

High concentrations of particulate matter, PM₁₀, are very common. The concentrations are highest during mid-winter, December and January, and have daily peaks at early morning and evening. High concentrations of PM₁₀ occur both in biggest cities as well as in smaller towns. Possible sources are traffic, residential heating and industry. The most harmful to human health is the smallest fraction of particulate matter (particles with aerodynamic diameter less than 2.5 micrometer - PM_{2.5}). Monitoring of these hazardous fine particles is only starting in Croatia.



MHSC Calibration Laboratory

Contact information:

Delegation of the European Union to the Republic of Croatia
Trg žrtava fašizma 6, 10000 Zagreb, Croatia
tel: +385 1 4896 500, fax: + 385 1 4896 555
<http://www.delhrv.ec.europa.eu>

Ministry of Environmental Protection,
Physical Planning and Construction
Directorate for Atmosphere and Waste Management
Section for Air Protection
Republike Austrije 14, 10 000 Zagreb, Croatia
tel: +385 1 3782 172, fax: +385 1 3782 157
<http://www.mzopu.hr>
<http://zrak.mzopu.hr>

Meteorological and Hydrological Service of Croatia
Air Quality Division
Grič 3, 10000 Zagreb, Croatia
tel: +385 1 4565 678, fax: +385 1 4851 901
<http://meteo.hr/>

Croatian Environment Agency
Section for Air Quality
Trg maršala Tita 8, 10 000 Zagreb, Croatia
tel: +385 1 4886 867, fax: +385 1 4886 850
<http://www.azo.hr>
<http://lokalnemreze.azo.hr/iso/iskzl/>

Local air quality monitoring networks:

1. Zagreb County
2. Sisak-Moslavina County
3. Primorje-Gorski kotar County
4. Osijek-Baranja County
5. Split-Dalmatia County
6. Istria County
7. Bjelovar-Bilogora County
8. Karlovac County
9. Šibenik-Knin County
10. Zadar County
11. City of Zagreb

This publication has been produced with the assistance of the European Union. The contents of this publication are the sole responsibility of the author and can in no way be taken to reflect the views of the European Union.

This project is funded by the European Union

Find more about the project on <http://meteo.hr/twinning>



The European Union Phare Programme for Croatia

Twinning Project:

Establishment of Air Quality Monitoring and Management System



ILMATIETEEN LAITOS
METEOROLOGISKA INSTITUTET
FINNISH METEOROLOGICAL INSTITUTE



METEOROLOGICAL AND HYDROLOGICAL SERVICE
DRŽAVNI HIDROMETEOROLOŠKI ZAVOD



Ministry of Environmental Protection, Physical Planning and Construction
MINISTARSTVO ZAŠTITE OKOLIŠA, PROSTORNOG UREĐENJA I GRADITELJSTVA



AGENCIJA ZA
ZAŠTITU OKOLIŠA

Modern air quality monitoring largely relies on automatic analyzers which provide continuous real-time information of pollutant concentrations in ambient air. Today in Croatia there are 36 such automatic monitoring stations located in the largest cities and major industrial areas. Majority of these belong to local air quality networks. State air quality network has now 11 automatic monitoring sites in urban areas and it will be completed with 12 new rural stations as part of the EU-funded PHARE 2006 project "Establishment of Air Quality Monitoring and Management System". As a result Croatia will have an extensive net of 48 automatic monitoring stations throughout the country for the assessment of air quality with an overall purpose to protect human health and ecosystems from impacts of air pollution.

Automatic air quality monitoring stations



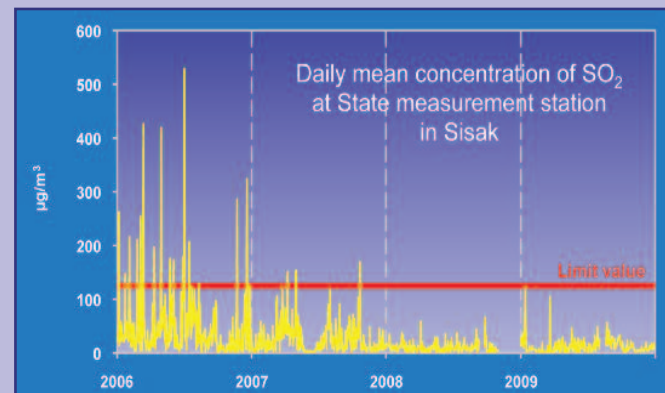
Ministry of Environmental Protection, Physical Planning and Construction (MEPPPC) coordinates air quality monitoring and air pollution prevention activities on national level and also provides access to the real-time concentrations of the state network <http://zrak.mzopu.hr/>. Regional and local authorities are responsible for pollution prevention activities and measurements on the local level.

The completed State Network will be managed by the Meteorological and Hydrological Service of Croatia (MHSC) which also maintains the calibration laboratory for the control of instrument performance, as well as the upgraded chemical laboratory for detailed analyses of atmospheric pollutants.

Croatian Environment Agency (CEA) collects all air quality monitoring data to the National Environment Information System and also provides access to the real-time concentrations of local networks on the Internet <http://lokalnemreze.azo.hr/iszo/iskzlj/>.

High concentrations of air pollutants pose a threat to human health. The most vulnerable are children, elderly and people with asthma or other lung and heart problems. EU has adopted pan-European air quality standards (limit values) to reduce the risks for human health and ecosystems.

Since the early 1990s, pollutant emissions from large point sources have generally decreased, due to increased use of low-sulphur fuels as an energy source and extension of district heating, decline in industrial production, and the shutdown or replacement of polluting industry with a new environmentally cleaner technology. In Sisak, the SO₂ concentrations have decreased substantially (see the graph), but in some heavily industrialized regions the episodic high concentrations of SO₂ still occur.

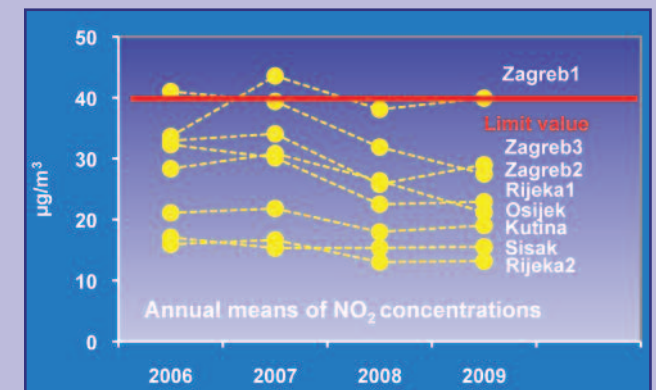


MHSC Chemical Laboratory



Desinic Air Quality Monitoring Station

In the future, pollution prevention measures will have to focus more and more on the road transport sector. Growth in the living standards and mobility have resulted in the increased number of vehicles and kilometres covered. This has compensated the positive development achieved by the adoption of less polluting vehicle technology such as catalytic converters.



The emissions from road traffic include nitrogen dioxide (NO₂), carbon monoxide (CO), benzene, and particulate matter (PM₁₀), and these emissions contribute to formation of smog and ozone (O₃). Vehicle exhausts are especially harmful to human health as diluted emissions occur directly at the human breathing height.