Santa Cruz - Weather

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Theories On Weather Cycles Follow Storm

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It's been a strange winter, with snow in January falling the heaviest in living memory, and sunshine following the cold storm.

Some people have asked if the weather isn't changing. Just as they asked in the 1950s, when open - air atomic blasts were made on the Nevada desert. Unusual weather has also been blamed on comets and kings, gods and devils.

Santa Cruz doesn't have a resident meteorologist who studies weather professionally, but it does have many weather - watchers.

One is Ray Collett, associate professor of geography at UCSC. He has worked to develop the university's arboretum, a tree showplace, and as a consequence has done some weather research to see what trees can best grow here.

"Well, you can read the newspapers yourself, where some scientists think the world is warming up, and some think it's cooling off. Take your choice'" he suggests.

Why, then, did Santa Cruz County have snows two years running?

Collett turned and pulled a weather map from his file for January 5, 6, and 7. "As you can see from the lines here, there was a ,,low pressure area,, covering the entire West those days. We had an invasion of cold air from the Yukon, a great enormous mass which came from the North."

This cold air picked up enough moisture over the ocean and dumped it on our county in the form of a heavy white blanket of snow to cause trees to crash to the ground from the extra weight.

Robert Burton, who keeps Santa Cruz city area weather records, said he had never heard of such a heavy snowfall here.

"Of course, it snows almost every year in the mountains area, up on Empire Grade or near the summit," Collett added. "It usually just flurries in the air, and melts immediately when it hits the ground."

But just the change of a few degrees in temperature, combined with a good, cold storm, and you have lots of snow on the ground and in the trees, he added.

Since that took care of the weather change question, we asked Collett about some other oddities or puzzles on Santa Cruz weather.

Why does Santa Cruz stay warmer and sunnier than Monterey just across the bay, for instance?

"Santa Cruz, of course, is sheltered by its range of mountains from the colder air which sweeps past and on down to Monterey," he replied.

Is this why we don't have the smog coming in from San Jose and San Francisco Bay area? "Yes, essentially, the whirlpool in the drain of your bathtub, because of the earth's rotation. The mountains block the rain coming from the north, but of course, there's just the ocean to the south and west, so it spins in that way."

And, as expected, when the storm has passed, the winds reverse.

This same sheltering effect makes Santa Cruz a warmer, sunnier place than its sister cities across Monterey Bay.

But the mountains do give us much more rain than inland valleys. As the moisture - laden clouds come in toward the mountains, they begin progressively raining more and more. The higher you go, the more the rain. Once the summit is crossed, the rainfall levels fall off rapidly.

"Actually, out to sea a few miles from Santa Cruz, there's very little average rainfall," Collett points out.

Collett and other researchers have amassed some figures on rainfall, temperature, and so forth around various places in Santa Cruz County. Copies are on file in the Santa Cruz Public Library. The Santa Cruz Mountains area, with an average annual rainfall of at least 50 inches, normally more than doubles the yearly total for the city coastal zone.

Collett found no particular rainfall pattern in the figures. However, when charted, there are some possible patterns, or cycles, which show up.

Sunspot cycles, or storms on the sun which throw off clouds of radiation, seem to affect weather on earth, though Collett said he personally cannto confirm this theory.

This 11 - year sunspot cycle seems to tie in with a possible cycle or "wave" on the rainfall chart of Santa Cruz. Some rudimentary chart techniques, such as drawing lines which touch most of the highs and lows on the chart, will turn up indication of not one, but at least two cycles.

The short rainfall cycle seems to last about 22 years, or double the sunspot cycle. A much longer cycle of about 44 years also can be detected, and the two don't seem to be precisely tied together, oc "in phase."

It would take a computer to do precise work, but on a rough basis, the longer cycle sometimes interferes with the short one, damping the rainfall. In other cases, it adds to it, giving very high rainfall, such as in the 1933 - 1945 period.

The current cycle reached its low point in 1960, and has been on the way up. But the short cycle now is turned down, since 1971, while the long cycle is still on the way up. This probably will "damp" the really wet weather, and average rainfall may begin to decline around 1975 before both cycles begin working together again in the late 1970s.

Such predictions are interesting, but can't be depended on year-to-year. They average out only in a general way.

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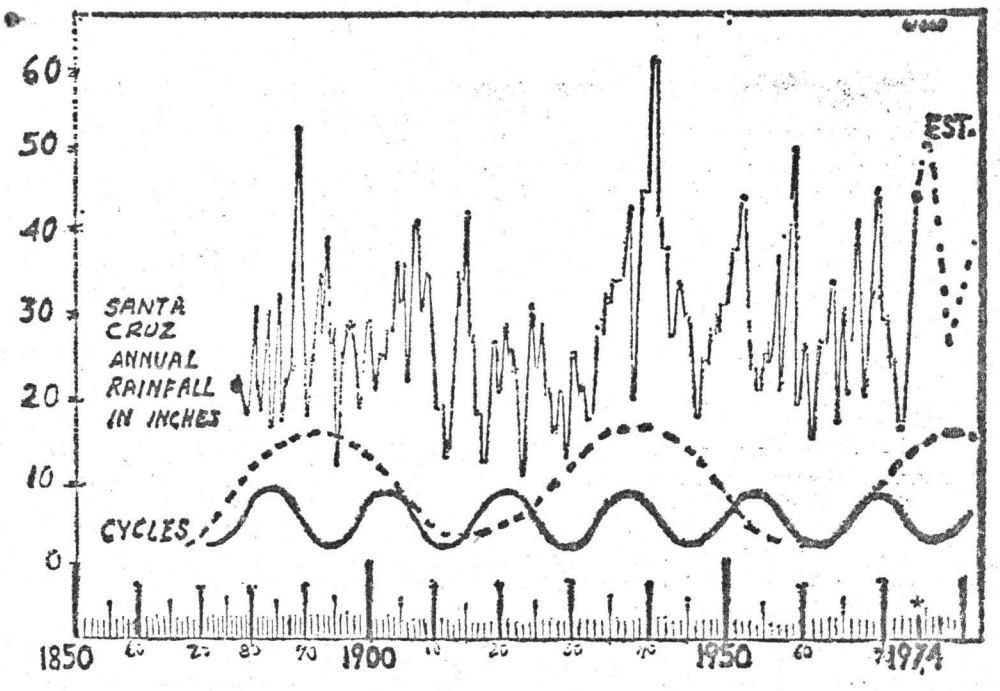
But it's one of the most popular subjects of conversation, whether it's changing or not.



A rainfall chart of the area in the City of Santa Cruz was constructed by figures gathered by Ray Collett of UCSC and weatherman Robert Burton. The records begin in 1878, and there are some indications of possible rainfall cycles, one on a 22 - year basis and one on a much longer wave, possibly 44 years. Some weathermen have found weather affected by the 11 - year cycle of sunspots, or storms on the face of the sun. (Chart by Wallace Wood)