

# Nuclear autumn danger

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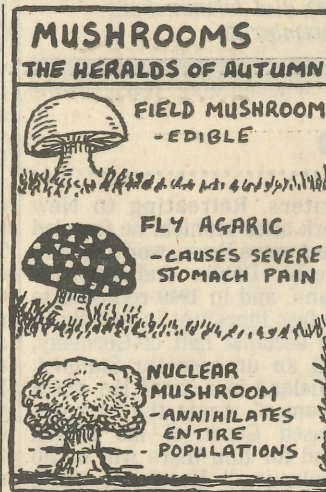
Last month was the fifth anniversary of the publication of the results from the first global model which simulated the effects of a nuclear war on the earth's climate. The model suggested that the huge volume of smoke injected into the atmosphere by the blasts, and more importantly by the subsequent surface fires, would reduce surface temperatures by up to 20C over continental areas for prolonged periods.

Lesser cooling effects would spread into the southern hemisphere. This catastrophic by-product of a nuclear war was termed "nuclear winter".

In the past five years considerably more has been discovered about these likely post-nuclear climates. We can identify four main things:

A nuclear war is likely to have a far bigger impact on the earth's climate if it is fought in the northern hemisphere summer rather than in winter since a much greater amount of solar radiation would be intercepted by the smoke.

More sophisticated computer models of the earth's climate now suggest that the resulting temperature decreases would at



most be 10C during the summer and a few degrees during winter. This has translated "nuclear winter" into "nuclear autumn".

Even a nuclear autumn, however, would have chronic effects on agriculture, vegetation and animal life. By altering the length of growing seasons and changing temperatures and rainfall, severe damage would be done to a range of the more sensitive plant and animal species.

And, most recently, the sub-

stantial warming (+20C to +50C) which is predicted for the stratosphere at the outer margins of the atmosphere, could well upset the chemistry that protects the ozone layer.

Depletions in ozone of up to 50 per cent could occur, not just over the Poles where current concern is focussed, but over large sections of the whole northern hemisphere.

Although the original severity of the nuclear winter predicted by the 1983 model has been scaled down, the clear likelihood of a major global climatic catastrophe following exchanges in a nuclear war remains with us.

The explosion of a just small proportion of existing warheads would trigger the atmospheric feedbacks. The ensuing chaos and damage to our environment is clearly a factor in the arguments for or against the nuclear deterrent.

It could be disastrous unless we make sure that, as the Prime Minister said recently in a different but relevant context, such "a massive experiment with the system of the planet itself" is never carried out.

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