

November, 2007

Climate Change and Air Quality

Issue: Air quality is a growing public health concern. Research confirms that ozone, fine particulates and hazardous air pollutants are injurious. Under a warmer, more variable climate, air quality and air pollution affect ecosystems and people.

Key Points:

- Forest fires, especially large high intensity fires, can emit truly massive amounts of fine particulate emissions which can endanger human health. In just a few days, some large wildfires can emit many times the amount of particulates that a state's industry emits in an entire year.
- Ozone can cause mortality of trees and forest plants while weakening their resistance to pests and disease. Increases in climate variability could change ozone pollution patterns, thereby affecting forest health over large geographic areas.
- Ethanol, now being developed as a biofuel, can increase volatile organic hydrocarbons and nitrogen oxides, contributing to ozone in urban areas.
- Drought conditions associated with climate change can cause increased nitrogen deposition by rain, dust particles and so on; this is can damage forests especially in the northeastern and southeastern US and southern California.
- Warming summer temperatures and heat-waves cause increases in power generation during summer months. The increase in power generation causes more air emissions which can increase ozone, nitrogen compounds, and mercury deposition to forests.
- Concentrated animal feeding operations have increased ammonia concentrations in the atmosphere nationwide, especially in the Midwest. This ammonia is most reactive in the warmer atmosphere projected for the future by climate models.
- Increasing forest cover and using wood for electric power generation can improve air quality by sequestering carbon and substituting for fossil fuels.

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