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&
BOOK OF ABSTRACTS

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OP-17

PREDICTION OF INDOOR RADON RISK FROM RADIUM CONCENTRATION IN SOIL: REPUBLIC OF MACEDONIA CASE STUDY

Peter Bossew [1], Zdenka Stojanovska [2], Zora S. Zunic [3], Mimoza Ristova [4]

[1] *German Federal Office for Radiation Protection, Köpenicker Allee 120-130, 10318 Berlin, Germany.*

[2] *Faculty of Medical Sciences, Goce Delcev University, Stip, Republic of Macedonia*

[3] *Institute of Nuclear Sciences "Vinca", Electro Chemical Etching Laboratory – ECE LAB, Laboratory for Radiobiology and Molecular Genetics, P.O Box 522, 11000, University of Belgrade, Serbia*

[4] *Institute of Physic, Faculty of Natural Sciences and Mathematics, University in Skopje, Republic of Macedonia*

Corresponding author: zdenkastoianovska@gmail

Geo-referenced datasets of indoor radon concentrations and radium concentrations in soil are available for the Republic of Macedonia. However, the indoor ^{222}Rn data are spatially strongly clustered as the measurements were essentially confined to major towns and cities. Hence, the estimation of the geographical distribution of ^{222}Rn concentration based only on the ^{222}Rn data is difficult to be made. On the other hand, geochemical measurements (^{226}Ra) are quite well distributed over the country. Since ^{226}Ra is the source of ^{222}Rn, one may think on using ^{226}Ra as a predictor for ^{222}Rn. In this paper we present a method of modelling the stochastic dependency of indoor ^{222}Rn of soil ^{226}Ra. The method is new in the area of ^{222}Rn assessment and still needs to be validated by more case studies. It must be bared in mind that the indoor ^{222}Rn depends, in some cases more strongly, on other controlling factors than the ^{226}Ra in soil, so that its estimation from ^{226}Ra alone is inevitably imperfect. The results must therefore be understood as *estimates in absence of other information*, and as a motivation to carry out measurements in regions where the model predicts higher ^{222}Rn levels, but for which no measurements are available so far.

Keywords: Republic of Macedonia, indoor radon, radium in soil, probabilistic prediction