

Data Report 2025

Air Concentration and Dry deposition monitoring (Draft)

SAC26

October 20-22, 2026

Kuala Lumpur, Malaysia

Network Center for EANET

Air Concentration and Dry Deposition Monitoring

- Sampling methods and parameters at each site *Table 3.1.1*
- Methods of automatic monitors *Table 3.1.2*
- Terms and abbreviations *Table 3.2*
- Monthly and annual data in 2025 *Table 3.4.1 – 3.21.2*
- Annual concentration (2011-2025)
[Past 15 years trend] *Table 3.22 – 4.38*
- Monthly and annual dry depositions *Table 3.40 – 3.50*
- Conversion ratios from ppb to $\mu\text{g}/\text{m}^3$ *Table 3.51*
- Reporting limits *Table 3.52*

Location of sites for Air Conc. and Dry dep. Monitoring



Air Conc. And Dry Dep.

Filter Pack 41 sites

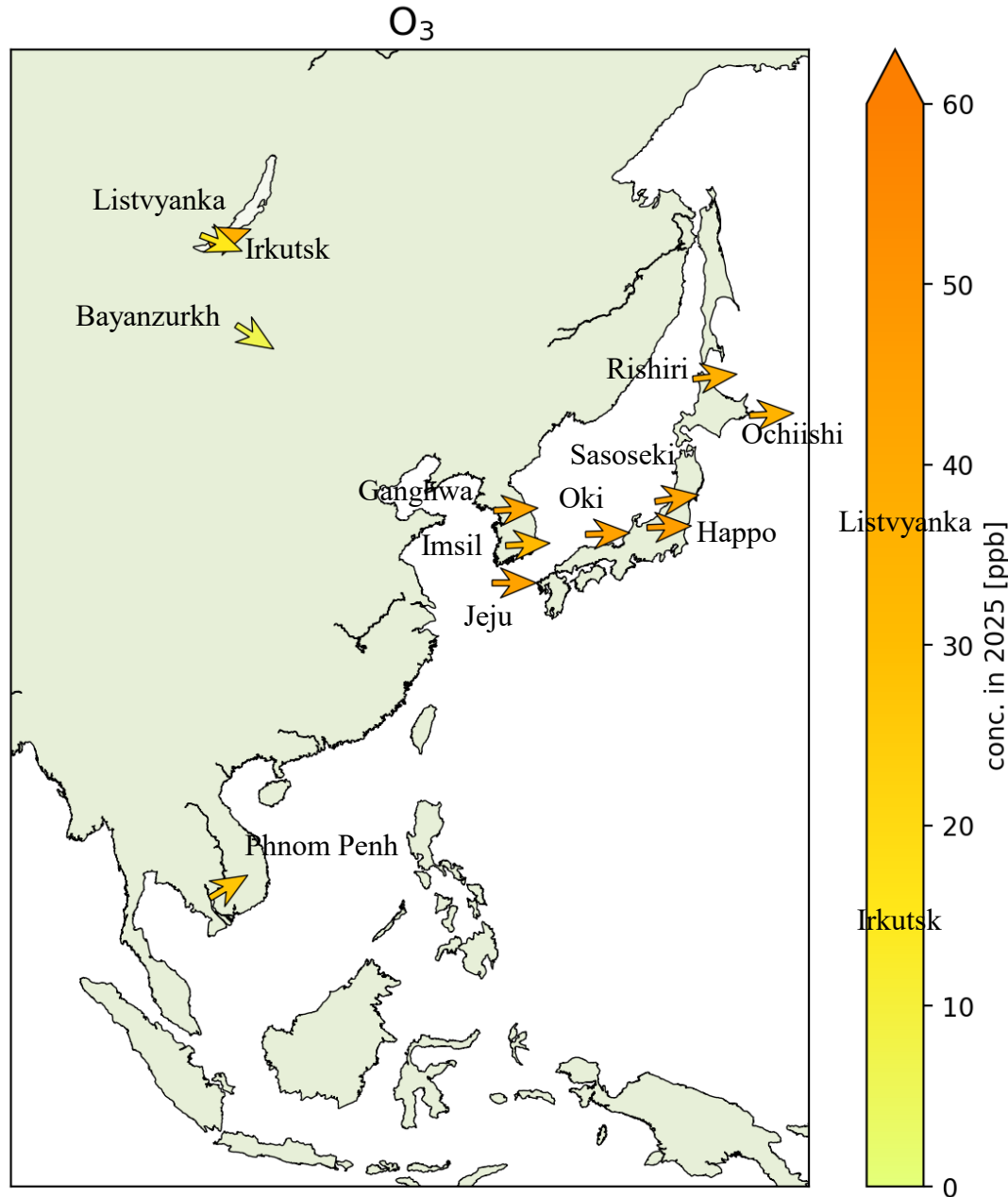
Automatic 29 sites

Passive sampler 2 sites

(See Table 3.1.1)

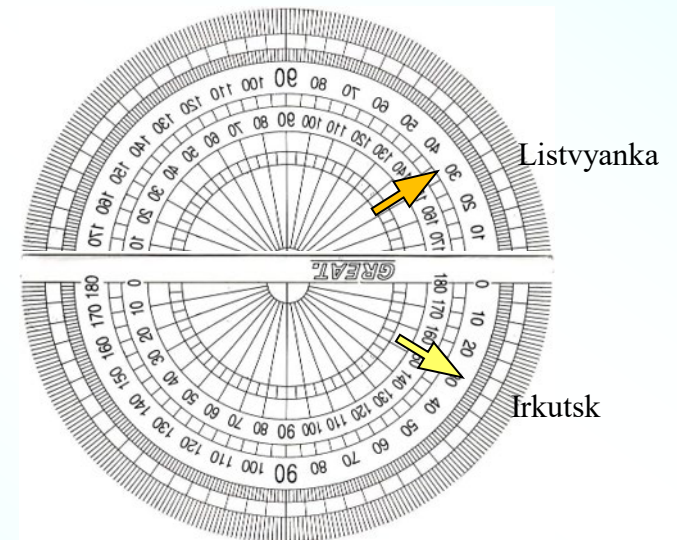
Location of Air Concentration and Dry Deposition monitoring sites

Site Map for O₃ in 2025

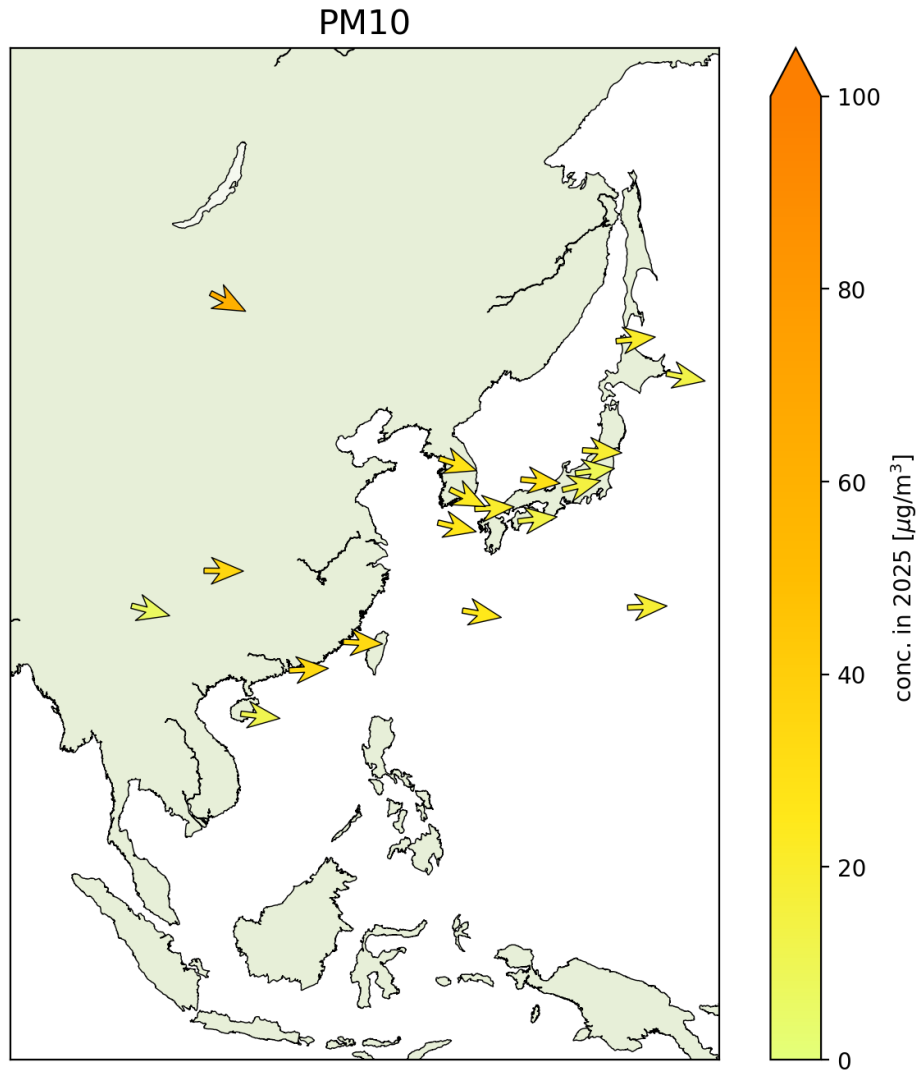


The degree of concentration for each arrow can be referenced from this bar. →

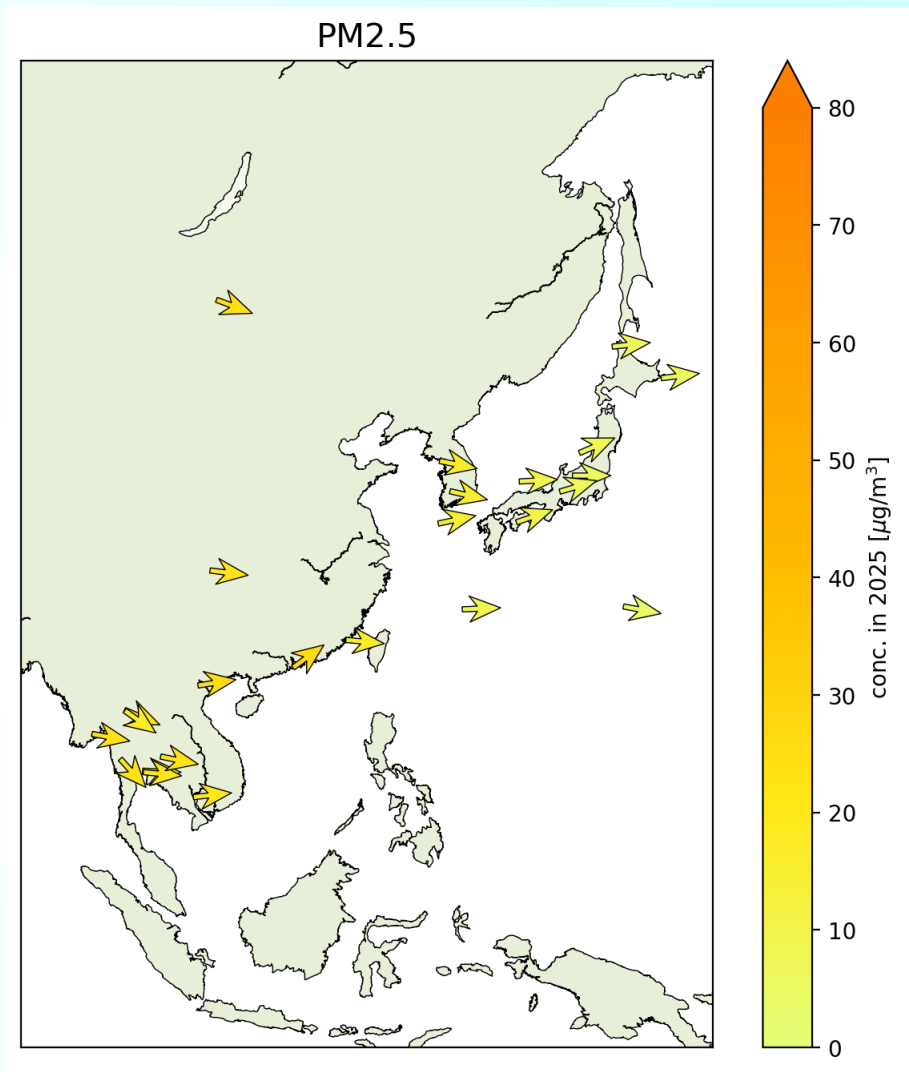
Arrow's slope represents the degree of deviation between the 2025 annual mean and the 5-year average of 2020-2024.



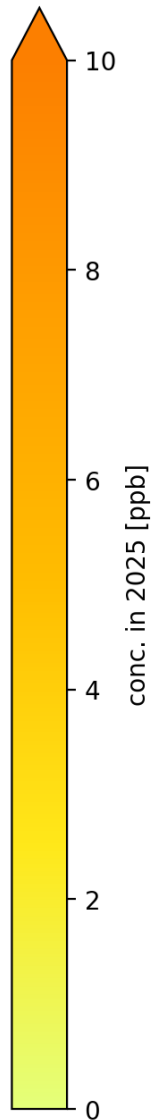
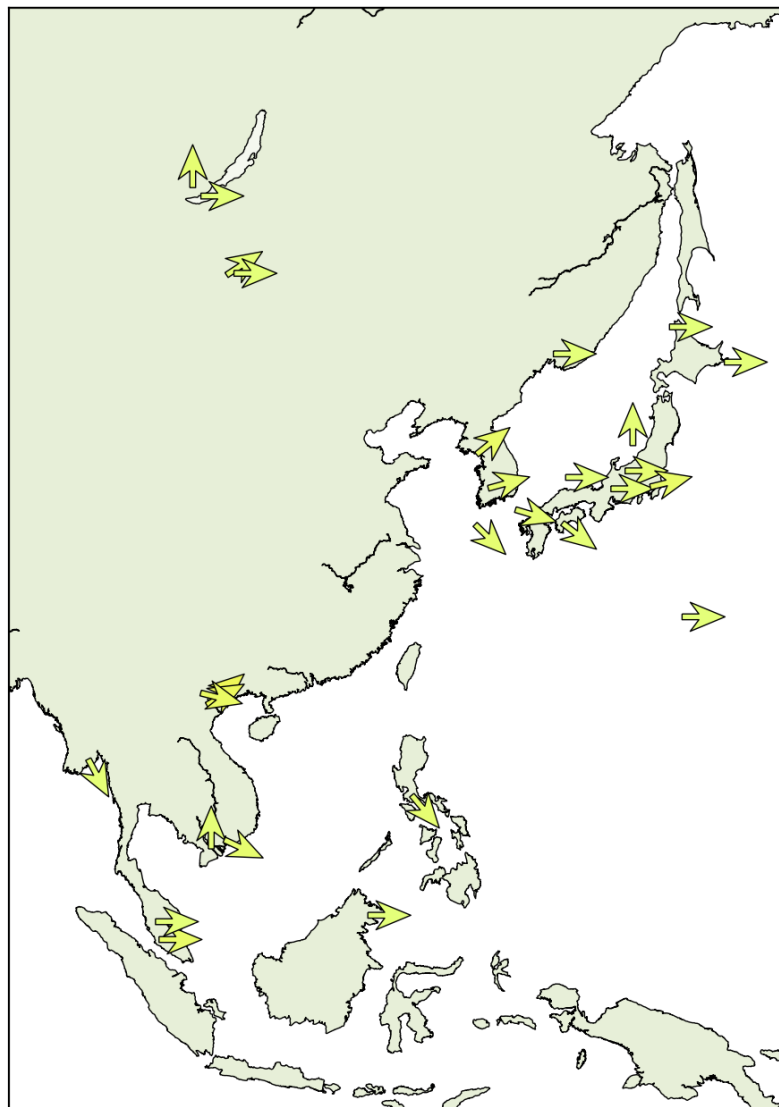
Site Map for PM₁₀



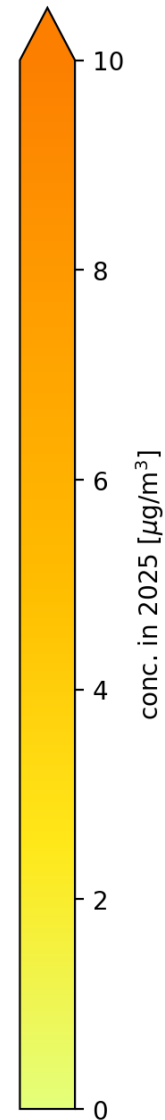
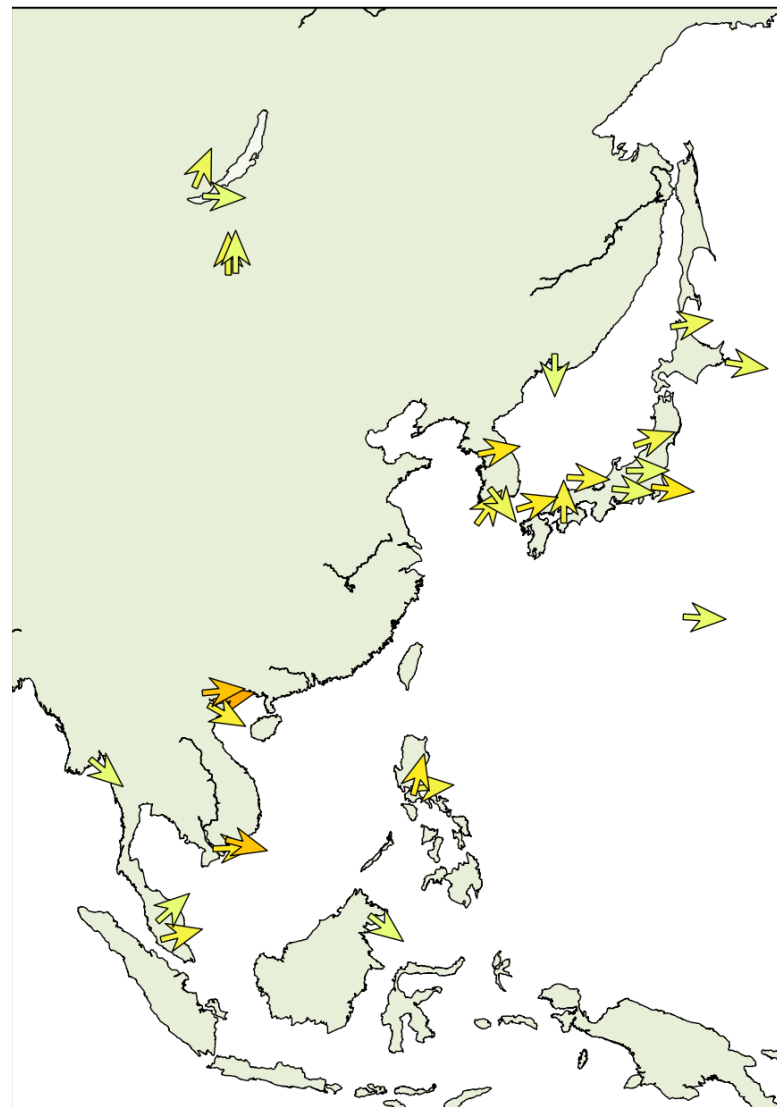
Site Map for PM_{2.5}



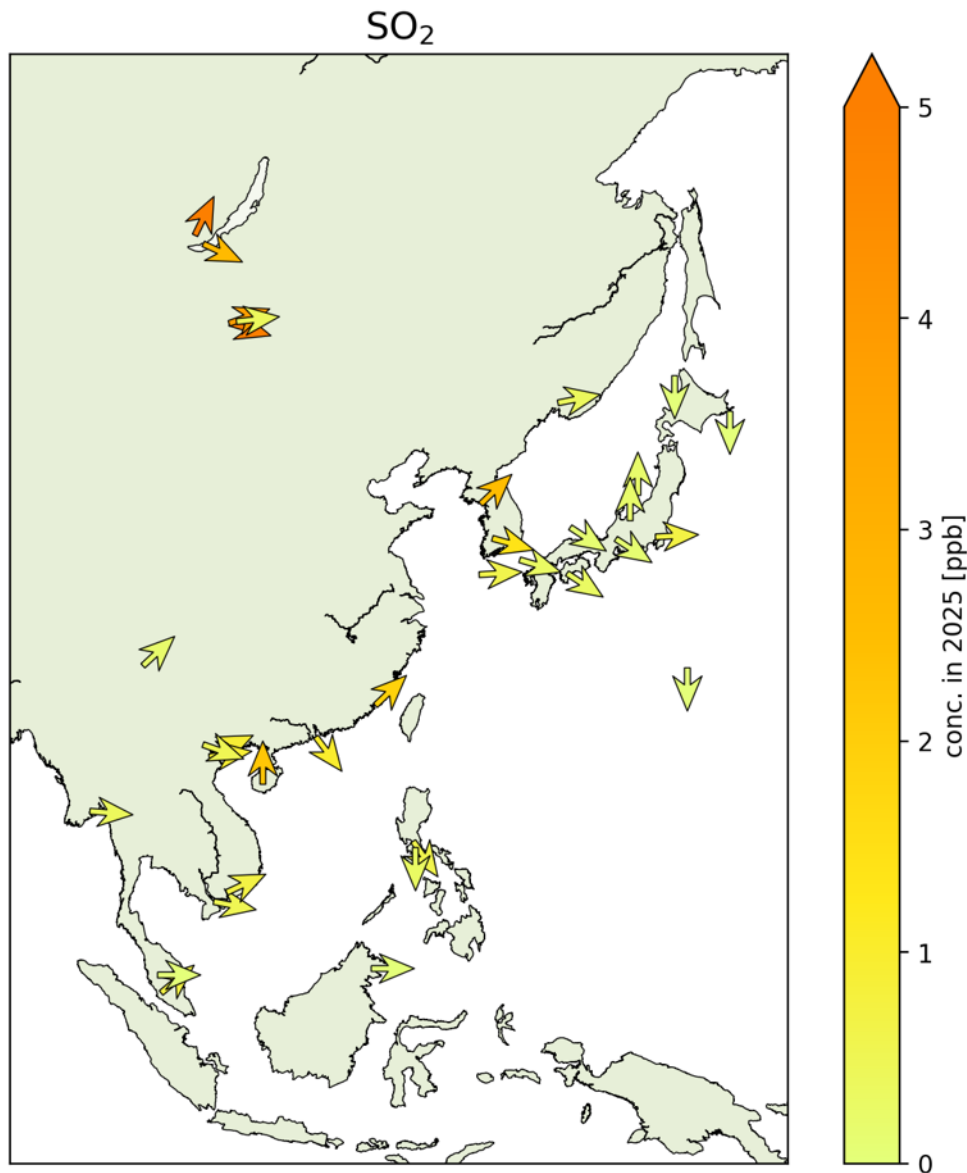
Site Map for HNO_3



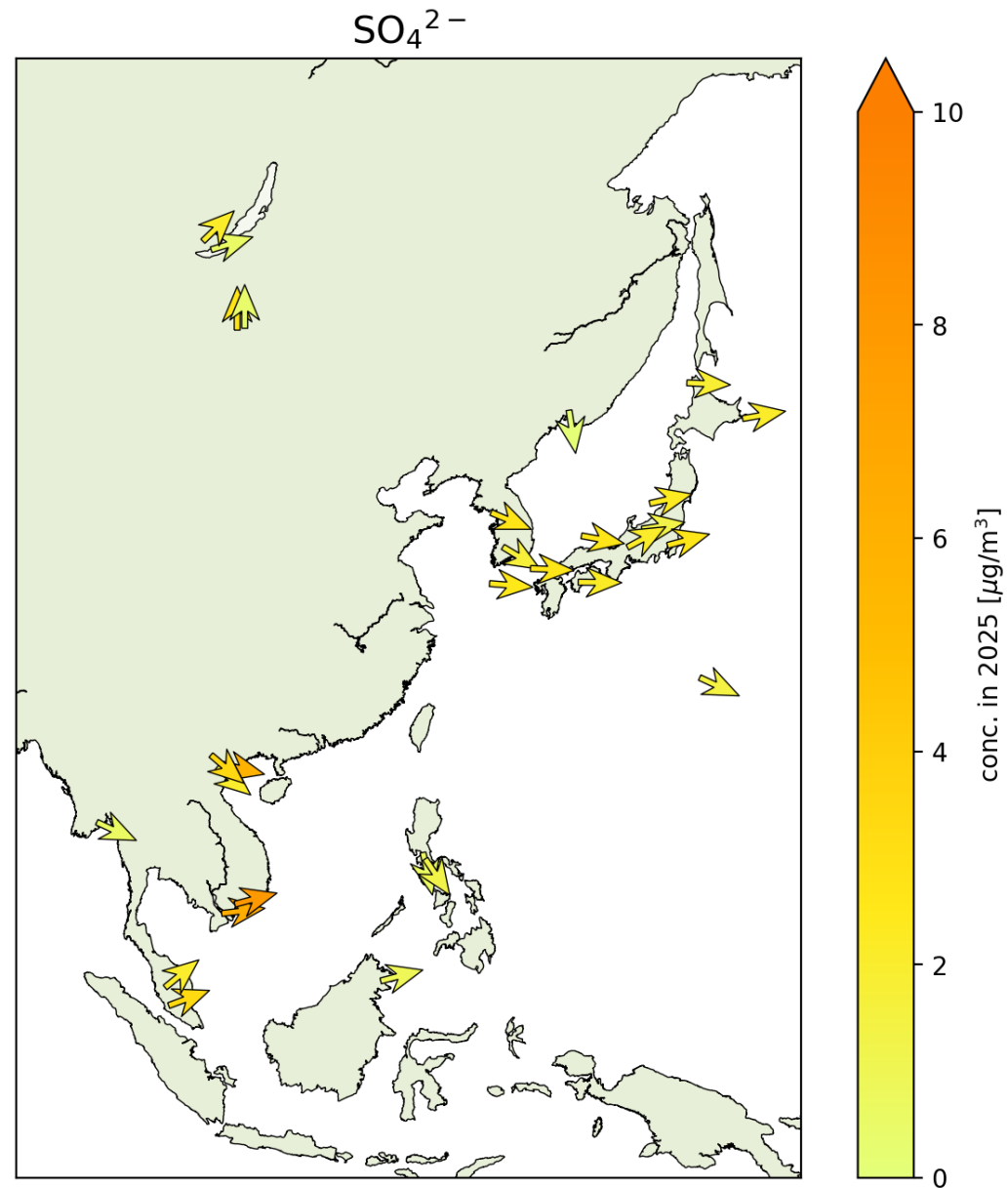
Site Map for NO_3^-



Site Map for SO₂



Site Map for SO₄⁺

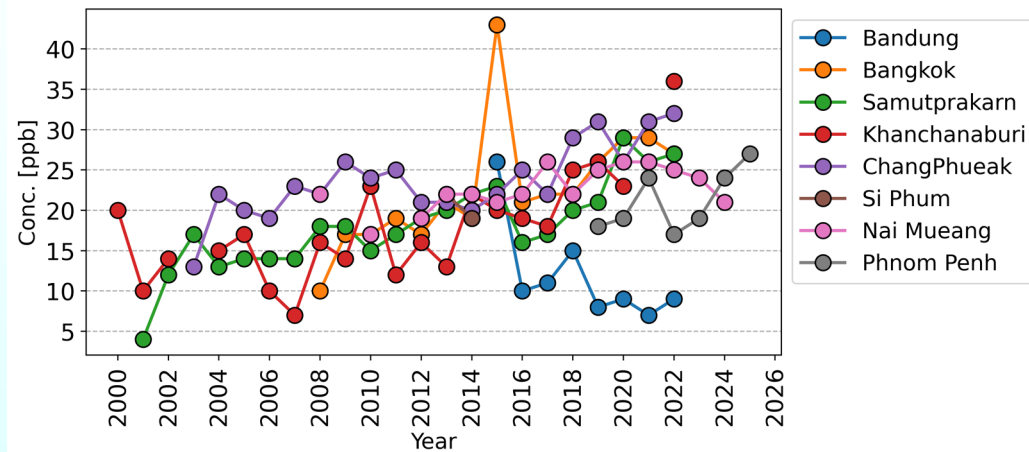


Annual trend during 2000-2025 (O₃)

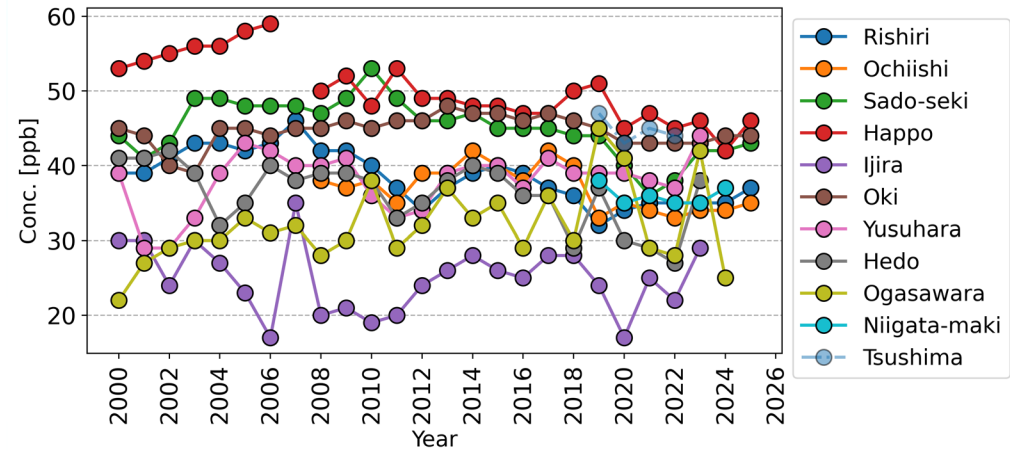
(See Table 3.29)

Auto

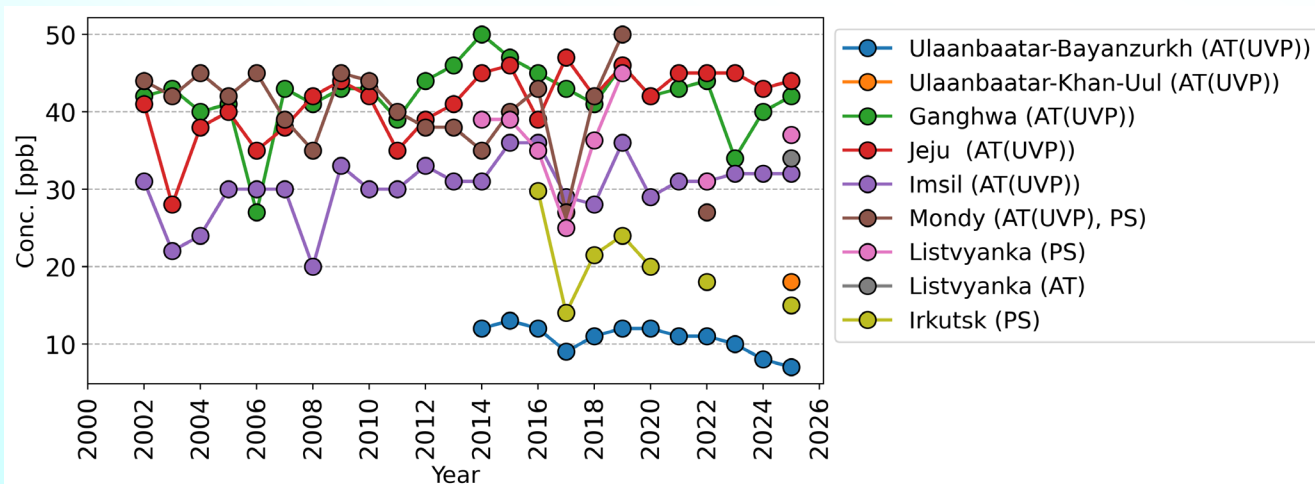
Indonesia, Thailand, Cambodia



Japan



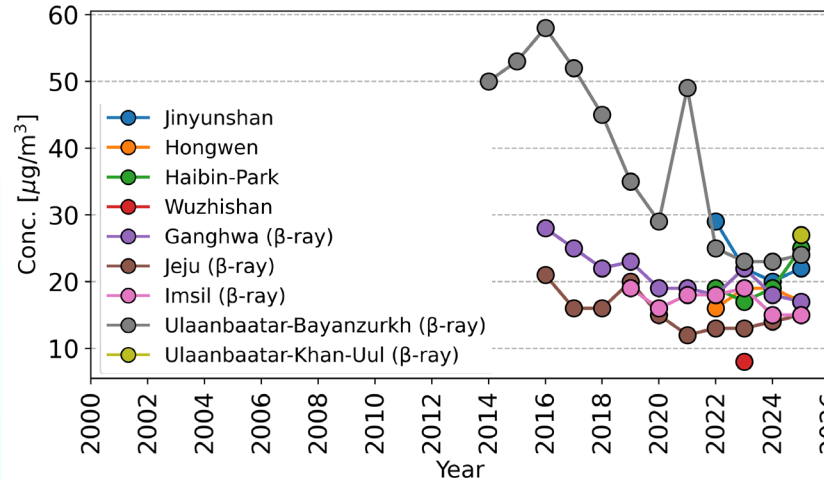
Mongolia, R. Korea, Russia



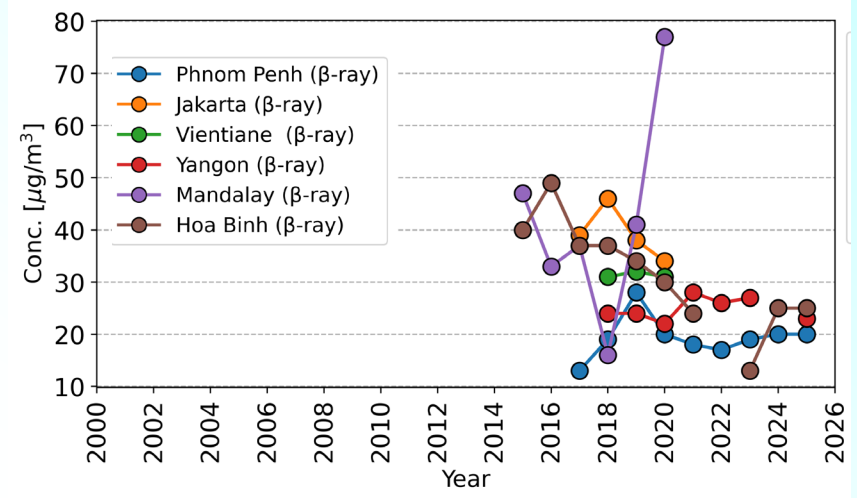
Annual trend during 2000-2025 (PM_{2.5}) cont.

(See Table 3.31)

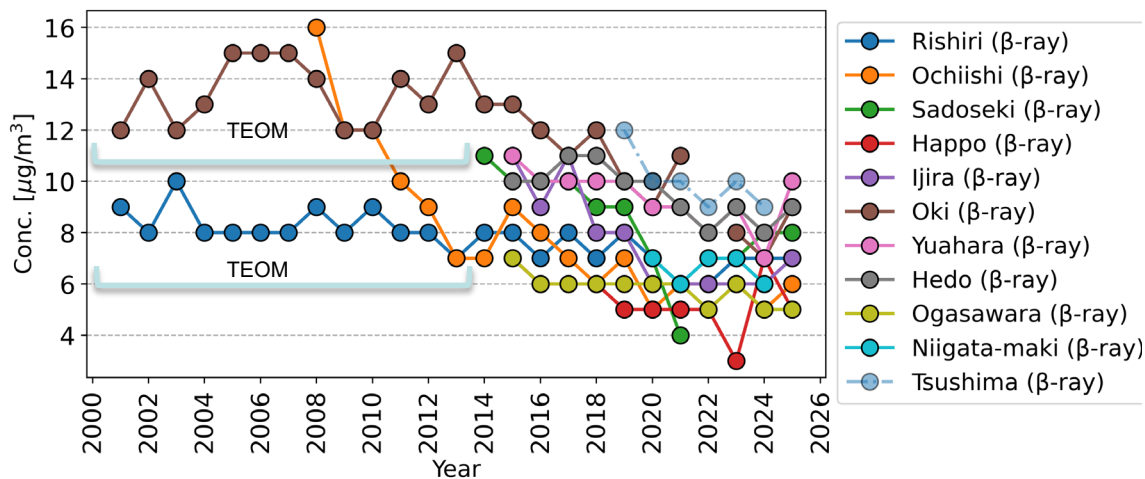
China, R.Korea, Mongolia



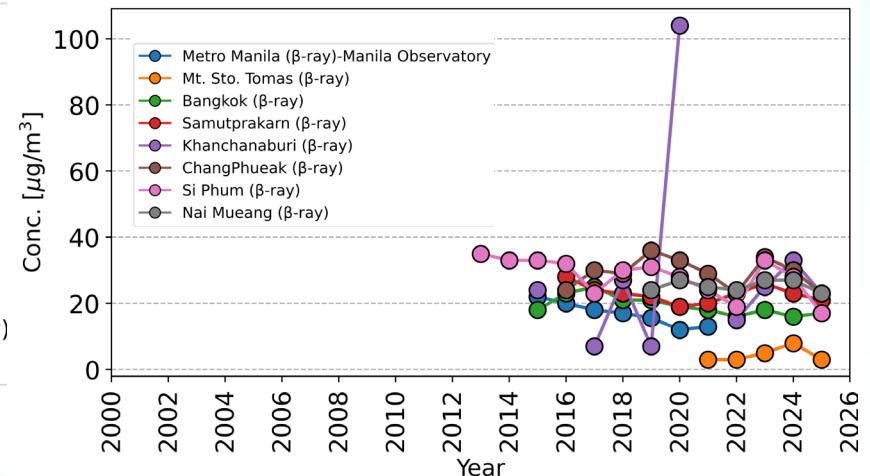
Cambodia, Indonesia, Yangon, Myanmar, Vietnam



Japan



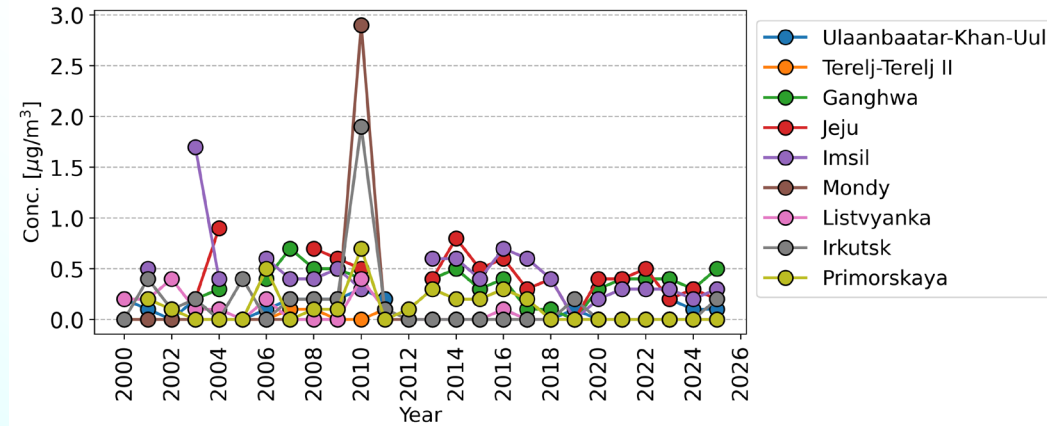
Philippines, Thailand



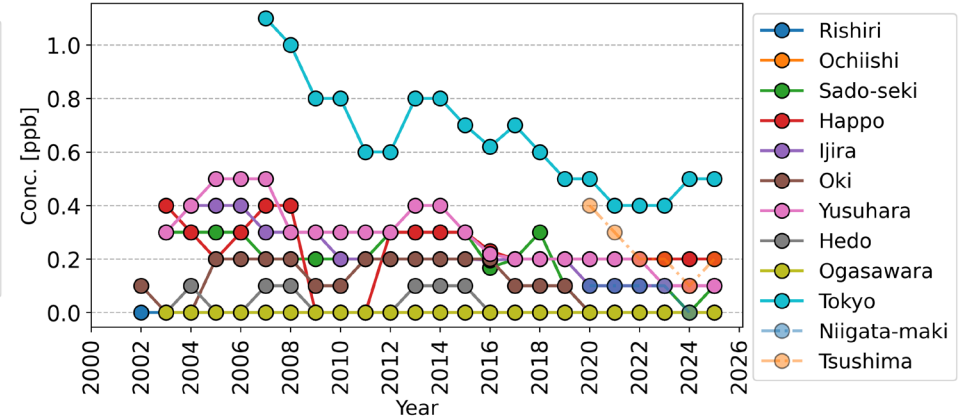
Annual trend during 2000-2025 (HNO₃)

(See Table 3.23)

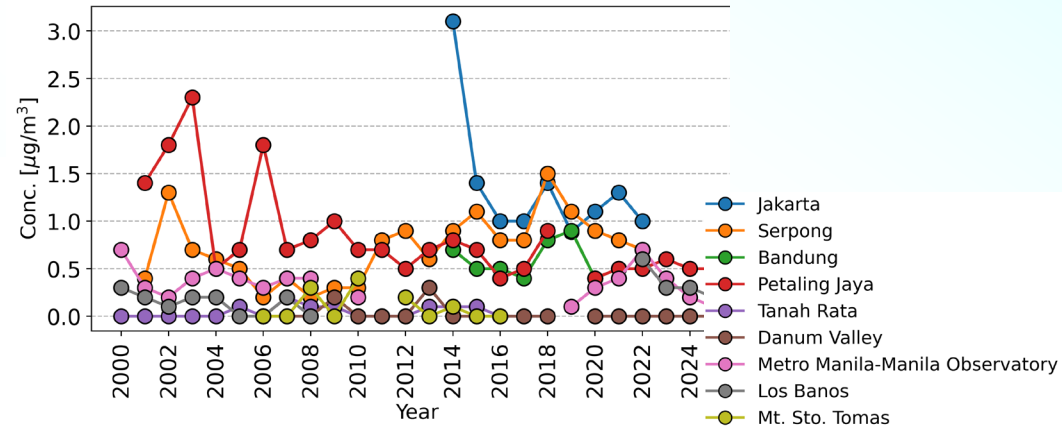
Mongolia, R.Korea, Russia



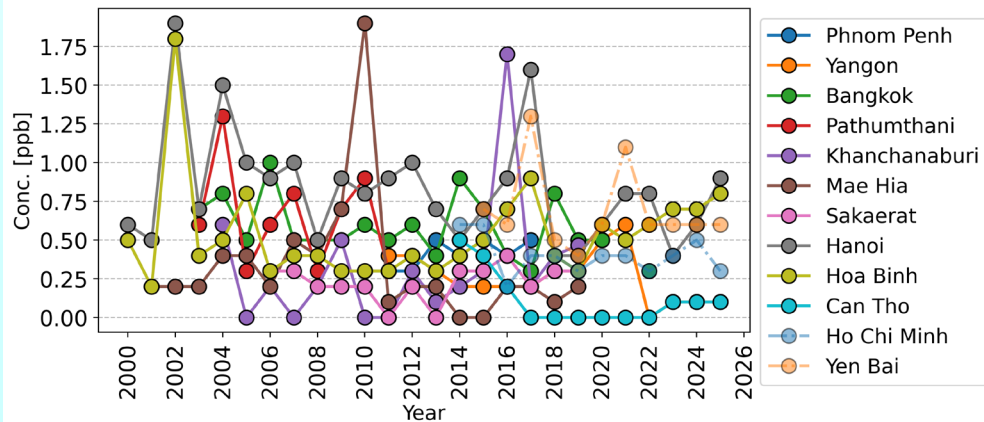
Japan



Indonesia, Malaysia, Philippines



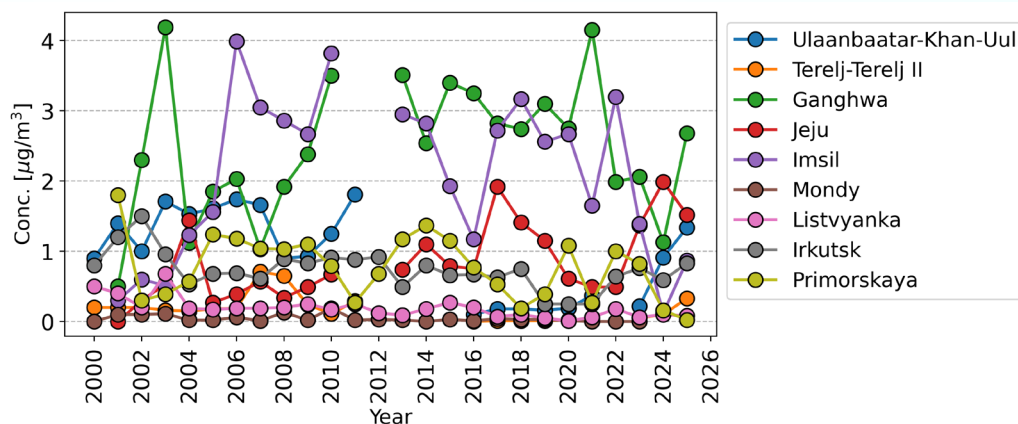
Cambodia, Myanmar, Thailand, Vietnam



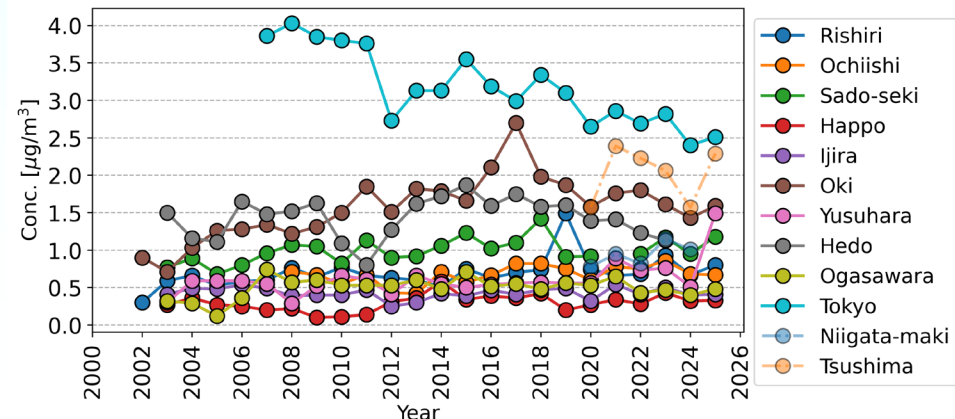
Annual trend during 2000-2025 (NO_3^- in PM)

(See Table 3.33)

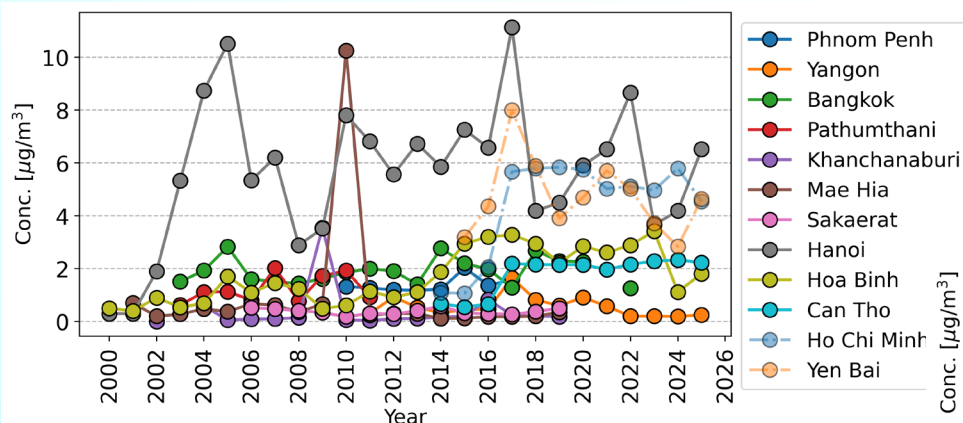
Mongolia, R.Korea, Russia



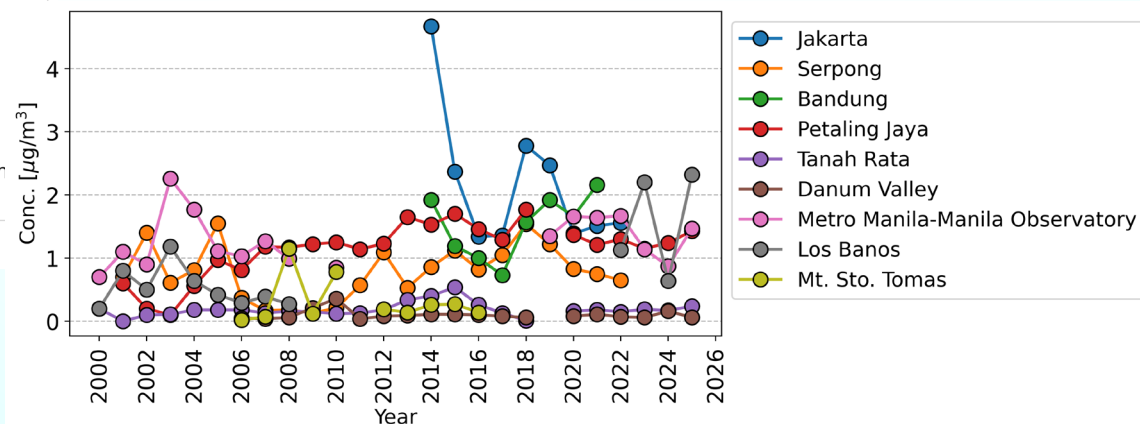
Japan



Cambodia, Thailand, Vietnam



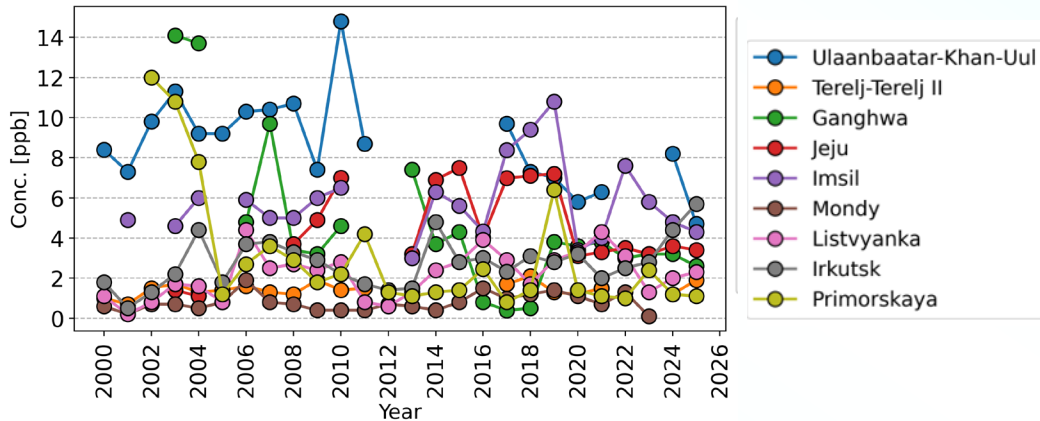
Indonesia, Malaysia, Philippines



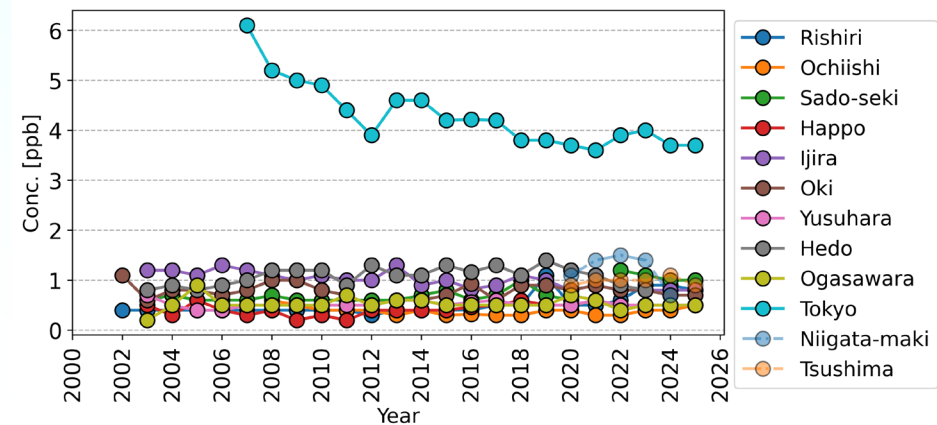
Annual trend during 2000-2025 (NH₃)

Mongolia, R.Korea, Russia

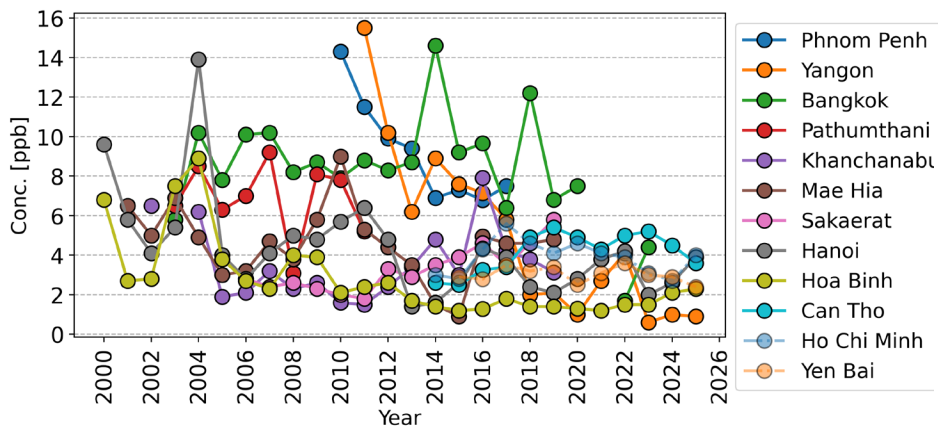
(See Table 3.25)



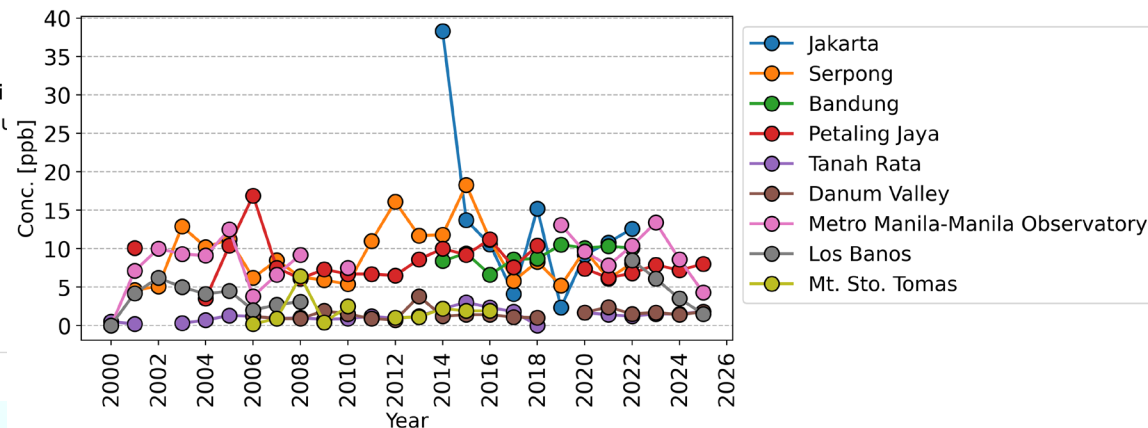
Japan



Cambodia, Thailand, Vietnam



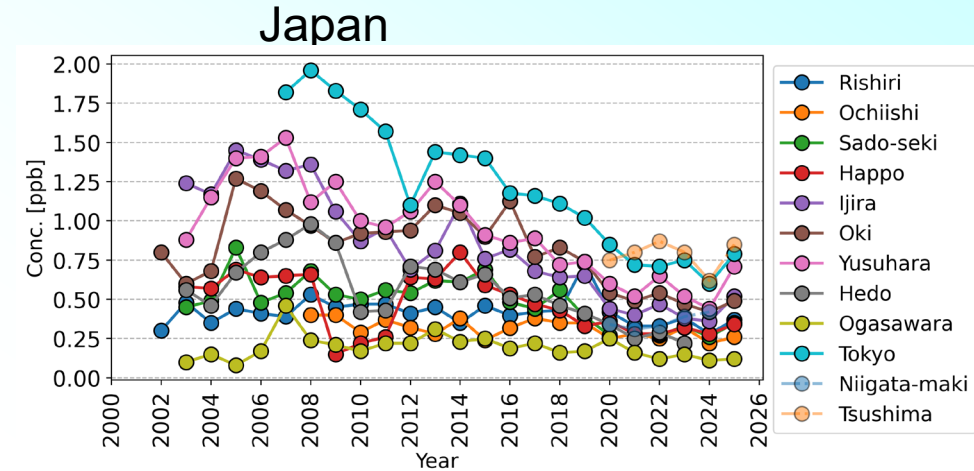
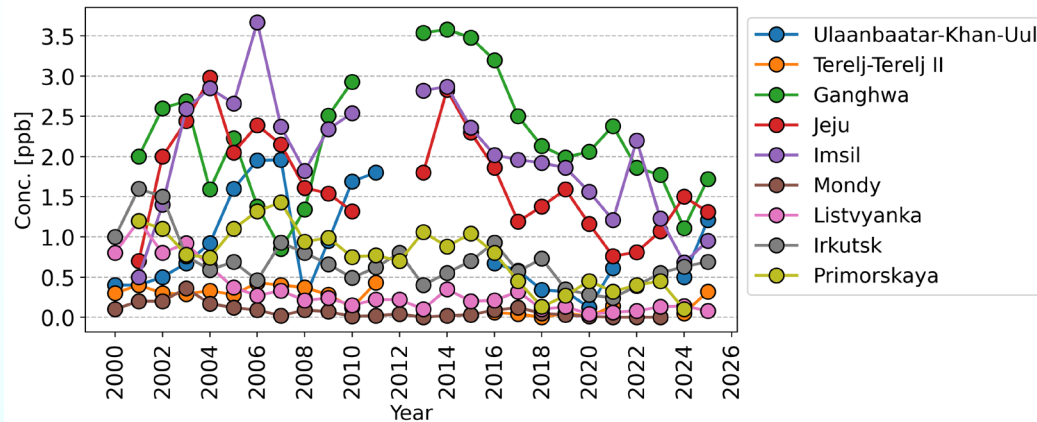
Indonesia, Malaysia, Philippines



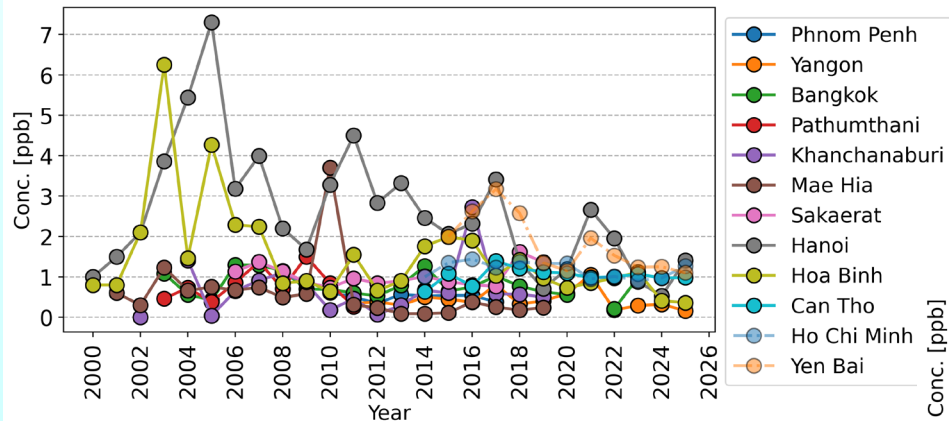
Annual trend during 2000-2025 (NH₄⁺)

Mongolia, R. Korea, Russia

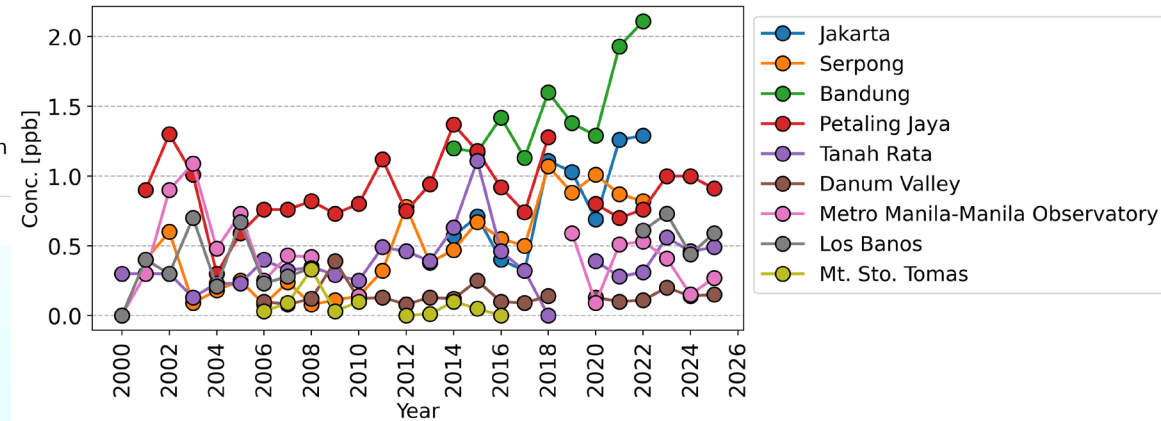
(See Table 3.35)



Cambodia, Thailand, Vietnam



Indonesia, Malaysia, Philippines



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Changes in the Methodology for Dry Deposition Estimation

(See Table 3.40-3.50)

1. Forest cover fraction standardized to 100% for all sites.

2. Correction of a bug in the Excel calculation worksheet.

$$V_d = (V_{ds}^{-1} + R_a)^{-1} + V_s$$

3. When cloud cover data are unavailable, atmospheric stability is assumed to be neutral

1. Forest cover fraction standardized to 100% for all sites.

Previously, calculations were performed using the forest and grass cover fractions shown in Table 3.3.

Table 3.3 Forest and Grass cover fractions for each site(2012-2024)

Site	Forest	Grass
Rishiri	16	84
Ochiishi	3	97
Sadoseki	58	42
Happo	52	48
Ijira	99	1
Oki	89	11
Yusuhara	89	11
Hedo	40	60
Ogasawara	60	40
Niigata-maki	0	100
Tsushima	0	100



**All Sites
Set to 100%
Forest Cover,
Starting in
DR2025.**

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Changes in the Methodology for Dry Deposition Estimation

(See Table 3.40-3.50)

1. Forest cover fraction standardized to 100% for all sites.

2. Correction of a bug in the Excel calculation worksheet.

$$V_d = (V_{ds}^{-1} + R_a)^{-1} + V_s$$

The cell reference was incorrect.

3. When cloud cover data are unavailable, atmospheric stability is assumed to be neutral.

Air Concentration and Dry Deposition Monitoring

Example: Tsushima Site

Table 3.50 Monthly and annual dry deposition amounts of gaseous and
Site: Tsushima^{*3} Country: Japan

Forest 100 : Grass 0

2025	Gases				Particulate matter components							
	SO ₂ ^{*4}	HNO ₃	NH ₃	NO ₂ ^{*1}	nss-SO ₄ ²⁻	NO ₃ ⁻	Cl ⁻	NH ₄ ⁺	Na ⁺	K ⁺	Mg ²⁺	Ca ²⁺
	mmol m ⁻²	mmol m ⁻²	mmol m ⁻²	mmol m ⁻²	mmol m ⁻²	mmol m ⁻²	mmol m ⁻²	mmol m ⁻²	mmol m ⁻²	mmol m ⁻²	mmol m ⁻²	mmol m ⁻²
Jan	0.27	0.46	0.18	***	0.43	1.56	1.29	1.52	1.94	0.27	0.29	0.47
Feb	0.25	0.34	0.15	***	0.35	1.13	1.57	1.13	2.02	0.22	0.30	0.46
Mar	0.57	0.71	0.55	***	0.61	2.09	2.15	1.57	3.93	0.33	0.58	1.07
Apr	0.37	0.61	0.66	***	0.46	0.98	1.21	0.65	3.24	0.21	0.44	0.75
May	0.57	1.41	0.82	***	0.41	0.48	0.43	0.59	1.84	0.14	0.24	0.34
June	0.29	1.73	0.98	***	0.41	0.09	0.04	0.48	0.84	0.10	0.12	0.15
July	0.45	1.48	0.96	***	0.45	0.16	0.27	0.39	1.96	0.09	0.21	0.10
Aug	0.52	0.84	0.48	***	0.37	0.13	0.14	0.30	1.78	0.09	0.20	0.08
Sept	0.16	0.21	0.40	***	0.13	0.10	0.35	0.15	0.93	0.05	0.11	0.04
Oct	0.20	0.27	0.37	***	0.15	0.20	1.85	0.16	2.71	0.10	0.32	0.15
Nov	0.24	0.58	0.22	***	0.27	0.83	1.08	0.70	2.08	0.18	0.30	0.44
Dec	0.48	0.60	0.27	***	0.36	1.08	1.34	1.01	2.26	0.17	0.32	0.47
Annual	4.38	9.23	6.04	***	4.40	8.83	11.71	8.64	25.54	1.96	3.41	4.52

Table 9 Monthly and annual dry deposition amounts of gaseous and
Site: Tsushima^{*3} Country: Japan

Forest 0 : Grass 100

2025	Gases				Particulate matter components							
	SO ₂ ^{*4}	HNO ₃	NH ₃	NO ₂ ^{*1}	nss-SO ₄ ²⁻	NO ₃ ⁻	Cl ⁻	NH ₄ ⁺	Na ⁺	K ⁺	Mg ²⁺	Ca ²⁺
	mmol m ⁻²	mmol m ⁻²	mmol m ⁻²	mmol m ⁻²	mmol m ⁻²	mmol m ⁻²	mmol m ⁻²	mmol m ⁻²	mmol m ⁻²	mmol m ⁻²	mmol m ⁻²	mmol m ⁻²
Jan	0.30	0.16	0.15	***	0.11	0.31	0.08	0.37	0.12	0.02	0.02	0.03
Feb	0.27	0.12	0.12	***	0.07	0.10	0.00	0.23	0.11	0.01	0.02	0.03
Mar	0.57	0.71	0.55	***	0.61	2.09	2.15	1.57	3.93	0.33	0.58	1.07
Apr	0.37	0.61	0.66	***	0.46	0.98	1.21	0.65	3.24	0.21	0.44	0.75
May	0.57	1.41	0.82	***	0.41	0.48	0.43	0.59	1.84	0.14	0.24	0.34
June	0.29	1.73	0.98	***	0.41	0.09	0.04	0.48	0.84	0.10	0.12	0.15
July	0.45	1.48	0.96	***	0.45	0.16	0.27	0.39	1.96	0.09	0.21	0.10
Aug	0.52	0.84	0.48	***	0.37	0.13	0.14	0.30	1.78	0.09	0.20	0.08
Sept	0.16	0.21	0.40	***	0.13	0.10	0.35	0.15	0.93	0.05	0.11	0.04
Oct	0.20	0.27	0.37	***	0.15	0.20	1.85	0.16	2.71	0.10	0.32	0.15
Nov	0.24	0.58	0.22	***	0.27	0.83	1.08	0.70	2.08	0.18	0.30	0.44
Dec	0.48	0.60	0.27	***	0.36	1.08	1.34	1.01	2.26	0.17	0.32	0.47
Annual	2.58	3.12	4.30	***	1.21	1.66	0.71	2.14	1.60	0.12	0.21	0.26

The results calculated using the previous ratios are shown in Supplement Table 1-9.

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Changes in the Methodology for Dry Deposition Estimation

(See Table 3.40-3.50)

1. Forest cover fraction standardized to 100% for all sites.
2. Correction of a bug in the Excel calculation worksheet.

$$V_d = (V_{ds}^{-1} + R_a)^{-1} + V_s$$

3. When cloud cover data are unavailable, atmospheric stability is assumed to be neutral.

Instead of requiring cloud cover data, the revised method enables approximate dry deposition estimates to be calculated using air concentration data and meteorological data alone.

Thank you for your attention.



Asia Center for Air Pollution Research
Japan Environmental Sanitation Center