



## **Analysis of the cooling effects in urban green areas using the Landsat 8 satellite data**

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Urban green areas or forest regions play an important role in lowering the air temperature of the surrounding areas. This cooling effect does not only affect inside of the green areas but also extends into neighboring streets and buildings. In this study, the Land Surface Temperature (LST) is retrieved from the Landsat 8 satellite data for 8 clear days in Seoul, Korea from 2013 to 2015, and used for analyzing the cooling effect at an urban green region, Seonjeongneung, located in the southern part of Seoul. The LST distribution from the boundary of the Seonjeongneung presents that the cooling effect of the green areas was found to extend in many directions into the urban areas. The LST estimations of residential and commercial areas around the Seonjeongneung are also analyzed to assess how the green areas affect the type of land cover and the surroundings in the urban areas. Relatively lower LST for the residential areas from the Seonjeongneung boundary ranges from 100 to 250 m, resulting in an average cooling effect of 2.3°C. On the other hand, the LST distribution in the commercial areas shows that the effective distance of green areas are relatively low in the range of 0 to 200 m, which means the average cooling effect is approximately 0.3°C. This result shows that the cooling effect of the Seonjeongneung is clearly noticeable, particularly, the residential areas show greater cooling effect than commercial areas.