



Greenhouse

Gas Research

Funding

Continues



Michigan Tech researchers have received nearly \$3 million in federal funds to continue their study of the effects of two greenhouse gases on northern forests.

The three-year, \$3-million grant from the U.S. Department of Energy's Office of Biological and Environmental Research supports research led by David Karnosky and Kurt Pregitzer, of Michigan Tech's School of Forestry and Wood Products. In cooperation with colleagues from several agencies and universities, they are exposing large, open-air plots of forestland in northern Wisconsin to elevated levels of ozone and carbon dioxide. Major funding for the project has also been provided by the U.S. Forest Service.

Worldwide, the amount of carbon dioxide has been rising throughout the atmosphere for many decades, while ozone is a more regional pollutant. While the individual effects of these gases on trees have been well-studied (for example, carbon dioxide enhances growth while ozone suppresses it), how forests respond to a mix of the two gases has been unknown.

Since the study began in 1998, researchers have discovered significant differences in how various tree species respond to the two-gas cocktail, and even differences between trees of the same species but with a different genetic makeup. They have also observed changes ranging from the molecular level up to the entire forest ecosystem. Their findings may help scientists predict what forests will look like 50 or 100 years from now.

"Concentrations of both carbon dioxide and ozone are increasing because of energy production, and are expected to continue increasing for at least several decades," said Jeffrey Amthor, the director of DOE's Program for Ecosystem Research. "This experiment is reducing

uncertainty about changes in the productivity and ecology of hardwood forests in the Great Lakes region caused by these changes in atmospheric chemistry. . . . This work is contributing directly to the Department of Energy's mission on environmental change research . . .

"In essence, it is a window into the future."

The project, known by the acronym Aspen FACE, involves more than 50 scientists in eight different countries and may have global implications.

"This is perhaps the most comprehensive study anywhere of the potential consequences of atmospheric change," said Dave Shriner, assistant director of the Forest Service's North Central Station, located near the Aspen FACE site. "The knowledge gained through this experiment could have a major impact on future policy decisions relating to climate change, as well as for ozone pollution."

Glenn Mroz, dean of forestry and wood products, praised the researchers' efforts. "They have shown compelling and irrefutable evidence of the impact of greenhouse gases on aspen and birch forests," he said. "We are extremely proud of their efforts."

Other researchers involved in the project are Don Zak of the University of Michigan at Ann Arbor, Rick Lindroth of the University of Wisconsin at Madison, J. G. Isebrands and Mark Kubiske of the US Forest Service, Kevin Percy of the Canadian Forest Service, George Hendrey of Brookhaven National Laboratory and Mike Miller of Argonne National Laboratory.