

*Second circular*

17th

# GARRM

**RADON v.o.s. + Faculty of Nuclear Sciences and Physical Engineering CTU + Czech Geological Survey organize the**

## **17th INTERNATIONAL WORKSHOP GARRM**

(on the GEOLOGICAL ASPECTS OF RADON RISK MAPPING)

**September 16<sup>th</sup> – 18<sup>th</sup>, 2025, Prague, Czech Republic**

**+ this time an associated workshop (part of GARRM)  
“Radon as a Natural Tracer for Monitoring NAPL Contamination”  
September 18<sup>th</sup>, 2025**

**+ RIM & PIM – Radon and Soil Permeability Intercomparison  
Measurements at Radon Reference Sites  
September 15<sup>th</sup>, 2025**

**(it is certainly possible to participate in all events or only in  
selected ones)**

**WEBPAGE: [www.radon.eu/workshop2025](http://www.radon.eu/workshop2025)**

### **IMPORTANT DATES AND DEADLINES**

Deadline for paper submission: June 30, 2025

Deadline for lower registration fee: June 30, 2025

### **PROGRAMME**

**September 15<sup>th</sup>** (Monday): RIM & PIM measurements (registration on site in the morning - will be arranged via email with all participating groups),

Registration for GARRM (18,00-21,00) at the venue

**September 16<sup>th</sup>** (Tuesday): Registration for GARRM (8,00-9,30), GARRM Sessions

**September 17<sup>th</sup>** (Wednesday): GARRM Sessions, GARRM dinner

**September 18<sup>th</sup>** (Thursday): GARRM – workshop NAPL

(expected time of closing ceremony 13,00)

**+ Possibility of calibration of radon in soil gas devices**

## **ORGANIZING COMMITTEE:**

**GARRM:** Matej NEZNAL (RADON), Petra PACHEROVA (CGS), Lenka THINOVA (FNCPE),

**RIM & PIM:** Milan MATOLIN, Ondrej SALEK (Charles University), Matej NEZNAL (RADON)

**Associated workshop:** Jan KUKACKA (DEKONTA), Paola TUCCIMEI (ROMA TRE), Matej NEZNAL (RADON)

**Calibration:** Petr OTAHAL (SUJCHBO), Matej NEZNAL (RADON)

## **WORKSHOP GARRM - GENERAL TOPICS**

### **RADON RISK MAPPING AND RADON ACTION PLANS**

- **NEW RESEARCH ACTIVITIES AND RESULTS  
NATIONAL STRATEGIES, RADON ACTION PLANS, APPROACHES TO RADON RISK; RADON RISK MAPPING ON VARIOUS SCALES INCLUDING GEOGENIC MAPPING & DETAILED MEASUREMENTS; DELINEATION OF RADON PRONE/PRIORITY AREAS**

### **RADON IN GEOLOGICAL ENVIRONMENT**

- **NEW RESEARCH ACTIVITIES AND RESULTS  
METHODS OF MEASUREMENTS AND CLASSIFICATION OF RADON RISK; PASSIVE AND ACTIVE SOIL GAS SAMPLING; SOIL PERMEABILITY AS THE SECOND DECISIVE PARAMETER FOR RADON POTENTIAL ASSESSMENT; UNDERSTANDING RADON TRANSPORT MECHANISMS IN THE SOIL AND FROM THE SOIL INTO THE BUILDINGS; RADON IN KARST AREAS; RADON MODELING**

Due to our common experiences from last workshops, we would like to ask you for oral presentations (15 min) or poster presentations.

### **Associated workshop (part of GARRM, September 18<sup>th</sup>)**

#### **“Radon as a Natural Tracer for Monitoring NAPL Contamination”**

We have already almost all presentations for this associated workshop, we would like to ask you for one more, ideally an oral presentation (20 min) - A case study, Radon as a Natural Tracer for Monitoring NAPL.

**Selection of papers presented at the GARRM + NAPL workshops will be published in JERA.**

## **VENUE + TRANSPORT**

The conference will be held in the beautiful city of Prague, capital of the Czech Republic, at the Faculty of Nuclear Sciences and Physical Engineering of the Czech Technical University in Prague ([www.cvut.cz](http://www.cvut.cz)). The address is FNSPE CTU in Prague, Břehová 7, 110 00, Prague 1.

The main building of the Faculty of Nuclear Sciences and Physical Engineering of the Czech Technical University in Prague is located in the centre of Prague on the Vltava riverbank between Mánesův most (Mánes Bridge) and Čechův most (Čech Bridge). The entrance is on Břehová Street 7, in a short part of this street between Dvořákovo nábreží and the 17. listopadu streets.

The nearest underground station is Staroměstská (Metro line A). Leaving the vestibule of the station in direction of Náměstí Jana Palacha (Jan Palach Square, exit E1), you

then turn right along the tram lines parallel to the river, after about 150 m the Faculty building is on the left. You can use also tram connection: tram line No. 17 to Právnická fakulta (the nearest stop) or No. 18 and 2 to Staroměstská stop (near the underground station).

For more details see <https://mapy.cz/s/fejababugu> or <https://maps.app.goo.gl/YJNUChc1vzQR8qTN6>.

## **ACCOMMODATION**

Accommodation is not included in the registration fee.

The direct neighbourhood as well as nearby parts of Prague have large number of excellent hotels, pensions, hostels, which you can find via internet (*booking, airbnb*). You can also have a look at the official information site of the Prague city authority, which is available on: <https://www.prague.eu/> and <https://www.prague.eu/en>. This web page provides all practical information about Prague including its history, monuments, cultural events, accommodation possibilities, etc.

## **RIM & PIM - GENERAL INFORMATION**

***Compare your radon measurement with the international community in friendly field environment - comparison measurement of radon in soil gas and/or soil permeability at radon reference sites in the Czech Republic***

***Radon in soil gas comparison measurement (RIM) at radon reference sites*** in the Czech Republic, RIM 2025, will be organized as an independent part of the GARRM Workshop on September 15<sup>th</sup>, 2025. Comparison measurements at reference sites serve for verification of field radon measurements performed by single organizations by their instruments. During the RIM we would like to focus not only on comparison of resulting soil gas radon concentrations, but on the sampling methods themselves.

***Radon intercomparison measurement will be organized at two reference sites*** Cetyne and Buk established in 2000, located 60 km SW of Prague near the city Milín in the Czech Republic. Both reference sites are accessible for cars. Radon reference sites are situated on meadows, their soil cover enables soil gas sampling at the depth of 0.8 m, and their mutual total distance is 12 km. Each reference site implies 10 stabilized stations, which are marked by numbers. Single reference sites differ in radon activity concentration in soil gas, while the radon distribution within the reference site is relatively homogeneous.

***Radon in soil gas comparison measurements at reference sites*** are organized for single participants or groups of participants. ***Results of tests will be anonymous, each participant (group or a set of tested radon data) will be denoted by a code.***

**Note:** the fee for the RIM depends on the number of resultant sets of radon data from single equipment for testing and on the number of participants in one measuring group (more detailed info in REGISTRATION FEE and INSTRUCTIONS for PAYMENT).

**Benefits** of participation in radon comparison measurement are:

- Radon comparison with international expert community.
- Radon comparison with radon site databases derived using measurements of 350 successful Czech organizations.

- The use of two well documented radon reference sites fulfilling geological requirements.
- Based on more than 30-year experience in periodical radon comparison measurement 1992-1999, and 2000-2024.
- Three tests by computer programme TestMOAR based on statistics, compiled by the Institute of Applied Mathematics and Computer Technique, Faculty of Science, Charles University in Prague.

**Working plan:** Participants will receive all instruction by email. The transport from Prague will be provided on request, but we recommend to arrange the transport to the reference sites on an individual basis. After the meeting at the reference area, the measurement of radon in soil gas at 10 stations of each reference site will be held. All participants should submit their results of radon activity concentration (kBq/m<sup>3</sup>) from measured stations in a provided form by email within 2 weeks after RIM measurement. Data processing and evaluation will follow after all participants provide the data. For those who will collect a lower number of measurements at reference sites, the evaluation program accepts their number of data.

**Soil Permeability comparison measurement (PIM)** - with respect to the success of the first PIM 2023, we would like to organize the second **soil permeability intercomparison measurement**, at the same day, on Monday, 15<sup>th</sup> September, and at the same reference sites as RIM. The challenge is simple – to continue with intercomparison measurements of the second parameter used during radon risk mapping.

**Working plan:** Corresponding to working plan for radon comparison measurement. There will be again two permanently installed probes (standard Neznal probe, 12/2 mm) at stations with different permeability in the neighborhood of reference area Cetyne. Those participants, who can use the installed probes for their permeability measurements, will take the measurements first. Then, if necessary, it will be possible to use other measuring probes/rods in the immediate vicinity and perform soil permeability measurements. During the radon intercomparison measurements at the reference area Buk, there will be 2 flow rate measurement models available for connection with your measuring device for performing permeability measurements and one permanently installed probe (standard Neznal probe, 12/2 mm) at station with high permeability in the neighborhood.

**Accommodation:** Please, take into consideration, that this year “only” one-day radon in soil gas intercomparison is hold. Suitable accommodation, just in the area of radon reference sites, is available in “Hotel u Milina” ([www.hotelumilina.cz](http://www.hotelumilina.cz)).

There is no electrical power supply at radon reference sites, however a power supply generator can be provided on the request. We expect we will meet with all participants in the field in the morning, but transport from Prague can be provided as well.

**Organizers of RIM&PIM 2025 offer the consultation** for your participation in radon comparison measurement and/or in permeability comparison measurements through e-mail addresses [matolin@natur.cuni.cz](mailto:matolin@natur.cuni.cz) or [radon@comp.cz](mailto:radon@comp.cz). More detailed information will be available at the workshop webpage, details will be discussed with all participants of RIM and PIM via e-mail.

## **CALIBRATION OF RADON IN SOIL GAS DEVICES**

### ***Possibility of calibration of radon in soil gas devices in Calibration laboratory SUJCHBO, v.v.i. – the accredited Calibration protocol***

**Calibration Laboratory SUJCHBO, v.v.i.:** National Institute for Nuclear, Chemical and Biological Protection (SUJCHBO, v.v.i.) is certificated by Lloyd's Register Quality Assurance according to standards ČSN EN ISO 9001 - quality management system, ČSN EN ISO 14001 - environmental management system, ČSN ISO 45001:2018 - safety management system. The Authorized Metrological Centre (AMC) working under SUJCHBO v.v.i. ensures the metrological traceability for devices measuring the radon air activity concentration and the energy equivalent radon concentration connected with the radon decay products (RnDP). The AMS laboratory is authorized by the UNMZ (Czech office for standards, metrology and testing). Calibration Laboratory is accredited by the Czech Institute for Accreditation according to the standard ČSN EN/IEC 17025:2018 and certificated by Lloyd's. Following the metrological traceability, the AMC is on the same metrological level as BfS Berlin. These two institutions compare results periodically and cooperate in some international research projects.

**Working plan for calibration:** Expected time schedule differs for continual radon monitors and for grab sampling devices.

**We expect, that in case of continual radon monitors,** a responsible person from SUJCHBO will pick up the participant's continual monitors at reference site Buk on Monday, September 15<sup>th</sup>, 2025, after the RIM. It is necessary to prepare some similar operation manual and pack it for transport together with owner's contact data. Devices will be exposed in the Radon-aerosol chamber of SUJCHBO under two different levels of radon activity concentration. On Thursday, calibration of continual radon monitors will be completed and the responsible person from SUJCHBO will transport participant's devices back to Prague (GARRM venue). Participant will download data from the device and send results from two expositions no later than one month after the calibration. Time of each exposition will be sent to participants briefly after the calibration process. Based on the participant's results, SUJCHBO will send the accredited Calibration protocol to each participant as soon as possible.

**In case of grab sampling radon in soil gas devices** – on Thursday, September, 18<sup>th</sup>, at about 8,00 a.m. we will organize the transport of interested persons + equipment from Prague to the Calibration laboratory of SUJCHBO, Kamenna. Participants will take samples of the air from prepared sampling rubber tires with three different levels of radon activity concentration. Because of limited volume of air in the sampling rubber tires, each participant can take at most four 150 ml samples (600 ml together) from each level of radon activity concentration. Expected time of arrival back to Prague: Thursday, September 18<sup>th</sup> before or at about 13,00 (hopefully just before the closing ceremony of the workshop). Participants will send the results of three levels of radon activity concentration no later than one month after the calibration. Based on the participant's results, SUJCHBO will send the accredited Calibration protocol to each participant as soon as possible.

**Note: Limits of participants/devices number** – due to the time schedule and due to the special price for calibration as well, there are limits of participants/devices for the calibration: - continual monitors: min 4 – max 15 devices; - grab sampling devices: min 4 – max 15 devices.

## **REGISTRATION FEE and INSTRUCTION for PAYMENT**

**Note: there is no special fee for the associated workshop "Radon as a Natural Tracer for Monitoring NAPL Contamination" on September 18<sup>th</sup>, i.e. the fee for GARRM workshop includes this associated workshop**

**+ following the kind decision of ERA,  
the registration fee for the GARRM workshop or the fee for exhibitors (see below) will be reduced by a discount 70 EUR for ERA individual members and by a discount 150 EUR in case of ERA corporate members**

**The registration fee for the GARRM workshop (390 € if paid after June 30, 2025, 350 € if paid before)** covers the GARRM workshop program including the associated workshop, refreshments during the coffee breaks and the GARRM workshop dinner.

**The fee for exhibitors** during the GARRM workshop, Tuesday till Thursday (**820 €** if paid after June 30, 2025, **740 €** if paid before) covers the exhibition (a standard booth) and the GARRM workshop program including the associated workshop, refreshments during the coffee breaks and the GARRM workshop dinner; for 1 or 2 persons.

**The fee for RIM – (380 € if paid after June 30, 2025, 340 € if paid before)** means a fee for an independent participant or for two participants in one measuring group using one measurement instrument and sampling technique. The fee for each another one (third, fourth ..., participant in the same measuring group) is **60 €**. The fee for each another measurement/sampling technique used by the same participant/group (involved in final testing) is **280 €**.

**The fee for PIM – (150 € if paid after June 30, 2025, 130 € if paid before)** means a fee for an independent participant or for two participants in one measuring group using one measurement technique. The fee for each another measurement technique used by the same participant/group is **80 €**.

**The fee for Calibration – (310 € if paid after June 30, 2025, 280 € if paid before)** means a fee for calibration of one piece of equipment (continual radon monitor or grab sampling device).

Accommodation is not included in any of the above mentioned registration fees. The VAT of 21% is included in the fees. VAT number of the beneficiary is CZ00473316. In order to confirm your registration, a proof of payment (photocopy of bank transfer) should be sent to RADON v.o.s. (via e-mail: [radon@comp.cz](mailto:radon@comp.cz)), accepting the given conditions of payment and cancellations. Participants are kindly asked to indicate clearly the name of the person for whom the services are booked in the bank document sent. Payments can only be accepted in Euros. Cancellation and requests for refunds should be made in writing and sent to RADON v.o.s.. Those made before 30 August 2025, will be refunded at 85 % of the original sum. After that date no refunds will be possible. All bank charges will be deducted from the refund. Refunds will be issued after the Workshop (15th October 2025).

**Payment - by bank transfer** (the payee name ... **RADON v.o.s.**)

**The bank name: KOMERCNI BANKA**

**Account number: 35-6485850237/0100**

**Swift (BIC): KOMBCZPPXXX**

**IBAN code: CZ9501000000356485850237**

**Var.symbol/details of payment: 340125**

There would be also a possibility to pay cash at the registration, but those participants should also send us the registration form in advance (the number of participants can be limited). Payment after the end of the event is not possible for accounting reasons.

## **CALL FOR PAPERS AND INSTRUCTIONS FOR AUTHORS**

The language of the conference will be English.

Authors are kindly asked to send their contributions (extended abstracts) as camera ready file, e-mail attachment (best in Word 6. or higher, A4 format). Please do not number the pages. The papers should not extend 10 pages including figures, tables and references.

Contributions (extended abstracts) should be submitted ideally by the 30<sup>th</sup> of June, 2025. The extended abstracts will be provided on a flash disk and distributed to all participants during the workshop.

**For further contacts, please, send us the registration form (via e-mail, or – the easiest way – you can make the registration directly through the workshop webpage). Please fill in your e-mail with attention as it is the most effective way for us to contact you.**



## REGISTRATION FORM

I shall take part in the:    GARRM workshop ....    RIM (radon) ....  
   PIM (permeability) ....    Calibration ....  
   Exhibition ....

Name.....Mr/Mrs

Address.....

.....

Phone.....

e-mail.....

### **Title of my contribution(s):**

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### **Names of participants in one measuring group (in case of RIM – radon intercomparison measurement participation):**

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### **Names of participants in one measuring group (in case of PIM – soil permeability intercomparison participation):**

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### **Names of participants and specification of instruments (continual x grab sampling) in case of Calibration:**

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### **Contact addresses of the organizing committee:**

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phone +420 266314112, e-mail [radon@comp.cz](mailto:radon@comp.cz) or [matej@radon.eu](mailto:matej@radon.eu)