

Fukushima Dai-ichi and the Ocean: 10 years of study and insight Abstract Submission Form : Entry # 26

Name

sabine charmasson

Title

senior scientist

Affiliation

Institut de Radioprotection et de Sûreté Nucléaire (IRSN)

Email

sabine.charmasson@irsn.fr

Country

France

Additional Authors (names only)

Mokrane Belharet, Shawn Booth, Claude Estournel, Bruno Fiévet, Inna Senina

Session

Biological uptake of radionuclides

Abstract Title (English, limited to 300 characters)

The French AMORAD project (2013-2022) and the modeling of radionuclide transfer to biota in the Fukushima area

Abstract (English)

In 2013, the French AMORAD project was launched in order to improve the modeling of the dispersion of radionuclides in the environment and the assessment of their impacts on different ecosystems. With regard to the marine environment, the project mainly focused on the modeling of radionuclides transfer to sediment and biota, which was considered more challenging and less investigated than modeling of their dispersion in the ocean. Here, we present the results of the modeling efforts carried out to study the contamination of marine biota following the Fukushima nuclear accident.

Several types of models applicable to the study of radionuclide transfer to biota have been considered, ranging from simple classical biokinetic models to more complex ecosystem models, including the production of contamination indices for various tuna species. Overall, the outcomes of these models are satisfactory, and each of them should find an application within the framework of the management of a nuclear accident affecting the marine environment. Thus, it is noteworthy that biokinetic models are particularly suited to the accident phase, that is to say the acute phase of the accident which is mainly dealt with in crisis centers, even if they can also be used in the post-accident phase whereas the implementation of more complete and complex models based on ecosystem approaches require more time and are adapted to the post-accident phase and to the important problem of fisheries management in mid and long terms.