

Climate Change Impacts on Health and Welfare in Southern States

July 15, 2008

E.P.A. Assessment

The final EPA/CCSP report assessing the impacts of climate change on human health and welfare finds that southern states will incur steep costs **as additional heat and extreme weather will pose new threats. Coastal regions will be particularly vulnerable to both sea level rise and more intense storms.**

The following are verbatim excerpts from major findings of concern to southern states. A complete copy of the final report is available for public review on line at <http://www.climate-science.gov/Library/sap/sap4-6/final-report/default.htm>

“Residents of low-lying coastal regions, which are common locations for hurricane landfalls and flooding, are particularly vulnerable to the health impacts of climate change. Those who live in the Gulf Coast region, for example, are likely to experience increased human health burdens due to the constellation of more intense storms, greater sea level rise, coastal erosion, and damage to freshwater resources and infrastructure. Other coastal areas may also experience the combination of sea level rise chronically threatening water supplies and periodic infrastructure damage from more intense storms.” (Chapter 2, Page 23)

Heat

“...heat can exacerbate chronic health conditions, and several analyses have reported associations with cause-specific mortality, including cardiovascular, renal, and respiratory diseases; diabetes; nervous system disorders; and other causes not specifically described as heat-related.” (Chapter 2, Page 5)

“Groups particularly vulnerable to heat-related mortality include the elderly, very young, city-dwellers, those with less education, people on medications such as diuretics, the socially isolated, the mentally ill, those lacking access to air conditioning, and outdoor laborers.” (Chapter 2, Page 5)

“It is well-established that higher temperatures in urban areas are related to higher levels of ozone which cause respiratory and cardiovascular problems.” (Chapter 3, Page 5)

“Forest fires with their associated decrements to air quality and pulmonary effects are likely to increase in frequency, severity, distribution, and duration in the Southeast...” (Executive Summary, Page 7)

“Warming is virtually certain to increase energy demand in U.S. cities for cooling...Demands for cooling during warm periods could jeopardize the reliability of service in some regions by exceeding the supply capacity” (Chapter 3, Page 6)

“Urban heat islands may increase heat-related health impacts by raising air temperatures in cities 2-10°F over the surrounding suburban and rural areas.” (Chapter 2, Page 5)

Severe Storms

“...storms, floods, and other severe weather events may affect other infrastructure, including sanitation systems, transportation, supply lines for food and energy, and communication. Exposed structures such as bridges and electricity transmission networks are especially vulnerable.” (Chapter 3, Page 5)

“...flooding can overwhelm sanitation infrastructure and lead to water-related illnesses.” (Chapter 1, Page 19)

Severe Weather and Health

“Storm events and flooding may result in the contamination of food crops (especially produce such as leafy greens and tomatoes) with feces from nearby livestock or feral animals. Therefore, changing climate or environments may alter the transmission of pathogens.” (Chapter 2, Page 10)

“Anxiety and depression, the most common mental health disorders, can be directly attributable to the experience of the event (i.e. being flooded) or indirectly during the recovery process. These psychological effects tend to be much longer lasting and can be worse than the physical effects experienced during an event and its immediate aftermath.” (Chapter 2, Page 7)

Air Pollution

“It is well-established that higher temperatures in urban areas are related to higher levels of ozone which cause respiratory and cardiovascular problems.” (Chapter 3, Page 5)

“Vulnerability to ozone health effects is greater for persons who spend time...outdoors... Thus, children, outdoor laborers, and athletes may be at greater risk.” (Chapter 2, Page 14)

“Climate change has caused an earlier onset of the spring pollen season ... it is reasonable infer that allergenic diseases caused by pollen, such as allergic rhinitis, also have experienced concomitant changes in seasonality.” (Chapter 2, Page 15)

Economics

“Climate change...can affect a settlement’s economic base if it is sensitive to climate, as in areas where settlements are based on agriculture, forestry, water resources, or tourism.” (Chapter 3, Page 6)

“Higher temperatures also affect costs of living and business operation by increasing costs of climate control in buildings.” (Chapter 3, Page 6)

“The insurance sector is one of the most adaptable of all economic sectors, and its exposure to costs from severe storms and other extreme weather events is likely to lead it to withdraw (or to make much more expensive) private insurance coverage from areas vulnerable to climate change impacts (IPCC, 2007), which would encourage both businesses and individual citizens to consider other locations over a period of several decades.” (Chapter 3, Page 8)

“...people can purchase insurance only against the monetary losses associated with floods and hurricanes; hence, insurance premiums will not capture the entire value placed on avoiding these events.” (Chapter 4, Page 38)

“Climate change can add to stress on social and political structures by increasing management and budget requirements for public services such as public health care, disaster risk reduction, and even public security.” (Chapter 3, Page 6)

Vulnerable Groups

“Children’s small body mass to surface area ratio...make them more vulnerable to heat-related morbidity and mortality...their increased breathing rates...time spent outdoors, and developing respiratory tracts heighten their sensitivity to harm from ozone air pollution...children’s relatively naive immune systems increase the risk...from water and foodborne diseases...Children may also be more vulnerable to psychological complications of extreme weather events related to climate change.” (Chapter 2, Page 23)

“The elderly are identified in many health assessments as more vulnerable than younger age groups to a range of health outcomes associated with climate change.” (Chapter 1, Page 15)

Recreation

“Slightly more than 90% of the U.S. population participates in some form of outdoor recreation, representing nearly 270 million participants, and several billion days spent each year in a wide variety of outdoor recreation activities...the number of people participating in outdoor recreation is highest for walking (67%), visiting a beach or lakeshore or river (62%), sightseeing (56%), swimming (54%) and picnicking (49%).” (Chapter 4, Page 28)

“Weather conditions are considered one of the four greatest factors influencing tourism visitation. In addition, much outdoor recreation and tourism depends on the availability and quality of natural resources. Consequently, climate change can also indirectly affect the outdoor recreational experience by affecting the quality and availability of natural resources (and, thus, the availability and quality of recreational experience) used for recreation such as beaches, forests, wetlands, snow, and wildlife.” (Chapter 4, Page 29)

“...long-term higher increases in temperature may eventually have adverse effects on activities like walking, and result in sufficient sea level rise to reduce publicly accessible beach areas, just at the time when demand for beach recreation to escape the heat is increasing. In contrast, some activities are likely to be unambiguously harmed by even small increase in global warming, such as snow and ice-dependent activities.” (Chapter 4, Page 29)

“Sea level rise reducing beach area and beach erosion are concerns with climate change that may make it difficult to accommodate the increased demand for beach recreation.” (Chapter 4, Page 32)

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National and Regional Experts

EPA Contacts

Roxanne Smith

Press Officer at EPA

(202) 564-4455

smith.roxanne@epa.gov

Joel Scheraga

EPA National Program Director for the Global Change Research Program in the Office of Research and Development

(202) 564-3385

Scheraga.Joel@epamail.epa.gov

Dr. Kristie Ebi

Lead author on the report and independent consultant

703-304-6126

krisebi@essllc.org

Howard (Howie) Frumpkin

CDC Director of the National Center for Environmental Health

hfrumpkin@cdc.gov

Mike McGeehin

CDC Chief, Division of Environmental Hazards and Health Effects (NCEH)

mmcgeehin@cdc.gov

CDC Main Press Line: (404) 639-3286

Air Quality Experts/Sources

Joel Schwartz

Professor of Environmental Epidemiology, Harvard

617-384-8752

jschwartz@hsph.harvard.edu

Dr. Schwartz's studies are cited in the CCSP report.

Jonathan Ward

Environmental Toxicology, University of Texas Medical Branch

409-772-9109

jward@utmb.edu

He's very good on chronic exposure to air pollution—especially ozone. He can talk on the particular impacts on children. Part of the National Institute of Environmental Health Science.

Public Health Professionals/Experts

Georges Benjamin

Executive Director, American Public Health Association

Executive Assistant: Alice Aughtry at 202-777-2430 or alice.aughtry@apha.org.

The APHA made the Health Impacts of Climate Change its theme for 2008. Benjamin testified Before Congress on the health impacts of climate change—including the specific regional impacts.

Dr. Cliff Mitchell

Director, Environmental Health Coordination
& Preventive Medicine Residency Programs
Maryland Department of Health and Mental Hygiene

cmitchell@doh.state.md.us

(410) 767-6490 (Department's PR office)