



The Climate Analysis Seoul (CAS) simulation for thermal characteristics in different urban locations in Seoul, Korea

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The Climate Analysis Seoul (CAS) being tailored for simulating detailed climate was applied to investigate the temperature distribution around the Seonjeongneung Royal Tombs that includes forest and grassland and in the surrounding high-density buildings in Seoul, Korea for a hot summer days of August 6-7, 2015.

In this study, we used the digitalized topographical and land-use data of the 5 m resolution and wind and air temperature fields of 100 m resolution produced by the numerical model MetPhoMod (MPM), part of the CAS for the area of interest with an area of 25,000,000 m².

The difference of the temperatures compared with the representative meteorological station of Seoul was analyzed by considering the presence or absence of the Seonjeongneung Royal Tombs. For the case of heat wave issued in Seoul from August 6th, 06 LST to 7th, 18 LST, 2015, the simulation results presented that averaged temperatures in the green area were 2 °C lower than the one of the standard weather station, whereas they showed 1.5 °C higher when the green area was replaced with the building area. From this simulation result, we can suggest that the green area has a temperature reduction effect of 1-3 °C and its influence can be extended up to 150 m from the boundary of the green area.

This fact reconfirms that the urban green area generates a micro-scale cool-island effect and this local phenomenon can reduce heat stress produced by surplus thermal sources of the surrounding buildings and paved roads during the hot summer days.

Key words: Climate Analysis Seoul (CAS), Urban Green Area, Cool-Island Effect Please fill in your abstract text.