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A study of the relationship between the activity concentrations of naturally occurring uranium and radium in various locations in the South Africa.

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**Abstract content
 (Max 300 words)**

Potassium, thorium and uranium are naturally occurring radionuclides of primordial origin. The characteristic concentrations of these radionuclides can be utilized as indicators in geological exploration. Radium is a long-lived daughter of uranium but with different chemical and physical interaction characteristics. This article investigates the general relationship between the concentrations of uranium and radium in various natural settings. Samples were collected from diverse locations around the South Africa and laboratory gamma ray spectra for each were obtained and analysed. The concentrations were extracted and compared and distinctive relationships between the concentrations of these nuclides are demonstrated and discussed. The relationships were then related to the physical properties of these nuclides and the environment.

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