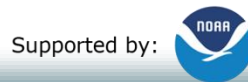
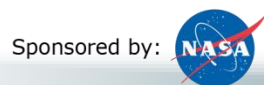


The 2015-2016 El Niño Campaign

Using GLOBE Visualization Tools and Data for Analysis

Cornell Lewis



Two GLOBE tools to retrieve data

- GLOBE Advanced Data Access Tool (ADAT) - <https://datasearch.globe.gov/> (or <https://GLOBE.gov/globe-data/retrieve-data>)
 - Used to find and return data from across sites and protocols
 - Allows you to filter by location, date and other parameters
 - Focus in on retrieving data across sites or locations
- GLOBE Visualization system - <http://vis.globe.gov/GLOBE/>
 - Used to see data points on a map
 - See a particular day's data – Show me the temperature today
 - Can also show data observed and graph over a period of time.
 - Focus is on specific set of data at a specific site

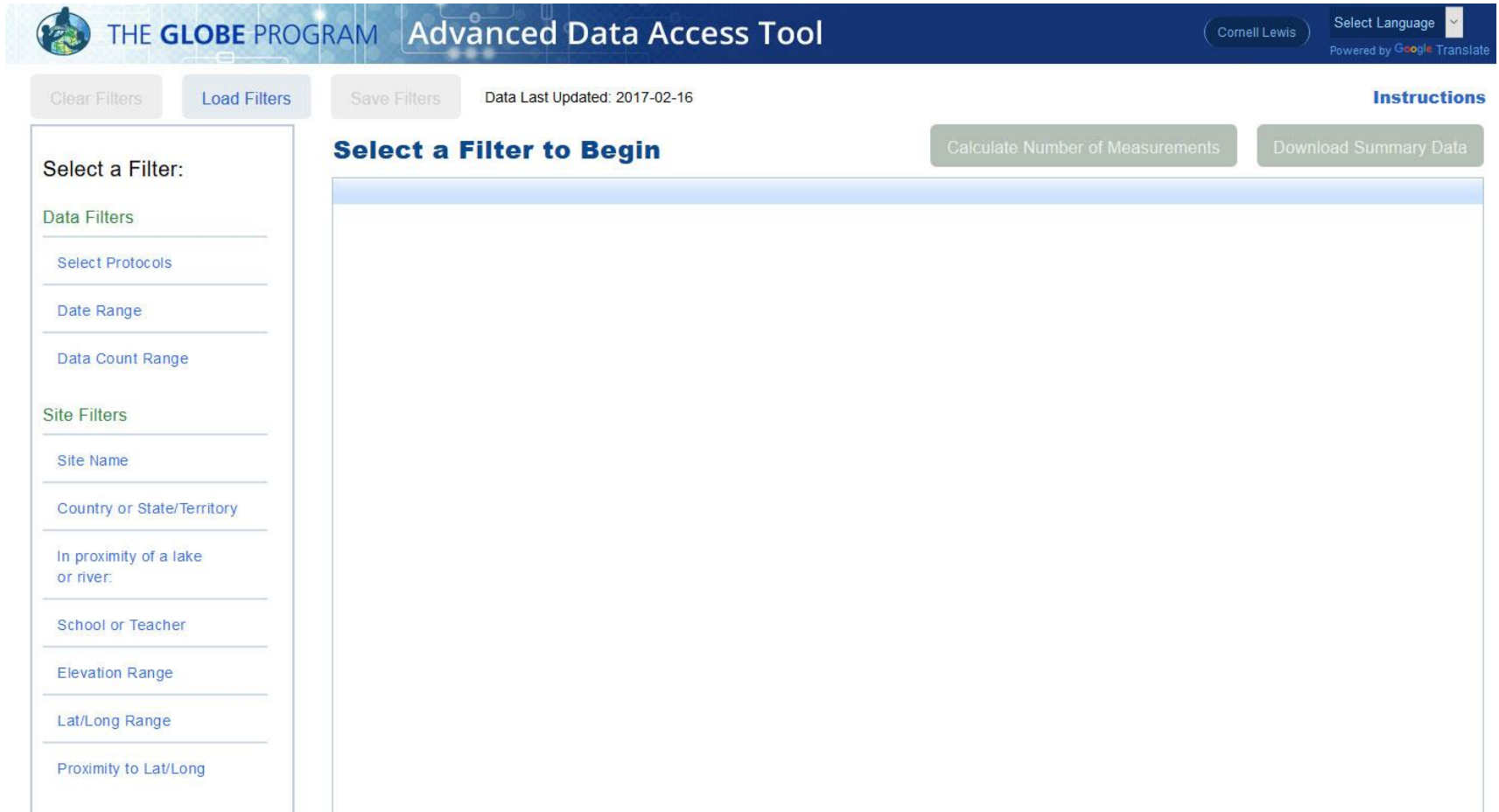
Using the Advanced Data Access Tool (ADAT)

- Two Steps –
 - Select Filters
 - Protocol, Date Range, Country, School or Teacher etc.
 - Select “Obtain Measurement Data” and then ‘Download Measurement Data” (may take a little while!)

Example of Using the Advanced Data Access Tool (ADAT) for the El Niño Campaign

- Retrieve data from a school on the west coast that collected precipitation data from these dates:
 - 12/1/2013 – 2/28/2014 **and** 12/1/2015 – 2/28/2016
(campaign data collection time ranges)
- Examine the data to see if the school recorded any El Niño effect.

Select Filters from the left to see matching sites



The screenshot shows the 'Advanced Data Access Tool' interface. At the top, there is a navigation bar with the 'THE GLOBE PROGRAM' logo, the title 'Advanced Data Access Tool', a 'Cornell Lewis' button, and a 'Select Language' dropdown menu. Below the navigation bar, there are several buttons: 'Clear Filters', 'Load Filters', 'Save Filters', and 'Data Last Updated: 2017-02-16'. On the right side of this bar, there is an 'Instructions' link. The main content area is divided into two sections. On the left, under the heading 'Select a Filter:', there are two categories of filters: 'Data Filters' and 'Site Filters'. The 'Data Filters' category includes 'Select Protocols', 'Date Range', and 'Data Count Range'. The 'Site Filters' category includes 'Site Name', 'Country or State/Territory', 'In proximity of a lake or river:', 'School or Teacher', 'Elevation Range', 'Lat/Long Range', and 'Proximity to Lat/Long'. On the right side of the main content area, there are two buttons: 'Calculate Number of Measurements' and 'Download Summary Data'. The central area of the page is currently empty, indicating that no filters have been applied yet.

[Clear Filters](#)
[Load Filters](#)
[Save Filters](#)

Data Last Updated: 2017-02-16

[Instructions](#)

Select a Filter:

Data Filters

[Select Protocols](#)
 Precipitation

[Date Range](#)
 2015-12-01 to 2016-02-28

[Data Count Range](#)

Site Filters

[Site Name](#)
[Country or State/Territory](#)
[In proximity of a lake or river:](#)
[School or Teacher](#)
[Elevation Range](#)
[Lat/Long Range](#)
[Proximity to Lat/Long](#)
358 Sites Found
[Obtain Measurement Data](#)
[Download Summary Data](#)

School Name	Site Name	Latitude	Longitude	Elevation
2nd Arsakeio-Tositseio lyceum Ekalis	School Arsakeio Drosia-CC	38.1198	23.8661	380.6
Abdulah Bin Salam Secondary School at Al-Ahsa	مدرسة عبدالله بن سلام دراسة الغلاف الجوي	25.4524	49.59444	150
Agial Junior High School	METEOROLOGICAL SHELTER SCHOOL YARD	32	34.44	27
Ahmad Sameh	GREENHOUSE PATH:ATM-01	31.45	35.13	698.2
Al Afak School -Sur Baher	GARDEN YARD:ATM-01	31.44	35.13	599.6
Alexander von Humboldt Gymnasium	Humboldt Gymnasium Vordereingang:ATM-01	47.667	9.183	367.4
Alexander von Humboldt Gymnasium	Radolfzell Mogginger Steig:ATM-02	47.449	8.593	386.8
Al-Fahd Secondary School at Rejal Alma'a	Al-Fahd at Rejal Alma'a	17.79295	41.9413	743
Al-Farouq Intermediate School at Jeddah	ikea:ATM-01	21.5546	39.1844	15.9
Al-Fath Secondary School at Abha	AlFath:ATM-01	18.1208	42.31	2247
Al-Hayathem Intermediate and Secondary Girls School	AL-Hayathem Intermediate:ATM-01	24.1	47.1427	700
Al-Hussein Bin Ali Secondary School at Makkah Al-Muka	AL-RAFEY STREET:ATM-01	21.23	39.47	267.7
Ajazeera Intermediate School at Taif	Ajazeera School:ATM-01	21.21266	40.26944	365.2
Al-Khaleej Secondary School at Dammam	ALKalg:ATM-02	26.2589	50.0669	10
Al Majd Junior High School	School almrjad	32.6047	35.44457	101
Al-Masaudi Intermediate School at Jeddah	Al-Masaudi Intermediate School at Jeddah	21.56453	39.20412	39
Al Mustakbal Elementary School	METEOROLOGICAL SHELTER ON THE ROOF	32.09	34.57	59
AL MUTANABI JUNIOR HIGH SCHOOL (GLIDUZ3N)	SCHOOL RIGHT MAIN ENTRANCE:ATM-01	32.8507	35.2142	212
Al Mutran	SCHOOL YARD:ATM-01	32.41	35.16	412
AL Salam Elementary School	School Entrance Garden Yard:ATM-01	31.25	34.46	255
Anykscai distr. Troskunai K. Inciura Gymnasium	TROSKUNAI:ATM-01	55.5869	24.8866	50
Apetio Gymanasio Agrou	atm-1:ATM-01	34.91643	33.0144	993.8
As-Siddiq Secondary School at Rejal Alma'a	Alsedeeq Secondary School Atmosphere:ATM-01	18.14799	42.16277	1213
Athens Intermediate School	AIS 2:ATM-02	34.47649	-86.59782	249.2
AT-Tahawy High School at Al-Hofuf	موقع دراسة الغلاف الجوي	25.21	49.36	173.8
Attour Junior High School For Girls	School Entrance Garden Yard:ATM-01	31.46	35.14	820
Bagy Bin Mekhled School at Riyadh	bagy atmosphere	24.81287	46.88946	595
Barta'a Junior High School	School Roof:ATM-01	32.475	35.08	4
Berufskolleg Institut Dr. Flad	School Location:ATM-01	48.774	9.1543	271
Brazil Secondary School	BHS Instrument Shelter:ATM-01	10.56063	-61.27065	30
Brazil Secondary School	BHS Car Park:ATM-02	10.561	-61.27	25
Bundeshandelsakademie und Bundeshandelsschule Bre	School Location:ATM-01	47.49139	9.72331	403
Bunyawat Wittayalai School	Fongsiri	20	99	477
Cabrini High School	Cabrini High Back Yard:ATM-01	29.9815	-90.088	1

1 - 34 of 358



Clear Filters

Load Filters

Save Filters

Data Last Updated: 2017-02-16

[Instructions](#)

Select a Filter:

Data Filters

Select Protocols

X Precipitation

Date Range

X 2015-12-01 to 2016-02-28

Data Count Range

Site Filters

Site Name

Country or State/Territory

X California

X Oregon

X Washington

In proximity of a lake or river:

School or Teacher

Elevation Range

Lat/Long Range

8 Sites Found

Obtain Measurement Data

Download Summary Data

<input checked="" type="checkbox"/>	School Name	Site Name	Latitude	Longitude	Elevation
<input checked="" type="checkbox"/>	Canyon Weather	ATM- Davis Station #2	34.1248	-117.7493	475
<input checked="" type="checkbox"/>	Kingsburg High School	Kingsburg High School Weather Station Site:ATM-02	36.5197	-119.5463	129.5
<input checked="" type="checkbox"/>	Lane Community College	Science Building (NW):ATM-01	44.0083	-123.0310	169
<input checked="" type="checkbox"/>	Lourdes Public Charter School	Lyons Fire Hall:ATM-01	44.7166	-122.6927	269.5
<input checked="" type="checkbox"/>	Lourdes Public Charter School	School Site:ATM-02	44.7225	-122.6898	188.3
<input checked="" type="checkbox"/>	McKnight Middle School	AWS and Cloud site:ATM-01	47.4851	-122.1112	161
<input checked="" type="checkbox"/>	Monroe Elementary School	James Monroe Elementary - The Outpost:ATM-01	47.9792	-122.2008	85
<input checked="" type="checkbox"/>	test_mobile school 1	Test Davis Site	37.63675	-122.1260	100

1 - 8 of 8

Sponsored by:



Supported by:



Implemented by:  UCAR



Clear Filters

Load Filters

Save Filters

Data Last Updated: 2017-02-16

[Instructions](#)

Select a Filter:

Data Filters

Select Protocols

X Precipitation

Date Range

X 2015-12-01 to 2016-02-28

Data Count Range

Site Filters

Site Name

Country or State/Territory

X California

X Oregon

X Washington

In proximity of a lake or river:

School or Teacher

Elevation Range

Lat/Long Range

8 Sites Found

Obtain Measurement Data

Download Summary Data

<input type="checkbox"/>	School Name	Site Name	Latitude	Longitude	Elevation
<input type="checkbox"/>	Canyon Weather	ATM- Davis Station #2	34.1248	-117.7493	475
<input type="checkbox"/>	Kingsburg High School	Kingsburg High School Weather Station Site:ATM-02	36.5197	-119.5463	129.5
<input type="checkbox"/>	Lane Community College	Science Building (NW):ATM-01	44.0083	-123.0310	169
<input type="checkbox"/>	Lourdes Public Charter School	Lyons Fire Hall:ATM-01	44.7166	-122.6927	269.5
<input type="checkbox"/>	Lourdes Public Charter School	School Site:ATM-02	44.7225	-122.6898	188.3
<input checked="" type="checkbox"/>	McKnight Middle School	AWS and Cloud site:ATM-01	47.4851	-122.1112	161
<input type="checkbox"/>	Monroe Elementary School	James Monroe Elementary - The Outpost:ATM-01	47.9792	-122.2008	85
<input type="checkbox"/>	test_mobile school 1	Test Davis Site	37.63675	-122.1260	100

Ready for [Download](#)

1 - 8 of 8

Sponsored by:



Supported by:



Implemented by:  UCAR

- Download the data for 2015-2016 from McKnight Middle School.
- Change date range to 2013-2014 and download the data again.
- Open in Excel, modify columns and create charts.

Clear Filters

Load Filters

Save Filters

Data Last Updated: 2017-02-16

[Instructions](#)

Select a Filter:

Data Filters

Select Protocols

X Precipitation

Date Range

X 2013-12-01 to 2014-02-28

Data Count Range

Site Filters

Site Name

Country or State/Territory

X California

X Oregon

X Washington

In proximity of a lake or river:

School or Teacher

Elevation Range

Lat/Long Range

5 Sites Found

Download Measurement Data (221)

Download Summary Data

<input checked="" type="checkbox"/>	School Name	Site Name	Latitude	Longitude	Elevation
<input checked="" type="checkbox"/>	Benicia High School	Garden:ATM-01	38.06405	-122.1754	24
<input checked="" type="checkbox"/>	Lourdes Public Charter School	Lyons Fire Hall:ATM-01	44.7166	-122.6927	269.5
<input checked="" type="checkbox"/>	Lourdes Public Charter School	School Site:ATM-02	44.7225	-122.6898	188.3
<input checked="" type="checkbox"/>	McKnight Middle School	AWS and Cloud site:ATM-01	47.4851	-122.1112	161
<input checked="" type="checkbox"/>	Monroe Elementary School	James Monroe Elementary - The Outpost:ATM-01	47.9792	-122.2008	85

New Date Range

1 - 5 of 5

McKnight Middle School – Data 2013 and 2015

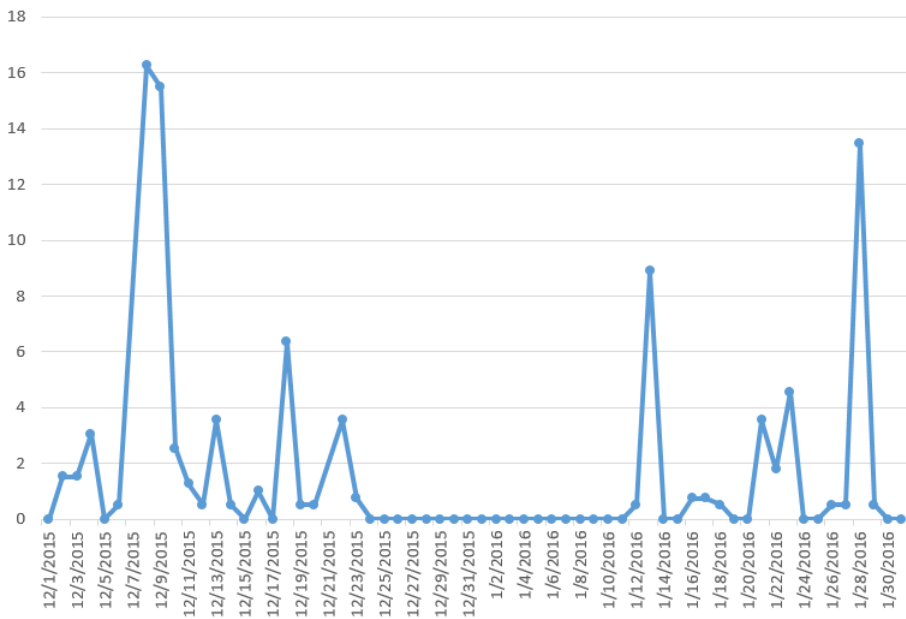
Download to Excel

	A	B	C	D	E	F	J	K
1	org_name	site_name	latitude	longitude	elevation	measured_on	precipitations	precipitations:0
106	McKnight Middle S	AWS and Cloud site:ATM	47.4851	-122.111	161	12/1/2015	0	no occurrence
107	McKnight Middle S	AWS and Cloud site:ATM	47.4851	-122.111	161	12/2/2015	1.52	rain
108	McKnight Middle S	AWS and Cloud site:ATM	47.4851	-122.111	161	12/3/2015	1.52	rain
109	McKnight Middle S	AWS and Cloud site:ATM	47.4851	-122.111	161	12/4/2015	3.05	rain
110	McKnight Middle S	AWS and Cloud site:ATM	47.4851	-122.111	161	12/5/2015	0	no occurrence
111	McKnight Middle S	AWS and Cloud site:ATM	47.4851	-122.111	161	12/6/2015	0.51	rain
112	McKnight Middle S	AWS and Cloud site:ATM	47.4851	-122.111	161	12/8/2015	16.25	rain
113	McKnight Middle S	AWS and Cloud site:ATM	47.4851	-122.111	161	12/9/2015	15.49	rain
114	McKnight Middle S	AWS and Cloud site:ATM	47.4851	-122.111	161	12/10/2015	2.54	rain
115	McKnight Middle S	AWS and Cloud site:ATM	47.4851	-122.111	161	12/11/2015	1.27	rain
116	McKnight Middle S	AWS and Cloud site:ATM	47.4851	-122.111	161	12/12/2015	0.51	rain
117	McKnight Middle S	AWS and Cloud site:ATM	47.4851	-122.111	161	12/13/2015	3.55	rain
118	McKnight Middle S	AWS and Cloud site:ATM	47.4851	-122.111	161	12/14/2015	0.51	rain
119	McKnight Middle S	AWS and Cloud site:ATM	47.4851	-122.111	161	12/15/2015	0	no occurrence
120	McKnight Middle S	AWS and Cloud site:ATM	47.4851	-122.111	161	12/16/2015	1.02	rain
121	McKnight Middle S	AWS and Cloud site:ATM	47.4851	-122.111	161	12/17/2015	0	no occurrence
122	McKnight Middle S	AWS and Cloud site:ATM	47.4851	-122.111	161	12/18/2015	6.35	rain
123	McKnight Middle S	AWS and Cloud site:ATM	47.4851	-122.111	161	12/19/2015	0.51	rain
124	McKnight Middle S	AWS and Cloud site:ATM	47.4851	-122.111	161	12/20/2015	0.51	rain
125	McKnight Middle S	AWS and Cloud site:ATM	47.4851	-122.111	161	12/22/2015	3.56	rain
126	McKnight Middle S	AWS and Cloud site:ATM	47.4851	-122.111	161	12/23/2015	0.76	rain
127	McKnight Middle S	AWS and Cloud site:ATM	47.4851	-122.111	161	12/24/2015	0	no occurrence

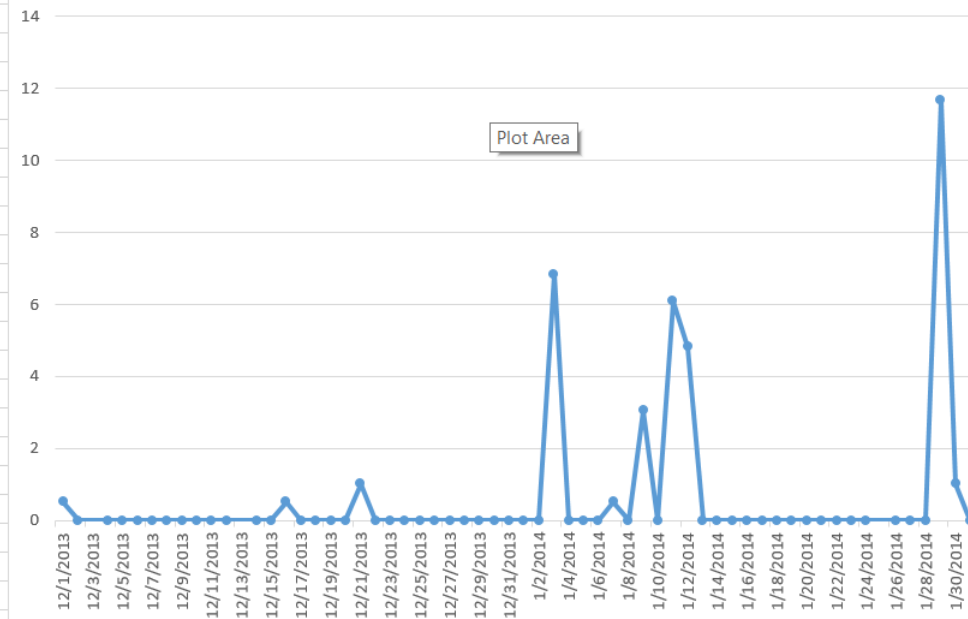
Comparison 2013 and 2015 Precipitation

Total 2015/2016 95.74
Total 2013/2014 36.1

Liquid Accumulation - McKnight 2015/2016

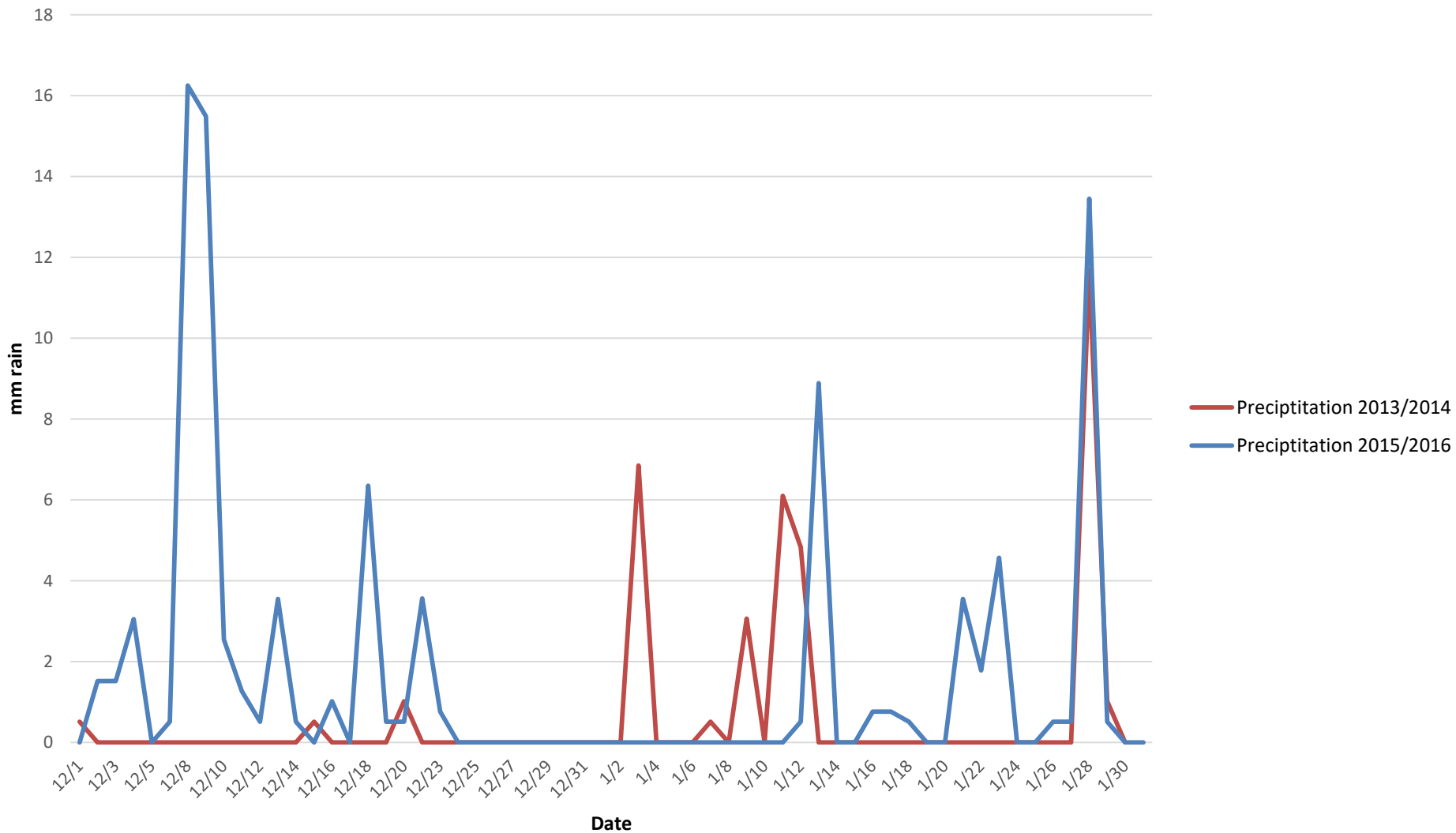


Liquid Accumulation - McKnight 2013/2014



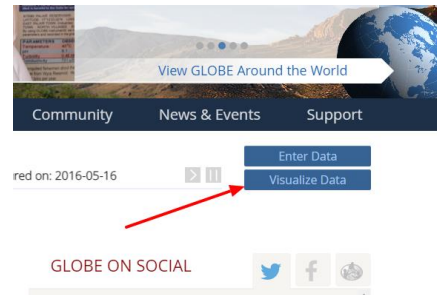
Note - 2015/2016 data only through 1/30/2016

McKnight Middle School



The Basics of the Visualization System

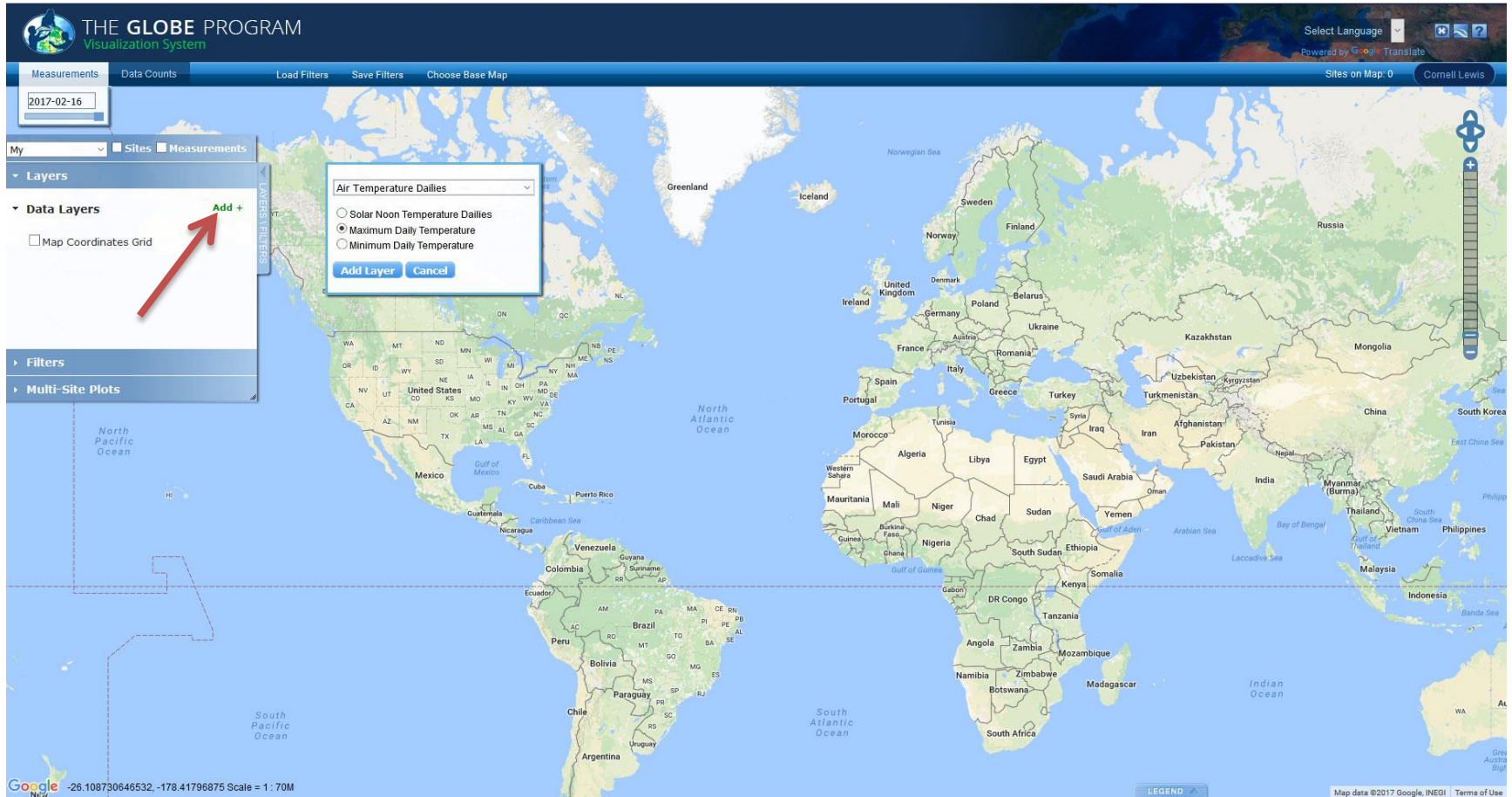
- Go to the homepage and select “Visualize Data”



- 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

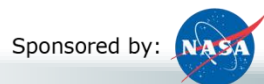
Full Training material – slides and video available at: <http://www.globe.gov/get-trained/using-the-globe-website/retrieve-and-visualize-your-data>

Step 1 – Add Data Layers – Choose the Protocol



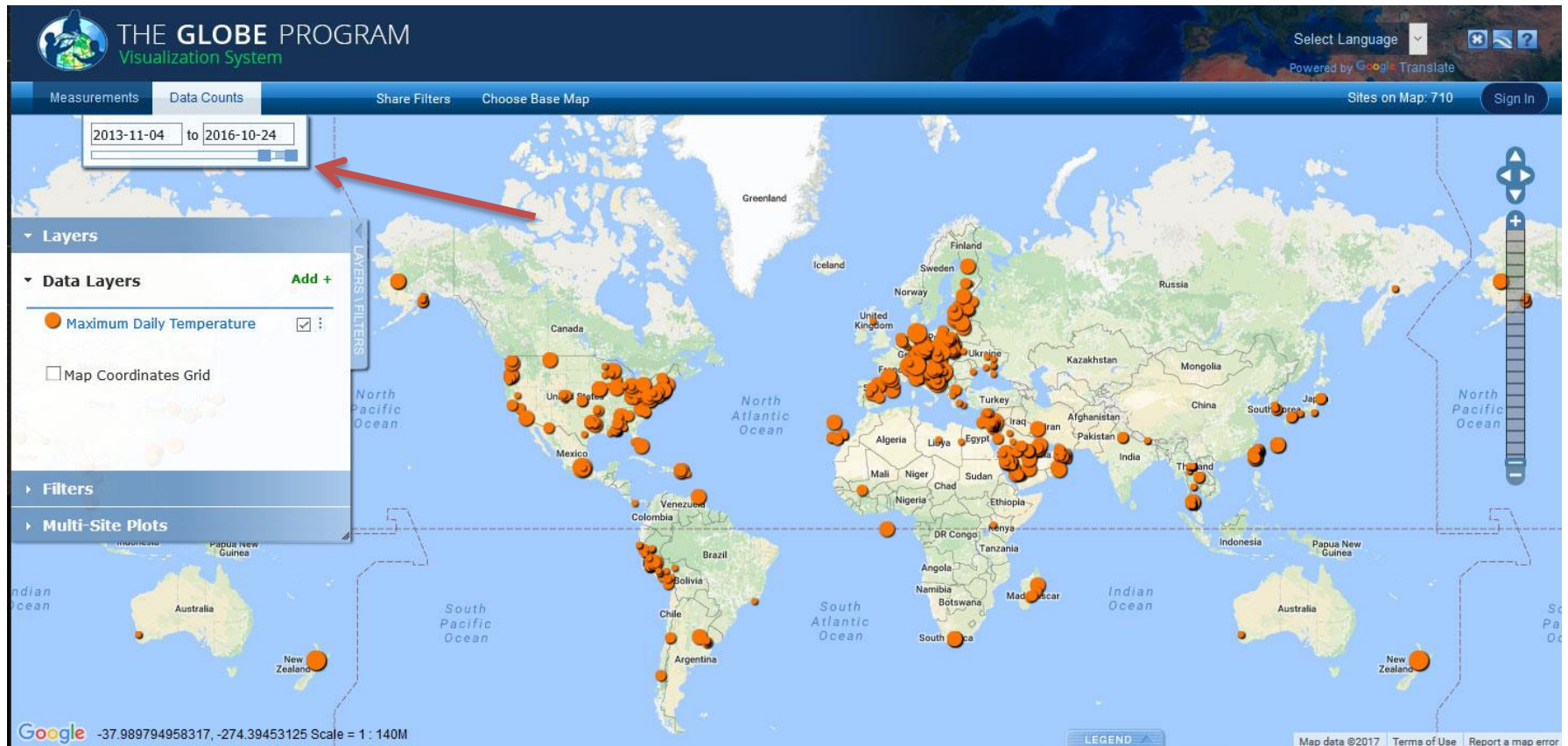
The screenshot shows the THE GLOBE PROGRAM Visualization System interface. The main map displays a world map with various countries labeled. On the left side, there is a navigation pane with sections for 'Layers', 'Filters', and 'Multi-Site Plots'. The 'Layers' section is expanded, showing 'Data Layers' with an 'Add +' button. A red arrow points to this button. A dialog box is open over the map, titled 'Air Temperature Dailies', with three radio button options: 'Solar Noon Temperature Dailies', 'Maximum Daily Temperature' (which is selected), and 'Minimum Daily Temperature'. The dialog box has 'Add Layer' and 'Cancel' buttons at the bottom.

Step 2 – Select a Measurement Date

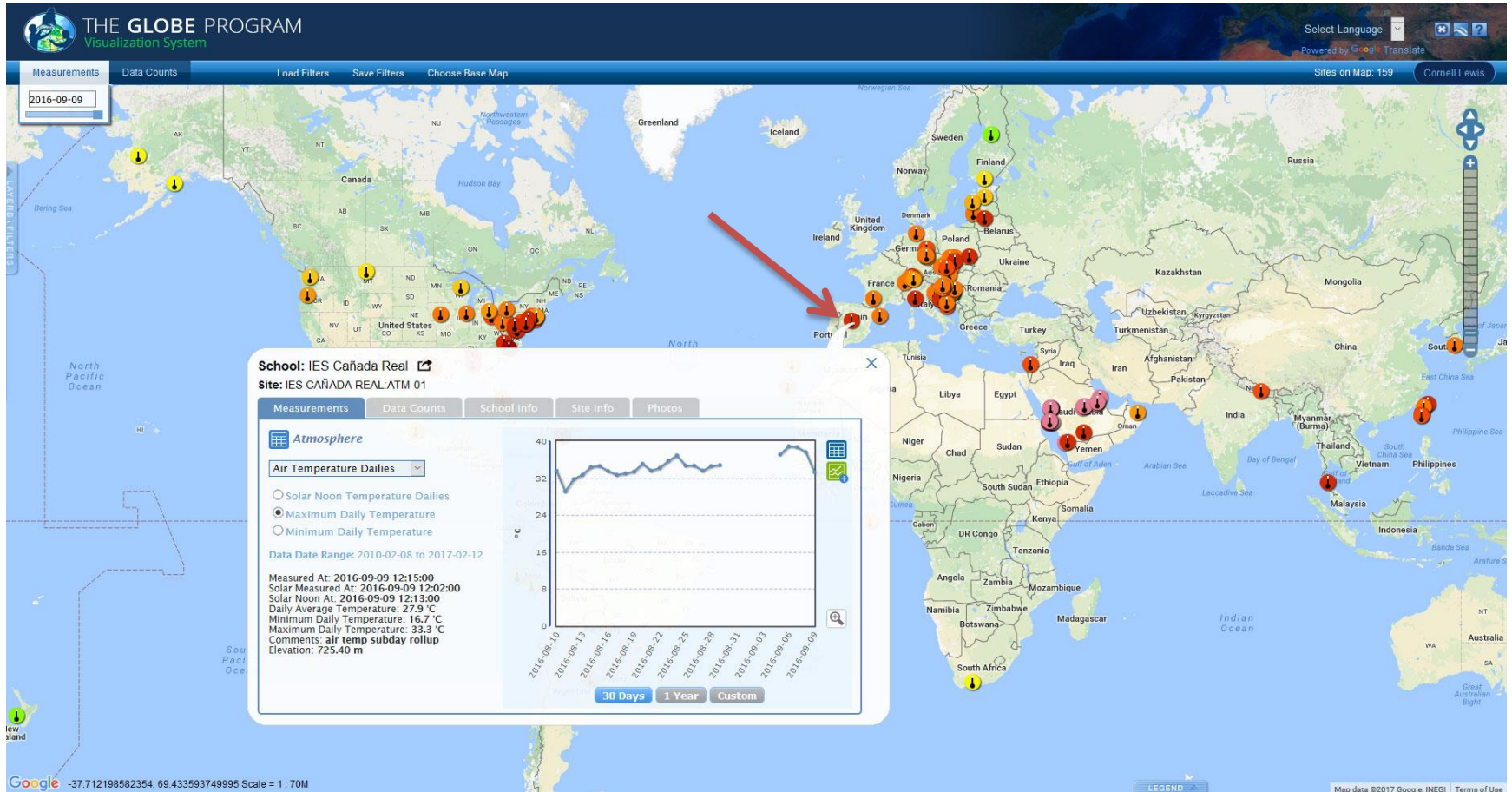


Implemented by: UCAR

Step 2 – Or Select a Date Range for Data Counts



Step 3 – Click on the Data Point



School: IES Cañada Real [↗](#)
Site: IES CAÑADA REAL-ATM-01

Measurements | Data Counts | School Info | Site Info | Photos

Atmosphere

Air Temperature Dailies

- Solar Noon Temperature Dailies
- Maximum Daily Temperature
- Minimum Daily Temperature

Data Date Range: 2010-02-08 to 2017-02-12

Measured At: 2016-09-09 12:15:00
 Solar Measured At: 2016-09-09 12:02:00
 Solar Noon At: 2016-09-09 12:13:00
 Daily Average Temperature: 27.9 °C
 Minimum Daily Temperature: 16.7 °C
 Maximum Daily Temperature: 33.3 °C
 Comments: air temp subday rollop
 Elevation: 725.40 m

30 Days | 1 Year | Custom

Vis system site info window

The screenshot shows the 'Vis system site info window' for the location 'Utajarven Ylaaste' (atmosphere: ATM-02). The interface includes a map at the top, a navigation bar with 'Measurements', 'Data Counts', 'School Info', and 'Site Info' tabs, and a main content area. The 'Measurements' tab is active, showing 'Atmosphere' data. A dropdown menu is set to 'Air Temperature Dailies (6107)'. Below this, there are radio buttons for 'Solar Noon Temperature Dailies', 'Maximum Daily Temperature', and 'Minimum Daily Temperature'. The 'Data Date Range' is '1996-02-29 to 2014-09-06'. A list of measurements is shown, including 'Measured At: 2011-04-11 10:00:00', 'Solar Measured At: 2011-04-11 11:45:00', 'Solar Noon At: 2011-04-11 10:15:00', 'Solar Noon Temperature: 2.0 °C', 'Minimum Daily Temperature: -1.4 °C', 'Maximum Daily Temperature: 2.8 °C', and 'Elevation: 80.00 m'. A line graph displays temperature data from 2010-04-12 to 2011-04-07, with a y-axis in °C ranging from -48 to 72. The x-axis has date labels. At the bottom of the graph, there are buttons for '30 Days', '1 Year', and 'Custom'. On the right side of the graph, there are icons for a table, a plus sign, and a magnifying glass. Annotations with red arrows point to various elements: 'See all Atmosphere Data' points to the 'Atmosphere' icon; 'Go to this school's page' points to a location pin on the map; 'See Plot Data in a Table' points to the table icon; 'Add this Data to a multi-site Plot' points to the plus icon; and 'Change the X axis Timeline' points to the '1 Year' button.

See all Atmosphere Data

Go to this school's page

See Plot Data in a Table

Add this Data to a multi-site Plot

Change the X axis Timeline

- Let's look at the schools again on the west coast and look at Maximum Daily Air Temperature and compare the temperature data during the different data ranges (2013 and 2015).

Advanced Features

- Use Filters - Location/Site/Elevation to find specific locations – school, country, city etc.
- Save your parameters to use later or share with others (via ADAT)
- Quickly see your sites or organization sites
- Use “Data Counts” to see schools which have entered the most data during a particular period of time
- Export layers to KMZ format for using with Google Earth and other similar tools

Full Training material – slides and video available at: <http://www.globe.gov/get-trained/using-the-globe-website/retrieve-and-visualize-your-data>

Questions?

- Thank you!

