The urban surface consists of the artificial factors such as buildings or asphalt pavement and the natural covering, and so on. The atmospheric flow, heat and other meteorological elements within urban is quite influenced these factors. The observation data of flux towers at Hankuk University of Foreign Studies show differences in temperature and radiation flux between vegetation and urban areas. The role of the vegetation area is important for the mitigation of urban heat island or short-term response to heat-waves. In this study, we tried to analyze the effect of air temperature reduction due to cold air production on a tall vegetated area. For this, the high resolution digital elevation data and land cover data for the Seoul metropolitan area were constructed and heat and flow in the atmosphere were analyzed by using Biometeorological Climate impact Assessment System (BioCAS). In order to analyze the cooling effect of tall vegetation, the air temperature before and after application of vegetation cooling model were investigated. In addition, the results of BioCAS were evaluated by comparison with observation data of vegetation area. The difference in the temperature distribution of vegetation cooling model did not appear large in urban area. In suburbs and mountainous area, changes of temperature appear by models. The station where tall vegetation area and vegetated surface area is 30% or more within radius of 100m near the observation site were analyzed.

**Key words:** BioCAS, CAS, vegetation cooling model, Cold-air Production rate, vegetation cooling effect.

※ This work was funded by the Korea Meteorological Adiministration Research and Development Program “Research and Development for KMA Weather, Climate, and Earth system Services - Advanced Research on Biometeorology” under Grant (KMA 2018-00621).