



Assessment of the influence of climate condition on a migration rate of the ^{90}Sr in the unsaturated zone in the Kirov and Sverdlovsk Region, Russia

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In this research, the transport of ^{90}Sr with unsaturated flow in the same geological section (0.5 m top soil, from 0.5 to 6.0 m sand) was taken under consideration in two regions: Kirov and Sverdlovsk Region, Russia. The modeling schematization assumed that the nuclide polluted top soil to the depth of 0.2 m and from this point are transported with infiltration of precipitation during 100 year. The modeling were conducted in Hydrus 1D.

The climate classification based on the Budyko aridity index (Budyko 1958) was used to define climate differences between regions. According this classification climate in both are temperate continental but the biggest differences is in the wetting degree. The Kirov region has the aridity index about 0.70; there is overwatering conditions, which means that average annual precipitation exceeds the potential evapotranspiration. The Sverdlovsk region has the aridity index about 1.04; there is the optimal watering conditions.

The results of modeling of the ^{90}Sr migration process showed the transport dynamic dependence on wetting degree. At the end of the 100-year period, the ^{90}Sr reached the depth of 1.3 m in Kirov region and 1.0 m in Sverdlovsk.