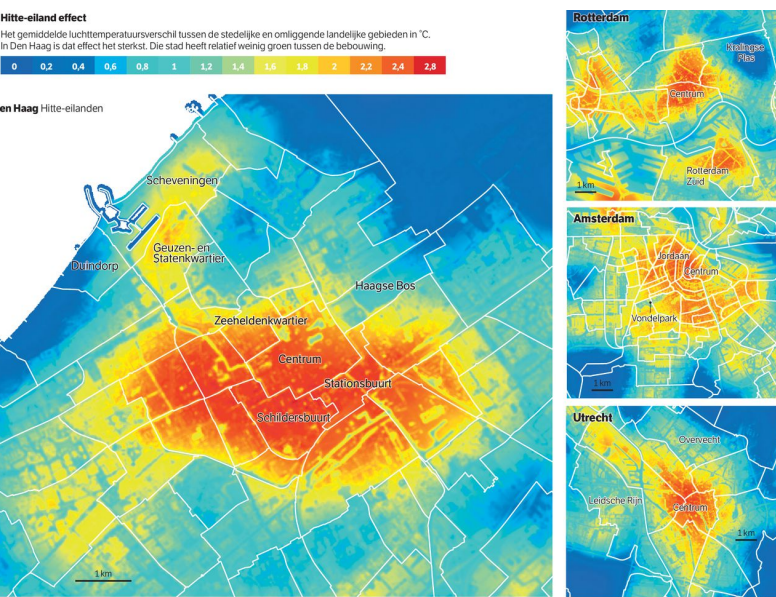


## Effect of Radiative Trapping on the Urban Heat Island

Research group: Atmospheric Physics



Source: NRC



AHN data around Den Haag CS

### Introduction

In the summer, during periods of weather with clear skies and weak winds, cities may become much warmer than their surrounding rural environment. This phenomenon is called the Urban Heat Island effect and is frequently observed both during day and night. During the day multiple reflections of solar radiation by vertical walls cause an overall enhancement of its absorption, while during the night buildings strongly diminish the escape of infrared radiation to space thereby allowing high air temperatures to persist. This radiative trapping effect does depend on the geometry of streets as quantified by the height to width ratio (H/W).

### Goals

We wish to use data from the Algemene Hoogtebestand Nederland (AHN) to make a map of H/W ratios. The next question is to which extent this is correlated to observed warm temperature anomalies in a city as compared to their rural vicinities. Finally, calculations of the radiative trapping effect will be performed to study which H/W ratios favor a maximum trapping effect.

### Interested?

We are looking for a student with an interest in analysing data from the Algemene Hoogtebestand Nederland and performing idealized calculations of radiation in an urban geometry.

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