

La Niña will whip up U.S. winter weather

Like a rude guest who refuses to leave, La Niña will hang around the tropical Pacific for several more months, upsetting U.S. weather for the second winter in a row, government forecasters predicted this week.

The climatologic opposite of El Niño, La Niña chills the waters of the equatorial Pacific Ocean and redirects the air currents carrying weather across North America. The current incarnation of La Niña developed in July 1998, following the strongest El Niño warming of this century.

"We have learned in recent years that local weather is determined by global climate," says D. James Baker, head of the National Oceanic and Atmospheric Administration (NOAA). "By looking at the global things that are happening, we can do a better job of forecasting what will happen locally."

The Pacific cooling has dwindled in recent months, but computer models forecast that it should strengthen over the winter and stick around at least through March, says Ed O'Lenic of NOAA's Climate Prediction Center in Camp Springs, Md. Some other researchers, however, question whether this will be a La Niña-style winter.

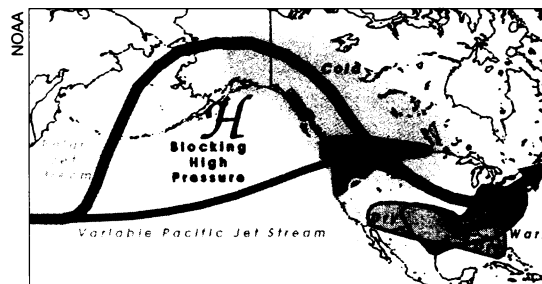
A typical La Niña winter blows cold air over the northwestern states and northern Great Plains while warming much of

the rest of the country. O'Lenic and his colleagues modified this prediction to take account of a global heating trend that has been boosting U.S. temperatures over the past 25 years.

The combination of both influences will keep most of the country warmer than usual this winter, with normal temperatures confined to the Northwest and northern Great Plains, predicts NOAA.

Whenever a La Niña appears, it tends to shove atmospheric winds into a looping route north of a high-pressure ridge over the northeast Pacific. This polar jet stream will swoop down from Canada carrying storms into the Great Lakes region and the Ohio and Tennessee Valleys, predicts NOAA. Other storms will drench the Pacific Northwest. In contrast, the Southwest, Texas, and the Southeast will have a dry winter, says O'Lenic.

La Niña typically has a fickle effect on U.S. winter weather, with conditions swinging from unseasonably cold to mild and back. Last year, though, the United States remained warm throughout winter. O'Lenic explains that the North Pacific had so much leftover warmth from the previous El Niño that La Niña's true personality could not shine through. This winter, all of that relatively tepid water has disappeared, so the weather should follow the expected erratic pattern.



A typical La Niña reorients winter storms northward, drying the southern states.

The continuing La Niña contrasts with conditions over the past 23 years, during which the Pacific has hosted an unusually large number of strong and long appearances of El Niño. Some researchers have identified this shift as a potential sign of greenhouse warming, although others see it as a natural fluctuation.

The current Pacific chill does not wipe away the overall warmth of recent decades, says Kevin Trenberth of the National Center for Atmospheric Research in Boulder, Colo. In fact, the tropical Pacific water is only marginally colder than normal. The situation, he says, "doesn't qualify as a La Niña at the moment. It's a lot weaker than it was at this time last year, and for La Niña conditions to dominate this winter, it'll have to get colder again. And I'm not sure that winter will be strongly influenced by La Niña."

—R. Monastersky

Are young hyenas just misunderstood?

Two research teams are taking a new look—perhaps a kinder one—at some of the most vicious sibling rivals among mammals.

Young spotted hyenas don't kill same-sex twins as a matter of routine, reports Kay E. Holekamp of Michigan State University in East Lansing. It's tough times that promote siblicide, she argues after monitoring hyenas in Kenya.

Those tough times, when mothers must commute long distances to hunt, lead to extra aggression in young hyenas in Tanzania, confirm Waltraud Golla of the Max Planck Institute for Behavioral Physiology in Seewiesen, Germany, and her colleagues. Their report in the October *ANIMAL BEHAVIOUR* follows one published there in September by Holekamp, Laura Smale of Michigan State, and Paula White of the University of California, Berkeley.

"There's no evidence for obligate siblicide," Holekamp maintains. "Suddenly, hyenas fit into the bigger picture: It just doesn't make sense to routinely kill your sibling."

It does for some birds, like the masked booby, however. A mother booby routinely has an extra chick, which its sibling kills. Although newborn piglets some-

times kill their littermates, siblicide among mammals is rare.

Holekamp traces much of the interest in hyena siblicide to studies in the early 1990s led by Laurence Frank of University of California, Berkeley. In the wild, researchers saw mixed-sex twins but few male, and no female, pairs. Observing violence between siblings, the researchers proposed that one newborn, same-sex twin starves the other by keeping it from nursing.

The notion of hyena infants as programmed killers took on a life of its own, according to Holekamp. "People love to go, 'Gee, golly, whiz, what a weird animal it is,'" she grumbles.

The team Holekamp worked with observed a split in a hyena clan. Afterward, each animal that remained had more food than before. "Within one reproductive cycle—boom—they started producing girls like mad," Holekamp says. That burst of female-female twin sets dashed the idea of automatic sister killers, the team argues.

Golla monitored aggression between siblings, including same-sex sets, during the year or more that their mothers nurse them. She observed siblicide when the mothers commuted long dis-



The spotted hyena is one of the few carnivores born with functional teeth and the strength to use them in attacking a sibling.

tances to hunt scarce prey. In fat years, when most cubs grew fast, she saw less aggression than in lean years.

Frank acknowledges that hyenas don't automatically kill same-sex siblings. He adds that he never used the term *obligate* to describe hyena siblicide. "That's setting up a straw man," he objects.

However, a difference of opinion remains on the mechanism for gender-ratio shifts. Holekamp speculates that some aspect of the female reproductive tract could effect the switch.

"There's no evidence for a prenatal mechanism," Frank argues. It is at least as plausible, he says, that mothers control the sex ratio after birth by intervening in siblicidal battles.

—S. Milius