

# $^{90}\text{Sr}$ IN FALLOUT AND FOODSTUFFS IN YUGOSLAVIA

S. V. POPOVIC

Department of Environmental Radioactivity, Institute for Medical Research,  
Zagreb, Yugoslavia

**Abstract**—Analysis of  $^{90}\text{Sr}$  in foodstuffs shows that in the period from 1961 to 1965  $^{90}\text{Sr}$  concentration was gradually increasing in almost all foodstuffs. Since 1965 a lower concentration has been observed. At the same time, up to 1964,  $^{90}\text{Sr}$  concentration in fallout was also increasing, but in 1964, there followed a slow, and in 1965 a very rapid, decrease of concentration.

In the literature numerous attempts have been recorded aiming at determining factors governing the ecological cycle. We too have tried to find out adequate parameters (constants). Using data about average  $^{90}\text{Sr}$  concentration in milk and fallout during the 1962–1966 period we have calculated from the equation  $C_m = a_m(Fd + 1/2 fd) + b_m fd$ , turning it into

$$Fd = \frac{C_m - 1/2 fda_m - b_m fd}{a_m},$$

which should be the amount of  $^{90}\text{Sr}$  in soil expressed in  $\text{mCi/km}^2$ . The results obtained indicate that only exceptionally is it possible to use the same constants (in this case  $a_m$  and  $b_m$ ) because  $^{90}\text{Sr}$  entry into various foodstuffs is conditioned by several factors. The same was observed when data from other countries were used for same calculations.

This is illustrated by figures presenting data about  $^{90}\text{Sr}$  content in milk and fallout. It is clearly noticeable that the average  $^{90}\text{Sr}$  concentration in milk in the years 1963, 1964 and 1965 remained almost the same, while the concentration of  $^{90}\text{Sr}$  in fallout showed considerable changes.

We have also tried to apply the discrimination factor for the plant/milk, but it varied to such a degree (in some of our calculations it has been even higher than 0.4) that there would have occurred an enormous error were it used for calculating  $^{90}\text{Sr}$  concentration in milk only on the basis of  $^{90}\text{Sr}$  concentration in plants.