



## Data Report 2011-2020

### EUROAIRNET Switzerland

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# 1 AIRBASE

In 2014, the EEA established a new reporting system, the Air Quality e-Reporting (AQ e-Reporting)<sup>1</sup>.

For the year 2020 all deliveries, information on assessment methods in dataflow D and primary validated assessment data in dataflow E1a, have been delivered according to the new reporting system.

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<sup>1</sup>Air Quality e-Reporting: <http://www.eea.europa.eu/data-and-maps/data/aqereporting-1>

## 2 The Swiss networks

### 2.1 Measurement stations

In Switzerland, a national and a number of regional air quality monitoring networks are in operation since the beginning of the 1980s.

The national monitoring network NABEL<sup>2</sup>, operated by the Federal Office for the Environment (FOEN) and the Swiss Federal Laboratories for Materials Science and Technology (Empa), started in 1979 with eight monitoring stations. Presently 16 stations belong to this network. In addition to the national network, every canton (Swiss administration unit) operates its own monitoring network. There is a national guideline that defines the calibration and measuring methods and sets criteria for post processing (averaging procedures, validity of measured data). All stations for which data are provided refer to national and/or international calibration standards.

The national network (NABEL) and the monitoring networks of the cantons send their data on a regular schedule to the centralised database IDBLuft (Immissions-Datenbank Luft).

To ensure that Switzerland is covered representatively, the stations represented in EUROAIRNET were chosen according to the following criteria:

- Representative selection of agglomerations with a population of more than 100'000 people (where approximately 40% of the total population lives);
- 6 rural stations at low altitude, representing the less densely populated natural and agricultural areas;
- 2 mountain stations located at an altitude of around 1'100 m a.s.l.

A list of the stations for which data are available is shown in Table 1 (agglomerations) and Table 2 (rural). The numbers in the first column of Table 1 and Table 2 relate to the last digits of the Exchange of Information (Eol) station codes.

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<sup>2</sup>NABEL = Nationales Beobachtungsnetz für Luftfremdstoffe

**Table 1:** Swiss stations in AQ e-Reporting (urban and suburban sites)\*

ID	Station name	Code	Swiss Coordinates (East / North)	Geographical Coordinates (East / North)	Alt. m a.s.l.
31	Bern-Bollwerk	beBER	2600170/1199990	7°26'27"/46°57'3"	536
41	Ittigen	beITT	2603050/1202815	7°28'43"/46°58'35"	550
54	Bern-Morgartenstrasse	beMOR	2601818/1201338	7°27'45"/46°57'47"	554
8	Basel-Binningen	biBAS	2610890/1265605	7°34'59"/47°32'27"	316
29	Basel-Feldbergstrasse	bsBFB	2611745/1268490	7°35'40"/47°34'1"	255
17	Basel-St-Johann	bsBSJ	2610795/1268365	7°34'55"/47°33'57"	260
46	Thônex-Foron	geFOR	2505254/1116758	6°12'40"/46°11'44"	422
50	Meyrin-Vaudagne	geMEY	2494742/1120874	6°4'27"/46°13'51"	439
55	Genève-Necker	geNEC	2499864/1118200	6°8'28"/46°12'28"	383
22	Ebikon-Sedel	luEBS	2665480/1213325	8°18'2"/47°4'3"	484
56	Luzern-Moosstrasse	luLMO	2665789/1210898	8°18'15"/47°2'45"	441
57	St-Gallen- Blumenbergplatz	sgBBP	2746011/1254720	9°22'26"/47°25'37"	675
11	Lugano-Università	tiLUG	2717610/1096645	8°57'25"/46°0'40"	280
43	Lugano-Pregassona	tiPRE	2718385/1098300	8°58'3"/46°1'33"	305
37	Epalinges	vdEPA	2540500/1154850	6°39'46"/46°32'32"	710
28	Lausanne-César-Roux	vdLAU	2538690/1152615	6°38'22"/46°31'19"	530
61	Lausanne-Plaines-du- Loup	vdLPL	2537376/1154164	6°37'20"/46°32'8"	598
5	Dübendorf-EMPA	zhDUE	2688675/1250900	8°36'48"/47°24'10"	432
44	Opfikon-Balsberg	zhOPF	2685351/1254830	8°34'12"/47°26'19"	430
58	Zürich- Rosengartenstrasse	zhRGS	2682096/1249940	8°31'33"/47°23'42"	433
60	Winterthur-Veltheim	zhWVH	2696556/1262725	8°43'13"/47°30'29"	440
21	Zürich-Schimmelstrasse	zhZBW	2681942/1247245	8°31'24"/47°22'15"	415
59	Zürich-Heubeeribüel	zhZHB	2685126/1248460	8°33'57"/47°22'53"	610
13	Zürich- Stampfenbachstrasse	zhZSS	2683146/1249020	8°32'23"/47°23'12"	445
10	Zürich-Kaserne	zhZUE	2682450/1247990	8°31'49"/47°22'39"	409
20	Bern-Brunngasshalde	beBRZ	2600833/1199785	7°26'58"/46°56'56"	533
49	Genève-Ste-Clotilde	geGSC	2499159/1117221	6°7'56"/46°11'55"	374
48	Genève-Wilson	geGQW	2500663/1119114	6°9'4"/46°12'58"	376
14	Winterthur-Obertor	zhWOT	2697436/1261855	8°43'54"/47°30'0"	448

\* highlighted in orange: stations which no longer supply measurement data

**Table 2:** Swiss stations in AQ e-Reporting (rural and mountain sites)\*

ID	Station name	Code	Swiss Coordinates (East / North)	Geographical Coordinates (East / North)	Alt. m a.s.l.
51	Avully-Passeiry	gePAS	2489281/1113355	6°0'18"/46°9'45"	427
53	Beromünster	luBRM	2655840/1226780	8°10'31"/47°11'22"	797
4	Chaumont	neCHA	2565085/1211040	6°58'44"/47°2'58"	1136
19	St-Gallen-Stuelegg	sgSGS	2747605/1252495	9°23'39"/47°24'24"	915
5	Rigi-Seebodenalp	szRIG	2677835/1213440	8°27'47"/47°4'2"	1031
3	Tänikon	tgTAE	2710500/1259810	8°54'16"/47°28'47"	538
33	Magadino-Cadenazzo	tiMAG	2715500/1113195	8°56'2"/46°9'37"	203
2	Payerne	vdPAY	2562285/1184775	6°56'40"/46°48'47"	489
24	Saxon	vsSAX	2577566/1109764	7°8'54"/46°8'20"	460
16	Lägeren	agLAE	2669780/1259020	8°21'51"/47°28'41"	689

\* highlighted in orange: stations which no longer supply measurement data

## 2.2 Pollutants

Among the air pollutants of interest, data of the most important ones are available out of IDBLuft.

In this data report, key statistical values are shown for the pollutants (monitored at hourly, daily or yearly intervals) listed in Table 3.

**Table 3:** Pollutants delivered by Switzerland

Pollutant	Abbreviation	Unit	Interval
Ozone	O <sub>3</sub>	µg/m <sup>3</sup>	hourly
Nitrogen dioxide	NO <sub>2</sub>	µg/m <sup>3</sup>	hourly
Nitrogen monoxide	NO	µg/m <sup>3</sup>	hourly
Nitrogen oxides	NO <sub>x</sub>	ppb	hourly
Carbon monoxide	CO	mg/m <sup>3</sup>	hourly
Sulphur dioxide	SO <sub>2</sub>	µg/m <sup>3</sup>	hourly
Total non-methane volatile organic compounds	NMVOC	µg CH <sub>4</sub> /m <sup>3</sup>	hourly
Benzene	C <sub>6</sub> H <sub>6</sub>	µg/m <sup>3</sup>	hourly
Toluene	C <sub>6</sub> H <sub>5</sub> -CH <sub>3</sub>	µg/m <sup>3</sup>	hourly
Suspended particulates <10 µm	PM10	µg/m <sup>3</sup>	daily
Suspended particulates <2.5 µm	PM2.5	µg/m <sup>3</sup>	daily
Lead in PM10	Pb	µg/m <sup>3</sup>	yearly
Cadmium in PM10	Cd	ng/m <sup>3</sup>	yearly
Arsenic in PM10	As	ng/m <sup>3</sup>	yearly
Nickel in PM10	Ni	ng/m <sup>3</sup>	yearly
Benzo(a)pyrene in PM10	BaP	ng/m <sup>3</sup>	yearly

The figures in Figure 1 to Figure 14 give an overview of the annual averages of the indicated pollutants. In order to display an annual value, it is required that data cover at least 75% of the time interval considered.

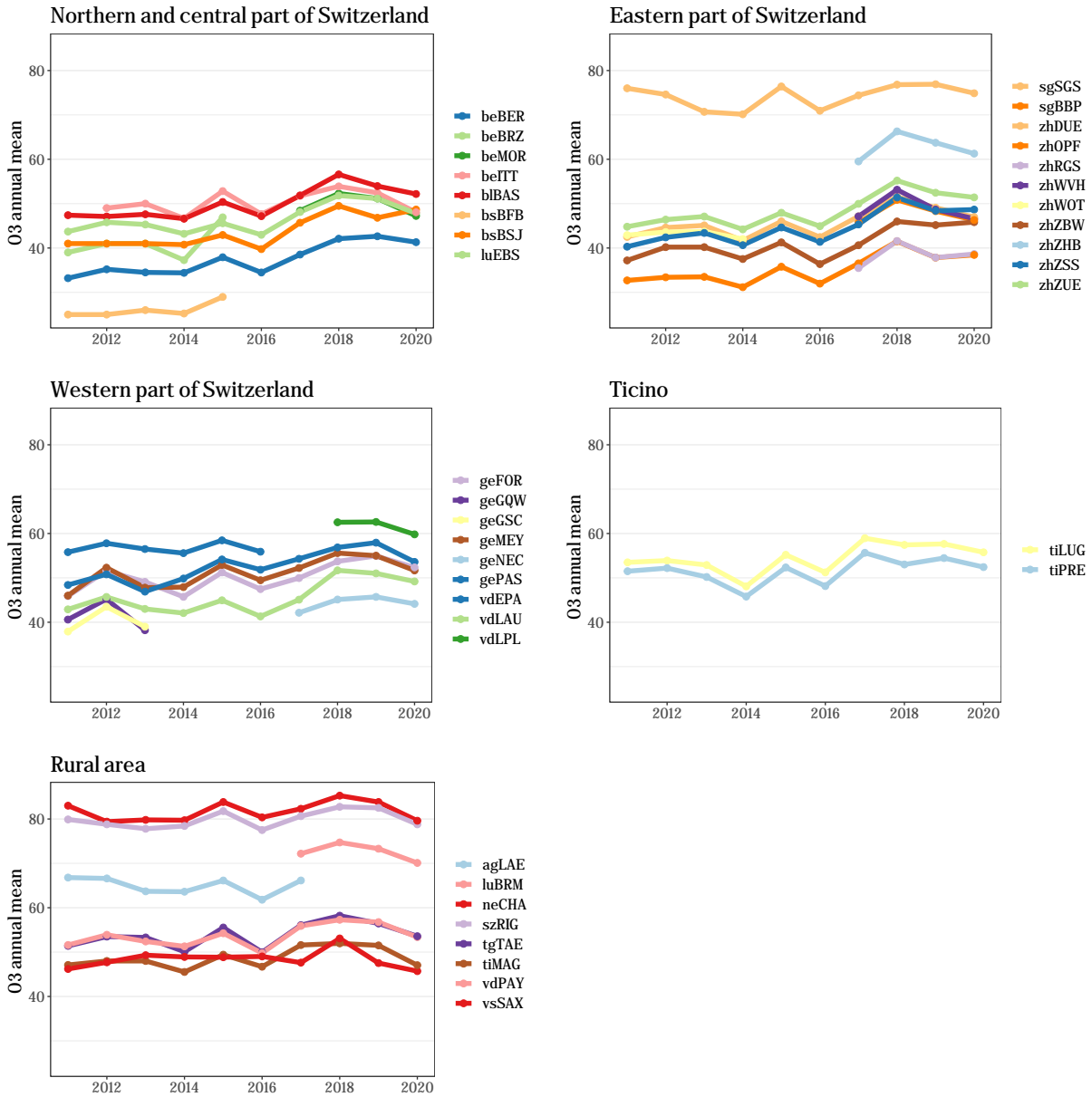
### **2.3 Relevant changes since last report**

The two stations Epalinges (vdEPA) and Lägeren (agLAE) were shut down in 2017 and 2018 respectively. Therefore, no measurement data of these stations have been delivered since 2017 or 2018. Because measurements are available until 2016 or 2017, the stations are still included in the present report.

# 3 Figures

## 3.1 Plots

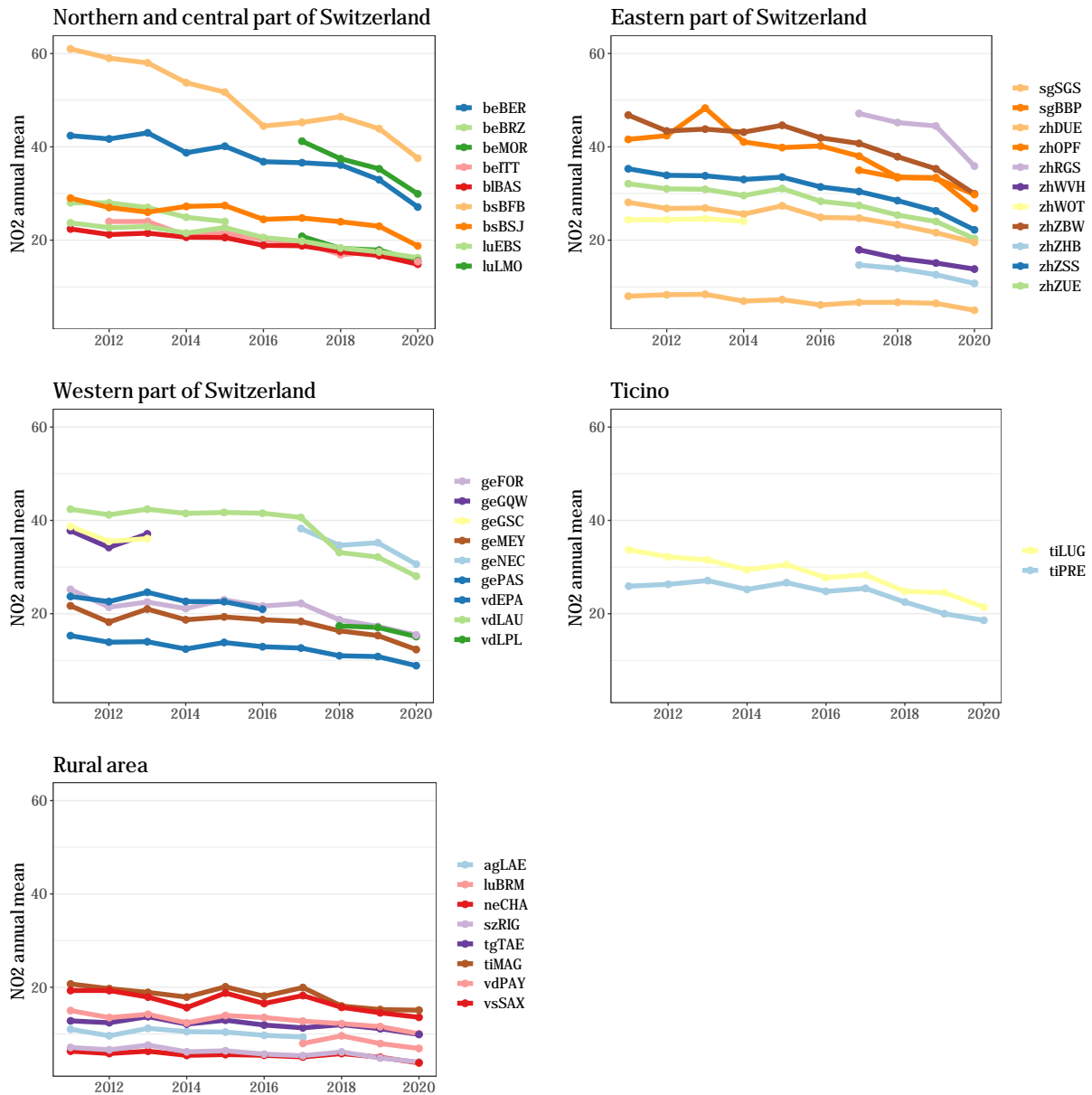
### 3.1.1 Ozone



**Figure 1:** Annual average  $\text{O}_3$  concentrations in  $\mu\text{g}/\text{m}^3$  at the Swiss stations in AQ e-Reporting.

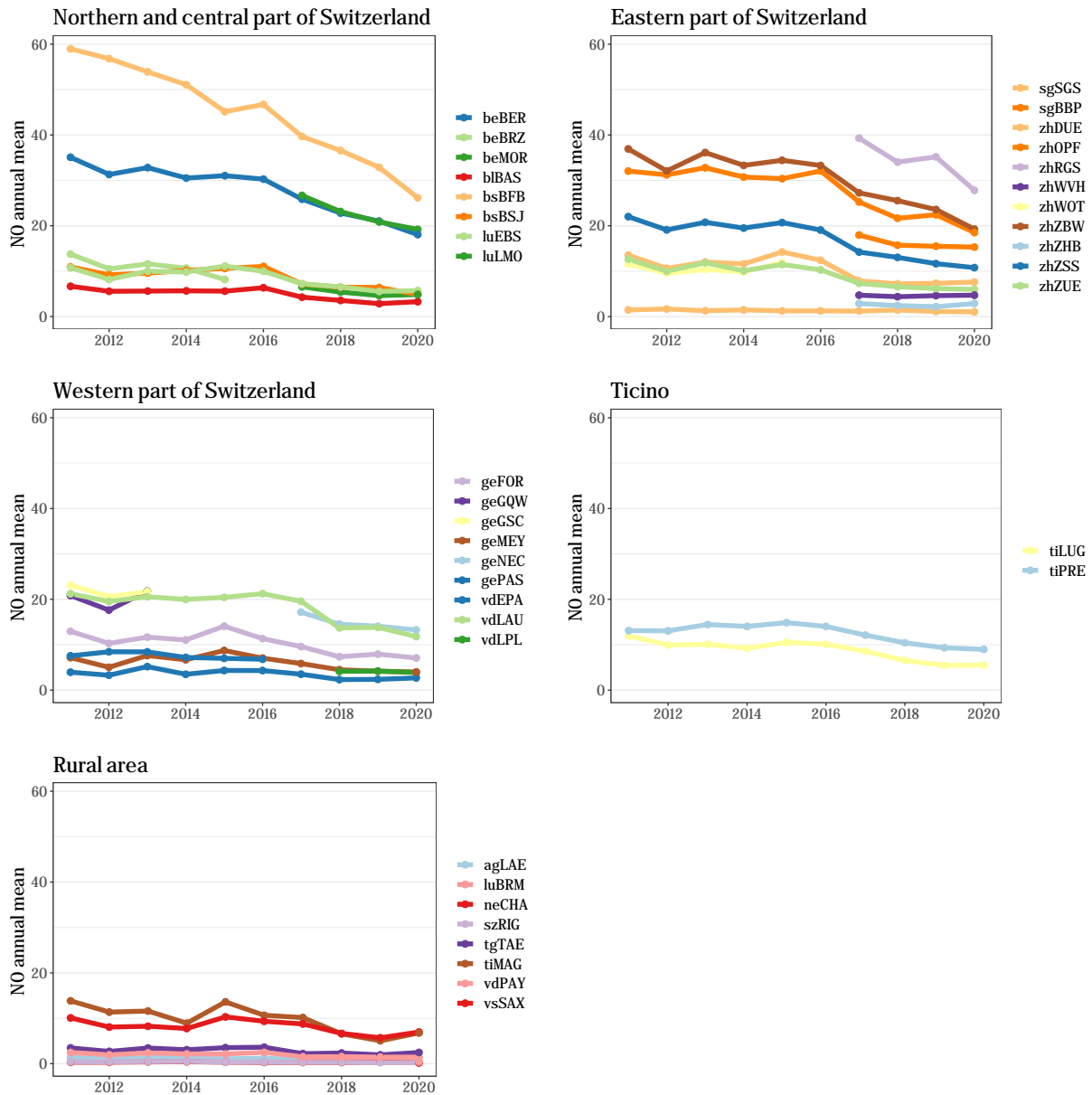


### 3.1.2 Nitrogen dioxide



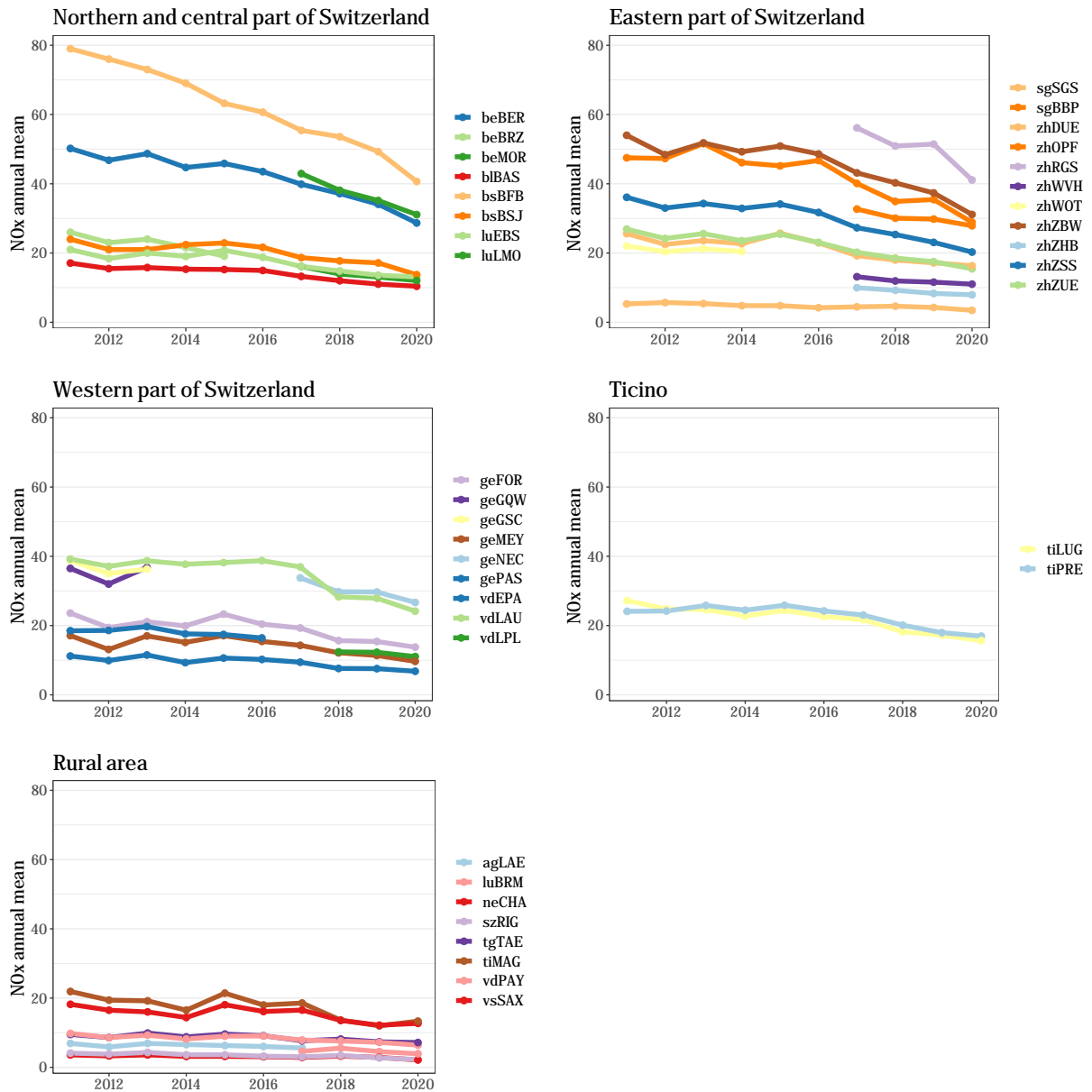
**Figure 2:** Annual average  $\text{NO}_2$  concentrations in  $\mu\text{g}/\text{m}^3$  at the Swiss stations in AQ e-Reporting.

### 3.1.3 Nitrogen monoxide



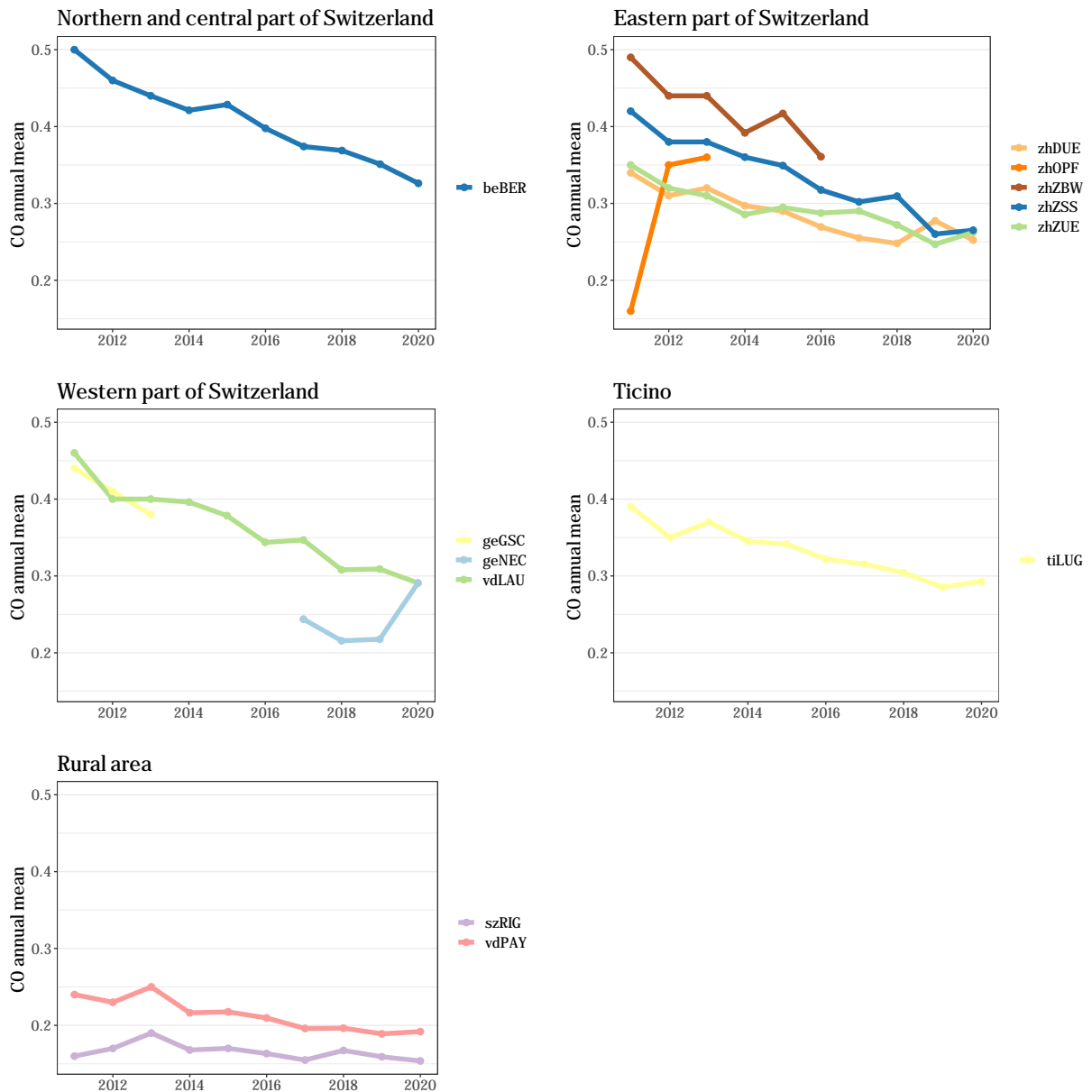
**Figure 3:** Annual average NO concentrations in  $\mu\text{g}/\text{m}^3$  at the Swiss stations in AQ e-Reporting.

### 3.1.4 Nitrogen oxides



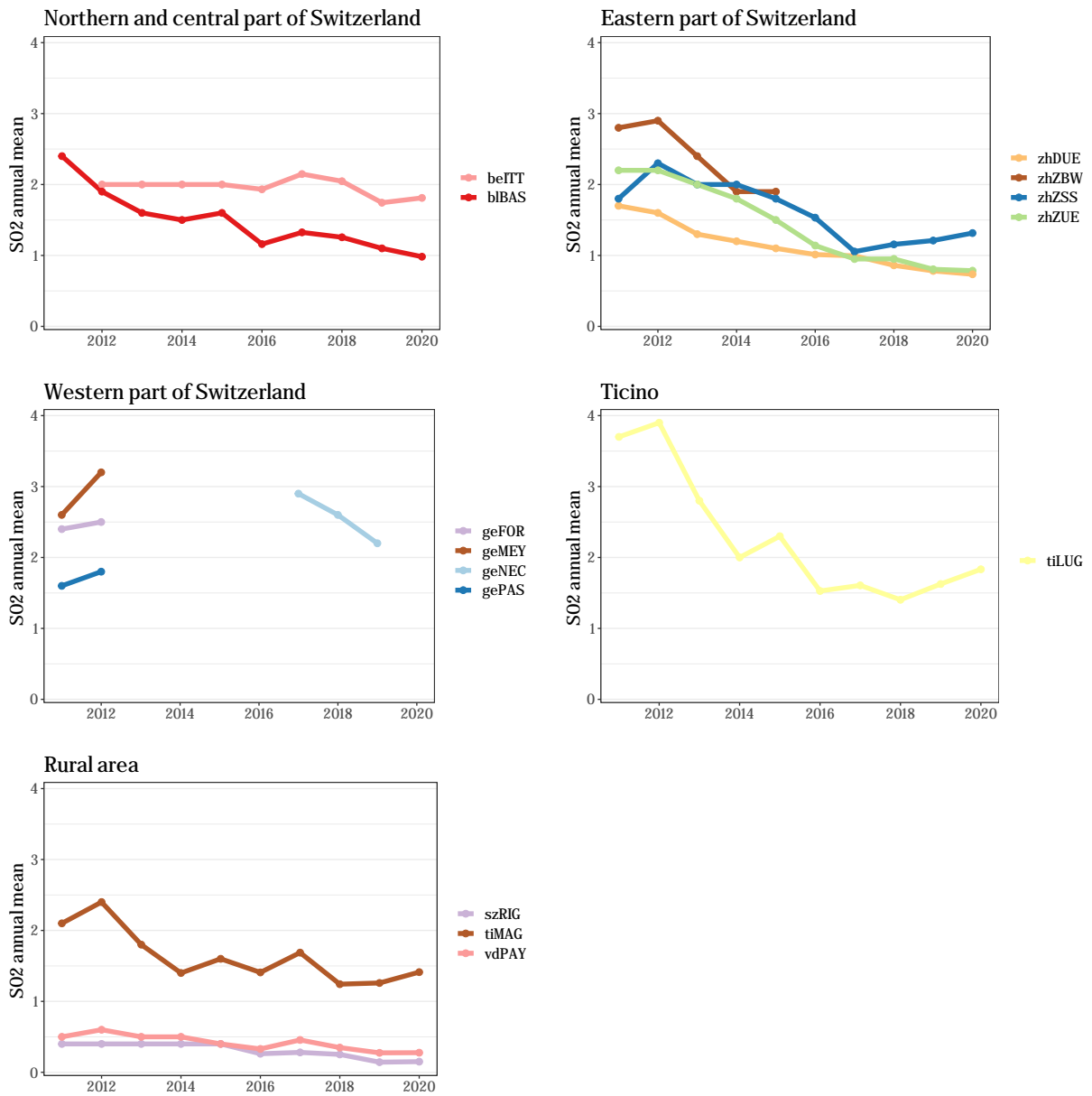
**Figure 4:** Annual average NO<sub>x</sub> concentrations in ppb at the Swiss stations in AQ e-Reporting.

### 3.1.5 Carbon monoxide



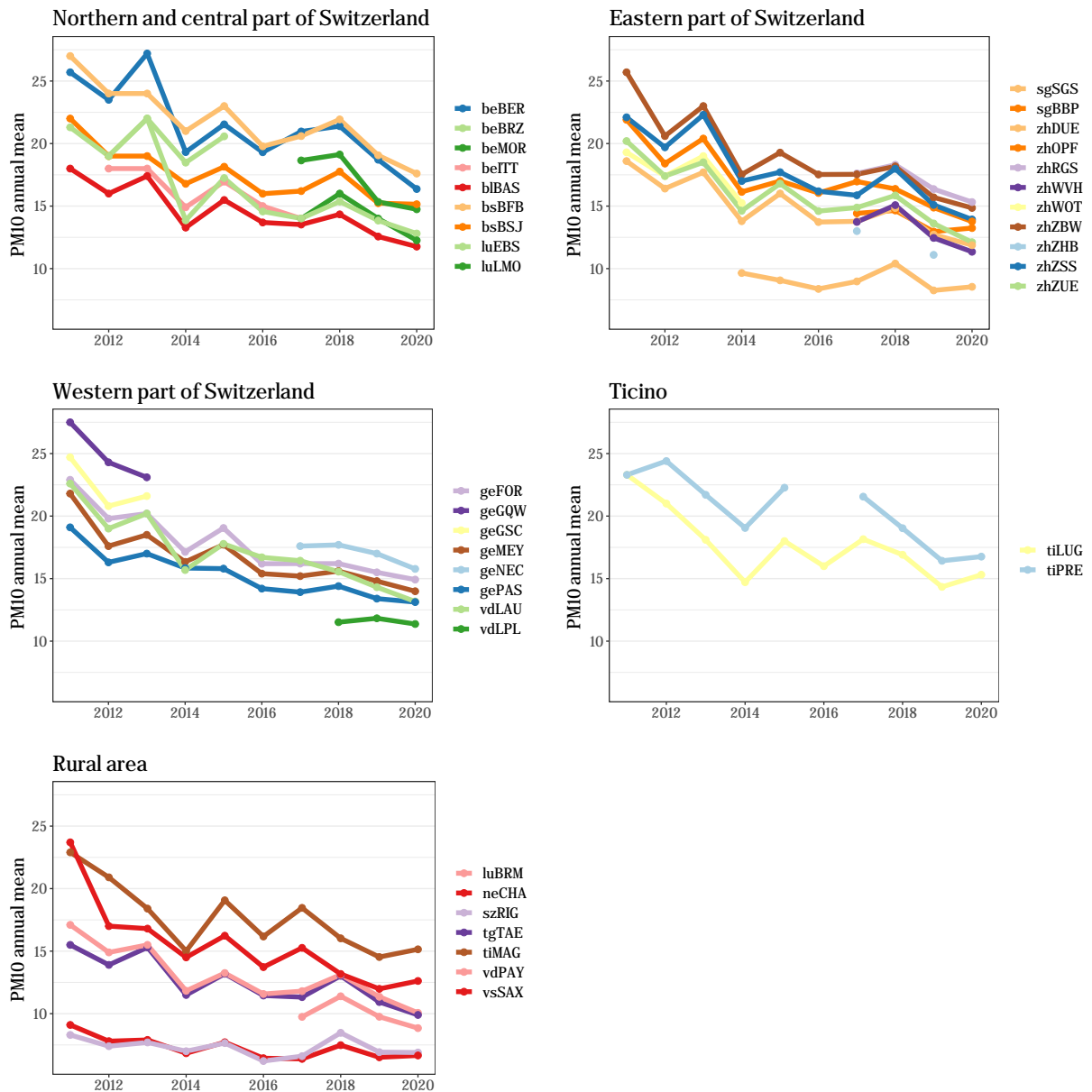
**Figure 5:** Annual average CO concentrations in  $\mu\text{g}/\text{m}^3$  at the Swiss stations in AQ e-Reporting.

### 3.1.6 Sulfur dioxide



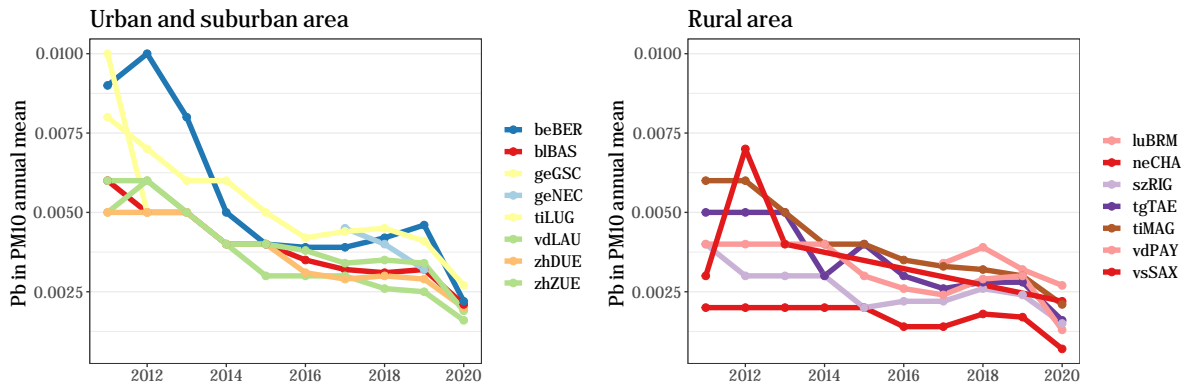
**Figure 6:** Annual average  $\text{SO}_2$  concentrations in  $\mu\text{g}/\text{m}^3$  at the Swiss stations in AQ e-Reporting.

### 3.1.7 PM10

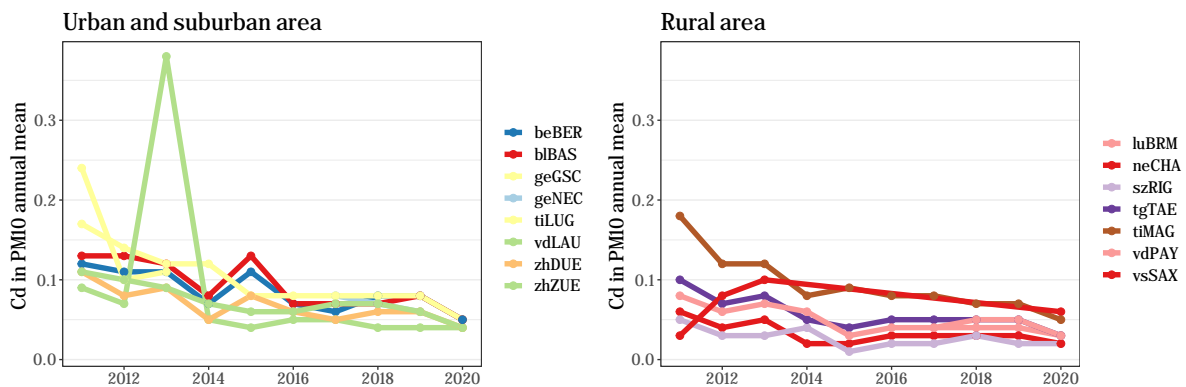


**Figure 7:** Annual average PM10 concentrations in  $\mu\text{g}/\text{m}^3$  at the Swiss stations in AQ e-Reporting.

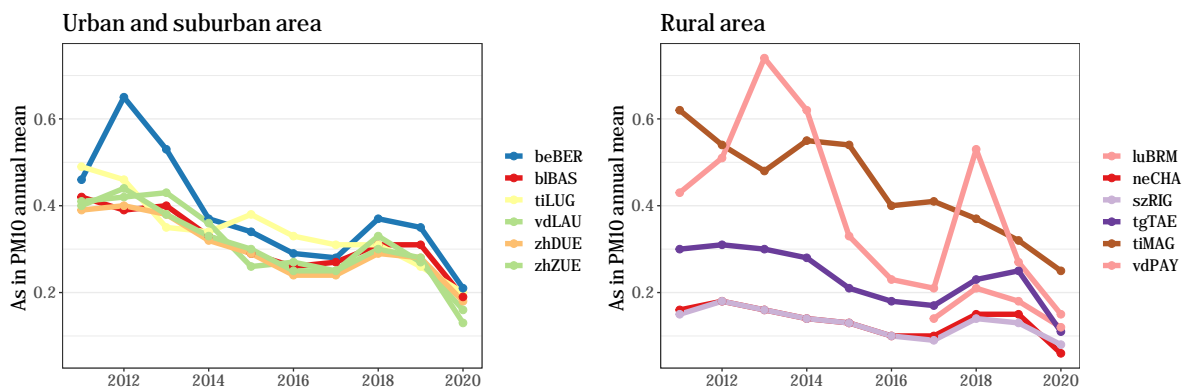
### 3.1.8 PM10 sub-components



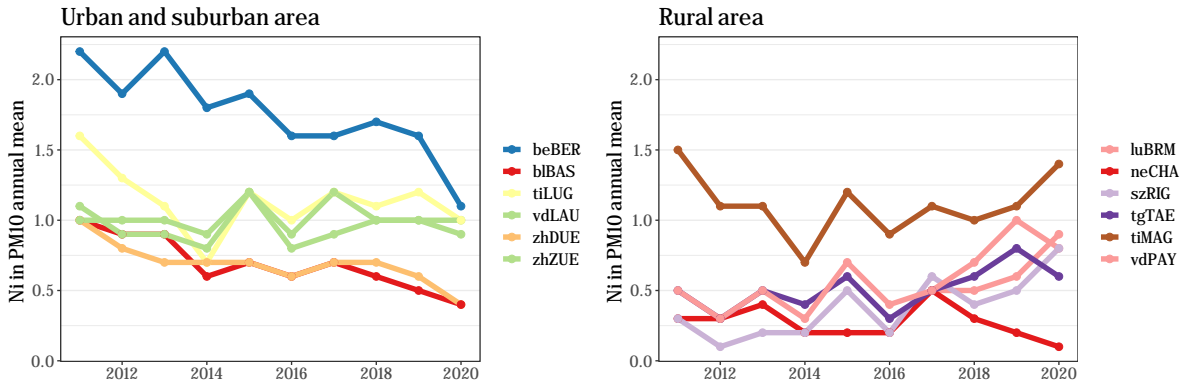
**Figure 8:** Annual average Lead in PM10 concentrations in  $\mu\text{g}/\text{m}^3$  at the Swiss stations in AQ e-Reporting.



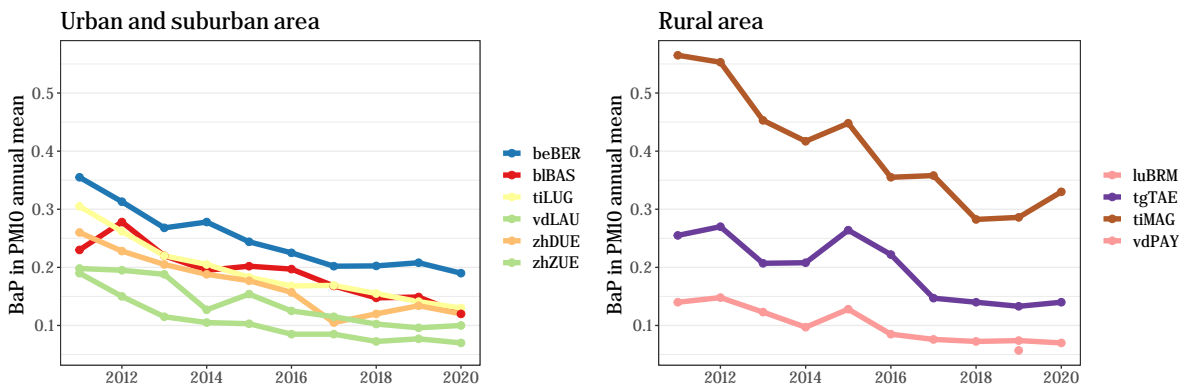
**Figure 9:** Annual average Cadmium in PM10 concentrations in  $\text{ng}/\text{m}^3$  at the Swiss stations in AQ e-Reporting.



**Figure 10:** Annual average Arsenic in PM10 concentrations in  $\text{ng}/\text{m}^3$  at the Swiss stations in AQ e-Reporting.

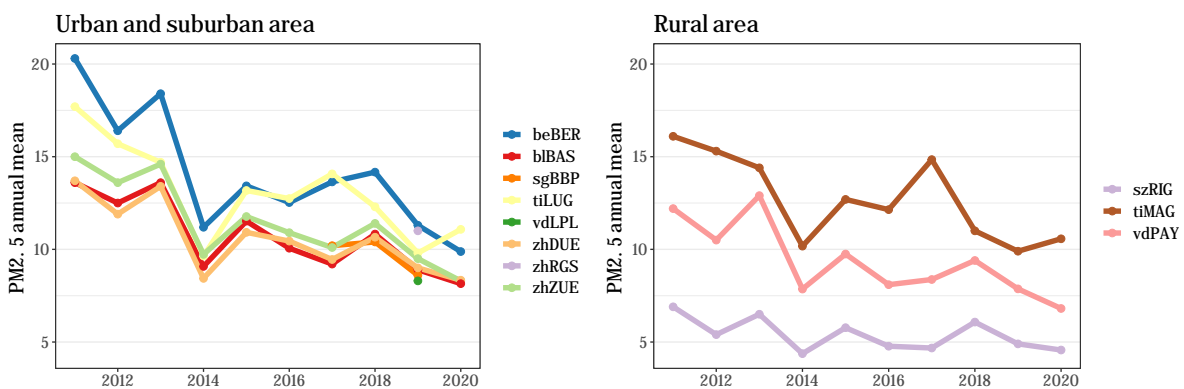


**Figure 11:** Annual average Nickel in PM10 concentrations in  $\text{ng}/\text{m}^3$  at the Swiss stations in AQ e-Reporting.



**Figure 12:** Annual average Benzo(a)pyrene in PM10 concentrations in  $\text{ng}/\text{m}^3$  at the Swiss stations in AQ e-Reporting.

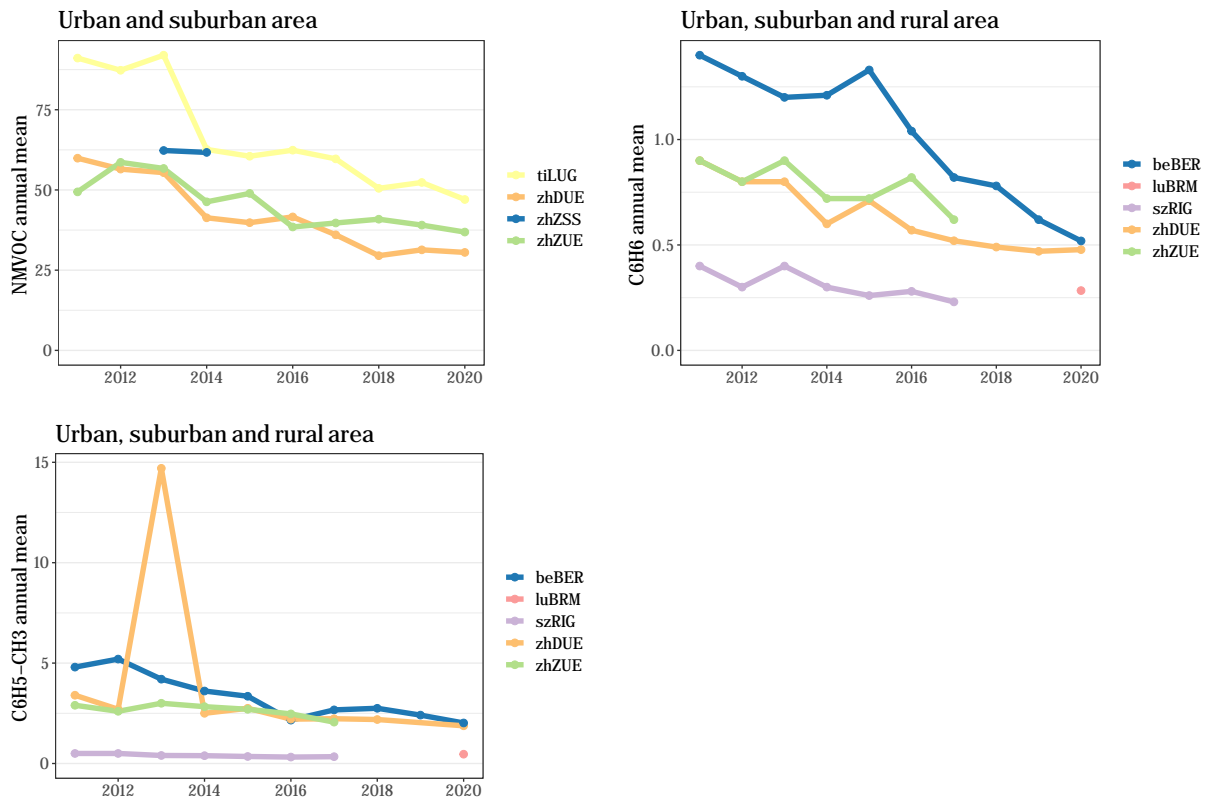
### 3.1.9 PM2.5



**Figure 13:** Annual average PM2.5 concentrations in  $\mu\text{g}/\text{m}^3$  at the Swiss stations in AQ e-Reporting.



### 3.1.10 NMVOC



**Figure 14:** Annual average Non-Methane Volatile Organic Compounds (NMVOC) concentrations in  $\mu\text{g CH}_4/\text{m}^3$ , and Benzene (C6H6) and Toluene (C6H5-CH3) concentrations in  $\mu\text{g}/\text{m}^3$  at the Swiss stations in AQ e-Reporting.