Study of Heat Island Effect in Daegu Using Convergence Weather System

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Our school is relatively colder in winter and cooler in summer when compared with the center of Daegu city. Geographically, the school is located at the valley of Palgong mountains in the eastern edge of Daegu. No significant high building is shown near school areas and traffics and population are relatively low. We thought this characteristics may contribute to the temperature between the school area and the city center. That is, the city center exhibits UHI(Urban Heat Island) effects whereas the school area does not show UHI effects due to its location. The main purpose of this study is to examine and analyze UHI effects in Daegu regions. We constructed the IMS network by installing the eight units of automatic weather stations (AWS) that are purchased by the school training program. AWSs are installed in Daegu regions including the city center and suburban areas to observe UHI phenomena. Observation is performed for the two periods: 14 July 2014~18 September 2014 and 12 December 2014~2 January 2015. Data from the eight AWSs will be collected and analyzed. After collecting data, we chose two periods to analyze UHI effect. The event with no rain and clear day (or less cloud cover) is an optimal case to observe UHI effects. We verified the observation data from IMS with the temperature from AWS of Korea Meteorological Administration (KMA). The following procedure is used to analyze the selected events: - The intensity of UHI intensity is calculated by selecting the lowest temperature as the reference. This is repeated at all sites and the spatial distribution of UHI is examined. - The difference in UHI effects is analyzed and compared for day/night and summer/winter. - The relationship between UHI effects and atmospheric variables are analyzed.

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