

O14-1**RECONNAISSANCE RADIOMETRIC STUDIES FOR ENVIRONMENTAL IMPACT IN ISTANBUL CITY****IBRAHIM AYDIN¹** and **AHMET ERCAN^{2,3}**¹ M.T.A. Geophysics Department, Ankara, Turkey² YERALTI ARAMACILIK, Spor Cad., Acisu Sk., No 9/2, Macka, Besiktas-Istanbul, Turkey³ Prof. Dr., ITU, School of Mining, Dept. of Geophysics, Maslak- Istanbul, Turkey

Gamma-ray spectrometry is the most useful tool in detecting the natural radioactivity and monitoring the man-made radioactivity. Highs in both natural and man-made radioactivity are extremely harmful for human health. Most of the West European countries and North American countries are aware of this fact and have intensive researches on these aspects and suggestions for taking measures in reducing the impacts of the high natural radioactivity.

On this occasion, a reconnaissance gamma-ray spectrometry surveys has been carried out in the territory of Istanbul, in 1996-1997. A six-channel (TC, TC-S, K, U, U+ and Th) Urtec UG-140 gamma-ray spectrometer with the crystal volume of 9 cubic inches was used to measure the counts in these six channels. Accumulation time of readings in the channels was selected as being 300 seconds. All readings were then reduced to one second and mapped.

The weak anomaly in U channels has been enhanced in U+channel as it was expected. There is a good compromise in between TC and TC-S, also TC and U anomalies. High K and U anomalies are in harmony very well. Eyup-Ikitelli-Hadimkoy line shows high U and K values. Ballica (Suluca) and Sarigazi (Yenidogan) line exposes high K values. Same line extending towards Anadoluhisari has also high U values. K values in both sides of the Bosphorus are low. However, Sariyer, A.Kisari and Kadikoy have individual high U values. Rest of the Bosphorus has low U values. High U and K values are on the Devonian and partly Silurian aged units in the Anatolian side of the study area. High K values might be caused by acidic intrusive and their alteration zones, clayey zones or carbonous formations in the Devonian and Silurian units. Same zones may contain high uranium concentrations as well. High U and K anomalies stand on also Devonian and Silurian units in the European side of the study area. Most probably, high and low U and K values along the Bosphorus and at the inhabited parts of the city do not reflect the natural radioactivity raising from the geological units. They might be caused by the asphalt on the roads, buildings constructed with different materials and rubbles and so on. Though high thorium values are expected on the basic rocks or their sediments and metamorphics but large part of the study area has moderate Th values are seen only on a few reading stations.

It could be important to take measurements in the central part of city, which are Besiktas, Macka, Nisantasi, Sisli, Taksim, Beyoglu at where there are traffic density and large population.

