Researcher shows possible link between 1918 El Nino and flu pandemic

September 14 2009

Research conducted at Texas A&M University casts doubts on the notion that El Niño has been getting stronger because of global warming and raises interesting questions about the relationship between El Niño and a severe flu pandemic 91 years ago. The findings are based on analysis of the 1918 El Niño, which the new research shows to be one of the strongest of the 20th century.

El Niño occurs when unusually warm surface waters form over vast stretches of the eastern Pacific Ocean and can affect weather systems worldwide. Using advanced computer models, Benjamin Giese, a professor of oceanography who specializes in ocean modeling, and his co-authors conducted a simulation of the global oceans for the first half of the 20th century and they find that, in contrast with prior descriptions, the 1918-19 El Niño was one of the strongest of the century.

Giese's work will be published in the current "*Bulletin of the American Meteorological Society,*" and the research project was funded by NOAA (National Oceanic and Atmospheric Administration) and the National Science Foundation.

Giese says there were few measurements of the tropical Pacific Ocean in 1918, the last year of World War I, and the few observations that are available from 1918 are mostly along the coast of South America. "But the model results show that the El Niño of 1918 was stronger in the central Pacific, with a weaker signature near the coast," Giese explains. "Thus the limited measurements likely missed detecting the 1918 El

Niño."

Giese adds, "The most commonly used indicator of El Niño is the ocean temperature anomaly in the central Pacific Ocean. By that standard, the 1918-19 El Niño is as strong as the events in 1982-83 and 1997-98, considered to be two of the strongest events on record, causing some researchers to conclude that El Niño has been getting stronger because of global warming. Since the 1918-19 El Niño occurred before significant warming from greenhouse gasses, it makes it difficult to argue that El Niño s have been getting stronger."

The El Niño of 1918 coincided with one of the worst droughts in India, he adds. "It is well known that there is a connection between El Niño and the failure of the Indian monsoon, just as there is a well-established connection between El Niño and Atlantic hurricane intensity," Giese says. In addition to drought in India and Australia, 1918 was also a year in which there were few Atlantic hurricanes.

The research also raises questions about El Niño and mortality from the influenza pandemic of 1918. By mid-1918, a flu outbreak - which we now know was the H1N1 strain that is of great concern today - was sweeping the world, and the resulting fatalities were catastrophic: At least 25 million people died worldwide, with some estimates as high as 100 million deaths. India was particularly hard hit by the influenza.

"We know that there is a connection between El Niño and drought in India," Giese notes.

"It seems probable that mortality from influenza was high in India because of famine associated with drought, so it is likely that El Niño contributed to the high mortality from influenza in India."

The flu epidemic of 1918, commonly called the "Spanish Flu," is

believed to be the greatest medical holocaust in history. It lasted from March of 1918 to June of 1920, and about 500 million people worldwide became infected, with the disease killing between 25 million to 100 million, most of them young adults. An estimated 17 million died in India, between 500,000 to 675,000 died in the U.S. and another 400,000 died in Japan.

Could the events of 1918 be a harbinger of what might occur in 2009?

Giese says there are some interesting parallels. The winter and spring in 1918 were unusually cold throughout North America, just at the time influenza started to spread in the central U.S. That was followed by a strengthening El Niño and subsequent drought in India. As the El Niño matured in the fall of 1918, the influenza became a pandemic.

With a moderate to strong El Niño now forming in the Pacific and the H1N1 flu strain apparently making a vigorous comeback, the concerns today are obvious, Giese adds.

Source: Texas A&M University