

# AIR QUALITY REPORT OF THE SLOVAK REPUBLIC 2025

## ANNEX

### AIR QUALITY ASSESSMENT IN ZONE TRENČÍN REGION

|     |                                                                      |    |
|-----|----------------------------------------------------------------------|----|
| 1   | DESCRIPTION OF TRENČÍN REGION TERRITORY IN TERMS OF AIR QUALITY..... | 2  |
| 2   | AIR QUALITY MONITORING STATIONS IN THE TRENČÍN REGION ZONE.....      | 3  |
| 3   | ASSESSMENT OF AIR QUALITY IN THE TRENČÍN REGION ZONE.....            | 4  |
| 3.1 | PM <sub>10</sub> and PM <sub>2,5</sub> .....                         | 4  |
| 3.2 | Nitrogen dioxide .....                                               | 7  |
| 3.3 | Ozone.....                                                           | 7  |
| 3.4 | Benzo(a)pyrene .....                                                 | 8  |
| 3.5 | Benzene .....                                                        | 9  |
| 3.6 | Risk areas .....                                                     | 10 |
| 3.7 | Summary.....                                                         | 11 |



## 1 DESCRIPTION OF TRENČÍN REGION TERRITORY IN TERMS OF AIR QUALITY

Apart from the Upper Nitra Basin, the terrain of the Trenčín Region is predominantly mountainous and includes the Myjava Hills and the White Carpathians, as well as parts of the Považský Inovec, Javorníky, Vtáčnik and Strážov Mountains. The highest point is Vtáčnik at 1,346 m above sea level, while the lowest point lies at an elevation of 165 m above sea level. Most of the zone is well ventilated, although lower wind speeds occur in the Váh River valley.

According to data from the Statistical Office of the Slovak Republic <sup>2</sup>, the average population density in the Trenčín Region is 126 inhabitants per km<sup>2</sup>. For comparison, the average population density of the Slovak Republic was 111 inhabitants per km<sup>2</sup> at the same date.

**The highest population density** is in the Trenčín district, with **189 inhabitants** per km<sup>2</sup>, while the Bánovce nad Bebravou district has **the lowest population density** in the Region, with **76 inhabitants** per km<sup>2</sup>.

For the purposes of air quality assessment, the entire Trenčín Region constitutes a single zone for SO<sub>2</sub>, NO<sub>2</sub>, NO<sub>x</sub>, PM<sub>10</sub>, PM<sub>2,5</sub>, benzene, polycyclic aromatic hydrocarbons (PAHs) and CO in ambient air.

### Air pollution sources in the Trenčín Region zone

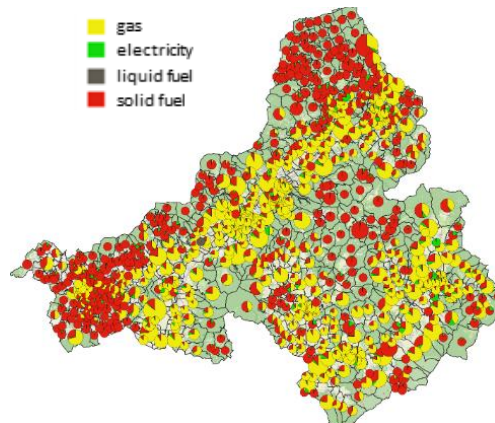
Domestic heating is the most important source of air pollution in the more mountainous parts of the Region. Fig. 1.1 shows the shares of different fuels used for heating family houses in individual municipalities (or basic settlement units, Population and Housing Census 2021) of the Trenčín Region, illustrating that the spatial distribution of fuel types is not geographically homogeneous.

Road transport contributes to air pollution in the Trenčín Region depending on traffic intensity. The busiest road sections, based on the average number of vehicles per 24 hours from the national traffic census conducted in 2022 and 2023, are listed in Tab. 1.1. The spatial distribution of point sources and traffic intensity, prepared by the Transport Research Centre (Centrum dopravného výzkumu) for 2024, is shown in Fig. 1.2.

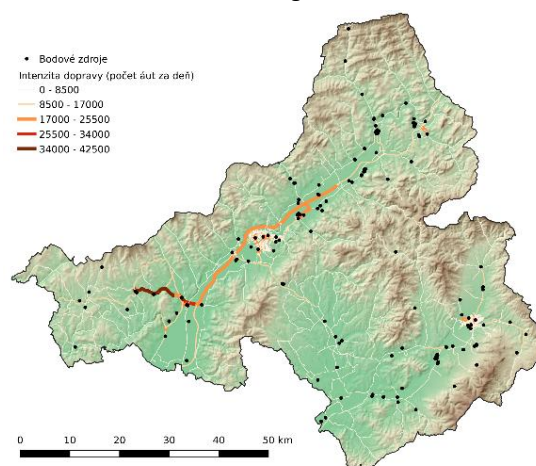
**Tab. 1.1** Number of vehicles (vehicles/day) on the busiest roads in the Trenčín Region.

| District            | Motorway / road | Number of vehicles | Heavy goods vehicles | Passenger cars |
|---------------------|-----------------|--------------------|----------------------|----------------|
| Nové Mesto n. Váhom | D1              | 32 222             | 7 325                | 18 967         |
|                     | n. 54           | 18 405             | 2 992                | 15 289         |
|                     | n. 515          | 17 663             | 3 116                | 14 467         |
| Trenčín             | n.61            | 33 470             | 3 240                | 30 081         |
| Dubnica nad Váhom   | n.61            | 20 271             | 1 806                | 18 327         |
| Považská Bystrica   | n.517           | 18 386             | 2 161                | 16 088         |
| Púchov              | n.49            | 14 421             | 1 129                | 13 233         |
| Partizánske         | n.64            | 14 641             | 1 806                | 12 754         |
| Prievidza           | n.64            | 19 944             | 2 212                | 17 662         |
|                     | n.1774          | 21 102             | 1 478                | 19 516         |
|                     | n.9             | 17 711             | 3 103                | 14 526         |
| Myjava              | n.499           | 11 061             | 1 722                | 9 256          |

**Fig. 1.1** Share of different types of fuels used for heating in municipalities by zone<sup>1</sup>.



**Fig. 1.2** Number of vehicles on the busiest roads in the Trenčín Region.



<sup>1</sup> <https://www.scitanie.sk>

<sup>2</sup> Dostupné online: ŠÚ SR [cit. 23. 6. 2025], statdat.statistics.sk

## 2 AIR QUALITY MONITORING STATIONS IN THE TRENČÍN REGION ZONE

Air quality monitoring in the Upper Nitra Region began in 1973. The monitoring stations in Prievidza, Handlová and Bystričany were originally established primarily to assess the impact of emissions from the Nováky Power Plant. As in other locations where monitoring initially focused on major industrial sources, emissions gradually declined, and the coal-fired power plant was permanently shut down in December 2023. Today, these monitoring stations primarily reflect the influence of local emission sources, particularly domestic solid fuel heating.

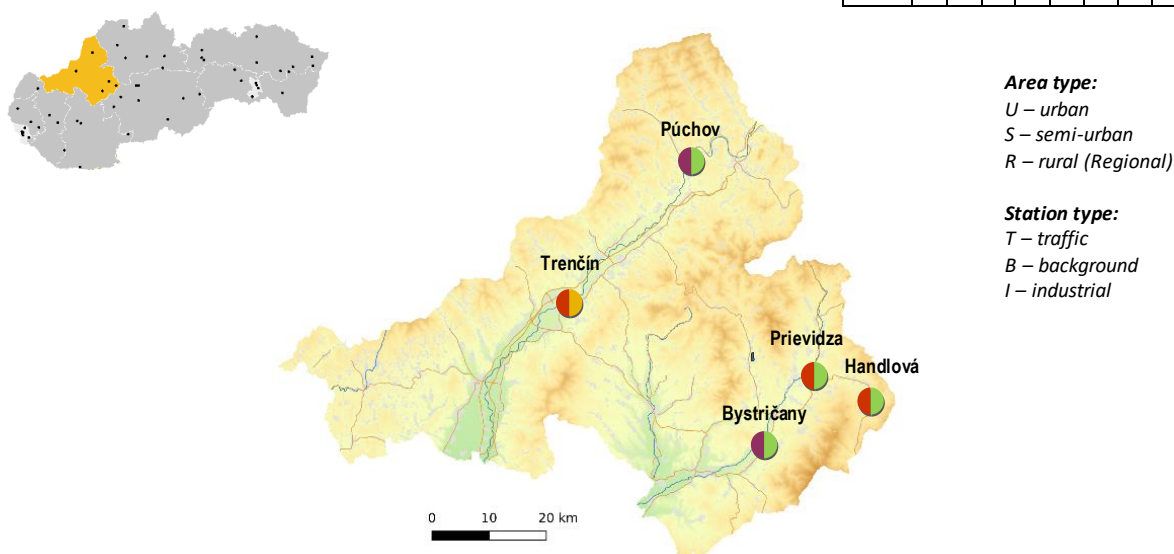
The zone currently comprises five monitoring stations. In addition to the three stations mentioned above, there are monitoring stations in Trenčín and Púchov, where monitoring began in 2021. The Trenčín monitoring station is traffic-oriented and reflects the influence of road traffic of moderate intensity. The Púchov monitoring station represents suburban background air pollution levels.

**Tab 2.1** provides information on the air quality monitoring stations in the Trenčín Region zone, including:

- the international Eol code, station classification according to the dominant source of air pollution (traffic, background or industrial), the type of area monitored (urban, suburban or rural/Regional), and the geographical coordinates;
- the monitoring programme. Automatic continuous monitoring instruments provide hourly average concentrations of PM<sub>10</sub>, PM<sub>2,5</sub>, nitrogen oxides, sulphur dioxide, ozone, carbon monoxide and benzene. Within the manual monitoring programme, the SHMÚ Testing Laboratory analyses heavy metals and polycyclic aromatic hydrocarbons, producing 24-hour average concentrations.

**Tab. 2.1** Air quality monitoring programme in the Trenčín Region zone.

| Trenčín Region zone |          |                             |       |          |              |           |              | Monitoring programme |                   |                     |                 |                |    |         |    |                |       |
|---------------------|----------|-----------------------------|-------|----------|--------------|-----------|--------------|----------------------|-------------------|---------------------|-----------------|----------------|----|---------|----|----------------|-------|
|                     |          |                             |       |          |              |           |              | Continuous           |                   |                     |                 |                |    |         |    | Manual         |       |
| District            | Eol code | Station name                | Type  |          | Geographical |           | Altitude [m] | PM <sub>10</sub>     | PM <sub>2,5</sub> | NO, NO <sub>2</sub> | SO <sub>2</sub> | O <sub>3</sub> | CO | Benzene | Hg | As, Cd, Ni, Pb | B(a)P |
|                     |          |                             | areas | stations | length       | width     |              |                      |                   |                     |                 |                |    |         |    |                |       |
| Prievidza           | SK0013A  | Bystričany, Rozvodňa SSE    | S     | B        | 18°30'51"    | 48°40'01" | 261          |                      |                   |                     |                 |                |    |         |    |                |       |
| Prievidza           | SK0027A  | Handlová, Morovianska cesta | U     | B        | 18°45'23"    | 48°43'59" | 448          |                      |                   |                     |                 |                |    |         |    |                |       |
| Prievidza           | SK0050A  | Prievidza, Malonecpalská    | U     | B        | 18°37'41"    | 48°46'58" | 276          |                      |                   |                     |                 |                |    |         |    |                |       |
| Trenčín             | SK0047A  | Trenčín, Hasičská           | U     | T        | 18°02'29"    | 48°53'47" | 214          |                      |                   |                     |                 |                |    |         |    |                |       |
| Púchov              | SK0066A  | Púchov, 1.mája              | S     | B        | 18°19'31"    | 49°07'08" | 262          |                      |                   |                     |                 |                |    |         |    |                |       |
| Total               |          |                             |       |          |              |           |              | 5                    | 5                 | 3                   | 5               | 1              | 2  | 1       | 0  | 2              | 3     |



### 3 ASSESSMENT OF AIR QUALITY IN THE TRENČÍN REGION ZONE

This chapter provides an assessment of air quality in the Trenčín Region zone based on monitoring results, supplemented by mathematical modelling results for PM<sub>10</sub>, PM<sub>2,5</sub>, benzene and benzo(a)pyrene for the year 2025.

**Tab. 3.1** Assessment of air pollution according to limit values for the protection of human health and the PM<sub>10</sub> smog warning system in the Trenčín Region zone.

| Pollutant                     | Type             | Human health protection |                                   |                       |                       |                  |                       |                   |         |                   | IT <sup>2)</sup>  | AT <sup>2)</sup>               |                                |
|-------------------------------|------------------|-------------------------|-----------------------------------|-----------------------|-----------------------|------------------|-----------------------|-------------------|---------|-------------------|-------------------|--------------------------------|--------------------------------|
|                               |                  | SO <sub>2</sub>         |                                   | NO <sub>2</sub>       |                       | PM <sub>10</sub> |                       | PM <sub>2,5</sub> | CO      | O <sub>3</sub>    | PM <sub>10</sub>  | PM <sub>10</sub>               |                                |
|                               | Averaging period |                         | 1 h                               | 24 h                  | 1 h                   | 1 year           | 24 h                  | 1 year            | 1 year  | 8 h <sup>1)</sup> | 8 h <sup>2)</sup> | 12 h                           | 12 h                           |
|                               | Parameter        | Areas / Stations        | Number of exceedances             | Number of exceedances | Number of exceedances | average          | Number of exceedances | average           | average | average           | average           | Duration of the exceedance [h] | Duration of the exceedance [h] |
|                               |                  |                         | Limit value [µg·m <sup>-3</sup> ] | 350                   | 125                   | 200              | 40                    | 50                | 40      | 20                | 10 000            | 120                            | 100                            |
| Maximum number of exceedances | 24               |                         | 3                                 | 18                    |                       | 35               |                       |                   | 25      |                   |                   |                                |                                |
| Prievidza, Malonecpalská      | UB               |                         | 0                                 | 0                     | 0                     | 13               | 0                     | 15                | 11      |                   | 4                 | 0                              | 0                              |
| Bystričany, Rozvodňa SSE      | SB               |                         | 0                                 | 0                     |                       |                  | 1                     | 19                | 12      |                   |                   | 0                              | 0                              |
| Handlová, Morovnianska cesta  | UB               | 0                       | 0                                 |                       |                       | 2                | 16                    | 11                |         |                   | 0                 | 0                              |                                |
| Púchov, 1. mája               | SB               | 0                       | 0                                 | 0                     | 8                     | 3                | 17                    | 15                | 1093    |                   | 0                 | 0                              |                                |
| Trenčín, Hasičská             | UT               | 0                       | 0                                 | 0                     | 18                    | 8                | 21                    | 13                | 875     |                   | 0                 | 0                              |                                |

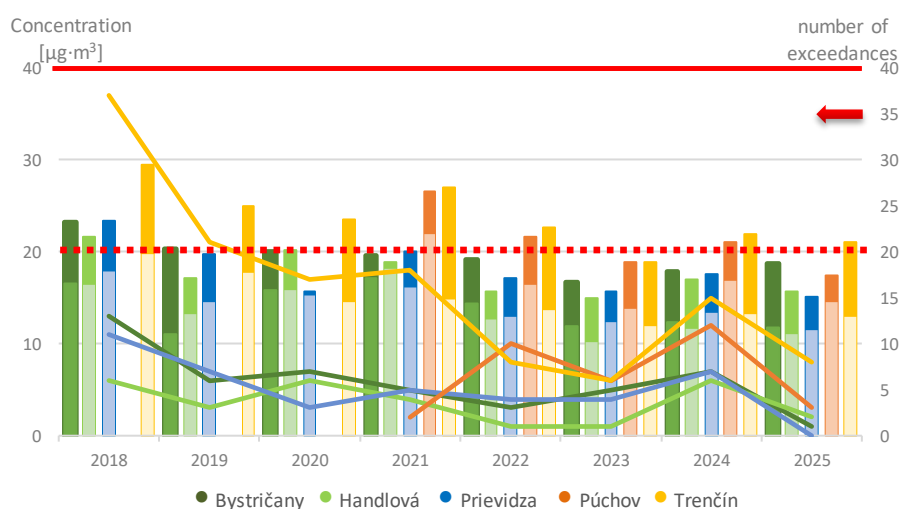
≥ 90 % valid measures

<sup>1)</sup> maximum 8-hour concentration

<sup>2)</sup> IT, AT – duration of exceedances (in hours) of the information threshold (IT) and alert threshold (AT) for PM<sub>10</sub>. In accordance with Annex 1 of Decree of the Ministry of Environment of the Slovak Republic No. 250/2023 Coll. on air quality, the required data capture rate was achieved at the monitoring stations.

#### 3.1 PM<sub>10</sub> and PM<sub>2,5</sub>

**Fig. 3.1** Annual mean concentrations of PM<sub>10</sub> and PM<sub>2,5</sub> and the number of exceedances of the PM<sub>10</sub> daily limit value.



PM<sub>10</sub> – dark-coloured bars; PM<sub>2,5</sub> – light-coloured bars; number of exceedances – broken lines.

The lines indicate limit values (LV): red solid line – PM<sub>10</sub> (annual mean concentration: 40 µg·m<sup>-3</sup>); red dashed line – PM<sub>2,5</sub> (annual mean concentration: 20 µg·m<sup>-3</sup>); red solid arrow – LV for the number of exceedances (daily mean PM<sub>10</sub> concentration of 50 µg·m<sup>-3</sup>; maximum number of exceedances: 35 days per calendar year).

**Fig. 3.1** shows the annual mean concentrations of  $PM_{10}$  and  $PM_{2,5}$ , and the number of days with a daily mean  $PM_{10}$  concentration above  $50 \mu g \cdot m^{-3}$ , based on measurements at monitoring stations in the Trenčín Region zone for the period 2018–2025.

In 2025, neither the limit values for the annual mean concentrations of  $PM_{10}$  and  $PM_{2,5}$  nor the limit value for the daily mean  $PM_{10}$  concentration were exceeded at any monitoring station in the Trenčín Region zone. The highest number of days with a daily mean  $PM_{10}$  concentration above  $50 \mu g \cdot m^{-3}$  was recorded at the traffic monitoring station in Trenčín (**Fig. 3.1**).

#### ■ Assessment of compliance with the requirements of the new Directive

In April 2024, Directive (EU) 2024/2881 on ambient air quality and cleaner air for Europe was adopted. The Directive introduces a long-term objective and new EU limit values for air pollutants, which Member States are required to achieve by 1 January 2030.

The new EU annual limit value for  $PM_{10}$  ( $20 \mu g \cdot m^{-3}$ ) would be met at all monitoring stations. However, the new EU annual limit value for  $PM_{2,5}$  ( $10 \mu g \cdot m^{-3}$ ) **would not be met at any AMS** in the Trenčín Region.

The new EU daily limit value for  $PM_{10}$  ( $45 \mu g \cdot m^{-3}$ ) would be **met at all monitoring stations** in the Trenčín Region zone.

The new daily limit value for  $PM_{2,5}$  ( $25 \mu g \cdot m^{-3}$ ) **would be exceeded** at all AMSs in the Trenčín Region zone.

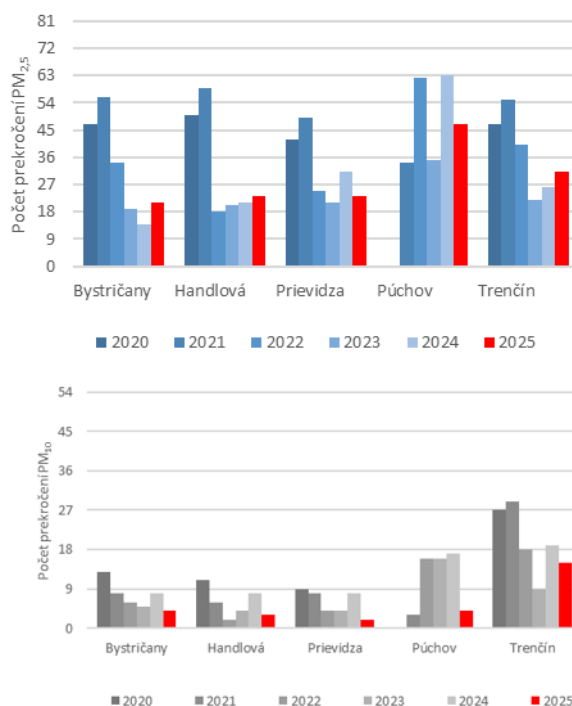
**Fig. 3.2** (top) shows the number of days exceeding the new EU daily limit value for  $PM_{2,5}$  ( $25 \mu g \cdot m^{-3}$ ), which may not be exceeded more than 18 days per calendar year. Data for 2025 show that this limit was exceeded at all monitoring stations in the Trenčín Region zone. The highest number of exceedances was recorded at the Púchov monitoring station, where the value exceeded 45 days. This was followed by the AMSs in Trenčín and Prievidza.

Compared with 2024, a noticeable decrease was observed at the Púchov and Prievidza stations, while a slight increase compared with the period 2022–2024 was recorded at the other stations.

For  $PM_{10}$  (bottom), the highest number of exceedances according to the new Directive was again recorded at the Trenčín AMS in 2025. Compared with 2024 and the period 2020–2023, a slight decrease can be observed. At the other monitoring stations, the number of exceedances remained relatively low, with the lowest value recorded at the Prievidza AMS.

Compared with 2024, all monitoring stations recorded a decrease in the number of exceedances.

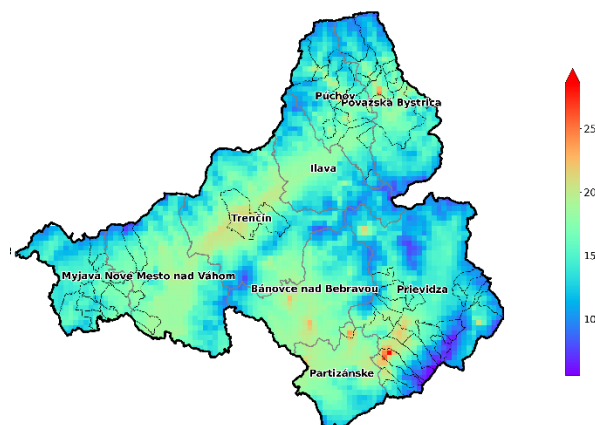
**Fig. 3.2** Number of exceedances of the daily limit values for  $PM_{10}$  and  $PM_{2,5}$ .



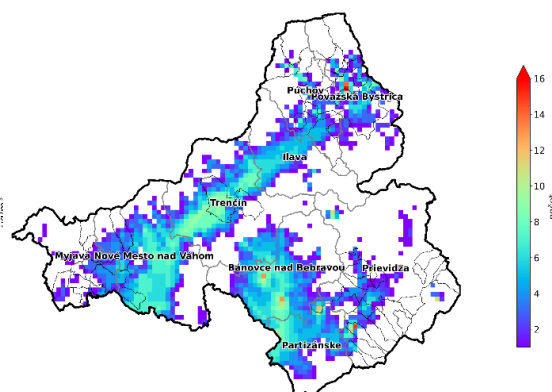
\* The daily mean concentration of  $PM_{2,5} > 25 \mu g \cdot m^{-3}$  and  $PM_{10} > 45 \mu g \cdot m^{-3}$  may be exceeded a maximum of 18 times per calendar year; the limit applies from 1 January 2030.

## ■ Mathematical modelling outputs

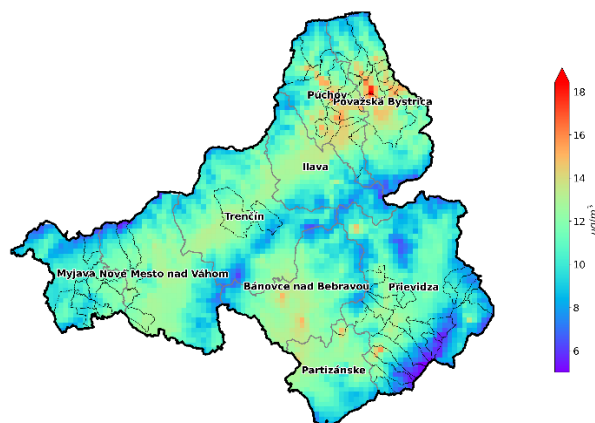
**Fig. 3.3** Annual mean  $PM_{10}$  concentrations, RIO/IDW-R model output.



**Fig. 3.4** Number of exceedances of the  $PM_{10}$  daily limit value, RIO/IDW-R model output.



**Fig. 3.5** Annual mean  $PM_{2,5}$  concentrations, RIO/IDW-R model output.

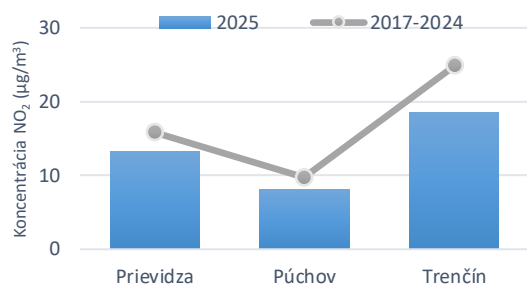


**Fig. 3.3** to **Fig. 3.5** show the annual mean concentrations of  $PM_{10}$  and  $PM_{2,5}$  obtained from the RIO model and subsequently adjusted using the IDW-R regression method. The modelling identified the highest  $PM_{10}$  and  $PM_{2,5}$  concentrations in the area northeast of Partizánske, with elevated values also occurring around Považská Bystrica and Trenčín, as well as southeast of Bánovce nad Bebravou.

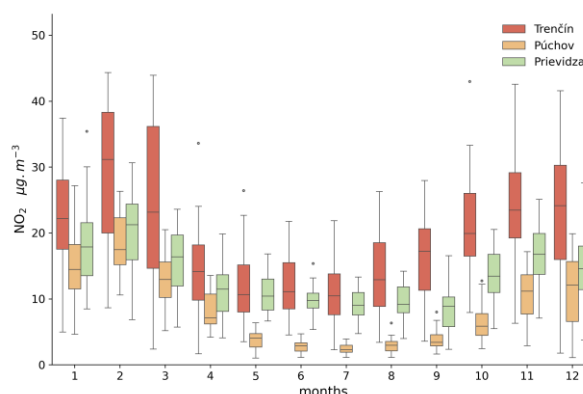
These areas are likely influenced by a combination of local emission sources from domestic heating and less favourable dispersion conditions for air pollutants due to the complex terrain. More detailed information on the mathematical modelling outputs is provided in Chapter 4.

### 3.2 Nitrogen dioxide

**Fig. 3.6** Annual mean  $\text{NO}_2$  concentrations; comparison of 2025 with the period 2017–2024.



**Fig. 3.7** Boxplots of  $\text{NO}_2$  concentrations.



Monitoring nitrogen dioxide levels in ambient air is carried out at three monitoring stations: Prievidza, Púchov and Trenčín. In 2025,  $\text{NO}_2$  concentrations at all monitoring stations were lower than the long-term average for the period 2017–2024 (Fig. 3.6).

The main sources of  $\text{NO}_2$  emissions are combustion processes; in populated areas, these are mainly associated with combustion engines in road transport. The highest concentrations are recorded at the traffic monitoring station Trenčín, Hasičská. The limit value ( $40 \mu\text{g}\cdot\text{m}^{-3}$ ) for both the annual mean and hourly mean  $\text{NO}_2$  concentration was not exceeded at any monitoring station in the Trenčín Region.

Monthly values for individual stations are shown in Fig. 3.7. Similar to PM, the annual pattern of  $\text{NO}_2$  concentrations is characterised by a minimum during the summer months, which is caused by more favourable dispersion conditions in summer. Overall,  $\text{NO}_2$  concentrations in the Trenčín Region remain at a relatively low level.

In both 2024 and 2025, only the Púchov AMS met the WHO recommendation ( $10 \mu\text{g}\cdot\text{m}^{-3}$ ) for the annual mean  $\text{NO}_2$  concentration, which is considerably stricter than the EU limit value.

#### ■ Assessment of compliance with the requirements of the new Directive

The new EU annual limit value for  $\text{NO}_2$  ( $20 \mu\text{g}\cdot\text{m}^{-3}$ ) would have been met at all AMSs in the Trenčín Region zone in 2025.

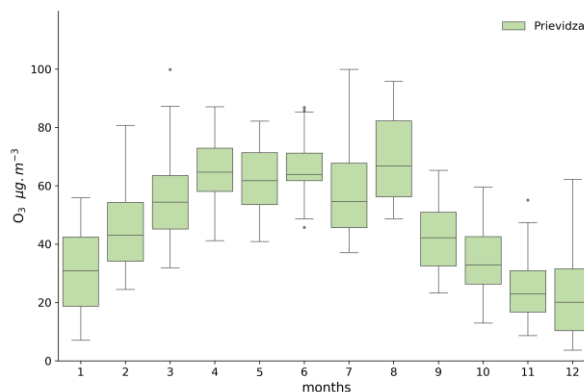
### 3.3 Ozone

The target value for the protection of human health would not be exceeded. The highest ground-level ozone concentrations generally occur during warm months with high solar radiation intensity (Fig. 3.8).

Concentrations increase after sunrise, reach their maximum around midday, and gradually decrease during the evening hours to the minimum values observed in the early morning. Significant differences in  $\text{O}_3$  concentrations are also observed between warm and cold seasons.

In 2025, no exceedances of the information or alert threshold for ground-level ozone were recorded at the Prievidza monitoring station.

**Fig. 3.8** Boxplots of  $\text{O}_3$  concentrations.



**Tab. 3.2** Number of days with a maximum daily 8-hour mean O<sub>3</sub> concentration above 120 µg·m<sup>-3</sup>

| Station                  | 2023 | 2024 | 2025 | Average 2023 – 2025 |
|--------------------------|------|------|------|---------------------|
| Prievidza, Malonecpalská | 4    | 3    | 6    | 4                   |

■ ≥ 90 % required valid data

Note: According to Decree of the Ministry of Environment of the Slovak Republic No. 250/2023 Coll. on air quality, the target value for the protection of human health for ground-level ozone is defined as follows: the maximum daily 8-hour mean concentration shall not exceed 120 µg·m<sup>-3</sup> on more than 25 days per calendar year, averaged over three years.

#### ■ Assessment of compliance with the requirements of the new Directive

The stricter EU limit value for O<sub>3</sub>, allowing 18 days with exceedances of the maximum daily 8-hour mean concentration, **would not be exceeded** at any monitoring station.

### 3.4 Benzo(a)pyrene

In 2025, benzo(a)pyrene [B(a)P] was monitored at two stations in the Trenčín Region – Prievidza, Malonecpalská Street, and Púchov, 1. mája Street. The target value (1 ng·m<sup>-3</sup>) was exceeded at the Púchov monitoring station, where the annual mean concentration reached 1.2 ng·m<sup>-3</sup>. The annual mean concentration at the Prievidza station was 0.9 ng·m<sup>-3</sup> (Tab. 3.3).

**Tab. 3.3** Annual mean concentrations of benzo(a)pyrene in 2018–2025.

|                          | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 |
|--------------------------|------|------|------|------|------|------|------|------|
| Target value             | 1,0  | 1,0  | 1,0  | 1,0  | 1,0  | 1,0  | 1,0  | 1,0  |
| Prievidza, Malonecpalská |      | 1,4  | 1,2  | 1,1  | 0,9  | 1,1  | 0,9  | 0,9  |
| Púchov, 1. mája          |      |      |      | 4,7  | 2,0  | 1,2  | 1,4  | 1,2  |

■ ≥ 90 % valid measurements

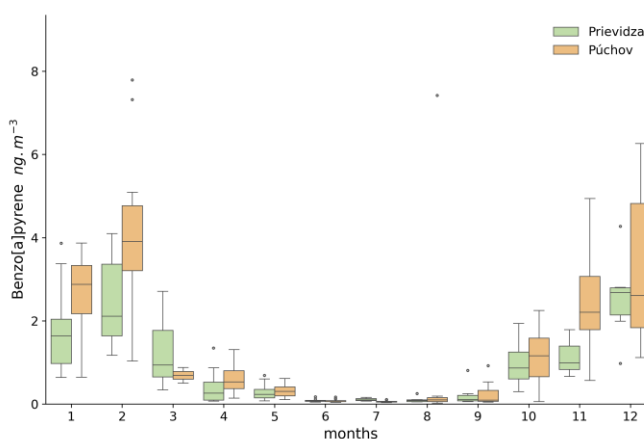
Exceedance of the target value is highlighted in red if the station had a sufficient number of valid measurements (≥ 90%) in the given year.

Boxplots of monthly B(a)P concentrations are shown Fig. 3.9. The highest concentrations, reaching approximately 8 ng·m<sup>-3</sup>, were measured at the Púchov AMS in February and, unexpectedly, also in August, which may have been caused by grass burning or a fire.

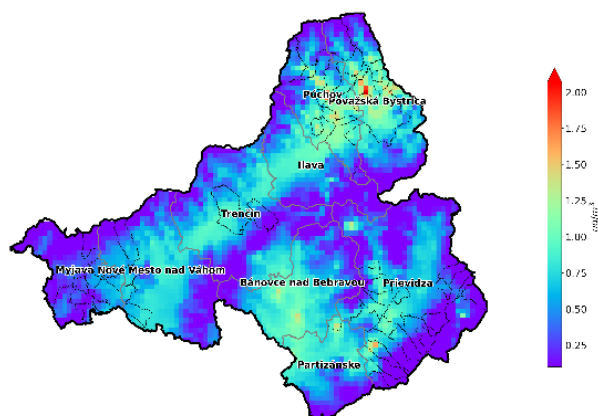
The highest monthly concentrations were recorded at the Púchov AMS in December and February.

Monthly concentrations show a pronounced seasonal pattern, with minimum values occurring during months outside the heating season.

**Fig. 3.9** Boxplots of B(a)P concentrations.



**Fig. 3.10** Annual mean benzo(a)pyrene concentrations according to the RIO/IDW-R model output.



The most significant source of B(a)P is domestic heating using solid fuels, particularly insufficiently dried wood or unsuitable fuels (such as various types of waste). **Fig. 3.10** shows the spatial distribution of the annual mean B(a)P concentration based on the RIO model outputs combined with the IDW-R method.

According to the RIO model results, the highest B(a)P concentrations occur in the districts of Považská Bystrica, Púchov and Bánovce nad Bebravou.

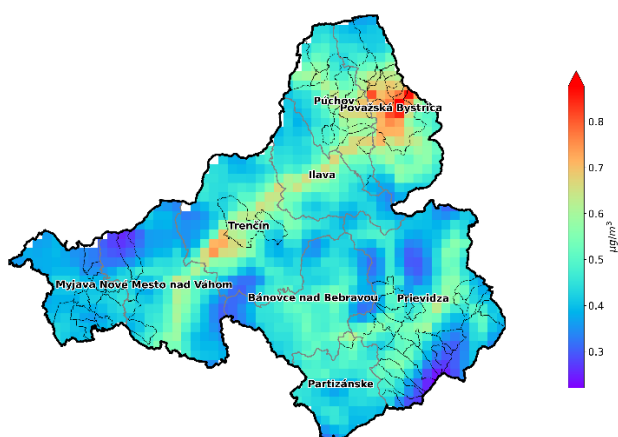
### 3.5 Benzene

**Fig. 3.11** shows the benzene modelling outputs, indicating that benzene concentrations throughout the Trenčín Region zone remain well below the limit value and also below the lower assessment threshold.

The highest values were modelled in the areas around Považská Bystrica and Púchov. A local linear influence of traffic can also be observed along the D1 motorway corridor between Nové Mesto nad Váhom, Trenčín, Považská Bystrica and Žilina.

The lowest concentrations occur mainly in the southeastern part of the Region and in some mountainous areas. Overall, the level of benzene pollution in the Region remains low.

**Fig. 3.11** Annual mean benzene concentration according to the CMAQ model output.



### 3.6 Risk areas

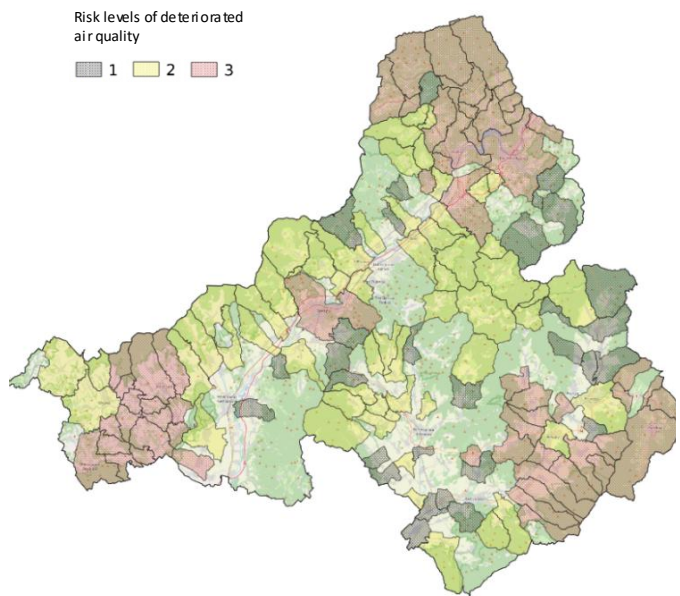
**Fig. 3.12** shows municipalities at risk of deteriorated air quality, identified using the Integrated Assessment Method for municipalities<sup>3</sup>. Risk level 3 corresponds to the highest probability of being affected by air pollution. The methodology considers the extent of domestic heating using solid fuels, the impact of unfavourable dispersion conditions from both short-term and long-term perspectives, results from the CMAQ chemical transport model, the RIO interpolation model, and high-resolution CALPUFF modelling results for selected domains with assumed degraded air quality.

Municipalities where high-resolution modelling identified exceedances of limit values for PM, NO<sub>2</sub> or the target value for B(a)P were automatically assigned risk level 3, similarly to municipalities where exceedances were identified through measurements. A list of municipalities and their assigned risk levels is available on the SHMÚ website<sup>4</sup>.

Zones and agglomerations containing at least one municipality with risk level 3 are required to prepare an Air Quality Improvement Programme. In this context, municipalities with risk level 3 represent air quality management areas. However, emission reduction measures must be implemented throughout the designated zone in all municipalities with risk levels 2 or 3, and ideally also in municipalities with risk level 1.

The purpose of the Integrated Assessment Method is to identify areas where measures to improve air quality should be targeted. Due to the distribution of emission sources and the local microclimatic characteristics, pollution levels are likely to vary between individual locations within risk areas. High-resolution modelling results, which are gradually being published on the SHMÚ website<sup>5</sup>, provide an overview of the spatial distribution of air pollution.

**Fig. 3.12** Risk municipalities in Trenčín Region.



<sup>3</sup> Štefánik, D., Krajčovičová, J.: *Metóda integrovaného posúdenia obcí vzhľadom na riziko nepriaznivej kvality ovzdušia*, Slovenský hydrometeorologický ústav, 2023, dostupné na <https://www.shmu.sk/sk/?page=996>

<sup>4</sup> <https://www.shmu.sk/sk/?page=2967>

<sup>5</sup> <https://www.shmu.sk/sk/?page=2807>

### 3.7 Summary

In 2025, **no exceedances of the limit values for SO<sub>2</sub>, NO<sub>2</sub>, CO or O<sub>3</sub>** were recorded in the Trenčín Region zone, **nor were** the limit values for the annual mean concentrations of PM<sub>10</sub> and PM<sub>2,5</sub> **exceeded**. The daily limit value for PM<sub>10</sub> **was not exceeded** at any monitoring station.

An **increase** in NO<sub>2</sub> concentrations was recorded at the Prievidza AMS, while concentrations **decreased** at the other monitoring stations. Annual mean PM<sub>10</sub> concentrations **decreased** at almost all monitoring stations, except for Bystričany, where an **increase** was observed. PM<sub>2,5</sub> concentrations also **decreased** at almost all monitoring stations.

The target value for B(a)P **was exceeded** at the Púchov monitoring station. In Prievidza, the annual mean concentration in 2025 **decreased** below the target value. Based on the results of mathematical modelling, it can be assumed that high PM and B(a)P concentrations may also occur in other areas of the Trenčín Region zone with unfavourable dispersion conditions and a high proportion of solid fuels used for domestic heating.

If compliance with the requirements of the new Air Quality Directive 2024/2881, which establishes stricter limit values applicable from 1 January 2030, were assessed, the main challenge in the Trenčín Region zone would be meeting the new PM<sub>2,5</sub> limit values.

The new annual limit value for PM<sub>2,5</sub> **would be exceeded** at all AMSs. The new annual limit value for PM<sub>10</sub> **would already be met** at four monitoring stations in 2025; the Trenčín AMS **would narrowly fail to meet this limit value**.