

We're having a heat wave

Debbie Bodinger

By destroying our forests and burning so many fossil fuels, we may be creating drastic changes in the earth's climate.

This is the prediction of Dr. F. Kenneth Hare, a geography professor at U of T, and a member of the special progress panel on Eco-science for NATO.

Hare told a Glendon audience last Friday that the level of carbon dioxide (CO₂) in the atmosphere has been increasing for the past 20 years and that scientists think this increase could result in a heating of the earth's surface. Although they are not certain why the level of CO₂ is rising, the heavy consumption of fossil fuels (which release CO₂ when burn-

ed) and the wide-spread destruction of forests (which consume CO₂ and release oxygen) are likely to be two of the responsible factors.

A natural constituent of the atmosphere, CO₂ plays a major role in maintaining the earth's climate. Hare explained that radiation (heat) from the sun is quickly absorbed and re-emitted by the earth's surface. This energy would be lost into space were it not then absorbed and emitted back toward earth by certain gases in the atmosphere, one of which is CO₂. Thus, CO₂ forms an important part of the "blanket" insulating the earth's surface against heat loss.

If the amount of CO₂ in the air

were to increase, the atmosphere would become a better insulator and would trap more heat near the earth's surface. (This is known as the "greenhouse effect".) If the level of CO₂ continues to rise at the same rate as it has since 1957 when monitoring first began, said Hare, it would double within the next fifty years. And, as a result, the earth's temperature might rise by as much as two to three degrees centigrade.

Although two or three degrees may sound trivial compared to the tremendous day to day, and year to year, fluctuations that occur, the earth's average temperature has not changed by that much over the last ten thousand years, and that small difference could dramatically alter the world's climate.

The problem, Hare explained, is that the heating would not be uniform. For geographical reasons, some places would heat up more than others, and since weather is created by hot air moving to cold places, and vice-versa, the entire planetary weather pattern could change. Deserts could become lush, and agricultural lands could become dry and barren. Contrary to



popular belief, the sea level would probably not change much. Most of the ice that would melt, said Dr. Hare, is already in the sea.

How likely is all this to happen? "There is no doubt," Hare stated,

"that the level of CO₂ is rising. This is one of the few environmental threats we can verify." But, what we don't know, he added, is if it will continue to increase, and if it does, whether it will lead to the heating effect hypothesized. While this is what our scientific models predict, there could be off-setting factors of which we are not yet aware. (Some scientists believe, for example, that there is an increase in the amount of dust in the air that is causing a counterbalancing cooling effect.) Also, it is hard to determine if the temperature of the earth actually is changing, because there is so much normal variation from year to year.

In spite of these uncertainties, Hare concluded that a climatic change does seem probable. He feels that our best course may be to prepare for possible changes rather than trying to prevent them, which could be impossible. And by the way, if you're now dreaming of retiring in a Toronto with the climate of the Mediterranean, you can forget it. The best we're likely to get, according to Dr. Hare's predictions, is the climate of St. Louis.

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