

## Determination of Natural Gamma Radioactivity in Sand along the Black Sea Coastal Region of Giresun, North Turkey

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**Abstract :** In this study natural gamma radioactivity levels are determined on sands along the coastal regions of Giresun/Turkey. The coast of Giresun about 290 km long in investigated to collect 101 sand samples. Natural and artificial radioactivity concentrations of sand samples were measured by using HPGe gamma spectrometry. The average activity concentrations of  $^{238}\text{U}$ ,  $^{232}\text{Th}$ ,  $^{40}\text{K}$  and  $^{137}\text{Cs}$  on sand samples of Giresun were found to be  $10.83 \pm 2.92$  Bq/kg,  $21.28 \pm 3.22$  Bq/kg,  $6.42 \pm 1.06$  Bq/kg,  $230.94 \pm 10.67$  Bq/kg respectively. The average activity concentrations for these radionuclides were compared with the reported data of other parts of Turkey and other countries. The average absorbed dose rate for Giresun was calculated to be 38.68 nGy/h respectively. This value is significantly lower than the World averaged value of 60 nGy/h. The external annual effective dose rate concentration in Giresun was found to be 0.047 mSv/y respectively. This result is much lower than the recommended limit of 5 mSv/y. The external hazard dose rate for Giresun was calculated to be 0.21 respectively. This result is much lower than the recommended limit of 1.0.

**Keywords :** concentration, radioactivity, Giresun, natural gamma radioactivity

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