MEASUREMENTS OF SOIL GAS RADON IN AHWAZ FAULT, IRAN

Bahman ESMAEILI
Senior Engineer, Engineering Department of Kayson Company, Tehran, Iran
bahmanesm@yahoo.com

Mehdi ZARE
Associate Prof., IIEES, Tehran, Iran,
mehdi.zare.iran@gmail.com

Bahram SAMANI
Senior Advisor, Kayson Company, Tehran, Iran
bahramsamani@gmail.com

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Radon (Rn) is a gasous element and could be released from interior layers to surface through the faults and joints. Alpha particles are emitted from Radon, so Radon gas can be measured by this property (Ghanadi Maraghe, 2003). The unit of measurement of Radon gas is Beqrel and it is shown by Bq/m^3. Radon measurement technique is proved to be a good tool for detection and mapping of active faults, and also in the case of continuous monitoring of Radon anomalies connected with earthquake events (Inceoz et al., 2006).

In this study track detector RAD7 is used in order to determine the changes of Radon gas density in Ahwaz Fault district. Ahwaz Fault is a reverse type with about 100 km length, northwest to southeast direction and a slope towards northeast. The Fault passes through the city centre, parallel with Ahwaz unsymmetrical overturned anticline. The dip of the Northeast flank of the anticline is about 15 degree toward northeast, but the dip of southwest overturned flank is about 75-80 degree toward northeast. Measurement of Radon gas was carried out in two sections in order to find the exact location and trend of Ahwaz Fault (McQuarrie, 2004). First section was located in south-east of Ahwaz city in Mosharrahat district and the second was located in north-west of the City in Hamidieh Road.

Table 1. Alpha Particle Decay in Radon Element

No.	Radioactive Element	Life Time	Maximum Energy (MEV)
1	222Rn	1600 Year	4/69
2	220Rn	3.825 Year	49.5
3	218Rn	0.035 Sec.	7.13
4	210Rn	138.38 Day	5.36

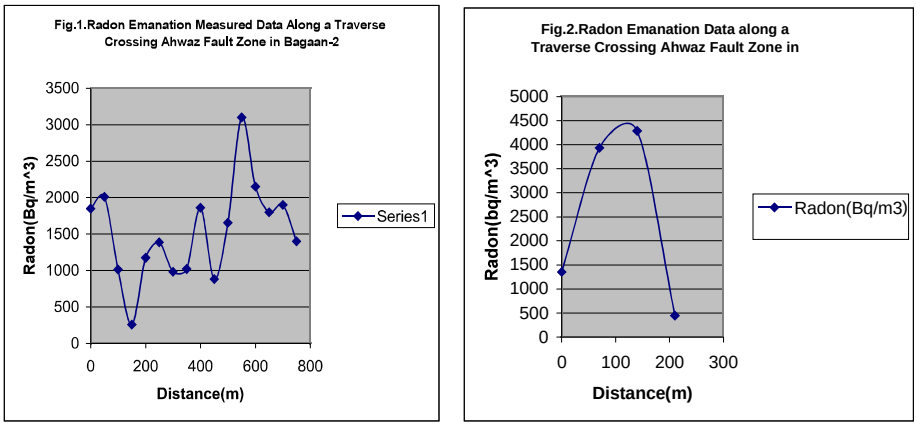

Figure 1. Measurements of soil gas radon in, Mosharahat Mountain (left) and Hamidieh Road (Right)

Figure 2. Measurement of Gas Radon in the field

As it is presented in Figures 1 and 2, the measurement results of Radon gas, show clear increase or pick on Ahwaz Fault (Samani et al., 2007). These graphs indicate the exact location of Ahwaz Fault in north-west and south-east of Ahwaz City. More over the results of measurements of soil gas radon in Ahwaz Fault, determine this structure as an active fault and continue to deep part of crust (Hesami et al., 2003). If such experiments are repeated, the rate of Ahwaz Fault activity can be measured clearly.

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