



Anomalies in the variations of the radon concentration related to geodynamical processes in the volcano Popocatepetl, Mexico

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Analysis of the variation of the concentration of radon (noble gas with natural radioactivity) measured in the area of the volcano Popocatepetl is presented. Permanent observations were performed at different places (Tlamacas station, Paso de Cortes, and the referent site in Amecameca) during December 2007 - January 2009, data were collected by identical Radon Scout instruments (manufactured by SARAD company) with integration time 1 hour per sample.

Our analysis reveals certain stable tendencies. First of all, averaged values of the radon concentration observed in the volcano sites (Tlamacas and Paso de Cortes) are 4-10 greater of those measured in the Amecameca referent site. Then, there is a distinct difference between the data recorded at 2 volcano sites. Paso de Cortes (20 km away from volcano) data regularly manifest high level values with only diurnal variation, unlike the Tlamacas station (4 km away) data display considerable variations possibly associated with volcano geodynamics. Thus, there are numerous gradual depletions of the radon concentration with duration from about 12 hours up to several days. We associate most of observed anomalies with 2 volcano-related events:

1) in major cases radon depletions anticipates moderate volcano eruptions, and 2) some of the observed anomalies accompany tectono-volcanic events.