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¹³⁷Cs in soil and milk in the region of Zagreb, Croatia

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At the Institute for Medical Research and Occupational Health in Zagreb, Croatia, research on environmental radioactivity has been carried out over a number of years. After the Fukushima accident in March of 2011, we have paid a special attention to its possible impact on the radioactivity of soil and precipitation in Northwest Croatia (Zagreb region). Before and after the accident, we determined the activity concentrations of ¹³⁷Cs (*A*) in soil samples taken from 3 adjacent surface layers (depths of 0-5 cm, 5-10 cm and 10-15 cm) as well as in samples of milk. Before the accident, *A* in the soil was nearly uniform, only slightly increasing with increasing depth. Shortly after the accident, we observed an increase of *A* in the topmost layer, which was in agreement with the values of *A* measured in fallout. In subsequent years, we have detected both the penetration of ¹³⁷Cs deeper into the soil and the overall decrease in *A*. In 2010, the values of *A* in milk were quite uniform over the months, amounting to about 35 Bqm⁻³. In 2011, this increased to 199 Bqm⁻³ in average, mainly due to the large values measured in the summer months; we attribute this effect to the influx of the radioactive matter from Fukushima. In consequence of the increased presence of ¹³⁷Cs, the estimated yearly effective dose due to the intake of ¹³⁷Cs via milk in 2011 was 200 nSv, which can be compared with 73 nSv in the period of 2010-2015.

Biography

Branko Petrinc obtained his PhD degree from the Physics Department of the University of Zagreb. He is a Research Associate at the Institute for Medical Research and Occupational Health in Zagreb, and an Assistant Professor at the Department of Physics of the Josip Juraj Strossmayer University in Osijek. He has published more than 20 papers in reputed journals. He was the President of the Scientific Committee of the Tenth Symposium of the Croatian Radiation Protection Association. In 2011, he was the Laureate of the CRPA Young Scientists Award.

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