

Biomass Accumulation Model with Climate Data Screencast Script

Hi! My name is Haley and I work at the Earth Systems Research Center at the University of New Hampshire and today I am going to show you how to use future climate predictions in the Biomass Accumulation Model.

The first thing we will do is chose a location to study. There are many resources on the Student Climate Data website. Click on 'Data Tools' and use the climate maps, animations, single site climate data or biome tools to choose your location. I've chosen the boreal forests of Canada, because the temperature animation shows a large predicted temperature increase in this biome. Once you know your location, make sure you know the specific latitude and longitude, which you can find on Google Earth, Google Maps, or the Carbon Mapper.

Now we will open the Biomass Accumulation Model in the iSee player. Since you already know how to use the model, we are going to jump right into our own model runs, by clicking 'Model Variables'. Just like before, we are going to click Climate Data to find our current and future climate conditions.

Once the page is up, click here, under Step 2. 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' to get your temperature, precipitation and biome information. Once the page has loaded, click on 'Table of 30 Year averages.' I'm interested in the highest CO2 emission scenario, so I am going to record the data from the current and Future-A2 columns.

Now we'll go back to the model, and start by entering the current data into the table. Remember, you can click on the turnover rate button and use your biome to find your turnover rate.

Let's run the model under current conditions by clicking Run Model. You can see that the model run time is set to 400 years, but our future predictions are for the year 2100, or only 100 years out. So before we run the model, we need to change the model run time to 100 years. To do this, click on 'Change Model Run Time' and change the number in the 'To' box to 100. Click okay, and click okay again. Now we are ready to click 'Run.'

After we have recorded the results in the current run, we will simulate climate change in the next model run. To do this, return to the Model Variables page and click 'Advanced Activities.' On this page, you will see input dials for both temperature and precipitation. With these you can define how much the temperature and precipitation will change over the model run.

From the single-site climate webpage, we know our current temperature and precipitation and we know the predicted future temperature and precipitation, but to use these dials, we need to know the difference between them. Use a calculator or paper and pencil to subtract current temperature from future temperature to get the temperature change. This is the number we will input into the dial. We'll then do the same thing for precipitation.

Now we are ready to run the model again by returning to the Model Run Page, and clicking 'Run.' The new model run will appear in a different color on the same graph. We can now record our results using the graph or the data table. Just remember, if you are planning to run the model again under current conditions, make sure the temperature and precipitation dials are set back to zero!