The Skyentists: Testing Task List

You are an earth systems data model engineer at the Numerical Terradynamic Simulation Group (NTSG) at the University of Montana. The goal is to optimize parameters for both GPP and RECO for the plant functional types to eventually be used by the model.

1. Begin the calibration process by selecting a valid configuration file of type “.cfg”
2. Select a PFT that is not the default
3. The wrong configuration file may have been selected, so return to the opening screen
4. Change the Window Type to “blackman” and smooth the data
5. Now on the same page, set the Window Size to 0.4 to smooth the data
6. Smooth RECO outliers by changing Window Type to “bartlett” and Window Size to 12.7

The Gross Primary Production (GPP) is the amount of carbon stored in a certain area in a certain time for a specific plant type. The GPP optimization process displays graphs of GPP against its eight specific ramp functions and allows the user to iteratively optimize each one.

1. Begin GPP optimization process by viewing all the GPP ramp functions (3)
2. Display the optional graph of GPP vs. Emult and exit this page
3. Choose what GPP parameters to edit and display additional information on the GPP parameters
4. Re-display the GPP ramp functions and then return to choose what parameters to optimize

The Ecosystem Respiration (RECO) is the total amount of carbon dioxide that is being emitted by a specific plant type and soil microbes. The RECO optimization process displays graphs of RECO against its four specific ramp functions and allows the user to iteratively optimize each one, similar to the GPP optimization process.

1. Begin the RECO optimization process by entering or sliding values of 0.75 for Prh and 0.5 for Pk
2. View all the RECO ramp functions (2)

Soil Organic Carbon (SOC) is also an important calculation process as the model depends on the amount of carbon assimilated by the plants and emitted by SOC decay.

1. Display the graph of Estimated SOC vs. Calculated SOC
2. Specify the number of Numerical Spin-Up iterations
3. Select another PFT to go through the process again
4. GPP and RECO optimization has been completed, exit the program