



Parameters influencing radon content in groundwater of La Réunion Island

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Radon ²²² is a radioactive gas with a small half life-time (3,82 days) and is overriding in all the solid and fluid phases of ground. For these two reasons, radon is currently used for the search of geological structures and for the prevision of geological events such as seisms or volcanic eruptions.

In La Réunion Island, the waters of the tunnel of La Rivière de l'Est, situated on the east flank of the Piton de la Fournaise volcano, are characterized by a spatial variability of conductivity and their relatively high radon content (9 kBq).

Two measurement campaigns were done (2001 and the first half of 2003), each of them using a different radon measurement device (the Clipperton probe and the LR115 solid state nuclear track detector respectively).

We have put forward parameters on which radon content depends. The 2001 campaign showed a decrease of water conductivity, due to rainfall events, inducing an increase of radon content. This phenomenon is explained by the morphology of reservoirs supplying the tunnel and by the local hydrogeological context. In 2003, we have observed an increase of the seismic activity inducing an increase of radon content probably due to the convective flow generated by deep gas ascents.