

## *Blackland's flood warning system protects soldiers*

A flood warning system resulting from a Texas AgriLife Research water quality monitoring project at Fort Hood is potentially saving lives and property.

The Flood Alert System via Telemetry or FAST uses stream level sensors attached to cell phones to notify Fort Hood Range Control of flooding at six low water crossings. The sensors are part of Blackland Research and Extension Center's Fort Hood Water Quality Monitoring project, designed to help Fort Hood manage its land resources.

June Wolfe, assistant research scientist, developed the system after researching and adapting the best technologies available for this use.

Wolfe, who works for project leader Dr. Dennis Hoffman, said the No. 1 reason for installing the FAST system was "to protect soldiers by alerting them of dangerous flood conditions."

Equipment and personnel had been lost at low water crossings during storms, he said.

Wolfe said the sensors, which constantly monitor stream depth, are programmed to issue alerts when the streams reach certain depths. These alerts are transmitted by cell phones to a Blackberry located in Fort Hood's Range Control office. The Blackberry delivers a text message, describing the location of the flooding so the military can warn soldiers training in the area and block off access to the crossings.

Each remote station also has an internet address that allows computers at Blackland to monitor real-time stream levels at the crossings. The data are uploaded to a Web site (<http://www.brc.tamus.edu/decision-aids/flood-alert-system.aspx>) at 10-minute intervals. Each station's current depth and latest polling time are displayed on individual panels. Charts display stream level over the past 24-hour period.

Wolfe gave a recent example of the FAST in action.

Rains from Hurricane Dolly missed Fort Hood, but a large amount of rain fell north of the fort. "A surge of water came down Cowhouse Creek, the main creek crossing Fort Hood," Wolfe said. "Many low water crossings went from 0 to over 10 feet deep."

Because it wasn't raining on the fort, Wolfe pointed out, troops in the field were not aware of the flood conditions.

FAST alerted Range Control officers to the rapidly changing stream levels, and they notified the field trainers.

"I watched the whole thing remotely via our web site," Wolfe said.

The project staff is considering installing flashing lights activated by the sensors during flooding. Wolfe said they also hope to use real-time stream level and weather data to develop a flood prediction model to forecast the likelihood of flooding across Fort Hood.