



National Joint Research Center for Tackling Key Problems In Air Pollution Control

China's Atmospheric Pollution Prevention and Control: Experience and Achievements

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**National Joint Research Center for Tackling Key Problems In Air Pollution
Control**

Chinese Research Academy of Environmental Sciences

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Outline

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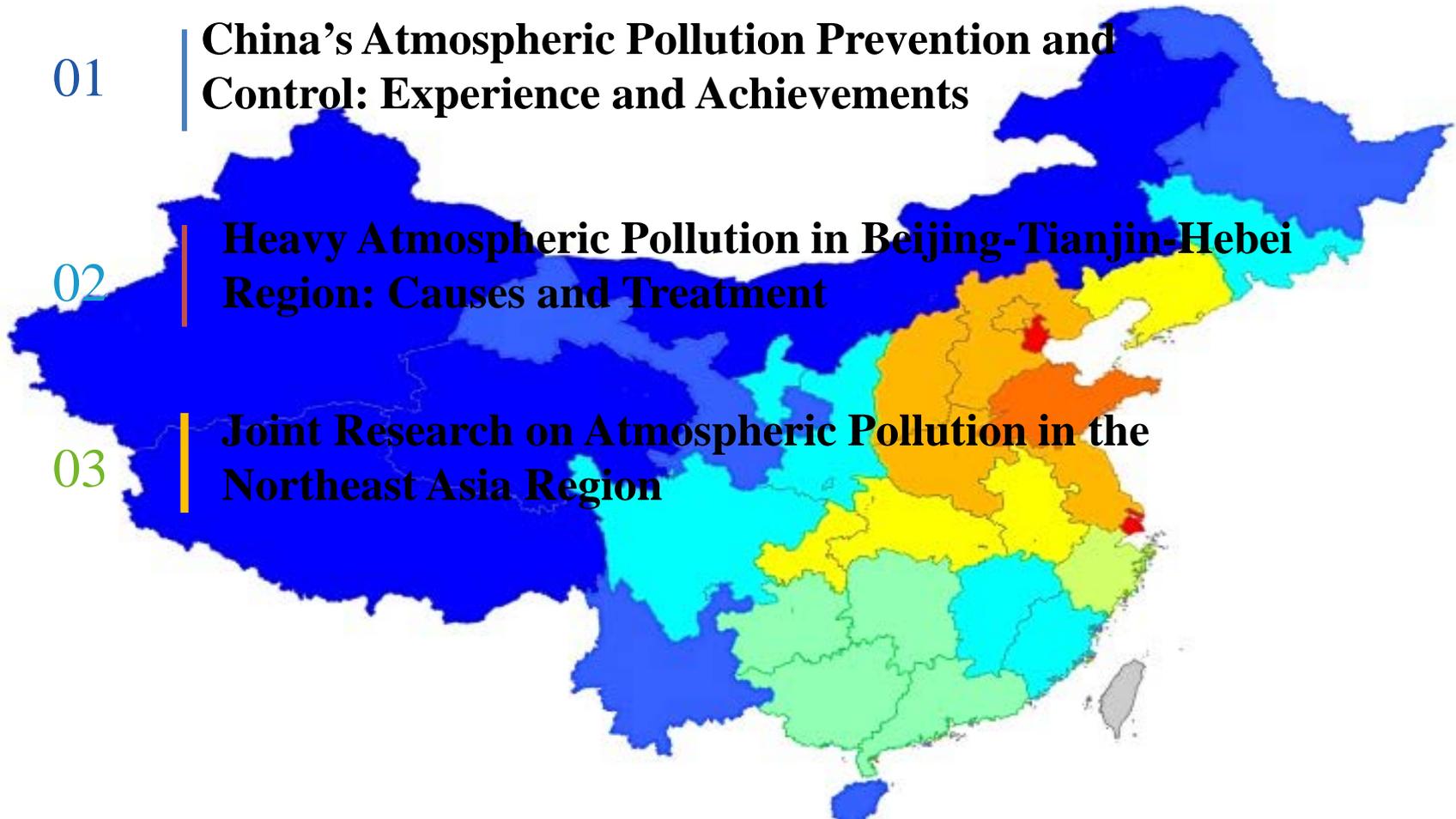
China's Atmospheric Pollution Prevention and Control: Experience and Achievements

02

Heavy Atmospheric Pollution in Beijing-Tianjin-Hebei Region: Causes and Treatment

03

Joint Research on Atmospheric Pollution in the Northeast Asia Region



History of China's Atmospheric Pollution Prevention Since 2010

Nationwide

Beijing-Tianjin-Hebei Region and Surrounding Areas

May 11, 2010. *Guiding Opinions on Carrying Forward Joint Atmospheric Pollution Control and Improving Regional Air Quality*

February 29, 2012. *Ambient Air Quality Standard (GB3095-2012)*

September 10, 2013. *Atmospheric Pollution Prevention and Control Action Plan*

January 1, 2016. *Implementation of the Law on the Prevention and Control of Atmospheric Pollution*

July 3, 2018. *Three-Year Action Plan for Winning the Battle for a Blue Sky*

February 27, 2019. *Outline of the National Atmospheric Pollution and Control Work in 2019*

September 17, 2013. *Implementing Regulations of Action Plan for Atmospheric Pollution Control in Beijing-Tianjin-Hebei Region and Surrounding Areas*

July 1, 2016. *Measures to Reinforce Atmospheric Pollution Prevention and Control in Beijing-Tianjin-Hebei Region (2016-2017)*

March 23, 2017. *Working Plan for Atmospheric Pollution Prevention and Control in Beijing-Tianjin-Hebei Region and Surrounding Areas in 2017*

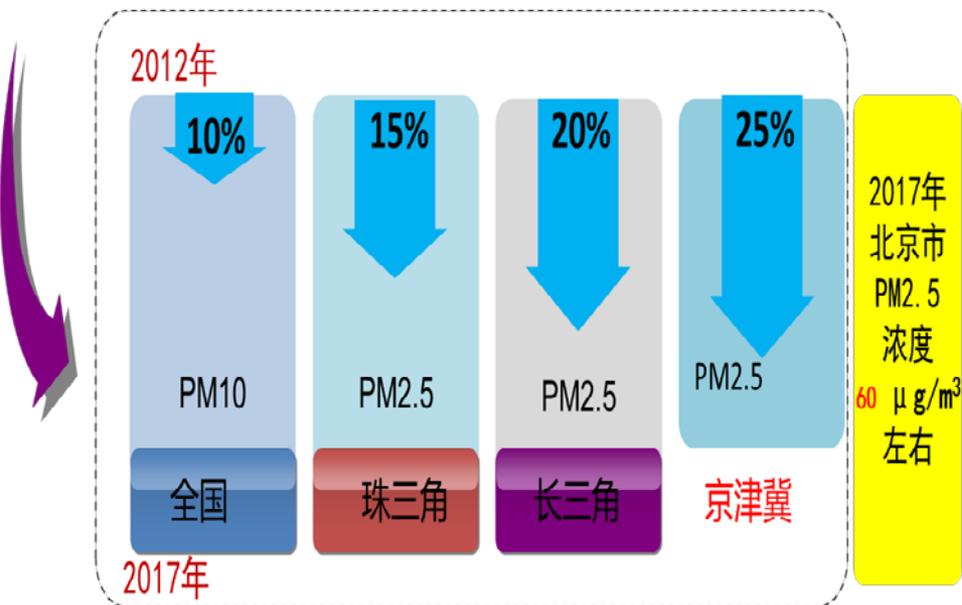
September 21, 2017. *Action Plan for Integrated Prevention and Control of Atmospheric Pollution in Beijing-Tianjin-Hebei Region and Surrounding Areas in Autumn and Winter of 2017-2018*

September 18, 2018. *Action Plan for Integrated Prevention and Control of Atmospheric Pollution in Beijing-Tianjin-Hebei Region and Surrounding Areas in Autumn and Winter of 2018-2019*

Air Pollution Prevention and Control Action Plan

奋斗目标：经过5年努力，全国空气质量总体改善，重污染天气较大幅度减少；京津冀、长三角、珠三角等区域空气质量明显好转。力争再用5年或更长时间，逐步消除重污染天气，全国空气质量明显改善。

具体指标：到2017年



(September 2013)

1 加大综合治理力度，减少多污染物排放

6 发挥市场机制作用，完善环境经济政策

2 调整优化产业结构，推动产业转型升级

7 健全法律法规体系，严格依法监督管理

3 加快企业技术改造，提高科技创新能力

8 建立区域协作机制，统筹区域环境治理

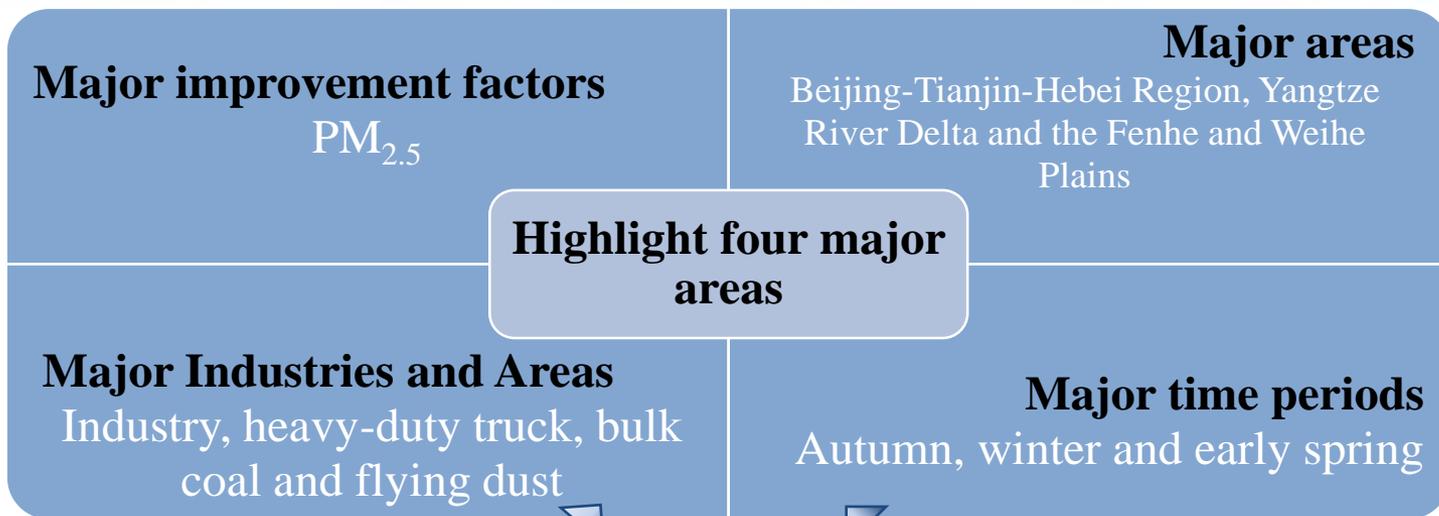
4 加快调整能源结构，增加清洁能源供应

9 建立监测预警应急体系，妥善应对重污染天气

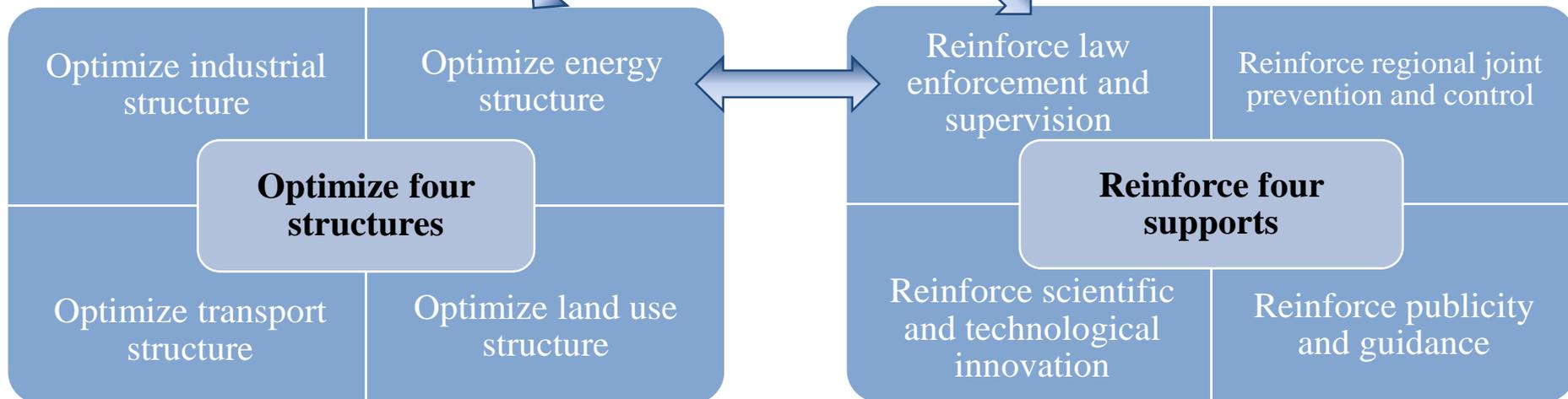
5 严格节能环保准入，优化产业空间布局

10 明确政府企业的责任，动员全民参与环境保护

Three-Year Action Plan for Winning the Battle for a Blue Sky



Battle for a Blue Sky 2018-2020



Action Plan for Integrated Prevention and Control of Atmospheric Pollution in Beijing-Tianjin-Hebei Region and Surrounding Areas in Autumn and Winter of 2017-2018



Major objectives: We have fulfilled the evaluation indicators set forth by the *Action Plan for Atmospheric Pollution Prevention* (Atmosphere Ten Articles). From October 2017 to March 2018, the average PM_{2.5} concentration in the urban areas fell down by more than 15% and the number of days with heavy pollution slid down by over 15% as well along the atmospheric pollutant transmission channels in the Beijing-Tianjin-Hebei Region and surrounding areas.

城市	PM _{2.5} 平均浓度 同比下降比例
北京、天津、石家庄、(辛集)、太原	25%
唐山市、保定市、(雄安新区)、(定州)	22%
邯郸市、邢台、郑州市、(巩义)、(航空港区)、安阳、(滑县)	20%
沧州、廊坊、衡水、济南、滨州、鹤壁、焦作	18%
阳泉、淄博、德州、聊城、菏泽、新乡、(长垣)、濮阳	15%
长治、晋城、济宁、开封、(兰考)	10%

城市	重污染天数平均 同比下降比例
北京、天津、石家庄、(辛集)、唐山、保定、(雄安新区)、(定州)、太原	20%
邯郸、邢台、安阳、(滑县)	18%
沧州、廊坊、衡水、阳泉、济南、淄博、德州、聊城、滨州、菏泽、郑州、(巩义)、(航空港区)、鹤壁、新乡、(长垣)、焦作、濮阳	15%
长治、晋城、济宁、开封、(兰考)	10%

1. Measures to cure the root cause

● Adjust industrial structure:

Rectify “small, poorly-managed and heavily-polluting enterprises”

● Adjust energy structure:

Clean substitution of bulk coal

● Adjust transport structure:

Road transport to rail transport

2. Measures to cure symptoms:

● Stagger peaks in production and transport

● Respond to heavy pollution weather



量化问责	问题情况	问责对象
重点任务落实情况	未完成交办问题整改数量超过2个的	副县长
	强化督查或巡查发现问题数量超过5个的	
	未完成交办问题整改数量超过4个的	县长
	强化督查或巡查发现问题数量超过10个的	
环境质量改善情况	行政区域内被问责的县(区)达到2个的	副市长(区)长
	行政区域内被问责的县(区)达到3个的	市(区)长
	行政区域内被问责的县(区)达到4个的	市(区)委书记
	完成质量改善目标比例低于60%的	副市长(区)长
	完成质量改善目标比例低于30%的	市(区)长
	PM _{2.5} 浓度同比不降反升的	市(区)委书记

A Comprehensive and Integrated Approach

□ □ □ □ □ □ □ □ □ □ Enterprise retrofit

□ □ □ □ □ □ □ □ □ □ Industrial upgrade

□ □ □ □ □ □ □ □ □ □ Energy mix adjustment

□ □ “ □ □ □ ” □ □ □ □ coordinated
management of transport sector

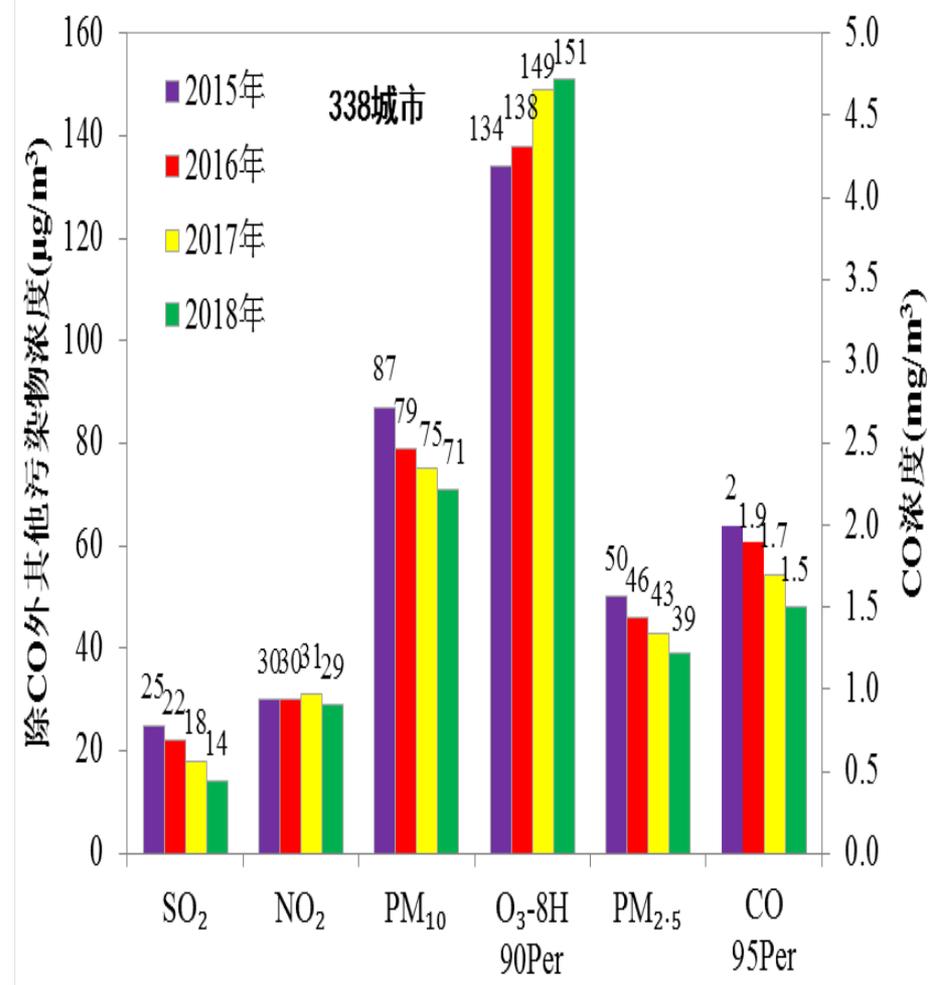
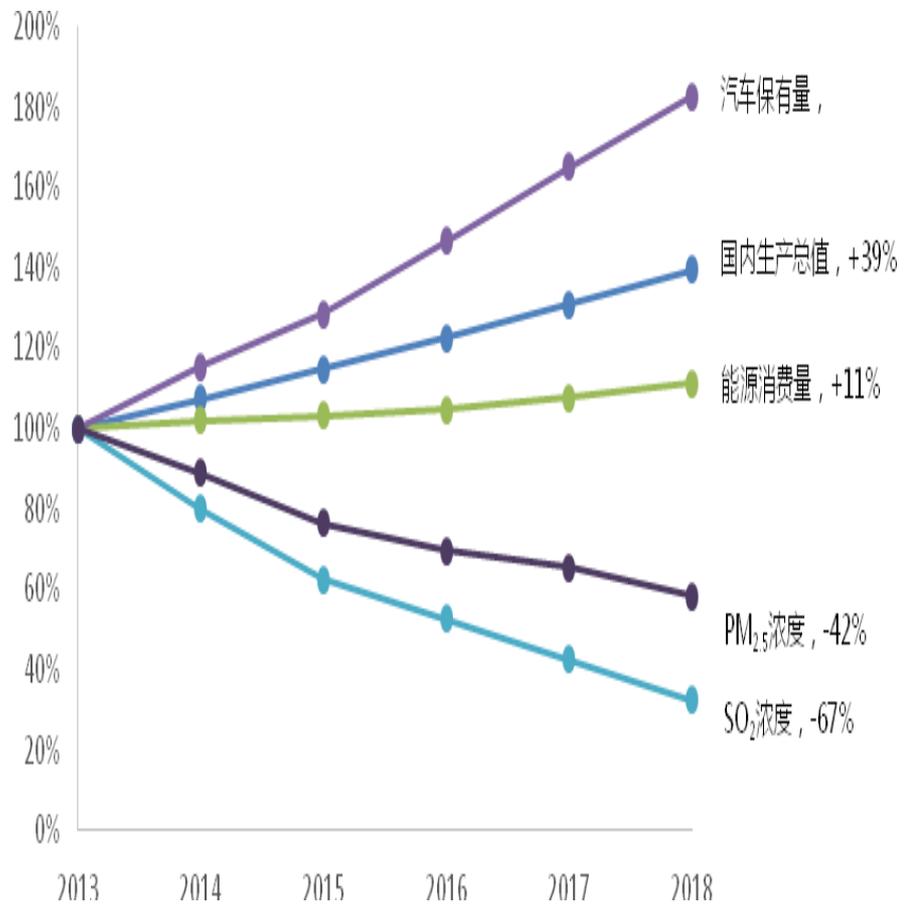
□ □ □ □ □ □ □ □ □ □ Area source management

□ □ □ □ □ □ □ □ □ □ Severe pollution
management

□ □ □ □ □ □ □ □ □ □ Science informed

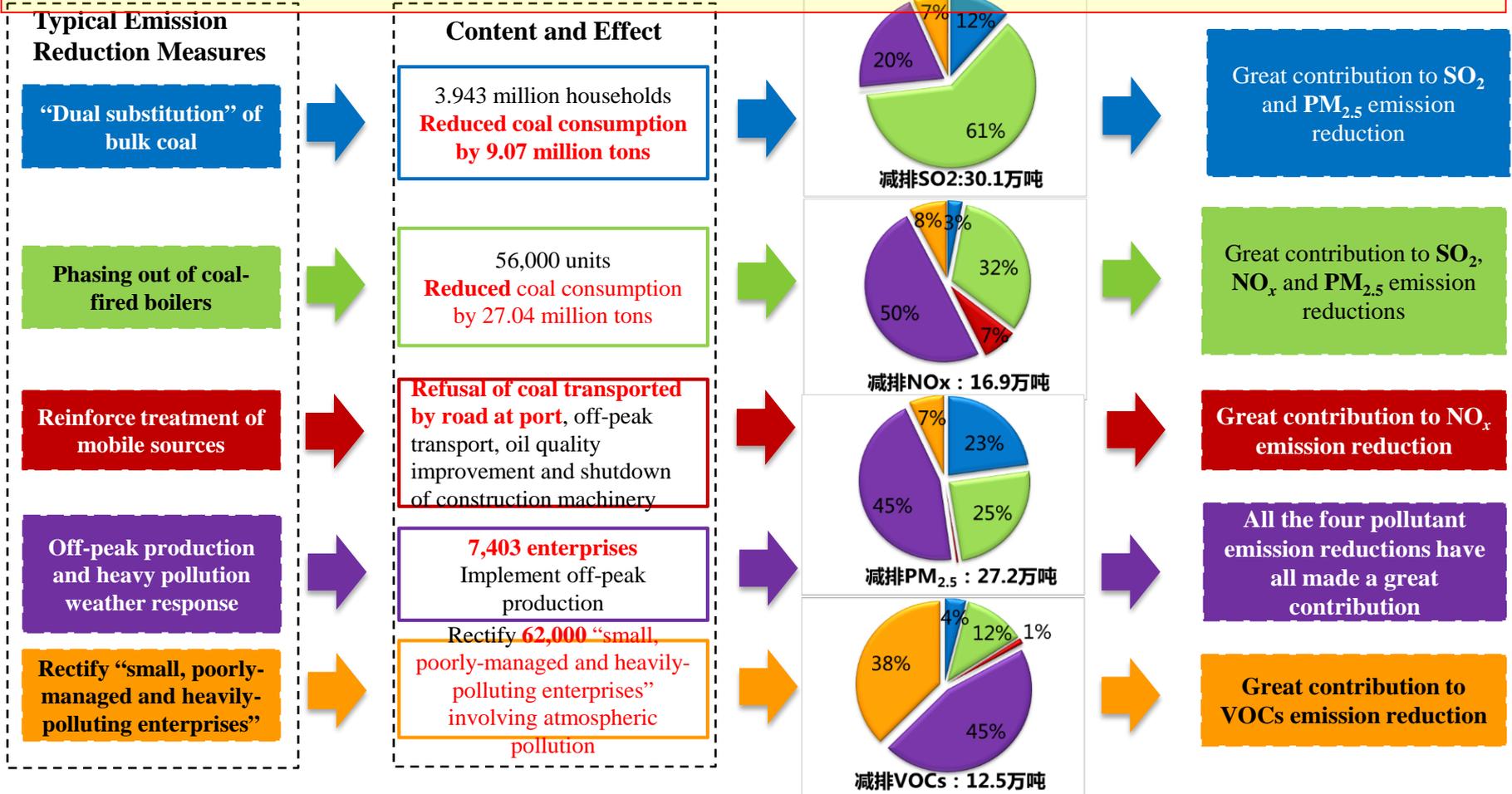
□ □ □ □ □ □ □ □ □ □ Innovative management

The air quality in the cities nationwide has continuously changed for the better, benefiting from economic development

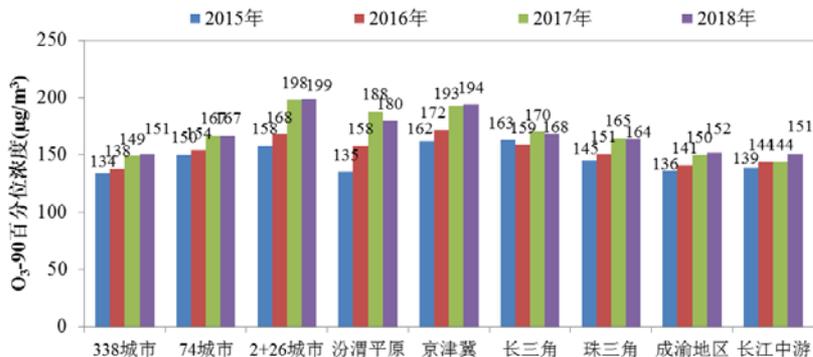


“2+26” cities in Beijing-Tianjin-Hebei Region and Surrounding Areas

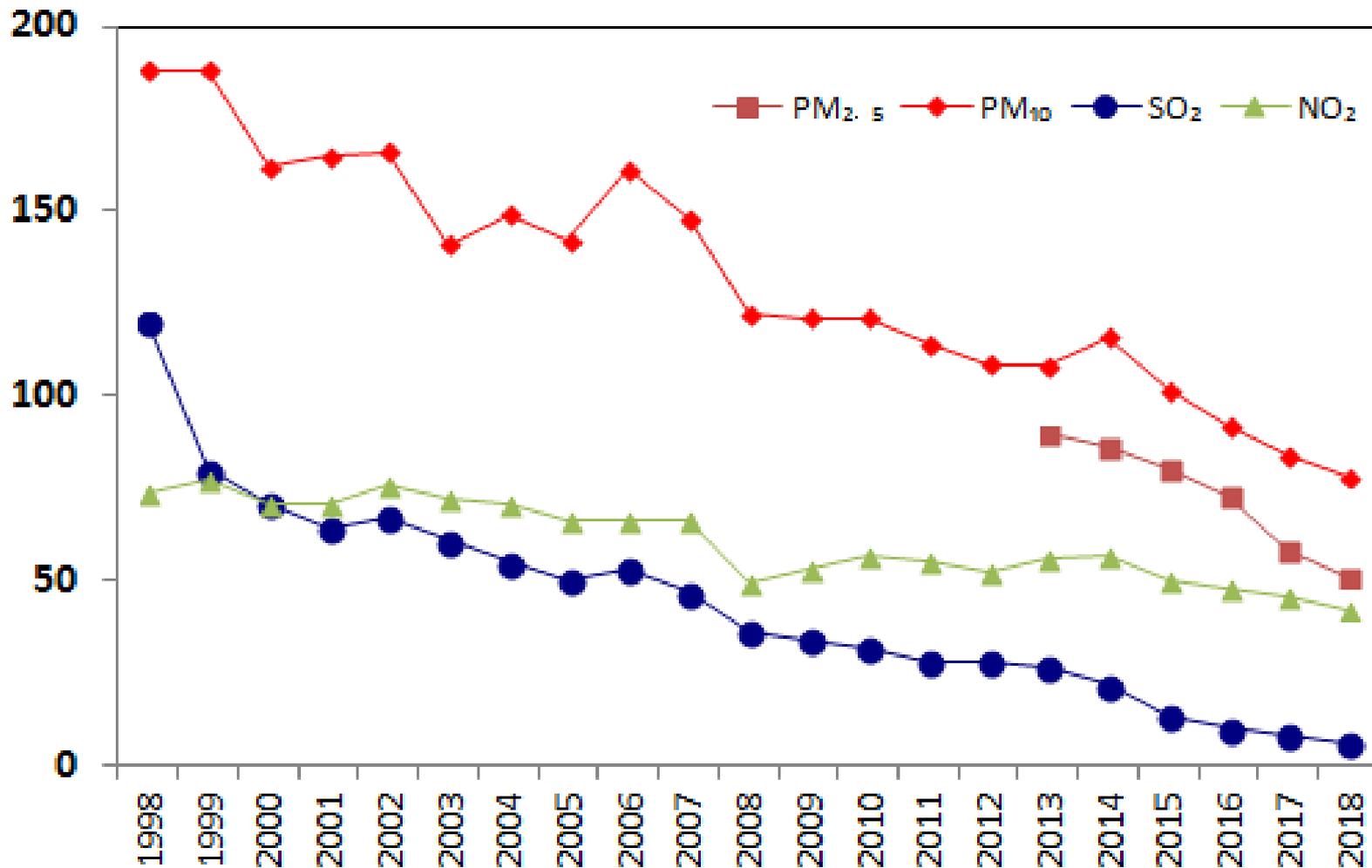
- Phasing out of coal-fired boilers, “dual substitution” of bulk coal, treatment of “small, poorly-managed and heavily-polluting enterprises” and other measures **have contributed 80% of the SO₂ emission reduction and 50-60% of the PM_{2.5}, NO_x and VOCs emission reductions.**
- Off-peak production and heavy pollution weather response have further increased the PM_{2.5}, NO_x and VOCs emission reduction ratios in autumn and winter



Pollution level of major regions in 2015-2018

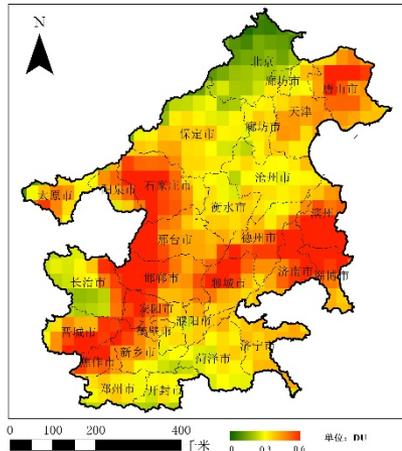


Beijing Air Quality Historic Trend

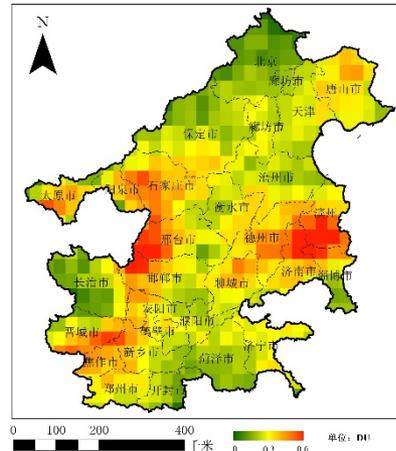


Analysis of satellite remote sensing data: Urban SO₂ column concentration trends in 2+26 cities

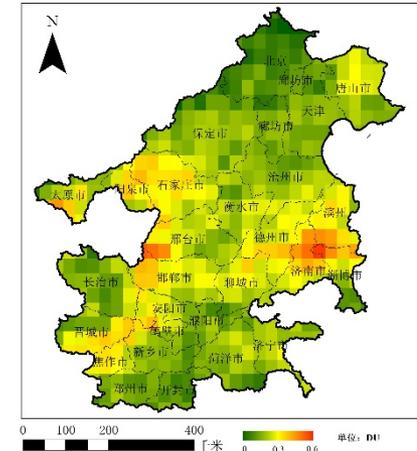
2+26城市SO₂空间分布(2013年)



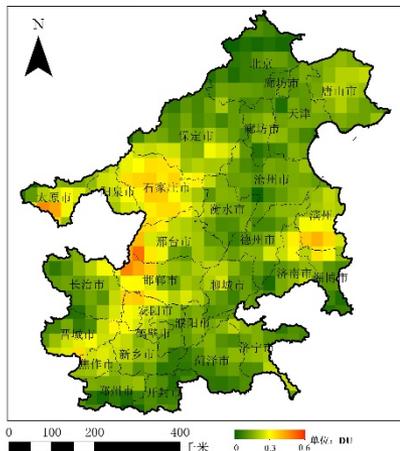
2+26城市SO₂空间分布(2014年)



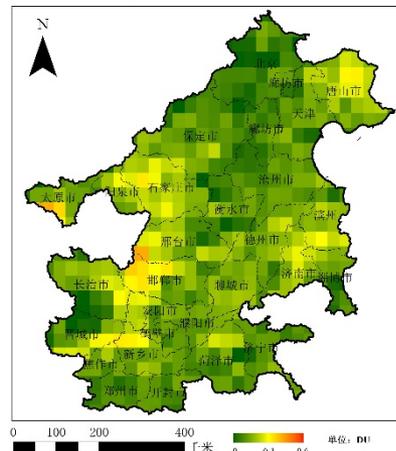
2+26城市SO₂空间分布(2015年)



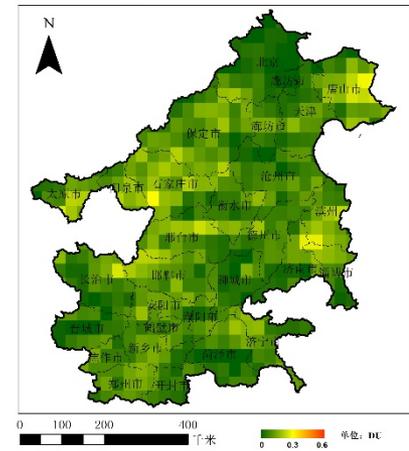
2+26城市SO₂空间分布(2016年)



2+26城市SO₂空间分布(2017年)

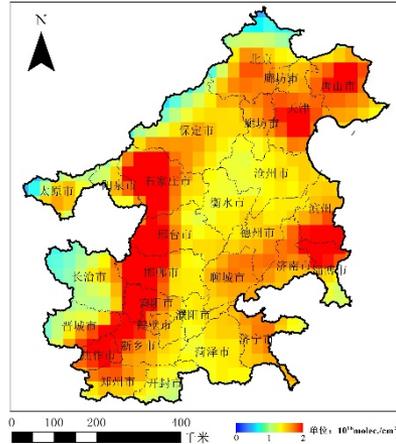


2+26城市SO₂空间分布(2018年)

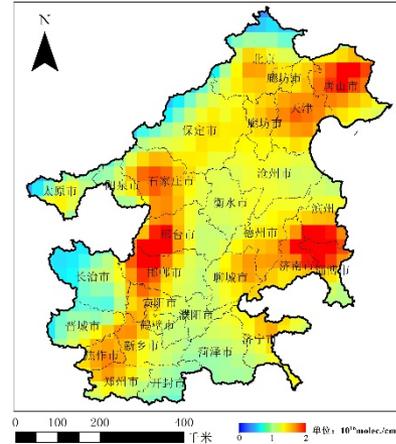


Analysis of satellite remote sensing data: Urban NO₂ column concentration trends in 2+26 cities

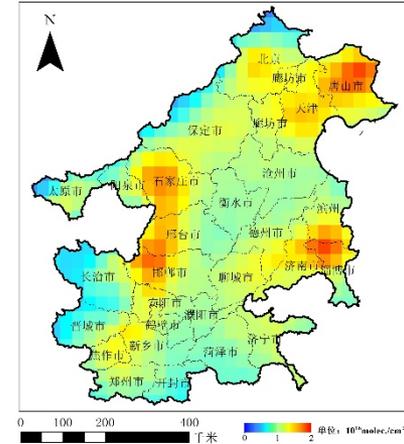
2+26城市NO₂空间分布(2013年)



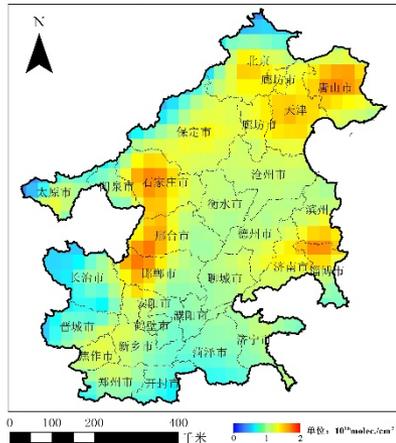
2+26城市NO₂空间分布(2014年)



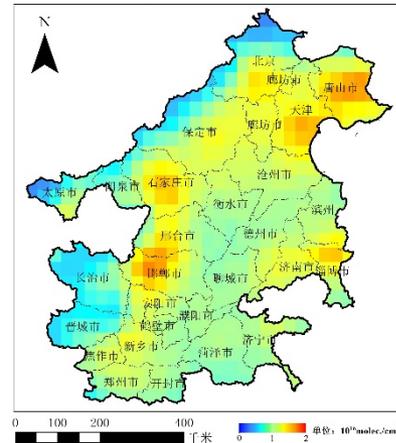
2+26城市NO₂空间分布(2015年)



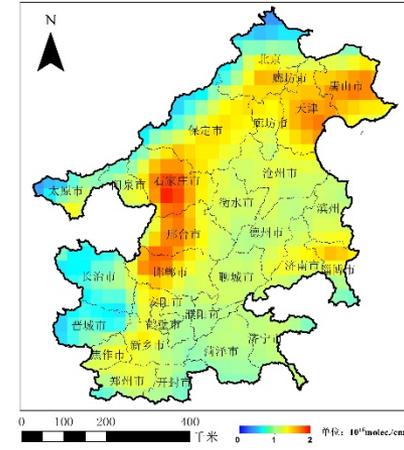
2+26城市NO₂空间分布(2016年)



2+26城市NO₂空间分布(2017年)

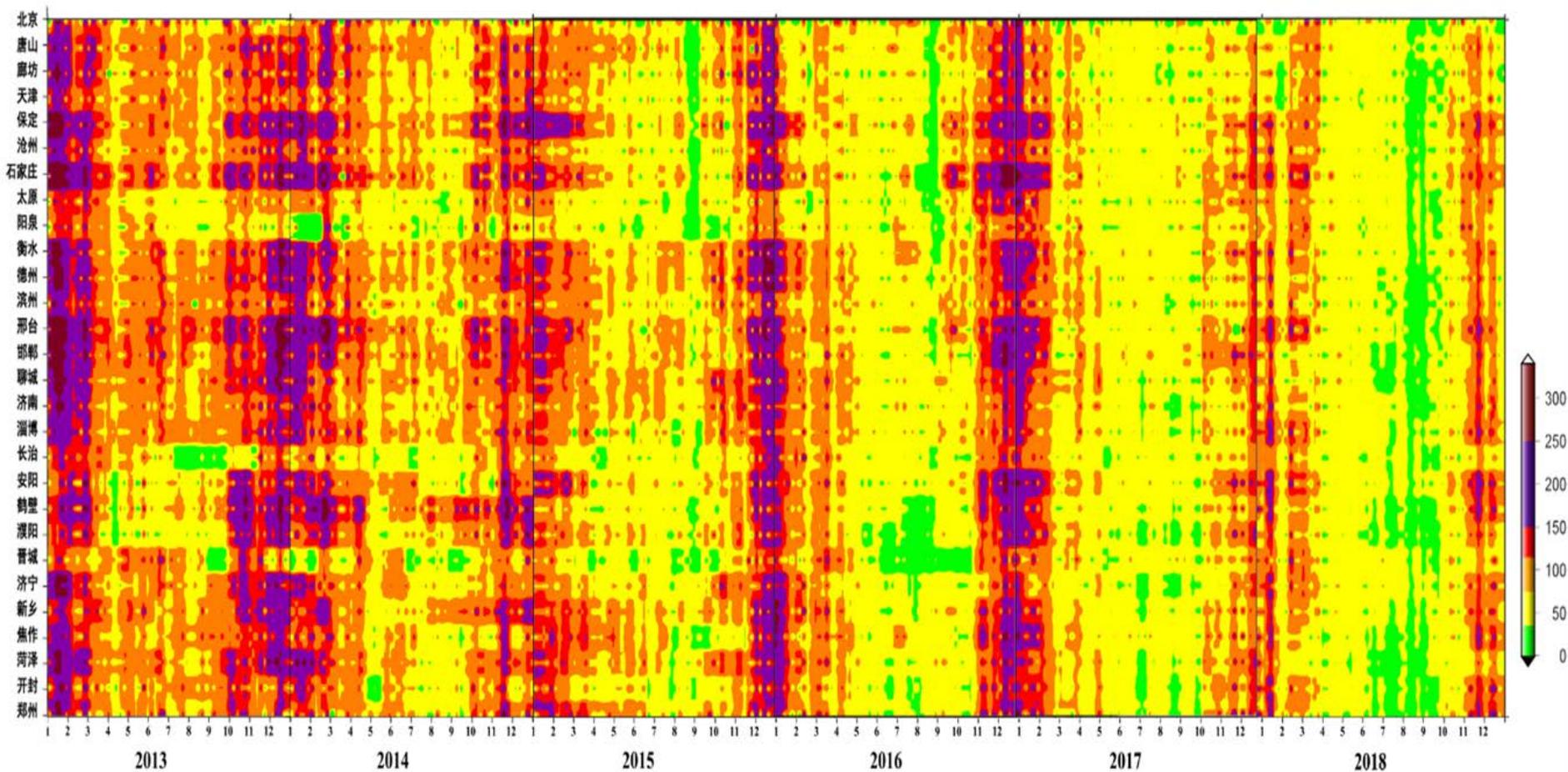


2+26城市NO₂空间分布(2018年)



Trends of PM_{2.5} and SO₂ Concentrations in 2+26 Cities in 2013-2018

2013年-2018年2+26城市PM_{2.5}浓度日历图



Key Experience of China's Atmospheric Pollution Prevention and Control

Attention from CPC Central Committee	Government promotion	Equal responsibility of CPC and government	Dual responsibility of one position	Environmental protection supervision
Scientific and technological support	Problem orientation	One city, one policy	Regional collaboration	Grid management
Define objectives	Cure both root cause and symptom	Enterprise as subject	Treatment in depth	Public involvement
Comprehensive prevention and control	Highlight key points	Enhance supervision	Fixed support	Quantitative accountability

All act to win the Battle for a Blue Sky

Recommendations

- Science and data is key for understanding of pollution sources. This is supported by a large network of monitoring system and inventory. Working on introducing cost effectiveness analysis in the new plan (with the World Bank).
- Identify key control areas, pollutants and sources so that coordinated approach can be applied.
- Adjustment of industrial and energy structure, upgrade pollution control, reduce emissions.
- Enhance mobile sources prevention through upgrading standards of both vehicles and fuel.
- Establish a management system that includes clear accountabilities and responsibilities.



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Thank you!

