

Heartland Institute Comments on 2013 Draft National Climate Assessment

Introduction

The National Climate Assessment and Development Advisory Committee's (NCADAC) 2013 Draft National Climate Assessment tackles many important climate-related questions but consistently reaches overly pessimistic conclusions. The Draft National Climate Assessment presents many asserted climatic change impacts – some real, some contradicted by the weight of scientific evidence – and paints a picture of a nation and world severely and negatively affected by human-induced climate change. By contrast, the weight of scientific evidence suggests only modest recent climate change by historical standards. Importantly, the weight of scientific evidence suggests the Draft Assessment overstates asserted recent harms and overlooks the fact that recent climatic changes are creating net benefits to plants, animals, and human welfare rather than net harm.

The following Comments reflect and refer to more than 400 pages of scientific evidence presented in *Climate Change Reconsidered: 2011 Interim Report of the Nongovernmental International Panel on Climate Change (CCR 2011)*.¹ Climate experts Craig D. Idso, Robert M. Carter, and S. Fred Singer served as Lead Authors of CCR 2011. Contributing scientists included Susan Crockford, Joseph D'Aleo, Indur Goklany, Sherwood Idso, Madhav Khandekar, Anthony Lupo, Willie Soon, and Mitch Taylor. CCR 2011 in turn builds upon more than 800 pages of scientific evidence presented in *Climate Change Reconsidered: The 2009 Report of the Nongovernmental International Panel on Climate Change (CCR 2009)*.² CCR 2009 and CCR 2011 present more than one thousand citations to peer-reviewed scientific literature. Citations to CCR reports are provided within these Comments.

The following Comments also draw upon additional data and studies. Citations to these data and studies are also provided within the Comments.

We ask the NCADAC to consider the scientific evidence presented in these Comments, CCR 2009 (<http://www.nipccreport.org/reports/2009/2009report.html>) and CCR 2011 (<http://www.nipccreport.org/reports/2011/2011report.html>), and the additional cited data and studies. We further ask the NCADAC to reconsider several conclusions presented in the NCADAC 2013 Draft Assessment.

Executive Summary

The Earth's climate is always changing. These ongoing changes are evident in a wide variety of time scales, including decade-to-decade, century-to-century, and millennium-to-millennium. Care must be taken to examine and consider the full context of temperature trends, climatic changes, and individual weather events. Heat waves, cold spells, droughts, floods, wildfires, hurricanes, tornadoes, etc., occurred for millennia before the rise and spread of human civilization. The Earth has a dynamic climate and many different climate regions, resulting in

climate and weather events that may at first blush appear to be exceptional. Exceptional events, however, are the norm with diverse and dynamic climatic systems.

Many scientists suspect human emissions of greenhouse gases are contributing to recent climate change. Scientific challenges include determining to what extent humans may be contributing to global warming, identifying which if any weather and climate trends are linked to human activity, properly weighing the positive and negative impacts of human-induced climate change, and accurately projecting future climate change and impacts. The key to assessing whether humans are creating substantially harmful climate changes is to identify, understand, and apply proper context to recent climate and weather developments.

The scientific evidence does not indicate humans are creating climate and weather changes that entail substantial net harm to plants, animals, or human welfare. Scientific evidence indicates many asserted changes in climate and weather appear to be well within natural variability and historical context. To the extent some climate and weather trends may bear a human signature, the net benefits of these trends appear to outweigh the net harms.

These Comments will address the 11 specific Report Findings presented in the Draft National Climate Assessment, providing references to more than 1,200 pages of supporting scientific materials.

Report Findings

The NCADAC Draft Assessment presents 11 Report Findings summarizing the larger document. We address each Finding as presented:

Draft Assessment Finding #1

Global climate is changing, and this is apparent across the U.S. in a wide range of observations. The climate change of the past 50 years is due primarily to human activities, predominantly the burning of fossil fuels.

U.S. average temperature has increased by about 1.5°F since 1895, with more than 80% of this increase occurring since 1980. The most recent decade was the nation's warmest on record. Because human-induced warming is superimposed on a naturally varying climate, rising temperatures are not evenly distributed across the country or over time.

Comments

Global climate, as well as climate in the U.S., is indeed changing, *but it is always changing*. Such changes are not *per se* evidence of a human effect on climate, of something that is necessarily bad for human civilization or wildlife, or of something that can somehow be stopped by human intervention. All three assertions are unproven and in fact contradicted by available scientific understanding.³

Sharp climate changes have occurred during such events as the end of the last ice age epoch, the onset of the Early Holocene Warm Period, the onset of the Roman Warm Period, and the onset of the Medieval Warm Period.⁴ Plants,⁵ animals,⁶ and people⁷ have survived and thrived during and after these sharp climate changes, especially during and after such climate changes that brought warmer temperatures.

The U.S. average temperature has risen much less than the Draft Assessment claims. Most of the asserted warming is not found in the raw temperature data and is instead the result of manipulation of adjustments to the surface station temperature record.⁸ Temperature readings from satellite instruments show temperatures have risen only 0.3°C (0.6°F) since 1980.⁹ U.S. temperatures have risen far less than 1.2°F since 1980, which means either the Draft Assessment temperature claims since 1895 are wrong or far less than 80% of the warming occurred after 1980.

Objective scientific evidence calls into the question the assertion that the most recent decade was the warmest on record in the United States.¹⁰ Even if it were, that record only goes back a little more than 100 years. The Earth in 1895 was just emerging from the Little Ice Age, a prolonged period of exceptionally cold weather that marked the coldest temperatures since the last ice age epoch ended 11,000 years ago. Current temperatures are still relatively cool in the context of the 11,000 years since the last ice age epoch ended.¹¹

Draft Assessment Finding #2

Some extreme weather and climate events have increased in recent decades, and there is new and stronger evidence that many of these increases are related to human activities.

Changes in extreme events are the primary way in which most people experience climate change. Human-induced climate change has already increased the frequency and intensity of some extremes. Over the last 50 years, much of the U.S. has seen an increase in prolonged stretches of excessively high temperatures, more heavy downpours, and in some regions more severe droughts.

Comments

The scientific evidence is very clear that there has been no increase in extreme weather events during recent decades. To the contrary, scientific evidence suggests extreme weather events are becoming less frequent and less severe.¹² During the last 50 years, the U.S. has experienced fewer hurricane strikes,¹³ fewer strong tornadoes,¹⁴ less severe drought,¹⁵ and fewer extreme temperature events.¹⁶

If human activities are affecting climate events – and it is highly unlikely they are -- the effect must be to reduce rather than increase the number of extreme weather events.

Draft Assessment Finding #3

Human-induced climate change is projected to continue and accelerate significantly if emissions of heat-trapping gases continue to increase.

Heat-trapping gases already in the atmosphere have committed us to a hotter future with more climate-related impacts over the next few decades. The magnitude of climate change beyond the next few decades depends primarily on the amount of heat-trapping gases emitted globally, now and in the future.

Comments

This finding is speculative and completely unsupported by the scientific literature. Past changes in climate have not been shown to be due to human emissions of carbon dioxide or other so-called “heat-trapping gases,” and consequently no reliable predictions can be made about future changes. The entire exercise of making forecasts using climate models and simulations has been shown to have been an unsuccessful and expensive mistake.

Manmade emissions of carbon dioxide and other greenhouse gases have exceeded most projections during recent decades¹⁷ despite ongoing reductions in U.S. emissions,¹⁸ and yet temperatures have risen only modestly or (during some time intervals) not at all.¹⁹ The disconnect between emissions and temperatures reveals a lower climate sensitivity to carbon dioxide and other greenhouse gases than previously assumed by frequently cited climate models.²⁰

Draft Assessment Finding #4

Impacts related to climate change are already evident in many sectors and are expected to become increasingly challenging across the nation throughout this century and beyond.

Climate change is already affecting human health, infrastructure, water resources, agriculture, energy, the natural environment, and other factors – locally, nationally, and internationally. Climate change interacts with other environmental and societal factors in a variety of ways that either moderate or exacerbate the ultimate impacts. The types and magnitudes of these effects vary across the nation and through time. Several populations – including children, the elderly, the sick, the poor, tribes and other indigenous people – are especially vulnerable to one or more aspects of climate change. There is mounting evidence that the costs to the nation are already high and will increase very substantially in the future, unless global emissions of heat-trapping gases are strongly reduced.

Comments

Climate change undoubtedly influences human health and many of the other things the Draft Assessment mentions. *Climate has always had these effects and always will.* The Draft Assessment fails to tell us how many of these influences are due to manmade emissions and how

many are entirely natural variations apparent in the historical record. If there is a human effect, what is the *net* effect on the peoples of the U.S.? Scientific evidence says the effect is small or nonexistent, and the net effect of global warming, should it occur, would be positive rather than negative.

Mortality data in the United States and other nations show cold weather and related impacts kill more people than warm weather and related impacts.²¹ In the United States and elsewhere, mortality spikes during the cold winter months and eases during the warm summer months.²²

Recent climate change is benefiting agriculture as longer growing seasons, more prevalent rainfall (especially during the summer and fall drought seasons),²³ increasing soil moisture,²⁴ and the fertilizing benefits of atmospheric carbon dioxide²⁵ are creating more ideal growing conditions and resulting in record crop yields.²⁶ The beneficial effects also facilitate land conservation, as higher crop yields allow farmers to produce more food on less land.

Climate change is similarly benefiting water resources. Northern Hemisphere snow cover extent shows little change during recent years.²⁷ More prevalent rainfall throughout the year, particularly during the summer and fall drought seasons, provides more water availability after snowmelt season and beyond the immediate vicinity of bodies of water fed by snow melt.²⁸

In short, there is insufficient evidence to suggest that negative impacts attributable to human emissions of greenhouse gases are occurring. In fact, available evidence points to the opposite: recent climate changes are producing more benefits than harms.

Draft Assessment Finding #5

Climate change threatens human health and well-being in many ways, including impacts from increased extreme weather events, wildfire, decreased air quality, diseases transmitted by insects, food, and water, and threats to mental health.

Climate change is increasing the risks of heat stress, respiratory stress from poor air quality, and the spread of waterborne diseases. Food security is emerging as an issue of concern, both within the U.S. and across the globe, and is affected by climate change. Large-scale changes in the environment due to climate change and extreme weather events are also increasing the risk of the emergence or reemergence of unfamiliar health threats.

Comments

This finding repeats and exaggerates the previous finding, and is wrong for the same reasons.

The modest warming of the late twentieth century benefited human health in many ways. Extreme weather events became less frequent and severe,²⁹ air quality improved,³⁰ and respiratory illnesses and other human health stresses have become less severe.³¹

The risks of cold stress, which kill far more people than heat stress, are decreasing because recent warming occurred more in the cold winter months than the warm summer months. By moderating the coldest winter months, climate change is mitigating cold-weather deaths. While some heat-related deaths may increase, a warming climate is likely to avert a much greater number of cold-related deaths.³²

Recent changes in the environment due to climate change are largely beneficial, including a decline in the frequency and severity of extreme weather events.³³ By producing more ideal agricultural conditions and reducing the frequency and severity of extreme weather events, climate change is saving human lives in a more indirect manner as well.³⁴

Draft Assessment Finding #6

Infrastructure across the U.S. is being adversely affected by phenomena associated with climate change, including sea level rise, storm surge, heavy downpours, and extreme heat.

Sea level rise and storm surges, in combination with the pattern of heavy development in coastal areas, are already resulting in damage to infrastructure such as roads, buildings, ports, and energy facilities. Infrastructure associated with military installations is also at risk from climate change impacts. Floods along the nation's rivers, inside cities, and on lakes following heavy downpours, prolonged rains, and rapid melting of snowpack are damaging infrastructure in towns and cities, farmlands, and a variety of other places across the nations. Extreme heat is damaging transportation infrastructure such as roads, rail lines, and airport runways. Rapid warming in Alaska has resulted in infrastructure impacts due to thawing of permafrost and the loss of coastal sea ice that once protected shorelines from storms and wave-driven erosion.

Comments

Many of the factual claims in this finding are simply false. Extreme weather events have been becoming *less* frequent and *less* severe in recent decades. As a result, infrastructure is being beneficially impacted by recent climate change.³⁵

Multiple peer-reviewed studies reveal no increase in flooding events in predominantly natural-flow rivers.³⁶ An increase in flooding events is evident regarding rivers and streams receiving greater amounts of human-diverted storm water, but predominantly natural rivers and streams show no such increase. Reports of increasing flood events are tied to changes in human land use patterns rather than climate change.³⁷

The latest research shows sea levels are rising at essentially the same rate as they did before human activity could have affected them. The rate of increase is so slow that it is easily accommodated, as it has been in decades and centuries past. Since a warmer world has resulted in fewer hurricanes and tropical storms, the net effect on infrastructure in coastal areas is positive rather than negative.³⁸

Even if extreme weather events were intensifying, the cost of hardening infrastructure to withstand the assault would be modest compared to the cost of reducing greenhouse gas emissions. Adaptation to future climate change – whether that change is due to natural or manmade causes – is far cheaper than attempting to control climate by reducing emissions.

The reference to “rapid warming in Alaska” is out-of-date and contrary to the latest trend. Alaska temperatures are experiencing pronounced recent cooling, not warming.³⁹

Draft Assessment Finding #7

Reliability of water supplies is being reduced by climate change in a variety of ways that affect ecosystems and livelihoods in many regions, particularly the Southwest, the Great Plains, the Southeast, and the islands of the Caribbean and the Pacific, including the state of Hawai’i.

Surface and groundwater supplies in many regions are already stressed by increasing demand for water as well as declining runoff and groundwater recharge. In many regions, climate change increases the likelihood of water shortages and competition for water among agricultural, municipal, and environmental uses. The western U.S. relies heavily on mountain snowpack for water storage, and spring snowpack is declining in most of the West. There is an increasing risk of seasonal water shortages in many parts of the U.S., even where total precipitation is projected to increase. Water quality challenges are also increasing, particularly sediment and containment concentrations after heavy downpours.

Comments

Water supplies in the U.S. have been becoming more reliable and abundant during recent decades. Rainfall is becoming more prevalent, especially during the summer and fall drought seasons, and soil moisture is improving in the United States and most of the world.⁴⁰

Because of the Earth’s large size, multiple climate zones, and dynamic weather, extreme weather events will always occur. They are a natural part of the Earth’s climate. While some regions may be experiencing water stresses in recent years, there are always regions experiencing water stresses under natural climate conditions. Importantly, precipitation and soil moisture are increasing globally and in the United States.⁴¹

Northern Hemisphere snow cover shows little change during recent years. More prevalent rainfall throughout the year, particularly during the summer and fall drought seasons, provides more water availability after snowmelt season and beyond the immediate vicinity of bodies of water fed by snow melt.⁴²

Draft Assessment Finding #8

Adverse impacts to crops and livestock over the next 100 years are expected. Over the next 25 years or so, the agriculture sector is projected to be relatively resilient, even though there will be

increasing disruptions from extreme heat, drought, and heavy downpours. U.S. food security and farm incomes will also depend on how agricultural systems adapt to climate changes in other regions of the world.

Near-term resilience of U.S. agriculture is enhanced by adaptive actions, including expansion of irrigated acreage in response to drought, regional shifts in crops and cropped acreage, continued technological developments, and other adjustments. By mid-century, however, when temperature increases and precipitation extremes are further intensified, yields of major U.S. crops are expected to decline, threatening both U.S. and international food security. The U.S. food system also depends on imports, so food security and commodity pricing will be affected by agricultural adaptation to climate changes and other conditions around the world.

Comments

Agriculture in the U.S. is benefiting from natural climate change, not because it is “relatively resilient” but because recent climate change is creating longer growing seasons, more prevalent rainfall (especially during the summer and fall drought seasons), and increasing soil moisture. Also, the fertilizing benefits of atmospheric carbon dioxide are resulting in record crop yields.⁴³

A warmer climate has always benefited crop production and will likely continue to do so. Crop yields have grown dramatically during our recent warming. Growing seasons are longer, unseasonal frost events are becoming less frequent, atmospheric carbon dioxide fertilizes crops, and human-caused warming occurs disproportionately during the cold winter months.⁴⁴ Precipitation changes are also benefiting crop production, as precipitation is increasing substantially during the summer and fall drought seasons while showing little change during the wet winter and spring seasons.⁴⁵

The Draft Assessment speculates that temperatures will rise *so much* and precipitation will change *so much* sometime in the far future that agriculture will be harmed. Perhaps it would be, but climate science cannot make reliable forecasts so far into the future, and even its short-term forecasts have been disproven by actual events. The best forecast of the impact of climate change on agriculture is to project recent real-world trends and not to rely on computer models. Recent trends show positive, not negative, effects of climate change on agriculture.

Draft Assessment Finding #9

Natural ecosystems are being directly affected by climate change, including changes in biodiversity and location of species. As a result, the capacity of ecosystems to moderate the consequences of disturbances such as droughts, floods, and severe storms is being diminished.

In addition to climate changes that directly affect habitats, events such as droughts, floods, wildfires, and pest outbreaks associated with climate change are already disrupting ecosystem structures and functions in a variety of direct and indirect ways. These changes limit the capacity of ecosystems such as forests, barrier beaches, and coastal- and freshwater-wetlands to adapt

and continue to play important roles in reducing the impacts of these extreme events on infrastructure, human communities, and other valued resources.

Comments

This finding is based on the false assumption, shared by many environmental activists, that *any change to climate* will necessarily be harmful to wildlife and the ecosystems that sustain them. This is counterfactual since climate is constantly changing and wildlife has evolved in the presence of this change. Ecosystems are resilient because adapting to climate change is a natural process that has taken place countless times over millions of years.

Natural ecosystems are benefiting from the more benign recent climate. Forests are expanding and becoming denser. Deserts are shrinking throughout the world. Satellites are measuring a robust greening of the earth.⁴⁶

Human emissions and higher atmospheric carbon dioxide levels are benefiting plant life to such a significant extent that plant life is creating more substantial carbon sinks than many scientists expected.⁴⁷ Similarly, recent climate change is expanding species ranges, creating more biodiversity and expanded location of species.⁴⁸ Natural ecosystems are also benefiting from less frequent and less severe droughts, wildfires, and extreme weather events.⁴⁹

Draft Assessment Finding #10

Life in the oceans is changing as ocean waters become warmer and more acidic.

Warming ocean waters and ocean acidification across the globe and within U.S. marine territories are broadly affecting marine life. Warmer and more acidic waters are changing the distribution of fish and other mobile sea life, and stressing those, such as corals, that cannot move. Warmer and more acidic ocean waters combine with other stresses, such as overfishing and coastal and marine pollution, to negatively affect marine-based food production and fishing communities.

Comments

Ocean waters are not acidic, and the decrease in alkalinity has been neither unusual nor harmful. Higher carbon dioxide concentrations are benefiting marine life. Higher carbon dioxide levels in ocean waters are stimulating plant and animal life in the oceans much the same way higher carbon dioxide levels are stimulating terrestrial plant and animal life.⁵⁰

Cold weather events bring striking devastation to coral reefs, and a warming climate will reduce the frequency and severity of devastating cold weather events on coral reefs.⁵¹

Draft Assessment Finding #11

Planning for adaptation (to address and prepare for impacts) and mitigation (to reduce emissions) is increasing, but progress with implementation is limited.

In recent years, climate adaptation and mitigation activities have begun to emerge in many sectors and at all levels of government; however barriers to implementation of these activities are significant. The level of current efforts is insufficient to avoid increasingly serious impacts of climate change that have large social, environmental, and economic consequences. Well-planned and implemented actions to limit emissions and increase resilience to impacts that are unavoidable can improve public health, economic development opportunities, natural system protection, and overall quality of life.

Comments

Billions of dollars are being spent in the name of climate change either in a vain attempt to prevent it from happening or wasteful efforts to adapt to false predictions about its impacts. Planning efforts and investments in infrastructure have not failed to match the size or certainty of the global warming “problem” but in fact have been too large, have been attempted before the science was settled, and have been and continue to be wasted.

Investments to harden infrastructure and mitigate the effects of natural climate change and extreme weather events have always been made by governments and private interests in the United States, and they can, should, and will continue to be made. This is largely unrelated to the question of whether human emissions of greenhouse gases ought to be restricted, since as reported earlier, the best available evidence says human emissions have little or no effect on climate.

Whereas centralized government planning efforts historically have failed to solve real problems in cost-effective ways, individual people and entrepreneurs have succeeded in responding to changing conditions. U.S. carbon dioxide emissions have declined by 10 percent since the year 2000 thanks overwhelmingly to private rather than public efforts.⁵² The shale gas revolution – entirely the result of private-sector innovations, risk-taking, and investment -- promises to do more to reduce greenhouse emissions in the U.S. than any government policy adopted to date or likely to be adopted.⁵³

There is no need for more spending on averting or coping with climate change. Atmospheric methane is leveling off, with current levels below United Nations Intergovernmental Panel on Climate Change projections.⁵⁴ Global temperatures themselves are rising more slowly than IPCC predictions, with no measurable temperature increase occurring for more than a decade.⁵⁵

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