

Homework 5

assigned: Thurs, Nov 13

due: Thurs, Nov 20

1. *Impacts:* (a) The “useful” output of crops decreases as nighttime low temperatures rise, even though that same crop will grow faster. Explain this apparent paradox. [3 pts] (b) Ecosystems in the tropics are expected to suffer more than ecosystems in the mid-latitudes due to global warming. Why? [2 pts] (c) What is the current level of scientific confidence in predictions of sea level rise associated with the melting of the ice sheets over Antarctica and Greenland? [1 pt]
2. *Clouds: True or False.*
 - Imagine you can increase the cloudiness. Would the earth be warmer than now if all the extra clouds that you add were added during nighttime? Yes/No [1 pt]. Would it be cooler if you added them only between 10 am and 4 pm? Yes/No [1 pt].
 - Imagine you can replace all low clouds with high clouds. Would the earth cool? Yes/No [1 pt].
3. *Arguments of Skeptics* (a) What is the expected response to greenhouse gas induced global warming 5-12km above the surface in the tropics? [2 pt] (b) What measurement technique was thought to have measured a trend in this region opposite to that expected? [2 pt]

For questions 4 and 5, we expect a response between 5 and 7 sentences each. A 2 page essay is overkill, and 2 sentences is inadequate. A website link to the articles is provided but for your convenience the texts are also recopied below.

4. *Skeptics:* Below you will find a “skeptic” article. State whether the essay accurately portrays the current level of scientific understanding. State and explain your overall evaluation of the strength of the argument against the global warming theory. [Note: Feel free to agree or disagree with the essay, so long as your evaluation grows out of the above analysis.] [16 pts]

<http://www.nationalpost.com/opinion/columnists/story.html?id=bee2f7de-cb35-4f3d-9652-48c97f8ae623>

5. *Alarmists:* Below you will find an “alarmist” article. Analyze the factual and logical content of this essay (ignoring the rhetoric and appeals to emotion.). State whether the essay accurately portrays the current level of scientific understanding. State and explain your overall evaluation of the strength of the argument that global warming poses an immense and/or immediate danger to humanity. [Note: Feel free to agree or disagree with the essay, so long as your evaluation grows out of the above analysis.] [16 pts]

<http://abcnews.go.com/WNT/GlobalWarming/Story?id=2866985&page=1>

ARTICLES:

4) Skeptics, Unite! , by Lorne Gunter. Published Monday, October 20, 2008 on the National Post

In early September, I began noticing a string of news stories about scientists rejecting the orthodoxy on global warming. Actually, it was more like a string of guest columns and long letters to the editor since it is hard for skeptical scientists to get published in the cabal of climate journals now controlled by the Great Sanhedrin of the environmental movement. Still, the number of climate change skeptics is growing rapidly. Because a funny thing is happening to global temperatures -- they're going down, not up.

On the same day (Sept. 5) that areas of southern Brazil were recording one of their latest winter snowfalls ever and entering what turned out to be their coldest September in a century, Brazilian meteorologist Eugenio Hackbart explained that extreme cold or snowfall events in his country have always been tied to "a negative PDO" or Pacific Decadal Oscillation. Positive PDOs -- El Ninos -- produce above-average temperatures in South America while negative ones -- La Ninas -- produce below average ones.

Dr. Hackbart also pointed out that periods of solar inactivity known as "solar minimums" magnify cold spells on his continent. So, given that August was the first month since 1913 in which no sunspot activity was recorded -- none -- and during which solar winds were at a 50-year low, he was not surprised that Brazilians were suffering (for them) a brutal cold snap. "This is no coincidence," he said as he scoffed at the notion that manmade carbon emissions had more impact than the sun and oceans on global climate.

Also in September, American Craig Loehle, a scientist who conducts computer modelling on global climate change, confirmed his earlier findings that the so-called Medieval Warm Period (MWP) of about 1,000 years ago did in fact exist and was even warmer than 20th-century temperatures.

Prior to the past decade of climate hysteria and Kyoto hype, the MWP was a given in the scientific community. Several hundred studies of tree rings, lake and ocean floor sediment, ice cores and early written records of weather -- even harvest totals and censuses -- confirmed that the period from 800 AD to 1300 AD was unusually warm, particularly in Northern Europe.

But in order to prove the climate scaremongers' claim that 20th-century warming had been dangerous

Scientists have called the manmade warming theory a 'hoax,' a 'fraud' and simply 'not credible' and unprecedented -- a result of human, not natural factors -- the MWP had to be made to disappear. So studies such as Michael Mann's "hockey stick," in which there is no MWP and global temperatures rise gradually until they jump up in the industrial age, have been adopted by the UN as proof that recent climate change necessitates a reordering of human economies and societies.

Dr. Loehle's work helps end this deception.

Don Easterbrook, a geologist at Western Washington University, says, "It's practically a slam dunk that we are in for about 30 years of global cooling," as the sun enters a particularly inactive phase. His examination of warming and cooling trends over the past four centuries shows an "almost exact correlation" between climate fluctuations and solar energy received on Earth, while showing almost "no correlation at all with CO2."

An analytical chemist who works in spectroscopy and atmospheric sensing, Michael J. Myers of Hilton Head, S. C., declared, "Man-made global warming is junk science," explaining that worldwide manmade CO2 emission each year "equals about 0.0168% of the atmosphere's CO2 concentration ? This results in a 0.00064% increase in the absorption of the sun's radiation. This is an insignificantly small number."

Other international scientists have called the manmade warming theory a "hoax," a "fraud" and simply "not credible."

While not stooping to such name-calling, weather-satellite scientists David Douglass of the University of Rochester and John Christy of the University of Alabama at Huntsville nonetheless dealt the True Believers a devastating blow last month.

For nearly 30 years, Professor Christy has been in charge of NASA's eight weather satellites that take more than 300,000 temperature readings daily around the globe. In a paper co-written with Dr. Douglass, he concludes that while manmade emissions may be having a slight impact, "variations in global temperatures since 1978 ? cannot be attributed to carbon dioxide."

Moreover, while the chart above was not produced by Douglass and Christy, it was produced using their data and it clearly shows that in the past four years -- the period corresponding to reduced solar activity -- all of the rise in global temperatures since 1979 has disappeared.

It may be that more global warming doubters are surfacing because there just isn't any global warming.

5) Global warming Alarm: Doomsday for Australia?, by Mark Litke. Published on abcNews on Feb 27, 2007.

It was something of a double whammy for one of the world's most desirable cities.

The ominous report issued earlier this month by the U.N.'s Intergovernmental Panel on Climate Change was frightening enough: The evidence of global warming was unequivocal, most likely caused by humans, and likely to continue for centuries.

But another report had been issued, just one day before, by Australia's Commonwealth Scientific and Industrial Research Organization. And its conclusion read like a dagger through the heart of the land down under. If global warming continues at its current rate, the CSIRO report warned, life in the city of Sydney could be completely transformed by the year 2070.

In just one generation, Sydney could slide into a near permanent state of drought. There could be a dramatic rise in deadly bushfires. Temperatures would rise 10 or 15 degrees Fahrenheit, or more. Heat-related deaths would soar from nearly 200 to more than 1,200 a year. The report was very grim reading, especially for the people of Sydney.

To better understand how Australians were responding to this "doomsday scenario," I met with Michael Archer, the dean of the science faculty at Sydney's University of New South Wales.

Watch Mark Litke's report on the "doomsday scenario" tonight on "World News." Check your local listings for air time.

Professor Archer is a noted geologist and paleontologist, who has studied the history of climate change and its effects on prehistoric life. He is among the prominent scientists who have warned repeatedly that global warming posed a dire threat to mankind.

I interviewed Archer as we walked on the predictably sun-drenched Bondi Beach in the Sydney suburbs. It seemed an appropriate location, since Australians have known for years that the growing hole in the ozone layer over neighboring New Zealand has made the sun's rays increasingly harmful in this part of the world.