

**Joe Friday & Co. aren't just talking;  
they're doing plenty about  
accurately predicting the weather**



# FRIDAY'S FORECAST

by Mary Lyle Weeks

**I**n Mississippi, a forlorn woman sits amidst the ruins of what was her mobile home before a tornado roared out of the night. In South Florida, National Guardsmen patrol streets lined with toppled palm trees and roofless houses that bear mute testimony to

the fury of Hurricane Andrew. In Somalia, a U.S. Marine cradles an emaciated child, the victim of famine caused by drought.

Lives are turned upside down by diverse, seemingly unrelated events—events that influence the living patterns of humanity throughout the world.

Weather.

Human beings cannot change the weather. But they do have a major defense against blizzards, typhoons and floods.

The weather can be predicted.

At the forefront of these predictions in the United States is the National Weather Service, and leading the agency as it gears up for the 21st century is its director, a man with three degrees from the University of Oklahoma, Elbert W. Friday Jr., who is called—what else? Joe Friday.

For his accomplishments, Friday was honored in December by the OU Alumni Association with the presentation of

the Distinguished Achievement Award. The award recognized his service to the nation both in the U.S. Air Force and the Weather Service. Prominent among his achievements is his role in the development of NEXRAD (Next Generation Radar), the technology that promises to bring marked improvement to weather prediction across the nation.

Certainly Friday never envisioned himself as a weatherman, much less directing the National Weather Service.

“My father was in the Air Force and stationed at Tinker when I graduated from high school in Midwest City,” he explains. “My only choice for college—the only option—was the local university, OU.”

At OU, Friday chose to major in engineering physics “because of my interest in science and engineering. The curriculum offered a combination of all the technologies—math, physics and chemistry, plus applications of the basic sciences.”

*Continued*

Those were the days, in the late 1950s, when male college students had an obligation to the armed services. Many chose to fulfill that obligation by enrolling in the Reserve Officers Training Corps (ROTC), as did Friday.

"My father had spent half his hitch as an enlisted man, half as a warrant officer. Having seen both aspects of military life, I decided I would rather spend my two-to-three years as an officer." In 1959, he applied for the advanced Air Force ROTC program.

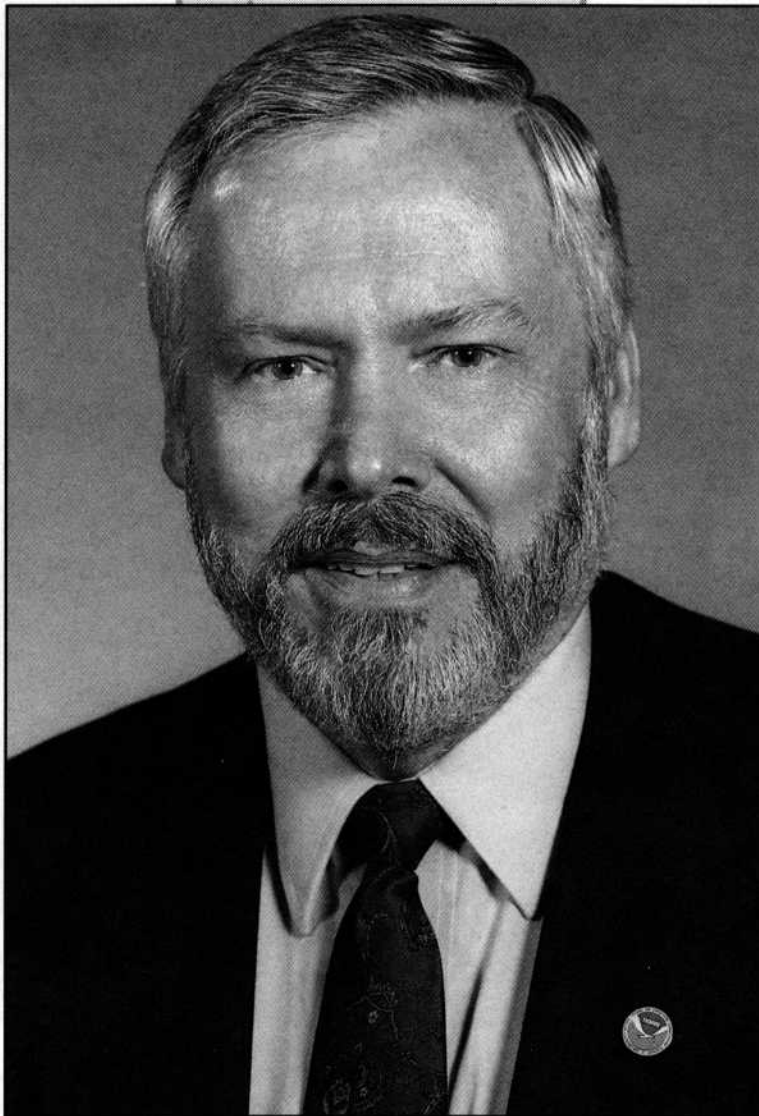
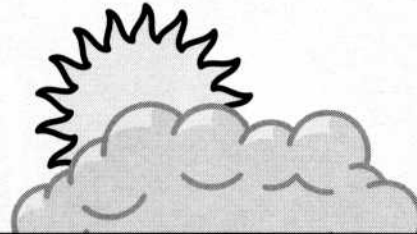
"I applied in that temporary building on Felgar Street. I notice it still houses the Air Force ROTC," he says with a smile.

Upon application, Friday was told that because of the U.S. overreaction to the Soviet launching of Sputnik in 1957, the Air Force had too many scientists and engineers.

"They offered me pilot training, but I wasn't interested. My other choices were in supply or in a new career track, weather forecasting. If I chose that, the Air Force paid for that year of training, and it counted as one of my three years in service. Those were big pluses, so I chose weather."

Friday had no intention of staying in the Air Force or of making the weather business his vocation. But a new development during his two-year hitch altered his intentions.

"The Air Force began using computers in forecasting," he recalls. "That first computer, which was the size of three-to-four rooms, had about a 32,000-character memory. Today a desk top has about two million."



*The top man at the National Weather Service, Oklahoman Elbert W. "Joe" Friday, never intended to make meteorology his career, but computerized weather forecasting captured his imagination and determined his future.*

Friday was fascinated and, at the recommendation of Walter J. Saucier, then a professor of meteorology at OU, he went into research and development instead of routine forecasting. During his more than 17 years in

the Air Force Weather Service, he was part of one of three such networks that serve the United States, with the NWS and the Navy Weather Service, which supplies the fleet with weather and oceanic information.

One of Friday's assignments was as a weatherman in Vietnam, where he was a detachment commander and the last weatherman to leave the country before the fall of Saigon.

"I was sent there to take over the weather modification program," he explains, referring to a program since declassified. "We were trying to stop Viet Cong infiltration to the south by increasing the rainfall to make the trails impassable." The program was partially successful. Friday and his team upped the rainfall by 15-to-20 percent and extended the rainy season.

Friday believes that rain—or the lack of it—looms large in the earth's future.

"Hydrology programs are important," he says. "The limiting natural resource of the world is water. It's already at a premium in many areas and the subject of controversy in the western United States."

The importance of water means that the amount of rain that falls, and where it falls, are vital facts. This information can be provided by NEXRAD, a

high resolution Doppler radar that Friday describes in layman's terms as technology that almost performs "a CAT scan on a cloud."

"We can measure the complete rainfall amount for every square mile,"

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## “We can reduce pollution through prediction and measurement.”

Friday says, with a hint of satisfaction for the job being performed well by the NWS. “That is of great importance in flood control, irrigation and agriculture. Combining this information with the predictions that NEXRAD makes possible, it also figures in environmental management. It’s a waste of water to irrigate if it’s going to rain. And if a pest control is applied and it rains, it washes into the water table. We can reduce pollution through prediction and measurement.”

NEXRAD is the major thrust of the National Weather Service’s comprehensive modernization program. The goal is to have NEXRAD in all forecast centers by 1995. New office computer equipment will begin to be introduced in 1996, and a new satellite system will be in place by 1994. Also scheduled are major training programs for forecasters and maintenance staffs.

“A fair amount of that training will be in Norman, because one thing we are doing is taking advantage of academic communities such as OU,” Friday explains. “It all began here with the National Severe Storms Laboratory (NSSL).”

OU’s Weather Center, the model for the nation, is a unique partnership of state, federal and University programs that have made Norman one of the world’s high-tech research centers for weather-related programs.

In addition to the NSSL and its famed tornado-chasers, North Campus components include the National Weather Service Forecast Office and the NEXRAD Operational Support Facility. Norman Campus units include the School of Meteorology, the Cooperative Institute for Mesoscale Meteorological Studies, Oklahoma Climatological Survey, Geosciences Computing Network, and the Center for Analysis and Prediction of Storms, all located in the Sarkeys Energy Center.

The OU-Norman center is setting the

National Oceanic & Atmospheric Administration

Betsy Baker

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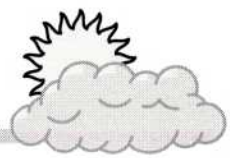
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*TOP: At the National Weather Service headquarters in Silver Springs, Maryland, Friday slides a “mouse-like” puck over a graphics tablet to call up Doppler radar images at a new NEXRAD work station, scheduled for all forecast centers by 1995. BOTTOM: Karen Friday, right, inspects the medal her husband Joe wears as a 1992 recipient of The Distinguished Award, the highest recognition bestowed by the OU Alumni Association. At center is his mother, Mrs. Elbert W. Friday Sr., of Midwest City.*

pace for the nation, with the first access to NEXRAD and to the prototypes of new computer storm models, development techniques and procedures. Friday points out the significance of NEXRAD to the area it serves.

“The accuracy of predictions here is 90 percent as opposed to a 60 percent national average,” he said. “At the same time, the false alarm rate has been reduced from 55 percent to 10 percent. A false alarm—‘cry wolf’ so to





*NWS director Friday addresses a crowd at the 1992 dedication of the NEXRAD facilities on OU's North Campus. Much of the training of forecasters and maintenance staffs necessitated by the NEXRAD modernization program will take place in Norman where the new technology began.*

“speak—means people don’t pay attention to warnings.” He cited a recent Wichita-Andover tornado when some 30 people, approximately a tenth of the residents, stayed in a mobile home park despite a warning issued 20 minutes in advance.

“A woman who stayed said, ‘We get warnings all the time,’” Friday repeats, his frustration obvious. “More accurate technology will solve this.”

Friday is not the only OU alumnus in a strategic position in the National Weather Service. A large number of graduates hold middle-management positions, and one is in a high-profile post. Robert C. Sheets, who earned his M.S. and his 1972 Ph.D. in meteorology at OU, is director of the National Hurricane Center in Coral Gables, a suburb of Miami, Florida.

Friday and Sheets have been friends for many years. They met in Norman in 1961 in the second course OU offered to train Air Force officers in meteorology. Because of that friendship, Friday removed himself from any in-

volvement in the hiring of Sheets to head the hurricane service. That decision was made by others. Sheets became familiar to many Americans in 1992 during the approach and landfall of Hurricane Andrew.

“There was extreme pressure in forecasting Andrew,” Friday says. “The wrong prediction in landfall could have cost millions in needless evacuations—or lives lost and millions in property costs for a failure to evacuate.”

Given the destructive force of a hurricane or tornado or flood, weather modification would seem desirable. But is it—or could it be—possible for humans to change the weather?

Friday smiles at the question.

“I used to think modification was not a good course to pursue,” he admits. “Now I believe in investing so we can better understand the possibilities. Clearly we can enhance rainfall. We can reduce winter energy costs in the Northeast by causing the stratus clouds to burn off. Some Middle Eastern countries are seeking to increase rain-

fall. The problem with drought areas is: no water, therefore no clouds, therefore no chance to increase the possibility of rainfall.”

Friday emphasizes that some innovative programs are being implemented. In Peru, water for deserts on the west coast comes from the fog. Giant sheets of cloth have trailing streamers that drip water to be collected.

With all the modernization, Friday says the mission of the National Weather Service today is the same as in its beginning.

“It was formed in 1890, after 20 years as an army service, and the goal remains constant: to supply weather and flood information to save lives and property.”

Weather forecasts were made in the early days by walking outside or looking out the window at the sky and the clouds. Later, weather balloons were used to measure humidity, pressure and other factors, all of which now are measured by equipment.

In the early morning hours of February 1991, consideration was being given to calling off the work force in the nation’s capital, a work force with a daily payroll of \$43 million. It was 5 a.m. and one-to-two inches of snow blanketed the ground in Washington, D. C. Those with the responsibility of making that call with its enormous economic and governmental impact, called the National Weather Service.

They were told that the snow band was only 45 minutes wide. The work force was not told to stay home, and the snow did indeed stop. The correct decision was made, based on modern weather technology.

To save lives and property today, weathermen don’t need to look out the window.

