State weather stations to help water users irrigate efficiently

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As part of the local water protection plan, Steve Ewert of the California Department of Water Resources met with local water users on Thursday, Dec. 12, to discuss how the California Irrigation Management Information System (CIMIS) weather stations can assist in developing water budgets.

"The Tehachapi Water Protection plan is completed and included conservation recommendations to help big water users reduce overall consumption with an evapotranspiration gauge," California Rural Water Association Water Protection Specialist Kevin Knauss said.

According to Ewert, CIMIS was designed to assist with efficient water and energy use.

There are approximately 120 active CIMIS weather stations statewide. Each weather station is standardized and equipped with an anemometer (measures wind speed), pyranometer (measures global solar radiation), lightning rod, wind vane, air temperature/relative humidity sensor, thermistor (measures soil temperature), solar panel and data logger.

"The CIMIS computer compiles hourly data and correlates into daily data. These numbers are approximated because the info is downloaded onto user's Web sites," Ewert said. "The data reports are used as a reference for evapotranspiration (ETo)."

The weather data gathered at the CIMIS stations calculates estimates of grass reference ETo, which is water evaporated from the soil and the amount transpired from irrigated grass.

"CIMIS helps agricultural growers and turf managers administering parks, golf courses and other landscapes develop water budgets for determining when to irrigate and how much water to apply," Ewert said.

Registered users of the CIMIS Web site (www.cimis.water.ca.gov) are able to access all weather stations statewide to gather information as long as they've been operational, some dating as far back as 1985.

With a simple equation that includes a crop coefficient (a factor is used to convert ETo into an actual evapotranspiration (ETc) for a specific crop) and the distribution uniformity of a water user's irrigation system, the amount of water necessary to replenish the water that's been lost to evapotranspiration can be determined using the CIMIS data.

"Some benefits of using CIMIS are increased crop yields, improved crop and landscape quality, reduced drainage, water and energy conservation and reduced labor, fertilizer and pesticide cost," Ewert said.

Because CIMIS is a state agency the service is of no cost to the public. Some weather stations are owned by DWR and others by local cooperators. The cost of a weather station is approximately $6,000.

Knauss said getting a weather station for the Tehachapi area involves determining the cost benefit analysis and what savings it'll provide in water costs.

"I think the recovery in costs will be very fast, almost immediately," Tehachapi Unified School District Director of Operations Steve Minton said.

Overall, there was a strong interest from many of the attendees which included representatives from Tehachapi Valley Recreation and Parks District, Golden Hills Community Services District, Bear Valley CSD, Tehachapi Resource Conservation District and Superior Sod.

Pacific Sod Ranch Manager Craig Dargatz said prior to the Dec. 12 meeting, Pacific Sod began corresponding with DWR because they were interested in gathering weather data.

"Water is a critical component to our business and the weather data is critical to manage resources to produce our crops," he said. "Farmers are truly conservationists because we have a vested economic stake. The weather stations would be good for us."

Knauss said the next steps in establishing a CIMIS weather station in Tehachapi include looking at different possible sites to get a better grasp of the cost for an area-specific station.

"The weather station will be located in an area that is most representative of the Tehachapi area," Ewert said.

Knauss said the people who want to be involved will meet and discuss cooperator responsibilities and discuss an agreement so all the responsibility does not fall on one organization.