

Air quality priorities in Slovakia and activities planned in the project



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Main topics

- SHMU and its position in the national air quality management
- Air Quality in Slovakia
- Current status of the air quality analysis
- Why the analysis is important
- The importance of LIFE IP Malopolska for Slovakia

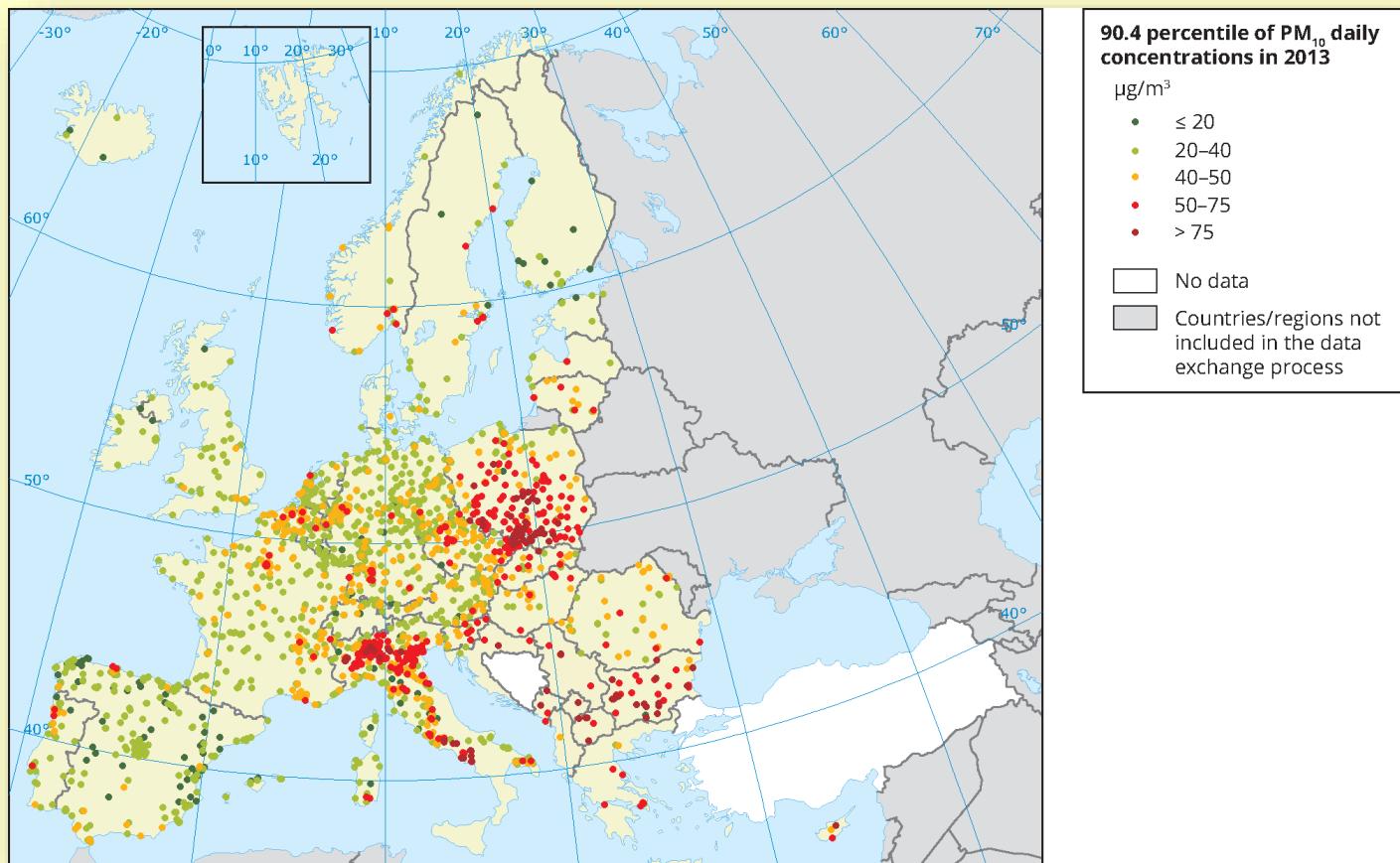
SHMÚ – Slovenský hydrometeorologický ústav



- Expert institute of the Ministry of Environment in the air quality area
- The Department of Air Quality is (among others) responsible for the preparation of air quality analyses and assessments for the national, regional and local air quality plans as required by EU air quality legislation

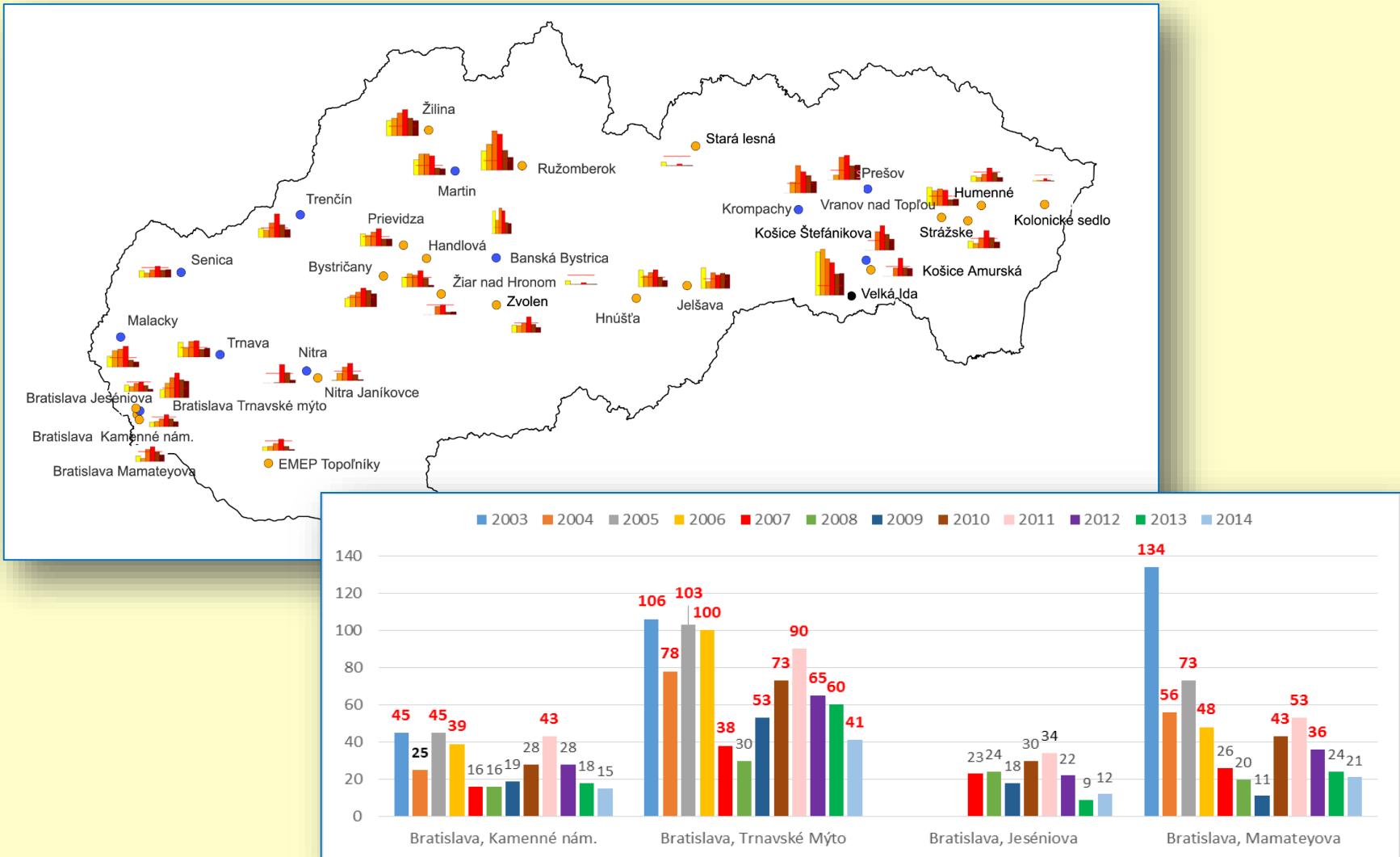
Air quality in Slovakia

PM₁₀ – major problem in most of the monitoring stations
B(a)P, PM_{2.5}, NO₂ – exceedances in some stations



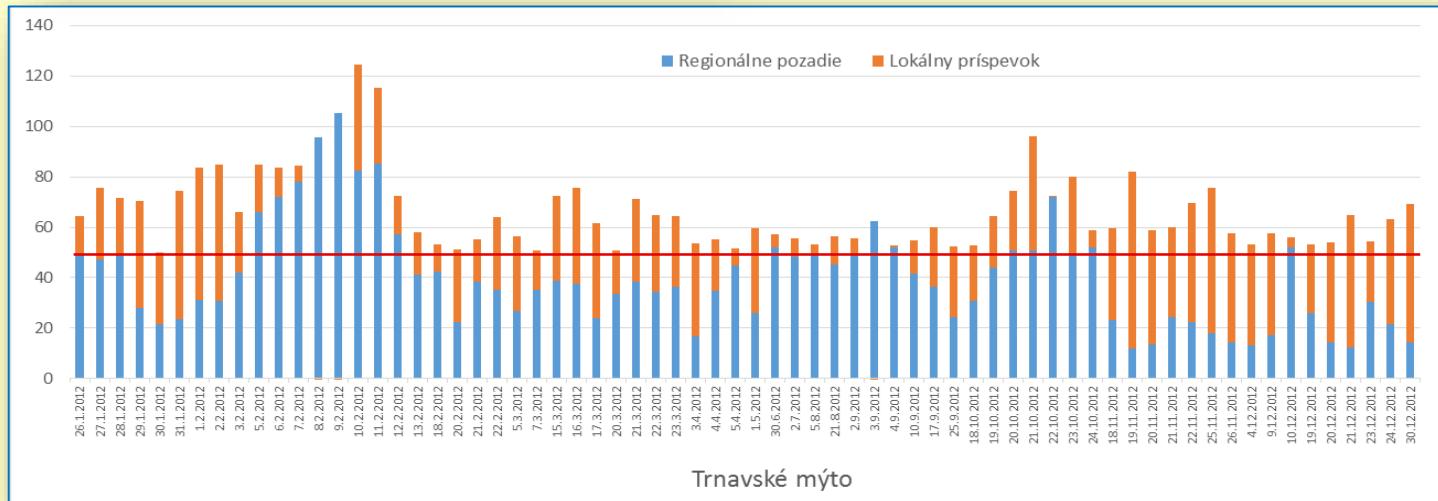
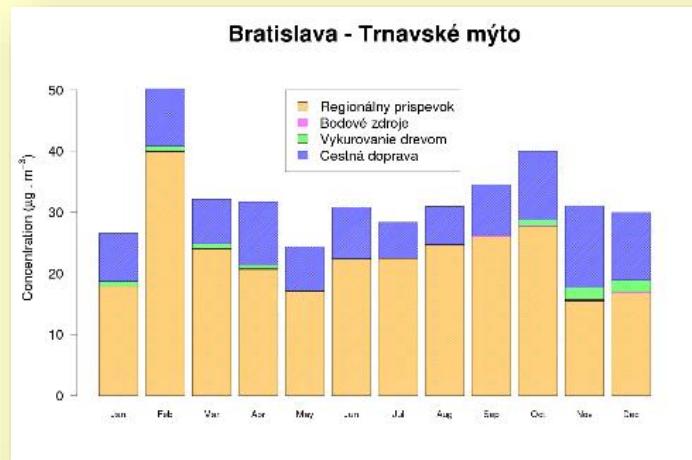
Attributes of the air pollution in Slovakia

Decreasing trend in last few years (PM₁₀)



Attributes of the air pollution in Slovakia

- High proportion of regional contribution

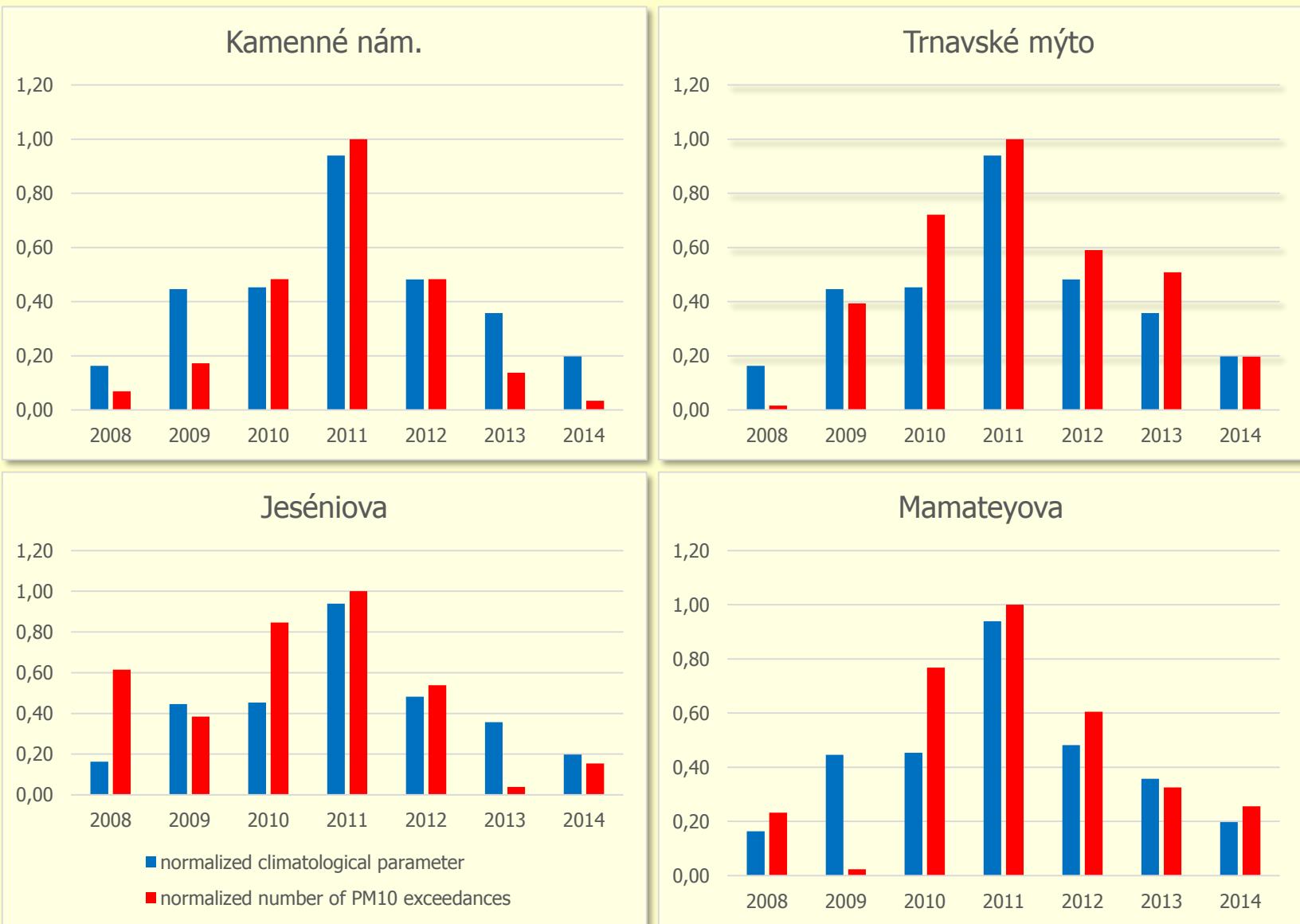


Decreasing trend correlates with climate change

Main influencing factors:

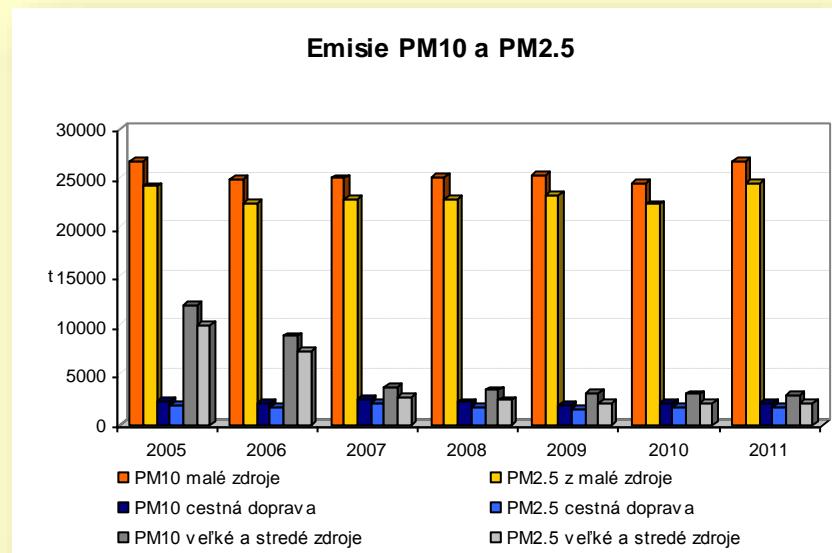
- Length and mean temperature of heating season
- Mean wind speed
- Atmospheric stability (expressed, e.g., as the occurrence and duration of fog)
- Fluctuation of fuel consumption related to heating season

Example of the correlation

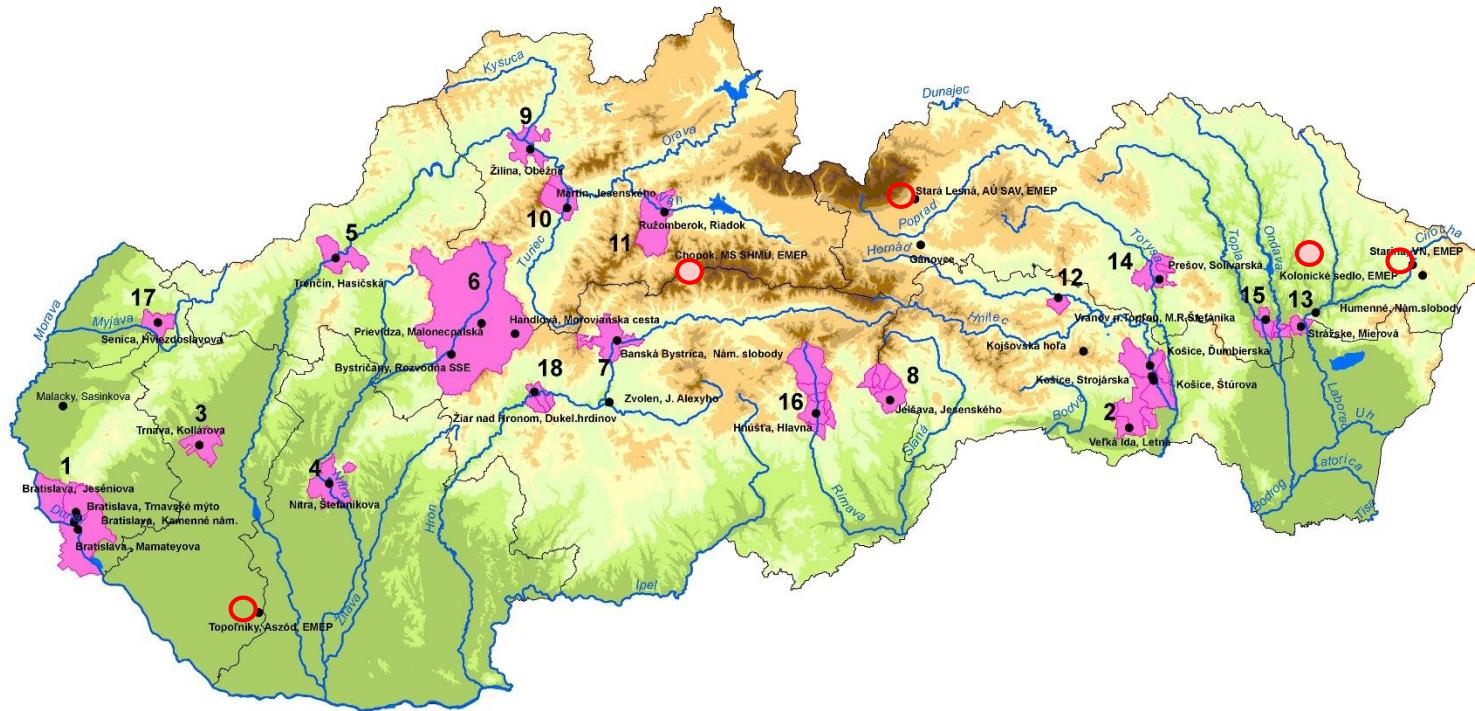


Air quality monitoring network

- Historically located near major industrial sites or in largest cities
- The structure of emissions has changed:
 - Industry – decreasing trend due to technological advancements
 - Residential sector – increasing trend due to shift from gas to solid fuels



Air quality management areas (AQMA)



Legenda:

- Air quality management areas
- Rural background stations
- High elevation background stations
- Air quality monitoring stations

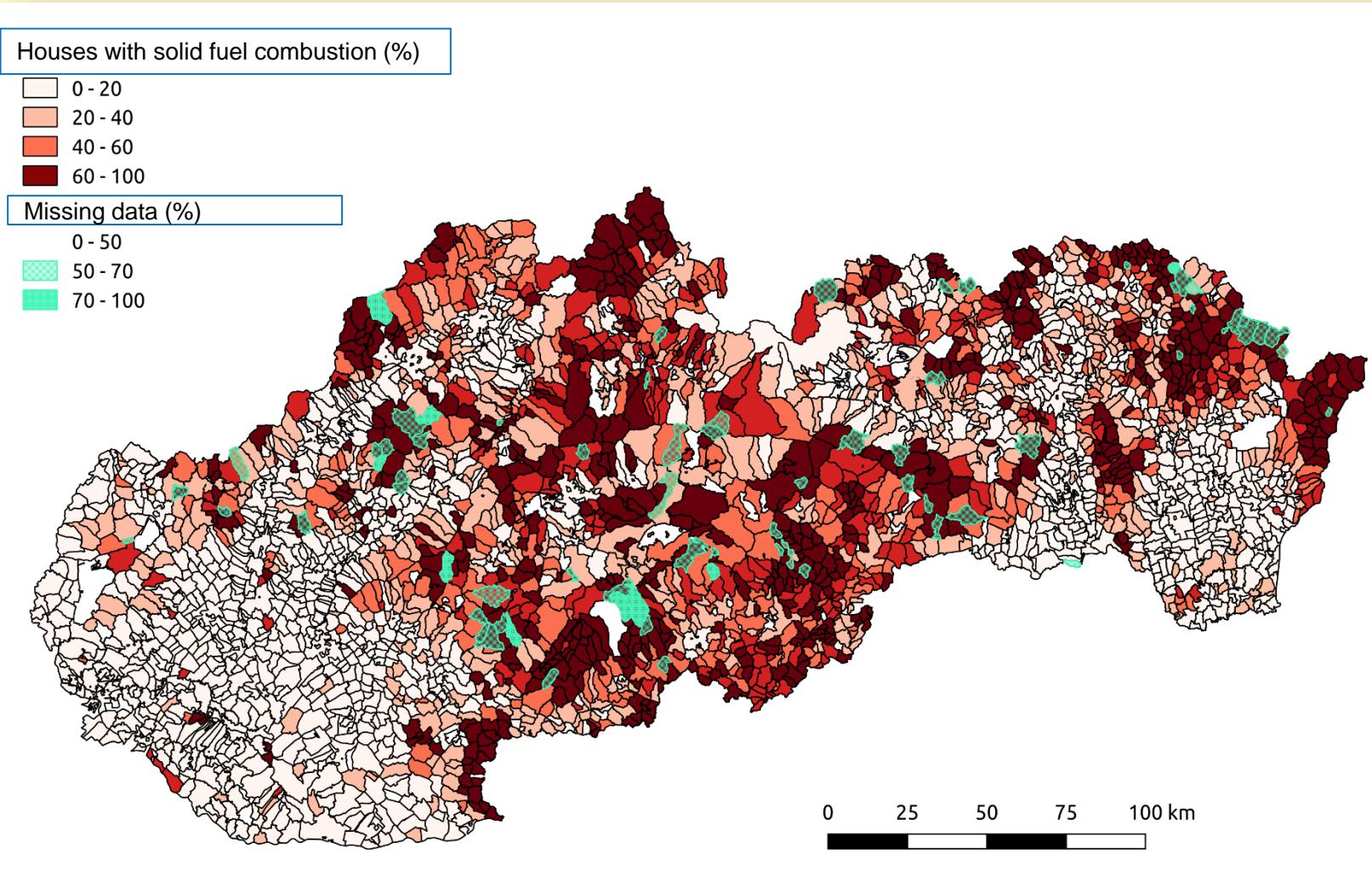
0 20 40 60 80 Km

- 1 – územie hl.mesta SR Bratislava
- 2 – územie mesta Košice a obcí Bočiar, Haniska, Sokoľany, Veľká Ida
- 3 – územie mesta Trnava
- 4 – územie mesta Nitra
- 5 – územie mesta Trenčín
- 6 – územie okresu Prievidza
- 7 – územie mesta Banská Bystrica
- 8 – územie mesta Jelšava a obcí Lubeník, Chyžné, Magnezitovce, Mokrá Lúka, Revúcka Lehota
- 9 – územie mesta Žilina
- 10 – územia miest Martin a Vrútky
- 11 – územie mesta Ružomberok a obce Likavka
- 12 – územie mesta Krompachy
- 13 – územie mesta Strážske
- 14 – územie mesta Prešov a obce Ľubotice
- 15 – územie mesta Vranov n. Topľou a obci Hencovce, Kučín, Majerovce a Nižný Hrabovec
- 16 – územie mesta Hnúšťa a m. č. Brádno, Hačava, Likier, Polom, mesta Tisovec a m.č. Rimavská Pila a obce Rimavské Brezovo
- 17 – územie mesta Senica
- 18 – územia mesta Žiar n. Hronom a obce Ladomerská Vieska

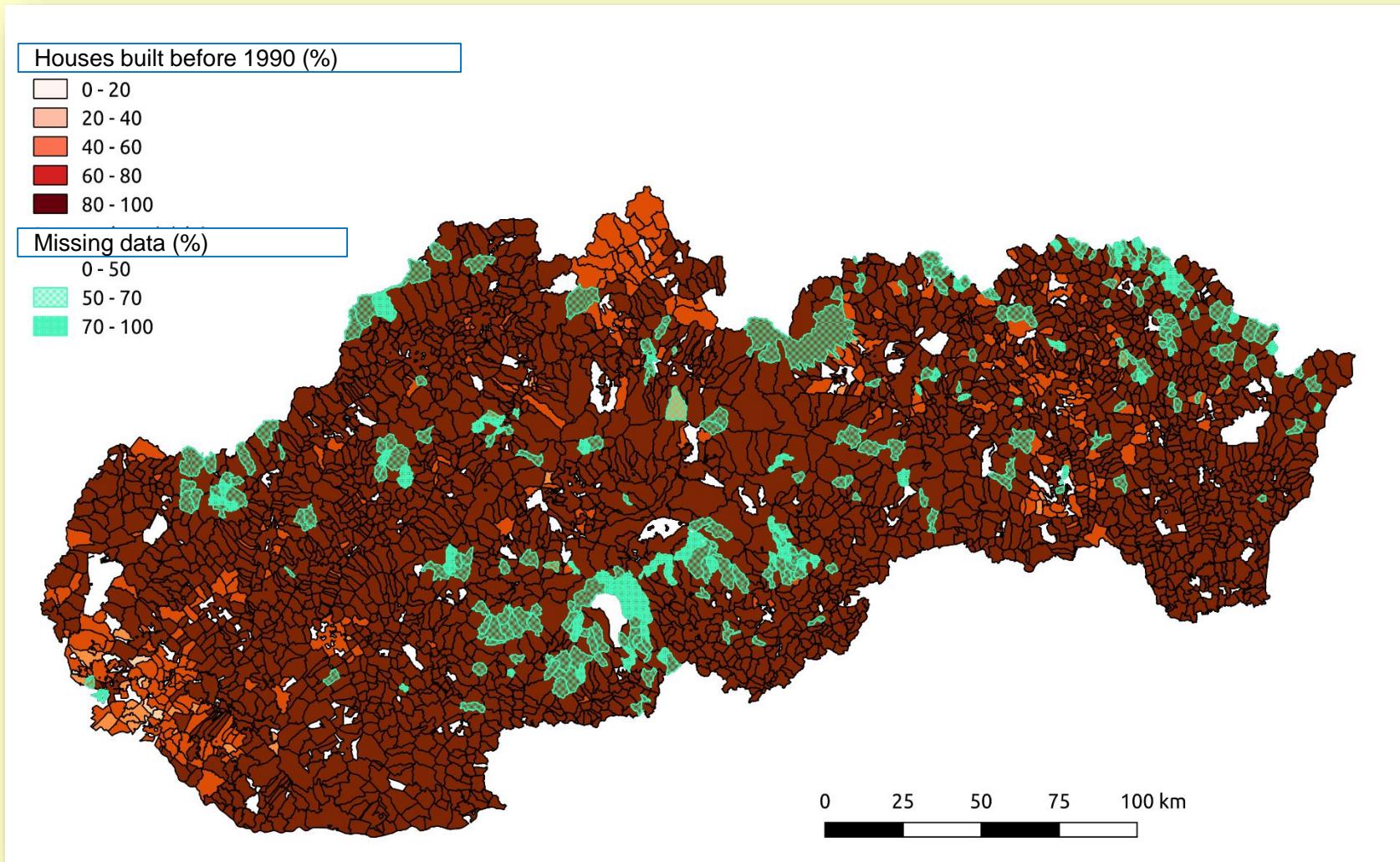
Population census in 2011

- Apartment housing sector predominantly uses gas boilers or central supply of heat from heating plants
- Individual family houses use gas or solid fuel
- The proportion of solid fuel combustion depends on
 - The size of the city/town
 - Accessibility of wood
 - Economical strength of the region

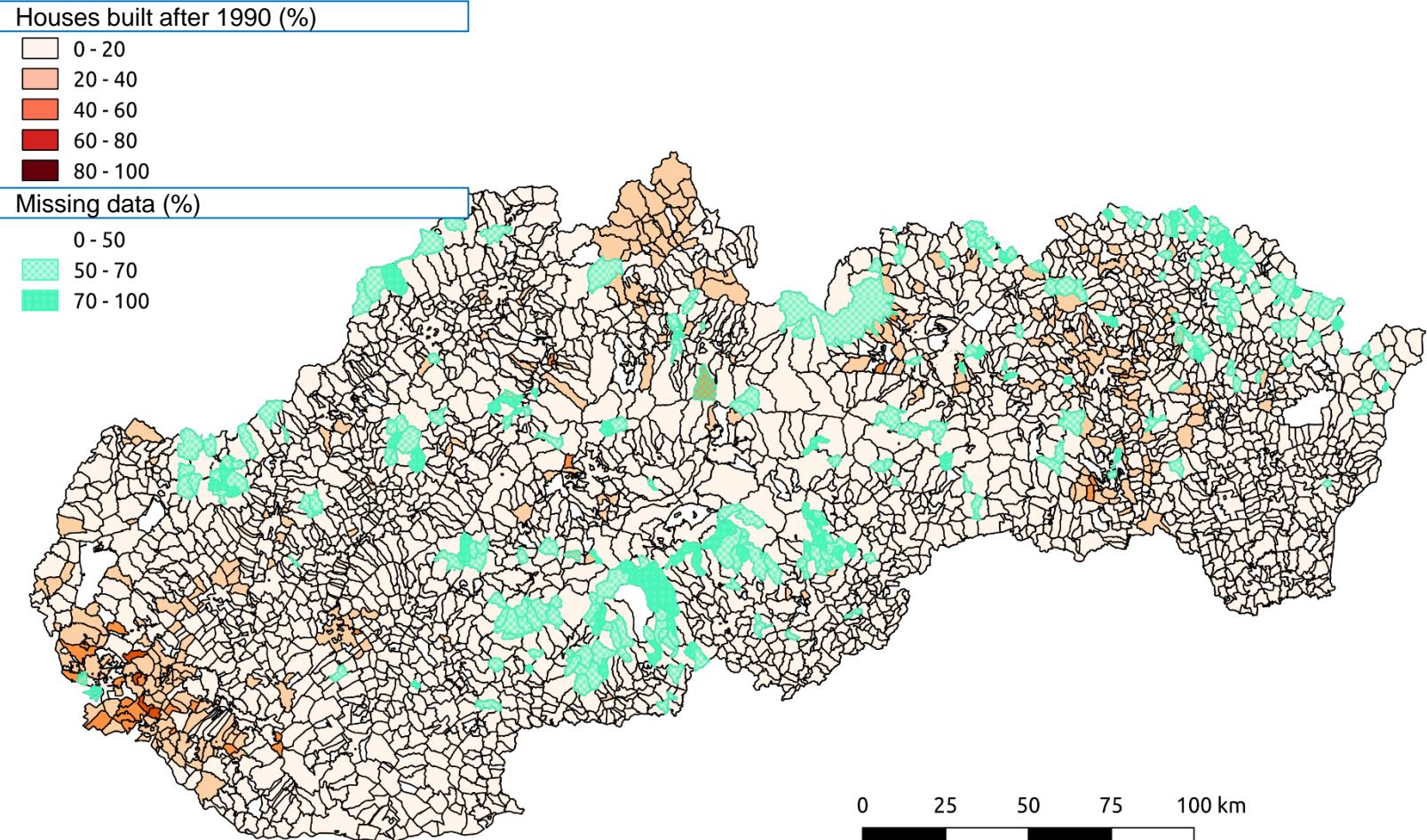
Percentage of houses with solid fuel combustion



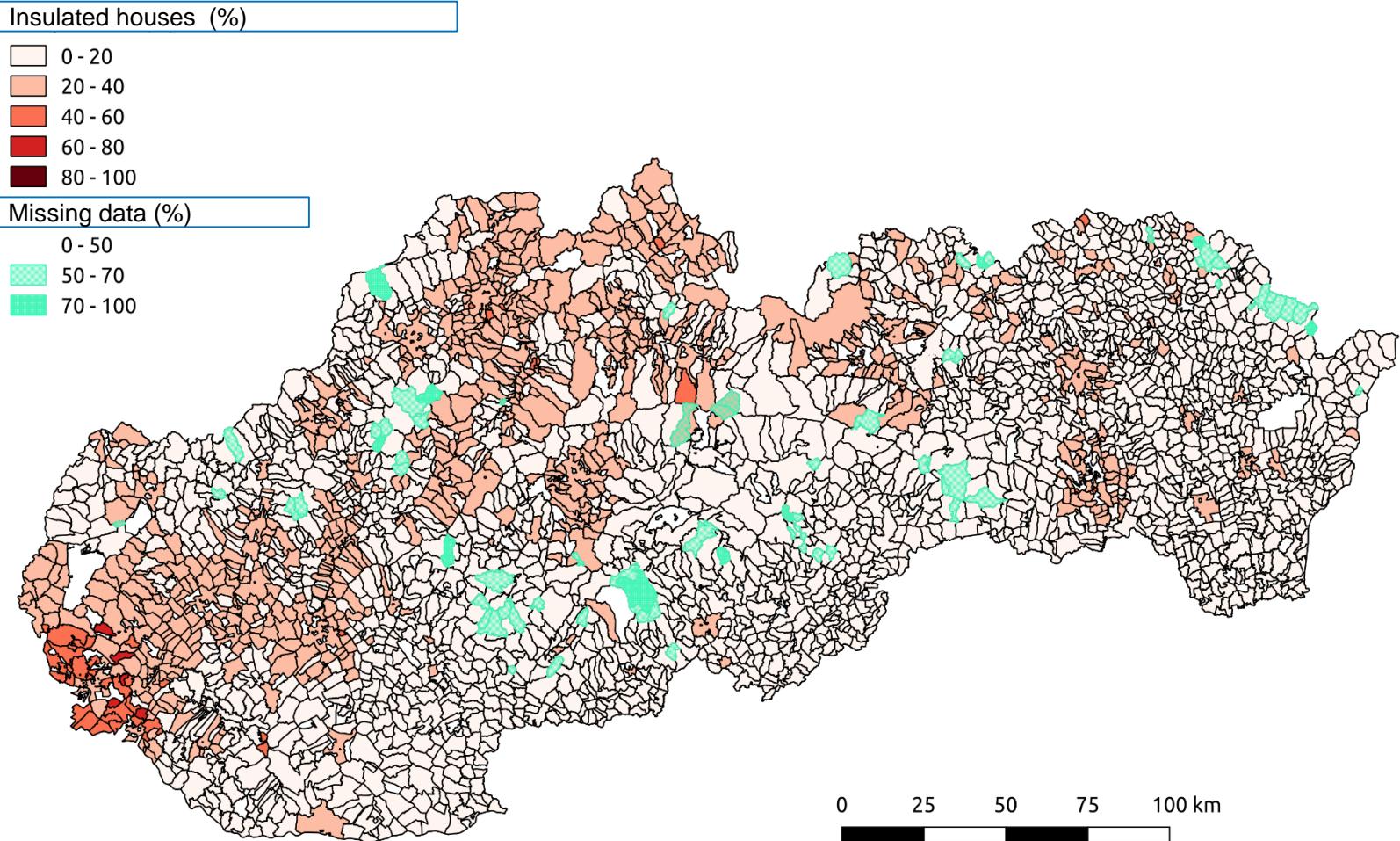
Percentage of old houses (built before 1990)



Percentage of newer houses (built after 1990)



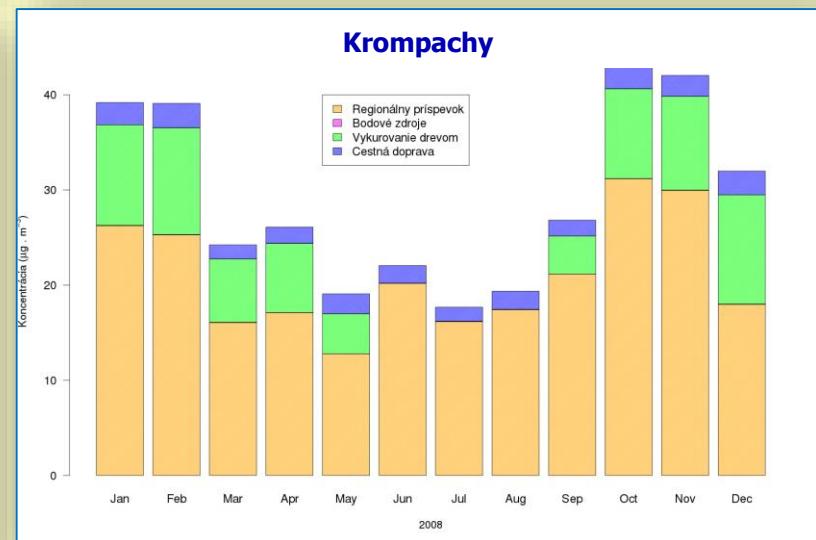
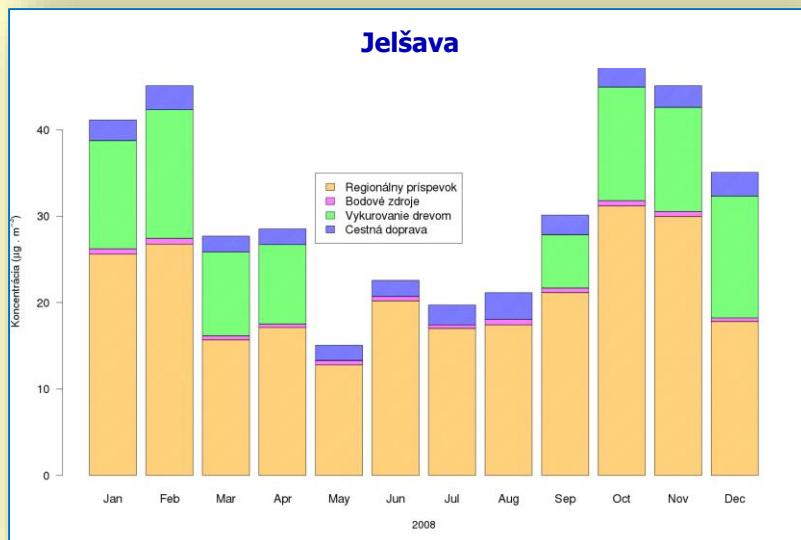
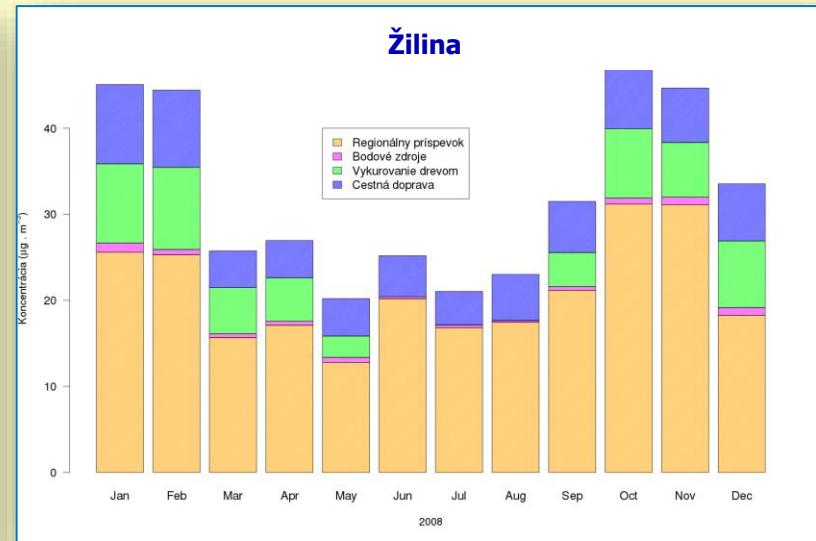
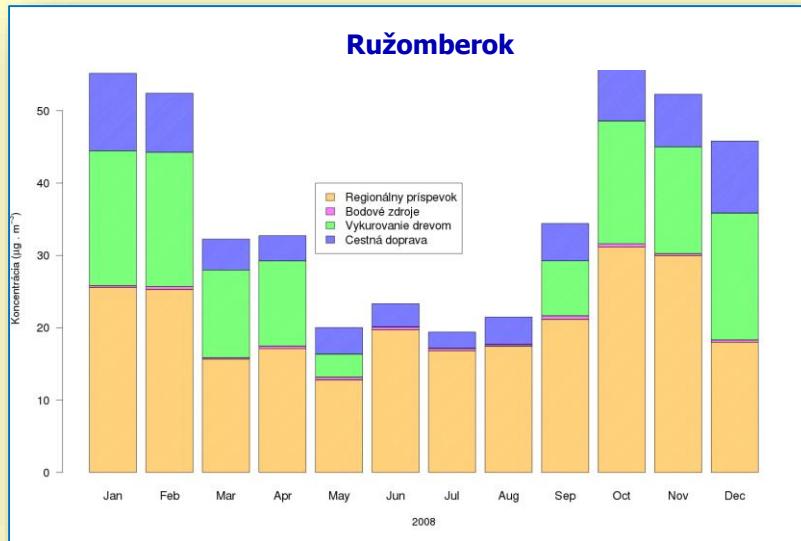
Percentage of insulated houses



Air quality plans

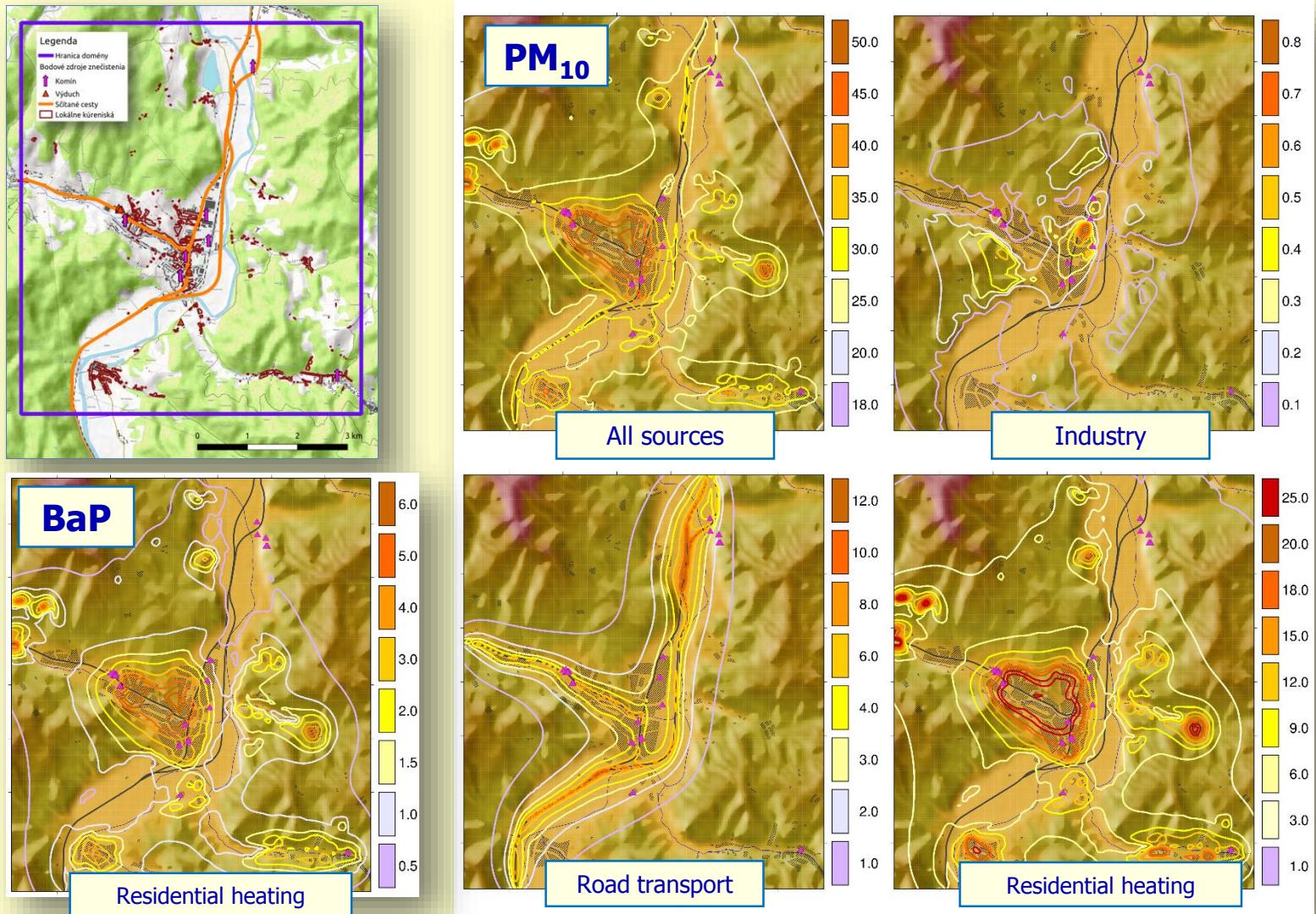
- They are required by EU/national legislation when exceedances of limit value are measured at the monitoring stations
- Source apportionment is carried out in order to focus the emission abatement measures efficiently
- SHMU performs the source apportionment for the air quality management areas.
- In smaller areas with relatively high proportion of solid fuel combustion, the main contribution to PM10 concentrations comes from the residential heating

Source apportionment – AQMA examples



Non-AQMA example: Žarnovica 2013

No monitoring station, just modeling results



Analysis of the situation is important

Current difficulties:

- Regional background (using sparse regional monitoring stations – need of regional modeling)
- Quantifying emissions from residential heating
 - Emission models (insufficient input data, extrapolation necessary)
 - Emission factors
 - Measured vs. reality
 - Inconsistencies across national borders
- Benzo(a)pyrene
 - few measurements
 - expensive
 - need of modeling

Relation to the current project LIFE IP Malopolska

Action C.6:

International modelling of air pollution in the Malopolska Region, Slovakia and the Czech republic

- **Task 1:** Residential emission inventory
- **Task 2:** Transboundary emission data base
- **Task 3:** Inter-regional air quality modelling

Dziękuję państwu za uwagę.

Ďakujem za pozornosť!

Thanks for your attention.

