

## Editorial

A new kind of AIR<sup>2</sup> bulletin in the form of special issues is being launched for the CONCERT community and for all those interested in Radiation Protection Research. This first special issue is dedicated to the 3 projects selected from the 1<sup>st</sup> CONCERT Call: CONFIDENCE, LDLensRad and TERRITORIES. These are the first projects to be welcomed to our EJP together with their POM, LTP, TP interactions and all their administrative complexity. The new consortiums are now being supported and very exciting research is in sight. Thus, despite the long process, we are very proud as CONCERT is the only EJP to date to have courageously kept the game open with an external call for proposals, open to all partners all over Europe.

Congratulations to the winners and welcome aboard to all the new research teams.

Dr Laure Sabatier, CEA

## The floor to...

CONCERT - The European Joint Programme for the Integration of Radiation Protection Research - aims to contribute to the sustainable integration of European and national research programmes in the field of radiation protection. CONCERT launched its first Call for proposals to support transnational research projects. Submitted projects must combine innovative approaches in the field of radiation protection in line with the research priorities of CONCERT, and integrate Education and Training activities with universities. These multidisciplinary research projects must as well make optimal use of research

infrastructures. The available funding for this first call was 10.5 M€.

The call was launched in June 2016 and opened for two months, with a closure in August 2016. Researchers based at universities, research institutions and SMEs were invited to team up with their European peers to submit proposals. Altogether 12 proposals were submitted by 147 partners from 85 different institutions in 26 countries; 8 proposals in Topic 1: in the area of *Improvement of health risk assessment*

*associated with low dose/dose rate radiation, 4 proposals in Topic 2: Reducing uncertainties in human and ecosystem radiological risk assessment and management in nuclear emergencies and existing exposure situations, including NORM.*

The proposals were evaluated by an independent international peer review panel (PRP) composed of 12 experts. After remote evaluation of all proposals, they met for 2 days to elaborate the final ranking lists. A total of 5 transnational projects were ranked, 2 projects in Topic 1 and 3

projects in Topic 2, respectively.

Actual costs of the 3 highest ranked proposals [CONFIDENCE

**CONCERT is pleased to announce the results of the first Transnational Call for proposals on "Radiation Protection Research in Europe"**

(Topic 2), LDLensRad (Topic 1), TERRITORIES (Topic 2)], summed up to 10.5 M€, the amount of funds available, and were therefore subsequently selected for funding. Overall the Panel emphasized the high quality of the consortia put together within the 12 proposals. In conclusion, this first call was a good experience bringing together a large number of research partners from all over Europe and beyond. Out of 12 proposals 3 research projects will be funded.

**WP1: Project coordination & management**  
Thomas Jung & Mandy Birschwilks  
**WP4 : Organization and management of open RTD Calls**  
Monika Frenzel & Véronique Briquet-Laugier



## Special Issue

February 2017



### Future events:

Expected 2<sup>nd</sup> Call

February 2017: Launch

April 2017: Deadline

### WP 6 News :

#### AIR<sup>2</sup>D<sup>2</sup>:

- Please complete the online form(s) to register your infrastructure(s) in the database.

- A new option to feature your infrastructure is now available: [add document](#).

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Project 1 [Confidence](#)

Project 2 [LDLensRad](#)

Project 3 [Territories](#)

WP1 & WP4 [1<sup>st</sup> call analysis](#)



# CONFIDENCE

## Coping with uNcertaintie For Improved modelling and DEcision making in Nuclear emergenCies

In emergency management and long-term rehabilitation the uncertainty of the information on the current situation, or its predicted evolution, is an intrinsic problem of decision making. To protect the population, conservative assumptions are often taken which may result in more overall harm than good due to secondary causalities as observed following the Chernobyl and Fukushima accidents. Therefore, the reduction of uncertainty where practicable, and approaches to deal with uncertainty, are crucial to improve decision making for the protection of the affected population and to minimise disruption of daily life.

Consideration of social, ethical and communication aspects related to uncertainties is a key aspect of the project activities. Improvements in modelling and combining simulation with monitoring will help gaining a more comprehensive picture of the radiological situation and will clearly improve decision making under uncertainties. Decision making principles and methods will be investigated, ranging from formal decision aiding



Photo: KIT

Wolfgang Raskob



Photo: KIT

Kick-off meeting in Karlsruhe February 16 and 17

The CONFIDENCE Project, funded under the H2020 CONCERT project, will perform research focussed on uncertainties in the area of emergency management and long-term rehabilitation. It concentrates on the early and transition phases of an emergency, but considers also longer-term decisions made during these phases. The project brings together expertise from four European Radiation Protection Research Platforms (NERIS, MELODI, ALLIANCE and EURADOS) and also from Social Sciences and Humanities, such that it can address the scientific challenges associated with model uncertainties and improve radioecological predictions and emergency management (NERIS and ALLIANCE), situation awareness and monitoring strategies (EURADOS), risk estimation in the early phase (MELODI), decision making and strategy development at local and national levels (NERIS) including social and ethical aspects (NERIS and Social Sciences and Humanities).

The work-programme of CONFIDENCE is designed to understand, reduce and cope with the uncertainty of meteorological and radiological data and their further propagation in decision support systems (including atmospheric dispersion, dose estimation, foodchain modelling and countermeasure simulations models).

techniques to simulation based approaches. These will be demonstrated and tested in stakeholder workshops applying the simulation tools developed within CONFIDENCE. A comprehensive education and training programme is fully integrated with the research activities.

Scientists from the 31 partner organisations from 17 European countries have met in Karlsruhe February 16 and 17, 2017, for the kick-off meeting of the project. Details of the work plan were refined and first steps defined. Links were identified with other ongoing projects (e.g. TERRITORRIES, also funded under the CONCERT project) and the project partners are very happy to share methods and results with their colleagues. Other aspects of CONFIDENCE will be discussed in future issues of AIR2 (e.g. our use of the ALLIANCE Chernobyl Observatory).



### ID Card:

#### Partners: 31

KIT, BFS, CEH, CEPN, CIEMAT, EPA, EEAE, HMGU, IRSN, MUTADIS, NMBU, NRP, University of Zurich, PHE, DTU, RIVM, SCK-CEN, STUK, UMIL, VUJE, KNMI, APA, DIALOGIK, University of Warwick, IST, REC, RIKILT, EXTREMADURA, UK Met Office, Norwegian Met. Institute

Duration: 3 years (2017-2019)

Total budget: 6.2M€

#### Infrastructures:

Exposure platforms: NA  
Observatory site: Chernobyl  
Database: NA  
Sample bank: NA  
Cohort: NA  
Analytical platform: NA

Open Access of produced data will be decided later

#### Internet Link :

<https://portal.iket.kit.edu/CONFIDENCE/>

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#### Related to:

MELODI  
ALLIANCE  
NERIS  
EURADOS  
EURAMED



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## Towards a full mechanistic understanding of low dose radiation cataracts

The lens of the eye is known to be more radiosensitive than previously thought but, despite a substantial reduction in occupational dose limits based on recent epidemiological information and reanalyses, the biological mechanisms that cause low dose radiation cataract induction are still unclear. This is an important current public health issue, for instance for medical radiation workers, many of whom will need to amend their working practices despite the lack of a clear understanding of the effects of chronic, low dose, ionising radiation exposure.

statistical modelling for hypothesis development. In addition, the partners will explore the potential for a prospective molecular epidemiology programme using human lenses taken from the former Mayak PA workers.



Dr Liz Ainsbury

Photo: Liz Ainsbury, PHE

It is anticipated that the results of this project will be highly relevant for CONCERT low dose radiation research and radiation protection and the work plan is particularly in line with the MELODI and EURADOS strategic research agendas with additional key implications for medical radiation protection. Concrete outcomes are anticipated to include: definitive information regarding the shape of the dose response curve and thus the risk of radiation cataract at doses < 500 mGy, advancing the debate as to the nature of radiation cataracts as either tissue reactions (formerly called deterministic effects) or stochastic effects and

thus strengthening the evidence base for informed radiation protection; the assessment of lens effects as biomarkers of global radiosensitivity to provide potential new tools for health risk assessment as well as the education and training of a number of earlier career scientists in low dose radiation research.

The project partners are very much looking forward to sharing the results with the community as they emerge.



Some of the LDLensRad collaborators at a proposal preparation meeting in January 2016. L to R main picture: Scott Bright (OBU), Stephen Barnard (PHE), Nobuyuki Hamada (CRIEPI), Liz Ainsbury and Michele Ellender (PHE), Munira Kadhim (OBU), Jochen Graw (HMGU) and Roy Quinlan (DU); Inset: Sabine Hölter-Koch (HMGU)

This multidisciplinary project aims to bring together experts from across Europe to answer a number of key research questions on this topic, including: how does low dose radiation cause cataracts; is there a dose rate effect, and how does genetic background influence cataract development after radiation exposure. The research will also address the issue of ageing in a sensitive subset of mice and whether lens effects can be viewed as global biomarkers of radiosensitivity. The collaborators - from PHE, ENEA, HMGU with support from Oxford Brookes and Durham Universities (UK), CRIEPI (Japan), MSKCC and IU School of Medicine (USA) as well as SUBI (Russia) - will work with mouse models supported by cellular studies to investigate the mechanistic chain of events from the initial radiation insult and biological responses through to formation of lens opacities. The biological investigations will be supported by rigorous

### ID Card:

#### Partners: 8

PHE, ENEA, HMGU with support from Oxford Brookes (OBU) and Durham Universities (DU) in the UK and CRIEPI (Japan), MSKCC and IU School of Medicine (USA), SUBI (Russia)

**Duration:** 3 years (2017-2019)

**Total budget:** 2.5M€

#### Infrastructures:

**Exposure platforms:** <sup>60</sup>Co irradiation facilities at the Medical Research Council, Harwell; ENEA, Rome and HMGU, Neuherberg

**Observatory site:** Scheimpflug imaging at PHE, Harwell; ENEA, Rome and HMGU, Neuherberg.

**Database:** Data on dose and dose rate effects in mice to be collated and established as a database during the course of the project

**Sample bank:** Primary cell cultures established from WT/ mutant mice; Human lens epithelial cells including FHL124.

**Cohort:** Exploration of the possibility to use lenses from the former Mayak workers

**Analytical platform:** CRESCO bioinformatics platform at ENEA.

**Open Access of produced data:** yes through STORE

**Internet Link :** Under development

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#### Related to:

MELODI  
EURADOS  
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# TERRITORIES

## To Enhance unceRtainties Reduction and Stakeholders Involvement TOwards integrated and graded Risk management of humans and wildlife In long-lasting radiological Exposure Situations

The TERRITORIES project has been selected for funding following 1<sup>st</sup> CONCERT Transational Call, topic 2 (Reducing uncertainties in human and ecosystem radiological risk assessment and management in nuclear emergencies and existing exposure situations, including NORM). Eleven partners (IRSN, BfS, CEPN, CIEMAT, NMBU, NRPA, PHE, SCK.CEN, STUK, University of Tartu, Mutadis) are involved in this 3-year-project (2017-2019). All of them were represented at the kick off meeting in Paris gare de l'Est on 27<sup>th</sup> of January.

This project interlinks research in sciences supporting radiation protection (such as radioecology, human or ecological dose and risk assessments, social sciences and humanities, etc.), providing methodological guidance, supported by relevant case studies. The overall outcome is an umbrella framework, that will constitute the



Photo: IRSN

Dr M. Simon-Cornu

basis to produce novel guidance documents for dose assessment, risk management, and remediation of NORM and radioactively contaminated sites as the consequence of an accident, with due consideration of uncertainties and stakeholder involvement in the

decision making process. The results will be widely disseminated to the different stakeholders and accompanied by an education and training programme.

Thus, the eleven partners of TERRITORIES will develop a common coherent guidance with a greater understanding of multiple sources of uncertainties along with variabilities in exposure scenarios, making the best use of scientific knowledge to characterize human and wildlife exposure, integrating this knowledge and know-how to reduce uncertainties and finally taking consideration of social, ethical and economic aspects to make decisions.



Photo: Salons du Relais, Paris

### Group picture at the kick off meeting on January 27<sup>th</sup>

TERRITORIES targets an integrated and graded management of contaminated territories characterised by long-lasting environmental radioactivity, filling in the needs emerged after the recent post-Fukushima experience and the publication of International and European Basic Safety Standards. A graded approach, for assessing doses to humans and wildlife and managing long-lasting situations (where radiation protection is mainly managed as existing situations), will be achieved through reducing uncertainties to a level that can be considered fit-for-purpose. The integration will be attained by:

- Bridging dose and risk assessments and management of exposure situations involving artificial radionuclides (post-accident) and natural radionuclides (NORM),
- Bridging between environmental, humans and wildlife populations monitoring and modelling,
- Bridging between radiological protection for the members of the public and for wildlife,
- Bridging between experts, decision makers, and the public, while fostering a decision-making process involving all stakeholders.



### ID Card:

#### Partners: 11

IRSN, BfS, CEPN, CIEMAT, NMBU, NRPA, PHE, SCK.CEN, STUK, University of Tartu, Mutadis

Duration: 3 years (2017-2019)

Total budget: 4.2 M€

#### Infrastructures:

Exposure platforms: NA

Observatory site:

Radioecological observatories (long-term study areas) as defined by STAR and/or COMET are included in the TERRITORIES Library, with other previously characterized radioactively contaminated sites

Database: TERRITORIES Library Database (TLD) will address variability in space and time in activity concentration (or dose) in some of these territories.

Sample bank: NA

Tools: Use of assessment codes: PC-CREAM, SYMBIOSE, ERICA tool and CROM-8., among others

Cohort: NA

Analytical platform: NA

Open Access of produced data:

yes

Internet Link :

to be further developed

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#### Related to:

ALLIANCE  
NERIS



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# Analysis of the first call 2016

## Outlook for the second call in 2017

For the first CONCERT call, 12 proposals have been submitted. The size of the consortia varied from 4 partners within the smallest up to 32 partners in the largest project, with an average of 12 partners per proposals. Besides the 20 EU/EURATOM countries, five third countries participated; Canada, Japan, Kazakhstan, Norway and Russia; and one EURATOM associated country; Switzerland.

The full budget of the three highest ranked projects **CONFIDENCE**, **TERRITORIES** and **LDLensRad** that have been selected for funding add up to approximatively 13 M€ in total (Fig. 3 left pie). From these costs, CONCERT is committed

### General statistics:

N° of pre-proposals	12
N° of countries	26
N° of partners total	147
N° of institutions	85

In average 12 partners per proposal

Smallest project: 4 partners

Largest project: 32 partners

### Consortium composition and participants

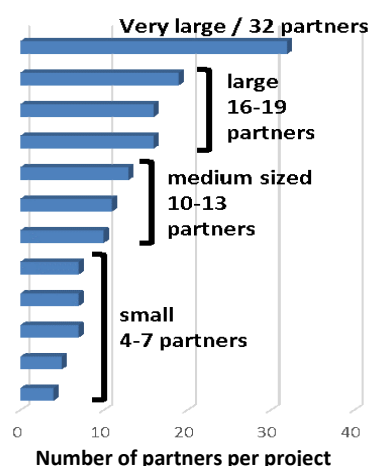
for 10.5 M€. The remaining 2.5 M€ are provided by partners/countries bringing to the project their own resources. Within this budget, 8 M€ were used to fund **TERRITORIES** and **CONFIDENCE** which are both in the Topic 2 “Reducing uncertainties in human and ecosystem radiological risk assessment and management in nuclear emergencies and existing exposure situations, including NORM.” Hence, 76% of the budget was dedicated to Topic 2, and 24% for Topic 1 (Fig. 3 right pie). The project **LDLensRad** falls into Topic 1, “Improvement of health risk assessment associated with low dose/dose rate radiation” with a budget of 2.5 M€.

CONCERT will launch the second transnational call for Proposals in spring 2017. The call was pre-announced on 18<sup>th</sup> January on the CONCERT webpage:

<http://www.concert-h2020.eu/>.

This call will address two main topics, with three sub-topics each:

Topic 1: Understanding human health effects from ionising radiation and improving dosimetry.

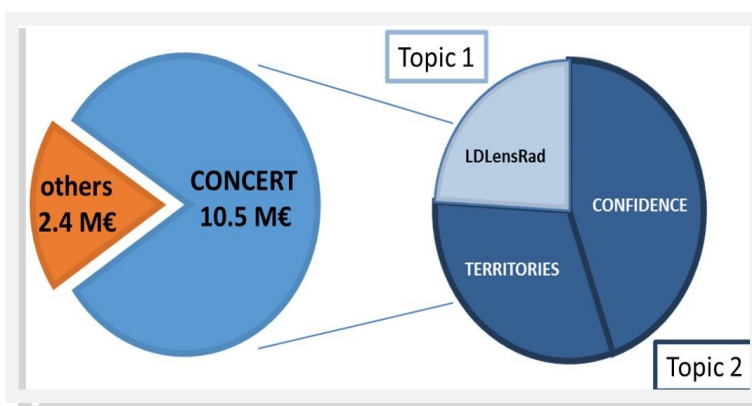


Topic 2: Radioecology, emergency and social sciences and humanities.

Project proposals must address multidisciplinary and transnational research. The project proposals must fall within one of the two topics and answer one or more sub-topics when appropriate.

The total budget available for this second CONCERT transnational call for proposals is about 7 M€. As shown in the figure 3, TOPIC 2 was well-funded in the 1<sup>st</sup> call. Hence, for the 2<sup>nd</sup> call, CONCERT Management Board decided to favor the Topic 1, and allocated 80% of the budget to this Topic, and 20% to Topic 2, respectively.

We are looking forward to receiving in this second transnational Call projects that combine innovative approaches in the field of radiation protection, and that are in line with the research priorities of the CONCERT European Joint Programme.



Allocation of budget within the first CONCERT call 2016

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### Future events:

**27 Feb-2 March 2017:**  
**Eurados Annual Meeting**  
KIT, Karlsruhe, Germany

**March 7-9, 2017:**  
**Radiation effects on the immune system: an updated state of the art and future research needs**,  
Budapest, Hungary

**25-27 April 2017:**  
**COMET final event**  
Bruges, Belgium

**8-11 May 2017:**  
**ConRad 2017**, Bundeswehr  
Institute of Radiobiology  
Munich, Germany

**14-19 May 2017:**  
**Neutron and Ion Dosimetry Symposium, NEUDOS13**  
Krakow, Poland

**23-26 May 2017:**  
**Operra final event**  
Budapest, Hungary

**3-8 September 2017:**  
**ICRER 2017**, 4th International  
conference on Radioecology &  
Environmental Radioactivity  
Berlin, Germany

**10-12 October 2017:**  
**Joint ICRP-RPW 2017**  
Paris, France

**5-11 November 2017:**  
**MICROS 2017**  
17<sup>th</sup> International Symposium  
on Microdosimetry  
Venezia, Italy



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