

## THE VARIATIONS OF $^{222}\text{Rn}$ ACTIVITY CONCENTRATION IN BOREHOLE WATER – A COMPARISON BETWEEN FIRST HALVES OF YEARS 2006 AND 2007

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### ABSTRACT

Three boreholes V-1 (10m), V-2 (40m) and V-3 (10m) have been drilled in the Lower Triassic quartzite at the area of Astronomical and Geophysical Observatory in Modra-Piesok. Since January 2006 the sampling of borehole water have been performed three times a week for the  $^{222}\text{Rn}$  activity concentration analyses. Radon concentration in water has been studied in comparison to the water level changes in the boreholes, the precipitation amount and the height of snow cover. The variations of  $^{222}\text{Rn}$  activity concentration in borehole water measured since January to July in 2006 have been compared with those measured in the same period in 2007. It was observed that radon concentrations in V-1 and V-3 boreholes were changing when the precipitation amount was more than 20mm in both years of study. A similar variation was recorded in the state of water level in those boreholes. The effect of the precipitation was not observed in V-2 borehole for both periods of our research. The snow melting caused the increase of water level and the decrease of radon concentration in all three boreholes. The courses of water level and the values of  $^{222}\text{Rn}$  activity concentration was not the same for compared months, because of the significantly lower precipitation amount in 2007.

**Key words:** radon activity concentration, borehole, precipitation, water level, snow cover