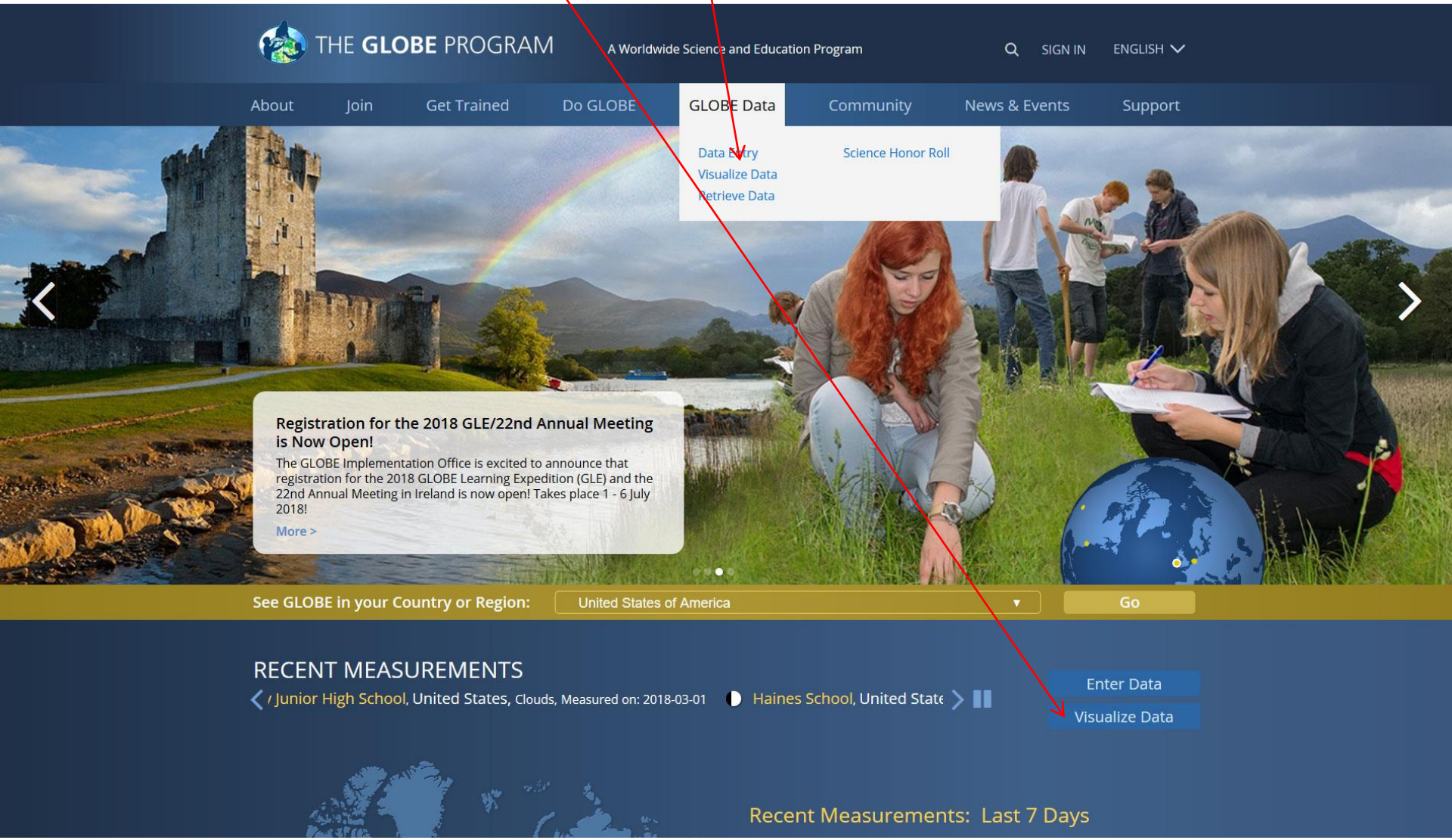
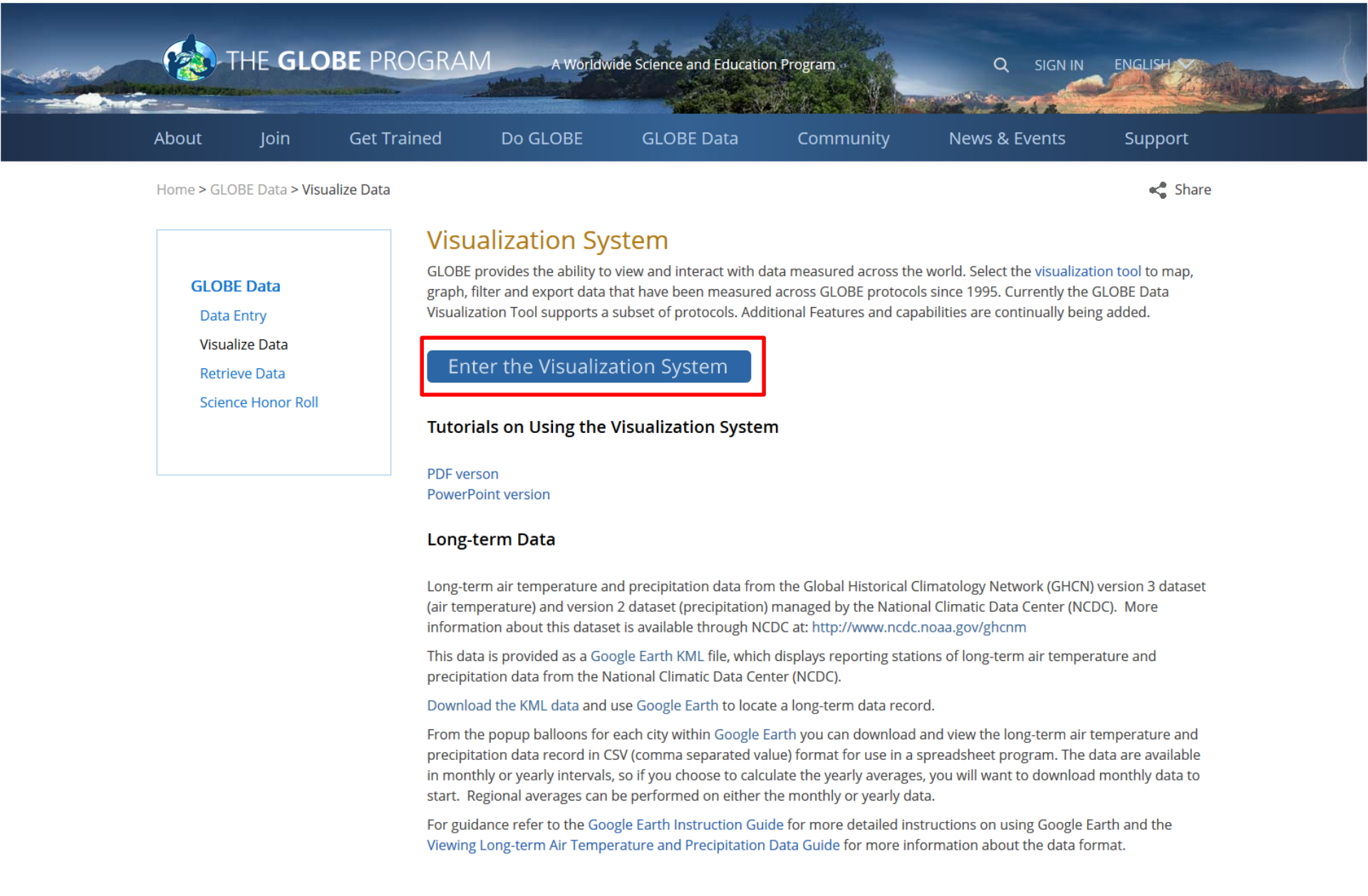
Using the GLOBE Visualization System

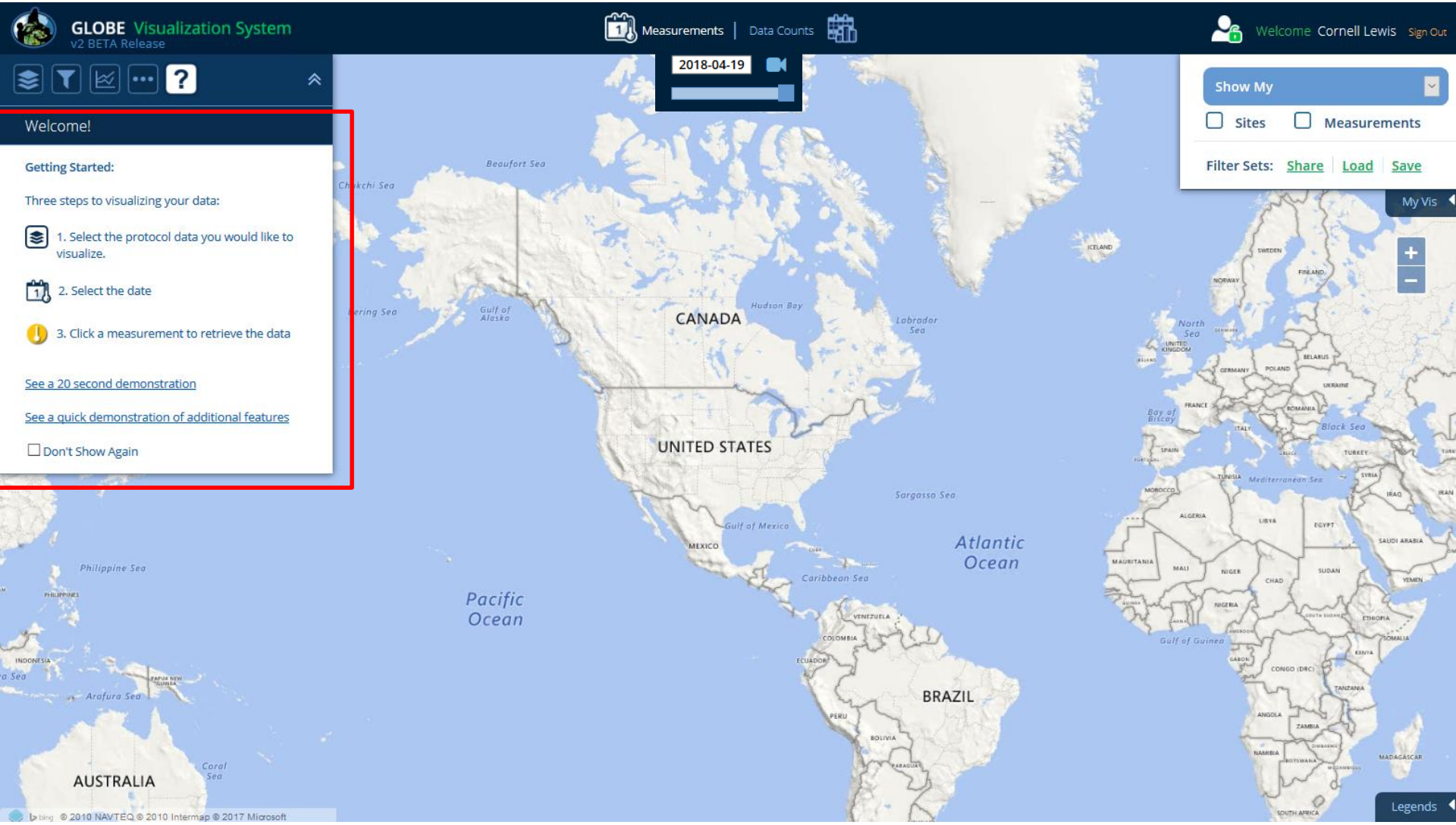
Hold the mouse over the GLOBE Data menu, then click on Visualize Data. Or, use the quick link shown below.



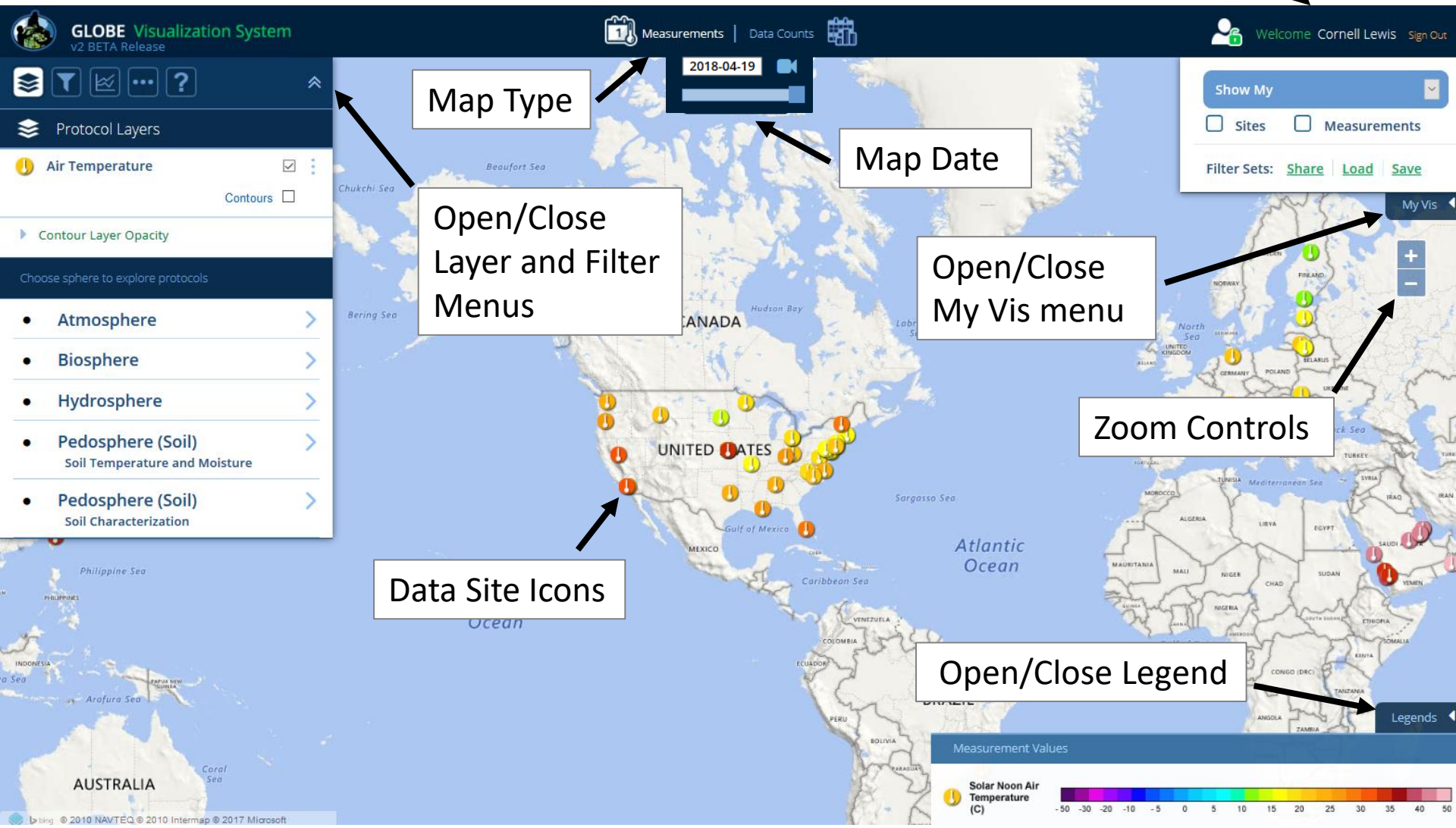
Click on Enter the Visualization System link. This page also contains a link to this tutorial.



This is the GLOBE Visualization Landing Page. The help tab is the default tab when you first come to Vis. There are getting started steps, links to quick demonstrations and this complete tutorial. Check the ‘Don’t show again’ to default to the layer screen for future visits.



Overview of the Visualization Window Features (Desktop view)



Layer and Filter Menu Icons

My Vis / Sign-in and out
(on phone and small tablets)

Layers

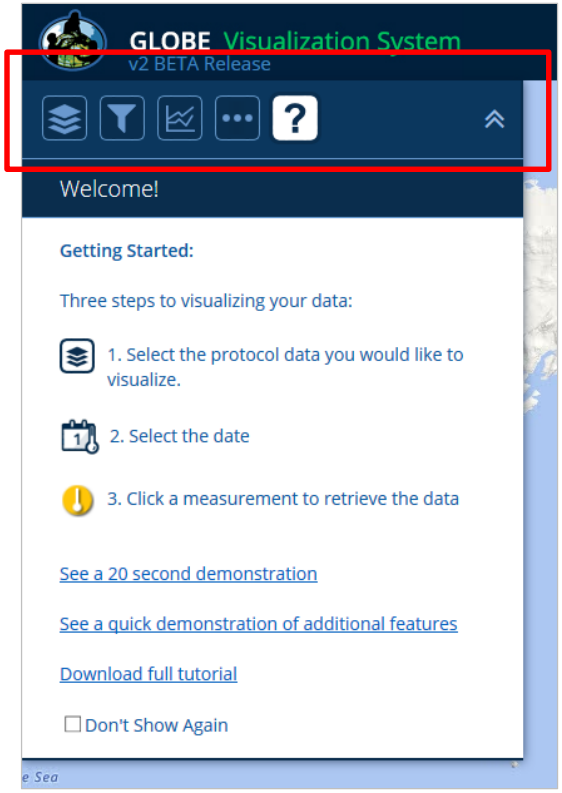
Filters

Multi-Site
Plots

Base Map, Language and
Map Grid Controls

Welcome and
Tutorials

Open/close
menu

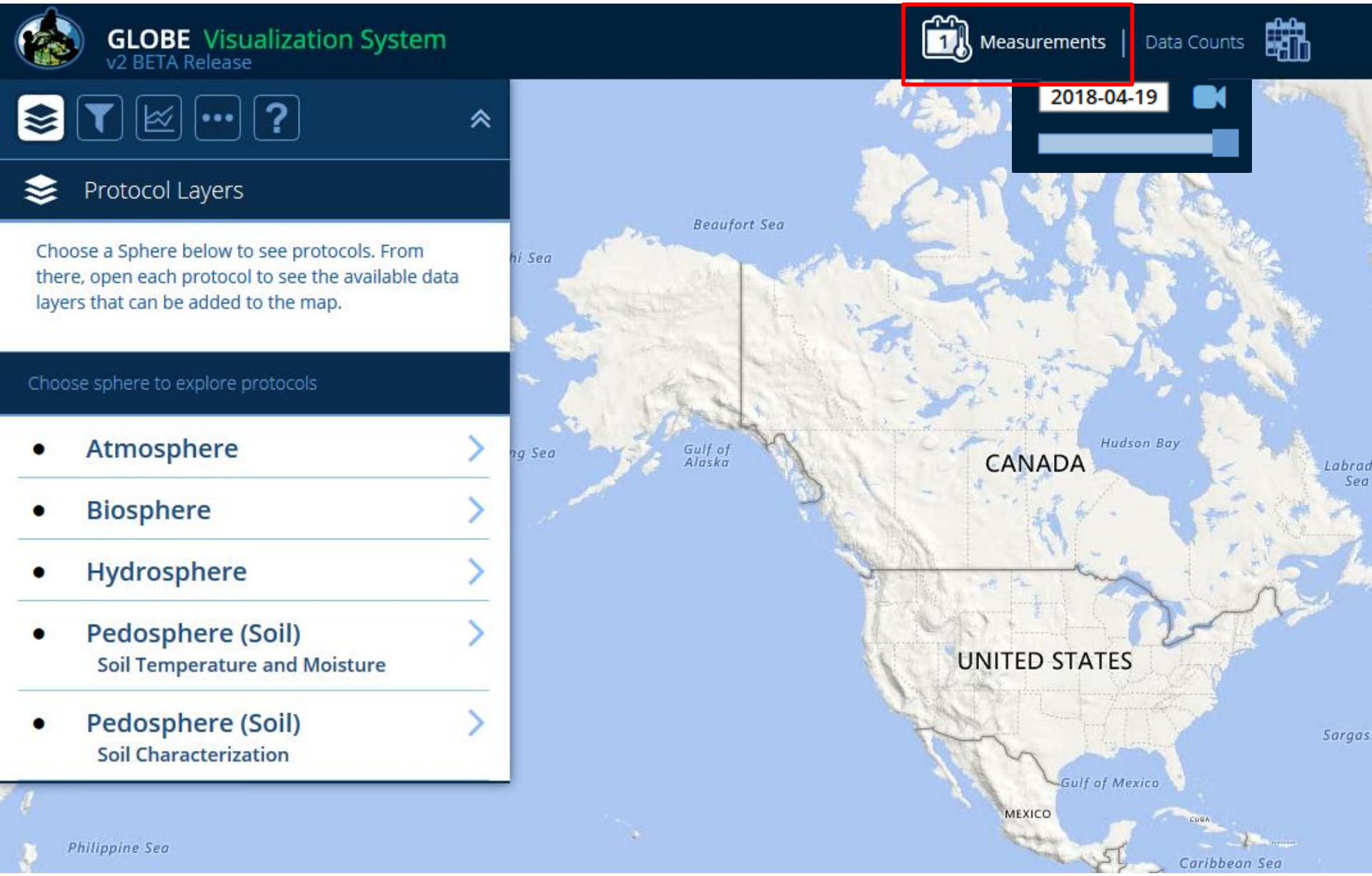


The Basics of the Visualization System

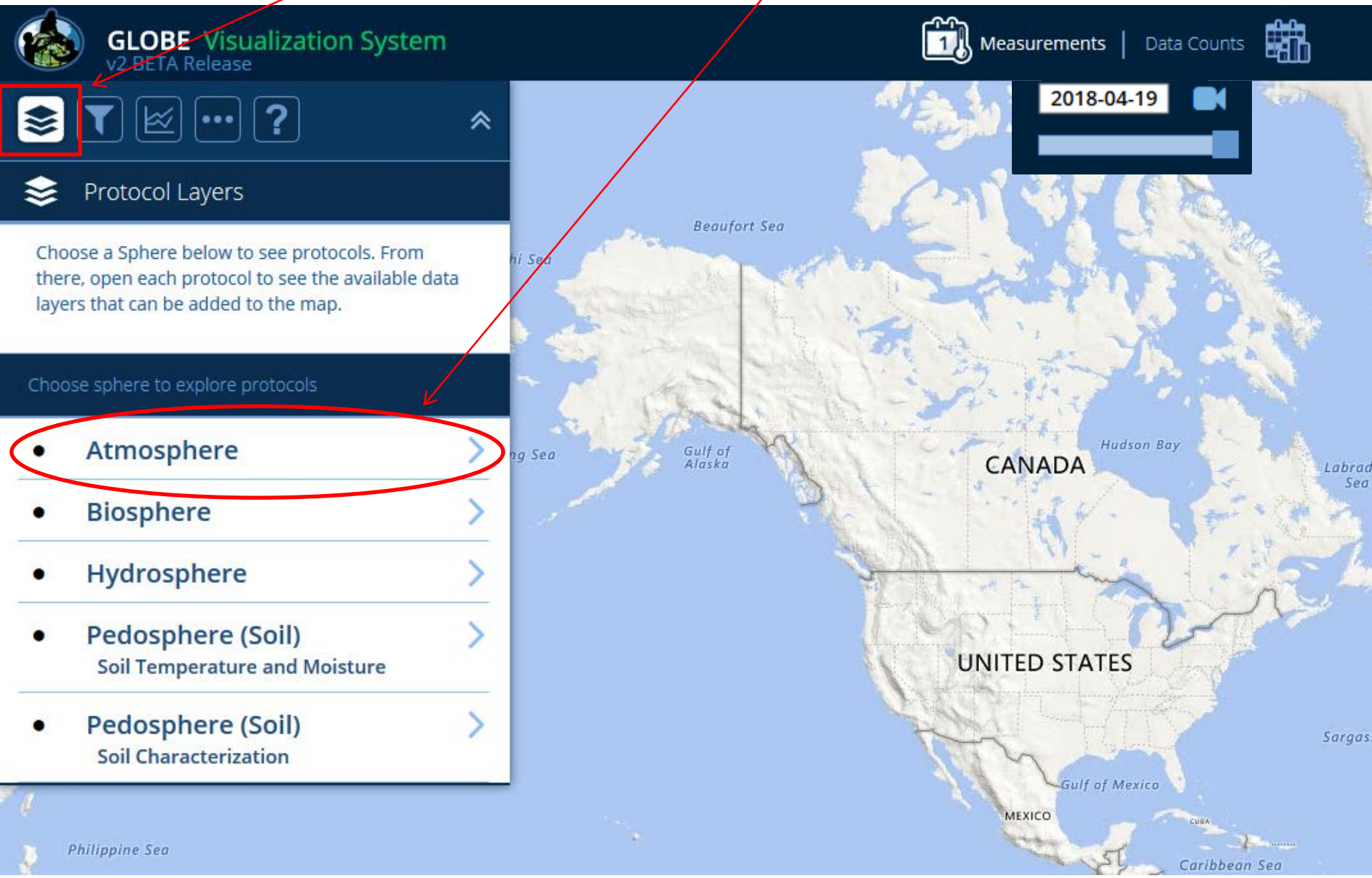
Three Steps to Visualize your Data:

1. Select the type of data you want to see (Add Layers)
2. Select the Date you want to see the data for
3. Click on a data point on the map to receive table and graph information

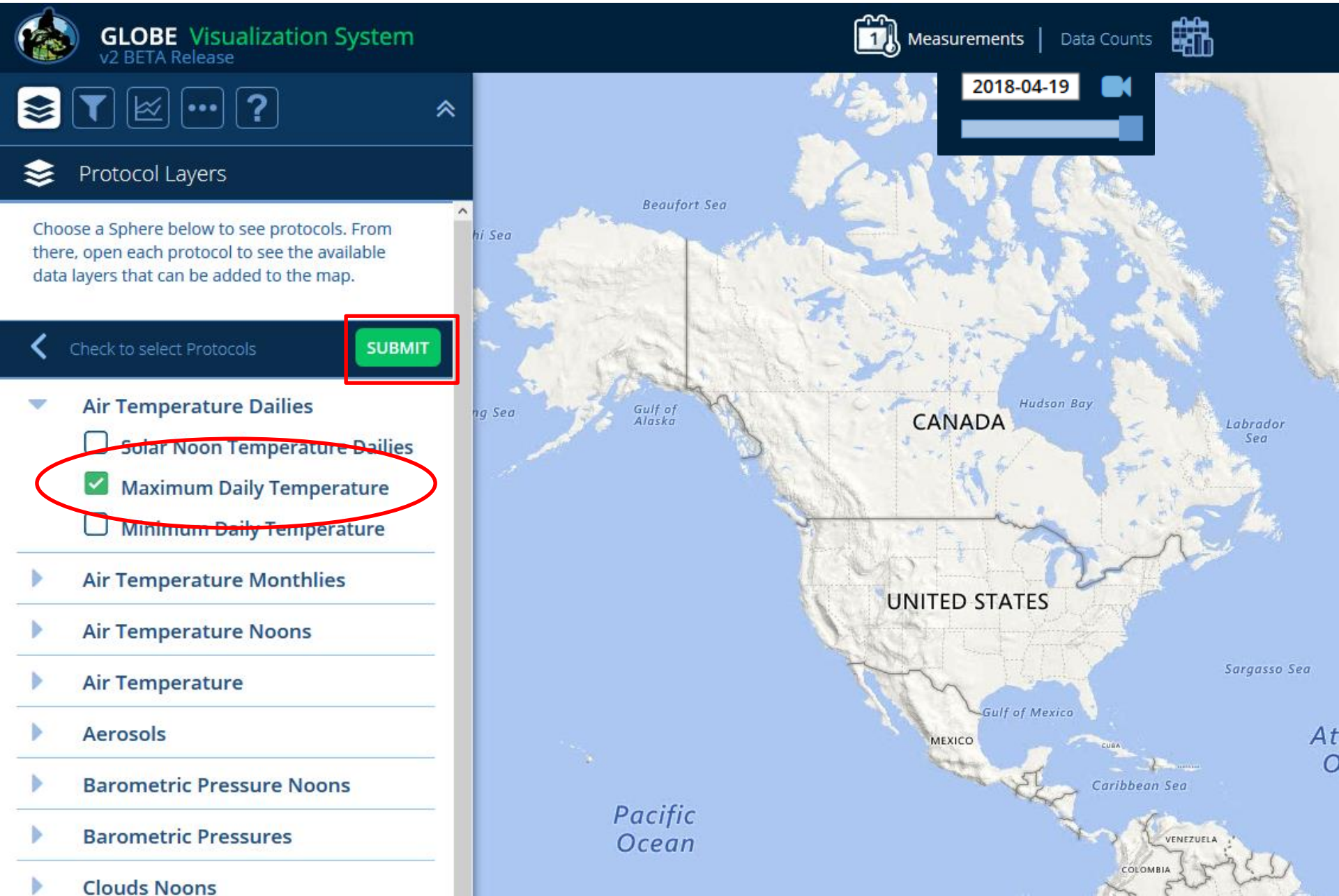
First, make sure you're on the 'Measurements' map (the measurements icon and text should be white). If not, select it.



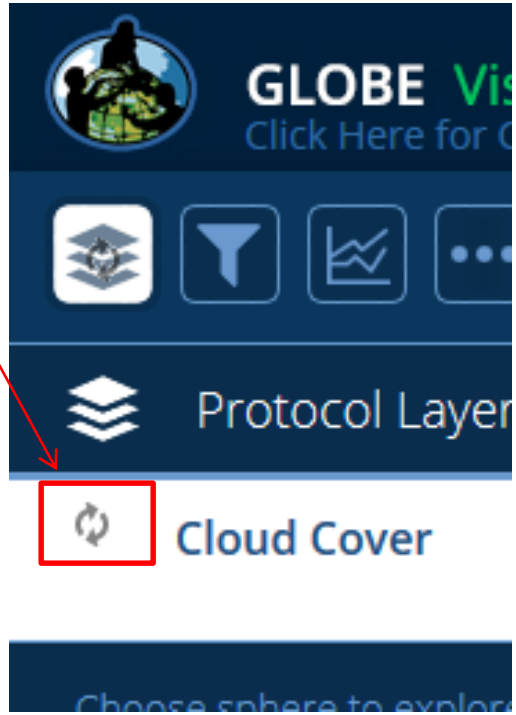
Next, click the Protocol Layers icon and then a sphere category. For this tutorial, select Atmosphere.



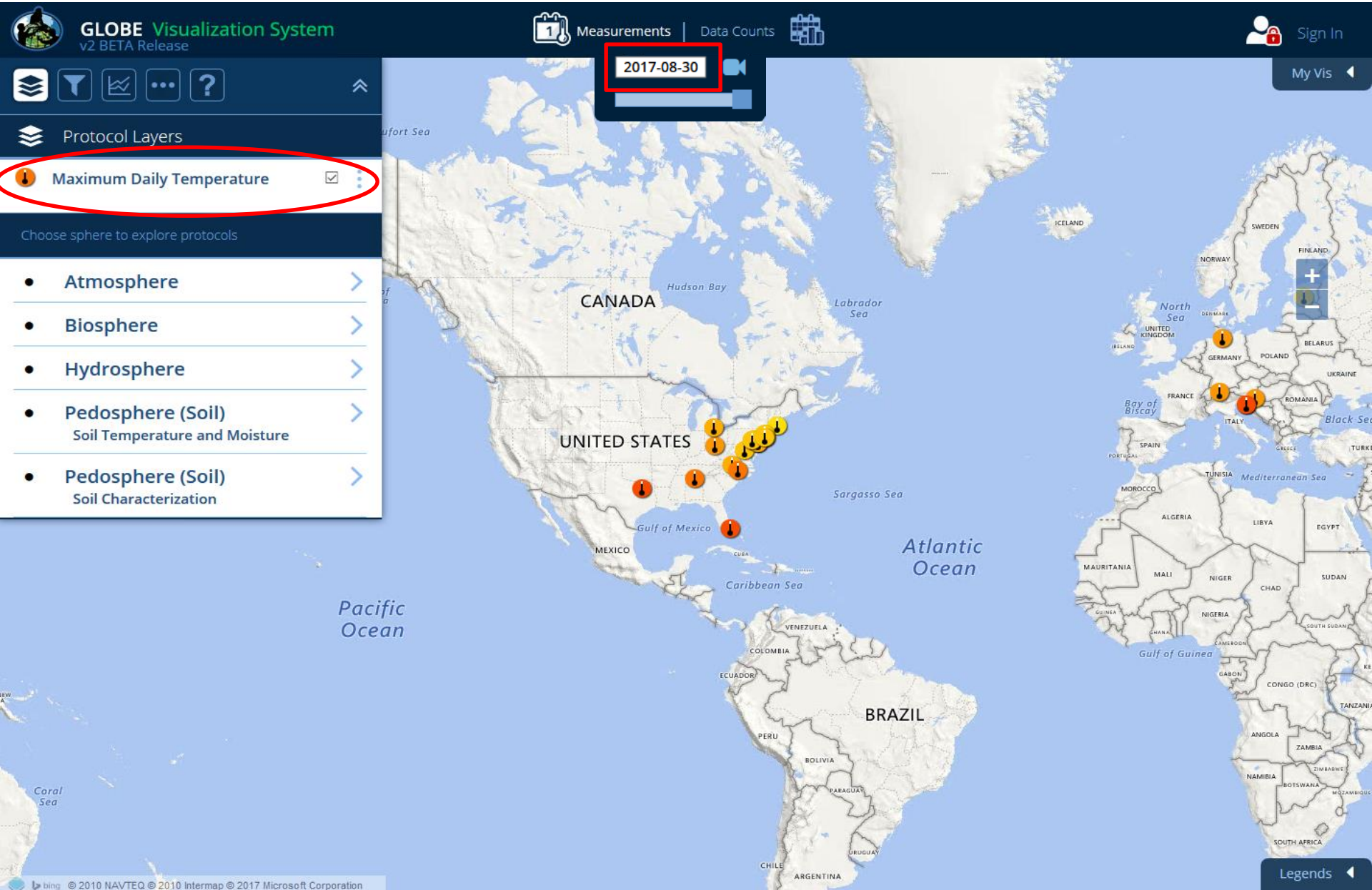
Select the protocol layer(s) to add to the map (you can add multiple layers). For the tutorial, select Max Daily Temp and ‘Submit’.



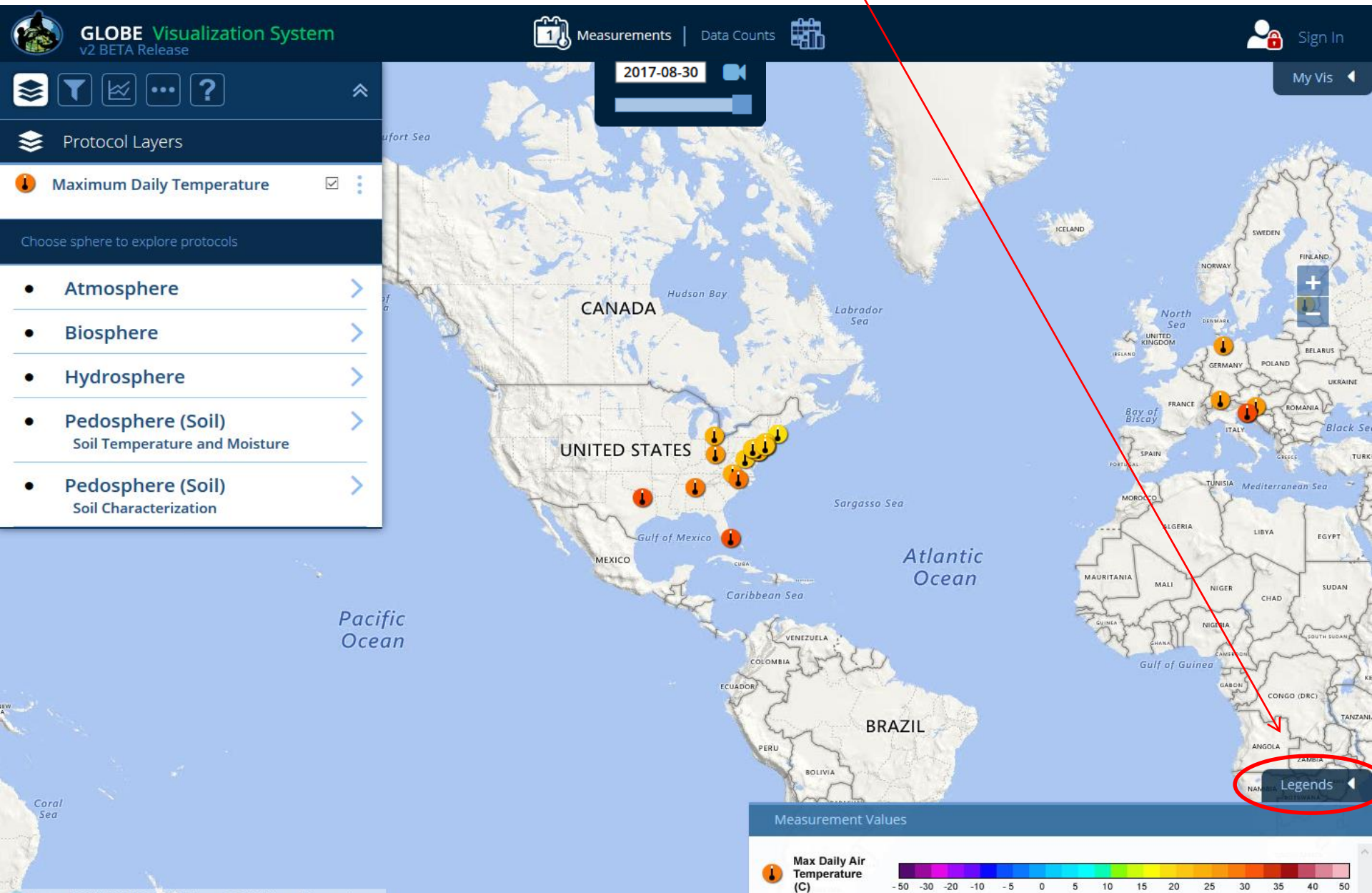
If there’s a lot of data, you may get an in-progress icon. Please wait until the system finishes before clicking or performing additional operations.



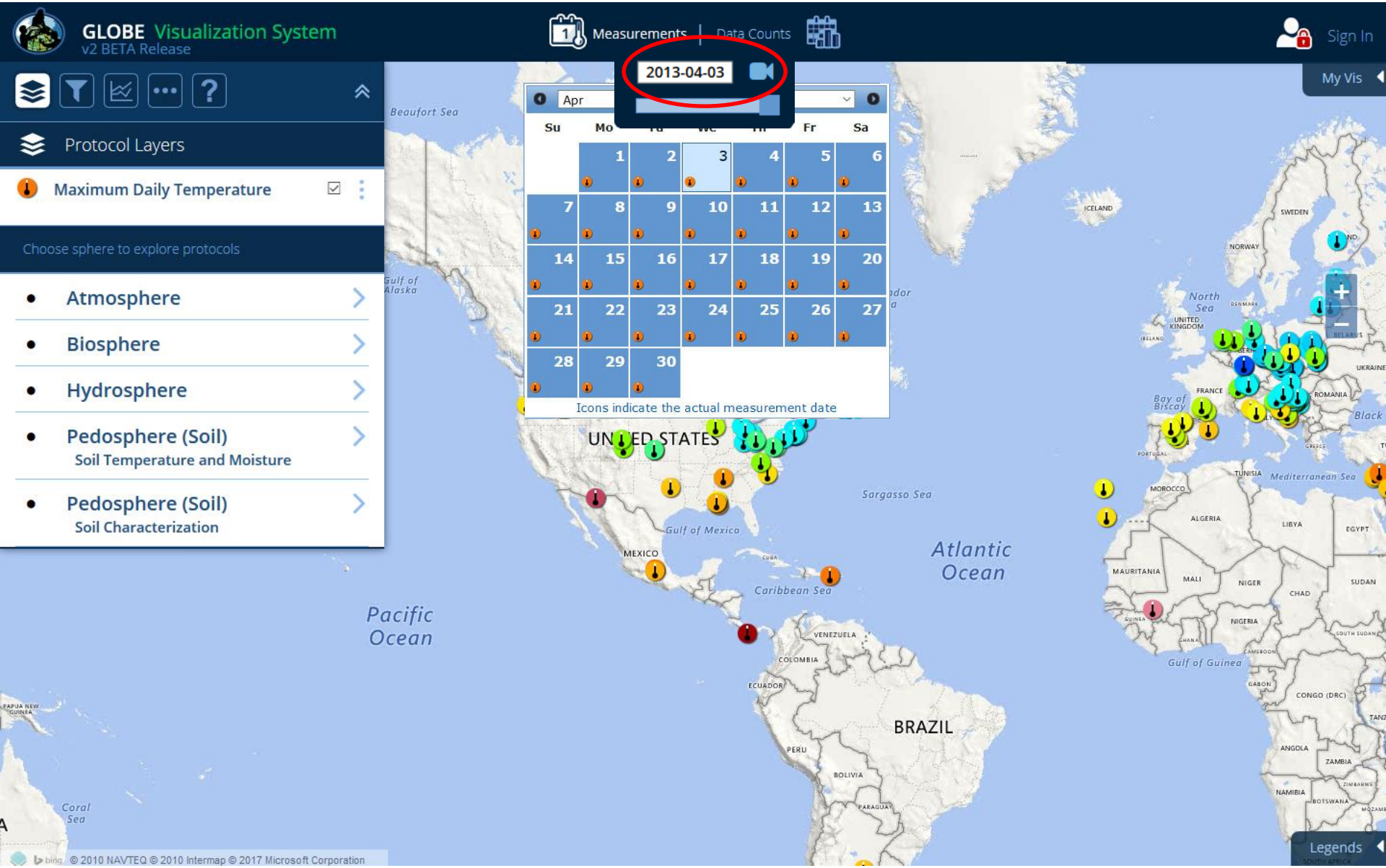
The Max Daily Temperature layer is added to the map. The map shows sites that have maximum air temperature measurements for the current day.



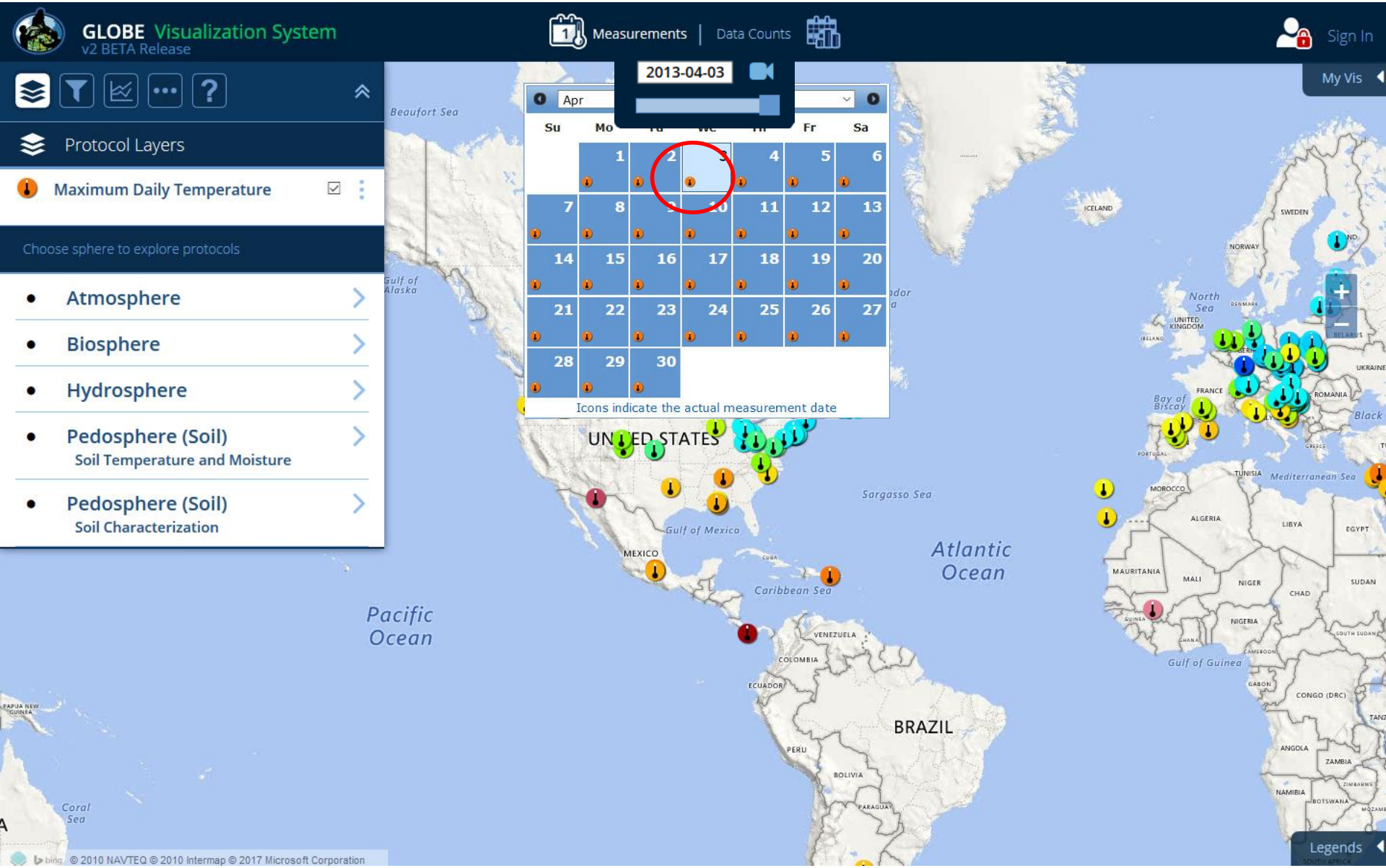
Open the legend to see the measurement values of the site icons. The colors in the scale correspond to the possible data values for that data type.



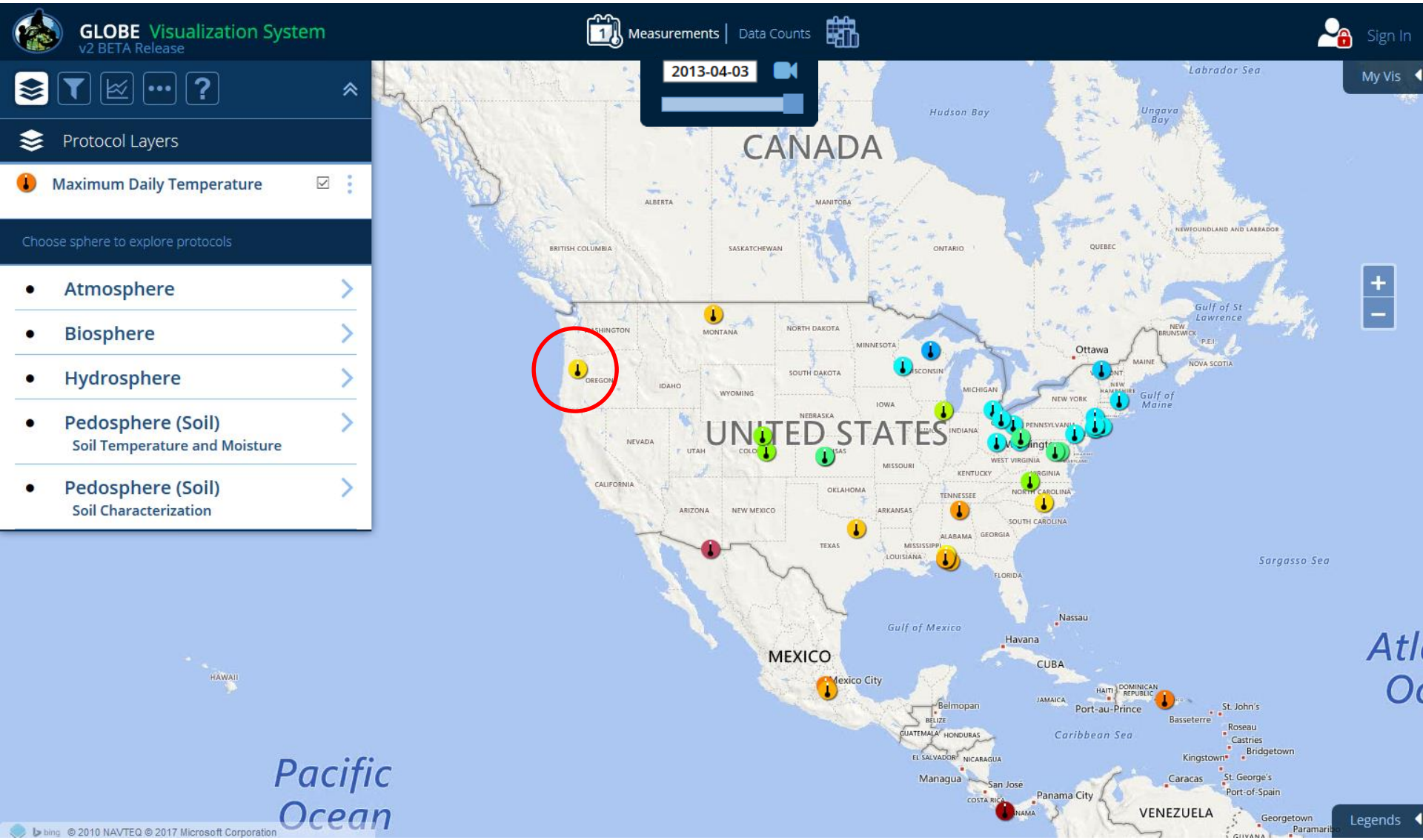
Click on the date window to change the map date. For the tutorial, change the date to April 4, 2013.



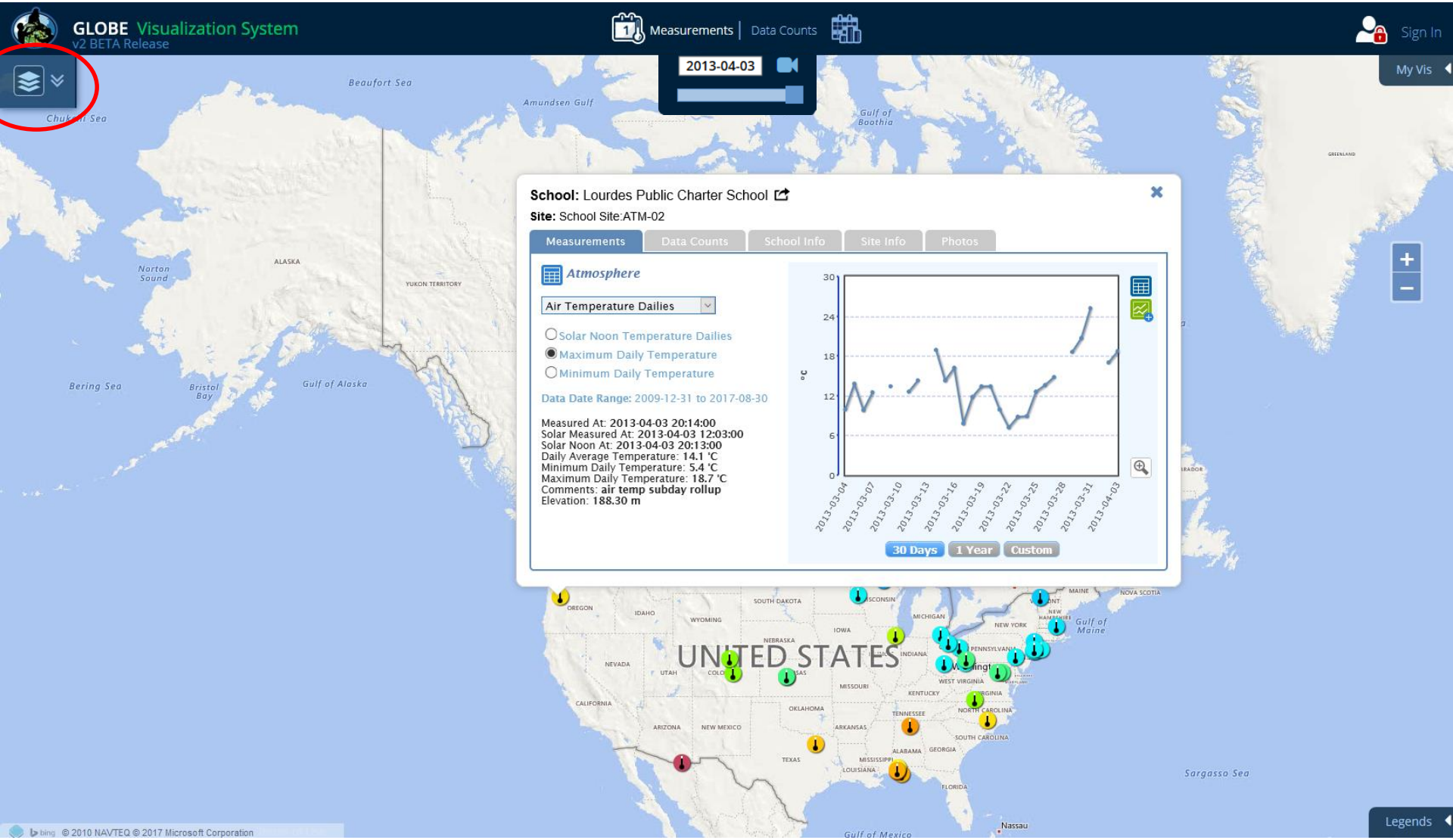
A small protocol icon will appear on the calendar indicating which day has measurements. In this example, a max daily temperature measurement occurred everyday in April.



Zoom in to the U.S. and then click on the measurement icon in the state of Oregon



The site information window will open showing the measurement data at this site. Note: The layer/filter menu closes but you can open it by clicking on the menu arrow icon at the top left.



Measurements Site Info Window:

Click this icon to view data tables for all of your data

Click this icon to go to the school page

Click this icon to view the plot data in a table

Click this icon to add the site to a multi-site time series plot

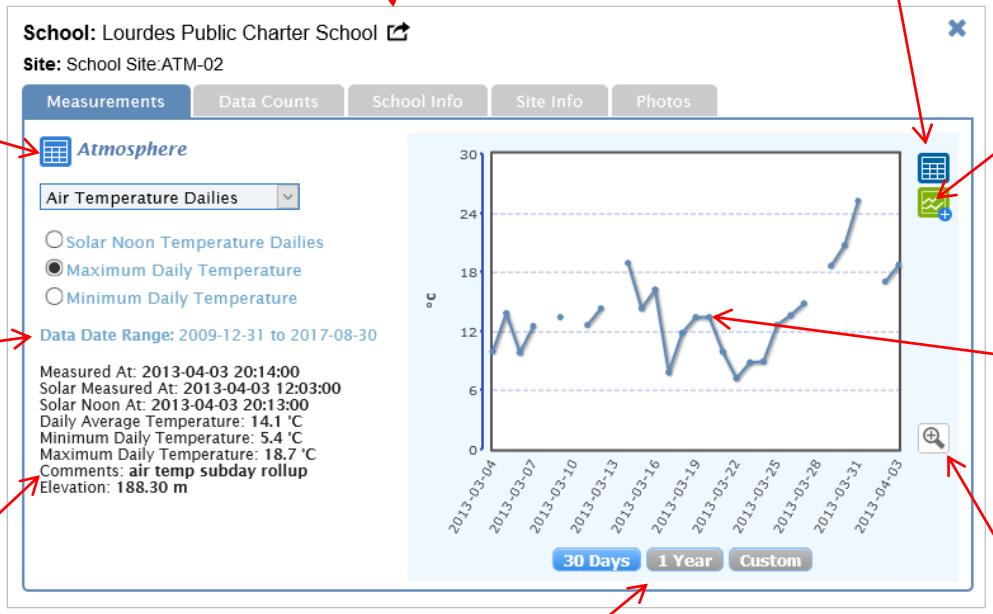
Data at this site can be found in this date range

Roll-over a plot point to see measurement value and date

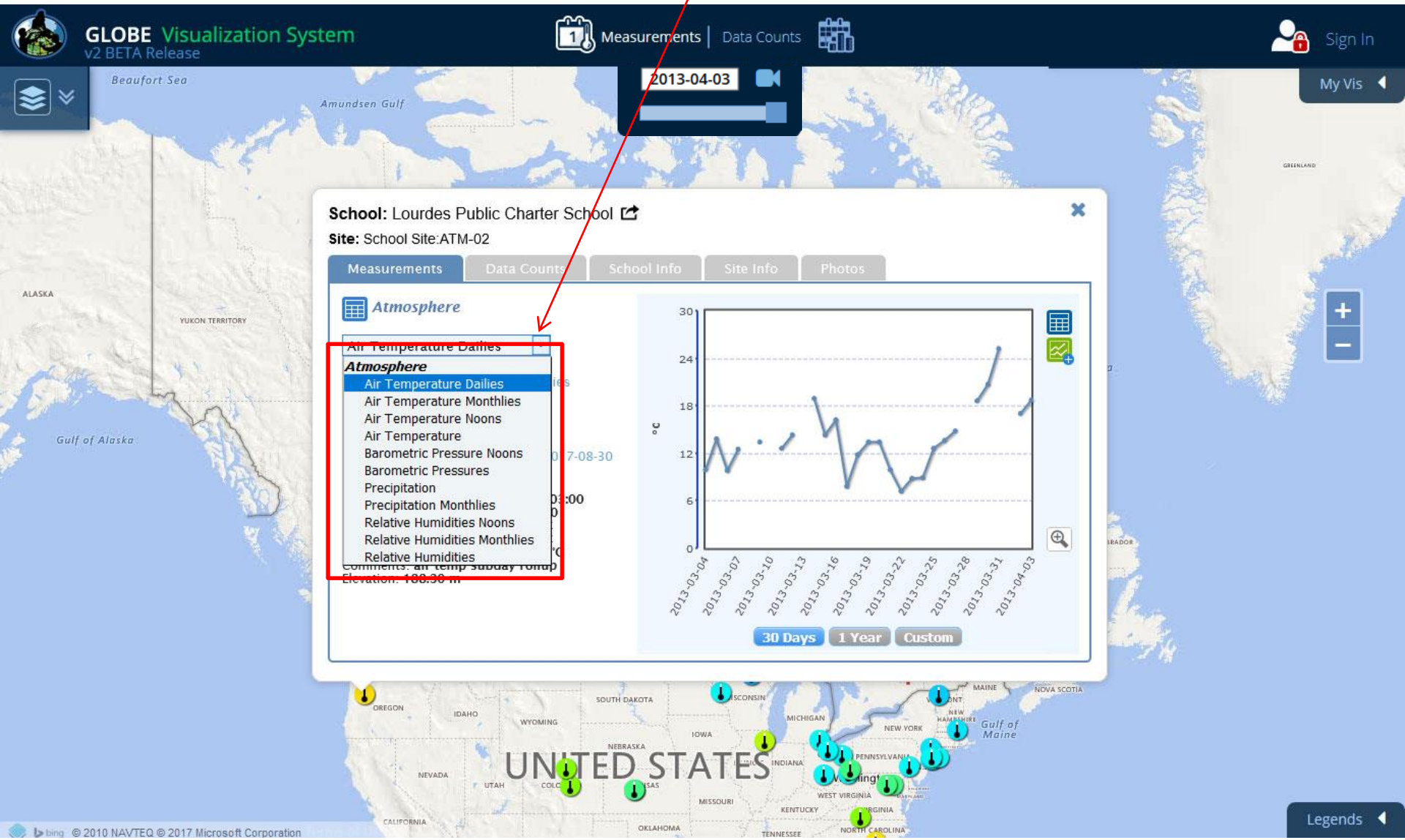
Measurement info for the selected data type

Click the zoom icon for a larger plot view

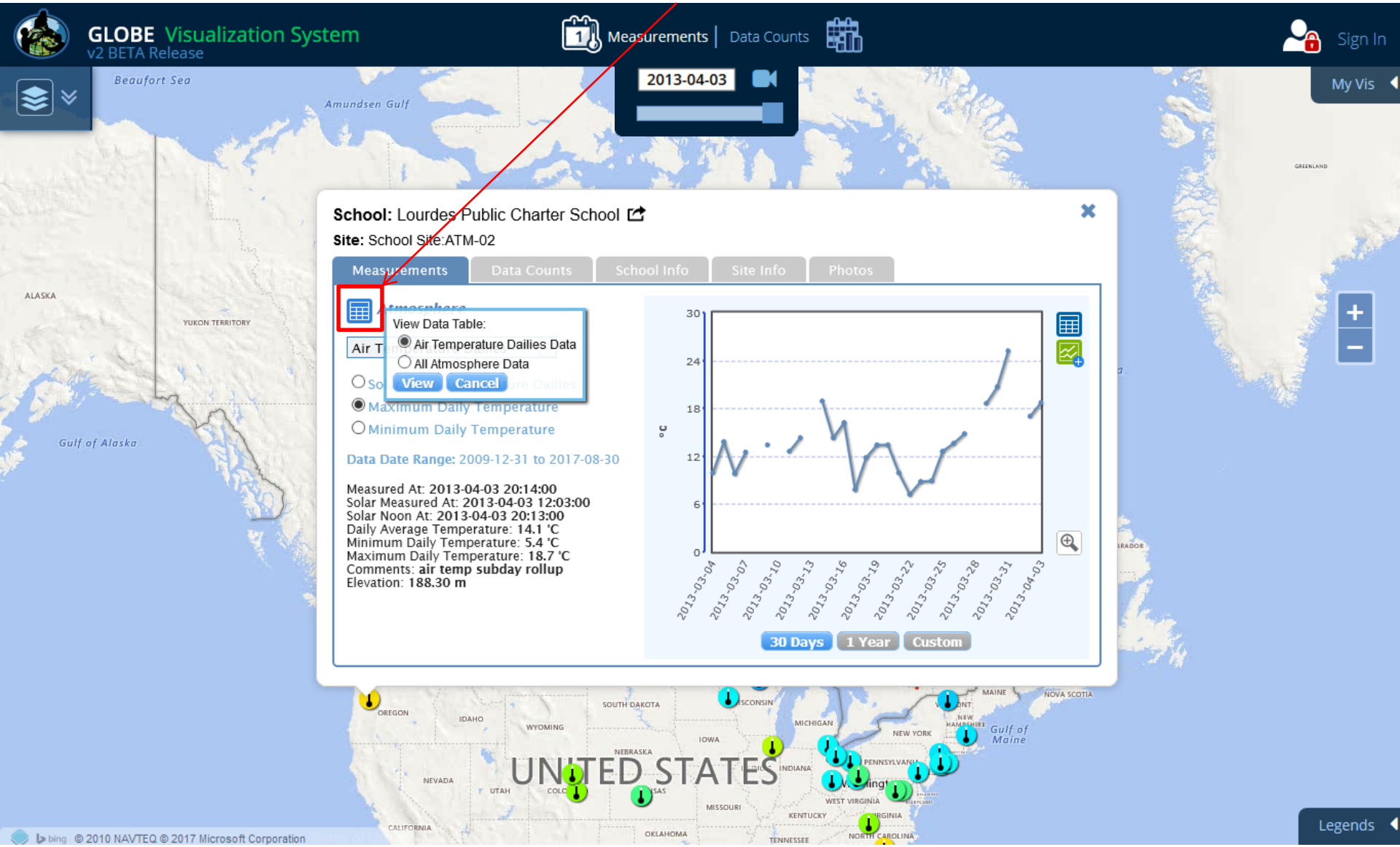
Change plot time range



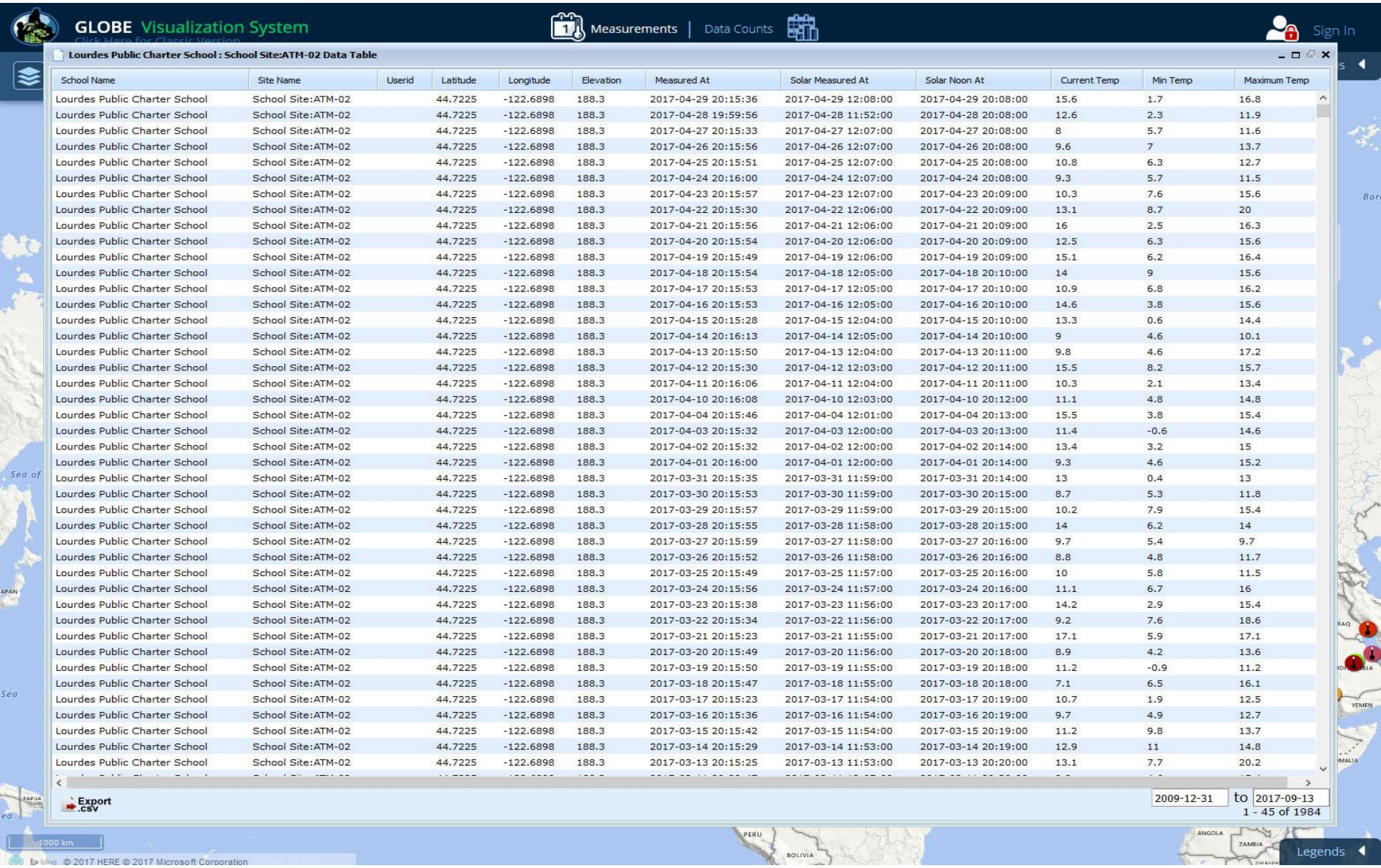
You can look at any measurement data at this site by selecting a data type in the drop-down menu.



Click on the table icon next to the Atmosphere title. You can either view data tables for the selected data type (Air Temperature Dailies) or all of the Atmosphere data.
Select Air Temperature Dailies.

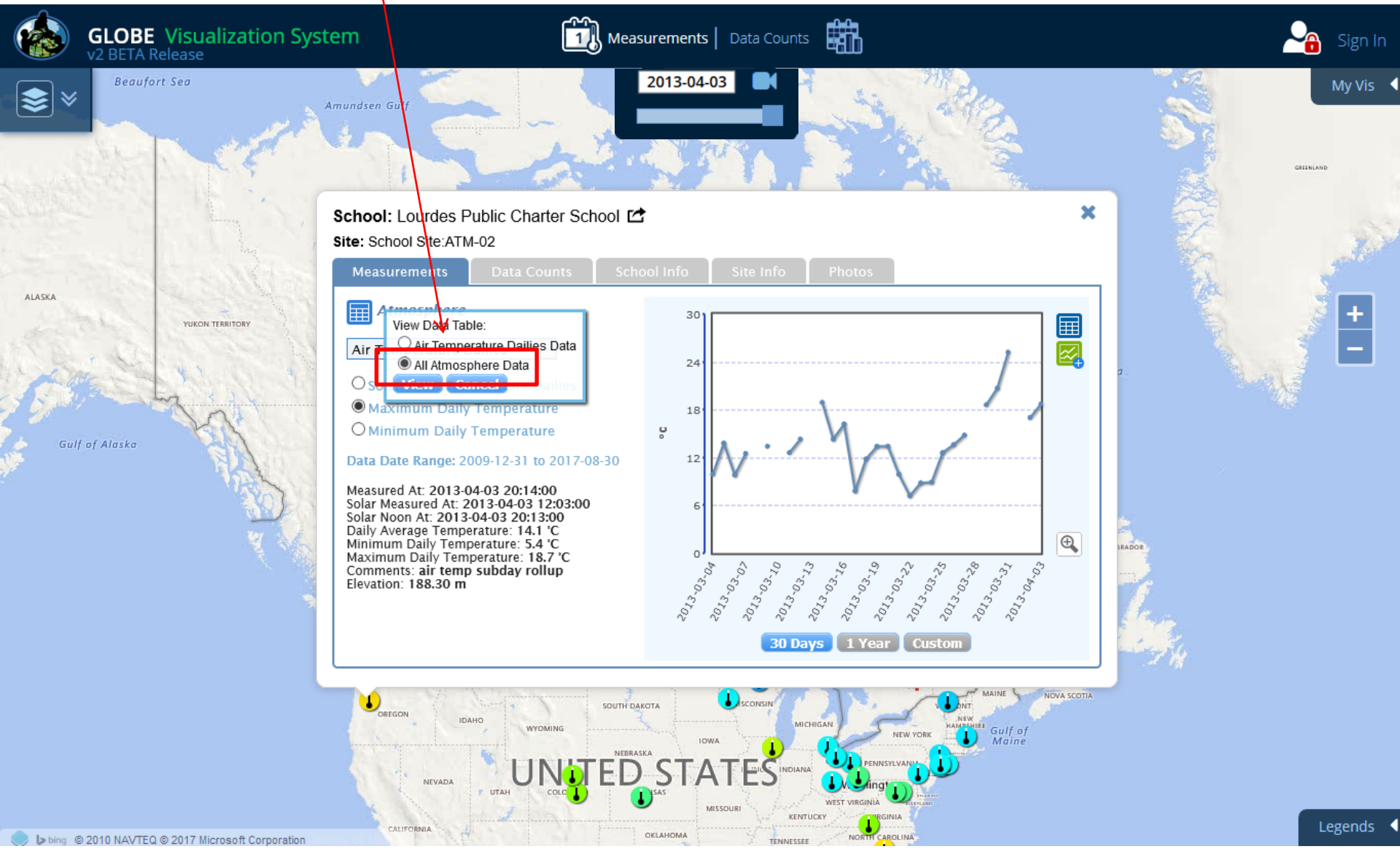


Note that this table gives values for local solar noon and minimum and maximum daily temperature. Clicking the button at the bottom will export the data in a comma delimited format. Close this window.

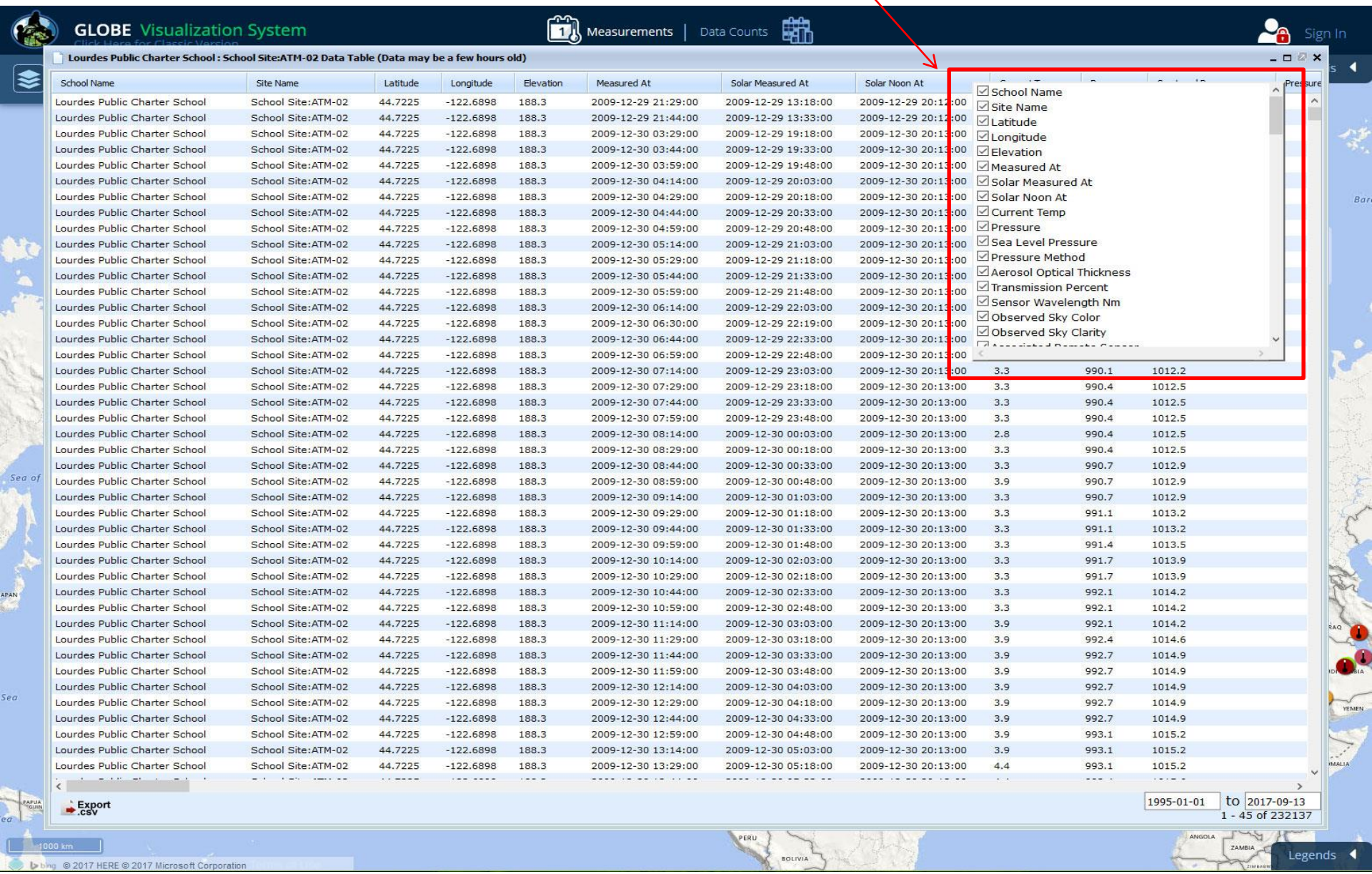


School Name	Site Name	Userid	Latitude	Longitude	Elevation	Measured At	Solar Measured At	Solar Noon At	Current Temp	Min Temp	Maximum Temp
Lourdes Public Charter School	School Site:ATM-02		44.7225	-122.6898	188.3	2017-04-29 20:15:36	2017-04-29 12:08:00	2017-04-29 20:08:00	15.6	1.7	16.8
Lourdes Public Charter School	School Site:ATM-02		44.7225	-122.6898	188.3	2017-04-28 19:59:56	2017-04-28 11:52:00	2017-04-28 20:08:00	12.6	2.3	11.9
Lourdes Public Charter School	School Site:ATM-02		44.7225	-122.6898	188.3	2017-04-27 20:15:33	2017-04-27 12:07:00	2017-04-27 20:08:00	8	5.7	11.6
Lourdes Public Charter School	School Site:ATM-02		44.7225	-122.6898	188.3	2017-04-26 20:15:56	2017-04-26 12:07:00	2017-04-26 20:08:00	9.6	7	13.7
Lourdes Public Charter School	School Site:ATM-02		44.7225	-122.6898	188.3	2017-04-25 20:15:51	2017-04-25 12:07:00	2017-04-25 20:08:00	10.8	6.3	12.7
Lourdes Public Charter School	School Site:ATM-02		44.7225	-122.6898	188.3	2017-04-24 20:16:00	2017-04-24 12:07:00	2017-04-24 20:08:00	9.3	5.7	11.5
Lourdes Public Charter School	School Site:ATM-02		44.7225	-122.6898	188.3	2017-04-23 20:15:57	2017-04-23 12:07:00	2017-04-23 20:09:00	10.3	7.6	15.6
Lourdes Public Charter School	School Site:ATM-02		44.7225	-122.6898	188.3	2017-04-22 20:15:30	2017-04-22 12:06:00	2017-04-22 20:09:00	13.1	8.7	20
Lourdes Public Charter School	School Site:ATM-02		44.7225	-122.6898	188.3	2017-04-21 20:15:56	2017-04-21 12:06:00	2017-04-21 20:09:00	16	2.5	16.3
Lourdes Public Charter School	School Site:ATM-02		44.7225	-122.6898	188.3	2017-04-20 20:15:54	2017-04-20 12:06:00	2017-04-20 20:09:00	12.5	6.3	15.6
Lourdes Public Charter School	School Site:ATM-02		44.7225	-122.6898	188.3	2017-04-19 20:15:49	2017-04-19 12:06:00	2017-04-19 20:09:00	15.1	6.2	16.4
Lourdes Public Charter School	School Site:ATM-02		44.7225	-122.6898	188.3	2017-04-18 20:15:54	2017-04-18 12:05:00	2017-04-18 20:10:00	14	9	15.6
Lourdes Public Charter School	School Site:ATM-02		44.7225	-122.6898	188.3	2017-04-17 20:15:53	2017-04-17 12:05:00	2017-04-17 20:10:00	10.9	6.8	16.2
Lourdes Public Charter School	School Site:ATM-02		44.7225	-122.6898	188.3	2017-04-16 20:15:53	2017-04-16 12:05:00	2017-04-16 20:10:00	14.6	3.8	15.6
Lourdes Public Charter School	School Site:ATM-02		44.7225	-122.6898	188.3	2017-04-15 20:15:28	2017-04-15 12:04:00	2017-04-15 20:10:00	13.3	0.6	14.4
Lourdes Public Charter School	School Site:ATM-02		44.7225	-122.6898	188.3	2017-04-14 20:16:13	2017-04-14 12:05:00	2017-04-14 20:10:00	9	4.6	10.1
Lourdes Public Charter School	School Site:ATM-02		44.7225	-122.6898	188.3	2017-04-13 20:15:50	2017-04-13 12:04:00	2017-04-13 20:11:00	9.8	4.6	17.2
Lourdes Public Charter School	School Site:ATM-02		44.7225	-122.6898	188.3	2017-04-12 20:15:30	2017-04-12 12:03:00	2017-04-12 20:11:00	15.5	8.2	15.7
Lourdes Public Charter School	School Site:ATM-02		44.7225	-122.6898	188.3	2017-04-11 20:16:06	2017-04-11 12:04:00	2017-04-11 20:11:00	10.3	2.1	13.4
Lourdes Public Charter School	School Site:ATM-02		44.7225	-122.6898	188.3	2017-04-10 20:16:08	2017-04-10 12:03:00	2017-04-10 20:12:00	11.1	4.8	14.8
Lourdes Public Charter School	School Site:ATM-02		44.7225	-122.6898	188.3	2017-04-04 20:15:46	2017-04-04 12:01:00	2017-04-04 20:13:00	15.5	3.8	15.4
Lourdes Public Charter School	School Site:ATM-02		44.7225	-122.6898	188.3	2017-04-03 20:15:32	2017-04-03 12:00:00	2017-04-03 20:13:00	11.4	-0.6	14.6
Lourdes Public Charter School	School Site:ATM-02		44.7225	-122.6898	188.3	2017-04-02 20:15:32	2017-04-02 12:00:00	2017-04-02 20:14:00	13.4	3.2	15
Lourdes Public Charter School	School Site:ATM-02		44.7225	-122.6898	188.3	2017-04-01 20:16:00	2017-04-01 12:00:00	2017-04-01 20:14:00	9.3	4.6	15.2
Lourdes Public Charter School	School Site:ATM-02		44.7225	-122.6898	188.3	2017-03-31 20:15:35	2017-03-31 11:59:00	2017-03-31 20:14:00	13	0.4	13
Lourdes Public Charter School	School Site:ATM-02		44.7225	-122.6898	188.3	2017-03-30 20:15:53	2017-03-30 11:59:00	2017-03-30 20:15:00	8.7	5.3	11.8
Lourdes Public Charter School	School Site:ATM-02		44.7225	-122.6898	188.3	2017-03-29 20:15:57	2017-03-29 11:59:00	2017-03-29 20:15:00	10.2	7.9	15.4
Lourdes Public Charter School	School Site:ATM-02		44.7225	-122.6898	188.3	2017-03-28 20:15:55	2017-03-28 11:58:00	2017-03-28 20:15:00	14	6.2	14
Lourdes Public Charter School	School Site:ATM-02		44.7225	-122.6898	188.3	2017-03-27 20:15:59	2017-03-27 11:58:00	2017-03-27 20:16:00	9.7	5.4	9.7
Lourdes Public Charter School	School Site:ATM-02		44.7225	-122.6898	188.3	2017-03-26 20:15:52	2017-03-26 11:58:00	2017-03-26 20:16:00	8.8	4.8	11.7
Lourdes Public Charter School	School Site:ATM-02		44.7225	-122.6898	188.3	2017-03-25 20:15:49	2017-03-25 11:57:00	2017-03-25 20:16:00	10	5.8	11.5
Lourdes Public Charter School	School Site:ATM-02		44.7225	-122.6898	188.3	2017-03-24 20:15:56	2017-03-24 11:57:00	2017-03-24 20:16:00	11.1	6.7	16
Lourdes Public Charter School	School Site:ATM-02		44.7225	-122.6898	188.3	2017-03-23 20:15:38	2017-03-23 11:56:00	2017-03-23 20:17:00	14.2	2.9	15.4
Lourdes Public Charter School	School Site:ATM-02		44.7225	-122.6898	188.3	2017-03-22 20:15:34	2017-03-22 11:56:00	2017-03-22 20:17:00	9.2	7.6	18.6
Lourdes Public Charter School	School Site:ATM-02		44.7225	-122.6898	188.3	2017-03-21 20:15:23	2017-03-21 11:55:00	2017-03-21 20:17:00	17.1	5.9	17.1
Lourdes Public Charter School	School Site:ATM-02		44.7225	-122.6898	188.3	2017-03-20 20:15:49	2017-03-20 11:56:00	2017-03-20 20:18:00	8.9	4.2	13.6
Lourdes Public Charter School	School Site:ATM-02		44.7225	-122.6898	188.3	2017-03-19 20:15:50	2017-03-19 11:55:00	2017-03-19 20:18:00	11.2	-0.9	11.2
Lourdes Public Charter School	School Site:ATM-02		44.7225	-122.6898	188.3	2017-03-18 20:15:47	2017-03-18 11:55:00	2017-03-18 20:18:00	7.1	6.5	16.1
Lourdes Public Charter School	School Site:ATM-02		44.7225	-122.6898	188.3	2017-03-17 20:15:23	2017-03-17 11:54:00	2017-03-17 20:19:00	10.7	1.9	12.5
Lourdes Public Charter School	School Site:ATM-02		44.7225	-122.6898	188.3	2017-03-16 20:15:36	2017-03-16 11:54:00	2017-03-16 20:19:00	9.7	4.9	12.7
Lourdes Public Charter School	School Site:ATM-02		44.7225	-122.6898	188.3	2017-03-15 20:15:42	2017-03-15 11:54:00	2017-03-15 20:19:00	11.2	9.8	13.7
Lourdes Public Charter School	School Site:ATM-02		44.7225	-122.6898	188.3	2017-03-14 20:15:29	2017-03-14 11:53:00	2017-03-14 20:19:00	12.9	11	14.8
Lourdes Public Charter School	School Site:ATM-02		44.7225	-122.6898	188.3	2017-03-13 20:15:25	2017-03-13 11:53:00	2017-03-13 20:20:00	13.1	7.7	20.2

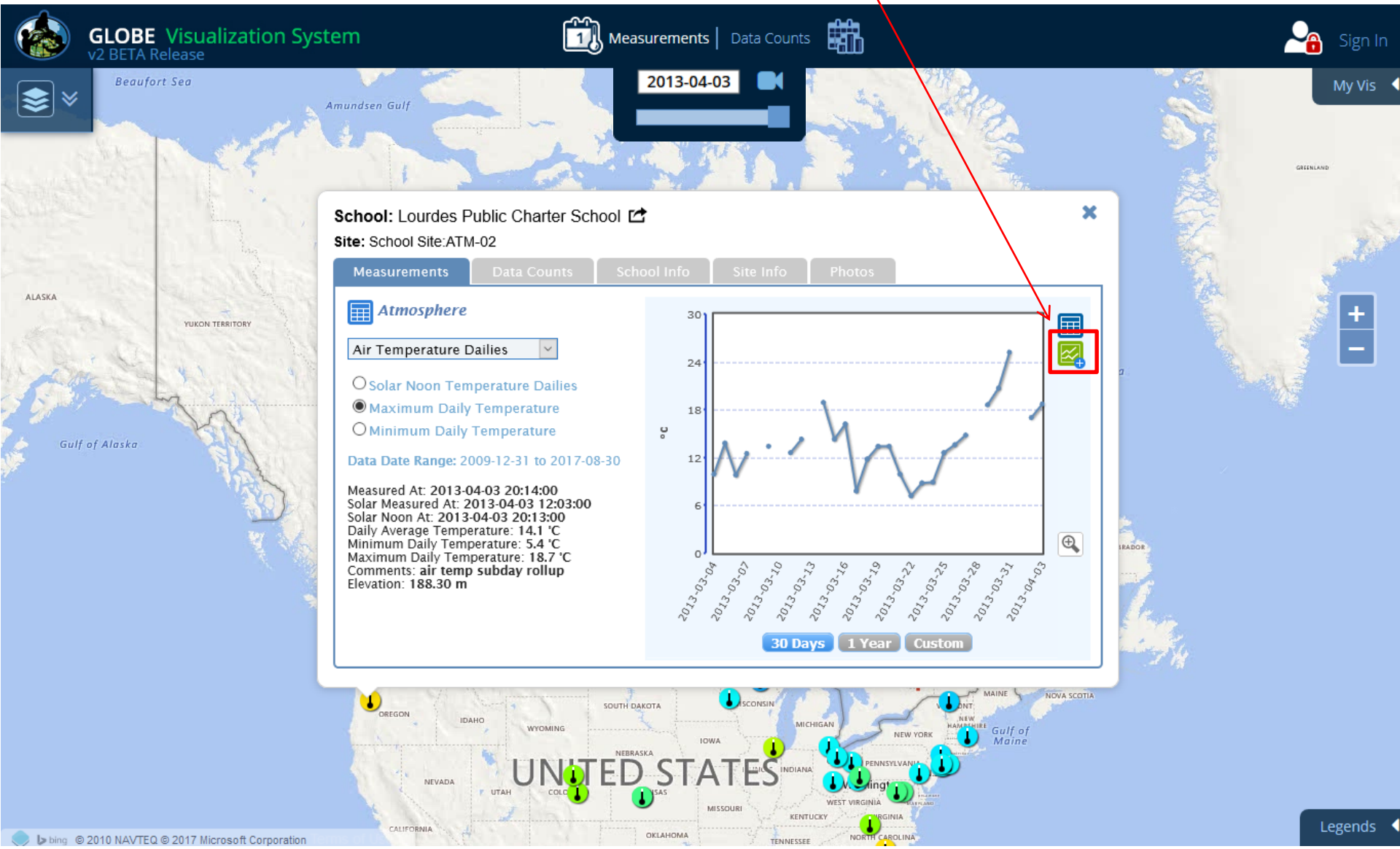
Next, check the button to see all of the atmosphere data in a table view.



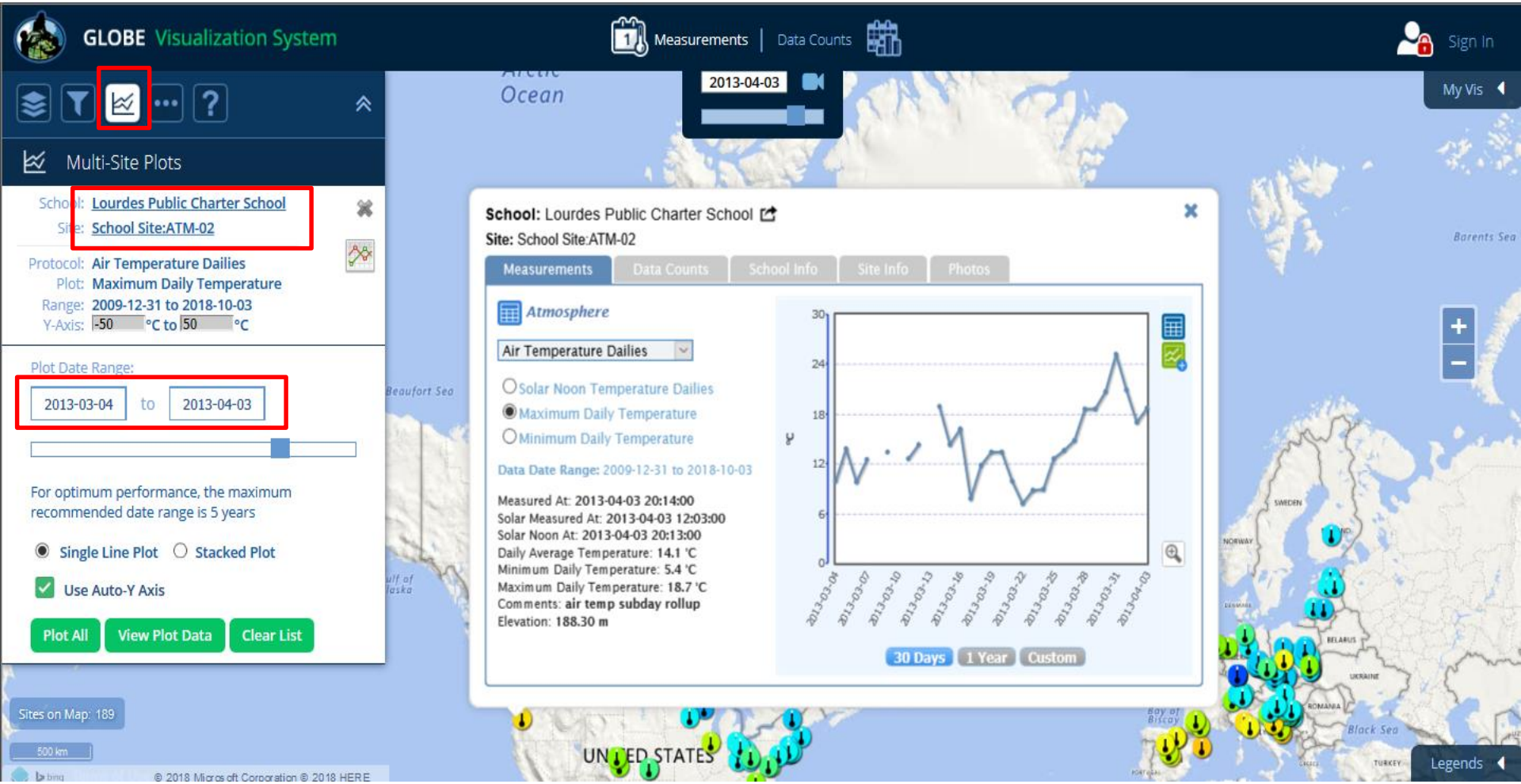
Now, all of your data is displayed in the table (this may take awhile). If you right click any column header (desktop only), a window will open to allow you to filter the data columns.



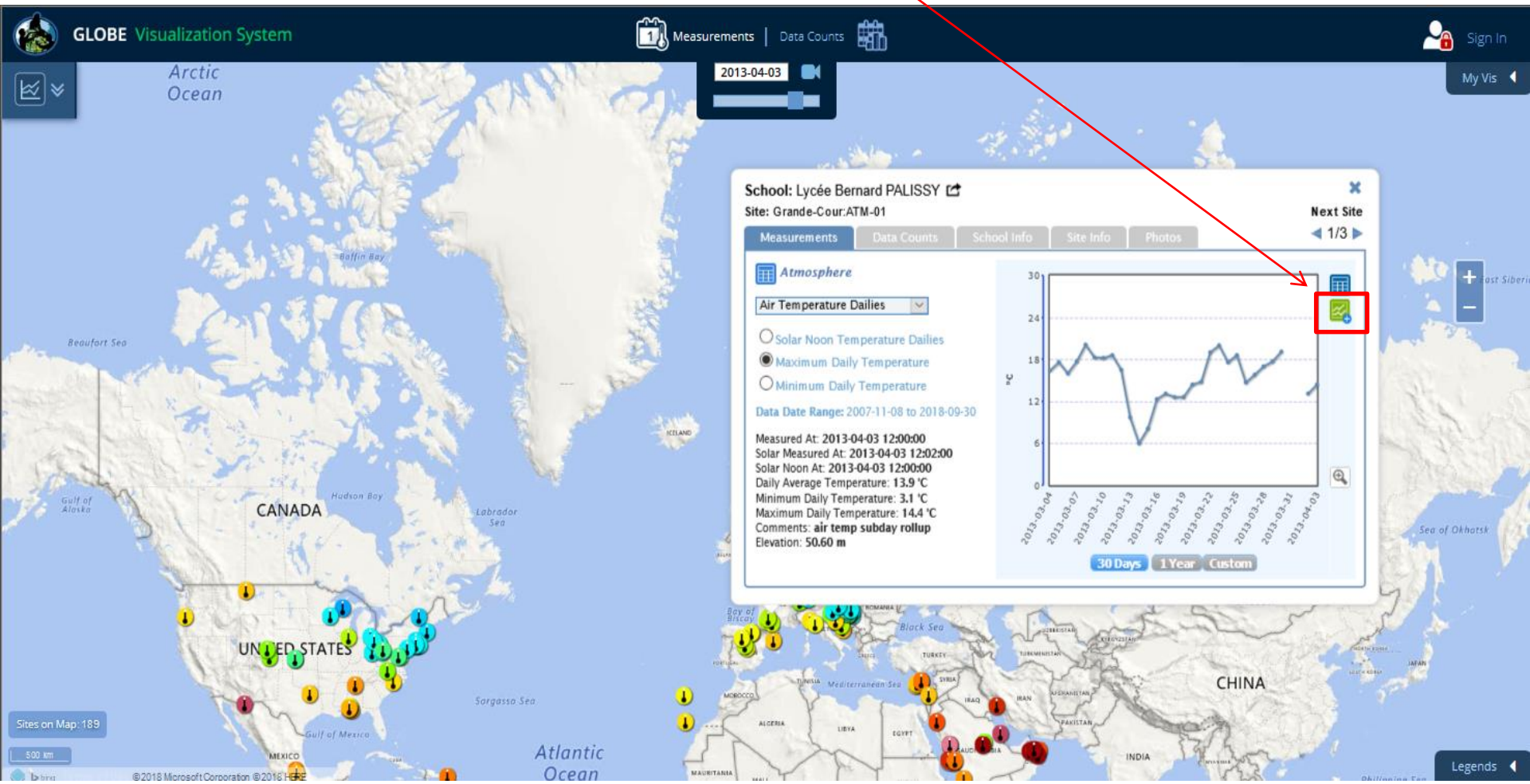
To compare this site data to other sites, you can add the site to a multi-site time series plot by clicking on this button. Keep the plot range at 30 days and then select the button



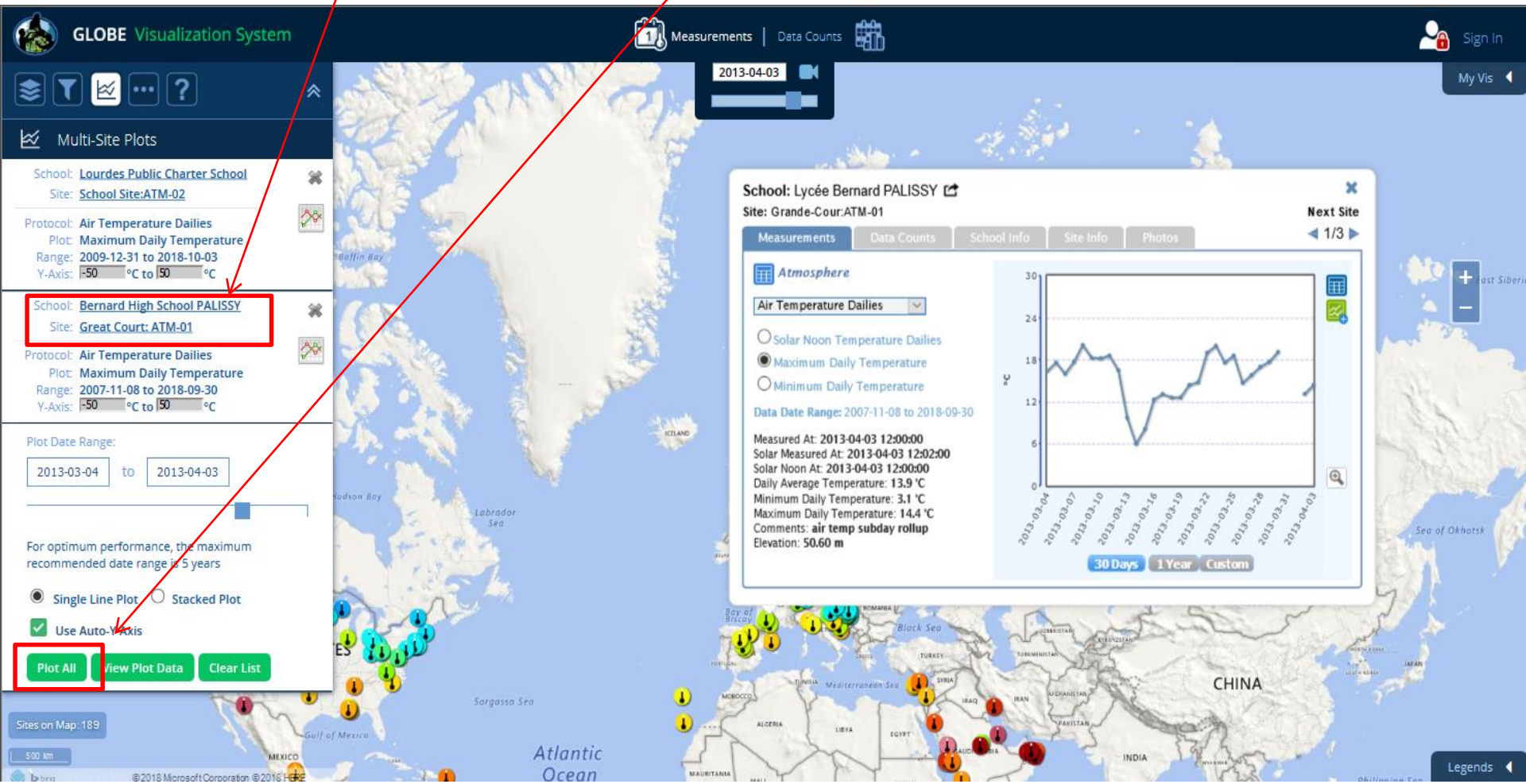
The site is added to the Multi-Site Plots list with the date range from the site plot pre-selected. You can change the dates by clicking on the date fields or by using the slider.



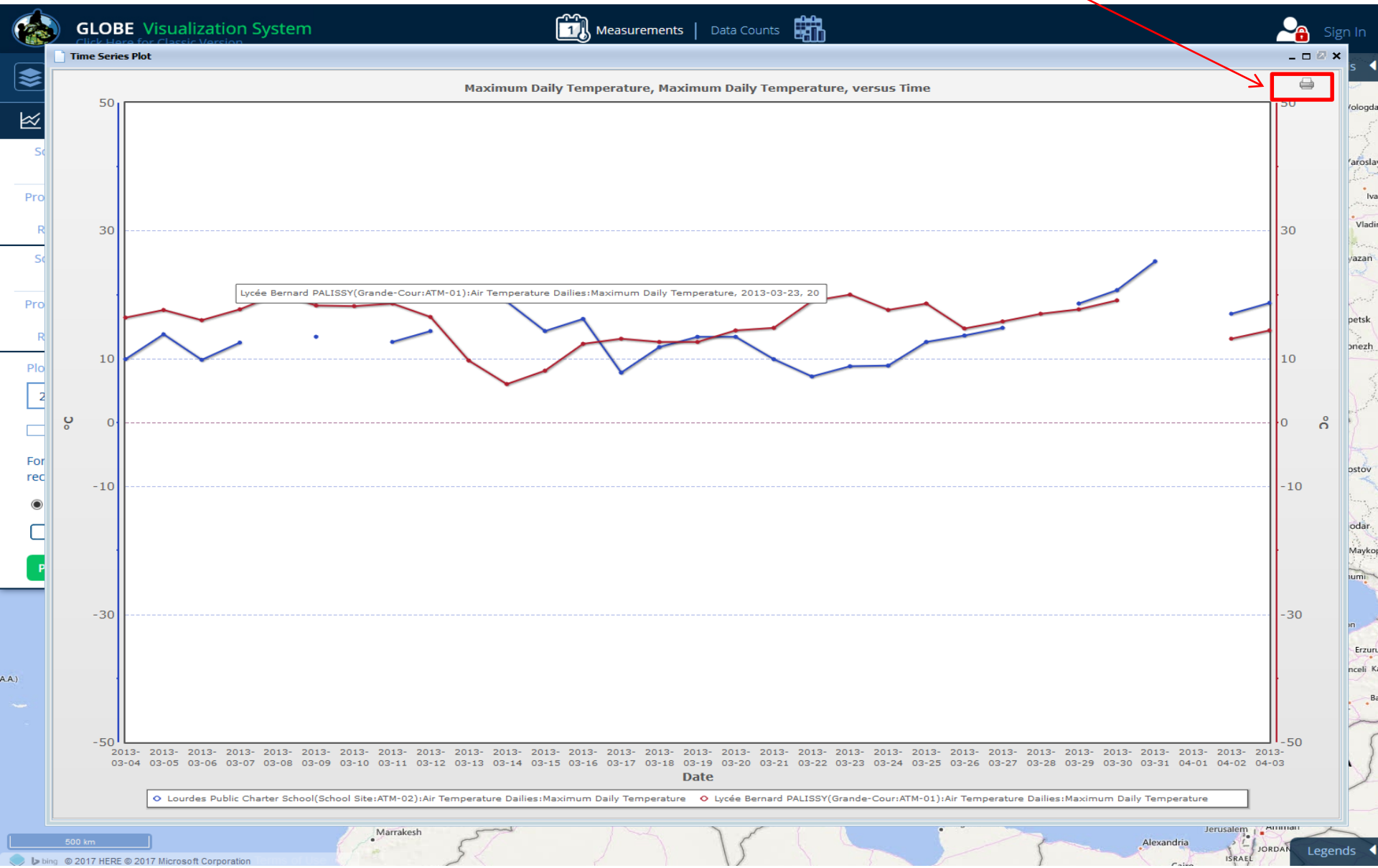
Now let's select another site. Close the site info window of the U.S. site and then select one of the sites in France. Again click on the icon to add the site to the multi-site time series plot.



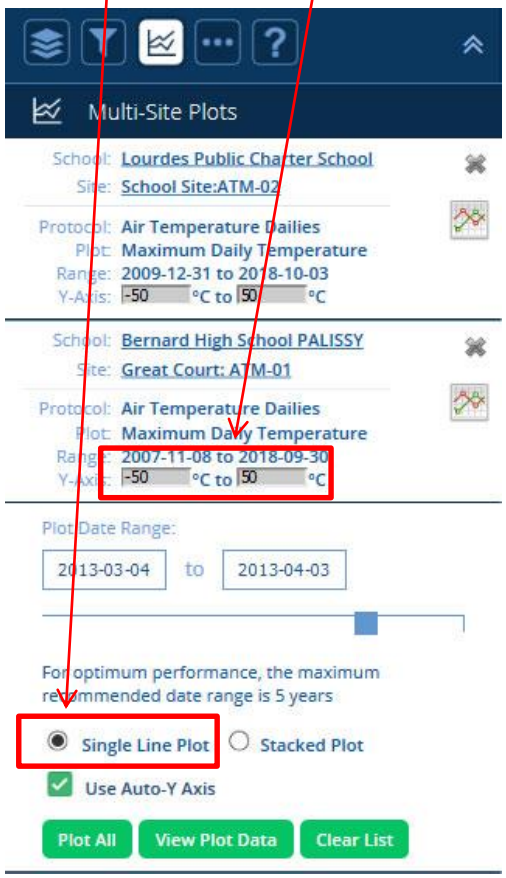
The second site is now added. Now click on the ‘Plot All’ button to view the time series plot.

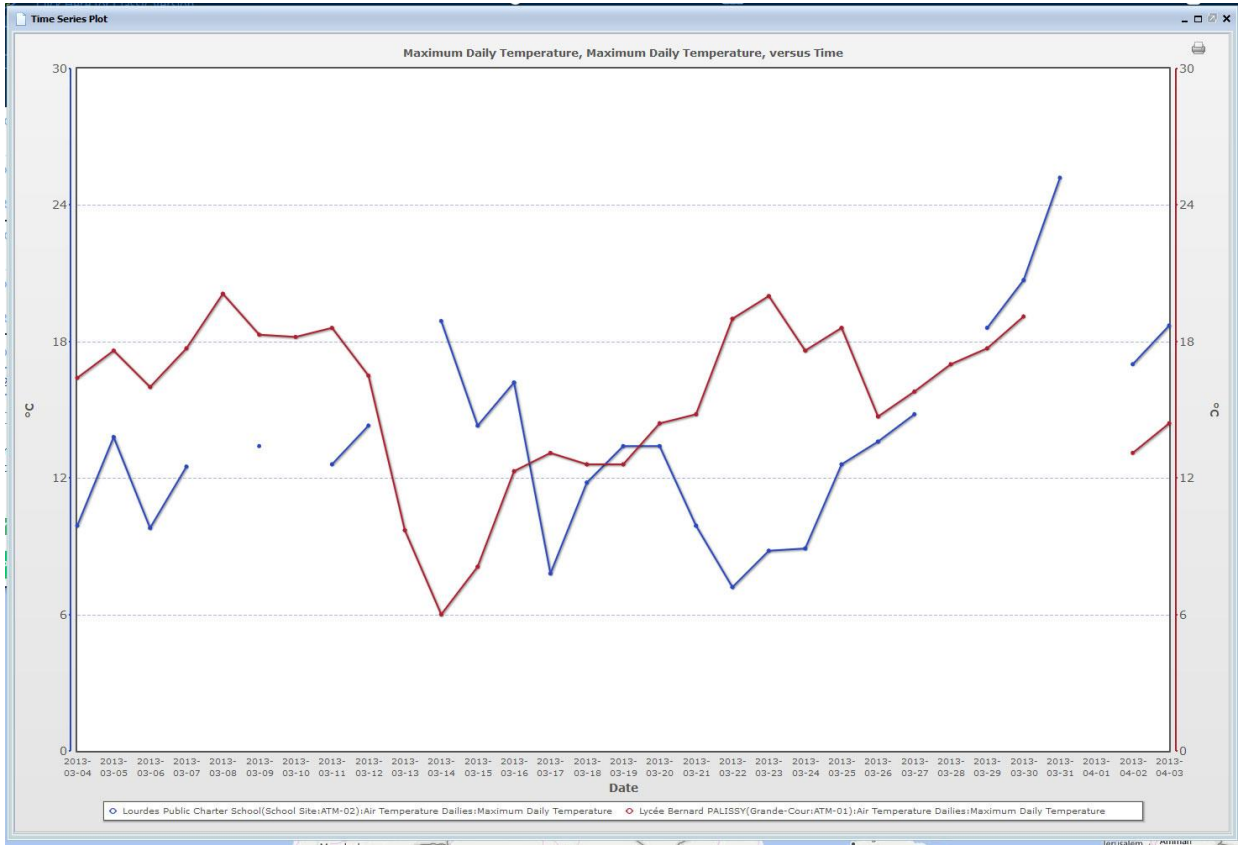


Here is the result. A maximum of 6 datasets can be added to the plot list and the maximum plot date range recommended is 5 years. Clicking the print button will print out a copy of this graph.

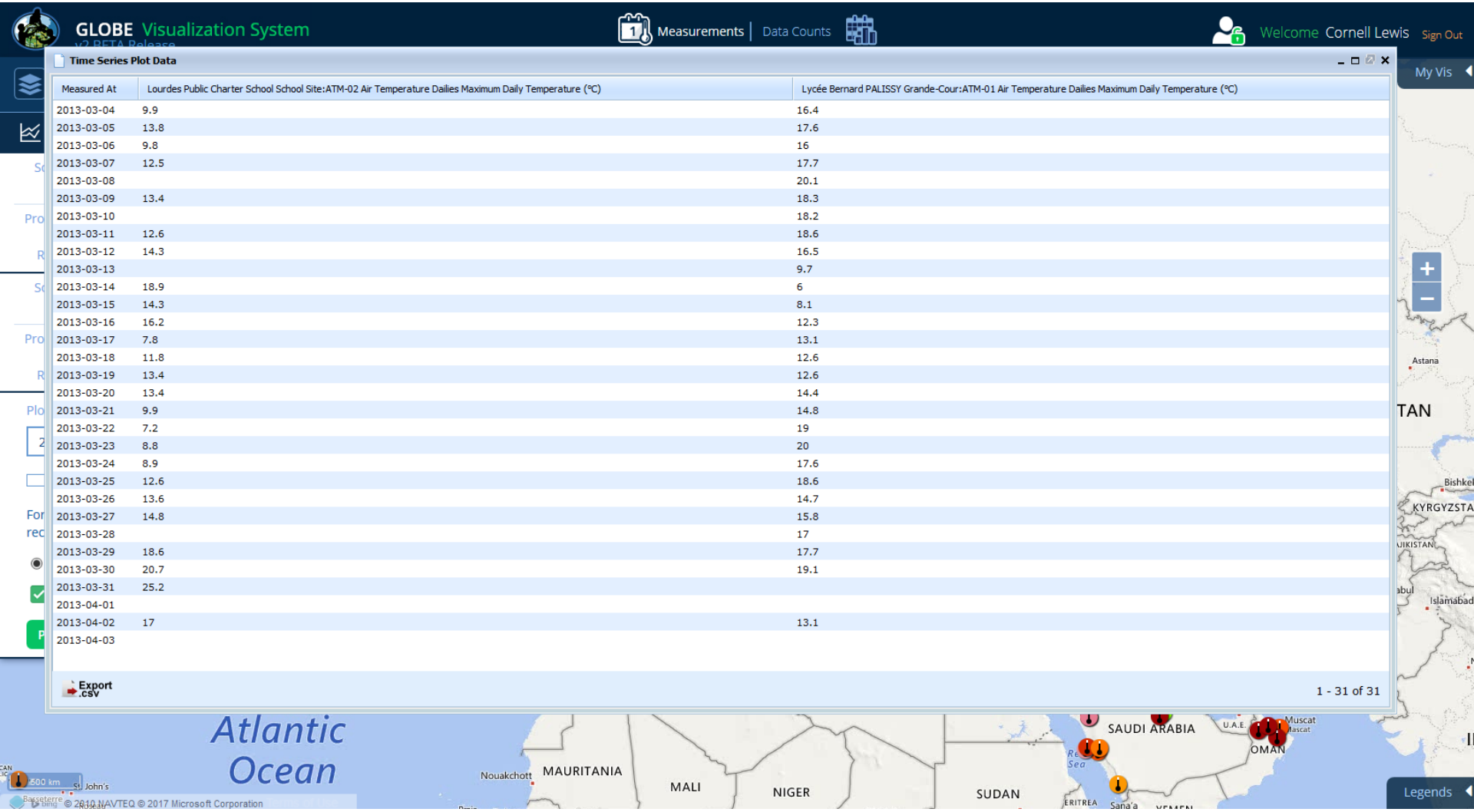


By default, the use Auto Y-axis box is checked so the software adjusts the y-axes individually to spread the data vertically on the graph. You can elect to un-check the Auto Y-axis and manually adjust the Y-axis for each site.

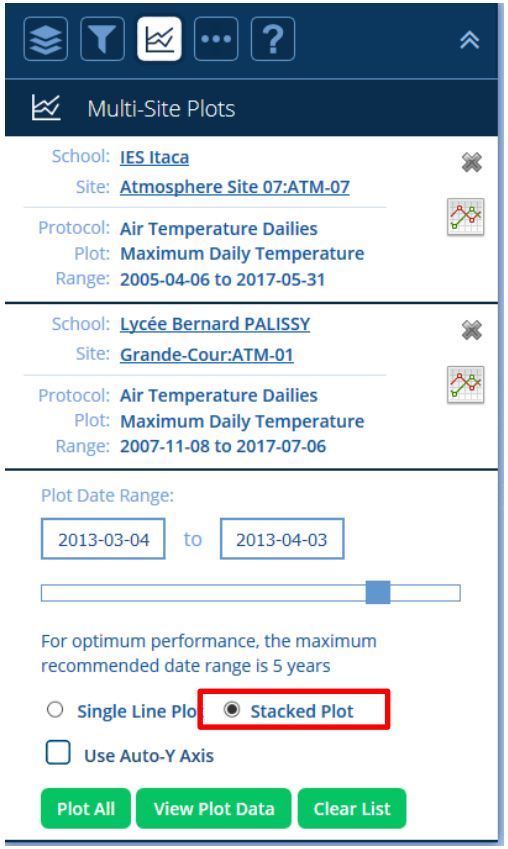


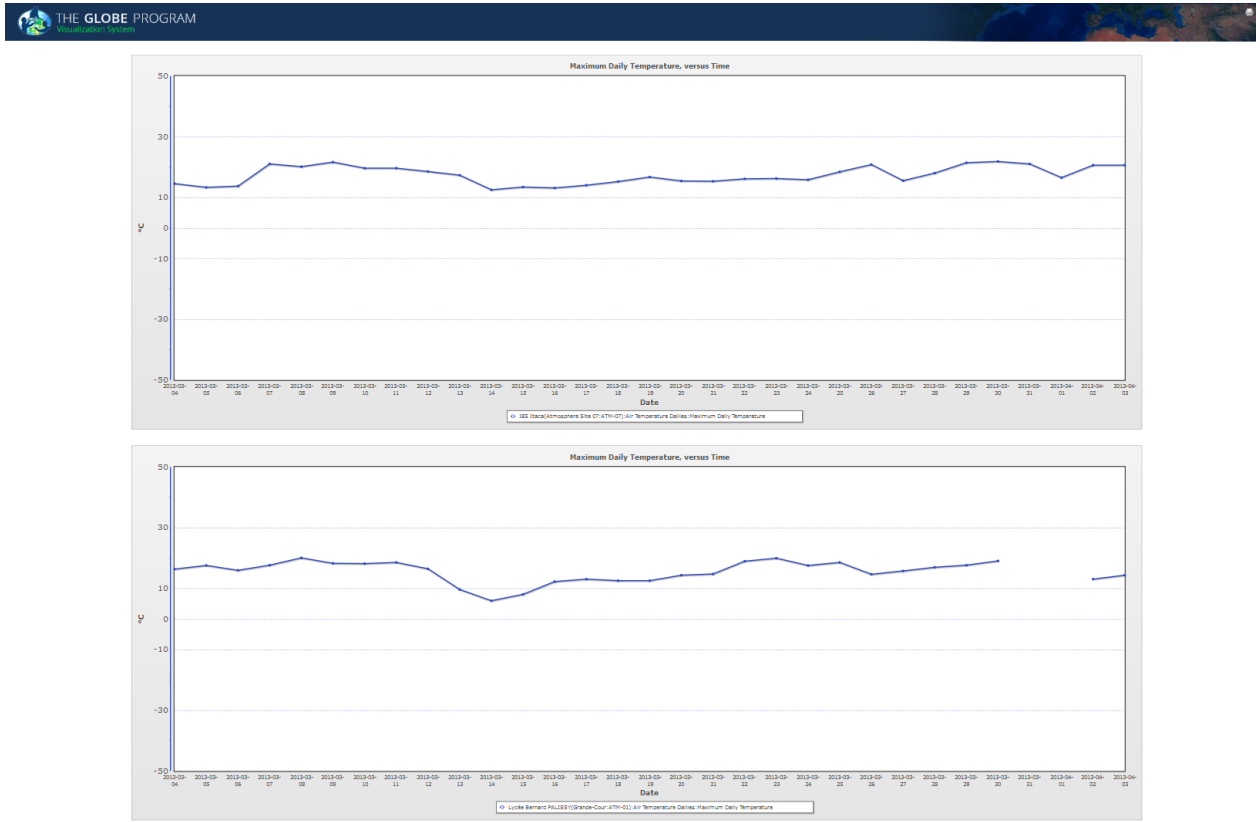


Here is the data table showing the two sites.

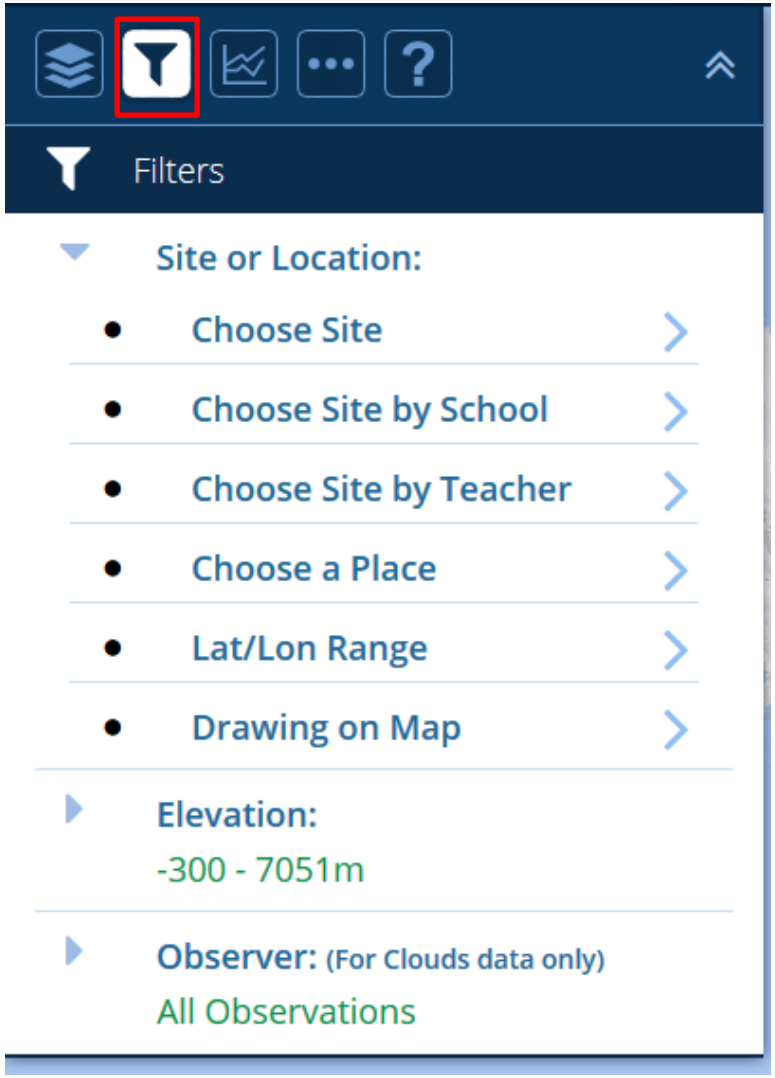


Click ‘Stacked Plot’ to plot the two sites on separate graphs

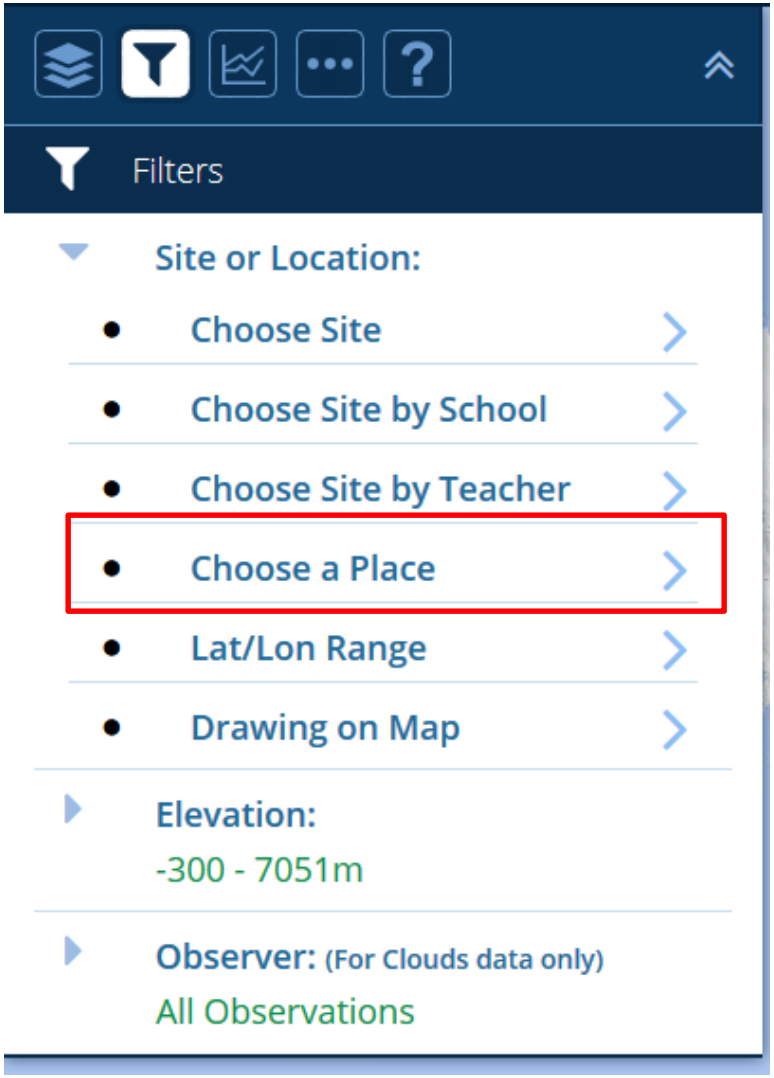


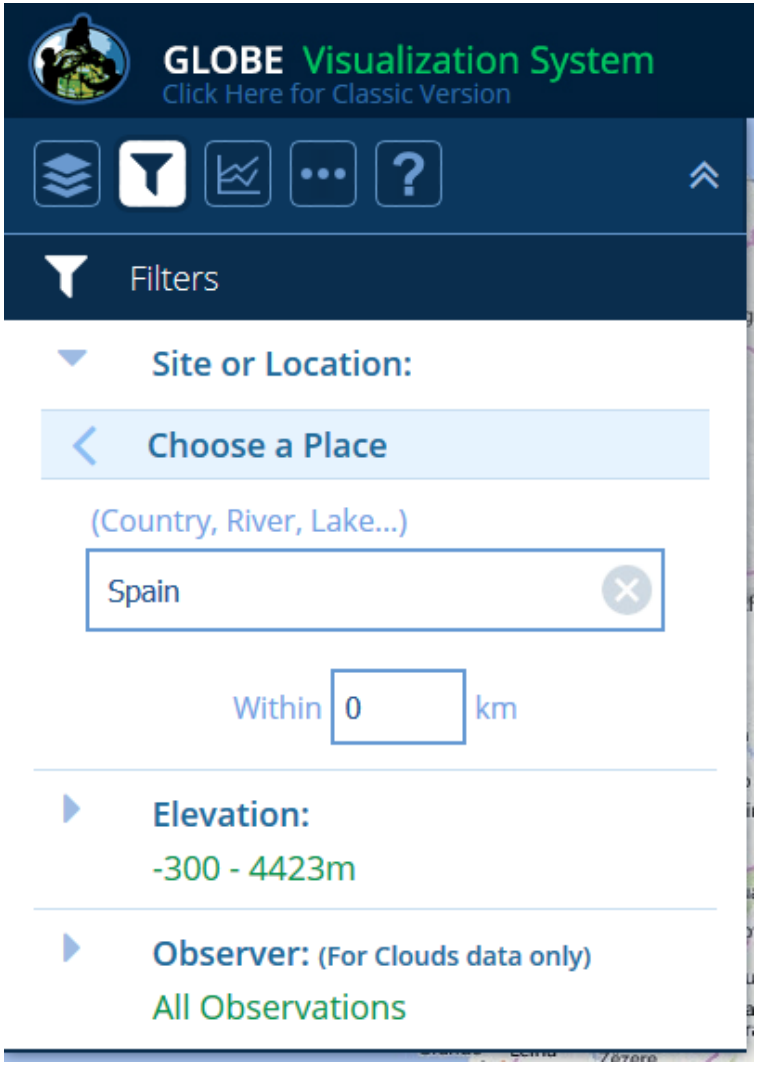


The Filters box is where you refine which data is shown on the map. Click on the filter icon at the left. You can limit the map to display only data at a specific location (such as a country) or at a specific elevation range.

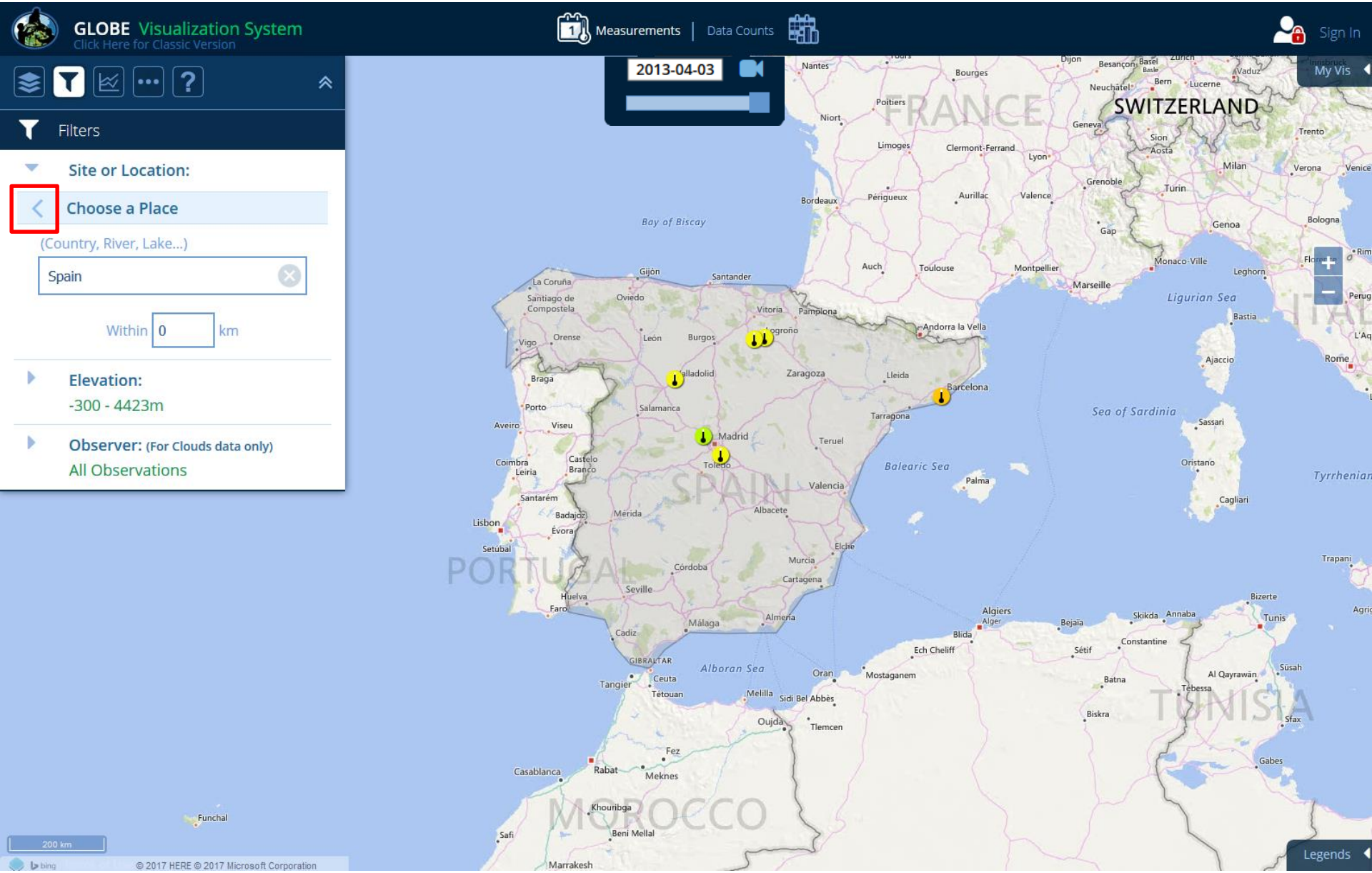


Let’s first display only schools in a country, select ‘Places’ in the Location/Site filter and then enter in Spain.

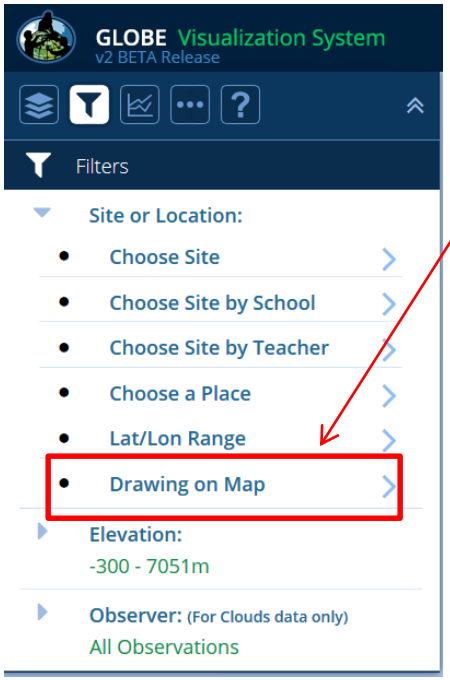


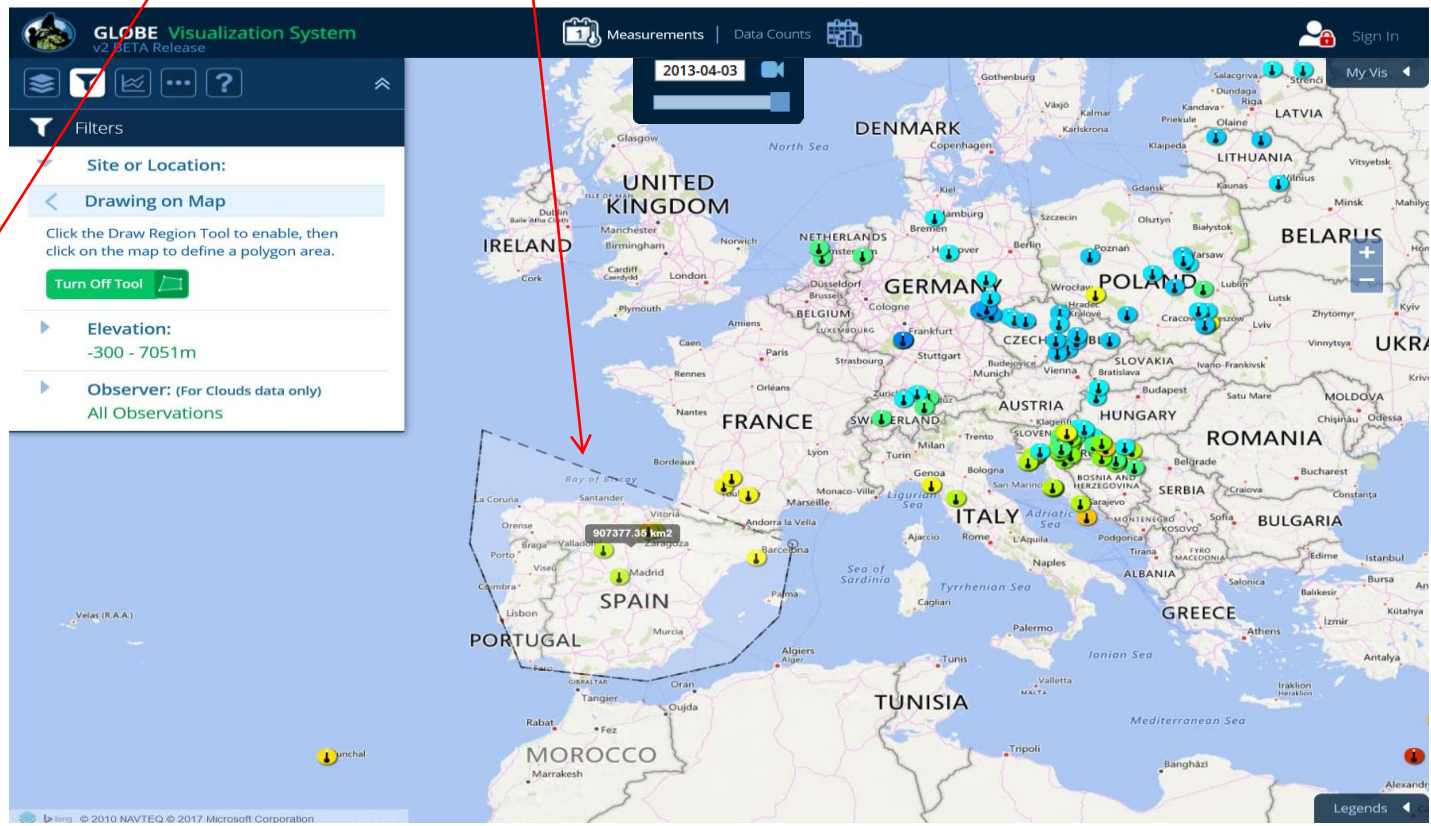


The map will zoom into the selected place and only display sites in Spain. Select the back arrow to return to the main Site or Location menu.

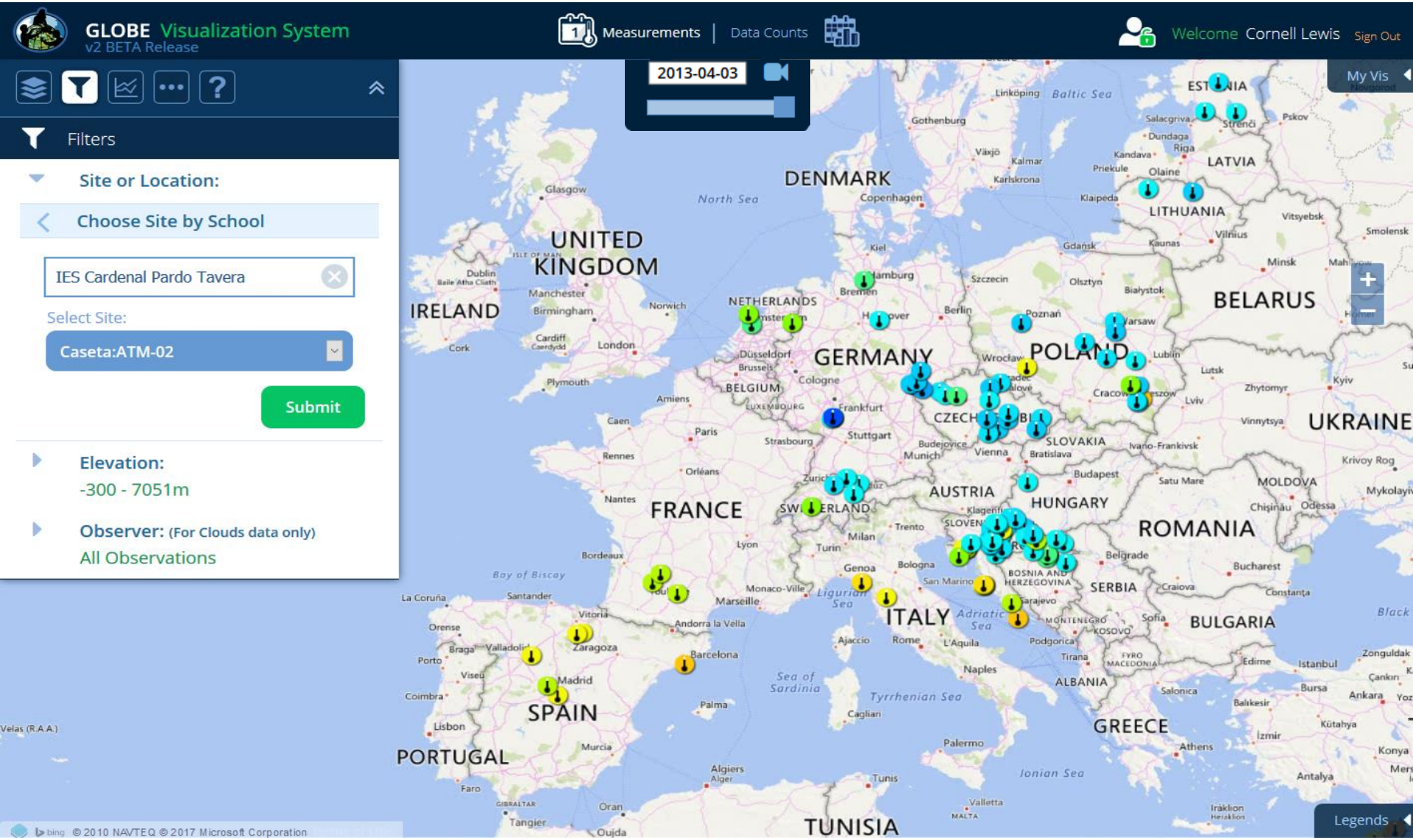


You can also filter data sites using the ‘Drawing on Map’ option. Click on the ‘Drawing on Map’ option. Turn on the tool and then draw a polygon around the site you want to isolate.

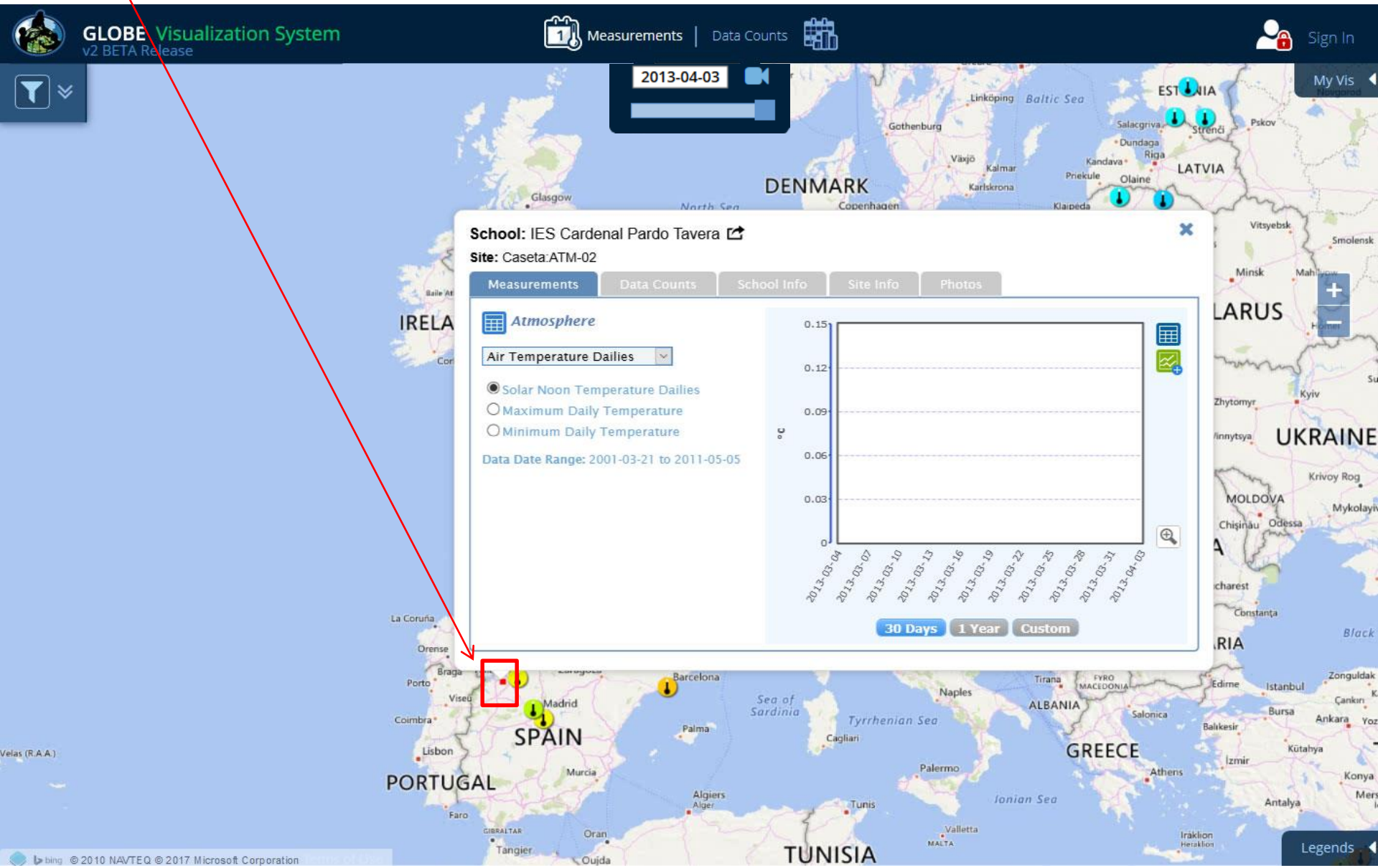




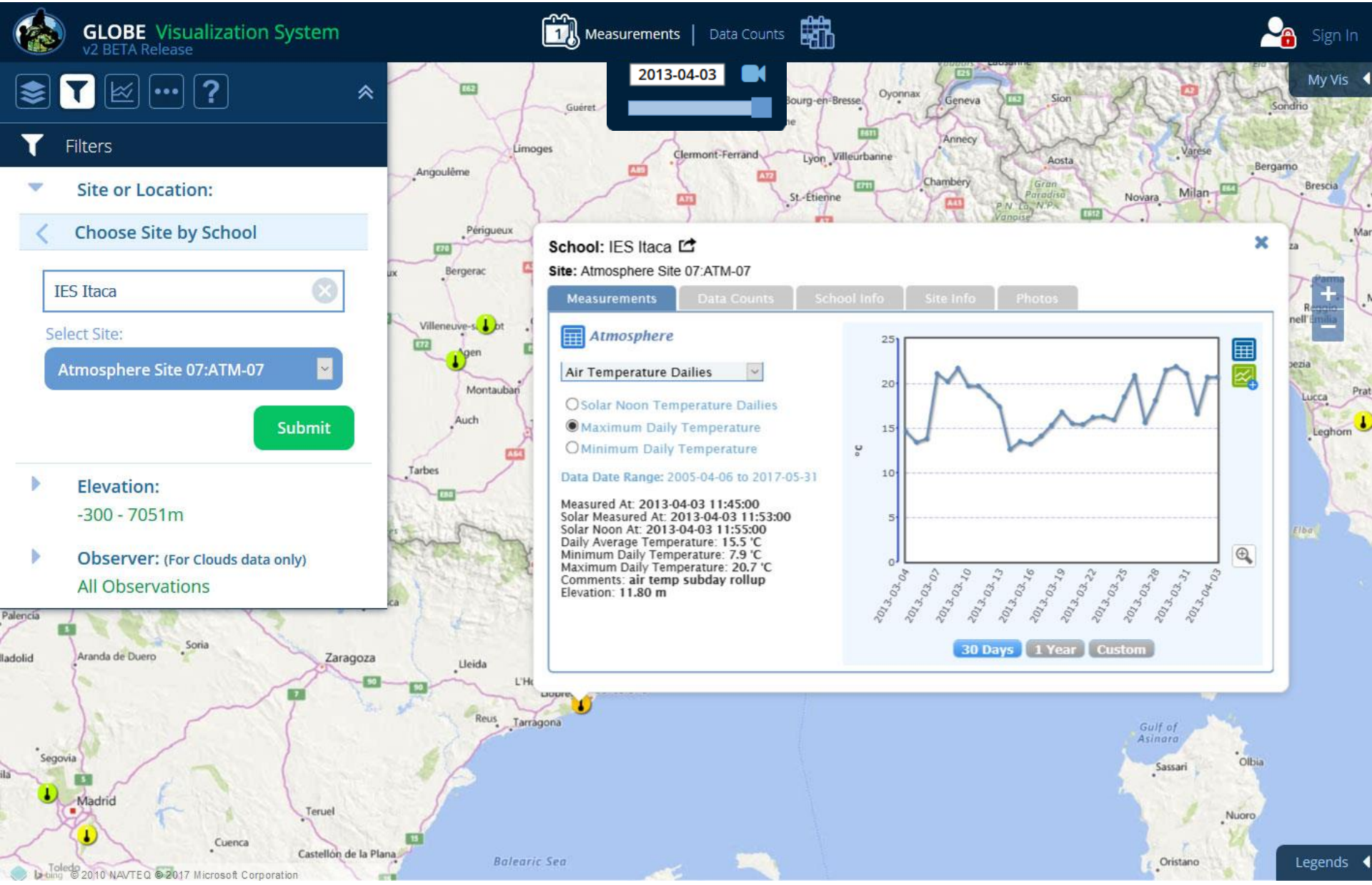
You can also search for a particular school by name. Return to the Site or Location menu and select ‘Choose Site by School’. Type in ‘IES Cardenal‘ in the school name field. The system will auto-complete to show a list of schools that have that name in the title. Select ‘IEC Cardenal Pardo Tavera’ and the site ‘Casteta: ATM-02’ and Submit.



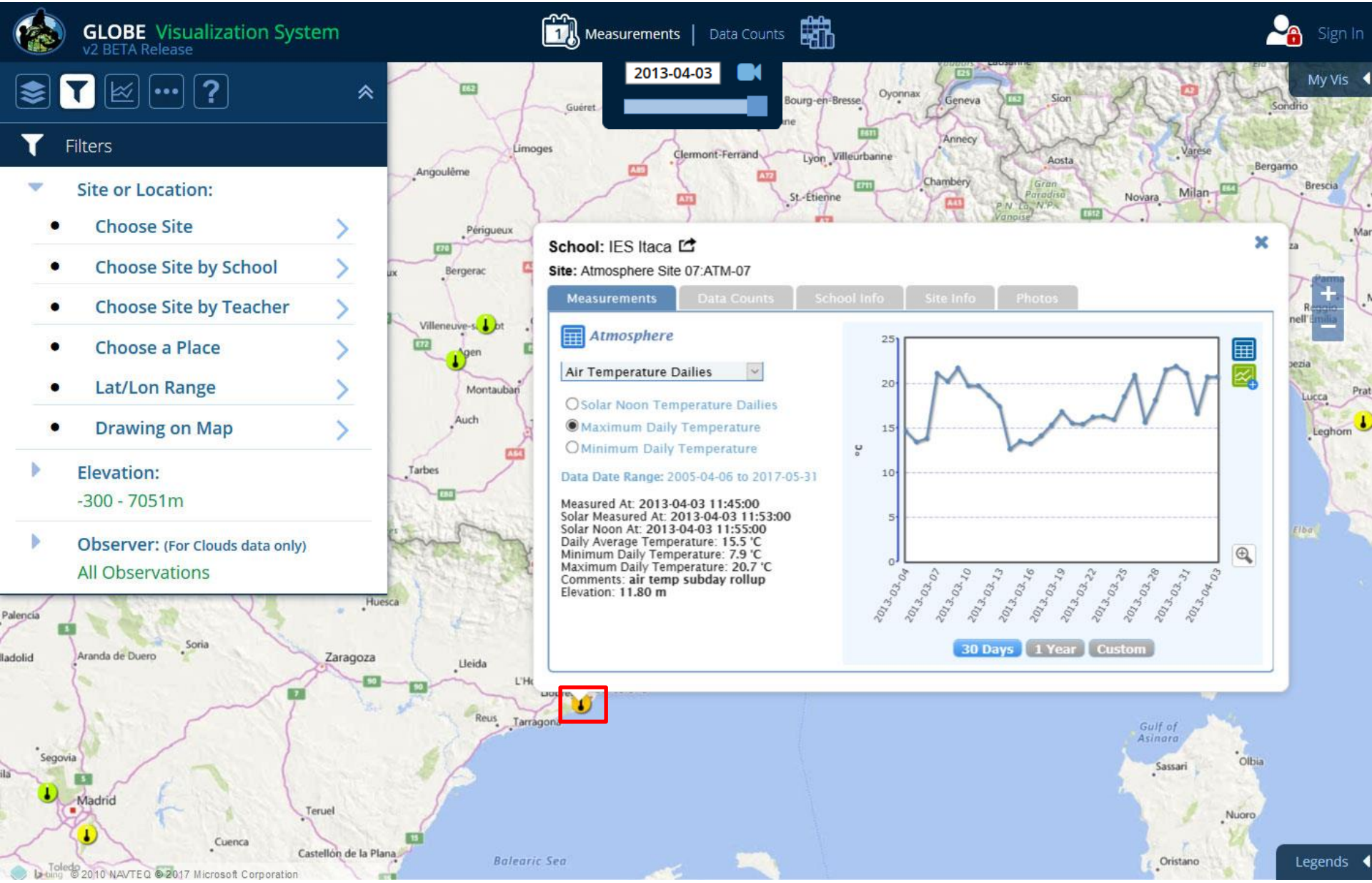
The site information window of the selected site will open. Note how the site icon is a small red dot. This indicates that no data for the added protocol layer(s) was entered on the measurement date selected (2013-04-03).



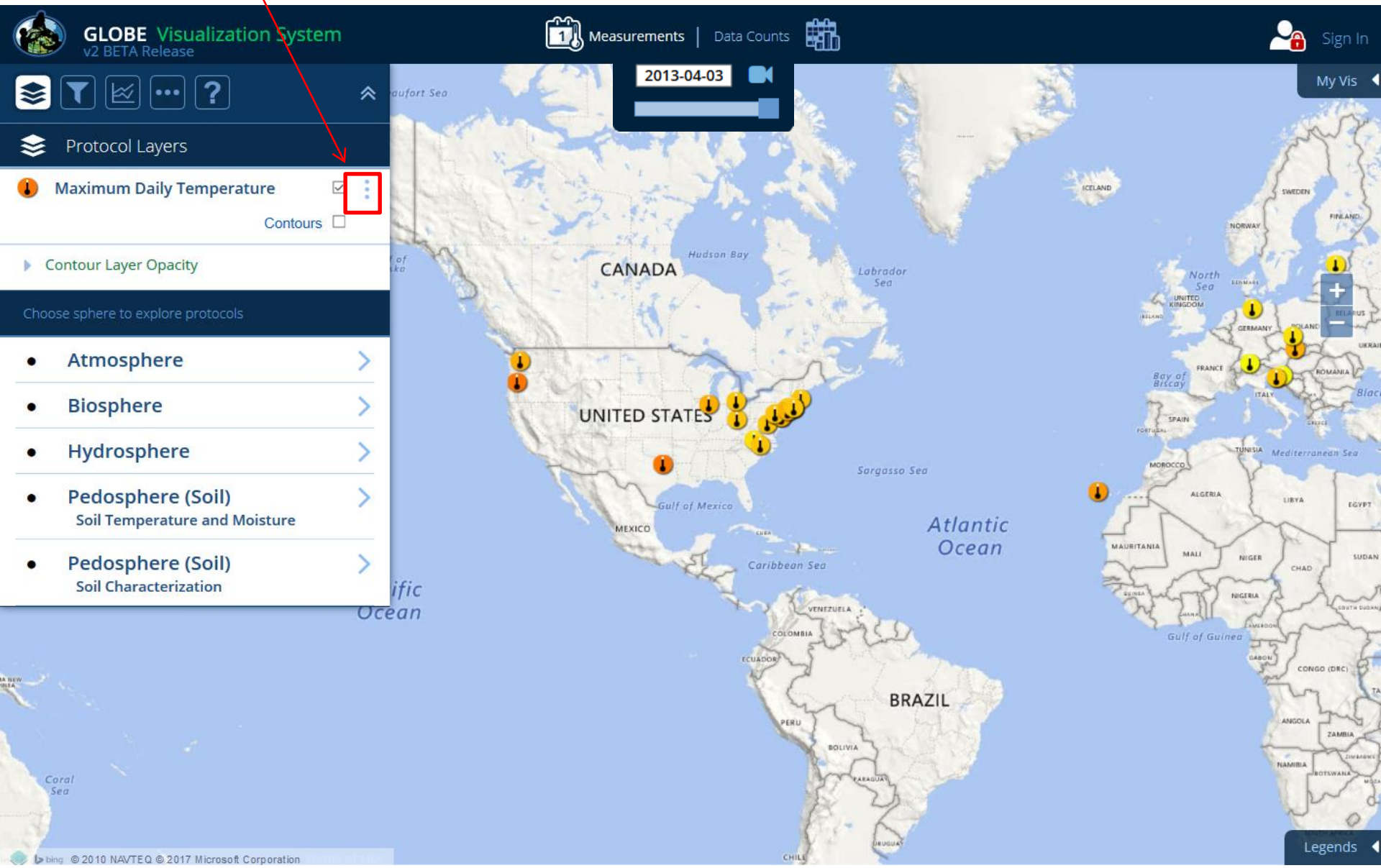
Let’s search for another school. Type in ‘Itaca‘ in the school name field select ‘IEC Itaca’ and then the site ‘Atmosphere Site 07: ATM-07’.



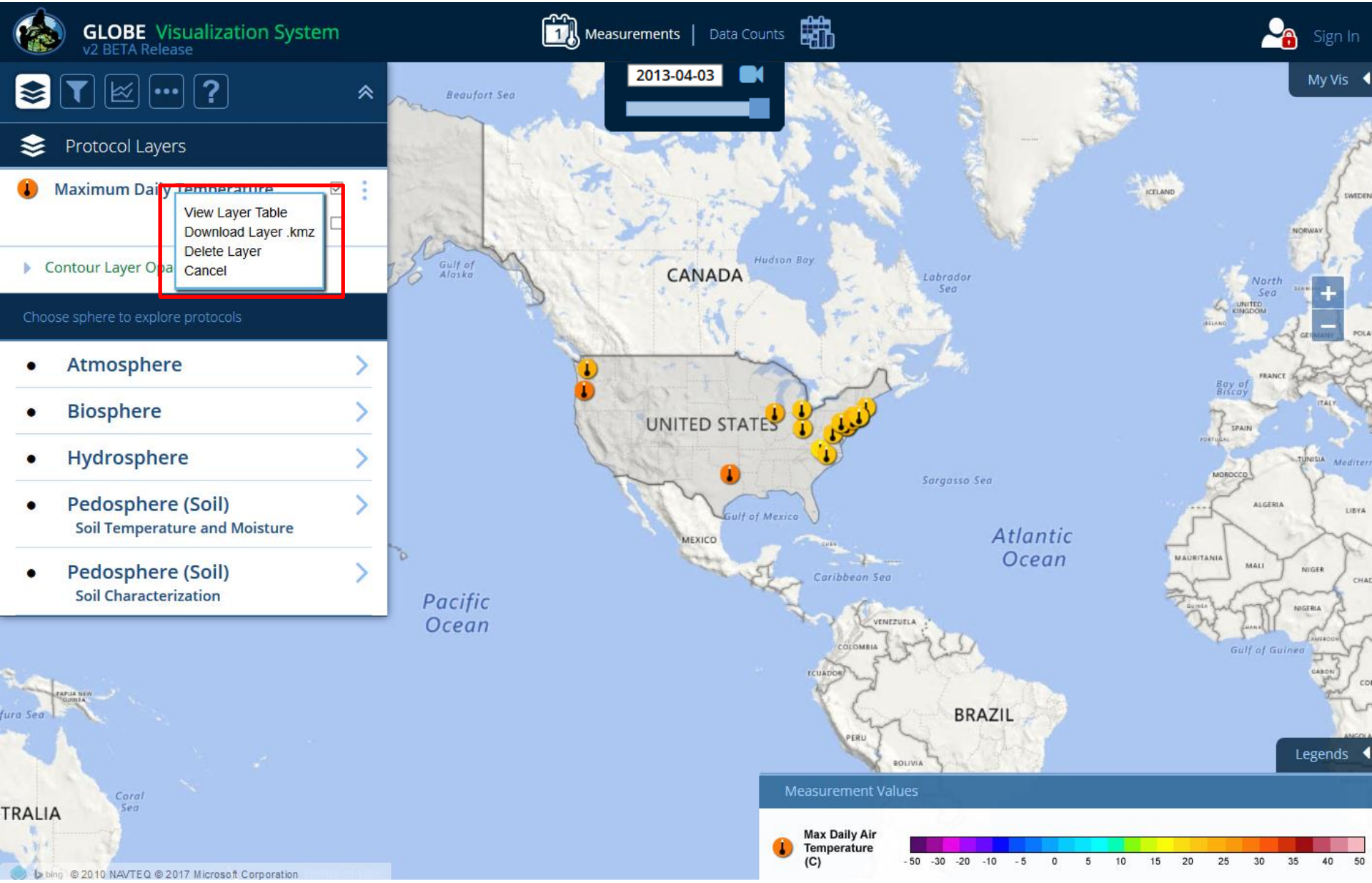
The site info window is now pointing at a Max Daily Temperature icon because temperature data was recorded on the current date.



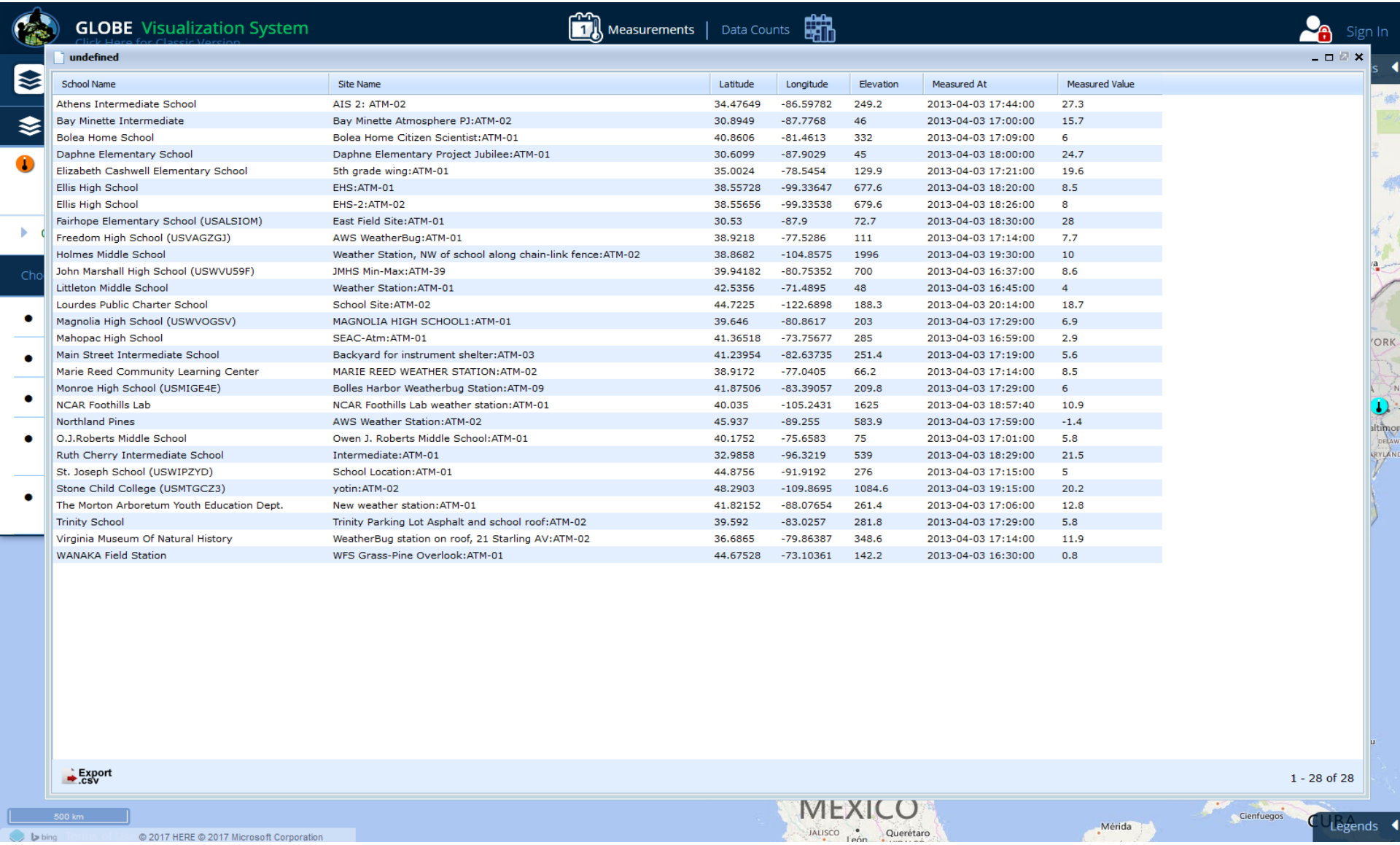
Another way to output data is to view all data of a layer in a table. To do so, click on the ‘more’ icon (the 3 dots).



A selection pop-up box appears. Click on **View Layer Table.** In this example we used the Place filter to just show U.S. sites. Note – data can also be downloaded to a .kmz file

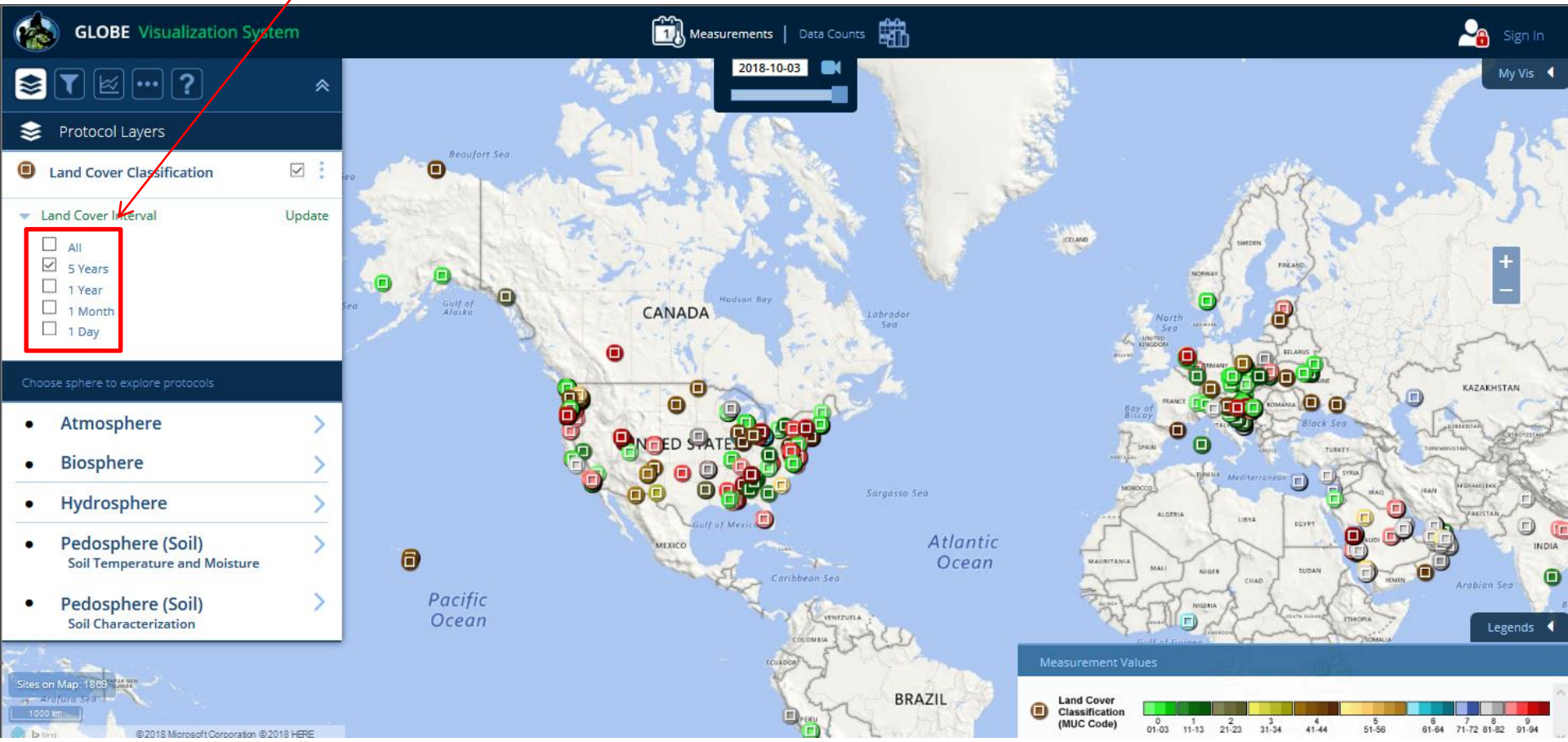


The sites in the U.S. for the layer and measurement date selected are listed in the table and can be sorted by any field name (School Name, Site Name, etc.) and can be exported to a .csv file.

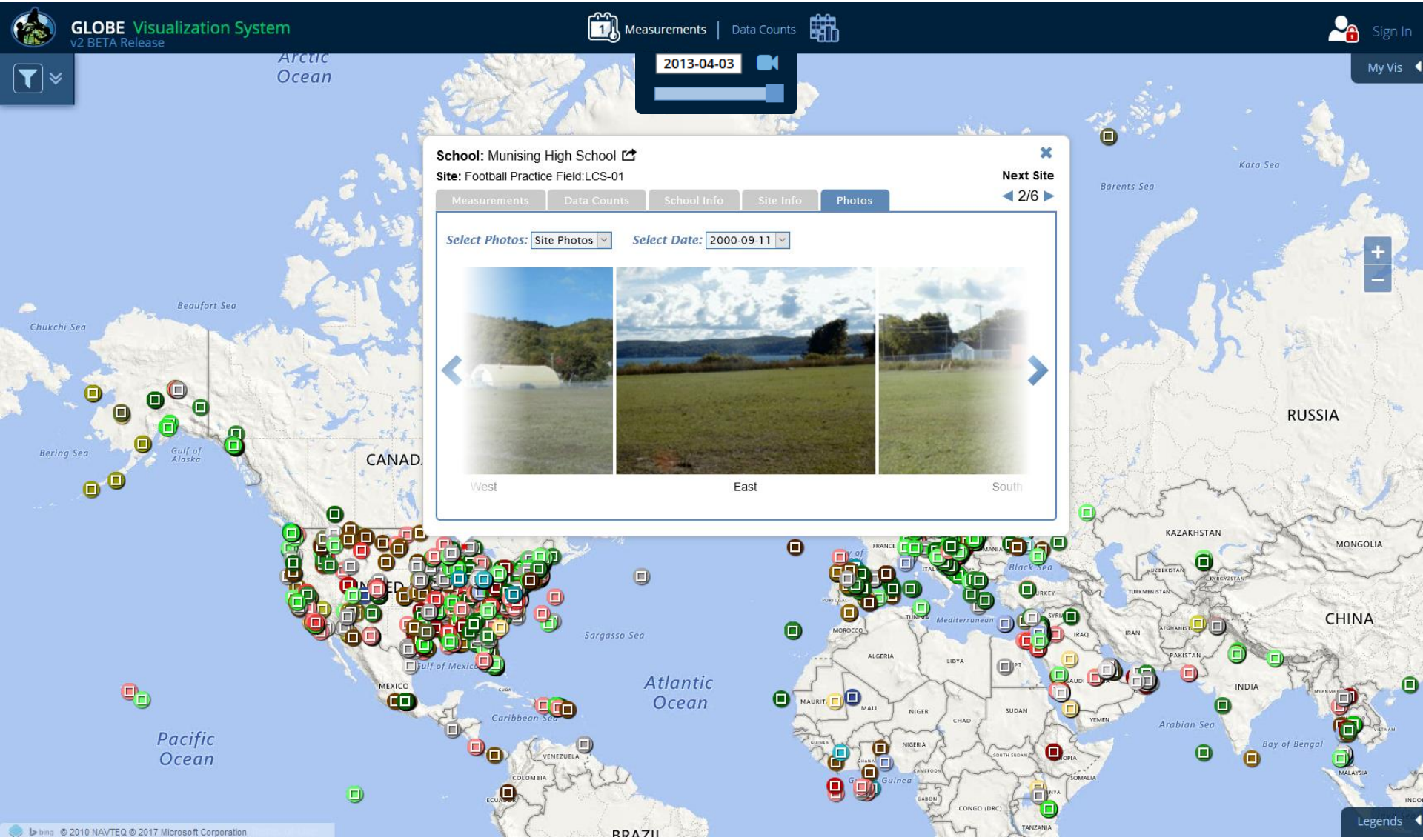


School Name	Site Name	Latitude	Longitude	Elevation	Measured At	Measured Value
Athens Intermediate School	AIS 2: ATM-02	34.47649	-86.59782	249.2	2013-04-03 17:44:00	27.3
Bay Minette Intermediate	Bay Minette Atmosphere PJ:ATM-02	30.8949	-87.7768	46	2013-04-03 17:00:00	15.7
Bolea Home School	Bolea Home Citizen Scientist:ATM-01	40.8606	-81.4613	332	2013-04-03 17:09:00	6
Daphne Elementary School	Daphne Elementary Project Jubilee:ATM-01	30.6099	-87.9029	45	2013-04-03 18:00:00	24.7
Elizabeth Cashwell Elementary School	5th grade wing:ATM-01	35.0024	-78.5454	129.9	2013-04-03 17:21:00	19.6
Ellis High School	EHS:ATM-01	38.55728	-99.33647	677.6	2013-04-03 18:20:00	8.5
Ellis High School	EHS-2:ATM-02	38.55656	-99.33538	679.6	2013-04-03 18:26:00	8
Fairhope Elementary School (USALSIOM)	East Field Site:ATM-01	30.53	-87.9	72.7	2013-04-03 18:30:00	28
Freedom High School (USVAGZGJ)	AWS WeatherBug:ATM-01	38.9218	-77.5286	111	2013-04-03 17:14:00	7.7
Holmes Middle School	Weather Station, NW of school along chain-link fence:ATM-02	38.8682	-104.8575	1996	2013-04-03 19:30:00	10
John Marshall High School (USWVU59F)	JMHS Min-Max:ATM-39	39.94182	-80.75352	700	2013-04-03 16:37:00	8.6
Littleton Middle School	Weather Station:ATM-01	42.5356	-71.4895	48	2013-04-03 16:45:00	4
Lourdes Public Charter School	School Site:ATM-02	44.7225	-122.6898	188.3	2013-04-03 20:14:00	18.7
Magnolia High School (USWVOGSV)	MAGNOLIA HIGH SCHOOL1:ATM-01	39.646	-80.8617	203	2013-04-03 17:29:00	6.9
Mahopac High School	SEAC-Atm:ATM-01	41.36518	-73.75677	285	2013-04-03 16:59:00	2.9
Main Street Intermediate School	Backyard for instrument shelter:ATM-03	41.23954	-82.63735	251.4	2013-04-03 17:19:00	5.6
Marie Reed Community Learning Center	MARIE REED WEATHER STATION:ATM-02	38.9172	-77.0405	66.2	2013-04-03 17:14:00	8.5
Monroe High School (USMIGE4E)	Bolles Harbor Weatherbug Station:ATM-09	41.87506	-83.39057	209.8	2013-04-03 17:29:00	6
NCAR Foothills Lab	NCAR Foothills Lab weather station:ATM-01	40.035	-105.2431	1625	2013-04-03 18:57:40	10.9
Northland Pines	AWS Weather Station:ATM-02	45.937	-89.255	583.9	2013-04-03 17:59:00	-1.4
O.J.Roberts Middle School	Owen J. Roberts Middle School:ATM-01	40.1752	-75.6583	75	2013-04-03 17:01:00	5.8
Ruth Cherry Intermediate School	Intermediate:ATM-01	32.9858	-96.3219	539	2013-04-03 18:29:00	21.5
St. Joseph School (USWIPZYD)	School Location:ATM-01	44.8756	-91.9192	276	2013-04-03 17:15:00	5
Stone Child College (USMTGCZ3)	yotin:ATM-02	48.2903	-109.8695	1084.6	2013-04-03 19:15:00	20.2
The Morton Arboretum Youth Education Dept.	New weather station:ATM-01	41.82152	-88.07654	261.4	2013-04-03 17:06:00	12.8
Trinity School	Trinity Parking Lot Asphalt and school roof:ATM-02	39.592	-83.0257	281.8	2013-04-03 17:29:00	5.8
Virginia Museum Of Natural History	WeatherBug station on roof, 21 Starling AV:ATM-02	36.6865	-79.86387	348.6	2013-04-03 17:14:00	11.9
WANAKA Field Station	WFS Grass-Pine Overlook:ATM-01	44.67528	-73.10361	142.2	2013-04-03 16:30:00	0.8

Let’s take a look at Land Cover Classification. Add the Biosphere > Land Cover Classification Layer. The default view shows measurements entered the past year, but you can change the time interval as shown here.



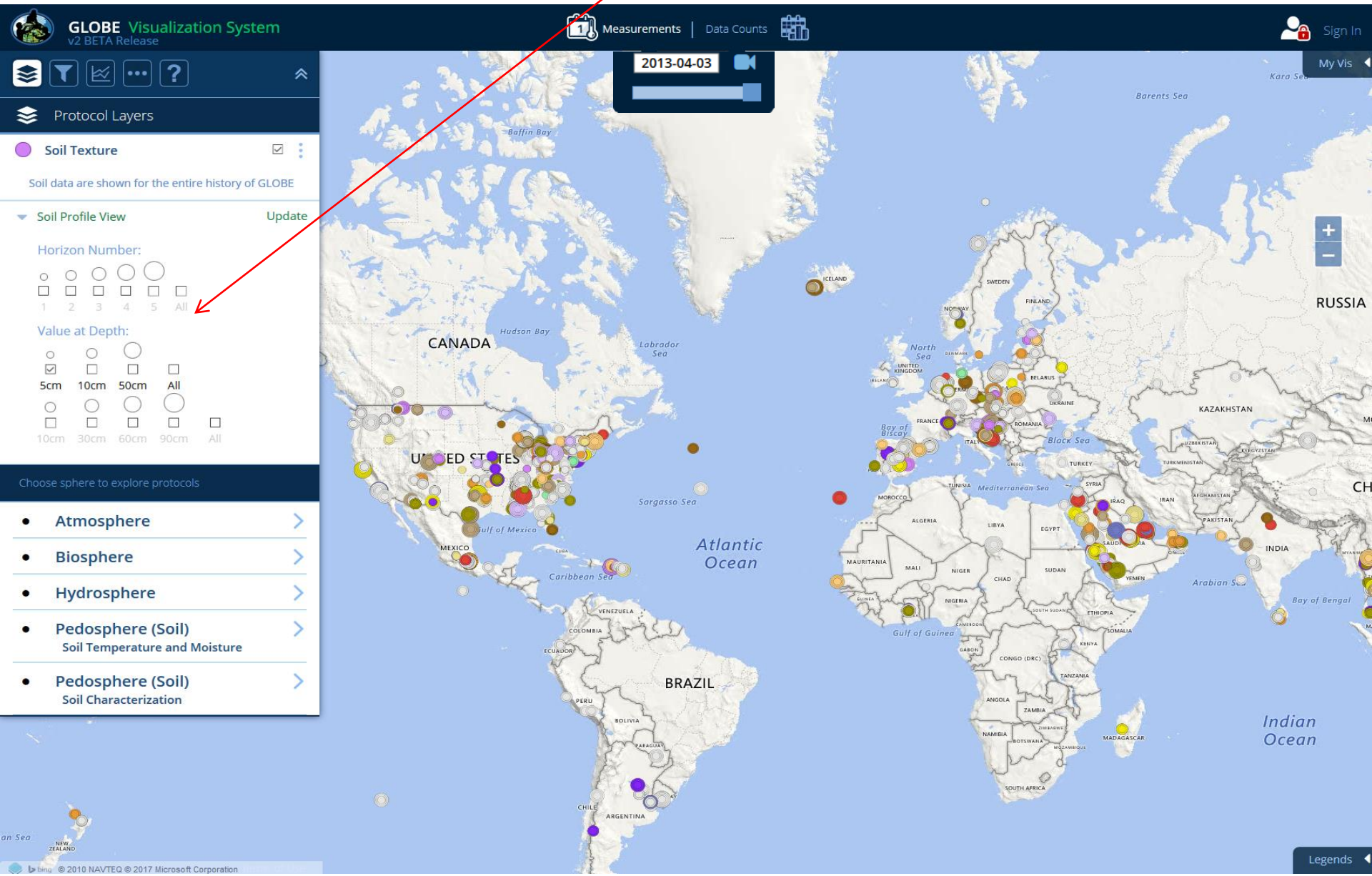
Now, click on a measurement icon and click on the Photo tabs to view available photos. Click on a photo to see a larger view.



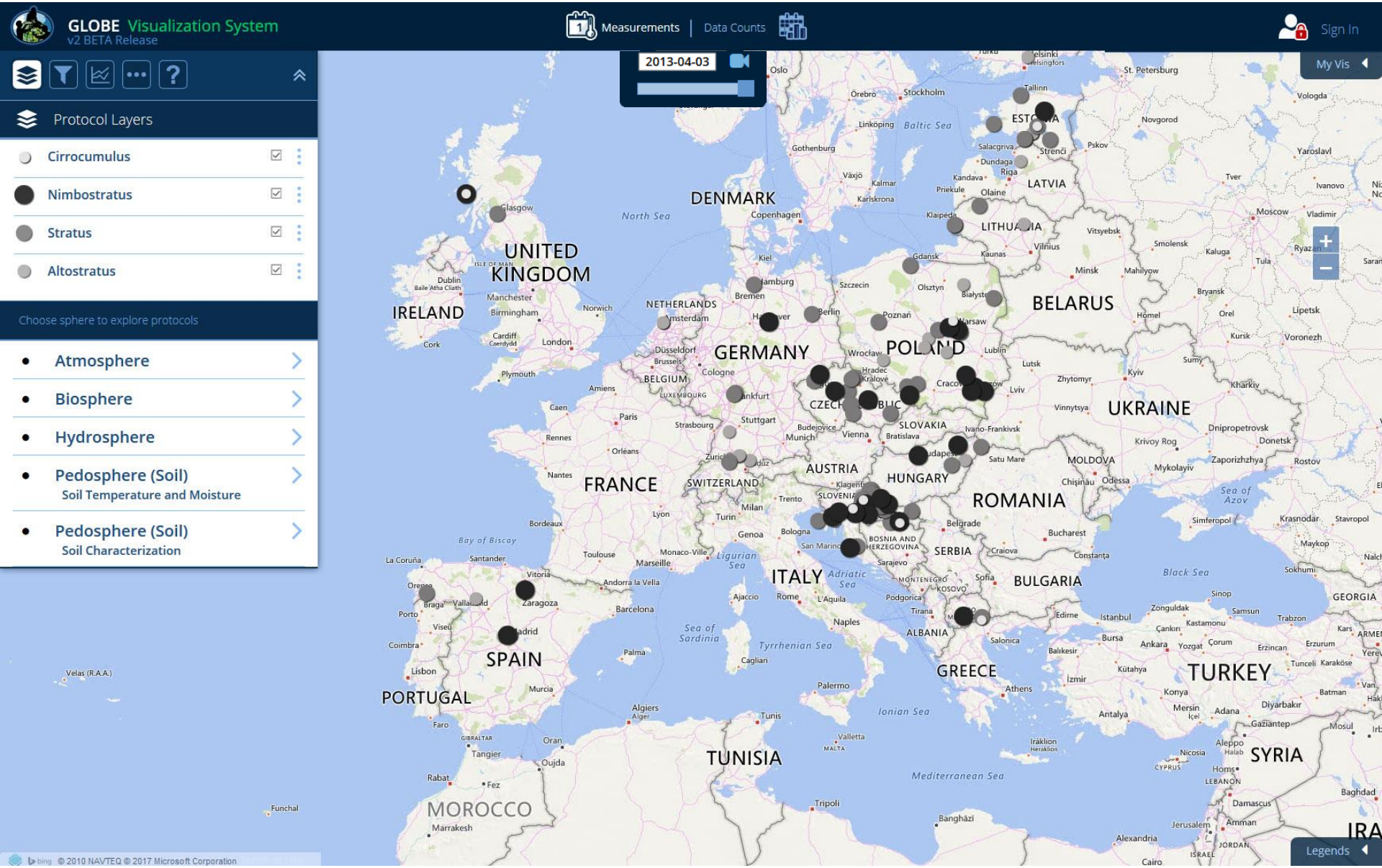
Three protocols (Land Cover, Cloud cover and Mosquito Habitat Mapper) have a photo layer that shows sites with photo observations. Click a site to see all of the photos.

Some protocol layers have sub-layers to further filter the data. Tree/Shrub Date of Budburst, for example, can be filtered by species.

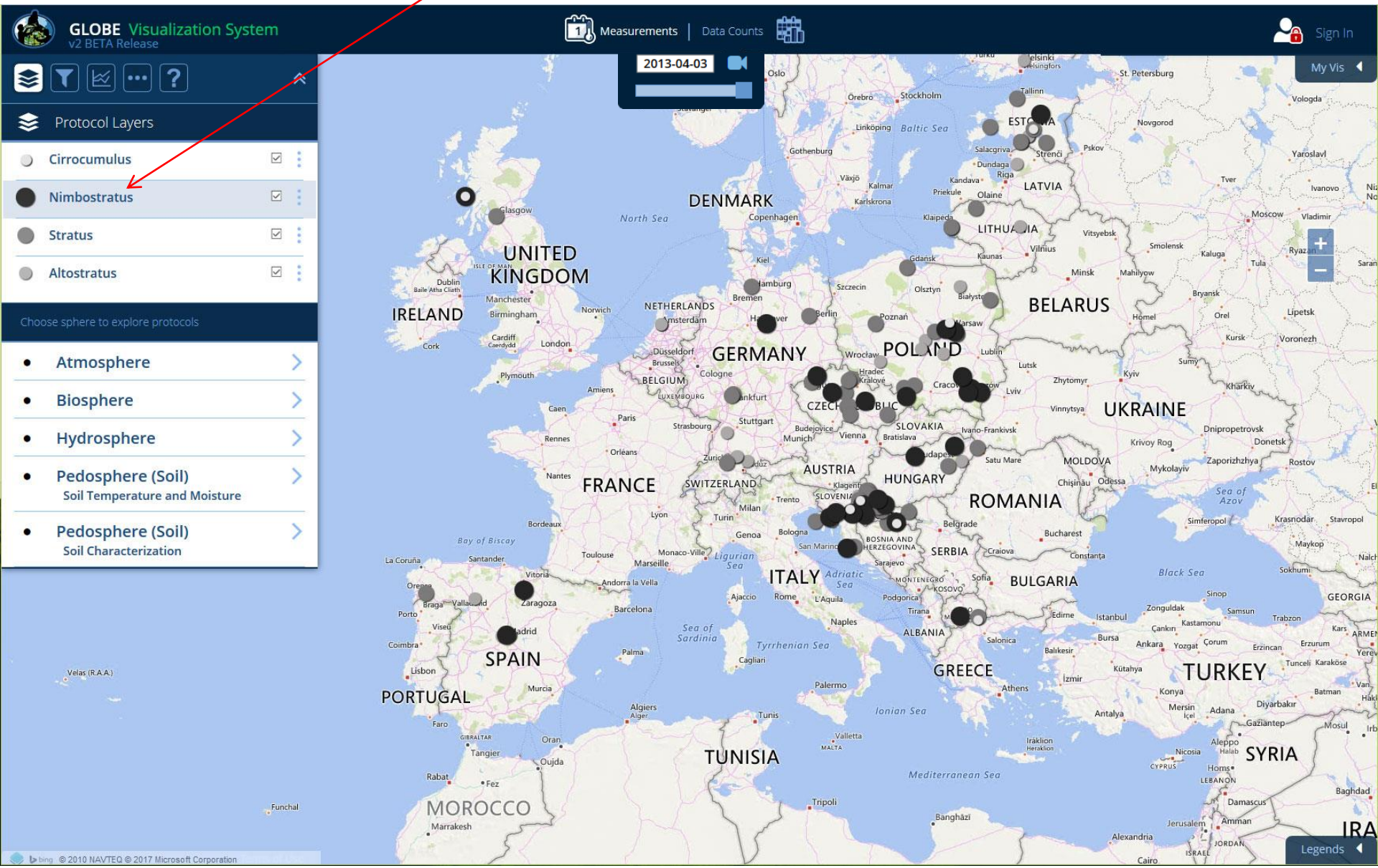
Soil characterization layers such as Soil Texture can be filtered by Horizon Number and Value at Depth



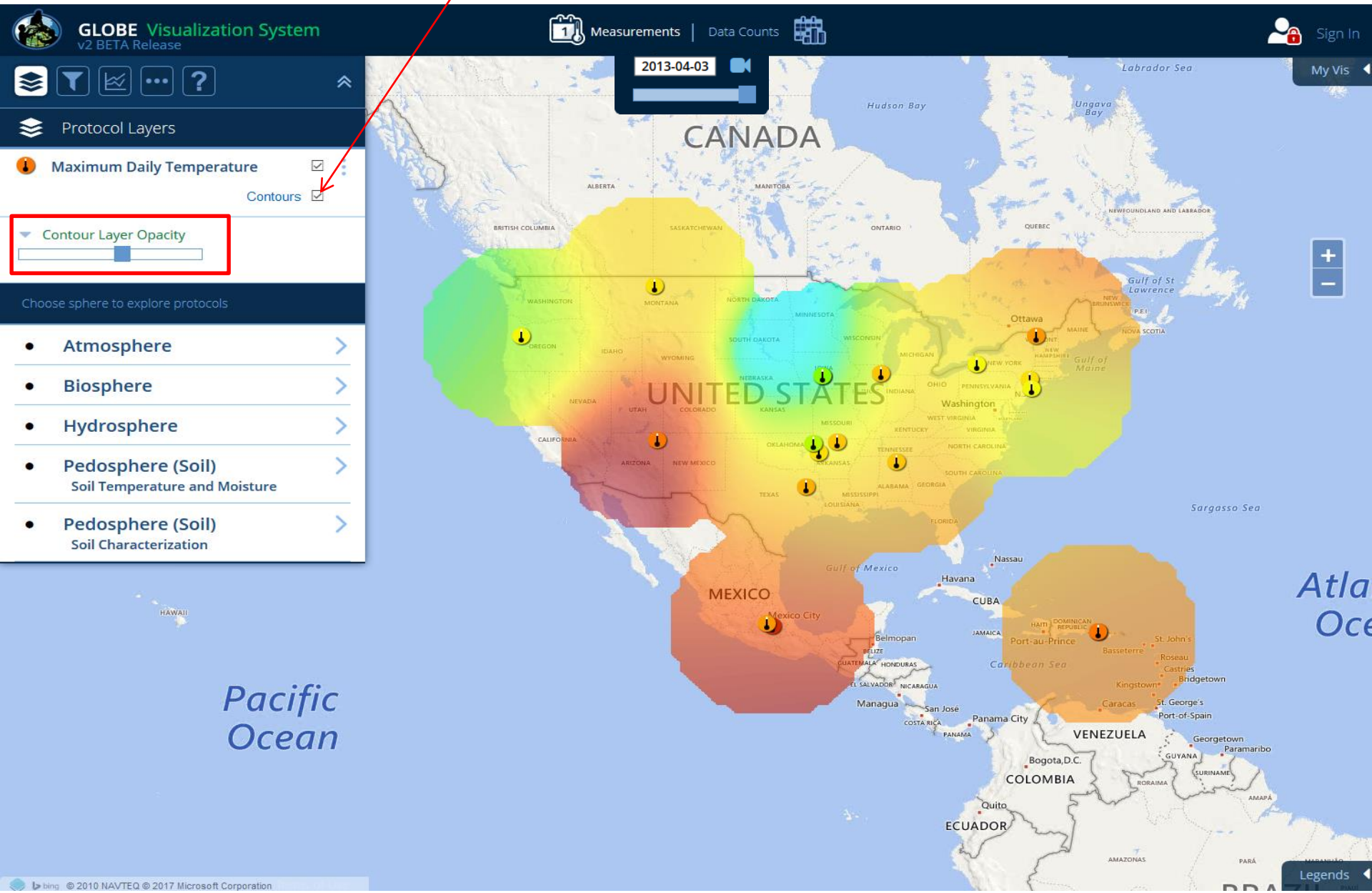
Cloud Observations and other measurement types (Soil Properties, etc.) utilizes different layer sizes and colors so one can see up to 5 layers at a single site. Since different Cloud Observations can be made at the same site on the same day, layer icons can be hidden.



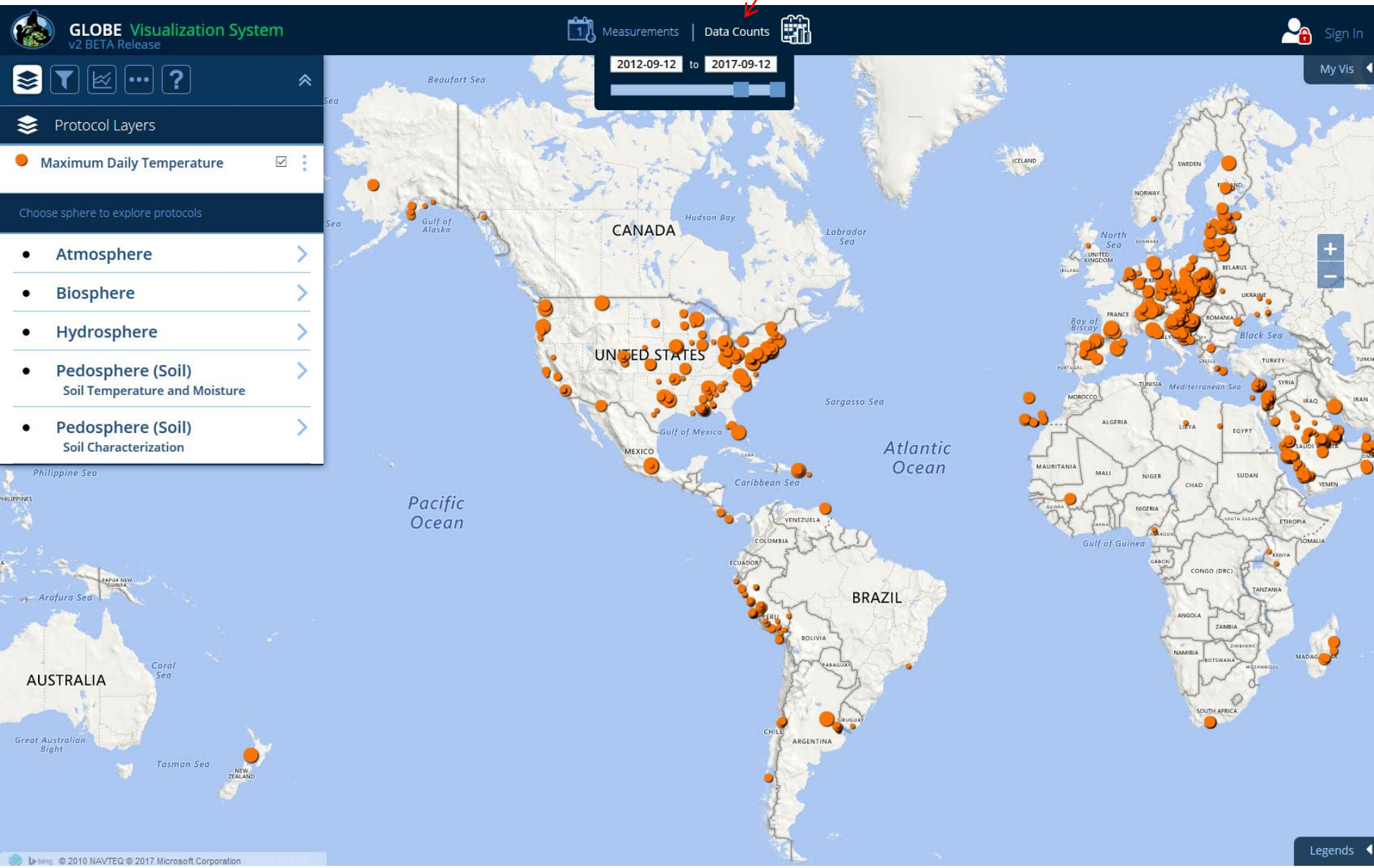
To re-order a layer, click and hold a layer name. Now drag the layer to the new position



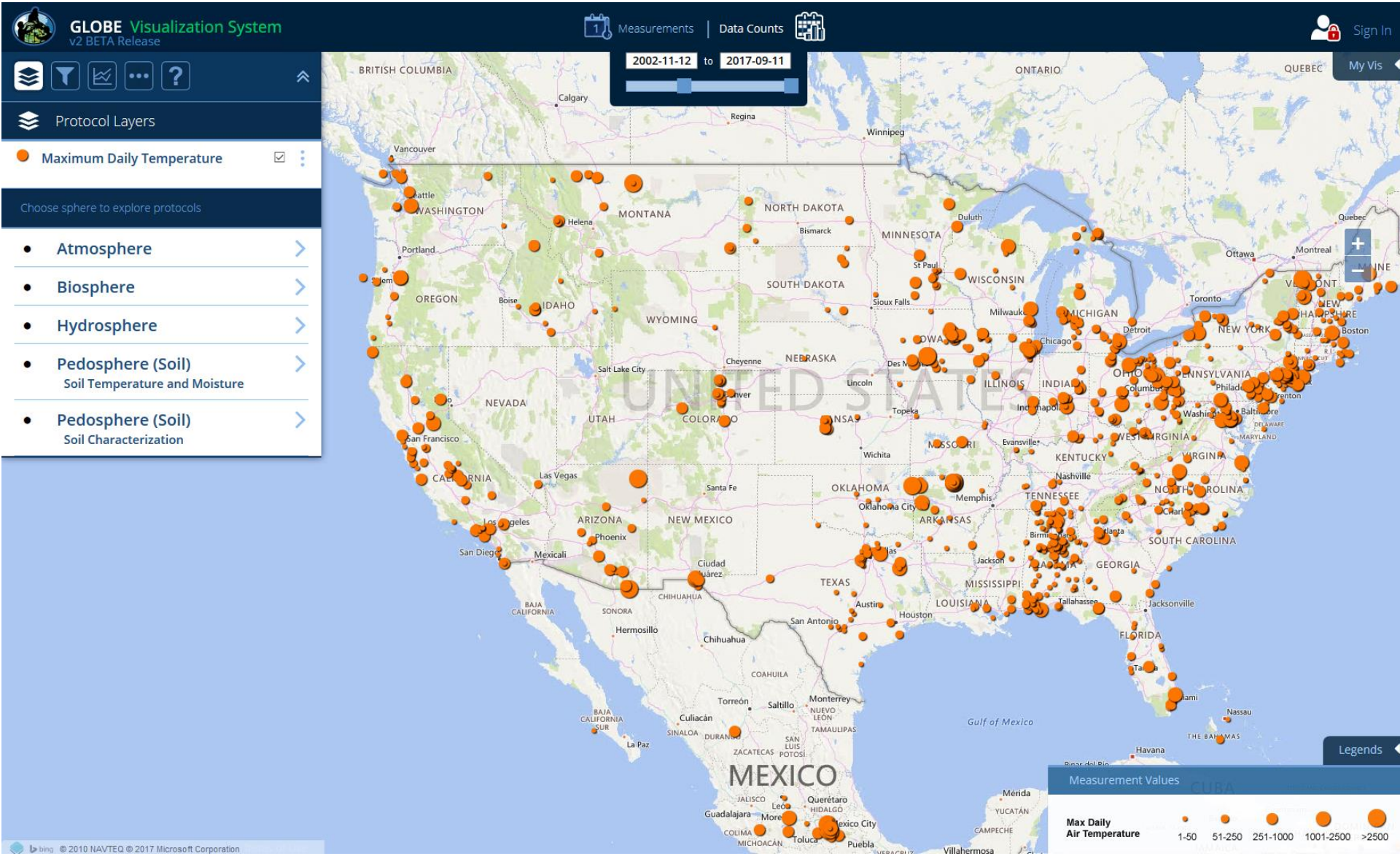
On the Layers menu, contours of some data sets may be shown by clicking the Contours box. The contour opacity can be adjusted by clicking on the opacity link.



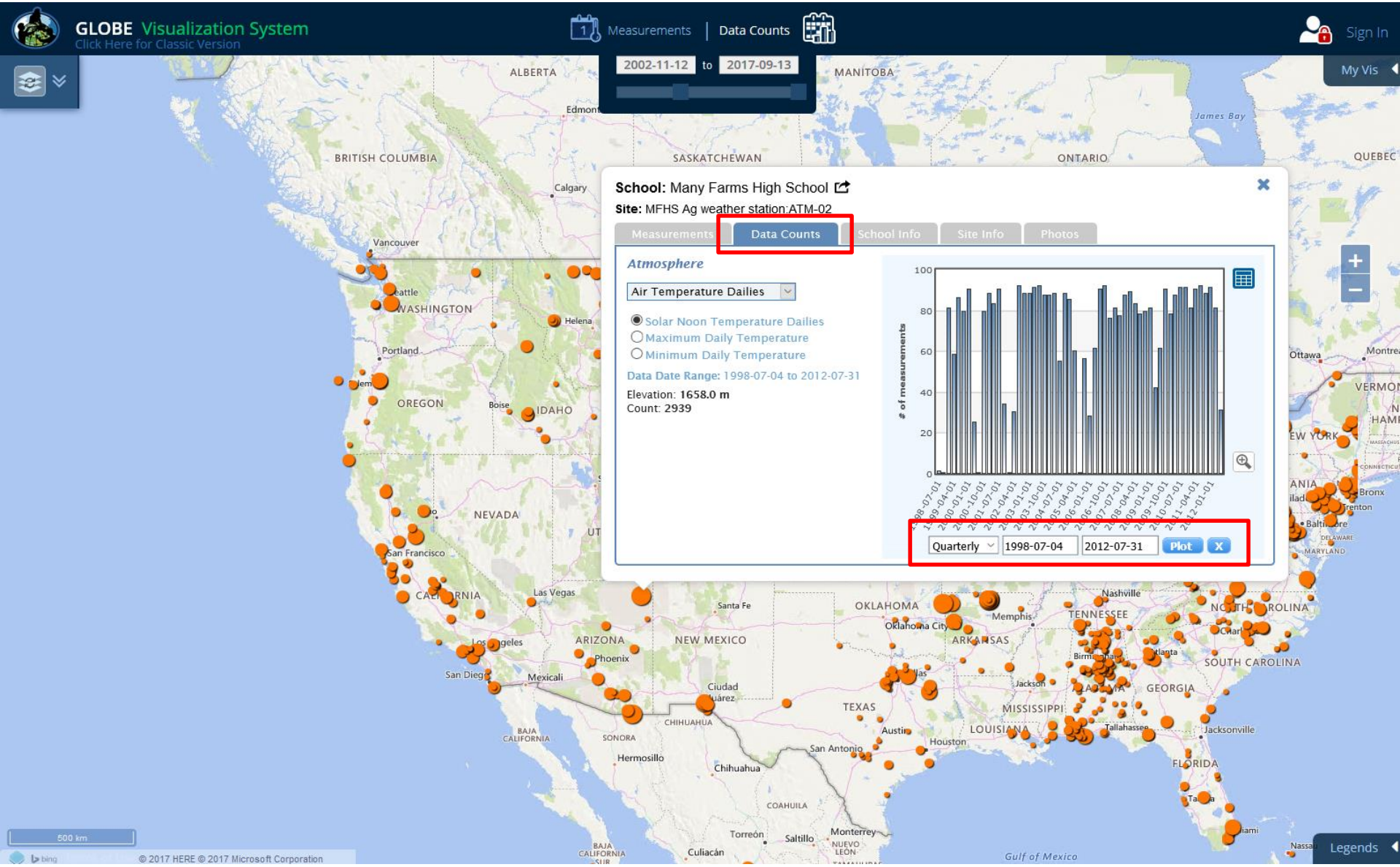
Data can also be viewed by looking at data counts – How many measurements were recorded at a site in a given time frame? Click on ‘Data Counts’ at the top to switch the map view. The default date range is 5 years.



The larger the circle icon, the greater number of measurements reported. These sites offer better possibilities for study in research projects.



Clicking on an icon on the map opens a site info window. Since the map type is Data Counts, that is the default selection. A plot of the selected data type is displayed showing data counts for the last 5 years for the selected site. You can also select total years or a custom date range.



Data Counts Site Info Window:
This site info window gives information about the site and is the gateway to creating tables and plots of site data.

Click icon to go to school organization page

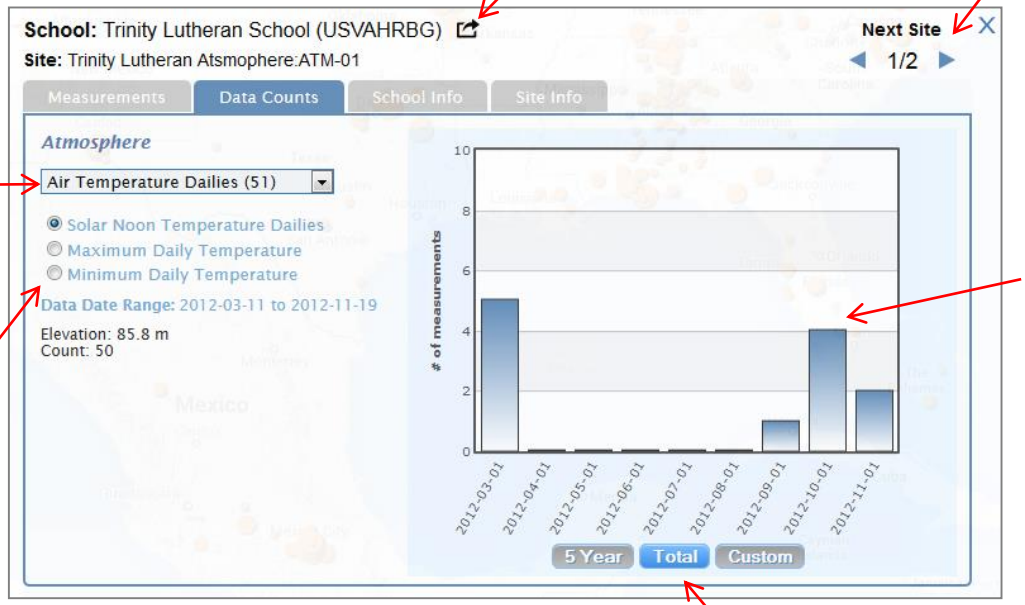
Cycle through sites whose icons are on top of each other

Data Type and (total # of measurements)

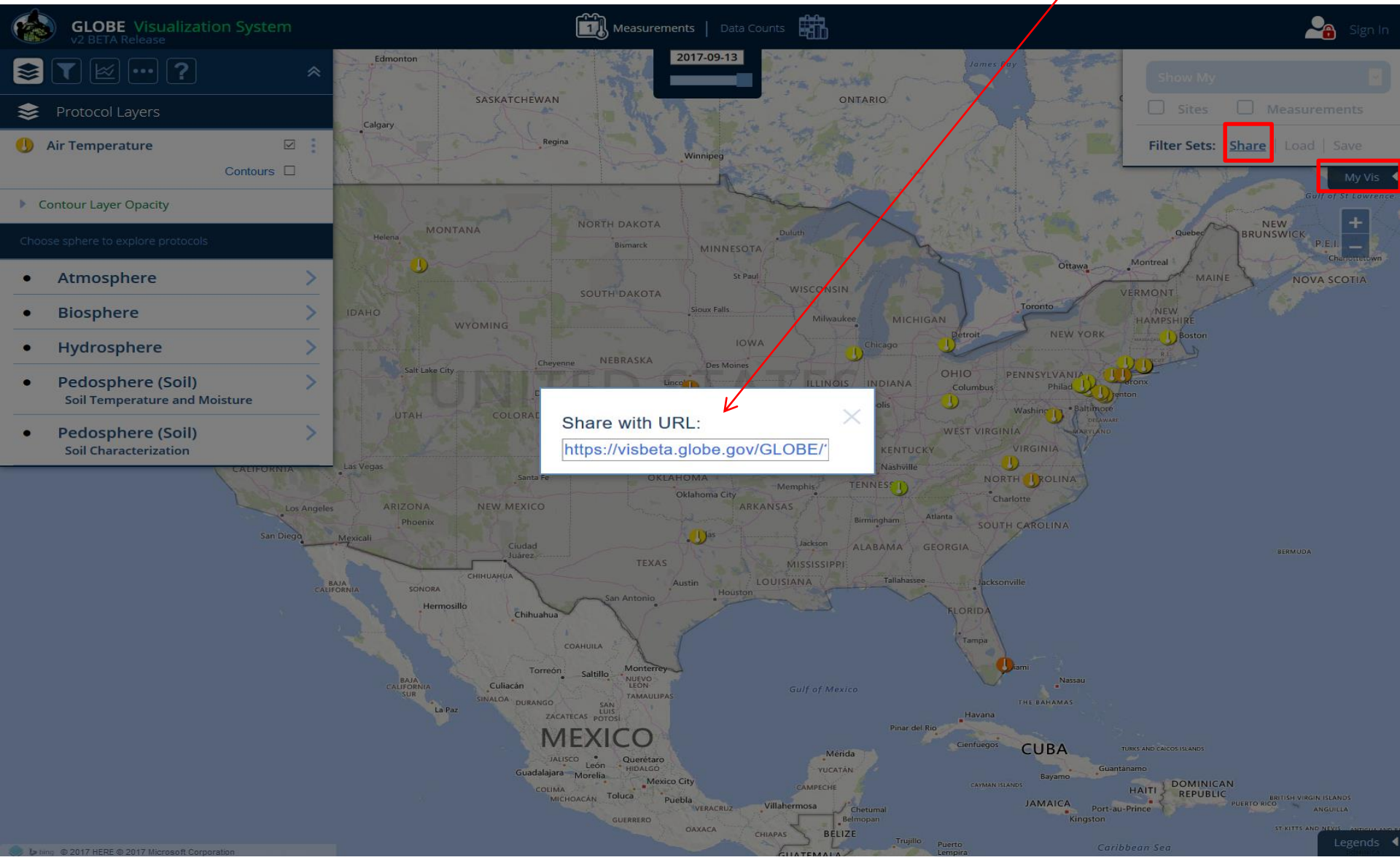
Datasets (select a dataset to change the plot view)

Roll-over bar graph to see the total # of measurements for each interval

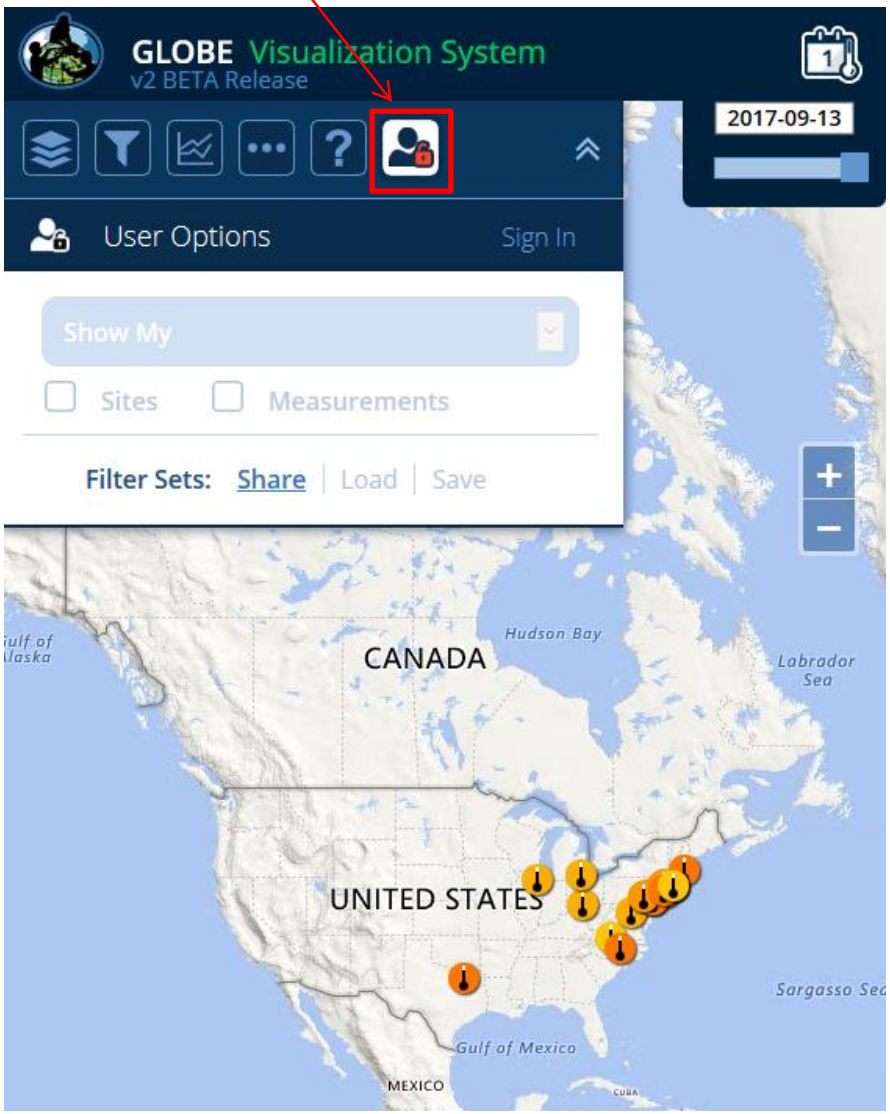
Change plot time range



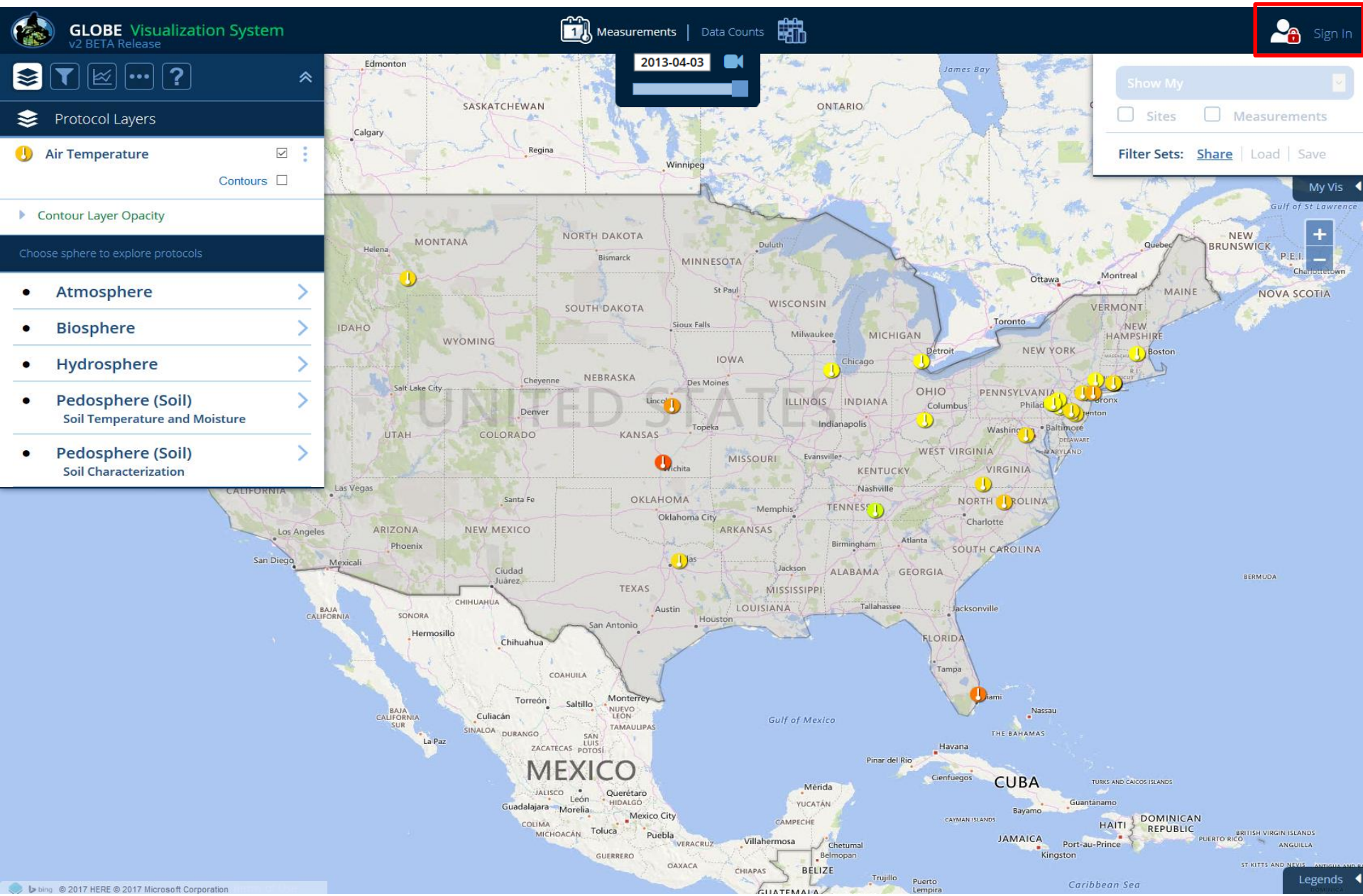
Share your layer and filter parameters with others by sending them a URL. When the URL is entered, the system will load your filter sets automatically. To get the URL, open the ‘My Vis’ tab and click ‘Share’. A popup will appear with the URL.



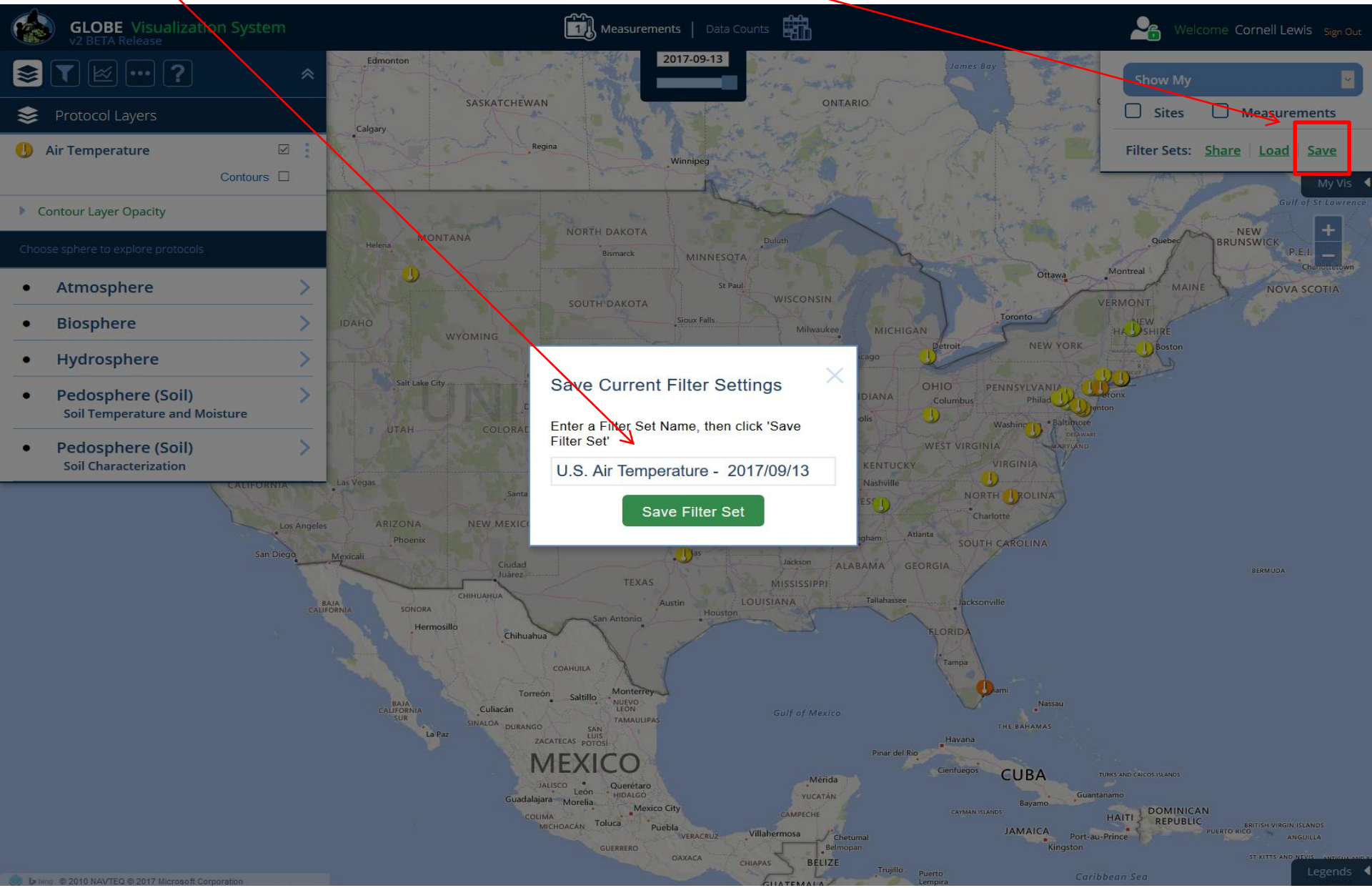
On your phone and small tablets, click on the My Vis icon in the menu bar to see the share link



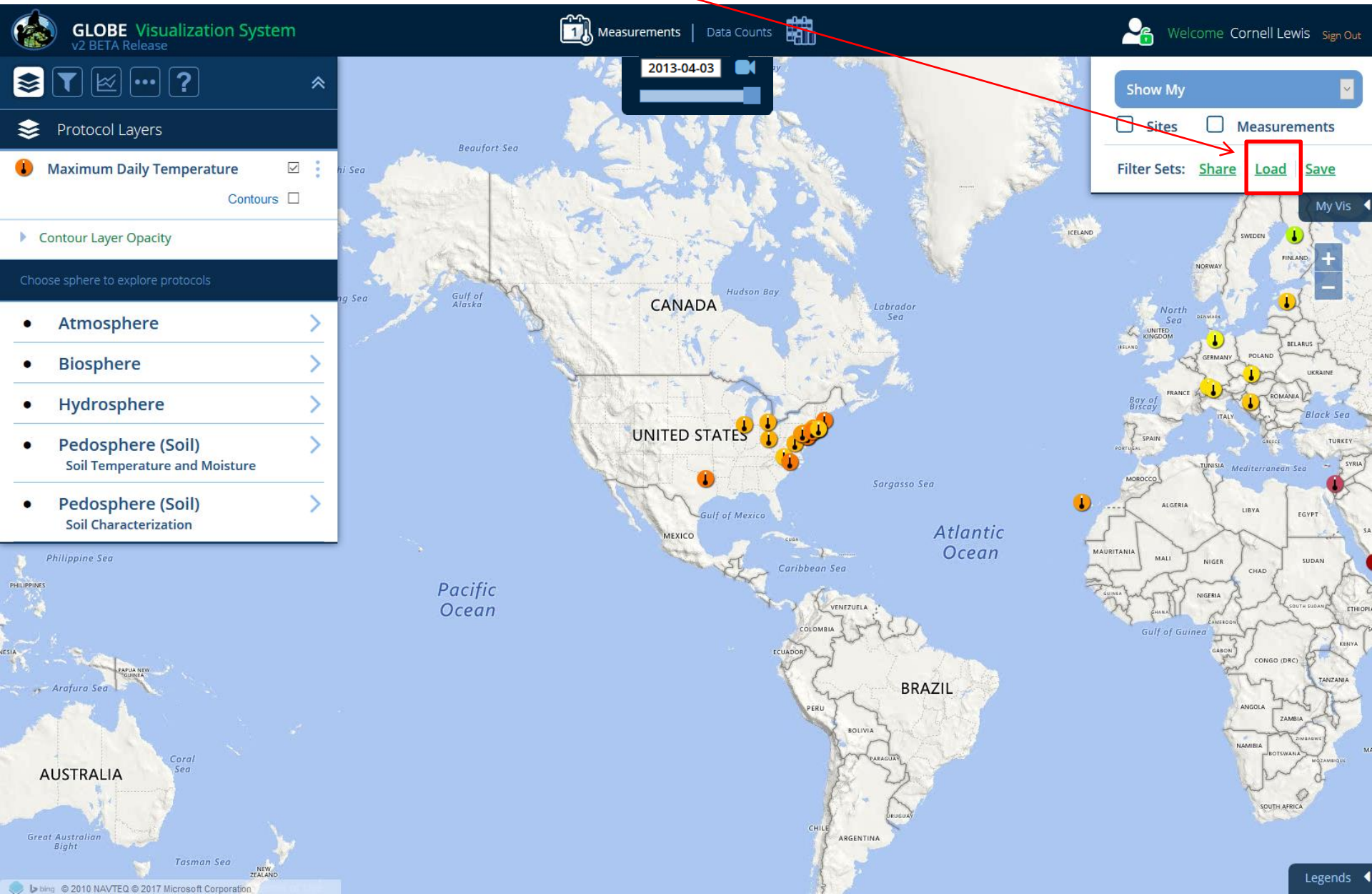
If you'd like to save your filter sets, log-in using your GLOBE.gov username and password



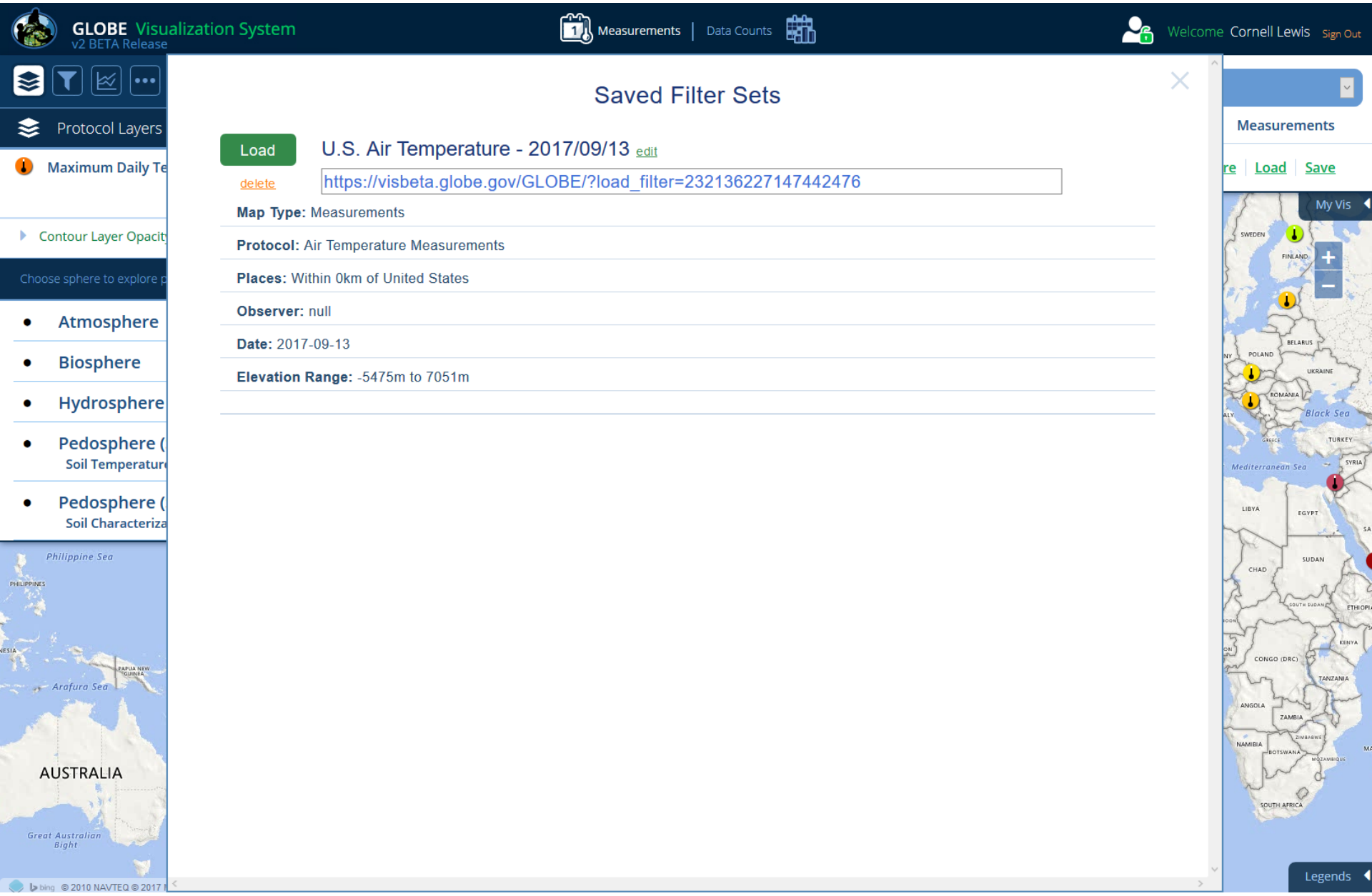
Once logged-in, click ‘Save’ to save your current filters. Enter a filter name and submit.



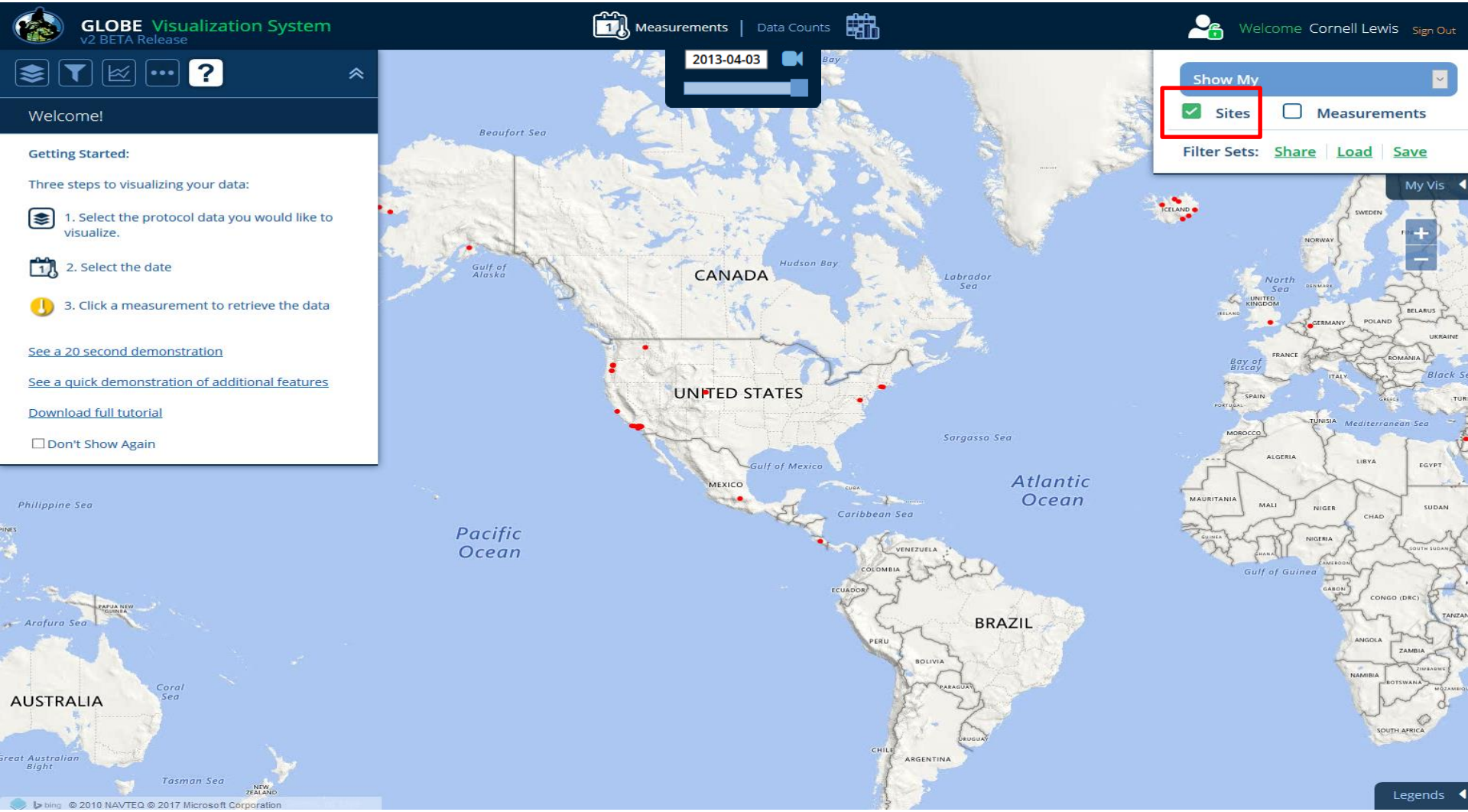
To load a filter set, click the ‘Load’ link.



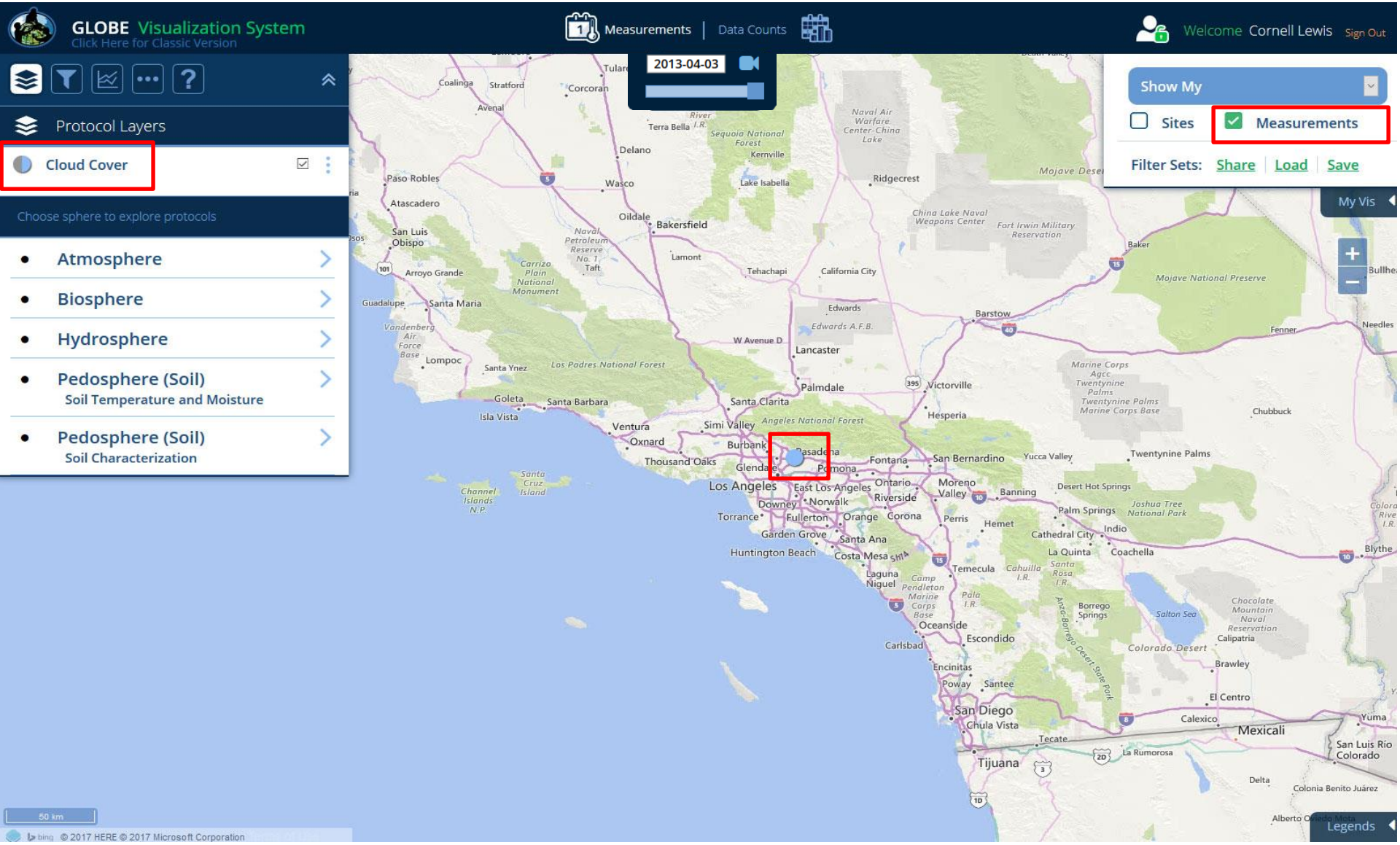
A pop-up window will display where you can load, edit, delete and copy the URL of the saved filter set



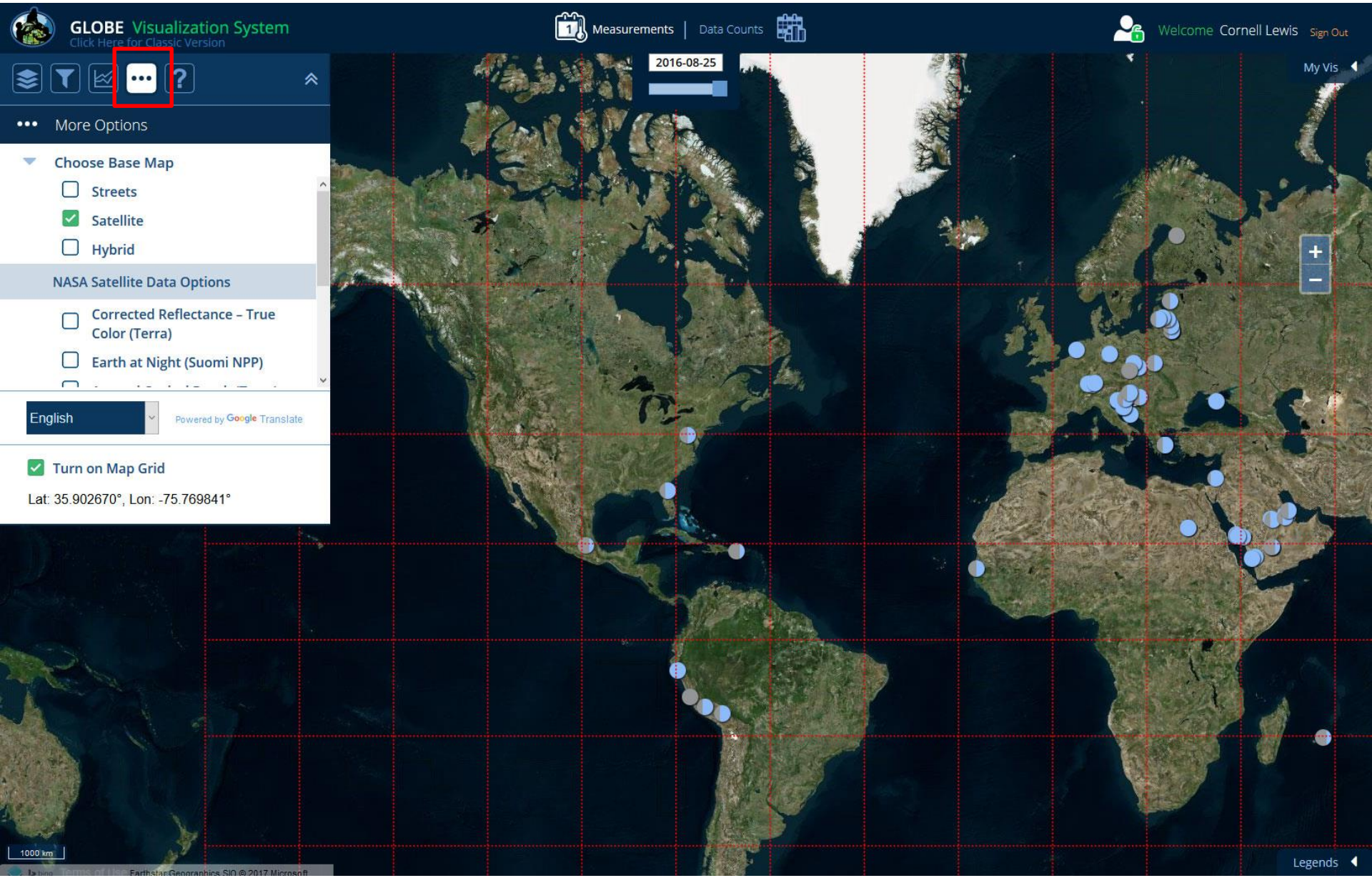
When logged-in, you can display just the sites where you have entered data. On the My Vis tab, click the ‘Sites’ checkbox and make sure ‘Show My’ is selected in the drop down menu. All of your sites will be identified with a red circle on the map. Changing the drop down to ‘Show My Organization’s will display all sites where anyone is your organization(s) has entered data.



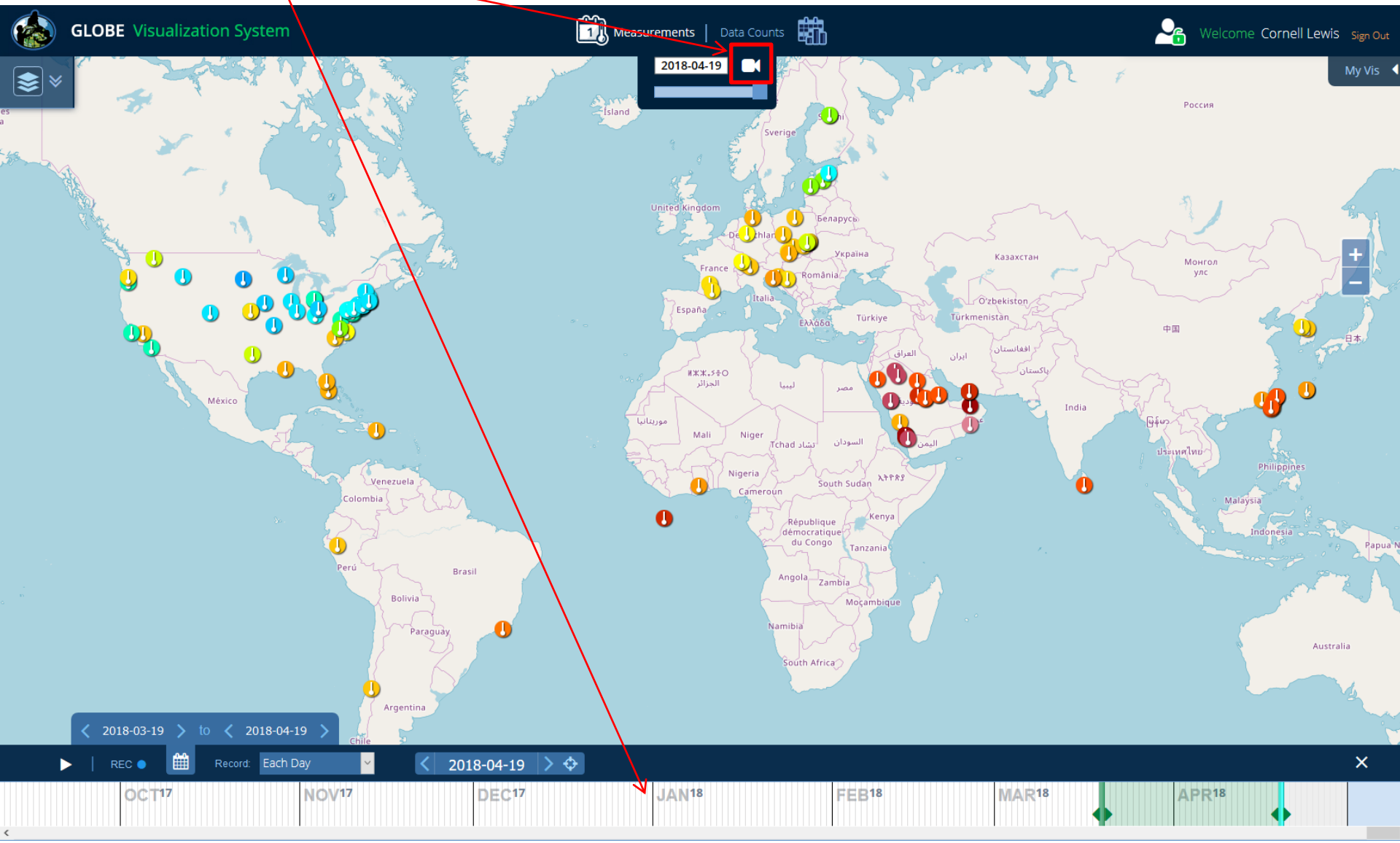
To see just your sites that have measurements of the active protocol layer(s) for the current map date, click the ‘Measurements’ check box on the My Vis tab. In the example below, only the user’s cloud cover measurements are shown on the map.



Under the ‘More’ menu are additional options – Base maps, language selector (English and Spanish, with more to come), map grid and a lat/long cursor position.

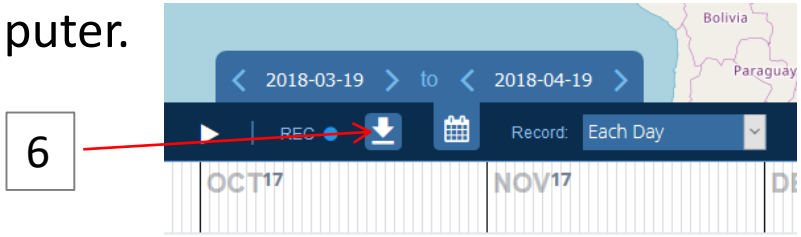


Want to see your measurements over time? Click on the movie icon to open the timeline animation tool



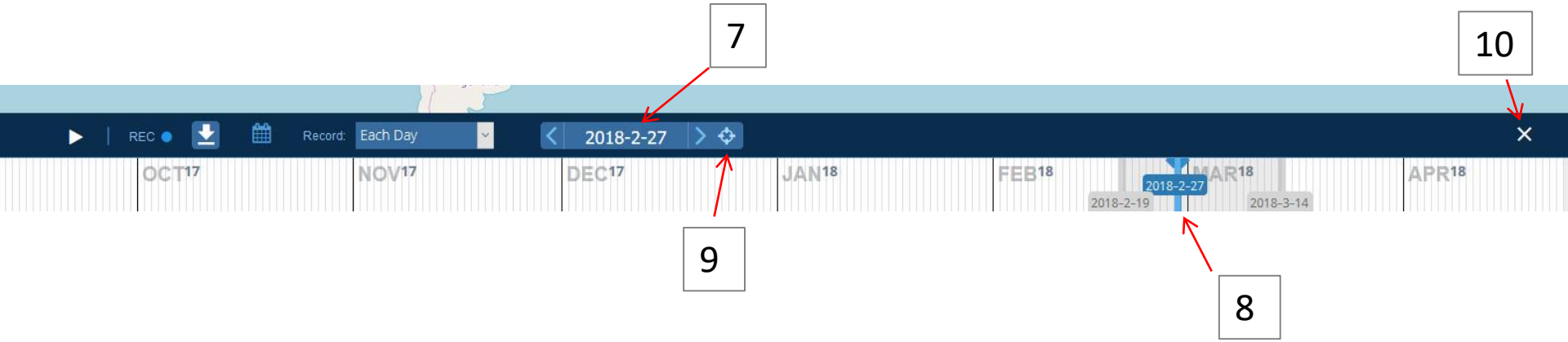
Timeline animation tool

1. Select a date range (make sure you have already added the desired protocol layers). Click a date to open the calendar interface.
2. You can also select a date range by moving the date range slider on the timeline.
3. Determine the time interval (each day, 1 day per month or 1 day per year).
4. Press the play button to preview the animation.
5. Press record to create an animation to save to a file.
6. Once recorded, press the download icon to save an animated gif to your computer.



Timeline animation tool – sample animated gif file

Timeline animation tool - continue



7. Change the current map date by clicking the arrows to go to the next or previous day or click the current day to open a calendar interface.
8. You can also change the map date by adjusting the current date slider bar on the timeline (to see the current date slider bar, click the calendar icon to close the date range selector).
9. Click the center icon to re-center the map date to the center of the timeline.
10. Press X to close the timeline.

Your Assignment

1. On April 7, 2004, how many schools in the Czech Republic reported a water pH reading less then 5?

2. Which measurement technique did the school(s) use?

3. What was the range of pH values reported for this site in 2003 and 2004?

4. Pick one Czech school with a pH value less than 5 and another nearby school reporting water pH on April 7, 2004 and plot the data from the two schools for January to May 2004. What does the graph illustrate?

5. Which school in Poland has reported the most water pH data?

6. Plot water pH, conductivity, and alkalinity for this site for January to May 2004. What does this graph illustrate?

Answers

1. One (Filtered by Czech Republic using the place filter and date and then used the ‘View Table Layer’ tool).

2. Paper (Clicked on the site on the map, it’s the lightest color icon. Value found in site info window).

3. 3 – 6 pH units in 2003, 3-6.5 in 2004 (Opened the site information window and clicked on the ‘View data table’ icon to view the data table. Then selected the data date range from Jan-Dec 2003 and then for 2004).

4. The pH level for the school with the higher pH lever on April 7th on was consistently higher from Jan to May

5. XI Liceum St. Konarskiego in Wrocław (Filtered by Poland, switched to Data Counts map. It has the largest circle)

6. The pH remains fairly constant despite significant changes in alkalinity and conductivity (Added each dataset to the plot list by selecting each one in the site info window)