

MIS004-P05

Room: Convention Hall

Time: May 27 17:15-18:45

## High density meteorological observation in perpendicular direction in lawn and concrete

Sen-ichi Masuda<sup>1\*</sup>, Satoshi Sakai<sup>1</sup>, Miki Nakamura<sup>1</sup>, Isao Iizawa<sup>2</sup>

<sup>1</sup>Graduate School of Human and Environment, <sup>2</sup>Kyoto Municipal Horikawa High School

The structure like tree of nature consists of many leaves of several of centimeter and fractal structure. Last year's lecture (Sakai and others, 2008, union rally J170-003, Nakamura and others, 2008, and union rally J170-004), these transported heat and the material by an efficient turbulent diffusion and there was an effect of controlling the surface temperature under direct sunshine, showed.

The observation equipment was put on the lawn and concrete, this announcement reports the temperature change of each height by the surface with different structure. Observed in the rooftop in the same building has the lawn and concrete, and the observation equipment was put in a perpendicular direction.

Measurement period: In August 7th - September 30th, 2009

Measurement item: Temperature of each height (0.3m,0.6m,0.9m,1.2m,1.5m,2.1m,2.7m)

Surface temperature of rooftop

Quantity of solar radiation (Only the lawn)

The measurement frequency: average of sampling for one second

The following analyses performed from the observation result. First, on the whole, the transition of each surface temperature and perpendicular temperature, on lawn and concrete, during a day was caught. It turned out, at nighttime, the surface temperature in the lawn lowers more than the temperature above 0.3m. It also turned out, at nighttime, the surface temperature in concrete higher than the temperature above 0.3m. Next, the thermal gradients to a vertical direction from each roof side were compared. As for the lawn, the temperature in the surface is lower than concrete, the temperature change occurs on, and it has been understood that the thermal gradient by height is large. It can be considered that the influence of sunlight and the wind is the same because it is a rooftop in the same building that set up the observation equipment. It is expected that the difference between the surface temperature and the thermal gradient was caused by the difference of the size though the ground level is composed of this.

Keywords: City meteorology, Heat island phenomenon, Temperature observation