

ENVIRONMENTAL ABUSE

Doomsday scenario spelled out for chemists

MIAMI BEACH, Fla. (AP) — Environmental abuse appears to be heating the Earth, damaging lungs, poisoning lakes, defacing monuments and shrinking the food supply, scientists warned this week at a conference of chemists.

A Canadian government pollution expert, Hans Martin, said the world "has messed up" for many years on the environment and warned damage to forests is worsening.

"Six of the warmest years in the last 100 occurred in the '80s," said Stephen Schneider, deputy director of the U.S. National Centre for Atmospheric Research. "And I'll give you odds that the '90s will be warmer than the '80s."

Doomsday scenarios of global warming, acid rain and ozone depletion — once only the province of radical environmentalists — topped the agenda at the American Chemical Society convention.

The amount of carbon dioxide, the largest component of the "greenhouse effect," has increased by 25 per cent in the atmosphere since the industrial revolution began, and 10 per cent since 1950. Methane, another heat-trapping gas, has doubled.

INSTALLATION
KEEPS EAR
TO GROUND

By Laurie Sarkadi
Edmonton Journal
YELLOWKNIFE, N.W.T. (CP) — It looks like a white metal barn with a satellite dish, but it houses technology capable of monitoring nuclear powers around the world.

Ten days ago, the Yellowknife Seismology Array detected an underground nuclear test explosion in the Soviet Union.

"We're happy they were good enough to co-operate and provide us with at least one explosion to show you the data from," Bob North, head of seismology with the Geological Survey of Canada, jokingly told 29 international scientists this week.

The Group of Scientific Experts of the Geneva Conference on Disarmament joined federal Energy Minister Jake Epp at the official opening of the array after a \$3.5-million, three-year refurbishing.

Built in 1962 to monitor seismic events, the array's advanced technology allows it to detect with 90-per-cent accuracy a blast equivalent to five kilotonnes of dynamite — one quarter the explosive power of the atomic bomb dropped on Hiroshima, Japan, in 1945 — or more set off anywhere in the northern hemisphere.

Ottawa built the array, one of 10 such facilities in the world, as a means of verifying compliance with an anticipated treaty that would ban all nuclear testing.

Treaties have been signed banning nuclear tests in the atmosphere, oceans and space, but underground tests are still carried out.

"Although three test-ban treaties have been signed and a fourth is under discussion, their effectiveness depends on compliance," Epp said in a speech to the scientists. "Compliance depends on adequate monitoring."

The Yellowknife facility was upgraded to improve its monitoring capabilities and to provide a direct satellite link to Ottawa.

North said technology developed since the late 1950s has, in some ways, acted as a stimulus for test-ban treaty discussions by proving to other countries a reliable monitoring system is possible.

"It's quite a task to monitor a treaty because basically it boils down to proving that of the 10,000 earthquakes detected each year every one is an earthquake."

Martine Debecker, a scientist with the Royal Observatory in Belgium, said the Yellowknife array is ideally located because pre-Cambrian rock, lack of industry and distance from an ocean shields it from background vibrations.

"I think this array is a major gift, not only to Canada, but to the world," she said.

The Yellowknife array, the only one in North America, consists of 19 seismometers planted one metre under the ground in a T-shape 2.5 kilometres apart.

When a seismometer detects a vibration it is amplified electronically and digitally translated into numbers which go into a radio transmitter. The transmitter sends the signal to an antenna at the array's computer centre, where the information is sent simultaneously via satellite to Department of Energy, Mines and Resources offices in Ottawa.

"It's like having a continuous walkie-talkie, but instead of voice, its numbers represent ground vibration," said Peter Basham, chief of the array project.

The system can determine the location of a blast to within 100 kilometres, he said.

The warmth will generate more killer hurricanes, change farming areas to deserts and raise sea levels high enough to cause major flooding and salinization of coastal water supplies and farm lands, Schneider said.

A worst-case scenario would raise the temperature over the next 100 years by up to five degrees, or more than the difference between the ice ages and warmer intervals — and that took 10,000 years to change.

"We probably entered (global warming) two decades ago, but it will take another two decades or so to be sure," he said. "The problem is, the experiment is in a laboratory called the earth."

Prompted by growing environmental concerns, the chemical society, which represents more than

137,000 chemists countrywide and has met annually for 198 years, scheduled three days of special sessions this week on atmospheric chemistry and the environment, and received scores of related papers.

Martin said half of the country's 720,000 lakes were affected by acid rain, the fallout from sulfur and nitrogen compound pollution.

Martin showed pictures of accelerating forest damage over the past decade from Canada to Czechoslovakia, saying little is understood about the phenomenon, but it is clearly worsening.

The death of the trees may be caused by pollution mobilizing aluminum in the soil — and aluminum, Martin notes, is also blamed for contributing to Alzheimer's disease in humans.

"Our society has messed up for 10 to 20 years, and will mess up for 10 more years," he warned.

But one of the most important changes has already occurred, most of the speakers agreed. Martin said environmental concerns are already listed by Canadians as their biggest concern.

A Texas A and M researcher found that increased ultraviolet light — an effect of the thinning

ozone layer — seems to kill phytoplankton in the Antarctic. The tiny plants, which Sayed El-Sayed calls the "grass of the sea," are the basis for the entire marine food chain.

A paper from the University of Copenhagen said human beings may already be feeling increased acidic air pollution in their lungs, including chronic bronchitis among those already suffering from asthma.

William Wilson, of the Atmospheric Research and Exposure Assessment Laboratory, showed that air pollution is becoming a major issue in art and monument conservation around the world. A paper by David Pimentel of Cornell traced the increasing insect-caused losses of corn and other crops despite a 1,000-fold increase in the use of polluting pesticides, and suggested other forms of managing farm yield.



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