

# When air quality governs traffic management

March 21 2014

---



Poor air quality costs Europe more than €700 million per year, in health expenditures and loss of economic performance, according to official EU sources. To tackle such major issue, the EU-funded MACC-II research project, due to be fully operational in 2014, aims at delivering accurate air quality predictions all over Europe. Now, these predictions could soon be used in traffic management.

Specifically, scientists have developed one specific solution, called iTRAQ. It is designed to provide a dynamic [traffic management](#) system for optimising use of the road network. In addition, it aims to meet the growing requirements for high standards air quality in urban environments. To achieve this goal, it relies on both traffic information and on MACC-II data.

Its objective is to be operational down to the scale of a city district or even at main street level. "iTRAQ will deliver traffic strategies two or three hours ahead," says Roland Leigh, a researcher at the air quality group of the department of physics and astronomy at the University of Leicester, UK. He adds: "MACC-II is critical for this purpose, as it provides incoming data that we use to constrain our air pollution models at a smaller scale and for hourly forecasts."

Traffic control strategies consist in changing the phasing of traffic lights, namely speeding up or slowing down their frequency. "If necessary, we can withhold the traffic in a well-vented area, whilst allowing free-flowing in a [congested] street, in order to reduce the accumulation of pollution," Leigh tells youris.com.

The iTRAQ feasibility study has now been completed. Field tests are now due to take place within two or three years. The system is based on predictions from MACC-II data on the level of nitrogen oxide, which are irritant gases affecting the respiratory tract. In the future, the solution will include predictions of other harmful pollutants such as ozone and aerosols, from the same source.

However, such a system might be difficult to implement. "I see the complexity of modelling both traffic and air quality at small scales as the main obstacle for this project," says Gabriel Jodar, of Jodar + partners, a Swiss consultancy specialised in urban planning, in Rivera. His company advised the municipality of Barcelona, in Spain, to implement traffic

management solutions in response to high pollution rates. "In Barcelona, we have chosen a simpler approach. As an example, we reduce speed on the motorway bypass from 120 km/h gradually down to 60 km/h depending on air quality measurements, and we check drivers' speed with radars."

By contrast, a city like Lyons, France, has chosen to reduce traffic levels with roadwork amenities and cycle paths. "Using air quality prediction to manage traffic is an interesting initiative," says Mireille Roy, deputy mayor of Lyons, who is in charge of urban ecology and environmental quality. "But it doesn't stimulate the search for alternative means of conveyance," she tells youris.com, However, she recognises that "[air quality](#) predictions, [traffic](#) management systems and roadwork should be considered as complementary solutions."

Provided by Youris.com

Citation: When air quality governs traffic management (2014, March 21) retrieved 24 April 2024 from <https://phys.org/news/2014-03-air-quality-traffic.html>

|  |
|--|
| <p>This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.</p> |
|--|