

The heat island in Kyoto city-thermal inertia and cold air advection-

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Meteorological observations have been done in Kyoto city. The atmospheric temperature and the net radiation were measured at about 1.5 km horizontal resolution for two weeks in each observational period. These observations were done in each season (4 times a year) for two years.

The results show clear heat island in all seasons at night on a fine day. Its intensity was strongly correlated with the overnight average of net radiation, indicating that the heat island is caused by the difference in the thermal response rather than the artificial discharge of heat, because it does not depend on the net radiation or the weather.

The area thermal inertia around some observational sites were estimated from the thermal response to some rapid changes of the net radiation at night caused by the appearance of the cloud. The estimated values in the urban area are 3 to 4 times larger than those in the suburbs. This indicates that the thermal inertia of the surface and the large scale asperity constitute the area thermal inertia.