

## Health and Earth – The Emerging Discipline of Medical Geology

**Invited Speaker: Prof. Dr. Jose A. Centeno** (International Medical Geology Association);  
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**Abstract:** Emerging diseases commonly present the medical and health community with many challenges. However, emerging disciplines may offer these communities new opportunities to address a wide range of health problems, including the emerging and re-emerging diseases. One such emerging discipline is Medical Geology, a rapidly growing discipline that has the potential to help medical and public health communities to pursue a wide range of environmental health issues. Medical Geology can be considered a complement of environmental medicine dealing with the impact of the natural geologic materials and geologic processes on the incidence and spatial/temporal distribution of human and animal diseases. Among the environmental health problems that medical scientists are working with the environmental/geosciences community are: exposure to toxic metals of such as arsenic, lead, mercury, and uranium; exposure to naturally occurring organic compounds in drinking water and soils; and exposure to natural and anthropogenic dust and particulate matter. Dust particles are a widely dispersed component of the Earth's atmosphere, often forming extensive plumes

that derive from volcanoes, dust storms, long-range transport episodes of desert dust, and displacement through natural processes such as landslides and earthquakes. Although the consequences of this type of exposure are not fully understood, modern medical and environmental techniques offer promise of developing innovative solutions to prevent or minimize exposure to potentially deleterious natural environmental pollutants and processes. In this presentation, we provide an overview and examples of some of the health problems being addressed by medical geologists dealing with exposure to natural materials and environmental processes.

### Suggested Reading

Centeno JA. Natural disasters and their long-term impacts on the health of communities. *J Environ Monit* 2008;10:266.

Selinus O, Alloway B, Centeno JA. *Essentials of Medical Geology – Impact of the Natural Environment on Human Health*. Elsevier & Academic Press;2005. ISBN:0-12-636341-2.

Bunnell JE, Finkelman RB, Centeno JA, Selinus O. Medical Geology – A Discipline Emerging Globally. *Geological Acta* 2007;5(3):273-281.

**Short Curriculum Vitae:** Jose A. Centeno, M.Sc., Ph.D., FRSC, is a graduate from Michigan State University and a research scientist with over 20 years of experience in the fields of environmental toxicology and medical geology. Dr. Centeno is a founding member and the current Chairman of the International Medical Geology Association (IMGA). He is the US Officer of the IUGS-Commission on Geosciences for Environmental Management (GEM) and has served as Senior Adviser, UNESCO-IUGS-International Year of Planet Earth (2007-2009). Dr. Centeno currently hold adjunct faculty positions at several national and international academic centers and universities including Turabo University in Puerto Rico (as Distinguished Professor, Environmental and Health), Jackson State University in Jackson, Mississippi, Metropolitan University in Puerto Rico, and the Faculty of Chemistry-University of the Republic of Uruguay. Dr. Centeno is author and coauthor of over 200 publications (manuscripts, book chapters, reports, monographs and research abstracts), co-editor of the book "Essentials of Medical Geology – Impacts of the Natural Environment on Public Health" (2005) and "Medical Geology – A Regional Synthesis" (2010), serves on the editorial board of four scientific journal,

and has organized several national and international conferences, including as the founding member of the International Medical Geology Conference series. He has been involved in numerous academic, government and professional activities including serving as a member of the Working Group for the International Agency for Research on Cancer (IARC, Vol. 74), US National Institutes of Health (NIH) grant proposal Study Sections, USAID grant proposal Review Panel, USEPA TOSCA Interagency Testing Committee, US National Research Council Committee on Earth Sciences and Public Health, and National Academies – Board on International Scientific Organizations (BISO). He is the recipient of several national and international awards, and has been invited to speak in more than 50 countries.