

広島統計談話会
Hiroshima Statistics Study Group

第 290 回談話会を下記のように開催致しますので
御参集下さいますようご案内申し上げます。

You are cordially invited to the 290th meeting as scheduled below.

日 時 : 2015 年 4 月 17 日 (金) 15:00 –
Date : April 17th, 2015 (Fri) 15:00 –

場 所 : 放射線影響研究所 講堂
Place : RERF Auditorium

演 者 : ハリー M. カリングス (放射線影響研究所 統計部 部長)
Speaker : Harry M. Cullings, Ph.D.
Chief, Department of Statistics, RERF

演 題 : 「日本人原爆被爆者の被爆位置および地形による遮蔽に関するデータの改良
の結果得られた線量推定値」
Title : “Dose Estimates Resulting from Improved Location and Terrain Shielding Data for
the Japanese Atomic Bomb Survivors”

要 約 :

Summary:

Since 2008 the Radiation Effects Research Foundation (RERF) has been using new technology to extract data from archival materials related to the members of its study cohorts, to obtain improved estimates of their locations at the times of the atomic bombings in Hiroshima and Nagasaki. The coordinate system of U.S. Army maps from 1945 has traditionally been used for specifying survivor locations by the Atomic Bomb Casualty Commission (ABCC) and subsequently by RERF. Digitized source documents such as data collection forms from the 1950s and 1960s were re-checked to determine the best such coordinates for all survivors. Digits for tens of yards, which had been truncated from the coordinates of some survivors at some time in the 1960s, were restored. RERF expanded and improved its collection of pre-bombing aerial photographs, and a contractor made special geometrical corrections to them and assembled them into a mosaic for each city, creating map-like images of uniform scale called orthophotographs. The U.S. Army maps were aligned to these images with a Geographical Information System (GIS) using a “rubber-sheeting” method to remove the local distortions in the original maps, and the result was used to create a mathematical system for transforming the U.S. Army map coordinates into those of the contemporary Japanese geographic coordinate system JGD2000. For survivors with shielding histories, even more accurate coordinates were obtained by directly aligning the neighborhood diagrams showing their detailed locations with the orthophotographic mosaic. Finally, greatly improved terrain elevation data could be obtained for all survivors at their new locations, from digital terrain maps of the cities, for the elevation at the survivor’s location, which determines the straight-line distance from the survivor to the bomb, and for “grazing angles” to the horizon in five directions from the survivor’s location, necessary for dosimetry system DS02 to calculate terrain shielding. The effect of this work on survivors’ dose estimates will be described.