

## Air Pollution—A National Concern

In the May 1978 issue of the BULLETIN (pp. 585–586), a Statement of Concern regarding the national problem of flash floods was published. The Statement, which includes considerable useful information, ranks flash floods “as the major killers and destroyers among weather-related disasters in the United States.” However, if the scope of concern is enlarged to include all weather-related phenomena, the rank of top killer shifts to air pollution. Since weather is defined as “the state of the atmosphere, mainly with respect to its effect upon life and human activities” by the *Glossary of Meteorology* (Huschke, 1959), it is appropriate to consider air pollution as a weather-related hazard.

The following is a list of the best estimates available for the average number of lives lost per year in the United States due to the major weather hazards:

Lives Lost	Weather Hazards
7	Avalanche*
103	Urban snow*
80	Windstorms (other than hurricanes and tornadoes)*
200	Floods (flash and general)†
75	Hurricanes‡
100	Tornadoes‡
150	Lightning‡
15 000	Air pollution§

\* White and Haas, 1975.

† AMS, 1978.

‡ NRC, 1977.

§ HEW, 1976.

For some of the phenomena it is comparatively easy to determine the number of fatalities because the mortal injuries sustained are inflicted suddenly and death usually follows quickly. For these events, the causes can be straightforwardly attributed to the particular weather event (such as flash floods). The total deaths from air pollution, however, cannot always be estimated so easily, since poor air quality can act insidiously over a long period of time as well as in the shorter time frame. Only during pollution stagnation events is the effect dramatically clear. For example, 200–400 persons died in New York City during a stagnation period in January and February 1963, and 4000 individuals died in London from a similar event in December 1952. Hodgson (1970), as reported by Masters (1971), found from a study of short-term effects of air quality over New York that the level of air pollution is linearly related to mortality. Thus, a given increase in air pollution seems to result in the same increase

in the death rate at low levels of pollution as at high levels.

In fact, the effects on health of poor air quality can have a long period of latency, and many deaths may occur due to diseases such as emphysema and cancer years after the initial exposure, making it impossible to positively ascertain the specific cause. Some of these deaths could be due to only a single exposure of a particular contaminant, whereas others can be a result of long-term exposure at low dosage levels. Because of this uncertainty, the number of deaths can only be estimated. The National Institutes of Health recognizes this serious health problem and is initiating a series of epidemiologic studies to determine the contribution of environment to premature death. One example of NIH's effort is a solicited proposal to help explain high rates of lung cancer in certain Pennsylvania communities in the vicinity of a nonferrous zinc smelter.

Because of the serious impact of air pollution on environmental health and well-being, it is essential that forecasts of air quality and education of the public to air pollution hazards be strongly encouraged and that the daily dissemination of this valuable information be initiated. Anyone who has seen joggers run alongside busy highways realizes that education of the public could be as simple as informing individuals where and when to run.

Flash floods, of course, remain major killers and destroyers in this country, and efforts at community preparedness, improved forecasts, and better dissemination must be continued and expanded. As shown in the list above, however, the deaths by air pollution exceed the combined deaths from the other listed weather hazards! A major effort at community preparedness, improved public forecasts, and better dissemination is also needed to combat problems with the air that we breathe. The AMS should formally recognize this concern in a statement on Air Pollution—A National Concern.

### References

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<sup>1</sup> This section of the BULLETIN is made available to members who wish to express opinions about problems of concern to the AMS. (For guidelines followed in accepting letters, see “Minutes of the Council,” BULLETIN OF THE AMS, 51, p. 40, ¶4; 51, p. 434. ¶7.) The opinions expressed in “Letters to the Editor” are those of the writers and do not represent the official position of the American Meteorological Society.