

A Study on the Thermal Convection Caused by Artificial Heat

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One objective of this research with LCM (Local Circulation Model) is to provide more accurate estimates of the quantity and the pattern of artificial heat loading from the urban area to the atmosphere. These estimates will be provided as input to the atmospheric dispersion around terrain area. Another objective of this research is to determine the extent of the airshed that is primarily responsible for the atmospheric pollutant affecting diffusion around mountain. The overall purpose is to develop an understanding of which control of artificial heat to the atmosphere will have the greatest benefit on reducing the the electric power loading to artificial heat. Some artificial heat controls are anticipated through requirements in the electric power amendment.

Development of more accurate spatial fields of artificial loading estimates of annual average deposition to coastal areas using the regional model is important. The pollutant deposition at any one receptor area is coming from a very large number of sources, spread out over a large geographic area, because pollutant deposition is primarily due to a second pollutant. An assessment of source responsibility or a range of influence can not be constructed, therefore, from monitoring data.

The result of this procedure produced a definition of the flow pattern caused by artificial heat, which is affecting the dispersion of pollutant around complex area such as Korea Peninsula.