

MIS004-P04

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## Measurement of radiant environment on Thermal-infrared, Near-infrared and visible radiation

Miki Nakamura<sup>1\*</sup>, Masanori Onishi<sup>2</sup>, Kei Kobayashi<sup>1</sup>, Satoshi Sakai<sup>1</sup>

<sup>1</sup>Human and Environ,Kyoto Univ., <sup>2</sup>Miraikan

An urban heat island in urban area is warmer than its surrounding rural areas. It doesn't reflect in temperature in daytime because convective heat transfer is well. We still feel, however, that it is hotter in the city. An urban surface temperature which is got a satellite is hotter than rural it, so that is caused by heat radiation. An Infrared thermography is useful device for measurement of radiant environment. As this device has narrow field of view, it is difficult to measure radiation from all field angles with it. Therefore we measure radiation with a stainless-steel hemispheric mirror in order to broaden field of view and work out their radiation.

A stainless-steel mirror is easy to buy and relatively high reflection ratio in thermal infrared area. We take an image of measuring point in this mirror with an equipment such as an infrared thermography and we can get some wide-field infrared radiation data corrected by this reflection ratio from it.

We can work out MRT(Mean Radiant Temperature) characterizing their heat radiant environment by an image taken with an infrared thermography. In addition, we measure Near-infrared and visible radiation. We will give a presentation of how to measure with this device and results.

Keywords: mean radiant temperature, infrared radiation, thermal environment