

Integrated approaches for linking chemical contamination with biological effects

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There is increasing awareness that chemicals in the environment are typically occurring as complex mixtures, which can be hardly addressed by analytical target monitoring alone. Effect-based tools from community-effect assessment via biomarker-based approaches towards laboratory bioassays addressing apical as well as mechanism-specific endpoints are increasingly used to monitor environmental contamination. At the same time analytical multi- and non-target screening opens new opportunities towards a more holistic approach of addressing large numbers of chemicals and providing a more realistic picture of chemical contamination in different matrices. The present session invites contributions demonstrating integrated approaches to better understand the links between chemical contamination with biological effects. This includes particularly toxicity and analytical profiling of environmental samples, effect directed analysis (EDA) and Toxicity Identification and Evaluation (TIE) as well as multivariate statistical approaches to link effects with contamination patterns. Predictive tools that support toxicant identification in the environment and the establishment of cause-effect relationships (QSARs, structure-elucidation tools, prediction of transformation products, mixture effect models) shall be also presented. We hope to bring together studies and approaches on all kinds of matrices (air, water, sediments, soils, biota, passive samplers) from terrestrial, freshwater and marine systems. Examples and suggestions to involve such approaches into solutions-oriented monitoring and assessment (according to WFD and other regulations) are welcome.