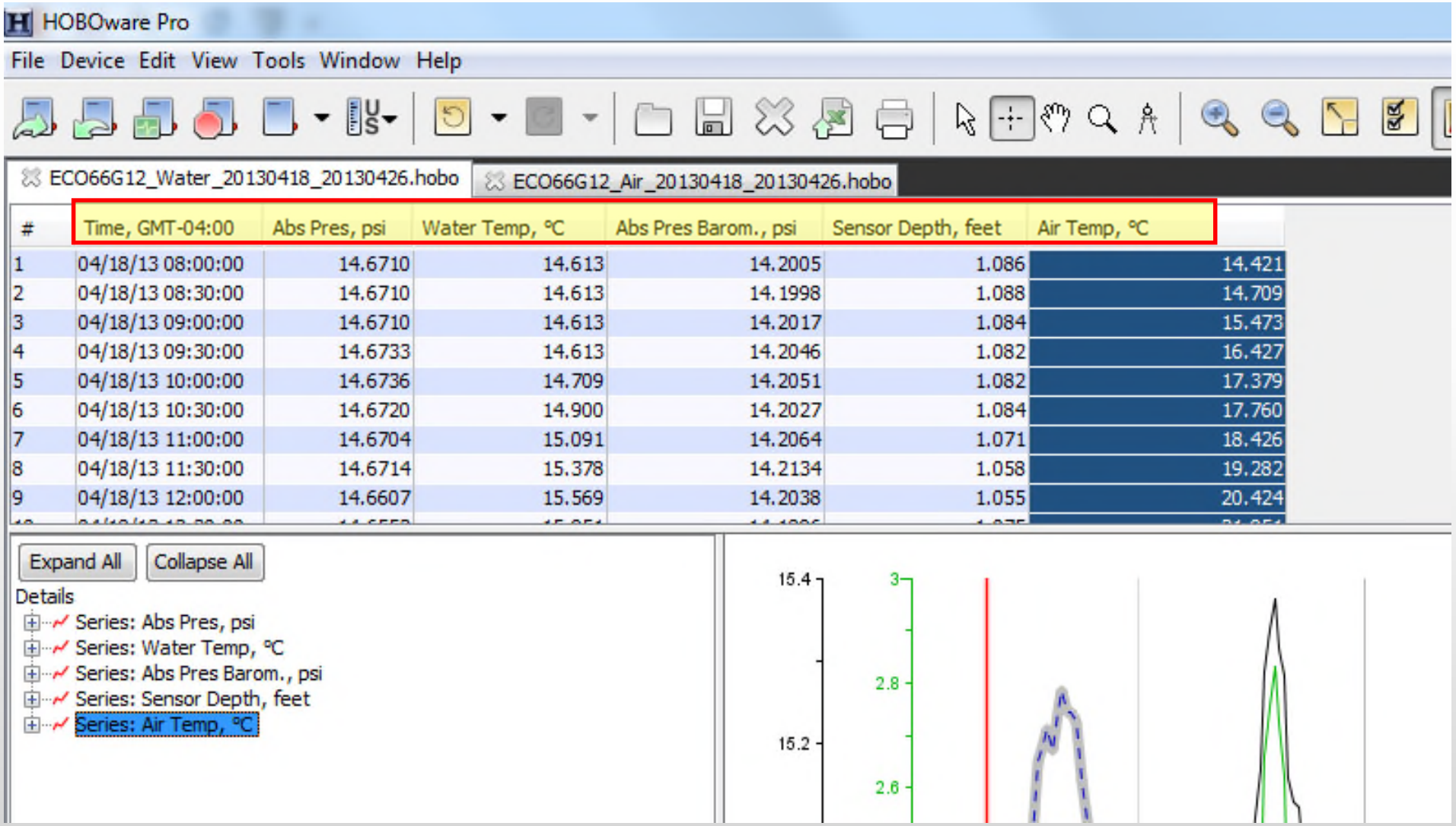
Click on the tab for the water sensor file



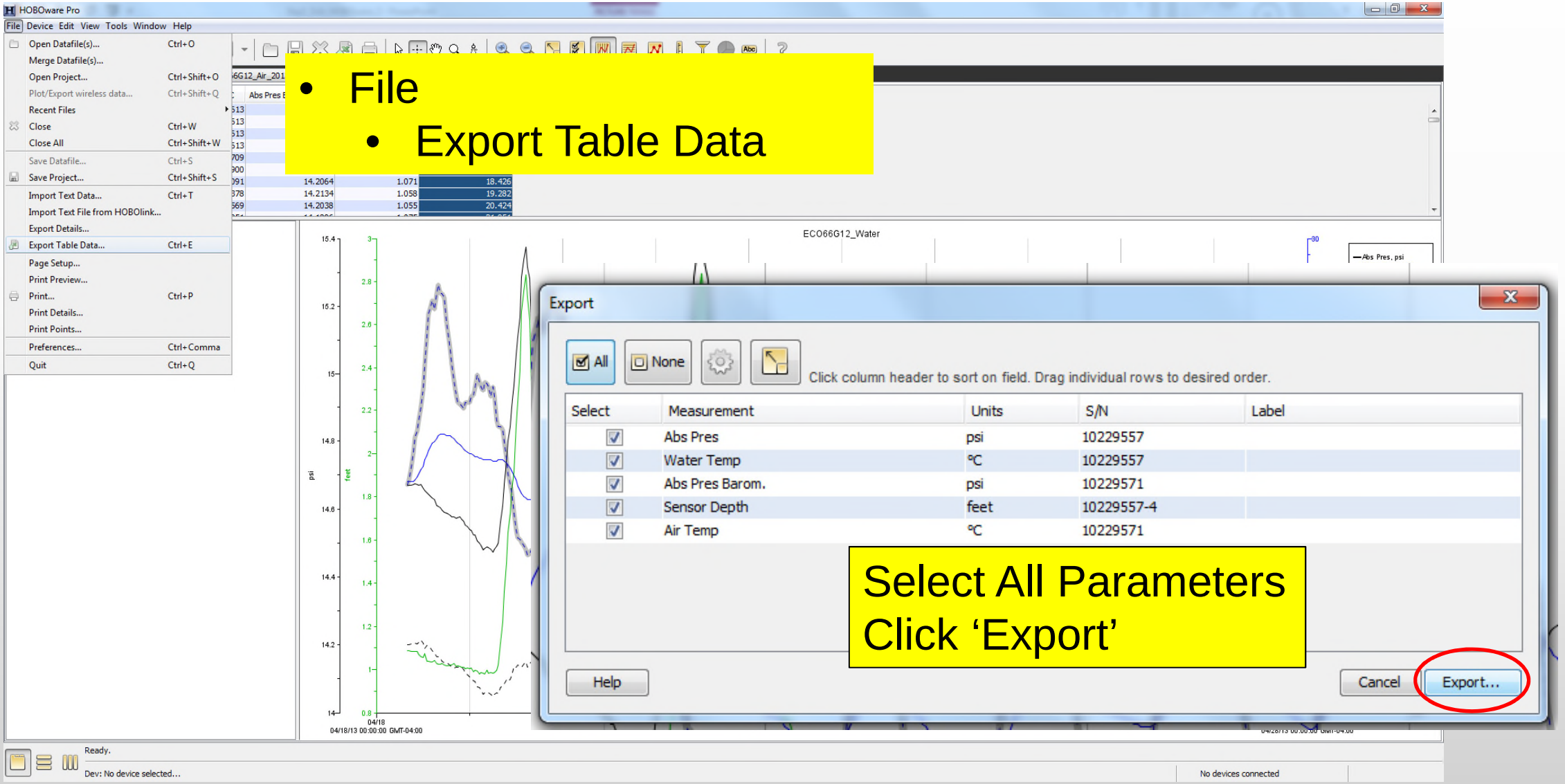
Paste the air temperature series into the water sensor file



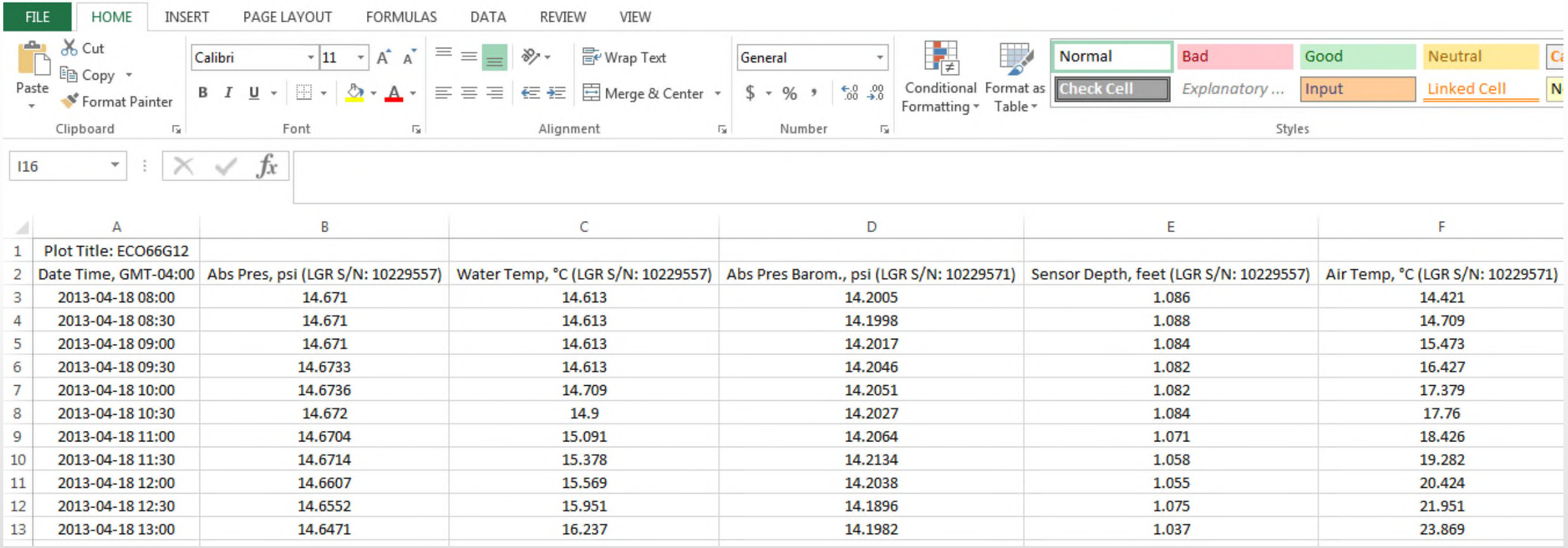
All the parameters are now in one file, ready for export!



Now you're ready to export the .csv file



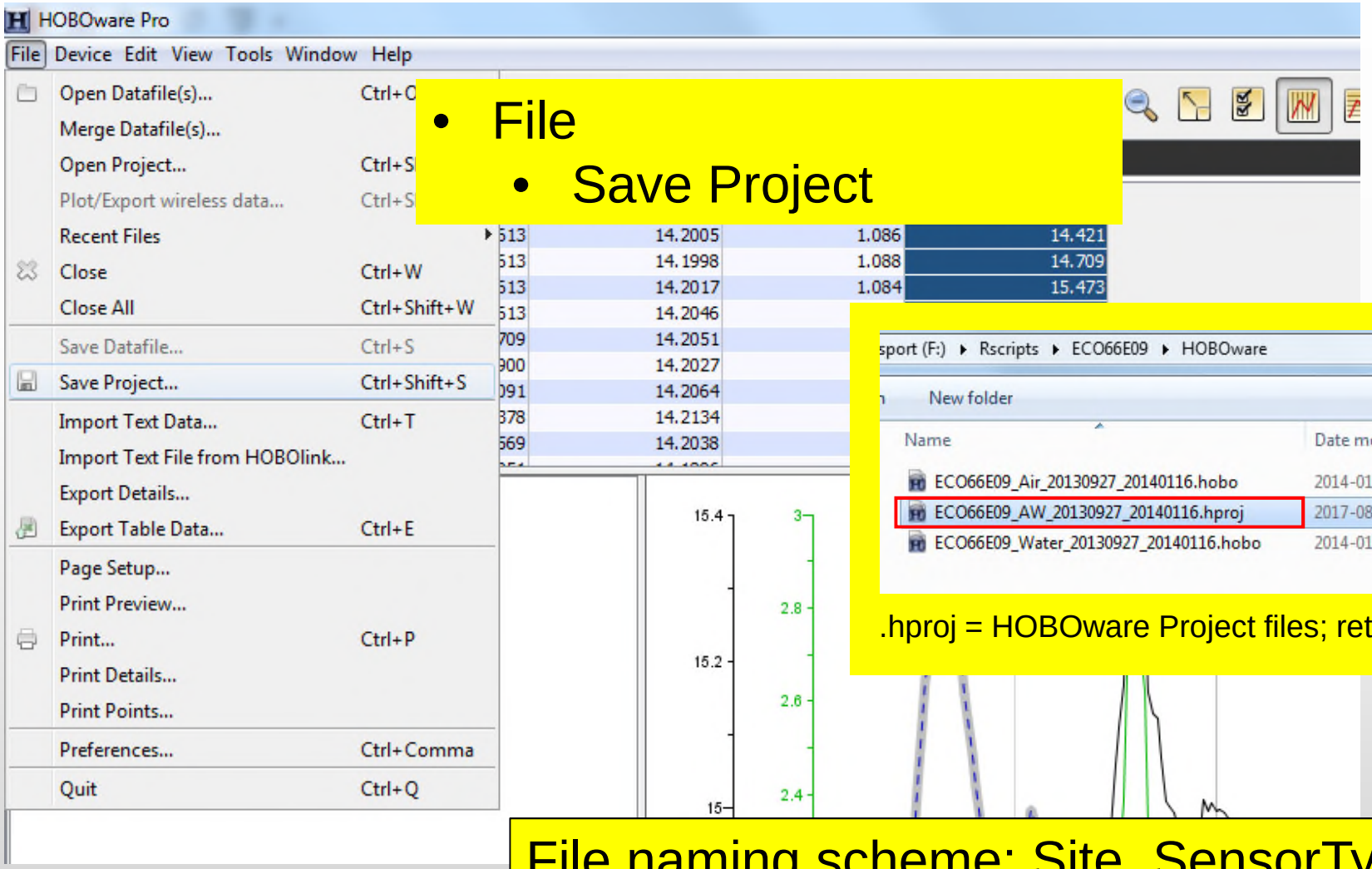
Save the .csv file in the appropriate site folder.
If you followed these instructions, the file should look like this.



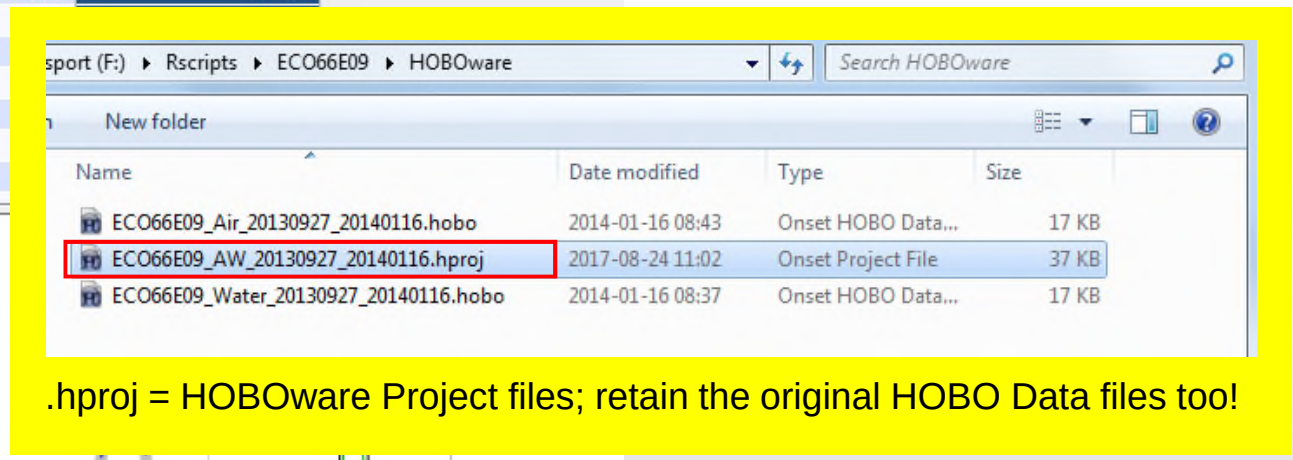
	A	B	C	D	E	F
1	Plot Title: ECO66G12					
2	Date Time, GMT-04:00	Abs Pres, psi (LGR S/N: 10229557)	Water Temp, °C (LGR S/N: 10229557)	Abs Pres Barom., psi (LGR S/N: 10229571)	Sensor Depth, feet (LGR S/N: 10229557)	Air Temp, °C (LGR S/N: 10229571)
3	2013-04-18 08:00	14.671	14.613	14.2005	1.086	14.421
4	2013-04-18 08:30	14.671	14.613	14.1998	1.088	14.709
5	2013-04-18 09:00	14.671	14.613	14.2017	1.084	15.473
6	2013-04-18 09:30	14.6733	14.613	14.2046	1.082	16.427
7	2013-04-18 10:00	14.6736	14.709	14.2051	1.082	17.379
8	2013-04-18 10:30	14.672	14.9	14.2027	1.084	17.76
9	2013-04-18 11:00	14.6704	15.091	14.2064	1.071	18.426
10	2013-04-18 11:30	14.6714	15.378	14.2134	1.058	19.282
11	2013-04-18 12:00	14.6607	15.569	14.2038	1.055	20.424
12	2013-04-18 12:30	14.6552	15.951	14.1896	1.075	21.951
13	2013-04-18 13:00	14.6471	16.237	14.1982	1.037	23.869

For instructions on how to format the file for the ContDataQC R package, see the ‘Formatting_ContDataQCR’ file.

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



- File
  - Save Project

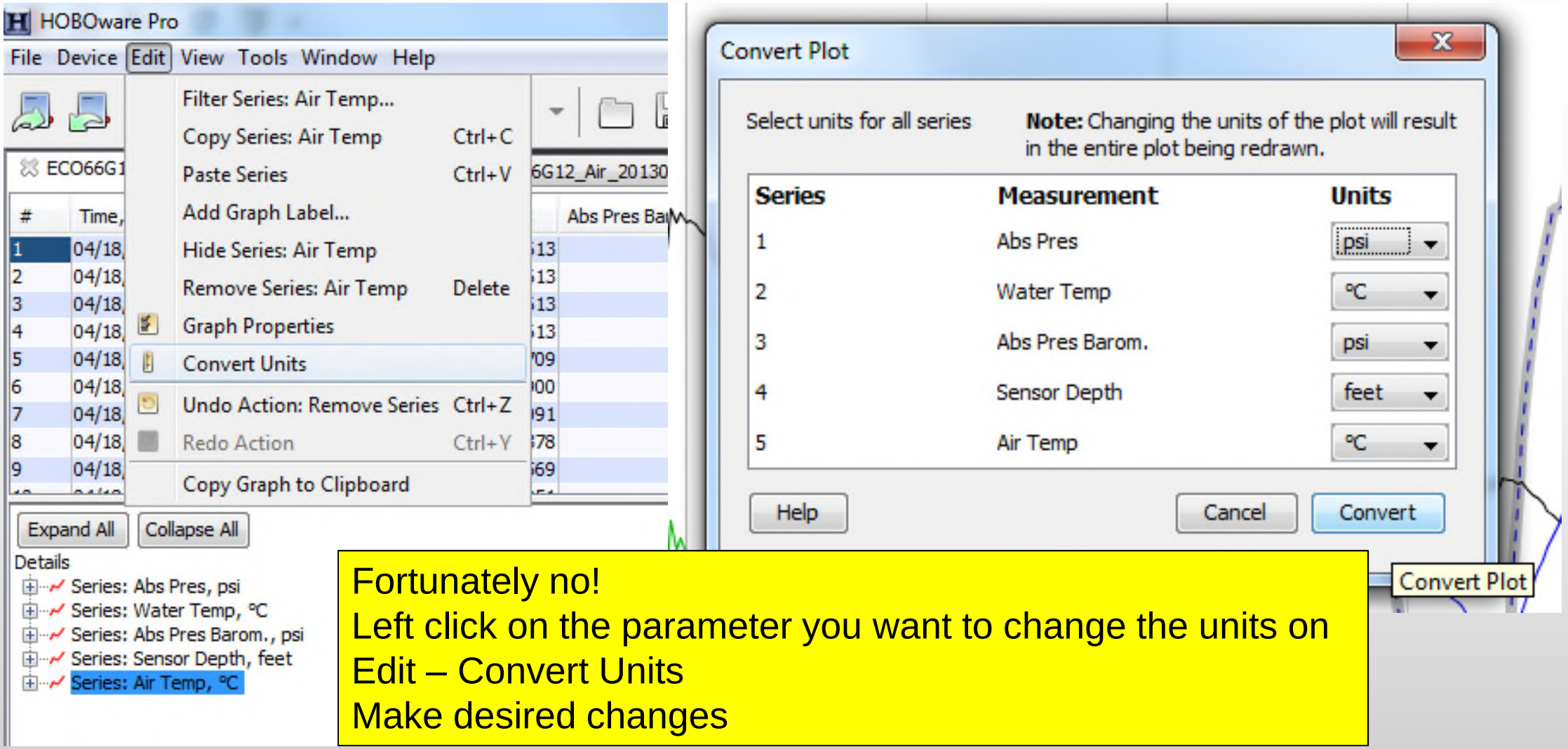


.hproj = HOBOware Project files; retain the original HOBO Data files too!

File naming scheme: Site_SensorType_StartDate_EndDate
Example – ECO66G12_AW_20130418_20130426

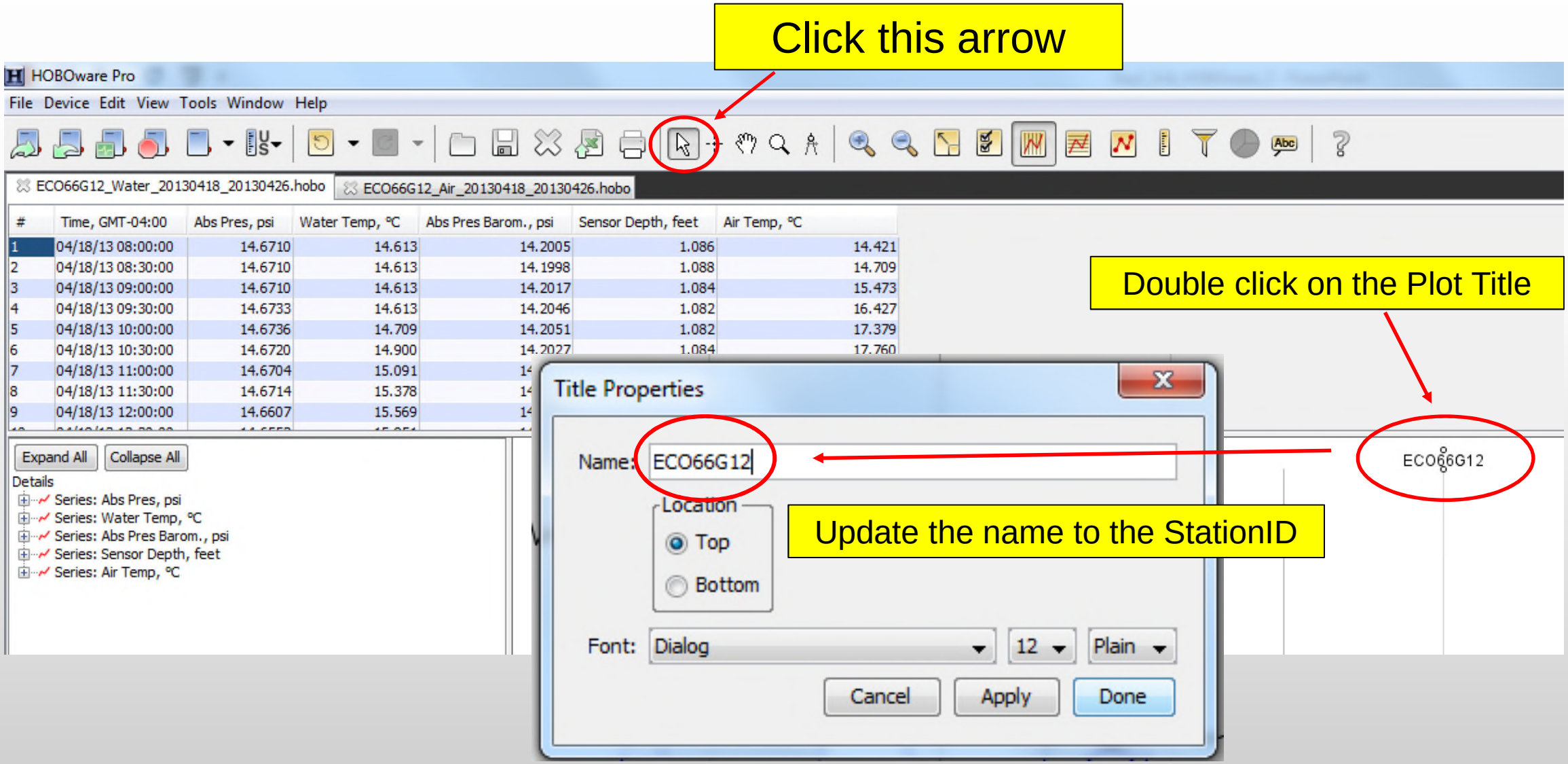
Extra tips

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…



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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.

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Additional materials are available on the RMN Sharepoint site and the Tetra Tech FTP site.