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 Visualisation System "Vis" Tutorials.

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 them student accounts.**

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 CO_2 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 CO_2 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 CO_2 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 CO_2 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 CO_2 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.
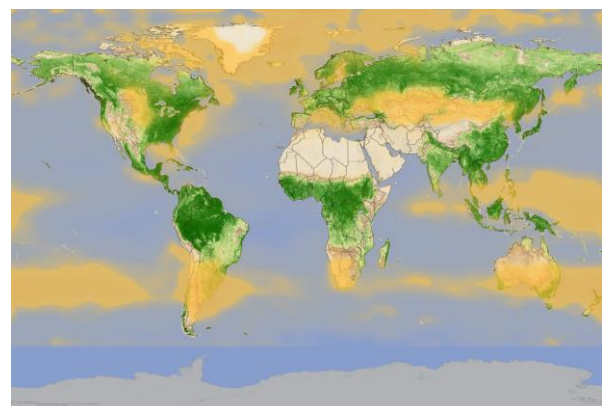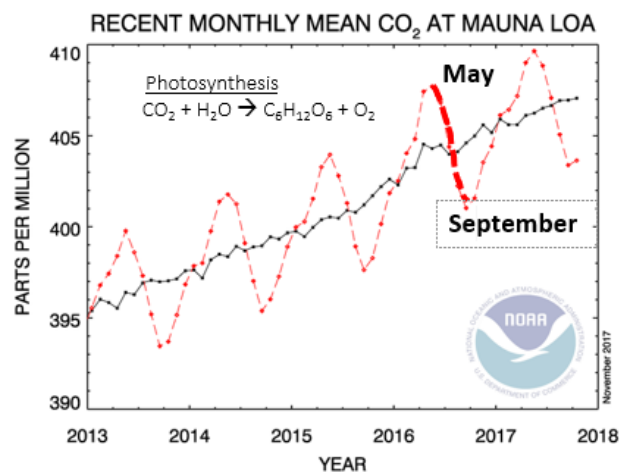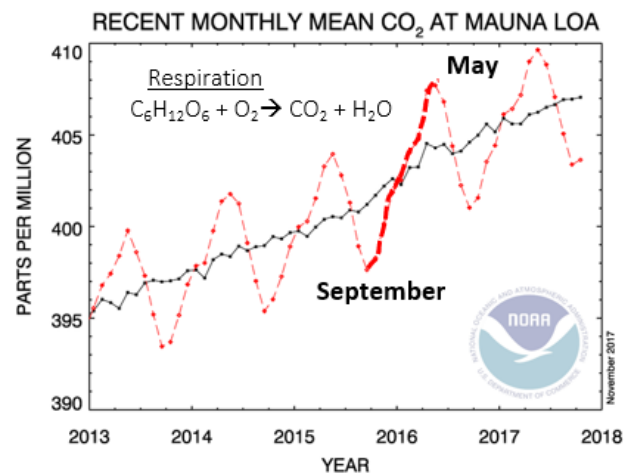
Guide – How to upload data to the GLOBE Database

There are three options for entering data into the GLOBE database. You can choose one option or try different ones and choose the one that suits you best. The data will always be uploaded to the same database and will be available for your further research.

1. **Old desktop forms**
   This is the traditional way of entering data from a computer. You may be familiar with this way of entering data from earlier work with GLOBE data. Below you will find detailed instructions.

2. **New desktop forms**
   A new way of entering data from a computer. A user-friendly approach similar to the one used in GLOBE Observer. This data entry method is well documented in the online tutorials.

3. **Mobile app – GLOBE Observer**
   An easy way to enter greenings and tree height data from your mobile phone. You can download the app and find detailed instructions here: https://observer.globe.gov/ . You will also find detailed video tutorials here: https://www.globe.gov/get-trained/tutorial-center/data-entry
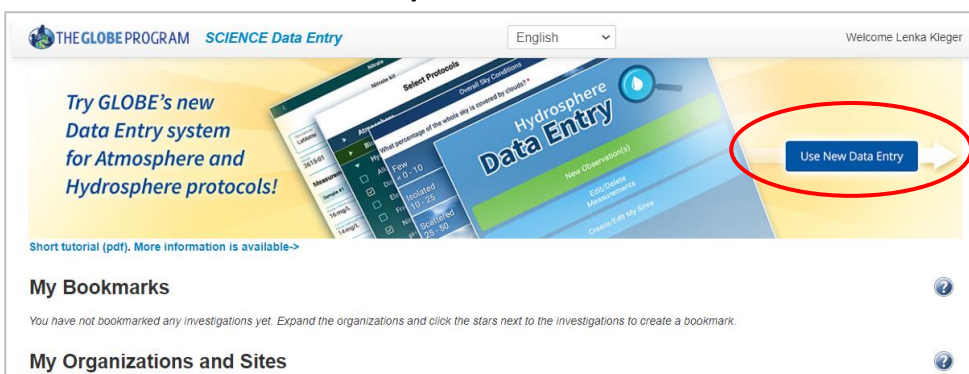

Entering data - desktop forms

Login to globe.gov with your account.

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

This will automatically take you to the **"Old desktop forms"** interface. To switch to "**New desktop forms**" click on the **arrow "Use New Data Entry".**

To continue with "New desktop forms"

After choosing the "New desktop forms" option, you will be redirected to the screen below. Follow the New Data Entry Forms Tutorials that are available here: **https://www.globe.gov/get-trained/tutorial-center/data-entry**
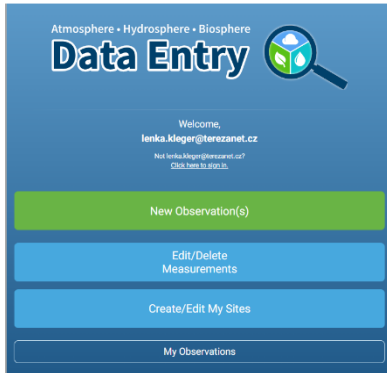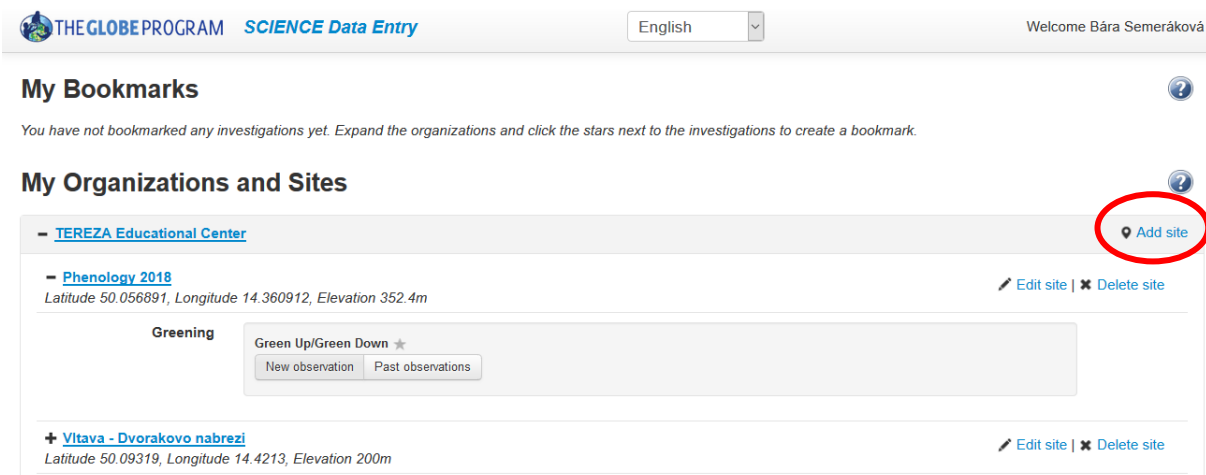

To continue with "Old desktop forms"

You will continue working on the initial data entry page. There you will see a 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).
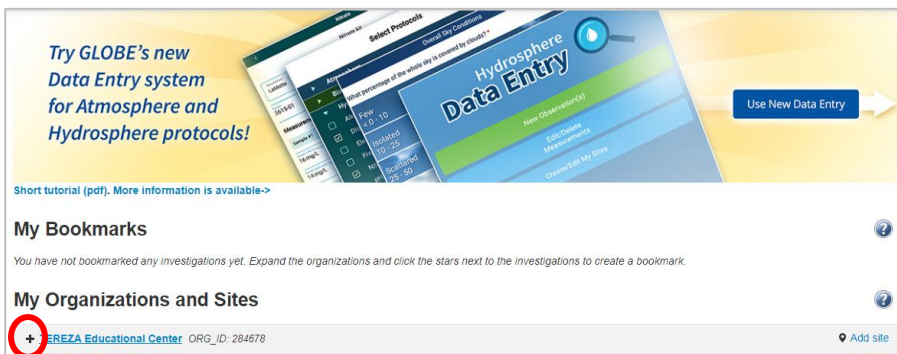
As you can see, at my organization, I have already a site called "Phenology 2018". This is a site where I have 2 trees.

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:

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:

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:

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

Site update failed with 3 error(s).

- Label can't be blank.
- Vegetation type can't be blank.
- Taxon genus and species must both be selected.

Site Definition

Add site type	Site Name *	* indicates a field is required
Atmosphere		
☐ Atmosphere		
☐ Surface Temperature	Phenology 2018	
Hydrosphere	*Site ID 125791*	
	Coordinates	

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

Site updated successfully.

Site Definition

Add site type	Site Name *	*indica

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
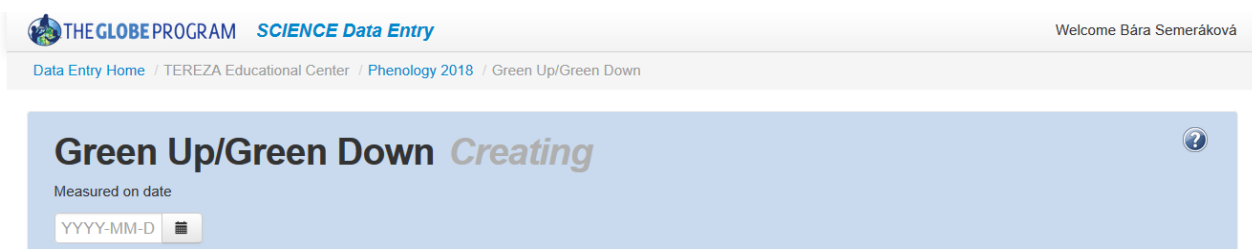*Latitude 50.056891, Longitude 14.360912, Elevation 352.4m*

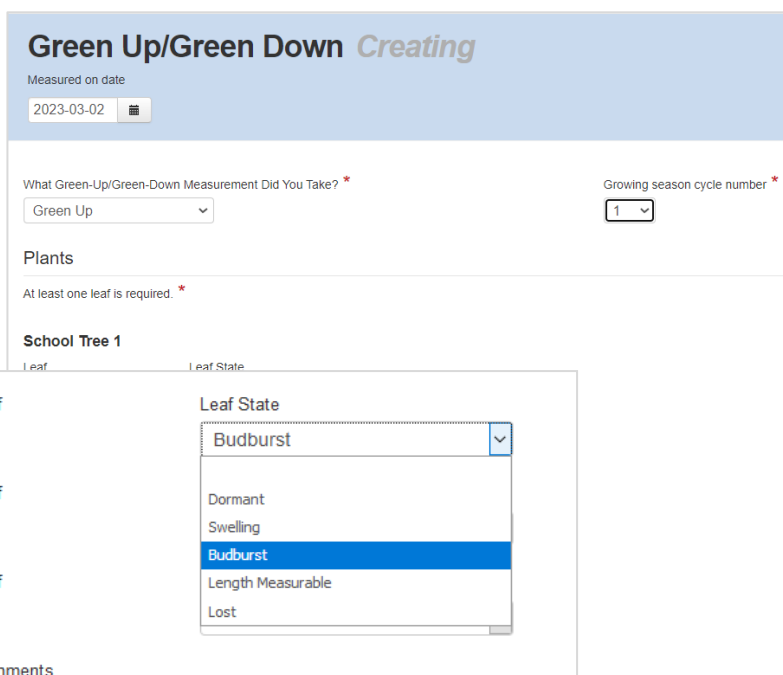**Greening**   Green Up/Green Down ☆

[New observation] [Past observations]

+ Vltava - 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 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).
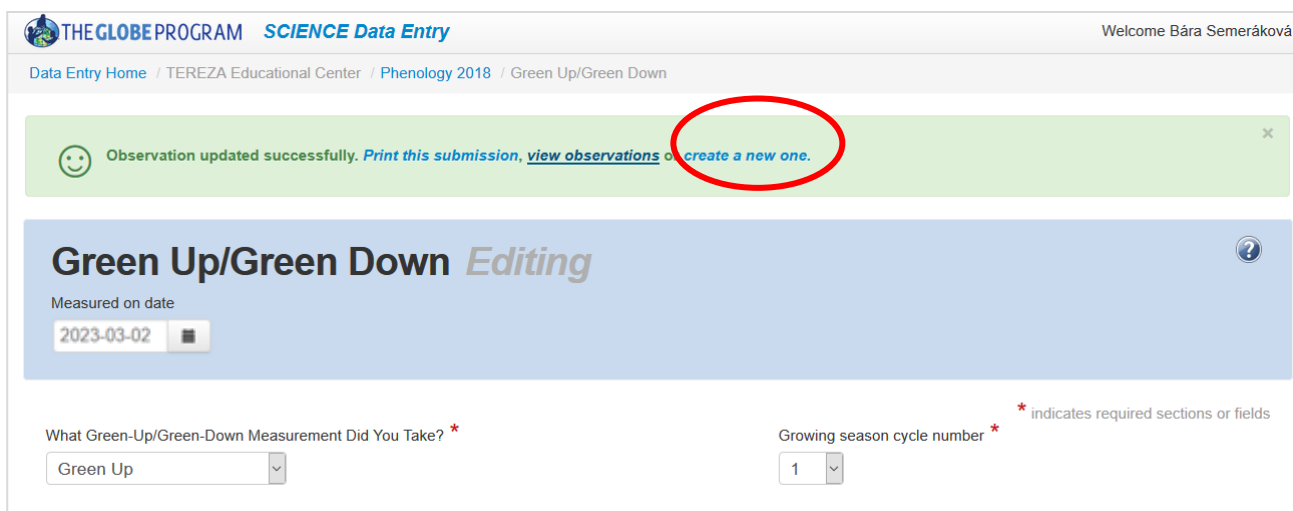

After filling this, the fields pop up for you to fill in data for each bud/leaf.

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.

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

You will again see green smiley if you are successful.

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.

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: