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Geological Aspects of Radon Risk Mapping

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THORON/RADON MEASUREMENTS IN ROMANIA AND COMPARISON WITH MACEDONIAN SCHOOLS

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Radon problem has been widely investigated within the Romanian borders throughout the years while thoron did not attract that much of attention. However, fairly recent studies around the world have pointed out that indoor thoron should not be neglected when estimating the effective dose. Taking this into consideration a new survey is in progress, a survey that is going to provide the effective dose not only due to indoor radon but also the thoron contribution to it. Both dwellings and workplaces were selected for this investigation. The measuring method used is based on solid state nuclear track detectors with CR39 plats. A comparison exercise with Macedonian schools pointed out that both radon and thoron activity concentrations appears to be rather higher in Romanian schools with an average radon activity concentration of 89 Bq m^{-3} for the first versus 211 Bq m^{-3} for the last and respectively 19 Bq m^{-3} versus 80 for thoron. Notwithstanding, the Romanian dwellings presented slightly lower activity concentrations for radon, with an average of 193 Bq m^{-3} while thoron activity remained steady at 80 Bq m^{-3} . However, the present paper analyzes only a low number of locations; a more substantial survey is yet in progress.

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Round table discussion – European Geogenic Radon Map

Thursday, September 20th

9:00 – 14:00, including coffee break

9:00-11:00

Geological classification - general

(based on the presentations on this topic - Tuesday morning session)

- (a) Given the approach of a geogenic Rn map, based only on geology: Advantages / Disadvantages of only geological classification and “risk” classification (based on example for Trial EGRM and Germany); here we propose to discuss whether the *classification logic* is reasonable, i.e. how classes are defined conceptually; or which alternatives may exist.
- (b) Once a logic is chosen, one has to define the *class limits* numerically.
- (c) OneGeology as a basis for EGRM– useable for our purpose, or how can we adapt it for better usability. What could be alternatives to use?
- (d) Proposal of classifying geo-types (according to presentation by Peter) – useable? Practical? Feasible? How to improve?.
- (e) How to “calibrate” geo-types? Here we propose to discuss the *method*, or algorithm, how to assign data into defined classes. This topic should identify ways, how available data can be used to do the job of assigning a certain class level to a geo-type. (The classes were defined in (b), the types in (c+d).)

Remark: these topics are not constrained to the European project; the same questions will appear wherever a geology-based geogenic Rn map shall be produced. The above list pretends to show the logical order of the questions but does not mean that the issues must necessarily be discussed in that order.

11:00-12:00

Geological classification – Homeworks

- If stay with OneGeology – what about non-participants? – How can these countries contribute without participating in OneGeology? Identify countries and experts who could work on it
- Homework for the experts: Identify geo-type with the ones which have already been classified (=currently mainly DE types); geo-types not yet included must be calibrated.
- Homework: countries which have no RP data but other datasets: must develop transfer models.

Remark: this section is somewhat more specific, because here probably European peculiarities will be given especial attention.

12:00-14:00

Geogenic radon database – multivariate classification approach

(discussions mainly about the template/draft for the European geogenic radon database)

- General - are fields for database sufficient and is template usable?
- More detailed clarification how to define some of the fields (e.g. special geological features %, quality measures,...(to be defined). A particular question which has so far resisted to be solved is how to include tectonic features such as fault line, into defining a local (which in European scale still means a relative large area) measure of the radon potential.
- How should the “geological units” be clearly named (e.g. country code + geology unit +?) to be a clear “primary code” in the database and for processing. How can the data/units clearly be linked to the OneGeology polygons or in another way geo-referenced?
- Homework: Which countries/experts could fill it already (for testing and improving)?
- Processing/using of the data in the database – possible to adopt for other countries with no/less data?

List of participants - 11th International Workshop on the Geological Aspects of Radon Risk Mapping, September 2012, Prague, Czech Republic

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