

## Doubt global warming? The planet won't tell a lie

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A recent [Rasmussen poll](#) suggests that an alarming number of Americans believe scientists have falsified their data to sell global warming to the public. Add this to some embarrassing comments made in the e-mails stolen from the [Climatic Research Unit](#) at East Anglia University in England, and it has been a long, hot autumn for climate scientists.

Why is there so much confusion about whether the planet is warming? We believe a big part of the problem centers on the use of earth surface temperature data as a direct measure of warming. Where do you stick the thermometer? What matters most: Daytime highs? Nighttime lows? Summer or winter temperatures? Trying to determine whether the planet is warming in this fashion seems fraught with peril.

One doesn't need to measure thousands of temperatures to find conclusive evidence that the planet is warming. The earth does the averaging for us. Many physical and biological characteristics show that the earth is warming and has been for decades.

### Clear evidence

Studies from both hemispheres indicate that 95% of the world's alpine glaciers, excluding Antarctica, are retreating. Glacier National Park in Montana is down to [26 named glaciers from 150 in 1850](#), and if this trend continues, the park is expected to be ice-free by 2020. Glaciers in the Himalayas are shrinking so rapidly that the summer flow of the major rivers (Indus, Ganges, Mekong, Yellow, Yangtze) they feed might eventually be affected.

Permafrost regions are thawing in high northern latitudes, causing [buildings to sink and roads to crumble](#). Melting permafrost is the reason Arctic shorelines are retreating, forcing the [relocation of Inupiat Eskimo villages](#) along the shore.

The great ice sheets are all retreating. The Greenland ice sheet melting began to accelerate in the 1990s, and the margin of the entire ice mass is [melting](#) even in its northernmost reaches. The West Antarctic Ice Sheet has begun extensive melting, mostly since 2000. More recently, the [first indication](#) that the larger East Antarctic Ice Sheet was melting and contributing to the sea level rise was reported last month in *Nature Geoscience*.

### Sea level rising

The rate of rise in sea level has sped up over the past century. A tide gauge on a pier in Duck, N.C., says the sea level is rising at 1.5 feet a century. The Arctic Ocean's ice cover

is shrinking and could [disappear](#), endangering animals that depend on the ice for their survival.

One can argue for hours whether this year was warmer or colder than last. To us, it doesn't matter. We should be reading the earth, not thermometers. The earth is clearly warming, and sea level is clearly rising.

In order to convince a skeptical public that global change is real, scientists and funding agencies need to invest more in field measurements and monitoring rather than computer modeled predictions.

As for the skeptics, it's time to get off the atmospheric temperature kick and read the earth. We also believe the science clearly indicates that humans are playing a new, and critical role in driving that warming. But, lack of clarity in the exact degree that humans are causing global warming should not be used as an excuse to ignore the monumental changes that rising sea level and changing climate will bring to the planet, and our society.

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