

*National Security and
Climate Change:
What Do We Need to Know?*

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Woodrow Wilson Center
July 29, 2014

Sponsored by
The Henry M. Jackson Foundation
&
Pacific Northwest National Laboratory

2010 National Security Strategy

“The danger from climate change is real, urgent, and severe.”

NATIONAL SECURITY STRATEGY

May 2010



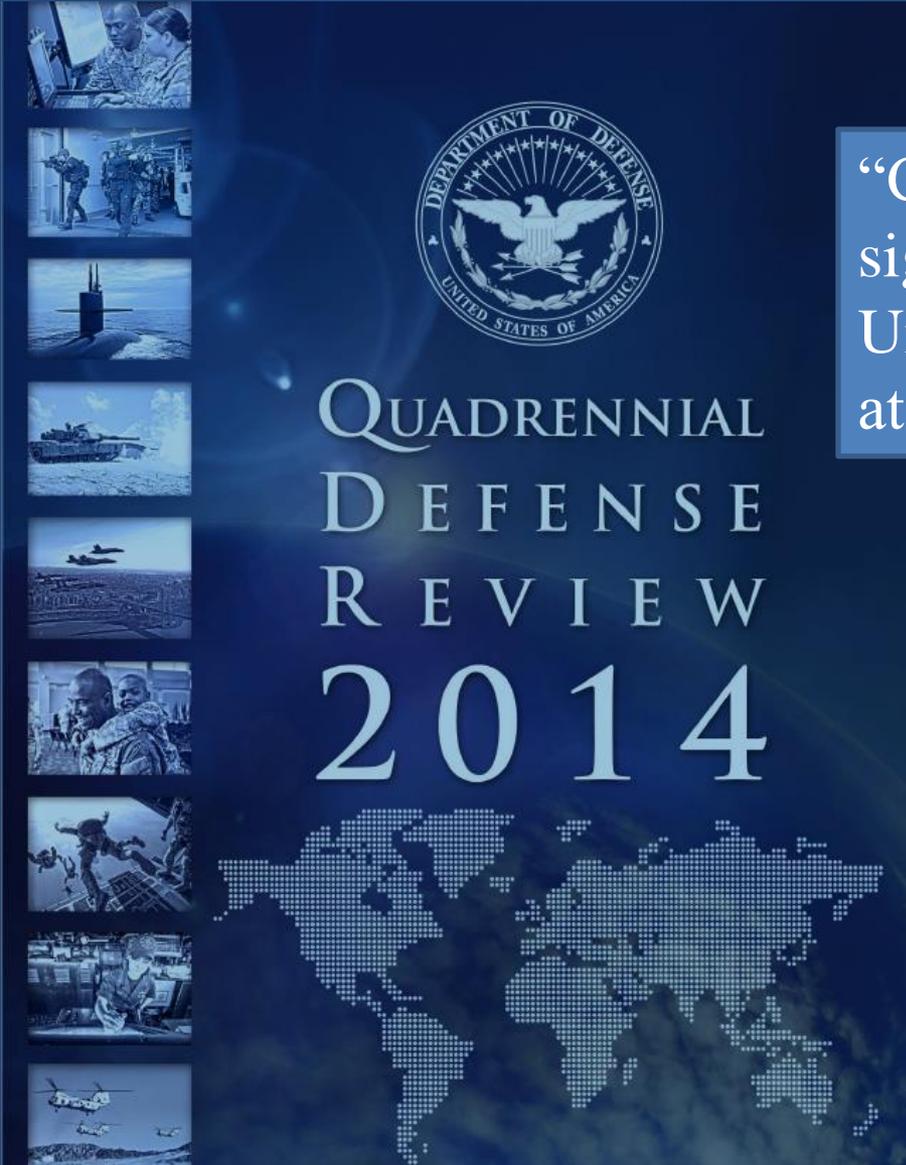
“The change wrought by a warming planet will lead to new conflicts over refugees and resources; new suffering from drought and famine; catastrophic natural disasters; and the degradation of land across the globe.”

Quadrennial Defense Review



QUADRENNIAL DEFENSE REVIEW 2014

“Climate change poses [a] significant challenge for the United States and the world at large.”



Quadrennial Homeland Security Review

The 2014 Quadrennial Homeland Security Review

“Climate change and associated trends may ... indirectly act as ‘threat multipliers.’”

“They aggravate stressors abroad that can enable terrorist activity and violence, such as poverty, environmental degradation, and social tensions.”



Homeland
Security

U.S. Energy Sector Report on Vulnerabilities to Climate Change

U.S. Energy Sector Vulnerabilities to Climate Change and Extreme Weather

July 2013



DOE/PI-0013



“[Climate change] trends could restrict the supply of secure, sustainable and affordable energy critical to the nation’s economic growth.”

GAO High-Risk Report

“Climate change poses risks to many environmental and economic systems . . . and presents a significant financial risk to the federal government.”

GAO

United States Government Accountability Office
Report to Congressional Committees

February 2013

HIGH-RISK SERIES

An Update

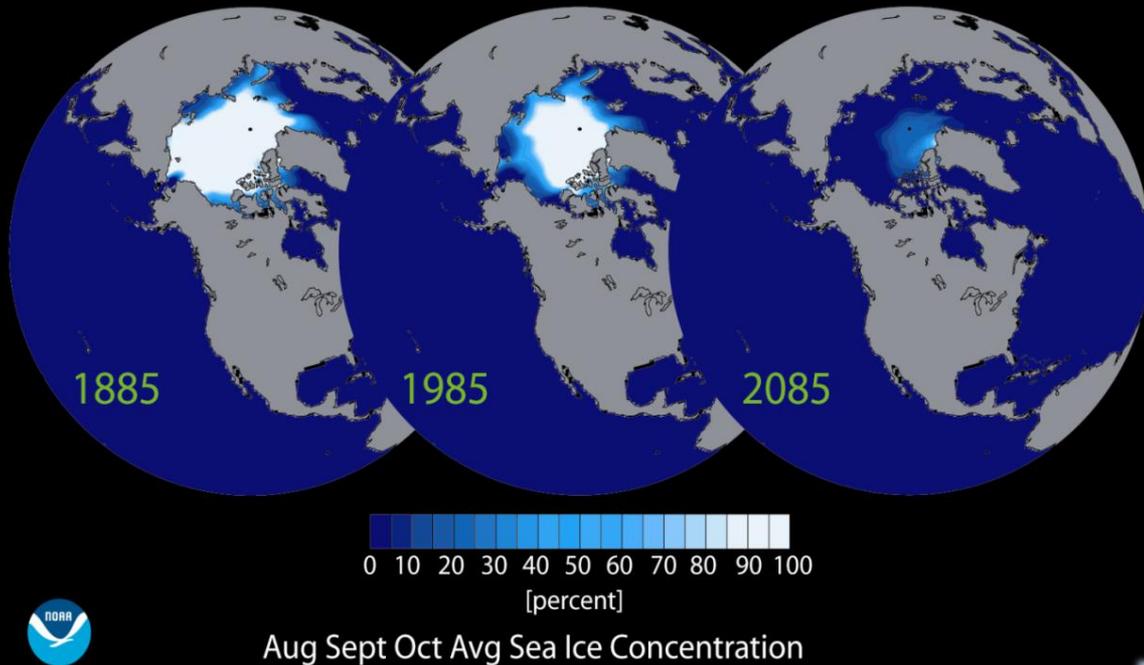
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GAO-13-283

Implications for the Arctic Region

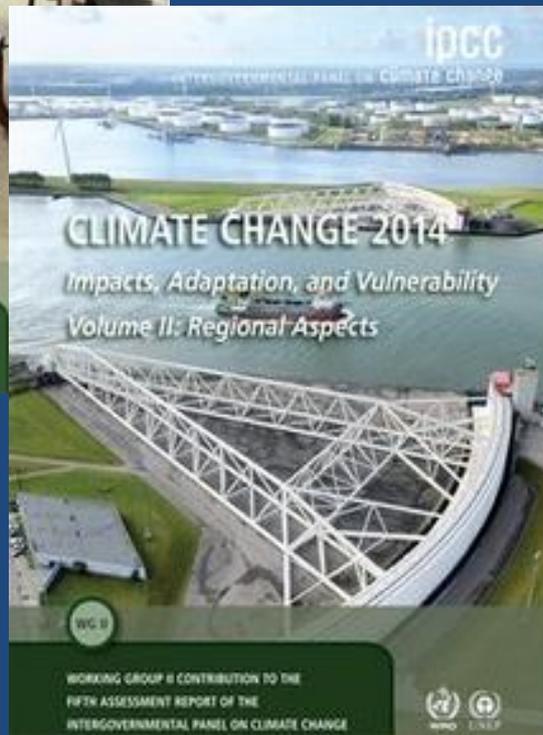
NOAA GFDL CM2.1 Model Simulation



“Even as we work domestically and internationally to minimize the effects of climate change, the effects are already apparent in the Arctic.”

-National Strategy for the Arctic Region,
May 2013

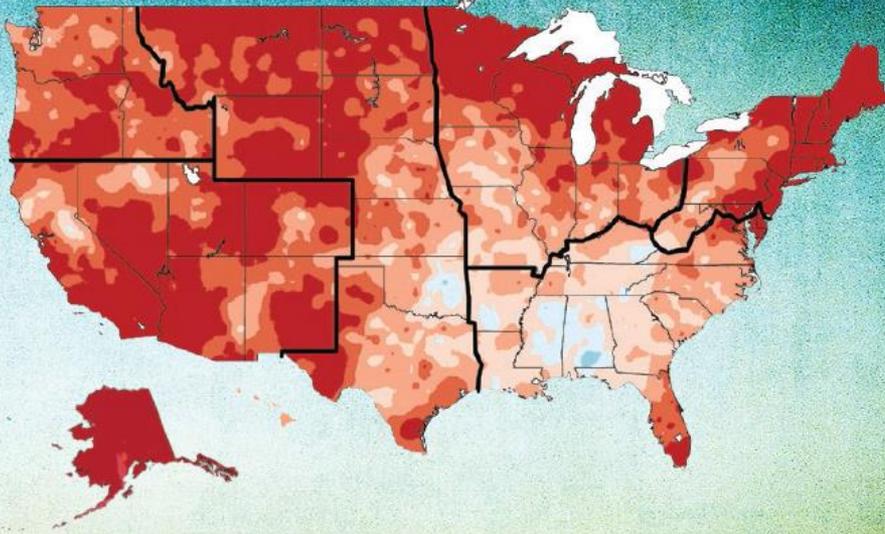
2014 Report by the Intergovernmental Panel on Climate Change



“Throughout the 21st century, climate-change impacts are projected to slow down economic growth, make poverty reduction more difficult, further erode food security, and prolong existing and create new poverty traps, the latter particularly in urban areas and emerging hotspots of hunger.”

2014 National Climate Assessment

Climate Change Impacts in the United States



U.S. National Climate Assessment
U.S. Global Change Research Program

CONTENTS

Climate Change and the American People	1
About This Report	3
1. OVERVIEW	7
2. OUR CHANGING CLIMATE	19

SECTORS

3. Water	68
4. Energy	69
5. Transportation	113
6. Agriculture	130
7. Forests	150
8. Ecosystems	175
9. Human Health	195
10. Energy, Water, and Land	220
11. Urban	257
12. Indigenous Peoples	282
13. Land Use and Land Cover Change	297
14. Rural Communities	318
15. Biogeochemical Cycles	333

REGIONS

16. Northeast	369
17. Southeast	371
18. Midwest	396
19. Great Plains	418
20. Southwest	441
21. Northwest	462
22. Alaska	487
23. Hawaii and Pacific Islands	514
24. Coasts	537
25. Coasts	579



RESPONSE STRATEGIES

26. Decision Support	619
27. Mitigation	620
28. Adaptation	648
29. Research Needs	670
30. Sustained Assessment	707

APPENDICES

Appendix 1. Process	727
Appendix 2. Information Quality	733
Appendix 3. Climate Science	735
Appendix 4. FAQs	790
Appendix 5. Scenarios and Models	821
Appendix 6. Future Assessment	
Topics	806
Abbreviations and Acronyms	828

OVERVIEW AND REPORT FINDINGS



U.S. GLOBAL CHANGE RESEARCH PROGRAM

Climate change is already affecting the American people in far-reaching ways. Certain types of extreme weather events with links to climate change have become more frequent and/or intense, including prolonged periods of heat, heavy downpours, and, in some regions, floods and droughts. In addition, warming is raising sea level rise and glaciers and Arctic sea ice to melt, and oceans are becoming more acidic as they absorb carbon dioxide. These and other aspects of climate change are disrupting people's lives and damaging some sectors of our economy.

Climate Change: Present and Future

Evidence for climate change abounds, from the top of the atmosphere to the depths of the oceans. Scientists and engineers from around the world have meticulously collected this evidence, using satellites and networks of weather balloons, thermometers, buoys, and other observing systems. Evidence of climate change is also visible in the observed and measured changes in location and behavior of species and functioning of ecosystems. Taken together, this evidence tells an unambiguous story: the planet is warming, and over the next half century, this warming has been driven primarily by human activity.



Coal-fired power plants emit heat-trapping carbon dioxide to the atmosphere.

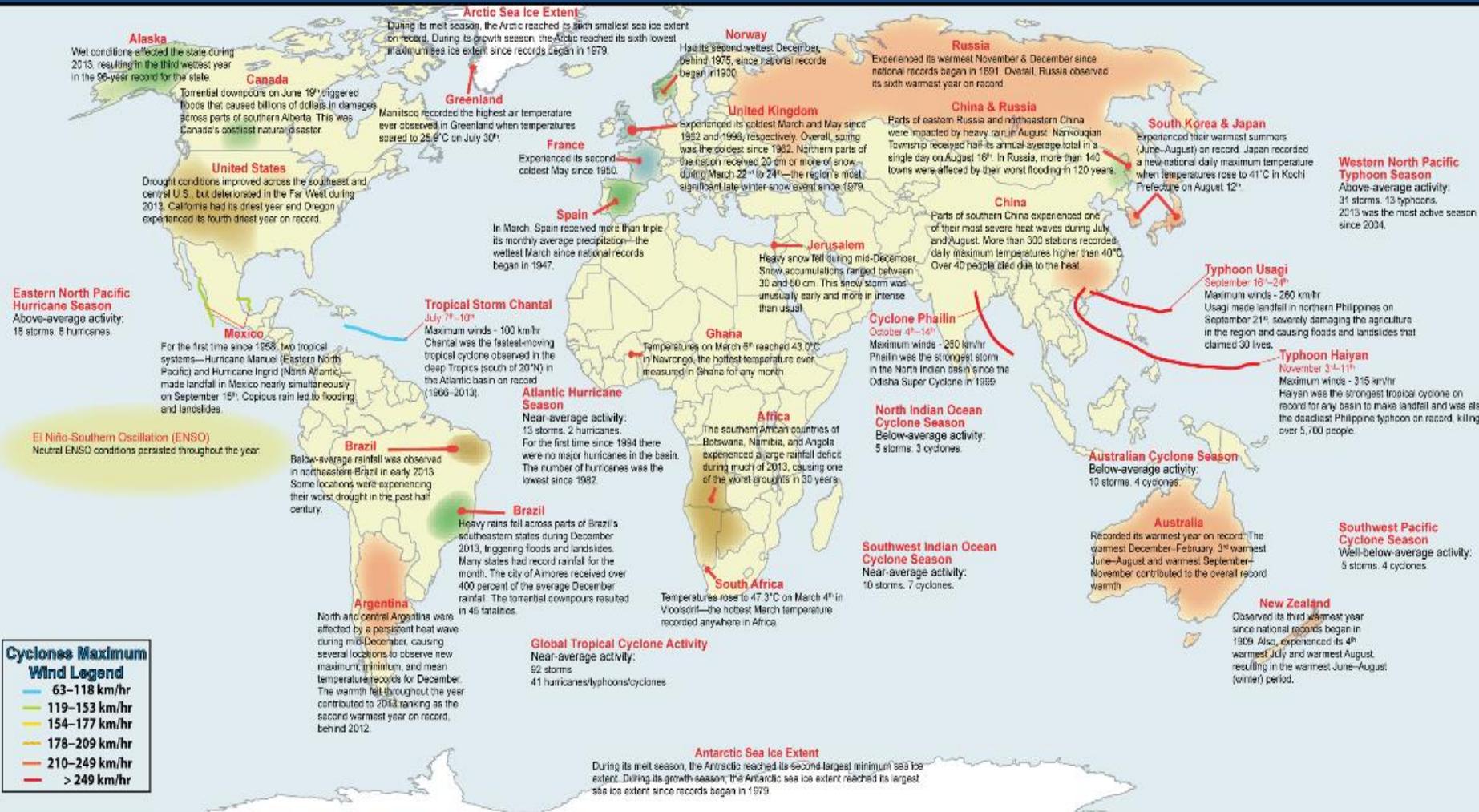
Multiple lines of independent evidence confirm that human activities are the primary cause of the global warming of the past 50 years. The burning of coal, oil, and gas, and clearing of forests have increased the concentration of carbon dioxide in the atmosphere by more than 40% since the industrial revolution, and it has been known for almost two centuries that this carbon dioxide traps heat. Methane and nitrous oxide emissions from agriculture and other human activities add to the atmospheric burden of heat-trapping gases. Data show that natural factors like the sun and volcanoes cannot have caused the warming observed over the past 50 years. Satellites on orbit have measured the sun's output with great accuracy and found no overall increase during the past half century. Large volcanic eruptions during this period, such as Mount Pinatubo in 1991, have exerted a short-term cooling influence. In fact, if not for human activities, global climate would actually have cooled slightly over the past 50 years. The pattern of tempera-

Ten Indicators of a Warming World



“Climate change, once considered an issue for a distant future, has moved firmly to the present.”

2013 Significant Climate Anomalies and Events



2011 & 2012 – Extreme Flooding and Drought on the Mississippi River



Impacts on Infrastructure



Infrastructure Interdependencies

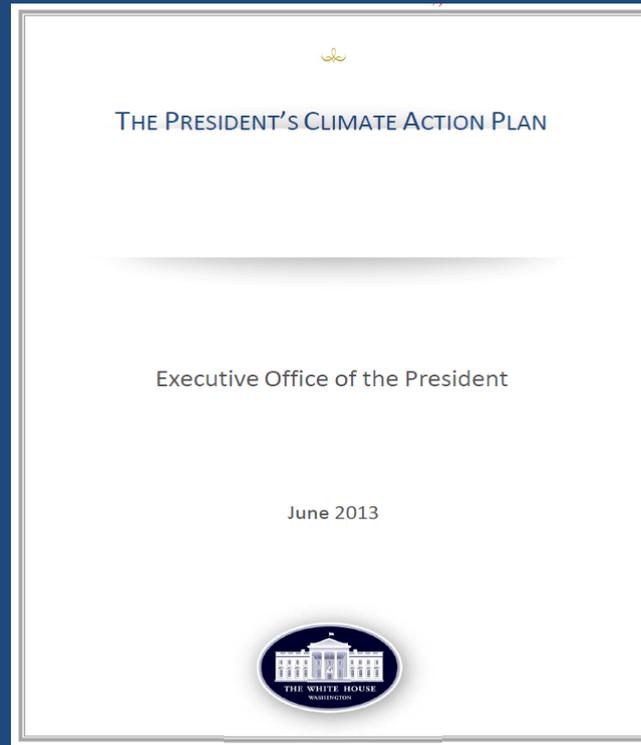


Typhoon Haiyan



“[I]n a sense, climate change can now be considered another weapon of mass destruction, perhaps the world’s most fearsome weapon of mass destruction.”
—Senator John Kerry on the destruction caused by Typhoon Haiyan

Three Pillars of the President's Climate Action Plan



Cut Carbon
Pollution in
America



Prepare the
United States
for the
Impacts of
Climate
Change



Lead
International
Efforts to
Address
Climate
Change