

Air quality application shows local pollutant concentrations

Would you like to know how much air pollutants you breathe during your cycling trip? Are you interested in annual pollutant concentrations in a district where you're buying a home? In the future, Enfuser air quality model and applications built around it could provide the answer. So far, the model shows promising results.

"Enfuser is an innovative way of modelling air quality by combining measurements of pollutant concentrations with land use information and weather data. It's a new approach although the model also utilises traditional dispersion modelling", says **Lasse Johansson**, a researcher at the Finnish Meteorological Institute, where Enfuser has been studied and developed for five years.

"It yields air quality data, with a local precision up to 10 x 10 metres, that in theory could estimate personal exposure to pollution minute by minute. The model can operate in near-real-time and forecasting capabilities is a big plus, all of which expand the range of applications".

Enfuser can model concentrations of fine particulates as well as road dust, ozone and nitrogen dioxide.

Tested in Finnish urban areas

Enfuser and a related web portal have been in test use in Finnish cities with populations over 100,000. "It was piloted in the Helsinki metropolitan area but has been used in other cities, too. Tests have also taken place in Langfang China. The model can be transferred to different localities more easily than traditional air quality models", Lasse Johansson explains.

Information generated by Enfuser is available to researchers and business partners. It has proven to be an accurate and promising approach. Feedback has been positive, with numerous ideas for further development.

The Helsinki Region Environmental Services Authority HSY will utilize Enfuser in air quality communication. For instance, HSY is planning to connect the Enfuser portal to HSY's air quality web pages as well as display screens on the city metro and trams within a year.

Development work on the Enfuser model has been carried out since 2015 in the CITYZER project, which is developing new digital services and products to support decision-making processes related to weather and air quality in cities.

Sky's the limit

"Used in combination with other applications on a smart phone, Enfuser can offer a great range of services to ordinary consumers. Linked to GPS data, it could measure how much pollution a cyclist has been exposed to, or how much exposure some future bicycle route would create", Lasse Johansson points out.

The application can also show annual average concentrations of air pollutants in various residential areas. This information would be valuable to people who are planning to buy a new home. <http://cityzer.fmi.fi>