CREA

Centre for Research on Energy and Clean Air

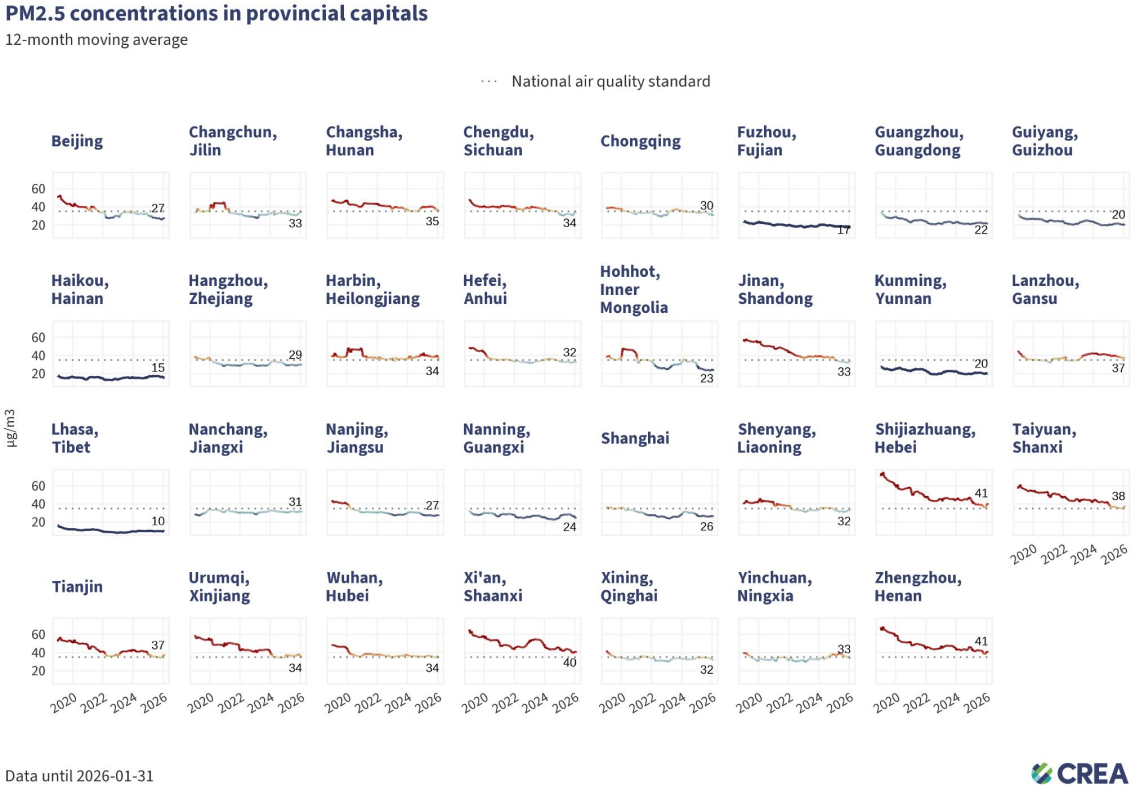
China energy and emissions trends

February 2026 snapshot

Due to the unavailability of energy and industrial raw data for January, this report only includes an analysis of air pollution. The full analyses will resume in next month's snapshot.

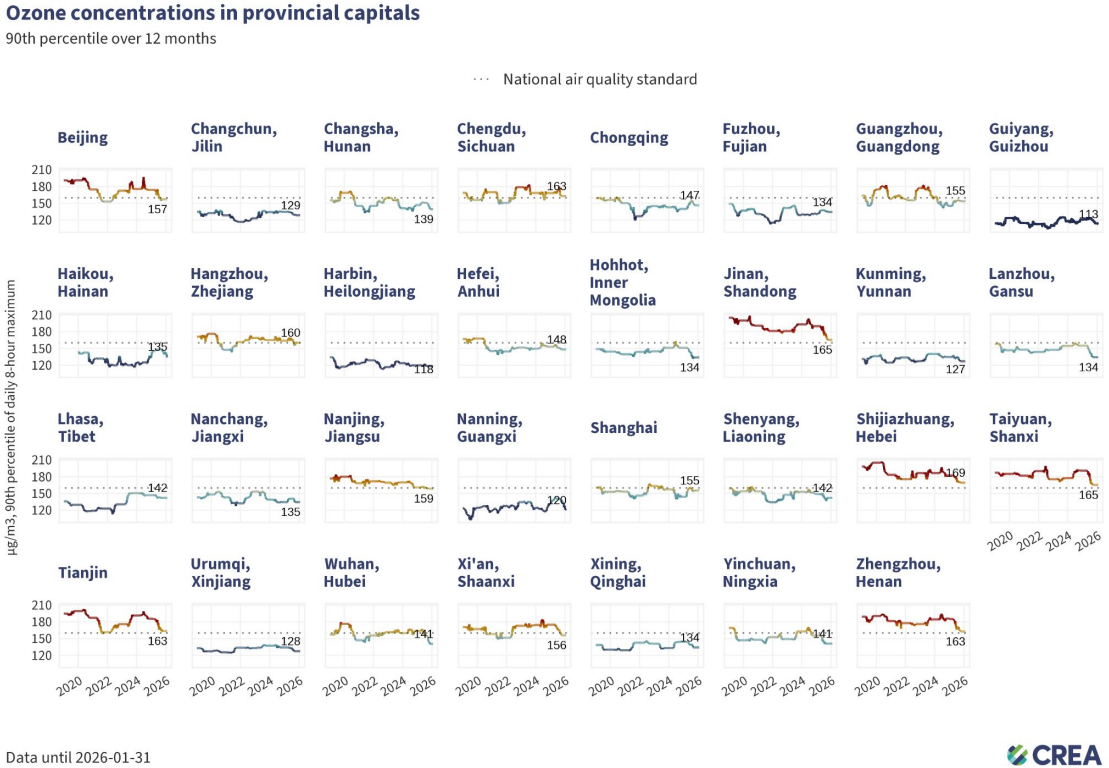
In January 2026, six provincial capitals recorded 12-month average $PM_{2.5}$ levels above the national annual standard

- In January, six out of 31 provincial capitals recorded 12-month moving average $PM_{2.5}$ concentrations exceeding the national annual standard of 35 μg/m³.
- Cities with the highest $PM_{2.5}$ levels were mainly located in China's northern regions. Zhengzhou (Henan) and Shijiazhuang (Hebei) recorded the highest level at 41 μg/m³, followed by Xi'an (Shaanxi) at 40 μg/m³.
- Compared with the previous month, 16 provincial capitals saw declines in their 12-month $PM_{2.5}$ averages, while Shijiazhuang, Taiyuan and Zhengzhou saw increases.



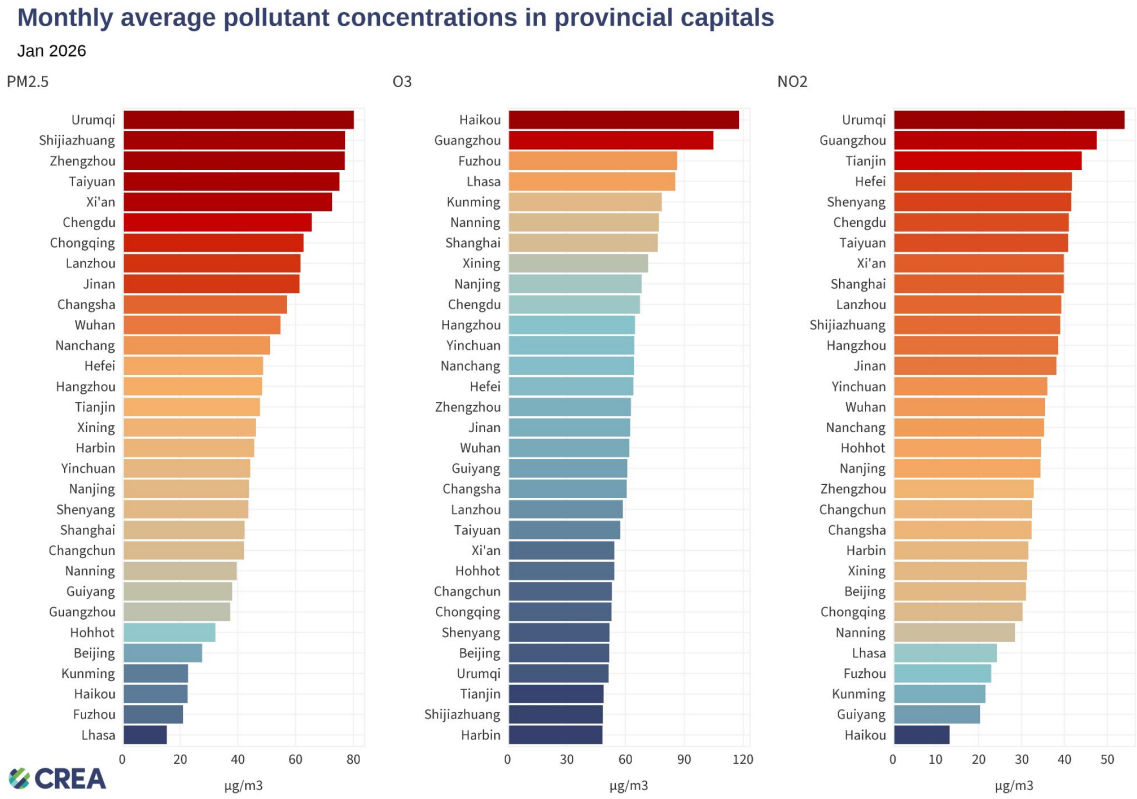
In January 2026, six provincial capitals exceeded the national annual ozone limit

- In January, six out of 31 provincial capitals recorded 12-month 90th percentile ozone concentrations above the national standard of 160 μg/m³.
- Cities with the highest ozone levels were mainly located in northern and central-western China. Shijiazhuang (Hebei) recorded the highest level at 169 μg/m³, followed by Jinan (Shandong) and Taiyuan (Shanxi) at 165 μg/m³, and Tianjin, Chengdu (Sichuan), and Zhengzhou (Henan) at 163 μg/m³.
- Compared with the previous month, only Guangzhou (Guangdong) had an increase in its annual ozone value, while four provincial capitals saw declines in yearly ozone concentrations.



In January 2026, $PM_{2.5}$ and NO_2 levels were the highest in Xinjiang

- In January, Urumqi (Xinjiang) recorded the largest monthly average $PM_{2.5}$ concentration among China's provincial capitals, at 80 µg/m³, followed by Shijiazhuang (Hebei) and Zhengzhou (Henan) at 77 µg/m³, and Taiyuan (Shanxi) at 75 µg/m³.
- Ozone levels were the highest in South China, with Haikou (Hainan) topping the list at 118 µg/m³, followed by Guangzhou (Guangdong) and Fuzhou (Fujian), at 105 µg/m³ and 86 µg/m³, respectively.
- Urumqi recorded the highest nitrogen dioxide (NO_2) concentration at 54 µg/m³, followed by Guangzhou and Tianjin, at 47 and 44 µg/m³ respectively. Nitrogen dioxide not only poses direct health risks, but also contributes to the formation of PM2.5 and ozone.



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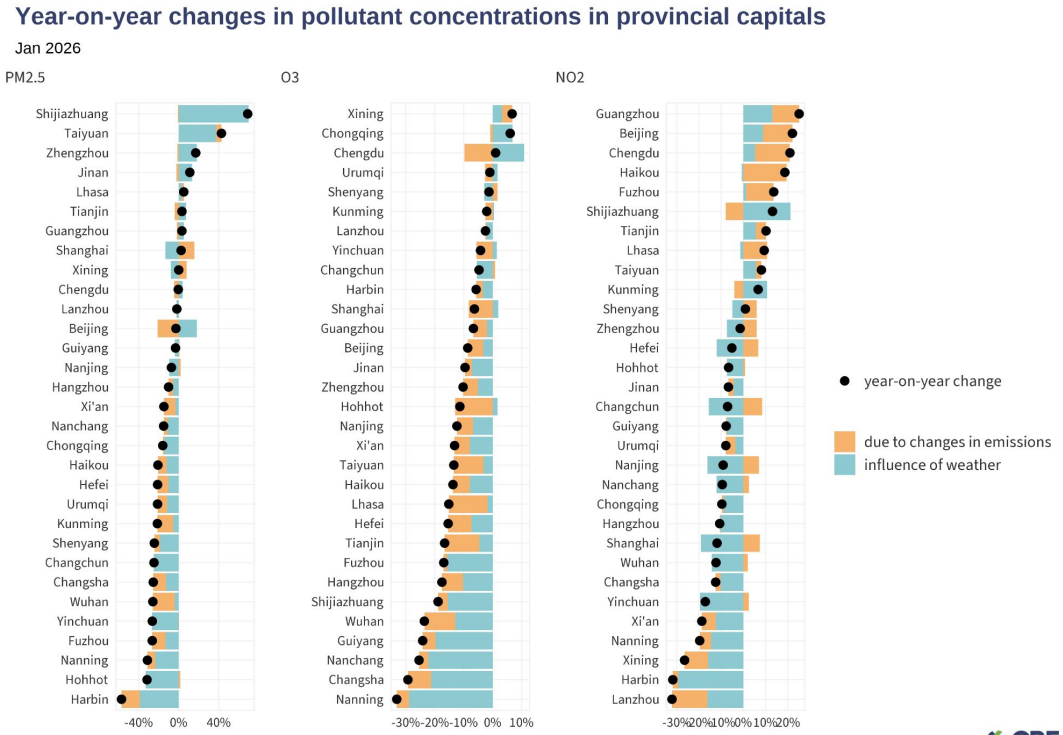
In January 2026, 70% of provincial capitals saw year-on-year declines in PM$_{2.5}$, while combustion-driven NO_2 increases were observed along the east coast

- In January, the northern key control region saw the most significant year-on-year increases in $PM_{2.5}$ concentrations. Monthly average $PM_{2.5}$ levels in Shijiazhuang, Taiyuan, and Zhengzhou rose by 69%, 43% and 17% year-on-year, respectively.
- The rise in $PM_{2.5}$ pollution in the above mentioned places was mainly driven by unfavourable meteorological conditions, while increases in Shanghai were primarily attributed to higher human emissions.
- Year-on-year increases in ozone concentrations were in southwestern China. Ozone concentrations in Xining, Chongqing and Chengdu increased by 7%, 6% and 1%, respectively.
- Nitrogen dioxide (NO_2) concentrations rose most noticeably in Guangzhou, Beijing and Haikou, mainly due to anthropogenic emissions.



Our analysis projects the influence of weather conditions on air pollution levels using a machine-learning model trained on actual data for each city. The variations that cannot be explained by weather conditions are attributed to changes in emissions.

Worst 7-day air pollution episodes by pollutant

$PM_{2.5}$ (excluding sandstorms)

city	province	dates	average concentration	highest daily concentration
Wujiaqu	Xinjiang	Jan 07 – Jan 13	183	211
Hebi	Henan	Jan 23 – Jan 29	157	202
Jiaozuo	Henan	Jan 23 – Jan 29	156	171
Anyang	Henan	Jan 23 – Jan 29	153	196
Xinxiang	Henan	Jan 23 – Jan 29	148	175

Ozone

city	province	dates	average concentration	highest daily concentration
Dongguan	Guangdong	Jan 13 – Jan 19	193	237
Zhaoqing	Guangdong	Jan 13 – Jan 19	178	212
Jiangmen	Guangdong	Jan 13 – Jan 19	178	246
Qingyuan	Guangdong	Jan 13 – Jan 19	170	209
Zhongshan	Guangdong	Jan 12 – Jan 18	165	206

Sandstorms ($PM_{2.5}$)

city	province	dates	average concentration	highest daily concentration
Zhangye	Gansu	Jan 24 – Jan 30	72	128
Wuwei	Gansu	Jan 25 – Jan 31	55	166
Baiyin	Gansu	Jan 24 – Jan 30	51	238
Jinchang	Gansu	Jan 24 – Jan 30	44	95
Guyuan	Ningxia	Jan 23 – Jan 29	34	100

NO_2

city	province	dates	average concentration	highest daily concentration
Guangzhou	Guangdong	Jan 12 – Jan 18	81	92
Foshan	Guangdong	Jan 12 – Jan 18	80	85
Dongguan	Guangdong	Jan 12 – Jan 18	72	83
Wujiaqu	Xinjiang	Jan 03 – Jan 09	72	90
Urumqi	Xinjiang	Jan 23 – Jan 29	65	78

Unit: μg/m³

Data sources

- Industrial output, power generation and power capacity additions, as well as fuel imports and exports, are based on Chinese government data, through Wind Financial Terminal. Some of the data is not included in public releases.
- Measured air quality data is compiled from Chinese government air quality monitoring stations. Weather-controlled air quality is derived from CREA's deweathering algorithm.