

Radiation Map of Tsukuba University Campus

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Introduction. The purpose of this research is to conduct a field survey using GPS, and capturing features which will be mapped. The survey that was conducted on the 28th of November 2011 involved measuring radiation levels around the Tsukuba University campus

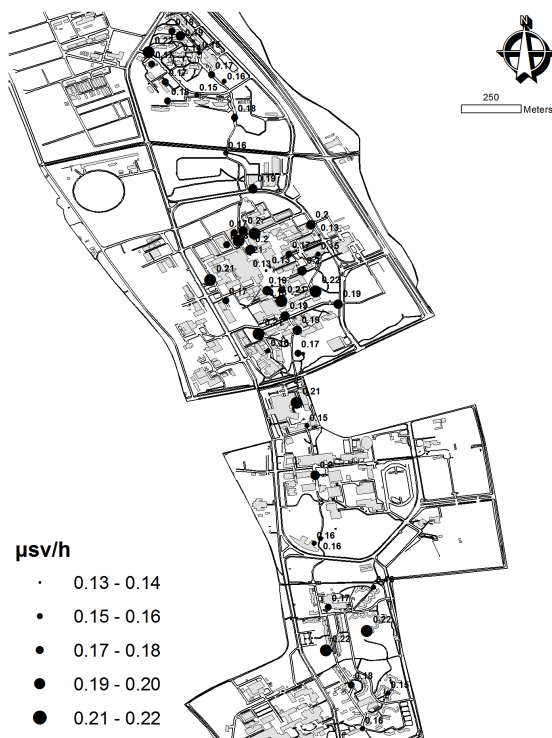
Methodology. For measuring the radiation around the campus, a handheld Geiger counter was used. The model is Radex RD1503+, and according to its specification it can detect radiation values from 0.05 to 9.99 μ sv/h. The points that the radiation was measured were captured using handheld GPS. Every measure took about 5 minutes to complete, as the counter needs some time to estimate the radiation levels. The measurements were taken at a height of 5-10 cms.

Results. A total of 52 measures were taken starting from the Ichinoya Dormitory, moving south to the Central University area and finishing at the South Oikoshi Dormitory. Radiation levels ranged from 0.13 to 0.22 μ sv/h. The average radiation of all the

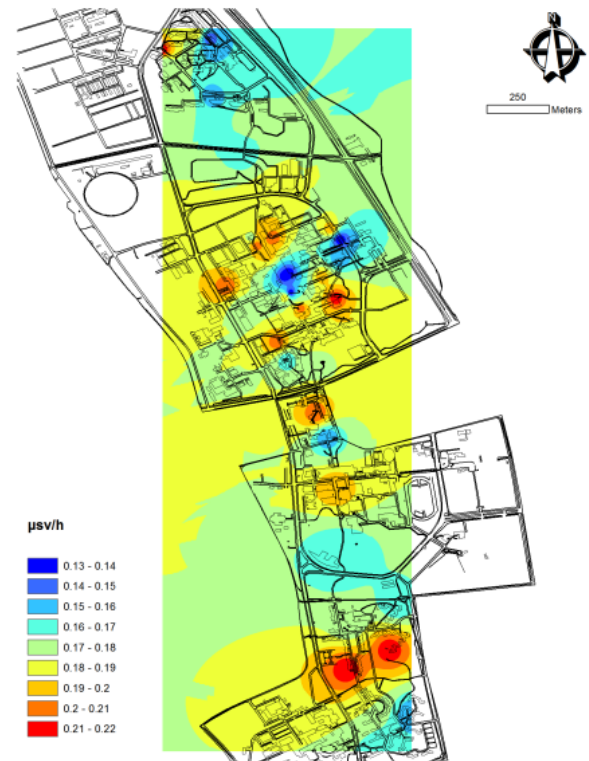
measurements taken is 0.177 μ sv/h. The results were input in ArcGIS in order to be visualized. It was also attempted to interpolate the data into a surface using the Inverse Distance Weighted method.

Discussion. Unfortunately there seems to be no consistency to the radiation levels around the campus. Even though there were high measurements they were not generally high around a specific area. Often very high measurements had very low measurements next to them. Usual suspects of potentially high radiation such as water bodies and fallen leaves show normal, or low values. Usually close to buildings the readings were higher, however some buildings had very low values.

Conclusions. The first conclusion is that the radiation levels, generally speaking, are low throughout the campus. Even the high measurements observed are well within the safety limit for background radiation. The second conclusion is that at this scale, the reasons behind the variations in the radiation values are unclear.



1 - GPS captured radiation measurements



2 - Interpolated (IDW) surface of radiation in the campus