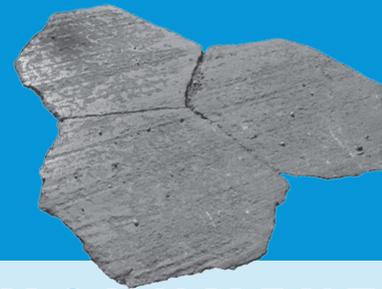


# The Post



DEVILS

POSTPILE

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## Meteorological Station Arrives

### New unit will provide real-time data and reveal trends

Until recently, accurate weather and climate data for the Middle Fork of the San Joaquin and Devils Postpile area were difficult to obtain. A combination of snow pack surveys beginning in the 1930s and regional weather station data provided an approximation of information, but gaps in historical records and less sophisticated methods of information gathering persisted. This shortfall of accurate weather measurements--and the necessity it created for a more advanced source of long-range weather monitoring at the Postpile--came to an end last August with the installation of a new meteorological or "met" station.

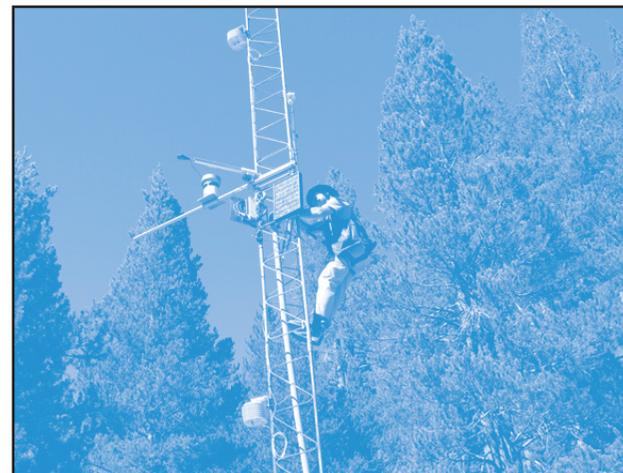
A collaborative effort led to the met station's arrival at the Monument. Funding and technical support was provided by the Scripps Institution of Oceanography at the University of California, San Diego, the National Park Service, the U.S. Geological Survey, and the California Department of Water Resources as well as the State of California's Public Interest Energy Research program, which supports energy-related environmental research. While energy and weather may seem unrelated topics, they are closely intertwined. As Douglas Alden, a Development Engineer with Scripps explained, "The project's objective is to establish long-term hydro-climate monitoring so that seasonal patterns and fluctuations may be established." Hydroelectric power is highly dependent on water supplies; therefore the data gathered from the met station will prove useful for managing California's energy resources in the future. The station, Alden continued, "offers implications for the way water resources are distributed and managed," allowing for more effective applications not only in terms of energy consumption, but agricultural and household use as well. This will result in a net gain for California in conservation of vital water resources.

In addition to measurements like air temperature, barometric pressure, relative humidity, surface radiation, and precipitation, the new station is equipped with snow pillows -- devices used to measure the snow's weight and depth. The unit also features two transmitters, one that relays data over a phone line while the other sends it via satellite. The phone line, described Alden, "has the potential to send information hourly, which is closer to being real-time data." The more comprehensive and accurate the data, the better managed water resources in California can be.

Comprehensive coverage is achieved one weather station at a time. The new installation joins a network of several other met station sites throughout the Sierra Nevada range. "The Postpile station fills a critical void in the upper San Joaquin basin," explained Dan Cayan, a Climate Researcher at Scripps and the U.S. Geological Survey. "Collaboration is a key ingredient in maintaining this project over the long term." Observations made throughout the Sierra Nevada, including the Postpile, will be invaluable for climate studies, particularly in identifying and understanding climate change.

Climate research, and more specifically, global climate change, has received increasing attention from both the scientific community and the media in the last few years. When one takes into account the latest statistics, it is easy to understand why. According to the IPCC (Intergovernmental Panel for Climate Change), in the last century, the earth's mean surface air temperature has risen by approximately 1 degree Fahrenheit (0.6 degrees Celsius). The Sierra Nevada's average temperature has increased by 1 to 2.5 degrees Fahrenheit (0.6 to 1.5 degrees Celsius) in only half the time. While a one degree difference may not seem significant, it is when one considers that there is only a 10 degree difference that separates today's climate from that of an ice age one. In fact, the years 1990, 1995, 1997 were the warmest years on record over the course of the past six centuries. Explained Alden, "On average, climate models are predicting longer and hotter summers," which could mean an increase in fire intensity and droughts.

With its elevation variances, diverse habitats, and isolated areas, the Sierra Nevada is particularly sensitive to these changes. Glacial retreat has been observed throughout the mountain range, with 497 glaciers and perennial ice features affected. The trend of late has been warmer, milder winters with an earlier spring melt. By the end of the century, the San Joaquin River is predicted to experience peak stream flows thirty days earlier than its current run-off period. This could significantly impact a state whose economy is largely driven by agriculture: an activity that remains highly dependent on water supplies. A drier climate with warmer temperatures may result in grasslands and shrublands overtaking historically coniferous zones. Native birds such as woodpeckers and chickadees may alter their summer and



Frank Gehrke, Chief of the California Cooperative Snow Surveys Program, installs the satellite connection for the new unit.

winter ranges in response to vegetation alterations.

Environments and ecosystems will change, as they have in the past, so we should anticipate and prepare for it. Since current changes are human-caused, people and parks can play a significant role in mitigating the ongoing effects. With so much at stake -- be it California's agricultural potential, the ability to provide energy on a reliable basis, or the State's unique wild places and wildlife it harbors -- monitoring of the region's weather data remains critical. The new met station will provide further insight into the seasonal ebb and flow of the area's climate. Whether information gathered is applied to research on Sierra Nevada hydrology, statewide weather patterns, or global climate change, Devils Postpile's met station will supply crucial information and inform resource management strategies.

For the latest met station weather data, please visit the following website: [http://meteora.ucsd.edu/weather/observations/sio\\_other/sites/stn\\_32-2.html](http://meteora.ucsd.edu/weather/observations/sio_other/sites/stn_32-2.html)

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