

Historical Anecdotes of the 1861- 62 Storms

Climate is the long term average of daily and yearly weather. The U.S. Weather Bureau utilizes a 30 year average to define the 'norm' for an area. They also keep track of long term variation in weather and climate. When it is time to design a bridge or dam or where to build houses, their information is available to help determine the appropriate design and locations to withstand projected extreme '100, 500 and 1,000 year' floods, droughts, etc. But other than a few notes in mission records, written northern California weather records for our Mediterranean climate (hot dry summers and mild wet winters) only start at 1849. The 1993 Mississippi floods are not unique in North America. Portions of three 1862 letters from William Brewer, member of the Whitney survey of California, describe one of the most extreme recorded variations in California's weather.

San Francisco.
Sunday, January 19, 1862

"The rains continue, and since I last wrote the floods have been far worse than before. Sacramento and many other towns and cities have again been overflowed, and after the waters had abated somewhat they are again up. That doomed city is in all probability again under water today."

"The amount of rain that has fallen is unprecedented in the history of the state. In this city accurate observations have been kept since July 1853. For the years since, ending with July 1 each year, the amount of rain is known. In New York state-Central New York- the average amount is under 38 inches, often not over 33 inches, sometimes as low as 28 inches. This includes the melted snow. In this city it has been for the 8 years closing last July, 21 & 3/4. Yet (this year, since November 6, when the first shower came, to January 18, it is *thirty two and three-quarters* inches and it is still raining! But this is not all. Generally twice, sometimes 3 times, as much falls in the mining districts on the slopes of the Sierra. This year at Sonora, in Tuolumne County, between November 11, 1861, and January 14, 1862, 72 inches (*six feet*) of water has fallen, and in numbers of places over five feet! And that in a period of 2 months.) As much rain falls in Ithaca in *two years* as has fallen in some places in this state in *two months*."

"The great central valley of the state is under water - the Sacramento and San Joaquin valleys - a region 250 to 300 miles long and an average of at least twenty miles wide, a district of five thousand or six thousand square miles, or probably three to three and a half millions of acres!"

San Francisco
Friday, January 31, 1862

"We have had very bad weather since the above was written, but it has cleared up. In this city 37 inches of water has fallen, and at Sonora, in Tuolumne County, 102 inches, or 8 1/2 feet, at the last dates. These last floods have extended over this whole coast. At Los Angeles it rained incessantly for 28 days-immense damage was done-one whole village (Anaheim) destroyed. The legislature has left the capital and has come here, that city being under water."

"All the roads in the middle of the state are impassable, so all report no new arrivals. The telegraph also does not work clear through, but news has been coming for the last 2 days. In the Sacramento Valley for some distance the tops of the poles are under water!"

San Francisco
February 9, 1862

"Since I last wrote the weather has been good and the waters in the great valley have been receding, but there is much water still. I have heard many additional items of the flood. Judge Field, of Sacramento City, said a few days ago that his house was on the highest land in the city and that the mud was 2 feet deep in his parlors after the water went down. Imagine the discomforts arising from such a condition of things."

"An old acquaintance, a buccaro, came down from a ranch that was overflowed. The floor of their one-story house was 6 weeks under water before the house went to pieces. The "lake" was at the point 60 miles wide, from the mountains on one side to the hills on the other. This was in the Sacramento Valley. Steamers ran back over the ranches 14 miles from the river, carrying stock, etc., to the hills."

"Nearly every house and farm over this immense region is gone. There was such a body of water-250 to 300 miles long and 20 to 60 miles wide, the water ice cold and muddy -that the winds made high waves which beat the farm homes in pieces. America has never before seen such desolation by flood as this has been, and seldom has the Old World seen the like. But the spirits of the people are rising, and it will make them more careful in the future. The experience was needed. Had this flood been delayed for 10 years the disaster would have been more that doubled."

Apparently the rains of November and December 1861 were the typical, cold, winter storms which bring snow to the mountains. The January storms were apparently warm tropical ones which brought much moisture from the direction of Hawaii ('Pineapple Express') which added their own large quantity of warm rain and rapidly melted much of the accumulated snowpack. This was before the present dams and river-delta levees, but even they may not hold back all such environmental challenges.

Unfortunately people don't live long enough to develop a sense of historical perspective much longer than 75-100 years. Trees, which spend one to three hundred or more years in one place and have specific climatic tolerances and requirements for successful reproduction, are good indicators of the long term climate. Not only does their presence reflect the past average climate, but the width of their annual growth rings also reflect each year's conditions. Ponderosa Pines in Arizona revealed a 27 year drought that caused the end of the native southwestern American Anasazi culture (See video "Tell-Tale Tree Rings". A continuous record of climate cycles over 8000 years long has been obtained from wood of Bristlecone Pines on the White Mountains of eastern California. These studies reveal cyclic climatic variation which suggests that the rains and floods of Feb. 1862, Dec. 1955, April 1880 (14" in Sacramento) and early 1862 will reoccur sometime. Similar studies of petrified wood and leaves and the geology in which they are found reveal even more ancient climates. Even all the dams and levees of the California water system could not control such a series of storms if (when?) they reoccur. However, if we learn and appreciate the lessons of the past, and remember them, we may be able to better prepare for the future and avoid some of the potential damage.

Quotes from Up and Down California in 1860-1864. The Journal of William H. Brewer, University of California Press, 1966. Reproduced with permission of the publisher.