

DETERMINATION OF THE RADON CONCENTRATION AND RADIOACTIVITY LEVEL In KARACA CAVE

A. KARA, S. KAYA, A. ÇELİK*, N. ÇELİK, ve U. ÇEVİK

*Karadeniz Technical University, Faculty of Arts and Science, Department of
Physics*

61080 Trabzon, Turkey

**Giresun University, Faculty of Arts and Science, Department of Physics
28200 Giresun, Turkey*

**Corresponding author. Tel/Fax: +90 462 3773819/+905358173087
E-mail address: ayhankara@ktu.edu.tr (A. Kara)*

In this study, the radon gas concentration in the Karaca cave which is open to tourism has been determined and the negative effects of radon gas on people were discussed. Karaca cave (Gümüşhane) is visited by many tourists every year. The measurements of radon gas concentration which affects the health of human beings negatively and even causes the lung cancer when it reaches high points have been done for the summer and winter season. LR-115 passive radon detector was used to determine radon concentrations in the cave both winter and summer season. The average radon concentration in the Karaca cave were determined as 823 Bq/m^3 and 1023 Bq/m^3 for the summer and winter season, respectively. Moreover, to find out the natural radioactivity in the cave, the gamma spectroscopic analysis of soil, stone and stalagmite samples were carried out and their relations with the radon gas in the cave atmosphere was analyzed.

Keywords: Cave, Radon, Radioactivity, Lung cancer