Suomi: super weather forecaster

By KAYE SCHULTZ
Capital Times Staff Writer

His career as a meteorologist began in a cornfield, but Verner Suomi soon found himself rising to much greater heights — 22,000 miles up, to be exact.

"I can measure the temperature of Lake Mendota from right here," said the head of the University of Wisconsin-Madison Space Science and Engineering Center from his 18th-floor campus office. Or of the Atlantic Ocean, for that matter, without touching toe or thermometer to the water.

The fact that an abundance of weather information is available virtually on a moment's notice is due in no small part to the vision of Suomi, who designed much of the satellite equipment that gathers such data and spurred development of computer systems to organize it.

"He foresaw this before most people even thought of computer images being part of meteorology," said John Young, chairman of the U.W.-Madison's meteorology department.

"He's an inventor and a visionary, and when he sees something he believes will work he pushes for it." Without the aid of computer interpretation, keeping up with the constant flow of satellite weather information would be "like trying to drink water from a fire hydrant," in Suomi's words.

Such "mangled metaphors," as his colleagues refer to them, have made Suomi's reputation as an entertaining teacher and witty interpreter of his field as well as a top researcher and technologist.

"Think of cirrus clouds as the Venetian blinds of the atmosphere," he illustrated one discussion of how the filament thin clouds are a major controller of atmospheric heat loss.

"I've collected at least 25 of his sayings already," said Joseph Smagorinsky, founder of Princeton's Geophysical Fluid Dynamics Laboratory, Smagorinsky, currently a visiting professor at U.W.-Madison, worked with Suomi in the late 1960s on the Global Atmospheric Research Program, the country's first weather satellite system.

He was among meteorologists and space scientists who "treated Suomi Thursday night as part of a symposium honoring the 75-year-old satellite weather pioneer, who retire from U.W. teaching this year.

The symposium is focusing on the impact of satellites in meteorology and the future of weather technology.

Suomi has been involved in both since the 1950s, when the science of forecasting was known by the Navy term "aerology" and weather was..."
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Another Suomi brainstorm resulted in development of the spin- scan camera, which acts “like a great gyroscopic time” sequence weather photos. The same basic design is used today to produce the satellite photos known by television watchers across the country as “radar weather.”

These television weather pictures do more than help people decide when to carry an umbrella. Suomi credits images of the Labor Day, 1983 Hurricane Elena with saving a lot of lives in the southeast U.S.

“I’m hearing now on TV, a lot of people who wouldn’t have been convinced otherwise,” to head for shelter instead of spending the day at the beach, he said.

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Suomi has studied weather data from Venus and Jupiter to gather insights on climate patterns, but he acknowledges, “We still really don’t know whether the Earth is slowly heating up or cooling off.”

Cloud-measuring flights start in fall

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On clear days in October, Madison residents may see a strange plane taking off from the National Guard area at Truax Field. A glider-like aircraft called the ER-2 will fly over southern Wisconsin at 70,000 feet - not on a spy mission or military maneuver, but to look at clouds.

These aren’t the fluffy clouds you see from the window of a regular commercial airline, according to Verner Suomi, director of the U.W. Madison Space Science and Engineering Center. The plane will be attempting to measure the size, shape and density of cirrus clouds, high-altitude streamers that are largely invisible but important to the Earth’s “heat budget.”

Madison was chosen as an operations center for the cloud-measuring flights because “we have lots of cirrus clouds,” Suomi said. On most warm afternoons that appear cloudless, there are cirrus clouds in the stratosphere holding in the Earth’s heat. The cirrus cloud project has been coined FIRE, a very abbreviated version of the First International Satellite Cloud Climatology Project Regional Experiment.

The high-flying ER-2 will carry infrared sensors to pick out the high-altitude clouds in an area bounded by Madison, Oshkosh, Wausau and Fort McCoy. Low-power lasers about the strength of a camera flash bulb will be posted at three ground locations to measure the clouds density.

The research will help improve computer models for predicting climate changes, said U.W. Madison associate scientist Don Wylie, who is working with Suomi on the project.

“What we’re really trying to predict is whether carbon dioxide is warming up the Earth,” and if the warming is offset by more cloud formation. Wylie said.

The ER-2 will log about 28 hours of flight to gather the data, assisted by other aircraft including a King Air equipped with wind sensors and particle samplers flying at a lower altitude. The flights should be made over about 11 days, but could take longer if other types of clouds get in the way, Wylie said.

NASA and the National Science Foundation each are providing about $250,000 worth of equipment and funding for the research. The UN is using another $250,000 from the Office of Naval Research, part of the Strategic Defense Initiative program.

Suomi was petitioned by 60 faculty, staff and students not to take $50,000 in “Star Wars” money received for cloud research last year; the grant has since been extended with another $198,000. Suomi responded that he would not turn the money down, arguing that his cloud research has been a long-term project and that “the purpose of the university is to seek the truth.”

The funding “has actually made some division around here,” said Wylie. Some scientists at the center would like to work on FIRE, but won’t because SDI funds are being used on the project.

Wylie said he respects that position, “but we feel like we’ve the last people in the world working for the Defense Department.”

-Kaye Schull