

SCIENCE FILE

New virus extends geographic reach

It can be carried by a mosquito spreading in Europe and N. America.

From Reuters

The Chikungunya virus, which causes painful and sometimes crippling symptoms, has spread in the last year because it has found a new species of mosquito to carry it, researchers said Friday.

A single mutation enabled the new virus to infect the Asian tiger mosquito, which itself is spreading to many more countries in Europe and North America, the researchers said.

"This mutation increases the potential for Chikungunya virus to permanently extend its range into Europe and the Americas," Stephen Higgs and colleagues at the University of Texas Medical Branch wrote in the journal *PLoS Pathogens*.

This is especially true if average temperatures continue to rise with global warming, they wrote. The virus caused outbreaks in India and Italy this year.

Chikungunya is an arbovirus, meaning carried by a blood-sucking insect, and was transmitted mostly by the *Aedes aegypti* mosquito. It caused an epidemic that began in Kenya in

2004 and spread to several Indian Ocean islands including the Comoros, Mauritius, the Seychelles, Madagascar, Mayotte and Reunion.

On tiny Reunion Island alone, more than a third of the population — 266,000 people — were infected, with debilitating aches and pains. It killed 260 people.

But because *Aedes aegypti* mosquitoes are not found in Reunion, researchers suspected that something else was carrying the virus.

Knowing that the virus that caused the Reunion outbreak had mutated, the researchers tested it to see whether that mutation gave the virus the ability to infect other mosquito species.

They tried to infect various species, including the Asian tiger mosquito, *Aedes albopictus*, with genetically engineered strains of the virus and found that viruses with the very simple mutation thrived in the tiger mosquitoes.

"This research gives a new insight into how a simple genetic change in a human pathogen can increase its host range and therefore its geographic distribution," they wrote.

"*Aedes albopictus* is abundant and widely distributed in urban areas of Europe and the United States of America, and this work suggests that these areas are now vulnerable to Chikungunya establishment."

In Brief

Girls take top science prizes

Girls have swept a prestigious high school science competition for the first time, winning top prizes of \$100,000 scholarships for their work on potential tuberculosis cures and bone growth in zebra fish.

It was the first time girls won the grand prizes in both the team and individual divisions of the Siemens Competition in Math, Science and Technology, which concluded Monday in New York.

Isha Jain, a senior at Freedom High School in Bethlehem, Pa., won the individual prize for her biology project on bone growth in zebra fish fins.

Janelle Schlossberger and Amanda Marinoff, seniors at John F. Kennedy High School in Plainview, N.Y., won the top team prize for their research into tuberculosis treatments.

7 U.S. hurricanes predicted for '08

The Colorado State University hurricane research team predicted Friday that 13 tropical storms would develop in the 2008 Atlantic hurricane season and that seven would strengthen to hurricanes.

The team, formed by forecasting pioneer William Gray, said the figures would make next year's hurricane season "somewhat above average." The long-term average is for 10 tropical storms and six hurricanes during the six-month season, which starts June 1. The team's long-range forecasts have been wrong the last three years.

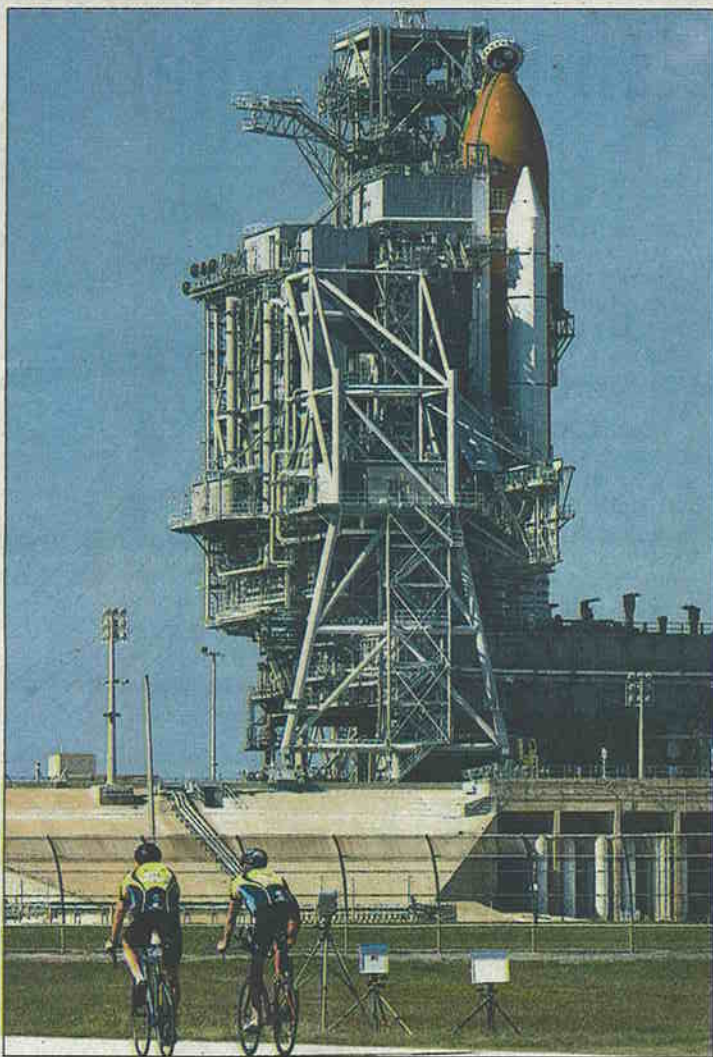
Gray's team, now led by Philip Klotzbach, said three of next year's hurricanes would be the most dangerous types — Category 3 or above — with winds of at least 111 mph.

30% of land birds may die by 2100

Climate change may cause as many as 30% of all land-bird species to become extinct by 2100 because food will become scarce as temperatures increase, according to a Stanford University study.

Rising temperatures will limit the availability of plants and animals that serve as food for birds, according to the study, published this week in the journal *Conservation Biology*.

Food will be more difficult to find as lowlands become warmer and plant and animal species on which birds feed vanish or move to higher elevations, the study says. The shift will put birds in competition for food with other species over smaller and smaller areas.



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COUNTDOWN HALTED: Atlantis' launch was delayed until at least Sunday. It had been scheduled for Thursday.