

Medical Geology: The Interdisciplinary Study of the Relationship Between Geological Factors and Health Problems in Humans, Animals and Plants

David Elliott

Medical Geology is defined as the science dealing with the relationship between geological factors and health problems in humans, animals and plants. The field of study is complex and requires a multidisciplinary approach using a wide variety of specialists from geologists, geochemists, pathologists and medical doctors to veterinarians and biologists. Medical Geology is a rapidly growing field which brings together geoscientists and medical/public health researchers to address health problems caused, or exacerbated by geological materials (rocks, minerals, atmospheric dust and water) and processes (including volcanic eruptions and earthquakes). Among the environmental health problems that geoscientists are working on in collaboration with the medical and public health community are: exposure to toxic levels of trace essential and nonessential elements such as arsenic and mercury; trace element deficiencies; exposure to natural dusts and to radioactivity; naturally occurring organic compounds in drinking water; volcanic emissions, etc. Medical geology also deals with the many health benefits of geologic materials and processes.

Other examples of medical geology issues include:

Iodine Deficiency Disease, one of the most prevalent deficiency diseases, affecting over a billion people in areas where there is low iodine in soils formed from the underlying bedrock.

Arsenosis from the use of groundwater with low levels of arsenic, affecting millions of people in the Ganges river basin and delta.

The relation between water hardness and heart disease. Higher rates in areas with low groundwater hardness.

Podioconiosis (elephantiasis), due to entry of fine silica through the soles of the feet in parts of Africa.

Dust storms and their effect on human health, including Valley fever. Silicosis.

The International Medical Geology Association was founded in 2006 as an outcome of an IUGS Special Initiative on Medical Geology that started 1998. At the present time, IMGGA has local Chapters in 13 countries, offers short courses, a bi-annual newsletter, and organizes and participates in conferences on medical geology.

The poster will provide information on Medical geology and provide examples of the interaction between human health and the geological environment.