

Comparison of Spatial Modelling Approaches on PM₁₀ and NO₂ Concentration Variations: A Case Study in Surabaya City, Indonesia

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Table S1. List of potential predictor variables collected from each database.

Data Source	Potential variables	Geo-format	Measurement	Expected Association
Air Pollutant Database				
Environmental Bureau of Surabaya City	PM ₁₀	point	On-site measurement ($\mu\text{g}/\text{m}^3$)	+
	NO _x	point	On-site measurement (ppm)	+
Meteorological Database				
	Temperature	point	On-site measurement ($^{\circ}\text{C}$)	-/+
	Relative humidity	point	On-site measurement (%)	-/+
Meteorological, Climatological, and Geophysical Bureau of Indonesia	Wind speed	point	On-site measurement (km/h)	-/+
	Wind direction	point	On-site measurement	-/+
	Rainfall	point	On-site measurement (mm/d)	-/+
	Duration of solar radiation	point	On-site measurement (joule/cm ²)	-/+
GIS – Land Use Database				
City Development	Water reservoirs	point	Number within 250-5000m circular buffers (count)	-/+

Planning Bureau of Surabaya City (BAPPEKO)	Installation facility	point	Number within 250-5000m circular buffers (count)	-/+
	Sports facility	point	Number within 250-5000m circular buffers (count)	-/+
	Government facility	point	Number within 250-5000m circular buffers (count)	-/+
	Education facility	point	Number within 250-5000m circular buffers (count)	-/+
Data Source	Potential variables	Geo- format	Measurement	Expected Association
GIS – Land Use Database				
City Development Planning Bureau of Surabaya City (BAPPEKO)	Trading facility	point	Number within 250-5000m circular buffers (count)	-/+
	Worship facility	point	Number within 250-5000m circular buffers (count)	-/+
	Office facility	point	Number within 250-5000m circular buffers (count)	-/+
	Social facility	point	Number within 250-5000m circular buffers (count)	-+
	Terminal facility	point	Number within 250-5000m circular buffers (count)	-/+
	Public facility	point	Number within 250-5000m circular buffers (count)	-/+
	Tower	point	Number within 250-5000m circular buffers (count)	-/+

	PLN substation	point	Number within 250-5000m circular buffers (count)	-/+
	Cleanliness Facility	point	Number within 250-5000m circular buffers (count)	-/+
	Health facility	point	Number within 250-5000m circular buffers (count)	-/+
	Penitentiary facility	point	Number within 250-5000m circular buffers (count)	-/+
	Industry and Warehousing	polygon	Area within 250-5000m circular buffers (m ²)	+
	Military Area	polygon	Area within 250-5000m circular buffers (m ²)	-/+
	Mangrove	polygon	Area within 250-5000m circular buffers (m ²)	-
	Trade and Services	polygon	Area within 250-5000m circular buffers (m ²)	+
Data Source	Potential variables	Geo- format	Measurement	Expected Association

GIS – Land Use Database

City Development Planning Bureau of Surabaya City (BAPPEKO)	Residential	polygon	Area within 250-5000m circular buffers (m ²)	+
	Major road	polygon	Area within 250-5000m circular buffers (m ²)	+
	Swamp	polygon	Area within 250-5000m circular buffers (m ²)	-

	Green open space	polygon	Area within 250-5000m circular buffers (m ²)	-
	Paddy field	polygon	Area within 250-5000m circular buffers (m ²)	-/+
	Shrubs	polygon	Area within 250-5000m circular buffers (m ²)	-/+
	River	polygon	Area within 250-5000m circular buffers (m ²)	-
	Fishpond	polygon	Area within 250-5000m circular buffers (m ²)	-
	Moor	polygon	Area within 250-5000m circular buffers (m ²)	-/+

Satellite Database

MODIS			Area within 250-5000m	
Greenness Database	NDVI	grid	circular buffers (dimensionless)	-