NERIS

NERIS Workshop 2017

17-19 May 2017
Lisbon, Portugal

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Title-

Region-specific parameterisation of spanish mediterranean areas to reduce the uncertainties in the management of the long-term rehabilitation

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Text

The prediction of food contamination and doses to humans in existing exposure situations, after a nuclear accident, is a key element in the implementation and management of the long-term rehabilitation process. The assessment relies on the ability of the modelling to predict the time dependence of the transfer processes, namely food chain pathway, but also on the availability of reliable parameters. This issue has a significant influence on reducing the uncertainties of the estimated doses and the response of the potential recovery strategies to be applied, as the use of region-specific parameters implies a more realistic assessment of the radiological impact.

However, the food chain models used in European tools such as JRODOS, are mostly based in central European conditions, making the database structure and default parameters not sufficiently representative of agricultural and grazing practices located in other climatic regions. Such may be the case of the Mediterranean area, were the parameterisation of the information needed to represent its conditions is restricted to the constraints imposed by default.

In the European R&D framework some initiatives have been undertaken to improve the food chain modelling and the regional parameterisation. Within the COMET project (Coordination and Implementation of a pan-Europe Instrument for Radioecology), in particular under the task: *Initial Research Activity on Human Food Chain Modelling*, an exercise to assess the effect of regional parameters (Mediterranean and Nordic regions) on the food contamination has been developed. Two test scenarios, dry and wet and four radionuclides: ^{134}Cs, ^{137}Cs, ^{90}Sr and ^{131}I have been selected for this purpose.

This paper summarizes the case study for the Spanish Mediterranean region using JRODOS. The selected region-specific parameters have been: the foodstuff consumption rates, the crop yields, the harvesting periods, the leaf area indices, the feedstuffs and the animal feeding regimes. The values and information taken for them have been adapted to meet the requirements of the database structure used in the FDMT (Terrestrial Foodchain and Dose Module) model of JRODOS. The main findings in the customization process are shown.

In addition, the results obtained in terms of activity concentrations in selected foodstuffs and intake doses for different age groups, have been compared to the results obtained from the default parameters. The main implications to improve the dose assessment in the long term rehabilitation process are defined.