

**ДЕРЖАВНА СЛУЖБА УКРАЇНИ З НАДЗВИЧАЙНИХ СИТУАЦІЙ  
НАЦІОНАЛЬНИЙ УНІВЕРСИТЕТ ЦИВІЛЬНОГО ЗАХИСТУ УКРАЇНИ**

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# **МАТЕРІАЛИ**

**міжнародної науково-практичної конференції  
молодих учених**

**«Проблеми та перспективи  
забезпечення цивільного захисту»**

**Харків – 2022**

**ABOUT FORMATION OF RADIATION DOSES OF UKRAINE'S POPULATION IN AREAS CONTAMINATED BY RADIONUCLIDES AFTER THE ACCIDENT AT THE CHERNOBYL NUCLEAR POWER PLANT**

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The paper [1] describes the set of the indicators that led to the growing technogenic impact on natural ecosystems and biota due to the rapid increase of natural and artificial radionuclides in the environment. The study states that there is a need to create system to assess reliability of ecological systems and biota taking into account content of artificial pollutants as far as living conditions and peculiarities of radiation doses formation of population of contaminated areas of Ukraine changed drastically and contamination level of many foods exceeds acceptable levels [2, 3] even 35 years after the Chernobyl catastrophe. The biological objects have an extremely high reliability which far exceeds reliability of any technical system that can be shown through the definition of biosystems reliability are described. The new sensitivity indicator is offered-the factor of radiocapacity to assess the impact on the state of the plant ecosystem to radiation exposure. A new radioecological concept is described in the paper [1] along with the specific mathematical modelling methods.

The study presents the development and application of methodology to assess state of ecological systems of different types and levels during radiation damage based on the use of mathematical chamber models and reliability theory as well as the consideration and determination of negative impact of radionuclides on the state of ecological systems. Development of reliability model of radionuclide transport and substantiate application of proposed method to study distribution and redistribution of radionuclides in the environment and in assessing dose loads on biota, humans and environmental safety on the basis of developed modified mathematical chamber models of agroecosystems is described. Was shown that modern radioecology lacks methods and models suitable for assessing and forecasting of local ecosystems state for specific settlements of Ukraine. Therefore, was offered a method of operative creation of environmental safety model for some settlements with binding to concrete conditions of any settlement. Such model will allow to minimize scope and detail of monitoring and to predict critical situations in ecosystem under study. Chamber models of real ecosystems affected by the Chernobyl accident were developed and analyzed.

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Відповідальний за випуск В.А. Андронов

Підписано до друку 02.04.2022

Тир. 100

Ціна договірна

Типографія НУЦЗУ, 61023, м. Харків, вул. Чернишевська, 94

Технічний редактор С.І. Зімін

Друк. арк. 30,6

Формат А4