

Mixture toxicity workshop

September 30 - October 3, 2013

SCK•CEN Club-House, Mol

This workshop is sponsored by EC Network of Excellence for radioecology:

“Strategy for Allied Radioecology (STAR)”.



Introduction and scope

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 organised in the context of the European STAR project (Strategy Towards Allied Radioecology) intends to introduce you 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.



Intended audience

This workshop intends to attract Ph.D students and scientific researchers that are now 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 Towards Allied Radioecology) by the unit Biosphere Impact Studies (BIS) from the Belgian Nuclear Research centre (SCK•CEN) 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 Hildegard Vandenhove.

Registration

Please register before September 15th 2013 (more info will follow)
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.

Secretariat

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More information can be found on:
<http://www.sckcen.be/en/Events/STAR2013>



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PROGRAMME

Monday 30 September 2013

- 12.30-13.20** Opening and registration
- 13.20-13.30** Welcome (Hildegard Vandenhove SCK•CEN, Belgium)
- 13.30-15.00** Dose-effect modeling in R (Clair Della Vedova, IRSN France)
- 15.15-16.45** Dose-effect modeling in R continued (Clair Della Vedova)
- 16.45-17.00** Wrap up of first day
- 17.30-...** Reception/walking dinner

Tuesday 1 October 2013

- 08.30-09.30** Short introduction to Multiple stressor research (Nele Horemans, SCK•CEN, Belgium)
- 09.30-11.00** Concepts of concentration addition (CA) and independent action (IA) (Nele Horemans, SCK•CEN, Belgium)
- 11.15-12.30** Experimental design and deviations of reference models (Nele Horemans, SCK•CEN, Belgium)
- 14.00-15.30** Deviations from Concentration Addition and Independent Action (Claus Svendsen, Centre for Hydrology and Ecology, UK)
- 15.45-17.30** Deviations from Concentration Addition and Independent Action (continued) (Claus Svendsen, Centre for Hydrology and Ecology, UK)
- 17.30-17.45** Wrap up of second day

Wednesday 2 October 2013

- 08.30-10.45** Calculus session (Nele Horemans and Claus Svendsen)
- 11.00-13.00** Introducing DEB and DEBtox theory and modelling (Tjalling Jager, VU-Amsterdam, Netherlands)
- 14.00-15.30** A practical application of the simplified DEBtox equations to the case of Daphnia exposed to Uranium. (Frédéric Alonzo, IRSN, France)
- 15.45-17.00** Practical approach to DEBtox: a case study continued (Frédéric Alonzo, IRSN, France)
- 17.00-17.15** Wrap up of second day
- 18.00-...** Dinner

Thursday 3 October 2013

- 09.00-09.45** General introduction to risk assessment and compound-oriented risk assessment and deriving and using Environmental Quality Criteria (Leo Posthuma, RIVM, Netherlands)
- 10.00-10.45** Introduction to Species Sensitivity Distributions, and to quantitative mixture risk assessment using SSDs, (Leo Posthuma, RIVM, Netherlands)
- 10.45-11.00** Coffee break
- 11.00-11.45** Mixture risk, multiple stress, and effects at ecosystem level: interactive reflections and contemporary developments (Leo Posthuma, RIVM, Netherlands)
- 11.45-13.00** Lunch
- 13.00-16.00** ERA – practical (Leo Posthuma, RIVM, Netherlands) (including a last coffee break)
- 16.00-16.30** Wrapping up and feedback on the course.

