

Biomass Accumulation Model Screencast Script

Hi! My name is Haley and I work at the Earth Systems Research Center at the University of New Hampshire. Today I am going to show you how to use the Biomass Accumulation model. Let's get started!

The first thing we will do is open the ISEE Player from the applications window. Once it is open, we will open the model by going to file – open, and navigating to wherever the model is located on your computer. In my case, it is in my Biomass Accumulations Model folder.

Once the model is open, you will notice that we are on the main page -the interface page, and can use the clickable buttons to navigate around the model. If you are ever on a page, and want to come back to the home page, you can click on the home icon in the top right-hand corner of the screen.

On the left of the screen there are four different tabs. We are on the interface page right now. The next tab down is the Map page, which shows you the complete map of the model we are using. Below that is the Model page, which looks very similar, but when you scroll over the icons you can see the individual values for each variable. The last tab is the equations page, which shows all of the equations and relationships used to run the model.

Now we are going to return to the homepage and click about this model in order to learn more about this model and the science behind it. You can read through the model story by clicking any button on your keyboard to move forward. If at anytime you need to move backwards, you can click the backspace or delete key. In this story you will see vocabulary and questions that will correspond with the worksheet you will complete in class.

Now we are going to return to the homepage again. Once you've had an opportunity to learn about the model, you will be ready to move onto changing the variables and running the model. To do that, click on model variables.

You will notice that there are three variables in this model that you can change: mean annual temperature, mean annual precipitation, and turnover rate. If you already know your local temperature and precipitation values you can enter those values in the boxes. If you don't have those values, you can click on Climate data, which will take you out to our website where you can access climate data for your location. To do this you need to know the latitude and longitude of the location you want to study. If you don't know these, you can use Google Maps or the Carbon Cycle Mapping tool to find them. Once you have your latitude and longitude, you can click here, under Step 2, to retrieve your climate data. Enter your latitude and longitude in the boxes, remembering to use a negative if you have a west longitude or south latitude, select 'MeanAnnualTemperature,' and click Submit. Once the page has loaded, click on 'Table of 30 Year averages' for your current temperature, precipitation, and biome information. You may already know your biome by another name, but you are going to want to use this name in the model to help you determine your turnover rate. You can record these values on your worksheet, and return to the biomass accumulation model to enter them in the input table.

We will enter the temperature and precipitation values in the first two boxes. To find the turnover rate, click on turnover rate button. This brings us to a map of the world's biomes. We can use our biome name to find the turnover rate, which is the number in the parentheses right next to the name. Here at the University of New Hampshire, I am in the temperate broadleaf and mixed forest biome, so my turnover rate is 0.05. We will then go back to the model variables to input the turnover rate and we are ready to run the model! To do this, click the run model button.

Your worksheet will ask you to hypothesize how you think biomass is going to change over time, and you can do this by double clicking the sketch biomass icon and using your mouse to sketch the pattern you expect to see.

When you are ready, click 'Run.' Now we can see our model run appear on the graphs. The top graph shows the Net Primary Production, or NPP, values used to determine biomass and the bottom graph shows the biomass accumulation over time. Each graph has several pages, which you can look at by clicking in the lower left hand corner. If you need help reading the graphs, which can be confusing in the iSee player, click 'how to read graphs.' By clicking and holding down on a point on the graph, you can see the data values for that point in time appear underneath the variable name. You can also click view data table to see the tabular data from your model run.

If you run the model again with different input values, you will see a second line, in a different color, appear on the biomass graph, which allows you to compare two different run scenarios. If you don't want to see multiple model runs at once, you can click on the reset button – but remember! This will reset the input variables to the default values, so you will have to re-enter your values in the input table.

Now you know everything you need to get started! Your worksheets will provide additional information and directions to help you use the model. Good luck and have fun!