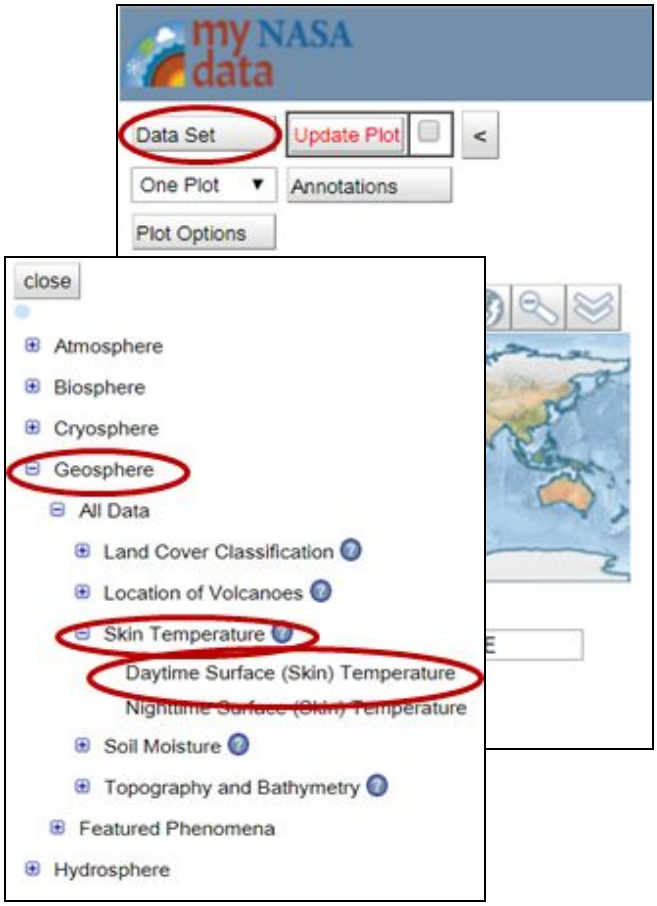
Import Data into Google Sheets Using the Earth System Data Explorer

Creating a Map:



Load the Data:

1. Click on the **'Data Set'** button in the top left-hand corner of the screen. A menu will appear displaying the different spheres of the Earth System.
2. Select the plus symbol next to **'Geosphere'** to expand the list. Two new categories will appear, which are labeled **'All Data'** and **'Featured Phenomena'**.
3. Expand the **'All Data'** list by selecting its plus symbol. Now you will see the entire list of Geosphere dataset categories.
4. Expand the **'Skin Temperature'** list, and select the dataset **'Daytime Surface (Skin) Temperature'** by clicking on it.
5. A map of Surface (Skin) Temperature will appear on your screen.

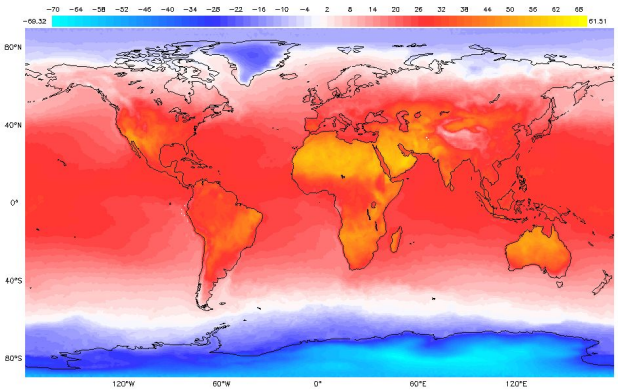


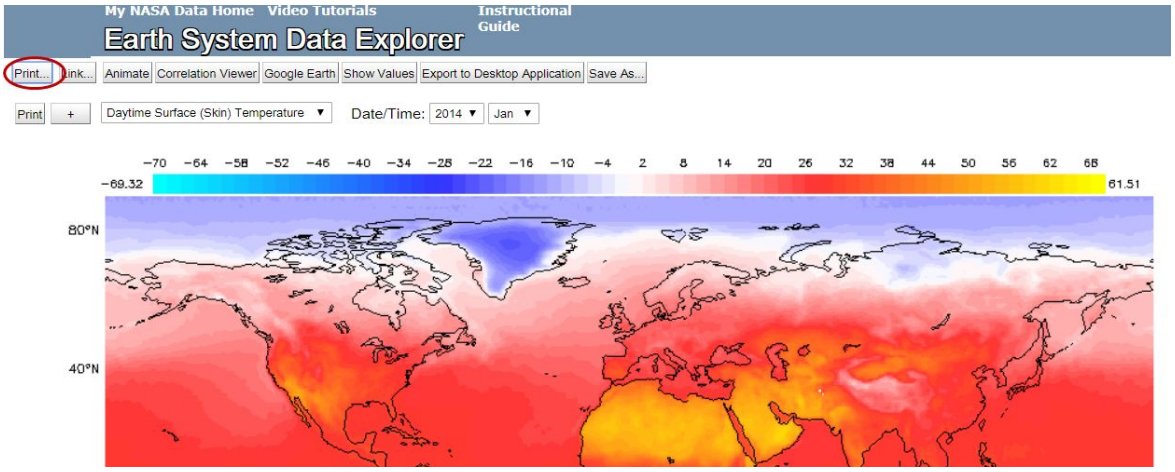
Image of Surface (Skin) Temperature Data from the Earth System Data Explorer

Change the Date:

1. Located above the map is a small pane labeled **'Date/Time'**.
2. Select the drop-down menu for the year. Select the year **'2014'.**
3. Select the drop-down menu for the month. Select the month of **'Jan'.**
4. Click **'Update Plot'** button located in the left-hand corner of the screen next to **'Data Set'**.

Save the Map:

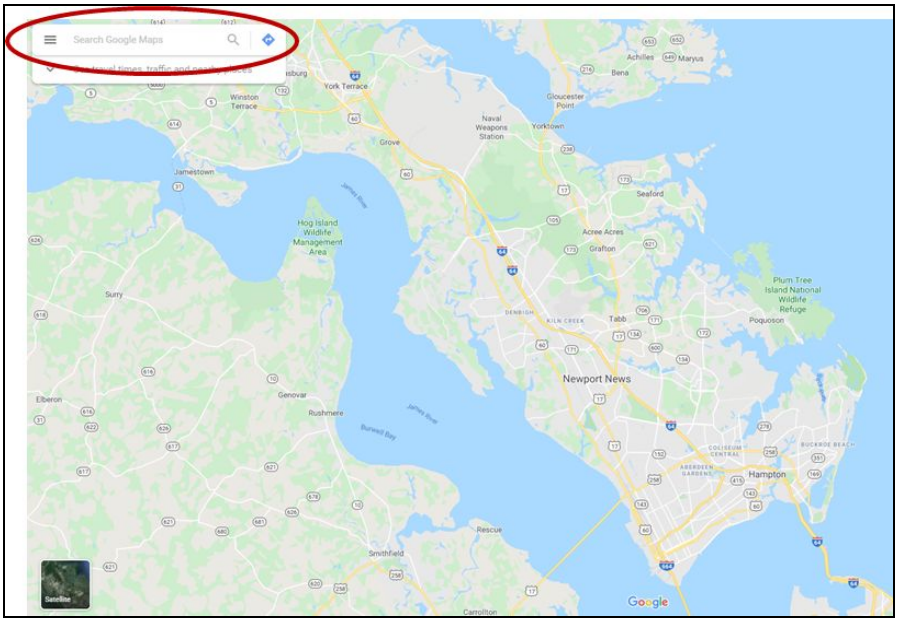
1. Select the **'Print..'** button at the top of the screen, above the map. A new window will open containing just the map.
2. Right click the image and select **'Save Image As'.**
3. Now repeat the above steps starting from Change the Date, to save all maps of **'Daytime Surface (Skin) Temperature'** between **January 2014** and **December 2018.**
4. Alternatively, you can select 'Print' and print to a PDF.



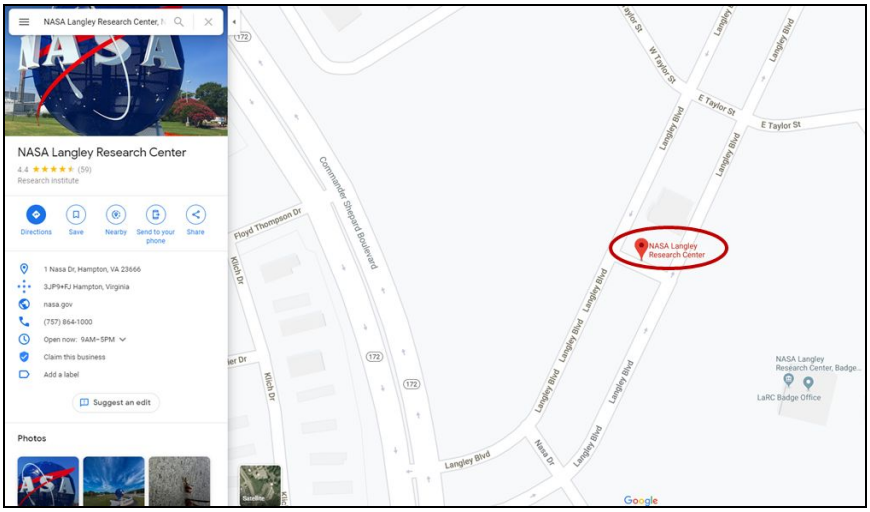
Note: *When saving multiple maps, this method ensures that they will all have consistent sizing.*

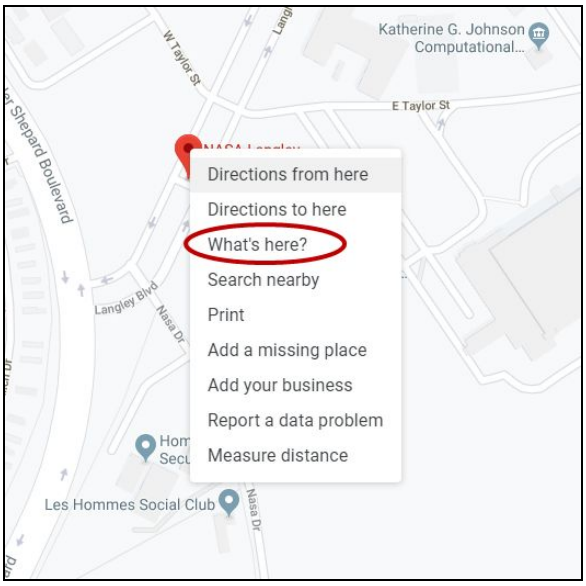
Finding Latitude and Longitude Using Google Maps:

1. Open a new window in your browser and navigate to https://google.com/maps
2. Search for your school's address using the **'Address Locator'** in the top left-hand corner of Google Maps.

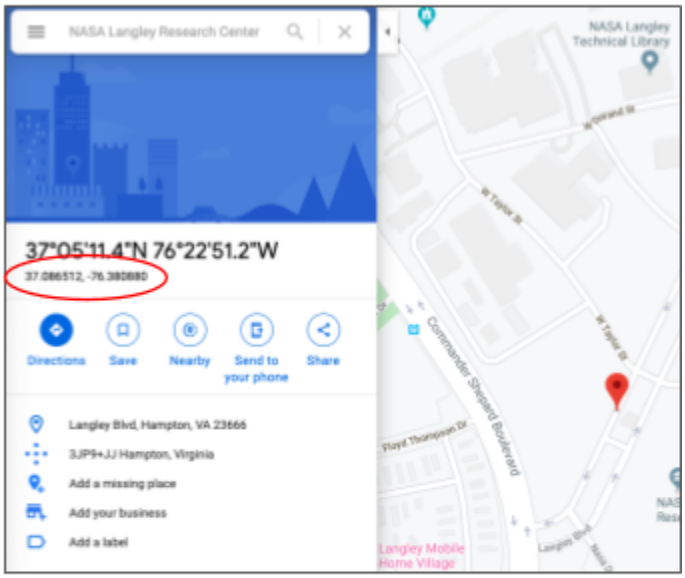


3. Once you are zoomed in to your school, right click on the red pin.



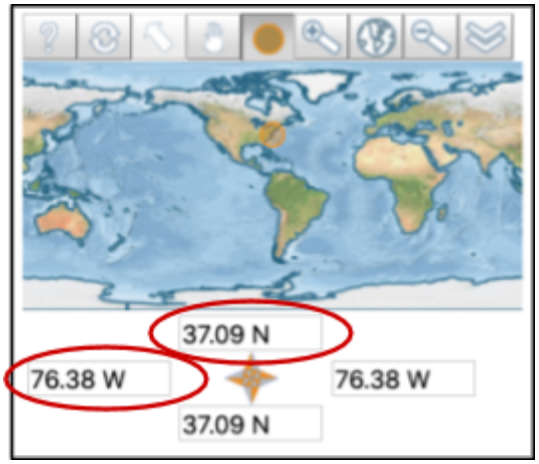


4. A new window will appear at the bottom of the screen that lists the name, address, latitude, and longitude of your school.



Single Click HERE.

5. Single click on the Latitude/Longitude values and the information will load into the navigation screen on Google Maps. *Write down this latitude and longitude (or open new tab and keep this page accessible).*



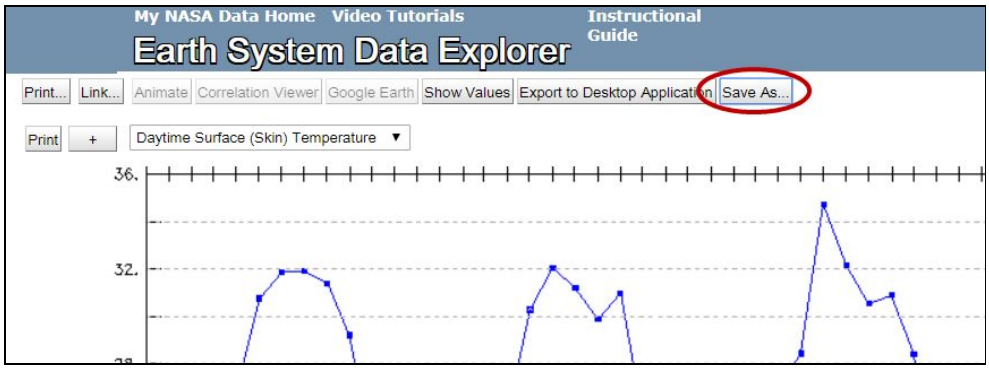
Creating Line Plots Using Coordinates

1. Return to the Earth System Data Explorer.
2. Select the **'Time'** option under the **'Line Plot'** menu located below the mini-map.
3. In the coordinates box, enter the school latitude and longitude coordinates that you retrieved from Google Maps in the previous section. If copying/pasting from Google Maps, highlight text from Left to Right to copy. Start with copying/pasting *latitude* first, then repeat for *longitude*.

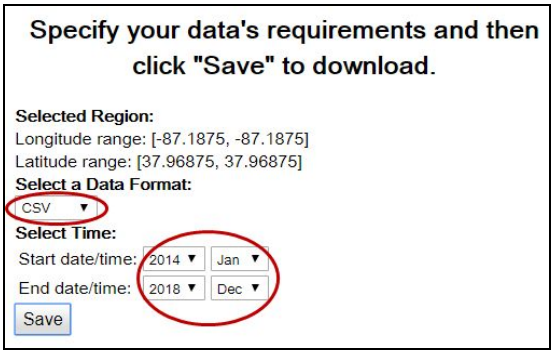
Note: You will not use "-" sign to show negative degrees. Instead for locations in the Northern Hemisphere use "N" for Positive Latitudes and "W" for Negative Longitudes). Also observe that when you paste or type in the full lat/long digits, several will drop. Latitude: 37.086512 and Longitude: -76.380880 will show in the Earth System Data Explorer as the following:

4. Select **‘Update Plot’**. A line graph will have appeared on your screen.
5. Next, you will define the date range for this line graph using the start and end date pane located below the mini-map.
6. Set the start time to **‘Jan 2014’** using the drop down menu.
7. Set the end time to **‘Dec 2018’** using the drop down menu.
8. Select **‘Update Plot’** to see the line graph with the updated date range.

Option 1. Exporting Line Plot Data as a CSV

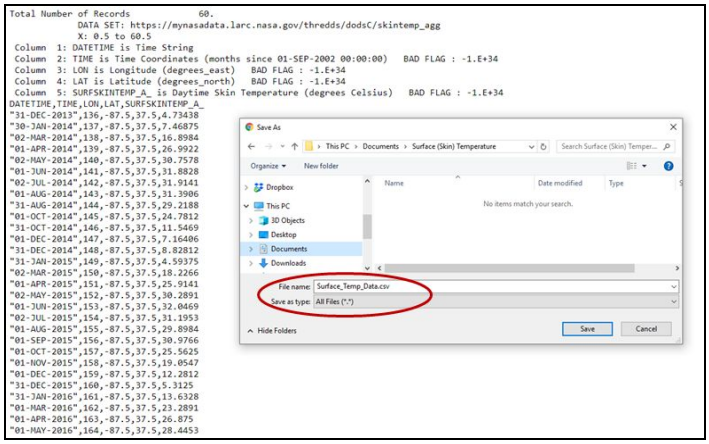


1. Click the **‘Save As...’** button located above the line graph. A new window will appear asking you to specify your data’s requirements.
2. If not already selected, make sure the **‘Data Format’** is set to **‘CSV’**.
3. Set the start date to **‘Jan 2014’**.
4. Set the end date to **‘Dec 2018’**.
5. Select **‘Save’**. A new window will appear that contains the list of values.



<u>To Save File:</u>

6. Right click on the list of values and select ***‘Save As…’**
7. Name your file “2014-2018 Daytime Surface (Skin) Temperature for [your school]” by double clicking the Untitled Spreadsheet and change its extension to **CSV**. You can do this by adding **‘.csv’** to the end of your file name.

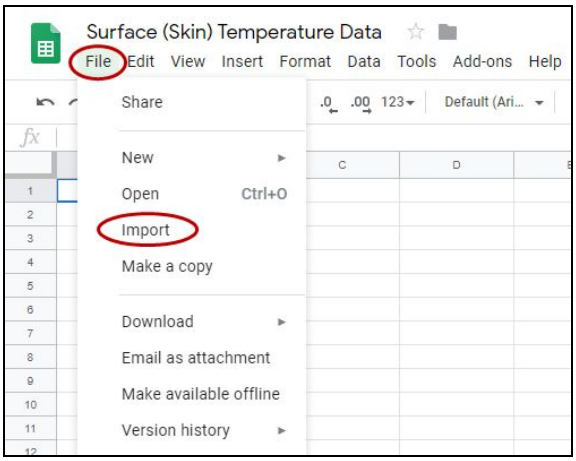


NOTE: “A comma-separated values (CSV) file is a delimited text file that uses a comma to separate values in your files. Each line of the file is a data record. Each record consists of one or more fields, separated by commas. The use of the comma as a field separator is the source of the name for this file format.” *Credit: Wikipedia*

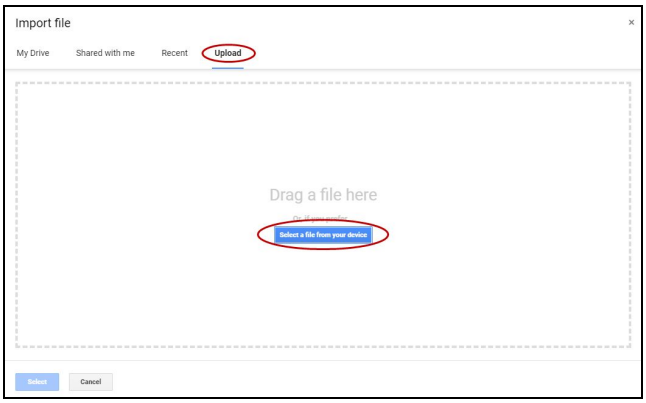
**If this is not an option, see To Copy File in Option 2. Copying/Pasting Line Plot Data as a CSV.*

Option 1. Continued

Import Line Plot Data into Google Sheets



1. Open up a new Google Sheets document.
2. Select **'File'**, then select **'Import'** from the menu. An import file pane will appear.
3. Select the **'Upload'** header located at the top of the import file pane.
4. Click the blue button labeled **'Select a file from your device'**.
5. Navigate to the location of your CSV file and click on it to add it to Google Sheets.
6. A new pane will appear asking for import settings. Keep the default settings and click the **'Import data'** button. Now the Surface (Skin) Temperature data from your line plot has been imported into Google Sheets.
7. Advance to Section ***Preparing Your Data for Graphing.***

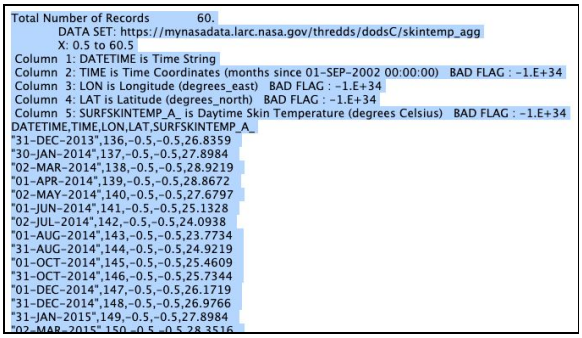


	A	B	C	D	E	F
1	Total Number of Records	60.				
2	DATA SET: https://mynasadata.larc.nasa.gov/thredds/dodsC/skintemp_agg					
3	X: 0.5 to 60.5					
4	Column 1: DATETIME is Time String					
5	Column 2: TIME is Time Coordinates (months since 01-SEP-2002 00:00:00) BAD FLAG : -1.E+34					
6	Column 3: LON is Longitude (degrees_east) BAD FLAG : -1.E+34					
7	Column 4: LAT is Latitude (degrees_north) BAD FLAG : -1.E+34					
8	Column 5: SURFSKINTEMP_A_ is Daytime Skin Temperature (degrees Celsius) BAD FLAG : -1.E+34					
9	DATETIME	TIME	LON	LAT	SURFSKINTEMP_A_	
10	31-Dec-2013	136	-87.5	37.5	4.73438	
11	30-Jan-2014	137	-87.5	37.5	7.46875	
12	02-Mar-2014	138	-87.5	37.5	16.8984	
13	01-Apr-2014	139	-87.5	37.5	26.9922	
14	02-May-2014	140	-87.5	37.5	30.7578	
15	01-Jun-2014	141	-87.5	37.5	31.8828	
16	02-Jul-2014	142	-87.5	37.5	31.9141	
17	01-Aug-2014	143	-87.5	37.5	31.3906	
18	31-Aug-2014	144	-87.5	37.5	29.2188	
19	01-Oct-2014	145	-87.5	37.5	24.7812	
20	31-Oct-2014	146	-87.5	37.5	11.5469	
21	01-Dec-2014	147	-87.5	37.5	7.16406	
22	31-Dec-2014	148	-87.5	37.5	8.82812	
23	31-Jan-2015	149	-87.5	37.5	4.59375	

Option 2. Copying/Pasting Line Plot Data as a CSV using *Split Text to Columns*

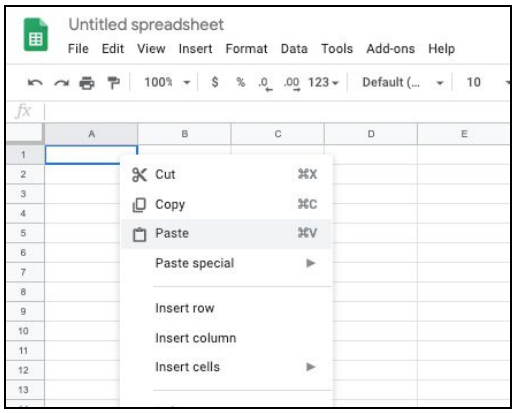
To Copy File:

1. Highlight the text and copy. Open Google Sheet and place cursor the first cell and paste.

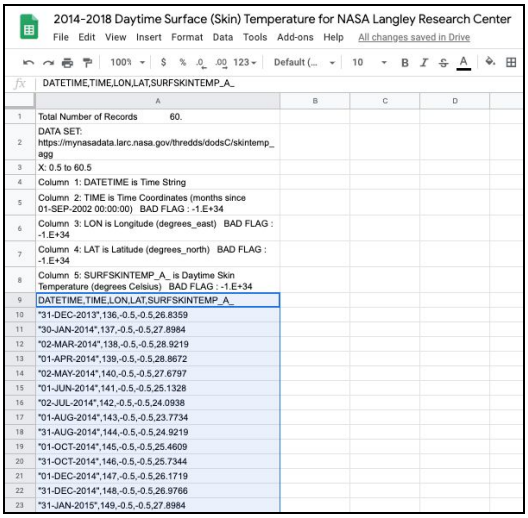


```
Total Number of Records          60.
        DATA SET: https://mynasadata.larc.nasa.gov/thredds/dodsC/skintemp_agg
        X: 0.5 to 60.5
Column  1: DATETIME is Time String
Column  2: TIME is Time Coordinates (months since 01-SEP-2002 00:00:00)   BAD FLAG : -1.E+34
Column  3: LON is Longitude (degrees_east)   BAD FLAG : -1.E+34
Column  4: LAT is Latitude (degrees_north)   BAD FLAG : -1.E+34
Column  5: SURFSKINTEMP_A_ is Daytime Skin Temperature (degrees Celsius)   BAD FLAG : -1.E+34
DATETIME,TIME,LON,LAT,SURFSKINTEMP_A_
"31-DEC-2013",136,-0.5,-0.5,26.8359
"30-JAN-2014",137,-0.5,-0.5,27.8984
"02-MAR-2014",138,-0.5,-0.5,28.9219
"01-APR-2014",139,-0.5,-0.5,28.8672
"02-MAY-2014",140,-0.5,-0.5,27.6797
"01-JUN-2014",141,-0.5,-0.5,25.1328
"02-JUL-2014",142,-0.5,-0.5,24.0938
"01-AUG-2014",143,-0.5,-0.5,23.7734
"31-AUG-2014",144,-0.5,-0.5,24.9219
"01-OCT-2014",145,-0.5,-0.5,25.4609
"31-OCT-2014",146,-0.5,-0.5,25.7344
"01-DEC-2014",147,-0.5,-0.5,26.1719
"31-DEC-2014",148,-0.5,-0.5,26.9766
"31-JAN-2015",149,-0.5,-0.5,27.8984
"02-MAR-2015",150,-0.5,-0.5,28.3516
```

in



2. Name your file "2014-2018 Daytime Surface (Skin) Temperature for [your school]" by double clicking the *Untitled Spreadsheet.*



Sort Your Data into Multiple Columns

1. Highlight the cell containing the column header information (i.e., DATETIME,TIME,LON,LAT,SURFSKINTEMP_A)

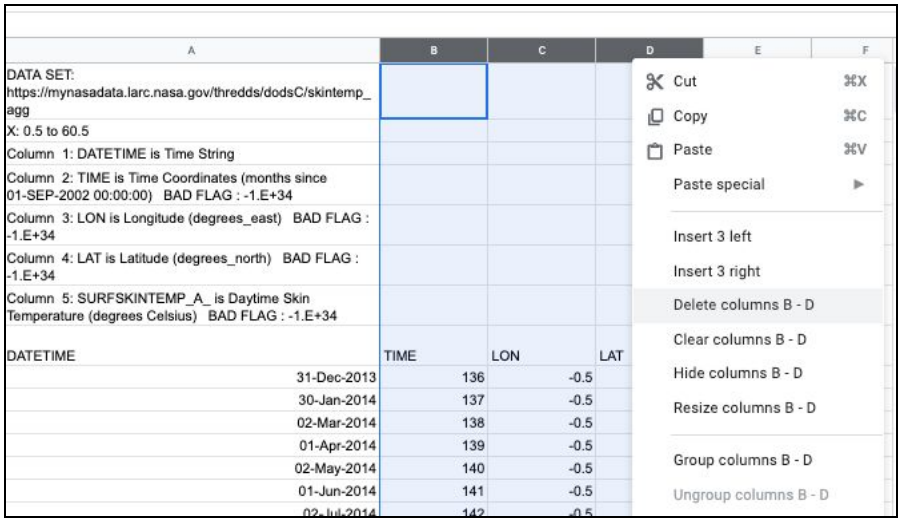
2. Select ***Data*** from the top menu and then ***Split Text to Columns.*** The data location between each comma in the cells are now separated into columns. Your data should look like this:

DATETIME	TIME	LON	LAT	SURFSKINTEMP_A_
31-Dec-2013	136	-0.5	-0.5	26.8359
30-Jan-2014	137	-0.5	-0.5	27.8984
02-Mar-2014	138	-0.5	-0.5	28.9219
01-Apr-2014	139	-0.5	-0.5	28.8672
02-May-2014	140	-0.5	-0.5	27.6797
01-Jun-2014	141	-0.5	-0.5	25.1328
02-Jul-2014	142	-0.5	-0.5	24.0938
01-Aug-2014	143	-0.5	-0.5	23.7734
31-Aug-2014	144	-0.5	-0.5	24.9219
01-Oct-2014	145	-0.5	-0.5	25.4609
31-Oct-2014	146	-0.5	-0.5	25.7344
01-Dec-2014	147	-0.5	-0.5	26.1719

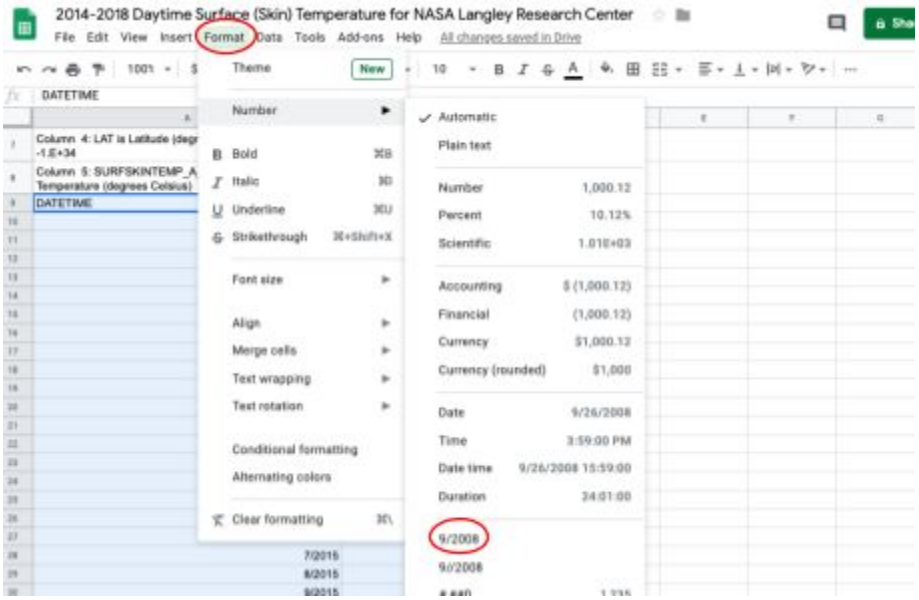
Preparing Your Data for Graphing

1. Copy the sheet you created to a duplicate sheet in order to have the data in the event you need to recover it. Select ***File*** from the top menu and then ***Make a Copy***. Type in a new name for the copy and indicate where you want to store it. Select ***OK.***

2. Highlight and ***Delete*** the following columns:
   Column B: Time
   Column C: Lon
   Column D: Lat

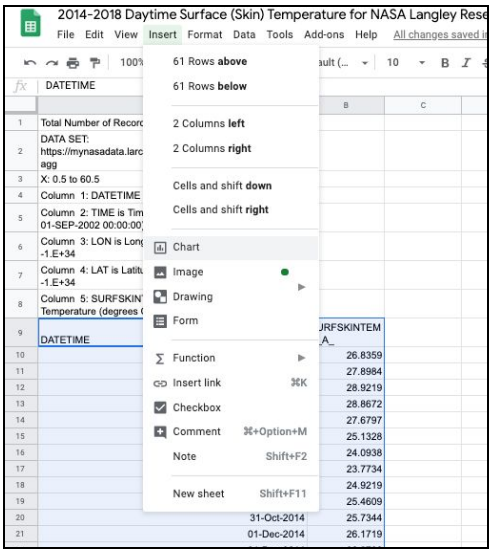


3. Reformat the DATETIME Data to show only the month and year. To do this, highlight this column of data and select ***Format*** from the top menu; then ***Number***; select the ***9/2008*** format at the bottom of the list. Your data should convert from 31-Dec-2013 to 12/2013.
4. Rename the headers of the data from DATETIME to DATE; SURFSKINTEMP_A_ to Surface Skin Temperature.

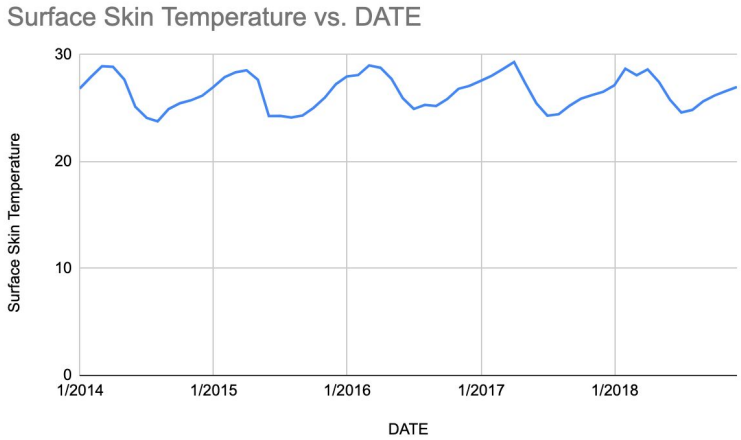


Graphing Your Data

1. Highlight your two remaining columns of data and select ***Insert*** from the top menu, and then ***Chart.***

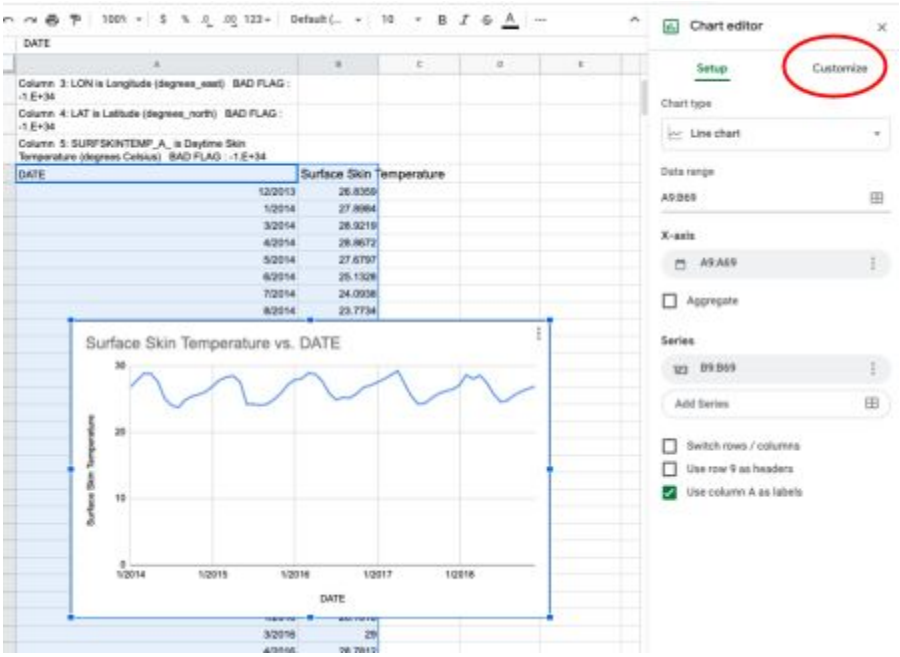


2. Your graph will likely look something similar to the one below:

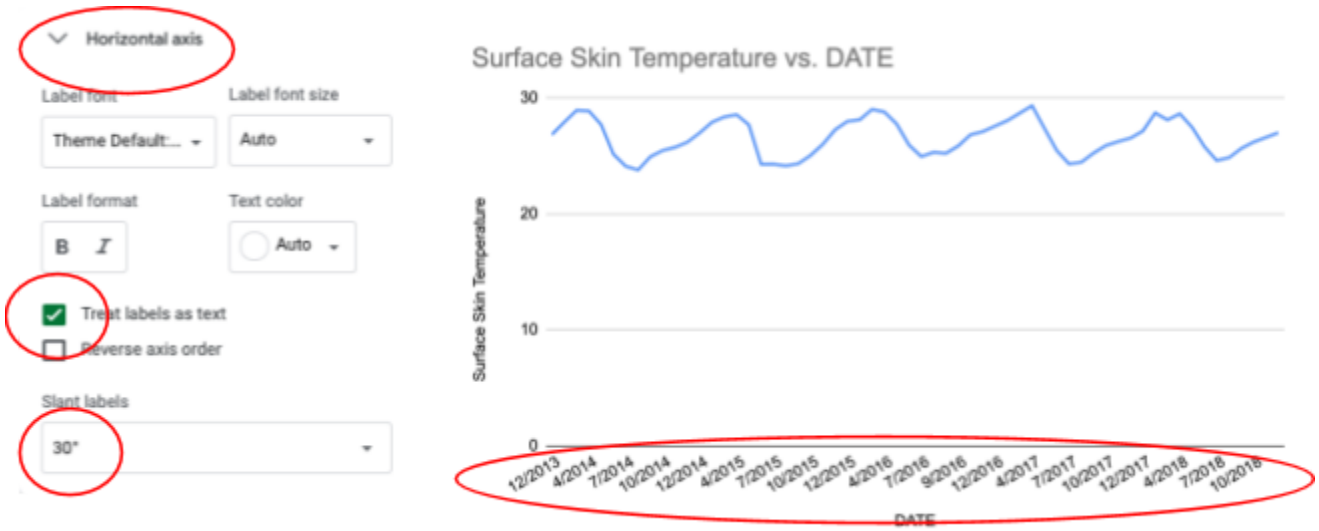


Customizing Your Graphs

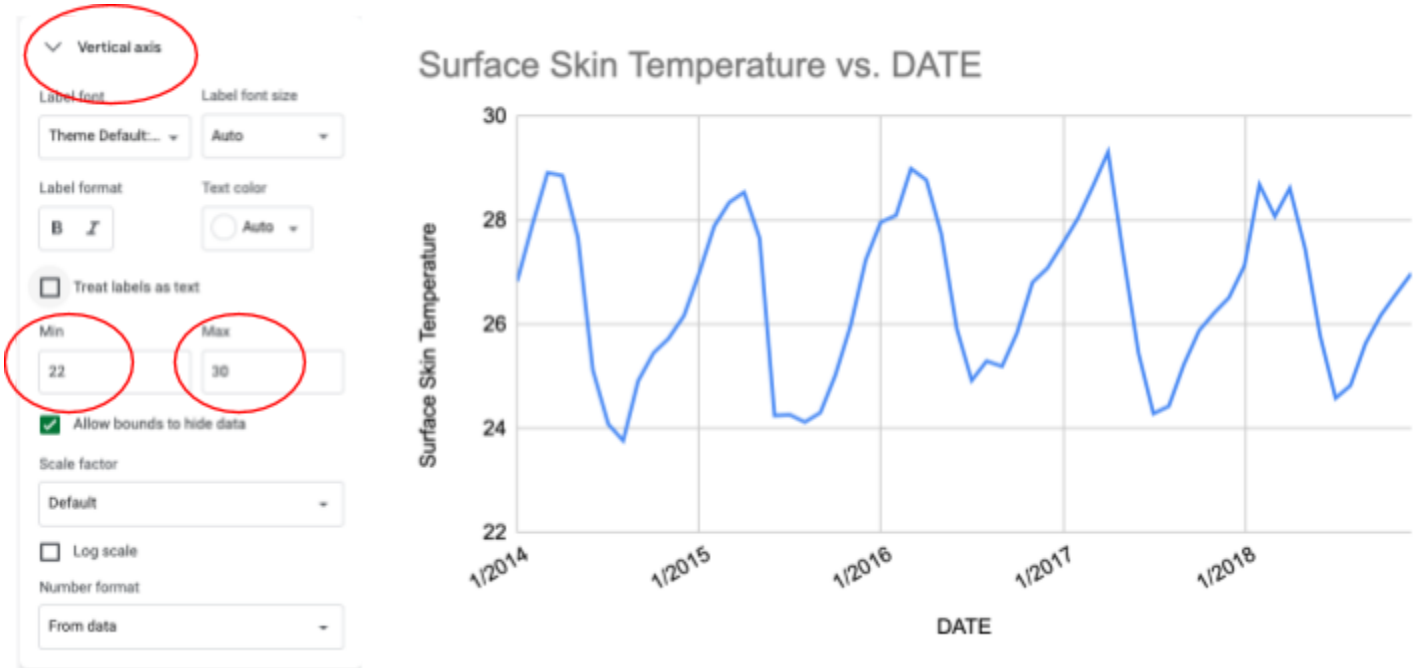
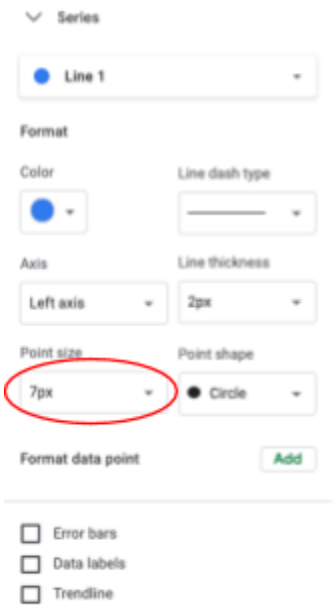
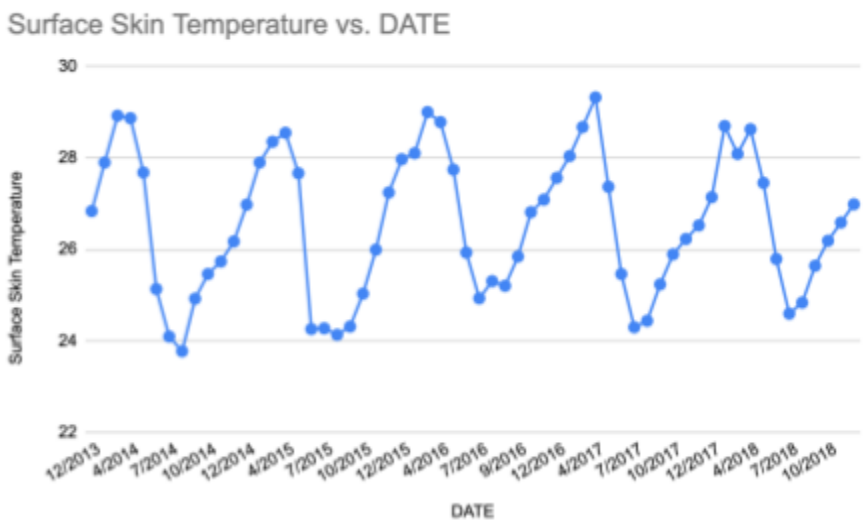
1. Use the ***Customize*** menu in the **Chart Editor** to change the format of your line graph (line chart).



2. Select ***Horizontal Axis*** and ***Slant Labels*** and change to 30°. Turn on the ***Treat labels as text.***



3. Select ***Vertical Axis*** and set your ***Min*** and ***Max*** values to showcase your data more visually.



4. Select ***Series*** and ***Point Size.*** Set Point Size to 2 (or larger) pixels.