MOBILITY MISSION REPORT

This work has been partially supported by the EURAD project that has received funding from H2020-EURATOM 1.2 under grant agreement ID 847593.

The information included in this mission report consists of personal data of applicants, and in the frame of GDPR we ask you place emphasis on its integrity: the personal data in this mission report cannot be used for purposes other than the evaluation and the management of EURAD Mobility Programme. For the avoidance of doubt, this information – out of its nature – is confidential information as mentioned in Article 10.1 of the EURAD Consortium Agreement Version [17/09/2019] with effective date of 1 June 2019 (although it might not be explicitly marked as such).

REPORT TEMPLATE GUIDELINES — REMOVE THIS ENTIRE SECTION BEFORE SUBMITTING

MISSION TITLE

EURAD Mobility grant: Participation to EURAD final annual event in Bucharest

DESCRIPTION

Concerned organisations

EPFL (Switzerland)
All EURAD partners

Concerned infrastructures or facilities

Other relevant infrastructure or facility to be specified: EURAD Final Event

Concerned phases

Eurad final event, concerns all phases. But the phase relevant to my research is:

- Phase 5: Post-closure

Themes and topics

Eurad final event, concerns all themes. But the theme and topics relevant to my research are

- Theme 3: Engineered barrier system (EBS) properties, function and long-term performance
    - Spent Fuel and high-level waste disposal canisters
    - Containers for long-lived intermediate and low level wastes
    - Clay-based backfills, plugs and seals
    - Cementitious-based backfills, plugs and seals
    - Salt backfills
    - EBS system understanding
- Theme 4: Geoscience to understand rock properties, radionuclide transport and long-term geological evolution
    - Long-term stability (uplift, erosion and tectonics)
    - Perturbations (gas, temperature and chemistry)
    - Aqueous pathways and radionuclide migration

Keywords

Nuclear waste disposal, gas migration, numerical modelling, experimental testing

EXECUTIVE SUMMARY

The final annual event of EURAD took place in Bucharest from April 23-25, drawing over 190 participants from more than 20 countries. The event began with strategic and student sessions, which showcased how the joint programme benefited Member States, students, and organizations involved in radioactive waste management (RWM). These sessions highlighted the added value provided by the joint programme. The latter part of the event focused on presenting cutting-edge scientific results and specific technical achievements within EURAD. Each of the different work packages (WPs) shared their key conclusions with the participants. Additionally, the event marked the announcement of EURAD-2, set to begin in October. Over the three days, the event featured 38 presentations in 20 sessions and displayed 32 posters.

Following the EURAD final event, a workshop was organized by the leaders of HITEC-GAS to present the main scientific achievements of both work packages. While many findings significantly advanced scientific knowledge on these two aspects, there remains substantial potential to further understand the involved processes. This deeper understanding is essential for enhancing safety assessments and optimizing repository designs.

1. MISSION BACKGROUND

Klikněte nebo klepněte sem a zadejte text.

1.1. R&D background

The mission was to assist to the EURAD final event showcasing significant scientific and technical achievements. Additionally the mission was to assist to the final HITEC-GAS workshop.

1.2. Mission objectives

The mission aimed to engage with international experts in radioactive waste management, review EURAD's progress, and discuss strategic and technical achievements. Additionally, it sought to facilitate knowledge exchange and prepare for the transition to EURAD-2. Finally, the objective was to assist and actively participate to the HITEC-GAS Workshop.

1.3. Mission request

This event offers a unique opportunity to witness the achievements of the programme and to engage in valuable exchanges that could enhance my professional development. The networking potential and the chance to discuss future collaborations are particularly compelling to me.

Furthermore, this will represent an opportunity to actively participate in a joint workshop (scheduled on Friday 26th April) which involve GAS and HITECT work packages, in which I will represent EPFL, who is actively involved in WP6 (GAS) at this event, share our perspectives, and bring back actionable knowledge that will benefit our team.

1.4. Mission composition

Host organisation

ANDRA.

Host facility

Hotel Pullman (Bucharest, Romania).

Mission dates

23-25 April 2024

2. MAJOR PRACTICES, TECHNIQUES, METHODS, TOOLS OR SYSTEMS OPERATED OR STUDIED

Klikněte nebo klepněte sem a zadejte text.

2.1. Practice, technique, method, tool or system operated or studied during the mission

Presentation of the achievements of EURAD.

Description

The leaders of all WPs presented the main achievements made during EURAD. A particular effort was made to balance the scientific findings with outputs for end-users.

The last day was dedicated to the main scientific achievements of HITEC and GAS in a dedicated workshop.

Usage

Klikněte nebo klepněte sem a zadejte text.

Benefits

It was impressive to see al the efforts made by all the teams. And having such a comprehensive event is very interesting to see the interdisciplinarity involve in EURAD, with cutting-edge science and technologies.

As a scientist, I particularly benefited from the HITEC-Gas workshop that showcased all the scientific achievement of two workpackages that have many similarities in terms of Geomechanical perespectives.

Limitations

The complexity of all WPs makes sometimes difficult to clearly understand the involved phenomena. But this shows the need for interdisciplinary in radiactive waste management.

Applicability

The knowledge acquired from the HITEC-GAS workshop is directly applicable to my activities and helps better understand my results.

2.2. Practice, technique, method, tool or system operated or studied during the mission

Replace this entire field with the name of the practice, technique, method, tool or system that is the object of this mission.

Description

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Usage

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Benefits

-

Limitations

-

Applicability

-

2.3. Practice, technique, method, tool or system operated or studied during the mission

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Description

-

Usage

-

Benefits

-

Limitations

-

Applicability

-

2.4. Practice, technique, method, tool or system operated or studied during the mission

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Description

-

Usage

-

Benefits

-

Limitations

-

Applicability

-

3. MISSION FINDINGS AND CONCLUSIONS

3.1. Lessons learned and conclusions

The final annual event of EURAD showcased significant achievements by all work-package leaders, emphasizing the complexity of each task while highlighting the importance of providing a comprehensive overview for end users. This broader perspective is invaluable for concluding my thesis and integrating my scientific results into the larger context of radioactive waste management. The HITEC-GAS workshop particularly focused on scientific advancements, offering valuable insights into experimental facilities, results, and numerical modeling outcomes from both within and outside the GAS work-package. These contributions enriched my understanding of the intricate processes involved in gas transport and temperature effects in geological repositories. However, some areas still require further investigation, as disagreements between different research teams were noted. This underscores the necessity for continued scientific research to resolve these discrepancies and advance our knowledge in this field. The event reinforced the collaborative spirit of the EURAD program and underscored the ongoing need for innovation and cooperation in addressing the challenges of radioactive waste management.

3.2. Relevant findings and conclusions for home organisation

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3.3. Relevant findings and conclusions for host organisation

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3.4. Relevant findings and conclusions for other organisations

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4. POTENTIALS FOR IMPROVEMENT OR DEVELOPMENT

Klikněte nebo klepněte sem a zadejte text.

4.1. Generic potentials

This section is not mandatory. If applicable, replace this entire field with a description of about 150 words of generic potential improvements or developments you can suggest for the practices, techniques, methods, tools or systems operated or studied during the mission. If not applicable, remove the entire section.

4.2. Potentials for home organisation

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4.3. Potentials for host organisation

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APPENDICES

Mission journal

Day 1: Travel day, arrival in Budapest

Day 2: Participation the the EURAD Final event

Day 3: Participation to the HITEC-GAS workshop

Day 4: Travel day, arrival at home

Mission bibliography

MISSION BENEFICIARY

Qazim LLABJANI
PhD Candidate at EPFL
EPFL ENAC IIC LMS
Ecole Polytechnique Fédérale de Lausanne (EPFL), Switzerland

PARTNER EXPERTS CONTRIBUTING TO THE MISSION

Host organisation experts

- All EURAD partners

Home organisation experts

- Prof. Lyese Laloui (EPFL)
- Dr. Alessio Ferrari (EPFL)

Other organisations experts

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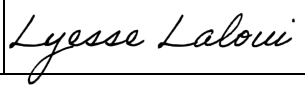
REPORT APPROVAL

Date	Beneficiary	Home mentor/supervisor	Host mentor/supervisor
Date of last signee	Qazim Llabjani	Lyesse Laloui	-
	Visa 	Visa 	-