

Thunderstorm research teams descend on high plains

Dana Sulsberger
The Goodland Daily News

The Severe Thunderstorm Electrification and Precipitation Study (STEPS) is well underway in its second week, with only one storm to speak of so far.

STEPS brings together a unique culmination of people, technologies, and organizations. The program offers an opportunity for education as well as research.

The collection of various students, teachers and scientists involved in the STEPS program are brought together by a need to learn and a passion for the weather that is apparent through their work, and the stories they had to tell.

Kale Franz, a recent high school graduate from Burlington, is coordinating high school students to help with the project.

Franz organized 110 students to record data which they report back to him throughout Kit Carson County in Colorado. Franz is in charge of coordinating events and the volunteers activities, as well as checking data for accuracy. Franz says that he has always had a passion for the atmosphere.

Dave Bronkwell of Colorado State University began in Champagne Ill. where the CHILL radar system originated. (CHILL is the abbreviation for the University of Chicago and the University of Illinois who first developed and operated the radar unit.)

When the system moved to Greeley Colo. Bronkwell came along with it. And now that the system has been moved to Burlington he has once again followed along.

All of these stories and people are coming together with the same goal, better understanding of the makeup of severe thunderstorms. This is the largest research effort to date focused on lightning.

"We want to relate the structure to production of lightning - especially positive ground flashes - and their relationship to severe weather," said Dave Rust, lightning and storm electricity researcher from the National Severe Storms Laboratory in Norman, Okla.

The various technologies used are: Three radar systems which will be used to determine the internal flow and precipitation structure of a storm, storm chasing vehicles which will be used to collect hail and observe meteorological conditions and precipitation directly beneath storms. The vehicles are manned by volunteers and Graduate



Satellite inside the CSU-CHILL Radar Facility temporarily located in Burlington Colo.

Photos by Dana Sulsberger / The Goodland Daily News

students from several colleges.

Also used is the T-28 armored aircraft built for flying into storms. It can withstand golf-ball sized hailstones. The plane probes storms at altitudes of up to 20,000 feet. STEPS also uses two weather-balloon vans which launch weather balloons into a storm. The balloons transmit wind speeds and other vital data back to one of the radar stations.

One of the other technologies used

by STEPS is a 3-D lightning mapping system which will detect up to 10,000 energy pulses per second to plot the three-dimensional distribution of lightning. They also utilize the lightning detection networks which track the location and polarity of cloud-to-ground strikes and the CSU flat plate antenna network to quantify intracloud discharges.

Major participating institutions include the National Weather Service,



The "crews" that man the storm chasing vehicles field questions while gathered around their vehicles.

NOAA's (National Oceanic and Atmospheric Association) National Severe Storm Laboratory, Colorado State University, Los Alamos National Laboratory, The New Mexico Institute of Mining and Technology, the South Dakota School of Mines and Technology, Stanford University, and the University of Oklahoma.

While all the STEPS' crew and volunteers wait with baited breath for a storm, there doesn't look to be one in sight. According to the National

Weather Service in Goodland May was one of the driest months on record across the High Plains.

With the rainfall in Goodland recorded at only .50 inches, 2.99 inches below normal, this May is the second driest on record. The driest May on record was in 1927.

Crops, gardens, and lawns are being watered more often as this dry spell continues, and the region is currently in a mild drought according to the Drought Severity Index used at the

NWS.

It is hard to say whether this dry spell will continue, but climatology on the High Plains for early summer would suggest that we will eventually catch up on rainfall. Precipitation totals for June should range from 3-4 inches. June is typically the most active month in terms of severe weather. Only time will tell, but the outlook through mid June looks to have the area in above normal temperatures and below normal precipitation.

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