

# Spatiotemporal Distribution, Meteorological Influence, and Potential Sources of Air Pollution over Hainan Island, China

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Table S1

Location and classification of automatic ambient air monitoring stations.

City	Station	Longitude	Latitude	Classification
Sanya	Junyue station	109.7348	18.3443	suburb
Sanya	Hexi station	109.4964	18.2681	urban
Sanya	Hedong station	109.5078	18.2489	urban
Haikou	Guilinyang station	110.5111	19.9736	suburb
Haikou	Longhua Road Environmental Protection Bureau dormitory	110.33	20.0356	urban
Haikou	Hainan Normal University	110.338	19.9969	urban
Haikou	Xiuying Hainan Hospital	110.283	20.0053	urban
Haikou	Hainan University	110.3232	20.0574	urban
Haikou	Dongzhaigang station	110.576	19.9507	suburb
Danzhou	Dongpo school station	109.5567	19.5187	urban
Danzhou	No. 1 Middle School station	109.5726	19.5167	urban

Notes: There was an urban–suburban gap in air pollutant concentrations: the location of the site (urban or suburban) affected the concentration of pollutants, so we marked the corresponding sampling sites in Table S1, and we represent the concentration data with the mean value and standard deviation to ensure the representativeness of the data.

Table S2

Five-year mean  $\pm$  SD of concentrations of air pollutants (the unit for SO<sub>2</sub>, NO<sub>2</sub>, O<sub>3</sub>, PM<sub>2.5</sub>, and PM<sub>10</sub> is  $\mu\text{g m}^{-3}$ , with the exception of CO, whose unit is  $\text{mg m}^{-3}$ ).

City	SO <sub>2</sub>	NO <sub>2</sub>	CO	O <sub>3</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>
Haikou	4.43 $\pm$ 0.48	11.13 $\pm$ 1.67	0.54 $\pm$ 0.04	79.01 $\pm$ 4.35	30.08 $\pm$ 2.8	15.5 $\pm$ 1.58
Sanya	3.46 $\pm$ 0.31	8.62 $\pm$ 1.57	0.46 $\pm$ 0.07	70.36 $\pm$ 2.55	24.61 $\pm$ 2.73	12.45 $\pm$ 1.49

Danzhou	6.35±0.71	9.82±0.12	0.55±0.03	64.8±2.08	27.12±1.81	14.09±0.88
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Table S3

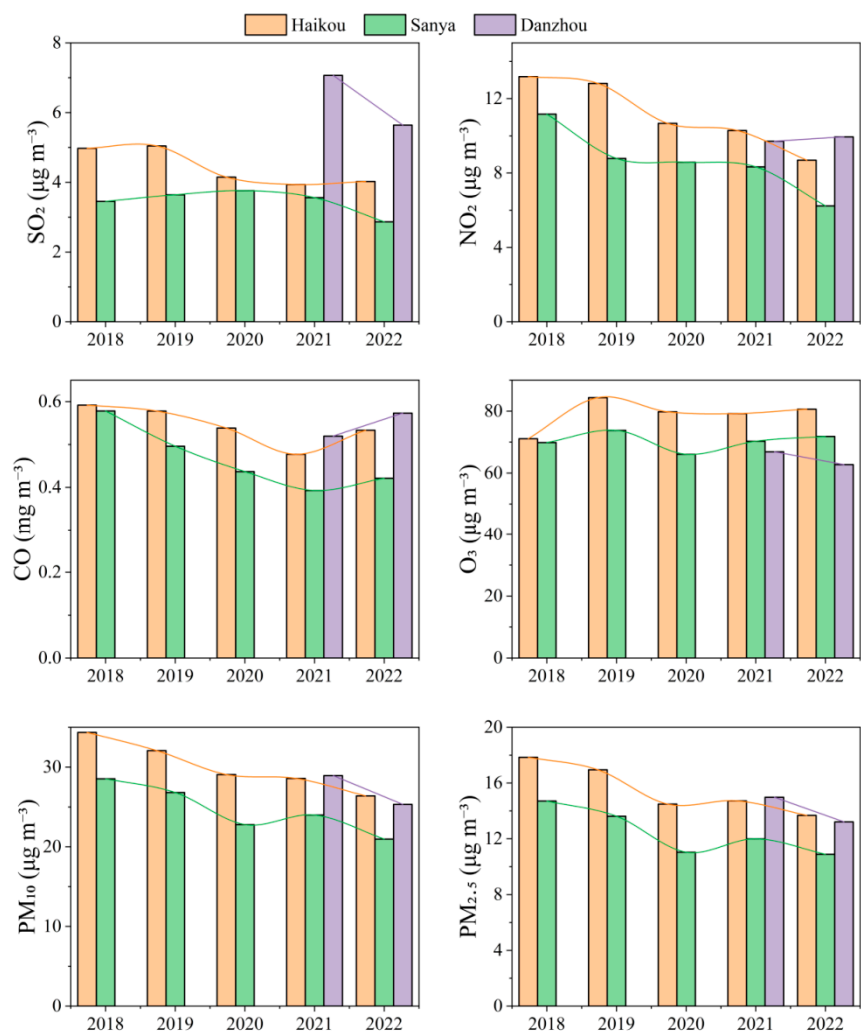
Data information.

Data name	Source	Website
National Ambient Air Quality Standards of China GB 3095-2012	Ministry of Ecology and Environment	<a href="http://hbj.new.cqcs.gov.cn/upfiles/2013-3/2013327153015207.pdf">http://hbj.new.cqcs.gov.cn/upfiles/2013-3/2013327153015207.pdf</a>
Economic and demographic statistics	Statistics Bureau of Hainan Province	<a href="https://stats.hainan.gov.cn/tjj/">https://stats.hainan.gov.cn/tjj/</a>
Concentrations of six criteria pollutants	China National Environmental Monitoring Center	<a href="http://www.cnemc.cn/">http://www.cnemc.cn/</a>
Meteorological data	China Meteorological Data Service Centre	<a href="http://data.cma.cn/">http://data.cma.cn/</a>
National Environmental Protection Standard HJ 630-2011	Ministry of Ecology and Environment	<a href="http://kjs.mep.gov.cn/hjbhbz/bzwb/other/qt/201109/W020120130585014685198.pdf">http://kjs.mep.gov.cn/hjbhbz/bzwb/other/qt/201109/W020120130585014685198.pdf</a>
Global Data Assimilation System	National Oceanic and Atmospheric Administration	<a href="ftp://arlftp.arlhq.noaa.gov/pub/archives/gdas1">ftp://arlftp.arlhq.noaa.gov/pub/archives/gdas1</a>

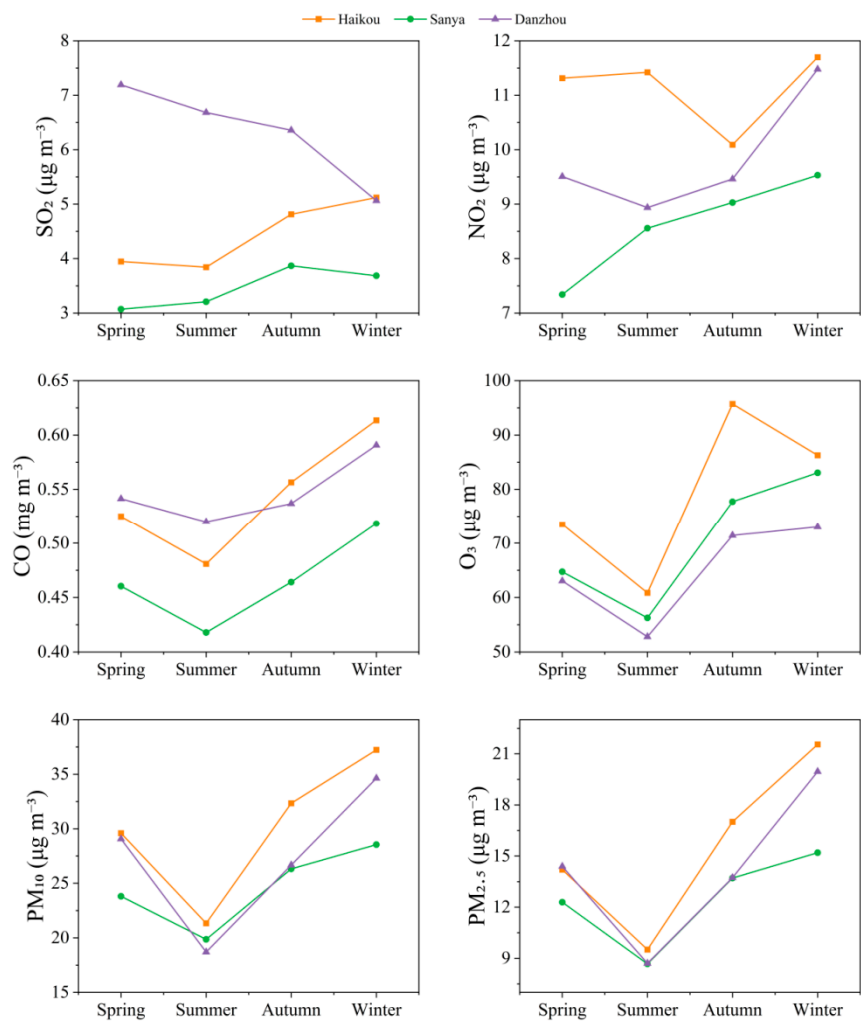
Table S4

Economic and demographic statistics for 2022 (data source: Statistics Bureau of Hainan Province, <https://stats.hainan.gov.cn/tjj/>).

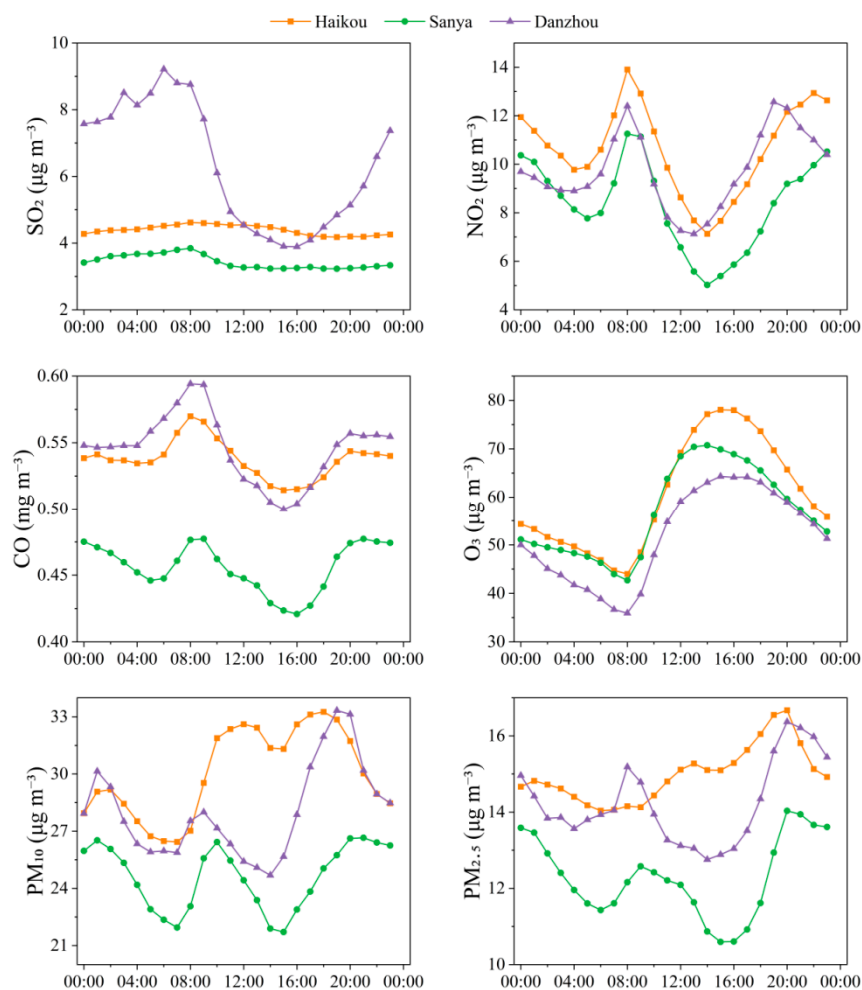
City	GDP (billion)	Primary industry (%)	Secondary industry (%)	Tertiary industry (%)	Population (million)	Tourists (million)	Vehicles in Hainan (millions)	Vehicles (millions)
Haikou	21.35	4.6	19	76.3	2.94	13.65		1.06
Sanya	8.47	13	13.5	73.4	1.07	13.15	1.84	—
Danzhou	8.79	17.6	26	56.5	0.98	4.1		—



**Figure S1:** Annual mean air pollution concentration from 2018 to 2022 in Hainan.



**Figure S2:** Seasonal average air pollution concentration from 2018 to 2022 in Hainan.



**Figure S3:** Diurnal variation in concentrations of air pollutants from 2018 to 2022.