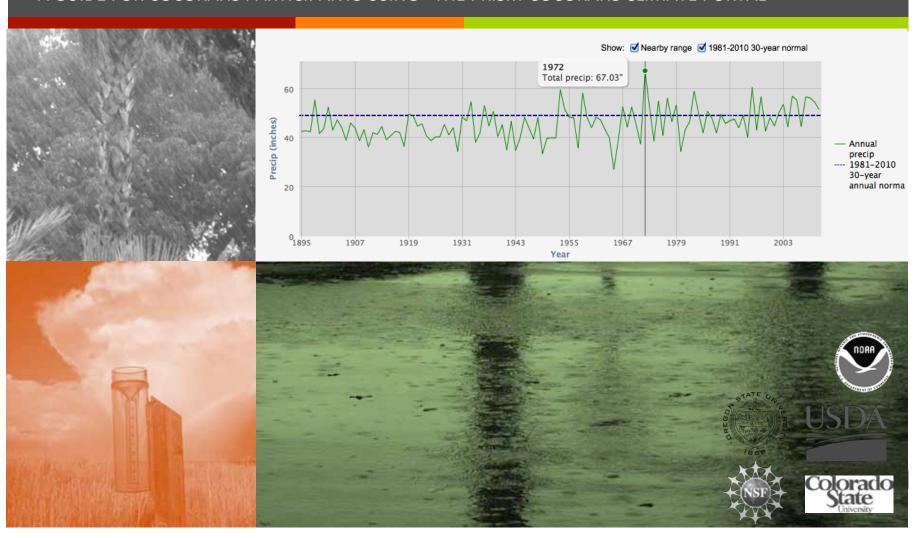


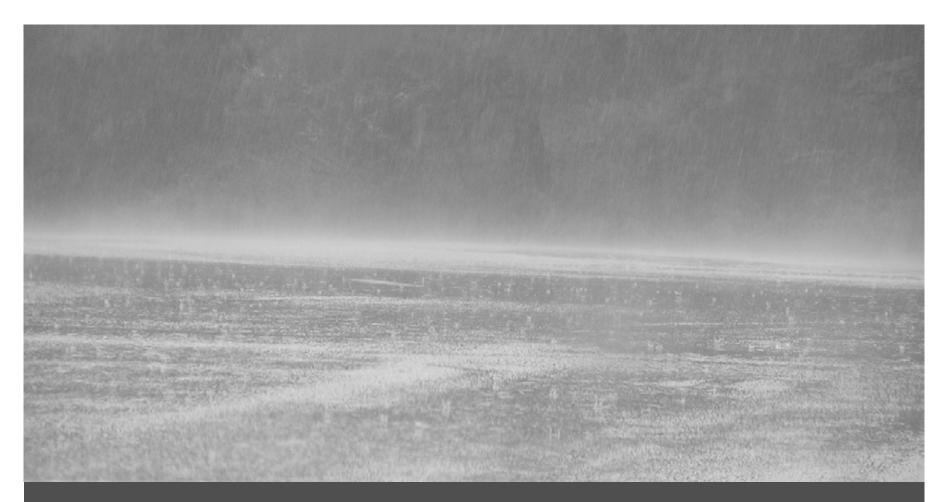
A GUIDE FOR COCORAHS PARTICIPANTS USING "THE PRISM-COCORAHS CLIMATE PORTAL"



- 1. Introduction
- 2. Accessing the PRISM Portal
- 3. Applications
- 4. Frequently Asked Questions (FAQ)

OUTLINE





INTRODUCTION





EXCLUSIVE

CoCoRaHS has teamed up with PRISM to create an exclusive feature for CoCoRaHS participants

One of the benefits of being a CoCoRaHS participant is that you have exclusive access to products such as the PRISM-CoCoRaHS Climate Portal.





EXCLUSIVE

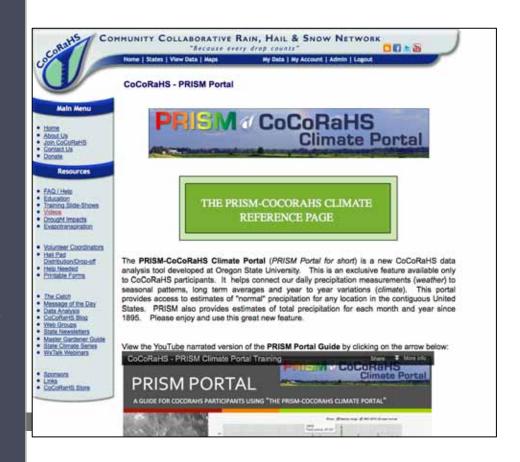
The CoCoRaHS – PRISM Portal Reference webpage



The PRISM portal is a new CoCoRaHS data analysis tool developed by the PRISM Climate Group at Oregon State University.

This is an exclusive feature available only to CoCoRaHS participants. It helps connect our daily precipitation measurements (weather) to seasonal patterns, long term averages and year to year variations (climate).

This portal provides access to estimates of "normal" precipitation for any location in the contiguous United States. PRISM also provides estimates of total precipitation for each month and year since 1895.





What's the story on PRISM?

The PRISM computer model was originally written in the early 1990s by Chris Daly at Oregon State University. Before PRISM, precipitation maps were hand-drawn, done differently in each state, and were very expensive to produce. PRISM maps were found to be as least as accurate, but a lot faster and cheaper to produce. Chris formed the PRISM Climate Group to handle the many requests for climate maps, and is still hard at work today, improving the model and making better maps.

http://prism.oregonstate.edu



PRISM (Parameter-elevation Regressions on Independent Slopes Model)

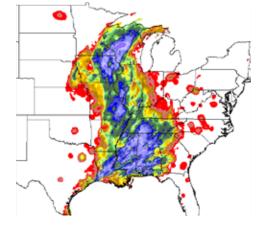


PRISM Products

Here are some other projects the PRISM Climate Group has worked on recently:

- USDA 2012 Plant Hardiness Zone Map winter temperature map used by millions of gardeners and plant breeders
- NOAA extreme rainfall atlas used by states, counties, and municipalities to determine building codes and regulations for urban and rural drainage systems
- Daily weather maps for the US crop insurance program - estimates of what happened on every field every day





PRISM / CoCoRaHS
Climate Portal

PRISM ESTIMATES



There are many locations in the US for which no precipitation observations exist. To create a continuous map of precipitation across the country, available station observations are fed into a computer model called PRISM (Parameter-elevation Regressions on Independent Slopes Model). PRISM estimates precipitation for a grid of square cells, measuring 0.5 mile across, covering the entire country. For grid cells where no observations exist, PRISM mimics the process an expert climatologist would follow: the model simulates how precipitation varies with elevation, accounts for oceanic moisture sources, and factors in terrain barriers that can cause rain shadows.



"HISTORICAL NORMALS" FROM THE PRISM CLIMATE MAPPING SYSTEM

30-year averages 1971-2000

Normals 1971-2000 30-year averages 1981-2010

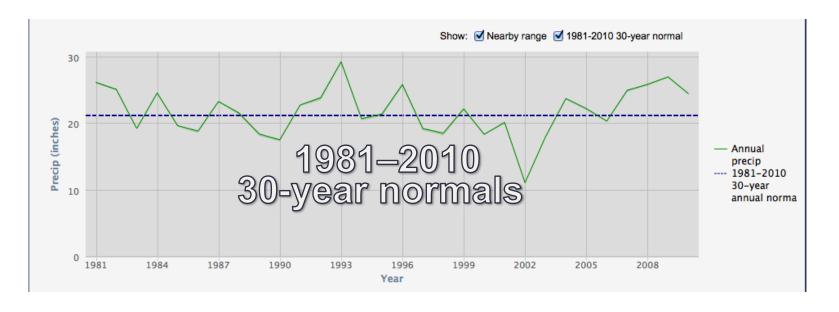
Normals 1981-2010



Hey it's 2011, let's re-compute using the past 30 years

Climatologists use normals as a baseline for determining the amount of precipitation expected at a given location. Normals are sets of 30-year averages, and are recomputed at the end of each decade. The current PRISM normals cover the period 1981-2010, and include some CoCoRaHS data.

PRISM (CoCoRaHS Climate Portal How PRISM NORMALS ARE MADE



30-Year Normals: At the end of each decade, the average values of temperature and precipitation variables are computed over the preceding 30 years. The current set of 30-year normals covers the period 1981-2010.



WERE COCORAHS DATA INCLUDED IN THE PRISM PRECIPITATION NORMALS?



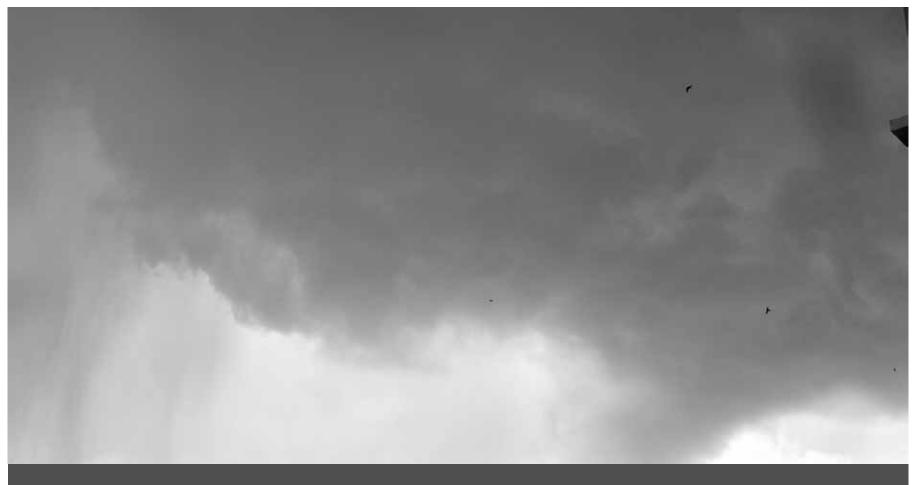
Yes and no. Many years of data are needed to generate a stable normal value. East of the Rockies (102 W longitude), only stations with at least 10 years of data during the period ending in 2010 were used. No CoCoRaHS stations quite made that cutoff. However, west of 102 W, where mountainous terrain makes mapping precipitation more challenging, we lowered the bar a bit; any station with at least 5 years of complete data (> 85% of the days present) for at least one month qualified for inclusion. 723 CoCoRaHS stations had at least one month that qualified, and 236 qualified for all 12 months. When the 1991-2020 precipitation normals are mapped in a few years, it is likely that CoCoRaHS will be the largest contributing network!



Continental United States



The PRISM Portal is only able to map the contiguous United States at this time. Our sincere apologies to our Alaska, Hawaii and Canadian participants, but PRISM modeled data are not yet available for those areas.

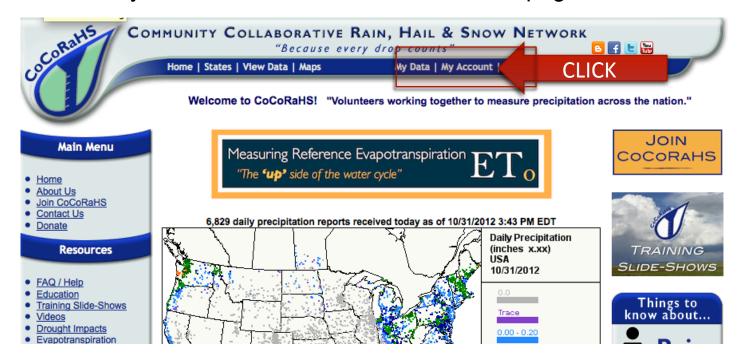


ACCESSING AND USING THE PRISM PORTAL



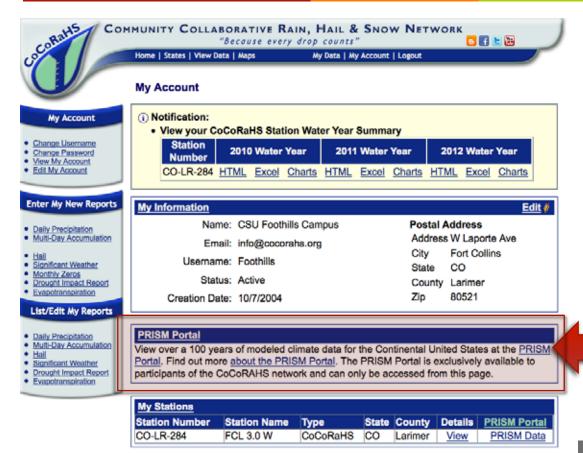
PRISM CoCoRaHS Climate Portal ACCESSING THE PORTAL

To access the portal, make sure you are logged into your CoCoRaHS account and then click on my account from the CoCoRaHS homepage





ACCESSING THE PORTAL – National PRISM data

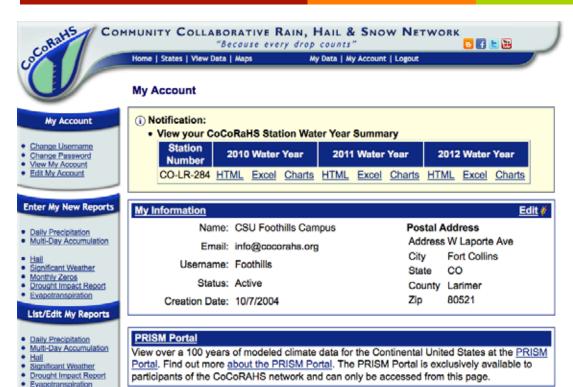


One option is to click on the "blue" words PRISM PORTAL to get access to the Continental United States

CLICK



ACCESSING THE PORTAL – your station's PRISM data



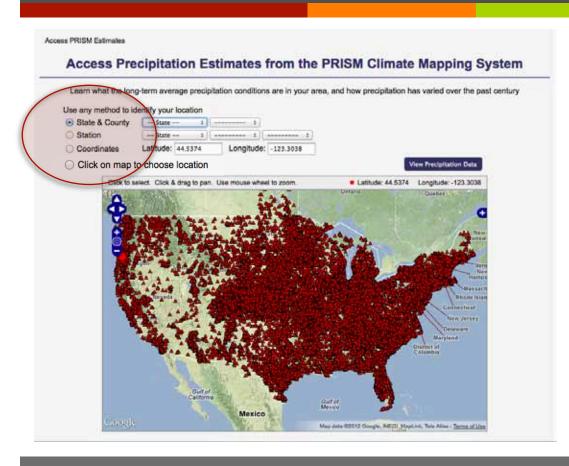
The other option is to click on the "blue" words PRISM data to get access to your specific station's PRISM data.



CLICK



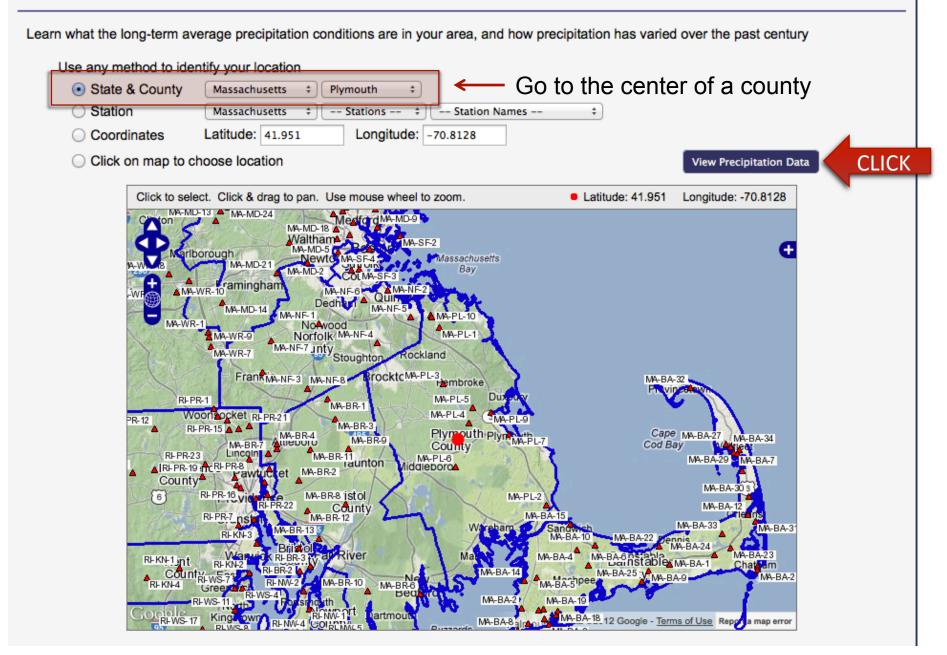
ACCESS – Getting started



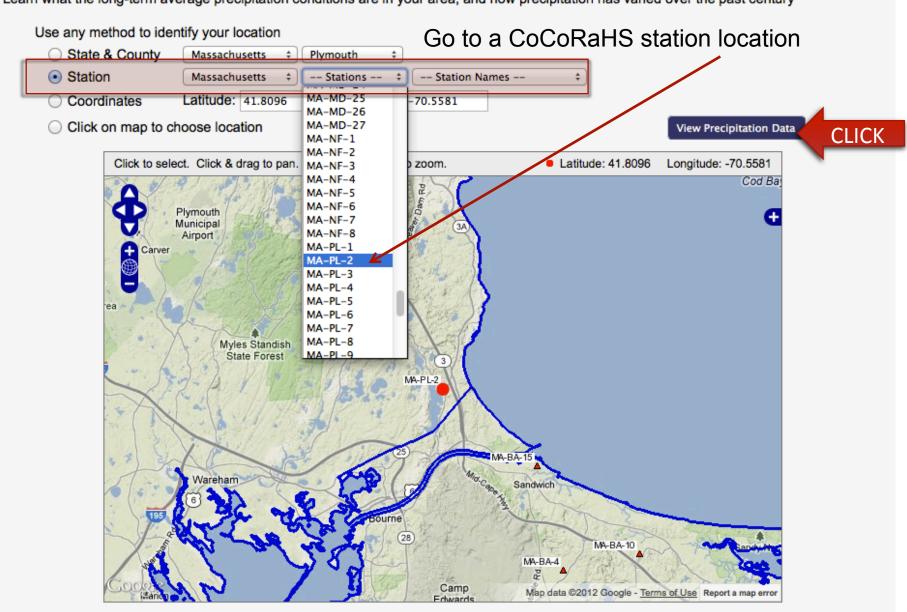
You are now in the PRISM PORTAL.

You have four button options to find your desired geographic location:

- 1. State and County
- 2. Station number
- 3. Coordinates
- 4. Clicking on the map



Learn what the long-term average precipitation conditions are in your area, and how precipitation has varied over the past century



Learn what the long-term average precipitation conditions are in your area, and how precipitation has varied over the past century Use any method to identify your location Go to latitude/longitude coordinates State & County Plymouth Massachusetts Station Massachusetts -- Stations ---- Station Names -Latitude: 41.8096 Longitude: -70.5581 Zoom to location Coordinates Click on map to choose location **CLICK** View Precipitation Data Latitude: 41.8096 Click to select. Click & drag to pan. Use mouse wheel to zoom. Longitude: -70.5581 Cod Bar Plymouth Municipal Myles Standish State Forest Sandwich MA-BA-10 MA-BA-4 Camp

Map data @2012 Google - Terms of Use

Learn what the long-term average precipitation conditions are in your area, and how precipitation has varied over the past century Use any method to identify your location State & County Massachusetts Plymouth Station Massachusetts -- Stations ---- Station Names --Latitude: 42.1313 Coordinates Longitude: -70.7385 **CLICK** Click on map to choose location View Precipitation Data Longitude: -70.7385 Click to select. Click & drag to pan. Use mouse wheel to zoom. Latitude: 42.1313 rlborough Massachusetts MA-MD-21 MA-WR-10 raminghan NoAwood Norfolk MA-NF-4 MA-NF-7 Inty Stoughton MA-WR-7 rocktcMA-PL-3 Frank MA-NF-3 MA-NF-8 MA-BR-1 Woonwocket RLPR-21 MA-BR-3 Plymouth Ply Cape MA-BA-27 MA-BA-34 County MA-BR-11 MA-PL-6 raunton ▲ RI-PR-19 ACRI-PR-8 County MA-BR-8 istol MA-BR-12 MA-BA-2 Map data @2012 Google -

The Portal plots a graph of historical "Normals" for the chosen location

Access PRISM Estimates > Historical Normals

Historical "Normals" from the PRISM Climate Mapping System

Climatologists use **normals** as a baseline for determining the amount of precipitation expected at a given location. Normals are sets of 30-year averages, and are recomputed at the end of each decade. The current PRISM normals cover the period 1981-2010. The normals shown here **do not include CoCoRaHS data**. Learn how the PRISM normal estimates are made.

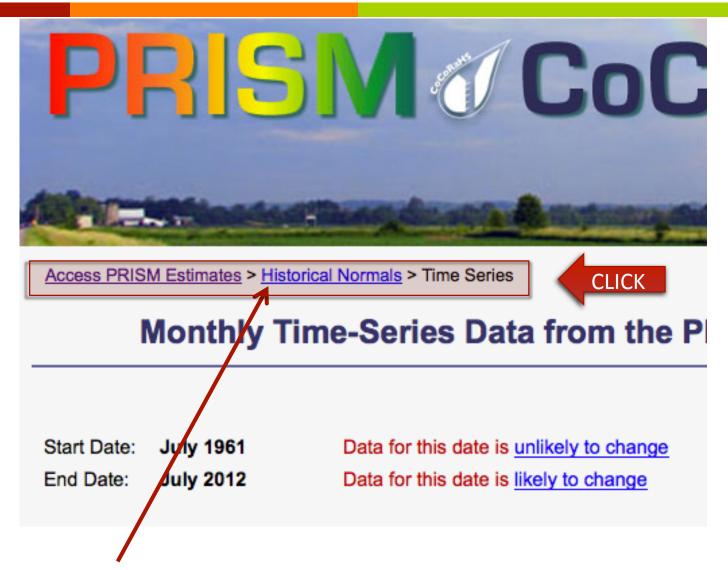
Average monthly precipitation (inches) for MA-PL-2, 41.8096/-70.5581 (Plymouth County, Massachusetts) and nearby locations over 30-year "normal" period

Mouseover to view individual values Click-and-drag to zoom "Reset zoom" link restores full display

Average annual precip: 48.86"

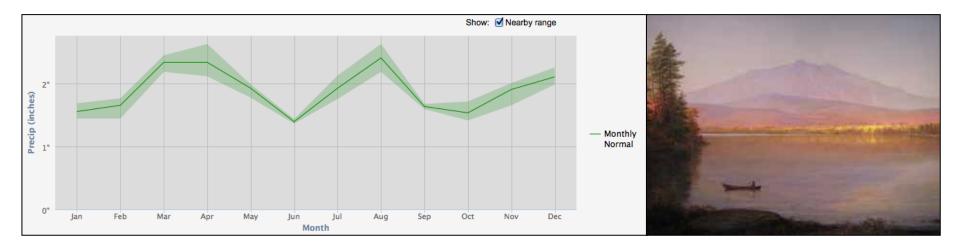
View or download data values





To move backwards to a previous page on the Portal click one of underlined choices in the upper left-hand corner of the page.

PRISM (CoCoRaHS Climate Portal HANDLING MOUNTAINOUS TERRIAN



The PRISM model calculates precipitation at a scale of approximately 0.5 mile. If you live in a mountainous area, this may explain why the values from your station don't seem to "match" those from PRISM. If your station is in a small valley, for example, the model may not distinguish it from nearby ridges, where precipitation may be higher.

The shaded areas on the plot show the range of PRISM precipitation values found if you were to move from your location by about 1 mile in all directions. In flat areas there will be little to no shading, but in mountains or canyons the differences can be significant.



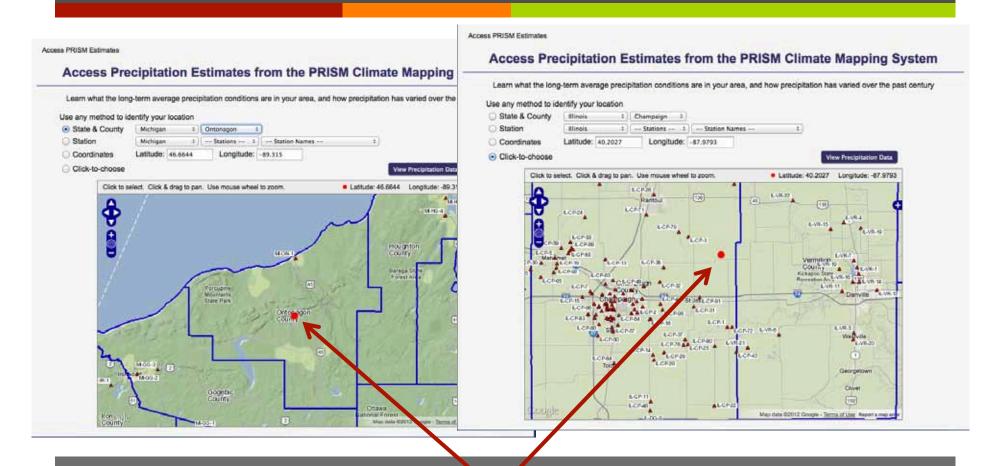
APPLICATIONS



PRISM CoCoRaHS Climate Portal

APPLICATIONS

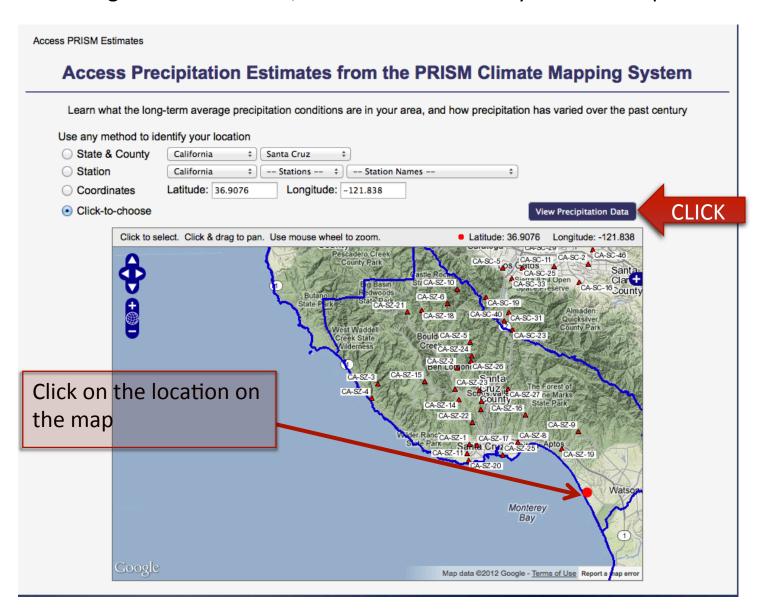
Find out the average estimated precipitation for any location in the United States

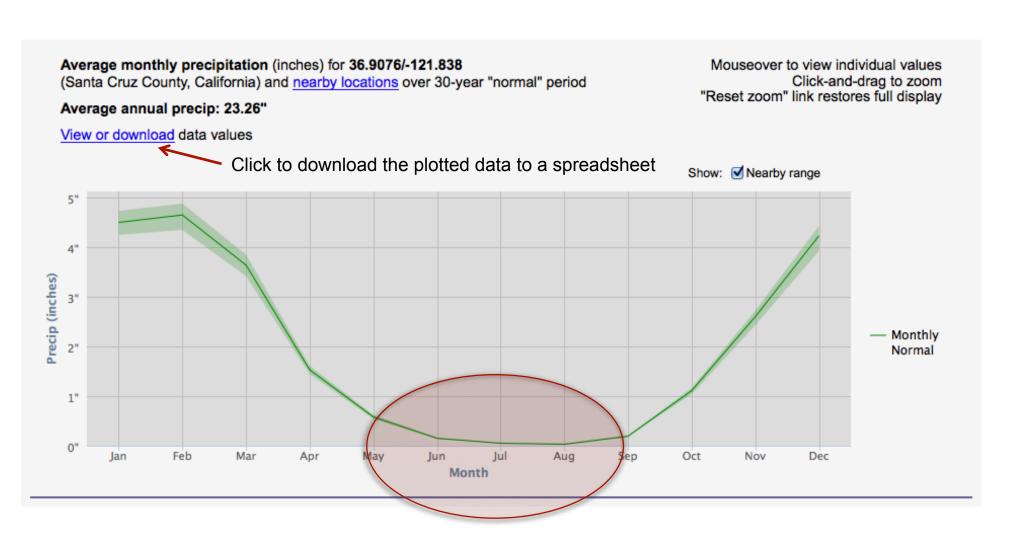


Simply choose a point on the map and find out its average estimated precipitation

EXAMPLE

We are heading to the Santa Cruz, California area this July. Should we pack an umbrella?





Looks like this is a very dry time of year for Central California . . . You can leave the umbrella at home.





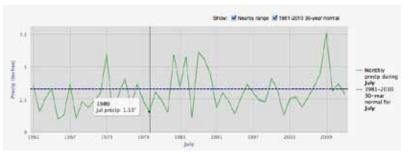
Historical Time Series

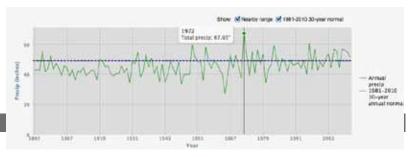
How does **monthly** precipitation vary in Plymouth, Massachusetts over the past fifteen years?

How does **July** precipitation vary in Plymouth, Massachusetts from 1961 – 2012 ?

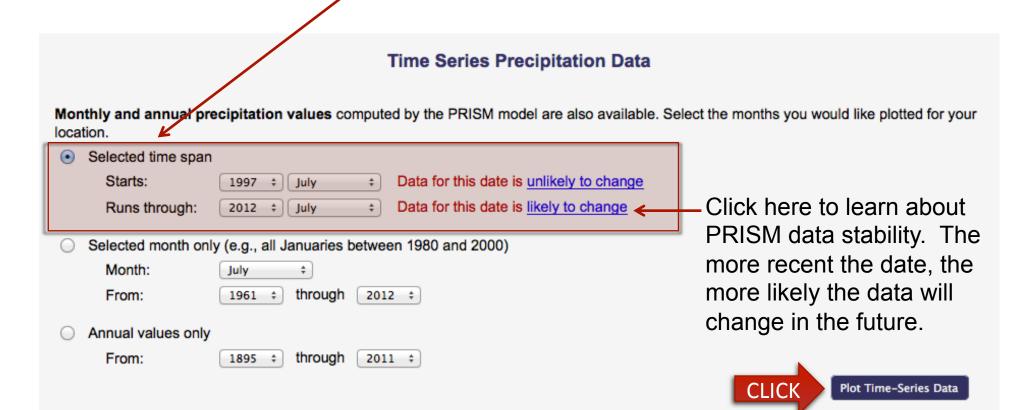
How does **annual** precipitation vary in Plymouth, Massachusetts from 1895 – 2011?







How does **monthly** precipitation vary in Plymouth, Massachusetts over the past twenty years?



Access PRISM Estimates > Historical Normals > Time Series

Time-Series Data from the PRISM Climate Mapping System

Learn how the PRISM normal estimates are made

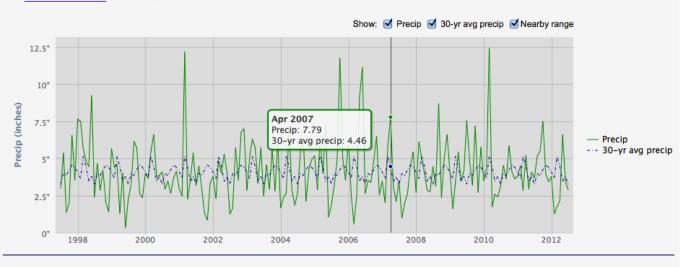
Start Date: July 1997 Data for this date is <u>unlikely to change</u>
End Date: July 2012 Data for this date is <u>likely to change</u>

Monthly precipitation (total inches) for **MA-PL-2**, 41.8096/-70.5581 (Plymouth County, Massachusetts) and <u>nearby locations</u> compared to 30-year normals

Click-and-drag to zoom "Reset zoom" link restores full display

Mouseover to view individual values

View or download data values



Time Series Precipitation Data

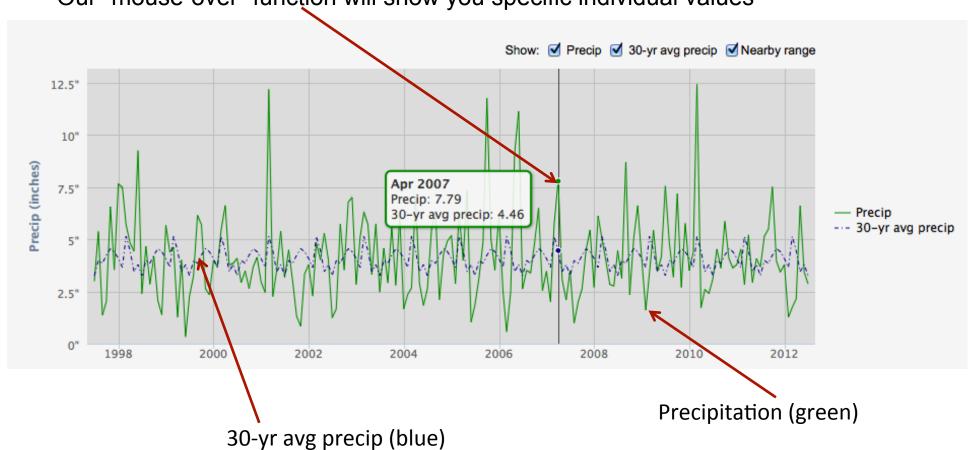
Monthly and annual precipitation values computed by the PRISM model are also available. Select the months you would like plotted for your location.

•	Selected time span	
	Starts:	1997 ‡ July ‡ Data for this date is unlikely to change
	Runs through:	2012 Data for this date is likely to change
0	Selected month only	(e.g., all Januaries between 1980 and 2000)
	Month:	July +
	From:	1961 \$ through 2012 \$
0	Annual values only	
	From:	1895 ‡ through 2011 ‡

Plot Time-Series Data

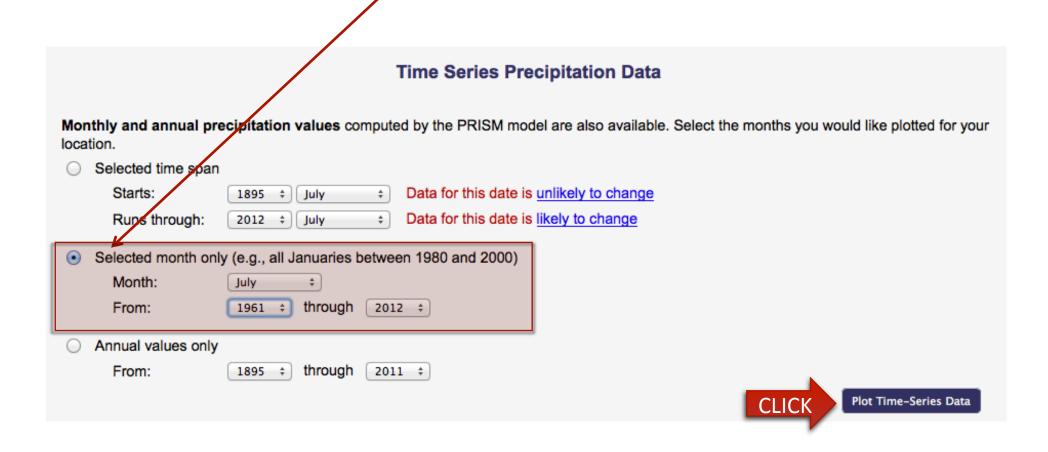
The Portal provides a time series graph of monthly precipitation from 1997 - 2012

Our "mouse-over" function will show you specific individual values



Selected Month

How does **July** precipitation vary in Plymouth, Massachusetts from 1961 – 2012?



The Portal provides a time series graph of monthly precipitation for July from 1961 -2012 Access PRISM Estimates > Historical Normals > Time Series

Monthly Time-Series Data from the PRISM Climate Mapping System

Learn how the PRISM normal estimates are made

Start Date: July 1961 Data for this date is unlikely to change

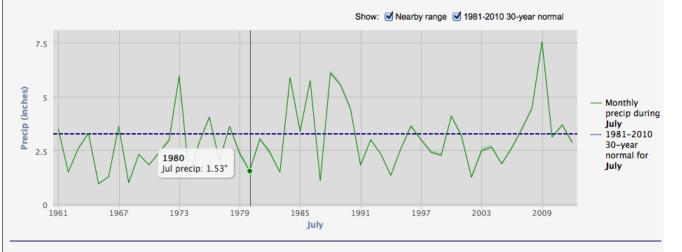
End Date: July 2012 Data for this date is likely to change

Monthly precipitation (total inches) for MA-PL-2, 41.8096/-70.5581 (Plymouth County, Massachusetts)

1981-2010 30-year normal for July: 3.26"

View or download data values

Mouseover to view individual values Click-and-drag to zoom "Reset zoom" link restores full display

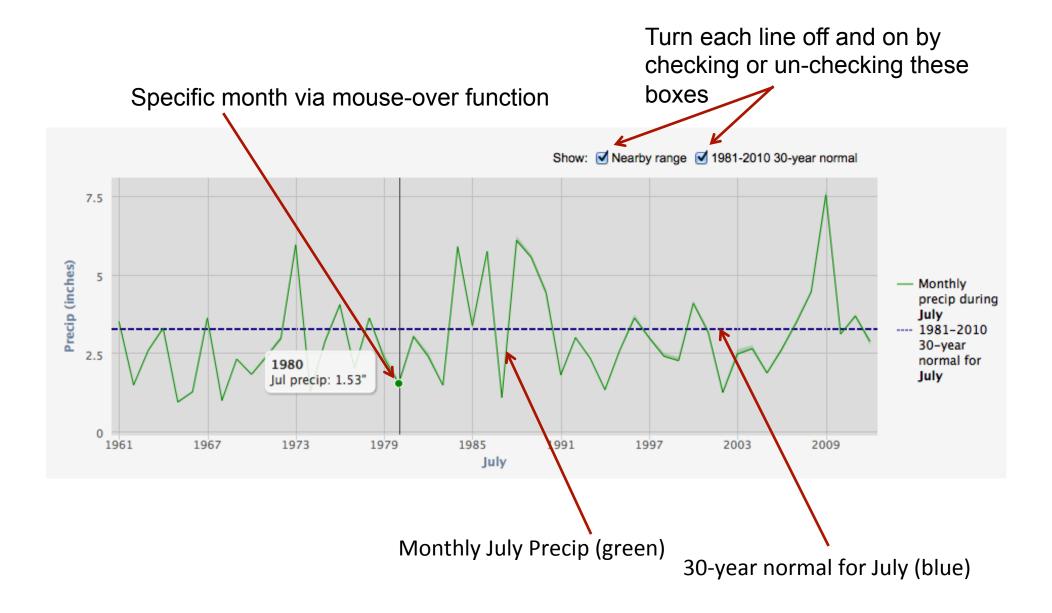


Time Series Precipitation Data

Monthly and annual precipitation values computed by the PRISM model are also available. Select the months you would like plotted for your location.

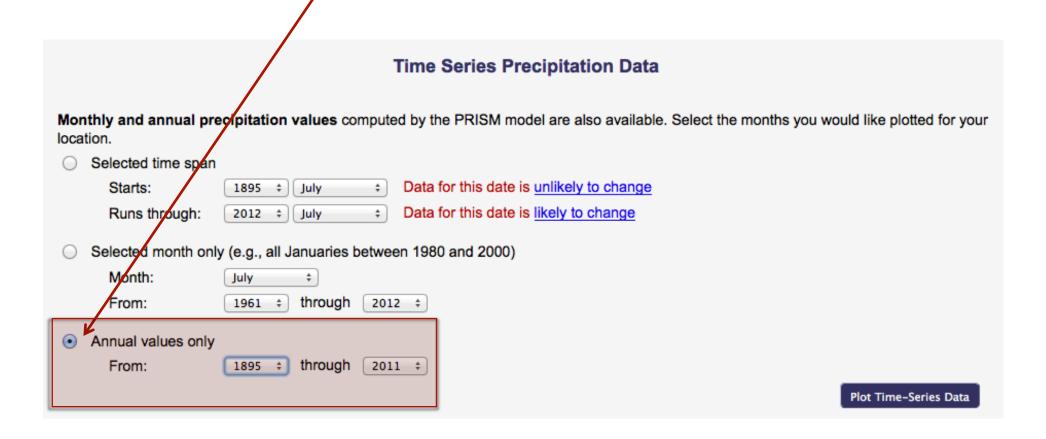
\bigcirc	Selected time span	
	Starts:	1997 ‡ July ‡ Data for this date is unlikely to change
	Runs through:	2012 ‡ July ‡ Data for this date is likely to change
•	Selected month onl	y (e.g., all Januaries between 1980 and 2000)
	Month:	July ‡
	From:	1961 ÷ through 2012 ÷
0	Annual values only	
	From:	1895 \$ through 2011 \$

Plot Time-Series Data



Annual Values Only

How does the annual precipitation vary in Plymouth, Massachusetts from 1895 – 2011?



The Portal provides a time series graph of annual precipitation from 1895 - 2011

Access PRISM Estimates > Historical Normals > Time Series

Annual Time-Series Data from the PRISM Climate Mapping System

Learn how the PRISM normal estimates are made

Start Date: 1895 Data for this date is unlikely to change End Date: 2011 Data for this date is unlikely to change Annual precipitation (total inches) for MA-PL-2, 41.8096/-70.5581 Mouseover to view individual values Click-and-drag to zoom (Plymouth County, Massachusetts) "Reset zoom" link restores full display 1981-2010 30-year annual normal: 48.86" View or download data values Show: Nearby range 1981-2010 30-year normal 1972 Total precip: 67.03" Precip (inches) Annual precip 1981-2010 30-year annual norma 20 0 1907 1919 1931 1943 1979

Time Series Precipitation Data

1967

1991

2003

1955

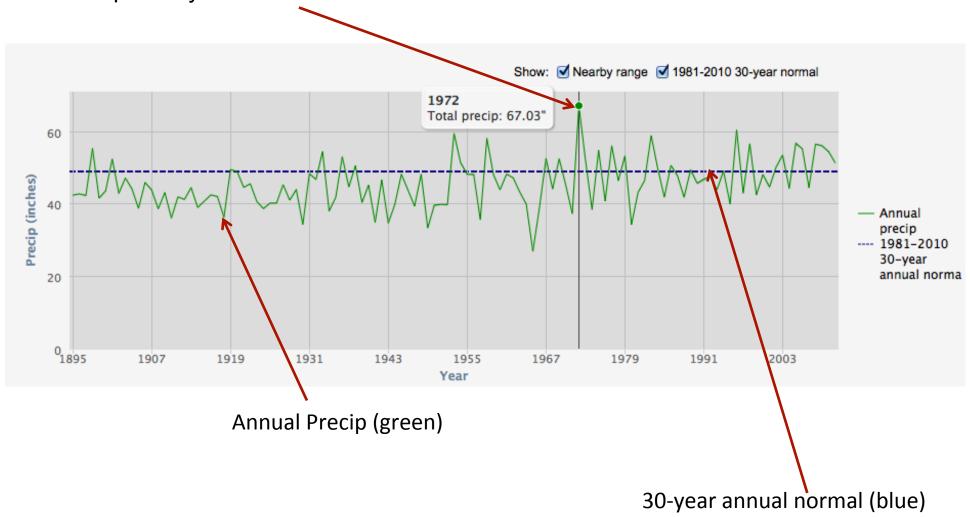
Year

Monthly and annual precipitation values computed by the PRISM model are also available. Select the months you would like plotted for your location.

\bigcirc	Selected time span	
	Starts:	1997 July Data for this date is unlikely to change
	Runs through:	2012 ‡ July ‡ Data for this date is likely to change
\bigcirc	Selected month only	(e.g., all Januaries between 1980 and 2000)
	Month:	July ‡
	From:	1961 \$ through 2012 \$
•	Annual values only	
	From:	1895 † through 2011 †

Plot Time-Series Data

Specific year via mouse-over function



Annual Time-Series Data from the PRIS

You can also download any of the time series precipitation data options into table form using Excel, etc. . . .

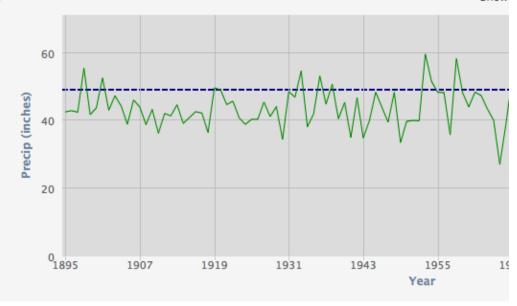
Start Date: 1895 Data for this date is <u>unlikely to change</u>
End Date: 2010 Data for this date is <u>unlikely to change</u>

Annual precipitation (total inches) for MA-PL-2, 41.8096/-70.5581 (Plymouth County, Massachusetts)

1981-2010 30-year annual normal: 48.86"

View or download data values

Show



Selected Period: January 1895 - January 2010 Annual precipitation 6 Time Precip (inches) 1895 42.3 42.64 1896 42.22 1897 10 1898 55.2 11 1899 41.5 12 1900 43.49 13 1901 52.32 14 1902 42.81 15 1903 47.04 16 1904 44.05 17 1905 38.64 18 1906 45.82 19 1907 43.73 20 1908 38.54 21 1909 43.03 22 1910 36 23 1911 41.84 24 1912 41.13 25 1913 44.41 26 1914 38.9 1915 40.64

MA-PL-2 -- 41.8096/-70.5581 (Plymouth County Massachusetts)

. . . from where you can make your own custom graphs.

APPLICATIONS PRISM NORMALS USED IN COCORAHS WATER YEAR SUMMARIES



PRISM 30 YEAR NORMALS ARE BEING USED IN COCORAHS WATER YEAR SUMMARIES



APPLICATIONS

PRISM NORMALS USED IN COCORAHS WATER YEAR SUMMARIES

2012 CoCoRaHS Water Year Summary for Station CO-LR-762 Report generated on November 5, 2012

Station Ov	erview	Station Location		
Station Number	CO-LR-762	Latitude	40.62147	
Station Name	Fort Collins 4.6 N	Longitude	-105.06372	
County	Larimer	Elevation (ft)	5079	

PRISM normals used for comparison

Water Year C	Overview	Days in Wate	r Year Daily Prcp O	bservations	Multiday Prep Observations		ail Observations	Top of Page	
Month	30 Yr Avg by PRISM	Total Prcp Sum	Days Covered By All Observations	Daily Prop	Daily Observation Count	Multiday Prcp Sum	Days Covered by Multi Observations	day Multiday Observation Cour	
Oct 11	1.15	1.90	31	1.90	31	0.00	0	0	
Nov 11	0.66	0.83	30	0.83	30	0.00	0	0	
Dec 11	0.44	0.67	31	0.67	31	0.00	0	0	
Jan 12	0.29	0.09	31	0.09	31	0.00	0	0	
Feb 12	0.38	0.83	29	0.83	29	0.00	0	0	
March 12	1.47	0.00	31	0.00	31	0.00	0	0	
April 12	2.06	0.25	30	0.10	12	0.15	18	1	
May 12	2.45	2.16	31	2.16	31	0.00	0	0	
June 12	2.35	0.90	30	0.90	30	0.00	0	0	
July 12	1.17	3.34	31	3.34	31	0.00	0	0	
Aug 12	1.48	0.05	31	0.05	31	0.00	0	0	
Sept 12	1.25	1.72	30	1.72	30	0.00	0	0	
Water Year Totals:	15.15"	12.74"	366 days	12.59"	348	0.15"	18 days	1	







WHAT IS MODELED DATA? IS IT USED ELSEWHERE?

Great question!

- •Modeled data is data that has been estimated by a computer program like PRISM, and is not a direct measurement.
- •We don't have stations everywhere, so we make estimates, based on scientific principles, for places where stations are absent.
- •PRISM modeled data comes on a regular grid, where each pixel is ½ mile on a side.
- Having estimates on a regular grid across the country is needed for a variety of applications.
- •Sometimes the grids are analyzed directly to study the climate of an area, but usually they are used as input to other models that estimate an amazingly wide range of useful things such as water supply, agricultural production, gardening conditions, endangered species habitat, where to sell snow blowers, or even when it is time to sell ice cream!

FAQ



WHY DOES THE PRISM TIME SERIES LOOK DIFFERENT FROM WHAT I'M COLLECTING WITH COCORAHS?

It does look different and here's why:

- •Until now, the model so far has been using National Weather Service COOP data (not CoCoRaHS), mountain SNOTEL station data, and some other national and regional networks.
- •However, by mid-November 2012, the PRISM grids going back to January 2011 will incorporate CoCoRaHS data. That means that graphs showing data after January 2011 will look more like your actual data. They may not match perfectly, however, because the modeled precipitation is the result of a combination of nearby station observations, estimated to a grid cell of about ½ mile on a side.
- •When we get a chance to update PRISM data before 2011, CoCoRaHS data will certainly be used!

PRISM CoCoRaHS Climate Portal

FAQ

DO YOU STILL NEED MY COCORAHS DATA?

You may ask yourself, "Gee with all of this modeled data, do you still need me to take CoCoRaHS observations?"

Yes, indeed! Precipitation varies so greatly from place to place on day-to-day basis, it is impossible for even models such as PRISM to estimate exactly what rain fell where. Sometimes, our estimates are way off. The worst case for PRISM is when rainfall comes from small-scale convective showers and thunderstorms that seem to pop up randomly across the landscape. In these kinds of situations, we need as many observers as we can get to help make sure we know where it rained and where it didn't.

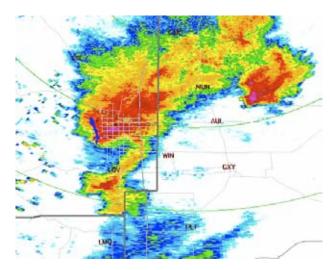


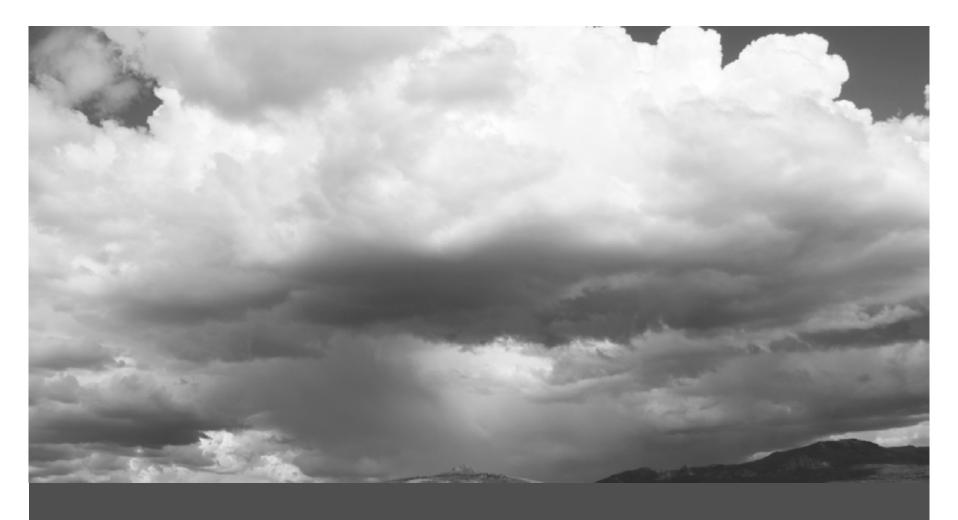


FAQ

DOES PRISM USE WEATHER RADAR?

Radar-enhanced PRISM is coming soon. National Weather Service weather radar can be very useful in estimating where and how much precipitation fell, even where there are no observing stations. However, radar does not work well everywhere. The radar beam is blocked by mountains, so is not used extensively in the western United States. It also can have trouble seeing snowfall. However, PRISM is working on a method to incorporate radar data into the PRISM maps where it is most reliable. Radar-enhanced PRISM maps will be added to the portal as soon as they are ready. But these maps will only go back as far as January 2002, which is the earliest date for which radar data are available nationally.





FOR ADDITIONAL QUESTIONS PLEASE CONTACT: info@cocorahs.org