

URBMOBI

A mobile measurement device for urban environmental monitoring

Lisette Klok¹, Peter van der Mark¹, Evert Nieuwkoop¹ and the URBMOBI Team²

¹TNO, ²RWTH Aachen University / BME / ARIA Technologies / MEE0

DETAILED INFORMATION ON HEAT AND AIR QUALITY HOT SPOTS

Due to anthropogenic climate change, urban citizens are exposed to increasing air temperatures and reduced air quality. To plan adequate adaptation and mitigation measures, detailed knowledge of thermal and air quality hot spots is required. Usually, data of fixed stations is interpolated and extrapolated to show e.g. the structure of the urban heat island, not taking into consideration that environmental data within a city are highly variable within time and space. URBMOBI is a novel mobile instrument, providing temporally and spatially distributed environmental data. It fulfills the need for monitoring at various places without the costs for a large number of fixed measurement stations. URBMOBI integrates state-of-the-art sensors in a system that can be operated on buses, trams or other vehicles. The prototype will focus on heat stress in cities by measuring air temperature, relative humidity and solar radiation. Air quality sensors will be introduced at a later stage.

URBMOBI SENSOR



Fig. 1: Pictures of the Urbmobi prototype.

The prototype version of URBMOBI includes an EKO ML-01 SI-Pyranometer, a SHT75 relative humidity sensor and an IST pt1000 temperature sensor, apart from sensor read out electronics, a GPS receiver, local data storage on a micro-SD card, a microcontroller for the acquisition process, wireless communication electronics and a power regulation circuit.

VISUALIZATION

URBMOBI is accompanied with a graphical user interface and visualization tool: MEA (Multi-sensor Evolution Analysis).

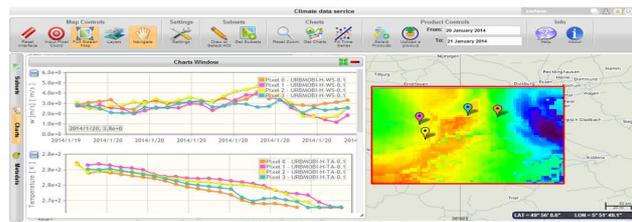


Fig. 2: Example of the graphical user interface MEA.

APPLICATIONS

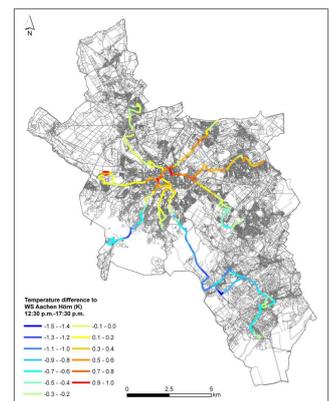
URBMOBI data will provide climate services and environmental data for a wide range of applications:

- mapping the urban heat island effect, identifying hot spots and comfortable neighborhoods.
- predicting heat stress situations and warning vulnerable citizens.
- improving urban weather forecasts.
- developing and evaluating climate-proof urban plans and designs.



URBMOBI ON BUSES

A preliminary URBMOBI version was operated by RWTH Aachen University and the local bus company (ASEAG) in 2010 and 2011.



CONTACT

If you are interested in applying Urbmobi or need more information, please contact Peter.vandermark@tno.nl. Or visit our website: www.klimageo.rwthachen.de/index.php?id=urbmobi

CONSORTIUM



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