

# Mapping Noise Pollution in the dormitory areas of Tsukuba University

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## 1. Motivation

The main disadvantage of noise pollution is to disturb people, especially in the night period. The purpose of this study is to mapping noise pollution especially in the dormitory areas of Tsukuba University using the smartphone.

## 2. Introduction

The problem of exposure to traffic noise is quite influencing and is closely taking place around the dormitory areas. Additionally, noise pollution is serious happened in the night period. Mapping noise pollution in the dormitory areas is quite significant to people living in the dormitory of the campus.

## 3. Study Area

Most students live in the dormitory of Hirasuna and Oikoshi, Tsukuba University. These two dormitories thereby are selected in this study.

## 4. Methodology

Approximately 30 random points are selected and their noise values are captured by using the smartphone. IDW is the main methodology be used in this study. Finally, the spatial distribution of noise pollution is mapped based on GIS technique.

## 5. Results

The spatial distribution of noise pollution is mapped and obtained in the dormitory areas of Tsukuba University, especially in the night period. 30 sites are tested for mapping noise pollution in Hirasuna-Oikoshi dormitory area during day and night period. The spatial distribution of noise pollution is shown in Figure 1.

Obviously, it found that the daytime noise pollution is more serious than in night time period. Generally, it found that the heavy noise pollution distributed in the south part of Hirasuna-Oikoshi dormitory area, maybe it is due to more buildings are located at here and traffic affected. North part of Hirasuna-Oikoshi dormitory area covered with relatively low noise pollution. This area is more natural and surrounding with Tsukuba University. The quiet dormitory is surrounding with Oikoshi No. 12 and 13.

More interestingly, the dormitory buildings for international researchers tested with low noise pollution in day time period. However, it tested with relatively high noise pollution in night period. It can be reasoned that people come back in the night, these noises are produced by human activities and more especially these buildings are neighborhood and closed together.

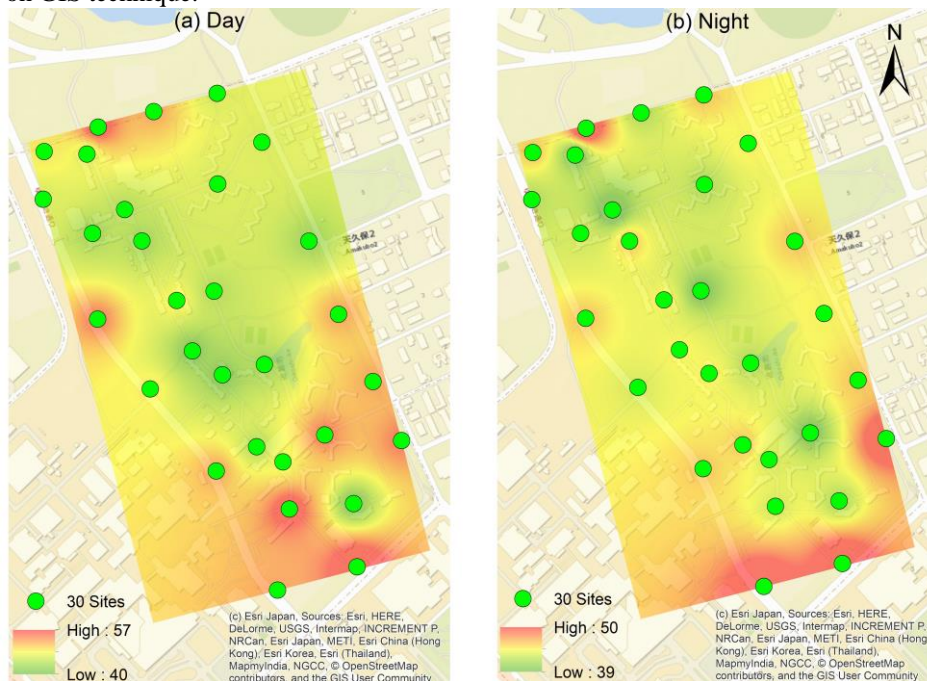


Figure 1. Spatial distribution of noise pollution during day and night period.