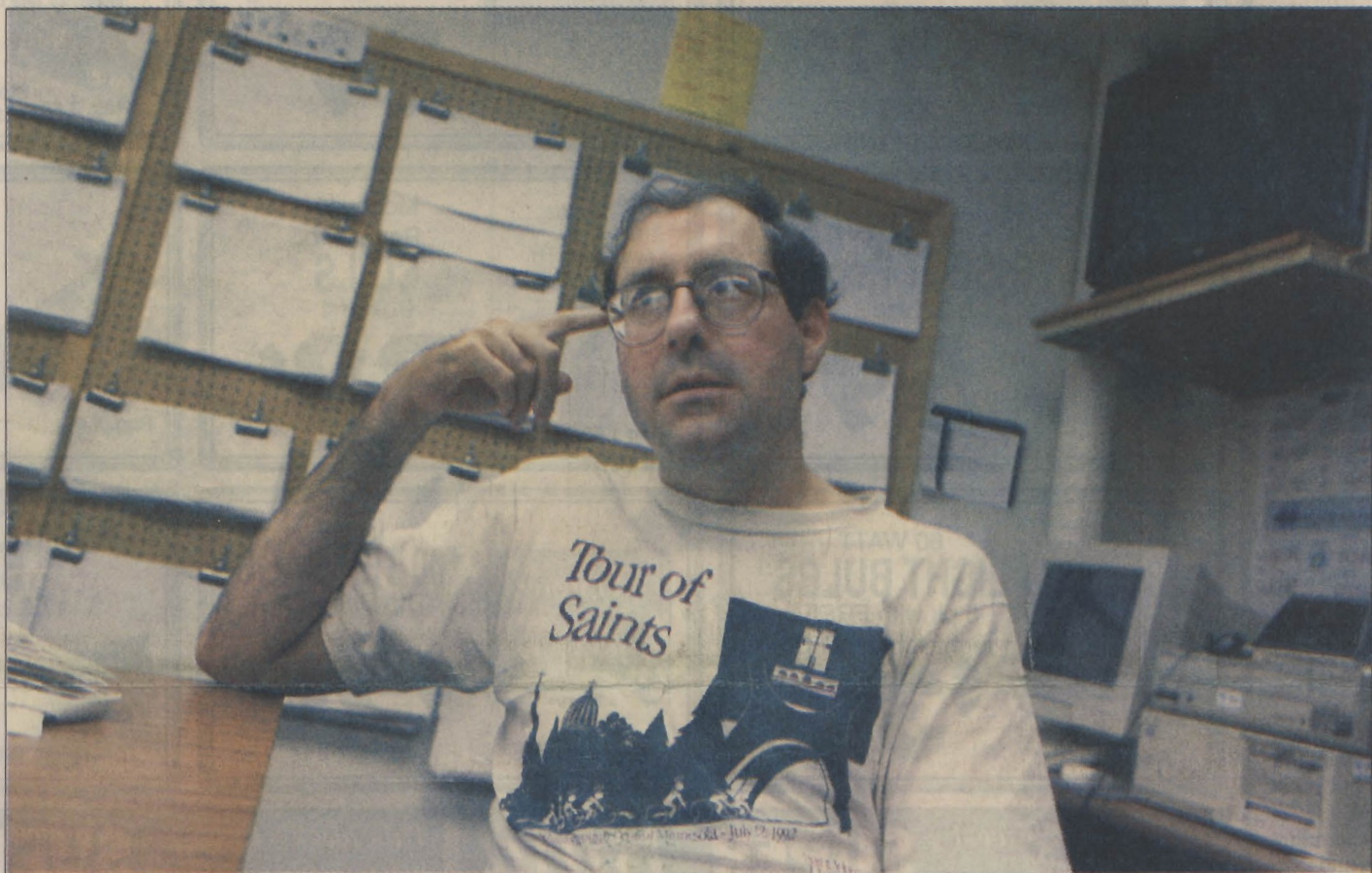


THE FORECAST CALLS FOR ...



TIMES PHOTO BY JASON WACHTER

Meteorologist Bob Weisman will be researching why rain and snow predictions can be so inaccurate.

Grant funds weather research

SCSU professor uses \$94,000 to study inverted troughs

By Brenda O. Magoba

TIMES STAFF WRITER

A grant meteorologist and St. Cloud State University professor Bob Weisman received could lead to more accurate weather forecasts.

Because weather plays such an important role for many people when traveling and in day-to-day life, Weisman hopes his research

will help eliminate some of the inconveniences caused from inaccurate predictions.

"It affects people's travel plans," he said. "Poor forecasts) are definitely travel hazards. Hopefully what this research will do will improve the weather forecast in these types of situations."

The National Science Foundation approved a \$94,000 grant to support research Weisman has done that examines the patterns of inverted troughs on the Northern Plains states. Inverted troughs are extended areas of pressure instead of only cold or warm fronts. He found that rain-

fall under certain conditions involving inverted troughs are not as easy to predict as forecasters once thought.

"In looking at six years worth of weather data with a student, Keith McGregor, (a 1996 graduate of St. Cloud State in the meteorology program) ... I noticed this feature," Weisman said. "We found an average of 40 cases of inverted troughs a year."

The team discovered that inverted troughs alter rain and snow patterns that are normally expected and predicted. These types of storms tend to pose problems for forecasters because

they don't drop the heaviest snow in usual places relative to storms.

Inverted troughs also have been associated with some of the most notorious storms in recent history, including Minnesota's Halloween blizzard of 1991. These types of storms were involved in heavy snowfall in western Minnesota and North Dakota that led to this year's record flooding along the Red and Minnesota rivers.

"When you have a typical winter storm, the rain or snowfall,

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depending on the temperature, is organized in a certain way around the low pressure system ...," he said. "We've used some basic forecast rules for years. We need new models in our heads ... We're missing those set of rules right now."

With the grant, Weisman hopes to further his research with the help of students. He wants to study inverted troughs to better understand their patterns. The recent grant marks the second National Science Foundation grant funded at St. Cloud State.

"We're not done yet," he said. "We identified that it happens, it happens pretty often ... between the Rockies and

the Mississippi Valley. We have a couple of ideas of forecasting rules, but we're not sure yet. Now the idea is to go and rigorously test these rules to figure out what is different about them."

Many forecaster's have limited awareness and familiarity with how to forecast inverted troughs, Weisman said.

Because this is such a common forecast problem, Weisman has worked closely with the National Weather Service in Minnesota, the Dakotas and Wisconsin. He is working on a secondary grant proposal with a weather service office in Grand Forks, N.D.

In addition to the grant just received, students may have the opportunity to work with weather services in Grand Forks, and make presentations across the nation. "This way they can go to school and get paid for working in the field. That's the type of thing I'm excited about."