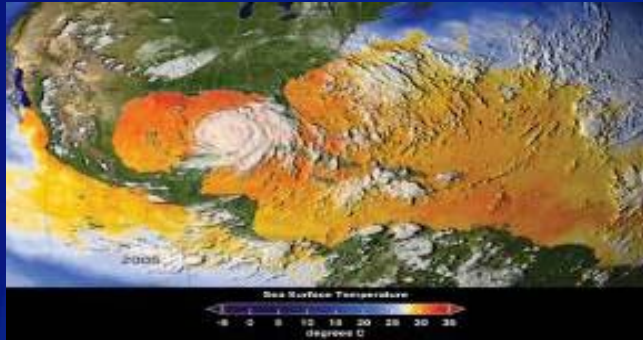


# Priority Actions for Climate Change Adaptation: Perspectives from the Federal Public Health Sector



**Christopher Portier, PhD**  
Director  
National Center for Environmental Health  
Centers for Disease Control and Prevention

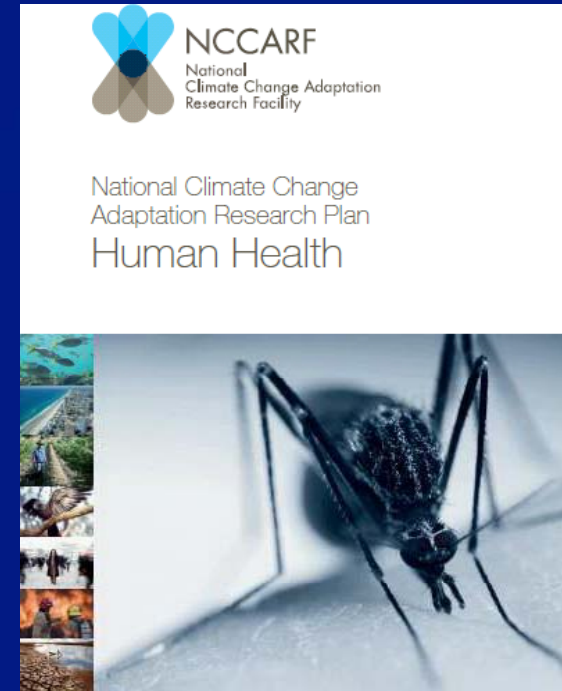
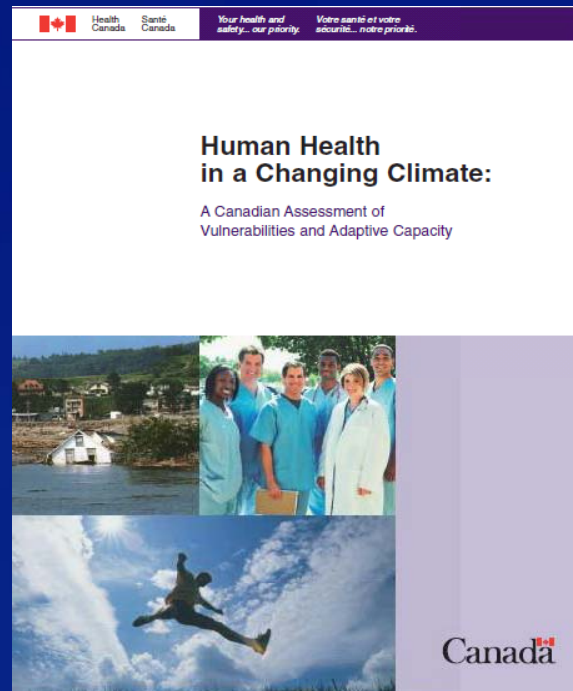
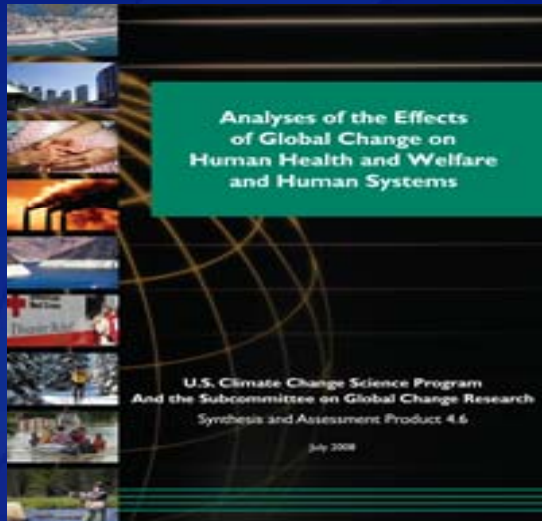
National Center for Environmental Health  
Agency for Toxic Substances and Disease Registry



# Climate Assessments with a Focus on Health: Signaling an increasing interest and concern

- US GCRP
- United Kingdom
- Canada
- Australia

## Synthesis and Assessment Product 4.6 (2008)



# United States Global Change Research Program (USGCRP)

- Coordinates and integrates federal research on changes in the global environment
- Mandated by Congress in the Global Change Research Act of 1990
- Representation from 13 Federal agencies, including Health and Human Services



# Setting the agenda - Climate and Health report

- Formation of ad-hoc interagency working group on climate and health
- Describes health impacts of climate change & identifies research needs
- Involved collaboration across multiple Federal agencies
- Four CDC authors on the report



## Categories of human health consequences of climate change:

1. Asthma, Respiratory Allergies, and Airway Diseases
2. Cancer
3. Cardiovascular Disease and Stroke
4. Foodborne Diseases and Nutrition
5. Heat-Related Morbidity and Mortality
6. Human Developmental Effects
7. Mental Health and Stress-Related Disorders
8. Neurological Diseases and Disorders
9. Vectorborne and Zoonotic Diseases
10. Waterborne Diseases
11. Weather-Related Morbidity and Mortality

## Continuing action:

### USGCRP: Climate Change and Human Health Group

- Resulted from the success of the Interagency Report
- Co-chaired by CDC, NIH, and NOAA
- Plans, coordinates, implements, evaluates, and reports on federal research and related scientific activities on the human health impacts of global environmental change
- Focus includes data integration and collaborative, interdisciplinary research



# Continuing action:

## Interagency Climate Change Adaptation Task Force

- Convened in 2009 to facilitate compliance with Executive Order 13514
- Co-chaired by the Council on Environmental Quality (CEQ), the Office of Science and Technology Policy (OSTP), and the National Oceanic and Atmospheric Administration (NOAA)
- Includes representatives from more than 20 Federal agencies
- Update on Federal adaptation including building resilience in local communities and safeguarding critical natural resources – October 2011 report

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### Federal Actions for a Climate Resilient Nation

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### Progress Report of the Interagency Climate Change Adaptation Task Force

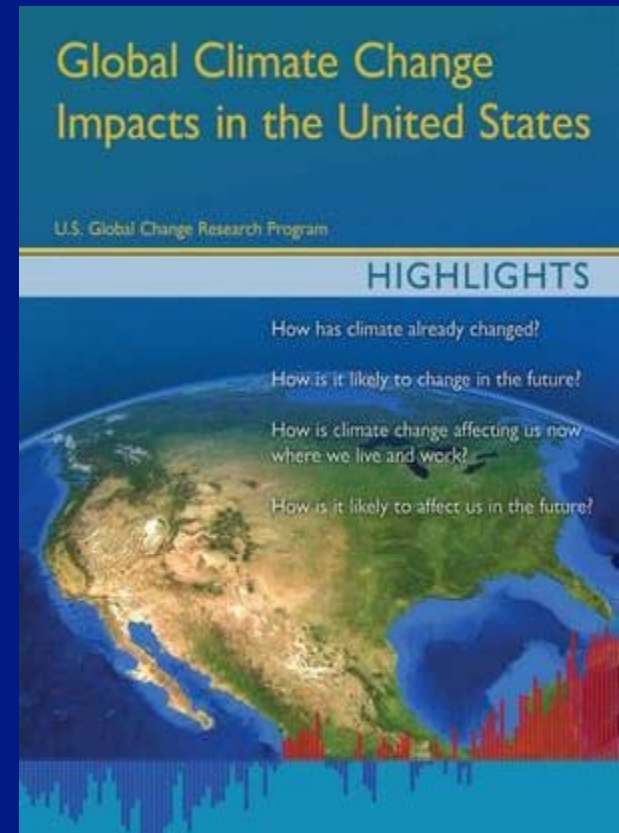
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October 28, 2011

# Continuing action:

## National Climate Assessment

- Global Change Research Act of 1990 requires a report to the President and the Congress every four years
- NCA reports integrate, evaluate, and interpret the findings of the U.S. Global Change Research Program (USGCRP)
- Next report due in 2013
- Includes “Human Health and Welfare” chapter



# CDC's Climate And Health Program

Formally constituted as a Program in March 2009 with a congressional appropriation

Leads efforts to:

- identify the health impacts of climate change and the populations most vulnerable to these impacts;
- anticipate future trends;
- assess systems are in place to detect and respond to emerging health threats;
- develop strategies to assure that these health risks can be managed now and in the future.



# The Climate Change Program at CDC fills three critical roles:

- (1) to **analyze and translate** the latest evidence in climate science to our public health partners;
- (2) to apply these findings to evidence-based **decision support tools**
  - aid in the state and local public health response
- (3) to **provide leadership**
  - inside and outside CDC
  - ensure that public health concerns are represented in climate change adaptation and mitigation strategies
  - create linkages between public health and other sectors

# Public Health Adaptation Strategies

- Develop evidence-based approaches that identify spatially-specific vulnerable populations and places
- Enhance surveillance by integrating environmental, meteorological and health data
- Identify co-benefits for health of mitigation and adaptation strategies



# PROGRAM HIGHLIGHT: Developing a surveillance & response toolkit in Alaska

## ➤ Building community partnerships – Citizen Science

- Systematic , on-going, collection of community observations of unusual shifts in local ecosystems and health hazards
- Early warning for public health significance
- Develop culturally appropriate risk communications and inform adaptation planning for Health and other sectors



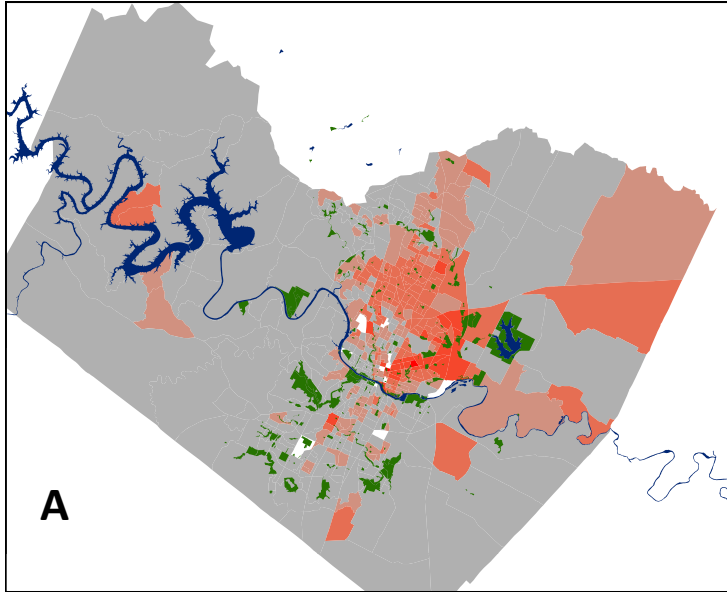
Alaskan coastal erosion from permafrost degradation

# PROGRAM HIGHLIGHT:

## Local Environmental Public Health Indicators for Climate Action

- Downscaled climate-specific climate-related hazard assessment for heat exposure and flash flooding
- Social and built-environment information overlaid
- Integrated layers help assess health vulnerabilities to aid local health policy
- Static maps integrated into a dynamic mapping server to feed in real-time weather data.
- A near real-time decision support for the local health department





### A: Social & Environmental Indicators

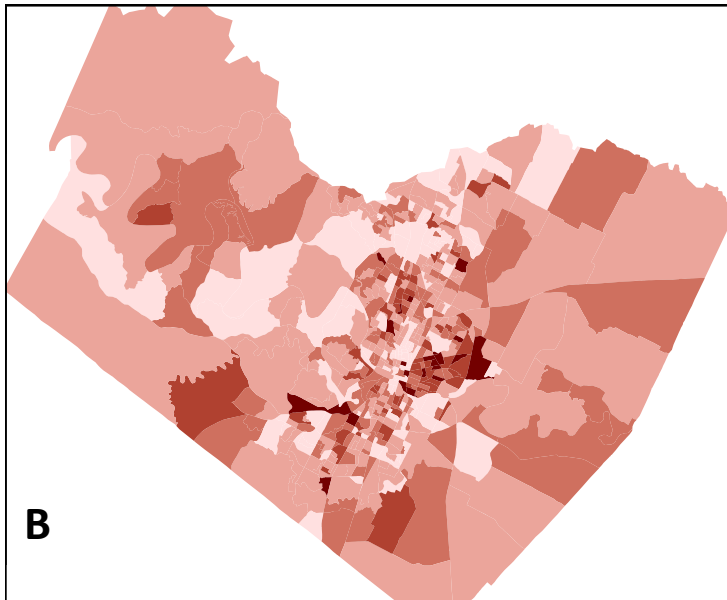
Elderly (% of individuals above 65 years of age)

Ethnicity (% of Blacks)

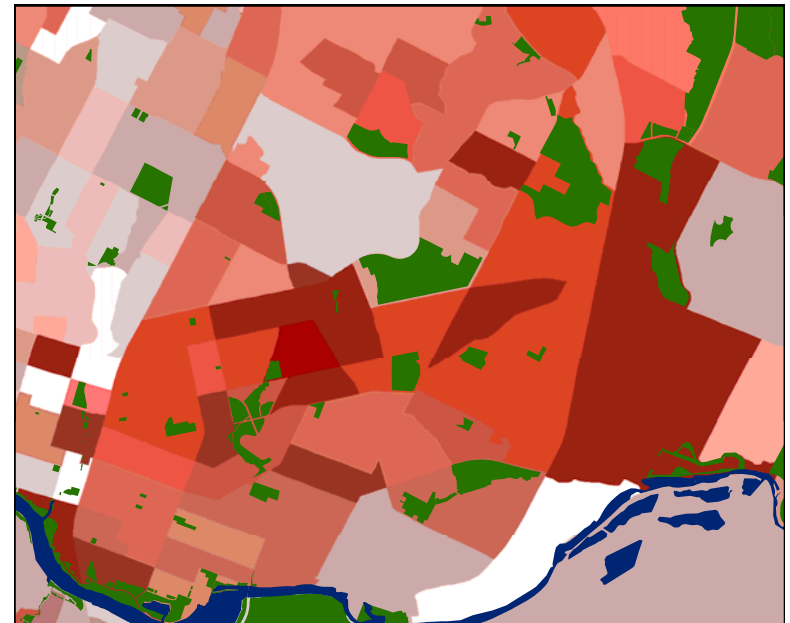
Pop. Density (# of individuals/sq miles)

Impervious Surface /Lack of Vegetative Cover ( 1 - % of deciduous forest, evergreen forest, mixed forest, shrub and herbaceous greenery)

~ Ambient surface temperatures



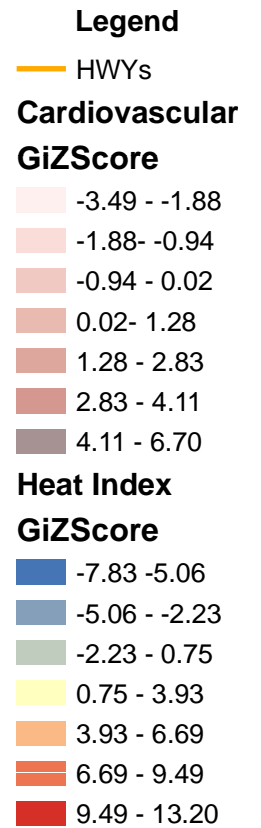
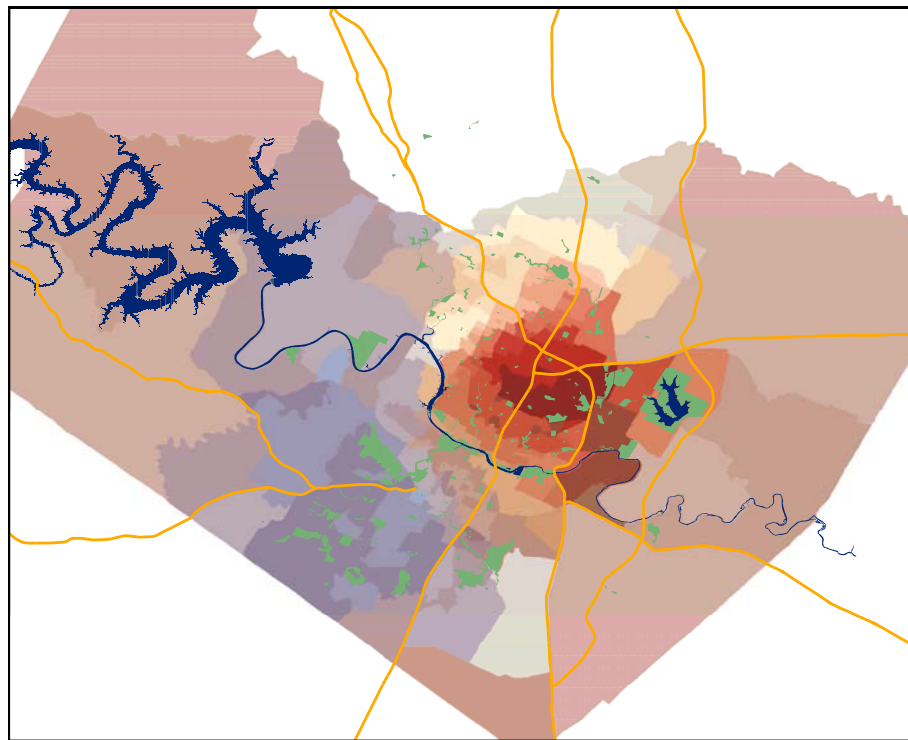
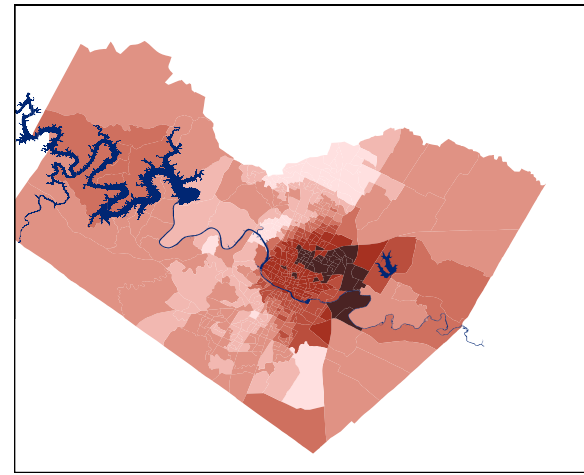
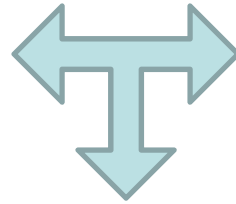
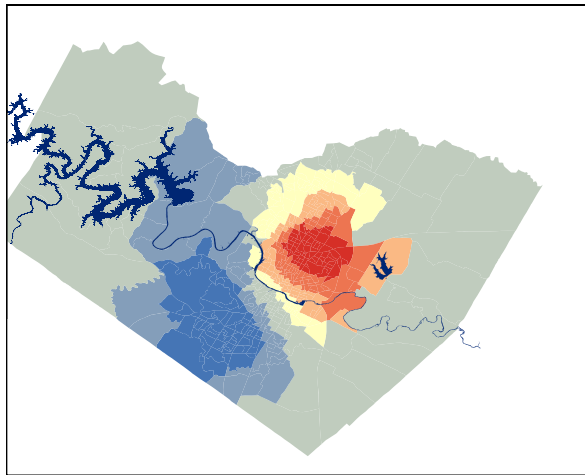
### B: Age Adjusted Cardiovascular Mortality Rate per 10,000

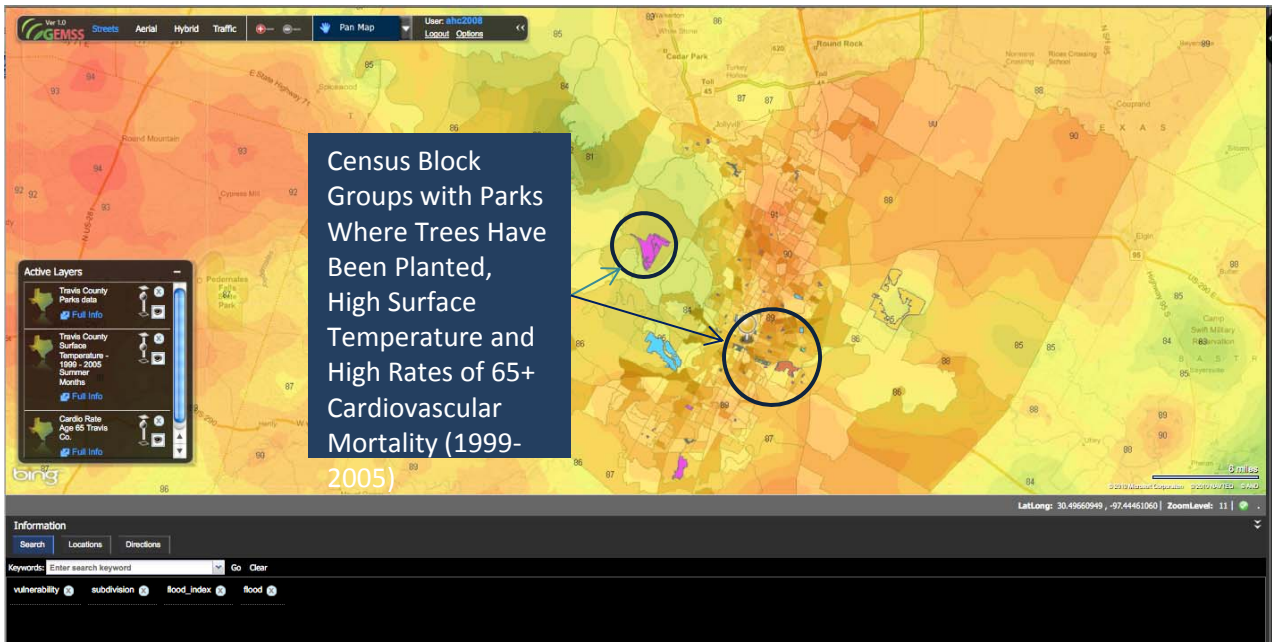


Extreme Heat & Health Overlay

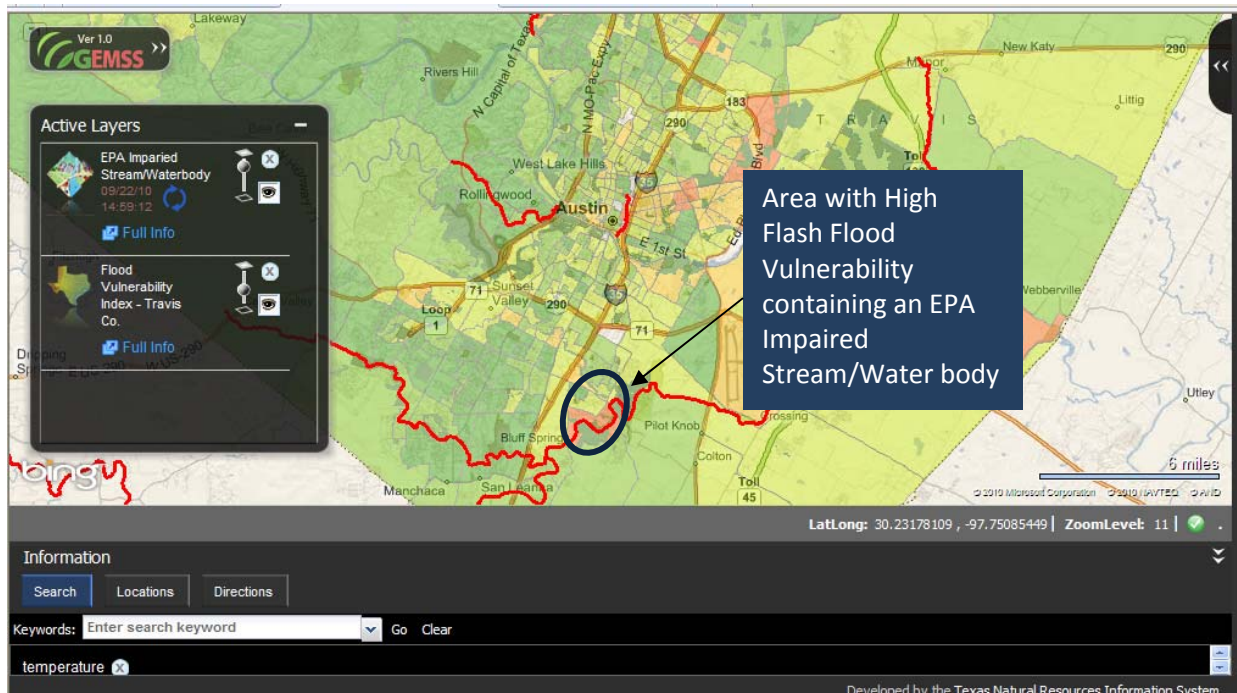


# Hot Spot Analysis of Extreme Heat Index w/ baseline age adjusted mortality





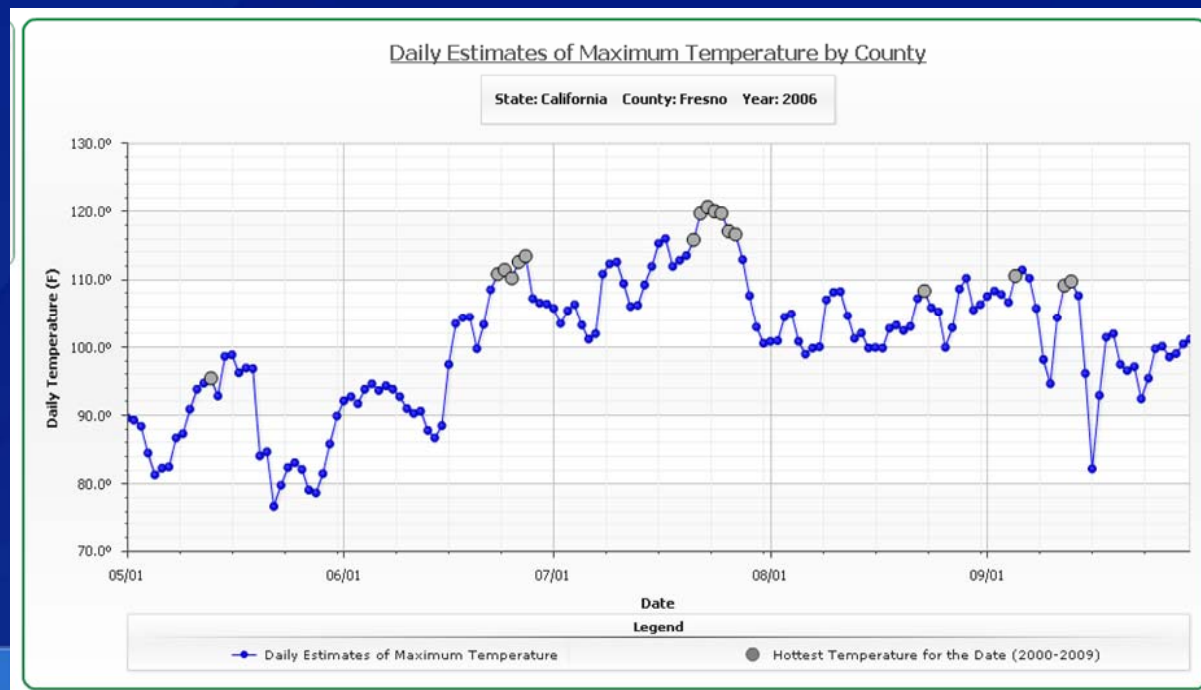
Park Plantings (1999-2003) overlaid onto Average Surface Temperature and Baseline Age Adjusted Cardiovascular Mortality Rate among the Elderly (65+) in Travis County, TX (1999- 2005)



Flash Flood Vulnerability Index overlaid onto EPA impaired streams.

# PROGRAM HIGHLIGHT: CDC Environmental Public Health Tracking Climate Change Module

- Initial module to identify and evaluate heat-related health effects.
  - Daily Temperature, Heat Mortality, Vulnerability indicators



# **PROGRAM HIGHLIGHT:**

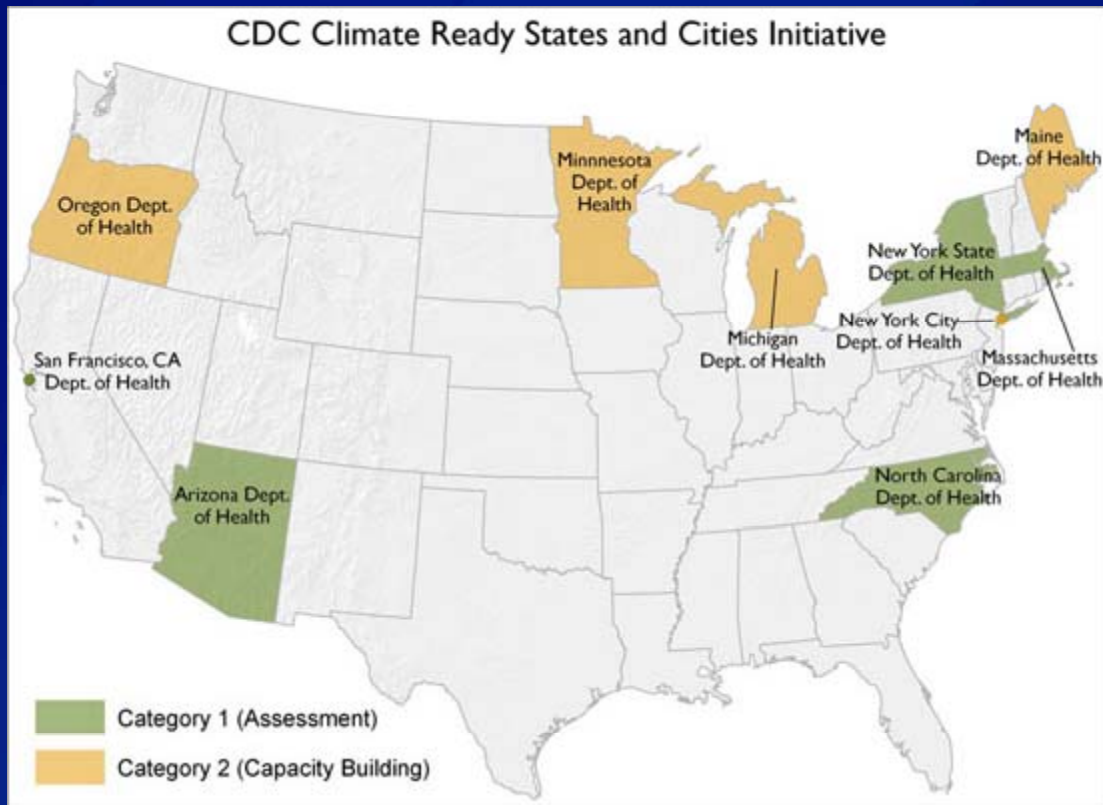
## **Climate-Ready States and Cities Initiative: Building the Anticipatory Approach**

Objective: To enhance the capability of state and local health agencies to deal with the challenges associated with climate change

Cooperative Agreements with State and Local HDs:  
“Developing Public Health Capacity and Adaptations to Reduce Human Health Effects of Climate Change”

Developing Decision Support Tools:  
Communications and Educational Tools  
Vulnerability Mapping Tools





**Support 8 states  
and 2 cities**

**Category 1 – Assessment and Planning to Develop Climate Change Programs**

**Category 2 – Building Capacity to Implement Climate Change Programs and Adaptations**



# The BRACE Framework





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Protecting People.  
Saving Money  
through Prevention.™

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