NCAR NEWSRELEASE

National Center for Atmospheric Research
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Thunderstorms Focus of Major Weather Study in Kansas, Oklahoma

Large thunderstorm complexes that form during spring and summer months and create life-endangering weather over the mid-West and East Coast are being investigated in Kansas and Oklahoma for a two-month period beginning this week. A task force of atmospheric scientists has the primary goals of learning how the storms can be better predicted, and their role in acid rain deposition.

Researchers from the National Center for Atmospheric Research (NCAR) in Boulder, Colorado, have studded the Kansas and Oklahoma countryside with a variety of data-gathering instruments for the $3 million study funded largely by the National Oceanic and Atmospheric Administration (NOAA), the National Science Foundation and the Department of Energy.

Included in the array of data-collection systems is a 40-station network of solar-powered automated weather reporting stations termed Portable Automated Mesonet (PAM) II stations, developed by NCAR, that are gathering information throughout the countryside near you. (See attached list of locations.) An additional 40 weather stations are being provided by NOAA's National Severe Storms Laboratory in Norman, Oklahoma.

NCAR's PAM station network feeds weather information via a GOES satellite into a computerized base station at Cheney Lake State Park, Kansas, where measurements of wind speed and direction, air pressure, temperature, humidity and rainfall are displayed on video consoles and stored on magnetic tape.

Researchers from NCAR, NOAA and collaborating universities around the country have used the system to study thunderstorms, squall lines, tornadic storms, hailstorms, severe downslope winds, air quality, wind shear, weather modification effectiveness and fog.

In addition, ten radars, two lightning-strike locating systems, more than a

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score of weather-balloon launching sites, and several research wind-profilers also will provide ground-based support to the scientists.

During the two-month Pre-STORM Program, as many as six research aircraft are expected to be involved including NCAR's twin-engine jet Sabreliner. They will fly in the vicinity of the large thunderstorm systems--mesoscale convective complexes--collecting information with special airborne sensors.

According to John B. Cunning of NOAA, director of the Pre-STORM Program, a single complex--which includes many individual thunderstorms with an organizing field of systematic air flow--can cover an entire state the size of Kansas or Oklahoma.

"We anticipate between 10 and 20 such systems will occur during the two months of our study," he said. "Typically, they form in late afternoon along the Front Range of the Rocky Mountains or over the panhandle region of the Texas high country and move eastward over the Great Plains during the night."

The complexes, which provide most of the moisture for wheat and corn during the growing season, sometimes can boil through the skies for one to several days, across the mid-West and over the East Coast, he said.

"Prediction of the onslaught of these storms is important for public safety purposes, because of accompanying tornadoes, hail, flash floods and lightning storms, and other dangers they pose to human life," Cunning said. "Additionally, accurate forecasting can be beneficial to wheat and corn farmers, saving them unnecessary irrigation costs and letting them, in some instances, take protective steps when hail appears likely.

"There also is reason to believe that some serious aircraft crashes actually may have been caused by planes becoming caught in the dangerous wind shears associated with the complexes while landing or taking off," Cunning noted.

Scientists in the study are from NCAR, NOAA, the Department of Energy, Colorado State University, the University of Wyoming, Oregon State University and the University of Washington.

In the acid rain portion of the study, a team from NCAR, NOAA, Battelle Pacific Northwest Laboratory, Brookhaven National Laboratory and the University of Denver will fly around and under the storms using NCAR's Sabreliner jet, a NOAA King Air, and a Brookhaven National Laboratory Queen Air to investigate acid rain fall-out during the weather events.

From these observations and ground-collected samples of rain from the storms, atmospheric scientists will attempt to clarify the role thunderstorms play in acid rain deposition, as part of the National Acid Precipitation Assessment Program.

The National Center for Atmospheric Research (NCAR), a university-based research organization, is sponsored by the National Science Foundation.

Note to Science Writers/Editors/News Directors

Should you be interested in on-site coverage of this scientific study, NCAR scientists will be happy to escort you around the Kansas operations center at Cheney Lake State Park, where the PAM II base station and one of NCAR's two Doppler radar antennas will be operating.

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PRE-STORM PAM STATIONS

May - June 1985

Location	Location	Location
1. Carson Farm Utica, KS	15. Pinkston Farm Cedar Point, KS	29. Craig Ranch Burden, KS
2. Cedar Bluff Dam Bureau of Land Management Cedar Bluff Dam, KS	16. Wendling Field Olpe, KS	30. Elk County Airport Moline, KS
3. Eugene Jacobs Farm Pfeifer, KS	17. Phelps Farm Cimarron, KS	31. Shepherd Farm Knowles, OK
4. Harry Swart Ranch Wilson, KS	18. Naab Farm Spearfille, KS	32. Jordan Farm Buffalo, OK
5. Kanopolis State Park Marquette, KS	19. Cudney Farm Haviland, KS	33. Tinker Farm Freedom, OK
6. Neil Carlson Ranch Gypsum, KS	20. Max Bauman Turon, KS	34. Stauffer Farm Burlington, OK
7. Herington Runway Herington, KS	21. Waltner Farm Pretty Prairie, KS	35. Feist Farm Manchester, OK
8. Lyon County Property Allen, KS	22. Benefield Farm Valley Center, KS	36. Pantee Farm Braman, OK
9. Byrd Ranch Kalvesta, KS	23. Patty Airport El Dorado, KS	37. Frank Ranch Newkirk, OK
10. Bauer Farm Burdett, KS	24. Olson Field Eureka, KS	38. Ross Ranch Elgin, KS
11. Larned Pawnee County Airport Larned, KS	25. Meade Municipal Airport Meade, KS	39. Easter Home Harper, KS
12. Doll Property Ellinwood, KS	26. Seacat Farm Ashland, KS	40. Chain Ranch Isabel, KS
13. Keith Lafferty Property Inman, KS	27. Trummel Farm Wilmore, KS	
14. Menno Fast Property, Lincoln, NE	28. Wellington Municipal Airport Wellington, KS	