SCK•CEN
STUDIECENTRUM VOOR KERNENERGIE
CENTRE D'ETUDE DE L'ENERGIE NUCLEAIRE

SCK•CEN ACADEMY
FOR NUCLEAR SCIENCE AND TECHNOLOGY

Training course on mixture toxicity in the frame of the STAR project

January 27-30, 2014

SCK•CEN, Mol, Belgium

IRSN
INSTITUT
DE RADIOPROTECTION
ET DE SÛRETÉ NUCLÉAIRE

STAR
STRATEGY FOR ALLIED RADIOECOLOGY

This training course is sponsored by the EC Network of Excellence for Radioecology
"Strategy for Allied Radioecology (STAR)"

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Introduction & objective

Contaminants never occur in isolation yet legislation is still largely based on effects of single compounds. In addition, more and more data are becoming available that suggest that compounds can exert effects in organisms when present in mixtures in concentration ranges at which the single contaminants do not induce effects. This workshop intends to introduce participants to some of the approaches and methodologies used in studying and predicting mixture toxicity effects.

This workshop aims to provide:

- A description of the principal concepts of concentration addition and independent action for predicting mixture toxicity;
- An overview of ways to address deviations from the existing reference models;
- An in-depth knowledge on the concept of the Dynamic-Energy-Budget (DEB) theory, and the effects of toxicants and mixture exposure within this theory;
- Practical statistical approaches to be able to describe dose-effect relationships;
- Concepts on environmental risk assessment approaches in an multiple contaminant context.

The workshop will be a mixture of theoretical presentations and individual practical calculation sessions.

Target public

This workshop intends to attract PhD students and scientific researchers that are confronted with the challenges of assessing or predicting biological effects in mixed exposures situations.

Organising committee

This workshop is organised in the context of the European STAR project (Strategy for Allied Radioecology), by the unit Biosphere Impact Studies (BIS) of SCK•CEN (the Belgian Nuclear Research Centre) in collaboration with the laboratory of Environmental Modelling of IRSN (French Institute for Radiation Protection and Nuclear Safety). The local organising committee consists of Nele Horemans and Hildegarde Vandenhove (SCK•CEN).

Contact & information

Scientific coordinators	Administration officers	Liaison officer
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Website: http://www.sckcen.be/en/Events/STAR2013		

Programme

Monday January 27, 2014

12:30 h	Opening & registration
13:20 h	Welcome *Hildegarde Vandenhove, SCK•CEN, Mol, Belgium*
13:30 h	Dose-effect modelling in R *Clair Della Vedova, IRSN, France*
16:45 h	Wrap up of the first day
17:30 h	Reception & walking dinner

Tuesday January 28, 2014

08:30 h	Short introduction to Multiple stressor research *Nele Horemans, SCK•CEN, Mol, Belgium*
09:30 h	Concepts of concentration addition (CA) and independent action (IA) *Nele Horemans, SCK•CEN, Mol, Belgium*
11:15 h	Experimental design and deviations of reference models *Nele Horemans, SCK•CEN, Mol, Belgium*
14:00 h	Deviations from Concentration Addition and Independent Action *Claus Svendsen, Centre for Hydrology and Ecology, United Kingdom*
17:30 h	Wrap up of the second day

Wednesday January 29, 2014

08:30 h	Calculus session *Nele Horemans, SCK•CEN, Mol, Belgium & Claus Svendsen, Centre for Hydrology and Ecology, UK*
11:00 h	Introducing DEB and DEBtox theory and modelling *Tjalling Jager, Free University of Amsterdam, The Netherlands*
14:00 h	A practical application of the simplified DEBtox equations to the case of Daphnia exposed to Uranium *Fréderic Alonzo, IRSN, France*
17:00 h	Wrap up of the third day
18:00 h	Dinner

Thursday January 30, 2014

09:00 h	General introduction to risk assessment and compound-oriented risk assessment and deriving and using Environmental Quality Criteria *Leo Posthuma, RIVM, The Netherlands*
10:00 h	Introduction to Species Sensitivity Distributions and to quantitative mixture risk assessment using SDD's *Leo Posthuma, RIVM, The Netherlands*
11:00 h	Mixture risk, multiple stress and effects at ecosystem level: interactive reflections and developments *Leo Posthuma, RIVM, The Netherlands*
13:00 h	ERA | Practical *Leo Posthuma, RIVM, The Netherlands*
16:00 h	Wrapping up and feedback of the training course

Registration

Registration deadline is January 5, 2014.

Participation fee is 100 euro. This fee includes lunch, coffee breaks and handouts of the presentations, welcoming reception on Wednesday and walking dinner on Thursday.

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