

Argonne helps improve air quality for 2008 Beijing Olympics

To improve the air quality of Beijing and ensure a healthy atmosphere for athletes and spectators at the 2008 Summer Olympics, the U.S. Department of Energy's Argonne National Laboratory has been working with leading institutions, including the U.S. Environmental Protection Agency, the University of Tennessee, Tsinghua University, Peking University and the Chinese Academy of Sciences.

The team has researched and modeled the local and regional contributors to Beijing's air quality, leading to a greater understanding of regional air quality management and development of new emission control strategies. The modeling study has been widely cited by Chinese policy makers, including the Beijing mayor, in requesting the government to implement unprecedented regional control programs to ensure that the air quality goals for 2008 will be met in Beijing.

This research was funded by the U.S. Environmental Protection Agency (EPA) to promote air quality in developing countries and provide a better understanding of regional air quality management and emission control strategies.

"Air quality in Beijing in the summertime is dictated by meteorology and topography," said David Streets, a senior scientist in Argonne's Decision and Information Sciences Division. "Typically, temperatures are high, humidity is high, wind speeds are low, and the surrounding hills restrict venting of



BEFORE AND AFTER — Photos show the same outdoor Beijing scene before (above) and after an October 2005 rain storm.

pollution. Thus, regional pollutants and ozone build up over several days until dispersed by wind or removed by rain.

“Our modeling suggests that emission sources far from Beijing exert a significant influence on Beijing’s air quality,” Streets said. “Typical industrial, coal-burning cities within several hundred kilometers of Beijing add to the local pollution. In these areas, emission controls on stationary sources and vehicles are not as stringent as in Beijing, and emissions are high. Each province’s contribution varies dramatically from day to day, depending on wind direction and other meteorological factors.

“The Olympic Games are of paramount importance to China,” he said, “and great steps have already been taken to ensure success.”

“The United States is diligently working with cities like Beijing to improve environmental controls and reduce emissions in the face of rapid economic development,” said Steve Page, director of EPA’s Office of Air Quality Planning & Standards. “Over the past several years, Beijing has implemented a number of measures to improve air quality, and China is now looking at regional approaches to meeting air quality standards similar to successful approaches used in the U.S. The air quality improvements from their actions will benefit everyone.”

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