Introduction

Hong Kong, known as a commercial city, is located in south part of China. As we know, air pollution is a common issue in big cities, and this situation happens in Hong Kong as well. Hong Kong consists of mountainous lands or small islands. Urban area is distributed both sides of Victoria Harbor, while new towns are located far away from urban area. Meanwhile, we notice that there are many large greenery places where they all seem to be totally undeveloped. Most of the area are called Country Park, managed by the authority.

Methodology

Preparation: (1) draw country park polygons and calculate their areas
(2) input annual concentration data of NO₂ and RSP in the attribute table
Interpolation: by using Inverse method, interpolate data of NO₂ and RSP in 2003, 2006 and 2011, and create raster files
Reclassification: (1) figure out that annual concentration limit of NO₂ and RSP is 40 μg/m³ and 50 μg/m³, respectively
(2) use reclassify tool to define areas that is below the limit as “1” (green color) and “0” (red color) for the opposite situation
Data Collection: (1)collect the statistic in the attribute table, calculate the ratio for each pollutant in each year
 (2) create line chart to show trend for the 10-year period

Results

NO₂ Concentration Distribution

RSP Concentration Distribution

Further Discussion

(1) Data Capacity: I find that there is usually only one air quality station in each district and some districts do not have air quality stations, then the interpolation may not accurate enough, especially when we try to look into air quality in country park;
(2) Geographical and Meteological Conditions: most of the districts are clustered and many districts are usually far from each other, and as Hong Kong are surrounded by mountains, air pollution can be trapped within the urban area;
(3) The Role of Country Park: country park area usually means there is not much human activity, we cannot say air quality improvement only depends on the existence (or the area) of country park.

Source

Cited source

Further Information

EAA (Hong Kong): air quality station point feature;
Environmental Protection Department (HK): air quality monitoring data
Agricultural, Fisheries and Conservation Department: country park map
ArcMap Online: Hong Kong Region shapefile
Projection Coordinate System: Hong Kong 1980 Grid

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