

Editorial

The results of the 2nd CONCERT Call are beginning to emerge. The success of this call has been remarkable! Although the budget allocated was less than for the 1st call (€6.98 million vs €10.4 million), twice as many proposals were received (24 vs 12). We now know the 6 projects selected: 4 are from topic 1 (Understanding human health effects from ionising radiation and improving dosimetry) (20 projects submitted), and 2 are from topic 2 (Radioecology, Emergency and SSH) (4 projects submitted). The financial distribution between the two calls has now rebalanced, with 80% of the budget from the 2nd Call being allocated to topic 1.

Again, only the acronyms and project titles were whispered to us, and not the infrastructures needed.

Dr Laure Sabatier, CEA

The floor to...

In the last few months, many of you may have found different messages in your inbox underlining the importance of research data and open access. In June, Springer Nature launched a survey on how we manage research data. In May, the European Commission contacted beneficiaries to inform them of the open access obligations in Horizon 2020. And we, in CONCERT Subtask 6.2.2, also invited researchers in the radiation protection field to take part in our survey on data management. The main goals of the survey were to find out why researchers were not sharing their data and what kind of support would be effective to populate databases with past and ongoing studies, which is the main objective of this subtask.

The survey was sent to the members of the CONCERT-all mailing list, asking them to distribute it extensively. The results showed that 44% of respondents had not heard of the STORE database. This is quite surprising if we consider that the survey participants all have some links with the CONCERT project. The survey also revealed that the participants had limited awareness of their IPR rights in relation to raw data.

The lack of time available to make data understandable is another major barrier. Based on the survey, specific funding or internal

assistance for data sharing can be an effective means of support for researchers. However, it was also found that requirements set by funding bodies to make public data sharing obligatory is another effective approach because most participants fully concur with the requirements of their funding bodies, institutions or journals.

While it is not clear whether the funding of data sharing is possible within the CONCERT project,

we have to work hard to increase the visibility of data sharing infrastructures and to provide information about open data policies and

the rights related to raw data. We are looking forward to seeing the first data generated in CONCERT-funded projects and uploaded to STORE. As one respondent wrote, "Sharing data should be the MUST for the future of research". We hope that these actions will help to establish a data sharing culture in radiation protection research that will bring this future closer.

Incrementing Databases With past and on-going studies

Dr Balázs Madas
MTA-EK
CONCERT WP 6.2.2



Photo: Borbála Madas



Future events:

10-12 October 2017

[Joint ICRP-ERPW 2017](#)

Paris, France

and at the same place

October 9th 2017:

ExB/ESAB: 13h00 - 14h30

MB: 15h00 - 17h00

WP 6 News:

Next WP6 meeting:

October 10th, Paris, France

During the ICRP-ERPW

AIR²D²:

- 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](#).

Contents:

Exposure platforms [DOS](#)

Exposure platforms [NDS](#)

Analytical platforms, [CERES](#)

Models, Tools

Next issue

October 2017



Exposure platforms

RADIATION METROLOGY LABORATORY

Facilities with wide range of radiation sources at STUK

The Finnish national standard for ionising radiation is maintained by the Radiation metrology laboratory (DOS) at the Radiation and Nuclear Safety Authority (STUK) in Helsinki. In addition, DOS provides a wide range of irradiation and calibration facilities.

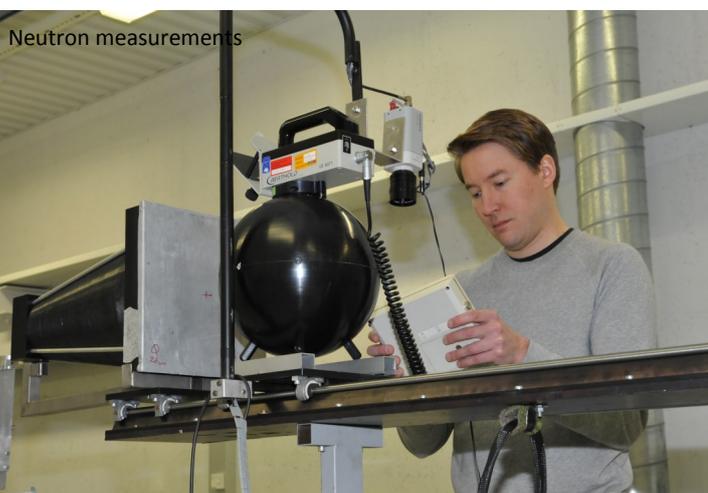
The facilities at STUK include equipment for calibration, testing and irradiation of active and passive targets such as electronic components, with the following radiation qualities:

arrangement meet the requirements of the ISO 17025 standard. The approval decision to join CIPM MRA is by self-declaration. In order to earn recognition by other laboratories, it is



Dr Reetta Nylund

Photo: Tosikua Oy/Jarkko Översti



- Gamma-ray sources: 4 x ^{137}Cs and 5 x ^{60}Co
- ^{241}Am photon source
- Two X-ray devices with voltage span from 10 kV to 320 kV
- Beta-active point sources (^{90}Sr , ^{85}Kr , ^{147}Pm)
- Neutron sources (AmBe , ^{252}Cf)
- Planar sources (^{90}Sr , ^{36}Cl , ^{60}Co , ^{14}C , ^{241}Am , ^{239}Pu , ^{137}Cs).

The air Kerma rate available is from 700 nGy/h to 40 Gy/h. In addition, a medical X-ray imaging facility with digital radiography is at hand. The calibration and irradiation premises include three separate irradiation halls for radiotherapy, radiation protection and X-ray calibrations and a common control room to operate irradiation instruments. Typically, either measurement devices or passive targets are irradiated. There is no facility available for maintenance of living biological materials.

Quality assurance and quality control at the national laboratory are maintained in accordance with the international Mutual Recognition Arrangement CIPM MRA (Comité International des Poids et Mesures). The quality systems of the laboratories recognised by the CIPM MRA

necessary to deliver annual reports to the EURAMET association and participate in regular intercomparison measurements and external audits.

STUK is a member of the IAEA/WHO SSDL laboratory network and the European Association of National Metrology Institutes (EURAMET) and has contributed to a vast number of EURAMET-operated research projects in the field of dosimetry and metrology. The research conducted in the laboratory has generally been related to the use of radiation, such

as in dosimetry, occupational and clinical radiation exposure, X-ray imaging and measuring methodologies. Several equipment manufacturers use the services of the laboratory as an integral part of their R&D process. In addition, STUK has agreements with Finnish universities for research cooperation involving the use of STUK's irradiation facilities. Access to the STUK facilities is by prior agreement either in the context of collaborative research projects or for irradiation and calibration services.



Photo: Teuvo Parviainen/STUK



ID Card:

Exposure type:
External

Source:
see text

Dose rate:
700 nGy/h to 40 Gy/h

Irradiation type:
gamma, X-ray, alpha, beta, neutron

Irradiated organism type:
not available

Address:
Radiation and Nuclear Safety Authority (STUK)
Laippatie 4, 00880 Helsinki, Finland

Access:
Prior agreement/research collaboration service

Supporting lab:
No

Internet link:
www.stuk.fi

Contact:
Reetta Nylund
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+358401520941

Related to:
EURADOS, MELODI, EURAMED

Exposure platforms

Laboratory for Dosimetry Standards (NDS)

HQ metrological support for ionising radiation measurements

The Laboratory for Dosimetry Standards was established at Jozef Stefan Institute in 1992. In 2008 it was appointed by Metrology Institute of the Republic of Slovenia (MIRS) as Designated institute (DI) and holder of Slovenian national standard for ionising radiation (air kerma, Ka, and dose equivalent, H). NDS is accredited according to the ISO/IEC 17025:2005 standard by Slovenian Accreditation. With calibration of dose / dose rate meters and surface contamination monitors we provide dissemination of metrology traceability on

qualities) and 10 cm (RQR-M, RQA-M qualities) in diameter at 1 m distance. Dose rate can be varied in orders of magnitude with anode current and distance. The irradiated object is put into the central beam of selected source



Photo: JSI

M.Sc. Matjaž Mihelič

with the aid of several lasers. Relative shifts are made with remotely controlled 3 dimensional coordinate system.

Our lab can irradiate arbitrary samples within the above mentioned dimensions. The irradiation time is controlled by means of electronic timer. The ambient parameters are measured with traceable sensors of temperature, pressure and humidity.

Background irradiation is regularly measured and kept within narrow margins.

The reference quantity for the beam calibrations is the air kerma, determined with secondary standard ionization chambers traceable to the primary standards of the

Hungarian Trade Licensing Office (MKEH) and International Atomic Energy Agency (IAEA, Austria).

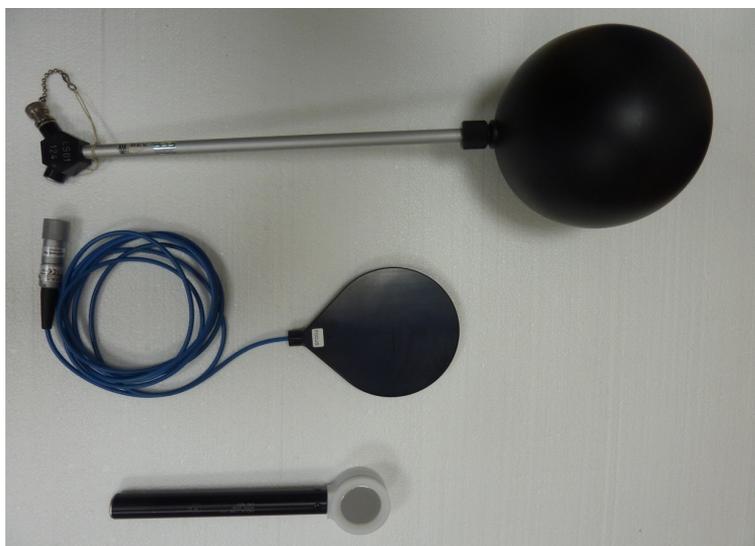


Photo: JSI

Dissemination of metrology traceability on national and international level; ionisation chambers from top to bottom: 1. LS-01 ensures the traceability for ^{137}Cs , ^{60}Co , ^{241}Am sources, and X-ray narrow spectra; 2. TW 34060 ensures traceability for RQR and RQA radiation qualities; 3. RC 06 M ensures traceability for RQR-M in RQA-M radiation qualities

national and international level. We are actively engaged in the work of Technical Committee for Ionising Radiation (TC-IR) at the international organisation EURAMET. In 2015 best Calibration and Measurement Capabilities (CMC) of the NDS were approved and reported by BIPM.

For calibrations in gamma radiation beams, the NDS uses collimated photon beams produced with ^{137}Cs and ^{60}Co sources and a set of lead attenuators with attenuation range of 16.000 (^{137}Cs), installed in a revolver type homemade irradiator. Additional variation of the dose rates at the irradiated object can be achieved with distance changes in the range from 1 to 100. This is also true for ^{241}Am source which does not have attenuators. The shape of the field is 30 x 30 cm for ^{137}Cs and ^{60}Co sources and 30 cm in diameter for ^{241}Am source, all at 1 m distance. The shape of X-ray fields are circular 18 cm (N, RQR, RQA

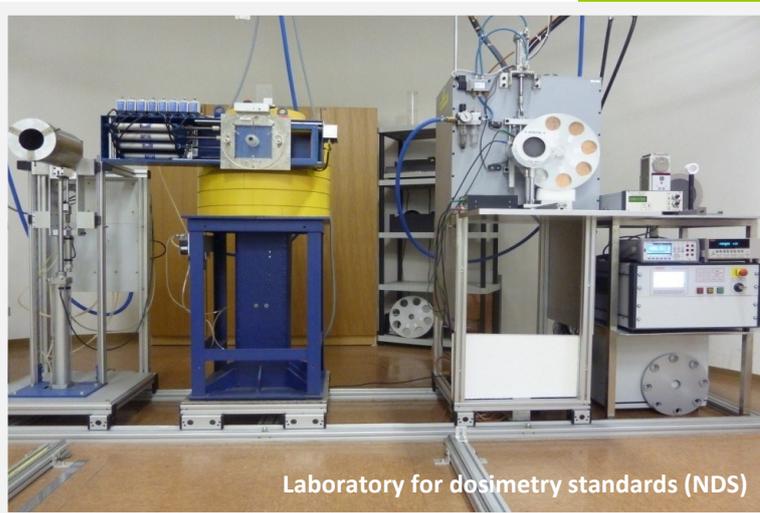


Photo: JSI

Laboratory for dosimetry standards (NDS)



ID Card:

Exposure type: external

Sources:

^{60}Co , ^{137}Cs , ^{241}Am , X-ray: 10-160 keV (ISO 4037 narrow spectra N, IEC 61267 diagnostic spectra: RQR, RQA), X-ray: 2-60 keV (IEC 61267 mammographic spectra: RQR-M, RQA-M)

Irradiation type: Gamma, X-ray

Dose rate range: 0- 0.1 Gy.min⁻¹

Dose range: 0- 1 Gy

Energy, Energy range: 2- 1250 keV

Possible duration of exposure: 100 h

Dose rate modulation options: manual: 10⁴

Space available to install the objects to be irradiated: 7 m

Main use of the facility:

calibration, irradiation

Dosimetric quantity used:

Air kerma, ambient dose equivalent H^{*}(10), personal dose equivalent Hp(10), personal dose equivalent Hp(0,07), surface emission rate: α, β

Address:

Jozef Stefan Institute
Jamova cesta 39
1000 Ljubljana, Slovenia

Access:

by prior arrangement with head of the laboratory

Internet link:

http://ol.ijs.si/?module=1&lan=1&id=13&mid=7_11_13

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Related to: MELODI, EURADOS

THE CERES® PLATFORM

A rapid environmental and sanitary assessment code

The Radioanalysis, Chemistry, Environment and Atomic Energy Commission (CEA) is in charge of the development of methods and tools to estimate the impact of accidental or routine pollutant releases (radionuclides or chemicals) on human health and the environment. It has developed the CERES® tool (Code d'Évaluations Rapides Environnementales et Sanitaires) to ensure that all impact evaluations of CEA installations releases are carried out in the same way. The CERES® platform houses a database containing the characteristics of approximately 800 isotopes or pollutants (dose coefficients, transfer coefficients from soil to plants, from plants to animals...) and can be used either in emergency situations or for safety files.

Currently, CERES® focuses on the integration of



Main interface of CERES® platform

chemical reactions during atmospheric transfer, the development of heavy gas models and the use of topography in accidental situations.

For accidental atmospheric releases, atmospheric transport modelling is performed using the Gaussian puff model, MITHRA. Different standard deviation equations are used such as Doury's formula (default option), function of travel time. The activity emitted from a facility into the environment is evaluated using the ERASTEM system which is a box model, that takes into account transfers between different compartments of the installation. For routine atmospheric emissions, dispersion calculations are performed using the GASCON model, which is based on the Gaussian puff model described above. In this case, the release over time rate is constant and the different meteorological data acquired near the sites over a period of one or more years is based on observations. For normal releases in rivers, the ABRICOT model which assumes immediate dilution, is used.

Impact evaluations are performed in population groups whose characteristics are made available in a "site" dependent database containing stacks, measurement points, dietary habits, etc. The consequences in terms of effective dose or dose to the thyroid in accidental situation only, are estimated for the following pathways:

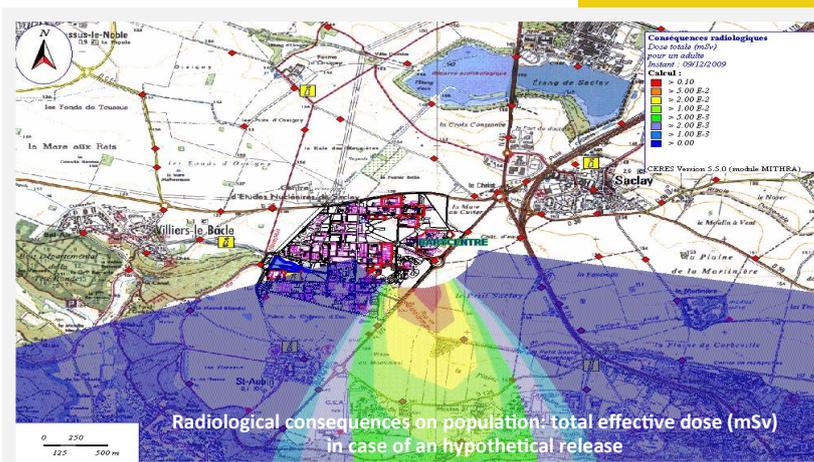


Dr Marguerite Monfort

- immersion in the plume, which leads to internal exposure by inhalation and external exposure by irradiation following atmospheric release,
- presence on the deposits, which leads to external radiation exposure,
- inhalation of resuspended deposits in the case of liquid releases,
- ingestion of water or fish following liquid releases,
- consumption of plants, whose activity comes from the deposits of aerosols and rainfall or from ground transfers *via* root uptake,
- consumption of contaminated animal products.

In the case of tritium emissions, the modes of exposure differ in that immersion in the plume leads to internal exposure by inhalation and passage through the skin. Tritium is a low energy pure β emitter and does not cause external exposure via radiation deposits. Contamination can also occur through inhalation or ingestion *via* the food chain.

For accidental releases, the intervention levels for radiological emergencies defined by decree are highlighted if reached. The external exposure dose coefficients are derived from the Federal Guidance Report n°12, while the internal ones are either from the decree of September 1, 2003 or from ICRP publications: transfer coefficients in food chain are those proposed by international literature - TRS 472, AIEA, 2010.



ID Card:

Purpose:

Dose assessment on population

Use:

needs a specialist

Housed at:

CEA

Training proposed on the code:

Yes

Delay to start:

No

Access:

On demand (not free)

Internet link:

www.dase-cea.fr

Contact:

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Address:

CEA DAM Ile de France

Bruyères le Châtel

91297 Arpajon

France

Related to:

MELODI, EURADOS, NERIS

Future events:

CONCERT Short Courses

30 October-10 November 2017

Molecular Mechanisms of Radiation Carcinogenesis
Helmholtz Center - Munich Institute for Radiation Biology, Germany

Contact:

Michael Rosemann
Rosemann@Helmholtz-muenchen.de

5-9 February 2018

Emergency and recovery preparedness and response
National Center of Radiobiology and Radiation Protection, Bulgaria

Contact:

Nina Chobanova
n.chobanova@ncrrp.org

19-23 February 2018

Radiation Protection:
Basics and Applications

Forschungszentrum Jülich, Germany

Contact:

Ralf Kriehuber
r.kriehuber@fz-juelich.de

Other Events

3-8 September 2017

ICRER 2017, 4th International conference on Radioecology and Environmental Radioactivity,

Berlin, Germany

17-21 September 2017

ERR 2017, 43rd Annual Meeting of the European Radiation Research Society

Essen, Germany

24-25 October 2017

International Workshop on the INEX 5 exercises

OECD Nuclear Energy Agency Boulogne-Billancourt, France

5-11 November 2017

MICROS 2017, 17th International Symposium on Microdosimetry, Venice, Italy

See also on CONCERT website

Issue

Exposure platforms

Databases, Sample banks, Cohorts

Analytical platforms, Models & Tools

Published to date:

Oct 2015, #1

[FIGARO](#)

[FREDERICA](#)

[RENEB](#)

Nov 2015, #2

[B3, Animal Contamination Facility](#)

[The Wismut Cohort and Biobank](#)

[The Hungarian Genomics Research Network](#)

Dec 2015, #3

[Pulex Cosmic Silence](#)

[STORE](#)

[METABOHUB](#)

Feb 2016, #4

[SNAKE](#)

[French Haemangioma Cohort and Biobank](#)

[Dose Estimate, CABAS, NETA](#)

Mar 2016, #5

[Radon exposure chamber](#)

[3-Generations exposure study](#)

[PROFI](#)

Apr 2016, #6

[Biological Irradiation Facility](#)

[Wildlife TransferDatabase](#)

[Radiobiology and immunology platform \(CTU-FBME\)](#)

May 2016, #7

[CIRIL](#)

[Portuguese Tinea Capitis Cohort](#)

[LDRadStatsNet](#)

Jun 2016, #8

[Mixed alpha and X-ray exposure facility](#)

[Elfe Cohort](#)

[ERICA Tool](#)

Jul 2016, #9

[SCRS-GIG](#)

[RES³T](#)

[CROM-8](#)

Sep 2016, #10

[Facility radionuclides availability, transfer and migration](#)

[INWORKS cohort](#)

[France Génomique](#)

Oct 2016 #11

[LIBIS gamma low dose rate facility ISS](#)

[JANUS](#)

[Transcriptomics platform SCKCEN](#)

Nov 2016, #12

[Microtron laboratory](#)

[EPI-CT Scan cohort](#)

[CATI](#)

Dec 2016, #13

[Nanoparticle Inhalation Facility](#)

[UEF Biobanking](#)

[The Analytical Platform of the PRE-PARE project](#)

Feb 2017, #14

[Infrastructure for retrospective radon & thoron dosimetry](#)

[Chernobyl Tissue Bank](#)

[HZDR Radioanalytical Laboratories](#)

Mar 2017, #15

[Alpha Particles Irradiator Calibration Laboratory at KIT](#)

[SYMBIOSE](#)

Apr 2017, #16

[Changing Dose rate \(SU\) Low dose rate \(SU\)](#)

[Advanced Technologies Network Center](#)

May 2017, #17

[Chernobyl Exclusion Zone](#)

[Chernobyl clean-up workers from Latvia](#)

[BFS whole and partial body Counting](#)

Jun 2017, #18

[MELAE](#)

[Belgian Soil Collection](#)

[INFRAFONTIER](#)

Jul 2017, #19

[MICADO'LAB](#)

[Estchern Cohort](#)

[ECORITME](#)

Sep 2017, #20

[DOS](#)
[NDS](#)

[CERES](#)

Coming soon:

Oct 2017, #21

To Be Announced

To Be Announced

To Be Announced