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October 3, 2013

Rebuttal to the Rotarian Comments on Climate Change

An article published in the September 2013 issue of the "Rotarian" claimed that our use of fossil fuels has "massive environmental side effects, including climate change, loss of biodiversity, and acidification of the oceans." and claims it is "dangerous". Each of these claims is untrue and is contradicted by evidence. Any form of fuel use will have some environmental effect, but fossil fuel use has by far the greatest benefit for humans and the environment compared to alternatives. The article assumes that carbon dioxide emissions resulting from fossil fuels will cause dangerous changes to the environment, but the science shows that CO₂ has a small and beneficial effect on climate and significantly enhances plant and forest growth.

The Friends of Science website [here](#) shows numerous studies that lead to the conclusion that carbon dioxide is a wonderful by-product of fossil fuel use. The major issue of the last 20 years is that CO₂ emissions might cause dangerous climate change, a speculative hypothesis advocated by a United Nations panel, the Intergovernmental Panel on Climate Change (IPCC). That panel is one of the worst sources of information on climate because it is mandated to only consider human-caused climate change. It ignores almost all natural causes of climate change and falsely assumes that all of the 20th century warming was caused by man-made greenhouse gas emissions. The evidence shows that solar magnetic flux changes along with decadal ocean circulation cycles are responsible for most of the climate change.

The Nongovernmental International Panel on Climate Change ([NIPCC](#)) published a major report in September 2013 which provides the scientific balance that is missing from the overly alarmists reports of the IPCC. Their 1200 page report by 50 climate scientists reviews the scientific literature on climate change. Unlike the IPCC, it is not restricted to only human causes, but also considers natural climate change. The report shows that the earth's surface temperatures are largely driven by variations in solar activity, which may have contributed as much as 66% of the observed 20th century warming. See the executive summary [here](#).

Hundreds of peer-reviewed technical studies show high correlations between solar changes and temperatures over medium and long-term time scales. This natural climate change is strongly influenced by a number of ocean cycles, including the sixty-year cycle of the Pacific Decadal Oscillation. Both solar and ocean cycles affect climate by changing cloud cover. Most of the climate changes over the last two centuries can be explained by these natural processes. 20th century warming was caused by a reduction in cloud cover.

It is well established from the physical principles of the greenhouse effect that a doubling of amount of CO₂ in the atmosphere would lead to a 1 degree Celsius increase in temperatures if nothing else changed, meaning no changes in the amount of water vapour and clouds. The IPCC and climate models assume that water vapor and clouds will change to amplify the initial CO₂ effect three-fold, but the best

evidence shows that they change to reduce the initial CO2 effect to about 0.6 °C. Climate modeler falsely interpreted the reduction in cloud cover as a positive feedback, rather than as a cause of warming. Both radiosonde and satellite data shows that water vapor, the most important greenhouse gas, declines in the upper atmosphere in response to warming, allowing excess heat to escape to space.

There has been no lower atmosphere or surface warming over the last 16 years. The IPCC released their "Summary for Policy Makers" of the fifth assessment report September 27, 2013. The draft summary delivered to the government representatives stated "*Models do not generally reproduce the observed reduction in surface warming trend over the last 10–15 years.*" This accurate statement was deleted from the final summary. In fact the surface temperatures have been **cooling** at 0.07 °C/decade from 2002, when the models predicted temperatures would rise by 0.20 °C/decade, see graph [here](#).

Dr. Richard Lindzen, professor of meteorology at the Massachusetts Institute of Technology rips the UN IPCC report: "The latest IPCC report has truly sunk to level of hilarious incoherence' — 'It is quite amazing to see the contortions the IPCC has to go through in order to keep the international climate agenda going".

Judith A. Curry is Chair and Professor, School of Earth and Atmospheric Sciences, Georgia Institute of Technology. She published the [article](#), "Kill the IPCC: After decades and billions spent, the climate body still fails to prove humans behind warming". She argues that "the IPCC is in a state of permanent paradigm paralysis."

The IPCC fabricated nonsense excuses for the global warming hiatus over the last 16 years. They claimed that low solar activity contributed to the hiatus, but insist solar activity had no affect on the 20th century warming when solar magnetic flux reached an 8000 year high. They claim that volcanoes contributed to the hiatus, but there have been no significant volcanoes this century and the satellite data show near zero volcano aerosols. The lack of volcanic eruption during 1998 to 2012 would have caused more warming than during the period 1951 to 2012 as shown by the graph [here](#). They claimed heat is hiding in the deep oceans, but the models predicted four times as much ocean warming in the surface to 700 m depth layer than the observations. From 700 m to 2000 m the warming was a trivial 0.02 °C from 2005 to 2012, which suggests CO2 has little effect on temperatures. The IPCC report states that there has been no warming from 2000 m to 3000 m for the period 1992 to 2005, which appears to contradict the speculation that heat is hiding in the deep oceans.

The IPCC projections are based on models that don't work. They don't include any significant natural causes of climate change, so they can't replicate the multi-decadal temperature cycles. Global sea surface temperatures increased from 1910 to 1945 at 4.5 times the rate simulated by climate models because the warming was mostly natural, graph [here](#). Global temperatures declined over the 30 years from 1945 to 1975 but the climate models simulated warming. The models are all tuned to roughly match the average global warming from 1975 to 2002, but only by underestimating the Arctic warming and overestimating tropical and southern warming trends. The Arctic warming could not have been caused by CO2 emissions because there has been no increase in the greenhouse effect north of 60

degrees latitude as shown [here](#). The climate model temperature trend near the equator (5N - 5S) is 3.5 times the measured temperature trend as shown [here](#). In the southern oceans at 60 S latitude, the temperatures have **declined** at 0.05 °C/decade since 1982, but the multi-model mean simulations show an increase of 0.05 °C/decade as shown [here](#). The average of three wrong predictions does not make one correct prediction.

The small warming that may be caused by fossil fuel use is almost entirely beneficial. It is not dangerous at all. Global death rates from extreme weather events has declined by 99%, from 242 deaths per million population in the 1920s to 3 deaths per million in the 2000s as shown [here](#).

Britain's leading medical experts have calculated that a rise of the average temperatures would decrease in the number of cold-related deaths by a factor of 10 more than the increase in heat-related deaths. In Europe and Russia alone, more than 100,00 people die on average each year as a result of cold temperatures during the winter months. See [here](#).

Sea level rise is so slow that the projected rise would add little incremental costs to the normal redevelopment activities that would have occurred in the absence of greenhouse gas emissions. Aerial photos and high-resolution satellite images show that 23 of 27 tropical islands grew or stayed the same area since 1950 as shown [here](#). Islands have a natural ability to respond to rising seas by accumulating coral debris from the outlying reefs that surround them.

There is no correlation of hurricane activity to temperatures. The global hurricane energy has declined by 40% since 1998 as shown [here](#). Warming due to greenhouse gas emissions would be greater in the north than in the tropics, reducing the temperature gradient that powers storms. There would be fewer and less severe storms in a warmer world. A tornado require a cold front colliding with warm air. Warming makes tornadoes less likely to form. The strong to violent (F3+) tornado activity in the U.S. has declined significantly since the 1950s a shown [here](#).

There is no correlation of temperature to droughts or floods. The most severe droughts in North America were in the 1930s and 1950s, see [here](#).

CO2 is plant food and more CO2 increases crop and forest yields. About 16% of all crop production is due to increased CO2 levels. Satellite images show an 11% increase in foliage of arid regions from CO2 fertilization from 1982 to 2010 when CO2 increased by 14%. See [here](#) for a selection of articles on CO2 fertilization.

Ocean acidification is an invented problem used as an alternative reason to regulate fossil fuel use. The IPCC estimates that the average ocean pH has declined by 0.05 pH units since 1950 to the current value of 8.08. It expects the pH to decline to 8.0 by 2050. A pH of 7.0 is neutral, so adding CO2 slightly makes the oceans slightly less alkaline and less corrosive. A better term for ocean acidification is ocean neutralization.

The maximum expected decline of ocean pH is 0.3 to pH 7.8 which is expected to occur about 2100 after which pH values start a slow recovery. This forecast assumes that fossil fuel emissions peak about 2040 due to hydrocarbons becoming more expensive. The website [CO2Science](#) has an extensive database of studies that measure the effects of pH changes on sea life. The linear trend of all the life parameters to a 0.3 pH change is actually positive, indicating an overall beneficial response of marine sea life to ocean neutralization (AKA, acidification).

There is no evidence that CO2 emissions will cause harmful effects on marine life in this likely range of pH. Marine organisms start to respond negatively only to high pH levels which are unlikely to ever occur. The oceans are likely to become slightly less basic, but they could never become acidic.

Warming and CO2 fertilization would generally increase biodiversity. Warmer regions are lush with animal and plant life. Colder regions have fewer species because there is less plant growth for food and survival is harder. Numerous studies show that warming in northern regions has resulted in an increase in the number and diversity of mammal species during the 20th century. A review of studies by [CO2Science](#) concludes that "many mammals appear to be faring quite well - indeed *thriving* - in the face of increasing temperatures in this forest-tundra landscape." The bulk of scientific studies show an increase in biodiversity almost everywhere on Earth that is not restricted by habitat destruction in response to global warming and atmospheric CO2 enrichment. The polar bear population is now apparently more than double that of the 1960s.

The sun is entering into an inactive state, like what occurred during the Little Ice Age, and the majority of solar scientist believe that global temperatures will continue to decline. Cold periods, such as the Little Ice Age and the Dark Ages were terrible times to be alive. They were times of famine, plagues and disease, and severe storms.

Arctic sea ice minimum this year is 60% greater than last year. Global 2013 average sea ice anomaly to date is above the average for 1979 to 2008, see [here](#). Antarctic September sea ice extent is increasing at 1.1% per decade relative to the 1981 to 2010 average. Climate models predicted declining sea ice.

Warming would be wonderful for humanity, but our greenhouse gas emission is unlikely to cause much warming. There are almost no harmful effects of one or two degrees of warming. Warming would reduce severe storms, improve health, increase crop yields, increase the area that can be farmed, reduce construction costs, reduce transportation costs, reduce heating costs and makes for a more pleasant climate.

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*Ten years of providing independent
climate science information*

goods. The bad news is that our current technology mix – especially the way we use fuels and grow our food – has massive environmental side effects, including climate change, loss of biodiversity, and acidification of the oceans. That's the downside, and it's dangerous. It's fair to say that if we grow the world economy based on current technologies, we stand a good chance of wrecking the planet.

TR: Computers and the Internet are in place all over the world. Cell phones permit communication where there is no

wire infrastructure. Hasn't technology allowed poorer nations to greatly accelerate the pace of development?

SACHS: We are in a technological revolution. Because of the dramatic improvement of the mobile phone and the advent of the Internet, we can do things a lot smarter and more efficiently. I refer to it as "Moore's Equity," because Gordon Moore, who was the cofounder of Intel, stated "Moore's Law," which is the principle of the rapid improvement of information technology, especially integrated circuits and micropro-

cessors and phones. We can now harness solar power for about one-hundredth of what electricity cost to generate 40 years ago. This means we have access to renewable energy at a price competitive with that of fossil fuels. Electricity from solar panels can reach even the most remote villages in the world's poorest places, far from power lines. Rotary can help villages with solar power. It fits the Rotary model of community-based development, whether it's vaccines or solar panels, of reaching into difficult places of the world.