

California Cumulonimbus

Spring 2013

Welcome Message by Jimmy Taeger



Map of California divided up into different CoCoRaHS regions. Each region has one or more coordinators. (Source: CoCoRaHS) L xtra, extra. Read all about it. The second edition of the *California Cumulonimbus* is hot off the presses! The *California Cumulonimbus* is a biannual newsletter for California CoCo-RaHS observers that is issued twice a year; once in the spring and once in the fall.

Each newsletter will contain various articles ranging from past weather events to seasonal climate outlooks and more.

If you're not a CoCoRaHS volunteer yet, it's not too late to join! CoCoRaHS, which stands for Community Collaborative Rain Hail and Snow network is a group of volunteer observers who report precipitation daily. Not only is it fun, but your report gives vital information to organizations and individuals such as the National Weather Service, River Forecast Centers, farmers, and others.

Visit <u>cocorahs.org</u> to sign up, or e-mail me at Jimmy.Taeger@noaa.gov for additional information.

Enjoy the newsletter!



Send Observations From Your Android

by Jimmy Taeger

D mart phones have come a long way throughout the years, and have helped to make some aspects of life more convenient. Now there is an even easier way to record your daily precipitation observation!

A CoCoRaHS observer in South Carolina has developed a FREE CoCoRaHS app for Android smart phones. With the CoCoRaHS app, observers can submit rain, snow, ice and flooding observations. Also, they can easily view and edit past reports. With this app, taking and sending a report in the morning will only take seconds!

Don't completely steer away from the CoCoRaHS website just yet. You can still use the site to submit significant weather reports as they occur, and view the different maps of observer's rain and snow reports.

The free CoCoRaHS app for Android devices can be found at the Google Play store. An app for the iPhone has not yet been released, but is currently in the works.



Precipitation report screen from the CoCoRaHS app. (Source: Jimmy Taeger)

Articles in this Edition:

Welcome Message 1

1

2

3

Send Observations From Your Android

Paltry Precipitation so far this Water Year

Why Significant 3 Weather Reports are Important

Is Dew Accumulation Considered Precipitation?

California 4 Summer Climate Outlook

CoCoRaHS and 5 the Official Climate Record

California Cumulonimbus

Paltry Precipitation so far this Water Year



by Chris Stachelski

2012 through March 5, 2013.

the wet season through early March.

cember, accompanied by a plume of

rich moisture originating from the sub-

tropics, storms became sparse as Janu-

ary and early February arrived. Additionally during

this later period, the storms that did impact that state

often had less moisture to work with resulting smaller

"Since October 1, 2012, precipitation totals statewide have been mostly below normal..."



Precipitation departures from normal (in.) for this year's water season so far (10/1/12 through 3/5/13). Most of CA has received below normal precipitation as of 3/5/13. (Source: NOAA Regional Climate Centers)

> will bring much needed precipitation to the Golden State before the dry season starts to set in this summer



Page 2

Why Significant Weather Reports are Important by Stefanie Sullivan

s CoCoRaHS observers, you not only have the ability to report your daily precipitation, you can submit significant weather reports as it is happening! Why would you want to do this, you ask?

Significant weather reports, such as heavy rain, heavy snow, flooding, and large hail, are important to National Weather Service operations. These reports will automatically go to your local NWS office and aid forecasters in the warning decision making process, especially for Severe Thunderstorm and Flash Flood Warnings. Timely and accurate warnings are an important part of the NWS mission, and getting accurate real time reports helps tremendously! Since hail size, hail accumulation, and flash flooding (away from river stage



(Source: NOAA)

gauges) cannot be measured by automated equipment, the National Weather Service relies on trained observers, such as you, to report these significant events. Significant reports may also be included in NWS Local Storm Reports (LSRs), which are sent to the NWS Storm Prediction Center.

Significant weather reports that are helpful to the NWS:

- Hail greater than or equal to 1/2" diameter OR significant accumulation
- Heavy rainfall/snowfall include ٠ rain/snow amount and duration (for example, 0.25" in 15 minutes)
 - Flooding include any damage or other impacts noted. Try to be as specific as possible describing the flood and the location. Approximately how deep is the water? Are any creeks/ streams/washes/rivers flowing over the banks? Are intersections flooded? Are cars being swept away by the flood water?



1/2 inch diameter hail in Guerneville, CA on 4/10/10. (Source: lbwiser@live.com)

Not only are these reports helpful to the NWS in real-time, they may also be useful to researchers in the future!

You can submit hail reports or significant weather reports by logging in to your Co-CoRaHS account and going to "My Data", then clicking the "Significant Weather" or "Hail" links on the left hand menu under "Enter My New Reports". Just remember: safety first! Do not try to collect or measure large hail as it is still falling, and don't get too close to flood waters.

Is Dew Accumulation Considered Precipitation? by Cindy Palmer

ever had minor accumulations in your rain had your glass sitting over your rain gauge, gauge? You may be tempted to record this as precipitation, but it is actually not considered precipitation. By definition, precipitation Now let's apply this principle to your rain must fall from the sky, like rain, snow, hail, sleet, or even drizzle. On the other hand, dew is moisture that forms on a solid surface, like your car or your lawn or in this case, your rain gauge.

For example, your iced beverage in the summer time might have condensation form on the outside of the glass. After a while, there may be enough condensation to form large drops. These drops may then drip down the glass, leaving your glass



Condensation forming on the outside of a glass. (Photo Credit: Dr. Roy Winkleman)

in a small puddle. In a sense, this puddle may ollowing a very foggy night, have you eventually be enough to "measure" if you even though there isn't a cloud in the sky.

> gauge. On a cool and possibly foggy night, condensation may form on or in your rain gauge. If there is enough condensation to form large drops, these drops may drip, forming the puddle inside the main tube.

However, this condensation isn't falling from the sky, it is just puddling within the gauge itself. Therefore, we do not consider this as measurable precipitation. If by chance the fog is thick enough and drizzle is falling from the

sky, this may be recorded as precipitation.



Condensation forming on rain gauge. (Photo Credit: Jim Janke)

California Cumulonimbus

California Summer Climate Outlook

by James Thomas

uring the summer months of June, July, and August, the Polar jet stream weakens and moves northward into Canada. A bubble of high pressure builds over the Pacific Ocean called the Pacific High. This weather pattern creates very hot and dry conditions for the inland areas of California. Along the coastal region, temperatures are modified by the cool Pacific Ocean, as a sea breeze often comes ashore during the early afternoon.

By mid-July, monsoonal moisture will often creep north and westward from northern Mexico, producing thunderstorms over the inland mountainous terrain. Once or twice a summer, this mois-



SUMMER WEATHER PATTERN OVER THE WESTERN UNITED STATES



Normal placement of the jet stream and Pacific High over the summer months. (Credit: James Thomas)

ture will push far enough West to affect the valleys and coast.

The Climate Prediction Center is forecasting equal chances for above normal or below normal precipitation this summer across California, with no indication of the weather pattern deviating from normal.

There is a 50 to 60% chance of greater than normal temperatures for all areas in the eastern half of California this summer. Higher temperatures are often associated with a greater fire danger. This issue will need to be monitored closely as summer draws near.

Probabilities of either above normal (A), below normal (B), or equal chances (EC) of above or below normal precipitation and temperatures for the June, July and August time frame. (Source: Climate Prediction Center)

CITY	JUNE		JULY		AUGUST		JJA
	30-YEAR CLIMATE NORMALS						
	HIGH TEMP	LOW TEMP	HIGH TEMP	LOW TEMP	HIGH TEMP	LOW TEMP	PRECIP
San Diego	71.4°F	62.5°F	75.2°F	65.9°F	76.9°F	67.2°F	0.12 in.
Los Angeles (LAX)	72.0°F	60.5°F	75.2°F	63.7°F	76.2°F	64.2°F	0.16 in.
San Francisco	70.7°F	53.6°F	72.0°F	55.1°F	72.7°F	56.0°F	0.15 in.
Bakersfield	91.7°F	63.1°F	97.8°F	69.3°F	96.4°F	68.0°F	0.12 in.
Sacramento	87.4°F	56.0°F	92.4°F	58.6°F	91.5°F	58.2°F	0.26 in.
Grass Valley	79.8°F	51.6°F	87.6°F	56.4°F	87.0°F	55.0°F	0.79 in.

Table of normal highs, lows and three month precipitation during the meteorological summer months of June, July and August. (Source: National Climatic Data Center)

Summer Climate Outlook

CoCoRaHS and the Official Climate Record

by Chris Stachelski

In an ever expanding effort to take advantage of more data, the National Climatic Data Center, also known as NCDC, has started to accept some CoCoRaHS data as part of the nation's long term climate record. For years, the nation's climate network only consisted of observations using equipment that met

National Weather Service ports. However, the larginto the national climate

database comes from observations taken by volunteer weather observers using equipment provided by the NWS. As is the case with CoCoRaHS, cooperative observers take an observation once a day at a specified time that consists of temperature and precipitation over the past 24 hour period. Other parameters such as the weather observed or amount of evaporation may be

included in these reports. Cooperative observers are not just located at homes many are also parks, farms, government agencies and private businesses.

However, with the advent of CoCoRaHS, the opportunity to collect more observations exists. This benefits the climate net

National Weather Service (NWS) standards. These the intering your zeros each day is highly valuable as it al-weather stations were lows not only for a better record of the precipitation in your are a new observer. typically located at air- area, but also will get your data into the official climate database Getting your data est group of observations quicker if you are a new observer. 9 9

> work by adding in more stations which can give meteorologists and other researchers a better idea of smaller scale variations in climate as well as the scale of a particular precipitation event. CoCoRaHS also allows for stations in areas where we do not currently have cooperative observers.

> How does your data become a part of the

official climate record? Known as the Global Historical Climatology Network (GHCN), once you submit 100 separate CoCoRaHS observations, your data will become a part of GHCN. Therefore, entering in zeros each day is highly valuable as it allows not only for a better record of the precipitation in your area but also will get

your data into the official climate datainto GHCN allows your data to be used in larger scale re-

gional analysis products issued such as maps showing precipitation totals and departures. These maps can be useful in depicting what took place during an event or give a better picture as to how wet or dry an area has been in recent months.

An example of the GHCN weather stations can be seen on the map shown for a portion of Southern California. Red dots show weather stations at area airports used in the climate network. Note how few of these exist! Light blue dots show cooperative weather stations that are part of GHCN. Purple dots show CoCoRaHS observers. Notice how many more weather stations in the climate network are from volunteers! This really shows how valuable volunteer observers are to the nation's climate record.



Map of GHCN weather stations. Red dots are airport stations, light blue dots are corporative network stations, and purple dots are CoCoRaHS observers. (Source: GHCN)

California CoCoRaHS



California Cumulonimbus

California Cumulonimbus Contributors: Spring 2013

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Page 6

What is CoCoRaHS?

CoCoRaHS, which stands for <u>Community Co</u>llaborative <u>Rain Hail</u> and <u>S</u>now Network, is a non-profit group of volunteer precipitation observers. Anyone can join, and it's easy to report the information. All you need is a 4 inch rain gauge, the internet, and a few minutes each day. The website is easy to navigate and has different instructional materials for anyone to learn how to record an observation.

The site also has daily maps of observer's reports showing where precipitation fell the day before. It's fun to compare the different amounts of precipitation that can fall in an area from just one storm. Not only is the information interesting to look at, it is very valuable for organizations such as the National Weather Service, hydrologists, farmers and many others.

Visit cocorahs.org to sign up, or e-mail Jimmy.Taeger@noaa.gov for questions. Join CoCoRaHS, today!

Rain gauge required for the program.

Find us on Facebook at facebook.com/California.CoCoRaHS



weather.gov