http://www.wrcc.dri.edu/csc/scenic/

USER GUIDE 2017

INTRODUCTION

SCENIC is a web page under development at the Western Regional Climate Center (WRCC) as part of WRCC's contribution to the Southwest Climate Science Center (SWCSC). The purpose of SCENIC is to support the research and decision making efforts of the SW-CSC, the Landscape Conservation Cooperatives (LCC), and other stakeholders. The web pages serve as an access point for climate data and analysis tools for the Southwest as well as the rest of the contiguous U.S.

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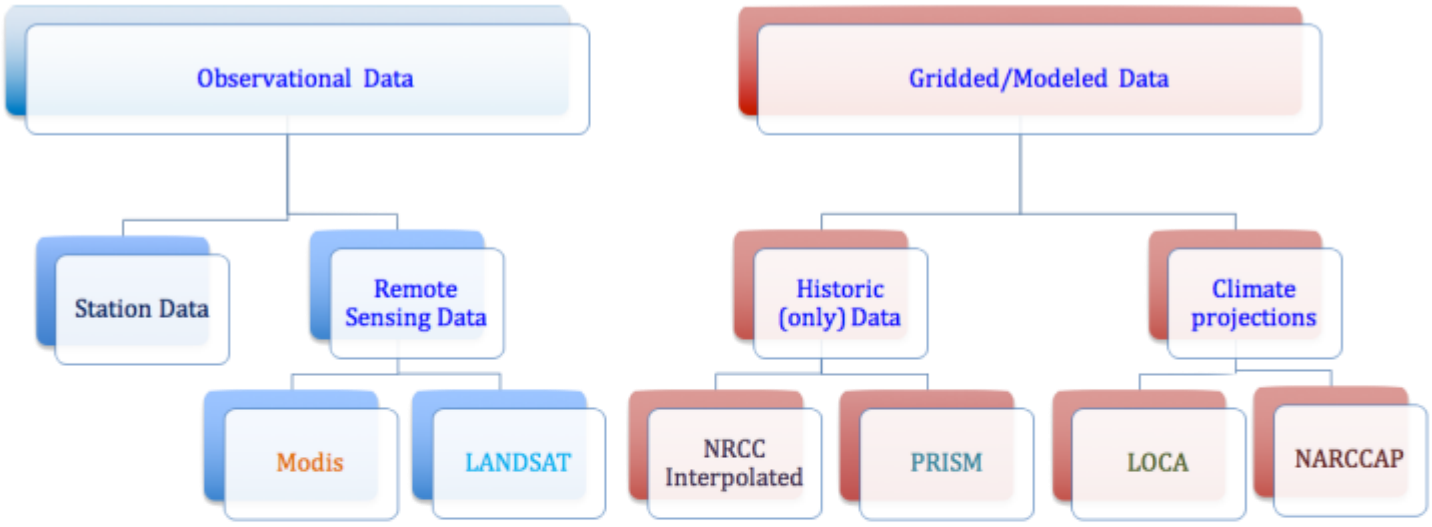
OVERVIEW DATA

SCENIC delivers daily data from **weather stations** across the U.S. from 1890-present. It also provides access to **statistically downscaled climate projections (LOCA)** developed at SCRIPPS and **dynamically downscaled data and model outputs** from NARCCAP. SCENIC also provides access to historic gridded datasets like daily, monthly, and annual data at 4 km resolution from **PRISM**. Users can download subsets of the data and requests can be customized by spatial and temporal extent.

The complete **MODIS and LANDSAT** archives can be access through SCENIC via Google's cloud computing platform Earth Engine.

Figure: Schematic of available datasets



COOP, GHCN, ICAO, NWSLI, FAA, WMO, WBAN, ThreadEx, CoCoRaHS	Reflectance data in 36 frequency bands: visible to thermal	Reflectance data in visible, near, short infrared and thermal bands	Northeastern Regional Climate Center	Parameter elevation Regression On Independent Slopes Model (Oregon State University)	Localized analog Statistical downscaling (SCRIPPS)	North American Regional Climate Change Assessment Program (UCAR)
-----	250/500/1000 m	30/80/120 m	5km	4km	6km	50km
US	global	global	US	US	US/Canada/Mexico	US
Daily	Daily/8/16/monthly	16-day	Daily	Daily/Monthly/Yearly	Daily	Daily
Varies by station (1845- Present)	1999 - Present	1982 - Present	1950 - Present	1981/1895/1895 - Present	1950 -2100	1970-2000 2040 - 2070

OVERVIEW ANALYSIS TOOLS

Several analysis and visualization tools are available to help resource scientists in the decision-making process. Among these are tools to summarize data, identify extremes, generate custom time series graphs, and to generate climate summary tables.

OVERVIEW MONITORING TOOLS

The Climate Dashboard allows users to monitor current climate and weather conditions across the U.S. The dashboard provides access to numerous climate anomaly maps, water, snow and drought information, ENSO, AO, NAO, MJO updates, and climate outlooks.

STATION FINDER http://www.wrcc.dri.edu/csc/scenic/data/climate_data/station_finder/

The Station finder allows users to locate weather stations in a region that record certain climate variables over a date range.

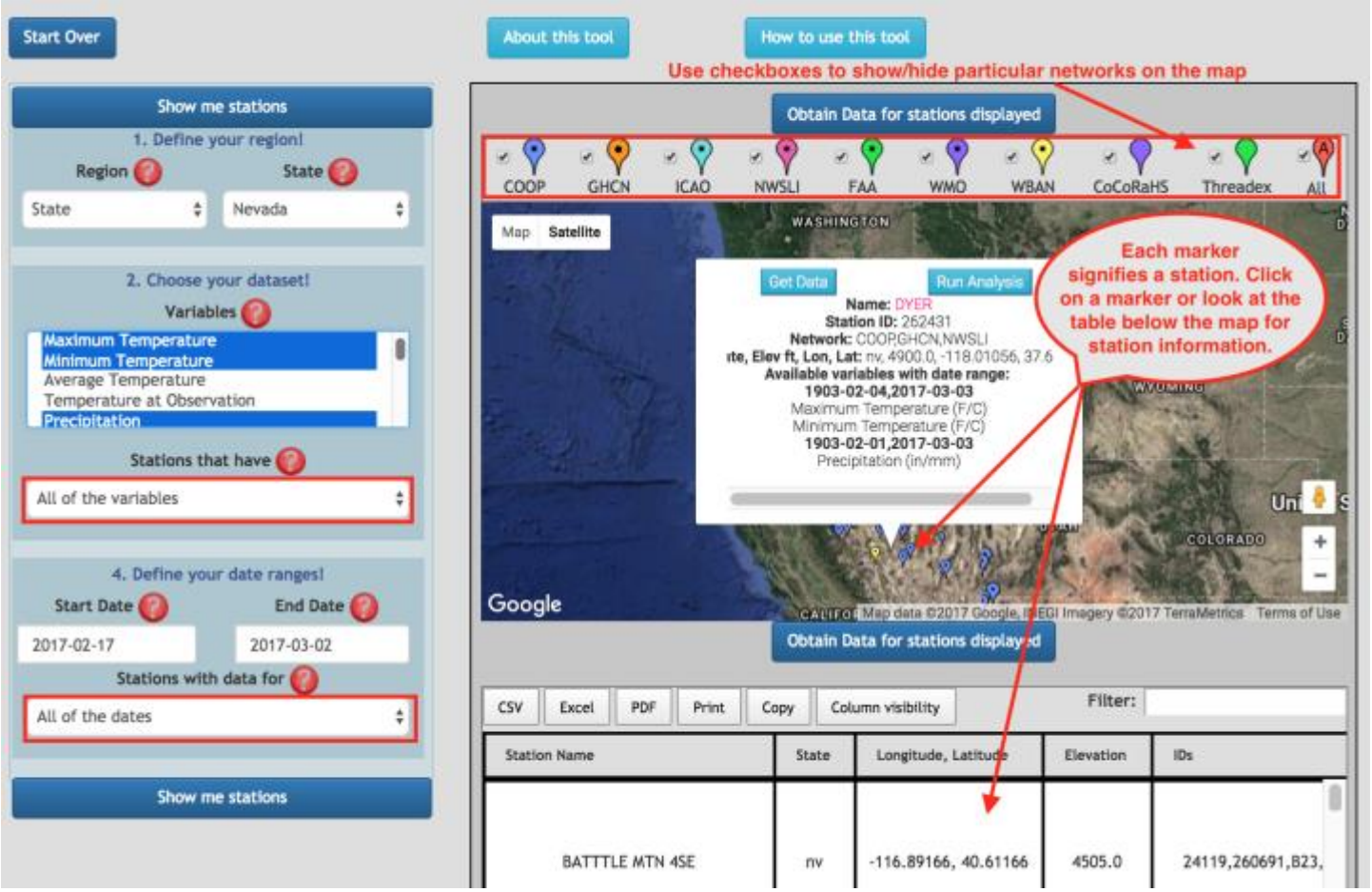
Input options

Region	Variables	Variable Constraints	Date Range	Date Constraints
Single Station List of stations	Temperatures (Max/Min/Ave)	"All of the variables" – List stations that	Start Date End Date	"All of the dates" – List stations that have complete record for

County County Warning Area Climate Division Drainage Basin State Custom Shape (Polygon, Rectangle) Upload Shape File	Temperature at Observation Time Precipitation Snowfall Snow Depth Degree Days (Heating/Cooling/Growing) Pan Evaporation	have records for all of the variables “Any of the variables” – List stations that have record for one or more variables		the chosen date range “Any of the dates” – List stations that have records for one or more dates within the chosen date range

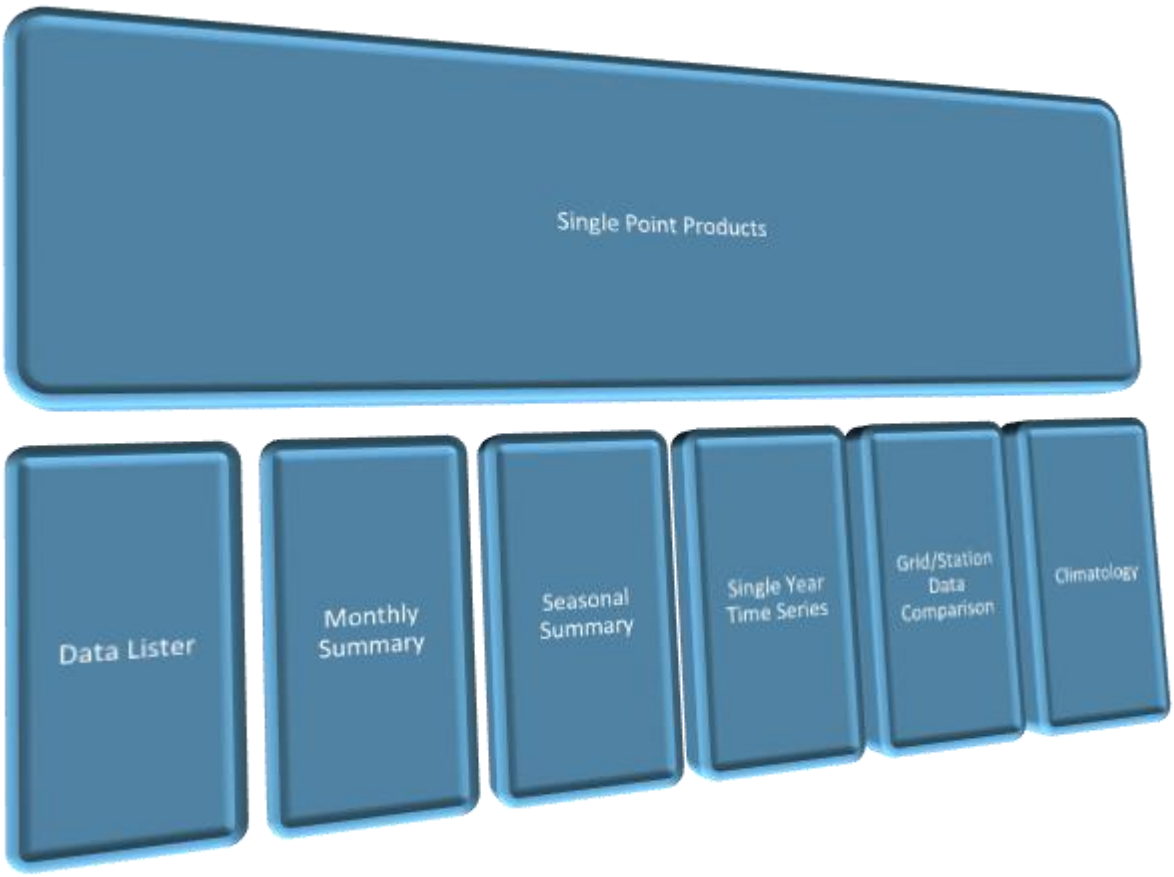
EXAMPLES

LIST ALL STATION INS NEVADA THAT RECORD MAXIMUM, MINIMUM TEMPERATURE AND PRECIPITATION AND HAVE COMPLETE RECORDS FROM 2017-02-17 TO 2017-03-02.



SINGLE-POINT PRODUCTS

Single point products are data listers and analysis tools for single points. A single point is a weather station or a longitude, latitude coordinate for gridded datasets.



DATA LISTER http://www.wrcc.dri.edu/csc/scenic/data/climate_data/single/lister/

Lists weather station or gridded data at a point over a time period.

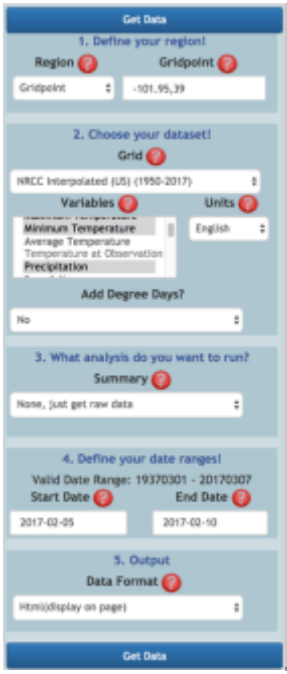
Input options

Region	Variables	Data Summary	Flags and Observation Time	Dates	Data Format	Output
Single Station Gridpoint	Temperatures (Max/Min/Ave) Temperature at Observation Time Precipitation	None Temporal Summary Windowed Data	Show Or Hide	Start Date End Date	Html Txt Excel Dat	Data Table

	Snowfall Snow Depth Degree Days (Heating/Cooling/Growing) Pan Evaporation					

EXAMPLES

RAW DATA OVER TIME PERIOD 2017-02-05 TO 2017-02-10 FOR A GRID POINT



ACIS Data Flags: M,-9999 = Missing, T = Trace, S = Subsequent, A = Accumulated

Gridpoint: -101.95,39;
Grid: NRCC Interpolated (US);
Data Summary: none;
Start Date: 2017-02-05;
End Date: 2017-02-10;

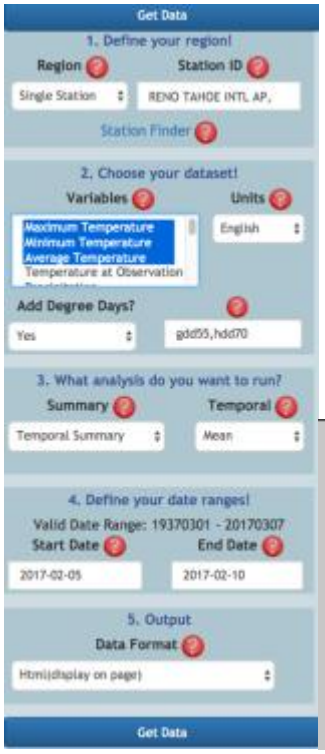
CSV | Excel | PDF | Print | Copy Table | Column visibility | Filter:

Date	TMax (F)	TMin (F)	Pcpn (in)
2017-02-05	65	26	0.0
2017-02-06	64	30	0.0
2017-02-07	68	31	0.0
2017-02-08	66	15	0.0
2017-02-09	38	16	0.0
2017-02-10	69	19	0.0
Date	TMax (F)	TMin (F)	Pcpn (in)

Showing 1 to 6 of 6 entries

TEMPORAL SUMMARY AT A WEATHER STATION: MEAN TEMPERATURES AT RENO TAHOE INTERNATIONAL AIRPORT

2017-02-05 2017-02-10

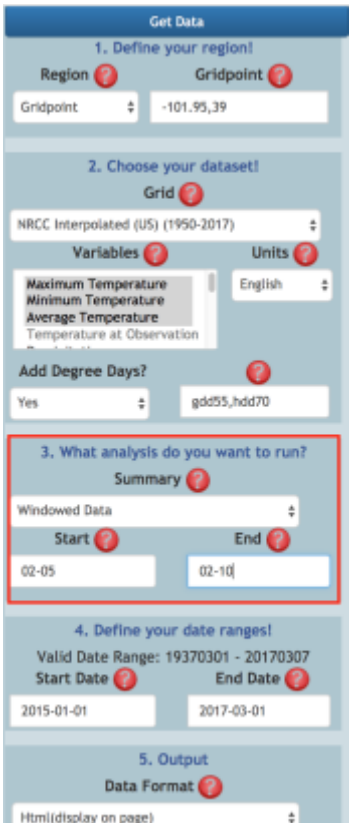


Station ID: RENO TAHOE INTL AP, 266779;
Temporal Summary: Mean;
Start Date: 2017-02-05;
End Date: 2017-02-10;

CSV | Excel | PDF | Print | Copy Table | Column visibility | Filter:

Station (IDs)	TMax (F)	TMin (F)	TMean (F)	Gdd55	Hdd70
RENO TAHOE INTL AP, 266779	58	38	48	0	22
Station (IDs)	TMax (F)	TMin (F)	TMean (F)	Gdd55	Hdd70

WINDOWED DATA (02-05 TO 02-10) FOR A GRIDPOINT



Gridpoint: -101.59,39;
Grid: NRCC Interpolated (US);
Window: 02-05 - 02-10;
Start Date: 2015-01-01;
End Date: 2017-03-01;

CSV | Excel | PDF | Print | Copy Table | Column visibility | Filter:

Date	TMax (F)	TMin (F)	Pcpn (In)	Gdd55	Hdd70
2015-02-05	26	13	0.02	0	50
2015-02-06	61	20	0.0	0	30
2015-02-07	78	34	0.0	1	14
2015-02-08	79	37	0.0	3	12
2015-02-09	71	28	0.0	0	20
2015-02-10	68	26	0.0	0	22
2016-02-05	34	4	0.0	0	51
2016-02-06	37	10	0.0	0	46
2016-02-07	44	19	0.0	0	38
2016-02-08	40	22	0.0	0	39
2016-02-09	39	22	0.0	0	40
2016-02-10	48	26	0.0	0	33
2017-02-05	66	19	0.0	0	28
2017-02-06	62	26	0.0	0	26
2017-02-07	68	28	0.0	0	22
Date	TMax (F)	TMin (F)	Pcpn (In)	Gdd55	Hdd70

MONTHLY SUMMARY http://www.wrcc.dri.edu/csc/scenic/data/climate_data/single/monthly_summary/

The monthly summaries tool generates monthly time series over the period of record of a weather station or gridpoint.

Input options

Region	**Variable**	**Monthly Statistic**	**Year Range**	**Maximum number of missing days**	**Output as**	**Output**
Single Station Gridpoint	Temperatures (Max/Min/Ave) Temperature at Observation Time Precipitation Snowfall Snow Depth Degree Days (Heating/Cooling/Growing) Pan Evaporation	Maximum Minimum Average Standard Deviation Number of Days Range Sum	Start Year End Year	Months with more than this number of missing days will be excluded from annual statistics	Values Departure from Averages	Data Table Graph Summary Data Table (max/min/mean/ skew/sd/number of years for each month of year range)

SEASONAL SUMMARY http://www.wrcc.dri.edu/csc/scenic/data/climate_data/single/yearly_summary/

Summarizes data at a station or gridpoint temporally over a season for each year in a chosen year range.

Input options

Region	Variable	Temporal Summary	Dates	Output
Single Station Gridpoint	Temperatures (Max/Min/Ave) Temperature at Observation Time Precipitation Snowfall Snow Depth Degree Days (Heating/Cooling/Growing) Pan Evaporation	Maximum Minimum Mean Sum	Start Month and Day End Month and Day Start Year End Year	Data Table Graph

TIME SERIES OVER A SINGLE YEAR http://www.wrcc.dri.edu/csc/scenic/data/climate_data/single/intraannual/

Users can generate daily values of a variable within the time span of a single year and make comparisons to values for other years. Additionally, the 50th percentile (long-term average) as well as the 5%- 95%, 10% - 90% and 25% - 75% percentiles are calculated.

Input options

Region	Variable	Calculation	Dates	Output

Single Station Gridpoint	Temperatures (Max/Min/Ave) Temperature at Observation Time Precipitation Snowfall Snow Depth Degree Days (Heating/Cooling/Growing) Pan Evaporation	Cumulative Values	Start Month and Day Start Year End Year	Data Table Graph

GRID/STATION DATA COMPARISON http://www.wrcc.dri.edu/csc/scenic/data/climate_data/single/data_comparison/

At times, due to sparseness of weather stations in an area or lack of long station record, it is advantageous to use a modeled gridded dataset instead. The data comparison tool can be used to investigate how closely a gridded dataset matches observational data at a particular location over an historic date range.

Input options

Region	Grid	Variable	Dates	Output
Gridpoint	NRCC PRISM	Temperatures (Max/Min/Ave)	Start Date End Date	Data Table Graph

	LOCA NARCCAP	Temperature at Observation Time Precipitation Snowfall Snow Depth Degree Days (Heating/Cooling/Growing) Pan Evaporation		

CLIMATOLOGY http://www.wrcc.dri.edu/csc/scenic/data/climate_data/single/climatology/

Monthly and seasonal averages and extremes are produced for a single weather station

or gridpoint.

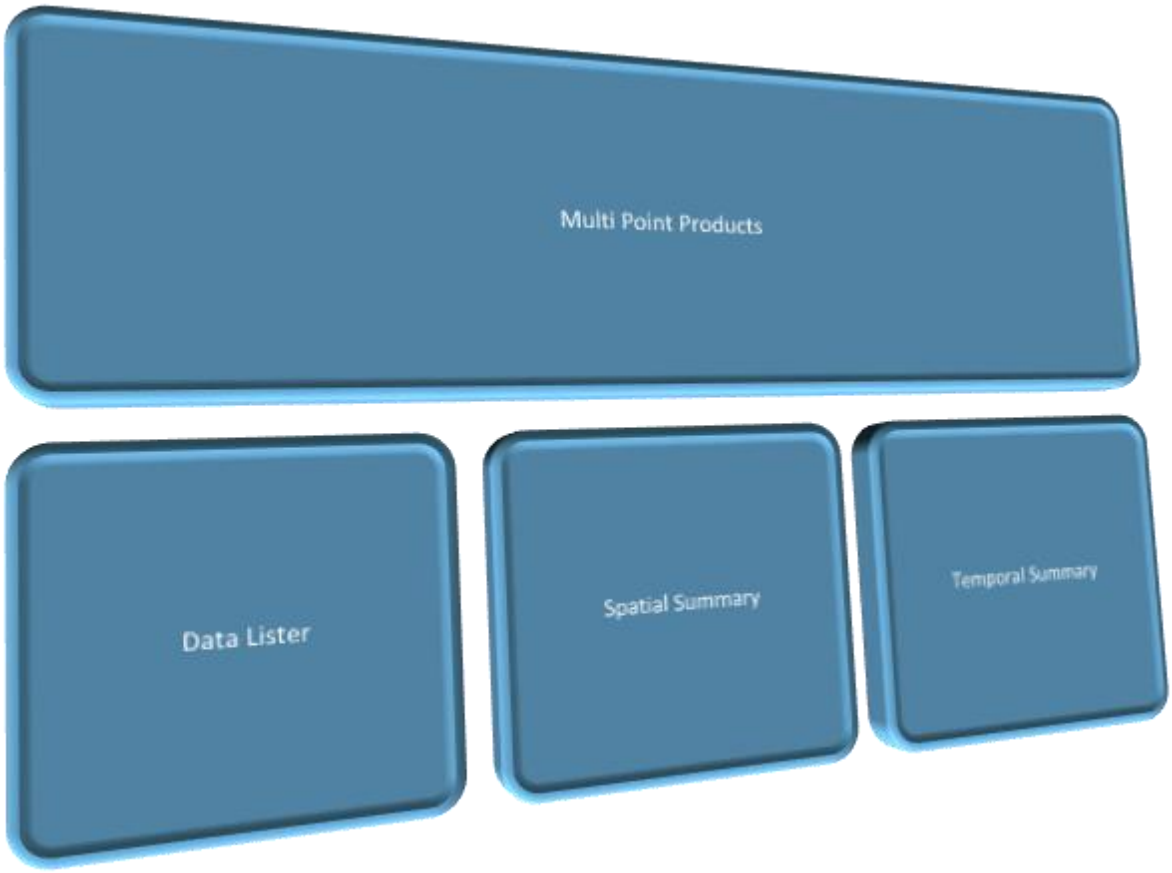
Input options

Region	**Variable**	**Dates**	**Maximum number of Missing Days**	**Output**
Single Station Gridpoint	Temperatures Precipitation Temperatures/Precipitation and Snow Degree Days	Start Year End Year	Months with more than this number of missing days will be excluded from annual statistics	Data Table Graph

	Growing Degree Days			

MULTI-POINT PRODUCTS

Multi Point Product are listers and analysis tools for regions like states, climate divisions, counties, etc. and custom polygons or rectangles.



DATA LISTER http://www.wrcc.dri.edu/csc/scenic/data/climate_data/multi/lister/

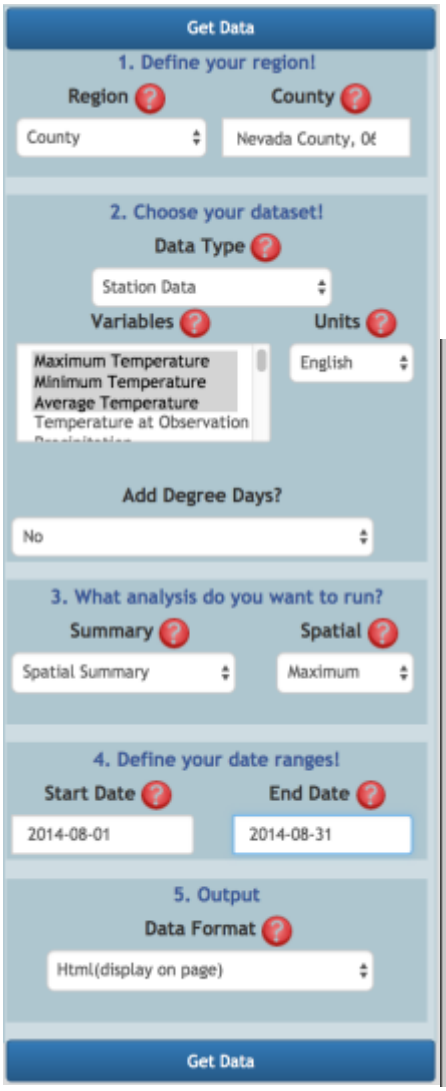
Data for multiple points can be obtained as raw values or can be summarized temporally or spatially.

Input options

Region	Data Type	Variables	Summary Type	Data Summary	Dates	Data Format	Output
List of stations Gridpoints County County Warning Area Climate Division Drainage Basin State Custom Shape (Polygon, Rectangle) Upload Shape File	Station Data Gridded Data	Temperatures (Max/Min/Ave) Temperature at Observation Time Precipitation Snowfall Snow Depth Degree Days (Heating/Cooling/Growing) Pan Evaporation	None Spatial Temporal Windowed Data	Max Min Mean Sum	Start Date End Date	Html Txt Excel Dat	Data Table

EXAMPLES

SPATIAL SUMMARY OVER COUNTY: MAXIMUM TEMPERATURES OBSERVED FOR EACH DAY IN AUGUST IN OVER ALL WEATHER STATIONS IN NEVADA COUNTY, CALIFORNIA

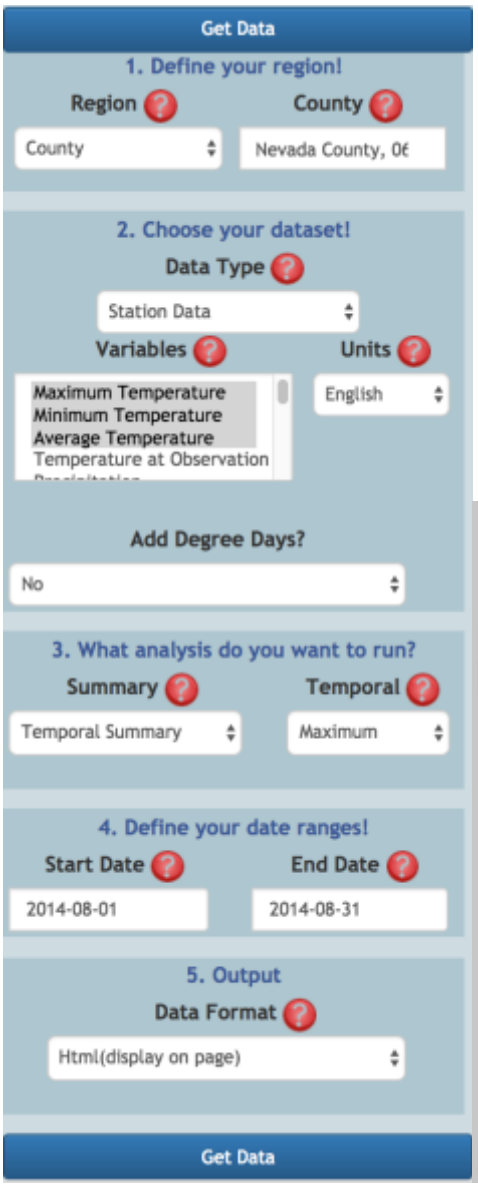


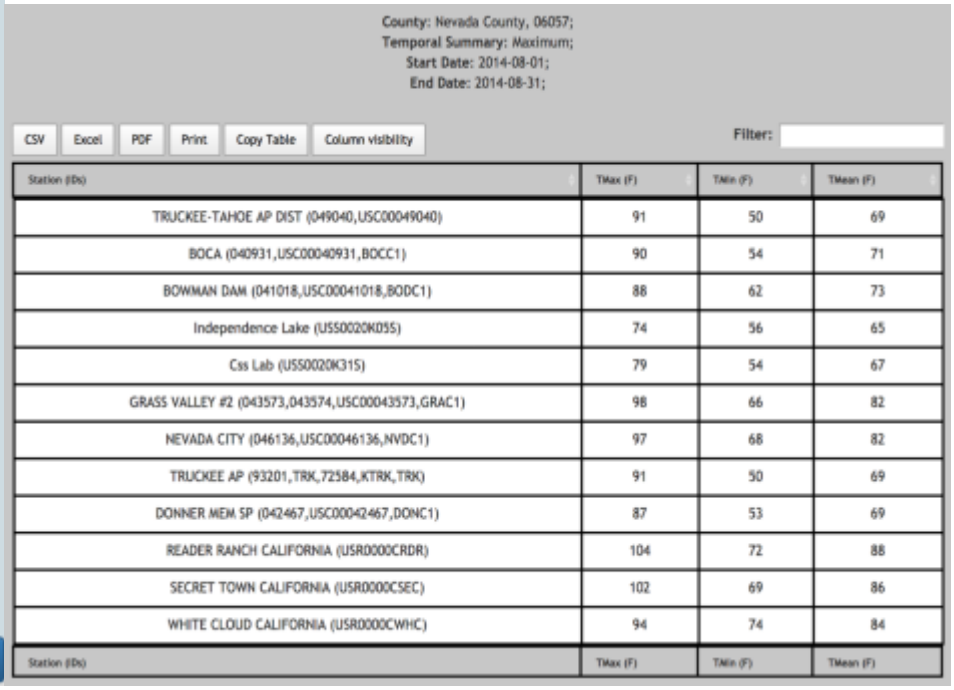
County: Nevada County, 06057;
Spatial Summary: Maximum;
Start Date: 2014-08-01;
End Date: 2014-08-31;

CSV | Excel | PDF | Print | Copy Table | Column visibility | Filter:

Date	TMax (F)	TMin (F)	TMean (F)
2014-08-01	104	74	88
2014-08-02	101	72	86
2014-08-03	95	68	81
2014-08-04	87	66	76
2014-08-05	82	64	72
2014-08-06	90	64	77
2014-08-07	94	65	80
2014-08-08	96	68	82
2014-08-09	95	69	80
2014-08-10	93	70	79
2014-08-11	96	70	82
2014-08-12	91	65	78
2014-08-13	87	60	73
2014-08-14	89	62	76
2014-08-15	93	63	78
Date	TMax (F)	TMin (F)	TMean (F)

TEMPORAL SUMMARY: MAXIMUM OF AUGUST TEMPERATURES OBSERVED AT INDIVIDUAL STATIONS IN NEVADA COUNTY, CALIFORNIA.





County: Nevada County, 06057;
Temporal Summary: Maximum;
Start Date: 2014-08-01;
End Date: 2014-08-31;

CSV | Excel | PDF | Print | Copy Table | Column visibility | Filter:

Station (IDs)	TMax (F)	TMin (F)	TMean (F)
TRUCKEE-TAHOE AP DIST (049040,USC00049040)	91	50	69
BOCA (040931,USC00040931,BOCC1)	90	54	71
BOWMAN DAM (041018,USC00041018,BODC1)	88	62	73
Independence Lake (USS0020K055)	74	56	65
Css Lab (USS0020K315)	79	54	67
GRASS VALLEY #2 (043573,043574,USC00043573,GRAC1)	98	66	82
NEVADA CITY (046136,USC00046136,NVDC1)	97	68	82
TRUCKEE AP (93201,TRK,72584,KTRK,TRK)	91	50	69
DONNER MEM SP (042467,USC00042467,DONC1)	87	53	69
READER RANCH CALIFORNIA (USR0000CRDR)	104	72	88
SECRET TOWN CALIFORNIA (USR0000CSEC)	102	69	86
WHITE CLOUD CALIFORNIA (USR0000CWHC)	94	74	84
Station (IDs)	TMax (F)	TMin (F)	TMean (F)

SPATIAL SUMMARY OVER AN AREA http://www.wrcc.dri.edu/csc/scenic/data/climate_data/multi/spatial_summary/

Time Series for multiple climate variables over a date range and area are spatially summarized.

Input options

Region	Data Type	Variables	Spatial Summary	Dates	Output
List of stations	Station Data	Temperatures (Max/Min/Ave)	Max Min	Start Date	Data Table

Gridpoint County County Warning Area Climate Division Drainage Basin State Custom Shape (Polygon, Rectangle) Upload Shape File	Gridded Data	Temperature at Observation Time Precipitation Snowfall Snow Depth Degree Days (Heating/Cooling/Growing) Pan Evaporation	Mean Sum	End Date	Graph

TEMPORAL SUMMARY
HTTP://WWW.WRCC.DRI.EDU/CSC/SCENIC/DATA/CLIMATE_DATA/MULTI/TEMPORAL_SUMMARY/

This tool generates climate maps for temporally summarized data in a US state or custom bounding box.

Input options

Region	Data Type	Variables	Grid	Temporal Summary	Dates	Output
State Bounding Box	Station Data Gridded Data	Temperatures (Max/Min/Ave) Precipitation Degree Days (Heating/Cooling/Growing)	NRCC PRISM LOCA NARCCAP	Max Min Mean Sum	Start Date End Date	Data Table Image

HOW TO DECIDE WHAT TOOL TO USE

HELPFUL TIPS WHEN USING SCENIC

GENERAL

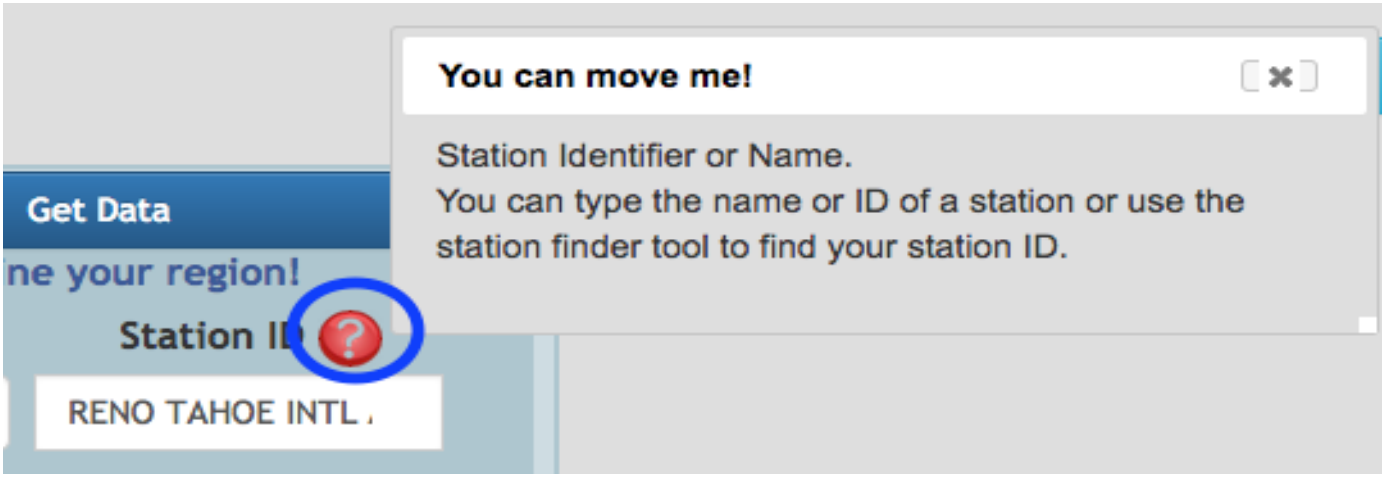
URLs

Web Tool: http://www.wrcc.dri.edu/csc/scenic/

Submit bug reports here: scenic@dri.edu

Submit feedback here: scenic@dri.edu

- Use these buttons: “About this tool” and “How to use this tool” buttons at the top of the page of each data tool
- Also use the red question marks next to form fields. They contain more information about the field and how to populate it



USING THE OVERLAY MAPS TO FIND SPECIFIC REGIONS (COUNTIES, CLIMATE DIVISIONS, BASIN, COUNTY WARNING AREA) IN A US STATE

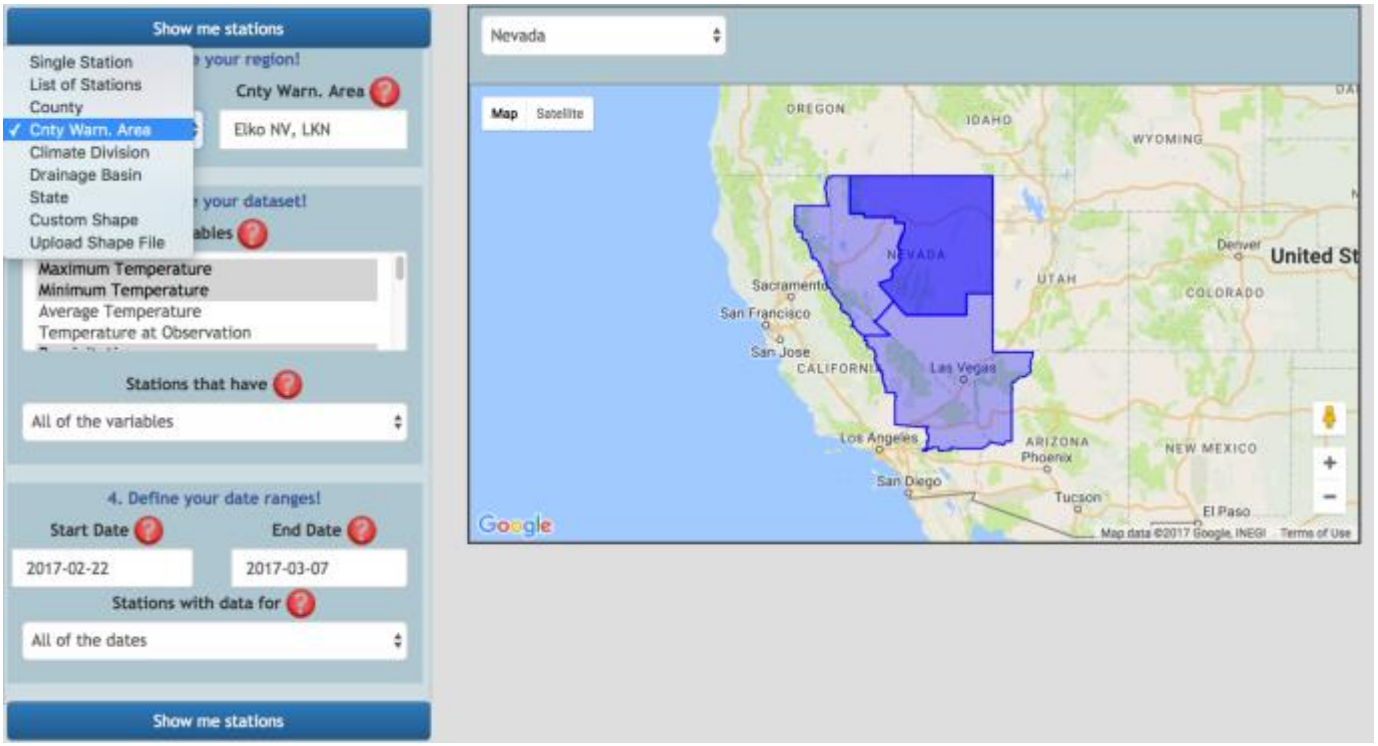
(Only for Multi Lister and Spatial Summaries tools under Multi Point Products and the Station Finder tool)

Example: Suppose you want to use the Station Finder to locate weather stations lying in an Illinois County Warning area but you don't know the name of the area or the County Warning Area ID.

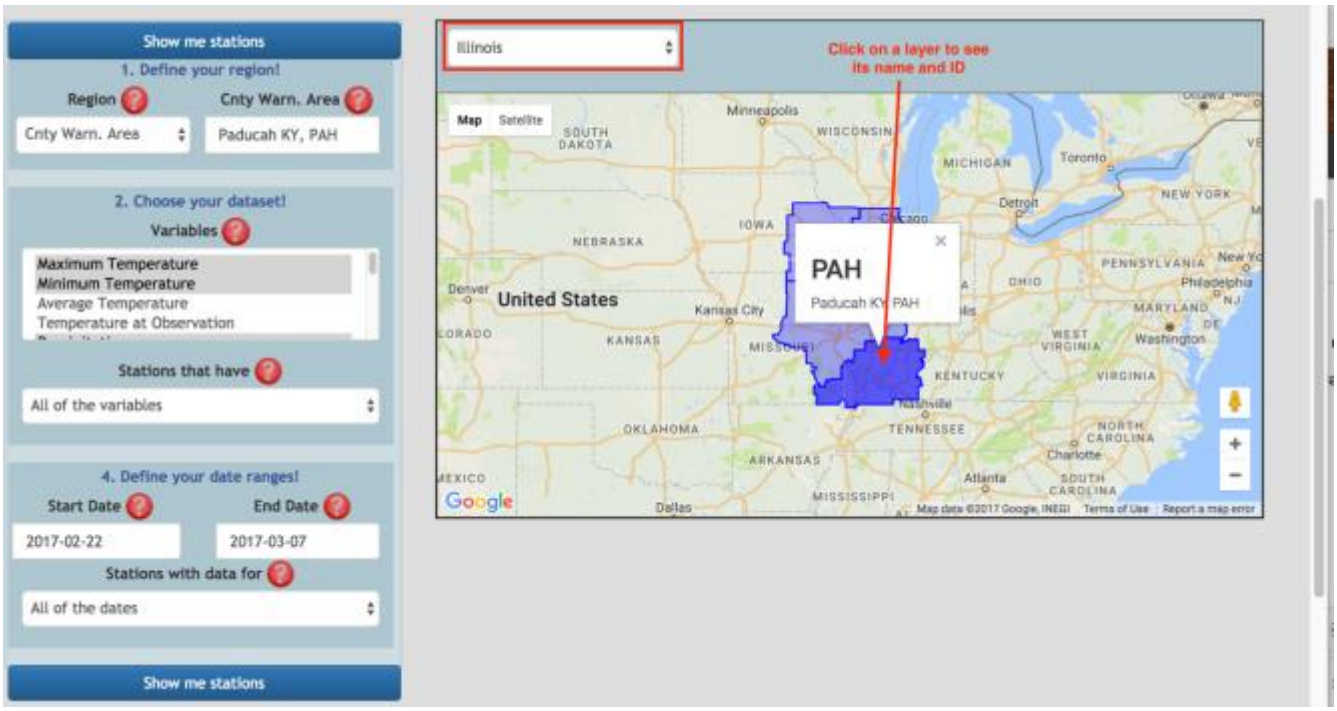
1. Go to the Station Finder Tool

http://www.wrcc.dri.edu/csc/scenic/data/climate_data/station_finder/

2. Choose Region "County Warning Area" in the form on the left. You will note that a map will pop up on the right hand side of the page. This map shows the County Warning Areas of Nevada.



3. In the state dropdown above the map, choose “Illinois”. The County Warning Areas of Florida should load within a second or two.



STEP BY STEP EXAMPLES

Note: In general, there are multiple ways to accomplish an example/task. The solutions shown below only describe one possibility. It is up to you to explore others.

Example: Station Finder

Find a weather station in Davis, CA that has temperature (maxt/mint/avgt) and precipitation data from 1981 to present.

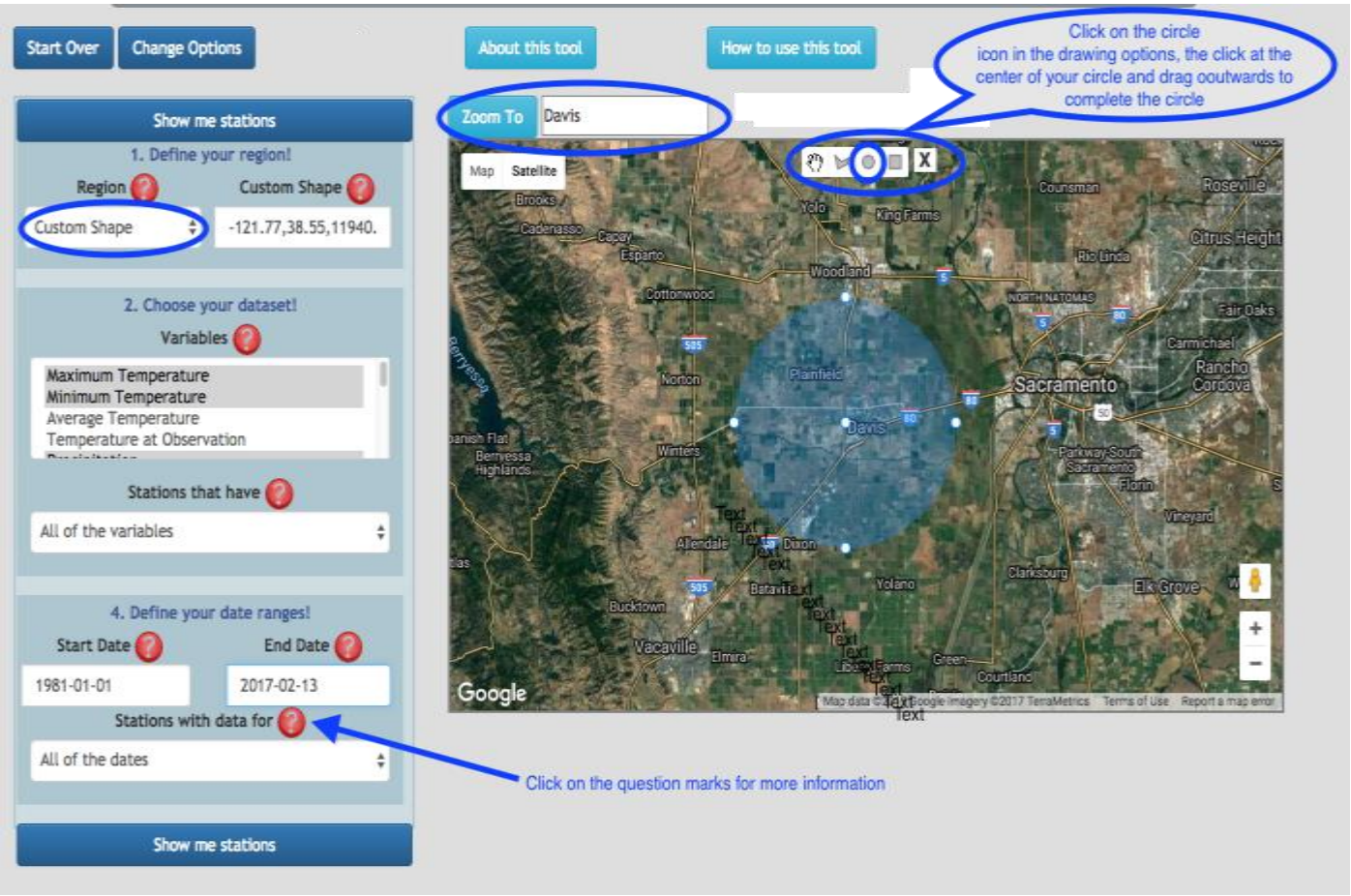
1. Go to HOME > DATA> CLIMATE DATA>Station Finder

http://wrcc.dri.edu/csc/scenic/data/climate_data/station_finder/

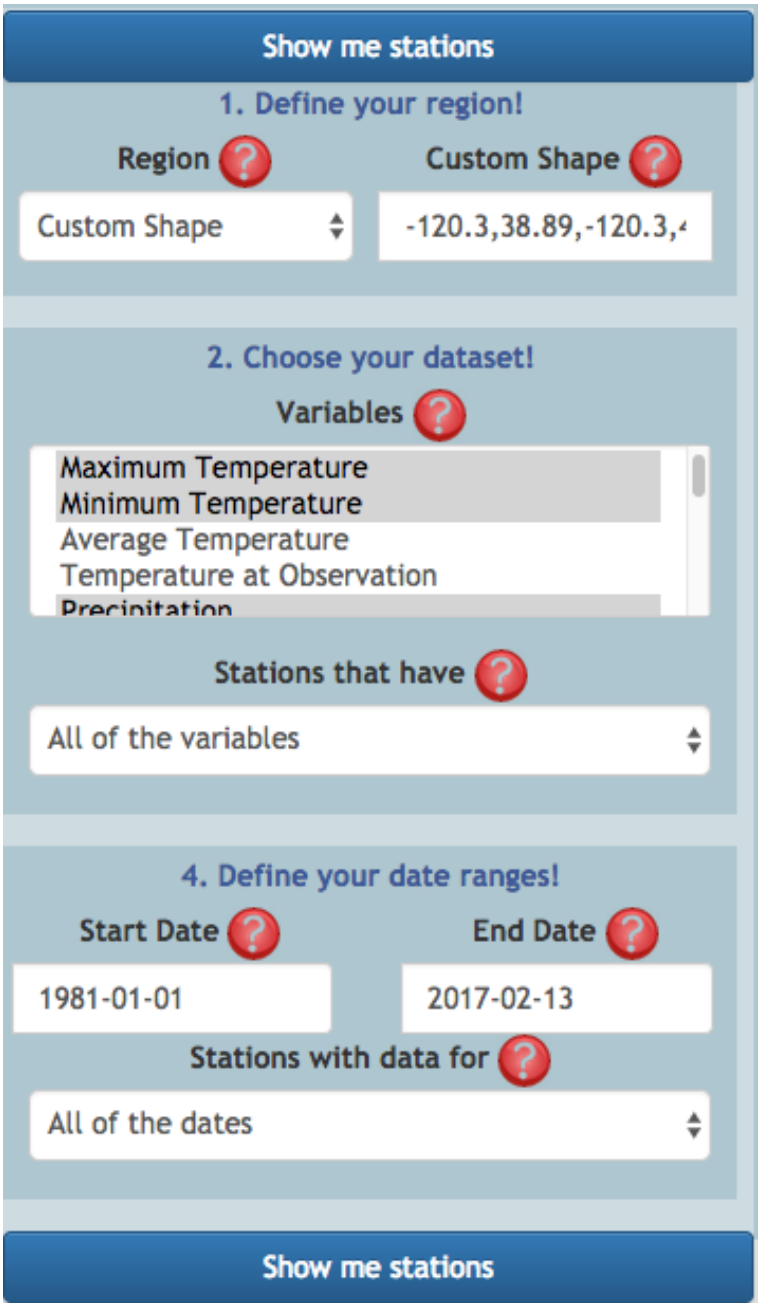
2. Define your area around Davis, CA

   Use the form on the left:

   - Choose “Area of Interest”: “Custom Shape”
   - Zoom the map to Davis, CA using the “Zoom To” feature above the map
   - Draw a circle, a rectangle or polygon around Davis
     - Click “How to use this tool” button at the top of the page for instructions



4. Fill out the rest of the form



Note that during step one the circle coordinates where populated in the custom shape field (You could also have drawn a polygon or rectangle around Davis, try it!)

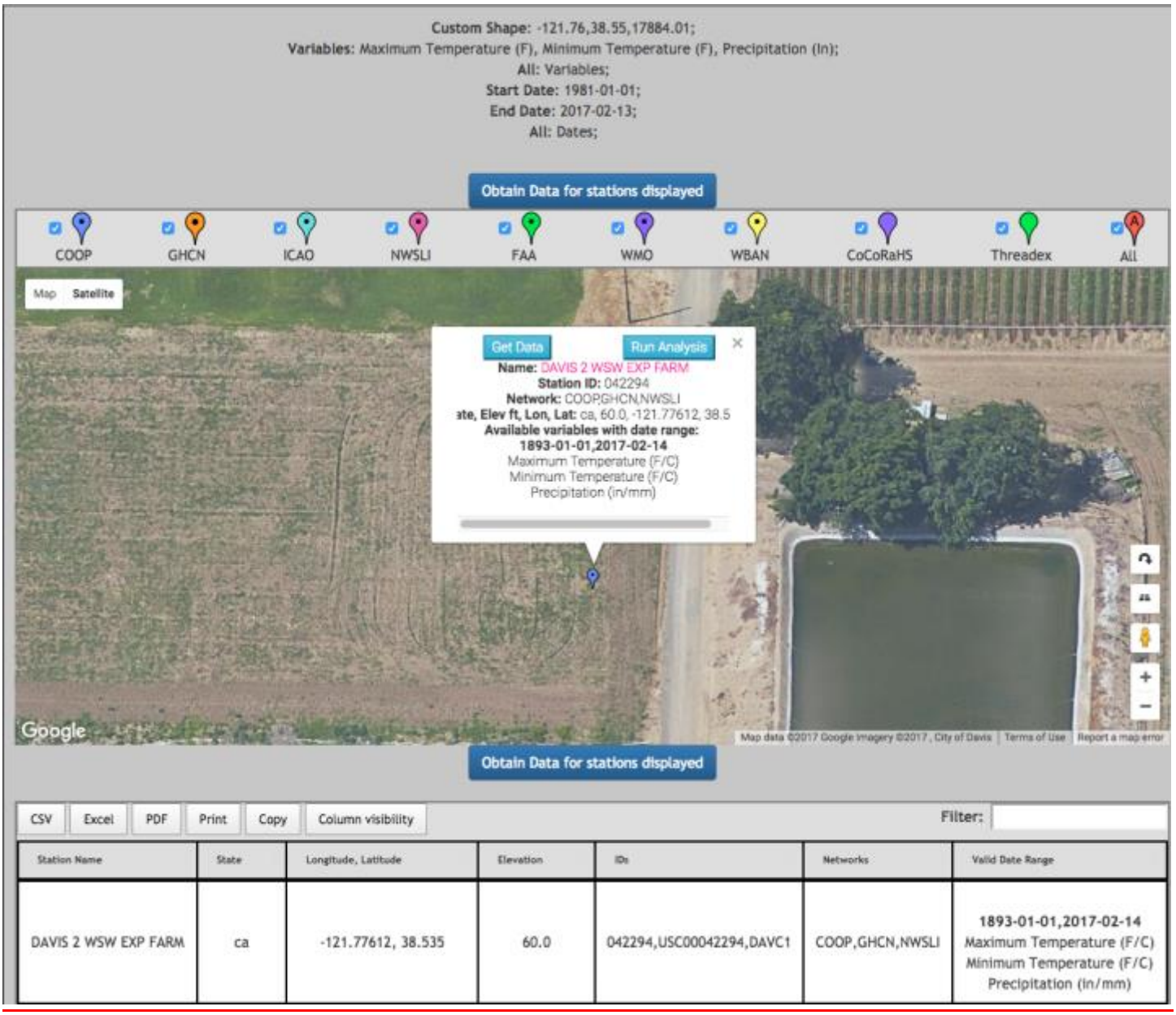
You can select multiple variable

We want to find stations that have all of our variables (temperatures and precipitation) not just one or two of them

4. Click on “Show me stations” to submit your request

Results: One station was found: **DAVIS 2 WSW Exp Farm**. Click on the marker on the map or click on the entry in the list below the map to get more information about this station.

We can see that DAVIS 2 WSW Exp Farm has excellent precipitation and temperature records starting in 1893-01-01. This station belongs to the COOP network, the GHCN network and the NWSLI network. Click on the names below the icons in the legend to get more information about the station networks. Note the two buttons in the marker window: “Get Data” and “Run Analysis”; they are direct links to the “Data Lister” tool and the “Single Point Products” page, respectively. The “Run Analysis” link takes a while to load so please be patient.



Example: Monthly Summary for single points

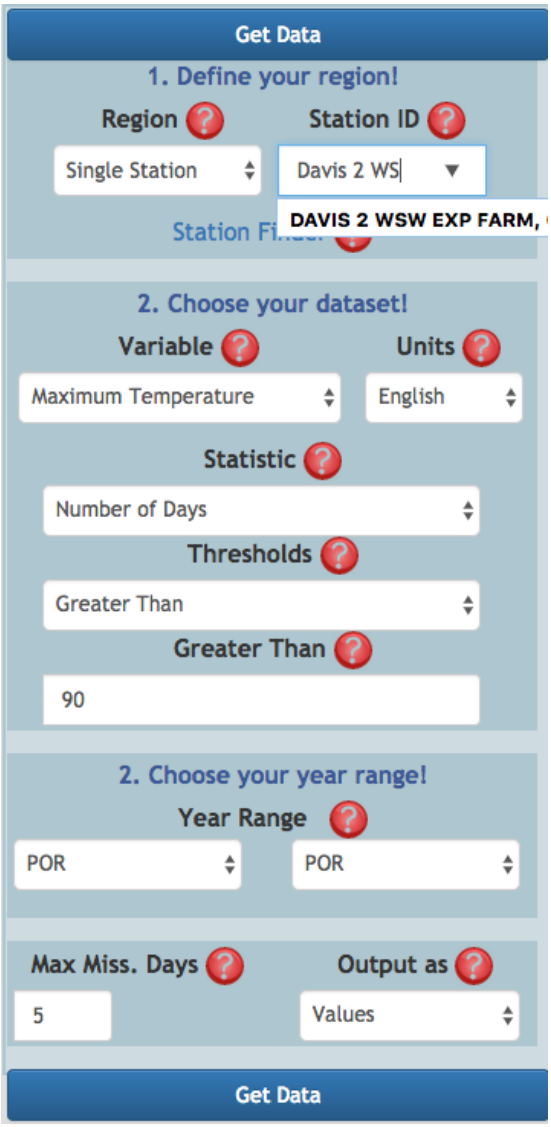
What is the earliest month in the year where maximum daily temperatures can exceed 90F for 10 or more days in Davis, CA.?

We are going to work with the stations we just found since it has an excellent record.

1. Go to HOME > DATA ACEESS>CLIMATE DATA > Single-Point Products > Monthly Summary

http://www.wrcc.dri.edu/csc/scenic/data/climate_data/single/monthly_summary/

2. Fill out the form on the left:



Use the autofill functionality to find the Davis station from last example

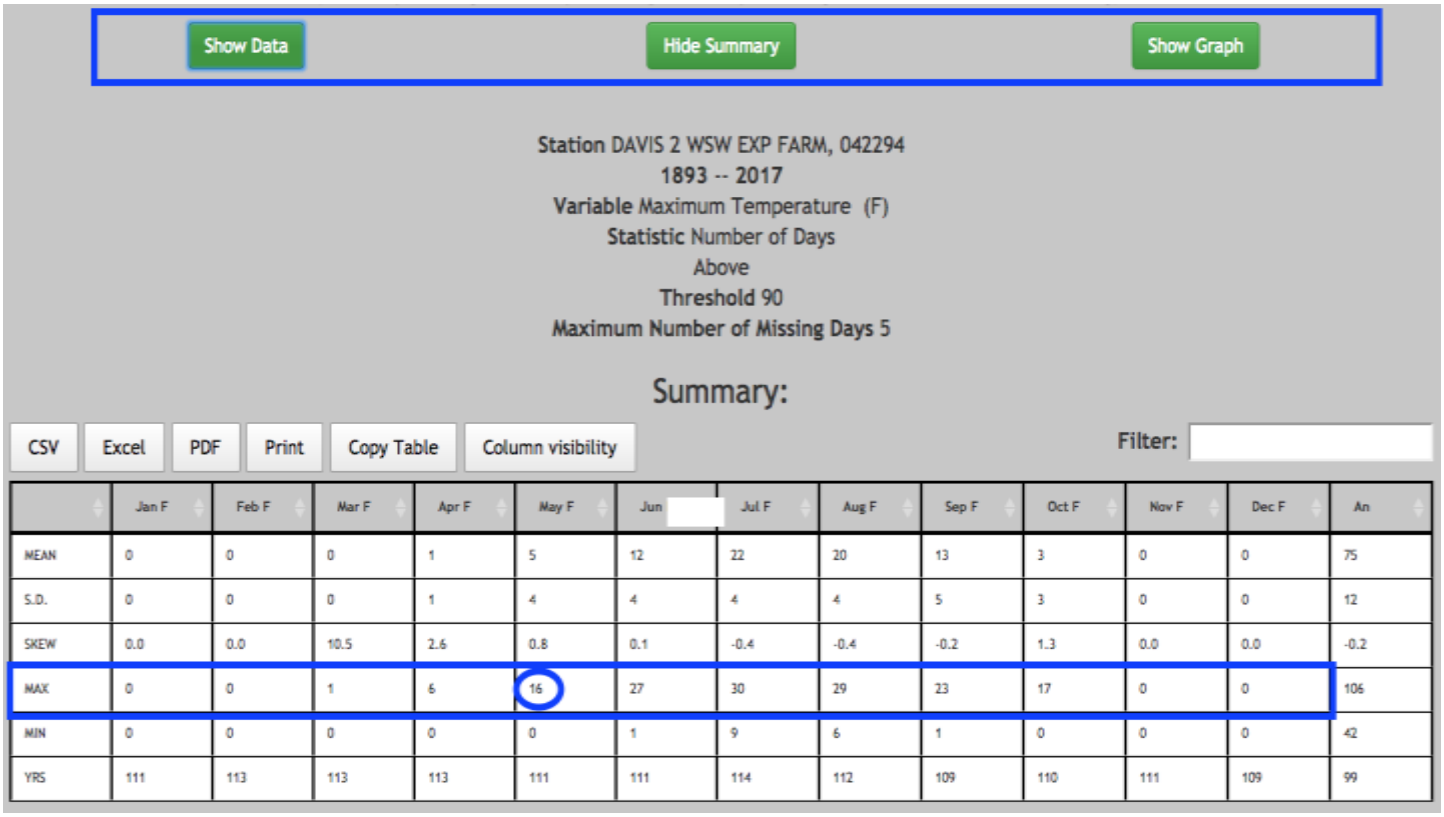
Set the variable to Maximum Temperature

We want to find the number of days where maximum temperature is greater than

90F

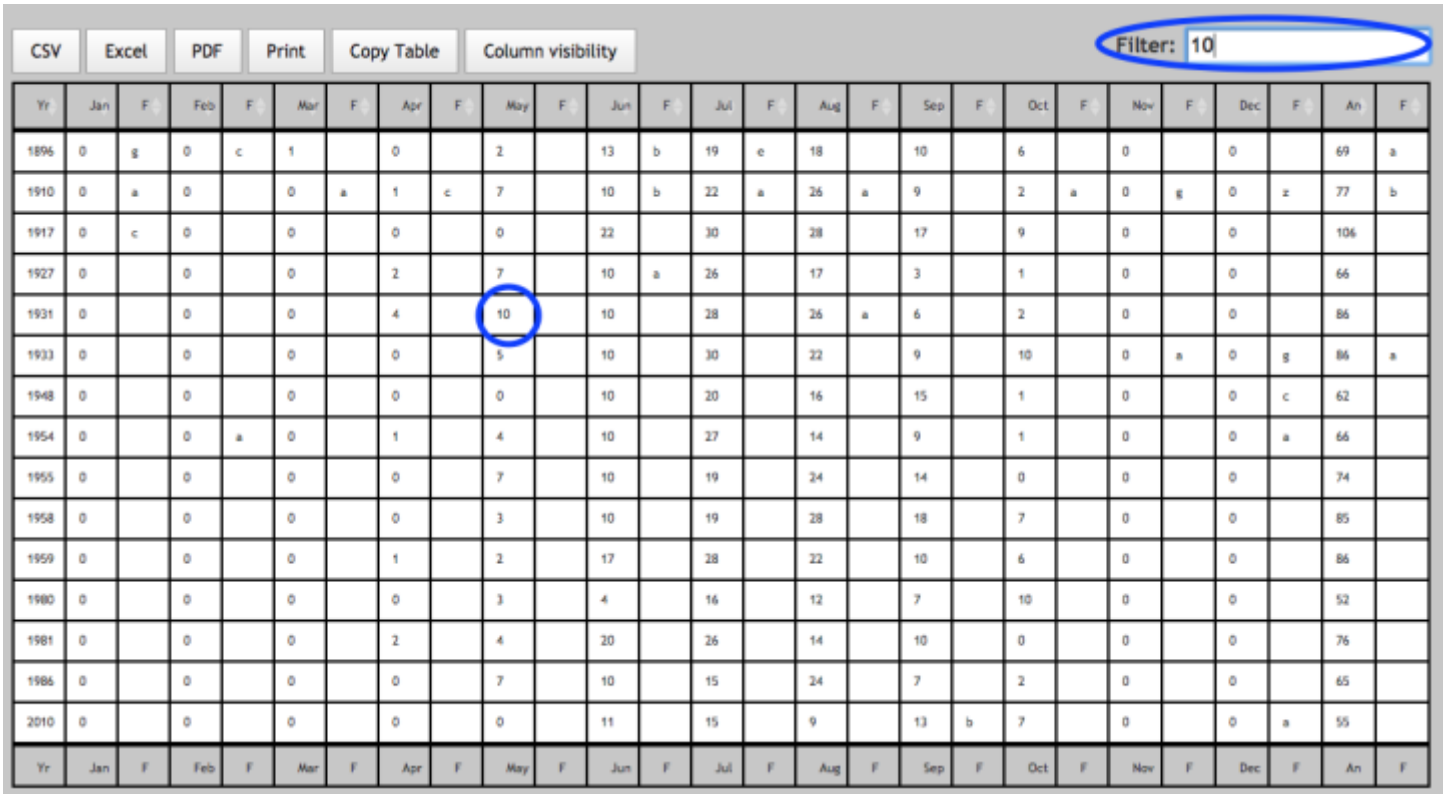
Results: Maximum temperatures above 90F for ten days or more per month are observed at the earliest in May in Davis, CA. Take note of the summary table below the main table. It contains useful summary statistics for the "Year Range" chosen and helps us find May as the first month where our threshold is exceeded. Also notice the three buttons above the results that allow you to toggle between the main table, the summary table and the graph.

Summary Table – look at the Max row



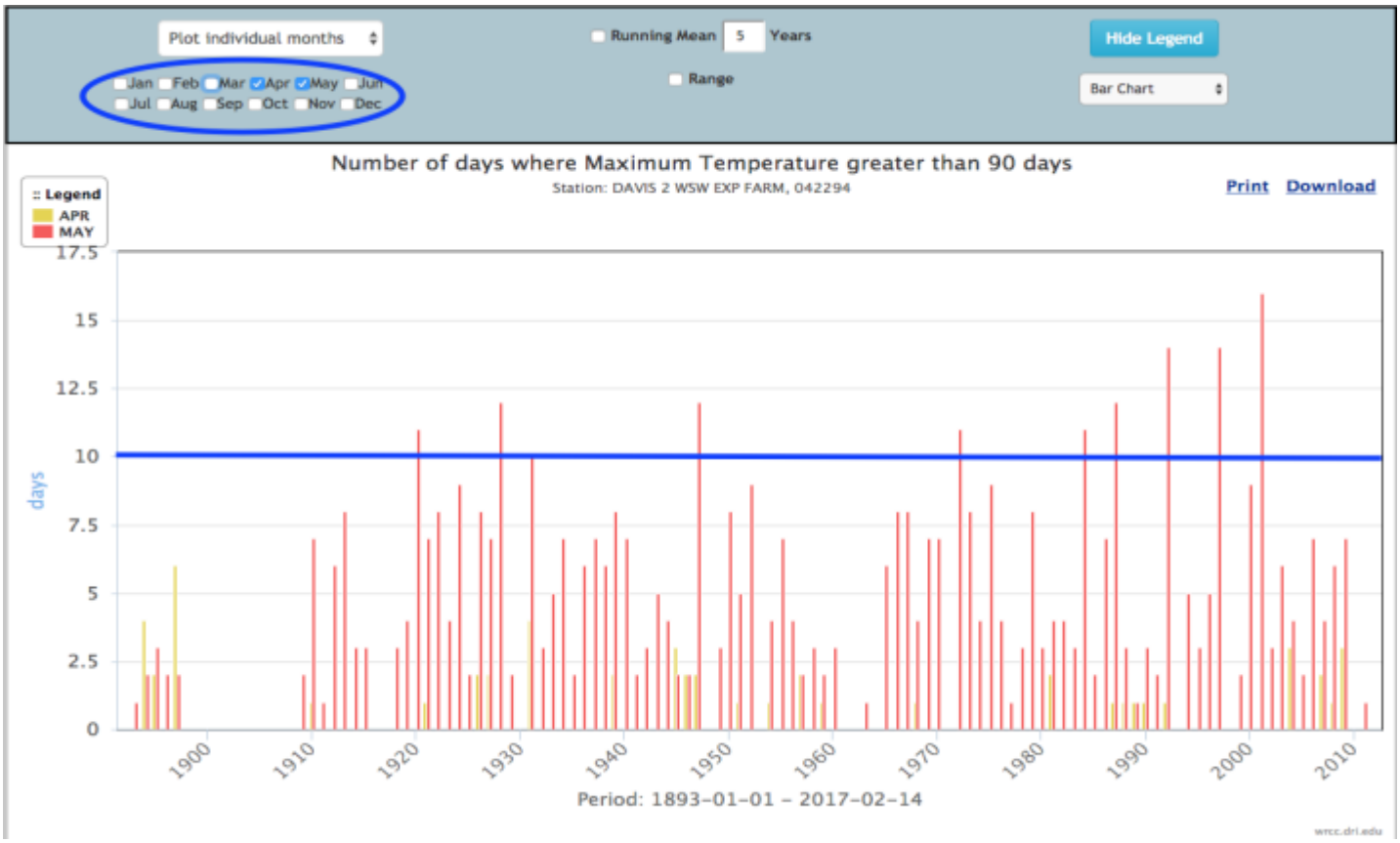
	Jan F	Feb F	Mar F	Apr F	May F	Jun	Jul F	Aug F	Sep F	Oct F	Nov F	Dec F	An
MEAN	0	0	0	1	5	12	22	20	13	3	0	0	75
S.D.	0	0	0	1	4	4	4	4	5	3	0	0	12
SKEW	0.0	0.0	10.5	2.6	0.8	0.1	-0.4	-0.4	-0.2	1.3	0.0	0.0	-0.2
MAX	0	0	1	6	16	27	30	29	23	17	0	0	106
MIN	0	0	0	0	0	1	9	6	1	0	0	0	42
YRS	111	113	113	113	111	111	114	112	109	110	111	109	99

Main Table – Filter table for 10



Yr	Jan	F	Feb	F	Mar	F	Apr	F	May	F	Jun	F	Jul	F	Aug	F	Sep	F	Oct	F	Nov	F	Dec	F	An	F
1896	0	g	0	c	1		0		2		13	b	19	e	18		10		6		0		0		69	a
1910	0	a	0		0	a	1	c	7		10	b	22	a	26	a	9		2	a	0	g	0	z	77	b
1917	0	c	0		0		0		0		22		30		28		17		9		0		0		106	
1927	0		0		0		2		7		10	a	26		17		3		1		0		0		66	
1931	0		0		0		4		10		10		28		26	a	6		2		0		0		86	
1933	0		0		0		0		5		10		30		22		9		10		0	a	0	g	86	a
1948	0		0		0		0		0		10		20		16		15		1		0		0	c	62	
1954	0		0	a	0		1		4		10		27		14		9		1		0		0	a	66	
1955	0		0		0		0		7		10		19		24		14		0		0		0		74	
1958	0		0		0		0		3		10		19		28		18		7		0		0		85	
1959	0		0		0		1		2		17		28		22		10		6		0		0		86	
1980	0		0		0		0		3		4		16		12		7		10		0		0		52	
1981	0		0		0		2		4		20		26		14		10		0		0		0		76	
1986	0		0		0		0		7		10		15		24		7		2		0		0		65	
2010	0		0		0		0		0		11		15		9		13	b	7		0		0	a	55	
Yr	Jan	F	Feb	F	Mar	F	Apr	F	May	F	Jun	F	Jul	F	Aug	F	Sep	F	Oct	F	Nov	F	Dec	F	An	F

Interactive Graph – Plot individual months



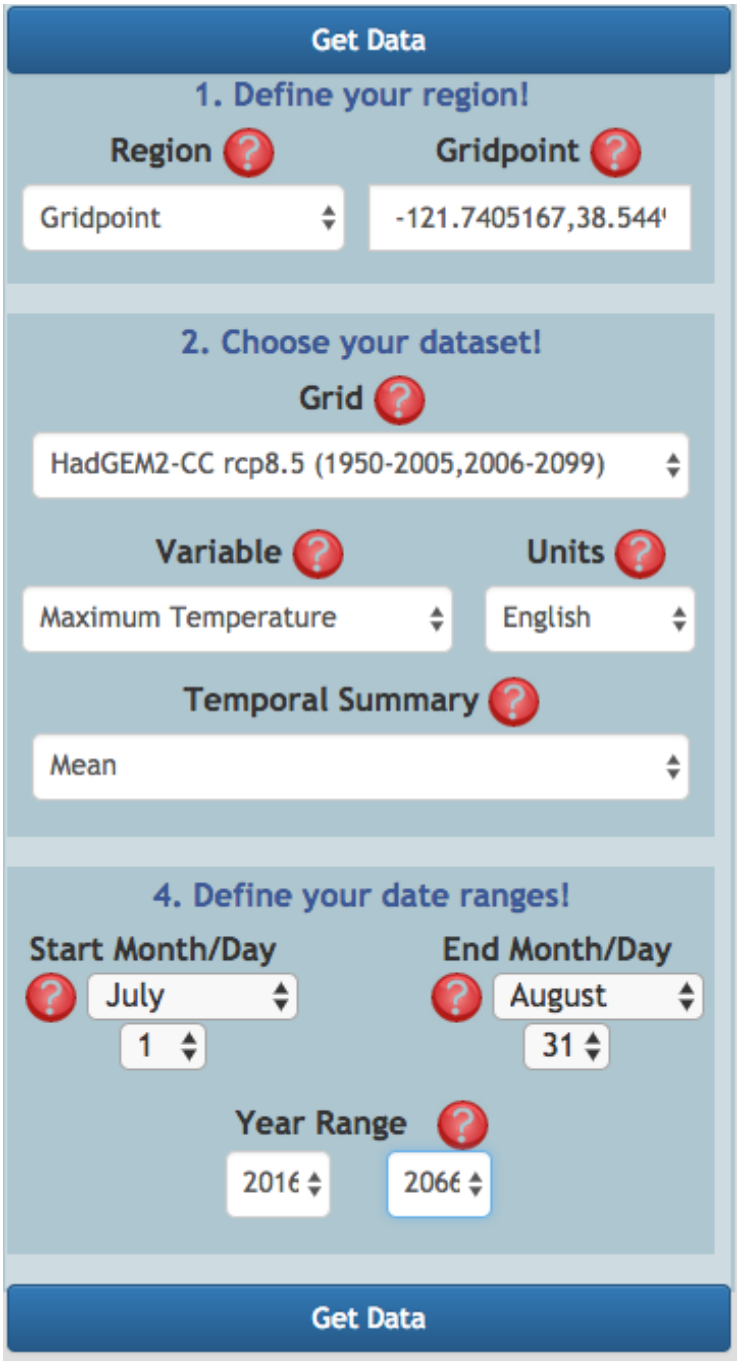
Example: Yearly Summaries for single points

Compare the warming trends for summer time (July1 – Aug 31) means of daily maximum temperatures in Davis over the next 50 years predicted by LOCA model run GFDL-CM3 for the two emission scenarios rcp8.5 (business as usual) and rcp4.5 (greenhouse gas reduction)

1. Go to HOME > DATA ACEESS >CLIMATE DATA> Single-Point Products > Seasonal Summary

http://www.wrcc.dri.edu/csc/scenic/data/climate_data/single/seasonal_summary/

2. Fill out the form on the left:



Switching "Area of Interest" from "Station" to "Gridpoint" makes the switch from station to gridded data products!

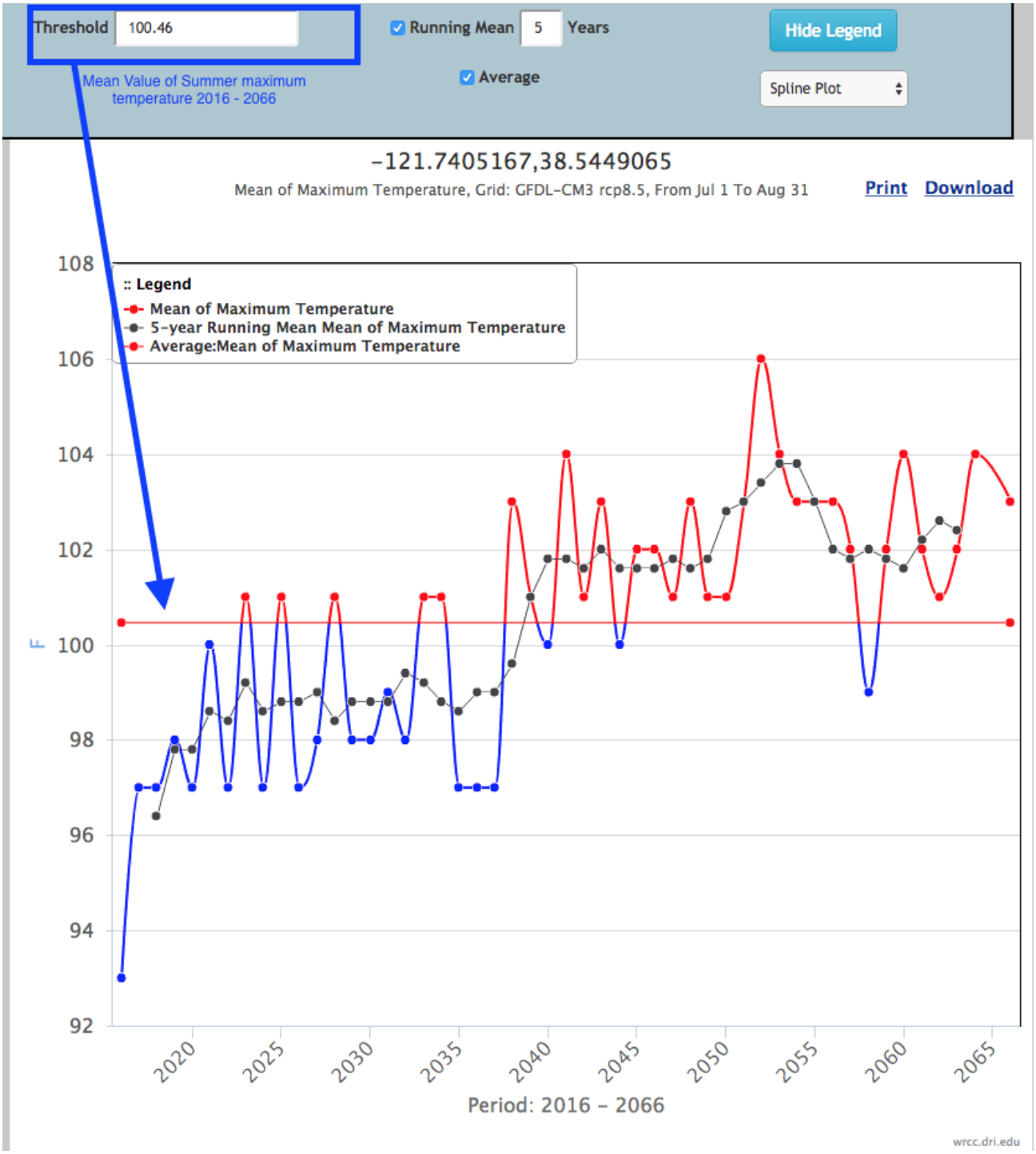
Zooming to Davis sets the Location form field to the right Lon, Lat (see example 1 for zooming instructions)

Here you choose your gridded dataset. Just change the dataset to GFDL-CM3 rcp4.5 for the second task.

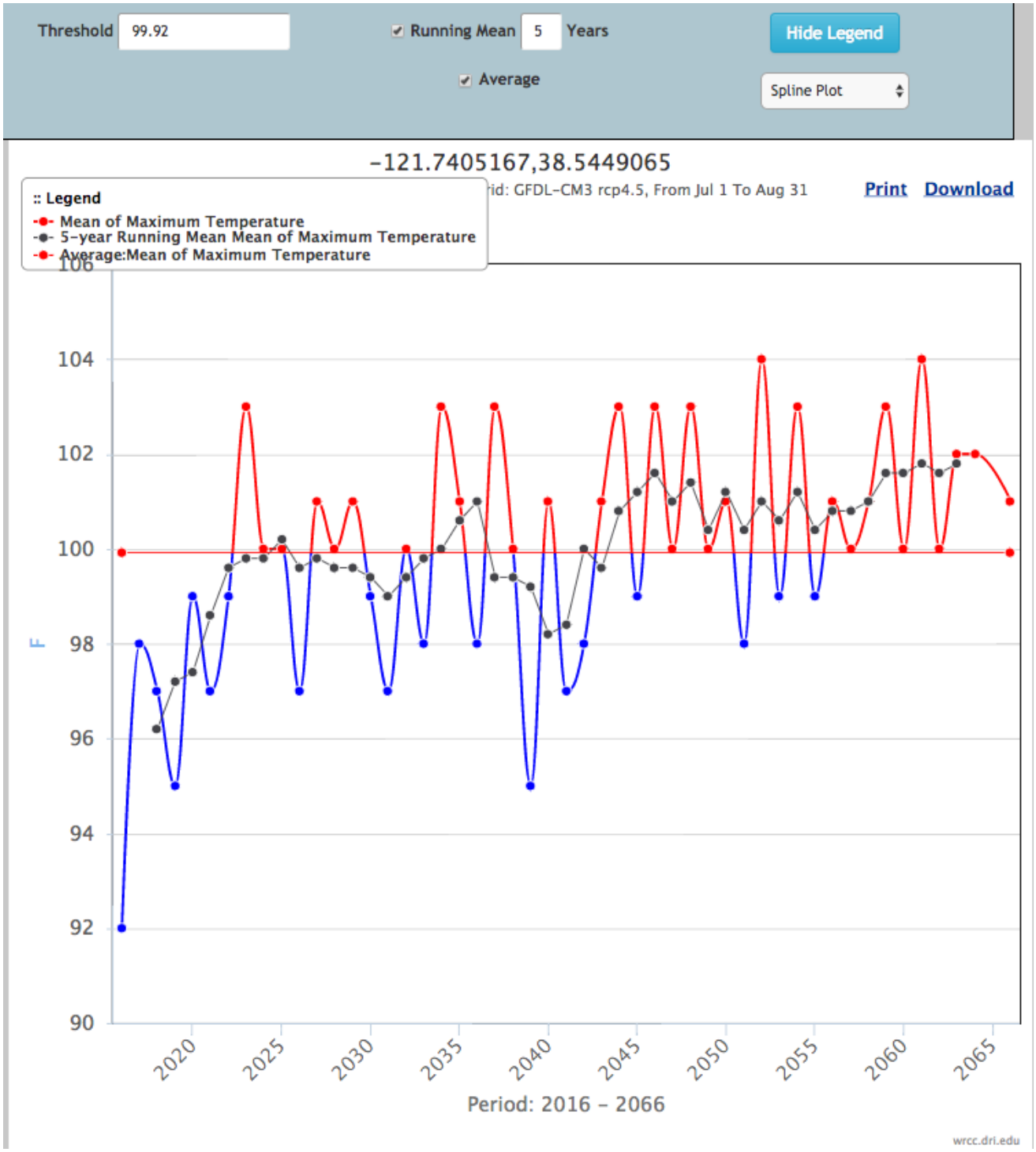
We want to look at the mean of daily maximum temperatures over the summer period so the "Climate Variable" should be "Maximum Temperature" and the "Temporal Summary" should be "Mean"

Results: Note that the threshold is set to the mean value over the year range. The mean value of the plot lies at 100.06F for rcp8.5 and at 99.92F for rcp4.5. The five year running mean shows a steady increase in summer maximum temperatures for rcp8.5 while values even out for rcp4.5 around 2030 showing that rcp4.5 is the more desirable scenario.

1. Rcp8.5 Business as usual



2. Rcp4.5 greenhouse gas emission reduction scenario


Threshold 99.92
Running Mean 5 Years
Average
Hide Legend
Spline Plot
-121.7405167,38.5449065
id: GFDL-CM3 rcp4.5, From Jul 1 To Aug 31
Print
Download
:: Legend
Mean of Maximum Temperature
5-year Running Mean Mean of Maximum Temperature
Average:Mean of Maximum Temperature
106
104
102
100
98
96
94
92
90
F
2020
2025
2030
2035
2040
2045
2050
2055
2060
2065
Period: 2016 - 2066
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WORKSHOP TASKS

Workshop task: 2010–13 Southern United States drought

Task 1 Pick your favorite place in the contiguous US and find a weather station that has temperature and precipitation data for the last 10 years.
Task 2 Look at how bad the drought was at that location in 2012 in comparison to long term averages. Can you identify the month with highest precipitation totals?
Task 3 How many more days than average over the period of record of that station did it rain during this month?

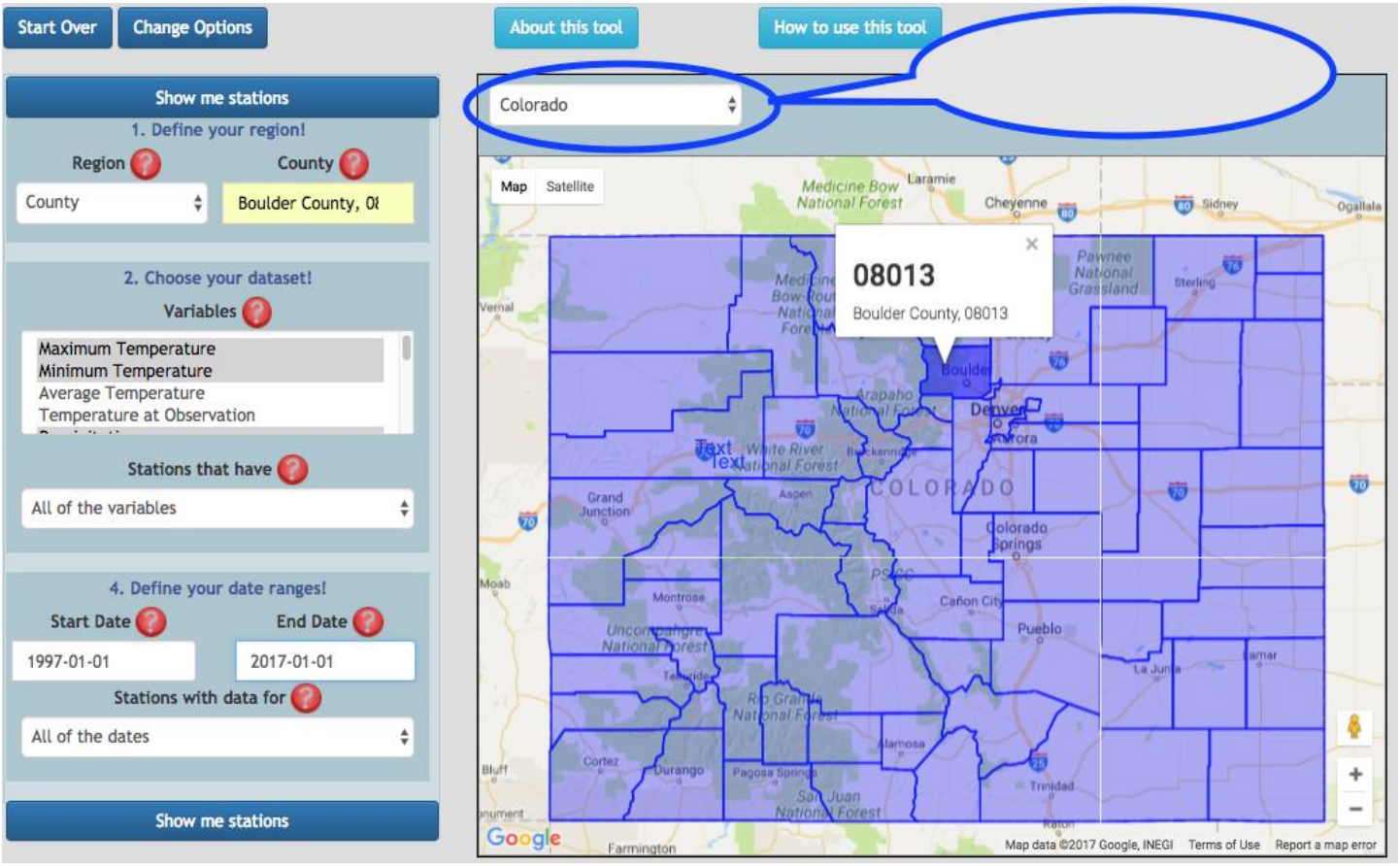
Task 1

Pick your favorite place in the contiguous US and find a weather station that has temperature and precipitation data for the last 10 years.

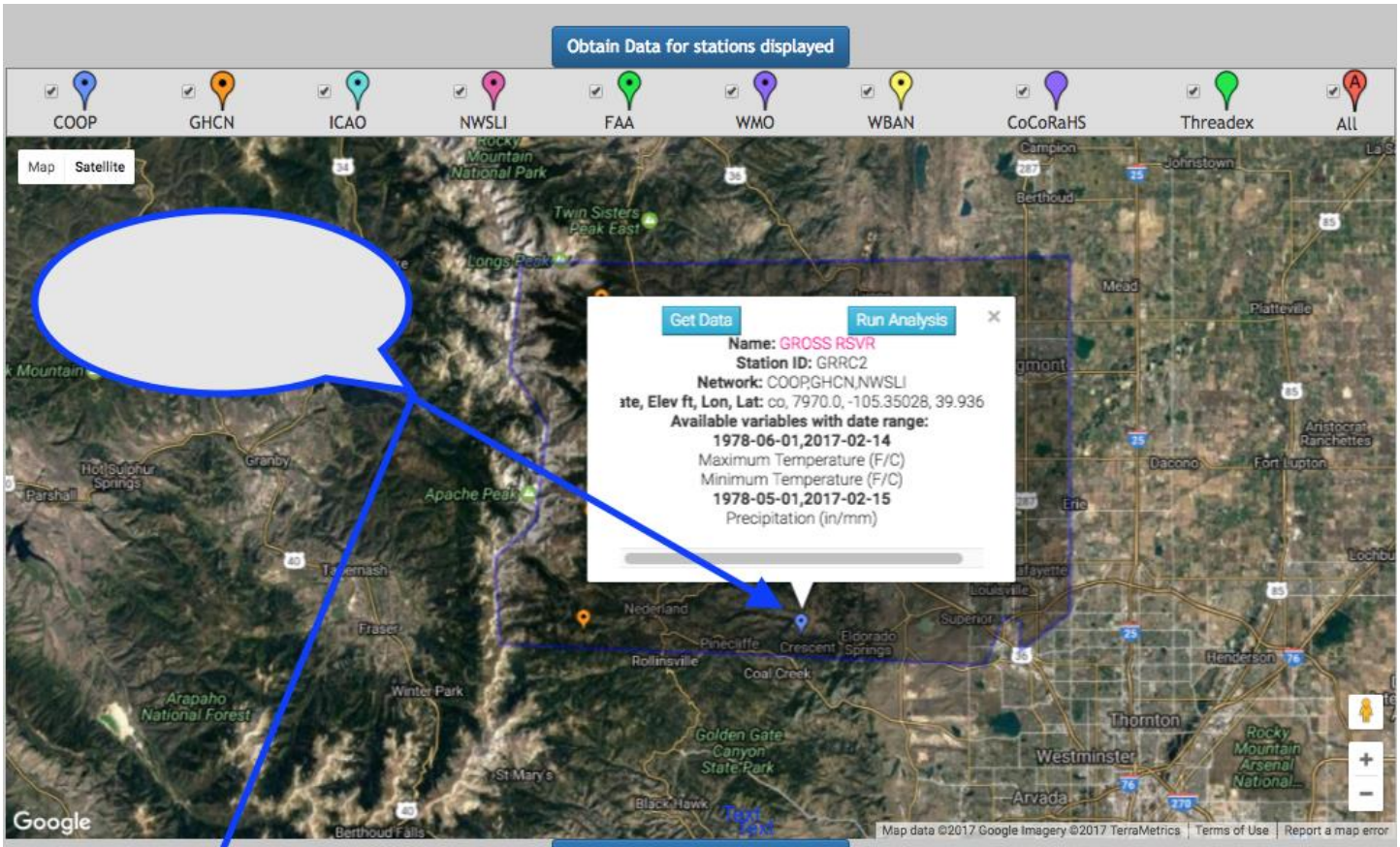
1. Go to HOME > DATA ACEESS >CIMATE DATA> Station Finder

http://www.wrcc.dri.edu/csc/scenic/data/climate_data/station_finder/

2. Pick a location: I am going to check out conditions around Boulder, CO
3. Fill out the rest of the form (see example 1 for more detail) and click “Show me stations’



Result: 6 station were found. We pick one; GROSS RSVR



Obtain Data for stations displayed

CSV | Excel | PDF | Print | Copy | Column visibility | Filter:

Station Name	State	Longitude, Latitude	Elevation	IDs	Networks	Valid Date Range
GROSS RSVR	co	-105.35028, 39.93639	7970.0	053629,USC00053629,GRRC2	COOP,GHCN,NWSLI	**1978-06-01,2017-02-14** Maximum Temperature (F/C) Minimum Temperature (F/C) **1978-05-01,2017-02-15** Precipitation (in/mm)
Lake Eldora	co	-105.59, 39.94	9700.1	USS0005J41S	GHCN	**1988-11-04,2017-02-12** Maximum Temperature (F/C) **1988-11-03,2017-02-12** Minimum Temperature (F/C) **1978-10-01,2017-02-12** Precipitation (in/mm)
Niwot	co	-105.54, 40.04	9910.1	USS0005J42S	GHCN	**1989-10-04,2017-02-12** Maximum Temperature (F/C) Minimum Temperature (F/C) **1980-10-01,2017-02-12** Precipitation (in/mm)
Station Name	State	Longitude, Latitude	Elevation	IDs	Networks	Valid Date Range

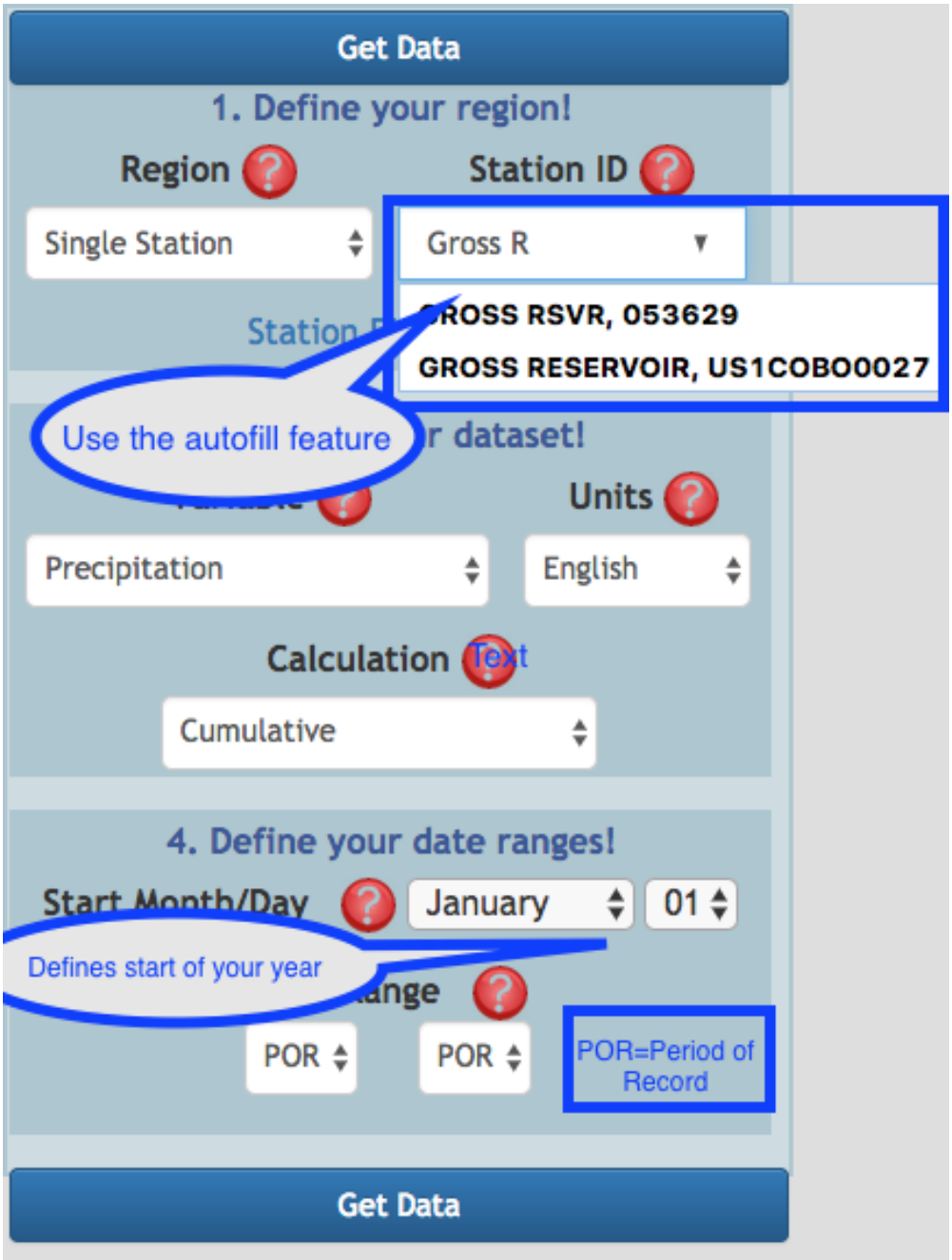
Task 2

Look at how bad the drought was at that location in 2012 in comparison to long term averages.

1. Go to HOME > DATA ACEESS>CLIMATE DATA > Single Point Products > Single Year Time Series

   http://cyclone1.dri.edu/csc/scenic/data/climate_data/single/intraannual/

2. Fill out the the form and submit the request by clicking on “Generate time series”



Results: We see below average precipitation for most of the year. Precipitation falls between the 5th and 25th percentile during that time. Above average precipitation is observed in February. Looking at the steep rise of the graph past July 5 makes us believe that July was the wettest month in 2012. This can be confirmed utilizing the “Monthly Summary” tool.

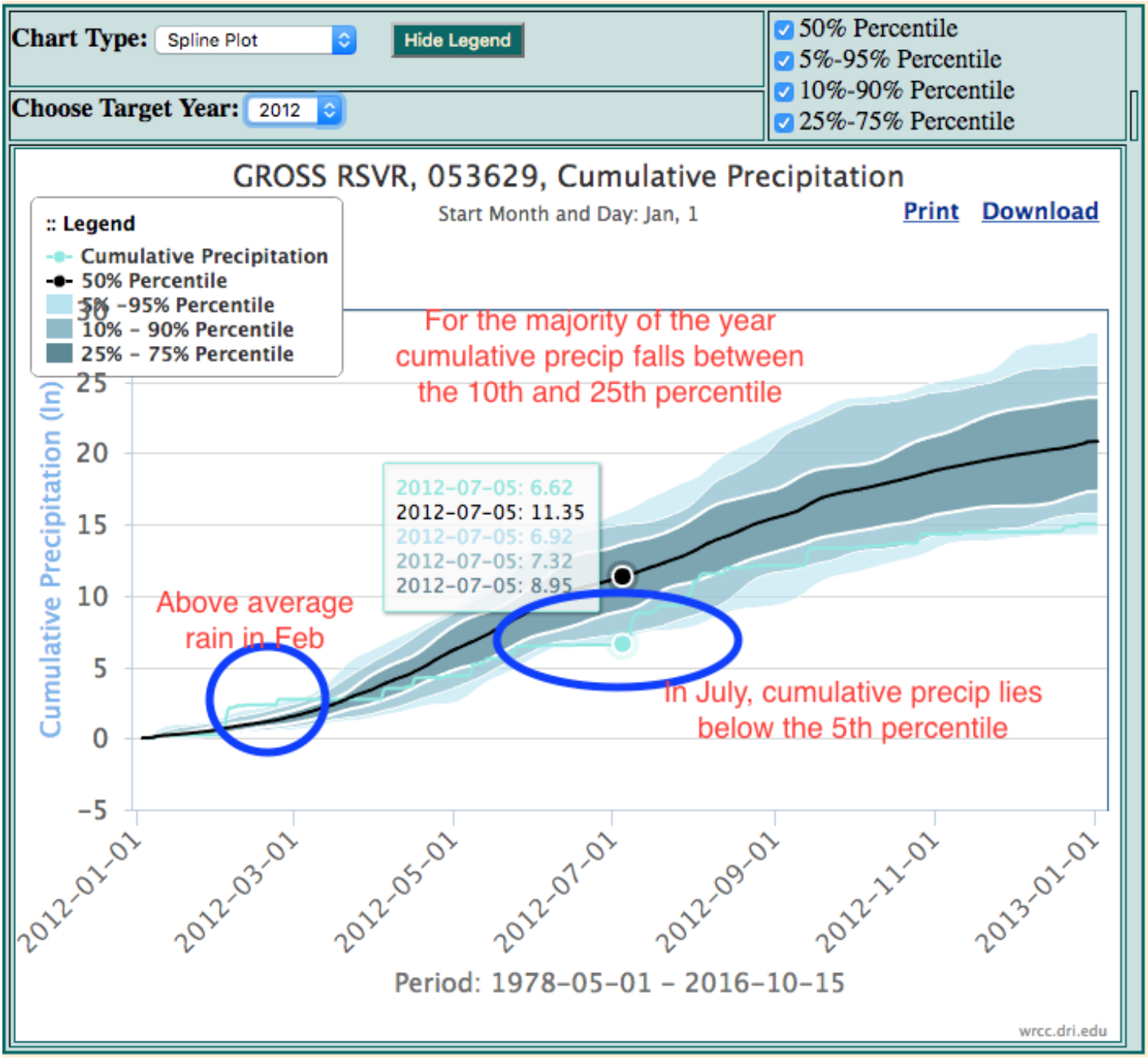


Chart Type: Spline Plot
Hide Legend
Choose Target Year: 2012
50% Percentile
5%-95% Percentile
10%-90% Percentile
25%-75% Percentile
GROSS RSVR, 053629, Cumulative Precipitation
Start Month and Day: Jan, 1
Print
Download
:: Legend
Cumulative Precipitation
50% Percentile
5% -95% Percentile
10% - 90% Percentile
25% - 75% Percentile
For the majority of the year cumulative precip falls between the 10th and 25th percentile
2012-07-05: 6.62
2012-07-05: 11.35
2012-07-05: 6.92
2012-07-05: 7.32
2012-07-05: 8.95
Above average rain in Feb
In July, cumulative precip lies below the 5th percentile
Cumulative Precipitation (In)
30
25
20
15
10
5
0
-5
2012-01-01
2012-03-01
2012-05-01
2012-07-01
2012-09-01
2012-11-01
2013-01-01
Period: 1978-05-01 - 2016-10-15
wrcc.dri.edu

Task 3

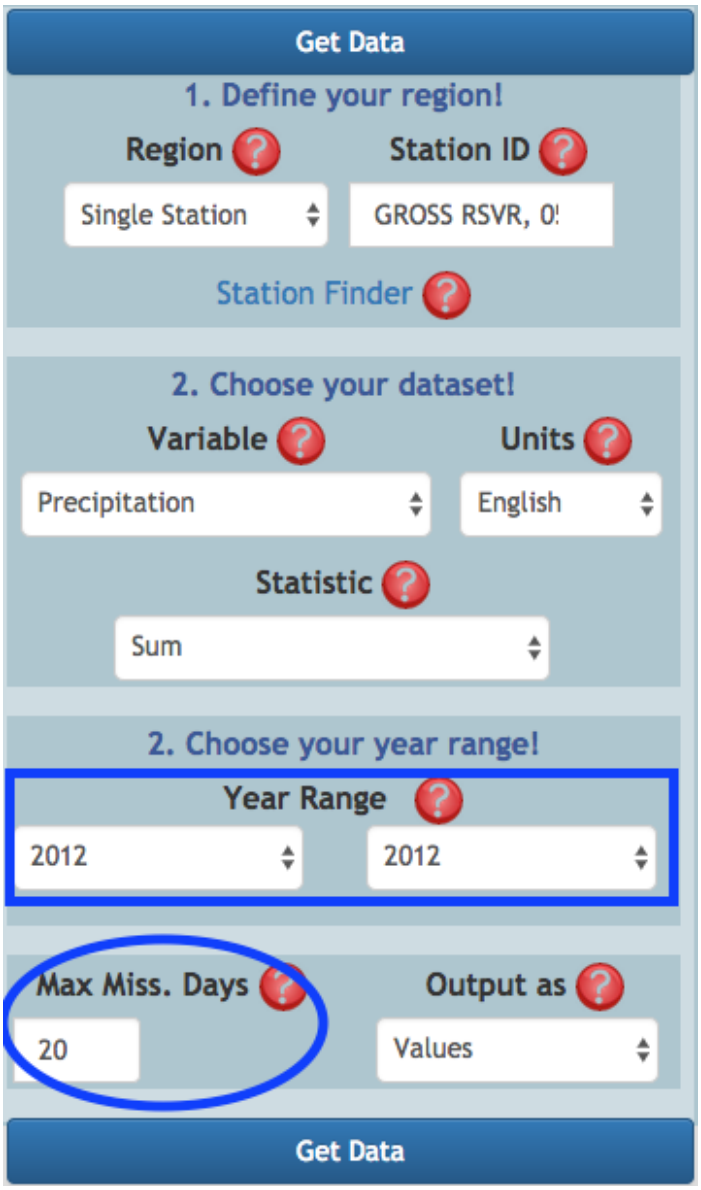
Can you identify the month with highest precipitation totals?

To find the month with highest precipitation values go to the "Monthly Summary" tool.

HOME >DATA ACCESS >CLIMATE DATA>Single Point Products > Monthly Summary

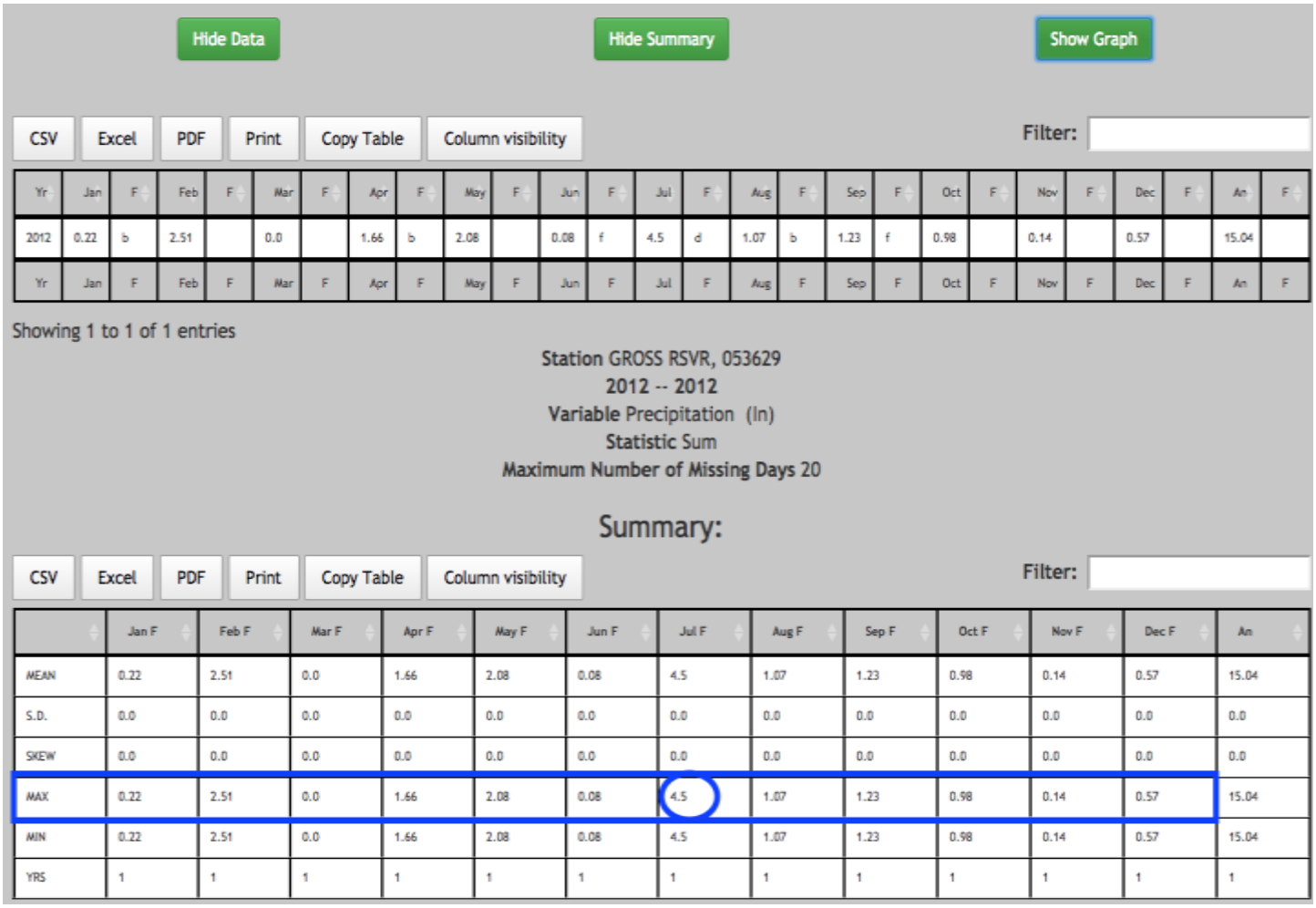
http://cyclone1.dri.edu/csc/scenic/data/climate_data/single/monthly_summary/

Fill out the form



Make sure to set the year range 2012 –2012 so that the summary table below the main table in the results computes that statistics only for this one year

Result: Looking at the summary table Maximum line for the year, we confirm that July was indeed the wettest month in 2012.



Hide Data | Hide Summary | Show Graph

CSV | Excel | PDF | Print | Copy Table | Column visibility | Filter:

Yr	Jan	F	Feb	F	Mar	F	Apr	F	May	F	Jun	F	Jul	F	Aug	F	Sep	F	Oct	F	Nov	F	Dec	F	An	F
2012	0.22	b	2.51		0.0		1.66	b	2.08		0.08	f	4.5	d	1.07	b	1.23	f	0.98		0.14		0.57		15.04	
Yr	Jan	F	Feb	F	Mar	F	Apr	F	May	F	Jun	F	Jul	F	Aug	F	Sep	F	Oct	F	Nov	F	Dec	F	An	F

Showing 1 to 1 of 1 entries

Station GROSS RSVR, 053629
2012 -- 2012
Variable Precipitation (In)
Statistic Sum
Maximum Number of Missing Days 20

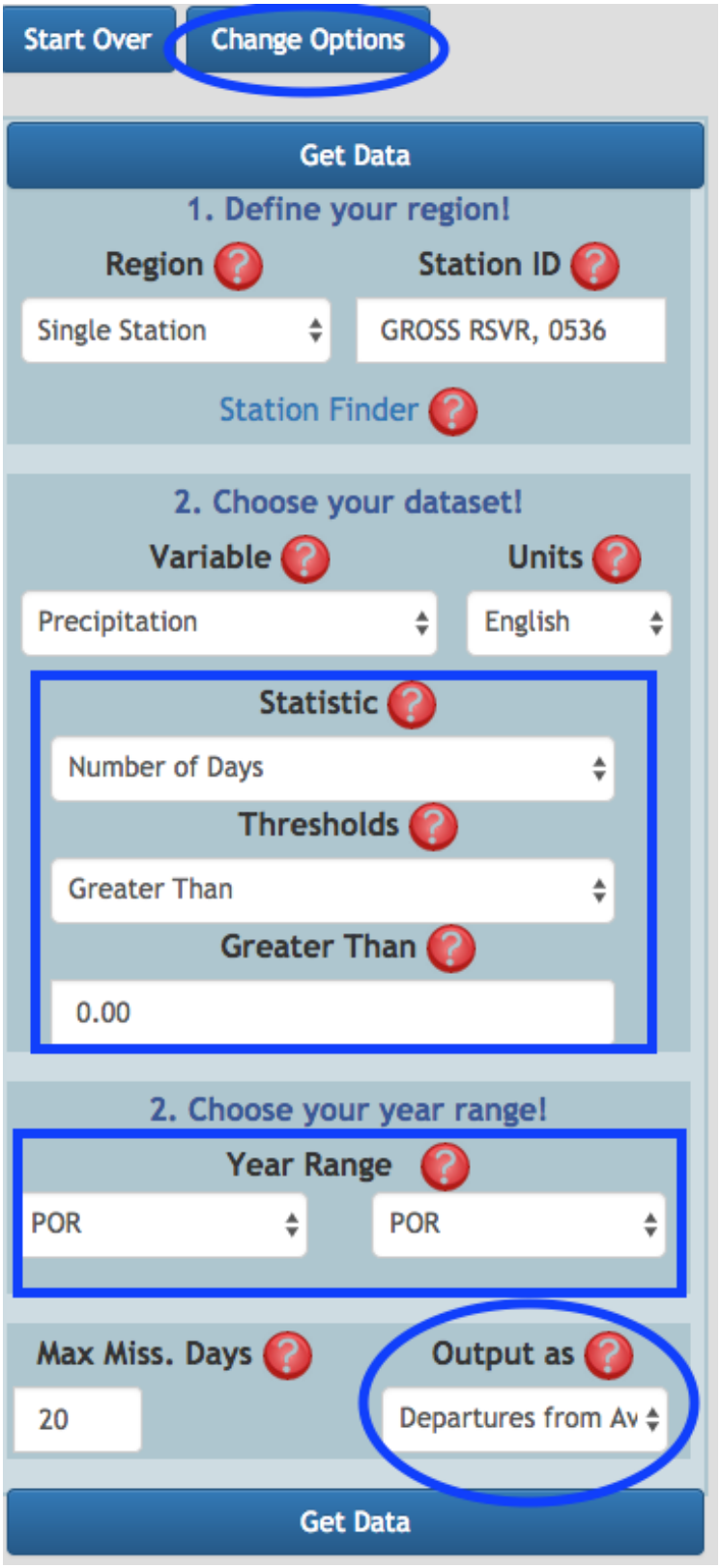
Summary:

CSV | Excel | PDF | Print | Copy Table | Column visibility | Filter:

	Jan F	Feb F	Mar F	Apr F	May F	Jun F	Jul F	Aug F	Sep F	Oct F	Nov F	Dec F	An
MEAN	0.22	2.51	0.0	1.66	2.08	0.08	4.5	1.07	1.23	0.98	0.14	0.57	15.04
S.D.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SKEW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MAX	0.22	2.51	0.0	1.66	2.08	0.08	4.5	1.07	1.23	0.98	0.14	0.57	15.04
MIN	0.22	2.51	0.0	1.66	2.08	0.08	4.5	1.07	1.23	0.98	0.14	0.57	15.04
YRS	1	1	1	1	1	1	1	1	1	1	1	1	1

Task 4

How many more days than average over the period of record of that station did it rain that month?



Click on “Change Options” to return to the form

Change “Statistic” to “Number of Days”

Result: In July 2012 it rained 2.55 days more than average over the period of record (1978 - 2016) of the station

Hide Data | Show Summary | Show Graph

CSV | Excel | PDF | Print | Copy Table | Column visibility | Filter:

Yr	Jan	F	Feb	F	Mar	F	Apr	F	May	F	Jun	F	Jul	F	Aug	F	Sep	F	Oct	F	Nov	F	Dec	F	An	F
1999	-0.85		-4.18	a	-2.92		3.55		-1.69		-2.31		2.55	a	1.03		1.62	a	-0.72		-3.18		0.13		-7.24	
2000	0.15		-4.18		-0.92		-2.45		-5.69		-1.31		-0.45		1.03		-1.38		-2.72		0.82	a	0.13		-17.24	
2001	-0.85		0.82		5.08		-0.45	a	-0.69		-4.31		-1.45	g	0.03		0.62		-1.72		-0.18		-0.87		-4.24	
2002	2.15		-2.18		0.08	a	-2.45		-1.69		-1.31		-5.45		0.03		2.62	a	1.28		-0.18		-3.87		-11.24	
2003	-3.85		5.82		3.08		2.55		-2.69		4.69		-2.45		2.03		-1.38		-2.72	a	-0.18		-2.87		1.76	
2004	-1.85		2.82		-3.92		5.55		-4.69		3.69		0.55	a	-1.97		0.62		0.28		1.82		1.13		3.76	
2005	0.15	A	-2.18	a	1.08	a	-0.45		-4.69		5.69		-6.45		4.03		2.62		1.28		-2.18		-0.87		-2.24	
2006	-1.85		-1.18		3.08		-3.45		-1.69		-2.31		3.55		4.03		0.62		1.28		-2.18		2.13		1.76	
2007	3.15		-0.18		2.08		3.55		8.31		-3.31		0.55		7.03		-0.38		-0.72		-2.18		9.13		26.76	
2008	1.15		3.82		1.08		-3.45		0.31		-6.31		-6.45		3.03		1.62		1.28		-0.18		0.13		-4.24	
2009	1.15		-3.18		-3.92		3.55		1.31	a	15.69		4.55		-0.97		3.62		6.28		-2.18		6.13		31.76	
2010	-1.85		3.82		0.08	b	0.55		-5.69	b	-7.31	c	1.55		0.03		-5.38		1.28		-1.18		-1.87		-16.24	
2011	-0.85		1.82		-3.92		0.55		-1.69	b	-3.31		1.55	g	-4.97	b	-2.38	b	-1.72		-1.18		-1.87	d	-18.24	
2012	-2.85	b	2.82		-6.92		-1.45	b	-2.69		-6.31	f	2.55	d	-3.97	b	-5.38	f	2.28		-3.18		0.13		-25.24	
2013	-1.85		4.82		-0.92		3.55		0.31		-3.31		3.55		1.03		3.62		1.28		-1.18		0.13		10.76	
2014	2.15		2.82		-0.92		-2.45		5.31		-0.31		4.55		6.03		2.62		0.28		1.82		1.13		22.76	
2015	0.15		5.82		-4.92		0.55		11.31		1.69		2.55		-4.97		-2.38		3.28		1.82		0.13		14.76	
2016	-0.85		-0.18		2.08		1.55		0.31		-1.31		-3.45		0.03		-2.38		-0.72		-2.18		1.13		-6.24	
2017	4.15		-4.18	m	-6.92	z	-8.45	z	-10.69	z	-8.31	z	-10.45	z	-10.97	z	-7.38	z	-5.72	z	-5.18	z	-4.87	z	-79.24	j