

NERIS

EUROPEAN PLATFORM
ON PREPAREDNESS
FOR NUCLEAR AND RADIOLOGICAL
EMERGENCY RESPONSE AND RECOVERY

Coming events

20 April - 1 May 2020

Modelling and measurement training course - Roskilde, Denmark

26th May 2020

NERIS Brainstorming meeting on the Roadmap – Barcelona, Spain
(to be confirmed)

27 – 29 May 2020

6th NERIS Workshop and 11th General Assembly – Barcelona, Spain
(to be confirmed)

28 September – 2 October 2020

ERPW 2020 – Estoril, Portugal

EDITORIAL

Issue 18 – March 2020

Simultaneously to the publication of this newsletter, a series of reports have been made available through the CONCERT website as part of the final deliverables of the projects funded under EJP CONCERT. Among these projects, it is worth mentioning those connected to NERIS topics: i.e. CONFIDENCE (coping with uncertainties for improved modelling and decision making in nuclear emergencies), TERRITORIES (uncertainties in human and ecosystem radiological risk assessment and management in nuclear emergencies and existing exposure situations), ENGAGE (enhancing stakeholder participation in the governance of radiological risks for improved radiation protection and informed decision-making), and SHAMISEN SINGS (citizen participation in preparedness for, and recovery from, a radiation accident through novel tools and apps). Among the results of these projects, it should be mentioned the provision of recommendations to be considered for the management of emergency response and recovery as well as for preparedness activities. You will find some elements presented in this newsletter and I encourage you to visit the CONCERT website in order to get more details on these results.

Another important step has been reached within EJP CONCERT with the publication of the joint roadmap for radiation protection research. This joint roadmap is the result of a collective effort involving representatives of all the European radiation protection research platforms (MELODI, EURADOS, EURAMED, NERIS, ALLIANCE, SHARE). It presents a series of exposure scenarios focusing on issues related to radiation protection for humans and the environment as well as the associated joint research challenges. Among them, it should be noted: Understanding and quantifying the health effects of radiation exposure; Improving the concepts of dose quantities; Understanding radiation-related effects of non-human biota and ecosystems; Integrated approach to environmental exposure and risk assessment from ionising radiation; Optimise emergency and recovery preparedness and response; Radiation protection in society.

The preparation of the joint roadmap has stimulated cooperation between the European research platforms and I am pleased to inform you that a Memorandum of Understanding (MoU) has been established between these platforms confirming an umbrella structure (MEENAS) to further foster and enhance European radiation protection research and support collaboration. The implementation of a Joint Roadmap for Radiation Protection Research is a key element in this MoU. The signature of this MoU was scheduled at the occasion of the CONCERT final event in Madrid, but unfortunately this event has been cancelled due to the evolution of COVID 19. Nevertheless, the MoU will be signed in the following weeks and will contribute to reinforce the cooperation for fostering radiation protection research in Europe.

Finally, I would like to invite you to contribute to the update of the NERIS roadmap. It is currently envisaged to organise a dedicated meeting just before the NERIS Workshop to be held in Barcelona at the end of May 2020. The objective will be to review the challenges of the joint roadmap and to identify the way forward for developing and disseminating the research topics related to emergency and recovery response and preparedness. I rely on your fruitful contribution.

Thierry Schneider – CEPN (France) – President of the NERIS Platform



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NERIS sessions during the European Radiation Protection Week 2019 (1)

From 14 to 18 October 2019 the 4th European Radiation Protection Week took place at Stockholm University jointly organized by radiation protection researchers from the Nordic countries in collaboration with the European Radiation Protection Research Platforms (MELODI, ALLIANCE, NERIS, EURADOS and EURAMED) and Programs (CONCERT and RENE). Two parallel and one plenary NERIS sessions were organized during this week.

Session on Data Assimilation and Data Management

The first session dealt with Data Assimilation and Data Management chaired by Paulo Nunes and Johan Camps. In a first presentation by Antanas Bukartas from Lund University, Bayesian inversion techniques combined with a car-borne detector model was used to locate a radioactive point source. The method demonstrated to work very well and part of the work presented can be found in the following publication:

A. Bukartas et al. (2019). Bayesian method to localize lost gamma sources. Applied Radiation and Isotopes. (145) 142-147.



Antanas Bukartas (Lund University)

Detection of point sources and surface contaminations was also the topic of the second talk by Stef Geelen from the Belgian Nuclear Research Centre/ Hasselt University in which drone-borne dose rate detectors were evaluated related to minimum detectable activities and surface contamination and discrimination between point source geometries and surface contaminations.

The third presentation by Johan Camps from the Belgian Nuclear Research Centre studied on-line real-time citizen radiation measurements/networks in Belgium in the framework of emergency preparedness and response. The real-time available citizen data were analyzed and the potential complementarity with the early warning network TELERAD operated in Belgium was explored.

The paper of Takashi Ohba from Fukushima Medical University, who unfortunately could not get to Stockholm, was presented by co-author Liudmila Liutsko from ISGlobal. To support the well-being of evacuees returning after the Fukushima nuclear accident a mobile phone application was developed integrating the different tools and information sources as a "key" for local government officials, stakeholders and residents. This work was linked to the Shamisen-sings project.

Vanessa Durand from IRSN presented work which was done within WP4 of the CONFIDENCE project on the involvement of French Stakeholders in the decision-making process.

The focus was on dealing with uncertainties in the decision-making processes. From the stakeholder meetings guidelines and recommendations have been formulated and discussed in a third panel to improve the preparation of the decision-making.



Vanessa Durand (IRSN)

Finally, Mélanie Maître from CEPN discussed mid and long term uncertainties local stakeholders are confronted with in a post-nuclear accident situation. This work focused on the French stakeholder panels organized in the context of the TERRITORIES project. Uncertainties that local stakeholders would face following a nuclear accident were discussed for a Blayais Nuclear power plant accident scenario with local actors, such as the wine producers and vineyard unions of the Bordeaux region.



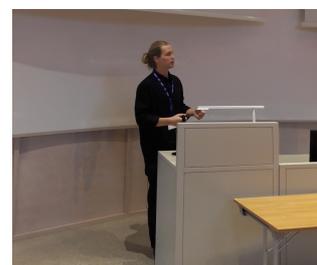
NERIS sessions during the European Radiation Protection Week 2019 (2)

Session on Facing the Threat of a Radiological Terrorist Act: How to Minimize the Consequences

The session was chaired by Wolfgang Raskob and Benjamin Zorko. Wolfgang Raskob from KIT gave the first presentation in this session on the Assessment of radiological scenarios in the decision support system JRODOS. The presentation started with an overview of the different type of scenarios (e.g. NNP, dirty bomb, satellite return, transport accident ...) which can be assessed with JRODOS. Based on open literature a new module for assessing the consequences from an improvised nuclear device is under development as some JRODOS were requesting that functionality. Details on this new module were given.

The presentation of Martin Hjellström, PhD student at the University of Gotheburg explored the use of gamma cameras as screening devices for internal contamination in emergency preparedness in Sweden.

Due to the relative large number of gamma cameras compared to whole body detectors and the relative good geographical spread they would allow to better manage the screening needs in the aftermath of an accident. Calibration using Monte Carlo simulations are for the most used gamma cameras in Sweden foreseen within this work and this exercise would be very valuable for other countries nuclear emergency preparedness.



Martin Hjellström (University of Gotheburg)

Benjamin Zorko from the Jozef Stefan Institute gave a talk on a bi-lateral project (Slovenia & Croatia) called ENRAS (ENSuring Radiation Safety). The project aims at training First Responder Teams for safe intervention in accidents involving ionizing radiation. This includes an agreement on the establishment of a new cross-border structure that will promote and coordinate cross border cooperation after completion of the project. Several field exercises, trainings, drills have been organized by now.

Finally, Yevgeniya Tomkiv from CERAD/NMBU presented preparedness for communication in case of a radiological or nuclear attack. Starting from historical communication material, questions on how and when (and whether at all) communication for such risks should be tested today, including issues of source credibility, hoax messages and manipulation.

Session on Citizen Science and Citizen Engagement

The third NERIS session was a plenary session chaired by Tatiana Duranova and Catrinel Turcanu. Three presentations were given.

The first was on Citizen Science in Japan after the Fukushima accident by Joke Kenens, PhD student at SCK•CEN/KULeuven. Radiation measurements are clearly not longer the sole domain of governmental organizations and research institutes. Based on field work in Japan in 2018 local bottom-up initiatives and citizen radiation measurement organizations were studied. The diversity of initiatives and motivations were presented including a reflection on lessons learned. This study was partly done within the ENGAGE and CONFIDENCE project.

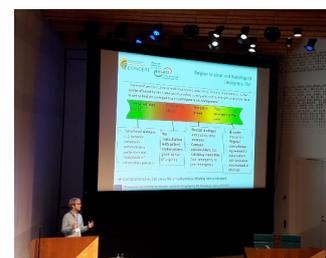
In the second presentation, Sara Della Monaca from ISS presented the correct use of smartphone apps for radiation measurements by the public. Based on literature review, laboratory tests and interdisciplinary discussions involving radiation experts, social scientists, app developers and regulatory authorities, recommendations focusing on practical operations were discussed. This work has been undertaken within the SHAMISEN-SINGS project.

Finally Robbe Geysmans from the Belgian Nuclear Research Centre concluded the session with a talk based on the work done in the ENGAGE project on Stakeholder Engagement specifically in Emergency Preparedness and Recovery.

It first explored the (inter)national legislation, guidelines and recommendations and secondly looked into how stakeholder engagement would be brought in practice based on interviews and focus groups organized in Belgium.

Tatiana Duranova – VUJE (Slovak Republic)

Wolfgang Raskob – KIT (Germany)



Robbe Geysmans (SCK•CEN)

Feedback from recent events



ENGAGE dissemination workshop (11-13 September 2019)

The final workshop of the ENGAGE project took place on 11-13 September 2019, in Bratislava, Slovakia. It brought together 46 participants from 15 countries.

This included ENGAGE project partners, stakeholders involved in some of the processes analysed in the case studies, as well as other experts and specialists representing international organisations (OECD/NEA, IAEA), professional associations (WONCA), radiation protection research platforms (NERIS, ALLIANCE, EURADOS, SHARE), nongovernmental organisations (Greenpeace, SAFECAST), national institutions and universities (IRSN, PHE, FOPH, FANC/AFCN, NMBU, UPM, Policlinico Universita Palermo), who took part in panel discussions as well as in the working groups discussions.



The findings and draft recommendations presented at the workshop, as well as the posters dedicated to particular case studies analysed within the ENGAGE work packages, provided a good basis for discussions in working groups dedicated to the three fields: medical exposures to ionizing radiation, emergency and post-accident exposures, and exposure to indoor radon.

The workshop programme and its interactive structure provided conditions for reflection on the fulfilment of the ENGAGE project objectives, namely to:

- i. Answer the questions why, when and how are stakeholders engaged in radiation protection issues;
- ii. Develop novel approaches to analysing stakeholder interaction and engagement;
- iii. Investigate processes for enhancing radiation protection culture and their role in facilitating stakeholder engagement, and,
- iv. Provide recommendations and build a knowledge base for stakeholder engagement in radiation protection. It contributed to the synthesis of the project results and provided feedback on the draft recommendations, which have been finalised based on the workshop outputs.

Delegates of the NERIS platform shared their views and experiences, with a wide range of stakeholders participating to the workshop, in view of enhanced governance of radiological risks for improved radiation protection and informed decision making. They contributed with valuable suggestions to the revision of the ENGAGE recommendations and presented the research needs related to stakeholder engagement and social science research in the area of emergency preparedness, response and recovery.



The recommendations of the ENGAGE project are now available on the CONCERT website (<https://www.concert-h2020.eu/en/Publications>) as: Deliverable D9.94: Final report of the ENGAGE project

ENGAGE is part of CONCERT. This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 662287.

Catrinel Turcanu – SCK•CEN (Belgium)

Feedback from recent events



TERRITORIES Final Workshop (12-14 November 2019)

From 12th to 14th November, the 11 partners of the TERRITORIES project met in Aix en Provence with invited stakeholders to discuss the outcome of this three-year project, funded by the 1st call of CONCERT, and aimed "To Enhance uncertainties Reduction and stakeholders Involvement TOWARDS integrated and graded Risk management of humans and wildlife In long-lasting radiological Exposure Situations".



This Final Event offered to the scientists the opportunity to present their researches conducted along the TERRITORIES project, which had led to propose in published deliverables practical recommendations about how to reduce sampling uncertainties in radiological monitoring of territories (Dg.59), how to model fate of radionuclides in the environment in a fit-for-purpose approach, including uncertainty and sensitivity analyses (Dg.60 and Dg.61), how to account for variability in exposure scenarios for dose assessment (Dg.62), how social and ethical considerations can be integrated into radiological protection research (Dg.63), or how to perform socio-economic analysis (Dg.64). Works undergone along the project had also included a review (Dg.65) followed by structured dialogues with stakeholders thanks to panels or a serious game (Dg.66 to Dg.70) to investigate how uncertainty management comes into play in decision making processes for existing exposure situations.



Based on the output of all these works, series of recommendations had been proposed to the audience of the Final Event to manage two types of existing exposure situations, NORM sites and the long term after a nuclear accident. These recommendations address co-constructed monitoring, dose assessment tools (populations and biota), rehabilitation of living conditions, socio-economic aspects of remediation, etc. Taking into account the feedback of the discussions, final versions of the recommendations (Dg.71 and Dg.72) have been delivered at the end of the project, in January 2020.



CONFIDENCE Final Workshop (02-05 December 2019)

The CONFIDENCE Dissemination workshop "Coping with uncertainties for improved modelling and decision making in nuclear emergencies", organized by VUJE AS, was held at Lindner Hotel, Bratislava, Slovak Republic in December, 02-05, 2019. About 90 scientists and decision makers attended the workshop. The dissemination workshop allowed to present the results of the CONFIDENCE project, demonstrated the applicability of the developed methods and tools in interactive discussion sessions and collected feedback from the participants and end users on the work performed.



The workshop was organised following the six scientific work packages, representing the progression of an emergency from the threat/pre-release phase up to the transition phase where long term countermeasure strategies were prepared – taking the different uncertainties that are present into account. Improvements in the operational radiological picture, dosimetry, foodchain modelling, societal, ethical and communication aspects were also considered. Finally, formal decision-making methods under uncertainty, using the results of the other works packages was explored. The last day of the conference was devoted to obtain feedback from the audience and in addition from the CONCERT coordinator, Radiation Protection platforms such as ALLIANCE, EURADOS, NERIS and SHARE as well as international organisations such as IRPA and IAEA. Selected end users from the many participants summarised also their view in the project and possible future research needs.

Summarising the main outcome of the dissemination workshop, one can conclude, that the interactive sessions were very much appreciated by the audience. The methods and tools developed within CONFIDENCE to deal with uncertainties in the various phases of an emergency were regarded as extremely useful to support decision making. It was also highlighted, that these results have to be further explored and tested to explore their full capabilities. CONFIDENCE had a distinct influence on the Strategic Research Agendas of the platforms. This was backed by the representatives of the international organisations participating in the workshop. All presentations of the CONFIDENCE Dissemination Workshop will be published in the form of articles in a Special Issue of Radioprotection - the Journal of the French Society of Radiation Protection.

Wolfgang Raskob – KIT (Germany)



NERIS

www.eu-neris.net / secretariat: sec@eu-neris.net

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Update from SHAMISEN-SINGS: recommendations for the use of mobile apps to measure radiation

In September and November 2019, the following deliverables were submitted:

- ▶ D9.137_ Preparation of a core protocol for an app to collect information on health and well-being,
- ▶ D9.138_ Concept/guidelines for apps and tools for radiation dose measurements and health and well-being monitoring
- ▶ D9.139_ Tutorial for apps and tools, including database management plan
- ▶ D9.140_ Prototype app for monitoring of health and well-being, as well as diet, geolocation, etc

The project has created and published in ResearchGate the infographic 'How to measure radiation with your mobile phone', for the general public. The infographic is in 5 languages: [English](#), [French](#), [Spanish](#), [Japanese](#) and [Russian](#) and open for discussion at the final SHAMISEN-SINGS stakeholder meeting held on March 9th 2020 in Barcelona, Spain. In parallel, a SHAMISEN-SINGS booklet is developed, which will describe in further detail the Infographic messages and provide additional recommendations for apps developers and relevant stakeholders, as well as a data management plan and ethical issues to be considered. The goal of these recommendations is to promote an optimal use of such tools by citizens in order to increase the resilience and facilitate the recovery of populations affected by nuclear or radiological accidents.

Liudmila Liutsko, Adelaida Sarukhan and Elisabeth Cardis (ISGlobal, Spain)



Update of the NERIS Strategic Research Agenda (SRA)

Within the context of WP2 on Strategic Research development within the CONCERT project, NERIS updated its SRA.

In a first phase the SRA was reviewed during a 1-day meeting organized with the NERIS MB and R&D committee members at CEPN in Fotenay-aux-Roses in July 2019.

Although this was exactly during the heat wave, with temperatures over 40°C in Paris an updated SRA was the result of this meeting, with mainly changes compared to the previous version originating from the progress made during the different CONCERT projects with work in the field of nuclear and radiological emergency preparedness, response and recovery (mainly CONFIDENCE, TERRITORIES, ENGAGE and SHAMISEN-SINGS).

After some editing, this version was made publically available for consultation during 1 month from mid-September to mid-October 2019.

At the end of the European Radiation Protection week organized in Stockholm in October, feedback on the SRA from the open consultation was discussed during the NERIS R&D Committee meeting and a final updated SRA was drafted and introduced as part of the deliverable D2.13 of CONCERT.

The new updated SRA can be found on the NERIS web-site: <https://www.eu-neris.net/library/sra.html>, and as part of D2.13 which contains also the SRA's of the other European radiation protection platforms:

<https://www.concert-h2020.eu/en/Publications>

Johan Camps – SCK•CEN (Belgium)

Upcoming events

20 April - 1 May 2020: Modelling and measurement training course, Roskilde, Denmark

The training course on “Assessment of long-term radiological risks from environmental releases: modelling and measurements”, 20 April – 1 May 2020, Roskilde, Denmark is organised by the Technical University of Denmark (DTU) in cooperation with PDC-ARGOS. The training course is co-funded by the European Joint Programme for the Integration of Radiation Protection Research CONCERT.

The course is aimed at providing the participants with an understanding of how to assess by measurements and modelling the long-term radiological risks from releases to the environment of radionuclides. Nuclear power plant accidents will particularly be in focus, but RDD's will be considered.

The course builds on decades of international research work, e.g., in European projects such as ECP-4, STRATEGY, EURANOS, NERIS TP and PREPARE, including unique experience from extensive practical investigations in contaminated areas and laboratory assessments. It comprises a hands-on introduction to laboratory measurement techniques including state-of-the-art radiochemistry methods for determination of radionuclides that can not easily be determined. It also includes a hands-on decision support modelling session using a state-of-the-art computerised decision support system for nuclear and radiological emergency management.

6th NERIS Workshop and 11th General Assembly - 27 – 29 May 2020, Barcelona (Spain)

The NERIS Workshop 2020 will focus on “Operational and research achievements and needs to further strengthen preparedness in emergency management, recovery and response” as well as common topics with international organisations and Radiation Protection Platforms.

This will be an opportunity to discuss and exchange views with NERIS Members, international organisations and European Research communities on research developments and priorities for the European NERIS Platform.

On 26th May 2020, a brainstorming meeting is organized to discuss the NERIS Roadmap (**to be confirmed**).

The Workshop will take place on 27-29th May 2020 at Palau Macaya (Barcelona, Spain) and the 11th General Assembly will take place on 27 May morning (9.30 to 12.00). **Both events are to be confirmed in beginning of April 2020.**

Plenary sessions will be organised on topics related to the following challenges:

- ▶ Operational aspects: from theory to practice
- ▶ Disaster management and resilience in communities
- ▶ Preparedness for a sustainable recovery: including non radiological consequences and effects
- ▶ Updating handbooks, guidelines and recommendations to support decision making
- ▶ Future research needs

The workshop will also welcome speakers presenting other topics related to the NERIS SRA not mentioned above.

Important dates

- ▶ Registration opening: Early January 2020
- ▶ Abstract deadline: 28th February 2020
- ▶ Registration deadline: Early May 2020
- ▶ 6th NERIS Workshop: 27-29 May 2020

Further information

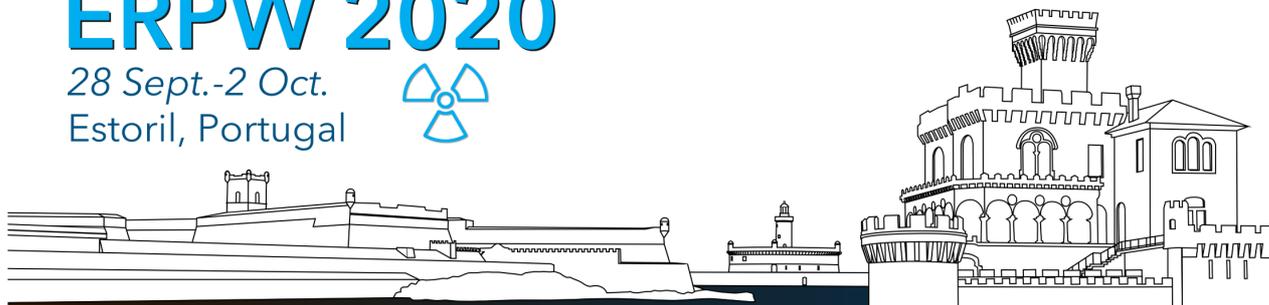
For further information, download the 6th NERIS Workshop 1st announcement on <https://eu-neris.net/>. More details on the programme will be shared with the second announcement.



Upcoming events

ERPW 2020

28 Sept.-2 Oct.
Estoril, Portugal



"We anticipate that ERPW-2020 will be a major gathering of experts, addressing burning and emerging topics and multidisciplinary issues in Radiation Protection, at times when integration and harmonization of RP and the effective implementation of a European Radiation Research Area are at stake. The European research platforms will be closely involved in the organization of the event, together with the international organizations and institutions and several hundreds of participants are expected to attend and contribute to the Programme.

The European Radiation Protection Week in 2020, will be held in Estoril, a town of the Municipality of Cascais situated on the beautiful coastline that extends to the west of Lisbon. It has a perfect balance between charm and excellent tourist facilities. The town has fine restaurants, very good hotels and the largest casino of the Iberian Peninsula. Within the Estoril and Cascais region one finds beaches, championship grade golf courses and historic towns (e.g. Sintra) to explore.

We expect ERPW-2020 to be a memorable event, rich of achievements, from the scientific as well as from the social point of views and formulate our best wishes that you profit from the Portuguese hospitality and the charming atmosphere of Estoril and Cascais as well as of Lisbon.

We aim at shaping an outstanding scientific Programme and look forward to meeting you in Estoril, next September!"

Pedro Vaz (on behalf of the ERPW-2020 Organizers)

Call for abstracts

- ▶ Topics: <https://erpw2020-portugal.eu/index.php/topics>
- ▶ Instructions and abstract template: <https://erpw2020-portugal.eu/index.php/abstracts/info-abstract-template>
- ▶ Submission form: <https://erpw2020-portugal.eu/index.php/abstracts/submission-form>

Important dates

- ▶ 31 March 2020: deadline for abstract submission
- ▶ 15 May 2020: notification of the authors
- ▶ 30 June 2020: deadline for early registration
- ▶ 31 July 2020: final programme

For more information visit the ERPW 2020 website: <https://erpw2020-portugal.eu/>

