

Kick-off Meeting, 5th – 7th February 2014, Teplice, Czech Republic



Radon in thermal waters and radon risk in chosen thermal water spas in V4 countries

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Karol Holý

Faculty of Mathematics, Physics and Informatics,
Comenius University Bratislava

Project partners

- Comenius University, Faculty of Mathematics, Physics and Informatics, Bratislava, Slovakia (applicant)
- Social Organisation for Radioecological Cleanliness, Veszprem, Hungary
- Institute of Nuclear Physics PAN, Laboratory of Radiometric Expertise, Krakow, Poland
- RADON, v.o.s, Praha, Czech Republic

The aims of project

- Improvement of knowledge about seasonal variations of radon concentrations in thermal waters and spas
- Determination of radon doses for employees, patients and visitors of spas
- Elaboration of common and harmonized measurements protocols (thermal waters, spas)
- Promotion of the national radon action plans according to new EC directive in V4 countries

Background of project

- Radioactive radon occurring in rocks is soluble in water
- Radon is effectively released from water in thermal water spas
- Inhalation of radon and its decay products is potentially harmful for human health
- Controlling of radon concentration in thermal waters and spas is important for health protection
- International cooperation is very important at radon measurements, radon dose calculation and also at managing of risks from radon exposures according to new EC directive.

Project realization

- We plan to carry out radon measurements in:
 - thermal waters
 - thermal water spas
- Hungary, Poland, Slovakia: 4 (3) localities
- Czech Republic:
 - 1 locality
 - professional support
- Choice of Spas: where the thermal water with high radon concentration is used
- Frequency of measurements: 4 times during one year

Measurement methods

- Waters: - grab sampling
 - radon concentration measurement by „standard“ methods
- Indoor air: - RAMARN detectors with exposure of 3 months
 - RSFW radon dosimeter (water protection)
- Important activities: - international mutual comparison of radon concentration measurements in thermal waters (Teplice, CZ)
 - international mutual comparison of RAMARN and RSFW detectors

Suggested timetable

Placing of detectors	Collection of detectors	Water sampling
March 2014	May 2014	March 2014
May 2014	August 2014	May 2014
August 2014	November 2014	August 2014
November 2014	February 2015	November 2014

Which tasks should be harmonized

- Water measurements:
 - sampling of waters
 - protocol of water sampling
 - methods of radon measurements
- Indoor Rn measurements:
 - choice of rooms (pools, bath,...)
 - placing of detectors (further from windows, on cupboards)
 - protocol of Rn measurements (volume of rooms, tightness of room, ventilation, water usage, working period, number of patients,...)
 - determination of average radon activity concentration during working hours of employees
 - calculation of effective doses ($F = ?, \dots$)

Events

Event	City	Country	From	Until
Kick-off meeting	Teplice	CZ	5/2/2014	7/2/2014
Evaluation meeting	Bratislava	SK	27/11/2014	28/11/2014

Phases

From	Until	Description of the phase
01/2014	01/2014	Choice of spas, detectors, contract preparation
02/2014	02/2014	Kick-off meeting, international mutual comparison of radon measurements in thermal waters
01/2014	03/2014	Elaboration of measurements protocols: water and indoor radon measurements
03/2014	11/2014	Measurements of Rn in thermal waters, placing of detectors to spas (3 times), analysis of the arising problems

Phases

From	Until	Description of the phase
05/2014	12/2014	Evaluation of results. CZ partner: transfer their knowledge in harmonization of radon measurements
01/2014	12/2014	Preparation of publications, international and national conferences, publishing of results, updating of webpage
11/2014	11/2014	Final evaluation meeting
12/2014	12/2014	Final evaluation, preparation of final report and sending it to IVF

Expected outputs

- The joint **measurement protocols** will be elaborated
- **New data about temporal variability** of radon concentration will be acquired
- **Methods** used for measurements of radon concentration in water **will be compared**
- Knowledge of **radon exposure in thermal spas** will be improved
- **Administration** of thermal spas and radiation protection services **will be informed** of projects results
- **Results will be** jointly reported on conferences and **published** in research papers

Planned PR activities

- Project has its own webpage:
<http://radonspas.dnp.fmph.uniba.sk/>
- Seminar for public and state administration
- International Conference on Radiation Protection – SK (November)
- 12th Int. Workshop on the Geological Aspects of Radon Risk Mapping – CZ (September)
- 2nd Int. Conf on Radiation and Dosimetry – Serbia (May)
- 2nd Int. Conf „Radon in the Environment 2015“ – PL (May)

Continuation of project

- Coordination of Action plans for radon (new EU directive)
- New common project (Radon in caves?...)

Thank you
for your attention!