MEDICAL GEOLOGY: MINERALIZED ENVIRONMENTAL DUST AND ITS IMPLICATIONS TO HUMAN HEALTH

José A. Centeno

Armed Forces Institute of Pathology, Dept. of Environmental and Infectious Disease Sciences, Washington, DC 20306-6000, USA

Abstract: Much of the medical geology studies in which earth scientists have been traditionally involved have been focused on how chemical elements in rocks, soils, and sediments are transmitted via water or vegetation into the food chain, and how regional geochemical variations can result in disease clusters, either through dietary deficiency of essential elements or dietary excess of toxic elements. Today, the increasing environmental and natural exposure to dust particles, airborne microorganisms and pathogens pose a significant public health problem and has triggered widespread concern among health professionals and communities. Ambient dust may absorb harmful gases, toxic metals, disease-generating bacteria, and even carcinogenic hydrocarbon compounds. Recent work in China, for example, has shown that the denser the ambient dust, the higher the rates of chronic respiratory disease and associated death rates. Respiratory disease may also exacerbate cardiac problems. The aims of this presentation are: (1) to share the latest information on mechanisms by which dust related materials can influence human health, (2) to improve our understanding of the occurrence, composition, and mobility of dust particles; (3) and to increase awareness and to improve collaborations between geochemists and biomedical, public health scientists with research interest on this topic.