Why So Hot? Don't Blame Man, Blame the Sun

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Last month's heat wave has prompted by-now-predictable warnings about, as Time magazine's cover puts it this week, "New Concerns on Global Warming." Computer simulations say the "greenhouse effect" should have raised the temperature globally by about one degree Celsius (1.8 degrees Fahrenheit) in the past 100 years.

But actual temperatures have not cooperated with the computer models. Temperature records show a rise of 0.5 degree Celsius over the century, peaking before 1940. The average surface temperature then decreased until the 1970s (when the doomsayers were warning of an impending ice age) and has since risen a modest 0.2 degree Celsius. Because more than 80% of the manmade carbon dioxide has entered the air since the '40s, the early-century warming of 0.5 degree must be natural.

One reason for the failure of the models is that they overlook an important natural factor that probably influences temperatures: the changing sun.

In 1610 Galileo began the telescopic observations of sunspots that make up our modern view of the sun. Sunspots are cooler, darker areas of strong magnetic fields. The number of sunspots peaks and the direction of the field changes every 11 years or so, making a 22-year magnetic cycle. In the 1980s NASA satellites collected data that showed the sun was brightest during peak sunspot periods. The length of the magnetic cycle is closely related to its amplitude; thus the sun should be brightest when the sunspot cycle is short.

The chart nearby illustrates how the sun's changes, marked by sunspots, may affect climate. Changes in the length of the magnetic cycle and in Northern Hemisphere land temperatures are closely correlated over three centuries. (Global temperature records aren't available for periods before the mid-19th century, but those that are available agree with Northern Hemisphere temperatures.) If the recent NASA data are indicative, those changes in the sun's magnetism would track changes in the sun's brightness, for which direct measurements are lacking. If this is so, changes in the sunspot cycle would explain the average temperature change of about 0.5 degree Celsius in the past 100 years. The timing of the sun's changes agrees especially well with the timing of the global warming early in the century.

Click here for the Sun and Climate Link Chart.

The sun's signature seems also present in the climate record over many millennia. Every few centuries the sun's magnetism weakens to low levels for several decades. An example is the period from about 1640 to 1710, when sunspots were rare. That period coincided with the coldest century of the millennium.

As for the past 20 years, when climate models say increasing carbon dioxide should have caused a clear global warming in the lowest layer of the atmosphere, NASA satellites have been recording the temperature there. The satellite measurements are thought to be precise to 0.01 degree Celsius, and have been verified by independent samplings made by balloon-borne instruments. Result: The readings show no increasing global warming trend. Computer models predict exaggerated warming trends for the recent past; presumably they do for the future as well. Surface readings, likewise, show too small a warming compared to the model results.

Perhaps, the doomsayers suggest, global warming has been offset by aerosol pollution's haze of small particles that have a cooling effect. But aerosols, emitted mostly in the Northern Hemisphere, stay only days in the air before being rained out, leaving the Southern Hemisphere's air free to rise with increasing carbon dioxide. But satellite measurements for the Southern Hemisphere show no warming trend, which means the models are projecting far too much warming.

In 1801 astronomer William Herschel, who discovered Uranus, hypothesized that times of many sunspots "may lead us to expect a copious emission of heat and therefore mild seasons," and periods of few spots would signal "spare emission of heat" and "severe seasons." Lacking temperature measurements, Herschel thought that severe seasons would raise the price of wheat. The history of wheat prices in England supported his idea: Five prolonged periods of few sunspots were tied to costly wheat.

Herschel carefully presented his results to the Royal Society, where Lord Brougham ridiculed them as a "grand absurdity." Herschel's case would have been stronger if he knew what we know about the sun.

Yet today global-warming alarmists echo Lord Brougham. In 1990, after the George C. Marshall Institute released a report that included evidence on the sun and climate change, Jerry Mahlman, then director of the fluid dynamics laboratory of the National Oceanic and Atmospheric Administration, scoffed that it was "noisy junk science."

This know-nothing approach is counterproductive. New discoveries about the causes of climate change, like a varying sun, are the key to creating better models. Introducing the sun's impact in the models has shown that human effects on temperature are much smaller than first projected, and perhaps insignificant compared with natural temperature changes. Those who are worried about global warming can cool down.

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