

PROERA: A Multi-Criteria based Decision Support System for probabilistic ecological risk assessment

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Abstract

PROERA is a Decision Support System (DSS) for 'PRObabilistic Ecological Risk Assessment' of chemicals and it is based on the use of Multi-Criteria Decision Analysis (MCDA).

The objective of the DSS is to support the risk assessment approach in a reliable, fast and reproducible way. It is a tool aiding in increasing the productivity and efficiency of risk assessment processes and allows the integration of different experts' opinions for supporting the process of structuring decisions.

The risk index used in the DSS is the Potentially Affected Fraction (PAF), which is calculated on the basis of information regarding (1) the Predicted Environmental Concentration (PEC) and (2) the Species Sensitivity Distribution (SSD) available for different substances. The DSS incorporates a new and innovative MCDA based Weight of Evidence (WoE) methodology, which aims to improve the evaluation of ecotoxicological data, through the assessment of their relevance and reliability for the definition of reliable Species Sensitivity Distributions (SSDs).

The course will provide the participants all the relevant theory through introductory lectures and the focus will be on giving the participants practical experience with the software through selected case studies.

Course objectives

The course aims at providing the participants an introduction to the topics of ecotoxicology, ecological risk assessment and probabilistic ecological risk assessment with the use of MCDA and the proposed DSS. A strong focus will be given to the importance of performing analysis with big amounts of information, such as ecotoxicological data, and how to structure the decision processes for making the best possible use of them by taking into account both their relevance and reliability. The course is designed to combine presentations on the main theoretical subjects and a practical session on the use of the software; participants will be familiarised with the features of the DSS and the functionalities it provides to risk assessors and scientists.

Course level

Intermediate