HPWREN High Performance Wireless Research & Education Network

Real-time Data Acquisition and Monitoring at the Santa Margarita Ecological Reserve

The Santa Margarita Ecological Reserve (SMER) is a 4,600 acre reserve on the San Diego Riverside County boundary. Program scientist Spring Strahm will show how real time water quality sensors are used to monitor one of the reserve's most precious resources, the Santa Margarita River. The demonstration will include a brief tour of the Temecula Gorge and the Santa Margarita River, southern California's only unobstructed waterway. Strahm will then demonstrate the real-time data collection and display capabilities of HPWREN using an in-situ water quality sensor. Results of the demonstration will be captured in real time and displayed to the audience. The presentations will be followed by short Q and A sessions.
For more information: **http://fs.sdsu.edu**

Research and Distance Learning at the Palomar Observatory

Astronomers at the California Institute of Technology's Palomar Observatory in Southern California rely on the High Performance Wireless Research and Education Network (HPWREN) to bring high volumes of data to and from this remote mountain location. Funded by the National Science Foundation (NSF), HPWREN allows astronomers to transfer a 100 megabyte image from a remotely operated telescope camera at Palomar to their distant campus laboratories in less than 30 seconds.

Join the NSF as HPWREN brings a live remote broadcast from the Palomar Observatory to the floor of the AAAS meeting to learn about the research now underway.

For more information: **http://palomar-observatory.org**

HPWREN and NEES Team up for Demonstration Using NSF Funded Cyberinfrastructure to Operate Remote Earthquake Engineering Field Equipment.

The NSF George E. Brown, Jr. Network for Earthquake Engineering Simulation (NEES) program is taking advantage of the HPWREN system to broadcast data and video in real-time from the one of the two permanently instrumented field sites operated by NEES@UCSB. In addition to the passive monitoring of earthquakes at these sites, active experimental testing at these sites is conducted by researchers all across the nation. A joint demonstration of the active testing will be conducted by both the NEES@UCSB and NEES@UCLA equipment sites, highlighting the use of the HPWREN system to remotely control equipment at the sites and view the data and video in real-time.
For more information: **http://nees.ucsb.edu**

Wolf Awareness, Understanding, and Conservation Efforts Presented via Distance Education with the California Wolf Center

New technology allows the California Wolf Center to reach students in far away classrooms. Using HPWREN's high speed wireless link, a live-feed interactive video/audio system, students will be able to observe wolf behavior in real-time, while communicating directly with an on-site staff member to discuss wolf observations. This portable system will expand the California Wolf Center's education outreach programs, providing an opportunity for schools to participate without ever leaving the classroom.
For more information: **http://californiawolfcenter.org**

Real-Time Seismic Observations (NSF Earthscope USArray, ANZA)

The USArray component of the NSF EarthScope experiment is a continental-scale seismic observatory designed to provide a foundation for integrated studies of continental lithosphere and deep Earth structure over a wide range of scales. The USArray ANF facility records data from a transportable array of up to 400 portable, unmanned three-component broadband seismometers deployed on a uniform grid. USArray utilizes HPWREN for prototyping, as well as for some deployment sites.
For more information: **http://www.earthscope.org/usarray**

The ANZA Seismic Network (**http://eqinfo.ucsd.edu**) utilizes broadband and strong motion sensors with 24-bit dataloggers combined with real-time telemetry through the NSF- funded HPWREN program to monitor local and regional seismicity in southernmost California.

Federation of Sensor Networks (ROADNet)

The NSF-funded Real-Time Observatories, Applications and Data Management Network (ROADNet) research project (**http://roadnet.ucsd.edu/**) is connecting multiple sensor networks deployed by collaborating research projects, including HPWREN, into a single data collection and processing environment, in order to support a variety of research topics including coastal ocean observing, microclimatology and seismology. The ROADNet project focuses on supporting new sensor types and studies sensor network integration issues.

Realtime Southern California Coastal Ocean Observing System (SCOOS)

SCCOOS (**http://sccoos.ucsd.edu/**) brings together coastal observations in the Southern California Bight to provide information necessary to address issues in climate change, ecosystem preservation and management, coastal water quality, maritime operations, costal hazards and national security.