

Activity 4 – My Green Up Data

1) Upload your green up data to globe.gov website

To share the data with other schools and to see a graph of your leaf growing in time, upload the data to the GLOBE website. It is not complicated, just give it a try.

- Follow the guide we prepared for you.
- You need the data that you collected at Activities 1, 2 and 3.

Date (day and month)	Leaf 1 (Dormant, Swelling, Budburst, Length (mm), Lost)	Leaf 2 (Dormant, Swelling, Budburst, Length (mm), Lost)	Leaf 3 (Dormant, Swelling, Budburst, Length (mm), Lost)	Leaf 4 (Dormant, Swelling, Budburst, Length (mm), Lost)
3 March	dormant	dormant	dormant	dormant
6 March	dormant	dormant	dormant	dormant
11 March	swelling	swelling	swelling	dormant
14 March	budburst	budburst	swelling	swelling
18 March	2	4	budburst	budburst
22 March	6	10	5	6

2) See the graph of your tree budburst at the GLOBE [Visualization tool](#)

Once you upload data correctly, you can do amazing things:

- See the data on world map
- Draw a graph with your data that you can download (pdf), share or print out
- Compare data from different locations – in graph and spreadsheet

It is easy. If you are not familiar with the Visualization tool, please see the video guide:

<https://www.globe.gov/get-trained/using-the-globe-website/retrieve-and-visualize-your-data>



3) Compare your data to the data of another school and to your data from previous years at the GLOBE [Visualization tool](#)

- Filter out the Green Up data from schools in your country or any other location
- Compare the same species and see if the budburst date was the same or different
- Ask students to come with a hypothesis why the budburst date differs. Let them find out more about the specific conditions of the site where the tree grows (latitude, longitude, elevation, air temperature, precipitation)
- If you have data from your previous observations compare them with this year's data. If the budburst dates differ, try to compare weather conditions of the two spring seasons.

4) Share your graph on the [Discussion forum](#). Comment on how your data differs from that of other schools or from your data from previous years.

We are here to help you: If you have any technical issue when uploading the data and working with Visualization tool, please contact us at ee.region.globe@gmail.com. Most of the problems can be solved by one or two more clicks! We will tell you how to do it 😊

The activity should be completed by 5th June.



Upload data for at least one tree into GLOBE database and gain Data entry badge!



To allow students to enter data from their observations, create student accounts for them.

Carbon Activity 4 – The Case of Missing Carbon

In this activity, your students will:

- Learn how trees influence carbon cycle at the global level.
- See how the CO₂ concentration and vegetation cycles are monitored by satellites.

This activity is recommended for students over 12 years.

Basic information

Forests are a living pump. They exchange carbon between air, plants, animals and soil, and keep its amount in balance.

While it is impossible to measure influence of your tree on carbon in the air around, it is clear that trees of the northern hemisphere influence carbon cycle of the whole planet. This is visible in the graphs that display CO₂ concentration (Y axis) in Earth's middle troposphere over the seasonal cycle of vegetation (years on X axis).

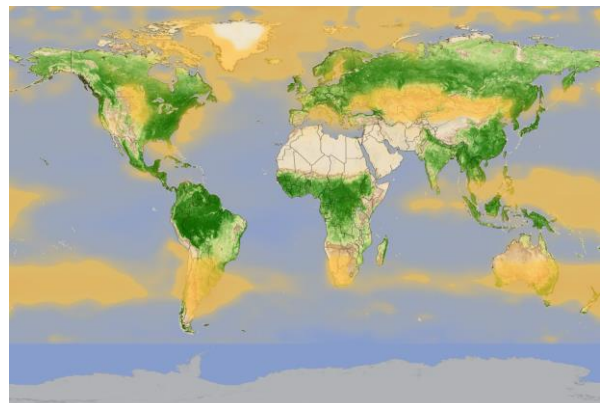
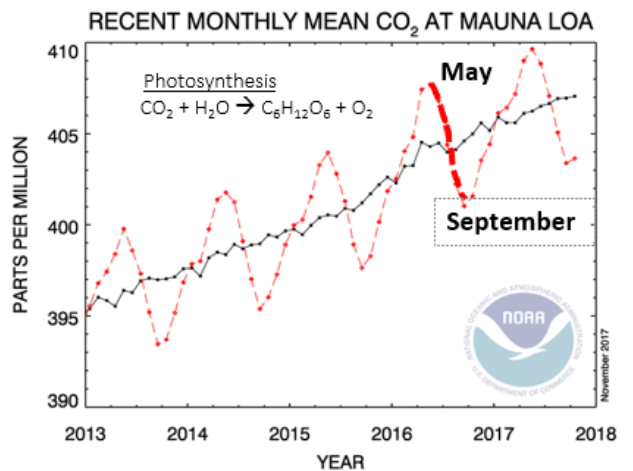
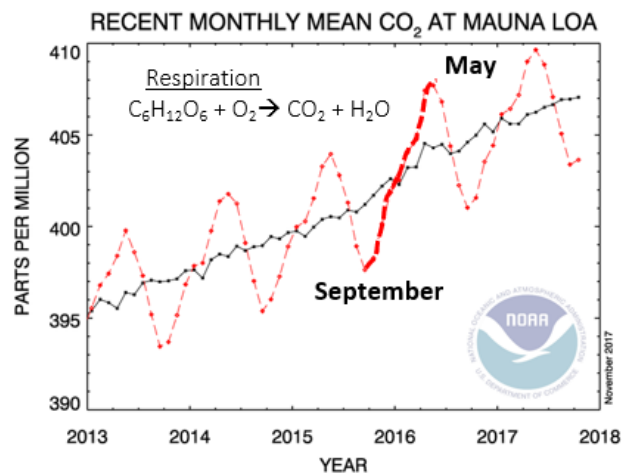
The “rising arm” of the zig-zag shows the periods when respiration exceeds photosynthesis (autumn-winter). In other words, the biosphere releases more CO₂ to the atmosphere than absorbs.

The “falling arm” of the zig-zag shows the periods when photosynthesis exceeds respiration (spring-summer). In other words, the biosphere takes up more CO₂ than releases.

This pattern corresponds with the “green wave” in vegetation of the northern hemisphere, when plants and trees wake up and start to grow fast after the winter sleep.

The Case of Missing Carbon Activity

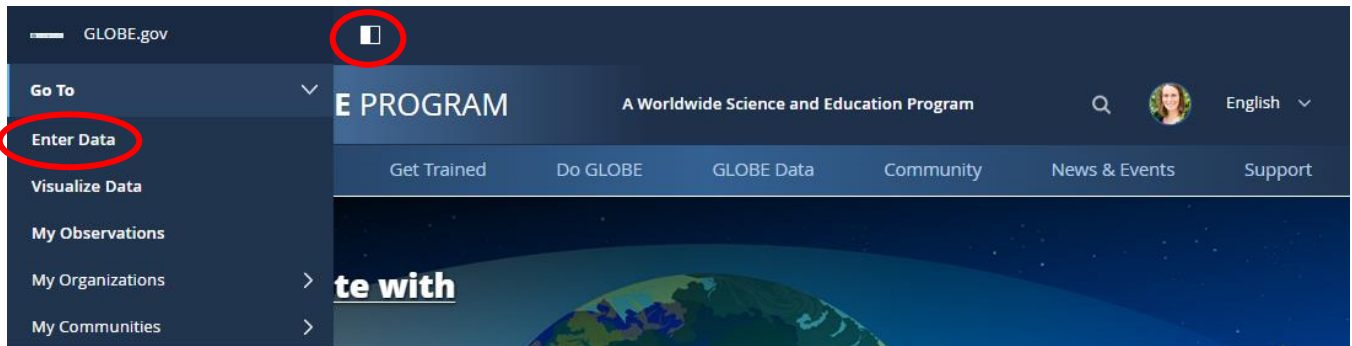
- Play your students an animation [“Watching the Earth Breathe”](#).
- Explain that the video shows changes in CO₂ concentration (yellow-orange layer) and vegetation cycles captured by satellites.
- Pause video at 0:02 (end of March), 0:07 (end of August) and 0:10 (end of November) and let students guess what month it is.
- You can also watch an animation [“How Much Carbon do Plants Take from the Atmosphere?”](#) to see, how much carbon is removed from atmosphere by plants at different times and places.



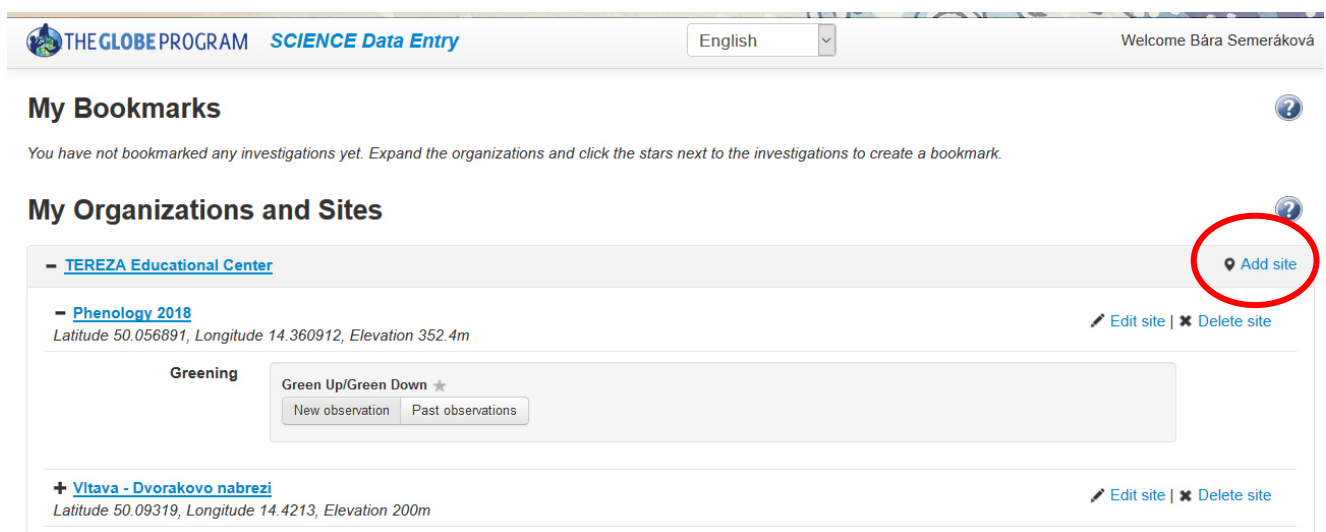
Guide – How to upload data on globe.gov

Login to globe.gov with your account

Click on the little arrow next to **Go to** and then select **Enter Data**.



This will take you to the list of your data sites (if you do not see any sites, click on the **+** next to the name of your school organization, the sites will unfold down). As you can see, at my organization, I have already a site called “Phenology 2018”. This is a site where I have 2 trees.



NOW:

- A) If you never uploaded data for your tree in past, you first need to **create a new site**. Continue to next page.
- B) If you uploaded data for the same tree in past, you most likely know what to do: you select the site from your list and start **entering data**.

1. How to create a new site

In your Data Entry menu, click on **Add site** on the right from your school name. You will define your site now:

Site Definition

Add site type

Atmosphere

Atmosphere

Surface Temperature

Hydrosphere

Hydrology

Biosphere

Land Cover

Greening

Phenological Gardens

Lilacs

Pedosphere

Frost Tube

Soil Characterization

Soil Moisture and Temperature

Photos →

Site Name * * indicates a field is required

Coordinates

Latitude * ° North South

Longitude * ° East West

Elevation * m

Source of Coordinates Data *

GPS Other

Fill in the **Site Name** and the **Coordinates**. The easy way is to use the map: zoom in and scroll until you find the site where your tree grows. Then move the red dot to that place, you already see that the coordinates got filled automatically. Elevation will be filled automatically as well if you click on Set elevation.

Then you have to choose from the menu on the left **Biosphere – Greening**, which means that this site can be used for recording data on Green Up and Green Down protocol. This will pop up:

Data Entry Home / TEREZA Educational Center / ✖ Remove

Add site type

Atmosphere

Atmosphere

Surface Temperature

Hydrosphere

Hydrology

Biosphere

Land Cover

Greening

Phenological Gardens

Lilacs

Pedosphere

Frost Tube

Soil Characterization

Soil Moisture and Temperature

Photos →

- Greening ✖ Remove

Comment

There are multiple dominant species

Plants

This plant is in the understory ✖ Remove

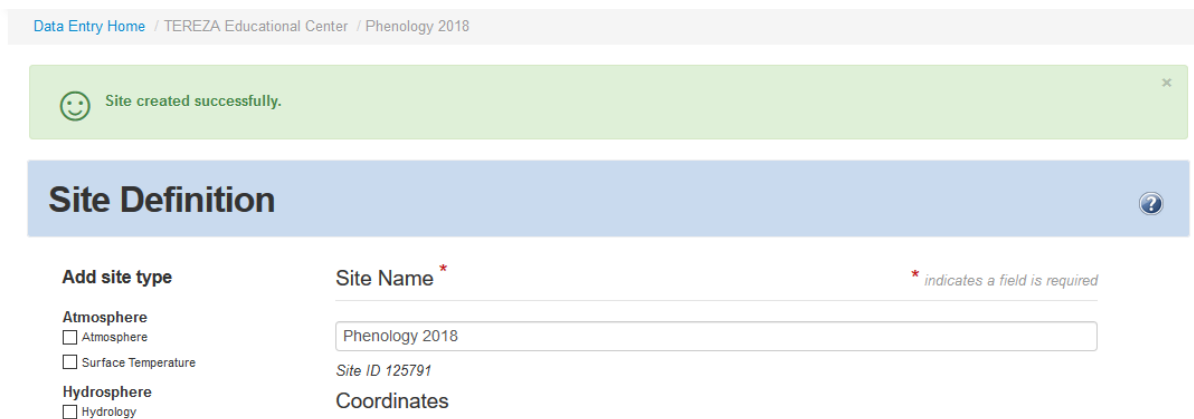
Vegetation Type * **Genus** * **Species** *

Label *

Fill in the **Vegetation Type** (tree), **Genus** (write in latin), **Species** (choose name in latin). Then **label** your tree according to how you call your tree. If you observe more than one tree at the same site, then click on green button **Add Plant** and do the same for your second tree.

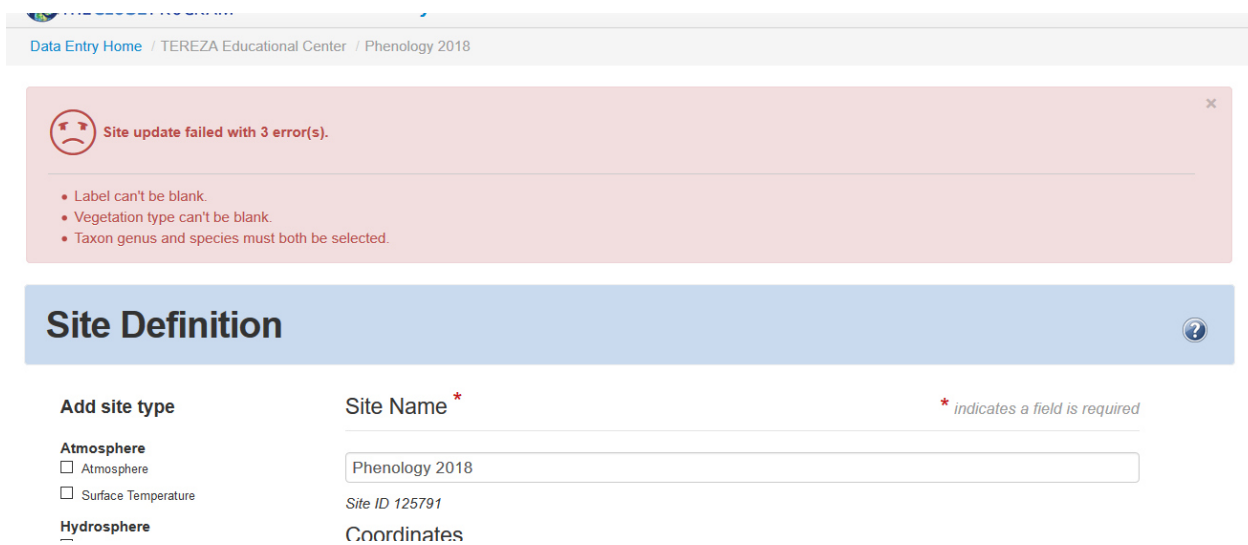
After you finish this, click on blue button **Create Site**.

You will see green smiley if you are successful:



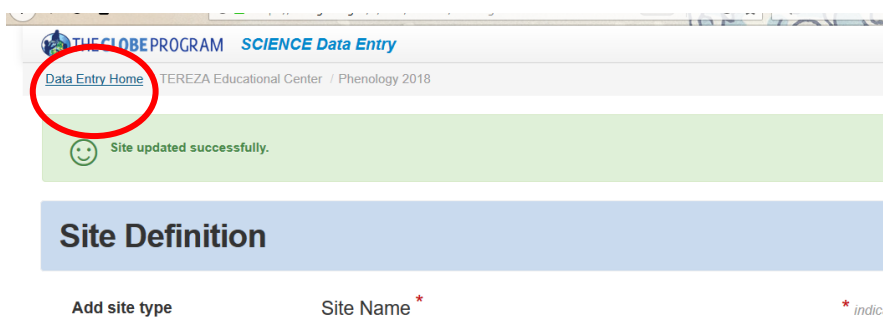
The screenshot shows a web browser window with the breadcrumb "Data Entry Home / TEREZA Educational Center / Phenology 2018". A green notification bar at the top contains a smiley face icon and the text "Site created successfully.". Below this is a blue header for "Site Definition" with a help icon. The form includes "Add site type" with checkboxes for "Atmosphere", "Surface Temperature", "Hydrosphere", and "Hydrology". The "Site Name" field is filled with "Phenology 2018" and has an asterisk indicating it is required. Other fields for "Site ID" and "Coordinates" are visible but empty.

If something went wrong, you get this one. You have to add missing information (scroll down to find the place) and again confirm it.



The screenshot shows a web browser window with the breadcrumb "Data Entry Home / TEREZA Educational Center / Phenology 2018". A red notification bar at the top contains a sad face icon and the text "Site update failed with 3 error(s).". Below the notification are three bullet points: "Label can't be blank.", "Vegetation type can't be blank.", and "Taxon genus and species must both be selected.". The "Site Definition" form is identical to the previous screenshot, with "Phenology 2018" in the "Site Name" field.

Congratulations, your site is ready now and you can start to enter the data!



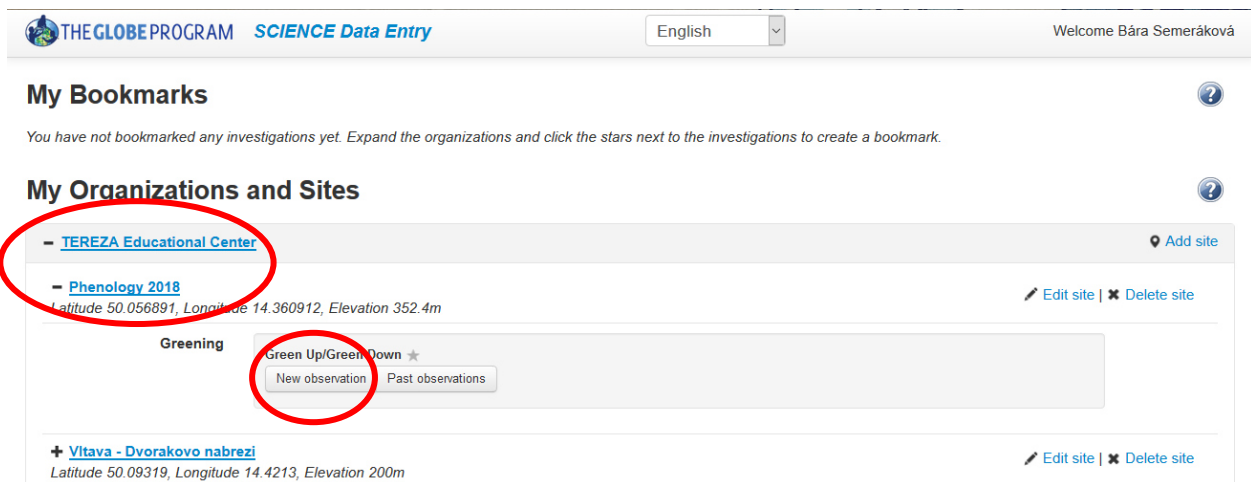
The screenshot shows the top of the "SCIENCE Data Entry" page. The breadcrumb "Data Entry Home / TEREZA Educational Center / Phenology 2018" is visible. The "Data Entry Home" link is circled in red. Below the breadcrumb is a green notification bar with a smiley face icon and the text "Site updated successfully.". The "Site Definition" header and the beginning of the form are also visible.

The shortest way to data entry page is to click on the **Data Entry Home** in the left upper corner.

You can as well go back to globe.gov and again use that **Go to – Enter Data** shortcut.

2. How to enter data to my site

Once you are back in data entry, click on your phenology (Greening) site. Click on + if you can't see it.



THE GLOBE PROGRAM SCIENCE Data Entry English Welcome Bára Semeráková

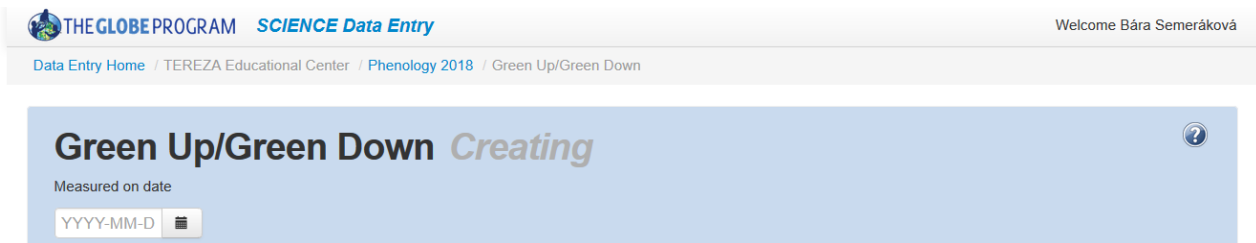
My Bookmarks

You have not bookmarked any investigations yet. Expand the organizations and click the stars next to the investigations to create a bookmark.

My Organizations and Sites

- TEREZA Educational Center Add site
 - Phenology 2018 Edit site | Delete site
 - Latitude 50.056891, Longitude 14.360912, Elevation 352.4m
 - Greening
 - Green Up/Green Down *
 - New observation
 - Past observations
 - + Vitava - Dvorakovo nabrezi Edit site | Delete site
 - Latitude 50.09319, Longitude 14.4213, Elevation 200m

Two options will pop up: New observation or Past Observations. Click on **New Observation**.



THE GLOBE PROGRAM SCIENCE Data Entry Welcome Bára Semeráková

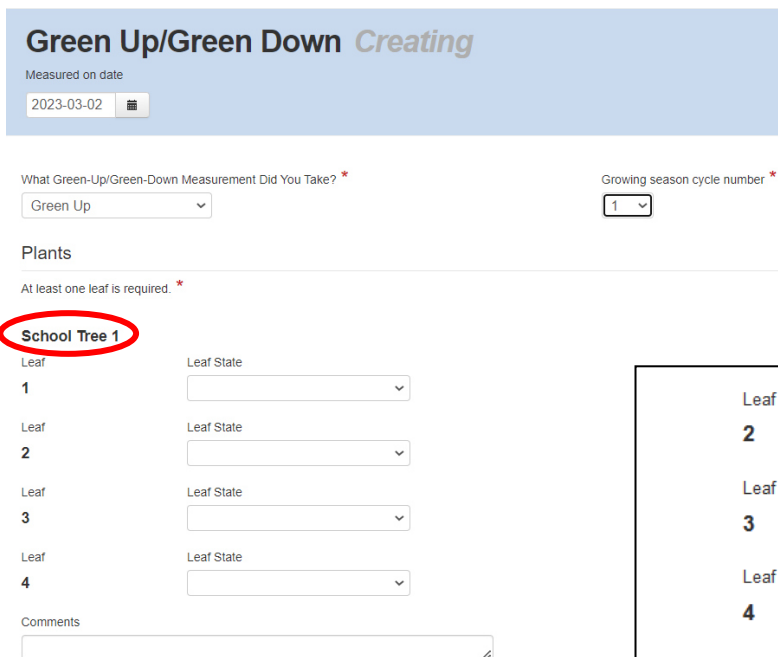
Data Entry Home / TEREZA Educational Center / Phenology 2018 / Green Up/Green Down

Green Up/Green Down Creating

Measured on date

YYYY-MM-D

The first thing you have to do is to select a date. Pick the earliest date when you started to observe the bud. After selecting the date, more fields will come: Select **Green Up** and fill in **Growing season cycle** (this will be mostly 1 for European region)



Green Up/Green Down Creating

Measured on date

2023-03-02

What Green-Up/Green-Down Measurement Did You Take? *
Green Up

Growing season cycle number *
1

Plants

At least one leaf is required. *

School Tree 1

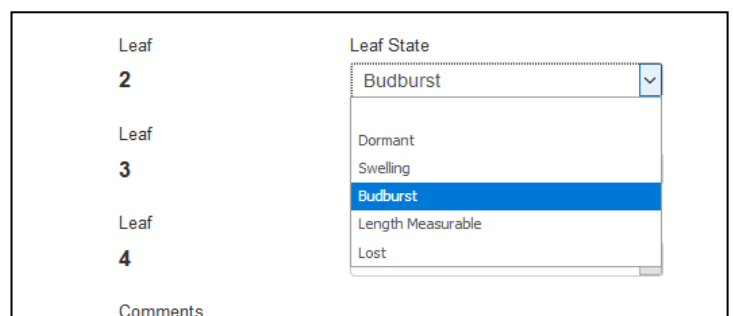
Leaf 1	Leaf State
Leaf 2	Leaf State
Leaf 3	Leaf State
Leaf 4	Leaf State

Comments

After filling this, the fields pop up for you to fill in data for each bud/leaf.

Under the heading Plants you see the name of your tree and four rows, each for one leaf/bud.

Select **Leaf State** from drop down menu for each leaf. Repeat for all your trees.



Leaf 2	Leaf State
Leaf 3	Leaf State
Leaf 4	Leaf State

Comments

Leaf State

- Budburst
- Dormant
- Swelling
- Budburst
- Length Measurable
- Lost

Confirm by clicking on the blue button **Send Data**

You will again see green smiley if you are successful.

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[Data Entry Home](#) / [TEREZA Educational Center](#) / [Phenology 2018](#) / Green Up/Green Down

😊 Observation updated successfully. [Print this submission](#), [view observations](#) or [create a new one](#).

Green Up/Green Down *Editing*

Measured on date
2023-03-02

What Green-Up/Green-Down Measurement Did You Take? *

Growing season cycle number *
 * indicates required sections or fields

To enter data for a **next date**, click on the blue link **Create a new one**. Then you repeat the steps.

To view the data you entered click on **View Observations**. You will see the list of your observations according to dates. Here you can correct the data (click on the date) or delete the record.

THEGLOBEPROGRAM SCIENCE Data Entry Welcome Lenka Kleger

[Data Entry Home](#) / [TEREZA Educational Center](#) / [Phenology 2018](#) / Green Up/Green Down

Past Observations for Green Up/Green Down

From 2022-11-01 To 2023-04-17

Measured at time in UTC

1	2023-03-02 00:00 UTC	Delete

The data entered you can see also on your **school page** under the heading Most Recent Measurements. You again go to globe.gov, then in Go to click on your school. This will bring you to your school page, then scroll down to see this:

MOST RECENT MEASUREMENTS

Include citizen science sites

Site Name	Protocol	Protocol Set	Date
Phenology 2018	Greening	Green Up/Green Down	04/19/2023

< Prev 1 Next >

If you need more help on data entry in general, please watch the video guides here:

<https://www.globe.gov/get-trained/using-the-globe-website/entering-measurement-data>

<https://www.globe.gov/get-trained/using-the-globe-website/setting-up-your-data-site>