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# AEROGAMMASPECTROMETRIC ASSESSMENT OF RADON EMISSION POTENTIAL AND RADIOMETRIC ANOMALIES IN ITABORAÍ, BRAZIL

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**SUMMARY**

The radon distribution in the air is associated with geological processes, such as the leaching of uranium thorium present in rocks that liberate natural occurring radon gas which will be trapped inside rocks. And once they reach the surface, radon is usually located up to 9 meters high. Thus, having the possibility of contaminating the air and degrading the local ecosystem. Therefore, it's necessary to analyze the correlation between the levels of uranium thorium, with the geomorphological characteristics of the region and dose rate distribution (nSv/h). The goal of the research was to identify areas with a greater disposition to accumulate radon and quantify the dose rate levels in the region, keeping in mind the possible risks to human health. To this end, the presence of radon in the soil was assessed based on estimates of the dose from radionuclides $^{238}$eU and $^{232}$eTh based on aerogammaspectrometry data obtained in the municipality of Itaboraí, State of Rio de Janeiro. The integration of geophysical and geological data made possible the delimitation of priority areas for monitoring, with the aid of a total dose map, aiming to find areas with greater radiation emission potential. Furthermore, geological faults were observed sometimes converging in low relief areas, suggesting possible radon entrapment. Thus, the results reinforce the importance of detailed *in loco* analysis for better understanding subsuperficial and superficial gas dynamics. Therefore, it was possible to build a dose rate map, based on the relative mobility of radioisotopes and regional geology. The paragon proposed integrates aspects of mineralogy, erosion processes and topographic variations, composing an effective tool for radiometric tracking.

***Keywords***: Radon, Aerogammaspectrometry, Structural Geology, Dosimetry, Itaboraí.