

Taking the Heat out of Global Warming

A comparative analysis of
global warming science report
before and after government negotiations

DeSmogBlog.com
April, 2007

About DeSmogBlog

The DeSmogBlog is a project dedicated to clearing away the public relations pollution that clouds climate science. It specializes in researching and informing the public on attempts to muzzle scientists and downplay the realities of global warming. The DeSmogBlog is a project supported by philanthropist and climate change activist John Lefebvre.

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Introduction

On April 6, 2007, in Brussels, the United Nation's Intergovernmental Panel on climate change released a Summary for Policymakers based on the scientific conclusions reported in the latest working group report titled: *Climate Change 2007: impacts, adaptation and vulnerability*.

The Summary for Policymakers sets out the key policy-relevant findings of the latest report which focuses on the "...current scientific understanding of impacts of climate change on natural, managed and human systems, the capacity of these systems to adapt and their vulnerability." (source: IPCC summary for policymakers, April 2007). Prior to the release of the Summary for Policymakers, member nations and their respective government negotiators were invited to Brussels to approve the final wording of the Summary.

The DeSmogBlog research team obtained a leaked draft copy of the IPCC's Summary for Policymakers as it was written by the IPCC lead scientists and did a comparative language analysis using that original and the document that was released for public consumption.

The analysis shows many cases in which language offered by scientists in the initial report was edited to minimize the severity of the predicted effects of climate change. For example, in instances where scientists said a certain outcome was "very likely," politicians insisted that be softened to say that these outcomes were "projected to" occur.

Dr. Chris Field, one of two lead authors on the North American chapter of this report, and Director of Global Ecology at Stanford University, said scientists faced three kinds of political pressure in editing the document. Dr. Field reported that U.S. government officials were particularly vigilant about ensuring that all summary points were well and clearly supported by underlying science. Dr. Field said he found that intervention appropriate, even if it meant sacrificing strong statements on a few occasions.

A second group of political interveners, led by China and Saudi Arabia, actively sought to edit the Summary in instances where scientists had made their best effort to analyze the likelihood of certain outcomes. This intervention Dr. Field described as "inappropriate and unjustified."

There was also general political pressure to try to use the report to craft statements that were as hard-hitting as possible. Dr. Field said he was aware of no instance in which these countries were able to inject anything new into the document.

Dr. Field concluded that, despite the efforts to water down its content, "the final report is true to the underlying science, and the scientists involved are justifiably proud of the assessment work that was done." Dr. Field further pointed out that all 120 countries involved in the review – including Saudi Arabia and China - signed off on the final report, a remarkable achievement in international science and international diplomacy.

Findings of the Comparative Analysis

Summary of Report before Negotiations	Summary Report After Negotiations
SECTION B: CURRENT KNOWLEDGE ABOUT OBSERVED IMPACTS (PAGE 2 TO 6)	
<p>Many natural systems, on all continents and in some oceans, are being affected by regional climate changes, particularly temperature increases [very high confidence].</p>	<p>Observational evidence from all continents and most oceans shows that many natural systems are being affected by regional climate changes, particularly temperature increases.</p>
<p>Enlargement and increased numbers of glacial lakes, with increased risk of outburst floods</p>	<p>Enlargement and increased numbers of glacial lakes</p>
<p>increasing ground instability in mountain and other permafrost regions, and ice and rock avalanches in mountain regions</p>	<p>increasing ground instability in permafrost regions, and rock avalanches in mountain regions</p>
<p>Based on satellite observations since the early 1980s, there is high confidence that there has been a trend in many regions towards earlier 'greening' of vegetation in the spring and increased net primary production linked to longer growing seasons and increasing atmospheric CO₂ concentrations.</p>	<p>Based on satellite observations since the early 1980s, there is high confidence that there has been a trend in many regions towards earlier 'greening' of vegetation in the spring linked to longer thermal growing seasons due to recent warming.</p>
<p>Observed effects of recent ocean acidification on the marine biosphere are as yet undocumented.</p>	<p>The uptake of anthropogenic carbon since 1750 has led to the ocean becoming more acidic with an average decrease in pH of 0.1 units [IPCC Working Group I Fourth Assessment]. However, the effects of observed ocean acidification on the marine biosphere are as yet undocumented.</p>

Taking the Heat out of Global Warming

At the global scale the anthropogenic component of warming over the last three decades has had a discernible influence on many physical and biological systems [high confidence].	A global assessment of data since 1970 has shown it is likely that anthropogenic warming has had a discernible influence on many physical and biological systems.
Limitations and barriers remain in the evidence chain that would permit full causal linkage of the observed system responses to anthropogenic warming	Limitations and gaps prevent more complete attribution of the causes of observed system responses to anthropogenic warming.
Effects on agricultural and forestry management at northern higher latitudes, such as earlier spring planting.	Effects on agricultural and forestry management at Northern Hemisphere higher latitudes, such as earlier spring planting of crops, and alterations in disturbance regimes of forests due to fires and pests
REMOVED: Chart linking the causes of climate change to observed effects in natural systems.	Chart taken out.

SECTION: FRESH WATER RESOURCES AND THEIR MANAGEMENT (PAGE 7)	
Drought-affected areas will likely increase and extreme precipitation events, which are likely to increase in frequency and intensity, will augment flood risk. Increase of frequency and severity of floods and droughts will have implications on sustainable development.	Drought-affected areas will likely increase in extent. Heavy precipitation events, which are very likely to increase in frequency, will augment flood risk.
Water volumes stored in glaciers and snow cover are very likely to decline, reducing summer and autumn flows in regions where more than one sixth of the world population currently live.	In the course of the century, water supplies stored in glaciers and snow cover are projected to decline, reducing water availability in regions supplied by meltwater from major mountain ranges, where more than one-sixth of the world population currently lives.
In the second half of this century terrestrial ecosystems are likely to become a net source of carbon, especially from previously underestimated C stocks, thus amplifying climate change.	Over the course of this century net carbon uptake by terrestrial ecosystems is likely to peak before mid-century and then weaken or even reverse ¹¹ , thus amplifying climate change.
SECTION: ECOSYSTEMS IMPACTS (PAGE 8)	
Roughly 20-30% of species are likely to be at high risk of irreversible extinction if global average temperature exceeds 1.5-2.5°C.	Approximately 20-30% of plant and animal species assessed so far are likely to be at increased risk of extinction if increases in global average temperature exceed 1.5-2.5°C.

<p>For increases in global average temperature exceeding 1.5-2.5°C and in concomitant atmospheric CO₂ concentrations, there are very likely to be major changes in ecosystem structure and function, species' ecological interactions, and species' geographic ranges, with predominantly negative consequences for goods and services.</p>	<p>For increases in global average temperature exceeding 1.5-2.5°C and in concomitant atmospheric carbon dioxide concentrations, there are projected to be major changes in ecosystem structure and function, species' ecological interactions, and species' geographic ranges, with predominantly negative consequences for biodiversity, and ecosystem goods and services e.g., water and food supply.</p>
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<p>SECTION: COASTAL SYSTEM AND LOW-LYING AREAS (PAGE 9)</p>	
<p>Coasts are very likely to be exposed to increasing risks due to climate change and sea-level rise and the effect will be exacerbated by increasing human-induced pressures on coastal areas.</p>	<p>Coasts are projected to be exposed to increasing risks, including coastal erosion, due to climate change and sea-level rise and the effect will be exacerbated by increasing human-induced pressures on coastal areas.</p>
<p>It is likely that corals will experience a major decline due to increased bleaching and mortality due to rising seawater temperatures. Salt marshes and mangroves will be negatively affected by sea-level rise.</p>	<p>Corals are vulnerable to thermal stress and have low adaptive capacity. Increases in sea surface temperature of about 1 to 3°C are projected to result in more frequent coral bleaching events and widespread mortality, unless there is thermal adaptation or acclimatisation by corals.</p>
<p>Hundreds of millions of people are vulnerable to flooding due to sea-level rise, especially in densely-populated and low-lying settlements where adaptive capacity is relatively low and which already face other challenges such as tropical storms or local coastal subsidence.</p>	<p>Many millions more people are projected to be flooded every year due to sea-level rise by the 2080s. Those densely-populated and low-lying areas where adaptive capacity is relatively low, and which already face other challenges such as tropical storms or local coastal subsidence, are especially at risk.</p>

SECTION: ASIA IMPACTS (PAGE 10)	
Benefits and costs of climate change for industry, settlement, and society will vary widely by location and scale. Some of the effects in temperate and polar regions will be positive and others elsewhere will be negative. In the aggregate, however, net effects are more likely to be strongly negative under larger or more rapid warming.	Costs and benefits of climate change for industry, settlement, and society will vary widely by location and scale. In the aggregate, however, net effects will tend to be more negative the larger the change in climate.
Glacier melt in the Himalayas is virtually certain to increase related flooding, rock avalanches from destabilized slopes, and disruption of water resources.	Glacier melt in the Himalayas is projected to increase flooding, rock avalanches from destabilised slopes, and affect water resources within the next two to three decades. This will be followed by decreased river flows as the glaciers recede.
SECTION: AUSTRALIA AND NEW ZEALAND IMPACTS (PAGE 11)	
Ongoing water security problems are very likely to increase in southern and eastern Australia, and parts of eastern New Zealand.	Freshwater availability in Central, South, East and Southeast Asia particularly in large river basins is projected to decrease due to climate change which, along with population growth and increasing demand arising from higher standards of living, could adversely affect more than a billion people by the 2050s.
Further loss of biodiversity is likely in ecologically-rich sites including the Great Barrier Reef, Kakadu wetlands, the Queensland Wet Tropics, sub-Antarctic islands and the Alpine national parks of both countries. Many of these are World Heritage Sites.	Significant loss of biodiversity is projected to occur by 2020 in some ecologically-rich sites including the Great Barrier Reef and Queensland Wet Tropics. Other sites at risk include Kakadu wetlands, south-west Australia, sub-Antarctic islands and the alpine areas of both countries.

<p>Coastal communities with ongoing development and population growth, such as the Cairns region, Southeast Queensland and Northland to Bay of Plenty, are very likely to have increased risk from sea-level rise, increases in the severity and frequency of storms and coastal flooding.</p>	<p>Ongoing coastal development and population growth in areas such as Cairns and Southeast Queensland (Australia) and Northland to Bay of Plenty (New Zealand), are projected to exacerbate risks from sea-level rise and increases in the severity and frequency of storms and coastal flooding by 2050.</p>
<p>Not in original draft report. On page 11 (Impacts on Australia and New Zealand section)</p>	<p>ADDED: The region has substantial adaptive capacity due to well-developed economies and scientific and technical capabilities, but there are considerable constraints to implementation and major challenges from changes in extreme events. Natural systems have limited adaptive capacity.</p>

SECTION: EUROPE IMPACTS (PAGE 11)	
Not in original draft report. On page 12 (Impacts on Europe section)	ADDED: Adaptation to climate change is likely to benefit from experience gained in reaction to extreme climate events, by specifically implementing proactive climate change risk management adaptation plans.
SECTION: LATIN AMERICA IMPACTS (PAGE 12)	
Increases in temperature and decreases in soil water would lead to replacement of tropical forest by savanna in eastern Amazonia. In northeast Brazil and northern Mexico semi-arid vegetation is likely to be replaced by arid-land vegetation. In tropical forests, species extinctions are likely.	By mid-century, increases in temperature and associated decreases in soil water are projected to lead to gradual replacement of tropical forest by savanna in eastern Amazonia. Semi-arid vegetation will tend to be replaced by arid-land vegetation. There is a risk of significant biodiversity loss through species extinction in many areas of tropical Latin America.
In drier areas, climate change is likely to lead to salinisation and desertification of agricultural land. Yields of some important crops are projected to decrease and livestock productivity is very likely to decline, with adverse consequences for food security. In temperate zones soybean yields are likely to increase.	In drier areas, climate change is expected to lead to salinisation and desertification of agricultural land. Productivity of some important crops are projected to decrease and livestock productivity to decline, with adverse consequences for food security. In temperate zones soybean yields are projected to increase.
Sea-level rise is very likely to cause increased risk of flooding in low-lying areas (e.g., in El Salvador, Guyana and the Rio de la Plata estuary).	Sea-level rise is projected to cause increased risk of flooding in low-lying areas.
Increases in sea surface temperature are likely to have adverse effects on Mesoamerican coral reefs, and shifts in the location of south-east Pacific fish stocks.	Increases in sea surface temperature due to climate change are projected to have adverse effects on Mesoamerican coral reefs, and cause shifts in the location of south-east Pacific fish stocks.

SECTION: NORTH AMERICA IMPACTS (PAGE 12)	
Projected warming in western mountains is very likely to cause decreased snowpack, more winter flooding, and reduced summer flows, exacerbating competition for over-allocated water resources.	Warming in western mountains is projected to cause decreased snowpack, more winter flooding, and reduced summer flows, exacerbating competition for over-allocated water resources.
Disturbances from pests, diseases, and fire are likely to have increasing impacts on forests, with an extended period of high fire risk and large increases in area burned.	Disturbances from pests, diseases, and fire are projected to have increasing impacts on forests, with an extended period of high fire risk and large increases in area burned.
Cities with a history of heat waves are likely to experience many more, with potential for adverse health impacts. The growing population over age 65 is most at risk.	Cities that currently experience heat waves are expected to be further challenged by an increased number, intensity and duration of heat waves during the course of the century, with potential for adverse health impacts. The growing number of the elderly population is most at risk.
Population growth and development in coastal areas are very likely to increase risks and economic losses from sea-level rise, severe weather, and storm surge. Current adaptation is uneven and readiness for increased exposure is low.	Coastal communities and habitats will be increasingly stressed by climate change impacts interacting with development and pollution. Population growth and the rising value of infrastructure in coastal areas increase vulnerability to climate variability and future climate change, with losses projected to increase if the intensity of tropical storms increases. Current adaptation is uneven and readiness for increased exposure is low.

SECTION: POLAR REGIONS IMPACTS	
<p>The main projected biophysical effects are likely to be reductions in thickness and extent of glaciers and ice sheets, changes in the extent of sea ice and permafrost, an increase in the depth of permafrost seasonal thawing, and changes in natural ecosystems with detrimental effects on migratory birds, mammals and higher predators.</p>	<p>In the Polar Regions, the main projected biophysical effects are reductions in thickness and extent of glaciers and ice sheets, and changes in natural ecosystems with detrimental effects on many organisms including migratory birds, mammals and higher predators. In the Arctic, additional impacts include reductions in the extent of sea ice and permafrost, increased coastal erosion, and an increase in the depth of permafrost seasonal thawing</p>
<p>For Arctic human communities it is virtually certain that there will be both negative and positive impacts, particularly through changing cryospheric components, on infrastructure and transport.</p>	<p>For Arctic human communities, impacts, particularly resulting from changing snow and ice conditions, are projected to be mixed. Detrimental impacts would include those on infrastructure and traditional indigenous ways of life.</p>
<p>In both polar regions, specific ecosystems and niche habitats are highly likely to be vulnerable as climatic barriers to species invasions are lowered.</p>	<p>In both polar regions, specific ecosystems and habitats are projected to be vulnerable, as climatic barriers to species' invasions are lowered.</p>

SECTION: SMALL ISLANDS IMPACTS	
<p>There is strong evidence that under most climate change scenarios, water resources in small islands are likely to be seriously compromised.</p>	<p>Climate change is projected by the mid-century to reduce water resources in many small islands, e.g., in the Caribbean and Pacific, to the point where they become insufficient to meet demand during low rainfall periods.</p>
SECTION: MAGNITUDES OF IMPACT (PAGE 14)	
<p>Since the IPCC Third Assessment, many additional studies, particularly in regions that previously had been little researched, have enabled a more systematic understanding of how the timing and magnitude of impacts is likely to be affected by changes in climate and sea level associated with differing amounts and rates of change in global average temperature.</p>	<p>Since the IPCC Third Assessment, many additional studies, particularly in regions that previously had been little researched, have enabled a more systematic understanding of how the timing and magnitude of impacts may be affected by changes in climate and sea level associated with differing amounts and rates of change in global average temperature.</p>
<p>Some of these impacts might be identified as 'key vulnerabilities'. Assessment of potential key vulnerabilities is intended to provide guidance to decision-makers, for example, for identifying levels and rates of climate change that, in the terminology of the UNFCCC Article 2, could result from 'dangerous anthropogenic interference' (DAI) with the climate system. Ultimately, the definition of DAI cannot be based on scientific arguments alone, but involves other judgements informed by the state of scientific knowledge.</p>	<p>Depending on circumstances, some of these impacts could be associated with 'key vulnerabilities', based on a number of criteria in the literature (magnitude, timing, persistence/reversibility, the potential for adaptation, distributional aspects, likelihood and "importance" of the impacts). Assessment of potential key vulnerabilities is intended to provide information on rates and levels of climate change to help decisionmakers make appropriate responses to the risks of climate change.</p>

SECTION: IMPACTS DUE TO ALTERED FREQUENCY (PAGE 16)	
Impacts are very likely to increase due to increased frequencies and intensities of extreme weather events [high confidence].	Impacts due to altered frequencies and intensities of extreme weather, climate, and sea level events are very likely to change.
REMOVED: entire section (page 15) on specific sectors and regions likely to be especially affected by climate change (with high confidence).	Section removed from final report
There is medium confidence that both ice sheets would be committed to partial deglaciation for a global average temperature increase greater than 1-2°C, causing sea-level rise of 4-6 m over centuries to millennia.	There is medium confidence that at least partial deglaciation of the Greenland ice sheet, and possibly the West Antarctic ice sheet, would occur over a period of time ranging from centuries to millennia for a global average temperature increase of 1- 4°C (relative to 1990-2000), causing a contribution to sea level rise of 4-6 m or more.