Introduction of Ambient Air Quality Monitoring in China

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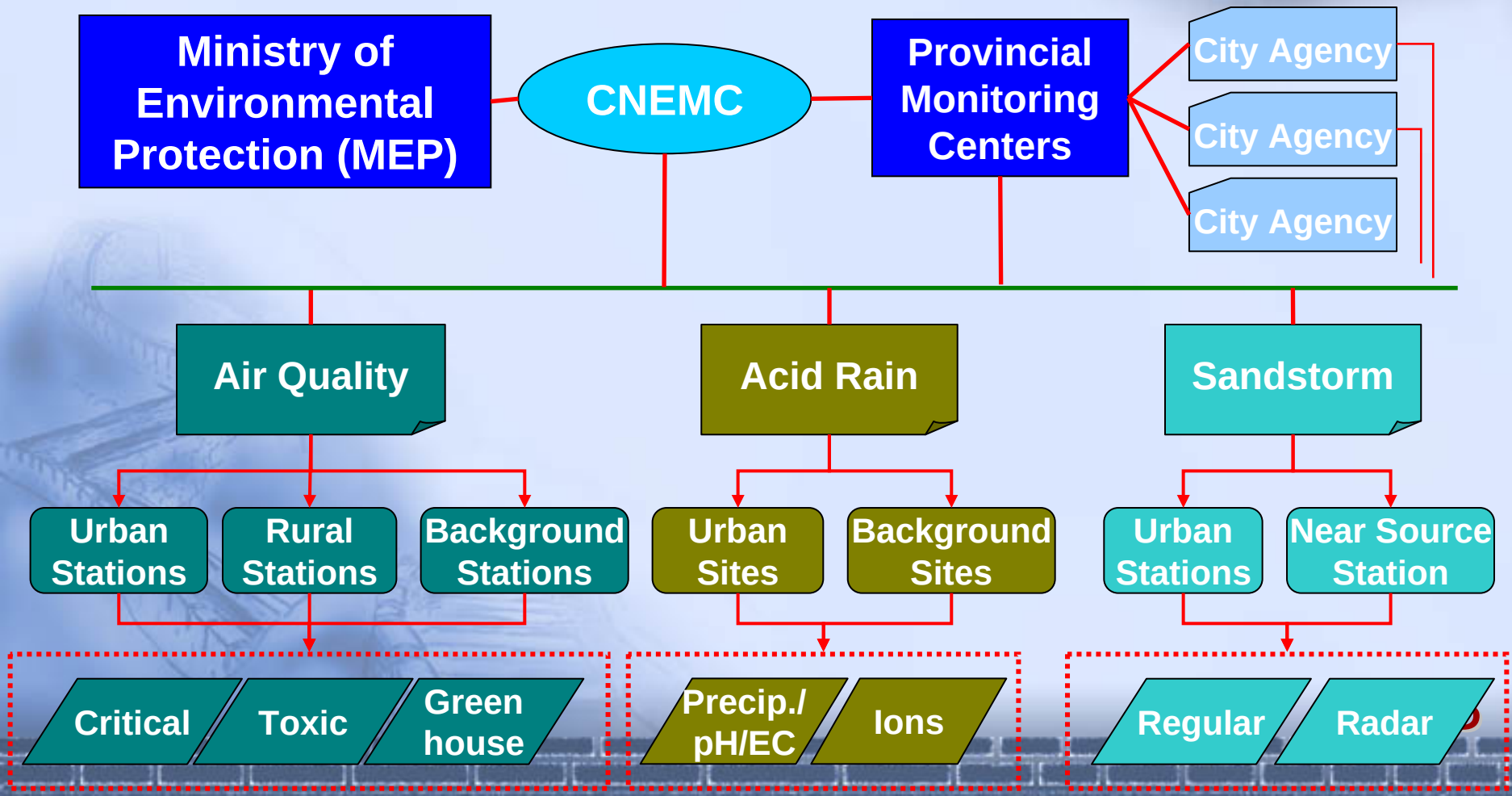
Contents

- Overview of Ambient Air Quality Monitoring Program in China
- Air quality during the Past 10 Years
- Challenges and Future Plan for monitoring

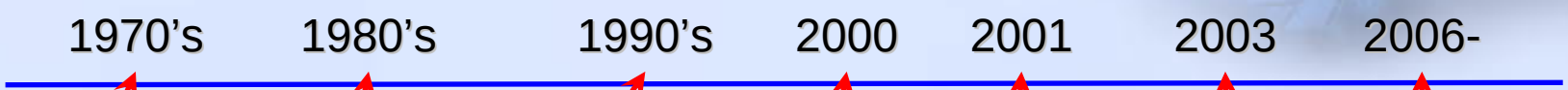
Part 1 Ambient Air Quality Monitoring Program

- Organization & Structure



Part 1 Ambient Air Quality Monitoring Program

- History



Starting monitoring experiments in a few cities:
✓ Method study

Setting up public services:
✓ weekly report via media
✓ 46 major cities with
✓ >1 million population

Setting up Initial national monitoring network:
✓ Manual monitoring
✓ air quality standards
✓ SO_2, NO_X, TSP
✓ 4 samples/days
✓ 5 days/season
✓ annual report

Speeding up development:
✓ Automatic monitoring
✓ 42 cities: daily report
✓ Air Pollution Index
✓ SO_2, NO_2, PM_{10}

Starting air quality forecast:
✓ 47 cities: daily forecast

Expanding Automatic monitoring network:
✓ 103 major cities
✓ >1 million population
✓ or open coast cities

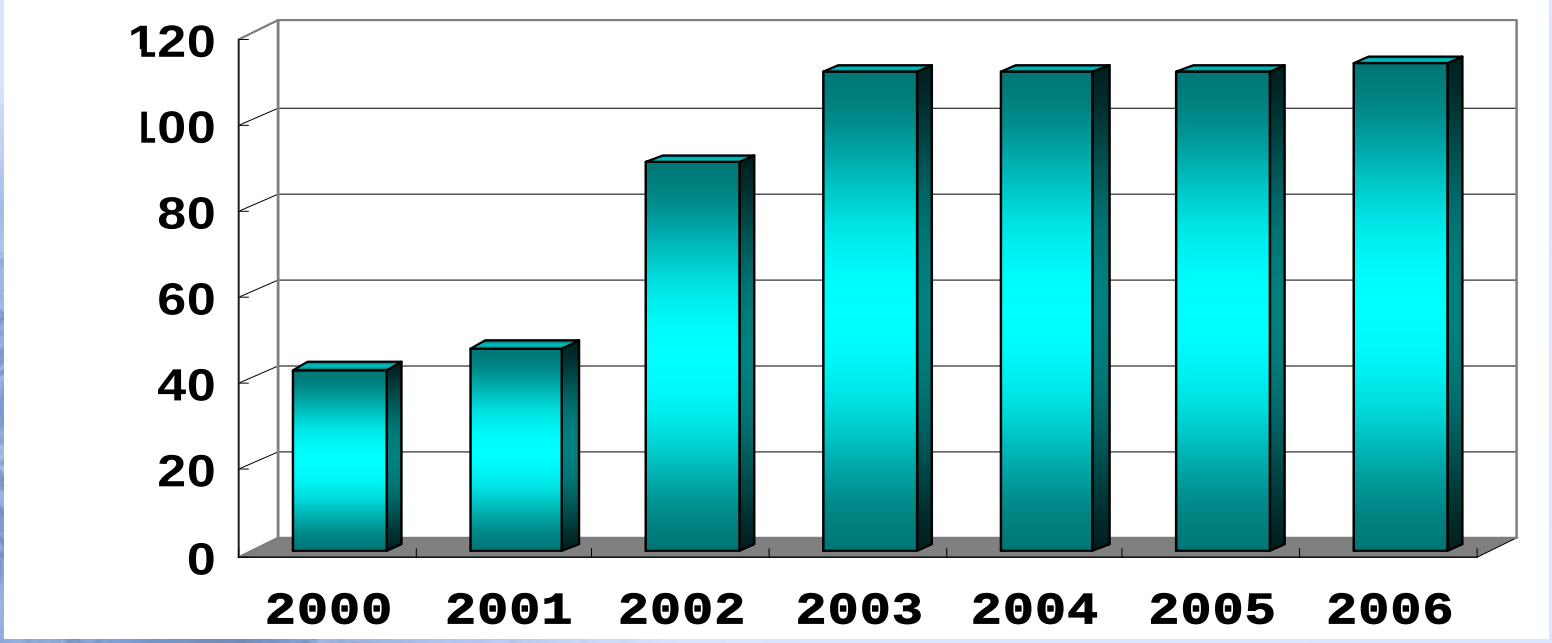
Forming National & local monitoring networks:
✓ 559 cities: local
✓ 113 cities: national

National Environmental Monitoring Network

- Urban air quality monitoring network
  - 113 major cities with 661 monitoring sites
- Acid rain monitoring network
  - 347 cities with 431 monitoring sites
- Dust and sandstorm monitoring network
  - 82 cities with 82 monitoring sites
- ……

Part 1 Ambient Air Quality Monitoring Program

- Number of major City joined into daily report system



Part 1 Ambient Air Quality Monitoring Program

- **NAAQS in Chir**
  - **GB3095-1996**
  - **GB3095-201?**

Background area

Resident area

Industrial area

		Concentrations (mg/m³)		
		level 1	level 2	level 3
SO_2	annual	0.02	0.06	0.1
	daily	0.05	0.15	0.25
	1-hr	0.15	0.5	0.7
NO_2	annual	0.04	0.08	0.08
	daily	0.08	0.12	0.12
	1-hr	0.12	0.24	0.24
PM_{10}	annual	0.04	0.1	0.15
	daily	0.05	0.15	0.25
TSP	annual	0.08	0.2	0.3
	daily	0.12	0.3	0.5
NOx	annual	0.05	0.1	0.1
	daily	0.1	0.15	0.15
	1-hr	0.15	0.3	0.3
CO	daily	4	4	6
	1-hr	10	10	20
O3	1-hr	0.12	0.16	0.2

Comparison of Standards

	Air Quality Standards ($\mu g/m^3$)					limitation (day/year)			
	EU	US	JAPAN	CHINA	WHO	EU	US	JAPAN	CHINA
SO2 (annual)		80		60					
SO2 (daily)	125	365	105	150	125(20)	<4	<1	<1	
SO2 (1-hr)			262	500	500				
NO2 (annual)	40	100		80	40		<1	<1	
NO2 (daily)			113	120					
NO2 (1-hr)	200			240	200	<20			
PM10 (annual)		?		100	70(20)				
PM10 (daily)	50	150	100	150	150(50)	<35	<1	<1	
PM10 (1-hr)			200						
PM2.5 (annual)		15			35(10)		<1	<1	
PM2.5 (daily)		35			75(25)				
O3 (8-hr)	120	157			160(100)	<26	<1	<1	
O3 (1-hr)		235	118	160					
CO* (daily)				4,000					
CO* (8-hr)	10,000	10,000	11,000	10,000			<1	<1	
CO* (1-hr)		40,000	23,000				<1	<1	

- City monitoring site

Automatic Station (site/DOAS)

- Public Services: TV/Broadcast

- Public Services: Internet

7月14日重点城市空气质量日报

中国环境监测总站提供

城市名称	污染指数	首要污染物	空气质量级别	空气质量状况
北京	78	可吸入颗粒物	II	良
天津	87	可吸入颗粒物	II	良
石家庄	95	可吸入颗粒物	II	良
秦皇岛	56	可吸入颗粒物	II	良
太原	111	可吸入颗粒物	III1	轻微污染
呼和浩特	42	--	I	优
沈阳	77	可吸入颗粒物	II	良
大连	63	可吸入颗粒物	II	良
长春	58	可吸入颗粒物	II	良
哈尔滨	55	可吸入颗粒物	II	良
上海	35	--	I	优
南京	56	可吸入颗粒物	II	良
苏州	41	--	I	优
南通	27	--	I	优
连云港	54	可吸入颗粒物	II	良
杭州	40	--	I	优
宁波	32	--	I	优
温州	26	--	I	优
合肥	52	可吸入颗粒物	II	良
福州	21	--	I	优

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最近日报 | 背景资料 |

重点城市空气质量日报——日期：2006-07-14

共有86个城市！（本页有30个城市，共3页）

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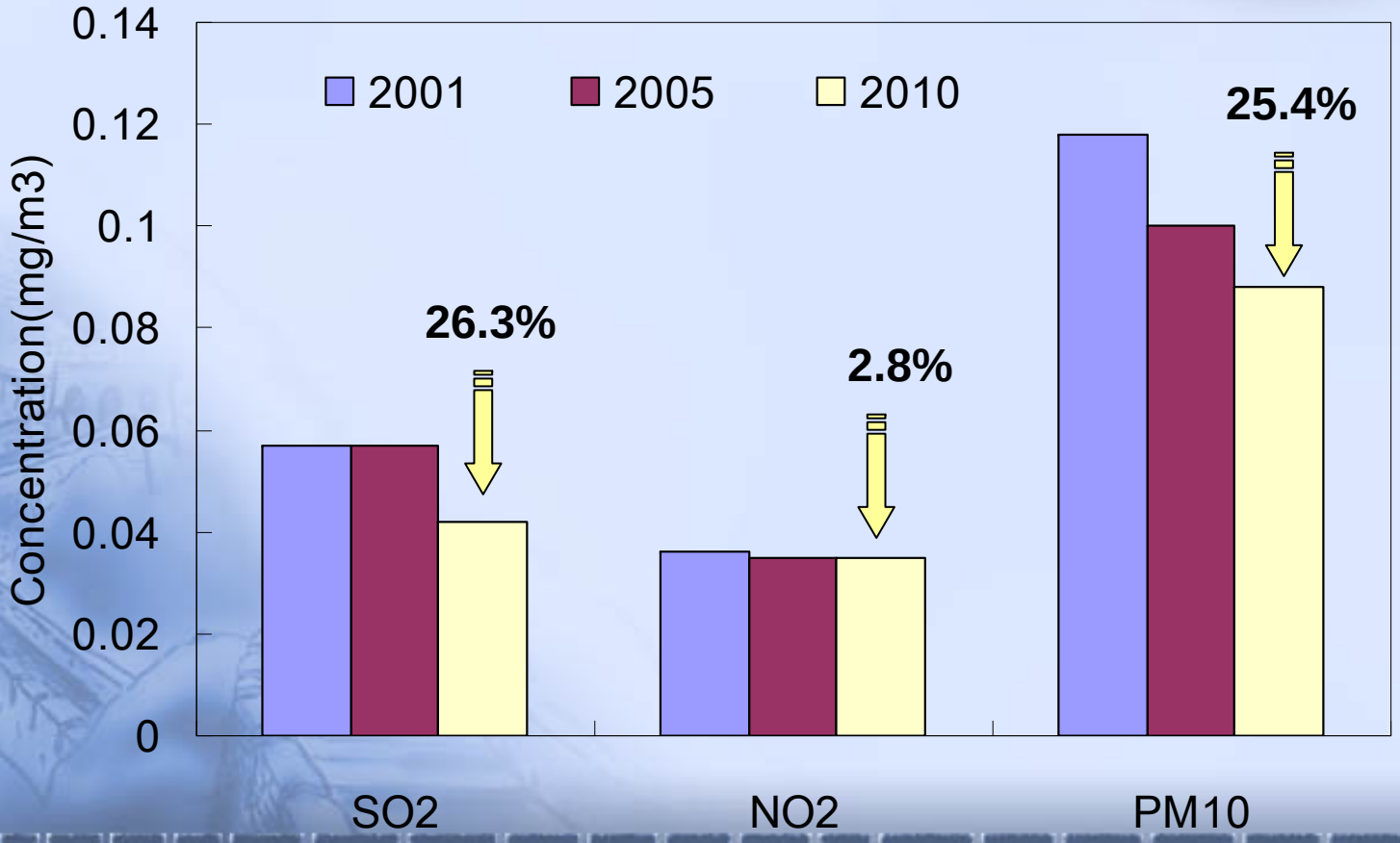
城市	日期	污染指数	首要污染物	空气质量级别	空气质量状况
北京	2006-07-14	78	可吸入颗粒物	II	良
天津	2006-07-14	87	可吸入颗粒物	II	良
石家庄	2006-07-14	95	可吸入颗粒物	II	良
秦皇岛	2006-07-14	56	可吸入颗粒物	II	良
太原	2006-07-14	111	可吸入颗粒物	III1	轻微污染
大同	2006-07-14	65	可吸入颗粒物	II	良
阳泉	2006-07-14	104	可吸入颗粒物	III1	轻微污染
长治	2006-07-14	65	可吸入颗粒物	II	良
呼和浩特	2006-07-14	42	--	I	优
赤峰	2006-07-14	76	可吸入颗粒物	II	良

- Annual Report
  - “Public Report for State of Environmental Quality of China” by MEP

  - “Annual Report of National Environmental Quality” by

Part 2 Air quality during the Past 10 Years

- Averaged annual concentrations



Part 2 Air quality during the Past 10 Years

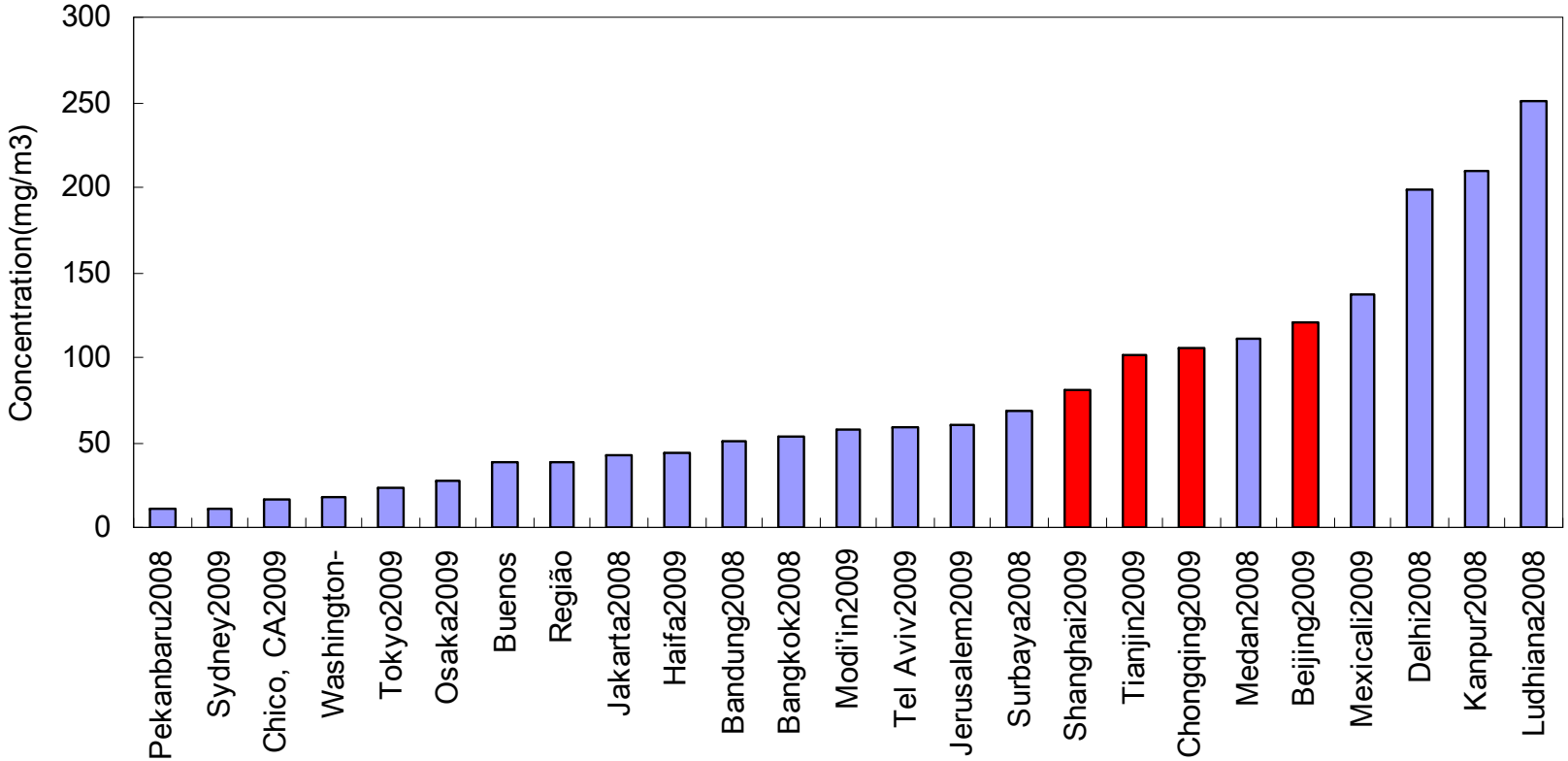
- During the past 10 years, China has made great effort to reduce source emissions for different pollutants
  - Remove of sulfate in waste gas from power plants
  - Improved energy structure of industries
  - Recovery of ecological environments
  - Promote investigation in environmental protection and technologies
  - etc..

Part 2 Air quality during the Past 10 Years

- In 2001, there are many cities under high level of SO2: cities in Shanxi,Guizhou province
- In 2005, areas under high level of SO2 decreased to some extent
- In 2010, only a few scattered cities in Guizhou,Hebei and Shandong province did not attained the national standard

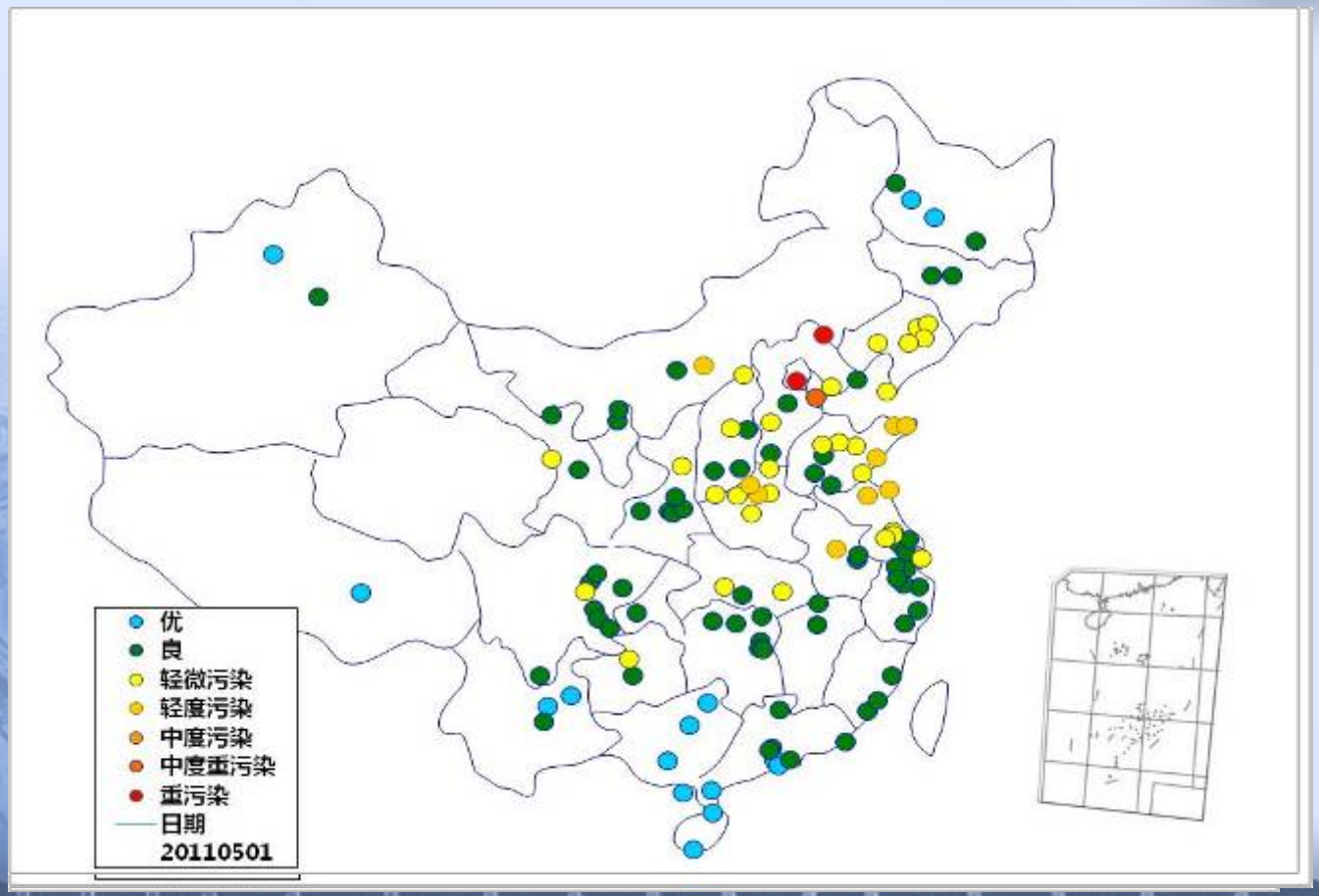
Part 2 Air quality during the Past 10 Years

- Averaged annual concentrations(PM10)



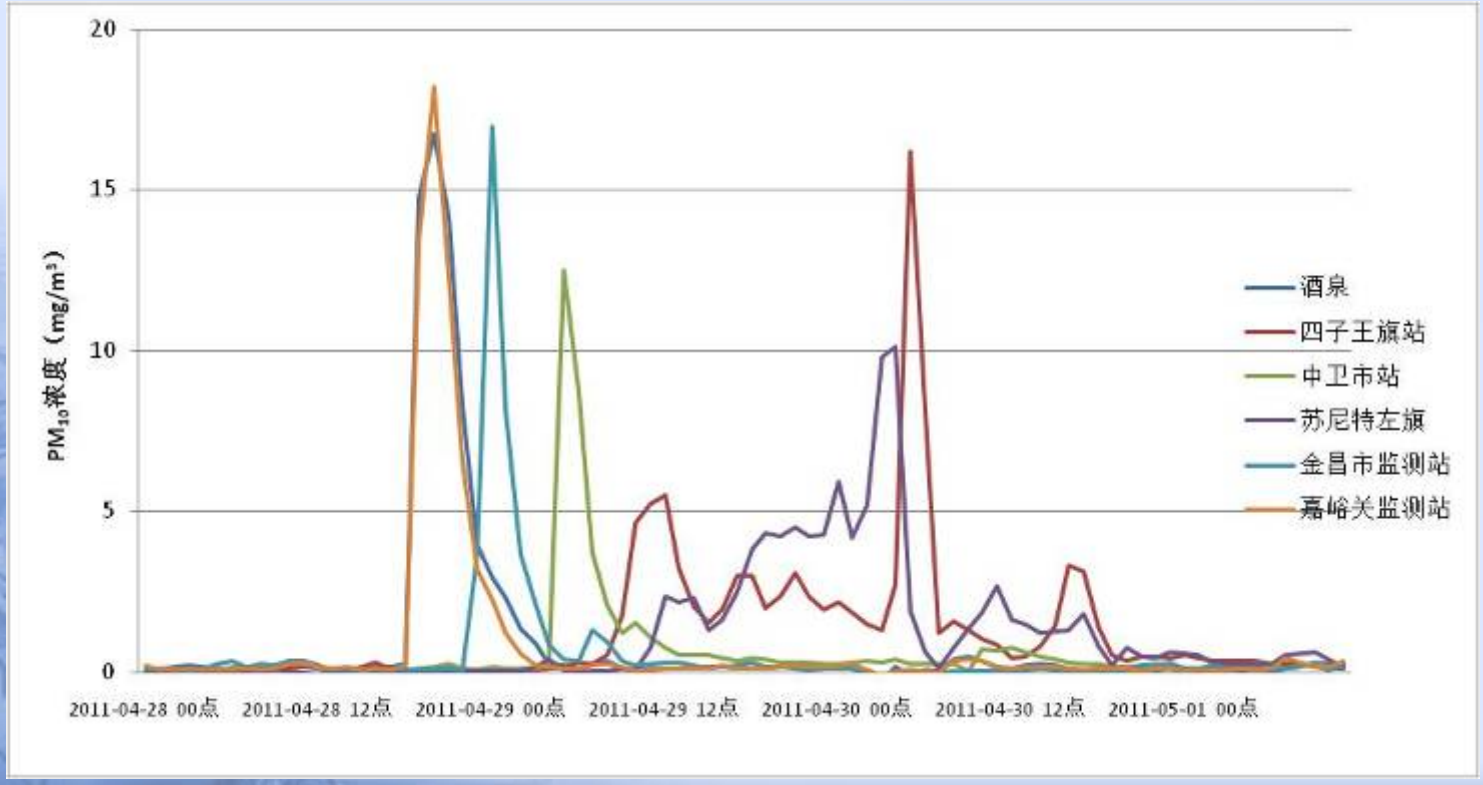
Part 2 Air quality during the Past 10 Years

- Sandstorm



Part 2 Air quality during the Past 10 Years

- Sandstorm



Part 2 Air quality during the Past 10 Years

- **Fog / Haze**
  - **Weather condition as an affecting factor**

fog + Urban emissions

Strong wind + Urban emissions

Part 3 Challenges and Future Plan for monitoring

- Expanding monitoring parameters, including ozone , PM2.5, CO, VOCs.
- Setting up national wide QA/QC system for O3
- Application of new ground monitoring technology: size distribution of particulate matters,EC/OC,BC
- Enhance air quality forecasting ability
- Constructing regional background stations and rural stations
- etc.

Thank you