

Healthy Urban Route Planner: results

Michiel van der Molen (1), Gert-Jan Steeneveld (1), Corne Vreugdenhil (2), and Arend Ligtenberg (2)
(1) Wageningen University, Meteorology & Air Quality, Wageningen, the Netherlands (michiel.vandermolen@wur.nl), (2) Wageningen University, Laboratory of Geo-information Science and Remote Sensing, Wageningen, the Netherlands

Cities are subject to urban heat islands and poor air quality which is a burden to the human health for urban citizens. In order to provide the citizens of Amsterdam a tool that on the one hand raises their awareness for the urban environmental quality and on the other hand offers adaptation strategies to the urban heat and poor air quality, the healthy urban route planner has been developed, including input from the Bicyclists' Association Amsterdam and Health Service (GGD) Amsterdam. For each summer day weather forecasts for air temperature and for air pollution concentrations were provided in an operational way. A detailed land use map allowed for high spatial detail. Traffic model data for Amsterdam and TNO-MACC inventories fed the forecasting model. These forecasts have been validated against observations of the Amsterdam Atmospheric Monitoring Supersite project, i.e. a network of 30 weather stations across Amsterdam. In addition, air quality forecast have been evaluated against observations from project partner GGD Amsterdam. These high resolution (100 x 100 m) forecasts have been offered to a route planning algorithm that instead of the shortest route offers also the coolest (minimum urban heat) and most healthy route (least air pollution exposure). Finally, a Monte Carlo analysis of many different possible routes through Amsterdam generated statistics to study how beneficial a longer travel distance is for the exposure. In particular for air quality, a relatively short detour already allows for a reduced pollution exposure. Roughly speaking, a 10% detour results in a 20% smaller exposure for the three summer days studied here. The poster shows the results of the validation, an impression of the temporal and spatial variability and the gain of the route planner.