ENVI
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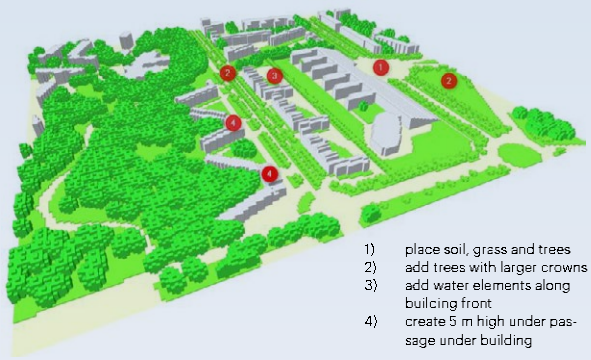
CASE STUDY
MICROCLIMATE
provided by ENVI-met
01/2019

Microclimate Studies and Thermal Comfort

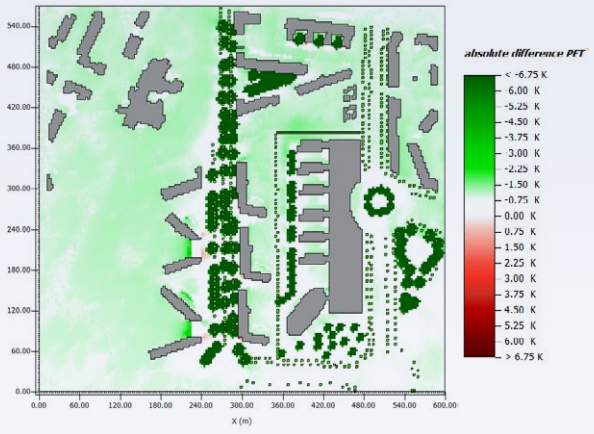
ANALYSIS OBJECTIVE

ENVI-met provides a multitude of tools to simulate and analyze an areas microclimate and thermal comfort. In an exemplary study, minimal invasive climate adaptation strategies to mitigate urban excess heat were developed. In order to quantify the measures of the strategy, the same area was simulated with and without adaptations. These adaptations were:



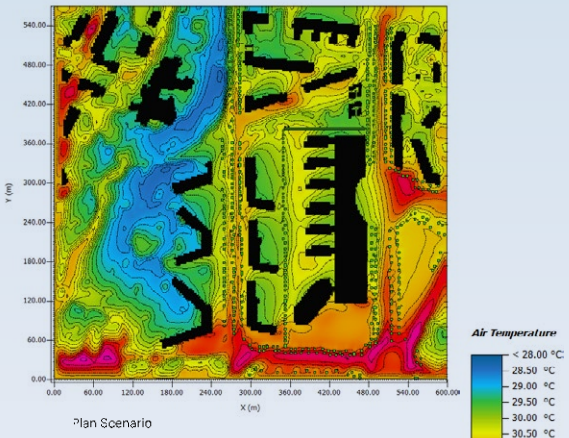
1) place soil, grass and trees
2) add trees with larger crowns
3) add water elements along builcing front
4) create 5 m high under passage under building

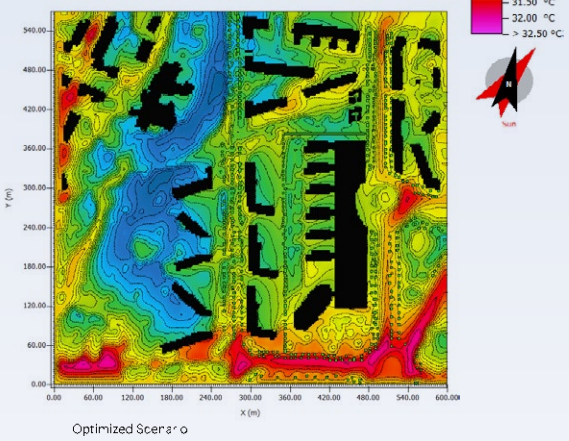
SIMULATION RESULTS - THERMAL COMFORT

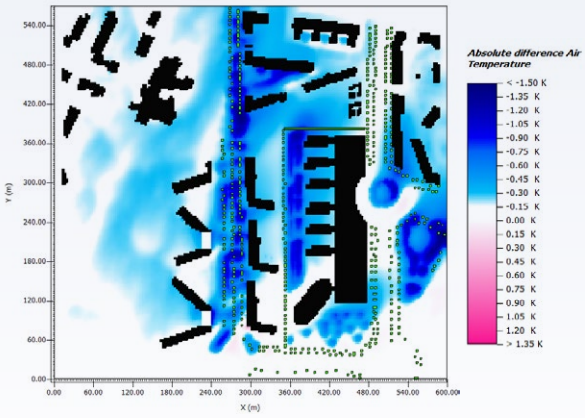


The comparisons of air temperature and PET show a massive reduction of heat stress and thus an increase of thermal comfort due to the adaptation strategies. Improvements are especially visible in the areas shaded by the newly planted trees. The study shows that, with its holistic approach, ENVI-met is capable to capture the multiple interactions between the atmosphere and urban structures in complex environments, making it viable to simulate and quantify the local microclimate.

SIMULATION RESULTS - MICROCLIMATE







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