

**DELINEATION AND CHARACTERIZATION OF A TECTONICALLY ACTIVE
GARORI THRUST USING RADON MEASUREMENT TECHNIQUE IN THE
SOUTHERN KOHAT PLATEAU, PAKISTAN**

N. U. Khattak^{*1}, M. A. Khan², N.Ali³, M. T. Shah⁴

¹National Centre of Excellence in Geology, University of Peshawar

²Department of Earth & Environmental Sciences, Bahria University, Islamabad

³Physics Division, PINSTECH, P.O. Nilore, Islamabad, Pakistan

⁴FATA University, Dara Adam Kheil

nimat_khattak@yahoo.com

Abstract

The technique of radon gas measurement can successfully be employed as a very useful geological tool in the confirmation of active geological faults, prediction of upcoming earthquakes and exploration of hidden uranium deposits. This study was aimed to check the suitability of the radon measuring technique in the study of an active Garori Thrust in the eastern part of the District Karak, Khyber Pakhtunkhwa. RAD7, a radon-in-air monitor of Durrige Company was employed for the onsite soil air radon levels measurement in crisscrosses made across the Garori Thrust on its either side. In this survey 31 measurement points were carefully chosen along five traverses across the fault. Elevated levels of radon were detected in the soil air at points on or adjacent to the trace of the fault as compared to the points away from the fault line on its either side. The values were high by a factor of 3-15 times above the background values. This evidently, points out that the procedure of soil air radon measurement can successfully be used as a genuine tool in the recognition, characterization and mapping of the faults on surface and concealed active geological faults.