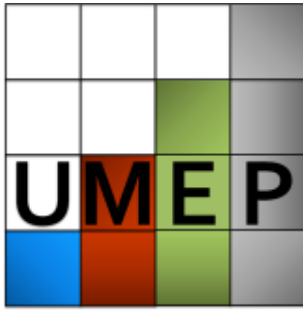


# Urban Multi-scale Environmental Predictor



Created by: UMEP  
Link: <https://umep-docs.readthedocs.io/en/latest/Introduction.html>  
Language: English  
High level of expertise required

UMEP is climate service plugin for QGIS (free and open-source desktop geographic information system) that can be used for a variety of applications related to outdoor thermal comfort and climate change mitigation.

## Challenges addressed

- Heat stress and heat island effect
- Air quality
- Ecological connectivity

## Type of tool

- Evaluation
- Model
- Decision-support tool

## Outcomes

Outputs can be used to characterize the urban environment, to prepare meteorological data for use in cities, to undertake simulations and consider alternative scenarios, and to compare and visualize different combinations of climate indicators.

## Uses

Identify heat and cold waves; assess the impact of green infrastructure on runoff; evaluate the effects of built infrastructure on human thermal stress and the impact of human activities on heat emissions

## Examples of application

### The effect of urban geometry on mean radiant temperature under future climate change: a study of three European cities

The study examines the effect of urban geometry on daytime heat stress in three European cities. The study finds that dense urban structure can reduce daytime heat stress in the summer and does not cause substantial changes in the winter. Also, it concludes that in dense urban settings, a more diverse urban thermal environment is preferred to compensate for reduced solar access in the winter.

## Scale

Local.

## Location

Worldwide.

## Constrains

Requires expertise with the QGIS software.

## Advantages

Open source

## Scope

Urban.