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from the February 25, 2000 edition

[**Editor's note**: *The Christian Science Monitor archive includes stories dating back to 1980. Some early articles lack sufficient formatting, and will appear as one long column without paragraph breaks. We apologize for the aesthetics and hope that the information will still be of value to you.*]

Predicting force of hurricanes may soon be a breeze

Robert C. Cowen, Special to The Christian Science Monitor

WASHINGTON - Hurricane forecast-ers should be able to sharpen their predictions when the storm season opens this June.

By simulating the complex interaction between storms and the ocean, a new computer program has cut errors in forecasting storm intensity by as much as 40 percent in test runs.

The sharper forecasts will help local authorities make more-realistic preparations and avoid costly false alarms. "This translates directly into saving lives and property and millions of dollars in evacuation costs," says oceanographer Isaac Ginis.

The United States coastal population is growing 4 to 5 percent a year. The average cost to prepare for a storm when the alarm goes out has grown tenfold in 10 years. It reached an estimated $300 million last year. Forecast errors lead to needless preparations and undermine public confidence in warnings.

As hurricane forecasting has improved in recent decades, storm casualties have gone down. But "unless the rate of forecast improvements can be accelerated, the downward trend in hurricane casualties is not likely to continue, and the damage will continue to escalate," Mr. Ginis told a meeting of the American Association for the Advancement of Science here.

"There is little new skill in forecasting of storm intensity change," he added.

A hurricane is an atmospheric engine that draws energy from the sea. Yet forecasters have tried to gauge hurricane strength without knowing how the storm controls its flow of fuel. The new computer model at the University of Rhode Island's Narragansett Bay campus corrects this.

Hurricanes are fueled by water vapor evaporated from the sea surface beneath the storm. As this vapor rises in the storm and condenses, it releases energy that powers hurricane winds. These winds, in turn, stir the sea surface, bringing up colder water from below. This reduces evaporation, throttling back the hurricane's fuel.

Meteorologists had thought the storm would leave the cooled water behind and not be affected by it. Ginis says his group discovered that the sea surface cools quickly right beneath the storm. This affects storm intensity almost immediately.

The new computer model simulates this effect. It also predicts increases in storm intensity when a hurricane moves into an ocean area that generally is warmer than the region the storm had been traversing.

The researchers have linked their computer model to the weather service's operational forecast model in test runs over the past few years. In 1999, it cut errors for some individual hurricanes by 40 percent compared with the official forecasts. Now, the computer program will be used with the official forecasting program.

It is a timely improvement because forecasters likely will be dealing with more very intense storms in the North Atlantic. Climatologist James Elsner of Florida State University in Tallahassee says his historical analysis confirms that the hurricane cycle has returned to the 1930 to 1970 regime, with three to four very intense hurricanes a year along the East Coast and Gulf of Mexico. This average had dropped to only one or two such storms per year from 1970 to 1995. Dr. Elsner warned that this mode could last for decades.