Global warming nears ‘dangerous’ level

Researchers say average temperatures are close to a million-year high

By Sara Goudarzi

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Global temperatures are dangerously close to the highest ever estimated to have occurred in the past million years, scientists reported Monday.

In a study that analyzed temperatures around the globe, researchers found that Earth has been warming rapidly, nearly 0.36 degrees Fahrenheit (0.2 degrees Celsius) in the last 30 years.

"The average surface temperature is 15, maybe 16 degrees Celsius (60 degrees Fahrenheit)," said Alan Robock, a meteorologist and climate researcher from Rutgers University who was not involved with the study.

If global temperatures go up another 1.8 degrees F (1 degree C), it would be equal to the maximum temperature of the past million years.

"This evidence implies that we are getting close to dangerous levels of human-made (anthropogenic) pollution," said study leader James Hansen of NASA's Goddard Institute for Space Studies

‘**A different planet...**’

According to the U.S. Environmental Protection Agency, human-caused greenhouse **gases** are responsible for most of the warming of the last 50 years. The gases, released by burning of fossil fuels and land clearing, among other factors, trap heat in the atmosphere and warm Earth's surface.

Further global warming of 1.8 degrees F (1 degree C) defines a critical level, Hanson said.

Robock agrees that temperatures are getting up there.

"It's certainly the warmest it's been in the last couple of thousand years," Robock said. "I don't have access to the data about the last million years but it's probably right. I just haven't looked at it in detail.

"During the warmest interglacial periods the Earth was reasonably similar to today. But if further global warming reaches 2 or 3 degrees Celsius, we will likely see changes that make Earth a different planet than the one we know," he said. "The last time it was that warm was in the middle Pliocene, about 3 million years ago, when sea level was estimated to have been about 25 meters [80 feet] higher than today."

The study also notes that global warming is greatest at higher latitudes near the poles. This is because when Earth warms, snow and ice melt, uncovering darker land and ocean surfaces. Instead of the once-white surface that reflected solar rays back into space, the darker surfaces now absorb more energy from the sun.

Mass migration
Although warming is most noticeable at the poles, higher latitudes are still among the coolest spots around. For animals and plants that can survive only within certain cool temperature ranges, these are the only places to go as their current homes become intolerably warm.

In a 2003 study, scientists showed that 1,700 plant and animal species migrated toward the poles at about 4 miles (6.4 kilometers) per decade in the last 50 years.

That migration rate is not fast enough to keep up with the current rate of movement of a given temperature zone, which has reached about 25 miles (40 kilometers) per decade in the period 1975 to 2005, Hanson and co-authors write in the current issue of the Proceedings of the National Academy of Sciences.

"Rapid movement of climatic zones is going to be another stress on wildlife," Hansen said. "It adds to the stress of habitat loss due to human developments. If we do not slow down the rate of global warming, many species are likely to become extinct. In effect we are pushing them off the planet."

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