



5-16 March 2018

Modelling and measurement training course, Roskilde, Denmark

16-20 April 2018

Training course on Preparedness and response for nuclear and radiological emergencies, Mol, Belgium

25-27 April 2018

NERIS Workshop & 9th NERIS General Assembly, Dublin, Ireland

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

EDITORIAL

Issue 14 – November 2017

This is my pleasure to inform you that, thanks to the contribution from the organisations involved in NERIS, the new NERIS Strategic Research Agenda together with its first Research Roadmap have been adopted in October 2017, aiming at addressing the three following main challenges: 1) Challenges in radiological impact assessment during all phases of nuclear and radiological events; 2) Challenges in countermeasures and countermeasure strategies in emergency & recovery, decision support and disaster informatics; 3) Challenges in setting-up a trans-disciplinary and inclusive framework for preparedness for emergency response and recovery. Developed within the activities performed in CONCERT project, the NERIS Roadmap is a crucial input for the cooperation with the other European Research Platforms in the field of radiation protection in the perspective of the elaboration of a Joint Roadmap for Radiation Protection Research to promote long-term research to assess the effects of ionising radiation on humans and the environment, and to develop tools to improve practical radiation protection related to different situations resulting in exposure to ionising radiation. The first version of the Joint Roadmap is expected to be published by the end of this month, and will describe the joint R&D challenges faced by the research disciplines of the 5 European research platforms.

It is worth to note that two new European research projects of direct interest to NERIS have been selected within the second CONCERT call for a two year period: SHAMISEN SINGS aiming at Nuclear emergency situations – Improvement of dosimetric, medical and health surveillance – Stakeholder involvement in generating science; and ENGAGE aiming at Enhancing stakeholder participation in the governance of radiological risks for improved radiation protection and informed decision-making. Both projects will contribute to better address social science and humanities issues for the management of emergency and recovery situations.

This Newsletter puts emphasize on the two sessions organised by NERIS during the 2nd European Radiological Protection Research Week (ERPW) which took place in conjunction with the 4th ICRP Symposium on the system of radiological from 10 to 12 October 2017 in Paris. These sessions were focussed on ethics and on implementation of countermeasures in emergency situation. They clearly emphasized the ethical and societal dimensions to be considered while implementing the radiological protection system and the importance of providing good prediction of the consequences and efficiency of countermeasure strategies. The third ERPW is already planed and will be held in Croatia in October 2018.

I also would like to inform you that the proceedings of the 3rd NERIS workshop 2017, held in Lisbon from May 17 to 19, will be soon available on NERIS website. Finally, I am please to announce that the 4th NERIS Workshop will be held on 25-27 April 2018 in Dublin, Ireland. Save the date !

Thierry Schneider – CEPN – President of the NERIS Platform



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

FEEDBACK FROM RECENT EVENTS...



The 8th NERIS General Assembly

20 participants from 15x countries attended the Eight NERIS General Assembly, which was held on May 17, 2017 at the occasion of the 3rd NERIS Workshop in Lisbon.

The General Assembly allowed sharing and discussing the annual report, the financial situation, and the review of the on-going activities of the NERIS Platform. Presentations from international organisations (EAN-European ALARA Network-, IAEA, ICRP, NEA-OECD, WHO, EC-ISPRA) working on research topics related to NERIS activities were proposed. Information on the OPERRA and CONCERT Projects were given and the future challenges of the Platform were also discussed.

The minutes of the 8th NERIS General Assembly can be downloaded on the NERIS website.

The 3rd NERIS Workshop

On 17-19 May 2017 in Lisbon, NERIS organised its 3rd workshop in cooperation with the Institut Superior Tecnico and the Agência Portuguesa do Ambiente. The Workshop gathered 75 participants and 40 papers dedicated to the 3 challenges of the updated NERIS Strategic Research Agenda were presented:

- ▶ Challenges in countermeasures and countermeasure strategies in emergency & recovery, decision support & disaster informatics;
- ▶ Challenges in radiological impact assessments during all phases of nuclear/radiological events;
- ▶ Challenges in setting-up a holistic framework for preparedness for emergency response & recovery.

The Workshop was an opportunity to discuss and exchange with NERIS Members, International organisations and European Research communities on priorities for the NERIS Platform as well as Japanese colleagues. It was an event rich in discussion and debate on the current results of the research and identification for further development on emergency and recovery issues. A session dedicated to the presentation of the updated version of the NERIS SRA was also proposed at the end of the workshop, in order to allow NERIS members to have their say and propose their comments and modifications.

The 3rd NERIS Workshop proceedings, gathering full papers of the presentations made during the workshop will be published on the NERIS website by mid November.

Consultation meeting on the NERIS Roadmap, 22 September, Brussels, Belgium (1/2)

On Friday, 22 September 2017, a NERIS consultation meeting was organized at the SCK•CEN headquarters in Brussels. The objective of the meeting was to collect comments and proposals for the NERIS roadmap. The NERIS roadmap aims at defining a long-term view on research in nuclear and radiological emergency and recovery. All NERIS members were invited to participate to the meeting and/or comment on a draft version of the roadmap. The NERIS roadmap fits in WP2 of the CONCERT project – a European Joint Programme for the Integration of Radiation Protection Research - and is together with the roadmaps of the other platforms (Melodi, Eurados, Alliance, Euramed and Social Sciences and Humanities) essential to explore joint interests for multidisciplinary and synergistic research between all platforms, which should result in the definition of a joint radiation protection research roadmap (CONCERT WP3).



FEEDBACK FROM RECENT EVENTS...



Consultation meeting on the NERIS Roadmap, 22 September, Brussels, Belgium (2/2)

The NERIS roadmap is based on the context of the updated version of the NERIS Strategic Research Agenda, which and on the societal scenario's developed in the context of the joint radiation protection research roadmap. It explores "realistic" steps to reach the research goals identified and expresses the intermediate research endpoints after 5 and 10 years from now.

15 NERIS members participated in the meeting and comments were received from several members not being able to be present in the meeting. After some introducing presentations on the context, goals, scenarios and status of the roadmap, parallel brainstorming sessions were organised along the 3 research areas defined in the NERIS SRA and roadmap:

- ▶ Challenges in radiological impact assessment during all phases of nuclear and radiological events;
- ▶ Challenges in countermeasures and countermeasure strategies in emergency & recovery, decision support & disaster informatics;
- ▶ Challenges in setting-up a multi-faceted framework for preparedness for emergency response & recovery.

Within each group the comments made on the draft roadmap were discussed and new ideas and proposals were introduced. All comments and ideas were afterwards discussed in a plenary session and the corrected versions were collected by the NERIS secretariat. Thanks to the input and active involvement of many NERIS members, a consolidated roadmap could be produced, allowing NERIS to deliver the roadmap in the context of WP2 of CONCERT by end of November.

Johan Camps – SCK-CEN – Chair of the NERIS R&D Committee



First meeting of the CONCERT Stakeholder Group

Under the CONCERT-European Joint Programme, a specific Work Package (WP5) has been developed and consists (for one of its subtask) of the establishment of a *Stakeholder Group* at the European scale in order to organise exchange between the stakeholder group and researchers in radiation protection research field.

In this context, the first meeting of this CONCERT Stakeholder Group was held the 27th and 28th September 2017 in Paris. This meeting gathered more than 15 European stakeholders proposed by the different research platforms and coming from 8 different countries.

During this meeting, the CONCERT joint Roadmap as well as the three projects selected under the first CONCERT call (CONFIDENCE, TERRITORIES, LDLensRad) were presented by the different project leaders. At this occasion, Stakeholder Group members interacted with the different speakers and so share their views, comments and expectations on the research projects and the way that these projects can better involve stakeholders in their process. To conclude these two-days-meeting, an overall discussion about the way to better involve stakeholders in the Radiation Protection Research process has been proposed. A first steps proposed and validated by all are (i) the possibility to disseminate to the Stakeholder Group members a newsletter gathering the main events related to radiation protection, which might interest them, as well as, (ii) establishing a list of European Stakeholders who might be interested to be part of discussions on radiation protection research.

Mélanie Maître – CEPN



FEEDBACK FROM RECENT EVENTS...



The 4th ICRP Symposium and the 2nd ERPW

With over 530 attendees, the 4th ICRP Symposium and the ERPW 2017 constituted a great opportunity to gather researchers, experts and professionals worldwide to share within more than 20 sessions, 100 oral presentations and 155 poster presentations their current works and concerns about the radiological protection research topics.

For NERIS, it was the occasion to chair and co-chair some ERPW₁₇ and ICRP sessions dedicated to Post-Accident topics and to emphasize the work conducted within NERIS. NERIS members took also the opportunity of the ERPW₁₇ to organize some satellite meetings: the R&D Committee meeting and the Management Board meeting.

The following articles summarise the main outcomes of the sessions chaired or co-chaired by NERIS during this week.

ERPW Session 1 – Ethics in Radiation Protection (1/2)

Introduction

Ethics are becoming a hot topic in radiological protection research. Radiological Protection (RP) is based on science and experience but also on ethical and societal values, since value judgements are needed in the evaluation of risk and thus in decision-making. Early in 2010, together with IRPA and academic institutions, ICRP initiated a reflection on the ethical basis of RP within dedicated workshops. The resulting ICRP report on the “Ethical Foundations of the System of Radiological Protection” will be published soon. Moreover, it is known that traditional nuclear science and engineering conferences started to include sessions and workshops dedicated to ethics on a regular basis. When we look at the different topics treated, we note a traditional focus on ‘virtue ethics’, reflecting on virtues such as ‘respect for autonomy’, ‘non-maleficence’, ‘beneficence’, ‘precaution’ and ‘justice, and on what these mean in practical situations, but also more and more on what we could call ‘ethics of method’ in policy. Examples are research ethics, or the value of stakeholder participation (based on the right of people to have a say in deciding on practices that might affect them in a negative way), or the value of compensation for a specific burden (such as in the case of communities accepting a waste disposal site).

But why do we care about ethics? We don’t care because we want moral peace in our mind ourselves, or a good image towards the others. We care about ethics because we care about fairness, and justice. And for scientists and engineers, it seems to be difficult to think of their work in terms of fairness or justice. The ERPW session on “Ethics in Radiation Protection” aimed to show that ethics is relevant for everyone dealing with radiation in one or another way.

Topics treated

Friedo Zolzer opened the thematic session with a presentation of the core ethical values considered in ICRP (beneficence and non maleficence, prudence, justice, dignity) and analyzed a possible broader set of ethical values of relevance for RP. He discussed values such as sustainability, solidarity, honesty and empathy and drew attention to how these could assist radiation protection personnel, radiographers and radiologists in maintaining an ethically sound and humane form of practice.

Deborah Oughton presented the recommendations of the EU Shamisen project that aims to improve the health surveillance and management of populations affected by radiation accidents. The project draws special attention to the ethical dilemmas that can arise for decision-makers. Taking into account one always wants to avoid doing more harm than good, she emphasised the need to address the societal, ethical and psychological impacts of countermeasures and the need to be transparent about the objectives and aims of health surveillance.

FEEDBACK FROM RECENT EVENTS...



ERPW Session 1 – Ethics in Radiation Protection (2/2)

Jim Malone reminded the audience that radiation protection in medicine must be consistent with medical ethics, and more explicitly with how the ethical values involved are interpreted in the context of medical practice. He reported on a series of scenarios involving diagnostic imaging and analysis and discussed them from both the perspective of ethics and the basic principles of ICRP. In addition, he explained how eventual divergences occur, e.g. when values are used in a narrow sense in RP, or used 'inappropriately'.

François Rollinger focused on the effectiveness and sustainability of protection measures in contaminated areas after a nuclear accident and discussed the importance of empowerment of the inhabitants. He explained that empowerment may as well refer to the availability of equipment allowing them to assess their own radiation exposure situation as to their inclusion in decision making. With respect to inclusion, he said that the commitment of scientists to be helpful towards individuals and communities in dealing with their issues of concern remains of key importance.

Finally, referring to the recommendations of the ICRP, Graham Smith argued that, although the use of effective dose as a risk-related RP quantity may be subject of critique, it would otherwise be unclear how ionising radiation exposure could be usefully discussed. Assessments also inevitably involve value judgements beyond the robust, clear science of radiological protection. He referred to the example of the linear no-threshold (LNT) model of protection in the context of optimisation and stated that, given that 'the risks of individual harm are very low', '... the allowance of value judgements within optimisation drives the adoption of different strategies to address radiologically similar circumstances at different sites'. Overall, he argued that the ethical foundations of RP should be used to support a wider, sustainable view of optimisation with other professionals working in environmental and human health protection.

Concluding reflections

The ERPW session on "Ethics in Radiation Protection" explored a rich and complex field of theory and practice, and it is clear that even basic values may be interpreted in various ways, also with respect to how to put them in practice. The fact that divergence of opinion is also present within the RP community is a normal thing, given that assessments inevitably need to take into account knowledge-related uncertainties and value pluralism. As a consequence, one has to acknowledge that practitioners and mandatories can only develop an ethical sense through proper 'ethics education'. Therefore the 'right' to ethics education for everyone involved may be understood as an overarching ethical value for RP policy.

Throughout the presentations and the discussions, it also became clear that the question of empowerment remains a topic of continuous concern. While the basis for the implementation of protection of, for instance, inhabitants in contaminated areas as compared to patients in medical exposures are different, it may be clear that, in both cases, radiological protection should be based on the same values promoting and protecting the 'human right' of inclusion in decision making on justification and optimization for anyone (potentially) affected.

Marie-Claire Cantone – UMIL & Gaston Meskens – SCK-CEN

FEEDBACK FROM RECENT EVENTS...



ERPW Session 2 – Management of Emergency and Post-accident situations: How to Optimise Population Evacuation Zones and Related Decision Making Processes?

The session contained 5 presentations from Japanese and European researchers.

Nobuhiko Ban presented his findings on the topic “Evacuation in nuclear emergency: lessons from Fukushima Daiichi accident”. He reviewed the evacuation process during the Fukushima accident and concluded that it is important to optimise the planning well in advance.

Elisabeth Cardis reported on a project carried out under the OPERRA umbrella “SHAMISEN recommendations and procedures for preparedness and health surveillance of populations affected by a radiation accident. She reported on the 28 recommendations developed within the project covering health surveillance, epidemiological studies, dose reconstruction, evacuation and training of health personnel and other actors involved in liaising with affected populations.

Catrinel Turcanu reported preliminary results on a work activity performed in the frame of the European CONFIDENCE project with the title of her talk “To leave or not to leave? Insights from an empirical study on expected evacuation behaviour. Aim of the work is to study decision making behaviour of lay people. Starting point was a survey performed in Belgium with population around nuclear sites.

Hiroshi Yasuda presented his ideas about one of the most burning issues in Japan nowadays related to the return of the population into the contaminated areas. In his talk “Decision making in return to the evacuation zone based on the integrating cancer risk”, he compared risk of radiation with other risk types and proposed to concentrate on most critical groups of the population such as female children for the assessments. He suggested to use this approach for risk communication.

The last presentation of Petr Kuča on the “Role of citizen measurements in radiation protection, emergency preparedness and response - its pros and cons” focused on the involvement of stakeholders and general public in solving problems in emergency preparedness, response and remediation. He reported on experiences gained with the use of “bGeigie nano” dose rate meter from Safecast by lay people. So far about 300 devices were distributed and results look promising.

All the presentations highlight the critical needs of the raising population awareness to improve global resilience after a nuclear accident. Considering both, population expectations and scientific concerns, the different speakers proposed several ideas for planning phase or emergency phases.

Damien Didier – IRSN & Wolfgang Raskob – KIT

NERIS & ICRP Session: Post-Accident Recovery (1/2)

ICRP and NERIS work programs.

Regarding ICRP, D.A. Cool reported that emergency exposure situations and lessons learned from Fukushima are among the five major areas of work of Committee 4. For post-accident recovery, the current work is the update to publication 109 & 111. As future work in particular the revision of publication g6 to look at emergencies other than large reactors is possible. C4 Task groups have also been set up to address special topics concerning the protection of environment and radioactive waste, both of concern in post-accident recovery.

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NERIS & ICRP Session: Post-Accident Recovery (2/2)

Regarding NERIS, T. Schneider presented the platform and its SRA. Post-accident recovery is part of the three challenges in radiological impact assessment taking into account uncertainties, in countermeasures strategies including decision support and disaster informatics and finally in setting up a transdisciplinary and inclusive framework for preparedness. The important role of stakeholder involvement and education and training as well as the consideration of societal, economic and ethical aspects in the recovery phase have been highlighted.

Recovery experiments after Fukushima.

K. Tanigawa reviewed the post-accident medical and health surveillance in particular the mental health and pregnancy/birth survey during the recovery phase in Fukushima. Among the problems, the absence of standard criteria to select people for the medical follow-up, the safety of tap water, the vulnerable populations as elderly people and pregnant women, the limitations in dose estimate especially for internal contamination by shorted lived radionuclides and the epidemic of fear due to a lack of communication and information should be mentioned. In conclusion, the preparation of the medical and health care teams is one of the major challenges in post-accident recovery and deserves special attention as it is also recommended by Shamisen. As key message, the participation of local health practitioners and actors should be especially encouraged.

W. Naito presented the results of the study involving about 250 Fukushima residents equipped with D-Shuttle personal dosimeter. The role of individual dosimetry in post-accident recovery is important in order to take appropriate countermeasures or self protection measures to reduce the dose of people living in affected areas. It helps to identifying the penalizing behaviors and provides a better understanding of the risk of external exposure in the daily life. The main conclusion was that the estimates of individual external doses based on the result from the D-Shuttle study were about ¼ of the estimates calculated by the government dose estimation model. This observation calls for two comments:

- ▶ On the one hand it is reassuring that authority measurements are conservative, on the other hand an excess of conservativity can be counterproductive when it comes to taking very restrictive countermeasures which should be based on the actual conditions of exposure.
- ▶ It is essential not to oppose authority measurements to those of other institutions, but to consider them as complementary for concerted decision-making in the recovery phase.

Whatever the dosimetry, the remaining question is "What is an acceptable level of risk, and how is an acceptable level of risk determined?"

The role of experts and the Irish approach

J.C. Gariel noted the importance of the dialogue and decision support that experts must be able to provide beyond the only aspects of radiation protection. The authority must not shirk its responsibilities or impose decisions, but be present and discuss the relevant issues in order to assist the concerned population. A major challenge is the radiation protection culture that should be best developed before an accident happens.

C.A. McMahon presentation on the Irish approach to post-accident preparedness emphasized the importance of the ingestion pathway, together with the significance of agricultural exports to the Irish economy. The key outcome from panel discussions was that one of the most important issues in post accident recovery is good communications. All the stakeholder in particular in the food industry must be involved in the communication plans.

Christophe Murith - FOPH

ANNOUNCEMENTS



Training course on “Modelling and measurement”, 5-16 March 2018, Roskilde, Denmark

The training course on “**Assessment of long-term radiological risks from environmental releases: modelling and measurements**”, 5-16 March 2018, Roskilde, Denmark is organised by the Center for Nuclear Technologies at the Technical University of Denmark (DTU). 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 research 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.

The course will provide insight into:

- ▶ **Assessment of long-term radiological risks from releases to the environment**
- ▶ **Theoretical principles of dosimetry**
- ▶ **Implications of different contamination scenario types**
- ▶ **Migration of radioactive contaminants in different types of environment**
- ▶ **Modelling internal dose and specific factors influencing ingestion dose**
- ▶ **Modelling external dose in contaminated inhabited areas**
- ▶ **Decision support systems for accident management**
- ▶ **Important concepts in sampling and gamma spectrometry**
- ▶ **Radiochemical analysis for radionuclides that are difficult to measure**
- ▶ **Rapid radiochemistry techniques for multiple samples**

Registration: Deadline on 15th of January 2018. Limited to 12 participants

Do not hesitate to contact Per Roos (roos@dtu.dk) or Kasper G. Andersson (kgan@dtu.dk) at DTU if you need further information.

The targeted audience is PhD students and young scientists / advisors. The course is expected to give students 2.5 ECTS points. There is no registration fee. Participants are expected to cover their own travel and subsistence costs (e.g., meals, hotel, visa if needed).

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Preparedness and response for nuclear and radiological emergencies, 16-20 April 2018, Mol, Belgium

The course on "**Preparedness and response for nuclear and radiological emergencies**" addresses the state of the art in nuclear and radiological emergency management including the latest international recommendations, the lessons learned from the Fukushima accident and the challenges we still face. The main objective is to provide fundamental knowledge and practical advice to all actors involved in emergency planning and response.

The course is organized by the SCK•CEN Academy for Nuclear Science and Technology, in the framework of the H2020 CONCERT project, in collaboration with the main European emergency management actors and the European platform NERIS (Preparedness for Nuclear and Radiological Emergency Response and Recovery).

Main topics in the course are the principles of intervention; radiological evaluations; decision-support tools; different aspects of planning and organization in off-site emergency response; economic, social and psychological impact; communication and stakeholder involvement; European Community legislation; and international data and information exchange. Group activities are organised to explore in depth several aspects presented during the course lectures. A comprehensive table-top exercise simulating a nuclear accident will be used to involve participants in the decision-making process and confront them with the real difficulties. A technical visit of several points of interest in SCK•CEN may be also foreseen for the interested participants.

This combination of theory, practice, tools and experience will help you and your organization to:

- ▶ **Carry out radiological assessments;**
- ▶ **Deal with the complexity of the situation in terms of its radiological, social and legal dimensions;**
- ▶ **Apply state of the art knowledge in decision-making processes related to nuclear and radiological emergencies;**
- ▶ **Assume a role in an emergency management team;**
- ▶ **Be ready to respond to a nuclear or radiological event.**

The course is mainly targeted towards technical and radiological advisors, staff responsible for the overall emergency organization and policy, either entering the domain or being interested in refreshing the basics and getting acquainted with latest developments in the field. The target audience also includes young investigators (e.g. Master or PhD students) in fields connected to emergency management (e.g. atmospheric dispersion and deposition, dose assessment, decision-supporting tools) and professionals wishing to develop a career in the field of emergency management, e.g. by acting as technical and radiological advisors to the authorities.

Lectures are given in English by experts with international recognition in the domain, from SCK•CEN and other organisations with leading roles in nuclear and radiological emergency management at European level.

More information and registration at:

[Preparedness and response for nuclear and radiological emergencies 2018](#)

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NERIS Workshop & 9th General Assembly, 25-29 April 2018, Dublin

The 4th NERIS Workshop on the « **Adapting nuclear and radiological emergency preparedness, response and recovery to a changing world** » will be held in Dublin (Ireland) from **25th to 27th April 2018**.

The NERIS Workshop 2018 will provide 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.

Plenary sessions will be organized on the following topics:

- ▶ **Calibration of new monitoring options (mobile monitoring);**
- ▶ **Citizen Science & monitoring by the public;**
- ▶ **Coping with uncertainty in impact assessment & decision making;**
- ▶ **Inverse modelling & data assimilation;**
- ▶ **Model validation;**
- ▶ **Novel approaches to communication & stakeholder engagement;**
- ▶ **Operational challenges for emergency response and recovery.**

You are encouraged to submit an **abstract for oral or poster presentation on emergency and recovery preparedness and response topics mentioned above**. Persons willing to present an oral /poster communication are invited to **send to the NERIS Secretariat a one-page abstract by e-mail** (sec@neris-eu.net) before **31 December 2017**. The abstract template is available on the NERIS website.

At the occasion of this workshop, NERIS will organise its **General Assembly on April 25 in Dublin**.

Program and registration will be available in early January.

For further information, please visit the NERS Website or contact the NERIS Secretariat (sec@eu-neris.net)

Save the Date!

5th European IRPA Congress, 4-8 June 2018, The Hague, The Netherlands

5th European IRPA Congress
4 - 8 June 2018
The Hague, The Netherlands

Encouraging Sustainability
in Radiation Protection



The Dutch Society for Radiation Protection (NVS) is pleased to host the **5th European IRPA Congress**, scheduled to take place from **4th to 8th June, 2018** in the historical city of **The Hague, The Netherlands**.

With the theme **"Encouraging Sustainability in Radiation Protection"**, the congress will focus on aspects needed to make sure that we have, and will continue to have, adequate equipment, staff and resources to protect human health and our environment against the adverse effects of ionising and non-ionising radiation.

For further information, please visit the dedicated website: <https://irpa2018europe.com>

3rd European Radiological Protection Week, 1-5 October 2018, Rovinj, Croatia



The **3rd European Radiological Protection Research Week** will be held in **Rovinj from 1 to 5 October 2018**. Further information will be published soon on the following website: <http://www.erpw2018.com>.

NERIS, as the other European Platforms (ALLIANCE, EURADOS, EURAMED and MELODI), will be associated with this event and will propose sessions dedicated on emergency and recovery preparedness and response topics.