

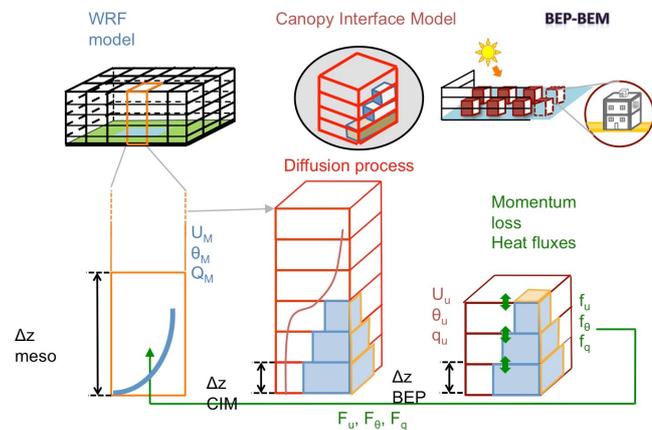
## Climate change and urban heat island impact on urban planning strategies

Projet N°8747

Catégorie de projet : GC

Type de projet : Projet de Master GC (PDM)

Responsable : Mauree Dasaraden



### Domaine(s) d'activité

Energie, Environnement construit, Modélisation, Physique du bâtiment

### Descriptif du projet

The efficient planning of future buildings and districts will only be possible if urban planners have the appropriate tools and information at their disposition. For example, the future development of the EPFL campus shows the need to densify the existing building stock, but the question still remains on its design in order to reduce the energy consumption while at the same time increasing the liveability of the outdoor environment. It is necessary to represent influence of obstacles on the urban climate and what are the effects when evaluating building energy use, air pollutant dispersion and renewable energy potential in urban planning scenarios. For this reason, parameterization have been included in meteorological models (such as WRF (Skamarock, 2008) to determine the influence of buildings on the micro-climate of the and also a quantification of the energy consumption. These models can reproduce very broadly the vertical profiles of wind, temperature and humidity, but they currently lack the capability to produce high-resolution vertical profiles of these variables. Objectives \* Run the model with the multiple urban strategies. \* BONUS: Evaluate the impact of urban planning strategies on urban heat island and also with respect to the adaptation to climate change

### Commentaires projet

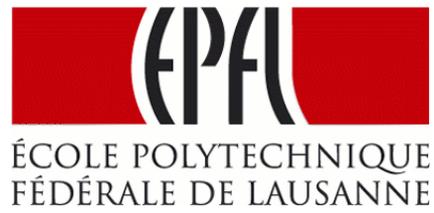
Profile looking for We are looking for a highly motivated Master student having a strong background in environmental engineering / fluid mechanics, physics or mathematics and willing to work on a measurement campaign and its link to modelling tools. Knowledge of programming (Python, Fortran, bash) is highly appreciated. The candidate will thrive in an exciting international research environment at the LESO-PB, where researchers work on various topics related to building physics and solar energy from the urban to the nano scale. This work will also be part of the SCCER FEED&D ([www.sccer-feebd.ch/](http://www.sccer-feebd.ch/)) For further inquiry please contact: Dr. Dasaraden Mauree, [dasaraden.mauree@epfl.ch](mailto:dasaraden.mauree@epfl.ch). If interested, please send your curriculum vitae to [dasaraden.mauree@epfl.ch](mailto:dasaraden.mauree@epfl.ch).

### Caractéristiques du projet

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Projet de semestre

Web : <http://cours-enac.epfl.ch>



**Enseignant Principal I**  
(valide le projet)

Mauree Dasaraden