

Medical Geology: Relevancy to the Caribbean and Central America

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Abstract

Every day of our lives we eat, drink, and breathe minerals and trace elements. For most of us this interaction with natural materials is harmless, perhaps even beneficial, supplying us with some essential nutrients. However, for some, the interaction with the minerals and trace elements can have devastating, even fatal effects.

Medical geology is the discipline that correlates the effects of geologic materials and processes on animal and human health. Residents of the Caribbean and Central America have experienced a range of medical geology issues and are yet to experience more issues as we experience changing geosystems. These include: deposition of millions of tons of African dust that may contain potentially toxic elements and various pathogens; exposure to heavy metals such as lead, cadmium, and arsenic; dental fluorosis caused by high fluorine content in drinking water; deficiencies of iodine and selenium; exposure to radon; and a deadly fungus mobilised by earthquakes and may impact people in northern Mexico. Other potential issues that geoscientists can help address include: exposure to potentially toxic trace elements in Jamaican bauxite; health effects of methyl mercury from fish consumption; and, the possible health effects of fugitive organic compounds from the oil and gas industry. These health problems and others may be triggered by natural disasters such as earthquakes, volcanoes, tsunami and landslides.

The medical geological legacy of these natural phenomena is a fertile area for research. The impacts of geologic materials and geologic processes do not always have adverse health impacts. There are many beneficial effects of natural waters (balneology) and therapeutic uses for various clays, rocks, and minerals. In every case there are opportunities for geoscientists to work with public health researchers to mitigate a range of environmental health problems and explore the beneficial aspects of our natural environment.