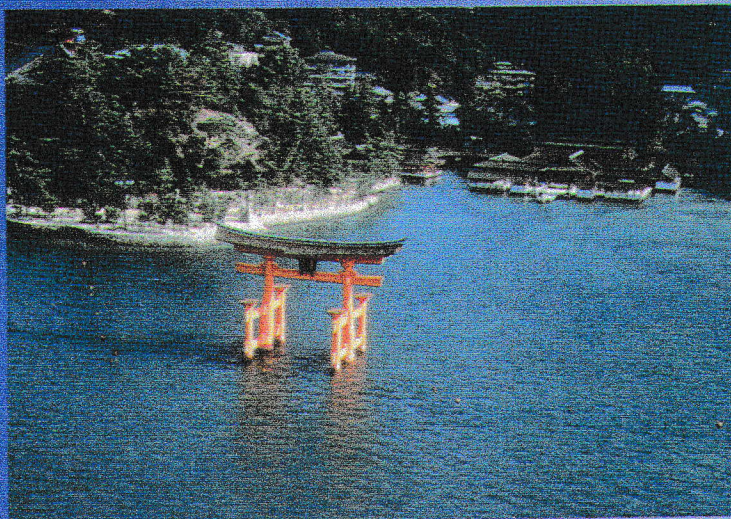




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Transfer of ^{134}Cs And ^{137}Cs From Soils To Plants In Cultivated And Uncultivated Soils In Different Regions Of Yugoslavia

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The purpose of the paper was to investigate ^{134}Cs and ^{137}Cs soil-to-plants transfer in different types of cultivated and uncultivated soils in the region after the nuclear plant accident at Chernobyl, in 1986. The investigations were part of the long-term radioactivity investigations project of the distribution of natural and man made radionuclides in » soil-plant« ecosystems. The investigations were carried out from 1987 to 1998 on ten different locations in the country (mountains, plains, city-close areas, river sides, lake-close areas) in soils with various geological, physical and chemical characteristics (shale, limestone, chernozem, sandy, mixed). The samples of soils and plants (grass, alfalfa, meadow flora, pinewood, blueberries, moss, lichen, endemic mountain species) were taken twice a year, in early summer (May-June) and during autumn (September, October, November). The activities of the radionuclides in grinded and dried samples of soils and plants were determined on a HPGe detector (relative efficiency 25%, total standard error of the method 15%) by standard gamma spectrometry. The results indicate the strong dependence of the calculated soil to plants transfer factors (range 0.1 – 2.0) due to the type of soil and species of plants, location and period of sampling. The majority of the Chernobyl cesium was distributed within the first 5cm layer of soil but still, the vertical distribution of ^{134}Cs and ^{137}Cs in the first 15 cm indicated slow migration of cesium through soils except on the river-sides due to the wash-out effects. Generally, the concentration and distribution of cesium in soils over the decade strongly depended on the local conditions, configuration of the terrain mainly.