



Study on Caesium-137 distribution in soil – coniferous trees system and conceptual model

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The collected data about radicaesium activity concentrations in soil and coniferous trees from SW Rila Mountain in Bulgaria allowed collecting information about vertical distribution of Cs-137 in soil system, its forms and transferring toward the forest vegetation. Meanwhile the data allowed defining the factors influencing the element's absorption by the trees. All collected results contributed the development of conceptual model for Cs-137 transfer to the coniferous forest vegetation. All of the conceptions are applicable for one of the studied sites, the site PrP1 – forest ecosystem formed by *Picea abies* Karst. in SW Rila Mountain. It allows the dynamics of Cs-137 in ecosystems to be estimated. The results for the Cs-137 distribution in different part of trees (roots, branches, needles, etc.) gave the opportunity the contamination with caesium- 137 in plant organs to be distinguished, which is of a great importance in clarifying the processes of radio elements' accumulation in living organisms. The developed model of cesium transfer in soil-to-plant system could be applicable for coniferous ecosystems with similar characteristics and conditions

We can conclude that the experimental plots where the transfer of Cs-137 toward the conifers from the SW Rila Mountain is medium; the vegetation contains about 10.4 % from the total content of Cs-137 in the site. This fact confirms the necessity to pay attention and to describe correctly the role of vegetation in radio-elements transfer in forest environments.