**CSCI 427 Progress Report #: \_\_1\_\_**

**Group Name: \_\_\_\_The SKYentists\_\_\_\_\_\_**

**Dates that this progress report covers:**

January 13 – 31, 2020

**What did the team accomplish during this time period? (be specific)**

We created and initialized our phase-based implementation plan and completed the following tasks specified in the plan (Phase 1):

* Create a test config file (using data provided by client)
* Create Config File Parser
* Create Config File Generator
* Make Class Skeletons for GPP and RECO
* Calculate dominant PFT for each tower site
* Functionality to choose 1 PFT at a time
* User chooses which outliers to optimizing GPP and RECO
* Calculate area percentage for each PFT for each site and compile ancillary info
* Subset time series variable to user configurable period
* Compile historical data for each PFT(table) and report average data for PFT each day of the year
* Subset meteorological and reference input to dominant PFT
* Compile all data for updated BPLUT

We also had to design some data sets because hdf5 files proved to be difficult to read, write, and access.

**What did the team plan to accomplish but fail to, and why?**

One of the failures we had for phase 1 were calculating flux tower weights. This task proved to be more complicated than we anticipated since it involves three different transformations of the latitude and longitude data in order to set up the data for calculated weights.

**What particular challenges did the team face?**

The challenges we had for phase 1 involved the calculation of flux tower weights and working with hdf5 files.

**What accomplishments is the team most proud of?**

Making decent progress on our implementation plan (majority of phase 1 done).

**What will the team accomplish during the next reporting period?**

For phase 2, we plan on implementing the following tasks from our implementation plan:

* Guide user through removing outliers in referenced GPP and RECO
* Specify numerical spin-up iterations
* Run analytical and numerical model spin-ups
* Prepare vectors of initial optimized params to iteratively change
* Calculate GPP and RECO linear ramp functions
* Calculate Cbar after optimization and plot Rh/Cbar vs TSOIL and SMSF
* Display ramp functions and give option to save plots as file
* User edits Pk and Prh for RECO
* Remove negative values in annual GPP/RECO for each tower site

We also plan on finishing the flux tower weight calculations from phase 1. There is also going to be a lot of set up for design purposes so that our code modules interact with each other in more of a clean manner.

**Any other concerns the team would like to mention?**

No concerns as of 2/4/20.