

## **ATMOSPHERIC DUST AND OTHER PARTICULATES DEFINING THE RISKS FROM A MEDICAL GEOLOGY PERSPECTIVE**

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It has been estimated that as much as 2 billion tonnes of dust is entrained in the atmosphere per annum. Exposure to dust in the open environment is usually accepted as a fact of life, while exposure to dust in the workplace is regulated to a greater or lesser degree in many countries. While the impacts of dust from industrial processes on human health is well recognized and widely regulated, less attention has been paid to dust from geological sources and to less visually obvious finer particulates. This is, perhaps, due to information being widely scattered in scientific papers with few, if any, widely accessible syntheses of the key facts. Also, research is in many respects at an early stage because of practical difficulties of observing, monitoring and sampling diffuse aerosols in the complexly moving atmospheric column. However, dust performs an important function in the atmosphere, with individual particles acting as nucleation centers for droplets that become precipitation (rain, snow etc) that is essential to life and geomorphological processes. Deposited dust may also, in time, add beneficially to soil formation. There is a need to promulgate present knowledge more widely and to identify matters that need more research in order to address the impacts on people, agriculture, livestock and the natural environment. An important step in elucidating the role of atmospheric dusts and health is to facilitate cooperation among geologists, environmental scientists, and medical specialists (including epidemiologists), to characterize the properties of contaminants, their dispersal, and the toxicological pathways of the elements they transport. Of relevance is the emerging field of Medical Geology which is aimed at assessing the impacts of natural environmental risk factors and processes on animal and human health. This presentation stresses the global scale of the problem, which is under-evaluated and under-reported in terms on environmental management and health implications.

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