

AIR QUALITY REPORT OF THE SLOVAK REPUBLIC

2025

ANNEX

AIR QUALITY ASSESSMENT IN ZONE BANSKÁ BYSTRICA REGION

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1 DESCRIPTION OF THE BANSKÁ BYSTRICA REGION IN TERMS OF AIR QUALITY

The Banská Bystrica Region is predominantly mountainous. Due to the orography, mountain basins in this area are characterised by low wind speeds and frequent temperature inversions, particularly during the winter period. The northern part of the region includes the higher mountain ranges of the Low Tatras and the foothills of the Great Fatra. A relatively large part of the region is covered by medium-altitude mountain ranges, including the Slovak Ore Mountains, the Štiavnica Mountains and the Krupina Plain in the central part of the region. The southern part of the Banská Bystrica Region is characterised by lower elevations, including the South Slovak Basin and the Cerová Highlands. The highest point is Ďumbier (2,046 m above sea level), while the lowest point lies at an elevation of 124 m above sea level.

The Banská Bystrica and Prešov Regions have the lowest population densities compared with the other regions of Slovakia. According to data from the Statistical Office of the Slovak Republic, the average population density in the Banská Bystrica Region is 65 inhabitants per km² (as of 31 March 2025).

The highest population density is recorded in the Banská Bystrica District, with 132 inhabitants per km², while the Krupina District has the lowest population density in the region, with 36 inhabitants per km². For comparison, the average population density of the Slovak Republic was 111 inhabitants per km² as of the same date.

From the perspective of air quality assessment, the entire Banská Bystrica Region constitutes a single zone for SO₂, NO₂, NO_x, PM₁₀, PM_{2.5}, benzene, polycyclic aromatic hydrocarbons and CO in ambient air.

Air pollution sources in the Banská Bystrica Region

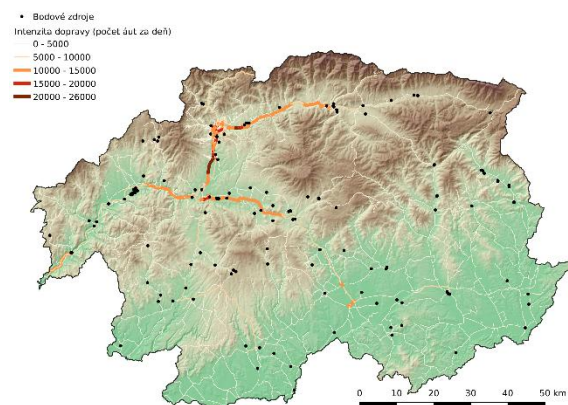
The main source of air pollution in the Banská Bystrica Region is residential heating. The main issue concerns areas with a high share of firewood use for heating and where heating appliances with high emissions are used. Locally, particularly in larger towns, road transport also contributes to air pollution. The map in Fig.1.1 shows the traffic intensity of road sections based on processing by the Transport Research Centre for 2024.

The busiest road sections, with the average number of vehicles per 24 hours according to the National Traffic Census in 2022 and 2023, are listed in Tab. 1.1. The selected road sections were chosen based on their traffic load, regional location and importance within the road network of the Slovak Republic.

Tab. 1.1 Number of vehicles on the busiest roads in Banská Bystrica Region (vehicle/day).

District	Motorway / road	Number of vehicles	Heavy goods vehicles	Passenger cars
Banská Bystrica	n. 59	14 203	2 652	11 467
	R1	53 018	7 964	44 898
	n. 66	5 833	631	5 154
Brezno	n. 66	32 321	3 358	28 849
	n. 66	10 842	1 461	9 306
Detva	n. 526	7 523	1 137	6 277
	R2	15 129	5 248	9 810
Lučenec	n. 16	9 975	1 398	8 511
	n. 16	12 826	3 093	9 685
	n. 71	5 976	1 116	4 834
Veľký Krtíš	n. 16	9 354	2 134	7 182
	n. 527	5 971	429	5 501
	n. 75	8 736	847	7 810
Zvolen	n. 16	34 579	6 647	27 786
	n. 66	18 354	3 312	14 978
	R1	34 535	7 858	26 532
Žarnovica	R1	26 419	5 325	20 985
Žiar nad Hronom	n. 65	9 653	2 631	6 972
	R1	28 059	6 407	21 581
	n. 9	17 856	1 782	15 987

Fig.1.1 Map of the busiest roads.

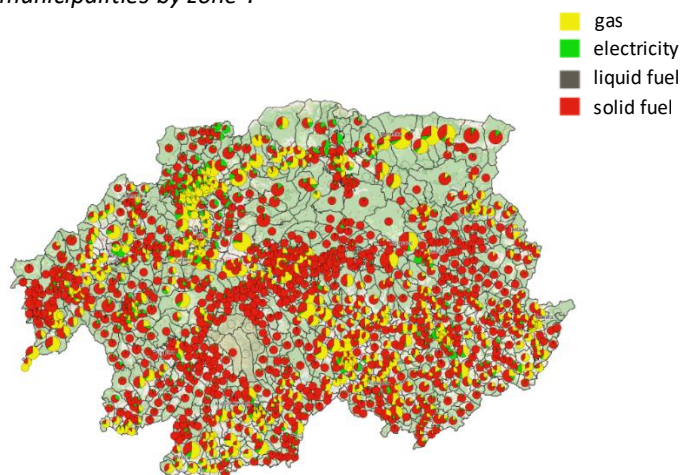


Industrial sources of air pollution in the Banská Bystrica Region are less dominant in terms of their contribution to local air pollution by the main pollutants. Depending on meteorological conditions, the influence of district heating plants may also be observed in this zone.

A significant source of air pollution in the zone is residential heating, particularly in the case of particulate matter and benzo[a]pyrene (B[a]P), while road transport is an important source of NO₂ and benzene.

The map on Fig. 1.2 shows the shares of different fuel types used for heating detached houses in individual municipalities or basic settlement units of the Banská Bystrica Region. It demonstrates that the spatial distribution of fuel types is not geographically homogeneous. Compared with other regions, a high share of solid fuel heating is evident, particularly in areas with good availability of firewood.

Fig. 1.2 Share of different types of fuels used for heating in municipalities by zone¹.



¹ <https://www.scitanie.sk>

2 AIR QUALITY MONITORING STATIONS IN BANSKÁ BYSTRICA REGION

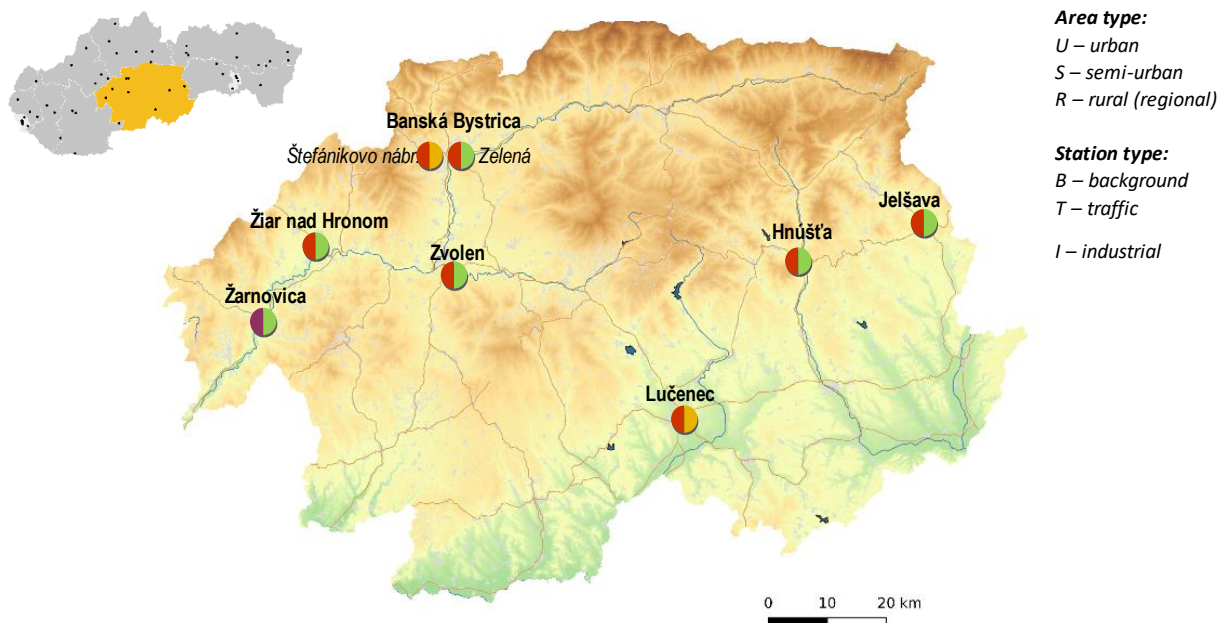
Air quality monitoring in the Banská Bystrica Region is carried out at eight automatic monitoring stations (AMS). Traffic monitoring stations are in Banská Bystrica at Štefánikovo nábrežie and in Lučenec. The station on Zelená Street in Banská Bystrica represents the urban background, as do the stations in Zvolen and Žiar nad Hronom. The urban/suburban background stations in Jelšava, Hnúšťa and Žarnovica are intended mainly to reflect the impact of residential heating in rural areas.

Tab. 2.1 contains information on air quality monitoring stations in the Banská Bystrica Region, including:

- the international Eol code, the station classification according to the dominant air pollution sources (traffic, background, industrial), the type of area monitored by the station (urban, suburban, rural/regional), and geographical coordinates;
- the monitoring programme. Automatic continuous monitoring instruments provide hourly mean concentrations of PM₁₀, PM_{2,5}, nitrogen oxides, sulphur dioxide, ozone, carbon monoxide and benzene. Within manual monitoring, the SHMÚ Testing Laboratory analyses heavy metals and polycyclic aromatic hydrocarbons. The results are expressed as mean 24-hour concentrations.

Tab. 2.1 Air quality monitoring programme.

Banská Bystrica Region								Monitoring programme									
District	Eol code	Station name	types		Geographical		altitude [m]	Continuous							Manual		
			area	station	length	width		PM ₁₀	PM _{2,5}	NO, NO ₂	SO ₂	O ₃	CO	Benzene	Hg	As, Cd, Ni, Pb	B(a)P
Banská Bystrica	SK0214A	Banská Bystrica, Štefánikovo n.	U	T	19°09'18"	48°44'06"	346										
Banská Bystrica	SK0263A	Banská Bystrica, Zelená	U	B	19°06'55"	48°44'01"	425										
Revúca	SK0025A	Jelšava, Jesenského	U	B	20°14'26"	48°37'52"	289										
Rimavská Sobota	SK0022A	Hnúšťa, Hlavná	U	B	19°57'06"	48°35'02"	320										
Lučenec	SK0072A	Lučenec, Gemerská cesta	U	T	19°40'33"	48°20'12"	183										
Zvolen	SK0262A	Zvolen, J. Alexyho	U	B	19°09'25"	48°33'30"	321										
Žarnovica	SK0078A	Žarnovica	S	B	18°43'04"	48°28'59"	222										
Žiar n/Hronom	SK0268A	Žiar n/Hronom, Jilemnického	U	B	18°50'34"	48°35'59"	296										
Total								8	8	5	1	3	2	2	0	2	4



3 ASSESSMENT OF AIR QUALITY MONITORING RESULTS IN THE BANSKÁ BYSTRICA REGION

This chapter provides an assessment of air quality in the Banská Bystrica Region based on monitoring results, supplemented by the results of mathematical modelling for PM₁₀, PM_{2,5}, benzo[a]pyrene and benzene for the year 2025.

Tab. 3.1 Assessment of air pollution against limit values for the protection of human health and the PM₁₀ smog warning system in the Banská Bystrica Region.

Pollutant	Type	Protection of human health										IT ²⁾		AT ²⁾	
		SO ₂		NO ₂		PM ₁₀		PM _{2,5}	CO	O ₃	benzene	PM ₁₀	PM ₁₀		
		Averaging period		Averaging period		Averaging period		Averaging period	Averaging period	Averaging period	Averaging period	Averaging period	Averaging period		
		1 h	24 h	1 h	1 year	24 h	1 year	1 year	8 h ¹⁾	8 h ²⁾	1 year	12 h	12 h		
		of number exceedances	of number exceedances	of number exceedances	average	of number exceedances	average	average	average	average	average	duration of exceedance [h]	duration of exceedance [h]		
Limit value [µg·m ⁻³]	areas / stations	350	125	200	40	50	40	20	10 000	120	5	100	150		
Maximum number of exceedances		24	3	18		35				25					
Banská Bystrica, Štefánikovo n.	UT	0	0	0	22	19	23	16	1498		0,5*	4	0		
Banská Bystrica, Zelená	UB			0	6	1	14	10		3		0	0		
Jelšava, Jesenského	UB			0	6	39	27	19		3		65	0		
Hnúšťa, Hlavná	UB					4	18	13				0	0		
Lučenec, Gemerská cesta	UT			0	12	19	21	17	1217	4	0,4*	0	0		
Zvolen, J. Alexyho	UB					3	17	13				0	0		
Žarnovica	SB			0	10	14	22	17				5	0		
Žiar n/H, Jilemnického	UB					2	15	10				0	0		

≥ 90 % valid data

Exceedances of the limit value are highlighted in red.

¹⁾ maximum 8-hour concentration

²⁾ IP, VP – duration of exceedance (in hours) of the information threshold (IP) and alert threshold (VP) for PM₁₀

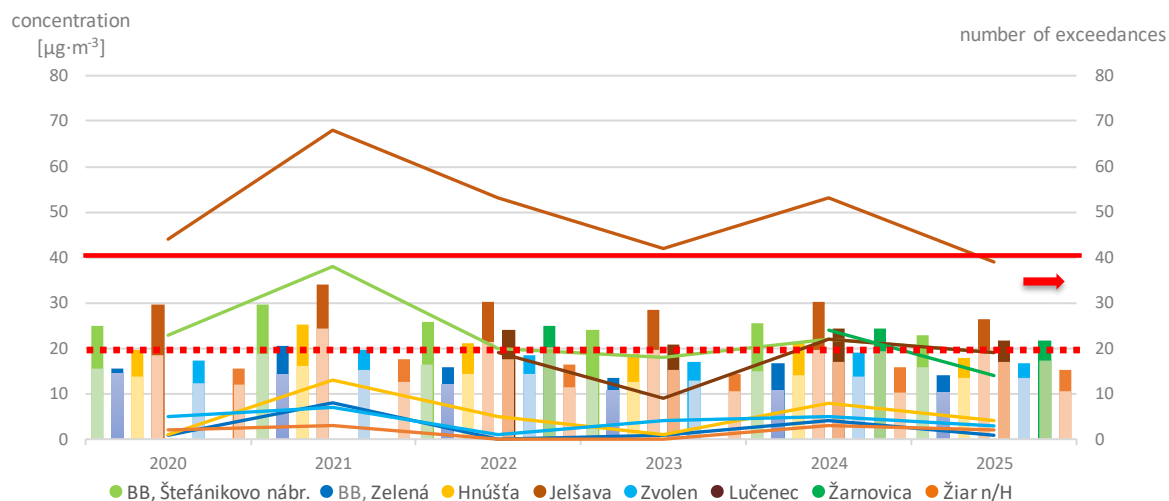
In accordance with Annex 1 to Decree No. 250/2023 Coll. of the Ministry of the Environment of the Slovak Republic on ambient air quality, the required proportion of valid data was met at all monitoring stations

* output from the CMAQ model

3.1 PM₁₀ and PM_{2,5}

Fig 3.1 shows the annual mean concentrations of PM₁₀ and PM_{2,5} and the number of days with a daily mean PM₁₀ concentration above 50 µg·m⁻³, based on measurements at automatic monitoring stations (AMS) in the Banská Bystrica Region in 2020–2025.

Fig.3.1 Annual mean concentrations of PM₁₀ and PM_{2,5} and the number of exceedances of the PM₁₀ daily limit value.



PM₁₀ – dark-coloured bars, **PM_{2,5}** – light-coloured bars; **number of exceedances** – lines.

Red lines – annual limit values (LVs):

solid line – PM₁₀ (40 µg·m⁻³); **dashed line** – PM_{2,5} (20 µg·m⁻³) and the new PM₁₀ LV.

Red arrow – limit value for the number of exceedances (daily mean PM₁₀ concentration of 50 µg·m⁻³; maximum number of exceedances: 35 per calendar year).

The annual mean concentrations of PM₁₀ and PM_{2,5} did not exceed the limit values at any monitoring station in the Banská Bystrica Region. In 2025, the lowest annual mean PM₁₀ concentration was measured in Jelšava, at 27 µg·m⁻³. Although this value remains relatively high, the concentration trends are positive.

The daily limit value for PM₁₀ (50 µg·m⁻³) **was exceeded** at the AMS Jelšava station, with 39 exceedance days recorded. Despite the exceedance of the limit value, the observed trend is positive. At most monitoring stations, the highest number of exceedances was recorded in February. The traffic monitoring station in Banská Bystrica has not exceeded the daily PM₁₀ limit value for a long time. The last exceedance occurred in 2021, when the AMS was affected by construction activities in the vicinity of the station. In 2025, 19 exceedances of the PM₁₀ daily limit value were recorded, representing the second lowest number since the beginning of measurements. The lowest PM₁₀ and PM_{2,5} concentration levels in the zone were measured at the Banská Bystrica, Zelená Street station.

In 2025, the zone confirmed a favourable trend in the trends in particulate matter concentrations. In Jelšava, the lowest annual PM₁₀ concentrations and the lowest number of exceedances of the PM₁₀ daily limit value since the beginning of measurements were recorded. The Banská Bystrica – Zelená Street and Žiar nad Hronom monitoring stations are among the few AMS in Slovakia that comply with the new EU limit values for PM_{2,5}.

The measurement results also indicate significant differences in air quality within the zone. Higher pollution levels persist mainly in the southern part of the zone, where the greater influence of local emission sources from solid fuel heating is evident.

Despite these differences, the overall trend indicates continued improvement in air quality.

In 2025, the annual mean concentrations of both PM₁₀ and PM_{2,5} at most AMS in the zone reached some of the lowest values recorded since the beginning of measurements at the respective stations.

■ Assessment of Compliance with the Requirements of the New Directive

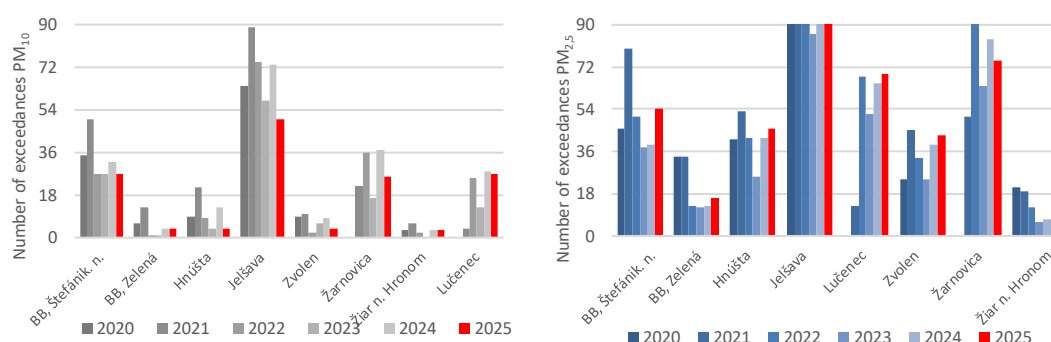
As part of the European Green Deal, the European Union developed the Zero Pollution Action Plan, which sets out a vision for 2050. Its objective is to reduce air pollution by that year to a level that is no longer considered harmful to human health and natural ecosystems. The Action Plan includes new EU limit and target values for many pollutants, with compliance with the $PM_{2,5}$ limit values representing the greatest challenge for the zone.

For $PM_{2,5}$, the plan introduces a daily limit value of $25 \mu g \cdot m^{-3}$, which must not be exceeded more than 18 times per year (to be achieved by 1 January 2030). The daily limit value for PM_{10} is also tightened to $45 \mu g \cdot m^{-3}$, with 18 permitted exceedances per year.

In the zone, the stricter requirements of the new EU Directive for the annual PM_{10} limit value ($20 \mu g \cdot m^{-3}$) **would not be met at the AMS stations Jelšava, Lučenec, Žarnovica and Banská Bystrica, Štefánikovo nábrežie**. The exceedance would be highest in Jelšava, at more than 30% above the limit value. The remaining AMS would meet this limit value.

The $PM_{2,5}$ limit value ($10 \mu g \cdot m^{-3}$) **would not be exceeded in 2025 at two AMS: Banská Bystrica, Zelená Street and Žiar nad Hronom**. The other stations exceeded this limit value, with the highest exceedance recorded in Jelšava (90%), followed by Lučenec and Žarnovica (70%).

Fig.3.2 Number of exceedances of the daily limit values for $PM_{2,5}$ and PM_{10} applicable from 2030*.



* Lučenec in 2021 and Žarnovica in 2023 did not perform measurements throughout the entire year.

The highest number of exceedances of the stricter daily PM_{10} limit value (Fig.3.2, left) would be recorded at the **AMS Jelšava** (50 exceedances). Compared with 2025, a decrease in the number of exceedances can be observed. The limit value would also be exceeded at the **AMS Banská Bystrica, Štefánikovo nábrežie, Žarnovica and Lučenec**.

Fig.3.2 (right) shows the number of days with exceedances of the new EU limit value for $PM_{2,5}$. The 2025 data indicate that this limit value would be exceeded at all monitoring stations except AMS Banská Bystrica – Zelená Street and Žiar nad Hronom. The highest number of exceedances would occur at the Jelšava site (94 days). The other AMS also recorded more than three times the permitted number of exceedances.

Fig.3.5 and Fig.3.4 show the results of PM_{10} modelling calculated for 2025 using the RIO model and subsequently adjusted using the regression IDW-R method. The model outputs also confirm that the highest PM_{10} concentrations and the highest numbers of exceedances of the daily limit value occurred mainly in the southern and south-eastern parts of the region, particularly in the districts of Rimavská Sobota, Revúca and Lučenec. In these areas, a combination of a higher share of solid fuel heating, unfavourable dispersion conditions and local emission sources contributes to elevated pollution levels.

The northern and central parts of the region showed lower PM_{10} concentrations and fewer exceedances, which is associated with more favourable dispersion conditions and lower intensity of local emissions.

The map in Fig.3.5 shows the spatial distribution of annual mean $PM_{2,5}$ concentrations based on the output of the RIO model combined with IDW-R. The pollution level is like that observed for PM_{10} .

Fig.3.3 Annual mean concentrations of PM_{10} according to the results of RIO, IDW-R.

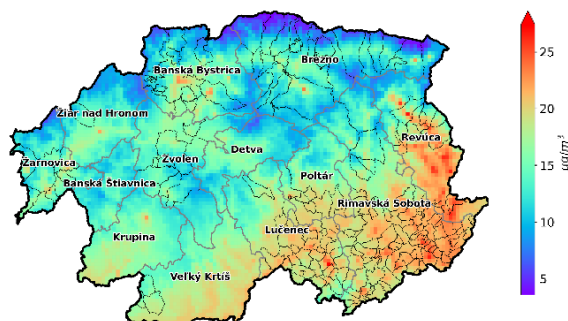


Fig.3.4 Number of exceedances of the PM_{10} daily limit value. Only areas with a non-zero number of exceedances are shown.

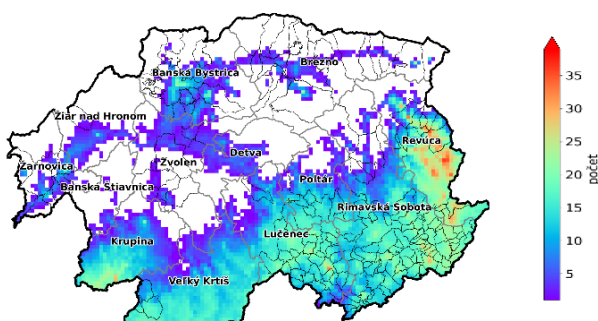
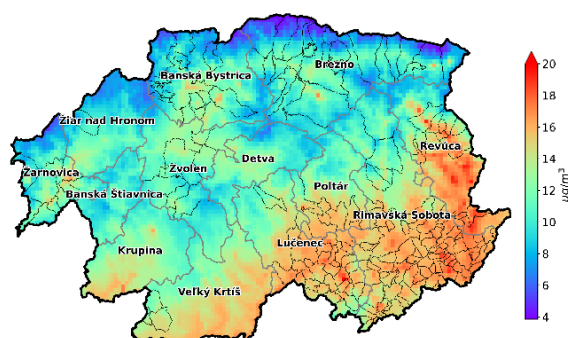


Fig.3.5 Annual mean concentrations of $PM_{2,5}$ according to the results of RIO, IDW-R.



3.2 Nitrogen dioxide

Monitoring of nitrogen dioxide is carried out at five stations in the zone. The limit value for both the annual mean and hourly mean NO_2 concentrations was not exceeded at any monitoring station.

The comparison of annual mean concentrations with the long-term trend shown in Fig.3.6 indicates that in 2025, NO_2 concentrations at all monitoring stations were lower compared with the average concentrations recorded in 2017–2024.

The highest NO_2 concentration in 2025 was measured at the traffic AMS Banská Bystrica – Štefánikovo nábrežie, which is the most traffic-exposed location in the zone.

Overall, the level of NO_2 pollution in the zone is low. Annual mean NO_2 concentrations meeting the WHO guideline level ($10 \mu\text{g}\cdot\text{m}^{-3}$) were achieved at the AMS Jelšava, Banská Bystrica – Zelená Street and Žarnovica. Achieving the WHO-recommended level indicates very good air quality with regard to health risks associated with NO_2 exposure.

■ Assessment of Compliance with the Requirements of the New Directive

The new EU limit value for the annual mean NO_2 concentration ($20 \mu\text{g}\cdot\text{m}^{-3}$) **would be exceeded only at the traffic AMS Banská Bystrica, Štefánikovo nábrežie**, with an exceedance of approximately 10%. This represents a favourable starting point for meeting the requirements of the Directive by 2030.

Fig.3.6 Comparison of annual NO_2 concentrations with the long-term trend.

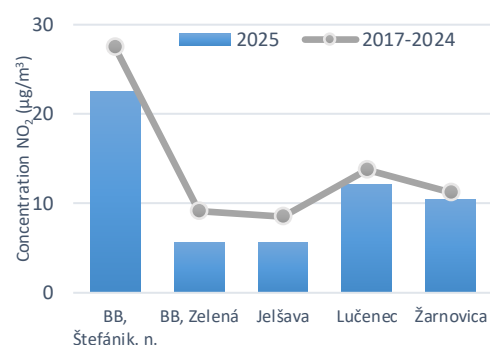
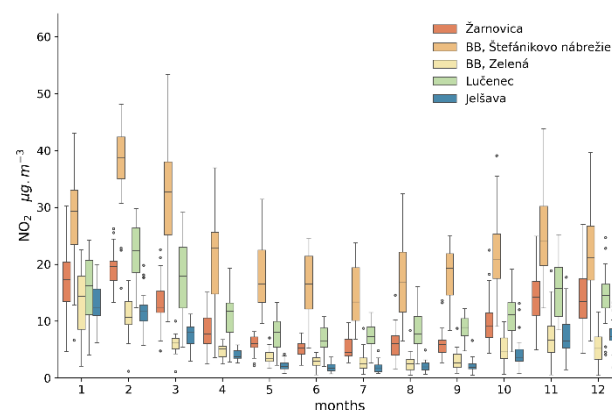


Fig.3.7 Boxplots of NO_2 concentrations by months.



The boxplots of NO_2 concentrations shown in Fig.3.7 indicate that the highest values were recorded during the cold season. At all monitoring stations within the zone, NO_2 concentrations show a decreasing trend during the summer months. This seasonal pattern is mainly related to traffic intensity and meteorological conditions, which in the winter period contribute to a higher accumulation of pollutants in the atmosphere.

3.3 Ozone

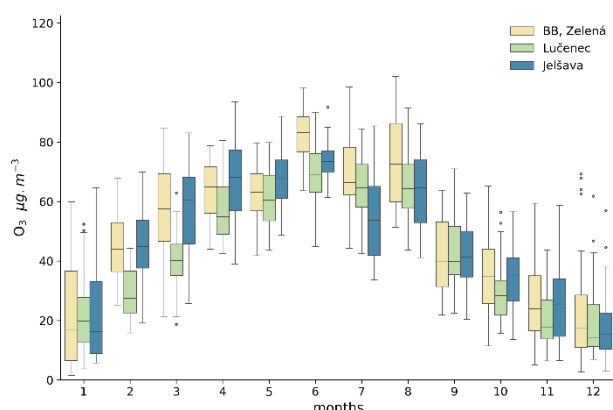


Fig.3.8 Box plots of O_3 concentrations by months.

Ozone monitoring is carried out at three monitoring stations, namely in the regional city of Banská Bystrica (Zelená), Jelšava, and Lučenec.

The target value for the protection of human health was not exceeded at any monitoring station.

The highest concentrations of ground-level ozone generally occur during the warm months with high solar radiation intensity. This is due to photochemical reactions through which ground-level ozone is formed.

In the Banská Bystrica Region, no exceedances of the information or alert thresholds for ground-level ozone were recorded in 2025.

Tab. 3.2 Number of days with a maximum daily 8-hour mean O_3 concentration above $120 \mu\text{g}\cdot\text{m}^{-3}$

Station	2023	2024	2025	Average 2023 – 2025
Banská Bystrica, Zelená	0	1	8	3
Jelšava, Jesenského	1	4	4	3
Lučenec, Gemerská cesta	0	5	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 must not exceed $120 \mu\text{g}\cdot\text{m}^{-3}$ on more than 25 days per calendar year, averaged over three years.

■ Assessment of Compliance with the Requirements of the New Directive

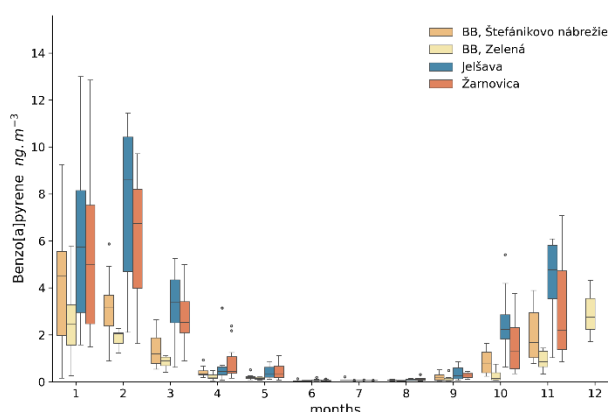
The stricter EU limit value for O₃, defined as 18 days with exceedances of the daily maximum 8-hour mean concentration, **would not be exceeded at any monitoring station.**

3.4 Benzo(a)pyrene

Benzo(a)pyrene B(a)P is monitored in the Banská Bystrica Region at the traffic monitoring station in Banská Bystrica (Štefánikovo nábrežie) and at three background monitoring stations in Banská Bystrica (Zelená Street), Jelšava, and, since 2021, also in Žarnovica.

In 2025, the target value was exceeded in Jelšava, Žarnovica, and at the Banská Bystrica, Štefánikovo nábrežie monitoring station (Table 3.3). In 2025, the maximum B(a)P concentrations at the Jelšava and Žarnovica monitoring stations were measured in January and February, as shown in Fig. 3.9. The heating season at the end of the year did not result in similarly high values, also due to the milder winter conditions. Despite exceeding the target value, the lowest average concentration since 2018 was measured in Jelšava.

Fig.3.9 Box plots of B(a)P concentrations by months.



Tab. 3.3 Annual mean concentrations of benzo(a)pyrene in 2020–2025.

	2018	2019	2020	2021	2022	2023	2024	2025
Target value [ng·m ⁻³]	1,0	1,0	1,0	1,0	1,0	1,0	1,0	1,0
Upper assessment threshold [ng·m ⁻³]	0,6	0,6	0,6	0,6	0,6	0,6	0,6	0,6
Lower assessment threshold [ng·m ⁻³]	0,4	0,4	0,4	0,4	0,4	0,4	0,4	0,4
Banská Bystrica, Štefánikovo nábrežie	2,1	1,7	1,6	1,7	1,4	1,2	1,0	1,1
Banská Bystrica, Zelená		1,1	1,2	1,3	0,9	0,9	0,8	0,7
Jelšava, Jesenského	3,9	4,0	3,0	2,8	2,7	3,4	3,4	2,4
Žarnovica				2,2	2,7	*1,9	2,2	**2,1

≥ 90 % valid measurements

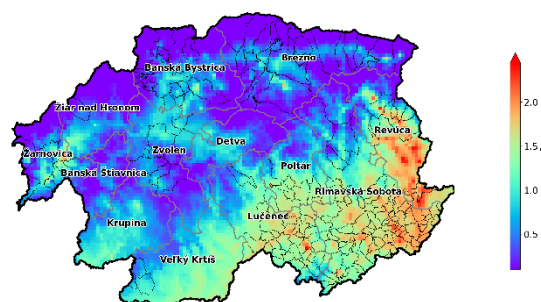
* Relocation of the station in 2023, data outage in November, and fewer measurements in December; 82% valid measurements, ** 80 % of valid measurements in 2025

Exceedances of the target value are marked in red in cases where the station had a sufficient amount (≥ 90%) of valid measurements in the given year.

Despite Jelšava being among the locations with one of the highest shares of heating appliances with high emission factors, a decrease in B(a)P concentrations was recorded in 2025. The results indicate an improvement in air quality, although local solid fuel heating continues to represent the dominant source of emissions of this pollutant.

Fig.3.10 shows the average annual concentration based on the outputs of mathematical modelling. The modelling results indicate that elevated benzo(a)pyrene concentrations are not limited to Jelšava itself but affect a wider area of the south-eastern part of the Banská Bystrica Region. This part of the region has long been among the areas with the highest B(a)P concentrations, with local solid fuel heating and unfavourable dispersion conditions playing a particularly important role.

Fig.3.10 Annual mean concentrations of benzo(a)pyrene according to the results of RIO, IDW-R.



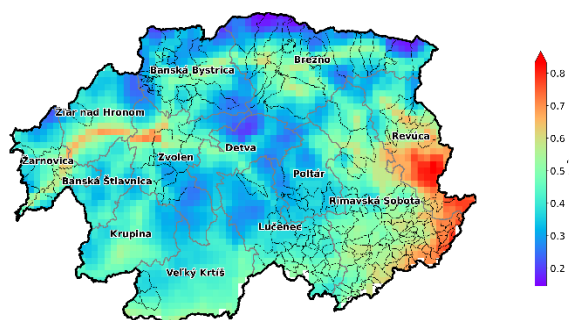
3.5 Benzene

The modelling outputs (Fig.3.11) indicate spatial differences in benzene concentrations within the zone. Relatively higher values occur mainly in the south-eastern part of the region and in the corridor along the R1 expressway between Zvolen and Žarnovica, reflecting the influence of local emission sources and traffic.

However, even in these areas, the modelled concentrations remain well below the limit value for benzene, indicating a favourable level of air quality with respect to this pollutant.

The model outputs at the locations of the Banská Bystrica, Štefánikovo nábrežie and Lučenec monitoring stations were calculated at levels of $0.5 \mu\text{g}\cdot\text{m}^{-3}$ and $0.4 \mu\text{g}\cdot\text{m}^{-3}$, respectively.

Fig.3.11 Annual mean concentrations of benzene according to the results of CMAQ.



3.6 Risk areas

Fig.3.12 Map of risk areas .

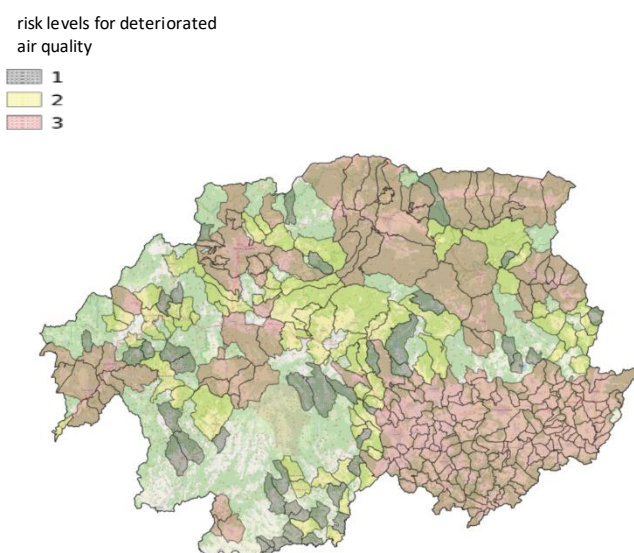


Fig.3.12 shows municipalities at risk of deteriorated air quality, identified using the Integrated Assessment Method of Municipalities². Risk level 3 corresponds to the highest probability of being affected by air pollution. The methodology considers the extent of household heating using solid fuels, the impact of unfavourable dispersion conditions from both short-term and long-term perspectives, the results of the CMAQ chemical transport model, the RIO interpolation model, and high-resolution modelling results from the CALPUFF model in selected domains with a presumed deteriorated air quality.

Municipalities where exceedances of the limit value for PM, NO₂, or the target value for B(a)P were identified based on high spatial resolution modelling were automatically assigned risk level 3, similarly to municipalities where exceedances of limit or target values were detected through measurements. The list of municipalities and their assigned risk levels is available on the website of the Slovak Hydrometeorological Office (SHMÚ)³.

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 correspond to 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.

² 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>

³ <https://www.shmu.sk/sk/?page=2967>

3.7 Summary

The target value for B(a)P was exceeded in Jelšava, Žarnovica, and at the Banská Bystrica – Štefánikovo nábrežie monitoring station. However, an overall decreasing trend and gradual improvement can be observed, particularly at the Jelšava and Banská Bystrica – Štefánikovo nábrežie monitoring stations.

The limit value for the daily mean concentration of PM₁₀ was exceeded at the Jelšava – Jesenského monitoring station, although with the lowest number of exceedances recorded to date.

The new limit values for PM_{2,5} concentrations, which will enter into force from 2030, **would have been exceeded at several monitoring stations** in the Banská Bystrica Region in 2025. A positive aspect is that the Banská Bystrica, **Zelená and Žiar nad Hronom monitoring stations would have met the annual limit values for both PM₁₀ and PM_{2,5}** in 2025.

The new limit value for the annual mean NO₂ concentration would have been exceeded only at the Banská Bystrica – Štefánikovo nábrežie monitoring station, by approximately 10%.

Air quality in the Banská Bystrica Region shows significant spatial differences. The highest concentrations of particulate matter and B(a)P continue to occur mainly in the south-eastern part of the region, where the combination of emissions from local solid fuel heating and less favourable dispersion conditions contributes to elevated pollutant concentrations. Modelling results also indicate that increased concentrations occur in areas not covered by monitoring stations, confirming the regional nature of this issue.

Despite persistent local problems, **a favourable development** was recorded in 2025, with PM₁₀, PM_{2,5}, and B(a)P concentrations at several locations reaching some of **the lowest values** observed since the beginning of monitoring.

No exceedances of the limit or target values for SO₂, NO₂, CO, or O₃, nor exceedances of the annual mean limit value for PM_{2,5}, were recorded in the Banská Bystrica Region in 2025.