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underground radon and stress

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One meter deep boreholes have been drilled through the bottom of galleries situated under a large water reservoir. Radon concentrations in the air of the closed boreholes are monitored continuously [1]. The water levels of the reservoir vary daily, up to 16 meters. The influences on underground radon concentrations due to the changing water load on the underlying rocks are studied. The measured radon levels depend on the location of the boreholes under the reservoir. Radon patterns are discussed in relation with the geological particularities [2] of the area. Variable pathways of fluids, fluid overpressure and a dynamic flow in cracks may account for the observed radon pattern. We expect that our observations may help to have a better insight on the sensitivity of radon transport in rocks due to stresses and deformations [3].

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References

[1] Kies A., F. Massen, Z. Tosheva, 2002. Influence of variable stress on underground radon concentrations, Geophysica International, vol. 41, pp. 325-329

[2] Bintz J., 1964. Die Geologie und der varistische Gebirgsbau im Bereich des Pumpspeicherwerkes Vianden, Publication XIV du Service Géologique de Luxembourg, 79-100

[3] Trique M., Richon P., Perrier F., Avouac J.P., Sabroux J.C., 1999. Radon emanation and electric potential variation associated with transient deformation near reservoir lakes, Nature Vol. 399, 137-141