

# ***Global Change Research Program***

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# ORD's Global Change Research Program: Well-Defined Mission

**Assess the potential consequences of *global change* – particularly climate variability and change -- in the U.S.**

Areas of focus:

air quality; water quality/aquatic ecosystems; human health

Provide timely and useful scientific information to **support decision making**

Focus on **adaptation** – to reduce risks posed by global change

**New focus: Environmental and human health implications of alternative mitigation strategies**

# New Directions: Mitigation

- **Additional Congressional Appropriations**
  - **FY'08: \$3 million (one-time increase):** *“to support future rule making on greenhouse gases”*
  - **FY'09: \$2 million (increase in base program):** *“Within the amount provided, \$18,365,000 is for Global Change Research, of which \$2,000,000 is directed to study Greenhouse Gas mitigation and adaptation strategies”*
- **Projects initiated in FY'08:**
  - Environmental implications of alternative fuels (with a focus on biofuels)
  - Co-Benefits: Evaluation of relationship between GHG mitigation strategies and strategies for adapting to a changing climate
  - Evaluation of proposed forest offset accounting methods for effectiveness and applicability at the national scale
  - Evaluation of emissions reduction potential of technological and non-technological options for reducing GHG emissions and improving air quality
  - Development of comprehensive database of mitigation technologies for the power generation, transportation, industrial, and waste management sectors.

# Global Change Research Program: Accomplishments

- **CCSP:** Completed 2 major CCSP Synthesis and Assessment Products
- **Climate Change & Air Quality:** Completed an assessment of the potential impacts of climate change on regional U.S. air quality, with a particular focus on ground-level ozone.
- **Climate Change & Air Quality:** Completed development of the 9-region MARKAL model of the U.S.
- **Climate Change & Water Quality:** Released online tool (WEPPCAT) for creating user-determined climate change scenarios for assessing the potential impacts of climate change on sediment loading to streams.
- **Climate Change & Water Quality:** Assessment of the potential impacts of climate change on combined sewer overflow mitigation in the Great Lakes and New England Regions.
- **Climate Change & Water Quality:** Assessment of the impacts of climate change on aquatic invasive species and state-level management opportunities.
- **Decision Support Tools:** Released BASINS Climate Assessment Tool that enables water resource managers to assess the influence of climate variability and change on water quantity and quality. Also released a draft User's Manual.

# Global Change and Air Quality: Interim Assessment

Released on April 17, 2009

***Fundamentally: Is climate change something we have to pay attention to going forward?***

***Answer: Yes***

***Climate change should be considered by air quality managers as they develop air pollution control strategies. Climate change has the potential to produce significant increases in ground-level ozone in many regions.***

2009-2010 Assessment: What are the health implications of projected changes in air quality due to climate change?

# Global Change Research Program: Strategic Directions (2010-2014)

Continued emphasis on outcomes consistent with EPA's mission, and the statutory requirements placed on the U.S. Climate Change Science Program (CCSP):

- Assessment of the impacts of global change on air quality (focus on implications for statutory requirements under the Clean Air Act, and opportunities to adapt)
- Assessment of the impacts of global change on water quality/aquatic ecosystems (focus on implications for statutory requirements under the Clean Water Act and Safe Drinking Water Act, and opportunities to adapt)
- Supporting the statutory mandates on the CCSP to produce periodic assessments of the potential impacts of climate change
- **New Strategic Direction:** Research and assessment of the environmental implications of alternative strategies for mitigating greenhouse gas emissions (including co-benefits of mitigation strategies and the potential for unanticipated negative impacts).

# Global Change Research Program: Anticipated Products

**Air Quality (FY2012):** Completion of *Global Change/Air Quality Assessment*, “Effects of *Global Change* on Air Quality in the United States” - in partnership with OAR/OAQPS.

**Water Quality (FY2010 – FY2013):**

- Assessment of OW needs and priorities relating to water quality and global change;
- Broad based, national scale assessment of water quality endpoints vulnerable to global change;
- Detailed watershed-based, stakeholder-driven studies focused on local issues and specific management solutions for addressing global change;
- Detailed studies of the potential impacts and opportunities for adapting water infrastructure and the built environment, and
- Development of broadly applicable decision support tools to increase the capacity of OW clients to assess and manage the impacts of global change on water and watershed systems.

**CCSP (FY2012: As mandated by 1990 Global Change Research Act):**

- Completion of EPA contribution to third CCSP “National Assessment”

**2009 National Research Council Report:  
“Informing Decisions in a Changing Climate”**

**“The Environmental Protection Agency (EPA) should expand its climate-related decision support programs to serve more regional and sectoral constituencies.”**