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The geophysical precursors of earthquakes: Emission of radon-222 and ionizing radiation in imminent earthquakes – The proposal of a seismic warning network for Ecuador

The predictability of earthquakes is now object of contrasting opinions, for strictly scientific problems type (the difficulty to correlate closely certain precursors to the occurrence of the phenomenon in a certain interval of time, space and intensity) and social (the management of the reactions of the population in face of an alert which is difficult predict the duration and the real level of risk). However, new knowledge in the fields of nuclear physics, geophysics and geochemistry, together with the availability of new technologies that make it possible to accurately detect certain phenomena, have opened new perspectives to the opportunity to know, with sufficient precision, if or not will be an imminent earthquake, the epicentral area and its intensity. Based on these new principles, is already being tested, since 2001, first in Italy (No. 3 stations), after in Island of Taiwan (No. 4 stations) and now in California (No. 3 stations) a methodology using joint the analysis of 222Rn gas emissions from the Earth's crust, and the emissions of ionizing radiation from the Earth's surface via satellite systems. In the specific case of the Ecuadorian territory, always affected by seismic and volcanic phenomena, already today, for occurrences of volcanic eruptions and tsunamis, is operating an efficient system of managing these risks. In the case of Ecuador, would be placed No. 5 gamma detectors along the hinterland of the coast, at a distance therefore rather reduced from subsidence line between the Nazca and the South American plate, and in any case at a sufficient distance from active volcanoes, to prevent interference. Is therefore expected that is possible to study the response of the method in an area particularly affected by continuous and intense crustal movements, and where is monitored by other parameters that can be compared with the new exposed here.

Biography

Gualtiero A N Valer studied Industrial Chemistry and Chemical Engineering in Padua, Informatics in Lugano. He is a member of the Tiberina Pontifical Academy in Rome; Director of the Department of Chemistry, Santa Rita University in Rome; President of the Montevenda Engineering International Association, Association for the Development of Ethical Engineering, Lugano and; Vice-president of the Scientific Commission of Mediterranean Parliament. He obtained various scientific awards, including the "J. Benveniste" Award for Biophysics and the "Hippocrates" Award for Medicine. At present, he is the CEO and co-owner of two companies in the field of R&D, in Stabio and Geneva (Switzerland). Also, he works as Consultant in the field of Chemistry, Environment, and in General of Applied Sciences, with headquarters in Lugano and laboratory in Stabio. He obtained nine industrial patents in the field of Chemistry and Engineering.

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