

## AIR, CLIMATE, AND ENERGY RESEARCH

### Background

The Clean Air Act has resulted in one of the most effective public health programs in American history by providing the legislation to improve air quality in the United States. The legislation has led to millions of lives saved and improved public and ecosystem health.

Science at the U.S. Environmental Protection Agency has played a prominent role in protecting health and the environment from outdoor air pollutants. Scientists continue to provide information and data to identify risks and improve air quality.



A newer challenge is climate change. Research is under way to understand the relationship between air quality and climate change and how they are affected by the choices we make to produce and use energy.

### Research Areas

Research is being conducted in three main areas in EPA's Air, Climate, and Energy Research Program.

### *Assessing Impacts*

The goal of this research is to assess human and ecosystem exposures and effects associated with air pollutants and climate change. Scientific questions that are being addressed include:

What are the effects of multi-pollutant exposures and the integrated impacts of climate change on air and water quality and human and ecosystem health?

What innovative approaches are needed to improve understanding of the health and environmental effects of air pollutants?

What are the characteristics of populations and ecosystems that are susceptible to the effects of air pollutants and a changing climate?

### ***Preventing and Reducing Emissions***

The goal of this research is to provide the data and innovative tools to prevent and reduce emissions of air pollutants in ways that are environmentally sustainable and cost effective. Scientific questions that are being addressed include:

What tools are needed to support the

management of air pollution problems?

What research is needed to conduct life-cycle analyses of alternative pollution reduction and energy options?

What innovative monitoring technologies are needed to support air quality management?

### ***Responding to Changes in Climate and Air Quality***

The goal of this research is to provide modeling, monitoring, metrics and information needed to prepare for climate change and make public health decisions regarding air quality.

What are the most effective adaptation strategies to respond to climate change?

What are the social, behavioral and economic factors that hinder community and individual implementation strategies to adapt to climate change and make informed air quality decisions?

EPA's Strategic Research Plan for Air Climate, and Energy has been developed with input from external stakeholders and EPA partners as well as other federal agencies and the public. The plan is available at:

<http://www.epa.gov/research/docs/strap-ace2012.pdf>

For more information, visit:

**Air Research**

<http://www2.epa.gov/air-research>

**Climate Change Research**

<http://www2.epa.gov/climate-research>

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