

Weather Engineering in China

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By [Mark Williams](#) on March 25, 2008

The Chinese began experimental weather engineering in 1958 to irrigate the country's north, where average yearly rainfall compares with that during the [American Dust Bowl](#) of the 1930s, and sudden windstorms blasting down from the Gobi desert have made drought and famine constant possibilities. Today, the People's Republic budgets \$60 to \$90 million annually for its national Weather Modification Office. As for the return on this investment, the state-run news agency Xinhua claims that between 1999 and 2007, the office rendered 470,000 square kilometers of land hail-free and created more than 250 billion tons of rain—an amount sufficient to fill the Yellow River, China's second largest, four times over. Furthermore, while Qian's weather engineers in Beijing have been testing their capabilities for the past two years, the Chinese say that during the past five years, similar efforts have already helped produce good weather at national events like the World Expo in Yunnan, the Asian Games in Shanghai, and the Giant Panda Festival in Sichuan.

Although they possess the world's largest weather modification program, the Chinese point to the Russians as being the most advanced. In 1986, [Russian scientists deployed cloud-seeding measures to prevent radioactive rain from Chernobyl from reaching Moscow](#), and in 2000 they cleared clouds before an anniversary ceremony commemorating the end of World War II; China's then president, Jiang Zemin, witnessed the results firsthand and pushed to adopt the same approach back home. As for the historical credit for starting the whole weather-engineering ball rolling back in 1946, that belongs to employees of General Electric in Schenectady, NY—most notably, scientist [Bernard Vonnegut](#) (brother of the late novelist Kurt), who worked out silver iodide's potential to provide crystals around which cloud moisture would condense. During the 1960s and '70s, the United States invested millions of federal dollars in experiments like Stormfury (aimed at hurricane control), Skywater (aimed at snow- and rainfall increase), and Skyfire (aimed at lightning suppression). Simultaneously, the U.S. military tried to use weather modification as a weapon in Project Popeye, during the Vietnam War, by rain-making over the [Ho Chi Minh Trail](#) in an effort to close it.

Nevertheless, because weather is the epitome of a complex, emergent system, no analytical models or methodologies existed that produced data conclusively, proving that weather modification worked. In the United States, research funding died down and commercial weather modification efforts became hemmed in by stringent regulation. A 2003 report from the National Academy of Sciences concluded that despite more than 30 years of efforts, ["there is still no convincing scientific proof of the efficacy of intentional weather modification efforts."](#)

Still, according to William Cotton, a meteorologist at Colorado State University, “as far as the science of weather modification is concerned, the evidence that it works in certain situations is very compelling.” The Chinese are certainly in no doubt: once they have demonstrated their capabilities to the rest of the world at the Olympics later this year, the party’s central planners intend to expand their national weather modification program in 2010, turning the Weather Modification Office into a separate government ministry that will double the amount of rain-making and other weather engineering that China is now doing.

Credit: Xinhua

Tagged: Computing, forecasting, meterology, weather engineering

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