198 **Standard Error and Weighted Mean for Nonuniform Population.**

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A method is developed to estimate mean and standard deviation of population from data which have different standard errors. According to the method, estimated mean is a weighted mean of which weight is determined from the standard errors and estimated standard deviation of the population. The estimated mean has following necessary properties.

1. When all data have same accuracy (same standard errors) or negligibly small errors, it coincides with arithmetic mean.
2. When the standard deviation of the population is negligibly small compared with the standard errors of the data, it coincides with mean weighted with inverse square of the standard errors.
3. When the standard errors and the standard deviation of the population are comparable, it attains a value between arithmetic mean and the weighted mean of case 2.

The method was examined by applying to radioactivity data of soil samples from a farm near Chernobyl nuclear power station. The reliability of the method was examined by calculation experiment using random number.

199 Regional variations of radiation level in Chûgoku district as observed by continuous car-borne monitorings.

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By using 4"ϕx 4"NaI(Tl) detector with 4 channel pulse height discriminator, continuous car-borne monitorings of radiation level were carried out in Chûgoku district in Japan by driving on the express ways and main road in this district. Remarkable variations of radiation level were observed even in the same tunnels or neighboring tunnels owing to the complicated geological feature in this area. In epidemiological studies on the effect of low level radiation, such facts must be considered to estimate radiation exposure dose.

200 Measurement of Radiation Dose in Tamagawa Hot Spring, Akita Prefecture

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The aim of this study is to evaluate a biological effect of the low-dose radiation by means of the dose measurement around Tamagawa hot spring and physical examination for employees of the hot spring hotel.

As a first step, we measured the external dose around the hot spring with a scintillation survey meter. The dose of the employees was measured with film badges for 2 months, and that of us was obtained with pocket semiconductor dosimeters. The highest external dose (41.3nC/kg/h, 0.16mR/h) was found at the big bathroom in the hot spring hotel, and is 32 times higher than that in Akita City. The result of the dose of ten employees was all under detectable limit. The dose of the investigators was 1-5 μSv/24h, and is higher than that in Akita City(1μSv/24h).