# CSCI 427 Capstone II

# Spring 2020

# Phased Implementation Plan

# The Skyentists

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Requirement reference code or number | Description | Person(s) responsible | Estimated  hours | Notes | Completed | Actual Time |
| **Phase 1 (due 1/31/20)** | **Yellow Highlight** |  |  |  |  |  |
| *FR-HP02* | *Create a Test Config File (using data provided by client)* | *Mark* | *15* | *Over-estimated time due to having to create the config file and understand where all data is coming from and in what format* | Yes | *5* |
| *FR-HP03* | *Create Config File Parser* | *Jake* | *10* |  | *Yes* | *5* |
| *FR-HP10* | *Create Config File Generator* | *Jake* | *10* |  | *Yes* | *6* |
|  | *Make Class Skeletons for GPP and RECO* | *Lucas* | *14* | *Not in Requirements Doc* | *Yes* | *3* |
| *FR-HP01* | *Calculate dominant PFT for each tower site* | *Max* | *7* |  | *Yes* | *5* |
| *FR-HP04* | *Functionality to choose 1 PFT at a time* | *Max* | *3* |  | *Yes* | *1.5* |
| *FR-HP06* | *User chooses which outliers to optimizing GPP and RECO* | *Lucas* | *6* |  | *Yes* | *5* |
|  |  |  |  |  |  |  |
| *FR-MP01/*  *FR-MP05* | *Calculate area percentage for each PFT for each site and compile ancillary info* | *Jake* | *5* |  | *Yes* | *5* |
| *FR-MP03* | *Subset time series variable to user configurable period* | *Lucas* | *5* |  | *Yes* | *4* |
| *FR-MP02/*  *FR-MP07* | *Compile historical data for each PFT (table) and report average data for PFT each day of year* | *Max* | *3* |  | *Yes* | *2* |
| *FR-MP04* | *Subset meterological and reference input to dominant PFT* | *Max* | *2* |  | *Yes* | *1.5* |
| *FR-MP06* | *Compile all data for updated BPLUT* | *Mark* | *3* |  | *Yes* | *4* |
| *FR-HP11* | *Calculate flux tower weights (some towers in same 9km)* | *Mark* | *5* | *Work with Max*  *Meeting with Arthur to discuss the package used to help determine the weights from coordinate, as it is quite complex and hard to find good examples* | *NO* | *8* |
| Total Hours for Phase 1: | 55 hours |  |  |  |  |  |
| **Phase 2 (due 2/21/20)** | **Green Highlight** |  |  |  | **Completed** | **Actual Time** |
| *FR-HP11* | *Calculate flux tower weights (some towers in same 9km)* | *Mark* | *2-3* | *From Phase 1* | *Yes* | *5* |
| *FR-HP05* | *Guide user through removing outliers in referenced GPP and RECO* | *Mark* | *10* |  | *Yes* | *5* |
| *FR-HP08* | *Specify numerical spin-up iterations* | *Lucas* | *3* | *Included work on CLI* | *Yes* | *5* |
| *FR-MP15* | *Run analytical and numerical model spin-ups* | *Max* | *12* |  | *Yes* | *6* |
| *FR-MP18* | *Prepare vectors of initial optimized params to iteratively change* | *Jake* | *6* |  | *Yes* | *3* |
| *FR-HP07* | *Calculate GPP and RECO linear ramp functions* | *Mark* | *9* |  | *Yes* | *12* |
| *FR-MP12/*  *FR-MP13* | *Calculate Cbar after optimization and plot Rh/Cbar vs TSOIL and SMSF* | *Jake* | *14* |  | *Yes* | *10* |
| *FR-MP08* | *Display ramp functions and give option to save plots as file* | *Jake* | *13* |  | *Yes* | *7* |
| *FR-MP11* | *User edits Pk and Prh for RECO* | *Lucas* | *5* |  | *Yes* | *5* |
| *FR-LP01* | *Remove negative values in annual GPP/RECO for each tower site* | *Max* | *4* | *Included time worked on reviewing code* | *Yes* | *7* |
| Total Hours for Phase 2: | *65 hours* |  |  |  |  |  |
| **Phase 3 (due 3/13/20)** | **Blue Highlight** |  |  |  |  |  |
| *FR-HP09* | *Compute comprehensive validation and fit statistics* | *Max* | *9* | *Too many incomplete prerequisite steps to complete task* | *No (see other tasks in N/A section)* | *0* |
| *FR-MP10* | *Report differences between new and old parameters after optimization* | *Jake* | *7* |  | *Yes* | *5* |
| *FR-MP09/ FR-LP03* | *Allow plot of GPP against Emult and Rh/Cbar against Kmult* | *Mark* | *5* | *Including FR-LP03 in this calculation as they are the similar functions* | *Yes* | *5* |
| *FR-MP14* | *Calculate σ and Bsoc for each tower site to plot σ \* Bsoc against ground truth SOC sizes* | *Mark* | *8* |  | *Yes* | *8* |
| *FR-MP19* | *Calculate GPP\*, Kmult\*, NPP\* based off calculations* | *Jake* | *6* |  | *Yes* | *8* |
| *FR-MP17* | *Run L4C soil model forward runs* | *Lucas* | *13* |  | *Yes* | *13* |
| *FR-LP02* | *Calculate lower and upper limits for APAR* | *Max* | *4* |  | *Yes* | *2* |
| *N/A* | *Calculated Climatological year for meteor input and flux tower data* | *Max* | *10* |  | *Yes* | *8* |
| *N/A* | *Simulated and Optimized GPP parameters* | *Max* | *8* |  | *Yes* | *7* |
| *N/A* | *GUI Design* | *TEAM* |  |  |  | *Mark:2*  *Jake: 2*  *Max:*  *Lucas:* |
| *N/A* | *Finalizing Back-End* | *TEAM* |  | *This is mostly for debugging or stitching together of the code* |  | *Mark:3*  *Jake: 4*  *Max:*  *Lucas:5* |
| *Total Hours for Phase 3:* | *XX Hours* |  |  |  |  |  |
| **Phase 4 (due 4/17/20)** | **Pink Highlight** |  |  |  |  |  |
| *FR-MP20* | *Calculate RMSE for each subset of towers* | *Jake* | *5* | Added RMSE function, did not run it on tower data. Too many things needed fixed in other areas. | No | 2 |
| *FR-MP21* | *Calculate NEE and reports stats* | *Max* | *5* | Too much unit testing/back end work | No | 2 |
| *FR-MP16* | *Run spin-up from 2000-2019* | *Lucas* | *5* | *MOVED TO PHASE 4, belongs in testing (need everything else working)* |  |  |
| *NA* | *UMCUR Poster* | *Mark* | *5* | REMOVED: virus situation shifted focus from UMCUR |  |  |
| *N/A* | *GUI Design* | *TEAM* |  |  |  | *Mark:9*  *Jake: 10.5*  *Max:*  *Lucas: 14* |
| *N/A* | *Finalizing Back-End* | *TEAM* |  | *Same as Phase 3* |  | *Mark:17*  *Jake: 8*  *Max: 8*  *Lucas:* |
| *N/A* | *Testing* | *TEAM* |  | *This includes testing sessions for usability and regular unit testing* |  | *Mark:10*  *Jake: 16.5*  *Max: 8*  *Lucas: 1* |
| *Total Hours for Phase 4:* | *XX Hours* |  |  |  |  |  |

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| Team Member | Phase 1 | Phase 2 | Phase 3 | Phase 4 | Phase Totals |
| Mark | 17 | 22 | 18 | 38 | 95 |
| Jake | 16 | 20 | 19 | 37 | 92 |
| Max | 10 | 13 | 17 | 18 | 58 |
| Lucas  Total | 12  55 | 10  65 | 18  72 | 15  108 | 55  300 |