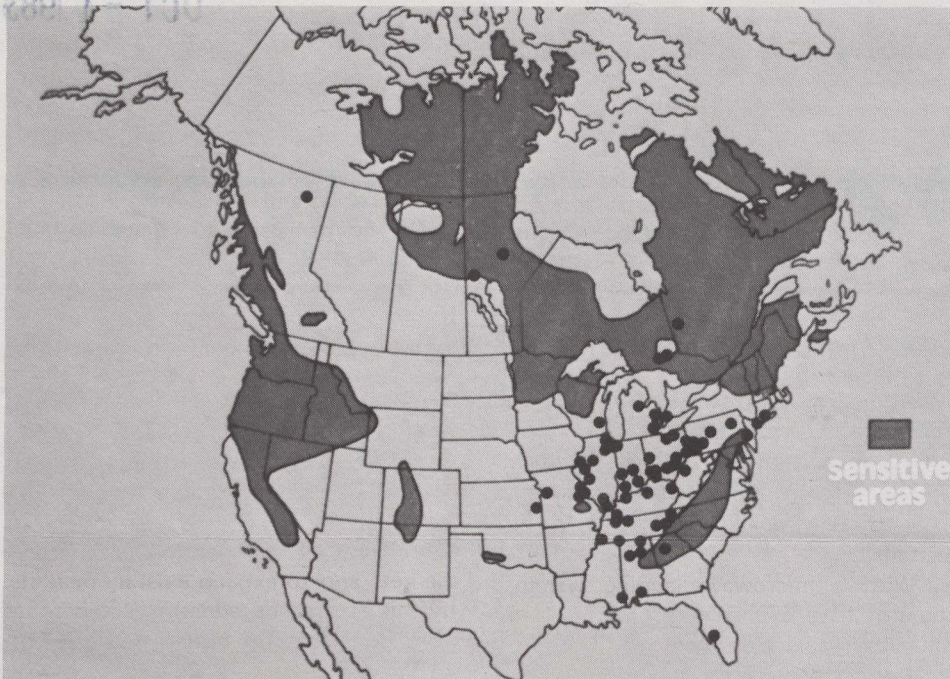


1989



The sections marked in black are low in natural buffers and are particularly susceptible to acidification. The dots indicate the areas with the heaviest concentration of sulphur dioxide emissions, more than 100 kilotons a year.

National Oceanic and Atmospheric Administration, the Environmental Protection Agency and the Electric Power Research Institute. CAPTEX is expected to cost \$2 to \$3 million, of which the Canadian government will contribute about 10 per cent.

The release sites chosen are near two of the main sources of air pollution in the northeastern United States and southeastern Canada. These are thought to contribute significantly to the acid rain problem in North America.

These experiments will provide even clearer confirmation that air pollution causing acidic precipitation can be carried



Lakes, particularly those in areas of granite or basalt bedrock, are showing serious signs of deterioration due to acid rain.

over great distances from one country to another. Mr. Caccia said, "the CAPTEX project will help in future refinement of the atmospheric models used in designing optimum emission control strategies in both countries".

Mr. Caccia described the agreement as "a good omen" on two counts. "First, it symbolizes a new period of closer co-operation in acid rain research between our two countries. Secondly, I sincerely hope that co-operation in research will lead soon to co-operation in the pollution controls we need in both countries to solve this terrible environmental problem."



Mounting evidence suggests that acid rain is accelerating the deterioration of forests.

Some facts about acid rain

What is it?

Acidity is measured by the pH scale of zero to 14. For example, a body of water with a pH reading of seven is neutral, those with higher readings are alkaline and those with lower ones acidic. Clean normal rain over continental areas is slightly acidic with pH readings of around 5.6. When the pH drops one point, the acidity rises tenfold. A pH of four is 100 times more acidic than one of six. The rain that now falls in the Adirondacks averages levels around 4.2

Where does it come from?

Acid rain occurs when sulphur dioxide and nitrogen oxides oxidize and then combine with cloud moisture to form mild solutions of sulphuric and nitric acids. The sulphur dioxide comes from the smokestacks of utility plants or smelters, the nitrogen oxides primarily from smokestacks and automobile and truck exhausts. Sulphur oxides are currently the main cause of acid rain. Utility and industrial plants in the United States produce about 30 million tonnes annually. Canada's smelters and plants contribute another 5.5 million tonnes.

What effects does it have?

Some geological areas are much more susceptible than others. Lakes in areas of granite or basalt bedrock (where there are few natural carbonates available as buffers) are particularly fragile. The acids damage buildings, monuments and statues, especially those made of limestone and marble. They combine chemically with the surface of the stone, and the surface flakes off. The Parthenon in Athens, which sustained virtually no damage through erosion in the previous 2 000 years, has been greatly damaged in the last 20 years. Many newer buildings, such as the Taj Mahal in New Delhi and the Canadian parliament buildings in Ottawa, have also deteriorated. Mounting evidence also suggests that acid rain falling on forests and other non-farmlands could, in time, cause extensive changes in the soil chemistry and could reduce forest productivity within 50 years.