



# PROFESSIONAL ACTIVITIES



## Review of existing studies on the causes of air pollution

The Research Institute ACCENDO has completed the overview of studies on air pollution topic. The studies show that the air quality in the TRITIA region is one of the worst in the EU. Together with the northern part of Italy, it is one of the areas with high long-term concentration dust particles (PM10 and PM2,5). The limits of poisonous benzo (a) pyrene in the TRITIA region are the most exceeded within the EU.



## State of current national legislatures and policies

ACCENDO is finalizing an overview of the legislation on air quality in which the legal regulations of the Czech Republic, Poland and Slovakia and their link to EU policies and legislation are compared. Poland has not yet ratified 3 important protocols under the UN-ECE Convention on Long-range Transboundary Air Pollution: the Protocol on Heavy Metals, the Protocol on Persistent Organic Pollutants and the Protocol on Reduction of Acidification, Eutrophication and Ground Ozone.



## Overview of Past and Current Relevant EU-Funded Projects

ACCENDO has developed an overview of air quality projects that include a large amount of data and information to be used in the frame of the AIR TRITIA project implementation.

- AIR SILESIA (2010-2013) - Creation of the first joint regional information system on air quality in the Moravian-Silesian Czech-Polish region.
- AIR PROGRESS CZECHO-SLOVAKIA (2013-2014) - study aimed at investigating the causes of deteriorating air quality in the Czecho-Slovak border of the Moravian-Silesian and Žilina regions.
- TAB (Take a Breath) project - aims at developing innovative approaches to air pollution in order to promote sustainable economic development and environmental protection of partner cities / regions (Czech Republic, Hungary, Italy, Poland and Slovenia).
- i-AIR REGION (2018-2020) - the objective of the project is to exchange experience of public administration, especially at regional level, in order to create regional legislative instruments to improve air quality (Czech Republic and Poland).





## Database

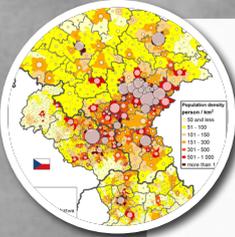
- The following databases are currently being created within the project
1. The Demographic database - Contains age structure, live births, migration of the population and data on the structure of education for all municipalities over the past 10 years (ACCENDO). Selected data for the years 2006, 2010 and 2015 for the Polish territory were provided by Central Mining Institute (GIG).
  2. The Geographic database - Presents the spatial data from the TRITIA region converted to a single spatial database through GIS. This data serves as the basis for further work within other tasks (VŠB).
  3. The Meteorological database - Preparation of meteorological data for modelling air pollution (wind fields, air temperature, stability class, height of the mixing layer) in the TRITIA region on the basis of actual data and reanalysis of mesoscale weather models. (IMWM-NRI).
  4. The Traffic spatial database - Development of the TRITIA region road network, integration of a detailed network of urban communications in the cities of Žilina, Ostrava, Opava, Opole and Rybnik. Processing of transport volume from national censuses from 2006, 2010 and 2015. (Data gathering - VŠB, UNIZA, GIG, Database finalization - UNIZA)
  5. The Domestic boilers spatial database - The spatial polygon representation of the processed data on small-scale furnaces and boilers, comprising emissions calculated according to the unified methodology. (Selected data for 2006, 2010 and 2015 for the Polish territory was provided by GIG, for the Slovak territory by UNIZA; the database is finalized by VŠB.)
  6. The Industrial sources spatial database - Contains the processed data on industrial sources within the TRITIA region. As the need of the calculation of incomplete emissions on the Polish and Slovak sides, the task has not been completed yet and is ongoing. (Selected data for 2006, 2010 and 2015 for the Polish territory was provided by GIG, for the Slovak territory by UNIZA; the database is finalized by VŠB.)
  7. The Socio-Economic database - Contains socio-economic data on the development of unemployment, incomes of households, and enterprises by main activity and by number of employees. Further data has been collected by ACCENDO.
  8. The Epidemiological database - Contains data on standardized mortality rates depending on the following causes of death: malignant tumours of trachea, bronchitis and lung cancer, cardiovascular diseases, respiratory system disorders, and chronic lower respiratory system diseases. Further data on diseases are going to be collected. (ACCENDO)



## Moss Analysis

VŠB designed the network for moss sampling for the project needs, they sampled mosses in the field (ca. 250 samples), then processed the samples for the neutron activation analysis (NAA) and transported them to Joint Institute of Nuclear Research in Dubna, Russia. There the Czech team prepared the samples for the NAA and, in cooperation with local experts, they are analysing the samples, and processing results.





### Socio-economic study

ACCENDO is currently finalizing the socio-economic study of the TRITIA region, with analyses of the size structure of cities and municipalities, the current distribution of economic activities, including the prediction of its development, description of economic and social aspects of the inhabitants (housing, unemployment...).



### Epidemiological study

ACCENDO is also completing the TRITIA epidemiological study focused on the health status of the population in terms of diseases that may be affected by air quality. The study focuses on malignant tumours, particularly malignant tumours of trachea, bronchitis and lungs, cardiovascular diseases and respiratory system diseases with a detailed focus on chronic lower respiratory tract illnesses.



### Traffic model

University of Žilina is currently working on the traffic model of the area, specifically within the Žilina self-governing region, the Moravian-Silesian region, the Silesian Voivodeship and the Opole Voivodeship. The traffic model will be the main input for a generalized emission model. The traffic model of the territory was developed in the PTV VISUM software. This is the largest and most comprehensive model that has been processed within the monitored territory so far.



### Air Pollution Model

Vysoká škola báňská připravila modelovací systém ADMoSS na podrobné modelování kvality ovzduší. Práce na modelu zahrnovaly programování potřebných skriptů a optimalizaci modelovacího procesu pro rozsáhlou oblast regionu TRITIA. Bylo dosaženo 10x kratšího výpočetního času. Projektový tým VŠB podal žádost o výpočetní čas v rámci 11. Veřejné grantové soutěže Národního superpočítačového centra IT4Innovations a získal pro potřeby modelování v rámci projektu 1 000 výpočetních hodin.



### Measuring traffic pollution

One of the main tasks of the University of Žilina is the measurement of the air pollution from the road traffic in Žilina. The measurement methodology has been established and technological background has been provided. Measurement and subsequent assessment of measured values are currently being performed. A network of 6 measuring stations has been built in the city of Žilina for continuous monitoring of air pollution.



# PUBLIC EVENTS REALIZED



Kick-off Conference

17TH OCTOBER 2017



Główny Instytut Górnictwa (GIG) was the co-organizer of the opening conference of the AIR TRITIA project. The conference was organized to present the main goals of the project and the partners involved. The conference was attended by representatives of local governments at various levels, representatives of ministries, scientific institutions, private companies and the general public; a total of 86 participants attended the conference.



# UP COMMING



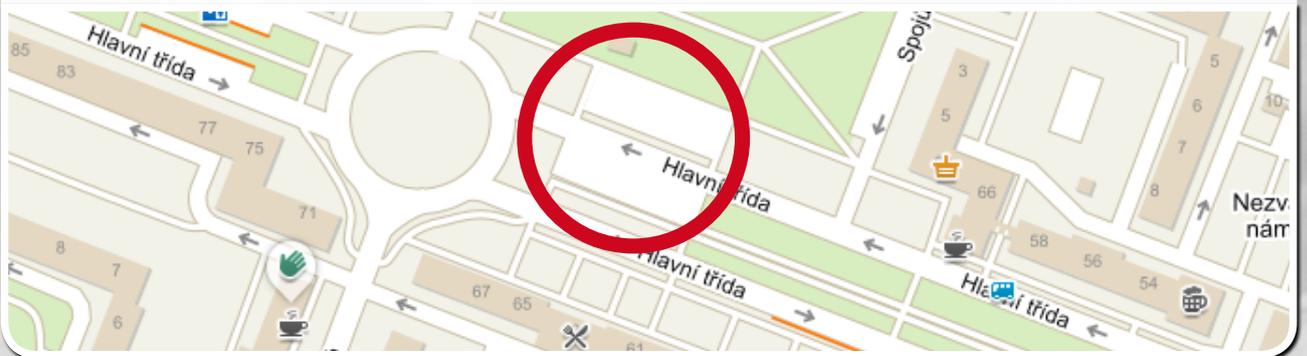
**Healthy Air Info Day**  
**Ostrava - Poruba**  
**Hlavní třída**

**THURSDAY, 26TH APRIL 2018**  
**9:00-17:00**

As a part of the Healthy Air Info Day, the visitors will have a chance to learn how they can help to improve the air quality in our region. An interactive show „SMOKEMAN ZASAHUJE“ (Smokeman in action), designed for both children and adults, will be presented. Its aim is to approach the methods of proper combustion in local furnaces to the general public.

The Smokeman will show how to determine the efficiency of a combustion plant at home, how much it affects what comes out from our chimneys. The Smokeman will also present the basic types of combustion constructions, their basic characteristics, how to operate boilers, stoves and fireplaces in the right way, and how to take a proper care of them.

A lot of interesting tasks are prepared for. They can take part in various measurements and find out how bad is the incineration of domestic waste comparing to burning the dry wood. A very popular experiment among children is the representation of inversion in the aquarium. The simple experiment allows the children to learn how the inverse arises and how they can create inversions themselves using home-made kitchen salt, water, and food colouring. In addition, children can try to measure flame temperature using a thermocouple or thermal camera. For bold children, a less traditional method of making fire is prepared - making fire using a rocket. The show will be presented in an amusing and engaging form when touching is strictly indicated.



**WITHIN THE FOLLOWING EVENTS**  
**INFORMATION ON THE AIR TRITIA PROJECT WILL BE PRESENTED**



**Earth Day**  
**Kysucké Nové Město**  
**Kysucká hvězdáreň**

**FRIDAY, 20TH APRIL 2018**  
**8:00-22:30**



**Earth Day**  
**Opava**  
**Janáčkovy Sady**

**SUNDAY, 22ND APRIL 2018**  
**13:00-18:00**

## ABOUT AIR TRITIA PROJECT

15 partners from 3 Central European countries have joined forces to improve air pollution management in the territory of the EGTC TRITIA.

### Czech Republic

- VŠB - Technical University of Ostrava
- ACCENDO - Center for Science and Research, z.ú.
- Statutory city of Ostrava
- Statutory city of Opava
- Moravian-Silesian Region

### Slovakia

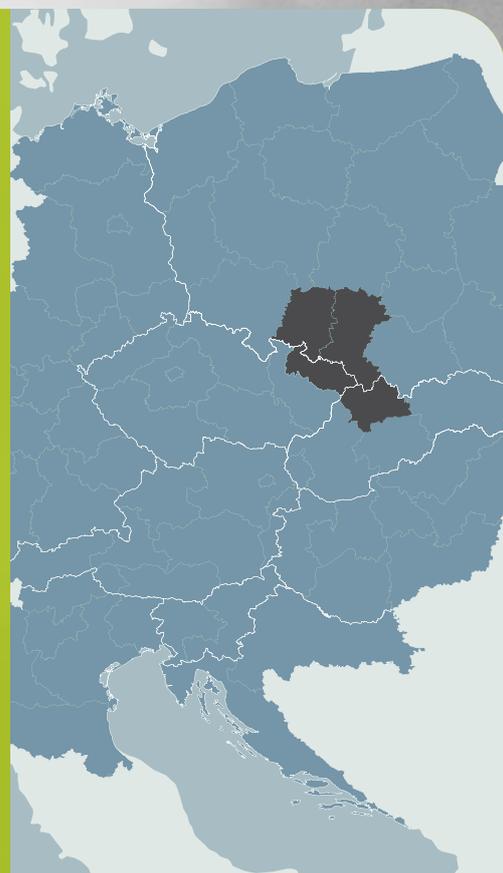
University of Žilina (UNIZA)  
The City of Žilina  
Žilina Region

### Poland

- The Central Mining Institute (GIG)
- European Territorial Cooperation Association TRITIA
- Institute of Meteorology and Water Management (IMWM-NRI)
- The City of Rybnik
- The City of Opole
- Opole Voivodeship
- Silesian Voivodeship

The project is funded by the Interreg CENTRAL EUROPE program, which supports cooperation in solving common problems in Central Europe.

The program is supported with 246 million euros from resources of the European Regional Development Fund. It supports cross-border cooperation among institutions to improve urban conditions in regions of the Czech Republic, Croatia, Italy, Hungary, Germany, Poland, Austria, Slovenia and Slovakia.



<http://interreg-central.eu/air-tritia>

[f http://facebook.com/airtritia](http://facebook.com/airtritia)

[in http://linkedin.com/in/airtritia](http://linkedin.com/in/airtritia)

[@Airtritia](https://twitter.com/Airtritia)

