

Case Study

Environmental and Structural Monitoring



Customer: Oklahoma Mesonet

Web Site: <http://www.mesonet.org>

Country/Region: United States

Application: Wireless data transceivers networked with master/repeater infrastructure

Customer Profile

The Oklahoma Mesonet is a world-class network of environmental monitoring stations. The network was designed and implemented by scientists at the University of Oklahoma (OU) and at Oklahoma State University (OSU).

The Oklahoma Mesonet consists of 120 automated stations covering Oklahoma. There is at least one Mesonet station in each of Oklahoma's 77 counties.

Products Utilized in Solution

Intuicom Navigator II™

Intuicom CommPro™ software

Leica Geosystems



Statewide Real-Time Weather Monitoring Requires Interference-Proof Low-Power Wireless Solution.

Situation

Researchers at the Oklahoma Mesonet needed a wireless solution to replace communications at remote weather sensor stations where existing licensed UHF communications were being interrupted by interference with other users who share the same frequencies. They needed a long-range solution that was compatible with the existing remote equipment, while providing easy integration with existing networked data systems. Further, because much of the network relied on solar cells, low power requirements were critical.

Communication Solution

Intuicom provided a solution that employs Intuicom Navigator™ II wireless data transceivers at the remote stations and a Communicator™ based master/repeater infrastructure. The multiple remote instrument stations make up sub-networks that were centered within 60 miles of the master station that served as the gateway to a hardwired IP based network. From the gateway, real

-time data is backhauled to the central processing center. The multipoint capability of the Navigator was necessary to connect to multiple dataloggers and instruments at each station. Communications between the Mesonet data system and remote stations are facilitated using Intuicom's network server software, which provides access to remote devices using standard Internet protocols and supports network configuration, performance monitoring and troubleshooting.

Results

At each station, multiple sensors provide measurement of various parameters including atmospheric pressure, temperature, humidity, wind speed and direction, precipitation, solar radiation and soil temperature. Still or video imagery are also collected at some stations to provide visual information. Campbell Scientific dataloggers served as the primary interfaces at the weather stations.

