FCR Sampling: ‘Cheat Sheet’

Gear needed from Blacksburg:

* Christ book + Sensor cords
* Mark Johnson computer (for EDDY Flux downloads)
* Truck + Suburban keys
* Batteries and battery charger (for weir days ONLY)
* Zoop supplies
* Chla bottle
* Dissolved GHG supplies (crimpers, vials, caps)
* UGGA from Cayelan’s House
* CTD
* Flora
* Toolbox
* First aid kit
* Filter cartridges
* Field notebook

Things to do:

1. Sensor downloads:

* CO2 (Arduino):
  1. Unplug red battery cord then remove SD card
  2. Insert SD card into USB to micro SD reader in cord bag in Christ Book. (Should read as USB E drive on the Christbook)
  3. Open files. Copy and paste LOG folder into Desktop/FCR50\_JohnsonSensor folder and rename to LOG\_YYYYMMDD.
  4. Return SD card to the Arduino.
  5. Plug red battery cord back in. There should be a red light that eventually turns off. If the red light stays on, then something is wrong!
     1. First, try unplugging power and reseating the SD card.
     2. Second, try copying in the config.ini file. Then restarting system.
     3. Third, contact Mark Johnson for further troubleshooting
  6. AFTER FIELD: Upload data to CareyLabVT GitHub (ManualDownloadsSCCData -> FCR\_CO2Sensors):
     1. Upload zipped drive of everything in the main folder
     2. Upload ‘LOGS’ to ‘LOGS’ folder and ‘DATA’ to ‘DATA’ folder
* Eddy Flux (see SOP from CCC on 04 Jun 2020)

1. AFTER FIELD: Upload metadata notes to the Google Drive (i.e., time methane sensor was cleaned; <https://docs.google.com/document/d/1_XBuQJC_eBiBGgDc2OfqU9yCHWYXsdEj_TAsXwNLwsE/edit>)
2. AFTER FIELD: Upload data (all files named as the download date) to the VT-UBC FCR Team Google drive (<https://drive.google.com/drive/u/1/folders/0ACybYKbCwLRPUk9PVA>) in the EddyFlux2020 folder.
3. AFTER FIELD: E-mail Cayelan, Mark Johnson (mark.johnson@ubc.ca), and Brenda D’Acunha (bdacunha@eoas.ubc.ca) the links to the notes and data on the Google Drive Folder.

* Magic Sensor: there are two things that need to be downloaded from the Magic sensor
  + - * Magic sensor right (connected to the pump in the gray box below the plywood box):

1. Turn off Multiplexor (power switch up) (located in the gray box).
2. Remove SD card.
3. Use SD card reader + Christ book to transfer files from the SD card to the Christ book (folder: Desktop/Magic2020). Include: .fp files and the MUX.txt files (the MUX.txt files will be over-written).
4. Return SD card to the magic sensor. Turn multiplexor back on (power down).
5. Note: The pump should turn back on. If it does not, turn the multiplexor off and on one more time.
6. AFTER FIELD: Upload data to CareyLabVT Github (ManualDownloadsSCCData -> MagicData),
   1. Upload MUX.TXT file to the ‘MagicData’ Folder
   2. Upload .fp files to the ‘FP\_2020’ file. This includes all .fp files that are not currently on Github for that month (i.e., YYMMDDXXXX.fp)
      * + Magic sensor left:
7. Plug cord from Christ book to magic sensor (white cord w/ square end). Middle port on scan box.
8. Open Ana::pro (S::can software on Chrisbook, white box with 4 blue boxes) and connect to the correct USB port (may have to do this manually).
   1. Check Device Manager to see if the COM ports match up.
9. Download data
   1. Logger -> Operation -> Transfer -> Save All (this will take ~5-8minutes) -> Cancel Visualization
   2. No need to leave a comment
10. Re-start the program
    1. Logger -> Operation -> Logger -> Yes to starting logger and exiting program -> yes to aligning time
11. AFTER FIELD: Upload data to CareyLabVT Github (ManualDownloadsSCCData -> MagicData -> FP\_2020)
    1. You can find the data from the Anapro software under: C Drive -> s-canV5.0 -> Results -> ORIGINAL -> Logger -> YYMMDD
    2. Upload the FP file to GitHub.
12. CTD Cast + 5 minute wait at 9 m
13. YSI – at every sampling depth + additional resolution at oxycline
14. Secchi
15. Depths: Must label all bottles before sampling!

+ Phytos from Cmax

0.1 m: Total nuts, Soluble nuts, Total metals, Soluble metals, GHGs

1.6 m: Total nuts, Soluble nuts, Total metals, Soluble metals, GHGs, Chla, Phytos

3.6 m: Total nuts, Soluble nuts, Total metals, Soluble metals, GHGs

5 m: Total nuts, soluble nuts, total metals, soluble metals, GHGs

6.2 m: Total nuts, Soluble nuts, Total metals, Soluble metals, GHGs

8 m: Total nuts, Soluble nuts, Total metals, Soluble metals, GHGs

9 m: Total nuts, soluble nuts, total metals, soluble metals, GHGs

1. Flora cast
2. Zoops from epi (above 2 mg/L) and full water column (9 m)
3. Temp String/DO/EXO/CO2 cleaning
   1. Pull up entire temp string
   2. Clean off DO sensors and spray with DI
   3. EXO sonde: Take of black covering and clean inside and outside with paper towels. Clean off outside of sensors with kim wipes. If needed, clean wiper brush and sensor lenses with kimwipes.
   4. CO2 sensors:
      1. Since the 1.6m sensor is the only one operating, just clean that one. It is the sensor attached to the EXO sonde with the copper mesh ziptied.
      2. To clean: First, try to squirt with DI water. If this doesn’t properly clean under the wire mesh, then remove the copper mesh and clean under it with kim wipes. Then replace copper mesh.
4. Magic sensor cleaning:
   1. Pull up chain with 1.6m scan. Using ethanol and kim wipe (or lens wipe), clean off sensor windows (circles that emit light). Then rinse with DI.
5. UGGA at Station 50 (on non-weir days ONLY!)
6. Collect Sed Traps (every two weeks!) – drop off samples to Geo 5th floor at end of day
7. Weir batteries + Weir grab sample (every two weeks!)
   1. Download ISCO data and collect ISCO sample (Totals metals and totals nutrients)
   2. Collect weir grab sample (Total + Solubles nutrients and metals, GHGs)
   3. Replace batteries connected to the weir Campbell data logger (two batteries) or ISCO (one battery) if needed
8. Wetlands grab sample + Discharge measurement (every two weeks!)
   1. Collect a wetlands grab sample (Totals + solubles metals and nutrients; GHGs) and use Flowmate to measure discharge

Sample drop-off after sampling:

* Chla bottle to Whitney
* UGGA to Cayelan