



Santa Barbara County Hydrology Report

Precipitation, Rivers/Streams, & Reservoirs 2009-2010



Santa Barbara County
Public Works Department
Water Resources Division, Flood Control District

October 2010

SANTA BARBARA COUNTY

Public Works Department

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Scott McGolpin

Report prepared under the direction of

Jon Frye, Public Works Deputy Director (interim)
Flood Control and Water Conservation District
Matt Griffin, Engineering Manager (interim)

by the Flood Control District - Hydrology Section

Shawn Johnson, Sr. Hydrologist

Contributors:

Karen Sullivan, Civil Engineer
Joyce Tromp, Eng. Tech. Spec.

October 15th, 2010

Cover Photo: Gibraltar Reservoir spilling – March 24, 2010

ACKNOWLEDGMENTS

The Santa Barbara County Public Works Department wishes to thank the National Weather Service (NWS) in Oxnard for providing forecast information and related figures in this report, the US Geological Survey (USGS) for furnishing burn-area rainfall threshold values, and the Santa Barbara “Multi Use Trails Coalition” for inclusion of Jesusita burn-area photographs.

PREFACE

This report documents the significant Hydrology (surface water) related events for the 2009-2010 water-year in Santa Barbara County.

The report includes a 1-page executive summary, which is followed by more detailed discussion of Hydrologic Monitoring Systems, Weather Forecast, Burn-Areas, Rainfall, Rivers & Streams, Reservoirs, Flood-Flow Modeling, and other related topics.

Report Appendices are inclusive of reference information on Hydrologic Gauge Station listings, Hydrologic Station Installation pictures, Yearly/Monthly Rainfall listings, and Rainfall Return Periods.

The rainfall year and water year (WY2010) referred to in this report runs from September 1, 2009 through August 31, 2010.

This report is not intended to be a complete or exhaustive documentation of WY2010 surface water hydrology events in Santa Barbara County.

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1.0 EXECUTIVE SUMMARY

The 2010 hydrology water-year (WY) can be summarized as a year with a slightly greater than average rainfall, an unusual mid October high-volume rain event, favorably spaced storm rainfall, moderate rainfall intensities, moderate stream & creek flows, and full or near full County reservoirs – with the absence of any noteworthy flooding or damage.

It is also a water-year that was preceded by five substantial wild fires over the past three years that had the potential to result in significant flooding and property damage - namely the Zaca Fire (9/07), Gap Fire (7/08), Tea Fire (11/08), Jesusita Fire (5/09), and La Brea Fire (8/09).

Fortunately, the burn-areas generally experienced moderate yearly rainfall totals, favorable spacing of rain events, and moderate rainfall intensities - resulting in manageable storm run-off and minimal adverse impacts.

The National Weather Service accurately predicted approximately average or slightly above average annual rainfall within the County (moderate “El Nino”).

At 117% of County-wide normal rainfall for WY2010, it ranked as the 3rd wettest year over the past 10 years, only preceded by WY’s 2005 & 2001. The County has experienced a fairly dry decade, with the most recent three WY’s (2009, 2008, and 2007) at 67%, 102%, and 36% of normal rainfall, respectively.

Recent years have also seen enhancements in the County hydrologic flood-warning systems & technology that have afforded more comprehensive and timely dissemination of both flood related information, and flood forecasting.

Enhancements include the Fall 2009 release of a public accessible County website (OneRain) where rainfall, stream-flow, weather, and reservoir data can be observed in near real-time. Over the past three years, the County FCD has also installed three automated remote field cameras that afford timely images of rivers & streams. Additionally approximately 12 new automated gauges (rain, stream, weather) have been added to our network to enable more comprehensive hydrologic monitoring capability.

2.0 HYDROLOGY INTRODUCTION

Santa Barbara County encompasses approx 2800 sq. miles of predominantly rugged mountain terrain, which can result in rapid local and regional watershed flow during major rain events.

The County's climate is normally warm and dry in the summer, and cool and wet in the winter months. The wet winter months generally range from October through April, with January & February typically bringing the largest amount of precipitation.

The County Flood Control District "Hydrology Section" maintains and operates a comprehensive ALERT (Automated Local Evaluation in Real Time) storm monitoring system consisting of rain gauges, stream flow gauges, weather gauges, and reservoir level & gate opening gauges.

The network of flood warning systems consists of 84 County-wide automated monitoring installation sites (rainfall, stream-flow, reservoir level, weather).

In recent years the Flood Control District has augmented its hydrologic warning capability with the use of "remote real-time" camera installations. These cameras assist in providing a valuable visual record and also enabling correlation with the ALERT flood warning system observations.

Our near real-time rainfall, stream flow, and reservoir level monitoring system was put online to the public in October 2009 - accessible through the County Public Works Hydrology website. This comprehensive monitoring system enables County Flood Control, associated agencies, and the general public to access timely Hydrologic data during the course of storm events.

The "Hydrologic Flood Warning System" real-time gauge network aids in flood forecasting and in making operational decisions during rainfall events, with software equipped to issue "warning alerts" to users (via cell phone) when thresholds are exceeded. Hydrologic data is also transmitted in real-time to the National Weather Service for tracking storms, which assists in the issuance of Special Weather Statements (Flash Flood Watches & Warnings)

Staff from the County Flood Control District also provides 24hr emergency response assistance during storm monitoring – inclusive of field patrols and Hydrologic computer modeling/flood-flow forecasting.

The past three years were highlighted by five substantial wild fires that had the potential to result in significant flooding, property damage, and hazards to residents. Since burn areas typically require 5 years of recovery rehabilitation, all these burn areas were of concern.

3.0 HYDROLOGY INSTRUMENTATION & CONFIGURATION

The Santa Barbara County Flood Control District “Hydrology Section” maintains and operates a comprehensive automated ALERT storm monitoring system consisting of rain gauges, stream flow gauges, and reservoir level & gate opening gauges.

Our network of automated flood warning systems consists of 84 County-wide ALERT monitoring installations (53 ALERT rain gauges, 16 ALERT stream-flow gauges, and 9 ALERT Weather stations, and 6 ALERT Reservoir gauge sites).

3.1 County-Wide Gauge Network

The entire County-wide hydrologic gauge network (inclusive of both automated ALERT & self-recording gauges) consists of 118 installation sites operating 165 individual sensors (Rain, Stream, Reservoirs, and Weather sensors)

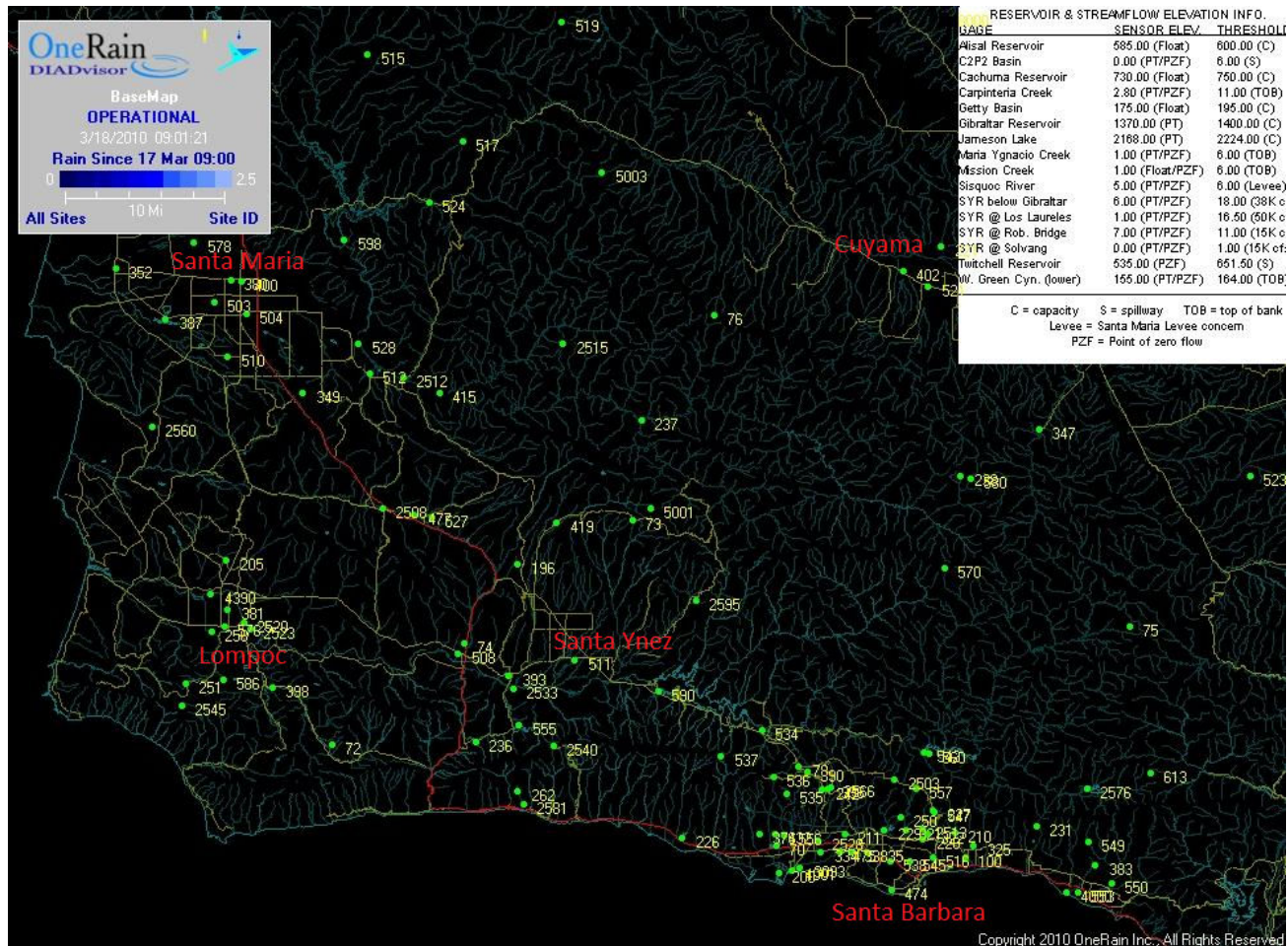


Figure 1 – Hydrology County-Wide Gauge Network (118 Sites / 165 Sensors)

Types of Gauge Sites

ALERT (Rain, Stream, Weather, Reservoir)

- Transmitters, Near Real-Time
- Flood Warning (DB Stored)
- Preliminary Rainfall Record



ALERT Weather / Rain
(La Cumbre Peak)



ALERT Rain
(SB Caltrans)



ALERT Stream
(SYR @Lompoc Narrows)



ALERT Reservoir
(Twitchell)

Self Recording (Rain, Stream)

- Internal Data Loggers
- Event / Intensity Records
- Official Rainfall Record



S/R Rain
(Al Mar Ranch)



S/R Rain
(SB Trout Club)



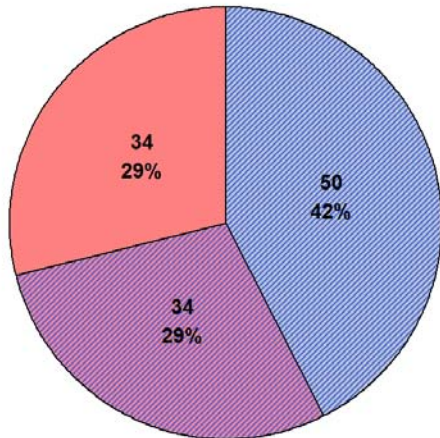
S/R Stream
(Carpinteria Slough)

Figure 2 – Types of County Hydrologic Gauges

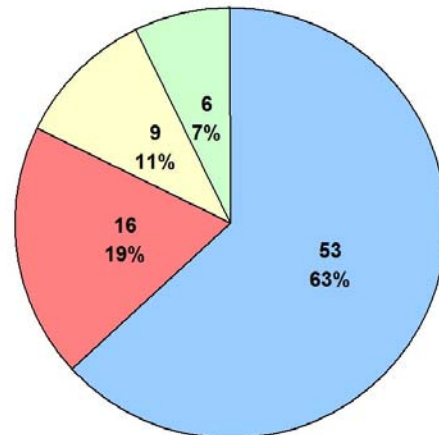
Of the 118 hydrologic gauge sites within the County, 84 are automated (Alert) transmission sites, 34 are (non-transmitting) self-recording data logger stations, and the remaining 34 sites are equipped with both automated (Alert) transmission capability and self-recording data loggers.

Although automated (Alert) transmission sites are valuable for flood-warning, it is desirable from a data integrity standpoint to rely on self-recording data loggers for official (rainfall) data.

Hydrology Gauge Sites = 118 (Rainfall, Stream, Weather, Reservoir)



Automated (Alert) Gauge Sites = 84 (Rainfall, Stream, Weather, Reservoir)



Figures 3 & 4 – Gauge Type Distribution

3.2 Real-Time Web-based Hydrologic Monitoring System

Our near real-time rainfall, stream flow, and reservoir level monitoring system was put online in October 2009, accessible through the County Public Works Hydrology website.

<http://santabarbara.onerain.com/home.php>

This comprehensive monitoring system enables County Flood Control, associated agencies, and the public to access timely County-wide Hydrologic data during the course of storm events.

Typical resources available to users of this website includes real-time County-wide rainfall, rainfall totals (15 min through 48 hours), rainfall intensity table, stream flow data, reservoir levels, weather system data, and other relevant Hydrologic data.

This real-time system provides direct access to our network of automated flood warning systems consisting of 84 County-wide ALERT monitoring installations.

USGS stream gauge data is also accessible within this system, as a separate “Map-overlay” option.

The user-displays of this system have been enhanced to optimize ease of access to the most commonly viewed data, and include “Radio Style” quick-select buttons. Automated default overlays provide informative County background maps - inclusive of topography, watersheds, burn-area outlines, streams/rivers, lakes, major roads, and cities.

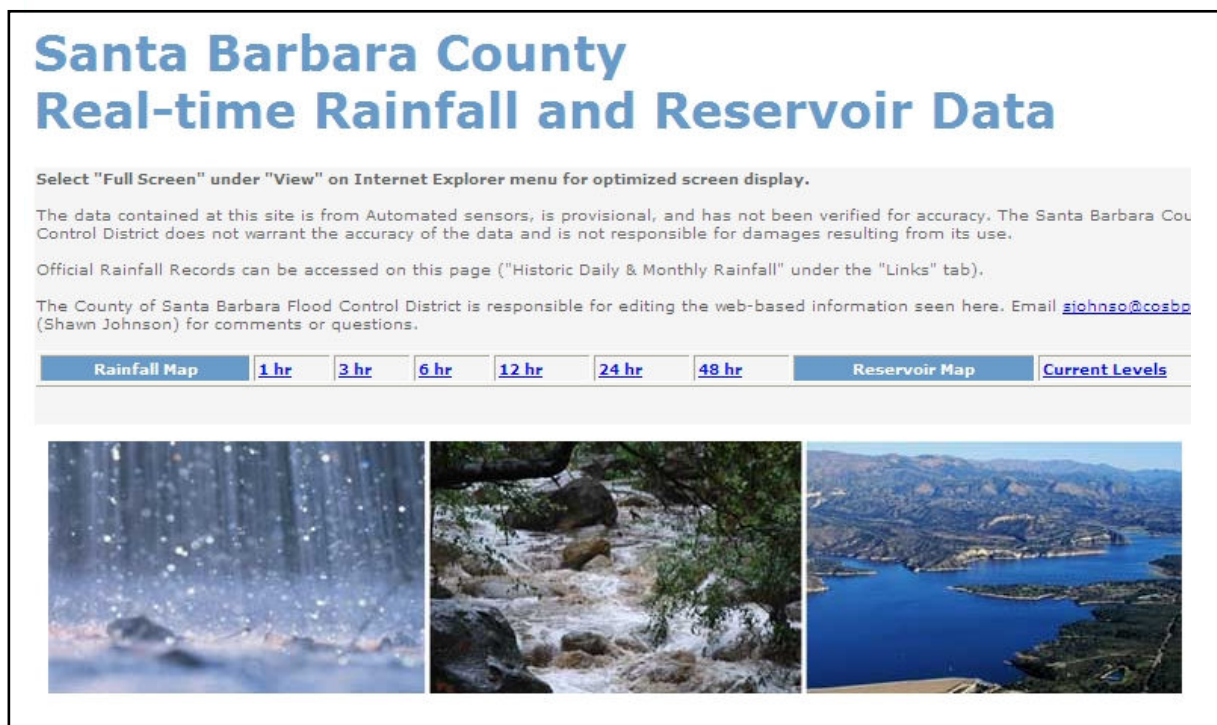


Figure 5 – Real Time Hydrologic Monitoring System

3.3 Remote Camera Monitoring Systems

Installation of County Flood Control field observation cameras was initiated in 2008, with the first camera installed to support the GAP burn-area-response (San Pedro Creek, Goleta). Two additional Flood Control remote cameras were subsequently installed in support of the TEA fire (Sycamore Creek, Montecito), and La Brea Fire (Sisquoc River, Garey).

The USGS also installed two cameras, one each for the GAP & Jesusita burn-area response.

Figure 6 & Table 1 (below) depict the location & characteristics of these camera installations.

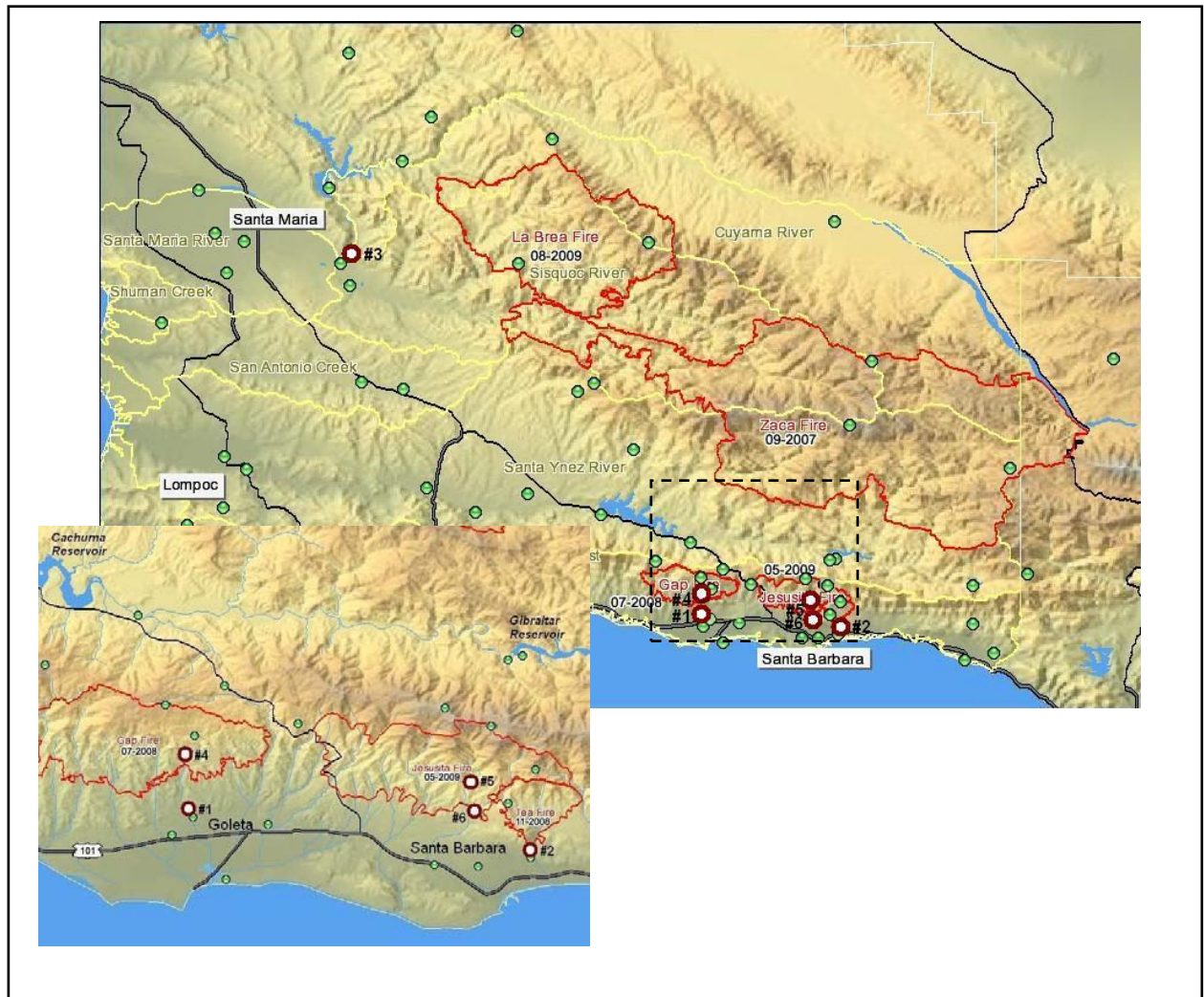


Figure 6 – Remote Camera Installation Sites

CAMERA	RIVER/ CREEK	LOCATION	INSTALLED	BURN AREA
1. SBCFCD	San Pedro Creek	Stow Canyon Road, Goleta	Sept 2008	GAP
2. SBCFCD	Sycamore Creek	Five Points, Montecito	Nov 2008	TEA
3. SBCFCD	Sisquoc River	Garey Bridge, Garey	Sept 2009	La Brea
4. USGS	San Pedro Creek	La Patera Ranch, Goleta	Sept 2009	GAP
5. USGS	Mission Creek	Debris Basin, Mission Canyon	Nov 2009	Jesusita

Table 1 – Remote Camera Installations



1. San Pedro Creek @Stow Canyon Rd, Goleta (FCD Dial-up Camera #1)

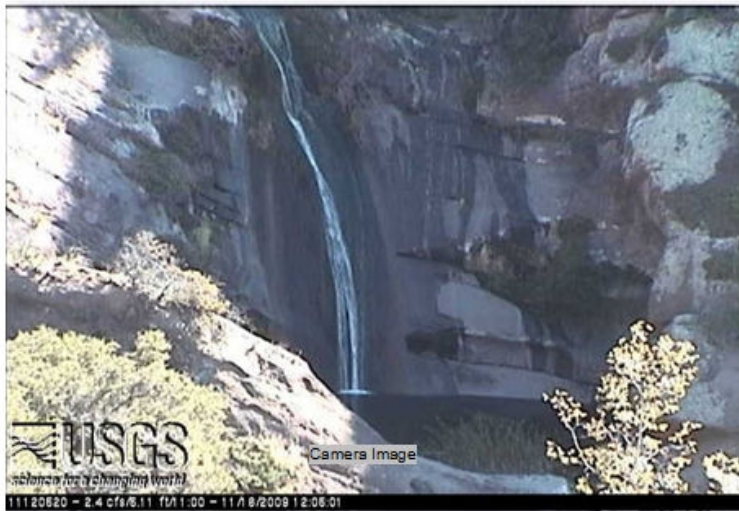


2. Sycamore Creek @5-Points, Montecito (FCD Dial-up Camera #2)



3. Sisquoc River @Garey Bridge, Garey (FCD Dial-up Camera #3)

Figure 7 – COSB Remote Camera Installations



4. San Pedro Creek @La Patera Ranch, Goleta (USGS Web Camera)
 - Site Link = <http://ca.water.usgs.gov/webcams/goleta/>



5. Mission Creek @Debris Basin, SB (USGS Web Camera)
 - Site Link = <http://ca.water.usgs.gov/webcams/missioncr/>

Figure 8 – USGS Remote Camera Installations

3.4 County-Wide Automated Flood Warning System

The County “Automated Flood Warning System” has been in place since 1999, and has been enhanced in recent years to include more field gauges, website accessible real-time sensor data, and remote camera observation systems.

The County-wide 84 station ALERT gauge network provides the basis for the automated flood warning system - the data from which feeds into our real-time monitoring system, and is also simultaneously routed to the NOAA National Weather Service office (in Oxnard CA).

The flood warning system also has the capability to issue automated (cell phone) text messages in the event that established (rain/ stream / reservoir) thresholds have been exceeded. This valuable warning system enables County Hydrology & Flood Control personnel to be immediately informed of potential flood risk information - that may result in more detailed field observations, coordinated agency action plans, and field remediation action.

Hydrology section personnel continuously monitor weather conditions and the integrity of the flood monitoring system during storm operation activities.

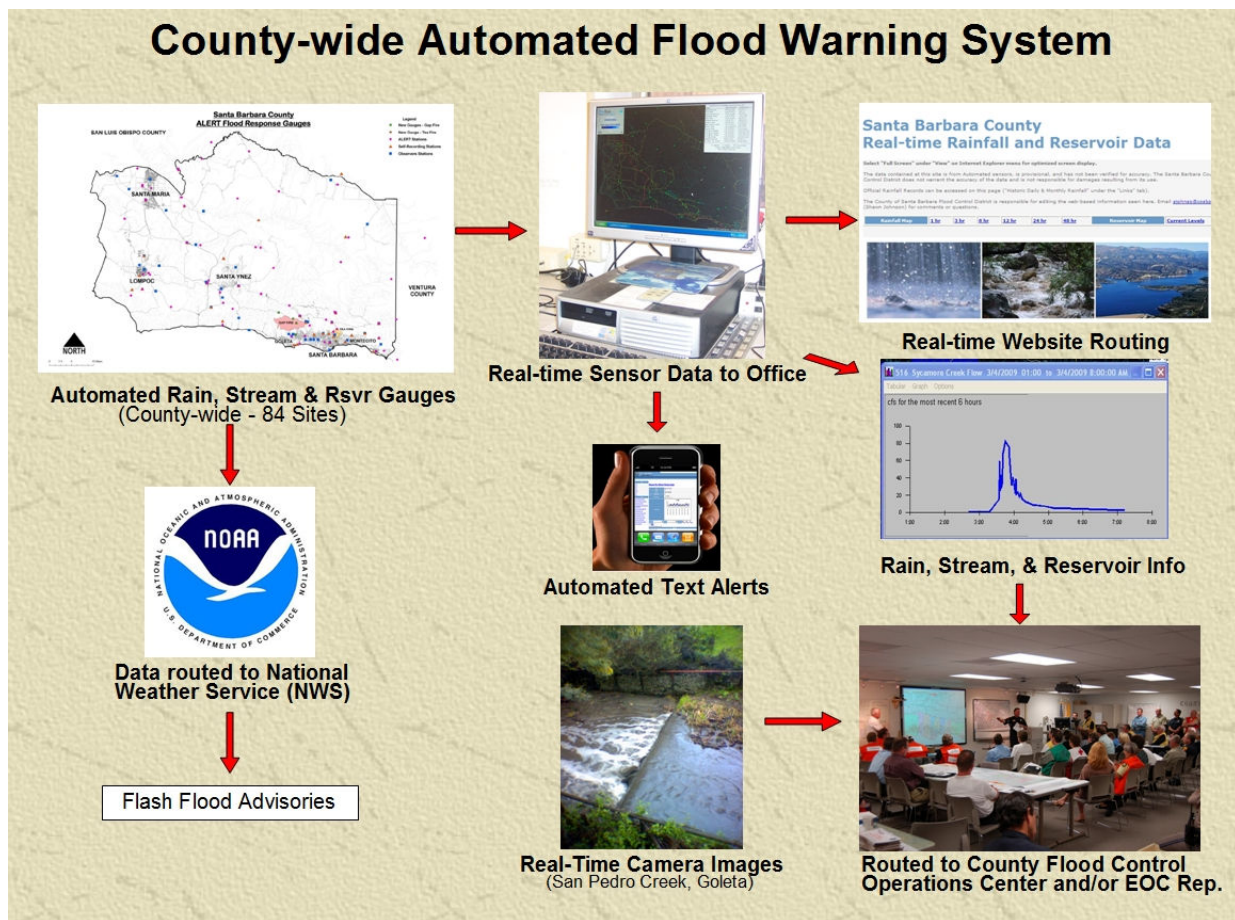


Figure 9 – County Automated Flood Warning System

4.0 WEATHER FORECAST & CLIMATE DISCUSSION

The National Weather Service (NWS) coordinates winter-weather forecast meetings with (among others) regional government agencies (including the County of Santa Barbara).

The 2009-10 NWS winter-weather outlook meeting was held on October 27th at the NWS office in Oxnard CA.

Principal discussion items included NWS forecast predictions for a “near normal” rainfall year for our southern California region (moderate “El Niño” conditions), and the USGS/NWS issued rainfall threshold criteria for County areas burned in recent years.

The NWS prediction of near (or just above) normal rainfall is based on a number of factors, including the “El Niño Southern Oscillation” (ENSO). ENSO represents the “El Niño” and “La Niña” characteristics, defined by Eastern Pacific ocean surface temperatures. (Figure 10)

El Niño is a disruption of the oceanic and atmospheric cycles of the equatorial Pacific, and is a major climatic phenomenon known to affect weather throughout the world. These effects include increased rainfall in the southern United States and drought conditions in the US north-west. During El Niño events, ocean-surface temperatures in the Eastern Pacific are warmer than normal. Conversely, La Niña events (cooling Eastern Pacific ocean temperature) typically results in decreased rainfall.

Locally, strong El Niño events are often associated with greater than average rainfall, but this trend is generally only an indication of what may be expected. It has also been observed that moderate to weak El Niño events do not always correlate with increased precipitation.

Beginning in September & October, a moderate strength El Niño developed and remained through the winter months. During moderate El Niño events, the Eastern Pacific ocean-surface temperatures are less than one degree Celsius above normal.

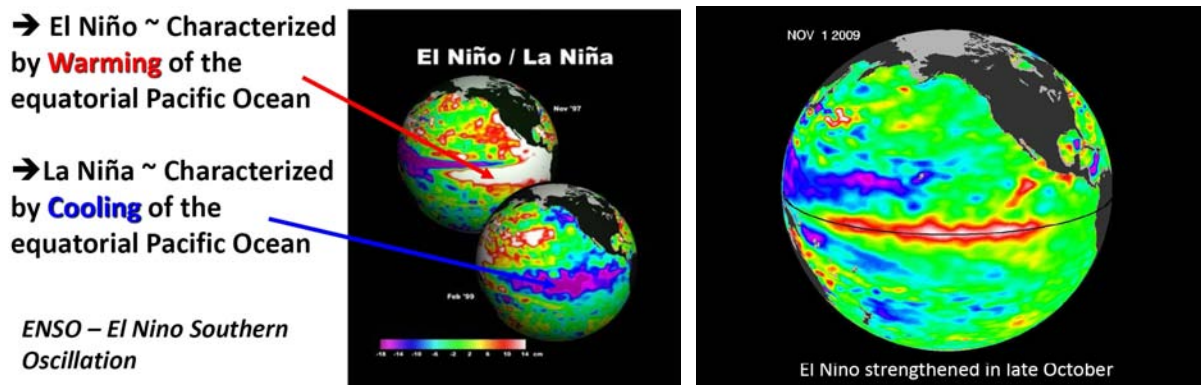


Figure 10 – ENSO Weather System Characterization

The official NWS issued “US Winter Outlook” model depicts national precipitation forecast trends characteristic of a moderate “El Nino” (Figure 11).



Figure 11 – NOAA/NWS National 2009-2010 Winter Precipitation Forecast Map

Concerns regarding flash-flooding in our region were addressed during the NWS winter forecast meeting - as five major burn-areas were experienced in our County within the past 3 years. (Zaca, Gap, Tea, Jesusita, La Brea)

Since any storm can create flash flooding (in either La Nina or El Nino years), precautions are necessary to provide advance-warning for emergency decision making processes.

The USGS (in conjunction with the NWS) established rainfall thresholds for 1 to 2 year burn-areas within our region (Table 2).

<u>USGS 2009-2010 Rainfall Gauge Alarm Thresholds (for burn-areas)</u>	
1 st Winter after Fires (Jesusita, La Brea)	
	0.3” in 15min
	0.4” in 30 min
	0.7” in 1 hour
2 nd Winter after Fires (Gap, Tea):	
	0.6” in 30 min
	1.0” in 1 hour

Table 2 – USGS / NWS Burn-Area Rainfall Thresholds

County hydrology “Alarm Notifications” using the above criteria for the Burn-areas were established for rainfall intensity (in addition to stream-flow) within our flood-warning OneRain (DIADvisor) system. The rainfall alarm values represent ”Burn-area Rainfall Intensity Thresholds” which typically conform to criteria that trigger NWS Flood Advisories.

5.0 BURN AREAS (Zaca, Gap, Tea, Jesusita, La Brea)

Santa Barbara County experienced five major wild fire incidents within the past three years that created the potential for significant flooding, property damage, and resident safety.

Burn areas typically require 5 years of rehabilitation (from a hydrology perspective) to recover to their pre-burn stability.

Post-wildfire changes in basin hydrology typically include a shift toward greater runoff volumes and higher magnitude peak runoff rates during subsequent rainstorms. One cause is the removal of vegetation that normally provides interception, attenuation, and evapo-transpiration. Another cause is the formation of soil hydrophobicity. Hydrophobic layers form in soil during intense fires that vaporize a waxy substance found in plant material. The vapors penetrate the soil and cool, causing the waxy substance to solidify and cling to soil particles forming a water repellent layer. Increased soil erosion and the occurrence of mass movements including debris flows are concerns in watersheds where fire has destroyed vegetation.



Figure 12 – County-Wide Burn Areas



Figure 13 – South-Coast County Burn Areas

ZACA Fire – 240,000 Acres – Sept 2007

In July 2007, the Zaca wildfire broke out in Santa Barbara County and burned a total of approximately 240,400 acres before it was contained on September 2, 2007. The fire began on July 4, 2007 on private land located approximately 15 miles northeast of Buellton and spread quickly to the east and south into the San Rafael and Dick Smith wilderness areas of the Los Padres National Forest (Figure 12).

The burned area affected the Santa Maria River, Santa Ynez River, Cuyama River, and Sisquoc River watersheds. In the Cuyama watershed, the fire occurred on land upstream of Twitchell Reservoir, burning approximately 45,280 acres (6%) of the watershed. A total of 76,800 acres (25%) of the Sisquoc River watershed was affected by the fire. No dams or other debris or water retention facilities exist on the Sisquoc River. In the Santa Ynez River watershed, the fire occurred on land upstream of Cachuma Lake, burning 118,374 acres (44%) of the watershed upstream of Cachuma. To mitigate the potential of increased flows in the Santa Maria River, County Flood Control constructed pilot channels and placed strategic piles of rock rip rap for potential flood fighting efforts.

5.1 2008 Burn Areas (Gap & Tea)

GAP Fire – 9400 Acres - July 2008

In July of 2008, the Gap fire burned over 9400 acres in the foothills of north-west Santa Barbara, with the exposed area resulting in high risk flooding to urban areas. County Flood Control allocated considerable resources into mitigating the flood impact from the event, including installing four new Alert rain & stream gauges, and a remote-camera at the stream site. Additionally, the County undertook comprehensive aerial hydro-mulching deployment, and installed debris containment racks.

TEA Fire – 1940 Acres – Nov 2008

Four months after the GAP fire, in November, (just as the rain season was due to commence) another major fire (TEA Fire) burned approximately 1940 acres in the foothills of north-east Santa Barbara - and destroyed 210 residences in the process. One of our Alert rain gauges (Mt Calvary) was also burned, and was subsequently replaced within 5 days. Rapid response from the County Flood Control was necessary to minimize possible effects from flood & slides in this area. Likewise, additional ALERT gauges, a remote camera, and debris racks were installed and existing debris basins were prepared and/or enhanced.

Both the GAP & TEA fire burn areas created the potential for major flooding that could impact populated areas during the 2008-2009 winter rains, with the GAP burn area critically affecting potential flooding of the Santa Barbara Airport & regional vicinity.



Figure 14 - GAP & TEA Burn Area, and Gauges

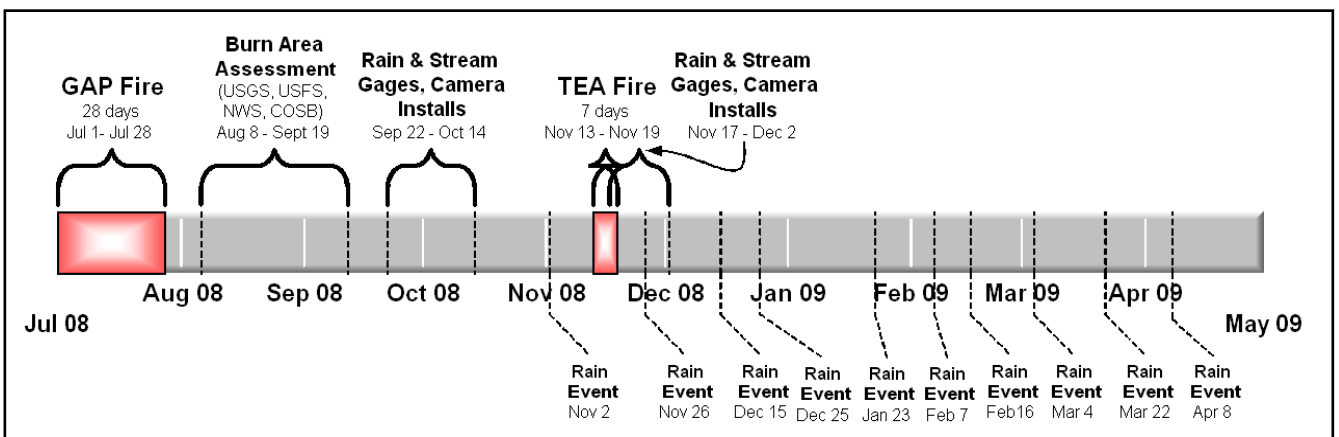


Figure 15 - GAP & TEA Fire Milestones

The GAP & TEA burn-area WY2009 rainfall (1st year after fire) was characterized by a less than average rainfall year (~ 67% of norm), favorable spacing of rainfall events (Figures 16 & 17, nom. 2 week separation), and moderate rainfall intensity (Table 3)

WY 2010 brought a higher volume rainfall to the burn areas (~117% of norm), an early season near-record storm (Oct 14), and slightly higher rainfall intensity levels – without major incident.

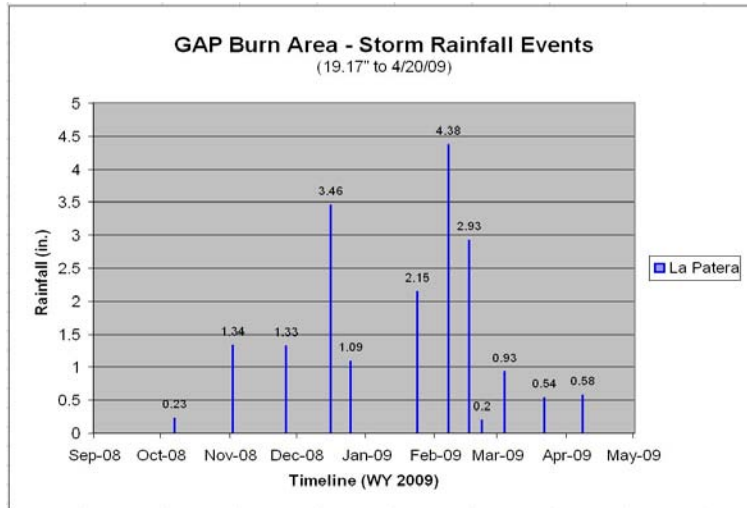


Figure 16 – GAP Burn-Area 2008-09 Rainfall Distribution

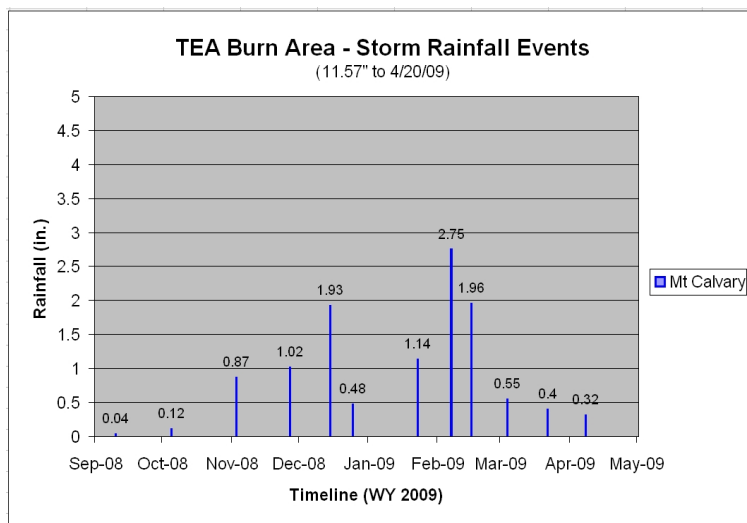


Figure 17 – TEA Burn-Area 2008-09 Rainfall Distribution

GAP & TEA Burn Areas – Years 1 & 2 Maximum Rainfall Intensities (Table 3)						
Burn Year	Burn Site	Rainfall Gauge	WY Rain	Storm 12-15-08	Storm 02-07-09	Storm 02-14-09
Year 1 (08-09)	GAP	La Patera (535)	20.19"	0.98"/hr	0.69"/hr	0.49"/hr
	TEA	Mt Calvary (2513)	12.87"	0.47"/hr	0.43"/hr	0.40"/hr
Burn Year	Burn Site	Rain Gauge	WY Rain	Storm 10-14-09	Storm 01-18-10	Storm 02-26-10
Year 2 (09-10)	GAP	La Patera (535)	35.85"	0.89"/hr	0.99"/hr	1.03"/hr
	TEA	Mt Calvary (2513)	24.88"	0.67"/hr	0.67"/hr	0.83"/hr



Figure 18 – GAP Burn Area – April 2008



Figure 19 – GAP Aerial Hydro-mulching –Oct 2008



Figure 20 – GAP Burn Area (Goddard) – Sept 2008



Figure 21 – GAP Burn Area (Goddard) –Feb 2010



Figure 22 – TEA Burn Area (RS Cyn) – Nov 2008



Figure 23 – TEA Burn Area (RS Cyn) – March 2009

5.2 2009 Burn Areas (Jesusita & La Brea)

JESUSITA Fire – 8740 Acres - May 2009

In May 2009, the Jesusita Fire burned approximately 8,740 acres of watershed along the foothills and peaks of the Santa Ynez mountain range adjacent to the City of Santa Barbara and Goleta. The fire started on May 5th near the Jesusita Trail above Santa Barbara, and ended up burning approximately 8700 acres above Eastern Goleta and Western Santa Barbara. The fire was contained 16 days later on May 20th. The fire burned dense chaparral vegetation on the slopes and canyons that had not previously burned since the (1964) Coyote fire. The elevation within the burn area ranged from 3985 feet (La Cumbre Peak) in the Santa Ynez Mountain Range, to approximately 500 feet at the northern part of the City of Santa Barbara (Figure 24). Similarly to the Gap and Tea Fires County Flood Control undertook flood mitigation projects in advance of the rainy season that included the deployment of aerial hydro-mulching, installation of debris racks and the preparation and/or enhancement of existing debris basins.

La Brea Fire – 89,489 Acres – Aug 2009

The La Brea Fire started August 8, 2009 in the back country of Santa Barbara County - the fifth major fire in the County since 2007. Fire containment was achieved on August 22nd. The fire burned almost 90,000 acres of watershed in the Los Padres National Forest, most of which was in the Sisquoc River Watershed. A smaller portion of the fire perimeter was a tributary to the Cuyama River, which flows into Twitchell Reservoir (Figure 25).

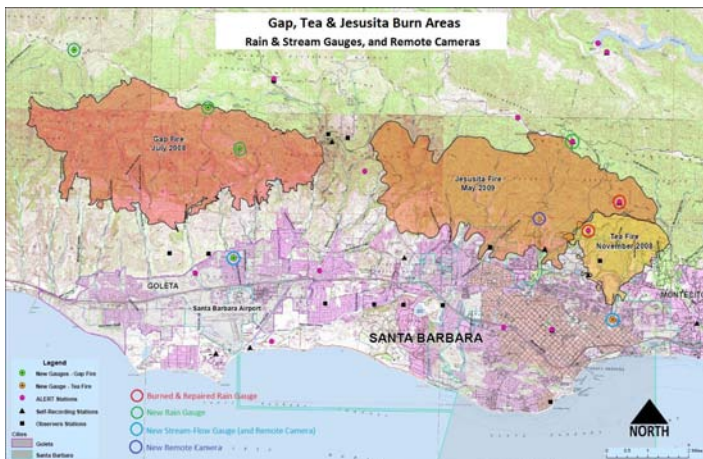


Figure 24– Jesusita Burn Area & Gauges

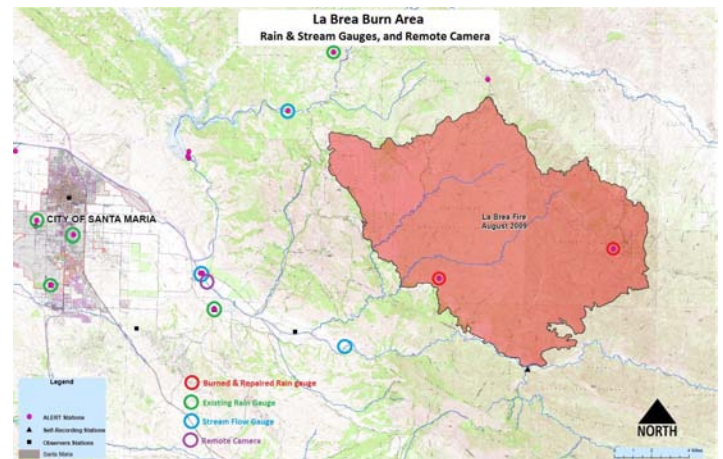


Figure 25 – La Brea Burn Area & Gauges

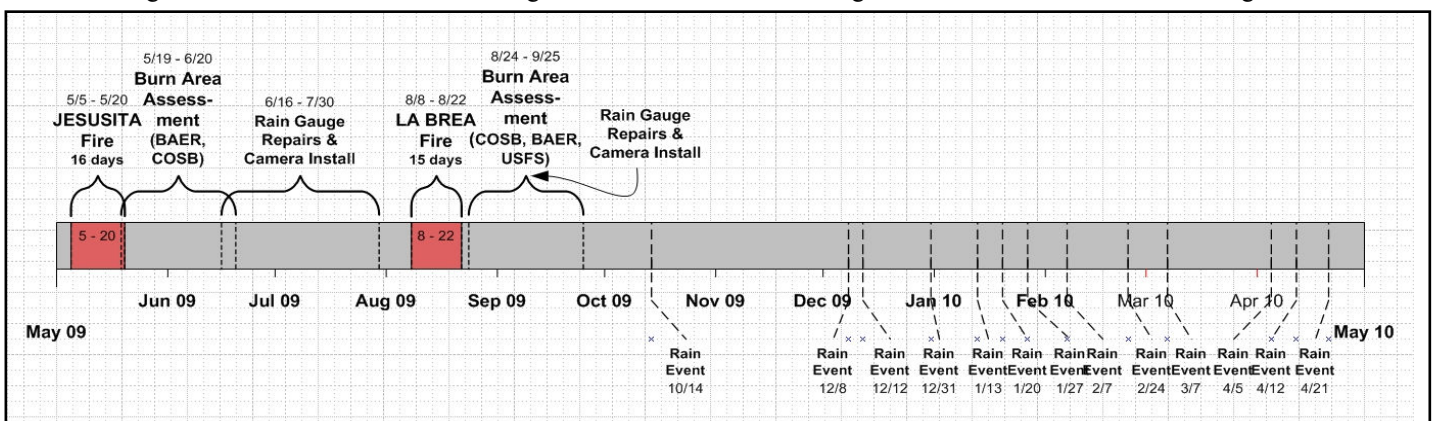


Figure 26– Jesusita & La Brea Fire - Event Milestones and Rainfall Distribution

The Jesusita & La Brea burn-area WY2010 rainfall (1st year after fire) was characterized by a slightly above average rainfall year (~117% of norm), a rare high-volume October rainfall event (up to 8.21” in 24 hrs), moderately favorable spacing of rainfall events (Figures 27 & 28), and moderate rainfall intensity (Table 4). These first year burn areas experienced minimal impacts from mud slides and flooding that may have otherwise been more prevalent with higher volume & intensity rainfall.

A more detailed discussion of WY2010 rainfall, distribution, and intensity is included in Sect 6.0

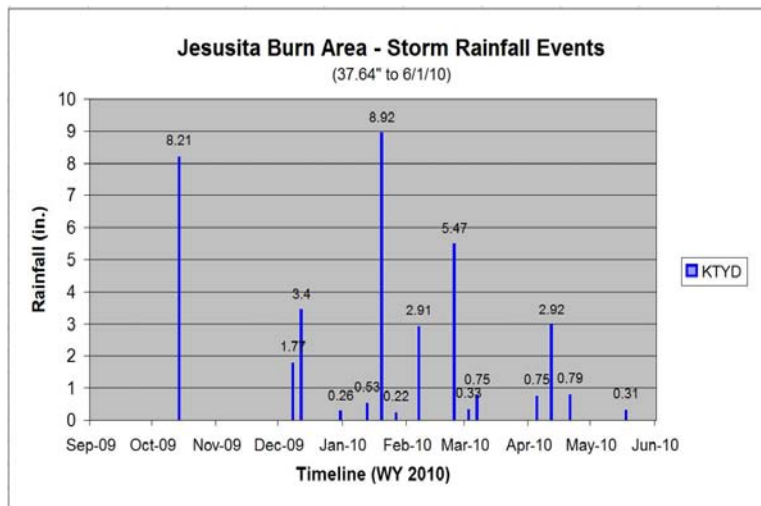


Figure 27 – Jesusita Burn-Area 2009-10 Rainfall Distribution

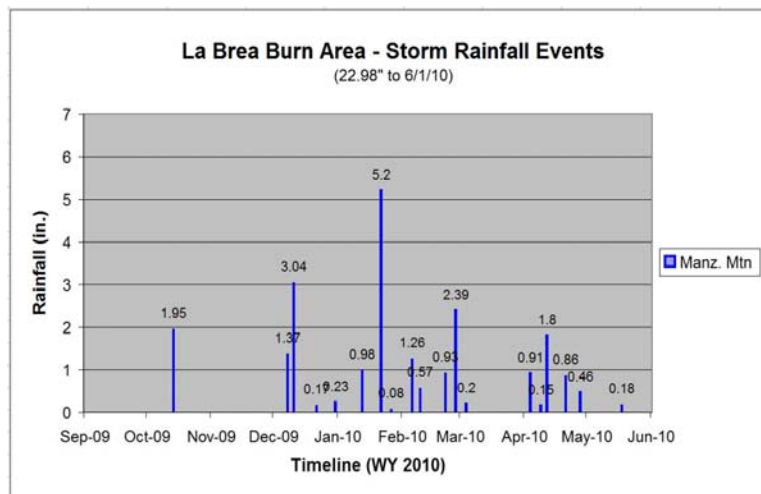


Figure 28 – La Brea Burn-Area 2009-10 Rainfall Distribution

Jesusita & La Brea Burn Areas – Year 1 Maximum Rainfall Intensities (Table 4)

Burn Year	Burn Site	Rainfall Gauge	WY Rain	Storm 10-14-09	Storm 01-18-10	Storm 02-26-10
Year 1 (09-10)	Jesusita	Tunnel Trail (250)	25.39”	0.57”/hr	0.65”/hr	0.92”/hr
	La Brea	Manz. Mtn (249)	22.98”	0.42”/hr	0.47”/hr	0.57”/hr

Table 4 – TEA & GAP Burn-Area Rainfall Intensities



Figure 29* – Pre Jesusita Fire – March 2009



Figure 30* – Post Jesusita Fire – May 2009



Figure 31* – Post Jesusita Fire - February 2010



Figure 32 – Pre La Brea Fire – Feb 2002



Figure 33 – Post La Brea Fire – Sept 2009



Figure 34 – Post La Brea Fire – Sept 2009

* Pictures Courtesy of the “Multi-Use Trails Coalition”

6.0 RAINFALL

County-wide 2009-2010 annual total rainfall was generally slightly above normal, consistent with the NWS forecast prediction for this water year.

Rainfall Location	ID	Year*	% of Norm.
Buellton (Fire Stn)	233	18.52	109%
Cachuma (USBR Facility)	332	23.63	118%
Carpinteria (Fire Stn)	208	19.75	101%
Cuyama (Fire Stn)	436	7.88	103%
Figueroa Mtn (USFS Stn)	421	22.53	105%
Gibraltar Dam (City Facility)	230	33.54	126%
Goleta (Fire Stn-Los Cameros)	440	21.45	117%
Lompoc (City Hall)	439	19.41	132%
Los Alamos (Fire Stn)	204	17.61	116%
San Marcos Pass (USFS Stn)	212	39.89	116%
Santa Barbara (SB Cnty Bldg)	234	20.44	114%
Santa Maria (City Pub.Works)	380	15.81	116%
Santa Ynez (Fire Stn /Airport)	218	21.28	137%
Sisquoc (Fire Stn)	256	18.93	127%
County-Wide Year-End Rainfall Percentage		117%	

Table 5 – County WY2010 Rainfall Table

*Each Water-Year runs from Sept. 1st through Aug. 31st



Figure 35 – County Wide WY2010 Rainfall Map

6.1 Rainfall Distribution

The WY2010 winter storm season was characterized by near average rainfall, low to moderate intensity rainfall, and an unusual October high-volume rain event.

The near average amount of rain throughout the winter resulted in full or near-full surface reservoirs, and moderate groundwater recharge. Creek and river overflow was not evident as rainfall volume & intensities were not great enough to exceed the conveyance capacity for most watersheds.

At 117% of normal County-wide average rainfall (Table 5), the 2010 water year rainfall accumulation ranked 3rd highest of the most recent 10 years (Table 7 – Historical Rainfall).

Monthly rainfall distribution was relatively uniform. The exception was a dry November, preceded by an October 14th rain event that resulted in near record-setting rainfall for that month. (see Figures 41 & 42 – Historical Rainfall)

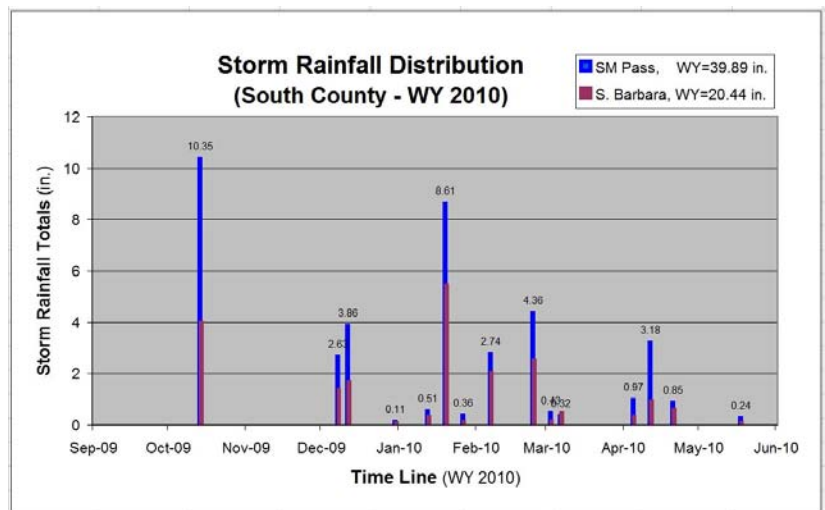
Although the rain event of October 14th produced a high volume within a relatively short period of time (24 hours), the rainfall intensity was low to moderate, the rainfall was well distributed over time, and the watershed conditions were dry. Only moderate stream flows were evident.

Rainfall distribution throughout the County varies substantially, with precipitation largely dictated by geographic location and regional topography.

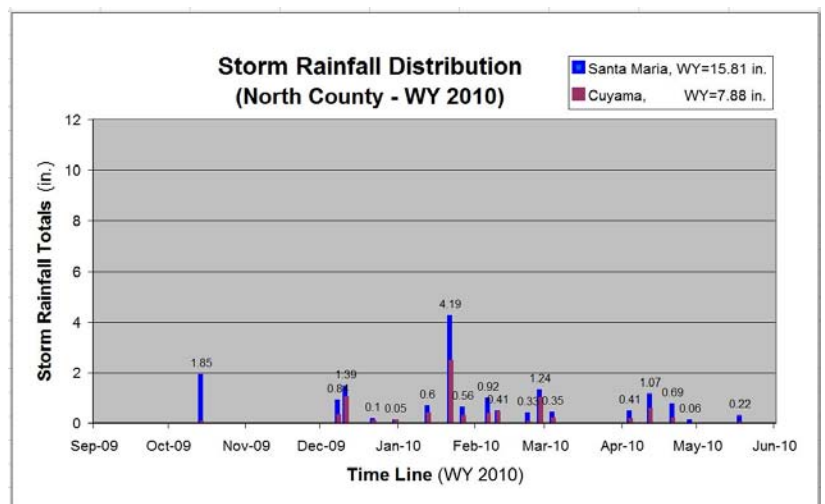
The south-County mountain regions (San Marcos Pass) tend to receive 2 times the rainfall as the geographically close south-County coastal areas (city of Santa Barbara).

Similarly, the north-County (Santa Maria) tends to receive 3/4 the rainfall of the south-County coastal areas, but approximately 2 times the rainfall recorded in the arid Cuyama region located in the northeast area of the County.

The north & south County rainfall distribution trends (multi-day storm totals) are shown in Figures 36 & 37, and are consistent with typical regional rainfall accumulation differences within Santa Barbara County.



Figures 36 & 37 – County Rainfall Distribution – by Storm Totals



6.2 Rainfall Intensity & Recurrence Intervals

Rainfall Intensity values for short duration periods (5 min through 24 hours) are computed for principal rainfall locations within the County (Table 6).

Consistent with County geographic and orographic trends, the highest WY2010 rainfall intensities were typically experienced in the south-coast higher elevation regions, with the lowest rainfall intensities associated with the north County & Cuyama regions.

Rainfall Intensities and resulting Recurrence Intervals (RI's) noted in this table are indicative of a near average rainfall year (RI's nom. = 2 years). The few exceptions (noted 5, 10 yr) are largely attributed to the unusual October 14th, 2009 rainfall event.

Rainfall Intensities and Recurrence Intervals													
Maximum Rainfall Intensities for Water Year 2009-10													
Rainfall Station	ID	5min	10min	15min	30min	1hour	2hour	3hour	6hour	8hour	12hour	24hour	WY Total
Santa Maria	380	0.18	0.23	0.25	0.31	0.47	0.83	0.90	1.10	1.16	1.43	1.80	15.81
Orcutt	198	0.21	0.29	0.35	0.47	0.64	0.85	0.99	1.18	1.29	1.42	1.87	17.07
Los Alamos	204	0.16	0.26	0.34	0.50	0.54	0.73	0.86	1.13	1.18	1.32	1.69	17.61
Buellton	233	0.14	0.21	0.28	0.46	0.74	1.27	1.38	1.63	1.67	1.71	2.22	18.52
Cuyama	436	0.06	0.09	0.13	0.21	0.38	0.67	0.67	0.77	0.77	0.77	0.93	7.88
Lompoc	576	0.16	0.23	0.30	0.49	0.71	0.89	1.11	1.43	1.51	1.66	1.94	19.41
Gaviota (Tajiguas Landfill)	262	0.29	0.39	0.47	0.74	1.23	2.05	2.16	2.73	3.41	4.25	5.67	36.62
Goleta	211	0.17	0.25	0.34	0.55	0.92	1.42	1.81	3.31	3.91	4.76	6.41	23.89
San Marcos Pass	212	0.17	0.30	0.42	0.67	1.11	1.95	2.73	4.47	5.34	6.73	9.81	39.89
La Cumbre Peak (El Deseo)	255	0.37	0.37	0.41	0.69	1.21	2.05	2.40	3.31	4.03	5.18	9.12	42.67
Gibraltar Reservoir	230	0.21	0.34	0.42	0.62	1.05	1.87	2.13	2.95	3.02	3.19	5.35	33.54
Montecito (Cold Springs Road)	210	0.21	0.23	0.39	0.57	1.04	1.70	2.19	2.86	3.39	4.08	5.81	29.42
Santa Barbara	234	0.13	0.20	0.24	0.37	0.70	1.13	1.55	2.31	2.60	2.97	3.69	20.44

Expected Recurrence Intervals (RI in years) or Return Periods - for the above Depth Durations													
Rainfall Station	RP ID	5min RI	10min RI	15min RI	30min RI	1hour RI	2hour RI	3hour RI	6hour RI	8hour RI	12hour RI	24hour RI	WY RI
Santa Maria	380	2	2	2	2	2	2	2	2	2	2	2	2
Orcutt	198	5	2	2	2	2	2	2	2	2	2	2	2
Los Alamos	204	2	2	2	2	2	2	2	2	2	2	2	2
Buellton	233	2	2	2	2	2	2	2	2	2	2	2	2
Cuyama	436	2	2	2	2	2	5	2	2	2	2	2	2
Lompoc	576	2	2	2	2	2	2	2	2	2	2	2	2
Gaviota (Tajiguas Landfill)	262	5	2	2	2	5	2	2	2	2	2	5	10
Goleta	211	2	2	2	2	2	2	2	5	10	5	10	2
San Marcos Pass	212	2	2	2	2	2	2	2	2	2	5	10	2
La Cumbre Peak (El Deseo)	255	5	2	2	2	2	2	2	2	2	2	5	2
Gibraltar Reservoir	230	2	2	2	2	2	5	2	2	2	2	2	2
Montecito (Cold Springs Road)	210	2	2	2	2	2	2	2	2	2	2	5	2
Santa Barbara	234	2	2	2	2	2	2	2	2	2	2	2	2

Note: Rainfall Units in Inches

Additional Recurrence data is available on the web at: <http://www.countyofsb.org/pwd/pwwater.aspx?id=3772>

Table 6 – Rainfall Intensities and Recurrence Intervals

6.3 Antecedent Conditions (Soil Wetness)

The Antecedent index (AI) is an estimation of runoff potential that is based on previously occurring rainfall, time of year, and watershed characteristics. It is defined as the inches of rainfall over a basin during a single storm that is required to produce one inch of runoff over the basin. Therefore, an AI of 6.0 indicates that 6.0 inches of rain falling in 24 hours would result in an inch of runoff from the basin.

The importance of the AI is obvious considering that an eight-inch storm may result in little runoff or significant flooding based on the various factors accounted for by the program. The Flood Control District uses the AI as a general indication of flood potential, and as mandatory input to FCRIVER (see Sect 9.1) - the computer model that predicts peak flow and timing at points along the Santa Ynez River. FCRIVER also provides a tool to adjust Cachuma Reservoir operations in order to minimize flood damage below the dam.

The AI program used by the district divides the Santa Ynez River Watershed into three sub-watersheds. AI's are calculated for the upper watershed at Gibraltar Reservoir, the middle watershed at Figueroa Mountain, and the lower watershed at the City of Lompoc. Adjustments are made at each site to account for specific watershed conditions and gauge locations.

The AI graphs depicted (Figures 38 to 40) are representations of the runoff potential based on the calculation of soil moisture (at Gibraltar Dam, Figueroa Mountain, and Lompoc).

The Antecedent Index (AI) is defined as the amount of rainfall in a 24-hour period that produces an inch of runoff over a watershed.

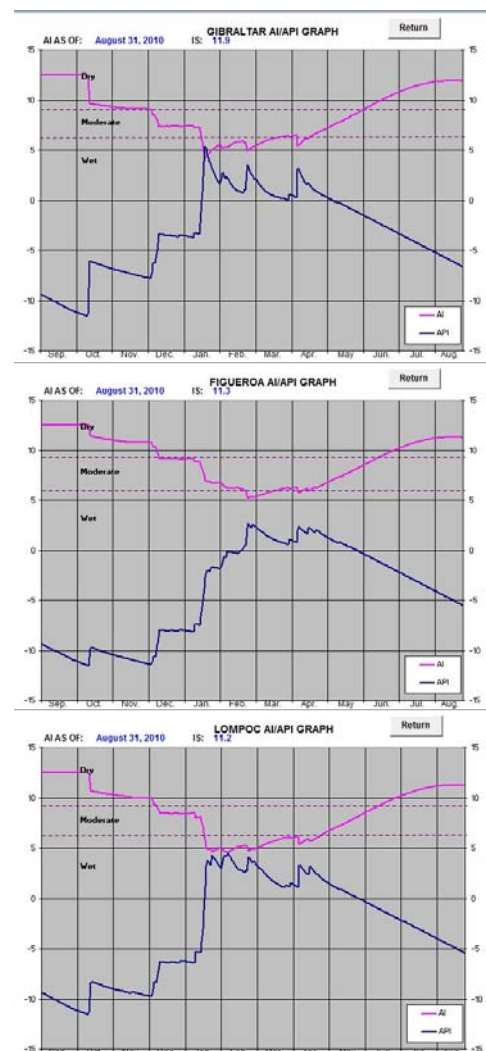
The graphs illustrate a steeper decline in the index at the end of December & early January, indicating moderate runoff would occur with much less rain than earlier in the storm season. Maximum soil saturation occurs at an AI of 2.5, however the minimum values achieved during WY2010 were approximately 5.0 - which held fairly consistent from mid January to early April.

An increase in the AI is evident from early April through to the end of the water year (Aug 31, AI ~12.0).

Antecedent Index (AI) Reference:

6.0 and below	= Wet
6.1 to 9.0	= Moderate
9.1 and above	= Dry

Figures 38 to 40 – Gibraltar, Figueroa, & Lompoc - AI (WY2010)



6.4 Historical Rainfall Comparisons

County-wide WY2010 rainfall was close to the normal anticipated for our area. Table 7 (below) tabulates & ranks the most recent 10 water years (based on the percentage of normal).

County-wide End-of-year Normal % Rainfall (last 10 yrs)		
Water Year*	Normal Percentage Rainfall	Rank
2009-2010	117 %	3
2008-2009	67 %	7
2007-2008	102 %	6
2006-2007	36 %	10
2005-2006	115 %	4
2004-2005	188 %	1
2003-2004	57 %	8
2002-2003	103 %	5
2001-2002	47 %	9
2000-2001	129 %	2

Table 7 – County Wide Normal Percentage Rainfall

*Each Water Year (WY) runs from September 1st through August 31st, and is designated by the calendar year in which it ends.

A noteworthy event during the 2010 water-year was the storm of October 14, 2009. This unusual early-season storm was a near record setting event (Figures 41 & 42).

1. Most Single Day October Rainfall in Santa Barbara in 121 years (only exceeded in 1889)
2. Third most Rainfall in a Single Day (of any month) at San Marcos Pass (9.81")

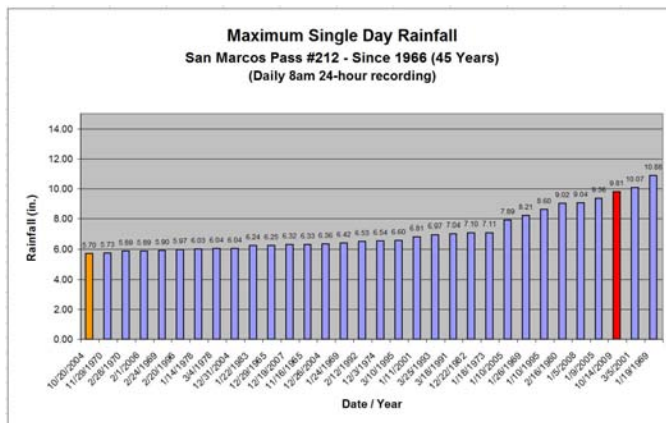


Figure 41 – Max Single Day Rainfall (San Marcos Pass)

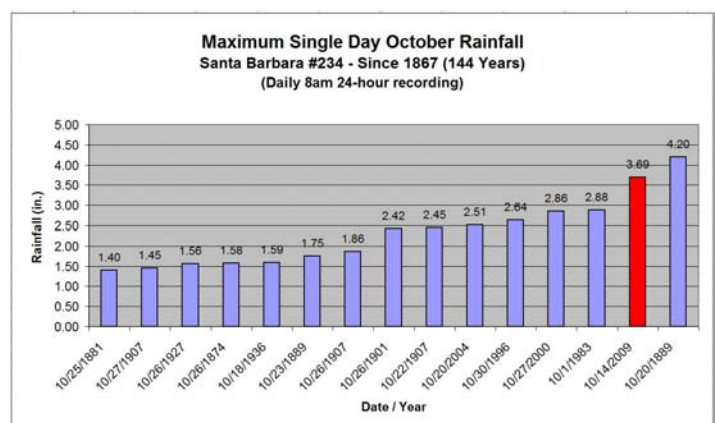
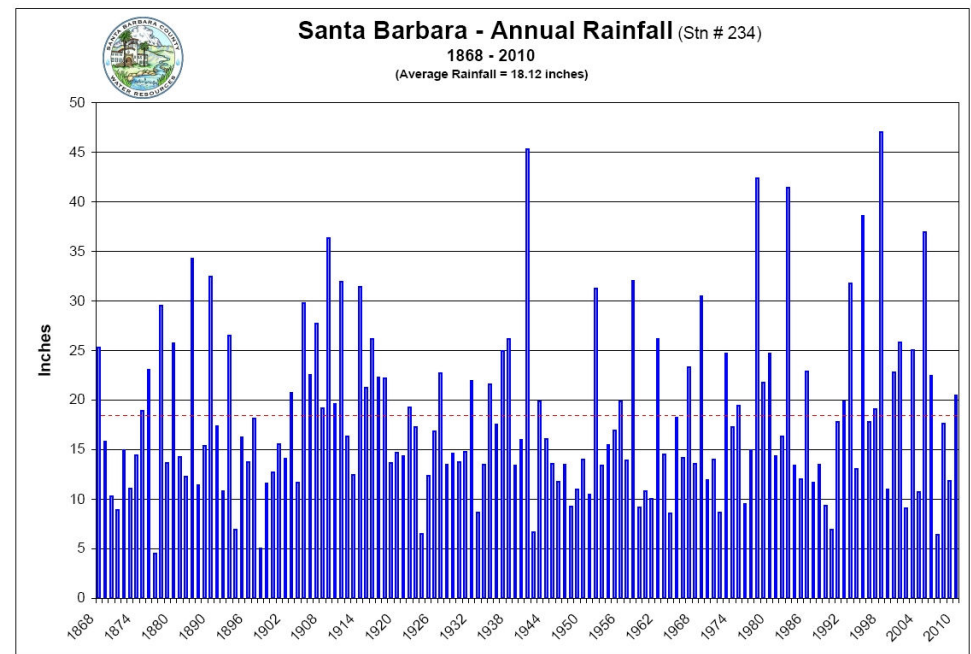
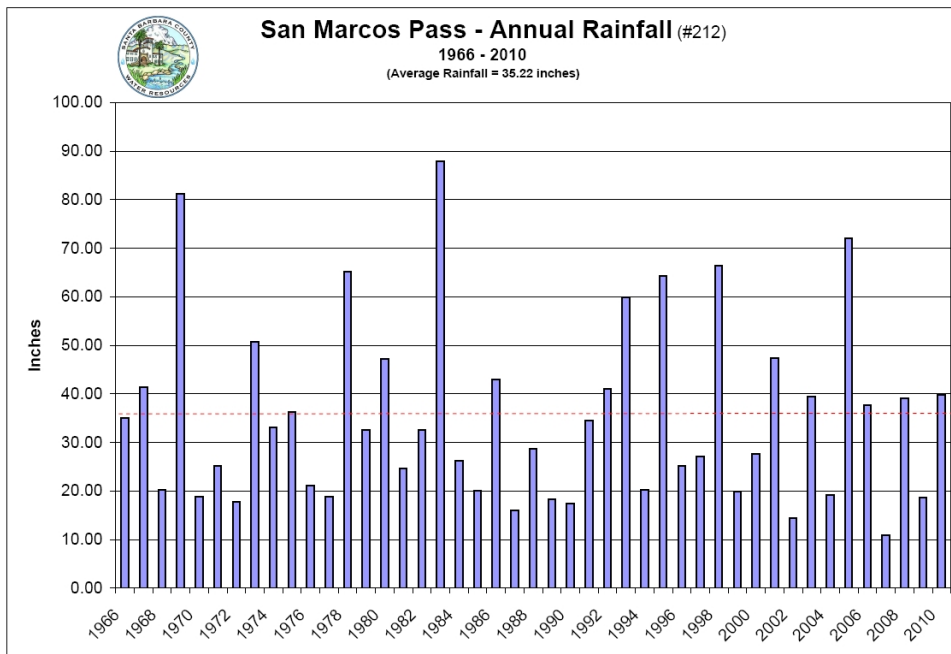
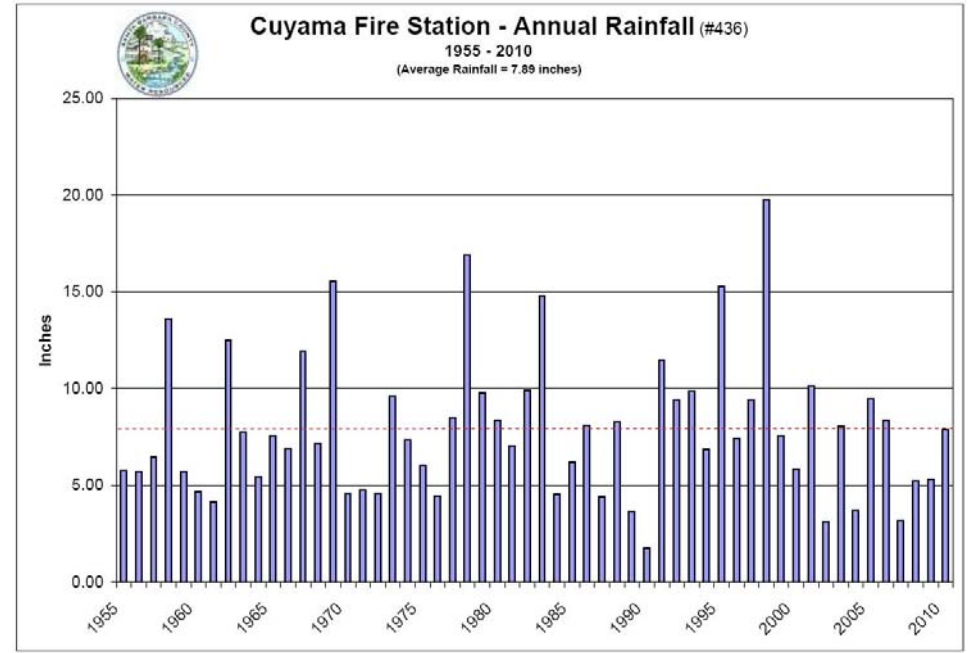
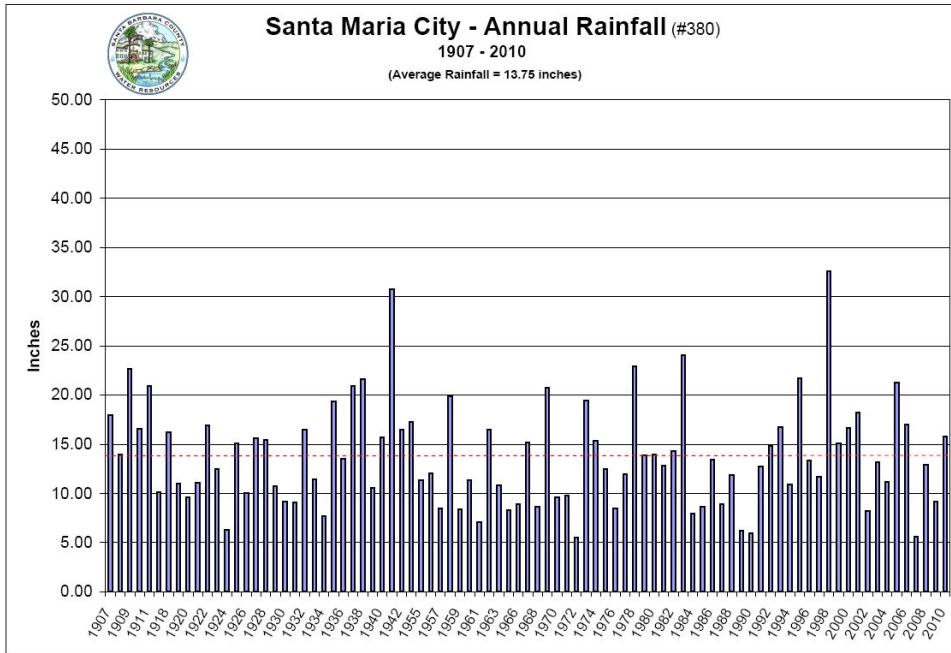


Figure 42 – Max Single Day October Rainfall (Santa Barbara)

Historical annual rainfall graphs of four principal locations in Santa Barbara County are shown on the following page (Figures 43 through 46).

The multi-year trend illustrates the 2:1 ratio of South County rainfall (Santa Barbara vs. San Marcos Pass), and similar 2:1 ratio that exists in the North County (Santa Maria vs. Cuyama).

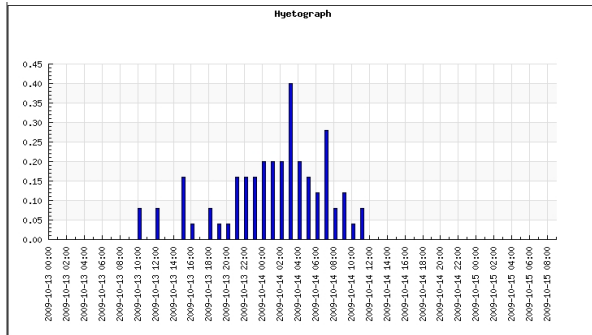


Figures 43 to 46 – Historical Annual Rainfall Graphs

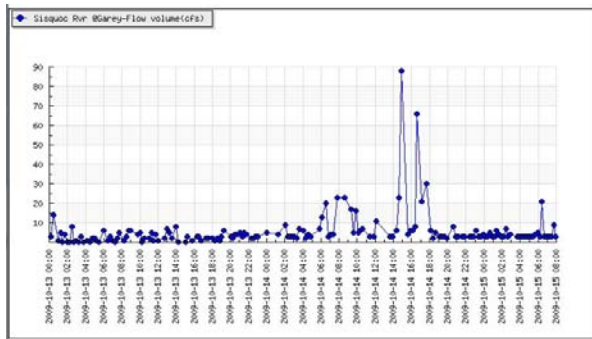
7.1 Flow Observations

SISQUOC RIVER @ GAREY - Rainfall & Stream Flow Correlation (#2515, #530)

October 13-14, 2009

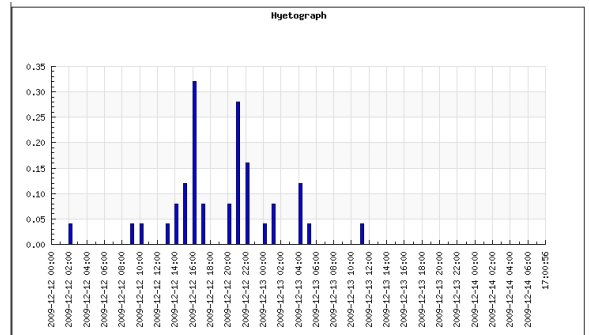


Storm = 3.1", Intensity Max = 0.40"/hr, Watershed: Dry

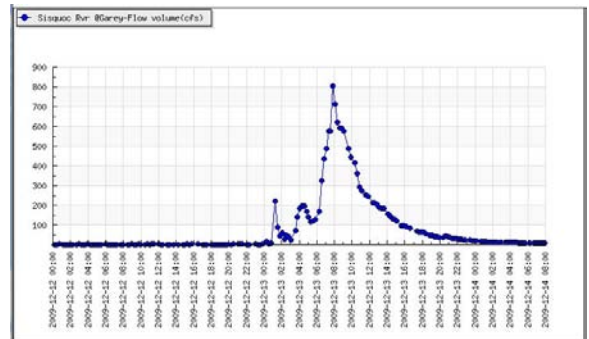


Peak Flow ~ 90cfs / Flow Response ~12 hrs

December 12-13, 2009

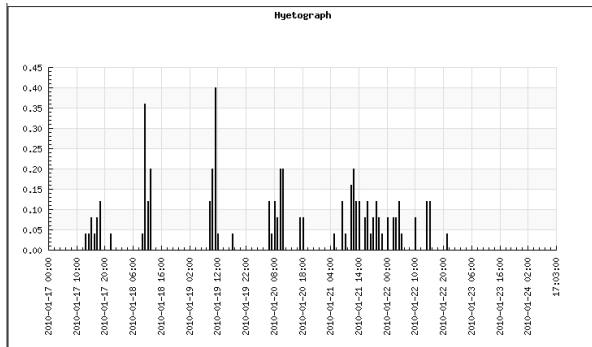


Storm = 3.0", Intensity Max = 0.32"/hr, Watershed: Dry-Mod

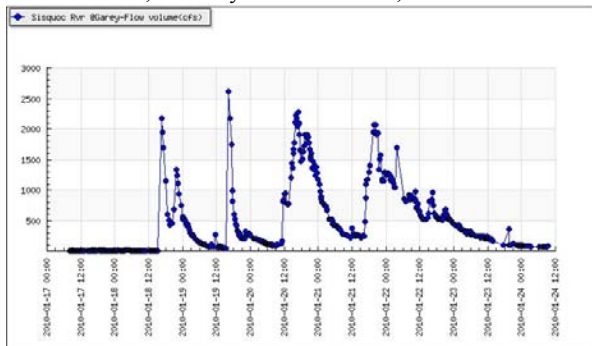


Peak Flow ~ 800 cfs / Flow Response ~10 hrs

January 17-22, 2010

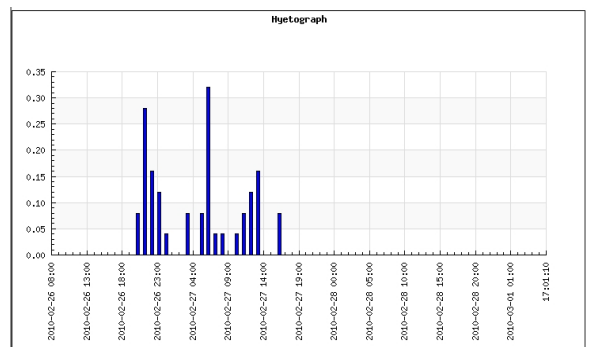


Storm = 5.0", Intensity Max = 0.40"/hr, Watershed: Mod-Wet

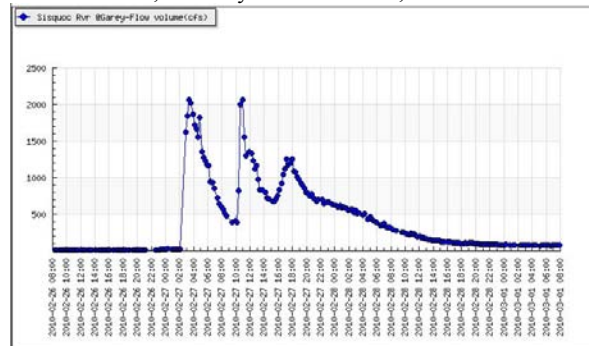


Peak Flow ~ 2600 cfs / Flow Response ~8 hrs

February 26-28, 2010



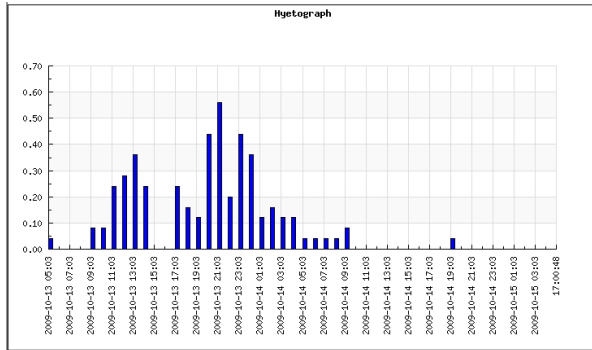
Storm = 2.4", Intensity Max = 0.33"/hr, Watershed: Wet



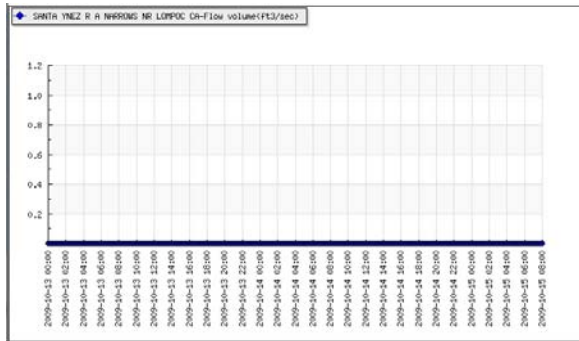
Peak Flow ~ 2100 cfs / Flow Response ~6 hrs

SANTA YNEZ RIVER @ LOMPOC - Rainfall & Stream Flow Correlation (#72, #2523)

October 13-14, 2009

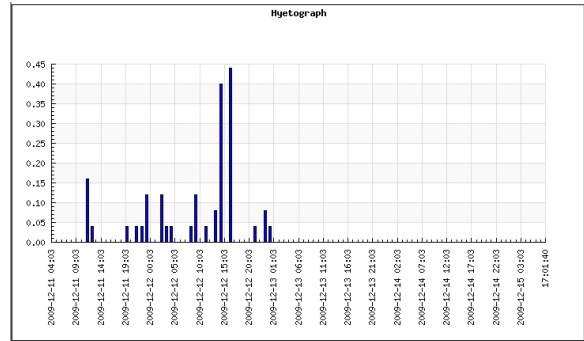


Storm = 4.8", Intensity Max = 0.56"/hr, Watershed: Dry

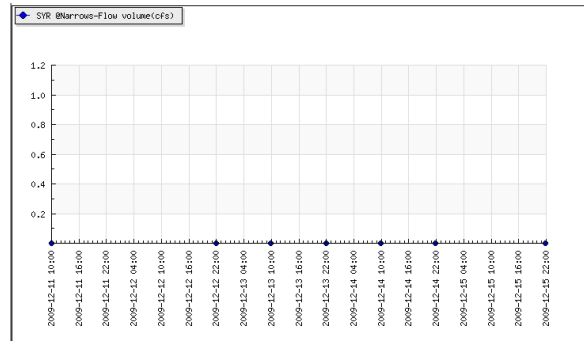


Peak Flow = 0 cfs / Flow Response = n/a

December 12-13, 2009

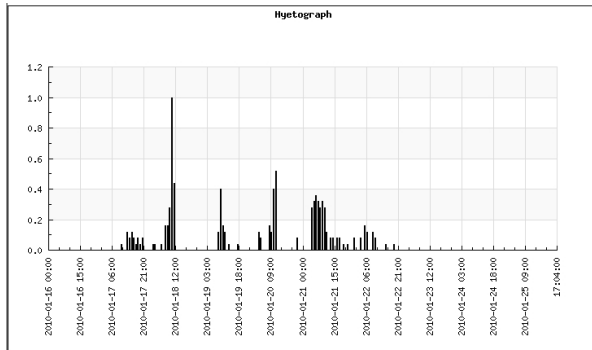


Storm 1.8", Intensity Max = 0.44"/hr, Watershed: Dry-Mod

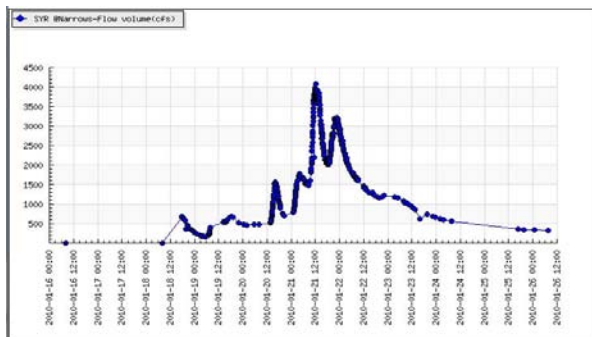


Peak Flow = 0 cfs / Flow Response = n/a

January 17-22, 2010

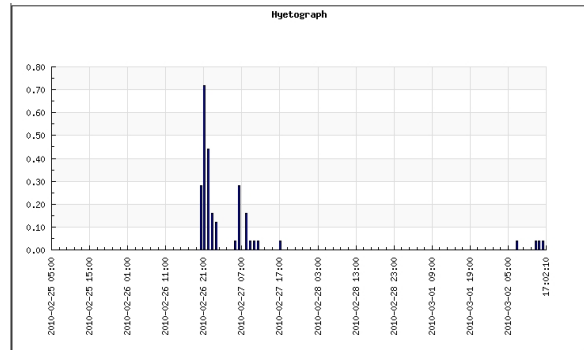


Storm = 8.6", Intensity Max = 1.0"/hr, Watershed: Mod-Wet

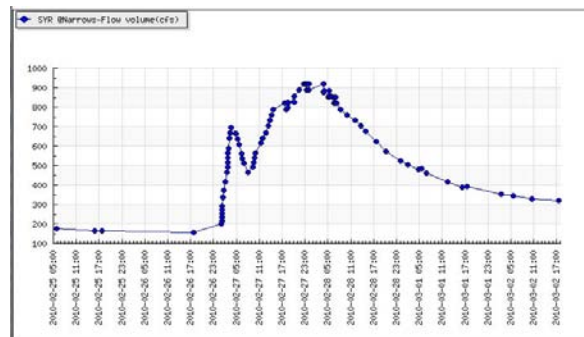


Peak Flow ~ 4100 cfs / Flow Response ~5 hrs

February 26-28, 2010



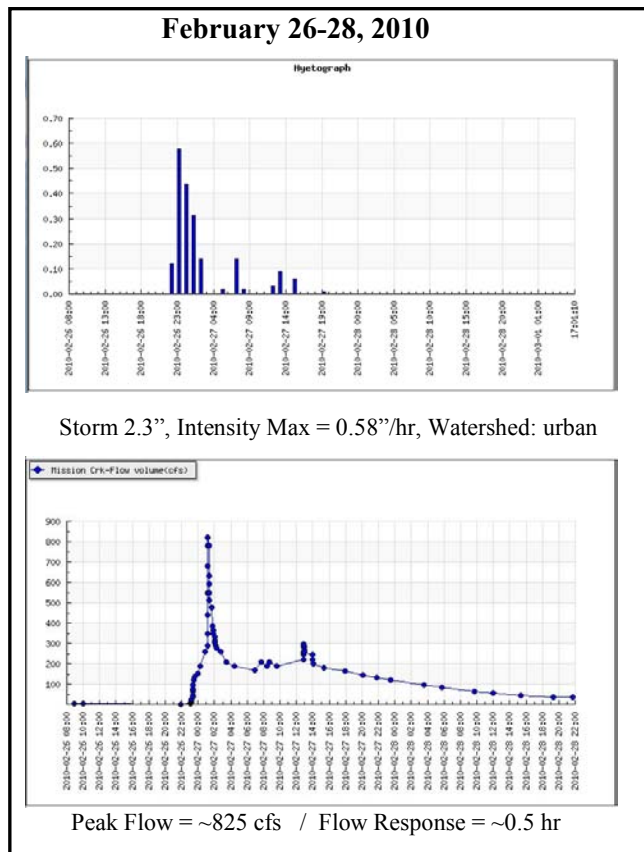
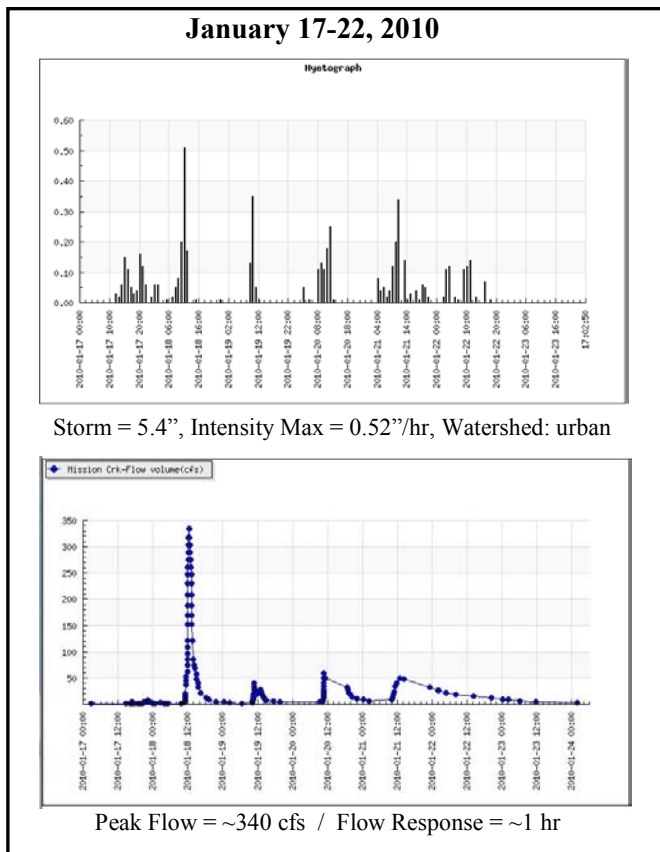
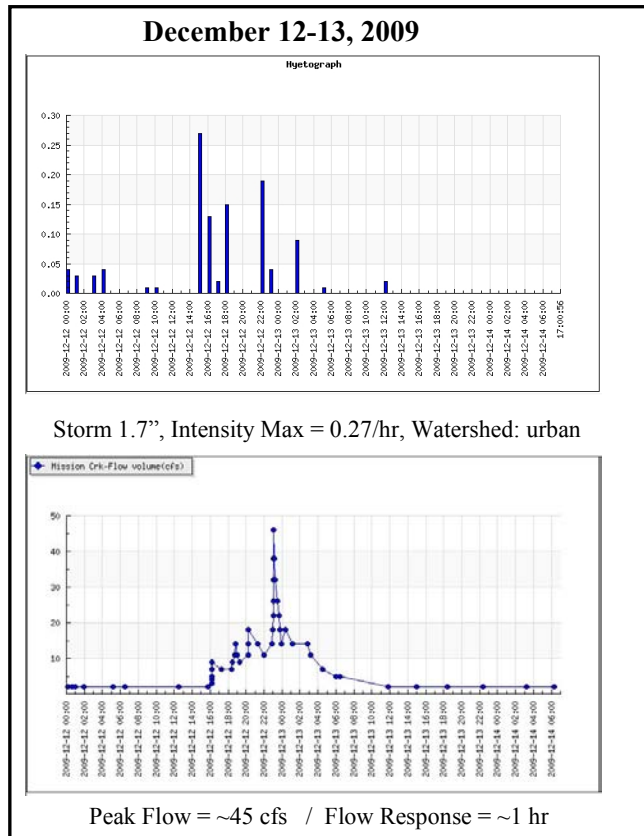
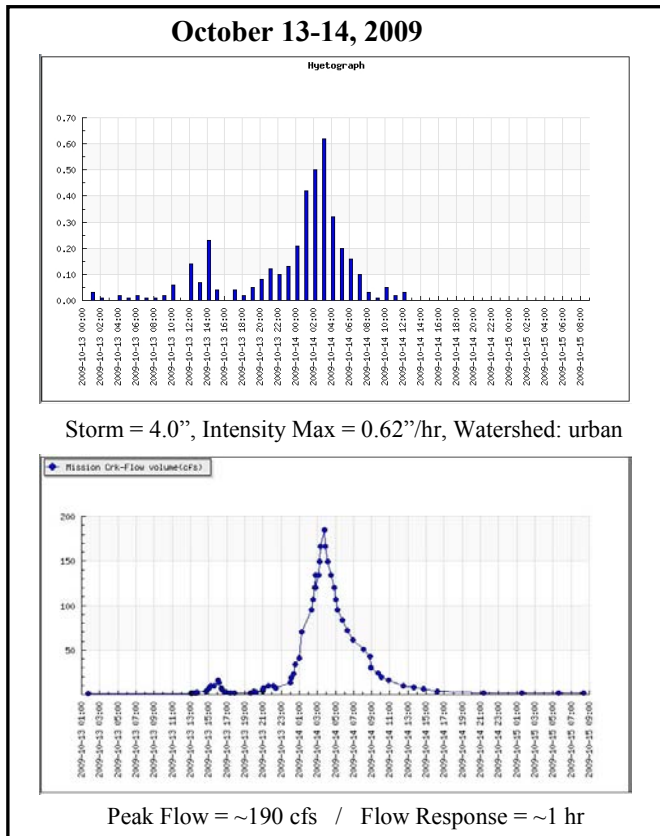
Storm 2.6", Intensity Max = 0.72"/hr, Watershed: Wet



Peak Flow ~ 925 cfs / Flow Response = ~5 hrs

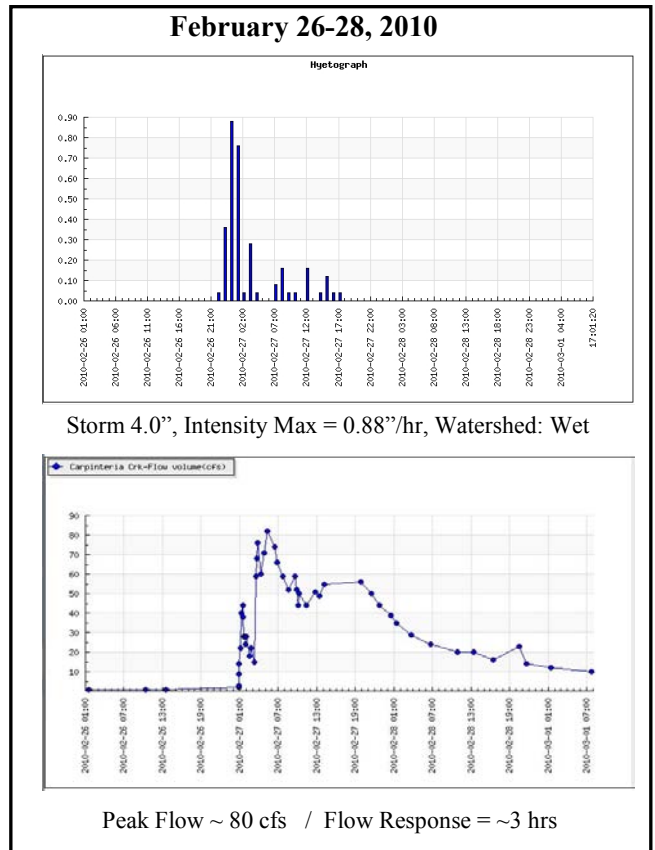
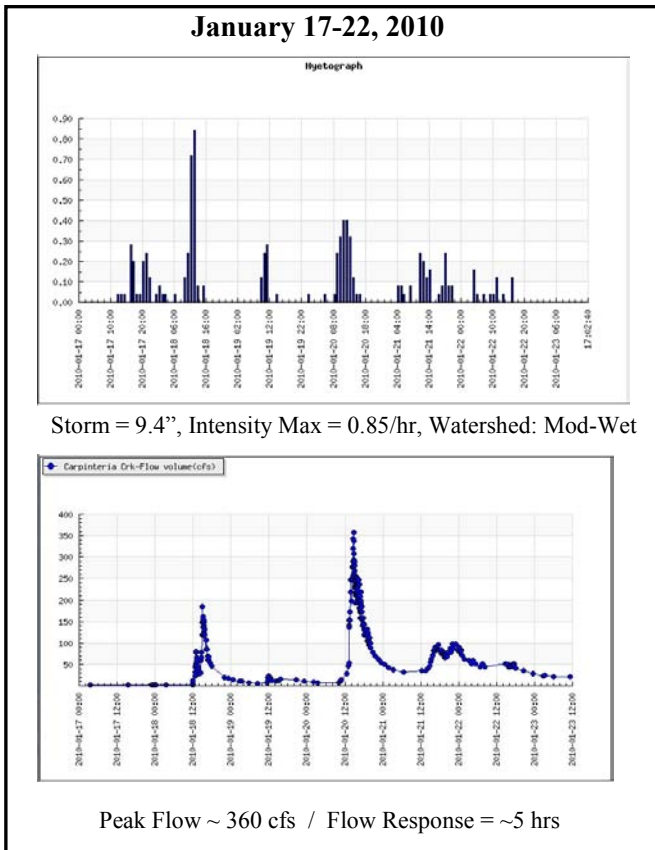
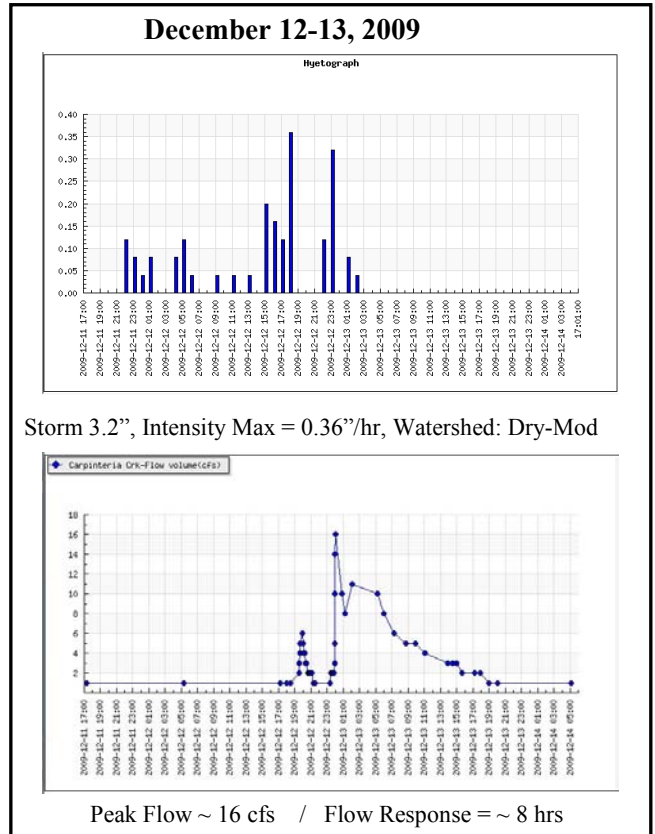
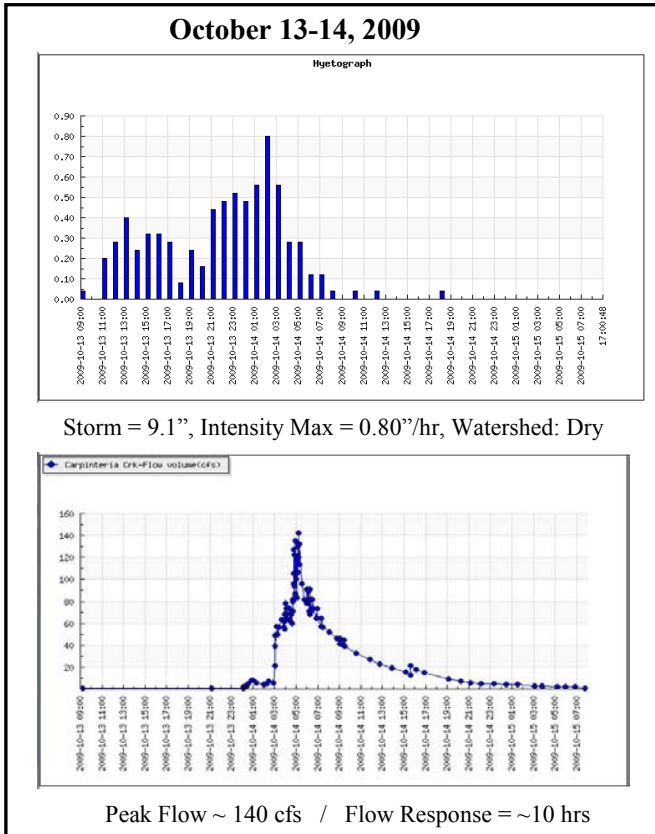
Figures 52-55 – Stream Flow & Rainfall Correlation (Santa Ynez River @ Lompoc)

MISSION CREEK (Santa Barbara) - Rainfall & Stream Flow Correlation (#545. #538)



Figures 56-59 – Stream Flow & Rainfall Correlation (Mission Creek – Santa Barbara)

CARPINTERIA CREEK - Rainfall & Stream Flow Correlation (#549, #550)



Figures 60-63 – Stream Flow & Rainfall Correlation (Carpinteria Creek)

8.0 RESERVOIRS

There are four major reservoirs located within the County of Santa Barbara.

Two reservoirs (**Cachuma** and **Twitchell**) are owned by the federal government, administered by the Water Resources Division, and operated by local water purveyors. **Gibraltar** Reservoir is owned and operated by the City of Santa Barbara, and **Jameson** Reservoir is owned and operated by the Montecito Water District. Water is delivered to the South Coast using three tunnels through the Santa Ynez Mountains.

The County operates & maintains automated water level & gate opening instrumentation at these reservoir locations, with information reported in real-time through our Hydrology website.



Figure 64 – Reservoir Location Map

Reservoir Year-End Summary		** Cachuma is full and subject to spilling at elevation 750 ft. However, the lake is surcharged to 753 ft for fish release water.					
	Spillway Elev. (ft)	Current Elev. (ft)	Max. Storage (ac-ft)	Current Storage (ac-ft)	Current Capacity (%)	Storage Change Mo.(ac-ft)	Storage Change Year*(ac-ft)
Gibraltar Reservoir	1,400.00	1,390.28	5,303	3,296	62%	-584	-35
Cachuma Reservoir	750.**	740.22	186,636	159,122	85%	-8,281	10,899
Jameson Reservoir	2,224.00	2,216.20	5,290	4,338	82%	-188	963
Twitchell Reservoir	651.50	554.25	197,756	11,625	6%	-557	11,625

Table 8 – Reservoir WY2010 Summary (through Aug 31, 2010)

8.1 Cachuma Reservoir (Bradbury Dam)

Background Information

Bradbury Dam was completed in 1953, and stores floodwaters of the Santa Ynez River which would otherwise travel to the ocean. Water is diverted from the reservoir through the Tecolote Tunnel to the County south-coast area. From the tunnel outlet the water is carried through the South Coast Conduit, with lateral systems distributing water to Goleta, Montecito, Summerland, Carpinteria, and municipal users in the city of Santa Barbara.

The regions arid nature causes Cachuma to lose an estimated 16,000 ac-ft of water to evaporation annually. Silt washing into Lake Cachuma and backing up behind Bradbury Dam is a process that has depleted Cachuma of an estimated ten percent of its capacity.

Reservoir Operator	Year Built	Watershed Inflow Area	Initial Build Capacity AF	Current Max Capacity AF	Capacity Loss Since 1953
US Bureau of Reclamation	1953	421 sq mi	204,874	186,636	-9 %

Table 9 – Cachuma Reservoir Characteristics



Figure 65 – Cachuma Reservoir



Figure 66 – Bradbury Dam

WY 2010 Discussion (Cachuma)

Cachuma Reservoir started the WY2010 water year (Sept 1, 2009) with a water storage volume of 148,223 acre feet (AF), and ended the water year (Aug 31, 2010) with 159,122 AF – a net increase of 10,899 AF.

Reservoir storage progressively declined through to mid January 2010, at which time a steady inflow increase was experienced – a result of a wetter watershed (see Sect 6.3 – Antecedent Index), and continued rainfall events.

Cachuma reached its peak water level on May 1st (747.1 ft), falling 2.9 feet short of spilling. Since achieving a maximum WY2010 storage of 178,219 AF at that time, the reservoir continued a storage decline that resulted in an end-of-year (Aug 31, 2010) water storage reduction of 19,097 AF (from its WY peak).

Figure 67 illustrates the reservoir elevation & storage capacity for water years 2009 & 2010. A 55 year graphical representation of water storage levels at Cachuma is depicted in Figure 68.

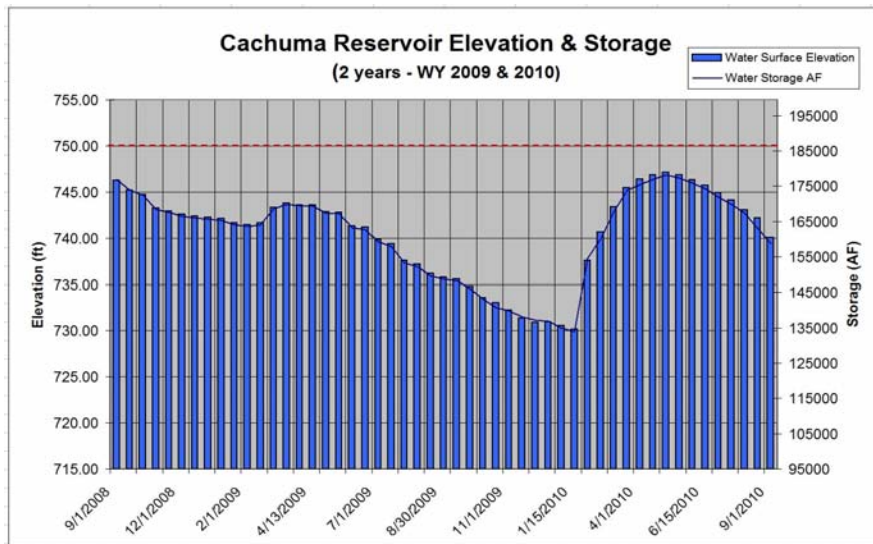


Figure 67 – Cachuma Reservoir WY 2009 & 2010 Elevation & Storage Levels

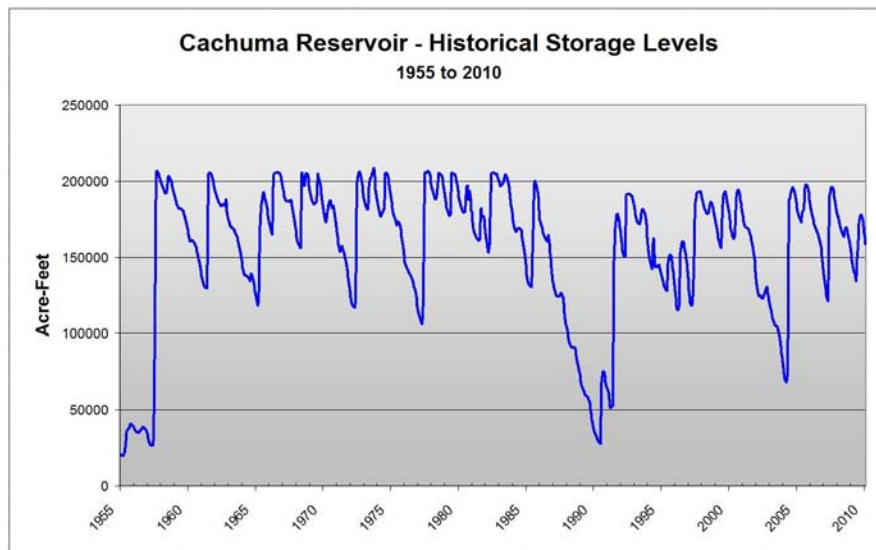


Figure 68 – Cachuma Historical Storage Levels (1955 – 2010)

8.2 Gibraltar Reservoir

Background Information

The City of Santa Barbara completed construction of 3.7 mile Mission Tunnel in 1912 and Gibraltar Dam in 1920, and thus accomplished the first diversion of water from the Santa Ynez River Basin to the South Coast area (including the City of Santa Barbara).

By 1945, sedimentation had reduced storage in Gibraltar Reservoir from 14,500 AF to approximately 7,800 AF. In 1948, the dam was raised 23 feet to restore storage capacity to approximately the original volume. However, sedimentation has continued to decrease the storage capacity of the reservoir by an average of 150 AF per year.

Reservoir Operator	Year Built	Watershed Inflow Area	Initial Build Capacity AF	Current Max Capacity AF	Capacity Loss Since 1920
City of Santa Barbara	1920	202 sq mi	14,500	5,303	-63 %

Table 10 – Gibraltar Reservoir Characteristics



Figure 69 – Gibraltar Reservoir



Figure 70 – Gibraltar Dam

WY 2010 Discussion (Gibraltar)

Gibraltar Reservoir started the WY2010 water year (Sept 1, 2009) with a water storage volume of 3,331 acre feet (AF), and ended the water year (Aug 31, 2010) with a very similar capacity of 3,296 AF – a net decrease of only 35 AF.

Reservoir storage progressively declined through to mid December 2009, at which time a steady inflow increase was experienced – a result of a wetter watershed (see Sect 6.3 – Antecedent Index), and continued rainfall events.

Gibraltar reached its maximum water level (1400 ft) on January 20th, at which time it began to spill over into the Santa Ynez River, and flow towards Lake Cachuma. The sustained maximum capacity (5,303 AF) & spilling of Gibraltar continued through to June 1st 2010, after which time the reservoir continued a storage decline resulting in an end-of-year (Aug 31, 2010) water storage reduction of 2,007 AF (from its WY peak).

Gibraltar can rapidly fill (and spill) because of the relatively large watershed collection region, and comparatively small (and diminishing) reservoir capacity.

Figure 71 depicts the reservoir elevation & storage capacity for water years 2009 & 2010.

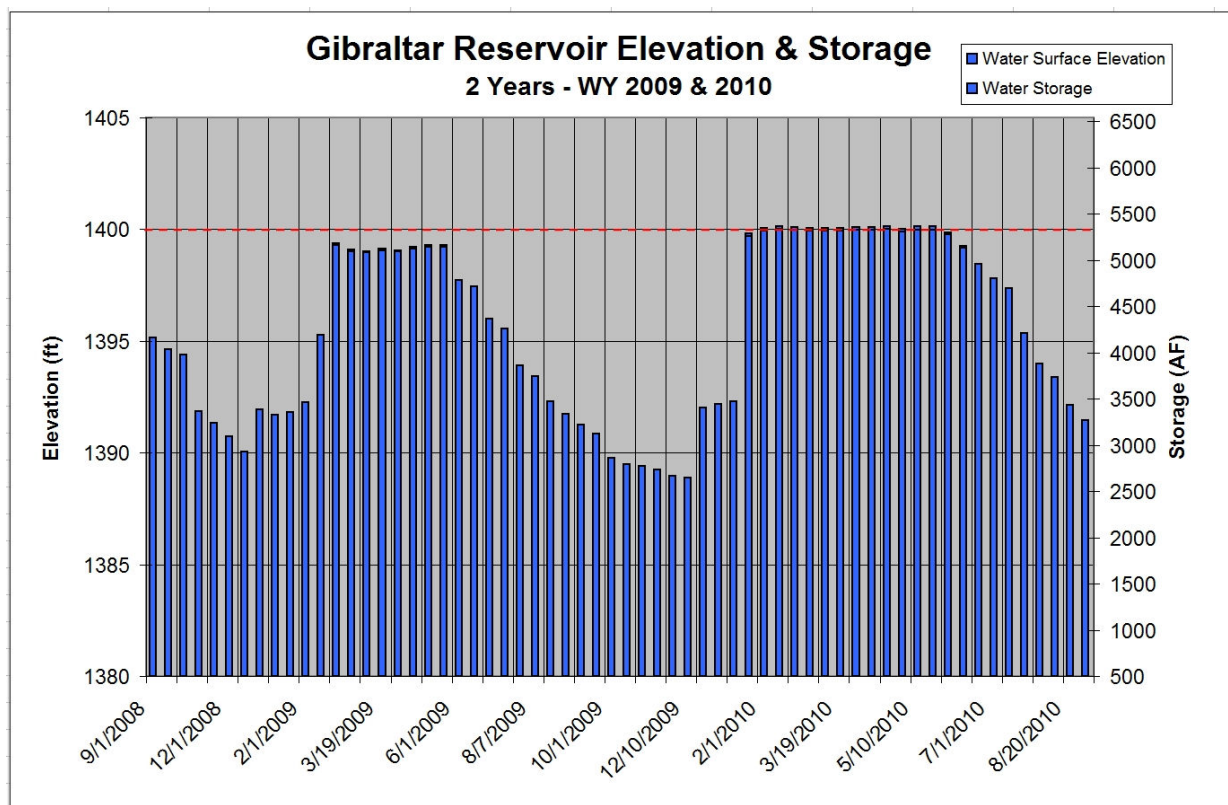


Figure 71 – Gibraltar Reservoir Elevation & Storage (2 yr)

8.3 Jameson Reservoir (Juncal Dam)

Background Information

The Montecito Water District completed construction of Juncal Dam and Jameson Reservoir in 1930. Water is diverted to the Montecito area through a 2.2 mile Doulton Tunnel, which was constructed (through the Santa Ynez mountains) between 1924 and 1928.

Sediment infill from the surrounding watershed has diminished the reservoir (over ~80 years) to approximately 73% of its original capacity.

Reservoir Operator	Year Built	Watershed Inflow Area	Initial Build Capacity AF	Current Max Capacity AF	Capacity Loss Since 1930
Montecito Water District	1930	14 sq mi	7,228	5,290	-27 %

Table 11 – Jameson Reservoir Characteristics

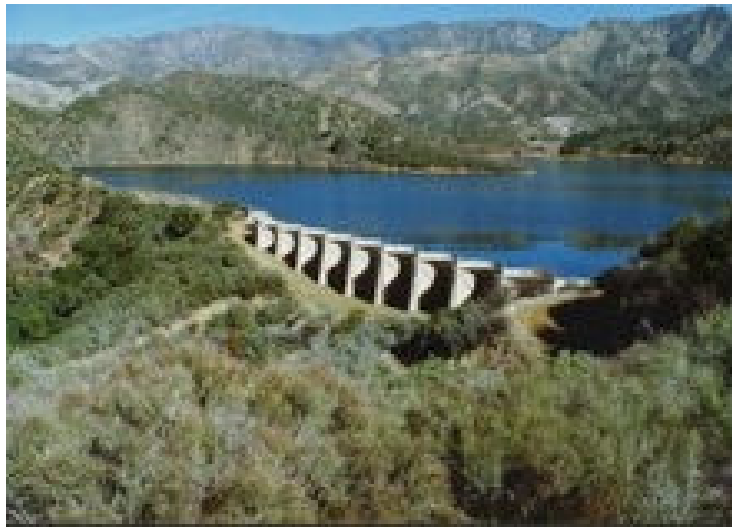


Figure 72 – Jameson Reservoir



Figure 73 – Juncal Dam & Spillway

WY 2010 Discussion (Jameson)

Jameson Reservoir started the WY2010 water year (Sept 1, 2009) with a water storage volume of 3,375 acre feet (AF), and ended the water year (Aug 31, 2010) with 4,338 AF – a net increase of 963 AF.

Reservoir storage progressively declined through to early January 2010, at which time a steady inflow increase was experienced – a result of a wetter watershed (see Sect 6.3 – Antecedent Index), and continued rainfall events.

Jameson reached its peak water level on April 27th (2,221.6 ft), falling 2.4 feet short of spilling. Since achieving a maximum WY2010 storage of 4,941 AF at that time, the reservoir continued a storage decline that resulted in an end-of-year (Aug 31, 2010) water storage reduction of 608 AF (from its WY peak).

In contrast to Gibraltar, Jameson Reservoir water level increases more gradually because of the relatively small watershed run-off region – a result of its location near the head of the Santa Ynez River. Siltation does occur, but at a comparatively reduced rate.

Figure 74 illustrates the reservoir elevation & storage capacity for water years 2009 & 2010.

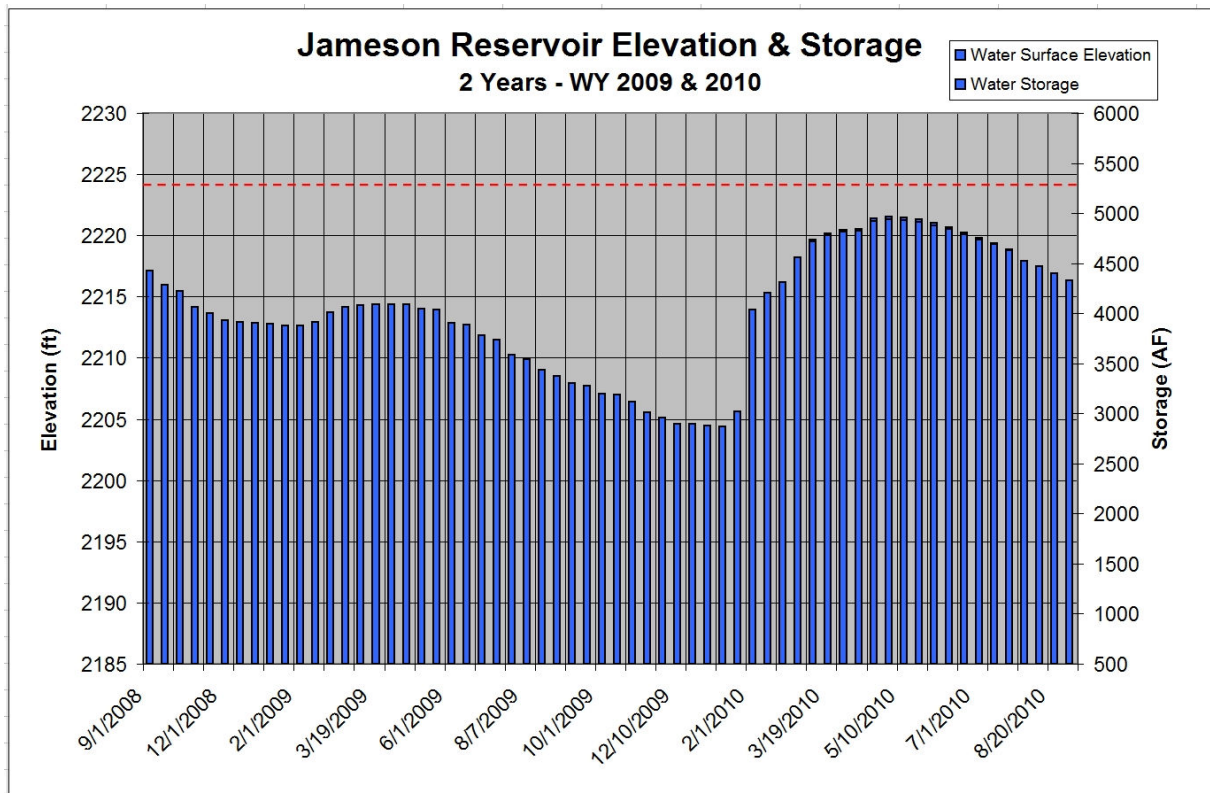


Figure 74 – Jameson Reservoir Elevation & Storage (2 yr)

8.4 Twitchell Reservoir

Background Information

Twitchell Reservoir is important to both the water supply and the flood protection of the Santa Maria Valley, and supplies approximately 20,000 AF of annual recharge to the Santa Maria Groundwater Basin.

Since its completion in 1959, the Twitchell earthen dam structure has been trapping sediments from the 1,140 square mile Cuyama River watershed. As of 1998, the accumulated sediment reached an estimated 44,000 AF.

Reservoir Operator	Year Built	Watershed Inflow Area	Initial Build Capacity AF	Current Max Capacity AF	Capacity Loss since 1959
Santa Maria Valley Water Cons. District	1959	1140 sq mi	242,339	197,756	-19 %

Table 12 – Twitchell Reservoir Characteristics



Figures 75 & 76 – Twitchell Reservoir & Dam

WY 2010 Discussion (Twitchell)

Twitchell Reservoir started the WY2010 water year (Sept 1, 2009) without any water storage volume (dry), and ended the water year (Aug 31, 2010) with 11,625 AF.

Initial infill to Twitchell occurred February 1st, at which time a steady increase in inflow was experienced – a result of watershed wetness (see Sect 6.3 – Antecedent Index), and continued rainfall events.

Twitchell reached its peak water level on May 1st (557.8 ft), achieving a maximum WY2010 storage of 14,050 AF at that time. The reservoir then continued a storage decline resulting in an end-of-year (Aug 31, 2010) water storage reduction of 2,425 AF (from its WY peak).

Unlike other major reservoirs within Santa Barbara County, ground water recharge is the principal purpose of Twitchell Reservoir water retention – in this case the Santa Maria Groundwater Basin (a major source of water for the region).

Figure 77 documents the reservoir elevation & storage capacity for water years 2009 & 2010.

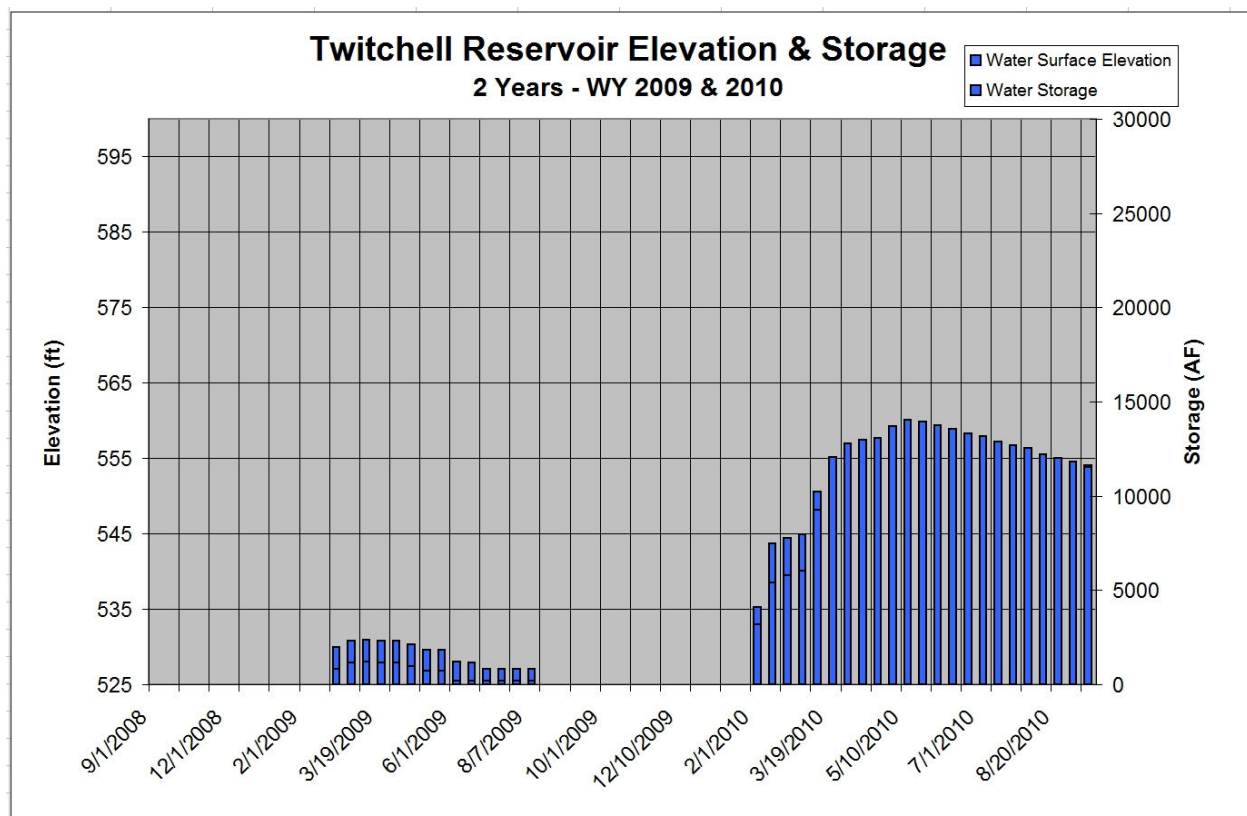


Figure 77 – Twitchell Reservoir Elevation & Storage (2 yr)

9.0 FLOOD / FLOW MODELING

The Santa Barbara County Flood Control District (SBCFCD) utilizes two different programs to model river-flow and flood potential within the County’s major watersheds.

The Santa Ynez River Flood Flow Model (SYRFFM – aka FC River) program models the “Santa Ynez Watershed”, while the HEC-HMS program models the Sisquoc, Santa Cruz, and Gibraltar watersheds

9.1 Santa Ynez River Flood Flow Model (SYRFFM – FC River)

The Santa Ynez River Flood Flow Model (SYRFFM) model was developed by the SBCFCD, and predicts flood-flows in the Santa Ynez River in Santa Barbara and Ventura Counties. The model encompasses approximately 1,253 square miles of drainage area from the Santa Ynez headwaters above Gibraltar Reservoir to Vandenburg Village, just upstream from the river’s outlet to the Pacific Ocean.

The program input is both for forecast and actual precipitation, plus various parameters for estimating losses, runoff, and reservoir operation. The output is hourly flow in cubic-feet-per-second (cfs) at twenty locations along the Santa Ynez River, and hourly operational data for Gibraltar and Cachuma Reservoirs.

The program is a Visual Basic Application (VBA) language adaptation of the QuickBasic program titled FCRPRGH. SYRFFM, uses Microsoft Excel for data input and output.

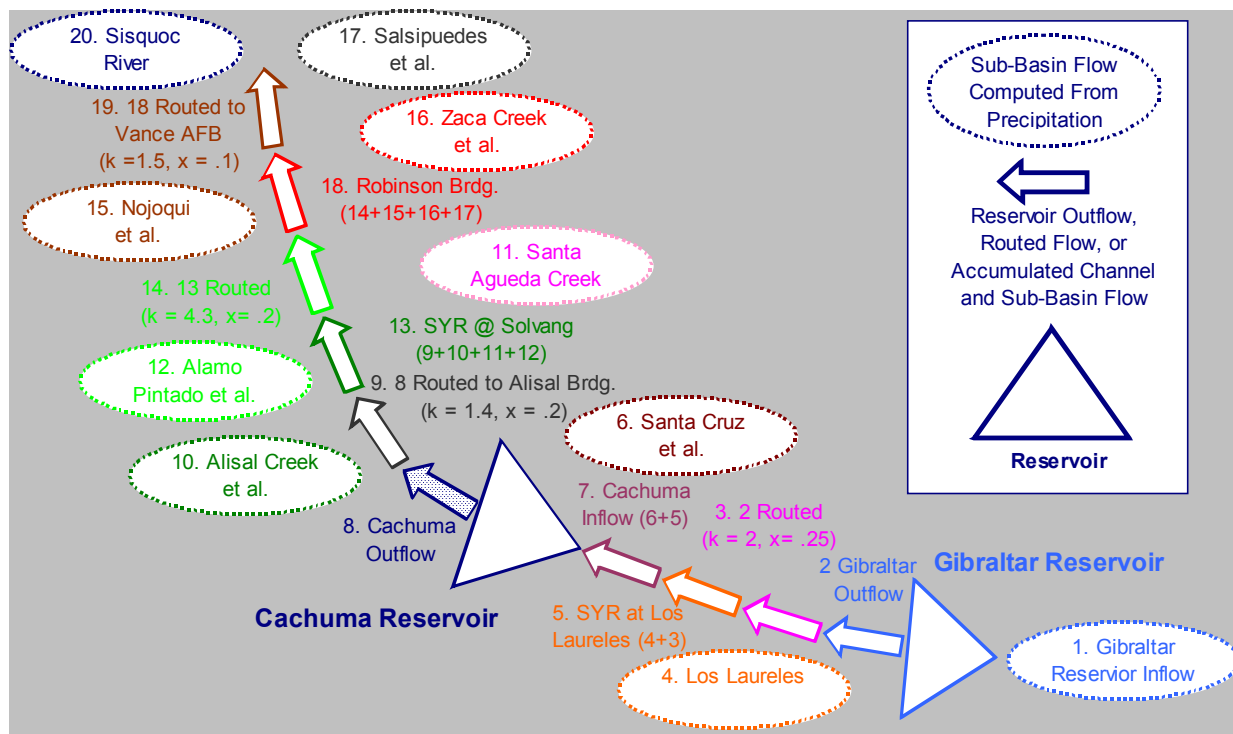


Figure 78 - SYRFF (FC River) Model components.

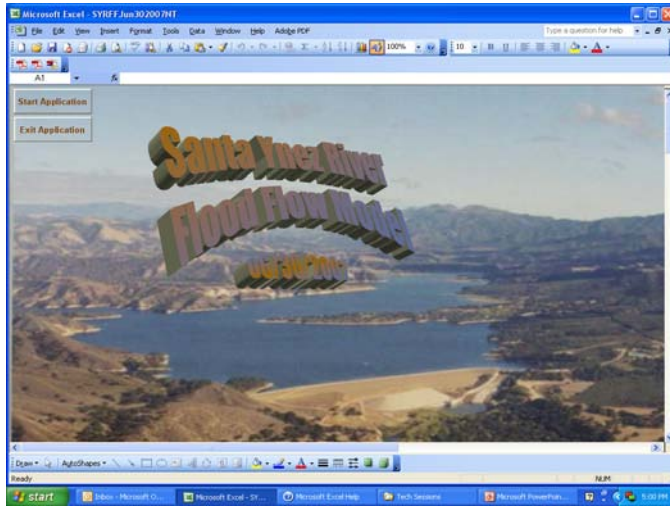


Figure 79 – SYRFF Program Window

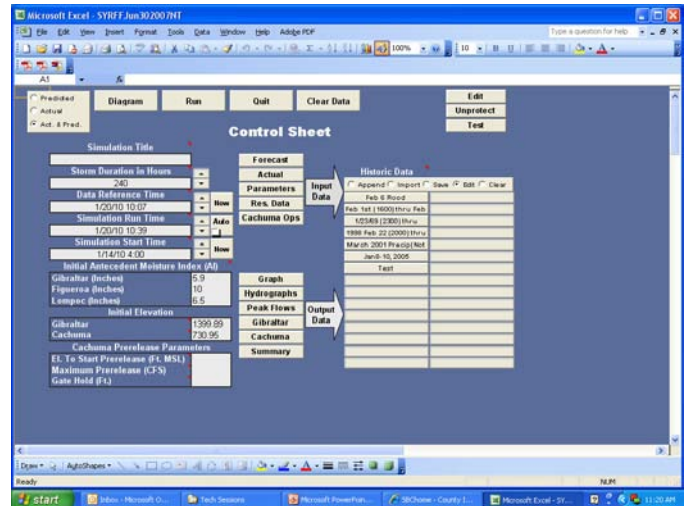
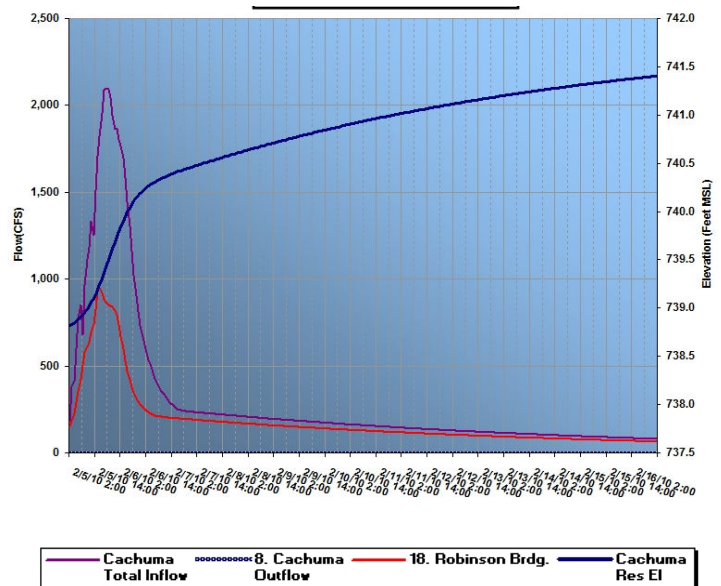


Figure 80 – SYRFF Program Parameters

The SYRFF Model was run on numerous occasions during the months of January & February 2010. A sample summary of these modeling exercises (Feb 5th, 2010) is shown below.

Summary													
Storm Description:													
Data Reference Time:	2/5/10 10:03	El. To Start Prerelease (Ft. MSL)	0.0										
Run Type:	Actual and Predicted	Maximum Prerelease (CFS)	0.0										
Simulation Run Time:	2/5/10 10:41	Gate Hold (Ft)	0.0										
Channel Routing and Unitgraph Data													
Travel Time (Hrs)	Watershed Area (Sq. Miles)	Lag Time (Hrs)	Rainfall			Peak Flows			At Time				
			Base Flow (cfs)	Inches	Acres-Foot (AF)	Hydrograph Volume (AF)	cfs/Sq. Mi. (cfs)	Peak Flow (cfs)					
#1	Gibraltar Inflow :Sub-Unitgraph	138,000	215.6	5.19	5.50	143	2.24	25,760	0.34	3,939	7.0	1,509	2/5/10 17:00
#2	Gibraltar Outflow :Sub-Gibraltar							1,400.23		3,979		1,499	2/5/10 18:00
#3	2 Routed to Los Lauris :Sub-Channel Routing											1,392	2/5/10 20:00
#4	Los Lauris Sub-Watershed :Sub-Unitgraph	39,000	60.9	2.73	5.50	40	2.24	7,280	0.38	1,245	8.86	540	2/5/10 15:00
#5	SYR @ LosLauris 3+4 :Sub-Added Hydrographs									5,216		1,761	2/5/10 20:00
#6	Santa Cruz et al :Sub-Added Hydrographs	87,000	135.9	4.31	6.50	90	1.73	12,534	0.20	1,431	2.5	340	2/5/10 15:00
#7	Cachuma Inflow 5+6 :Sub-Added Hydrographs									6,648		2,004	2/5/10 19:00
#8	Cachuma Outflow :Sub-Cachuma							741.40		0		0	2/5/10 0:00
#9	8 Routed to Alisal Bridge :Sub-Channel Routing											0	2/5/10 0:00
#10	Alisal Creek et al :Sub-Unitgraph	26,700	41.7	1.76	5.20	27	1.86	4,132	0.34	748	8.15	340	2/5/10 14:00
#11	Santa Agueda Creek :Sub-Unitgraph	35,800	55.9	2.70	7.50	37	1.39	4,141	0.18	531	1.83	102	2/5/10 14:00
#12	Alamo Pintado et al:Sub-Unitgraph	47,400	74.1	3.47	7.50	49	1.12	4,432	0.17	684	1.52	113	2/5/10 14:00
#13	SYRv@Solvng +9to12 :Sub-Added Hydrographs									1,963		555	2/5/10 14:00
#14	13 Rtd to Robnnsn Br:Sub-Channel Routing											440	2/5/10 17:00
#15	Nojoqui et al :Sub-Unitgraph	27,900	43.6	1.98	5.20	28	1.61	3,746	0.25	587	5.54	241	2/5/10 15:00
#16	Zaca Creek et al :Sub-Unitgraph	65,000	101.6	3.78	7.50	67	1.12	6,062	0.17	936	1.48	150	2/5/10 14:00
#17	Salsipuedes Creek :Sub-Unitgraph	33,300	52.0	3.99	5.54	34	1.72	4,776	0.24	679	3.52	183	2/5/10 23:00
#18	SYRv@RobnBr +14to17 :Sub-Added Hydrographs									4,153		948	2/5/10 16:00
#19	18 Rtd to So. VAFB :Sub-Channel Routing											909	2/5/10 18:00
#20	Sisquoc Riv @ Garey :Sub-Unitgraph	302,000	471.9	7.65	7.50	312	1.02	25,718	0.17	4,317	1.23	580	2/5/10 18:00
Total Precipitation (inches) and AI's													
	Gibraltar	Cachuma	Figueroa	Buelton	Johns-Mansville	Lompoc							
	2.24	1.64	1.14	1.11	1.47	0.96							
	5.50		7.50			4.90							
	Gibraltar 6-hour Precip	0.35	1.00	0.40	0.30	0.00	0.00	0.00	0.00	0.00	0.00		
		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		

Peak Flows from Santa Ynez River and Selected Tributaries							
Storm Description:							
Data Reference Time:	2/5/10 10:03	El. To Start Prerelease (Ft. MSL)	0.0				
Run Type:	Actual and Predicted	Maximum Prerelease (CFS)	0.0				
Simulation Run Time:	10/4/10 11:23	Gate Hold (Ft)	0.0				
Hydro-graph	Location	Peak (CFS)	Time	Location	Peak (CFS)	Time	
#1	Gibraltar Inflow	1,509	2/5/10 17:00	Santa Agueda	102	2/5/10 14:00	
#2	Gibraltar Outflow	1,499	2/5/10 18:00	Alamo Pintado @ Gage	45	2/5/10 14:00	
#7	Cachuma Inflow 5+6	2,004	2/5/10 19:00	Alamo Pintado @ Hwy 246	63	2/5/10 14:00	
#8	Cachuma Outflow	0	2/5/10 0:00	Zaca Cr @ Hwy 246	59	2/5/10 14:00	
#13	SYRv@Solvng +9to12	555	2/5/10 14:00	Alisal Cr @ River	97	2/5/10 14:00	
#18	SYRv@RobnBr +14to17	948	2/5/10 16:00	Salsipuedes @ Gage	166	2/5/10 23:00	
#19	18 Rtd to So. VAFB	909	2/5/10 18:00	Miguelito Cr @ Gage	39	2/5/10 22:00	



Figures 81 to 83 – SYRFF Program Output Tables & Graph

9.2 HEC / HMS Flood Flow Model

HEC-HMS Approach

Santa Barbara County flood-control has adopted the use of the USACE HEC-HMS Flood Flow Model for runoff response for the Sisquoc, Santa Cruz, and Gibraltar watersheds.

Runoff response is predicted using the Soil Conservation Service (SCS) Curve Number (runoff volume or excess precipitation), Kinematic Wave Transform (runoff timing), and Muskingum-Cunge (channel routing) methods.

Each method is one of multiple options included in HEC-HMS. Details including equations for each method can be found in the HEC-HMS User's Manual (HEC, 2006) and the Technical Reference Manual (HEC, 2000).

The SCS Curve Number approach was chosen for this application because it allows the user to adjust the curve number to account for the effects of fire on runoff volume. This method has been used by other researchers to investigate the effects of fire on runoff generation (e.g., Springer and Hawkins, 2005; G. Cerelli, personal communication, 2007).

The initial loss (i.e. precipitation that infiltrates into the soil and does not become runoff) is not specified, and is computed by HEC-HMS using an empirical relationship based on the curve number for the sub-basin. This method represents the watershed as an open channel with inflow to the channel equal to the excess precipitation. For routing flow through the main channel, the Muskingum-Cunge channel routing procedure was used because it does not require channel cross section data, which are unavailable for the watersheds under consideration. In the Muskingum-Cunge method, outflow from a reach is a function of inflow to the reach and storage in the reach. The Muskingum method is also employed in the FC River program used by SBCFCD (see section 7.2.1).

Watersheds

Initial sub-basin delineations for the Sisquoc, Santa Cruz, and Gibraltar watersheds are provided in GIS format by the U.S. Forest Service, and the Burned Area Emergency Response (BAER) team. Some of the sub-basins are further subdivided in order to ensure that reach outflow locations exist at the locations of stream flow gauges.

Figures 83 and 84 show the sub-basins for the Sisquoc, Santa Cruz, and Gibraltar watersheds used in the modeling. Stream flow and precipitation gauges are also labeled on the maps.

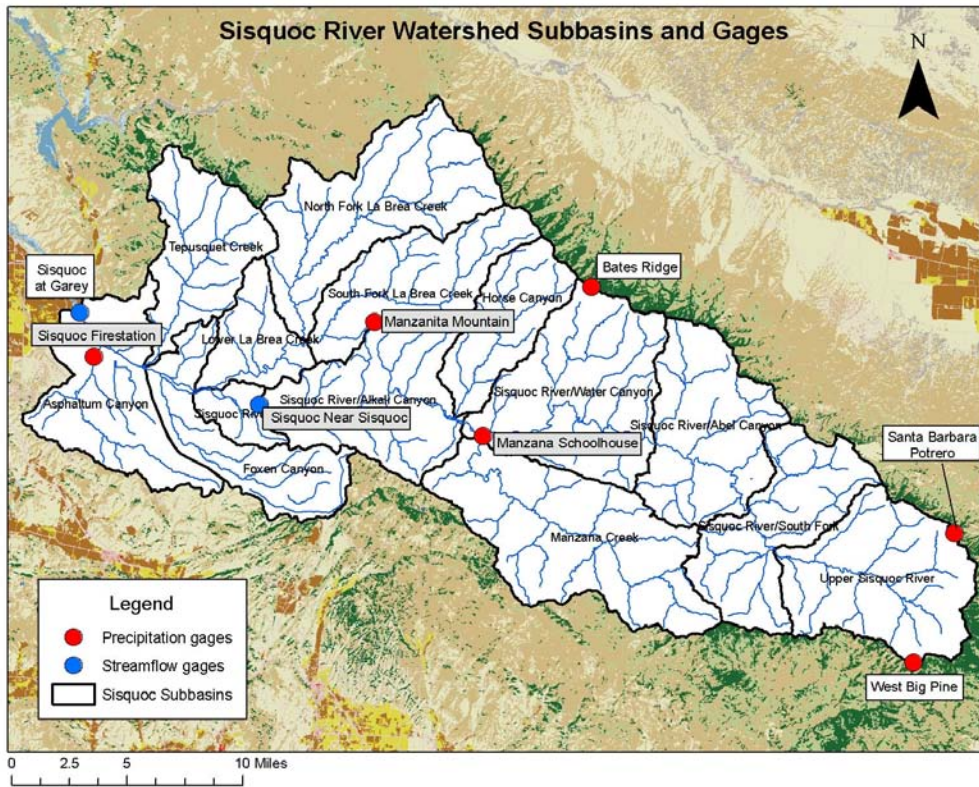


Figure 84 – Sisquoc River Watershed Sub-Basins & Hydrologic Gauges

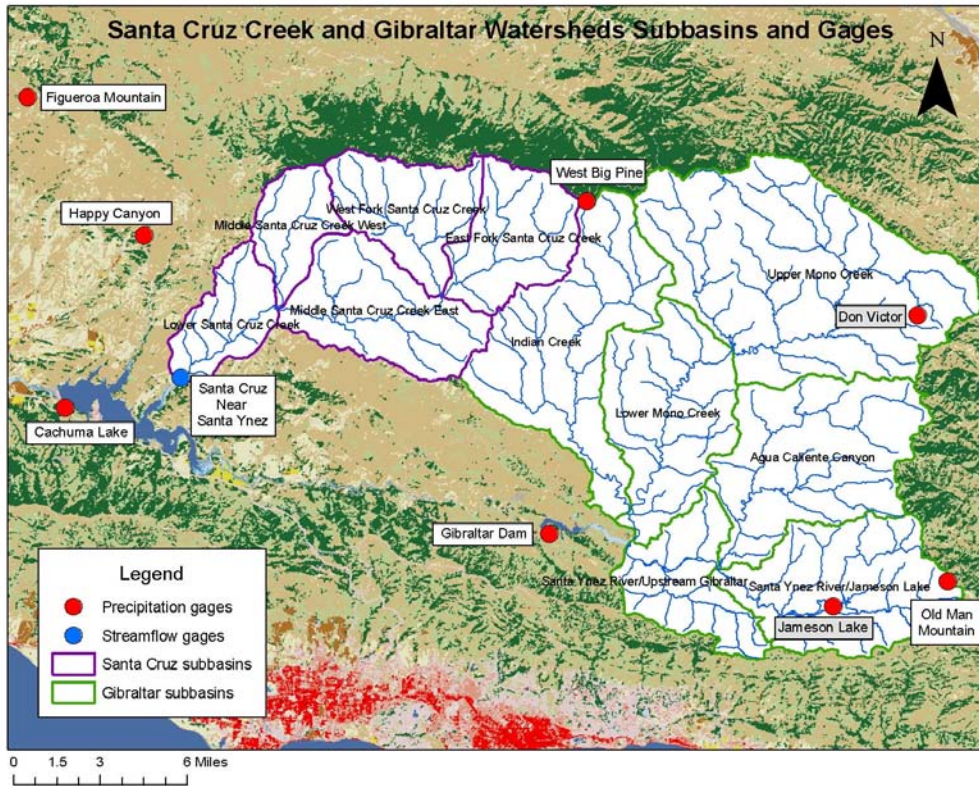


Figure 85 – Santa Cruz Creek Watershed Sub-Basins & Hydrologic Gauges

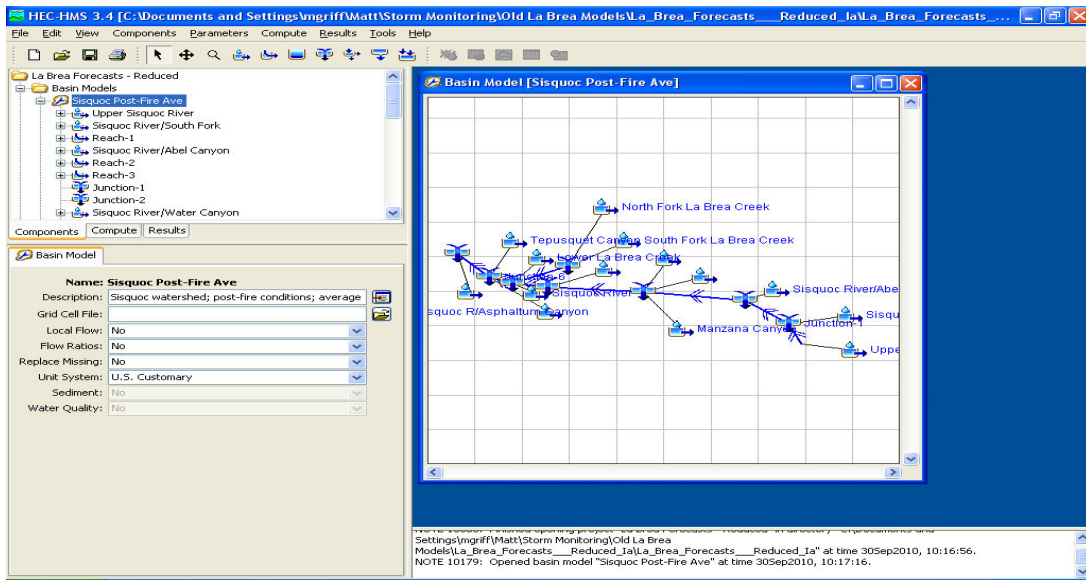


Figure 86 – HEC-HMS Program Display

HEC-HMS Hydrologic Modeling (La Brea Burn-Area)

On August 8, 2009, a wildfire started in a remote area of the Los Padres National Forest 20 miles east of Santa Maria. Burning a total of 90,000 acres (140.6 sq. mi.), the fire destroyed a large portion of the Sisquoc River Watershed and a small portion of the Cuyama River Watershed flowing into Twitchell Reservoir.

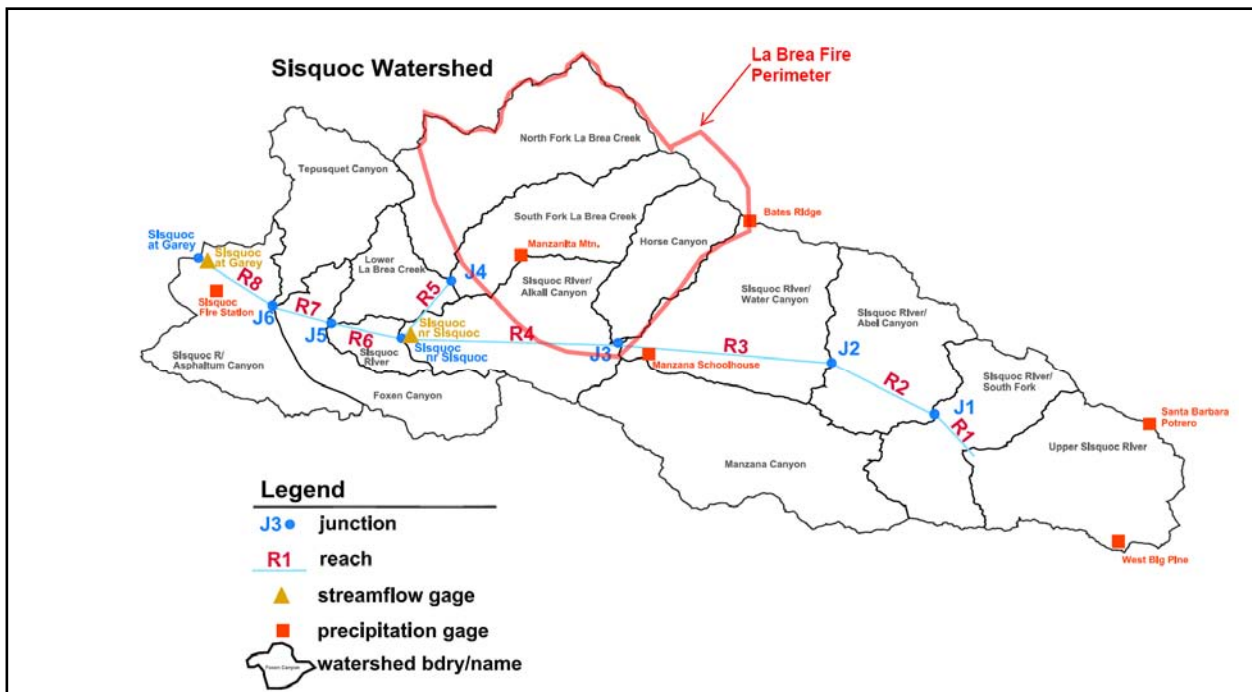


Figure 87 – Sisquoc River Watershed, Gauges, and La Brea Burn-area

Because vegetation in this the burn area is no longer available to capture and store rainfall, small rainfall events have the potential for producing larger than average amounts of runoff that cause creeks and streams to flood more quickly than they would during pre-fire conditions. This

phenomenon combined with the hydrophobic nature of already fractured and unstable soils creates elevated amounts of rushing water and debris flows of ash, boulders, mud and vegetation that can pose substantial hazards to life and property.

Since the location of the fire was deep within the watershed, the possibility that debris flows would affect Santa Maria and surrounding communities during the 2009/2010 storm season was very minimal and not of significant concern. However, concern over the potential for increased storm water runoff yields necessitated development of HEC-HMS predictive models to examine the effects of the fire on the watershed streams. Runoff response of the watershed was modeled in HEC-HMS, where sub-watershed basin states were developed using the SCS method with curve numbers adjusted to account for the land cover, burn severity and soil types. Once the models were fully developed, 15-minute incremental record rainfall data obtained from twelve Flood Control DIADvisor gauge stations, forecasted rainfall information obtained from the USGS, and existing stream flows obtained from the Flood Control DIADvisor network were entered into the model. With this information, predicted creek flows were determined at two locations along the Sisquoc River. The results of these predictions were distributed to Flood Control maintenance and management personnel for review and planning of emergency procedures.

The following graph (Figure 88) compares the HEC-HMS model results with the actual flows observed at the Sisquoc River at Garey Bridge Alert flow gauge during the Jan 18th and January 19th storms. Peak runoff timing was almost identical between the model prediction and actual storm events. Predicted and actual runoff proved to be roughly accurate for predicted flows below 3000 cfs. These models will be adjusted to account for vegetation re-growth in the 2010/2011 storm season, and further calibrated for accuracy.

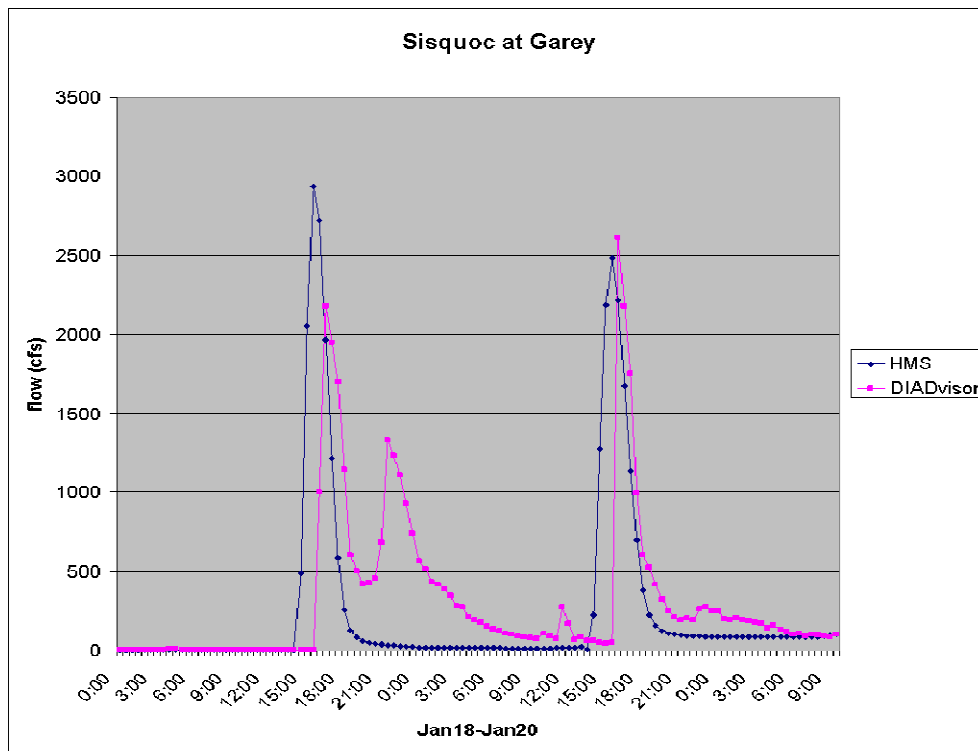


Figure 88 – River Discharge vs. HEC-HMS Model Results (Sisquoc River @Garey)

10.0 FLOODING & DAMAGE

The modest water-year rainfall volume, favorable time separation between rainfall events, minimal long-duration high intensity rainfall, and the lack of saturated watershed conditions resulted in an absence of significant flooding or damage.

The recent 2-3 years of burn-areas were located in close proximity to urban areas (Goleta, Santa Barbara, Montecito, Santa Maria), which created the potential for considerable flooding and damage had the weather & storm conditions been more severe.

11.0 ADDITIONAL INFORMATION RESOURCES

Additional information on the topics discussed in this report can be found at the following internet sites. Note that these sites are active at the time of writing of this report but may not remain so indefinitely.

- A) Santa Barbara County Public Works - Hydrology:
<http://www.countyofsb.org/pwd/pwwater.aspx?id=3582>
- B) Santa Barbara County Public Works: <http://www.countyofsb.org/pwd/>
- C) United States Geological Survey: <http://waterdata.usgs.gov/nwis/>
- D) National Weather Service: <http://www.wrh.noaa.gov/lox/>

APPENDICES

- A. Hydrologic Station & Sensor Listing**
- B. Hydrologic Station Installations**
- C. Monthly & Yearly Rainfall, and Return Periods**

Appendix A:

HYDROLOGIC STATION & SENSOR LISTING

	HYDROLOGY STATION	Station ID	Alert ID	Function	Latitude (DMS)	Longitude (DMS)	Elevation (feet)	Easting (SPC-Z5)	Northing (SPC-Z5)
1	Al Mar Ranch	349		Rain	34-50-54	120-21-28	1048	5854328	2139407
2	Alisal Reservoir	391	A-555	Rain	34-32-55	120-07-49	600	5920256	2028830
3	Alisal Reservoir	391	A-555	Reservoir level	34-32-55	120-07-49	600	5920256	2028830
4	Alisos Canyon	477	A-527	Rain	34-44-14	120-13-34	800	5892926	2098079
5	Apache Canyon	523	A-523	Rain	34-46-27	119-19-55	4410	6161698	2106769
6	Bald Mountain	515	A-515	Rain	35-09-24	120-17-44	1500	5875554	2251165
7	Bates Ridge	276	A-76	Rain	34-55-11	119-55-02	5120	5986973	2162573
8	Betteravia	387		Rain	34-54-57	120-31-01	168	5807202	2165124
9	Branch Mountain	519	A-519	Rain	35-11-06	120-05-00	3770	5939189	2260093
10	Buellton Fire Station	233	A-508	Rain	34-36-48	120-11-48	360	5900785	2052808
11	Burton Mesa FS (Lompoc)	205		Rain	34-41-51	120-27-00	240	5825328	2085192
12	Cachuma Res.- Gates	591	A-591	Gates 1-4	34-34-57	119-58-47	800	5965824	2040233
13	Cachuma Res.- Level	589	A-589	Reservoir Level	34-34-57	119-58-47	800	5965824	2040233
14	Cachuma Res.- Rain	595	A-595	Rain	34-34-52	119-58-52	800	5965396	2039736
15	Carpinteria Creek	550	A-550	Stream Flow	34-24-02	119-29-14	200	6113061	1971471
16	Carpinteria Fire Station	208	A-553	Rain	34-23-53	119-31-05	32	6103747	1970700
17	Carpinteria Slough	4000		Stream Flow	34-23-50	119-31-51	25	6099888	1970455
18	Casmalia	473	A-2560	Rain	34-49-12	120-31-59	770	5801495	2130378
19	Casmalia	473	A-2560	Wind	34-49-12	120-31-59	770	5801495	2130378
20	Casmalia	473	A-2560	Temp/Relative Hum.	34-49-12	120-31-59	770	5801495	2130378
21	Cater Treatment Plant	229		Rain	34-27-15	119-43-49	500	6040088	1992151
22	Catlin Ranch	383		Rain	34-25-18	119-29-59	95	6109405	1979209
23	Celite Plant	259	A-586	Rain	34-35-20	120-27-14	570	5823195	2045705
24	Cold Springs Basin	210		Rain	34-27-04	119-37-12	519	6073310	1990486
25	Cuyama Caltrans	402		Rain	34-57-36	119-42-36	2003	6049332	2176109
26	Cuyama Fire Station	436	A-521	Rain	34-56-44	119-40-57	2275	6057482	2170714
27	Cuyama Ranch	221		Rain	34-58-57	119-40-05	2170	6062033	2184086
28	Cuyama River@Buckhorn	524	A-524	Stream Flow	35-01-19	120-13-41	750	5894639	2201689
29	Don Victor	275	A-75	Rain	34-38-15	119-27-44	4600	6121856	2057581
30	Dos Pueblos Ranch	226		Rain	34-26-48	119-57-06	160	5973307	1990645
31	Doulton Tunnel	231		Rain	34-27-25	119-33-50	1775	6090256	1992340
32	Edison Trail	252	A-549	Rain	34-26-34	119-30-28	1650	6107091	1986927
33	El Deseo Ranch	255	A-557	Rain	34-29-30	119-41-45	3300	6050700	2005620
34	Figueroa Mountain	421	A-73	Rain	34-44-04	120-00-20	3200	5959153	2095674
35	Figueroa Mountain Repeater	5001	A-5001	Repeater	34-44-40	119-59-09	4530	5965149	2099195
36	Foxen Canyon Landfill	196		Rain	34-41-39	120-07-54	1000	5920961	2081798
37	Getty Basin - Inflow	501	A-501	Basin Level	34-55-38	120-27-52	190	5823038	2168877

38	Gaviota Coast	2582	A-2582	Wind	34-28-37	120-07-50	525	5919620	2002756
39	Gaviota Coast	2582	A-2582	Temp/Relative Hum.	34-28-37	120-07-50	525	5919620	2002756
40	Gaviota Coast	2582	A-2582	Barometric Pressure	34-28-37	120-07-50	525	5919620	2002756
41	Gaviota Coast	262	A-2581	Rain	34-29-20	120-07-52	425	5919544	2007105
42	Getty Basin - Rain, Encoder	503	A-503	Rain	34-55-54	120-27-49	194	5823327	2170488
43	Getty Basin - Rain, Encoder	503	A-503	Basin Level	34-55-54	120-27-49	194	5823327	2170488
44	Gibraltar Dam - Gates	561	A-561	Gates 1-4	34-31-35	119-41-09	1500	6053925	2018203
45	Gibraltar Dam - Level	559	A-559	Reservoir Level	34-31-35	119-41-09	1500	6053925	2018203
46	Gibraltar Dam - Rain	230	A-568	Rain	34-31-24	119-40-55	1500	6055078	2017072
47	Goddard	536	A-536	Rain	34-30-05	119-51-06	2825	6003817	2009986
48	Goleta (County Road Yard)	211		Rain	34-27-02	119-46-25	270	6027004	1991065
49	Goleta Fire (Los Carneros)	440	A-70	Rain	34-26-35	119-51-13	75	6002840	1988771
50	Goleta SCG	3093	A-3093	Rain	34-25-10	119-49-21	75	6012062	1980009
51	Goleta Slough	4001		Stream Flow	34-25-02	119-49-54	25	6009283	1979250
52	Goleta Water District	334		Rain	34-26-13	119-47-08	37	6023315	1986176
53	Guadalupe City	352	A-2551	Rain	34-57-45	120-34-17	85	5791320	2182515
54	Happy Canyon	290	A-2595	Rain	34-40-02	119-55-57	1690	5980627	2070784
55	Happy Canyon	290	A-2594	Wind	34-40-02	119-55-57	1690	5980627	2070784
56	Happy Canyon	290	A-2596	Temp/Relative Hum.	34-40-02	119-55-57	1690	5980627	2070784
57	Jalama Beach	317		Rain	34-30-00	120-30-00	15	5808517	2013708
58	Jameson Dam - Level	2579	A-2579	Reservoir Level	34-29-27	119-30-32	2060	6107019	2004418
59	Jameson Dam - Rain	232	A-2576	Rain	34-29-27	119-30-32	2060	6107019	2004418
60	KTYD Radio Towers	227	A-547	Rain	34-28-16	119-40-37	2375	6056266	1998044
61	La Cumbre Peak	2503	A-2503	Rain	34-29-59	119-43-10	3900	6043637	2008672
62	La Cumbre Peak	2503	A-2503	Wind	34-29-59	119-43-10	3900	6043637	2008672
63	La Cumbre Peak	2503	A-2503	Temp/Relative Hum.	34-29-59	119-43-10	3900	6043637	2008672
64	La Cumbre Peak	2503	A-2503	Barometric Pressure	34-29-59	119-43-10	3900	6043637	2008672
65	La Cumbre Repeater	5002	A-5002	Repeater	34-29-59	119-43-10	3900	6043637	2008672
66	Lompoc City Hall	439	A-576	Rain	34-38-16	120-27-07	100	5824214	2063478
67	Los Alamos Fire Station	204	A-509	Rain	34-44-43	120-16-47	580	5876890	2101371
68	Manzana School House	237		Rain	34-49-29	119-59-46	1200	5962642	2128466
69	Manzanita Mountain - Rain	249	A-2515	Rain	34-53-20	120-04-53	2790	5937538	2152333
70	Manzanita Mountain - Wthr	2516	A-2516	Wind	34-53-38	120-04-50	3193	5937825	2154147
71	Manzanita Mountain - Wthr	2516	A-2516	Temp/Relative Hum.	34-53-38	120-04-50	3193	5937825	2154147
72	Manzanita Mountain - Wthr	2516	A-2516	Barometric Pressure	34-53-38	120-04-50	3193	5937825	2154147
73	Maria Ygnacio Creek	2528	A-2528	Stream Flow	34-26-41	119-48-10	60	6018174	1989099
74	Maria Ygnacio Ridge	2566	A-2566	Rain	34-28-46	119-47-05	1056	6023841	2001636
75	Midland School (Figueroa)	419		Rain	34-43-57	120-05-20	1180	5934107	2095476
76	Miguelito Canyon	251		Rain	34-35-10	120-29-42	1080	5810800	2044999

77	Mission Creek	538	A-538	Stream Flow	34-25-33	119-43-26	105	6041837	1981809
78	Montecito Creek	100		Stream Flow	34-25-43	119-38-30	150	6066645	1982404
79	Montecito Water District	325	A-2547	Rain	34-26-21	119-37-59	230	6069304	1986203
80	Mt. Calvary	2513	A-2513	Rain	34-27-37	119-41-19	1250	6052684	1994161
81	Nojoqui Falls	236		Rain	34-32-02	120-10-40	720	5905840	2023780
82	Old Man Mountain	613	A-613	Rain	34-30-17	119-26-23	4300	6127931	2009167
83	Orcutt (County FC)	198	A-510	Rain	34-52-56	120-26-55	280	5827383	2152389
84	Patera Ranch	535	A-535	Rain	34-29-13	119-50-16	1350	6007905	2004653
85	Plowshare Repeater	5003	A-5003	Repeater	35-02-59	120-02-20	3920	5951468	2210595
86	Rancho San Julian	272	A-72	Rain	34-31-54	120-20-16	640	5857647	2024053
87	Rancho Sisquoc	415		Rain	34-51-00	120-13-00	600	5896668	2139050
88	Refugio Pass	2540	A-254	Rain	34-31-48	120-05-32	2610	5931572	2021817
89	Refugio Pass	2540	A-254	Wind	34-31-48	120-05-32	2610	5931572	2021817
90	Salsipuedes Gauging Stn	398		Rain	34-35-00	120-24-18	270	5837856	2043328
91	San Marcos Pass	212	A-78	Rain	34-30-43	119-49-25	2250	6012338	2013672
92	Santa Barbara (Cnty Bldg)	234	A-545	Rain	34-25-31	119-42-12	100	6048031	1981501
93	Santa Maria (County Bldg)	504	A-504	Rain	34-55-16	120-25-42	250	5833805	2166390
94	Santa Maria City (PW)	380	A-2550	Rain	34-57-07	120-26-44	203	5828917	2177734
95	Santa Ynez Fire Station	218	A-511	Rain	34-36-26	120-04-09	600	5939092	2049771
96	SB Botanic Gardens	321		Rain	34-27-14	119-42-25	800	6047119	1991930
97	SB Caltrans	335	A-2548	Rain	34-26-19	119-45-20	160	6032370	1986623
98	SB Canyon	347		Rain	34-49-15	119-33-22	2975	6094651	2124718
99	SB Potrero	581	A-581	Wind	34-46-21	119-38-06	5300	6070690	2107505
100	SB Potrero	581	A-581	Temp/Relative Hum.	34-46-21	119-38-06	5300	6070690	2107505
101	SB Potrero	581	A-581	Barometric Pressure	34-46-21	119-38-06	5300	6070690	2107505
102	SB Potrero	238	A-580	Rain	34-46-29	119-38-49	5025	6067117	2108373
103	Sea Cliff	694	A-694	Rain	34-22-21	119-26-01	20	6129085	1961027
104	Shell Peak	270	A-517	Rain	35-04-37	120-11-31	2080	5905884	2221464
105	Sisquoc Fire Station	256	A-512	Rain	34-52-00	120-17-38	420	5873643	2145634
106	Sisquoc Rvr @ Garey Flw	530	A-530	Stream Flow	34-53-39	120-18-20	354	5870374	2155720
107	Sisquoc Rvr @ Tepusquet	2512	A-2512	Stream Flow	34-51-41	120-15-25	460	5884679	2143463
108	Solvang Water District	393	A-2549	Rain	34-35-36	120-08-28	485	5917341	2045171
109	Stanwood Fire Station	228		Rain	34-26-42	119-41-18	630	6052675	1988601
110	Sudden Peak	2545	A-2545	Rain	34-34-01	120-29-55	2120	5809540	2038053
111	Sudden Peak	2545	A-2545	Wind	34-34-01	120-29-55	2120	5809540	2038053
112	Sycamore Creek	516	A-516	Stream Flow	34-25-46	119-40-39	150	6055846	1982886
113	SYR @ Lompoc Narrows	2523	A-2523	Stream Flow	34-38-10	120-25-28	110	5832469	2062671
114	SYR @ Los Laureles	534	A-534	Stream Flow	34-32-40	119-52-00	800	5999589	2025735
115	SYR @ Solvang	2533	A-2533	Stream Flow	34-35-00	120-08-39	380	5916344	2041552

116	SYR below Gibraltar	542	A-542	Stream Flow	34-31-30	119-41-11	1400	6053749	2017701
117	Tecolote Canyon	280	A-537	Rain	34-31-15	119-54-32	2900	5986714	2017383
118	Trout Club	242		Rain	34-29-25	119-47-54	1175	6019810	2005651
119	Tunnel Trail	250		Rain	34-27-54	119-42-47	1025	6045346	1996004
120	Twitchell Dam - Level	513	A-513	Reservoir Level	34-59-05	120-19-19	740	5866222	2188782
121	Twitchell Dam - Rain	356	A-598	Rain	34-59-17	120-19-16	580	5866500	2189989
122	Twitchell Repeater	599	A-599	Repeater	34-58-59	120-19-15	770	5866541	2188168
123	UCSB	200		Rain	34-24-54	119-50-46	100	6004913	1978521
124	W.Green Cyn Inflow	577	A-577	Stream Flow	34-55-12	120-27-50	150	5823140	2166245
125	W.Green Cyn Outflow	578	A-578	Stream Flow	34-59-07	120-29-07	150	5817317	2190154
126	West Big Pine	285	A-570	Rain	34-41-26	119-39-52	6360	6061356	2077832
127	West Big Pine	285	A-570	Wind	34-41-26	119-39-52	6360	6061356	2077832
128	West Big Pine	285	A-570	Temp/Relative Hum.	34-41-26	119-39-52	6360	6061356	2077832
129	West Big Pine	285	A-570	Barometric Pressure	34-41-26	119-39-52	6360	6061356	2077832

Appendix B:

HYDROLOGIC STATION INSTALLATIONS



ALERT 0.01" (Goleta Fire Stn)



ALERT 0.04" (KTYD)



ALERT 0.04" w/ Dir. Ant. (Mt. Calvary)



ALERT 0.01" (Figueroa Mtn)



ALERT 0.01" Belfort Conversion
(Orcutt / SM Road Yard)



ALERT 0.01" Temporary Station (Tecolote Cyn)

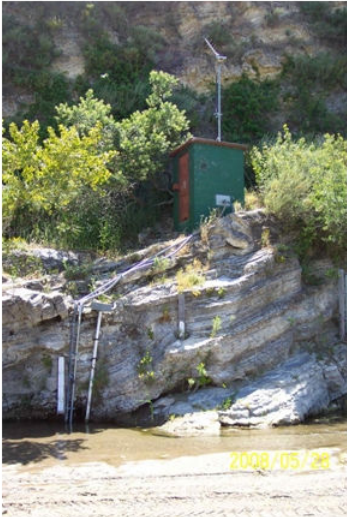


ALERT 0.01" Rooftop Install (Buellton Fire)



ALERT 0.01" (Gibraltar Dam)

County Rain Gauges - Sample ALERT Installations



ALERT PT (SYR Narrows @Lompoc)



ALERT PT (SYR @ Solvang)



ALERT PT (SYR @ Los Laureles)



ALERT PT (Carpinteria Creek)



ALERT Shaft Encoder (Cuyama River @ Buckhorn)



ALERT PT (Maria Ignacio Creek)



ALERT Ultra-Sonic (Sisquoc River @ Garey)

County Stream Gauges - Sample ALERT Installations



La Cumbre Peak
Weather & Repeater
Station



Baron Ranch
Weather Station



County Weather Gauges – ALERT Installations



Cachuma Reservoir / Bradbury Dam



Cachuma Reservoir / Water Level Gauge (Shaft Encoder)



Dam Gates & Inclinometers



Reservoir Level & Gate Opening ALERT Instrumentation

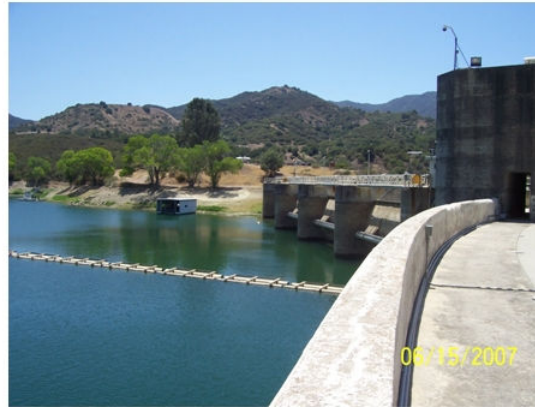


Instrumentation Building

Cachuma Reservoir / Bradbury Dam – County ALERT Installation



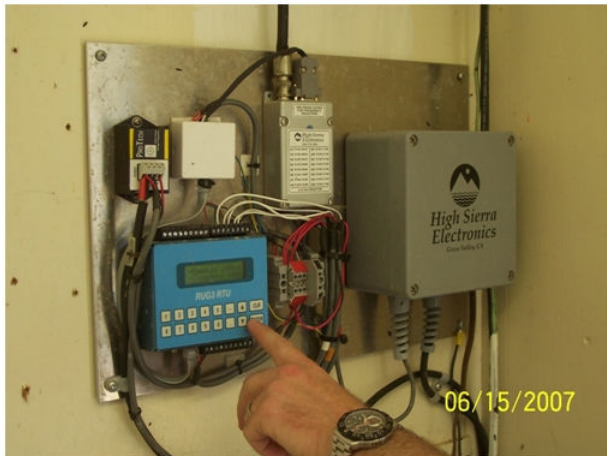
Gibraltar Dam



Gibraltar Reservoir



Lower Gibraltar – ALERT Gauging



Water Level & Gate Opening ALERT Gauging (RUG3)



Dam Gate Inclinometers



Water Level, Gates, & Evap. Pan
Data Interface to SB City (RUG9/SCADA)

Gibraltar Reservoir & Dam – County ALERT Installation



Jameson Dam & Reservoir



Jameson Dam



Water Level & Rain ALERT Instrumentation



Water Level
ALERT
Instrumentation
(Press. Trans.)

Jameson Reservoir & Dam – County ALERT Installation



Twitchell Dam & Reservoir



Twitchell Repeater & Reservoir



Twitchell Earth-Filled Dam



Reservoir Level Gauge Enclosure



Reservoir Level Instrumentation (Bubbler)



Reservoir & Level Instrumentation (Bubbler)

Twitchell Reservoir & Dam – County ALERT Installation

Appendix C:

MONTHLY & YEARLY RAINFALL, and RETURN PERIODS

(Primary Rainfall Stations x14)

- 1. Buellton (#233)**
- 2. Cachuma Dam (#332)**
- 3. Carpinteria (#208)**
- 4. Cuyama (#436)**
- 5. Figueroa Mtn (#421)**
- 6. Gibraltar Dam (#230)**
- 7. Goleta (#440)**
- 8. Lompoc (#439)**
- 9. Los Alamos (#204)**
- 10. San Marcos Pass (#212)**
- 11. Santa Barbara (#234)**
- 12. Santa Maria (#380)**
- 13. Santa Ynez (#218)**
- 14. Sisquoc (#256)**



Santa Barbara County - Flood Control District

123 E. Anapamu St., Santa Barbara, CA 93101
805.568.3440 - www.countyofsb.org/pwd

Official Monthly and Yearly Rainfall Record

(Monthly Depth Durations and Expected Return Periods)

Station: 233 Station Type: Data Logger w/TB

Latitude: 343647 Longitude: 1201148

Station Name: Buellton Fire Station #31

Elevation (ft): 360

Rainfall (in.)

WY	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	WY
1954-55	0.00	0.00	1.19	3.06	4.69	1.15	0.61	1.99	1.47	0.03	0.00	0.00	14.19
1955-56	0.00	0.00	1.97	7.09	3.97	0.67	0.00	1.87	1.07	0.00	0.00	0.00	16.64
1956-57	0.00	0.30	0.00	0.20	4.42	3.05	0.59	1.31	1.27	0.08	0.00	0.00	11.22
1957-58	0.00	1.10	0.44	3.75	2.72	7.06	6.10	4.70	0.66	0.00	0.00	0.00	26.53
1958-59	1.16	0.02	0.29	0.16	2.72	5.96	0.00	1.17	0.00	0.00	0.00	0.00	11.48
1959-60	0.03	0.00	0.00	0.92	4.03	3.43	0.48	1.77	0.00	0.00	0.00	0.00	10.66
1960-61	0.00	0.22	3.75	0.94	1.41	0.12	0.98	0.20	0.05	0.00	0.00	0.00	7.67
1961-62	0.00	0.00	3.21	1.86	2.72	12.73	1.43	0.00	0.00	0.00	0.00	0.00	21.95
1962-63	0.00	0.42	0.02	0.30	0.71	5.22	3.43	2.44	0.29	0.46	0.00	0.35	13.64
1963-64	1.09	0.87	2.13	0.08	1.82	0.03	1.92	1.20	0.25	0.08	0.00	0.00	9.47
1964-65	0.02	1.88	2.65	2.50	1.15	0.49	1.99	3.96	0.00	0.02	0.00	0.00	14.66
1965-66	0.00	0.00	9.42	3.80	2.52	0.66	0.25	0.00	0.00	0.00	0.00	0.00	16.65
1966-67	0.17	0.00	2.88	3.55	4.60	0.41	3.05	4.04	0.21	0.00	0.00	0.00	18.91
1967-68	0.46	0.00	3.03	0.55	0.86	1.04	2.75	1.27	0.04	0.00	0.00	0.00	10.00
1968-69	0.00	1.78	0.86	2.07	14.13	8.97	0.72	1.90	0.10	0.00	0.00	0.00	30.53
1969-70	0.07	0.22	1.03	0.38	2.83	2.70	1.84	0.08	0.00	0.00	0.00	0.00	9.15
1970-71	0.00	0.07	3.40	4.11	0.50	0.57	0.34	0.83	0.93	0.00	0.00	0.00	10.75
1971-72	0.00	0.08	0.39	6.87	0.11	0.26	0.00	0.19	0.00	0.00	0.00	0.00	7.90
1972-73	0.00	1.19	5.00	0.52	5.78	8.25	2.57	0.00	0.00	0.00	0.00	0.00	23.31
1973-74	0.00	0.14	2.30	2.15	7.27	0.18	4.05	0.81	0.00	0.00	0.00	0.00	16.90
1974-75	0.00	1.13	0.22	7.32	0.11	4.74	6.37	0.11	0.00	0.00	0.00	0.00	20.00
1975-76	0.00	0.25	0.47	0.11	0.00	7.12	0.93	1.31	0.00	0.00	0.00	0.00	10.19
1976-77	4.32	0.58	0.55	1.61	3.40	0.13	1.87	0.00	2.74	0.00	0.00	0.00	15.20
1977-78	0.00	0.00	0.14	2.85	7.41	11.16	7.92	3.24	0.00	0.00	0.00	0.00	32.72
1978-79	1.95	0.00	2.33	1.06	6.52	2.85	5.88	0.00	0.00	0.00	0.00	0.00	20.59
1979-80	0.38	0.53	0.65	1.60	3.75	9.66	4.01	0.93	0.15	0.00	0.12	0.00	21.78
1980-81	0.00	0.00	0.00	1.12	3.21	2.61	6.29	0.40	0.00	0.00	0.00	0.00	13.63
1981-82	0.00	0.36	0.95	0.65	3.04	0.64	4.80	3.57	0.00	0.00	0.00	0.00	14.01
1982-83	0.36	1.49	4.90	2.65	9.35	5.95	7.77	6.17	0.04	0.00	0.00	0.35	39.03
1983-84	0.14	1.82	3.32	3.77	0.01	0.22	0.51	0.35	0.00	0.00	0.04	0.00	10.18
1984-85	0.00	1.14	2.92	4.48	0.67	1.34	1.67	0.00	0.00	0.00	0.00	0.00	12.22
1985-86	0.00	0.41	4.40	0.74	0.99	6.03	5.53	0.34	0.00	0.00	0.00	0.00	18.44
1986-87	0.83	0.00	1.15	0.97	2.08	2.18	4.64	0.15	0.00	0.00	0.00	0.00	12.00
1987-88	0.00	2.45	0.99	4.39	2.46	3.58	0.44	2.66	0.12	0.20	0.00	0.00	17.29
1988-89	0.00	0.00	0.64	3.08	0.17	0.63	0.39	0.08	0.35	0.00	0.00	0.00	5.34
1989-90	0.53	0.35	0.35	0.00	2.78	1.89	0.33	0.16	0.67	0.00	0.00	0.00	7.06
1990-91	0.13	0.00	0.29	0.82	1.20	2.36	12.95	0.22	0.00	0.00	0.00	0.02	17.99
1991-92	0.00	0.44	0.22	7.95	3.11	10.48	4.61	0.00	0.00	0.00	0.30	0.00	27.11
1992-93	0.00	0.82	0.00	4.61	7.82	8.94	5.05	0.00	0.00	0.12	0.00	0.00	27.36
1993-94	0.00	0.15	0.74	1.97	1.32	4.36	2.42	0.95	0.70	0.00	0.00	0.00	12.61
1994-95	0.00	0.60	2.00	0.95	16.71	1.85	9.73	0.34	1.23	0.85	0.00	0.00	34.26
1995-96	0.00	0.00	0.22	1.16	2.63	7.05	1.70	0.31	0.20	0.00	0.00	0.00	13.27
1996-97	0.00	2.25	1.93	4.23	4.15	0.00	0.00	0.00	0.00	0.00	0.05	0.00	12.61
1997-98	0.88	0.00	3.74	4.51	4.85	19.78	2.45	3.12	2.23	0.00	0.00	0.00	41.56
1998-99	0.20	0.10	1.72	1.06	1.87	1.26	6.76	1.55	0.00	0.00	0.15	0.00	14.67
1999-00	0.00	0.00	1.75	0.00	1.44	9.10	2.28	3.83	0.00	0.00	0.00	0.00	18.40
2000-01	0.00	3.15	0.00	0.06	6.92	5.27	11.82	1.12	0.00	0.00	0.04	0.00	28.38
2001-02	0.00	0.65	3.72	2.16	0.93	0.21	0.57	0.10	0.11	0.00	0.00	0.00	8.45
2002-03	0.05	0.00	3.35	6.29	0.08	2.22	2.70	1.63	1.24	0.00	0.00	0.00	17.56
2003-04	0.02	0.00	1.28	1.91	0.49	5.23	0.44	0.05	0.01	0.00	0.01	0.00	9.44
2004-05	0.01	6.65	0.64	10.60	8.20	8.40	3.81	0.66	0.58	0.02	0.00	0.00	39.57
2005-06	0.08	0.42	1.62	0.71	5.29	2.51	3.58	4.10	0.95	0.01	0.00	0.00	19.27
2006-07	0.00	0.21	0.26	1.55	1.68	1.74	0.05	0.81	0.00	0.00	0.00	0.00	6.30
2007-08	0.70	0.69	0.00	1.68	14.56	2.31	0.00	0.03	0.04	0.00	0.00	0.00	20.01
2008-09	0.00	0.09	2.10	1.65	0.52	5.22	0.87	0.08	0.02	0.21	0.00	0.00	10.76
2009-10	0.01	1.32	0.00	2.94	7.36	4.27	0.36	2.05	0.01	0.00	0.00	0.00	18.32



Santa Barbara County - Flood Control District

123 E. Anapamu St., Santa Barbara, CA 93101
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Official Monthly and Yearly Rainfall Record

(Monthly Depth Durations and Expected Return Periods)

Station: 233 Station Type: Data Logger w/TB

Latitude: 343647 Longitude: 1201148

Station Name: Buellton Fire Station #31

Elevation (ft): 360

Rainfall (in.)

WY	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	WY
Total	13.59	36.34	93.52	138.07	206.04	226.24	164.60	70.15	17.73	2.08	0.71	0.72	969.79
N	56	56	56	56	56	56	56	56	56	56	56	56	56
Mean	0.24	0.65	1.67	2.47	3.68	4.04	2.94	1.25	0.32	0.04	0.01	0.01	17.32
Max	4.32	6.65	9.42	10.60	16.71	19.78	12.95	6.17	2.74	0.85	0.30	0.35	41.56
StdDev	0.66	1.08	1.75	2.29	3.63	3.96	3.01	1.46	0.58	0.13	0.05	0.06	8.59
CV	2.73	1.67	1.05	0.93	0.99	0.98	1.02	1.17	1.83	3.54	3.71	5.05	0.50
Reg CV	2.68	1.28	1.03	0.84	0.90	0.99	0.87	1.11	1.83	2.91	3.81	4.10	0.44
Reg Skew	3.80	1.80	1.40	1.00	1.60	1.10	1.10	1.70	2.60	3.60	4.40	4.80	1.10
FIC	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Return Period in Years

2	0.00	0.42	1.27	2.13	2.85	3.32	2.48	0.88	0.10	0.00	0.00	0.00	15.95
5	0.41	1.18	2.89	4.04	5.93	7.04	4.86	2.17	0.59	0.07	0.02	0.02	23.03
10	0.92	1.75	3.97	5.24	8.08	9.40	6.37	3.09	1.02	0.15	0.06	0.06	27.53
25	1.71	2.47	5.33	6.69	10.83	12.28	8.21	4.28	1.63	0.28	0.12	0.13	33.01
50	2.36	3.02	6.31	7.73	12.88	14.40	9.56	5.16	2.11	0.39	0.17	0.19	37.05
100	3.05	3.56	7.29	8.72	14.90	16.40	10.84	6.04	2.59	0.50	0.23	0.25	40.86
200	3.76	4.10	8.26	9.69	16.89	18.36	12.09	6.91	3.09	0.61	0.29	0.32	44.60
500	5.20	5.00	9.77	11.10	20.17	21.24	13.94	8.36	3.94	0.84	0.41	0.47	50.08
1000	5.47	5.33	10.44	11.85	21.46	22.72	14.88	8.91	4.25	0.88	0.43	0.49	52.90
10000	8.03	7.10	13.49	14.81	27.92	28.80	18.77	11.74	5.95	1.29	0.65	0.74	64.48



Santa Barbara County - Flood Control District

123 E. Anapamu St., Santa Barbara, CA 93101
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Official Monthly and Yearly Rainfall Record

(Monthly Depth Durations and Expected Return Periods)

Station: 332 Station Type: Alert, Data Logger w/TB & Standard Latitude: 343452 Longitude: 1195847
Station Name: **Cachuma Dam** Elevation (ft): 800 Rainfall (in.)

WY	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	WY
1952-53	0.00	0.00	4.32	6.83	1.12	0.00	0.30	1.23	0.00	0.00	0.00	0.00	13.80
1953-54	0.00	0.00	2.73	0.25	4.89	3.38	5.48	0.18	0.00	0.00	0.00	0.00	16.91
1954-55	0.00	0.00	1.22	2.76	5.22	2.04	0.80	3.27	1.60	0.01	0.00	0.04	16.96
1955-56	0.00	0.00	2.03	9.75	3.48	0.75	0.00	3.44	2.03	0.00	0.00	0.00	21.48
1956-57	0.00	0.27	0.00	0.48	6.05	3.23	1.27	1.94	0.85	0.14	0.00	0.00	14.23
1957-58	0.00	0.70	0.27	5.68	2.01	10.17	7.29	7.89	0.42	0.00	0.00	0.02	34.45
1958-59	0.80	0.00	0.21	0.07	5.34	8.28	0.00	0.58	0.03	0.00	0.00	0.00	15.31
1959-60	0.07	0.00	0.00	1.68	4.28	2.48	0.51	2.31	0.00	0.00	0.00	0.00	11.33
1960-61	0.00	0.00	5.52	0.88	2.85	0.17	0.81	0.44	0.03	0.18	0.00	0.00	10.88
1961-62	0.00	0.00	3.92	2.89	1.56	14.19	1.46	0.02	0.12	0.04	0.00	0.00	24.20
1962-63	0.00	0.32	0.00	0.25	0.73	5.69	3.88	2.31	0.24	0.41	0.00	0.53	14.36
1963-64	1.55	0.78	3.29	0.00	2.28	0.04	1.78	2.10	0.12	0.18	0.00	0.00	12.12
1964-65	0.00	1.28	3.12	2.54	1.00	0.42	1.95	5.02	0.00	0.00	0.00	0.00	15.33
1965-66	0.01	0.00	10.25	4.68	2.48	0.69	0.30	0.06	0.00	0.00	0.01	0.00	18.48
1966-67	0.10	0.12	3.76	3.02	5.66	0.38	4.23	5.53	0.13	0.13	0.00	0.00	23.06
1967-68	0.28	0.00	3.32	1.08	0.82	1.06	2.54	1.17	0.00	0.00	0.00	0.00	10.27
1968-69	0.00	1.36	0.84	1.49	18.33	13.54	1.28	2.40	0.01	0.00	0.05	0.00	39.30
1969-70	0.14	0.02	1.14	0.32	2.57	2.80	4.72	0.10	0.00	0.00	0.00	0.00	11.81
1970-71	0.00	0.01	5.84	5.75	0.59	0.92	0.37	0.75	0.81	0.00	0.00	0.00	15.04
1971-72	0.02	1.03	0.42	8.51	0.08	0.15	0.00	0.16	0.00	0.00	0.08	0.00	10.45
1972-73	0.00	0.49	5.32	1.11	6.79	12.20	3.28	0.01	0.00	0.00	0.00	0.00	29.20
1973-74	0.00	0.36	1.97	2.56	7.50	0.06	3.53	0.86	0.00	0.00	0.00	0.00	16.84
1974-75	0.00	0.94	0.12	9.02	0.20	4.99	8.00	1.22	0.00	0.00	0.00	0.01	24.50
1975-76	0.00	0.43	0.52	0.17	0.00	7.23	1.29	1.47	0.00	0.06	0.01	0.06	11.24
1976-77	2.98	1.44	0.61	0.82	4.68	0.13	2.50	0.00	2.85	0.00	0.00	0.02	16.03
1977-78	0.00	0.00	0.24	4.48	8.00	10.72	14.14	3.10	0.00	0.00	0.00	0.00	40.68
1978-79	1.85	0.00	2.18	1.13	7.13	4.00	6.04	0.05	0.00	0.00	0.00	0.02	22.40
1979-80	0.45	0.68	0.89	2.56	4.26	11.12	3.49	1.08	0.17	0.00	0.00	0.00	24.70
1980-81	0.00	0.00	0.00	0.93	4.21	2.61	7.66	1.02	0.00	0.00	0.00	0.00	16.43
1981-82	0.00	0.46	1.26	0.65	3.91	0.55	5.61	4.34	0.01	0.01	0.00	0.00	16.80
1982-83	0.59	0.94	5.36	2.80	9.88	5.22	12.92	5.75	0.86	0.01	0.00	0.72	45.05
1983-84	0.26	2.69	4.43	3.95	0.17	0.38	0.34	0.29	0.00	0.00	0.02	0.05	12.58
1984-85	0.22	0.53	2.73	4.72	1.08	1.41	1.55	0.21	0.00	0.00	0.00	0.00	12.45
1985-86	0.05	0.76	5.23	0.85	2.39	7.37	5.76	0.26	0.00	0.00	0.00	0.00	22.67
1986-87	0.71	0.05	0.69	0.67	1.49	1.89	4.16	0.08	0.00	0.01	0.01	0.00	9.76
1987-88	0.00	2.21	1.46	5.28	3.06	4.62	1.71	3.39	0.07	0.11	0.01	0.00	21.92
1988-89	0.00	0.00	0.88	4.28	0.33	2.46	0.63	0.07	0.46	0.00	0.00	0.00	9.11
1989-90	0.57	0.30	0.45	0.00	3.34	1.90	0.28	0.76	0.78	0.03	0.00	0.00	8.41
1990-91	0.10	0.00	0.35	0.47	1.10	4.43	15.41	0.13	0.00	0.00	0.00	0.00	21.99
1991-92	0.00	0.48	0.07	6.20	2.82	12.74	4.74	0.00	0.00	0.00	0.00	0.00	27.05
1992-93	0.00	0.70	0.00	5.23	10.05	10.30	5.65	0.00	0.00	0.35	0.00	0.00	32.28
1993-94	0.00	0.26	1.06	2.21	1.65	7.52	2.90	0.82	0.90	0.00	0.00	0.00	17.32
1994-95	0.04	1.03	1.18	1.01	24.21	1.95	9.71	0.46	1.78	0.48	0.00	0.00	41.85
1995-96	0.00	0.00	0.30	1.35	2.16	6.92	1.92	0.57	0.19	0.00	0.00	0.00	13.41
1996-97	0.00	4.15	2.42	4.29	4.39	0.18	0.02	0.00	0.00	0.00	0.05	0.00	15.50
1997-98	0.18	0.00	4.00	10.11	6.09	23.30	3.40	2.90	3.36	0.03	0.00	0.00	53.37
1998-99	0.46	0.12	1.38	1.31	3.19	1.54	5.71	3.23	0.02	0.07	0.05	0.02	17.10
1999-00	0.00	0.00	1.62	0.00	1.94	10.37	2.76	2.55	0.00	0.04	0.00	0.00	19.28
2000-01	0.00	2.64	0.00	0.04	8.40	5.71	13.44	1.35	0.06	0.00	0.00	0.00	31.64
2001-02	0.00	0.62	3.27	2.66	0.87	0.24	0.79	0.13	0.12	0.00	0.00	0.00	8.70
2002-03	0.08	0.00	2.50	6.73	0.06	3.56	2.40	2.15	2.33	0.02	0.01	0.00	19.84
2003-04	0.00	0.00	1.20	2.03	0.32	6.52	0.48	0.00	0.00	0.00	0.00	0.00	10.55
2004-05	0.00	6.38	0.33	13.25	10.30	9.09	3.01	0.71	0.40	0.00	0.00	0.00	43.47
2005-06	0.03	0.42	1.53	0.70	7.75	3.06	4.31	4.89	1.54	0.00	0.00	0.00	24.23
2006-07	0.00	0.16	0.20	1.59	1.30	3.02	0.15	0.91	0.00	0.00	0.00	0.00	7.33
2007-08	0.13	0.32	0.08	2.55	17.82	2.36	0.47	0.06	0.07	0.00	0.00	0.00	23.86
2008-09	0.00	0.11	3.65	2.58	0.64	6.04	0.93	0.20	0.00	0.17	0.00	0.02	14.34
2009-10	0.06	2.36	0.00	3.17	10.13	4.63	0.20	3.03	0.05	0.00	0.00	0.00	23.63



Santa Barbara County - Flood Control District

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Official Monthly and Yearly Rainfall Record

(Monthly Depth Durations and Expected Return Periods)

Station: 332 Station Type: Alert, Data Logger w/TB & Standard

Latitude: 343452 Longitude: 1195847

Station Name: **Cachuma Dam**

Elevation (ft): 800

Rainfall (in.)

WY	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	WY
Total	11.73	37.92	111.68	172.37	254.95	272.72	200.26	88.95	22.41	2.48	0.30	1.51	1177.28
N	58	58	58	58	58	58	58	58	58	58	58	58	58
Mean	0.20	0.65	1.93	2.97	4.40	4.70	3.45	1.53	0.39	0.04	0.01	0.03	20.30
Max	2.98	6.38	10.25	13.25	24.21	23.30	15.41	7.89	3.36	0.48	0.08	0.72	53.37
StdDev	0.51	1.12	2.03	2.92	4.70	4.66	3.69	1.76	0.75	0.10	0.02	0.12	10.24
CV	2.50	1.71	1.06	0.98	1.07	0.99	1.07	1.15	1.94	2.32	2.92	4.43	0.50
Reg CV	2.68	1.28	1.03	0.84	0.90	0.99	0.87	1.11	1.83	2.91	3.81	4.10	0.44
Reg Skew	3.80	1.80	1.40	1.00	1.60	1.10	1.10	1.70	2.60	3.60	4.40	4.80	1.10
FIC	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Return Period in Years

2	0.00	0.42	1.47	2.57	3.41	3.86	2.91	1.07	0.12	0.00	0.00	0.00	18.69
5	0.34	1.19	3.33	4.87	7.09	8.19	5.71	2.66	0.73	0.08	0.01	0.04	27.00
10	0.77	1.76	4.58	6.32	9.66	10.94	7.48	3.78	1.25	0.18	0.02	0.12	32.27
25	1.42	2.49	6.15	8.06	12.94	14.29	9.64	5.24	1.99	0.32	0.05	0.26	38.70
50	1.97	3.04	7.28	9.31	15.39	16.76	11.23	6.32	2.57	0.45	0.07	0.38	43.43
100	2.54	3.58	8.41	10.51	17.81	19.09	12.73	7.39	3.17	0.57	0.09	0.51	47.89
200	3.13	4.13	9.52	11.68	20.18	21.37	14.21	8.46	3.77	0.70	0.12	0.65	52.27
500	4.33	5.04	11.27	13.38	24.10	24.72	16.37	10.23	4.81	0.96	0.17	0.95	58.70
1000	4.56	5.37	12.04	14.28	25.64	26.44	17.48	10.91	5.19	1.02	0.18	0.99	62.01
10000	6.69	7.16	15.55	17.85	33.35	33.52	22.05	14.37	7.27	1.48	0.26	1.51	75.58



Santa Barbara County - Flood Control District

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Official Monthly and Yearly Rainfall Record

(Monthly Depth Durations and Expected Return Periods)

Station: 208 Station Type: Alert, Data Logger w/TB Latitude: 342353 Longitude: 1193106
Station Name: Carpinteria Fire Station Elevation (ft): 32 Rainfall (in.)

WY	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	WY
1948-49	0.00	0.00	0.00	2.96	1.60	1.14	1.95	0.00	1.44	0.10	0.00	0.00	9.19
1949-50	0.00	0.00	2.71	3.51	2.51	3.06	1.33	0.43	0.00	0.15	0.10	0.00	13.80
1950-51	0.70	0.68	1.46	0.32	2.13	1.44	0.63	1.63	0.00	0.00	0.00	0.10	9.09
1951-52	0.00	0.90	2.05	5.48	12.08	0.05	7.18	2.27	0.00	0.00	0.00	0.00	30.01
1952-53	0.00	0.00	4.00	5.20	1.70	0.00	1.27	1.71	0.00	0.00	0.00	0.00	13.88
1953-54	0.00	0.00	2.60	0.15	6.25	2.70	4.35	0.38	0.00	0.00	0.00	0.00	16.43
1954-55	0.00	0.00	1.75	1.75	4.95	2.25	0.35	3.05	0.60	0.00	0.00	0.00	14.70
1955-56	0.00	0.00	1.65	5.93	7.80	0.82	0.00	2.83	1.12	0.00	0.00	0.00	20.15
1956-57	0.00	0.08	0.00	0.30	4.60	3.46	0.49	1.76	1.03	0.00	0.00	0.00	11.72
1957-58	0.00	1.70	0.80	5.00	3.08	8.77	6.51	5.68	0.32	0.00	0.00	0.00	31.86
1958-59	1.19	0.00	0.00	0.08	2.20	4.67	0.00	1.33	0.00	0.00	0.00	0.00	9.47
1959-60	0.00	0.00	0.00	0.92	3.60	3.72	1.26	2.17	0.00	0.00	0.00	0.00	11.67
1960-61	0.00	0.06	7.11	0.00	1.30	0.05	0.70	0.00	0.00	0.00	0.00	0.00	9.22
1961-62	0.20	0.00	2.93	1.12	2.62	19.09	1.43	0.00	0.00	0.00	0.00	0.00	27.39
1962-63	0.00	0.55	0.00	0.00	1.00	6.65	4.15	2.88	0.30	1.14	0.00	0.00	16.67
1963-64	2.10	1.15	3.69	0.00	1.70	0.00	2.00	2.57	0.10	0.00	0.00	0.00	13.31
1964-65	0.00	0.87	2.42	5.13	1.15	0.67	2.45	8.37	0.16	0.06	0.00	0.00	21.28
1965-66	0.21	0.00	11.02	4.17	1.98	1.14	0.11	0.00	0.23	0.00	0.00	0.00	18.86
1966-67	0.00	0.00	3.70	7.51	6.74	0.48	3.08	4.81	0.00	0.00	0.00	0.00	26.32
1967-68	0.40	0.00	5.39	1.20	2.01	1.69	4.40	1.04	0.00	0.00	0.00	0.14	16.27
1968-69	0.00	1.36	0.75	2.27	18.31	10.62	0.54	2.03	0.18	0.09	0.00	0.00	36.15
1969-70	0.00	0.00	2.55	0.24	3.40	2.57	6.51	0.00	0.00	0.00	0.00	0.00	15.27
1970-71	0.00	0.06	5.31	5.71	1.32	2.36	0.97	0.62	2.34	0.00	0.00	0.00	18.69
1971-72	0.00	0.15	0.62	7.81	0.70	0.00	0.00	0.19	0.00	0.12	0.00	0.00	9.59
1972-73	0.00	0.25	5.24	0.99	6.94	11.75	3.42	0.06	0.23	0.05	0.00	0.14	29.07
1973-74	0.00	0.64	3.14	1.34	9.79	0.16	4.74	0.28	0.00	0.00	0.00	0.00	20.09
1974-75	0.00	1.00	0.15	8.67	0.00	4.62	4.70	1.29	0.00	0.00	0.00	0.00	20.43
1975-76	0.16	0.20	0.11	0.31	0.00	7.40	2.59	1.01	0.03	0.26	0.00	0.00	12.07
1976-77	6.35	0.00	0.51	0.82	4.33	0.26	1.90	0.00	4.39	0.12	0.00	0.68	19.36
1977-78	0.00	0.00	0.30	7.40	9.91	10.81	12.79	2.74	0.00	0.10	0.00	0.09	44.14
1978-79	1.55	0.10	2.03	2.41	3.63	5.68	8.56	0.00	0.09	0.00	0.00	0.18	24.23
1979-80	0.80	0.73	0.73	1.38	7.62	13.14	4.13	0.85	0.21	0.00	0.05	0.00	29.64
1980-81	0.03	0.00	0.00	1.21	3.19	2.24	6.38	0.91	0.00	0.00	0.00	0.00	13.96
1981-82	0.56	0.00	2.08	1.00	3.47	0.62	6.23	3.03	0.15	0.12	0.00	0.00	17.26
1982-83	1.47	0.65	6.22	3.49	9.98	7.05	8.44	4.19	0.35	0.20	0.00	1.84	43.88
1983-84	1.09	4.41	3.94	3.71	0.04	0.00	0.39	0.27	0.29	0.00	0.00	0.65	14.79
1984-85	0.62	0.51	2.86	5.67	1.68	2.09	1.69	0.14	0.00	0.00	0.00	0.00	15.26
1985-86	0.08	0.73	5.03	0.98	2.35	8.61	6.20	1.80	0.00	0.00	0.00	0.00	25.78
1986-87	1.61	0.00	1.41	0.41	2.33	2.54	3.54	0.15	0.00	0.00	0.00	0.00	11.99
1987-88	0.00	1.52	1.92	3.92	2.90	2.72	0.60	3.76	0.00	0.00	0.00	0.00	17.34
1988-89	0.10	0.00	1.18	3.28	0.50	3.58	0.60	0.78	0.25	0.00	0.00	0.00	10.27
1989-90	0.08	1.07	0.47	0.00	3.13	3.04	0.16	0.10	0.88	0.00	0.00	0.00	8.93
1990-91	0.06	0.00	0.32	0.06	1.79	2.55	14.92	0.04	0.00	0.30	0.02	0.05	20.11
1991-92	0.00	0.62	0.21	5.63	3.10	10.46	4.46	0.00	0.34	0.10	0.47	0.00	25.39
1992-93	0.00	1.94	0.00	6.18	13.88	8.32	6.08	0.00	0.10	0.87	0.08	0.00	37.45
1993-94	0.00	0.10	1.54	1.65	1.09	6.51	2.32	0.73	0.40	0.00	0.00	0.00	14.34
1994-95	0.47	0.45	1.78	1.27	21.42	1.92	12.22	0.39	0.98	0.69	0.00	0.00	41.59
1995-96	0.00	0.00	0.24	3.49	2.27	9.54	2.31	1.28	0.42	0.00	0.00	0.00	19.55
1996-97	0.00	3.03	0.00	7.01	7.83	0.10	0.00	0.00	0.00	0.10	0.00	0.00	18.07
1997-98	0.00	0.09	3.22	8.64	4.97	23.55	4.16	2.38	4.31	0.16	0.00	0.00	51.48
1998-99	0.12	0.00	0.75	0.95	2.26	0.86	3.16	1.87	0.00	0.02	0.00	0.00	9.99
1999-00	0.02	0.00	0.72	0.00	1.43	8.66	2.74	3.90	0.00	0.00	0.00	0.00	17.47
2000-01	0.00	2.18	0.00	0.08	6.30	5.24	4.73	1.67	0.18	0.02	0.03	0.00	20.43
2001-02	0.04	0.49	3.75	1.78	0.59	0.31	0.37	0.11	0.14	0.01	0.05	0.02	7.66
2002-03	0.20	0.01	5.88	4.59	0.09	2.91	4.46	1.90	1.72	0.19	0.02	0.00	21.97
2003-04	0.04	0.09	1.31	1.89	0.42	5.18	0.57	0.01	0.02	0.01	0.03	0.00	9.57
2004-05	0.00	4.46	0.10	8.62	11.20	7.41	3.96	0.74	1.01	0.02	0.00	0.04	37.56
2005-06	0.20	1.08	0.82	0.72	2.82	2.88	3.26	5.88	0.90	0.00	0.00	0.02	18.58
2006-07	0.01	0.09	0.26	0.72	3.24	1.86	0.18	0.70	0.00	0.02	0.01	0.02	7.11
2007-08	0.28	0.28	0.02	3.06	12.00	1.75	0.00	0.08	0.04	0.00	0.00	0.00	17.51



Santa Barbara County - Flood Control District

123 E. Anapamu St., Santa Barbara, CA 93101
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Official Monthly and Yearly Rainfall Record

(Monthly Depth Durations and Expected Return Periods)

Station: 208 Station Type: Alert, Data Logger w/TB Latitude: 342353 Longitude: 1193106
Station Name: Carpinteria Fire Station Elevation (ft): 32 Rainfall (in.)

WY	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	WY
2008-09	0.03	0.06	2.71	2.55	0.63	6.18	0.78	0.15	0.03	0.07	0.00	0.00	13.19
2009-10	0.06	3.61	0.01	2.86	6.14	3.86	0.56	2.45	0.15	0.03	0.02	0.00	19.75
Total	20.83	37.95	123.47	175.50	269.99	273.76	199.96	91.39	25.43	5.12	0.88	3.97	1228.25
N	62	62	62	62	62	62	62	62	62	62	62	62	62
Mean	0.34	0.61	1.99	2.83	4.35	4.42	3.23	1.47	0.41	0.08	0.01	0.06	19.81
Max	6.35	4.46	11.02	8.67	21.42	23.55	14.92	8.37	4.39	1.14	0.47	1.84	51.48
StdDev	0.90	1.02	2.17	2.59	4.38	4.62	3.24	1.71	0.86	0.20	0.06	0.26	9.89
CV	2.67	1.66	1.09	0.91	1.01	1.05	1.00	1.16	2.09	2.43	4.32	4.02	0.50
Reg CV	2.68	1.28	1.03	0.84	0.90	0.99	0.87	1.11	1.83	2.91	3.81	4.10	0.44
Reg Skew	3.80	1.80	1.40	1.00	1.60	1.10	1.10	1.70	2.60	3.60	4.40	4.80	1.10
FIC	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Return Period in Years													
2	0.00	0.39	1.52	2.45	3.37	3.63	2.72	1.03	0.13	0.00	0.00	0.00	18.24
5	0.57	1.11	3.45	4.64	7.02	7.69	5.33	2.55	0.77	0.15	0.02	0.09	26.35
10	1.27	1.65	4.74	6.02	9.57	10.27	6.99	3.63	1.33	0.34	0.06	0.28	31.49
25	2.36	2.33	6.36	7.68	12.82	13.42	9.01	5.04	2.11	0.63	0.13	0.63	37.77
50	3.27	2.85	7.53	8.87	15.25	15.74	10.49	6.07	2.73	0.86	0.19	0.93	42.39
100	4.22	3.35	8.70	10.01	17.64	17.92	11.90	7.10	3.36	1.11	0.26	1.26	46.74
200	5.21	3.86	9.85	11.13	19.99	20.06	13.27	8.13	4.00	1.36	0.32	1.60	51.02
500	7.20	4.72	11.65	12.75	23.87	23.21	15.29	9.83	5.10	1.86	0.46	2.32	57.29
1000	7.58	5.03	12.45	13.60	25.40	24.83	16.33	10.49	5.51	1.96	0.48	2.44	60.52
10000	11.11	6.70	16.08	17.00	33.04	31.47	20.59	13.81	7.71	2.86	0.72	3.70	73.77



Santa Barbara County - Flood Control District

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Official Monthly and Yearly Rainfall Record

(Monthly Depth Durations and Expected Return Periods)

Station: 436 Station Type: Data Logger w/TB Latitude: 345644 Longitude: 1194057
Station Name: Cuyama Fire Station #41 Elevation (ft): 2275 Rainfall (in.)

WY	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	WY
1954-55	0.00	0.00	0.46	1.12	2.54	0.42	0.13	0.65	0.44	0.00	0.00	0.00	5.76
1955-56	0.00	0.00	0.77	1.77	1.91	0.34	0.02	0.50	0.41	0.00	0.00	0.00	5.72
1956-57	0.00	1.29	0.00	0.13	1.98	1.03	0.72	0.51	0.43	0.40	0.00	0.00	6.49
1957-58	0.00	0.87	0.31	1.20	0.73	2.76	2.86	3.63	0.64	0.00	0.00	0.62	13.62
1958-59	1.43	0.00	0.25	0.03	1.03	2.32	0.00	0.64	0.00	0.00	0.02	0.00	5.72
1959-60	0.28	0.00	0.00	0.13	1.32	1.65	0.72	0.58	0.00	0.00	0.00	0.00	4.68
1960-61	0.00	0.17	2.45	0.17	0.24	0.42	0.46	0.08	0.07	0.00	0.05	0.03	4.14
1961-62	0.00	0.00	1.26	0.82	1.10	7.67	1.58	0.00	0.07	0.00	0.00	0.00	12.50
1962-63	0.00	0.20	0.00	0.00	0.18	2.16	1.37	1.11	0.46	2.27	0.00	0.00	7.75
1963-64	0.70	1.06	0.85	0.06	1.09	0.12	0.72	0.39	0.47	0.00	0.00	0.00	5.46
1964-65	0.25	0.75	0.88	1.24	0.52	0.30	0.64	2.95	0.00	0.00	0.00	0.06	7.59
1965-66	0.20	0.00	2.21	2.19	0.89	1.22	0.21	0.00	0.00	0.00	0.00	0.00	6.92
1966-67	0.34	0.00	1.61	3.70	1.31	0.21	0.72	3.78	0.09	0.06	0.07	0.03	11.92
1967-68	1.08	0.00	2.32	0.70	0.39	0.75	1.43	0.45	0.02	0.00	0.00	0.02	7.16
1968-69	0.00	1.54	0.48	0.85	5.19	5.67	0.44	1.39	0.00	0.00	0.00	0.00	15.56
1969-70	0.02	0.00	0.45	0.13	0.97	0.91	1.40	0.10	0.55	0.00	0.05	0.00	4.58
1970-71	0.00	0.00	1.87	1.22	0.45	0.32	0.00	0.34	0.56	0.00	0.00	0.00	4.76
1971-72	0.00	0.00	0.00	2.45	0.00	0.10	0.00	0.00	0.00	0.31	0.00	1.70	4.56
1972-73	0.00	1.27	1.73	0.50	2.51	1.60	2.00	0.00	0.00	0.00	0.00	0.00	9.61
1973-74	0.00	0.23	1.17	0.47	2.46	0.00	1.99	0.64	0.17	0.00	0.20	0.00	7.33
1974-75	0.00	1.44	0.11	1.27	0.05	1.87	0.82	0.26	0.00	0.00	0.00	0.19	6.01
1975-76	0.03	0.18	0.23	0.06	0.00	2.58	0.40	0.70	0.13	0.05	0.00	0.09	4.45
1976-77	3.10	0.14	0.36	0.13	1.81	0.03	0.80	0.00	1.41	0.00	0.00	0.70	8.48
1977-78	0.00	0.00	0.05	2.66	2.26	6.29	4.42	1.21	0.00	0.00	0.00	0.00	16.89
1978-79	1.94	0.00	0.12	0.72	2.06	2.20	2.75	0.00	0.00	0.00	0.00	0.00	9.79
1979-80	0.30	0.19	0.27	0.62	1.59	3.03	1.28	0.97	0.05	0.00	0.05	0.00	8.35
1980-81	0.00	0.62	0.00	0.45	1.60	0.99	3.13	0.19	0.06	0.00	0.00	0.00	7.04
1981-82	0.00	0.66	0.33	0.04	2.01	0.80	3.92	2.15	0.00	0.00	0.00	0.00	9.91
1982-83	0.68	0.75	2.17	0.77	2.90	2.57	3.00	0.73	0.43	0.00	0.00	0.78	14.78
1983-84	0.18	0.59	1.55	1.38	0.13	0.02	0.32	0.36	0.00	0.00	0.00	0.00	4.53
1984-85	0.47	0.00	1.41	2.46	0.83	0.46	0.56	0.03	0.00	0.00	0.00	0.00	6.22
1985-86	0.60	0.17	1.39	0.62	0.93	2.04	1.99	0.37	0.00	0.00	0.00	0.00	8.11
1986-87	0.23	0.10	0.56	0.46	1.35	0.36	0.51	0.00	0.00	0.85	0.00	0.00	4.42
1987-88	0.00	1.32	2.32	1.04	1.35	0.28	0.45	1.51	0.00	0.00	0.00	0.00	8.27
1988-89	0.00	0.00	0.16	1.93	0.23	0.59	0.27	0.08	0.38	0.00	0.00	0.00	3.64
1989-90	0.26	0.00	0.04	0.00	0.54	0.62	0.12	0.00	0.18	0.00	0.00	0.00	1.76
1990-91	2.46	0.00	0.53	0.10	0.71	0.47	7.12	0.10	0.00	0.00	0.00	0.00	11.49
1991-92	0.00	0.14	0.00	1.54	1.59	2.69	1.74	0.00	0.00	0.00	1.73	0.00	9.43
1992-93	0.00	0.45	0.00	1.27	3.47	2.52	2.11	0.00	0.00	0.03	0.00	0.00	9.85
1993-94	0.00	0.30	0.49	0.76	0.76	2.17	1.09	0.28	1.03	0.00	0.00	0.00	6.88
1994-95	0.42	0.05	1.01	1.22	6.33	0.83	4.45	0.26	0.51	0.20	0.00	0.00	15.28
1995-96	0.00	0.00	0.16	0.63	0.97	4.95	0.59	0.13	0.00	0.00	0.00	0.00	7.43
1996-97	0.02	0.86	1.63	1.23	2.71	0.87	1.40	0.10	0.55	0.00	0.05	0.00	9.42
1997-98	0.27	0.00	1.58	2.62	1.51	8.38	2.49	0.98	1.95	0.00	0.00	0.00	19.78
1998-99	0.74	0.43	0.75	0.92	1.95	0.47	1.76	0.55	0.00	0.00	0.00	0.00	7.57
1999-00	0.33	0.00	0.32	0.06	0.66	2.31	0.91	1.25	0.00	0.00	0.00	0.00	5.84
2000-01	0.00	0.30	0.00	0.07	2.76	3.17	3.00	0.81	0.00	0.00	0.00	0.00	10.11
2001-02	0.00	0.24	1.01	0.86	0.26	0.00	0.20	0.43	0.10	0.00	0.00	0.00	3.10
2002-03	0.12	0.00	0.71	2.03	0.00	2.10	1.49	0.52	0.55	0.00	0.00	0.55	8.07
2003-04	0.00	0.00	0.27	0.80	0.37	2.11	0.15	0.00	0.00	0.00	0.00	0.00	3.70
2004-05	0.00	1.31	0.00	1.34	2.47	1.91	1.61	0.16	0.68	0.00	0.00	0.00	9.48
2005-06	0.00	1.10	0.00	0.75	2.27	0.60	1.33	2.06	0.12	0.00	0.15	0.00	8.38
2006-07	0.00	0.42	0.16	0.42	0.50	1.56	0.03	0.10	0.00	0.00	0.00	0.00	3.19
2007-08	0.08	0.21	0.41	0.48	3.61	0.35	0.00	0.07	0.04	0.00	0.00	0.00	5.25
2008-09	0.00	0.03	1.17	0.86	0.27	2.03	0.43	0.47	0.06	0.01	0.00	0.07	5.40
2009-10	0.03	0.09	0.09	1.34	2.99	1.90	0.33	1.04	0.06	0.00	0.01	0.00	7.88



Santa Barbara County - Flood Control District

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Official Monthly and Yearly Rainfall Record

(Monthly Depth Durations and Expected Return Periods)

Station: 436 Station Type: Data Logger w/TB Latitude: 345644 Longitude: 1194057

Station Name: Cuyama Fire Station #41 Elevation (ft): 2275 Rainfall (in.)

WY	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	WY
Total	16.56	19.47	40.43	52.79	82.61	96.09	74.38	35.61	12.67	4.18	2.38	4.84	442.01
N	56	56	56	56	56	56	56	56	56	56	56	56	56
Mean	0.30	0.35	0.72	0.94	1.48	1.72	1.33	0.64	0.23	0.07	0.04	0.09	7.89
Max	3.10	1.54	2.45	3.70	6.33	8.38	7.12	3.78	1.95	2.27	1.73	1.70	19.78
StdDev	0.61	0.46	0.73	0.80	1.26	1.81	1.37	0.84	0.37	0.32	0.23	0.28	3.67
CV	2.06	1.31	1.01	0.85	0.85	1.06	1.03	1.32	1.65	4.34	5.42	3.21	0.46
Reg CV	2.68	1.28	1.03	0.84	0.90	0.99	0.87	1.11	1.83	2.91	3.81	4.10	0.44
Reg Skew	3.80	1.80	1.40	1.00	1.60	1.10	1.10	1.70	2.60	3.60	4.40	4.80	1.10
FIC	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Return Period in Years

2	0.00	0.22	0.55	0.82	1.14	1.41	1.12	0.45	0.07	0.00	0.00	0.00	7.27
5	0.50	0.63	1.25	1.54	2.38	2.99	2.19	1.10	0.42	0.14	0.07	0.12	10.50
10	1.12	0.94	1.72	2.00	3.24	3.99	2.88	1.57	0.73	0.31	0.19	0.38	12.55
25	2.08	1.32	2.31	2.56	4.34	5.22	3.71	2.17	1.17	0.57	0.40	0.85	15.05
50	2.88	1.62	2.73	2.95	5.17	6.12	4.32	2.62	1.51	0.78	0.58	1.26	16.89
100	3.71	1.91	3.15	3.33	5.98	6.96	4.90	3.06	1.85	1.00	0.76	1.70	18.62
200	4.58	2.19	3.57	3.71	6.77	7.80	5.47	3.51	2.21	1.23	0.96	2.16	20.33
500	6.33	2.68	4.22	4.24	8.09	9.02	6.30	4.24	2.81	1.68	1.38	3.14	22.83
1000	6.67	2.86	4.51	4.53	8.60	9.65	6.72	4.53	3.04	1.78	1.44	3.29	24.11
10000	9.78	3.81	5.83	5.66	11.19	12.23	8.48	5.96	4.25	2.59	2.17	5.00	29.39



Santa Barbara County - Flood Control District

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Official Monthly and Yearly Rainfall Record

(Monthly Depth Durations and Expected Return Periods)

Station: 421 Station Type: Alert, Data Logger w/TB Latitude: 344405 Longitude: 1200025
Station Name: **Figueroa Mountain** Elevation (ft): 3200 Rainfall (in.)

WY	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	WY
1960-61	0.00	0.14	6.78	1.39	2.34	0.46	1.30	0.60	0.63	0.00	0.00	0.00	13.64
1961-62	0.08	0.00	3.24	2.71	2.84	13.77	1.76	0.00	0.17	0.07	0.00	0.00	24.64
1962-63	0.00	0.53	0.06	0.09	1.52	6.61	2.95	3.11	0.21	0.29	0.00	0.08	15.45
1963-64	1.69	1.47	3.26	0.13	2.64	0.10	3.54	2.81	0.22	0.34	0.08	0.00	16.28
1964-65	0.00	2.25	4.62	3.50	0.75	0.22	1.90	6.59	0.00	0.00	0.02	0.00	19.85
1965-66	0.79	0.00	9.72	5.07	1.60	1.20	0.20	0.00	0.40	0.00	0.00	0.00	18.98
1966-67	0.20	0.10	4.68	7.95	5.05	0.47	6.14	8.85	0.20	0.30	0.00	0.00	33.94
1967-68	0.34	0.00	4.57	1.49	1.54	1.38	4.17	1.37	0.00	0.00	0.00	0.00	14.86
1968-69	0.00	2.25	1.33	3.29	18.90	11.50	2.20	1.10	0.00	0.00	0.10	0.00	40.67
1969-70	0.16	0.45	1.18	0.78	4.60	2.22	5.51	0.20	0.00	0.10	0.00	0.00	15.20
1970-71	0.00	0.16	6.15	6.21	1.04	0.63	1.10	1.53	1.79	0.00	0.00	0.00	18.61
1971-72	0.05	0.37	0.68	6.80	0.28	0.69	0.00	0.38	0.06	0.03	0.07	0.00	9.41
1972-73	0.00	0.72	5.74	1.76	5.41	9.61	4.22	0.00	0.00	0.00	0.00	0.02	27.48
1973-74	0.22	0.74	3.91	3.02	7.19	0.11	4.32	2.29	0.22	0.00	0.00	0.00	22.02
1974-75	0.00	1.91	0.60	5.35	0.15	4.94	6.40	1.46	0.00	0.00	0.00	0.00	20.81
1975-76	0.00	1.10	0.47	0.20	0.00	6.63	2.76	2.32	0.00	0.15	0.00	0.79	14.42
1976-77	5.06	0.73	0.70	0.99	3.39	0.15	2.41	0.03	3.61	0.00	0.00	0.02	17.09
1977-78	0.03	0.03	0.30	5.45	7.20	12.00	11.34	3.56	0.03	0.00	0.00	0.00	39.94
1978-79	2.78	0.00	3.60	1.90	5.50	5.40	5.70	0.07	0.00	0.00	0.00	0.00	24.95
1979-80	0.40	0.70	1.60	1.70	9.20	12.00	3.80	1.70	0.50	0.00	0.00	0.00	31.60
1980-81	0.00	0.00	0.00	1.20	5.60	3.50	8.50	1.80	0.00	0.00	0.00	0.00	20.60
1981-82	0.00	0.95	2.09	1.72	4.01	1.10	7.90	4.48	0.00	0.24	0.00	0.00	22.49
1982-83	1.16	1.83	7.17	4.31	10.00	7.60	13.65	5.33	0.58	0.00	0.00	0.47	52.10
1983-84	1.40	2.12	5.40	5.04	0.20	0.20	0.94	0.48	0.00	0.00	0.00	0.00	15.78
1984-85	0.40	1.20	3.90	4.60	0.69	2.25	3.21	0.50	0.00	0.00	0.00	0.00	16.75
1985-86	0.00	0.70	4.61	0.68	1.40	6.90	5.68	0.30	0.00	0.00	0.00	0.00	20.27
1986-87	1.65	0.00	1.06	1.00	2.40	3.20	4.70	0.30	0.00	0.00	0.00	0.00	14.31
1987-88	0.00	2.00	1.65	2.75	3.25	2.95	0.71	3.83	0.16	0.30	0.00	0.00	17.60
1988-89	0.00	0.00	1.47	5.26	0.40	1.97	1.30	0.59	0.00	0.00	0.00	0.00	10.99
1989-90	0.63	0.24	0.59	0.00	3.58	2.05	0.24	0.16	1.08	0.00	0.00	0.00	8.57
1990-91	0.20	0.10	0.40	0.50	2.00	4.00	12.20	0.20	0.00	0.20	0.00	0.00	19.80
1991-92	0.00	1.00	0.40	5.80	3.70	11.60	5.20	0.00	0.20	0.00	0.70	0.00	28.60
1992-93	0.00	2.40	0.00	7.70	10.60	9.30	6.90	0.10	0.00	0.70	0.00	0.00	37.70
1993-94	0.00	0.16	1.72	2.10	1.90	5.70	2.90	1.30	2.40	0.00	0.00	0.00	18.18
1994-95	0.00	0.70	2.00	1.60	20.00	3.20	12.20	0.60	1.80	0.80	0.00	0.00	42.90
1995-96	0.00	0.00	0.20	1.80	3.90	11.90	3.10	1.70	0.80	0.10	0.00	0.00	23.50
1996-97	0.00	2.40	3.51	6.31	6.76	0.48	0.00	0.00	0.00	0.00	0.04	0.00	19.50
1997-98	0.00	0.00	5.00	5.16	5.95	17.30	5.55	3.20	3.70	0.00	0.00	0.00	45.86
1998-99	0.95	0.16	1.38	1.39	3.27	2.29	5.32	2.33	0.00	0.08	0.47	0.12	17.76
1999-00	0.00	0.00	1.66	0.00	2.09	8.95	1.57	3.31	0.00	0.04	0.00	0.00	17.62
2000-01	0.00	3.38	0.00	0.08	6.30	4.18	5.12	2.49	0.00	0.00	0.00	0.00	21.55
2001-02	0.00	1.11	3.39	1.89	0.83	0.28	1.57	0.16	0.32	0.00	0.00	0.00	9.55
2002-03	0.00	0.00	5.32	5.80	0.08	3.06	1.89	1.82	2.04	0.00	0.00	0.00	20.01
2003-04	0.00	0.00	2.41	1.98	0.75	4.97	0.55	0.00	0.00	0.00	0.00	0.00	10.66
2004-05	0.00	6.38	0.79	6.78	10.05	6.22	3.20	0.67	2.13	0.00	0.00	0.00	36.22
2005-06	0.00	0.47	1.81	1.06	4.25	2.05	5.18	7.22	1.18	0.00	0.00	0.00	23.22
2006-07	0.00	0.98	0.28	0.83	1.10	3.94	0.91	0.63	0.00	0.00	0.00	0.04	8.70
2007-08	0.59	0.75	0.12	3.70	11.42	3.43	0.16	0.08	0.20	0.00	0.00	0.00	20.43
2008-09	0.00	0.12	2.41	1.87	0.89	4.06	1.34	0.18	0.06	0.07	0.00	0.06	11.06
2009-10	0.06	1.88	0.00	3.96	6.80	5.18	0.63	3.77	0.25	0.00	0.00	0.00	22.53



Santa Barbara County - Flood Control District

123 E. Anapamu St., Santa Barbara, CA 93101
805.568.3440 - www.countyofsb.org/pwd

Official Monthly and Yearly Rainfall Record

(Monthly Depth Durations and Expected Return Periods)

Station: 421 Station Type: Alert, Data Logger w/TB

Latitude: 344405 Longitude: 1200025

Station Name: **Figueroa Mountain**

Elevation (ft): 3200

Rainfall (in.)

WY	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	WY
Total	18.84	44.68	123.92	146.65	215.31	233.89	194.03	85.50	24.94	3.81	1.48	1.60	1094.65
N	50	50	50	50	50	50	50	50	50	50	50	50	50
Mean	0.38	0.89	2.48	2.93	4.31	4.68	3.88	1.71	0.50	0.08	0.03	0.03	21.89
Max	5.06	6.38	9.72	7.95	20.00	17.30	13.65	8.85	3.70	0.80	0.70	0.79	52.10
StdDev	0.87	1.15	2.27	2.27	4.31	4.20	3.31	2.02	0.89	0.17	0.12	0.13	9.97
CV	2.31	1.29	0.92	0.77	1.00	0.90	0.85	1.18	1.79	2.18	3.97	4.00	0.46
Reg CV	2.68	1.28	1.03	0.84	0.90	0.99	0.87	1.11	1.83	2.91	3.81	4.10	0.44
Reg Skew	3.80	1.80	1.40	1.00	1.60	1.10	1.10	1.70	2.60	3.60	4.40	4.80	1.10
FIC	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Return Period in Years													
2	0.00	0.57	1.89	2.54	3.34	3.84	3.27	1.20	0.16	0.00	0.00	0.00	20.16
5	0.64	1.63	4.29	4.81	6.94	8.15	6.41	2.96	0.94	0.14	0.05	0.04	29.12
10	1.43	2.40	5.90	6.23	9.46	10.88	8.40	4.22	1.61	0.32	0.13	0.14	34.80
25	2.65	3.40	7.92	7.96	12.68	14.22	10.84	5.85	2.57	0.58	0.28	0.31	41.74
50	3.67	4.15	9.37	9.19	15.08	16.67	12.62	7.04	3.32	0.79	0.40	0.46	46.84
100	4.73	4.90	10.83	10.37	17.44	18.99	14.31	8.24	4.09	1.02	0.53	0.63	51.66
200	5.84	5.64	12.26	11.53	19.77	21.26	15.97	9.44	4.86	1.25	0.67	0.80	56.38
500	8.07	6.89	14.50	13.21	23.61	24.59	18.40	11.41	6.20	1.72	0.96	1.16	63.31
1000	8.50	7.35	15.50	14.09	25.12	26.30	19.65	12.17	6.70	1.81	1.01	1.22	66.88
10000	12.46	9.78	20.02	17.62	32.68	33.34	24.78	16.02	9.38	2.64	1.51	1.85	81.52



Santa Barbara County - Flood Control District

123 E. Anapamu St., Santa Barbara, CA 93101
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Official Monthly and Yearly Rainfall Record

(Monthly Depth Durations and Expected Return Periods)

Station: 230 Station Type: Data Logger w/TB & Standard

Latitude: 343124 Longitude: 1194055

Station Name: Gibraltar Dam

Elevation (ft): 1500

Rainfall (in.)

WY	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	WY
1919-20	0.90	0.30	0.00	4.50	0.46	7.74	6.56	1.20	0.00	0.05	0.00	0.00	21.71
1920-21	0.00	0.70	1.92	1.59	8.88	2.65	2.66	0.35	3.57	0.00	0.00	0.00	22.32
1921-22	0.29	0.50	0.07	17.21	7.66	8.98	6.02	0.45	0.57	0.00	0.00	0.00	41.75
1922-23	0.00	0.44	3.43	10.25	3.37	1.68	0.09	2.98	0.00	0.12	0.00	0.00	22.36
1923-24	0.00	1.10	0.10	0.27	1.00	0.10	6.95	0.88	0.00	0.00	0.00	0.00	10.40
1924-25	0.00	0.73	0.96	1.78	0.40	1.67	5.82	3.50	2.42	0.13	0.00	0.00	17.41
1925-26	0.00	1.17	1.13	2.18	3.67	6.79	0.10	12.10	0.00	0.00	0.00	0.00	27.14
1926-27	0.00	0.02	7.90	0.95	2.02	13.47	2.79	1.11	0.00	0.00	0.00	0.00	28.26
1927-28	0.00	4.13	1.15	4.33	0.10	5.83	3.81	0.28	0.44	0.00	0.00	0.00	20.07
1928-29	0.00	0.00	3.93	6.26	2.14	2.28	2.81	2.00	0.00	0.20	0.00	0.00	19.62
1929-30	0.03	0.00	0.00	0.00	7.24	0.91	8.27	0.31	1.19	0.10	0.00	0.00	18.05
1930-31	0.00	0.00	2.49	0.00	5.03	3.44	0.00	2.82	2.91	0.00	0.00	0.65	17.34
1931-32	0.00	0.00	5.42	11.28	4.94	10.80	0.11	0.30	0.43	0.00	0.00	0.00	33.28
1932-33	0.00	0.16	0.00	0.81	14.39	0.00	0.26	0.09	0.00	0.72	0.00	0.00	16.43
1933-34	0.00	0.48	0.00	8.96	4.67	4.09	0.00	0.00	0.00	1.52	0.00	0.00	19.72
1934-35	0.00	2.71	2.85	5.26	7.83	1.18	5.09	4.54	0.07	0.00	0.00	0.17	29.70
1935-36	0.00	0.44	0.77	1.98	0.35	14.02	2.79	1.03	0.00	0.00	0.00	0.25	21.63
1936-37	0.00	0.62	0.00	13.67	5.00	7.58	9.17	0.10	0.00	0.00	0.00	0.00	36.14
1937-38	0.00	0.17	0.04	5.20	2.32	15.62	15.99	1.59	0.00	0.00	0.00	0.00	40.93
1938-39	0.37	0.22	0.12	7.10	4.73	1.93	5.65	0.06	0.27	0.00	0.00	0.00	20.45
1939-40	0.68	0.11	0.17	2.36	7.03	5.52	1.51	1.43	0.00	0.00	0.00	0.00	18.81
1940-41	0.00	0.88	0.44	11.16	9.31	18.62	17.97	8.26	0.07	0.00	0.00	0.00	66.71
1941-42	0.00	1.11	0.75	7.96	1.55	1.01	2.27	4.22	0.03	0.00	0.00	0.05	18.95
1942-43	0.00	0.92	0.30	1.56	21.90	6.72	5.03	1.06	0.00	0.00	0.00	0.00	37.49
1943-44	0.00	0.57	0.19	6.76	2.83	15.03	2.20	1.83	0.00	0.00	0.00	0.00	29.41
1944-45	0.00	0.00	5.57	1.54	0.70	7.61	5.59	0.06	0.00	0.00	0.00	0.00	21.07
1945-46	0.00	1.97	0.64	9.86	0.41	2.80	9.58	0.02	0.00	0.00	0.00	0.00	25.28
1946-47	0.00	0.18	8.15	4.36	0.42	0.82	1.96	0.14	0.07	0.00	0.00	0.00	16.10
1947-48	0.00	0.04	0.02	0.48	0.00	2.73	5.23	2.87	0.63	0.39	0.00	0.00	12.39
1948-49	0.00	0.09	0.00	4.88	2.22	1.22	4.88	0.19	1.61	0.01	0.00	0.00	15.10
1949-50	0.00	0.02	2.53	4.62	4.16	2.38	1.42	1.40	0.00	0.00	0.02	0.00	16.55
1950-51	0.29	1.48	2.28	0.64	2.27	1.33	1.56	1.50	0.01	0.00	0.00	0.00	11.36
1951-52	0.00	1.04	2.83	5.80	25.21	0.78	11.75	1.99	0.00	0.00	0.03	0.00	49.43
1952-53	0.00	0.08	4.85	8.06	1.32	0.00	0.19	1.28	0.37	0.23	0.00	0.00	16.38
1953-54	0.00	0.00	2.83	0.25	7.70	3.29	6.26	0.21	0.00	0.00	0.00	0.00	20.54
1954-55	0.00	0.00	3.27	3.17	6.39	2.69	0.75	4.64	0.54	0.00	0.00	0.07	21.52
1955-56	0.00	0.00	1.63	8.66	5.48	0.99	0.00	5.06	2.00	0.00	0.00	0.00	23.82
1956-57	0.00	0.08	0.00	0.38	8.60	4.39	0.67	3.34	1.31	0.04	0.04	0.00	18.85
1957-58	0.00	2.01	0.84	9.94	3.57	13.35	9.70	11.95	0.70	0.00	0.00	0.02	52.08
1958-59	0.61	0.00	0.13	0.05	5.75	10.48	0.00	0.57	0.02	0.00	0.00	0.00	17.61
1959-60	0.16	0.00	0.00	1.96	5.58	3.64	0.43	3.36	0.00	0.00	0.00	0.00	15.13
1960-61	0.00	0.09	7.37	0.63	2.67	0.02	0.85	0.47	0.00	0.00	0.00	0.00	12.10
1961-62	0.00	0.03	5.51	3.01	2.71	23.05	1.83	0.00	0.00	0.00	0.00	0.00	36.14
1962-63	0.00	0.30	0.00	0.30	1.96	6.90	5.25	3.12	0.28	0.44	0.00	0.00	18.55
1963-64	1.49	0.89	3.63	0.00	4.40	0.04	3.50	2.16	0.14	0.02	0.00	0.00	16.27
1964-65	0.00	1.15	4.18	5.21	0.93	0.37	2.87	7.94	0.11	0.00	0.00	0.00	22.76
1965-66	0.00	0.00	17.00	9.36	2.24	0.86	0.24	0.00	0.00	0.00	0.00	0.00	29.70
1966-67	0.00	0.04	7.48	9.38	8.22	0.00	6.86	7.15	0.06	0.00	0.00	0.00	39.19
1967-68	0.12	0.00	5.11	1.51	1.84	1.30	3.50	1.67	0.00	0.00	0.00	0.00	15.05
1968-69	0.00	1.19	1.07	2.22	31.18	18.23	1.67	2.81	0.00	0.00	0.00	0.00	58.37
1969-70	0.00	0.00	2.59	0.31	4.34	3.57	6.58	0.00	0.00	0.00	0.00	0.00	17.39
1970-71	0.00	0.08	9.38	8.87	1.10	1.64	0.00	0.94	0.47	0.00	0.00	0.00	22.48
1971-72	0.00	0.47	1.09	13.20	0.19	0.32	0.00	0.24	0.11	0.00	0.00	0.00	15.62
1972-73	0.00	0.55	9.10	1.06	8.38	14.89	4.27	0.00	0.00	0.00	0.00	0.00	38.25
1973-74	0.00	0.70	3.19	2.83	12.26	0.05	5.35	0.85	0.02	0.00	0.00	0.00	25.25
1974-75	0.00	0.89	0.06	9.53	0.35	5.62	8.96	2.13	0.08	0.00	0.00	0.01	27.63
1975-76	0.00	0.40	0.44	0.22	0.00	10.93	2.02	1.08	0.00	0.00	0.00	0.05	15.14
1976-77	4.28	0.25	0.44	0.83	5.42	0.26	2.89	0.00	5.19	0.00	0.00	0.38	19.94
1977-78	0.00	0.00	0.14	9.23	11.91	14.42	18.28	4.27	0.00	0.00	0.00	0.00	58.25
1978-79	1.63	0.00	2.76	2.51	8.49	6.08	7.26	0.00	0.00	0.00	0.00	0.00	28.73



Santa Barbara County - Flood Control District

123 E. Anapamu St., Santa Barbara, CA 93101
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Official Monthly and Yearly Rainfall Record

(Monthly Depth Durations and Expected Return Periods)

Station: 230 Station Type: Data Logger w/TB & Standard Latitude: 343124 Longitude: 1194055
Station Name: Gibraltar Dam Elevation (ft): 1500 Rainfall (in.)

WY	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	WY
1979-80	1.01	0.58	0.96	2.02	8.13	17.69	4.39	1.10	0.24	0.00	0.00	0.00	36.12
1980-81	0.00	0.00	0.00	1.74	6.17	2.99	9.98	1.05	0.00	0.00	0.00	0.00	21.93
1981-82	0.00	0.38	2.57	0.47	6.14	0.65	7.55	5.02	0.05	0.00	0.00	0.00	22.83
1982-83	1.70	1.30	7.87	5.62	15.07	8.47	15.11	8.86	0.00	0.20	0.00	0.79	64.99
1983-84	0.59	5.46	4.18	6.75	0.25	0.18	0.95	0.24	0.00	0.00	0.00	0.07	18.67
1984-85	0.23	0.49	4.09	7.05	1.17	1.16	2.65	0.14	0.00	0.00	0.00	0.00	16.98
1985-86	0.05	0.36	6.32	1.02	3.63	11.33	6.70	1.04	0.00	0.00	0.00	0.00	30.45
1986-87	0.84	0.00	0.91	0.42	2.61	2.02	5.16	0.07	0.00	0.20	0.00	0.00	12.23
1987-88	0.00	1.71	1.41	4.97	5.19	4.12	1.97	5.30	0.13	0.05	0.00	0.00	24.85
1988-89	0.00	0.00	1.04	5.88	0.36	5.38	1.39	0.00	0.60	0.00	0.00	0.00	14.65
1989-90	0.24	0.68	0.51	0.00	6.03	3.34	0.04	0.24	0.75	0.00	0.00	0.00	11.83
1990-91	0.00	0.00	0.26	0.18	1.71	4.88	22.76	0.00	0.00	0.21	0.00	0.00	30.00
1991-92	0.00	0.33	0.13	6.54	4.72	19.42	6.89	0.04	0.16	0.00	0.00	0.00	38.23
1992-93	0.00	1.78	0.00	8.17	14.30	16.43	8.12	0.00	0.34	0.47	0.00	0.00	49.61
1993-94	0.00	0.19	1.51	2.92	1.74	10.46	2.83	0.65	0.48	0.00	0.00	0.00	20.78
1994-95	0.09	2.19	1.29	1.54	34.46	3.39	13.97	0.33	1.64	0.02	0.00	0.00	58.92
1995-96	0.00	0.00	0.18	2.85	2.93	10.30	2.21	1.00	0.39	0.00	0.00	0.00	19.86
1996-97	0.00	7.05	1.89	7.81	7.45	0.13	0.00	0.00	0.00	0.00	0.04	0.00	24.37
1997-98	0.09	0.00	5.48	10.17	6.81	34.90	4.59	4.43	6.62	0.03	0.00	0.00	73.12
1998-99	0.55	0.13	1.22	0.65	4.25	2.26	4.97	3.13	0.00	0.05	0.24	0.00	17.45
1999-00	0.02	0.00	1.82	0.00	2.35	18.05	4.49	6.27	0.00	0.19	0.00	0.01	33.20
2000-01	0.00	4.04	0.00	0.15	11.24	8.85	13.67	2.97	0.01	0.00	0.00	0.00	40.93
2001-02	0.00	0.65	4.48	2.90	1.03	0.33	0.84	0.08	0.09	0.00	0.00	0.00	10.40
2002-03	0.06	0.00	4.61	6.45	0.12	5.26	4.43	3.87	2.82	0.00	0.06	0.00	27.68
2003-04	0.00	0.00	2.29	3.10	0.39	8.56	0.40	0.00	0.00	0.00	0.00	0.00	14.74
2004-05	0.00	8.39	0.46	17.37	21.45	15.66	3.35	1.04	1.34	0.05	0.00	0.00	69.11
2005-06	0.14	0.59	1.38	0.66	9.61	5.33	5.35	8.12	1.27	0.00	0.00	0.00	32.45
2006-07	0.00	0.37	0.23	1.63	2.62	3.40	0.16	0.81	0.00	0.00	0.00	0.02	9.24
2007-08	0.79	0.37	0.10	4.32	23.40	3.04	0.00	0.15	0.27	0.00	0.00	0.00	32.44
2008-09	0.00	0.04	2.04	3.78	0.81	7.22	0.95	0.33	0.02	0.08	0.00	0.00	15.27
2009-10	0.00	5.55	0.00	4.83	11.08	6.40	0.65	4.90	0.11	0.00	0.00	0.00	33.52
Total	17.25	74.13	209.47	400.20	534.41	566.31	412.59	187.08	43.02	5.52	0.43	2.54	2452.95
N	91	91	91	91	91	91	91	91	91	91	91	91	91
Mean	0.19	0.81	2.30	4.40	5.87	6.22	4.53	2.06	0.47	0.06	0.00	0.03	26.96
Max	4.28	8.39	17.00	17.37	34.46	34.90	22.76	12.10	6.62	1.52	0.24	0.79	73.12
StdDev	0.55	1.49	2.87	4.06	6.62	6.43	4.62	2.64	1.08	0.19	0.03	0.12	14.25
CV	2.92	1.83	1.25	0.92	1.13	1.03	1.02	1.28	2.28	3.17	5.60	4.16	0.53
Reg CV	2.68	1.28	1.03	0.84	0.90	0.99	0.87	1.11	1.83	2.91	3.81	4.10	0.44
Reg Skew	3.80	1.80	1.40	1.00	1.60	1.10	1.10	1.70	2.60	3.60	4.40	4.80	1.10
FIC	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Return Period in Years													
2	0.00	0.52	1.76	3.81	4.55	5.11	3.82	1.44	0.15	0.00	0.00	0.00	24.82
5	0.32	1.48	3.99	7.21	9.47	10.84	7.49	3.56	0.89	0.11	0.01	0.04	35.85
10	0.72	2.19	5.48	9.35	12.90	14.48	9.82	5.07	1.53	0.25	0.02	0.12	42.85
25	1.33	3.10	7.35	11.93	17.29	18.91	12.66	7.03	2.44	0.46	0.04	0.27	51.39
50	1.85	3.79	8.70	13.78	20.57	22.18	14.75	8.47	3.15	0.63	0.06	0.41	57.67
100	2.38	4.46	10.05	15.55	23.79	25.26	16.72	9.91	3.87	0.81	0.09	0.55	63.60
200	2.94	5.14	11.38	17.29	26.96	28.28	18.66	11.34	4.61	1.00	0.11	0.70	69.42
500	4.06	6.28	13.47	19.80	32.19	32.72	21.50	13.72	5.88	1.37	0.15	1.01	77.96
1000	4.27	6.70	14.39	21.13	34.26	34.99	22.95	14.63	6.35	1.44	0.16	1.06	82.34
10000	6.27	8.92	18.59	26.41	44.56	44.36	28.95	19.26	8.89	2.10	0.24	1.61	100.37



Santa Barbara County - Flood Control District

123 E. Anapamu St., Santa Barbara, CA 93101
805.568.3440 - www.countyofsb.org/pwd

Official Monthly and Yearly Rainfall Record

(Monthly Depth Durations and Expected Return Periods)

Station: 440 Station Type: Data Logger w/TB

Latitude: 342635 Longitude: 1195113

Station Name: **Goleta Fire Station #14**

Elevation (ft): 75

Rainfall (in.)

WY	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	WY
1941-42	0.00	1.07	0.45	5.79	1.02	1.18	1.92	3.30	0.00	0.00	0.00	0.14	14.87
1942-43	0.00	0.92	0.77	1.56	10.80	3.12	2.90	1.01	0.00	0.00	0.00	0.00	21.08
1943-44	0.00	0.65	0.00	5.84	1.45	6.67	2.36	1.59	0.00	0.00	0.00	0.00	18.56
1944-45	0.00	0.00	3.77	1.17	0.00	6.24	4.60	0.00	0.00	0.00	0.00	0.00	15.78
1945-46	0.00	0.69	0.79	7.24	0.33	1.07	3.74	0.00	0.00	0.00	0.00	0.00	13.86
1946-47	0.00	0.82	7.01	3.29	0.63	0.55	1.03	0.09	0.40	0.00	0.00	0.00	13.82
1947-48	0.00	0.32	0.00	0.73	0.00	1.34	3.78	1.74	0.44	0.10	0.00	0.00	8.45
1948-49	0.00	0.04	0.00	3.24	1.49	1.54	3.03	0.09	1.56	0.00	0.00	0.00	10.99
1949-50	0.00	0.04	1.80	4.40	2.92	2.73	1.59	0.53	0.00	0.00	0.94	0.00	14.95
1950-51	0.21	1.04	2.05	0.51	2.63	1.12	1.16	2.18	0.00	0.00	0.00	0.00	10.90
1951-52	0.00	0.36	1.34	5.87	10.79	0.79	7.70	1.72	0.00	0.00	0.00	0.00	28.57
1952-53	0.00	0.00	4.56	5.41	1.96	0.00	0.66	1.50	0.06	0.00	0.00	0.00	14.15
1953-54	0.00	0.00	2.52	0.11	5.07	2.60	4.22	0.47	0.13	0.00	0.00	0.00	15.12
1954-55	0.00	0.00	1.85	3.71	4.73	2.65	0.70	3.46	0.19	0.00	0.00	0.00	17.29
1955-56	0.00	0.00	1.50	7.53	7.20	1.10	0.00	2.23	1.31	0.00	0.00	0.00	20.87
1956-57	0.00	0.07	0.00	0.12	5.59	3.62	0.43	2.25	1.33	0.00	0.00	0.00	13.41
1957-58	0.00	0.97	0.58	4.30	3.43	8.46	6.38	4.99	0.41	0.00	0.00	0.00	29.52
1958-59	0.56	0.00	0.06	0.09	2.45	4.93	0.00	1.10	0.00	0.00	0.00	0.00	9.19
1959-60	0.04	0.00	0.00	1.52	4.31	3.61	0.54	2.84	0.00	0.00	0.00	0.00	12.86
1960-61	0.00	0.05	5.77	0.43	1.31	0.00	0.93	0.67	0.00	0.00	0.00	0.00	9.16
1961-62	0.00	0.00	2.82	1.25	2.23	14.11	0.97	0.00	0.04	0.00	0.00	0.00	21.42
1962-63	0.00	0.53	0.00	0.10	1.50	6.37	4.35	2.65	0.32	0.43	0.00	0.14	16.39
1963-64	1.11	1.05	3.67	0.00	1.70	0.00	3.18	0.12	0.00	0.19	0.00	0.00	11.02
1964-65	0.00	1.08	2.41	4.99	0.88	0.72	3.17	6.53	0.00	0.00	0.00	0.00	19.78
1965-66	0.00	0.00	9.00	4.29	2.22	0.83	0.10	0.00	0.06	0.06	0.00	0.00	16.56
1966-67	0.03	0.06	4.02	6.08	6.65	0.62	2.11	4.56	0.00	0.00	0.00	0.00	24.13
1967-68	0.10	0.00	4.35	1.25	1.01	1.87	4.41	1.09	0.00	0.00	0.00	0.00	14.08
1968-69	0.00	1.47	0.82	1.94	16.43	9.58	0.34	2.29	0.00	0.00	0.00	0.00	32.87
1969-70	0.05	0.00	1.69	0.27	4.14	2.18	4.52	0.00	0.00	0.00	0.00	0.00	12.85
1970-71	0.00	0.10	4.96	4.66	1.19	1.16	0.95	0.82	1.34	0.00	0.00	0.00	15.18
1971-72	0.00	0.00	0.47	7.87	0.22	0.56	0.00	0.23	0.00	0.00	0.00	0.00	9.35
1972-73	0.00	0.46	7.52	0.92	7.71	9.62	2.93	0.00	0.00	0.00	0.00	0.00	29.16
1973-74	0.00	0.66	1.81	1.66	8.77	0.24	5.19	0.39	0.00	0.00	0.00	0.00	18.72
1974-75	0.00	0.73	0.10	9.16	0.31	5.53	5.81	1.10	0.00	0.00	0.00	0.00	22.74
1975-76	0.00	0.46	0.18	0.08	0.00	5.99	1.47	1.38	0.00	0.27	0.00	0.00	9.83
1976-77	4.51	3.02	0.84	0.90	3.96	0.25	1.86	0.00	3.11	0.00	0.00	0.30	18.75
1977-78	0.00	0.00	0.18	5.22	9.99	10.12	12.91	2.50	0.00	0.00	0.00	0.00	40.92
1978-79	1.25	0.00	1.68	1.50	4.63	5.64	6.19	0.00	0.00	0.00	0.00	0.00	20.89
1979-80	0.80	0.64	0.70	2.20	6.55	10.39	2.61	0.47	0.35	0.00	0.64	0.00	25.35
1980-81	0.00	0.00	0.00	2.20	4.04	2.55	8.35	0.61	0.00	0.00	0.00	0.00	17.75
1981-82	0.00	1.00	2.69	0.82	3.69	0.50	5.69	3.01	0.00	0.00	0.00	0.00	17.40
1982-83	1.55	0.77	7.67	3.25	11.63	9.02	5.74	5.59	0.27	0.00	0.00	2.44	47.93
1983-84	0.48	4.30	3.53	6.02	0.00	0.00	0.92	0.16	0.00	0.00	0.00	0.00	15.41
1984-85	0.32	0.56	2.86	5.13	0.80	2.98	2.06	0.00	0.00	0.00	0.00	0.00	14.71
1985-86	0.00	0.00	0.00	0.00	2.12	7.89	5.80	0.46	0.00	0.00	0.00	0.00	16.27
1986-87	2.20	0.00	0.70	0.75	0.80	2.64	4.70	0.15	0.00	0.00	0.00	0.00	11.94
1987-88	0.00	2.41	0.98	3.63	2.79	0.92	0.00	0.00	0.00	0.00	0.00	0.00	10.73
1988-89	0.00	0.00	1.28	3.68	0.54	2.56	0.60	0.25	0.20	0.00	0.00	0.00	9.11
1989-90	0.05	0.47	0.28	0.00	2.53	1.89	0.01	0.24	0.00	0.00	0.00	0.00	5.47
1990-91	0.17	0.00	0.14	0.00	1.81	2.40	12.65	0.03	0.00	0.35	0.06	0.61	18.22
1991-92	0.04	0.32	0.13	3.97	2.49	8.73	3.56	0.01	0.00	0.03	0.46	0.00	19.74
1992-93	0.00	0.92	0.00	4.23	10.11	6.88	5.71	0.00	0.15	0.50	0.00	0.00	28.50
1993-94	0.00	0.18	1.27	1.62	1.23	6.69	1.79	0.65	0.44	0.00	0.00	0.00	13.87
1994-95	0.03	0.45	1.58	1.06	20.99	1.36	10.92	0.24	1.13	0.58	0.00	0.00	38.34
1995-96	0.00	0.00	0.16	3.15	2.22	7.90	2.22	0.94	0.76	0.00	0.00	0.00	17.35
1996-97	0.00	2.20	3.34	6.30	6.07	0.06	0.00	0.00	0.00	0.00	0.01	0.09	18.07
1997-98	0.48	0.00	3.64	6.59	5.67	21.53	2.46	2.87	3.77	0.02	0.00	0.00	47.03
1998-99	0.35	0.00	1.02	0.83	1.88	0.95	4.42	2.31	0.00	0.09	0.00	0.00	11.85
1999-00	0.04	0.00	1.49	0.00	2.19	11.34	3.83	3.96	0.00	0.00	0.00	0.00	22.85
2000-01	0.04	1.57	0.00	0.09	8.45	6.10	7.71	0.43	0.00	0.00	0.00	0.00	24.39



Santa Barbara County - Flood Control District

123 E. Anapamu St., Santa Barbara, CA 93101
805.568.3440 - www.countyofsb.org/pwd

Official Monthly and Yearly Rainfall Record

(Monthly Depth Durations and Expected Return Periods)

Station: 440 Station Type: Data Logger w/TB

Latitude: 342635 Longitude: 1195113

Station Name: Goleta Fire Station #14

Elevation (ft): 75

Rainfall (in.)

WY	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	WY
2001-02	0.00	0.61	3.88	2.19	1.31	0.38	0.55	0.08	0.05	0.00	0.00	0.00	9.05
2002-03	0.18	0.00	6.08	6.05	0.12	2.72	5.25	1.40	1.95	0.03	0.00	0.00	23.78
2003-04	0.00	0.00	1.66	2.80	0.50	5.52	0.50	0.00	0.00	0.00	0.00	0.00	10.98
2004-05	0.00	3.29	0.15	7.97	13.34	7.37	4.39	0.80	0.91	0.00	0.00	0.00	38.22
2005-06	0.12	0.84	2.01	0.86	5.56	2.98	4.24	5.86	1.44	0.00	0.00	0.01	23.92
2006-07	0.00	0.14	0.47	1.01	2.80	1.97	0.00	1.01	0.00	0.00	0.00	0.00	7.40
2007-08	0.24	0.28	0.00	2.62	11.78	2.25	0.00	0.12	0.08	0.00	0.00	0.00	17.37
2008-09	0.00	0.10	1.84	2.63	0.74	4.39	0.96	0.42	0.00	0.49	0.00	0.00	11.57
2009-10	0.00	3.91	0.00	3.67	6.36	4.19	0.47	2.65	0.17	0.02	0.01	0.00	21.45
Total	14.95	41.62	130.89	200.32	282.76	275.76	216.24	90.14	22.37	3.16	2.12	3.73	1284.06
N	69	69	69	69	69	69	69	69	69	69	69	69	69
Mean	0.22	0.60	1.90	2.90	4.10	4.00	3.13	1.31	0.32	0.05	0.03	0.05	18.61
Max	4.51	4.30	9.00	9.16	20.99	21.53	12.91	6.53	3.77	0.58	0.94	2.44	47.93
StdDev	0.65	0.92	2.13	2.44	4.22	3.96	2.93	1.58	0.70	0.13	0.14	0.30	8.91
CV	2.99	1.53	1.12	0.84	1.03	0.99	0.93	1.21	2.17	2.79	4.71	5.57	0.48
Reg CV	2.68	1.28	1.03	0.84	0.90	0.99	0.87	1.11	1.83	2.91	3.81	4.10	0.44
Reg Skew	3.80	1.80	1.40	1.00	1.60	1.10	1.10	1.70	2.60	3.60	4.40	4.80	1.10
FIC	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Return Period in Years													
2	0.00	0.39	1.45	2.51	3.18	3.28	2.64	0.91	0.10	0.00	0.00	0.00	17.14
5	0.37	1.10	3.28	4.76	6.61	6.96	5.18	2.26	0.61	0.09	0.05	0.07	24.75
10	0.82	1.62	4.52	6.17	9.00	9.30	6.79	3.22	1.05	0.19	0.14	0.24	29.58
25	1.52	2.29	6.06	7.88	12.06	12.15	8.75	4.47	1.67	0.35	0.29	0.53	35.48
50	2.11	2.80	7.17	9.10	14.35	14.24	10.20	5.38	2.16	0.48	0.42	0.79	39.82
100	2.72	3.31	8.29	10.27	16.60	16.22	11.56	6.29	2.66	0.61	0.55	1.06	43.91
200	3.36	3.81	9.38	11.41	18.81	18.16	12.89	7.21	3.16	0.75	0.70	1.35	47.92
500	4.64	4.65	11.10	13.07	22.47	21.01	14.86	8.72	4.03	1.03	0.99	1.96	53.82
1000	4.89	4.96	11.86	13.95	23.90	22.47	15.87	9.30	4.35	1.09	1.04	2.06	56.85
10000	7.17	6.60	15.32	17.44	31.10	28.49	20.01	12.24	6.10	1.59	1.57	3.13	69.29



Santa Barbara County - Flood Control District

123 E. Anapamu St., Santa Barbara, CA 93101
805.568.3440 - www.countyofsb.org/pwd

Official Monthly and Yearly Rainfall Record

(Monthly Depth Durations and Expected Return Periods)

Station: 439 Station Type: Alert, Data Logger w/TB Latitude: 343816 Longitude: 1202707
Station Name: **Lompoc City Hall** Elevation (ft): 100 Rainfall (in.)

WY	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	WY
1970-71	0.00	0.00	2.86	3.31	0.72	0.35	0.20	0.00	0.00	0.00	0.00	0.00	7.44
1971-72	0.00	0.32	0.23	5.11	0.13	0.29	0.00	0.25	0.00	0.00	0.00	0.00	6.33
1972-73	0.00	0.45	4.70	1.57	5.95	6.16	3.13	0.00	0.00	0.00	0.00	0.00	21.96
1973-74	0.08	0.44	1.77	2.14	5.24	0.15	3.80	0.94	0.00	0.00	0.00	0.00	14.56
1974-75	0.00	0.84	0.15	6.55	0.25	3.44	6.06	0.85	0.00	0.00	0.00	0.00	18.14
1975-76	0.00	0.59	0.35	0.19	0.00	4.94	1.37	1.49	0.03	0.17	0.00	0.71	9.84
1976-77	2.93	0.38	0.63	0.28	2.25	0.07	1.55	0.00	1.92	0.00	0.00	0.00	10.01
1977-78	0.00	0.00	0.12	3.16	6.81	7.62	7.46	3.02	0.00	0.00	0.00	0.00	28.19
1978-79	1.60	0.00	1.36	0.95	4.50	3.66	4.04	0.00	0.05	0.00	0.00	0.00	16.16
1979-80	0.30	0.66	0.84	2.63	3.84	6.87	1.86	0.58	0.14	0.00	0.12	0.00	17.84
1980-81	0.00	0.00	0.00	1.01	3.77	0.97	3.88	0.50	0.00	0.00	0.00	0.00	10.13
1981-82	0.00	0.56	0.64	0.77	2.56	0.56	4.03	2.40	0.00	0.00	0.00	0.00	11.52
1982-83	0.41	1.42	3.37	1.84	8.85	6.45	7.61	3.80	0.35	0.00	0.00	0.32	34.42
1983-84	0.03	0.61	2.14	3.51	0.00	0.44	0.42	0.74	0.00	0.00	0.00	0.00	7.89
1984-85	0.12	0.30	2.90	4.25	1.08	0.97	0.28	0.05	0.00	0.00	0.00	0.00	9.95
1985-86	0.00	0.46	2.73	2.26	1.37	6.57	4.63	0.28	0.00	0.00	0.00	0.00	18.30
1986-87	1.00	0.00	2.00	1.00	2.14	1.93	3.83	0.26	0.00	0.00	0.00	0.00	12.16
1987-88	0.00	0.99	1.30	5.61	1.78	1.90	0.50	3.10	0.25	0.00	0.00	0.00	15.43
1988-89	0.00	0.00	0.88	3.21	0.53	0.74	0.34	0.20	0.24	0.00	0.00	0.00	6.14
1989-90	0.46	0.25	0.30	0.00	2.83	1.64	0.46	0.37	0.64	0.00	0.00	0.00	6.95
1990-91	0.09	0.00	0.21	0.64	1.38	1.61	10.72	0.43	0.00	0.00	0.00	0.00	15.08
1991-92	0.00	0.30	0.20	3.46	2.77	7.15	1.92	0.00	0.00	0.00	0.03	0.00	15.83
1992-93	0.00	0.41	0.00	3.63	5.22	4.97	3.30	0.00	0.12	0.00	0.00	0.00	17.65
1993-94	0.00	0.32	0.82	1.62	1.68	4.99	1.66	0.90	0.77	0.00	0.00	0.00	12.76
1994-95	0.02	0.63	2.28	0.89	16.76	1.71	9.65	0.39	0.76	0.73	0.00	0.00	33.82
1995-96	0.00	0.00	0.31	1.72	0.90	7.23	0.96	0.67	0.36	0.00	0.00	0.00	12.15
1996-97	0.00	1.55	1.96	4.11	4.07	0.00	0.00	0.00	0.00	0.00	0.10	0.00	11.79
1997-98	0.22	0.00	4.45	4.69	5.14	11.15	2.74	3.71	1.95	0.00	0.00	0.00	34.05
1998-99	0.50	0.14	2.22	1.23	2.09	0.90	7.27	1.34	0.00	0.00	0.00	0.00	15.69
1999-00	0.00	0.00	1.07	0.00	1.42	7.67	1.87	3.10	0.00	0.00	0.00	0.00	15.13
2000-01	0.00	1.76	0.00	0.30	4.36	4.86	5.59	0.88	0.00	0.00	0.00	0.00	17.75
2001-02	0.00	0.48	2.94	2.11	0.73	0.26	0.86	0.08	0.07	0.00	0.00	0.00	7.53
2002-03	0.00	0.00	1.84	3.94	0.00	2.39	1.40	1.15	0.94	0.00	0.00	0.00	11.66
2003-04	0.00	0.00	1.34	1.46	0.66	4.76	0.36	0.00	0.00	0.00	0.00	0.00	8.58
2004-05	0.00	3.74	0.63	5.64	5.09	5.82	3.04	0.46	0.40	0.00	0.00	0.00	24.82
2005-06	0.12	0.56	0.94	0.90	4.30	1.16	4.06	3.60	1.22	0.00	0.00	0.00	16.86
2006-07	0.03	0.24	0.31	1.44	1.04	1.62	0.16	0.47	0.00	0.00	0.00	0.00	5.31
2007-08	0.04	0.54	0.04	1.26	10.00	1.62	0.00	0.08	0.00	0.00	0.01	0.02	13.61
2008-09	0.02	0.16	2.57	1.55	0.20	4.97	0.55	0.11	0.11	0.17	0.00	0.00	10.41
2009-10	0.00	2.18	0.01	2.53	7.79	3.46	0.52	2.81	0.06	0.01	0.00	0.00	19.37



Santa Barbara County - Flood Control District

123 E. Anapamu St., Santa Barbara, CA 93101
805.568.3440 - www.countyofsb.org/pwd

Official Monthly and Yearly Rainfall Record

(Monthly Depth Durations and Expected Return Periods)

Station: 439 Station Type: Alert, Data Logger w/TB Latitude: 343816 Longitude: 1202707

Station Name: **Lompoc City Hall** Elevation (ft): 100 Rainfall (in.)

WY	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	WY
Total	7.97	21.28	53.41	92.47	130.20	134.02	112.08	39.01	10.38	1.08	0.26	1.05	603.21
N	40	40	40	40	40	40	40	40	40	40	40	40	40
Mean	0.20	0.53	1.34	2.31	3.26	3.35	2.80	0.98	0.26	0.03	0.01	0.03	15.08
Max	2.93	3.74	4.70	6.55	16.76	11.15	10.72	3.80	1.95	0.73	0.12	0.71	34.42
StdDev	0.53	0.72	1.24	1.69	3.32	2.80	2.75	1.19	0.48	0.12	0.02	0.12	7.38
CV	2.68	1.36	0.93	0.73	1.02	0.84	0.98	1.22	1.86	4.39	3.75	4.58	0.49
Reg CV	2.68	1.28	1.03	0.84	0.90	0.99	0.87	1.11	1.83	2.91	3.81	4.10	0.44
Reg Skew	3.80	1.80	1.40	1.00	1.60	1.10	1.10	1.70	2.60	3.60	4.40	4.80	1.10
FIC	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Return Period in Years

2	0.00	0.34	1.02	2.00	2.52	2.75	2.36	0.68	0.08	0.00	0.00	0.00	13.89
5	0.34	0.97	2.31	3.79	5.25	5.84	4.63	1.69	0.49	0.05	0.01	0.04	20.06
10	0.75	1.43	3.18	4.91	7.15	7.80	6.07	2.40	0.84	0.11	0.03	0.12	23.97
25	1.40	2.02	4.26	6.27	9.58	10.18	7.82	3.34	1.34	0.20	0.06	0.26	28.75
50	1.94	2.47	5.05	7.24	11.40	11.94	9.12	4.02	1.73	0.28	0.09	0.38	32.27
100	2.50	2.92	5.83	8.18	13.19	13.60	10.33	4.70	2.13	0.36	0.12	0.51	35.58
200	3.09	3.36	6.60	9.09	14.94	15.23	11.53	5.38	2.53	0.44	0.15	0.65	38.83
500	4.27	4.10	7.81	10.41	17.84	17.61	13.28	6.51	3.23	0.61	0.21	0.95	43.61
1000	4.49	4.37	8.35	11.11	18.99	18.84	14.19	6.94	3.48	0.64	0.22	1.00	46.07
10000	6.59	5.82	10.78	13.89	24.70	23.88	17.89	9.14	4.88	0.94	0.33	1.52	56.15



Santa Barbara County - Flood Control District

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Official Monthly and Yearly Rainfall Record

(Monthly Depth Durations and Expected Return Periods)

Station: 204 Station Type: Alert, Data Logger w/TB Latitude: 344443 Longitude: 1201647
Station Name: Los Alamos Fire Station #24 Elevation (ft): 580 Rainfall (in.)

WY	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	WY
1909-10	0.00	0.95	1.69	5.80	3.58	0.23	4.18	0.00	0.00	0.00	0.00	0.00	16.43
1910-11	0.84	0.12	0.58	0.46	9.53	3.64	12.41	1.47	0.00	0.00	0.00	0.00	29.05
1911-12	0.00	0.00	0.00	1.85	1.59	0.00	6.77	0.85	1.12	0.00	0.00	0.00	12.18
1912-13	0.00	0.00	0.30	0.16	2.88	3.22	0.75	0.50	0.15	0.35	0.00	1.20	9.51
1913-14	0.00	0.00	2.45	3.05	11.30	6.26	0.97	0.45	0.00	0.00	0.00	0.00	24.48
1914-15	0.00	0.00	0.00	5.12	5.34	8.16	0.61	2.14	1.65	0.00	0.00	0.00	23.02
1915-16	0.00	0.00	0.72	3.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.20
1917-18	0.00	0.00	0.00	0.04	0.41	11.88	7.18	0.00	0.00	0.00	0.00	0.20	19.71
1918-19	0.20	0.30	2.94	2.63	0.46	2.75	1.65	0.06	1.35	0.00	0.00	0.00	12.34
1919-20	0.58	0.18	0.17	2.67	0.39	2.97	3.75	0.71	0.00	0.00	0.00	0.00	11.42
1920-21	0.03	0.58	1.33	1.29	3.77	1.80	1.06	0.34	1.47	0.00	0.00	0.00	11.67
1921-22	0.84	0.32	0.00	5.77	4.35	3.60	2.58	0.26	0.39	0.00	0.00	0.00	18.11
1922-23	0.00	0.55	1.26	4.15	0.00	1.26	0.35	3.60	0.00	0.05	0.00	0.00	11.22
1923-24	0.15	0.05	0.18	0.36	0.59	0.19	3.15	0.71	0.00	0.00	0.00	0.00	5.38
1924-25	0.00	0.82	0.85	1.43	0.84	1.75	3.52	2.63	1.21	0.08	0.00	0.00	13.13
1925-26	0.00	0.82	0.25	1.65	1.87	3.12	0.32	4.09	0.03	0.00	0.00	0.00	12.15
1926-27	0.00	0.49	4.68	0.81	1.91	6.02	2.16	1.43	0.08	0.00	0.00	0.00	17.58
1927-28	0.00	3.41	0.27	4.50	0.12	2.99	2.54	0.23	0.92	0.00	0.00	0.00	14.98
1928-29	0.00	0.23	2.79	2.18	1.70	1.02	1.16	1.21	0.00	0.10	0.00	0.00	10.39
1929-30	0.00	0.00	0.00	0.11	4.22	1.45	3.31	0.59	0.89	0.00	0.00	0.00	10.57
1930-31	0.29	0.00	1.64	0.00	3.92	1.92	0.12	0.65	1.10	0.00	0.00	0.14	9.78
1931-32	0.00	0.00	2.72	7.30	3.10	3.51	0.18	0.76	0.12	0.00	0.00	0.00	17.69
1932-33	0.17	0.04	0.01	1.38	6.95	0.30	0.55	0.66	0.28	1.26	0.00	0.00	11.60
1933-34	0.00	0.27	0.02	3.03	1.63	3.04	0.00	0.00	0.34	0.53	0.00	0.00	8.86
1934-35	0.00	1.42	3.00	1.70	4.18	1.66	3.37	2.58	0.17	0.00	0.00	0.15	18.23
1935-36	0.00	0.56	1.21	1.66	0.55	7.20	1.36	0.61	0.08	0.05	0.00	0.19	13.47
1936-37	0.07	2.73	0.00	4.43	3.66	5.34	4.82	0.25	0.00	0.00	0.00	0.00	21.30
1937-38	0.00	0.06	0.00	2.18	2.56	7.67	5.79	1.43	0.02	0.00	0.00	0.00	19.71
1938-39	0.89	0.16	0.13	3.54	3.05	1.96	2.84	0.10	0.05	0.00	0.00	0.00	12.72
1939-40	1.95	0.56	1.05	1.45	4.77	2.75	1.06	1.93	0.00	0.00	0.00	0.00	15.52
1940-41	0.00	0.46	0.10	6.04	6.44	8.15	10.13	3.83	0.06	0.00	0.05	0.03	35.29
1941-42	0.00	1.05	0.32	7.91	1.86	0.70	1.95	3.63	0.23	0.00	0.00	0.07	17.72
1942-43	0.00	0.80	0.72	1.93	6.83	2.18	2.84	1.00	0.00	0.00	0.00	0.00	16.30
1943-44	0.00	0.93	0.17	4.22	1.93	7.36	1.04	1.65	0.06	0.00	0.00	0.00	17.36
1944-45	0.00	0.00	3.17	1.55	0.10	3.95	3.26	0.09	0.02	0.02	0.00	0.09	12.25
1945-46	0.00	0.52	0.90	3.88	0.64	1.40	4.77	1.19	0.11	0.00	0.00	0.00	13.41
1946-47	0.00	0.30	4.84	1.33	0.53	0.70	0.91	0.12	0.11	0.03	0.00	0.05	8.92
1947-48	0.00	0.34	0.01	0.56	0.01	1.36	3.26	1.72	0.76	0.06	0.00	0.00	8.08
1948-49	0.00	0.15	0.00	3.58	1.28	1.61	4.12	0.24	0.75	0.00	0.00	0.00	11.73
1949-50	0.00	0.02	1.63	3.63	2.52	1.46	1.51	0.62	0.15	0.00	0.90	0.00	12.44
1950-51	0.00	0.86	1.83	0.68	2.09	1.61	1.42	1.69	0.02	0.00	0.00	0.00	10.20
1951-52	0.00	0.80	1.21	4.31	6.59	0.36	7.78	0.57	0.02	0.03	0.02	0.00	21.69
1952-53	0.00	0.00	3.40	5.39	1.26	0.00	1.08	1.27	0.00	0.00	0.00	0.00	12.40
1953-54	0.00	0.00	2.51	0.25	4.64	1.47	4.31	0.26	0.02	0.00	0.00	0.00	13.46
1954-55	0.00	0.00	1.29	2.68	4.42	1.42	0.33	1.86	1.21	0.02	0.00	0.01	13.24
1955-56	0.00	0.00	1.96	6.47	4.70	0.59	0.00	1.88	1.19	0.00	0.00	0.00	16.79
1956-57	0.00	0.64	0.00	0.36	3.17	2.20	1.24	1.30	1.28	0.08	0.00	0.00	10.27
1957-58	0.00	0.82	0.43	3.51	3.03	7.19	5.85	6.39	0.33	0.00	0.00	0.00	27.55
1958-59	1.62	0.00	0.17	0.21	2.50	4.98	0.00	0.68	0.00	0.00	0.00	0.00	10.16
1959-60	0.05	0.00	0.00	0.89	4.50	3.97	0.79	2.65	0.00	0.00	0.00	0.00	12.85
1960-61	0.00	0.64	3.23	1.02	0.90	0.12	0.88	0.25	0.16	0.00	0.00	0.00	7.20
1961-62	0.00	0.00	3.35	2.36	2.94	12.51	1.97	0.04	0.10	0.00	0.00	0.00	23.27
1962-63	0.00	0.46	0.01	0.44	0.48	4.76	3.63	2.61	0.30	0.17	0.00	0.31	13.17
1963-64	1.01	1.14	2.03	0.16	1.81	0.12	1.99	1.49	0.44	0.07	0.02	0.00	10.28
1964-65	0.00	1.47	2.41	2.11	0.72	0.51	2.37	4.20	0.00	0.00	0.00	0.00	13.79
1965-66	0.00	0.01	5.79	3.43	2.03	0.87	0.28	0.09	0.03	0.02	0.00	0.00	12.55
1966-67	0.09	0.00	2.02	0.00	4.67	0.31	2.30	4.98	0.00	0.00	0.00	0.00	14.37
1967-68	0.28	0.00	2.06	1.03	1.45	0.88	2.83	0.97	0.16	0.00	0.00	0.00	9.66
1968-69	0.00	1.93	1.18	1.80	9.39	9.47	1.33	1.90	0.10	0.00	0.00	0.00	27.10
1969-70	0.11	0.13	1.54	0.53	3.06	1.35	3.25	0.19	0.00	0.00	0.00	0.00	10.16



Santa Barbara County - Flood Control District

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Official Monthly and Yearly Rainfall Record

(Monthly Depth Durations and Expected Return Periods)

Station: 204 Station Type: Alert, Data Logger w/TB Latitude: 344443 Longitude: 1201647
Station Name: Los Alamos Fire Station #24 Elevation (ft): 580 Rainfall (in.)

WY	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	WY
1970-71	0.00	0.03	2.93	4.44	0.80	0.62	0.66	0.74	0.95	0.00	0.00	0.00	11.17
1971-72	0.04	0.27	0.36	6.02	0.09	0.28	0.00	0.19	0.10	0.00	0.05	0.00	7.40
1972-73	0.00	0.55	3.84	1.22	4.99	7.21	3.48	0.05	0.19	0.00	0.00	0.00	21.53
1973-74	0.05	0.32	2.42	2.23	5.92	0.13	4.00	0.96	0.00	0.00	0.00	0.00	16.03
1974-75	0.00	1.01	0.26	5.12	0.21	4.23	5.29	0.86	0.00	0.00	0.00	0.00	16.98
1975-76	0.00	0.84	0.00	0.17	0.01	6.68	1.67	1.31	0.03	0.13	0.02	0.44	11.30
1976-77	4.82	0.38	0.39	0.77	2.60	0.13	2.02	0.01	2.84	0.00	0.00	0.00	13.96
1977-78	0.00	0.00	0.14	3.10	5.62	8.22	7.66	2.88	0.00	0.00	0.00	0.00	27.62
1978-79	2.17	0.00	2.08	1.96	4.59	3.80	5.22	0.00	0.04	0.00	0.00	0.00	19.86
1979-80	0.20	0.92	0.69	1.80	4.25	6.91	2.42	1.55	0.28	0.00	0.01	0.00	19.03
1980-81	0.00	0.00	0.00	0.86	2.87	2.75	6.34	0.48	0.00	0.00	0.00	0.00	13.30
1981-82	0.00	0.57	0.92	0.86	2.90	0.79	5.50	2.90	0.00	0.00	0.00	0.00	14.44
1982-83	0.31	1.48	4.64	2.46	8.16	5.23	8.67	4.18	0.26	0.00	0.00	0.31	35.70
1983-84	0.05	1.22	3.20	3.61	0.01	0.41	0.57	0.59	0.00	0.00	0.00	0.00	9.66
1984-85	0.00	0.70	3.14	3.63	0.58	0.97	1.40	0.00	0.00	0.00	0.00	0.02	10.44
1985-86	0.00	0.41	3.49	0.44	1.19	4.70	5.37	0.27	0.00	0.00	0.00	0.00	15.87
1986-87	0.78	0.00	1.25	1.25	1.55	1.84	4.24	0.30	0.00	0.50	0.00	0.00	11.71
1987-88	0.00	1.32	1.38	3.68	1.94	2.42	1.03	2.99	0.11	0.19	0.00	0.00	15.06
1988-89	0.00	0.00	1.06	4.27	0.39	1.16	0.70	0.22	0.44	0.00	0.00	0.00	8.24
1989-90	0.62	0.48	0.27	0.00	3.41	2.06	0.43	0.41	0.39	0.00	0.00	0.00	8.07
1990-91	0.23	0.00	0.29	0.54	1.20	1.69	12.33	0.20	0.00	0.00	0.00	0.00	16.48
1991-92	0.00	0.38	0.19	3.93	2.57	6.95	2.90	0.00	0.00	0.00	0.08	0.00	17.00
1992-93	0.00	1.07	0.00	4.12	7.15	7.14	4.74	0.10	0.28	0.11	0.00	0.00	24.71
1993-94	0.00	0.26	1.02	1.57	1.76	4.43	2.43	0.79	1.11	0.00	0.00	0.00	13.37
1994-95	0.09	0.64	1.73	1.19	14.92	1.85	6.74	0.45	0.79	0.79	0.00	0.00	29.19
1995-96	0.00	0.00	0.25	1.17	1.68	8.97	2.33	0.85	0.22	0.03	0.00	0.00	15.50
1996-97	0.00	2.25	1.84	4.62	4.24	0.08	0.00	0.00	0.00	0.00	0.13	0.00	13.16
1997-98	0.54	0.00	3.66	4.08	4.19	14.94	3.05	3.34	2.38	0.05	0.00	0.00	36.23
1998-99	0.50	0.14	1.99	1.12	2.62	1.21	6.31	2.13	0.00	0.00	0.00	0.13	16.15
1999-00	0.00	0.00	1.66	0.03	1.53	8.78	1.88	3.45	0.00	0.18	0.00	0.00	17.51
2000-01	0.00	2.30	0.00	0.03	5.13	5.22	3.99	1.66	0.00	0.00	0.00	0.00	18.33
2001-02	0.00	0.54	3.03	1.90	0.94	0.26	0.66	0.19	0.15	0.00	0.00	0.01	7.68
2002-03	0.01	0.00	2.61	5.00	0.04	2.46	1.70	1.67	1.31	0.03	0.00	0.00	14.83
2003-04	0.01	0.00	1.32	1.90	0.69	4.95	0.49	0.00	0.00	0.00	0.00	0.00	9.36
2004-05	0.00	4.52	0.97	5.94	6.10	5.25	3.83	0.81	0.83	0.01	0.00	0.00	28.26
2005-06	0.10	0.70	1.70	1.09	4.51	1.07	4.21	4.08	0.85	0.00	0.00	0.00	18.31
2006-07	0.00	0.69	0.21	1.23	1.21	2.20	0.14	0.54	0.04	0.00	0.00	0.03	6.29
2007-08	0.70	0.52	0.02	2.60	11.40	1.72	0.02	0.05	0.00	0.00	0.00	0.00	17.03
2008-09	0.00	0.02	2.16	2.02	0.23	5.16	0.64	0.13	0.05	0.10	0.00	0.00	10.51
2009-10	0.01	1.41	0.00	2.85	6.69	3.60	0.41	2.58	0.06	0.00	0.00	0.00	17.61



Santa Barbara County - Flood Control District

123 E. Anapamu St., Santa Barbara, CA 93101
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Official Monthly and Yearly Rainfall Record

(Monthly Depth Durations and Expected Return Periods)

Station: 204 Station Type: Alert, Data Logger w/TB Latitude: 344443 Longitude: 1201647
Station Name: Los Alamos Fire Station #24 Elevation (ft): 580 Rainfall (in.)

WY	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	WY
Total	20.40	54.03	135.63	241.26	306.59	329.69	281.40	123.51	32.73	5.04	1.28	3.38	1534.94
N	100	100	100	100	100	100	100	100	100	100	100	100	100
Mean	0.20	0.54	1.36	2.41	3.07	3.30	2.81	1.24	0.33	0.05	0.01	0.03	15.35
Max	4.82	4.52	5.79	7.91	14.92	14.94	12.41	6.39	2.84	1.26	0.90	1.20	36.23
StdDev	0.60	0.75	1.35	1.88	2.78	3.07	2.60	1.32	0.53	0.17	0.09	0.14	6.45
CV	2.95	1.38	0.99	0.78	0.91	0.93	0.92	1.07	1.63	3.31	7.09	4.04	0.42
Reg CV	2.68	1.28	1.03	0.84	0.90	0.99	0.87	1.11	1.83	2.91	3.81	4.10	0.44
Reg Skew	3.80	1.80	1.40	1.00	1.60	1.10	1.10	1.70	2.60	3.60	4.40	4.80	1.10
FIC	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Return Period in Years	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	WY
2	0.00	0.35	1.03	2.09	2.38	2.71	2.37	0.86	0.11	0.00	0.00	0.00	14.13
5	0.35	0.98	2.35	3.95	4.94	5.74	4.65	2.14	0.61	0.09	0.02	0.05	20.41
10	0.77	1.45	3.23	5.13	6.74	7.67	6.09	3.04	1.06	0.21	0.06	0.15	24.40
25	1.43	2.05	4.33	6.55	9.03	10.02	7.86	4.22	1.69	0.38	0.12	0.33	29.26
50	1.99	2.51	5.13	7.56	10.74	11.75	9.15	5.09	2.18	0.53	0.17	0.49	32.84
100	2.56	2.96	5.92	8.53	12.42	13.38	10.38	5.95	2.68	0.68	0.23	0.66	36.22
200	3.16	3.41	6.71	9.49	14.08	14.98	11.58	6.81	3.19	0.83	0.29	0.84	39.53
500	4.37	4.16	7.94	10.86	16.81	17.33	13.34	8.24	4.07	1.14	0.41	1.23	44.39
1000	4.60	4.44	8.48	11.59	17.88	18.54	14.25	8.79	4.39	1.20	0.43	1.29	46.89
10000	6.75	5.91	10.95	14.49	23.26	23.50	17.97	11.57	6.16	1.75	0.65	1.95	57.16



Santa Barbara County - Flood Control District

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Official Monthly and Yearly Rainfall Record

(Monthly Depth Durations and Expected Return Periods)

Station: 212 Station Type: Alert, Data Logger w/TB

Latitude: 343043 Longitude: 1194925

Station Name: San Marcos Pass

Elevation (ft): 2250

Rainfall (in.)

WY	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	WY
1965-66	0.27	0.00	21.13	9.45	2.57	1.19	0.15	0.00	0.32	0.00	0.00	0.00	35.08
1966-67	0.00	0.00	6.00	13.09	9.22	0.80	5.46	6.79	0.00	0.00	0.00	0.00	41.36
1967-68	0.17	0.00	5.36	3.12	1.91	2.51	5.07	2.19	0.00	0.00	0.00	0.00	20.33
1968-69	0.00	2.10	1.34	4.12	46.80	20.75	0.87	5.23	0.00	0.00	0.00	0.00	81.21
1969-70	0.00	0.00	0.00	0.44	5.39	8.10	4.92	0.00	0.00	0.00	0.00	0.00	18.85
1970-71	0.00	0.12	11.35	6.41	1.71	1.32	1.26	1.04	1.95	0.00	0.00	0.00	25.16
1971-72	0.00	0.57	0.88	15.09	0.45	0.59	0.00	0.30	0.00	0.00	0.00	0.00	17.88
1972-73	0.00	0.00	10.28	1.46	11.34	21.89	5.70	0.00	0.00	0.00	0.00	0.00	50.67
1973-74	0.00	1.94	5.51	3.96	11.67	0.31	9.53	0.17	0.00	0.00	0.00	0.00	33.09
1974-75	0.00	1.57	0.14	10.74	0.52	9.00	10.85	3.39	0.00	0.00	0.00	0.00	36.21
1975-76	0.00	0.99	0.53	0.14	0.00	14.07	2.47	2.65	0.00	0.22	0.00	0.00	21.07
1976-77	7.23	1.22	0.85	0.79	6.24	0.12	1.41	0.00	0.96	0.00	0.00	0.00	18.82
1977-78	0.00	0.00	0.22	5.67	17.73	16.62	19.76	5.21	0.00	0.00	0.00	0.00	65.21
1978-79	1.80	0.00	2.39	2.79	10.02	7.00	8.52	0.00	0.00	0.00	0.00	0.00	32.52
1979-80	0.68	0.75	1.15	2.96	10.59	22.47	5.86	1.74	0.56	0.00	0.38	0.00	47.14
1980-81	0.00	0.00	0.00	2.99	7.77	2.80	11.03	0.00	0.00	0.00	0.00	0.00	24.59
1981-82	0.00	1.09	4.26	0.66	6.67	1.10	14.62	3.87	0.00	0.38	0.00	0.00	32.65
1982-83	2.92	1.52	16.51	8.00	19.88	15.67	12.19	11.13	0.13	0.00	0.00	0.00	87.95
1983-84	3.23	3.13	6.75	10.48	0.22	0.55	0.92	0.11	0.00	0.00	0.40	0.48	26.27
1984-85	0.00	0.24	4.68	8.30	0.81	3.23	2.37	0.45	0.00	0.00	0.00	0.00	20.08
1985-86	0.22	0.97	8.29	1.61	4.98	17.19	9.51	0.28	0.00	0.00	0.00	0.00	43.05
1986-87	0.00	0.00	1.09	0.75	2.94	3.53	7.76	0.00	0.00	0.00	0.00	0.00	16.07
1987-88	0.00	3.37	1.65	5.19	5.25	5.77	0.15	6.86	0.44	0.00	0.00	0.00	28.68
1988-89	0.00	0.00	1.78	6.66	0.77	6.07	2.51	0.14	0.42	0.00	0.00	0.00	18.35
1989-90	0.16	1.21	1.32	0.00	6.45	6.12	0.00	0.38	1.82	0.00	0.00	0.00	17.46
1990-91	0.00	0.00	0.42	0.59	2.18	8.01	21.56	0.00	0.00	1.40	0.00	0.36	34.52
1991-92	0.00	0.00	0.12	8.15	3.41	19.11	9.17	0.00	0.05	0.00	1.00	0.00	41.01
1992-93	0.00	3.69	0.00	9.91	22.43	13.92	9.00	0.00	0.40	0.57	0.00	0.00	59.92
1993-94	0.00	0.20	2.05	2.35	1.59	9.58	2.89	0.93	0.69	0.00	0.00	0.00	20.28
1994-95	0.00	0.70	2.30	1.60	35.20	5.10	17.04	0.50	1.40	0.40	0.00	0.00	64.24
1995-96	0.00	0.00	0.24	3.56	2.08	13.07	3.03	1.59	1.52	0.07	0.01	0.00	25.17
1996-97	0.00	4.37	4.03	8.58	9.51	0.15	0.00	0.00	0.00	0.13	0.08	0.34	27.19
1997-98	0.22	0.04	5.19	7.12	8.73	28.43	4.27	4.20	7.88	0.44	0.00	0.00	66.52
1998-99	0.84	0.18	1.22	1.89	3.16	2.88	6.30	2.67	0.00	0.23	0.46	0.00	19.83
1999-00	0.05	0.00	1.66	0.00	2.18	15.05	3.47	4.84	0.10	0.28	0.00	0.00	27.63
2000-01	0.24	4.52	0.00	0.20	13.11	10.69	14.04	4.34	0.17	0.01	0.04	0.00	47.36
2001-02	0.00	0.70	6.78	3.73	1.23	0.59	1.25	0.00	0.22	0.00	0.00	0.00	14.50
2002-03	0.72	0.06	7.42	10.65	0.18	5.08	6.60	5.03	3.28	0.47	0.01	0.00	39.50
2003-04	0.01	0.01	2.58	4.10	0.76	10.98	0.69	0.01	0.00	0.05	0.00	0.00	19.19
2004-05	0.01	10.30	0.38	14.86	24.96	12.29	5.94	1.28	2.11	0.00	0.00	0.00	72.13
2005-06	0.06	0.93	2.52	1.01	9.21	4.95	6.85	9.93	2.09	0.00	0.00	0.12	37.67
2006-07	0.00	0.29	0.28	1.59	3.59	3.90	0.20	0.99	0.01	0.00	0.02	0.03	10.90
2007-08	0.48	0.56	0.04	8.40	24.32	3.96	0.01	0.32	1.04	0.00	0.01	0.00	39.14
2008-09	0.01	0.23	2.92	4.10	2.16	7.04	1.29	0.54	0.01	0.24	0.00	0.11	18.65
2009-10	0.02	10.35	0.00	6.67	9.49	7.10	0.77	5.21	0.24	0.01	0.03	0.00	39.89



Santa Barbara County - Flood Control District

123 E. Anapamu St., Santa Barbara, CA 93101
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Official Monthly and Yearly Rainfall Record

(Monthly Depth Durations and Expected Return Periods)

Station: 212 Station Type: Alert, Data Logger w/TB Latitude: 343043 Longitude: 1194925
Station Name: **San Marcos Pass** Elevation (ft): 2250 Rainfall (in.)

WY	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	WY
Total	19.34	57.92	153.61	223.93	371.38	370.65	257.26	94.31	27.81	4.90	2.44	1.44	1584.99
N	45	45	45	45	45	45	45	45	45	45	45	45	45
Mean	0.43	1.29	3.41	4.98	8.25	8.24	5.72	2.10	0.62	0.11	0.05	0.03	35.22
Max	7.23	10.35	21.13	15.09	46.80	28.43	21.56	11.13	7.88	1.40	1.00	0.48	87.95
StdDev	1.23	2.29	4.42	4.12	9.68	7.06	5.46	2.76	1.33	0.25	0.18	0.10	18.47
CV	2.87	1.78	1.29	0.83	1.17	0.86	0.95	1.31	2.15	2.26	3.25	3.15	0.52
Reg CV	2.68	1.28	1.03	0.84	0.90	0.99	0.87	1.11	1.83	2.91	3.81	4.10	0.44
Reg Skew	3.80	1.80	1.40	1.00	1.60	1.10	1.10	1.70	2.60	3.60	4.40	4.80	1.10
FIC	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Return Period in Years	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	WY
2	0.00	0.83	2.60	4.31	6.40	6.77	4.82	1.47	0.20	0.00	0.00	0.00	32.43
5	0.73	2.34	5.91	8.15	13.30	14.35	9.45	3.63	1.16	0.20	0.09	0.04	46.85
10	1.63	3.46	8.12	10.58	18.13	19.16	12.38	5.17	2.00	0.45	0.24	0.14	55.99
25	3.02	4.90	10.90	13.50	24.30	25.03	15.96	7.17	3.19	0.83	0.51	0.31	67.15
50	4.18	5.98	12.91	15.59	28.90	29.36	18.60	8.63	4.11	1.14	0.73	0.46	75.36
100	5.39	7.05	14.91	17.60	33.43	33.43	21.09	10.10	5.06	1.46	0.98	0.63	83.11
200	6.66	8.12	16.88	19.56	37.89	37.43	23.52	11.56	6.02	1.79	1.23	0.80	90.70
500	9.21	9.92	19.97	22.41	45.24	43.30	27.10	13.98	7.69	2.46	1.75	1.16	101.86
1000	9.69	10.58	21.34	23.91	48.14	46.32	28.94	14.91	8.30	2.59	1.84	1.22	107.60
10000	14.22	14.09	27.57	29.89	62.62	58.71	36.50	19.64	11.62	3.78	2.76	1.85	131.15



Santa Barbara County - Flood Control District

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Official Monthly and Yearly Rainfall Record

(Monthly Depth Durations and Expected Return Periods)

Station: 234 Station Type: Alert, Data Logger w/TB & Standard Latitude: 342531 Longitude: 1194212
Station Name: Santa Barbara (Downtown-County Building) Elevation (ft): 100 Rainfall (in.)

WY	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	WY
1867-68	0.00	0.00	2.31	12.73	3.97	1.99	1.08	2.44	0.72	0.00	0.00	0.00	25.24
1868-69	0.00	0.00	1.25	4.26	1.94	2.12	4.23	0.46	0.20	0.00	0.00	0.00	14.46
1869-70	0.00	0.30	0.65	0.57	0.25	5.87	0.83	0.99	0.74	0.07	0.00	0.00	10.27
1870-71	0.00	1.04	0.27	1.41	0.86	2.92	0.02	2.02	0.37	0.00	0.00	0.00	8.91
1871-72	0.00	0.09	1.83	6.56	2.53	1.81	0.18	1.80	0.00	0.14	0.00	0.02	14.96
1872-73	0.05	0.00	0.00	4.34	0.58	5.98	0.05	0.00	0.00	0.00	0.00	0.00	11.00
1873-74	0.00	0.00	0.27	5.26	4.54	3.17	0.78	0.28	0.14	0.00	0.00	0.00	14.44
1874-75	0.00	1.91	1.30	0.00	14.84	0.18	0.38	0.10	0.00	0.00	0.20	0.00	18.91
1875-76	0.00	0.00	6.53	0.31	7.56	5.67	2.73	0.27	0.00	0.00	0.00	0.00	23.07
1876-77	0.00	0.32	0.00	0.00	2.72	0.00	0.82	0.18	0.45	0.00	0.00	0.00	4.49
1877-78	0.00	0.00	1.32	3.12	7.17	11.73	2.47	3.34	0.29	0.07	0.00	0.00	29.51
1878-79	0.00	0.35	0.00	5.16	5.24	0.71	0.34	1.60	0.21	0.00	0.00	0.00	13.61
1879-80	0.00	0.41	1.62	4.57	1.30	10.91	1.15	5.73	0.00	0.00	0.00	0.00	25.69
1881-82	0.44	1.47	0.33	0.95	1.13	2.38	5.74	1.63	0.00	0.20	0.00	0.00	14.27
1882-83	0.00	0.37	0.79	0.10	2.06	2.79	3.33	0.33	2.48	0.00	0.00	0.00	12.25
1883-84	0.00	1.22	0.00	2.87	6.38	9.50	9.77	2.60	0.39	1.50	0.00	0.00	34.23
1884-85	0.00	1.02	0.00	5.68	1.23	0.07	0.35	3.01	0.00	0.00	0.00	0.00	11.36
1888-89	0.00	0.00	0.00	5.05	0.29	1.29	7.31	0.49	0.76	0.13	0.00	0.00	15.32
1889-90	0.00	8.65	3.21	10.64	5.32	2.96	1.10	0.31	0.18	0.06	0.00	0.00	32.43
1890-91	1.50	0.00	0.48	3.53	0.45	7.92	1.56	1.57	0.30	0.00	0.00	0.00	17.31
1891-92	0.15	0.00	0.00	2.43	1.10	2.55	2.95	0.46	1.12	0.00	0.00	0.00	10.76
1892-93	0.00	0.26	4.27	6.66	3.92	3.10	7.80	0.38	0.09	0.00	0.00	0.00	26.48
1893-94	0.00	0.82	0.07	2.92	0.99	0.76	0.29	0.00	0.91	0.00	0.12	0.00	6.88
1894-95	1.36	0.68	0.07	4.67	6.25	0.67	1.99	0.46	0.02	0.05	0.00	0.00	16.22
1895-96	0.00	0.55	0.77	0.93	6.84	0.00	2.37	1.78	0.08	0.00	0.40	0.00	13.72
1896-97	0.00	0.92	3.51	2.92	4.35	3.65	2.73	0.02	0.00	0.00	0.00	0.00	18.10
1897-98	0.00	1.44	0.00	0.00	0.63	1.39	0.28	0.00	1.25	0.00	0.00	0.00	4.99
1898-99	3.17	0.14	0.00	0.36	4.48	0.00	2.78	0.64	0.00	0.00	0.00	0.00	11.57
1899-00	0.00	2.06	1.97	2.35	2.32	0.05	1.58	0.42	1.90	0.01	0.02	0.00	12.68
1900-01	0.04	0.15	3.99	0.02	4.86	3.65	0.16	2.07	0.34	0.10	0.06	0.09	15.53
1901-02	0.36	2.42	1.16	0.00	1.36	4.40	2.89	1.40	0.07	0.00	0.00	0.00	14.06
1902-03	0.00	1.48	4.01	2.24	2.06	1.63	6.12	2.91	0.27	0.02	0.00	0.00	20.74
1903-04	0.00	0.00	0.05	0.00	0.46	4.73	4.35	1.89	0.09	0.00	0.00	0.10	11.67
1904-05	7.15	0.51	0.00	1.53	3.73	8.22	6.40	0.51	1.44	0.05	0.18	0.00	29.72
1905-06	0.03	0.16	1.13	0.07	4.26	3.67	9.96	0.83	2.40	0.00	0.00	0.04	22.55
1906-07	0.00	0.00	0.35	6.46	12.46	2.34	5.64	0.27	0.00	0.16	0.00	0.03	27.71
1907-08	0.00	6.23	0.00	1.80	4.26	5.96	0.21	0.49	0.20	0.00	0.00	0.00	19.15
1908-09	1.16	0.20	1.84	2.48	15.67	7.96	6.91	0.00	0.03	0.08	0.00	0.01	36.34
1909-10	0.17	0.57	2.34	9.53	2.89	0.08	3.62	0.39	0.00	0.00	0.02	0.00	19.61
1910-11	2.56	0.29	0.33	0.75	14.21	4.92	7.76	1.02	0.03	0.05	0.00	0.00	31.92
1911-12	0.12	0.28	0.02	2.33	0.42	0.00	9.45	2.12	1.58	0.00	0.00	0.00	16.32
1912-13	0.00	0.28	0.21	0.00	3.14	6.28	0.64	1.04	0.19	0.50	0.09	0.07	12.44
1913-14	0.17	0.00	3.43	2.70	15.91	7.30	0.95	0.70	0.03	0.16	0.05	0.00	31.40
1914-15	0.00	0.12	0.04	4.38	4.94	8.03	1.15	0.97	1.57	0.00	0.00	0.00	21.20
1915-16	0.05	0.00	0.65	4.06	17.22	1.89	1.81	0.30	0.00	0.00	0.00	0.11	26.09
1916-17	1.90	2.82	0.10	6.12	3.05	7.61	0.28	0.28	0.09	0.00	0.00	0.03	22.28
1917-18	0.05	0.00	0.17	0.03	0.51	10.47	10.37	0.05	0.00	0.00	0.25	0.29	22.19
1918-19	2.13	0.02	3.64	0.83	1.20	1.95	2.62	0.17	1.07	0.00	0.00	0.00	13.63
1919-20	0.84	0.27	0.23	2.11	0.33	5.83	4.20	0.81	0.00	0.08	0.00	0.00	14.70
1920-21	0.00	0.40	0.56	1.51	5.32	1.58	1.77	0.38	2.69	0.10	0.00	0.00	14.31
1921-22	0.24	0.32	0.02	7.25	4.64	3.48	2.73	0.09	0.45	0.00	0.00	0.00	19.22
1922-23	0.00	0.37	1.98	8.71	1.93	0.91	0.00	3.29	0.00	0.03	0.00	0.03	17.25
1923-24	0.13	0.25	0.00	0.08	1.63	0.06	3.66	0.62	0.00	0.00	0.00	0.00	6.43
1924-25	0.00	0.85	1.20	1.20	0.60	1.45	2.79	1.89	2.23	0.05	0.05	0.00	12.31
1925-26	0.00	0.71	0.80	2.57	2.08	4.28	0.25	6.13	0.00	0.00	0.00	0.00	16.82
1926-27	0.00	0.36	6.84	0.62	1.94	9.86	2.28	0.78	0.00	0.00	0.00	0.05	22.73
1927-28	0.11	3.48	1.49	3.28	0.00	1.95	2.46	0.17	0.50	0.05	0.00	0.00	13.49
1928-29	0.00	0.10	2.46	4.41	1.53	2.28	2.39	1.17	0.00	0.20	0.00	0.00	14.54
1929-30	0.05	0.00	0.00	0.00	5.82	1.21	4.93	0.95	0.63	0.12	0.00	0.00	13.71
1930-31	0.01	0.04	2.64	0.00	4.25	4.07	0.00	1.43	2.11	0.00	0.00	0.23	14.78



Santa Barbara County - Flood Control District

123 E. Anapamu St., Santa Barbara, CA 93101
805.568.3440 - www.countyofsb.org/pwd

Official Monthly and Yearly Rainfall Record

(Monthly Depth Durations and Expected Return Periods)

Station: 234 Station Type: Alert, Data Logger w/TB & Standard Latitude: 342531 Longitude: 1194212
Station Name: Santa Barbara (Downtown-County Building) Elevation (ft): 100 Rainfall (in.)

WY	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	WY
1931-32	0.01	0.00	2.81	9.84	2.40	6.17	0.23	0.35	0.09	0.00	0.00	0.00	21.90
1932-33	0.11	0.10	0.00	0.67	6.42	0.00	0.30	0.20	0.11	0.75	0.00	0.00	8.66
1933-34	0.00	0.88	0.11	6.28	1.49	3.67	0.00	0.00	0.00	1.00	0.00	0.00	13.43
1934-35	0.04	1.89	3.48	3.63	4.10	1.58	3.16	3.32	0.00	0.00	0.07	0.27	21.54
1935-36	0.02	0.78	0.71	1.46	0.73	10.49	1.97	0.65	0.01	0.01	0.01	0.70	17.54
1936-37	0.00	1.86	0.00	6.93	3.15	7.99	4.88	0.03	0.11	0.00	0.00	0.00	24.95
1937-38	0.00	0.16	0.09	4.40	1.90	8.20	10.26	1.09	0.00	0.00	0.00	0.00	26.10
1938-39	0.19	0.14	0.08	4.94	2.84	1.27	3.62	0.17	0.10	0.00	0.00	0.00	13.35
1939-40	0.26	0.09	0.02	1.41	6.39	5.87	0.82	1.06	0.02	0.00	0.00	0.00	15.94
1940-41	0.00	0.75	0.43	8.92	9.68	8.21	11.71	5.50	0.01	0.00	0.03	0.01	45.25
1941-42	0.00	0.89	0.00	0.00	0.91	0.64	1.54	2.65	0.00	0.01	0.00	0.03	6.67
1942-43	0.03	0.74	0.59	1.26	11.67	2.33	2.32	0.88	0.01	0.00	0.00	0.00	19.83
1943-44	0.00	0.74	0.00	4.19	1.44	7.32	1.39	0.93	0.05	0.00	0.00	0.00	16.06
1944-45	0.01	0.00	3.21	1.12	0.85	4.31	3.98	0.03	0.03	0.05	0.00	0.00	13.59
1945-46	0.15	0.37	0.60	6.78	0.40	0.72	2.69	0.00	0.05	0.02	0.00	0.00	11.78
1946-47	0.00	0.89	6.00	3.17	0.60	0.76	1.80	0.10	0.08	0.00	0.00	0.01	13.41
1947-48	0.03	0.22	0.00	0.37	0.00	1.71	4.29	2.01	0.43	0.17	0.00	0.00	9.23
1948-49	0.00	0.08	0.00	2.64	1.40	1.35	2.78	0.24	2.43	0.03	0.00	0.00	10.95
1949-50	0.00	0.02	1.72	4.16	2.54	2.76	1.29	0.61	0.05	0.01	0.81	0.02	13.99
1950-51	0.41	1.21	1.88	0.50	2.53	1.21	1.20	1.45	0.01	0.01	0.00	0.06	10.47
1951-52	0.00	0.49	2.04	4.80	13.89	0.71	7.37	1.79	0.00	0.08	0.03	0.01	31.21
1952-53	0.04	0.10	3.60	5.26	1.78	0.03	0.71	1.42	0.17	0.29	0.00	0.00	13.40
1953-54	0.01	0.00	2.08	0.09	5.98	2.95	3.81	0.44	0.06	0.02	0.00	0.02	15.46
1954-55	0.00	0.03	2.03	3.60	4.39	2.29	0.70	3.45	0.40	0.01	0.00	0.01	16.91
1955-56	0.00	0.00	1.36	6.07	7.19	1.15	0.00	2.42	1.64	0.00	0.00	0.00	19.83
1956-57	0.00	0.11	0.00	0.14	5.39	3.74	0.54	2.31	1.57	0.06	0.00	0.00	13.86
1957-58	0.00	1.41	0.51	4.51	3.73	9.84	6.20	5.43	0.33	0.00	0.00	0.00	31.96
1958-59	0.27	0.00	0.11	0.04	2.73	5.08	0.00	0.89	0.02	0.00	0.00	0.00	9.14
1959-60	0.01	0.01	0.00	1.01	3.12	3.39	0.63	2.64	0.00	0.01	0.00	0.00	10.82
1960-61	0.00	0.09	6.57	0.41	1.81	0.02	0.80	0.20	0.09	0.00	0.00	0.01	10.00
1961-62	0.04	0.00	3.74	1.47	2.18	17.33	1.41	0.00	0.00	0.00	0.00	0.00	26.17
1962-63	0.00	0.42	0.00	0.01	0.95	6.04	3.68	2.21	0.02	1.17	0.00	0.00	14.50
1963-64	0.79	0.87	2.62	0.00	1.42	0.00	1.70	1.10	0.00	0.00	0.00	0.00	8.50
1964-65	0.00	0.85	2.36	4.76	0.77	0.45	2.06	6.94	0.00	0.00	0.00	0.00	18.19
1965-66	0.09	0.00	7.86	3.72	1.54	0.74	0.07	0.00	0.11	0.00	0.00	0.02	14.15
1966-67	0.00	0.07	3.55	6.19	6.79	0.50	2.28	3.87	0.00	0.00	0.00	0.00	23.25
1967-68	0.14	0.00	4.02	1.09	1.44	2.02	4.22	0.62	0.00	0.00	0.00	0.00	13.55
1968-69	0.00	1.06	0.63	1.79	15.55	8.35	1.00	1.92	0.06	0.08	0.02	0.00	30.46
1969-70	0.05	0.07	2.03	0.20	3.23	3.80	2.48	0.00	0.00	0.00	0.02	0.00	11.88
1970-71	0.00	0.05	4.54	4.67	1.21	0.88	0.82	0.73	1.10	0.00	0.00	0.00	14.00
1971-72	0.00	0.00	0.48	7.33	0.17	0.46	0.00	0.16	0.02	0.01	0.01	0.00	8.64
1972-73	0.00	0.04	5.69	0.73	6.24	9.07	2.89	0.00	0.00	0.00	0.00	0.03	24.69
1973-74	0.00	0.84	1.97	1.52	7.58	0.00	4.98	0.33	0.00	0.00	0.05	0.00	17.27
1974-75	0.00	1.00	0.09	7.37	0.57	5.57	3.93	0.87	0.00	0.00	0.00	0.01	19.41
1975-76	0.00	0.31	0.18	0.12	0.00	5.48	1.99	1.15	0.01	0.26	0.01	0.00	9.51
1976-77	4.01	0.20	0.85	0.87	3.89	0.19	1.58	0.00	3.30	0.00	0.00	0.00	14.89
1977-78	0.00	0.00	0.18	6.85	11.11	9.86	11.99	2.27	0.00	0.08	0.00	0.00	42.34
1978-79	1.21	0.00	3.19	1.52	3.85	5.01	6.94	0.00	0.00	0.00	0.00	0.00	21.72
1979-80	0.91	0.50	0.48	1.26	6.24	10.45	3.36	0.74	0.22	0.00	0.48	0.00	24.64
1980-81	0.00	0.00	0.00	1.91	3.24	2.53	6.19	0.43	0.00	0.00	0.00	0.00	14.30
1981-82	0.00	0.74	2.45	0.74	2.59	0.42	6.72	2.59	0.00	0.03	0.00	0.00	16.28
1982-83	2.07	0.63	5.18	3.07	11.55	7.19	5.66	4.17	0.34	0.00	0.00	1.55	41.41
1983-84	0.74	2.93	3.30	5.37	0.10	0.14	0.53	0.12	0.00	0.00	0.00	0.12	13.35
1984-85	0.58	0.32	1.88	4.11	0.76	2.58	1.73	0.00	0.00	0.00	0.00	0.00	11.96
1985-86	0.10	0.61	4.06	0.89	1.80	8.54	5.93	0.92	0.00	0.00	0.00	0.00	22.85
1986-87	1.60	0.00	1.24	0.22	1.84	2.42	4.14	0.12	0.00	0.04	0.00	0.00	11.62
1987-88	0.00	1.36	0.91	2.85	2.55	1.50	0.70	3.18	0.35	0.01	0.00	0.00	13.41
1988-89	0.00	0.00	0.96	3.89	0.34	2.64	0.81	0.31	0.40	0.00	0.00	0.00	9.35
1989-90	0.04	0.70	0.55	0.00	2.15	2.60	0.00	0.16	0.72	0.00	0.00	0.00	6.92
1990-91	0.13	0.00	0.13	0.06	1.75	2.61	12.33	0.02	0.00	0.46	0.01	0.23	17.73



Santa Barbara County - Flood Control District

123 E. Anapamu St., Santa Barbara, CA 93101
805.568.3440 - www.countyofsb.org/pwd

Official Monthly and Yearly Rainfall Record

(Monthly Depth Durations and Expected Return Periods)

Station: 234 Station Type: Alert, Data Logger w/TB & Standard Latitude: 342531 Longitude: 1194212
Station Name: Santa Barbara (Downtown-County Building) Elevation (ft): 100 Rainfall (in.)

WY	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	WY
1991-92	0.03	0.55	0.09	3.32	2.62	9.23	3.27	0.01	0.16	0.00	0.51	0.00	19.79
1992-93	0.00	1.56	0.00	5.20	10.90	8.39	4.96	0.00	0.06	0.64	0.00	0.00	31.71
1993-94	0.00	0.16	1.39	1.40	1.71	5.91	1.58	0.57	0.13	0.17	0.00	0.00	13.02
1994-95	0.03	0.66	1.87	0.89	21.94	1.44	10.08	0.30	0.84	0.47	0.00	0.00	38.52
1995-96	0.00	0.00	0.17	3.24	2.08	8.98	1.82	0.88	0.61	0.00	0.00	0.00	17.78
1996-97	0.00	2.64	2.93	6.82	6.67	0.00	0.00	0.00	0.00	0.00	0.02	0.02	19.10
1997-98	0.05	0.15	4.30	6.72	4.96	21.36	3.28	2.73	3.15	0.27	0.00	0.00	46.97
1998-99	0.17	0.03	0.81	0.85	2.05	0.96	3.70	2.28	0.00	0.14	0.00	0.00	10.99
1999-00	0.00	0.00	1.55	0.00	2.43	10.81	3.72	4.23	0.00	0.01	0.00	0.00	22.75
2000-01	0.00	4.66	0.00	0.10	7.53	5.84	6.01	1.61	0.06	0.00	0.00	0.00	25.81
2001-02	0.00	0.60	4.15	2.17	1.09	0.38	0.41	0.04	0.14	0.00	0.01	0.02	9.01
2002-03	0.19	0.01	6.53	6.23	0.10	3.28	5.16	1.28	1.96	0.19	0.05	0.00	24.98
2003-04	0.00	0.00	1.87	2.31	0.42	5.61	0.48	0.01	0.00	0.00	0.00	0.00	10.70
2004-05	0.00	4.60	0.37	7.75	12.09	6.69	3.89	0.86	0.69	0.00	0.00	0.00	36.94
2005-06	0.11	1.16	1.67	0.74	4.45	3.27	4.25	5.42	1.29	0.00	0.00	0.08	22.44
2006-07	0.00	0.19	0.27	0.87	2.28	1.93	0.10	0.77	0.00	0.00	0.00	0.00	6.41
2007-08	0.21	0.23	0.00	3.10	11.76	2.14	0.00	0.13	0.02	0.03	0.00	0.00	17.62
2008-09	0.00	0.05	1.96	2.28	0.98	5.03	0.87	0.21	0.00	0.45	0.00	0.00	11.83
2009-10	0.01	3.99	0.02	3.13	5.93	4.61	0.68	1.89	0.16	0.01	0.01	0.00	20.44
Total	38.83	95.56	209.60	407.72	560.76	551.18	413.11	168.84	54.40	11.03	3.59	4.33	2518.95
N	139	139	139	139	139	139	139	139	139	139	139	139	139
Mean	0.28	0.69	1.51	2.93	4.03	3.97	2.97	1.21	0.39	0.08	0.03	0.03	18.12
Max	7.15	8.65	7.86	12.73	21.94	21.36	12.33	6.94	3.30	1.50	0.81	1.55	46.97
StdDev	0.84	1.20	1.77	2.69	4.15	3.66	2.87	1.42	0.70	0.21	0.10	0.15	8.42
CV	3.02	1.75	1.17	0.92	1.03	0.92	0.97	1.17	1.79	2.66	3.88	4.79	0.46
Reg CV	2.68	1.28	1.03	0.84	0.90	0.99	0.87	1.11	1.83	2.91	3.81	4.10	0.44
Reg Skew	3.80	1.80	1.40	1.00	1.60	1.10	1.10	1.70	2.60	3.60	4.40	4.80	1.10
FIC	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Return Period in Years													
2	0.00	0.44	1.15	2.54	3.13	3.26	2.51	0.85	0.13	0.00	0.00	0.00	16.69
5	0.47	1.25	2.61	4.81	6.50	6.91	4.91	2.10	0.74	0.15	0.04	0.04	24.10
10	1.06	1.85	3.59	6.23	8.86	9.23	6.44	2.99	1.27	0.33	0.12	0.14	28.81
25	1.96	2.61	4.82	7.96	11.88	12.05	8.30	4.15	2.02	0.60	0.24	0.31	34.55
50	2.72	3.20	5.70	9.19	14.13	14.13	9.67	5.00	2.60	0.83	0.35	0.45	38.77
100	3.51	3.77	6.59	10.37	16.34	16.10	10.96	5.85	3.21	1.06	0.46	0.61	42.76
200	4.33	4.34	7.46	11.53	18.52	18.02	12.23	6.70	3.81	1.30	0.58	0.78	46.67
500	5.98	5.30	8.82	13.21	22.12	20.85	14.09	8.10	4.87	1.79	0.84	1.13	52.41
1000	6.30	5.65	9.43	14.09	23.53	22.30	15.05	8.64	5.25	1.89	0.88	1.19	55.36
10000	9.24	7.52	12.18	17.62	30.61	28.27	18.98	11.38	7.36	2.75	1.32	1.80	67.48



Santa Barbara County - Flood Control District

123 E. Anapamu St., Santa Barbara, CA 93101
805.568.3440 - www.countyofsb.org/pwd

Official Monthly and Yearly Rainfall Record

(Monthly Depth Durations and Expected Return Periods)

Station: 380 Station Type: Data Logger w/TB Latitude: 345707 Longitude: 1202644
Station Name: Santa Maria City Elevation (ft): 203 Rainfall (in.)

WY	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	WY
1906-07	0.01	0.00	0.63	4.35	7.78	1.02	3.95	0.23	0.00	0.04	0.00	0.00	18.01
1907-08	0.06	3.57	0.00	1.80	3.98	3.76	0.35	0.26	0.18	0.00	0.00	0.00	13.96
1908-09	1.03	0.52	0.97	0.61	10.16	4.98	4.39	0.00	0.00	0.00	0.00	0.00	22.66
1909-10	0.00	0.75	2.14	5.89	3.47	0.50	3.82	0.01	0.00	0.00	0.00	0.00	16.58
1910-11	0.65	0.72	0.15	0.45	6.62	3.80	6.68	1.82	0.00	0.00	0.00	0.00	20.89
1911-12	0.00	0.00	0.00	1.77	1.34	0.10	4.63	0.69	1.60	0.00	0.00	0.00	10.13
1917-18	0.00	0.09	0.00	0.31	0.53	9.39	5.87	0.00	0.00	0.00	0.00	0.00	16.19
1918-19	0.00	0.63	3.55	1.46	0.68	2.36	1.57	0.00	0.74	0.00	0.00	0.00	10.99
1919-20	0.41	0.00	0.15	1.88	0.24	1.78	4.02	1.12	0.00	0.00	0.00	0.00	9.60
1920-21	0.00	0.73	0.94	1.24	3.13	1.65	1.57	0.32	1.45	0.01	0.00	0.00	11.04
1921-22	0.44	0.05	0.13	5.32	4.90	2.97	2.50	0.22	0.35	0.00	0.00	0.00	16.88
1922-23	0.00	0.32	1.34	3.59	1.91	1.06	0.18	3.97	0.05	0.01	0.01	0.00	12.44
1923-24	0.22	0.30	0.00	0.62	0.64	0.46	3.01	1.00	0.01	0.00	0.00	0.03	6.29
1924-25	0.04	0.76	0.78	1.85	2.56	1.67	3.28	2.34	1.71	0.05	0.02	0.01	15.07
1925-26	0.01	0.16	0.12	1.81	1.72	2.99	0.41	2.68	0.11	0.01	0.02	0.01	10.05
1926-27	0.04	0.55	3.37	0.91	1.88	5.21	2.10	1.26	0.06	0.20	0.02	0.01	15.61
1927-28	0.02	3.08	0.81	3.80	0.22	2.57	3.99	0.19	0.71	0.00	0.00	0.01	15.40
1928-29	0.02	0.04	2.31	2.16	2.28	1.22	1.61	0.94	0.00	0.16	0.00	0.00	10.74
1929-30	0.01	0.02	0.00	0.15	3.42	1.18	2.70	0.94	0.68	0.08	0.00	0.00	9.18
1930-31	0.16	0.02	1.55	0.00	4.16	1.13	0.28	0.42	0.94	0.06	0.01	0.31	9.04
1931-32	0.09	0.04	2.46	6.56	4.25	2.14	0.31	0.31	0.26	0.04	0.02	0.02	16.50
1932-33	0.07	0.09	0.09	1.31	6.08	0.30	0.94	0.18	0.38	1.96	0.00	0.00	11.40
1933-34	0.02	0.32	0.03	2.91	1.11	1.52	0.20	0.00	0.26	1.30	0.01	0.01	7.69
1934-35	0.01	3.14	2.19	1.78	4.16	1.64	3.11	3.09	0.00	0.00	0.01	0.26	19.39
1935-36	0.17	0.50	2.02	1.71	1.31	5.32	1.23	1.06	0.13	0.03	0.02	0.01	13.51
1936-37	0.14	1.83	0.00	5.69	3.59	4.83	4.65	0.22	0.00	0.00	0.01	0.00	20.96
1937-38	0.00	0.16	0.26	2.88	4.72	7.39	4.09	2.01	0.04	0.02	0.00	0.02	21.59
1938-39	0.59	0.18	0.23	1.53	3.25	2.18	2.39	0.22	0.03	0.00	0.00	0.00	10.60
1939-40	1.50	0.46	1.03	1.30	5.05	2.67	1.98	1.74	0.00	0.00	0.00	0.00	15.73
1940-41	0.02	0.73	0.12	5.25	5.04	6.83	8.72	3.86	0.07	0.00	0.09	0.03	30.76
1941-42	0.01	1.04	0.32	7.50	1.35	1.30	2.04	2.82	0.08	0.00	0.00	0.02	16.48
1942-43	0.02	0.82	0.84	2.94	7.23	1.27	3.04	1.06	0.02	0.00	0.00	0.00	17.24
1954-55	0.00	0.00	0.97	2.08	3.95	1.35	0.40	1.98	0.60	0.01	0.00	0.00	11.34
1955-56	0.00	0.00	1.60	4.50	2.84	0.64	0.00	1.89	0.54	0.00	0.00	0.00	12.01
1956-57	0.00	0.61	0.00	0.74	2.17	1.95	0.79	1.00	0.98	0.22	0.00	0.00	8.46
1957-58	0.00	1.70	0.55	1.78	2.41	4.70	4.25	4.27	0.18	0.00	0.00	0.00	19.84
1958-59	1.43	0.00	0.30	0.13	1.75	4.57	0.00	0.23	0.00	0.00	0.00	0.00	8.41
1959-60	0.00	0.00	0.00	0.65	3.55	4.13	0.85	2.15	0.00	0.00	0.00	0.00	11.33
1960-61	0.00	1.75	2.50	0.80	0.80	0.10	0.68	0.23	0.21	0.00	0.02	0.00	7.09
1961-62	0.02	0.00	1.63	1.50	2.13	10.08	1.02	0.04	0.03	0.02	0.00	0.00	16.47
1962-63	0.00	0.36	0.00	0.21	0.54	3.75	3.15	2.29	0.53	0.01	0.00	0.00	10.84
1963-64	0.46	1.49	1.92	0.19	1.00	0.00	1.70	1.13	0.31	0.07	0.00	0.00	8.27
1965-66	0.00	0.00	4.34	2.37	0.95	0.80	0.26	0.03	0.00	0.14	0.00	0.00	8.89
1966-67	0.22	0.00	2.10	2.88	2.90	0.39	2.57	3.68	0.21	0.26	0.00	0.00	15.21
1967-68	0.36	0.00	2.78	1.35	0.63	0.91	2.03	0.51	0.04	0.00	0.00	0.00	8.61
1968-69	0.00	1.95	1.05	1.58	7.47	6.92	0.45	1.36	0.00	0.00	0.00	0.00	20.78
1969-70	0.06	0.33	0.98	0.53	2.65	0.42	4.64	0.04	0.00	0.00	0.00	0.00	9.65
1970-71	0.00	0.00	3.45	3.46	0.77	0.09	0.25	1.02	0.74	0.00	0.00	0.00	9.78
1971-72	0.04	0.38	0.64	3.37	0.19	0.45	0.00	0.26	0.16	0.00	0.00	0.00	5.49
1972-73	0.00	0.53	3.56	1.73	4.92	5.44	3.20	0.00	0.05	0.00	0.00	0.00	19.43
1973-74	0.16	0.64	2.50	2.36	3.90	0.15	4.78	0.88	0.00	0.00	0.00	0.00	15.37
1974-75	0.00	1.87	0.13	4.05	0.04	3.22	2.39	0.75	0.00	0.00	0.00	0.00	12.45
1975-76	0.00	0.72	0.15	0.06	0.00	4.47	0.61	1.25	0.00	0.02	0.02	1.20	8.50
1976-77	3.47	1.37	0.32	0.55	2.48	0.02	1.59	0.05	2.09	0.00	0.00	0.00	11.94
1977-78	0.04	0.00	0.13	3.94	4.94	6.55	5.37	1.98	0.00	0.00	0.00	0.00	22.95
1978-79	1.55	0.00	1.10	1.29	4.02	3.04	2.65	0.16	0.07	0.00	0.00	0.00	13.88
1979-80	0.18	0.45	0.21	0.98	4.19	5.08	2.14	0.46	0.28	0.00	0.00	0.00	13.97
1980-81	0.00	0.00	0.00	1.19	3.57	3.79	3.77	0.49	0.00	0.00	0.00	0.00	12.81
1981-82	0.00	0.90	1.26	0.85	2.90	1.27	5.04	1.76	0.00	0.23	0.00	0.07	14.28
1982-83	0.59	1.27	3.67	1.21	5.52	5.43	3.82	2.24	0.02	0.00	0.00	0.27	24.04



Santa Barbara County - Flood Control District

123 E. Anapamu St., Santa Barbara, CA 93101
805.568.3440 - www.countyofsb.org/pwd

Official Monthly and Yearly Rainfall Record

(Monthly Depth Durations and Expected Return Periods)

Station: 380 Station Type: Data Logger w/TB Latitude: 345707 Longitude: 1202644
Station Name: Santa Maria City Elevation (ft): 203 Rainfall (in.)

WY	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	WY
1983-84	1.41	0.35	2.10	2.63	0.02	0.37	0.48	0.57	0.00	0.00	0.00	0.00	7.93
1984-85	0.00	0.60	1.93	2.91	0.98	0.85	1.38	0.04	0.00	0.00	0.00	0.00	8.69
1985-86	0.04	0.39	2.72	0.78	1.12	2.96	4.62	0.80	0.00	0.00	0.00	0.00	13.43
1986-87	0.88	0.00	0.44	1.29	1.26	1.15	3.45	0.35	0.02	0.03	0.00	0.00	8.87
1987-88	0.00	2.32	0.61	2.60	1.71	2.36	0.02	2.21	0.05	0.03	0.00	0.00	11.91
1988-89	0.00	0.00	0.75	3.87	0.21	0.59	0.62	0.08	0.06	0.00	0.00	0.00	6.18
1989-90	0.57	0.16	0.49	0.01	2.27	1.55	0.18	0.23	0.48	0.00	0.00	0.00	5.94
1990-91	0.29	0.00	0.19	0.43	1.03	2.05	8.38	0.27	0.00	0.08	0.00	0.03	12.75
1991-92	0.00	0.30	0.26	3.60	1.77	5.98	2.22	0.00	0.00	0.00	0.67	0.00	14.80
1992-93	0.00	0.51	0.00	2.53	5.56	3.97	3.92	0.00	0.17	0.05	0.00	0.00	16.71
1993-94	0.00	0.22	0.75	1.01	2.08	3.42	1.94	0.90	0.59	0.00	0.00	0.00	10.91
1994-95	0.08	0.48	1.43	0.50	8.72	1.85	6.95	0.25	0.64	0.76	0.00	0.00	21.66
1995-96	0.00	0.00	0.37	1.66	1.86	7.55	0.97	0.63	0.33	0.00	0.00	0.00	13.37
1996-97	0.00	1.36	2.35	4.03	3.90	0.07	0.00	0.00	0.00	0.00	0.00	0.00	11.71
1997-98	0.30	0.00	3.67	2.60	4.26	13.08	3.35	3.55	1.80	0.00	0.00	0.00	32.61
1998-99	0.35	0.30	1.65	0.30	2.02	1.07	6.61	2.77	0.00	0.00	0.00	0.00	15.07
1999-00	0.00	0.00	1.20	0.00	1.60	9.16	1.33	3.35	0.00	0.00	0.00	0.00	16.64
2000-01	0.00	1.70	0.00	0.00	6.01	4.72	4.43	1.16	0.00	0.00	0.20	0.00	18.22
2001-02	0.00	0.40	3.37	1.62	1.35	0.34	0.85	0.28	0.00	0.00	0.00	0.00	8.21
2002-03	0.00	0.00	2.67	4.82	0.10	1.87	2.07	0.62	1.00	0.00	0.05	0.00	13.20
2003-04	0.00	0.00	3.07	1.58	1.25	4.85	0.38	0.00	0.00	0.00	0.00	0.00	11.13
2004-05	0.00	4.19	0.51	4.62	4.16	3.40	3.08	0.30	0.98	0.00	0.00	0.00	21.24
2005-06	0.00	0.50	0.99	1.55	5.13	0.75	3.15	3.91	1.00	0.00	0.00	0.00	16.98
2006-07	0.00	0.22	0.36	1.50	0.87	2.01	0.14	0.50	0.00	0.00	0.00	0.00	5.60
2007-08	0.00	0.60	0.00	1.97	7.70	2.42	0.00	0.25	0.00	0.00	0.00	0.00	12.94
2008-09	0.00	0.20	2.09	1.48	0.19	4.40	0.63	0.10	0.11	0.00	0.00	0.01	9.21
2009-10	0.01	1.87	0.02	2.39	5.63	2.91	0.51	2.25	0.22	0.00	0.00	0.00	15.81
Total	18.27	54.61	100.36	179.94	254.70	252.60	209.67	92.48	24.35	5.90	1.20	2.33	1196.41
N	87	87	87	87	87	87	87	87	87	87	87	87	87
Mean	0.21	0.63	1.15	2.07	2.93	2.90	2.41	1.06	0.28	0.07	0.01	0.03	13.75
Max	3.47	4.19	4.34	7.50	10.16	13.08	8.72	4.27	2.09	1.96	0.67	1.20	32.61
StdDev	0.50	0.85	1.16	1.64	2.23	2.57	2.02	1.14	0.46	0.26	0.07	0.14	5.25
CV	2.36	1.35	1.00	0.79	0.76	0.89	0.84	1.07	1.63	3.87	5.42	5.10	0.38
Reg CV	2.68	1.28	1.03	0.84	0.90	0.99	0.87	1.11	1.83	2.91	3.81	4.10	0.44
Reg Skew	3.80	1.80	1.40	1.00	1.60	1.10	1.10	1.70	2.60	3.60	4.40	4.80	1.10
FIC	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Return Period in Years													
2	0.00	0.40	0.88	1.79	2.27	2.39	2.03	0.74	0.09	0.00	0.00	0.00	12.66
5	0.36	1.14	2.00	3.39	4.72	5.06	3.98	1.84	0.53	0.13	0.02	0.04	18.29
10	0.80	1.69	2.75	4.40	6.43	6.76	5.22	2.62	0.90	0.28	0.06	0.12	21.86
25	1.48	2.39	3.68	5.61	8.62	8.82	6.73	3.64	1.44	0.51	0.13	0.26	26.22
50	2.04	2.92	4.36	6.48	10.25	10.35	7.84	4.38	1.86	0.71	0.19	0.39	29.42
100	2.64	3.44	5.04	7.32	11.86	11.79	8.89	5.12	2.29	0.91	0.25	0.53	32.45
200	3.25	3.96	5.70	8.13	13.44	13.19	9.92	5.87	2.73	1.11	0.31	0.67	35.41
500	4.50	4.84	6.75	9.31	16.05	15.26	11.43	7.09	3.48	1.53	0.45	0.97	39.77
1000	4.73	5.16	7.21	9.94	17.08	16.33	12.20	7.56	3.76	1.61	0.47	1.02	42.01
10000	6.95	6.87	9.32	12.42	22.21	20.70	15.39	9.96	5.26	2.35	0.70	1.55	51.21



Santa Barbara County - Flood Control District

123 E. Anapamu St., Santa Barbara, CA 93101
805.568.3440 - www.countyofsb.org/pwd

Official Monthly and Yearly Rainfall Record

(Monthly Depth Durations and Expected Return Periods)

Station: 218 Station Type: Alert, Data Logger w/TB Latitude: 343623 Longitude: 1200412
Station Name: Santa Ynez Fire Station #32 Elevation (ft): 600 Rainfall (in.)

WY	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	WY
1950-51	0.06	0.78	1.93	0.71	1.79	1.78	1.01	1.71	0.00	0.00	0.00	0.00	9.77
1951-52	0.00	0.53	3.04	3.94	8.69	0.40	6.62	1.14	0.00	0.00	0.00	0.00	24.36
1952-53	0.00	0.00	3.53	5.14	1.24	0.00	0.50	0.83	0.04	0.04	0.00	0.00	11.32
1953-54	0.00	0.00	1.94	0.25	3.85	1.35	3.24	0.22	0.00	0.00	0.00	0.00	10.85
1954-55	0.00	0.00	0.90	2.16	4.11	1.61	0.69	1.71	0.99	0.01	0.00	0.05	12.23
1955-56	0.01	0.00	1.17	4.43	4.24	0.55	0.00	1.89	1.00	0.00	0.00	0.00	13.29
1956-57	0.00	0.34	0.00	0.28	2.70	2.39	1.01	1.41	1.17	0.25	0.00	0.00	9.55
1957-58	0.00	0.63	0.49	3.26	2.16	7.26	6.22	5.96	0.81	0.00	0.00	0.00	26.79
1958-59	1.12	0.00	0.14	0.08	3.35	5.98	0.00	0.94	0.00	0.00	0.00	0.00	11.61
1959-60	0.05	0.00	0.00	0.92	3.45	3.21	0.52	1.07	0.00	0.00	0.00	0.00	9.22
1960-61	0.00	0.03	3.70	0.97	1.92	0.21	0.74	0.29	0.10	0.00	0.00	0.00	7.96
1961-62	0.02	0.00	2.00	2.11	2.19	9.32	0.93	0.00	0.09	0.03	0.00	0.00	16.69
1962-63	0.00	0.40	0.02	0.15	0.46	4.88	3.04	1.79	0.30	0.61	0.00	0.79	12.44
1963-64	1.29	1.01	2.45	0.07	2.05	0.09	1.42	1.46	0.17	0.16	0.00	0.00	10.17
1964-65	0.01	1.67	2.32	1.72	1.14	0.54	2.03	4.27	0.00	0.00	0.00	0.00	13.70
1965-66	0.00	0.00	6.22	2.93	1.75	0.77	0.36	0.05	0.00	0.00	0.00	0.00	12.08
1966-67	0.19	0.00	2.99	3.05	3.09	0.32	3.19	4.62	0.16	0.09	0.00	0.00	17.70
1967-68	0.35	0.00	3.93	1.04	0.68	1.08	2.63	0.90	0.01	0.00	0.00	0.00	10.62
1968-69	0.00	1.85	0.88	1.70	11.67	8.46	1.24	1.76	0.05	0.00	0.03	0.00	27.64
1969-70	0.02	0.12	1.33	0.44	2.21	1.88	2.16	0.15	0.00	0.00	0.00	0.00	8.31
1970-71	0.00	0.05	3.21	4.07	0.54	0.41	0.40	0.95	0.92	0.00	0.00	0.00	10.55
1971-72	0.10	0.30	0.30	4.20	0.10	0.40	0.00	0.20	0.00	0.00	0.00	0.00	5.60
1972-73	0.00	1.50	3.50	1.00	4.90	7.80	2.80	0.00	0.00	0.00	0.00	0.00	21.50
1973-74	0.00	0.40	1.50	1.82	4.50	0.00	3.00	0.70	0.00	0.00	0.00	0.00	11.92
1974-75	0.00	1.10	0.30	5.40	0.10	0.60	4.30	1.70	0.00	0.00	0.00	0.00	13.50
1975-76	0.00	0.30	0.60	0.20	0.00	5.50	1.10	1.50	0.00	0.00	0.00	0.30	9.50
1976-77	4.10	0.90	0.40	0.70	3.40	0.20	2.10	0.40	1.80	0.00	0.00	0.00	14.00
1977-78	0.00	0.10	0.30	2.70	5.60	11.00	8.60	2.50	0.00	0.00	0.00	0.00	30.80
1978-79	2.60	0.00	2.10	1.20	6.10	2.90	4.90	0.00	0.00	0.00	0.00	0.00	19.80
1979-80	0.30	0.70	0.47	1.20	4.11	10.47	3.53	2.10	0.15	0.00	0.00	0.00	23.03
1980-81	0.00	0.00	0.00	1.00	3.56	2.80	6.20	0.60	0.00	0.00	0.00	0.00	14.16
1981-82	0.10	0.50	1.60	0.70	2.90	0.50	6.20	2.00	0.00	0.00	0.00	0.00	14.50
1982-83	0.37	1.52	4.60	2.00	7.90	5.60	8.20	4.00	0.30	0.00	0.00	0.00	34.49
1983-84	1.10	0.97	1.90	3.10	0.10	0.30	0.60	0.40	0.00	0.00	0.00	0.00	8.47
1984-85	0.10	0.50	2.60	3.30	0.80	1.82	1.40	0.50	0.00	0.00	0.00	0.00	11.02
1985-86	0.00	0.50	3.26	0.55	1.40	5.10	5.00	0.50	0.00	0.00	0.00	0.00	16.31
1986-87	0.78	0.00	0.60	1.40	1.80	1.80	3.20	0.20	0.00	0.00	0.00	0.00	9.78
1987-88	0.00	1.74	0.93	4.20	2.80	0.00	3.40	3.60	0.10	0.10	0.00	0.00	16.87
1988-89	0.00	0.00	0.80	3.30	0.30	1.10	0.52	0.10	0.30	0.00	0.00	0.00	6.42
1989-90	0.30	0.30	0.30	0.00	2.90	1.90	0.20	0.10	0.75	0.00	0.00	0.00	6.75
1990-91	0.00	0.00	0.25	0.30	1.30	3.30	11.60	0.00	0.00	0.10	0.00	0.00	16.85
1991-92	0.00	0.30	0.08	7.10	2.90	10.70	3.70	0.10	0.00	0.00	0.10	0.00	24.98
1992-93	0.00	0.90	0.00	4.50	9.90	7.70	5.00	0.00	0.00	0.00	0.00	0.00	28.00
1993-94	0.00	0.20	0.90	1.90	1.20	4.70	2.60	1.00	1.00	0.00	0.00	0.00	13.50
1994-95	0.10	0.50	1.30	0.60	15.80	1.40	8.60	0.50	0.90	0.60	0.00	0.00	30.30
1995-96	0.00	0.00	0.20	1.10	1.50	6.20	2.70	0.40	0.10	0.00	0.00	0.00	12.20
1996-97	0.00	2.10	1.80	4.10	3.44	0.20	0.00	0.00	0.00	0.00	0.10	0.00	11.74
1997-98	0.00	0.00	2.80	5.60	4.80	16.20	3.10	1.80	2.06	0.00	0.00	0.00	36.36
1998-99	0.00	0.10	1.20	0.68	1.90	0.80	5.10	2.00	0.00	0.01	0.38	0.00	12.17
1999-00	0.00	0.00	1.41	0.00	1.61	6.68	2.32	3.19	0.04	0.00	0.00	0.00	15.25
2000-01	0.00	2.26	0.00	0.07	7.37	5.04	9.49	1.28	0.03	0.00	0.05	0.00	25.59
2001-02	0.00	0.64	2.84	2.47	0.94	0.15	0.54	0.14	0.09	0.00	0.00	0.00	7.81
2002-03	0.06	0.01	2.92	5.99	0.11	2.26	2.59	1.30	1.31	0.01	0.00	0.02	16.58
2003-04	0.01	0.02	1.72	2.17	0.49	5.21	0.69	0.00	0.00	0.00	0.01	0.00	10.32
2004-05	0.00	4.88	0.34	8.83	8.79	7.92	2.93	0.86	0.57	0.01	0.00	0.01	35.14
2005-06	0.08	0.40	1.34	0.79	4.27	1.94	3.77	3.98	1.00	0.01	0.00	0.00	17.58
2006-07	0.01	0.17	0.18	1.71	1.18	2.28	0.12	0.92	0.00	0.00	0.00	0.01	6.58
2007-08	0.16	0.36	0.05	1.78	11.44	1.95	0.04	0.04	0.05	0.00	0.01	0.00	15.88
2008-09	0.00	0.10	3.44	1.83	0.53	5.59	1.02	0.30	0.00	0.26	0.00	0.01	13.08
2009-10	0.05	1.41	0.02	2.97	9.63	4.11	0.26	2.82	0.01	0.00	0.00	0.00	21.28



Santa Barbara County - Flood Control District

123 E. Anapamu St., Santa Barbara, CA 93101
805.568.3440 - www.countyofsb.org/pwd

Official Monthly and Yearly Rainfall Record

(Monthly Depth Durations and Expected Return Periods)

Station: 218 Station Type: Alert, Data Logger w/TB

Latitude: 343623 Longitude: 1200412

Station Name: Santa Ynez Fire Station #32

Elevation (ft): 600

Rainfall (in.)

WY	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	WY
Total	13.44	33.09	91.04	131.88	205.65	206.61	169.37	74.85	16.37	2.29	0.68	1.19	946.46
N	60	60	60	60	60	60	60	60	60	60	60	60	60
Mean	0.22	0.55	1.52	2.20	3.43	3.44	2.82	1.25	0.27	0.04	0.01	0.02	15.77
Max	4.10	4.88	6.22	8.83	15.80	16.20	11.60	5.96	2.06	0.61	0.38	0.79	36.36
StdDev	0.66	0.82	1.39	1.92	3.30	3.50	2.67	1.33	0.48	0.12	0.05	0.11	7.65
CV	2.93	1.48	0.91	0.88	0.96	1.02	0.95	1.06	1.75	3.08	4.56	5.42	0.48
Reg CV	2.68	1.28	1.03	0.84	0.90	0.99	0.87	1.11	1.83	2.91	3.81	4.10	0.44
Reg Skew	3.80	1.80	1.40	1.00	1.60	1.10	1.10	1.70	2.60	3.60	4.40	4.80	1.10
FIC	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Return Period in Years

2	0.00	0.35	1.16	1.90	2.66	2.83	2.38	0.87	0.09	0.00	0.00	0.00	14.53
5	0.38	1.00	2.63	3.60	5.53	6.00	4.66	2.16	0.51	0.07	0.02	0.03	20.98
10	0.85	1.48	3.61	4.67	7.53	8.01	6.11	3.08	0.88	0.16	0.05	0.09	25.07
25	1.57	2.10	4.85	5.96	10.09	10.47	7.88	4.27	1.41	0.29	0.11	0.19	30.07
50	2.18	2.56	5.74	6.89	12.00	12.27	9.18	5.14	1.82	0.40	0.15	0.29	33.75
100	2.81	3.02	6.63	7.77	13.88	13.98	10.41	6.01	2.24	0.51	0.20	0.39	37.22
200	3.47	3.48	7.50	8.64	15.74	15.65	11.61	6.88	2.66	0.63	0.26	0.49	40.62
500	4.80	4.25	8.88	9.90	18.79	18.10	13.38	8.32	3.39	0.86	0.37	0.72	45.62
1000	5.05	4.53	9.49	10.56	19.99	19.36	14.29	8.88	3.66	0.91	0.38	0.75	48.19
10000	7.41	6.04	12.25	13.20	26.01	24.55	18.02	11.69	5.13	1.32	0.58	1.15	58.74



Santa Barbara County - Flood Control District

123 E. Anapamu St., Santa Barbara, CA 93101
805.568.3440 - www.countyofsb.org/pwd

Official Monthly and Yearly Rainfall Record

(Monthly Depth Durations and Expected Return Periods)

Station: 256 Station Type: Alert, Data Logger w/TB Latitude: 345159 Longitude: 1201737
Station Name: Sisquoc Fire Station #23 Elevation (ft): 420 Rainfall (in.)

WY	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	WY
1947-48	0.00	0.22	0.16	0.46	0.00	2.42	2.92	2.52	1.01	0.00	0.00	0.00	9.71
1948-49	0.00	0.00	0.00	3.01	1.15	2.00	3.75	0.15	1.04	0.00	0.00	0.00	11.10
1949-50	0.00	0.00	1.84	3.00	3.07	1.68	1.45	0.80	0.20	0.00	0.70	0.00	12.74
1951-52	0.00	0.76	1.26	4.52	6.54	1.00	7.43	0.69	0.08	0.00	0.00	0.00	22.28
1953-54	0.00	0.00	2.62	0.32	4.69	1.13	4.00	0.36	0.00	0.00	0.00	0.00	13.12
1954-55	0.00	0.00	1.28	3.37	4.33	1.63	0.35	1.34	1.26	0.00	0.00	0.00	13.56
1955-56	0.00	0.00	1.96	6.88	4.09	0.58	0.00	1.68	0.00	0.00	0.00	0.00	15.19
1956-57	0.00	0.46	0.00	0.25	3.15	3.15	0.55	1.20	1.50	0.18	0.00	0.00	10.44
1957-58	0.00	1.95	0.38	3.51	2.85	6.15	3.98	6.58	0.00	0.00	0.00	0.60	26.00
1958-59	0.75	0.00	0.27	0.30	2.56	4.39	0.00	1.37	0.00	0.00	0.00	0.00	9.64
1959-60	0.00	0.00	0.00	0.52	4.01	4.01	1.01	2.30	0.00	0.00	0.00	0.00	11.85
1960-61	0.45	0.63	3.61	1.17	1.05	0.10	1.10	0.40	0.27	0.00	0.00	0.00	8.78
1961-62	0.00	0.00	3.00	2.04	3.08	12.61	1.85	0.00	0.00	0.00	0.00	0.00	22.58
1962-63	0.00	1.48	0.00	0.21	0.35	4.93	3.30	2.80	0.38	0.05	0.00	0.16	13.66
1963-64	0.00	0.00	2.59	0.10	1.92	0.10	1.86	0.96	0.60	0.25	0.03	0.00	8.41
1964-65	0.00	2.03	3.22	2.03	1.33	0.41	1.72	4.59	0.00	0.00	0.00	0.00	15.33
1965-66	0.00	0.00	5.79	4.15	1.57	1.20	0.00	0.12	0.00	0.00	0.00	0.00	12.83
1966-67	0.22	0.00	2.45	5.39	3.72	0.46	2.61	6.87	0.17	0.27	0.00	0.00	22.16
1967-68	0.36	0.00	2.60	1.32	1.35	1.24	3.78	0.82	0.05	0.00	0.00	0.00	11.52
1968-69	0.00	1.93	1.00	2.17	9.75	8.68	1.42	1.80	0.10	0.00	0.00	0.00	26.85
1969-70	0.00	0.00	0.00	0.00	0.00	1.94	2.15	0.12	0.00	0.00	0.00	0.00	4.21
1970-71	0.00	0.00	2.99	3.27	0.40	0.23	0.43	1.16	0.88	0.00	0.00	0.00	9.36
1971-72	0.00	0.14	0.19	3.78	0.12	0.35	0.00	0.20	0.00	0.00	0.00	0.00	4.78
1972-73	0.00	0.61	4.31	1.18	4.52	6.80	3.49	0.00	0.14	0.00	0.00	0.00	21.05
1973-74	0.13	0.47	2.61	2.44	4.68	0.19	5.47	1.29	0.00	0.00	0.00	0.00	17.28
1974-75	0.00	0.95	0.16	3.80	0.20	4.22	3.92	0.86	0.00	0.00	0.00	0.00	14.11
1975-76	0.00	0.62	0.48	0.17	0.00	5.49	1.73	1.71	0.03	0.05	0.00	0.75	11.03
1976-77	4.53	0.45	0.39	0.80	2.01	0.05	1.55	0.00	1.80	0.00	0.00	0.00	11.58
1977-78	0.00	0.00	0.17	3.78	5.97	9.15	6.71	2.48	0.00	0.00	0.00	0.00	28.26
1978-79	1.90	0.00	1.29	1.22	3.44	4.14	4.84	0.00	0.05	0.00	0.00	0.00	16.88
1979-80	0.35	0.55	0.92	1.80	4.37	7.96	1.98	0.48	0.38	0.00	0.00	0.00	18.79
1980-81	0.00	0.00	0.00	0.14	3.92	2.26	5.13	0.50	0.00	0.00	0.00	0.00	11.95
1981-82	0.00	0.80	1.19	0.70	3.23	0.94	4.55	2.45	0.00	0.00	0.00	0.00	13.86
1982-83	0.80	1.60	3.91	1.40	7.31	4.38	6.24	2.98	0.00	0.00	0.00	0.26	28.88
1983-84	0.00	0.92	2.25	2.71	0.19	0.32	0.57	0.57	0.00	0.00	0.00	0.00	7.53
1984-85	0.00	0.76	2.46	3.36	0.59	1.15	1.38	0.00	0.00	0.00	0.00	0.00	9.70
1985-86	0.00	0.30	3.69	0.67	0.60	3.18	4.71	0.60	0.00	0.00	0.00	0.00	13.75
1986-87	0.73	0.00	0.91	1.42	1.57	1.73	3.48	0.22	0.00	0.11	0.00	0.00	10.17
1987-88	0.00	0.94	1.08	3.47	1.69	1.34	0.60	2.88	0.16	0.16	0.00	0.00	12.32
1988-89	0.00	0.00	0.81	5.04	0.45	0.87	0.73	0.08	0.16	0.00	0.00	0.00	8.14
1989-90	0.73	0.39	0.28	0.00	2.26	1.81	0.18	0.24	0.63	0.00	0.00	0.00	6.52
1990-91	0.54	0.00	0.26	0.57	1.23	1.47	9.69	0.00	0.00	0.00	0.00	0.00	13.76
1991-92	0.46	0.20	0.00	3.60	2.69	5.93	1.83	0.00	0.00	0.00	0.61	0.00	15.32
1992-93	0.90	0.00	0.00	4.13	5.99	5.74	4.29	0.00	0.16	0.16	0.00	0.00	21.37
1993-94	0.00	0.25	1.13	1.56	2.14	3.46	2.86	0.74	1.11	0.00	0.00	0.00	13.25
1994-95	0.38	1.08	2.00	1.23	11.79	2.26	8.51	0.43	0.62	0.74	0.00	0.00	29.04
1995-96	0.00	0.00	0.29	2.18	1.66	10.84	2.17	0.92	0.25	0.01	0.00	0.00	18.32
1996-97	0.00	2.35	2.34	4.10	3.92	0.06	0.00	0.00	0.00	0.00	0.01	0.00	12.78
1997-98	0.28	0.00	4.47	2.66	4.10	13.42	5.05	4.34	3.02	0.00	0.00	0.00	37.34
1998-99	0.54	0.15	2.04	0.64	2.14	1.16	5.55	1.03	0.00	0.00	0.00	0.00	13.25
1999-00	0.02	0.00	1.47	0.00	1.53	8.73	1.59	3.42	0.00	0.16	0.00	0.00	16.92
2000-01	0.00	2.07	0.01	0.10	5.52	5.08	4.85	1.50	0.00	0.00	0.00	0.00	19.13
2001-02	0.00	0.80	3.69	1.96	1.03	0.28	0.87	0.16	0.40	0.00	0.00	0.00	9.19
2002-03	0.00	0.02	3.13	5.43	0.04	2.14	2.26	1.72	1.39	0.00	0.01	0.00	16.14
2003-04	0.01	0.00	2.17	2.20	0.79	4.98	0.70	0.00	0.00	0.00	0.00	0.00	10.85
2004-05	0.00	3.81	0.56	5.63	5.80	3.79	3.43	0.78	1.77	0.03	0.00	0.00	25.60
2005-06	0.03	0.95	1.22	1.52	4.54	0.96	4.43	4.71	0.92	0.00	0.00	0.00	19.28
2006-07	0.00	0.43	0.15	1.42	0.86	2.11	0.37	0.44	0.01	0.00	0.00	0.03	5.82
2007-08	0.35	0.92	0.00	2.01	9.87	2.20	0.00	0.07	0.00	0.00	0.00	0.00	15.42
2008-09	0.00	0.11	2.02	1.93	0.26	5.27	1.14	0.28	0.10	0.10	0.00	0.00	11.21



Santa Barbara County - Flood Control District

123 E. Anapamu St., Santa Barbara, CA 93101
805.568.3440 - www.countyofsb.org/pwd

Official Monthly and Yearly Rainfall Record

(Monthly Depth Durations and Expected Return Periods)

Station: 256 Station Type: Alert, Data Logger w/TB

Latitude: 345159 Longitude: 1201737

Station Name: Sisquoc Fire Station #23

Elevation (ft): 420

Rainfall (in.)

WY	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	WY
2009-10	0.02	2.02	0.01	3.50	6.77	3.49	0.43	2.52	0.16	0.00	0.00	0.00	18.92
Total	14.48	34.12	91.08	132.24	180.75	199.74	162.94	79.23	20.80	2.27	1.36	1.80	920.81
N	61	61	61	61	61	61	61	61	61	61	61	61	61
Mean	0.24	0.56	1.49	2.17	2.96	3.27	2.67	1.30	0.34	0.04	0.02	0.03	15.10
Max	4.53	3.81	5.79	6.88	11.79	13.42	9.69	6.87	3.02	0.74	0.70	0.75	37.34
StdDev	0.65	0.77	1.41	1.67	2.59	3.13	2.25	1.56	0.59	0.11	0.12	0.13	6.62
CV	2.72	1.38	0.94	0.77	0.87	0.96	0.84	1.20	1.72	2.95	5.24	4.26	0.44
Reg CV	2.68	1.28	1.03	0.84	0.90	0.99	0.87	1.11	1.83	2.91	3.81	4.10	0.44
Reg Skew	3.80	1.80	1.40	1.00	1.60	1.10	1.10	1.70	2.60	3.60	4.40	4.80	1.10
FIC	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Return Period in Years

2	0.00	0.36	1.14	1.88	2.30	2.69	2.25	0.91	0.11	0.00	0.00	0.00	13.90
5	0.40	1.02	2.59	3.55	4.78	5.71	4.41	2.25	0.64	0.07	0.04	0.04	20.08
10	0.90	1.50	3.55	4.61	6.51	7.62	5.79	3.20	1.10	0.15	0.10	0.13	24.00
25	1.67	2.13	4.77	5.88	8.72	9.95	7.46	4.44	1.76	0.28	0.21	0.29	28.78
50	2.31	2.60	5.65	6.79	10.38	11.67	8.69	5.35	2.27	0.39	0.30	0.43	32.30
100	2.98	3.07	6.52	7.67	12.00	13.29	9.85	6.26	2.79	0.50	0.40	0.58	35.62
200	3.68	3.53	7.38	8.52	13.60	14.88	10.99	7.17	3.32	0.61	0.50	0.74	38.87
500	5.08	4.31	8.74	9.76	16.24	17.21	12.66	8.67	4.24	0.84	0.72	1.07	43.66
1000	5.35	4.60	9.34	10.42	17.28	18.41	13.52	9.24	4.58	0.89	0.76	1.12	46.11
10000	7.85	6.12	12.06	13.02	22.48	23.34	17.06	12.17	6.41	1.29	1.14	1.71	56.21