

PEDOLOGICAL TRANSFORMATION SYSTEMS AND RADON FLOW IN HUMID TROPICAL LANDSCAPES

1REBELO, A.M., 2BITTENCOURT, A.V.L. e 2MANTOVANI, L.E. Nuclebrás. Curitiba. Paraná. 2Universidade Federal do Paraná. Curitiba. Paraná. BRAZIL

Main relationships were established between the Radon (^{222}Rn & ^{220}Rn) flow intensities and morpho-dynamic elements of the pedological transformation system plintisol/ultisol in tropical humid countries. These relations are important in the focused context, because the models based uniquely in litho-structural, statistic and gamma-radiometric criteria, cannot predict the preferential places of Radon concentration, in landscape. This element, responsible for about 50% of the radiation usually received by humans, might cause lung cancer and other carcinoma. Accurate prevision models adapted to different landscapes are a powerful tool to avoid this kind of aggression to human health. The integrated use of pedological transformation system and the concept of landscape geochemistry, materialized by climatic, hydrogeologic and Th/U-U_s/U_t, makes it possible to understand the role of the slope evolution in Radon generation, emanation, migration and exhalation. We considered the system ability to promote a secondary pedogenetic generation of U and Th(Ra) anomalies. These anomalies, associated to B-textural horizons in ultisols, are stronger and with more adsorbed U proportion than in B-oxic. In this case there is also a significant change in the water regime of phreatic aquifer, increasing the versant slope angle and changing the permeability of soils. These factors, brought about by the podzolization, lead to the more intense Radon flow in ultisols as compared with plintosols. This model is particularly valuable for landscapes developed over granites and characterized by the association plintisol/ultisol.