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Radon and Active Tectonics in parts of Shillong Plateau.

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Shillong plateau, a composite cratonic part of the Indian plate, is tectonically very active due to its collision with the Tibetan landmass in the North and the Shan Tenasserim block in the east. The area has experienced two major earthquakes in 1987 and 1950 and numerous earthquakes due to its nearness to the Alpine Himalayan folded mountain chain, Assam-Arakan-Yoma thrust belt and Dawki Thrust.

The radon concentration measurement in water samples of the well water and springs and soil in the Shillong area have been carried out to find out the correlation between the radon and tectonic activity of the region. Radon generated in underlying rocks moves to pore fluids and migrate away through the interconnected pores, fissures and aquifers. More efficient emanation effecting radon migration results from crustal stress changes by creating new solid-fluid interfaces. The deeper crustal structure creates relatively permeable and porous zones that may serve as the conduits to the surface for the radon produced at depth. Radon generated in rock matrix constantly feeds the aquifers as it easily migrates from deeper sources. Radon diffuses through the underground geological strata into soils, underground aquifers and surface waters. The method and results of measurement of radon concentration are presented in this paper. The samples are collected from the private wells and the springs of the area on a weekly basis. The ionisation chamber Alpha GUARD PQ 2000 PRO along with the additional special equipment AquaKit were used for determination of radon concentration in water samples. A total of 08 wells and 03 springs were examined considering the nearness to the steep slopes due to the presence of faults and accessibility of the water sources. To measure the radon in soils barasol was placed in a 0.75m deep demarcated bore well continuously for 04 months. The preliminary results do not show any direct correlation between the geology, tectonic activity and radon concentration in water samples, but there exists a direct relationship between the radon concentration in soil and seismicity of the region.

