**TPFS Data-Download Protocols**

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REVISION HISTORY:

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**TP39:**

***Closed Path Eddy Covariance System (CPEC)***

1. Open up and turn on the laptop.
2. Open the desktop folder entitled: “Field Data”.
3. Create a new folder that is called “TP39\_CPEC\_YYYYMMDD”, where YYYYMMDD corresponds to the day's date.
4. On the *desktop computer*, navigate to the removable flash drive, which should be the [F:](file:///F:/drive) [drive](file:///F:/drive) ([F:/](file:///F:/)); you may need to remove and replace the flash stick – the computer does not always detect it. If the data backup system has worked properly, there should be a set of folders in the flash drive that mirrors what you would see in [D:/data/](file:///D:/data/) on the desktop computer. If there are not folders on the flash drive, proceed directly to step 6. Otherwise, continue.
5. Navigate to [F:/met-data/data/](file:///F:/met-data/data/). If this folder does not exist, proceed to step 6. Otherwise, check the names (dates) of the folders in this directory. There should be a folder for each day in the past weeks to months (depending on the last time it was downloaded), and it should be recent up to the previous day. If the previous day's folder is not there, proceed to step 6.   
   Open a couple folders to spot-check their contents. Each folder should contain 96 files (although it's common to have 1 to 5 files missing), and ensure that the files aren't 0 bytes in size (they should be around 200 to 600 kbytes). If the data fails either of these checks, proceed to step 6 to manually download files. Otherwise, skip to step 8.
6. To put files on the F:/ drive: Go to the desktop computer. Open up “My Computer”. Click on the D:/ drive. Follow this path: D:/met-data/data/ From this path, highlight all the folders containing the dates that lead up to (and include) the previous collection date. Transfer all these files to the corresponding data file on the F:/ drive. *Note: It is important that you collect all new days of data from the computer, but it is un-necessary to collect all previously collected folders. The transferring process will take time, and the fewer files you need to transfer the faster the process.*
7. Once the files are on the F:/ drive flash-stick, open a few of the folders and make sure 96 items appear in the folders. This insures that that data is present in the folders.
8. Safely remove the flash drive and insert it into the laptop. When the flash drive is recognized, open the file you just obtained from the desktop and move all the contents to the new folder you created in Step 3.
9. Once the transfer is complete, safely remove the flash stick from the laptop and re-insert it into the desktop. Re-start the desktop computer.
10. Include your collection day in the maroon clipboard for future reference.

***Meteorological Data***

1. Open up and turn on the laptop.
2. Go to the file marked “Field Data”.
3. Create a new folder that is called “TP39\_MET\_ddmmyy”.

*Note: Use the day of download for the date.*

1. On the *desktop computer*, go to the F:/drive (you may need to remove and replace the flash stick – the computer does not always detect it).
2. To put files on the F:/ drive: Go to the desktop computer. On the desktop, look for the FOLDER called “PC208”. Double click on this folder to bring up a new window.
3. Inside this folder there are two files: one that says “ATMO” and one that says “SOIL”. Go into each of these folders and transfer the two .dat files to the F:/ Drive.
4. Safely remove the flash drive and insert it into the laptop. When the flash drive is recognized, open the file you just obtained from the desktop and move all the contents to the new folder you created in Step 3.
5. Once the transfer is complete, safely remove the flash stick from the laptop and re-insert it into the desktop. Re-start the desktop computer.
6. Include your collection day in the maroon clipboard for future reference.

*Note: You will always be able to do the file transfers for the Meteorological data and the CPEC data together. We’ve included individual steps for each for reference only.*

***Dataloggers (CR10x):*** At the time of creation of this document, we have three (3) dataloggers running at this site, which include a *Sapflow* Datalogger (CR10x), an *OTT* (water table) Datalogger (CR10x) and a *Trenched* Datalogger (CR10x). All three dataloggers are downloaded using the same protocol provided below.

1. Open up and turn on the laptop.
2. There are THREE (3) required cables to connect the laptop to the CR10x dataloggers. It is often best to be shown what the cables are, however, the three you need are:
3. The converter cable connecting to the laptop (has a USB port on one side and a pronged-end on the other side). Plug this cable into a USB port on the laptop.
4. The RS232 converter that allows the datalogger to communicate to the laptop – plug one end of this into the converter cable.
5. The black cable that has a prong end on one end and female end on the other end of the cable – plug this into the I/O outlet on the datalogger.
6. On the desktop, double click on “PC208w”
7. A long rectangular box will open up – click on the “connect” button
8. A second screen will open up. On the left hand side, a list of all the programs affiliated with various dataloggers will be listed. Click on the appropriate program for the corresponding datalogger and click “connect” at the bottom right hand side of the screen. When properly connected, the two electrical cords in the image at the bottom will come together.

*Corresponding programs:*

Drought = Sapflow Datalogger

OTT = OTT Datalogger

Trenched = Trenched Datalogger

1. When in this screen, always do a quick check to see if any sensors are not working. To do this, click on “numeric” on the lower-left part of the PC208w screen. A second screen should pop up that shows you all the sensors running on that datalogger, and the corresponding data that is being read for each sensor. In some cases, sensors may not be plugged into those ports, and those boxes will likely read -9999 or -6666.

*Note: Different sensors will have different ways of indicating that it is not working, and it is important that you are aware of these differences. Some sensors will simply show unrealistic numbers (such as -52.13 for CS107b probes), while others will report -9999 or -6666; Speak to Altaf or read the sensor manuals to establish an understanding around the signs of a non-working sensor.*

1. When the data looks good, click on the “collect” button at the top centre of the window. This should pop up a second screen that tells you the document it is being downloaded to. Always check that the document looks correct – the file name should correspond with the name of the program. If this checks out, hit okay and let the data download.
2. It is good practice to go through this process twice each time you download from a CR10x. Sometimes the amount of accumulated data (a particular issue with the Sapflow datalogger) will exceed what PC208w is capable of downloading at once. If all the data has downloaded the first time, the program will collect the data very quickly and will read 100% right away. If not, you will notice the data continues downloading, even though the first time it went to 100%.
3. When this is complete, click the “disconnect” button in the window (same place you would have found the “connect” button) to disconnect the communication between the datalogger and the laptop. The data has now been downloaded for the CR10x Dataloggers.
4. Include your collection day in the maroon clipboard for future reference.