

# Outdoor heat in urban areas

## Model development and applications

Heat waves and high outdoor air temperature can lead to heat stress with negative implications for human health and wellbeing such as heat stroke, heat cramps, dehydration and in extreme cases death. The urban population is at higher risk of such outcomes because of the generally warmer urban climate. Daytime outdoor thermal comfort is substantially affected by short- (solar) and longwave (thermal) radiation. The aim of this thesis is to deepen the knowledge of radiant conditions in complex urban areas and how such knowledge can be utilized in modelling of radiant load and thermal comfort of humans. The results highlights the significance of realistic models, importance of applied studies to identify heat related problems and how such problems can be mitigated.



Nils Wallenberg

ISBN 978-91-8009-815-1 (PRINT)  
ISBN 978-91-8009-816-8 (PDF)  
ISSN 1400-3813

# Outdoor heat in urban areas

## Model development and applications

Nils Wallenberg

DEPARTMENT OF EARTH SCIENCES  
FACULTY OF SCIENCE



UNIVERSITY OF  
GOTHENBURG