RIO-RAD PROJECT: MAPPING OF THE NATURAL RADIOACTIVITY AT THE STATE OF RIO DE JANEIRO AND ITS RELATION TO ENVIRONMENTAL PARAMETERS.

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The State of Rio de Janeiro, in spite of its very short extension, presents a large diversity of environmental aspects concerning its geomorfology, vegetal covering, climate, pedology and geology. Nevertheless, the knowledge of the relation of these parameters to the natural radioactivity found in soil contents is very scarce. This work presents a multivariate analysis of geo-environmental parameters and eTh-232, eU-238 and K-40 associated. The basis of this study employed a high resolution aerogamaspectrometry survey developed by a Brazilian Mineral Resource Program by the end of 70 decade and digital processed maps of environmental parameters owing to stablish a correlation between them. In situ gamaspectrometry; termoluminescence dosimetry; geological and geochemical analysis of topsoils from approximately 500 sampling stations, were used to validate linear mathematical models that relate gamma exposure rate and average radionuclide activities in surface soil and additionally to verify the relation between the aerial and lithological data.