

## National Geographic rising sea level prophecy—cause for concern or absurd fairytale?

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The September issue of National Geographic shows sea level midway up the Statue of Liberty, 214 feet above present sea level (Fig. 1) and contains dire images of impending catastrophic sea level rise. Anthony's excellent responses (<http://wattsupwiththat.com/?s=national+geographic>) and (<http://wattsupwiththat.com/2010/11/28/freaking-out-about-nyc-sea-level-rise-is-easy-to-do-when-you-dont-pay-attention-to-history/>) have demonstrated the utter absurdity of the National Geographic portrayal.



Figure 1. Cover of October issue of National Geographic.

As Anthony points out, at the rate of sea level rise shown by tide gauge records since 1856 at The Battery 1.7 miles away, for sea level to reach that high up the Statue of Liberty would take 23,538 years!

But what about the other assertions in the National Geographic article, such as (1) many graphic images of that the future holds, (2) smaller, but still unreasonable sea level rise, (3) doomed cities (Miami and London gone), (4) flooded coastal areas (most of southern Florida submerged), (5) more frequent storm surge disasters due to sea level rise, and (6) various other catastrophic scenarios? Are any these cause for concern or are they also just unfounded, fear-mongering scenarios aimed at getting attention? Let's look at some the contentions in the National Geographic scenarios.

1. *"By releasing carbon dioxide and other heat-trapping gases into the atmosphere, we have warmed the Earth by more than a full degree Fahrenheit over the past century and raised sea level by about eight inches. Even if we stopped burning all fossil fuels tomorrow, the existing greenhouse gases would continue to warm the Earth for centuries. We have irreversibly committed future generations to a hotter world and rising seas."*
2. *"...the big concern for the future is the giant ice sheets in Greenland and Antarctica." "If the Thwaites Glacier breaks free from its rocky berth, that would liberate enough ice to raise sea level by three meters—nearly ten feet."*
3. *"by the time we get to the end of the 21st century, we could see sea-level rise of as much as six feet globally instead of two to three feet. Last year an expert panel convened by the National Oceanic and Atmospheric Administration adopted 6.6 feet (two meters) as its highest of four scenarios for 2100. The U.S. Army Corps of Engineers recommends that planners consider a high scenario of five feet." "we're already locked in to at least several feet of sea-level rise, and perhaps several dozens of feet"*
4. *"Inexorably rising oceans will gradually inundate low-lying areas" "By the next century, if not sooner, large numbers of people will have to abandon coastal areas in Florida and other parts of the world." "With seas four feet higher than they are today—a distinct possibility by 2100—about two-thirds of southeastern Florida is inundated. The Florida Keys have almost vanished. Miami is an island."*

5. “A profoundly altered planet is what our fossil-fuel-driven civilization is creating, a planet where Sandy-scale flooding will become more common and more destructive for the world’s coastal cities.” “...higher seas will extend the ruinous reach of storm surges. The threat will never go away; it will only worsen. By the end of the century a hundred-year storm surge like Sandy’s might occur every decade or less.”
6. “...carbon dioxide in the atmosphere will reach around a thousand parts per million by the end of the century,” “According to the U.S. Geological Survey, sea level on an iceless Earth would be as much as 216 feet higher than it is today. It might take thousands of years and more than a thousand parts per million to create such a world—but if we burn all the fossil fuels, we will get there.”
7. “by 2070, 150 million people in the world’s large port cities will be at risk from coastal flooding, along with \$35 trillion worth of property.”

These 7 statements are not as obviously ridiculous as the depiction of a 216 foot sea level rise at the Statue of Liberty, but all carry ominous consequences if true. Are any of these contentions realistic? Let’s consider real-time scientific data for each of them.

1. *Has carbon dioxide warmed the Earth by more 1° F over the past century?*

Carbon dioxide is a trace gas that makes up only 0.039% of the atmosphere, accounts for only 3.6% of the greenhouse effect, and has increased by only 0.009% since 1950. By itself, it is incapable of warming the climate by more than a fraction of a degree. With no physical evidence that CO<sub>2</sub> causes significant atmospheric warming, the IPCC rely solely on computer models, but because the effect of CO<sub>2</sub> is so small, they introduce an increase in water vapor (which is responsible for 95% of greenhouse warming), claiming that as CO<sub>2</sub> goes up so does water vapor. For models to be valid, a real-world atmospheric water vapor must go up, but just the opposite is true—water vapor has gone down since 1947 (Fig. 2). Thus, climate models have been an utter failure (Fig. 3)

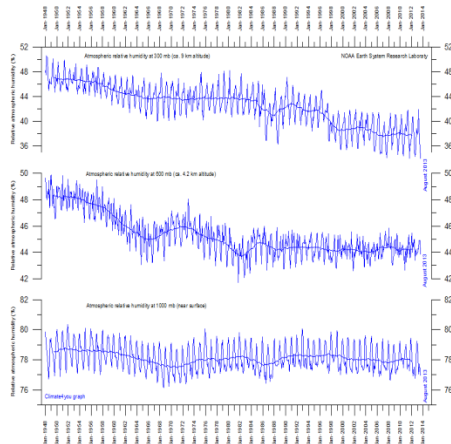


Figure 2. Declining atmospheric water vapor since 1947.

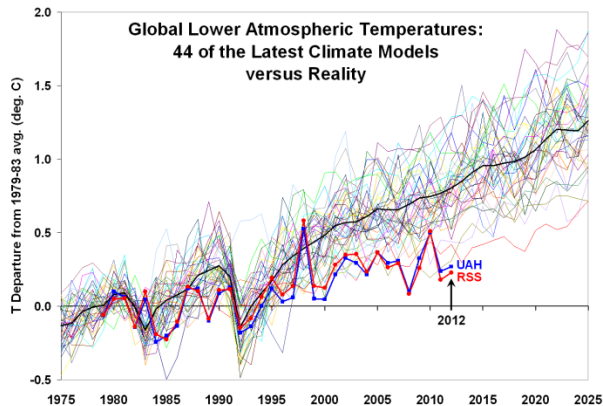


Figure 3. Failure of climate models to match reality. Dark line is average temperature predictions of 44 models; red and blue lines are actual temperatures.

The National Geographic claims that CO<sub>2</sub> has caused 1° F of warming this century. But CO<sub>2</sub> didn’t begin to rise sharply until after 1945 so cannot have been a factor before then. Temperature data shows that 0.7° C of warming occurred from 1900 to 1945, before CO<sub>2</sub> could have been the cause and while CO<sub>2</sub> emissions soared from 1945 to 1977, global temperatures declined (just the opposite of what should have occurred if CO<sub>2</sub> causes warming), and only 0.5°C warming from 1978 to present coincided with rising CO<sub>2</sub> (and that is very likely coincidental).

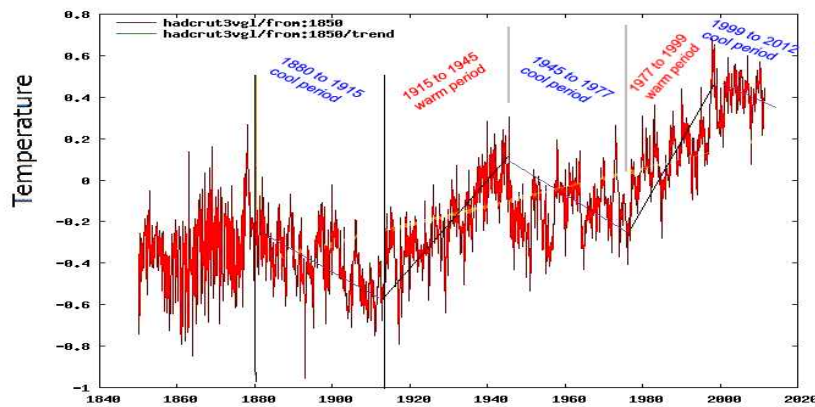


Figure. 4. Temperature changes during the past century.

Much additional data showing the CO2 is of little significance in global warming is summarized in the Nongovernmental International Panel on Climate Change 2013 report "[Climate Change Reconsidered II: Physical Science](#)." This 1200 page report convincingly and systematically challenges IPCC claims that carbon dioxide is causing "dangerous" global warming and that IPCC computer models can be relied on for future climate forecasts.

**Conclusions: National Geographic's statement that CO2 caused 1° F of global warming this century is contrary to scientific evidence and is thus false.**

2. "...the big concern for the future is the giant ice sheets in Greenland and Antarctica." "If the Thwaites Glacier breaks free from its rocky berth, that would liberate enough ice to raise sea level by three meters—nearly ten feet."

That this is not going to happen is shown by (1) there is no evidence that this has ever happened in the past and several factors insure that it won't happen any time soon, (2) Antarctic glaciers are frozen to their base and move by internal flowage of ice, not by basal sliding, (3) these ice sheets lie in basins, and (4) the Greenland ice sheet is behaving just as it has in the geologic past and there is nothing unusual happening to it now.

**Conclusion: The likelihood of ice sheets in Greenland and Antarctic sliding into the sea is essentially zero.**

3. "by the time we get to the end of the 21st century, we could see sea-level rise of as much as six feet globally instead of two to three feet. Last year an expert panel convened by the National Oceanic and Atmospheric Administration (NOAA) adopted 6.6 feet (two meters) as its highest of four scenarios for 2100. The U.S. Army Corps of Engineers recommends that planners consider a high scenario of five feet." "we're already locked in to at least several feet of sea-level rise, and perhaps several dozens of feet."

How realistic are these predictions of sea level rise of six feet to several dozens of feet? To answer that, all we have to do is look at the sea level rise for the past century and compare it with the National Geographic projection. Sea level has risen 7 inches in the past century at a relatively constant rate of 1.7 mm/yr from 1900 to 2000 (Fig. 5) and has actually shown signs of decline in the past few years (Fig. 6).

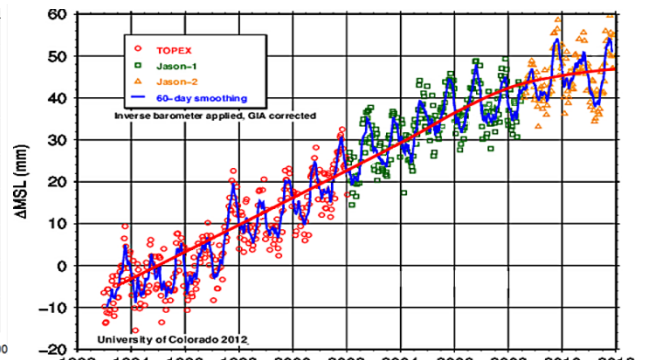
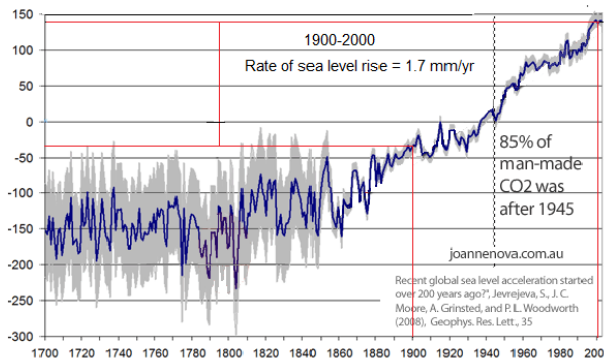


Figure 5. Sea level rise of 1.7 mm/yr from 1900 to 2000. Figure 6. Sea level rise since 1993.

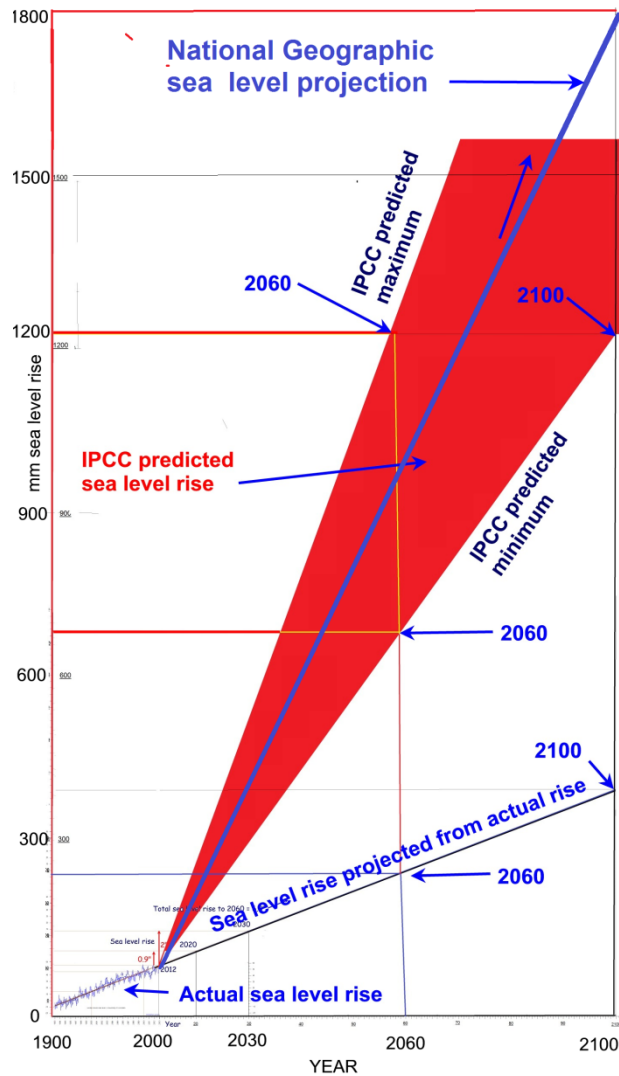


Figure 7. Sea level rise over the past century (lower left), sea level rise projected at this rate (black line, lower part of graph), and IPCC predicted sea level rise (red).

The difference between the sea level rise projected from actual rise over the past century and the catastrophic scenario of the National Geographic is 15 times the rate of sea level rise over the past century! Two questions immediately arise: (1) what is going to cause such accelerated sea level rise and

(2) where is all the water going to come from? The accelerated rise is based on postulated accelerated warming but there has been no warming in the past 15 years (in fact, the climate has cooled during that time (Figure 8). So no climatic warming means no accelerated sea level rise as postulated by the National Geographic .

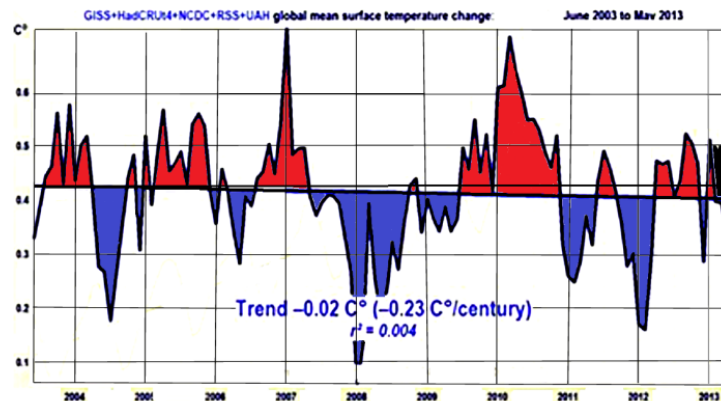


Figure 8. Cooling of  $-0.23^{\circ}\text{C}$  per century over the past decade. (modified from Monckton, 2013)

In order to get the accelerated sea level rise postulated by National Geographic, much of the Greenland and Antarctic ice sheets would have to melt. However the Antarctic ice cap is growing, not melting, and the Greenland ice cap was about the same size as at present during the Holocene Climatic Optimum. Morner (2011) has pointed out that, even during warming 20 times more intense than recent warming, melting of the massive Pleistocene ice sheets that covered vast areas resulted in sea level rise no greater than one meter per century. Thus, now that these great ice sheets are gone, there is no source of water for sea level rise even approaching one meter, so any prediction of sea level greater than that cannot be considered credible. The National Geographic scenario of the rate of sea level rise of six feet would require a rate of sea level rise of 20 mm/yr. in contrast to the rate of 1.7 mm over the past century.

**Conclusion: These data demonstrate that the scenario painted by the National Geographic of very large rise of sea level by 2100 is contrary to all physical scientific data and therefore its credibility must be totally rejected.**

4. *"Inexorably rising oceans will gradually inundate low-lying areas" "By the next century, if not sooner, large numbers of people will have to abandon coastal areas in Florida and other parts of the world." "With seas four feet higher than they are today—a distinct possibility by 2100—about two-thirds of southeastern Florida is inundated. The Florida Keys have almost vanished. Miami is an island."*

How credible is submergence of two thirds of Florida by 2100, leaving Miami as an island? Figure 9 shows that sea level rose 7 inches at a constant rate (2.24 mm/yr) during the past century at Key West (which is representative of southern Florida sea level rise). Projection of that rate to 2100 (Fig. 9) would result in a sea level rise of 6 inches by then. Contrast this with the National Geographic projected sea level rise of 21 mm/yr. What could possibly cause such a huge, sudden change in the rate of sea level rise? The answer is that it is not even close to being credible because (1) with no global warming in the past 17 years there is no reason for such a change, (2) there is no source of water--the East Antarctica ice sheet is not melting and Greenland has been warmer for thousands of years in the past without melting its ice sheet, (3) Antarctic sea ice is increasing, setting records, and (4) even during the rapid, intense melting of huge ice sheet at the end of the last Ice Age, sea level didn't rise this fast. Continuation of sea level at the constant rate of the past century would result only in a sea level rise of about 3-4 inches per generation.

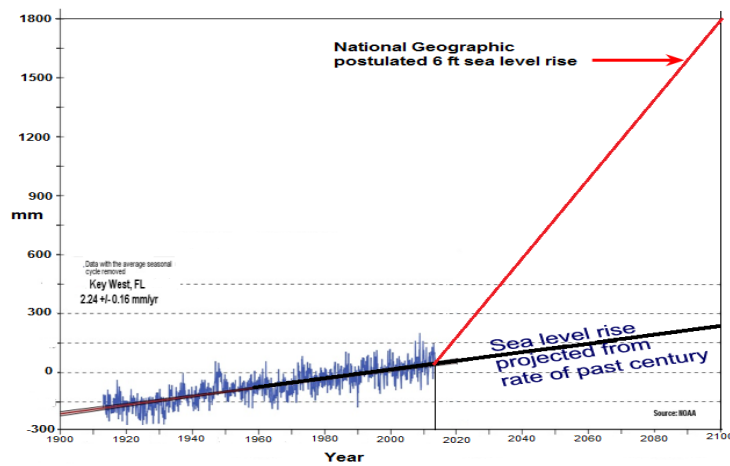


Figure 9. Sea level rise at Key West, Florida from tidal gauge records (Blue curve); sea level rise projected to 2100 at the rate over the past century; sea level rise postulated by National Geographic (red line).

**Conclusion: The National Geographic projection that two thirds of Florida will be submerged by 2100 is contrary to data and lacks any possible mechanism to increase sea levels more than a few inches. The National Geographic scenario is therefore totally without any credibility.**

5. Are the National Geographic statements “...higher seas will extend the ruinous reach of storm surges.” and “By the end of the century a hundred-year storm surge like Sandy’s might occur every decade or less.” credible?

There is no scientific evidence that storm frequency or intensity has increased over the past century. Figure 10 shows no increase in hurricane power dissipation index since 1900 and the US has experienced the longest period with no hurricanes making landfall (the Sandy storm was not strong enough to be considered a hurricane).

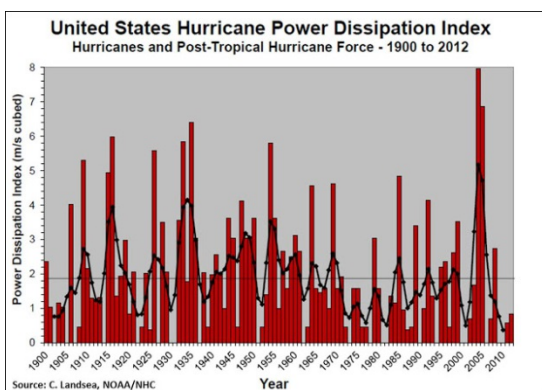


Figure 10. Hurricane index for the US since 1900.

**Conclusion: The National Geographic conclusion that higher sea levels “higher seas will extend the ruinous reach of storm surges” is not credible because (1) sea level rise is too small to significantly affect storm surges, and (2) the hurricane strength index is now lower than it was earlier in the century.**

6. “by 2070, 150 million people in the world’s large port cities will be at risk from coastal flooding, along with \$35 trillion worth of property.”

As shown in the data presented above, none of the National Geographic sea level projections are even remotely believable and sea level projections based on tide gauge records for the past century indicate that sea level will most likely rise 4-6 inches by 2070.

**Conclusion: The National Geographic contention that 150 million people and \$35 trillion worth of property is nothing more than a fairytale, totally contrary to data that indicates that sea level will rise only a few inches by 2070.**

7. *“...carbon dioxide in the atmosphere will reach around a thousand parts per million by the end of the century,” “According to the U.S. Geological Survey, sea level on an iceless Earth would be as much as 216 feet higher than it is today. It might take thousands of years and more than a thousand parts per million to create such a world—but if we burn all the fossil fuels, we will get there.”*

The National Geographic issue contains many elaborately constructed images under the header of *“If all the ice melted,”* depicting submergence of extensive coastal areas all over the world and contending that *“if we burn all the fossil fuels, we will get there.”* What’s wrong with this? For openers, it would require melting of the entire Antarctic ice sheet, the Greenland ice sheet, and all of the world’s ice caps and alpine glaciers. Is this possible? Considering the data presented above, it is, of course ridiculous with no trace of credibility. In addition, the Antarctic ice sheet has not melted in 15 million years, including during many interglacial periods when global temperatures were significantly higher than at present for thousands of years.

**Summary of conclusions: From the evidence presented above, the obvious conclusion is that the National Geographic article is an absurd fairytale, completely unsupported by any real scientific data and directly contrary to a mountain of contrary evidence.**