

# More Extreme Weather: Implications for Public Health and Social Justice

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Global warming is making hot days hotter, rainfall and flooding heavier, storms stronger, and droughts more severe. These will be the most visible impacts of global warming in our everyday lives and will have grave implications for public health and social justice. Indeed, our urban infrastructure, flood protection measures, emergency management strategies, and agricultural systems were all developed based on past experience with extreme weather. But, with global warming pushing these extremes beyond their historical limits, we can no longer plan for the future based on past climate conditions.

We are already seeing these impacts across the nation. The long-term warming trend is undeniable: according to NASA, the ten warmest years on record globally all occurred within the 12-year period 1997-2008.<sup>1</sup> Weather and climate disasters are becoming more common and more expensive in the United States. In the 1980s a billion-dollar weather disaster was relatively rare. The last decade has seen multiple billion-dollar disasters each year.<sup>2</sup>

Some people are more vulnerable than others to intensifying weather and climate extremes. Underserved communities and people who are old, young, or already sick are at greatest risk. Hurricane Katrina is a prime example: the poor and elderly lost the most because of where they lived and their limited ability to get out of harm's way. About 310,000 African Americans living in New Orleans were displaced by flooding or damage, a significantly larger proportion than any other group.<sup>3</sup>

More and more Americans will be living in vulnerable locations as population continues to grow rapidly in cities, along the coasts, and in the South. People of color will be disproportionately impacted because their populations are concentrated in these areas. For example, 56 percent of African Americans live in the southern United States or in urban areas.<sup>4</sup>

We must take action to reduce global warming pollution now, while there is still time to avert the worst impacts. Investing in a clean energy future is the essential path forward that will help communities nationwide, especially the most vulnerable. It can also create new economic opportunities for underserved communities. One analysis estimates that transitioning to clean energy could create more than 430,000 jobs for African Americans by 2030.<sup>5</sup>



CONFRONTING GLOBAL WARMING

# Report

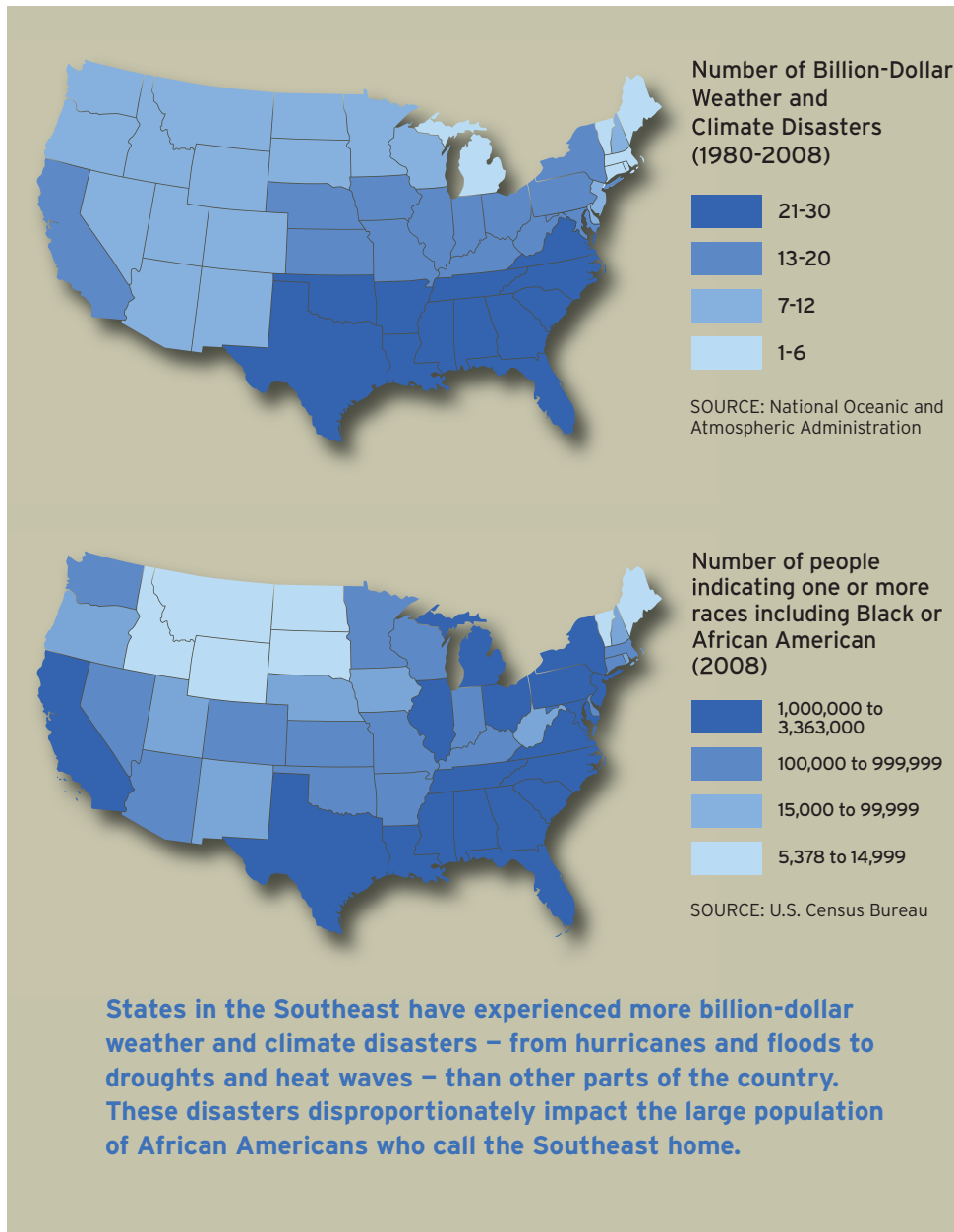
*“The time for enacting comprehensive climate change policies is now. The American public needs to understand that global warming is a health issue and the most vulnerable people to its dangerous impacts are inner city African-Americans.”*

**Hilary O. Shelton**  
Senior Vice President for  
Advocacy and Director of the  
NAACP DC Bureau

## Heat Waves

Global warming will bring more extreme heat waves. By the 2080s and 2090s, many parts of the country will have more than two months each year with 100-degree weather if global warming emissions are not curbed. Urban air pollution will be exacerbated by more extreme heat, compounding the health effects on hot days and forcing some cities to take even more aggressive steps to meet federal ozone standards.

Heat waves disproportionately impact the very old and very young, as well as people who are poor, have asthma or heart disease, or live in big cities. With often diminished health and a greater likelihood of living alone, the elderly are especially vulnerable. As the U.S. demographics shift toward an older and



more urban population, efforts to protect these at-risk communities from extreme heat will become increasingly important. Furthermore, African Americans are at higher risk because they are both more likely to live in the places where heat waves are most severe and less likely to be able to afford air conditioning, insulation, and other home improvements that reduce exposure to extreme heat.<sup>6</sup>

For more information, see National Wildlife Federation's 2009 report *More Extreme Heat Waves: Global Warming's Wake Up Call*.

*“The intensity of the hurricanes since Katrina in 2005 and unusually high temperatures have become the norm – impacting the lives of all Gulf Coast residents, including me. I’ve dealt with frequent evacuations and the personal loss of a friend as a result of heat stroke.”*

**Jerome Ringo**  
President of the Apollo Alliance  
Former Chair of the National Wildlife  
Federation's Board of Directors  
Resident of Lake Charles, Louisiana



# Hurricanes

Stronger hurricanes, heavier rainfall, and rising sea levels: this is what global warming has in store for the U.S. Gulf and Atlantic coasts. The latest science indicates that hurricane wind speed will increase 2 to 13 percent and rainfall rates will increase 10 to 31 percent over this century. At the same time, sea-level rise will cause bigger storm surges and further erode coastal wetlands that buffer storm impacts and provide a first line of defense.

The rapidly expanding population and development along our coasts means that more and more people are living in harm's way. Furthermore, African Americans comprise 20 percent of the population in the eight states of the hurricane zone.<sup>7</sup> The current federal flood programs have exacerbated the risks for coastal communities by failing to discourage people from building and rebuilding in vulnerable locations. Too often development occurs with inadequate environmental and safety standards and does not take into account the impacts of climate change.

For more information, see National Wildlife Federation's 2009 report *Increasing Vulnerability to Hurricanes: Global Warming's Wake-Up Call for the U.S. Gulf and Southeastern Coasts*.

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# Floods

Global warming has caused more heavy rainfall events in the United States over the last few decades along with an increased likelihood of devastating floods. Because warmer air can hold more moisture, heavier precipitation is expected in the years to come. At the same time, shifts in snowfall patterns, the onset of spring, and river-ice melting may all exacerbate flooding risks.

Cities and towns, agriculture, and transportation infrastructure located along rivers and in floodplains have experienced major damages and disruptions from floods in recent years. Misguided management of floodplains, watersheds, and rivers has also contributed. Floods and severe storms are among the most costly kind of weather and climate disaster in the United States, together costing the country more than \$115 billion from 1960-2005 in direct damages.

For more information, see National Wildlife Federation's 2009 report *Increased Flooding Risk: Global Warming's Wake-Up Call for Riverfront Communities*.

*“Heavy downpours pose significant health risks for water-borne diseases, such as toxic E. coli and Cryptosporidium, and create conditions conducive to upsurges of diseases carried by mosquitoes (like West Nile virus) and rodents (like Hantavirus Pulmonary Syndrome). More than half of water-borne diseases reported in the United States between 1948 and 1994 were preceded by periods of heavy rainfall and flooding.”*

Paul R. Epstein, M.D., M.P.H.  
Associate Director of the  
Center for Health and the  
Global Environment at the  
Harvard Medical School





## Droughts

Large parts of the western United States and much of the Southeast has already begun experiencing more frequent and more severe droughts.<sup>8</sup> In the West, changing atmospheric circulation patterns are pushing the dry zones typically found in Mexico farther northward, while reduced mountain snow pack is further diminishing water availability. While the Southeast has had intermittent droughts in the past, global warming is expected to bring more uncertainty, potentially causing both more extreme dry periods and more heavy rainfall events. At the same time, warming-induced sea-level rise, along with increased groundwater pumping, will increase the risk of saltwater intrusion into important groundwater aquifers, exacerbating water shortages.

Droughts affect food production, energy generation, and drinking water supplies, often resulting in higher costs and other ripple effects. With low-income and minority families in the United States already spending as much as 25 percent of their income on these basic necessities, they stand to lose the most as droughts become more severe.<sup>9</sup> And, the potential

impacts on the world's poor are staggering: by 2050, 4.3 to 6.9 billion people could be living in river basins with severely stressed water availability if global warming pollution is not curbed.<sup>10</sup>

For more information, see National Wildlife Federation's 2008 report *More Variable and Uncertain Water Supply: Global Warming's Wake-Up Call for the Southeast United States*.

### ENDNOTES

<sup>1</sup> NASA Goddard Institute for Space Studies, 2009. <http://data.giss.nasa.gov/gistemp/2008/>.

<sup>2</sup> U.S. Climate Change Science Program (CCSP), 2008. *Weather and Climate Extremes in a Changing Climate. Regions of Focus: North America, Hawaii, Caribbean, and U.S. Pacific Islands*. A Report by the U.S. Climate Change Science Program and the Subcommittee on Global Change Research. T.R. Karl, et al. (eds.). Department of Commerce, NOAA's National Climatic Data Center, Washington, D.C., USA, 164 pp.

<sup>3</sup> Gabe, T., G. Falk, M. McCarty, and V.W. Mason, 2005. *Hurricane Katrina: Social-Demographic Characteristics of Impacted Areas*, Congressional Research Service.

<sup>4</sup> U.S. Census Bureau, 2006. *America Community Survey*.

<sup>5</sup> Hoerner, J.A. and N. Robinson, 2008. *A Climate of Change: African Americans, Global Warming, and a Just Climate Policy for the U.S.*, Environmental Justice and Climate Change Initiative, Oakland, CA.

*“While areas in the United States are so expansive that drought and desertification aren't apt to cause the kind of political and security instability that can be seen in Sub-Saharan Africa, the impact of dislocation on peoples' lives is just as tragic when people have to leave the communities where their families have lived for generations and generations.”*

Dianne Dillon-Ridgley  
Chair of Plains Justice

<sup>6</sup> Hoerner and Robinson, 2008.

<sup>7</sup> U.S. Census Bureau, 2008. *Population Estimates*. Available at <http://www.census.gov/popest/states/asrh/>

<sup>8</sup> U.S. Global Change Research Program (USGCRP), 2009. *Global Climate Change Impacts in the United States*, T.R. Karl, J.M. Melillo, and T.C. Peterson, (eds.). Cambridge University Press, 191 pp.

<sup>9</sup> Morello-Frosch, R., M. Pastor, J. Sadd, S.B. Shonkoff, 2009. *The Climate Gap: Inequalities in How Climate Change Hurts Americans and How to Close the Gap*. University of Southern California, Program for Environmental and Regional Equity (PERE).

<sup>10</sup> Parry, M.L., O.F. Canziani, J.P. Palutikof et al., 2007. Technical Summary. *Climate Change 2007: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change*, M.L. Parry, O.F. Canziani, J.P. Palutikof, P.J. van der Linden and C.E. Hanson, Eds., Cambridge University Press, Cambridge, UK, 23-78.

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