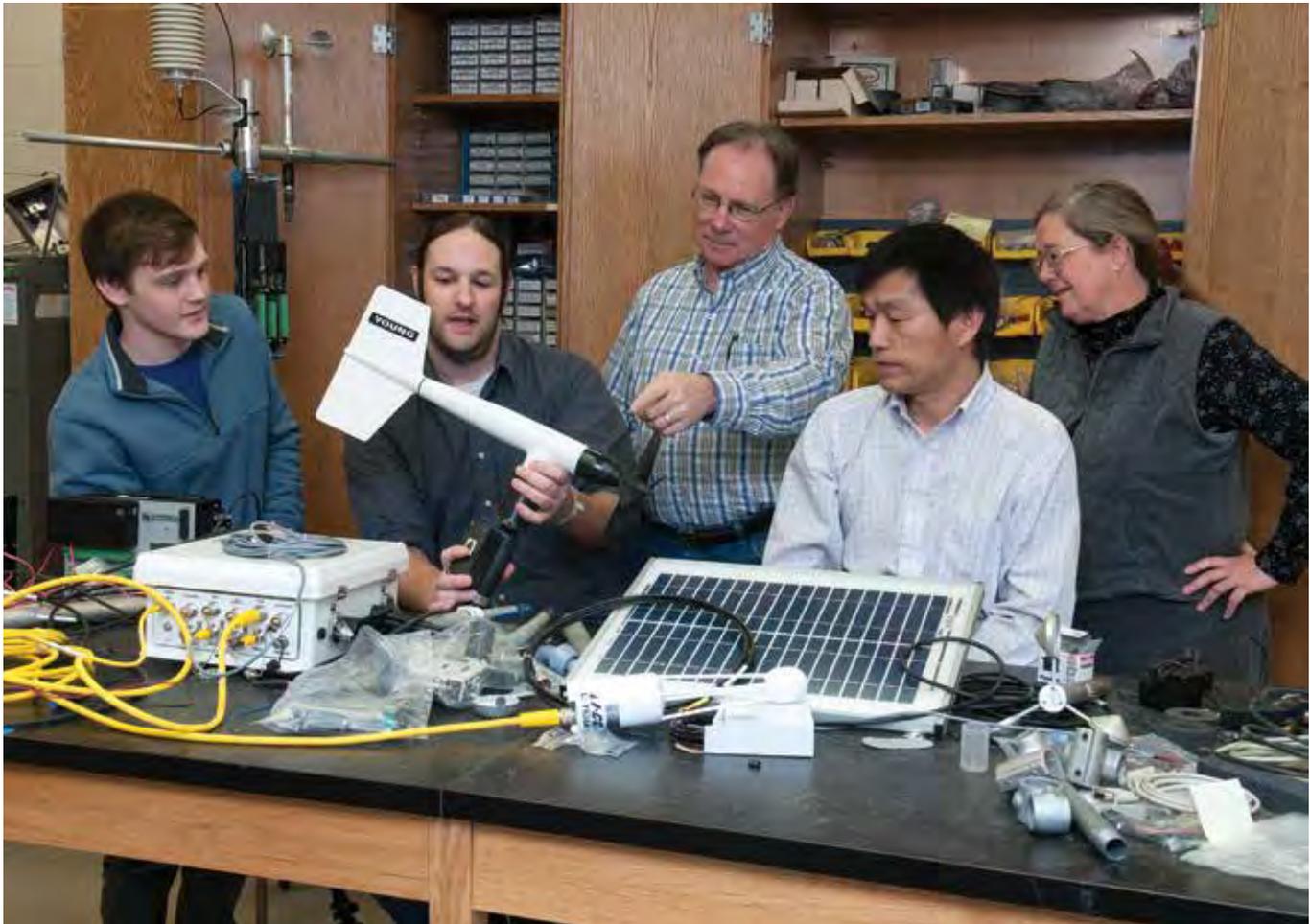


Weather Matters

Team tracks and compiles Kansas weather data



The Weather Data Lab team inspects a new piece of equipment (from left) Brian Petersen, programmer; Christopher Redmond, WDL manager; Fred Caldwell, weather monitoring specialist; Xiaomao Lin, assistant professor and state climatologist; and Mary Knapp, assistant state climatologist.

From Tribune to Ottawa and Colby to Parsons, in 40 locations around Kansas delicate weather sensors are silently observing wind speed, air temperature, precipitation, and more. The data are being collected by weather stations that feed it to K-State's Weather Data Library (WDL), where they are archived and available to the public.

K-State recently boosted its resources devoted to gathering and recording climate information with plans to establish more weather stations, increase climate-related research and outreach, and provide more usable, accessible information.

The library, based in the Department of Agronomy, recently added Xiaomao Lin, assistant professor and state

climatologist; Christopher "Chip" Redmond, WDL manager; and Brian Petersen, programmer.

Lin, Redmond, and Petersen joined Mary Knapp, assistant state climatologist, and Fred Caldwell, weather monitoring specialist. Knapp focuses on data requests and public outreach, and Caldwell maintains the weather station system.

The changes to Kansas' official repository of weather and climate information paved the way for the Weather Data Library's recent designation as the Kansas Climate Center, making it an American Association of State Climatologists Recognized Climate Office.

Importance to Kansas

"Climate issues are critical to Kansas," said Gary Pierzynski, agronomy department head. "Weather data are important in efficient irrigation, and we need to make sure we are using our water as efficiently as possible."

"Accurate weather data is indispensable for a wide variety of our research and extension programs."

Weather information is particularly important in a state like Kansas, where conditions can quickly go from fair to ferocious and where agriculture is the largest economic driver, accounting for 25 percent of the state's economy.

"Accurate weather data is indispensable for a wide variety of our research and extension programs," said Ernie Minton, associate director for research and technology transfer. "By upgrading our equipment and adding staff, we're enhancing the reliability and accuracy of the data we're gathering, and we'll be able to better respond to Kansans' requests for climatology information, whether it's soil moisture in Pittsburg or air temperature in Hays."

Lin added, "Our goal is to promote understanding of climate sciences in agriculture, natural resources, and environmental areas and to provide online agricultural weather information and ag-climate products for decision-makers in order to improve the economic efficiency and sustainability of Kansas."



Christopher Redmond, left, and Fred Caldwell adjust a weather station near the Manhattan campus.

Enhancing the system

With the new website, www.mesonet.ksu.edu, the public can go online to learn wind speed, temperature, and the precipitation at many of the WDL's weather stations.

Currently, the WDL has two types of weather stations — 3-meter towers, which take fewer weather variables, and mesonet towers (9-meter), which include more weather sensors such as wind speed and direction.

"We're working to standardize the weather stations' configuration, with a goal of upgrading all of them to mesonet," Redmond said.

The WDL gets requests for information beyond agricultural purposes, he added. For example, the Kansas Highway Patrol asked the WDL about weather conditions on a specific date, time (within 15 minutes), and location regarding a recent fatal accident. The library also has historical weather records dating to 1850.

Caldwell covers 26,000 miles a year monitoring and repairing equipment to keep the stream of data over the months and years consistent and accurate.

"We're looking to expand services, including adding value-added products on the website," Redmond said.

Working with Collaborators

The WDL collaborates with the Kansas Water Office, Big Bend Groundwater Management District, the Equus Beds Groundwater Management District, and the U.S. Department of Agriculture Soil Climate Analysis Network. The data captured by the library is relayed to the National Weather Service and Kansas Agricultural Statistics.

In partnership with Highland Community College, a new station will soon be online in Hiawatha, Redmond said, and another has been installed at the Rock Springs 4-H Center near Junction City. Those are the kinds of collaborations that the WDL team wants to build in the near future as they increase the number of weather stations across Kansas.

"We're looking for more collaborators — public or private," Redmond said. "We want these stations to be more representative of the area around them."

In addition to revamping the website, increasing the number of weather stations, and using weather information for research, plans call for increased visibility for the WDL using social media, Pierzynski said.