

I Studies of natural and artificial radioactivity in Brazil

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Studies of natural and artificial radioactivity started in Brazil, as well as in other countries, as a consequence of the 1956 recommendations of the United Nations Scientific Committee on the Effects of Atomic Radiation (UNSCEAR). Brazilian scientists from the Pontificia Universidade Católica do Rio de Janeiro and the Biophysics Institute of the then Universidade do Brasil (now, Universidade Federal do Rio de Janeiro – UFRJ) joined their efforts with American scientists from the New York University, with the support of the United States Atomic Energy Commission (USAEC) and the Brazilian Nuclear Energy Commission (Comissão Nacional de Energia Nuclear – CNEN). Such efforts resulted in wide research spectrum encompassing studies from radioactive fallout from weapons tests to natural radioactivity in soils and plants. The studies of natural radioactivity were carried out mostly in Morro do Ferro, Guarapari, and Araxá, which are known to be areas of elevated natural radioactive background. The radioactive fallout measurements were concentrated in Rio de Janeiro. In some cases the areas of elevated natural radioactivity are associated with rare earth sands (Guarapari), pyrochlore and apatite (Araxá), and bauxite (Morro do Ferro). Thus, such areas present opportunities to compare the original radioactive baseline vis-a-vis the current situation of the technologically enhanced naturally occurring radioactive materials (TENORM) in the same site. The studies of artificial radioactivity provide information on circulation of radionuclides from the weapons tests in the Southern Hemisphere. The paper will discuss the importance of re-examining the available data under new light.