**Methane Project todos/log**

* Set up dummy files for code to work on
* Make function to create pressure data from NOAA
* IMPORTANT- the volume calculations should pull from a spreadsheet with the container size information
* Double check the program with the results from the notebook
* ASK NICK- use pressure data from LGR???? Is this accurate?
* Make excel file with container types to automatically calculate container volume
* Made it so that the program finds the pressure for the specific day- make it so that it instead searches for the specific day AND time
* Change so that it checks pressure by the hour- it currently pulls pressure with the 00:00 time on the given date
* Change file output format to:
  + Yyyy\_mm\_dd\_**hh**h-**mm**m-**ss**s\_location\_collection-device\_gas
  + Make so that dashes are automatically added in the locations and measurement devices (str.replace())
* Data to add to output file:
  + Temperature
    - In the excel file, there is a water temp variable- is this what we want??
* Make readme so that Nick can go through and run the program- the testing phase!!!!
  + What data points does nick want to see????

**Log**

* **24.08.20**
  + Made new excel file (simon\_masters) to follow for inputting data
  + Made new e0xcel file for r values with which to test
  + Make separate function for calculating chamber volume. Contatiner types:
    - Chamber
    - Chamber with collar
    - Bucket
  + Sample ID is created instead of T1…T2, simply add the start and stop times
  + Automatically clean files, delete everything after “BEGIN PGP MESSAGE”
* **02.09.20**
  + Confirmed that the files cleaned are correct
  + Moved “program run?” column to be first
  + Successfully scans “program run?” for “y”
  + Changed date format to yyyy-mm-dd
  + Naming convention for output files:
    - yyyy-mm-dd\_hh:mm:ss\_location\_collection-instrument
    - the hh:mm:ss is the START TIME
* **04.09.20**
  + Added “measurement devices” list
    - Devices: bucket, chamber,
  + Variables that need to be present and correct, otherwise the program will quit:
    - Date, start time, stop time
  + Made it so that it deletes the 00:00:00 present in the date frame
    - Achieved by pulling the date from the timestamp
  + Start and stop time have to be in the format hh:mm:ss, or program quits
* **08.09.20**
  + Made slope analysis function
  + Properly plots data
  + TODO- check to make sure jupyter notebook program produces identical plots
  + Works for chamber, ran into problems reassigning variables with the bucket- will have to talk to nick about this
* **09.09.20**
  + Confirmed that the jupyter notebook program found the same time series as my own
  + Volume also checks out with that of the jupyter notebook program
  + Started so that different r^2 values are fed in
* **13.09.20**
  + Fixed so that the pressure measurement is pulled from the table at a time of 00:00 on the given date- this uses the date I was told to use by Nick (
  + Changed sampleID file format from hh:mm:ss to hh**꞉**mm**꞉**ss. Yes, they are different! Apparently, this Unicode character is allowed in windows filenames, but the semicolon is not. Pretty funny **꞉)**
  + The output file now has headers and writes to the
* **19.09.20**
  + Changes date format to yyyy\_mm\_dd **in output file**. The input for the excel spreadsheet is still in yyyy-mm-dd
  + Changed so that the time output file format is hh**h**mm**m**ss**s,** meaning a colon doesn’t have to be in the output file name and we don’t have to use the Unicode character **꞉. It was fun while it lasted**
  + Added pressure, r\_squared, flux, and flux error to master data sheet
  + Successfully skips times that aren’t in the data
  + Change sample ID to include the gas that was measured add the end- \_gas
  + Writes to new master file with \_new at the end of it
  + Made a readme, started adding instructions.
* **20.9.20**
  + Worked on updating readme to have operating instructions
* **21.9.20**
  + Meeting with Nick
  + For Pressure
    - EC tower data (excel file)
    - Pressure measurement from lgr is in chamber- can’t use for data analysis
    - Have it pull from temperature and pressure data csv file- from same date
  + Add R^2 excel file to read from
  + Fix sample id and data overwriting for only one gas
  + Make it so that each row is an independent gas, not multiple gases in a single row
  + Add sample ID number between date and time
  + Make min sample time, length function to master excel table
  + Measurement type variables
    - Saturated sediments
    - Snow
    - Make it so that the chambers are “bucket\_snow”, “bucket\_sediment”
* **26.09.20**
  + Reads gas from the gas column
* **27.09.20**
  + **Important:** r\_top is used for chamber calculations, even though there is no chamber!!!! Check with Nick about this
  + Started trying to get it so that the r value is printed out, even for rejected data
* **28.09.20**
  + Records the r\_2 value, even for rejected data.
  + Reads r\_2 values from excel files
  + **IDEA**: takes max R\_2 value, runs with next R\_2 values that it will take instead of continuously filtering down
  + TODO- add section for reasons why program stops, writes “y” vs “n”
    - Done 😊
* **07.10.20**
  + Meeting with Nick
  + Add gas to measurement readme
  + Add min, max section length to excel and make them functions in the program
  + Write date to date object, not string
  + Change methodology for pulling the weather data
  + Add so that chamber, bucket height are arguments in excel
  + Jpl lines 76-97, chamber error calculations for snow
* **29.10.20**
  + **Meeting with Clayton and Nick**
  + Temp, pressure to be pulled from separate excel file
  + From big trail lake:
    - Temp, pressure in csv file format
    - Towers managed by Collin Edgar
    - There can be major delays
  + **Determine effect of using temp, pressure from device**
    - Columns in LGR data:
      * 
      * 
      * SD- standard deviation- for when LGR uses data averaging, not useful for us.
    - Using kestrel to record temp and pressure
    - For Nick- determine difference between Kestrel and tower data
  + Record whether the smoothing window was used
  + Minimum detection limit
  + **Add chamber snow density calculation**
  + Fix ValueError: **max() arg is an empty sequence**
* **7.11.20**
  + Attempt to fix ValueError() occurring