

The aims of the workshop are

- to gather participants of the REM 2018 radon-in-water exercise and discuss the results
- to provide training with the aim of improving the level of radiation monitoring in Europe.

The events are free of charge.

The workshop language will be English.

For round table discussions, separate rooms are available.

The workshop and training course comprises presentations on the REM 2018 radon-in-water proficiency test, radon measurement techniques and other auxiliary concepts of radon.

The lectures are aimed for laboratory staff dealing with radioactivity measurements but can be followed by desk officers having a basic understanding of radioactivity.

JRC Mission

As the science and knowledge service of the European Commission, the Joint Research Centre's mission is to support EU policies with independent evidence throughout the whole policy cycle.



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Workshop responsible

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Local organiser and contact

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Disclaimer: we reserve the right to changes.

Workshop on EC REM 2018 Radon-in-Water Proficiency Test &

Training course on measurement of radon and radioactivity in water

JRC-Geel, Belgium
26-29 March 2019



Day-1 (26 March 2019)

REM 2018 Radon-in-Water Proficiency Test Workshop

08:20 Bus departure from hotel Viane

08:45 Arrival, registration

Session chair: Viktor Jobbágy

09:00 Welcome

09:05 Introduction of the G.2-unit and RN team activities:
Mikael Hult (JRC-Geel)09:20 Overview of transposition and implementation of the Euratom Drinking Water Directive in the EU Member States
Vesa Tanner (DG-ENER, Luxembourg)

Session chair: Mikael Hult

*Radon-in-Water PTs*09:55 Introduction to the PTs
Viktor Jobbágy (JRC-Geel)10:00 Assigning reference values, performance evaluation
Piotr Robouch (JRC-Geel)10:30 PomPlot and Power-moderated mean
Stefaan Pommé (JRC-Geel)10:45 *Coffee break*11:05 Pilot-PT2017
Viktor Jobbágy (JRC-Geel)11:45 Introduction to the REM2018 PT
Viktor Jobbágy (JRC-Geel)

12:10 Discussion

12:30 *Lunch*

Day-1 (26 March 2019)

REM 2018 Radon-in-Water Proficiency Test Workshop

Session chair: Mikael Hult

13:40 Results of the REM2018 PT
Viktor Jobbágy (JRC-Geel)*Surveys, implementation of directives*14:20 Radon in air and water - surveys and experiences in Austria
Valeria Gruber (AGES, Austria)14:50 Radioactive Substances in Drinking Water: Insights into German Practice
Peggy Hofmann (Bundesamt für Strahlenschutz, Germany)15:20 *Coffee break*

Session chair: Viktor Jobbágy

*Presentations by participants*15:40 Development of LSC method for ²²²Rn in water measurement in Serbia
Jovana Nikolov (University of Novi Sad, Serbia)16:10 Experience from the participation in the 2018 Radon-in-water PT
Krasimir Mitev (Sofia University, Bulgaria)16:25 Absorption of radon daughters
Philippe Cassette (CEA-LNHB, France)16:40 Occurrence and Geochemistry of ²¹⁰Po in Groundwater - A Field Study
Peggy Hofmann et al. (Bundesamt für Strahlenschutz, Germany)*Extra JRC presentation*17:00 JRC presentation on food/feed questionnaire
Katarzyna Sobiech-Matura (JRC-Geel)17:15 *Discussion*17:30 *Announcements/Closure/bus to Geel*18:30-21:45 *Dinner in Geel (bus back to hotel)*

Day-2 (27 March 2019) Radon-in-Water Training Course

- 08:20 Bus departure from hotel Viane
- 08:50 Registration
- Morning session chair: Viktor Jobbágy
- 09:00 Introduction
- 09:05 Health Effects and Applications of Radon and Progeny
James Mc Laughlin (ex-president European Radon Association, University College Dublin, Ireland)
- Radon in geology, mapping*
- 09:50 Radon issue in the European Atlas of Natural Radiation: achievements and challenges
Giorgia Cinelli (JRC-Ispra, Italy)
- 10:10 Hydrogeological patterns as predictors of natural radioactivity of drinking water derived from groundwater
Anita Erőss (Eötvös Loránd University, Hungary)
- 10:40 *Coffee break*
- 11:00 Geoscience applications of continuous underwater radon monitoring
Susana Barbosa (INESC-TEC, Portugal)
- 11:30 Radon as earthquake precursor: an overview
Heiko Woith (GFZ-Potsdam, Germany)
- 12:00 Discussion
- 12:20 *Lunch*

Day-2 (27 March 2019) Radon-in-Water Training Course

- Session chair: Mikael Hult
- Radon metrology/standards*
- 13:30 Introduction to standards
Katarzyna Sobiech-Matura (JRC-Geel)
- 13:45 An introduction to the MetroRADON project - Metrology for Radon Monitoring
Valeria Gruber (AGES, Austria)
- 14:00 Primary standardization of radon in water samples using Liquid scintillation counting-Influence of the counter dead-time on the detection efficiency of Po-214
Philippe Cassette (CEA-LNHB, France)
- 14:30 Redefining the SI units
Ulf Jakobsson (JRC-Geel)
- 14:50 *Coffee break*
- Session chair: Stefaan Pommé
- Communication with authorities/ethical and social aspects/education*
- 15:10 Radon communication: state-of-the-art and good practices
Tanja Perko (SCK•CEN, Belgium)
- 15:40 Ethical aspects of radiological protection – some reflections on theory and practice
Gaston Meskens (SCK•CEN, Belgium)
- 16:10 An online platform for reporting radioactivity measurements in the framework of the European Drinking Water Directive
Jurgen Claes (Federal Agency for Nuclear Control, Belgium)
- 16:40 MiniSzint – a novel multipurpose lightweight low-price radiation measurement system for research, teaching and practice in the lab, in homes and in the field
Henning Von Philipsborn (University of Regensburg, Germany)
- 17:10 Discussion
- 17:30 Announcements/Closure day 2, bus to hotel

Day-3 (28 March 2019) Radon-in-Water Training Course

08:20 Bus departure from hotel Viane

Morning session chair: Mikael Hult

09:00 Some experience on radon measurement methods in drinking water
Luis Pujol (CEDEX, Spain)

09:45 Sampling, storage and logistics
Viktor Jobbágy (JRC-Geel)

10:15 *Coffee break*

Liquid Scintillation counting

10:35 Radon in water measurement: standard procedures and their validation
Maurizio Forte (ARPA Lombardia, Italy)

11:05 Radon monitoring in drinking waters in Poland: Radon by LSC - technical approach, preparation for PT
Stanisław Chałupnik (GIG, Poland)

11:35 Validation of the ISO13164-4 method for the determination of ^{222}Rn in water: the LRM approach
Mirela Vasile/Freddy Verrezen (SCK•CEN, Belgium)

12:05 Discussion

12:15 *Lunch*

Day-3 (28 March 2019) Radon-in-Water Training Course

Afternoon session chair: Viktor Jobbágy

Emanometry methods

13:15 Radon in water determination by RAD7 detector - advantages and limitations
Natasa Todorovic (University of Novi Sad, Serbia)

13:45 Radon via emanation method-new developments
Edmond Dupuis (SCK•CEN)

14:05 Discussions

14:25 *Coffee Break*

Gamma-ray spectrometry measurements

14:50 The basic equation for gamma-ray spectrometry
Mikael Hult (JRC-Geel)

15:15 Gamma-ray spectrometry of radon-in-water
Michel Bruggeman (SCK•CEN, Belgium)

15:45 Discussion

16:00 Closure day 3, bus to hotel

Day-4 Laboratory Visits 09:00-13:00, 29 March 2019

08:20 Bus pick-up at hotels

Option 1: Radionuclide metrology labs + Linear Accelerator + Reference material production facility

Option 2: HADES (underground laboratory)

Bus to train station or Hotel