

10th INTERNATIONAL WORKSHOP on the GEOLOGICAL ASPECTS of RADON RISK MAPPING

Roundtable discussion (24-09-2010, afternoon)

Radon in soil-gas and indoor radon, temporal changes in various climatic and geological conditions

As the base for the roundtable discussion, the following summary of items that can be discussed has been prepared and widen among the participants:

1. Soil-gas radon

Factors that influence temporal variability:

- depth of sampling (measurement)
- geology (permeability, etc.)
- climate (soil moisture influencing emanation and permeability; conditions on the soil surface: surface frozen, or saturated by water x dry surface layer – cracks, etc.)

„False“ variations – variations caused by errors and fluctuations of sampling (measuring) method itself (example: sampling depth is not „well-defined“, samples are collected from different sampling depths during the one-year climatic cycle)

Temporal changes as a „confounding“ factor

- building site characterization, radon risk mapping, evaluation of radon potential (choice of „suitable“ meteorological conditions, correction factors, use of integral, or continual methods, etc.)

Temporal changes as an indicator

- earthquake ?

2. Indoor radon

Factors that cause temporal changes:

- variations of radon entry rate (meteorological conditions – indoor – outdoor temperature, pressure differences, wind; quality of the construction on the contact between the soil and the building)
- changes of ventilation (meteorological – climatic conditions, human behaviour)

Temporal changes as a „confounding“ factor

- evaluation of doses, evaluation of the indoor environment – quality of the building (conservative, or „average“ conditions during measurement; seasonal measurements; correction factors; human behaviour and its influence on measurement results; etc.)

Temporal changes as a useful tool

- radon diagnostics of the building (synchronous continual measurements in different parts of the building, built-up curve analysis, blower door method, etc.)

Conclusions:

Due to the interest of participants, mainly the first point was discussed, i.e. the discussion was focused on temporal changes of soil gas radon concentration in various climatic and geological conditions. The attention was given not only to the changes of the main parameters, but to the connected factors as well (mainly gas permeability).

During the discussion, all participants informed the audience about their experience. The important role of a suitable sampling methods was confirmed, as the necessary starting point for correct assessment of temporal variability of soil gas radon concentration.

Possibilities of a methodological unification across European countries have been also discussed. The usefulness of international intercomparison measurements at reference areas in the Czech Republic was approved. Moreover, Czech sampling method, protocol for soil gas concentration measurements as well as the method for radon risk classification based on soil gas radon concentration and permeability determination, were recommended as a possible standard.