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**Effect of Climate on Ancient  
Societies Debated  
Scientists say shifts may account  
for demise of civilizations**

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Radical climate change might ravage civilization -- but it won't be the first time, scientists say.

The world is littered with the weedy ruins of ancient societies like the Mayans -- peoples that once thrived, then collapsed because they failed to endure sudden climate shifts, researchers said yesterday at the conference of the American Geophysical Union.

The meeting, which has attracted about 9,000 Earth scientists and space experts from around the globe, began Friday and continues through Tuesday at Moscone Center.

The researchers' controversial claim -- which clashes with traditional historical theories that attribute ancient cultural collapses to political, economic, military and epidemiological factors -- sounds especially unsettling this weekend, as numerous American Geophysical Union speakers report possible omens of global climatic chaos:

-- Sea levels are rising around the world, at least partly because of "thermal expansion," in which rising temperatures make the ocean expand.

-- In the eastern Pacific, the average wave height is rising and might eventually threaten North American coastlines and coastal structures.

-- Global warming could destabilize the ice cap over Greenland over the next century, computer models suggest. The icy continent might entirely melt over the next 1,000 years, flushing enough water into the ocean to raise the average sea level by about 20 feet -- enough to submerge parts of San Francisco and the Bay Area.

Because industrial activity may be changing the climate, modern society should ponder the fate of the Mayans, whose culture dominated much of Central America until mysteriously disintegrating between 800 and 900 A.D., says anthropologist Richardson B. Gill of San Antonio, Texas.

In his new book "The Great Maya Droughts," Gill presents evidence tracing the societal collapse to a major climate change during that period.

Gill and several other theorists have argued that some past societies dissolved not because they did anything wrong but because of natural cataclysms, he said at an American Geophysical Union news conference yesterday.

In archaeological research, "climate change is beginning to emerge as a major 'stressor' to prehistoric cultures," said his co-panelist, paleoecologist Mark Brenner of the University of Florida, who studies ancient climate impacts on Mayan and Yucatan cultures. It's timely research, judging by the news from other American Geophysical Union sessions.

The immediate climatic threat to Greenland is far worse than that facing the Antarctic ice sheet, said climate modeler Jonathan M. Gregory of Britain's famed meteorological office.

For years, the news media and some environmentalists have hyped warnings that the West Antarctic ice sheet is about to collapse and cause a massive rise in global sea levels. Such a catastrophe is "now widely held (by experts) to be rather unlikely" during the coming century, Gregory said yesterday.

However, as the average global temperature rises in the 21st century, "the Greenland ice sheet may pass a threshold beyond which it cannot survive," Gregory said. He explained that some researchers' computer models show that a temperature rise of several degrees over the next hundred years could cause the ice sheet to melt faster than it is replaced by snowfall. By the year 3000, the ice cap could have melted into the sea, raising the average sea level by about 20 feet. Given the forecast's apocalyptic tinge, "I think we should take it seriously," Gregory said.