Fachhochschule
Dortmund
University of Applied Sciences and Arts

Research Unit “Light_Space“

Lighting Masterplan –
An appropriate tool to reduce light pollution?

Dipl.-Ing. Arch. Dennis Köhler M.Sc.

11th European Symposium for the Protection of the Night Sky, 06.-08.10.2011, Osnabrück

Ministerium für Innovation,
Wissenschaft und Forschung
des Landes Nordrhein-Westfalen

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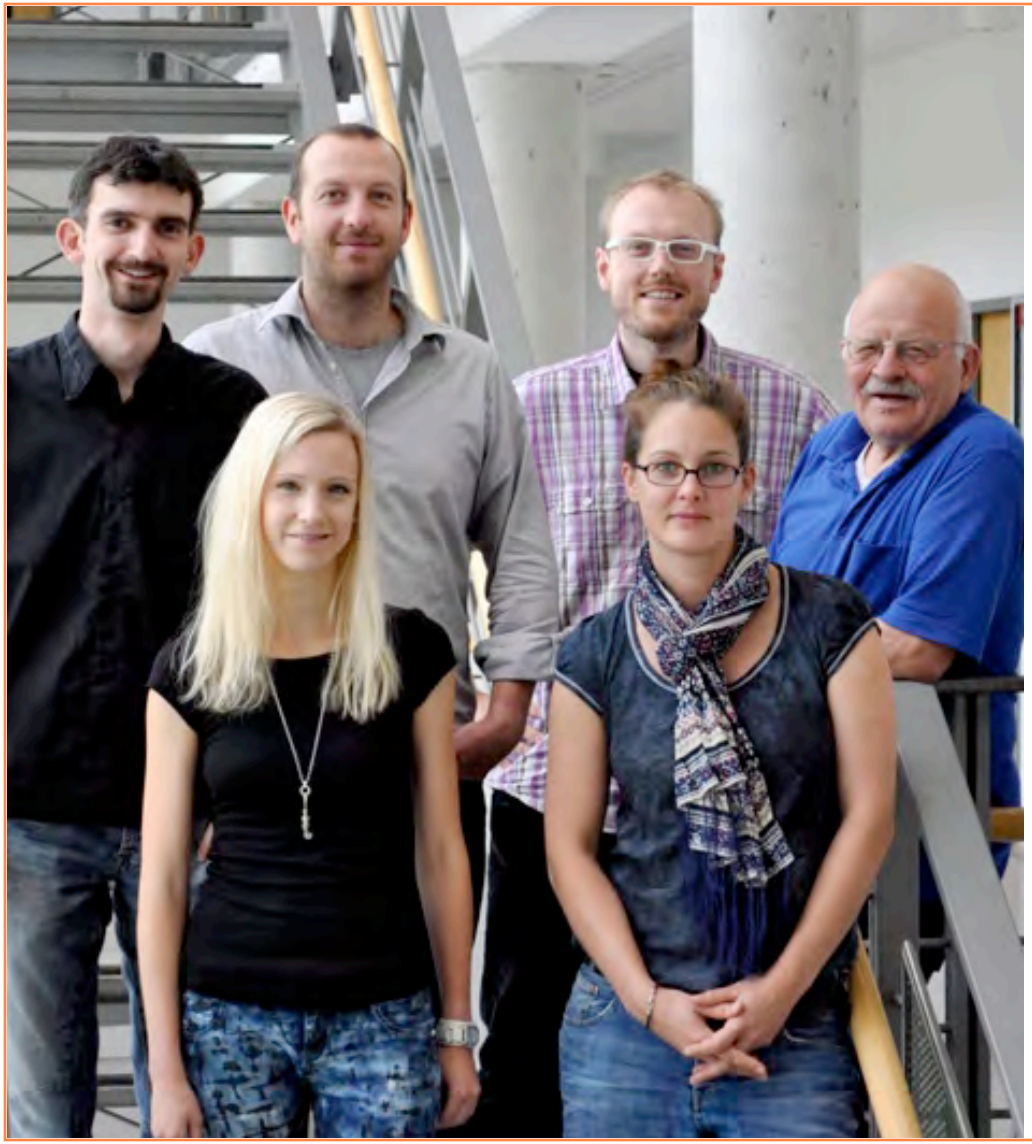

Who we are and what we are doing?

Research unit “Licht_Raum“ since 2005

Köhler, D. Dipl.-Ing. Arch. M.Sc.
Sieber, R. Dipl.-Geogr.
Vorschulze, M. Dipl.-Ing.
Walz, M. Prof. Dr. Ing.

Bartels, S. cand. Dipl.-Des.
Groh, Tina, cand. BA

+ cooperation partners

„Integrierte Lichtleitplanung“
- research projects
- planning orders

Why artificial light?

We see the contribution for a sustainable development of our society

Why Masterplan Light?

Instrument of the community-administration (agreement of action)

Some problems in current research:

1. limited knowlage about the overall effects of artificial light (integration?)
2. no methodical basement for planning
3. no legislative framework

Problems in current practice:

1. only designed lighting without having any aesthetical or ecological criteria of designing *

2. only technical renewal of the stock without questioning the necessity or adaption of spatial circumstances (private rooms, influencing the nature, time related illumination etc.)

3. Municipalities attempt to handle a lot of heterogenic stakeholders

4. Municipalities have only limited skills. The topic of handling light is very complex.

5. „Light pollution“ is only included as a formal aspect of a pseudo-ecological planning practice. When it comes down to realization, aspects of expenditure and putative safety prevail.

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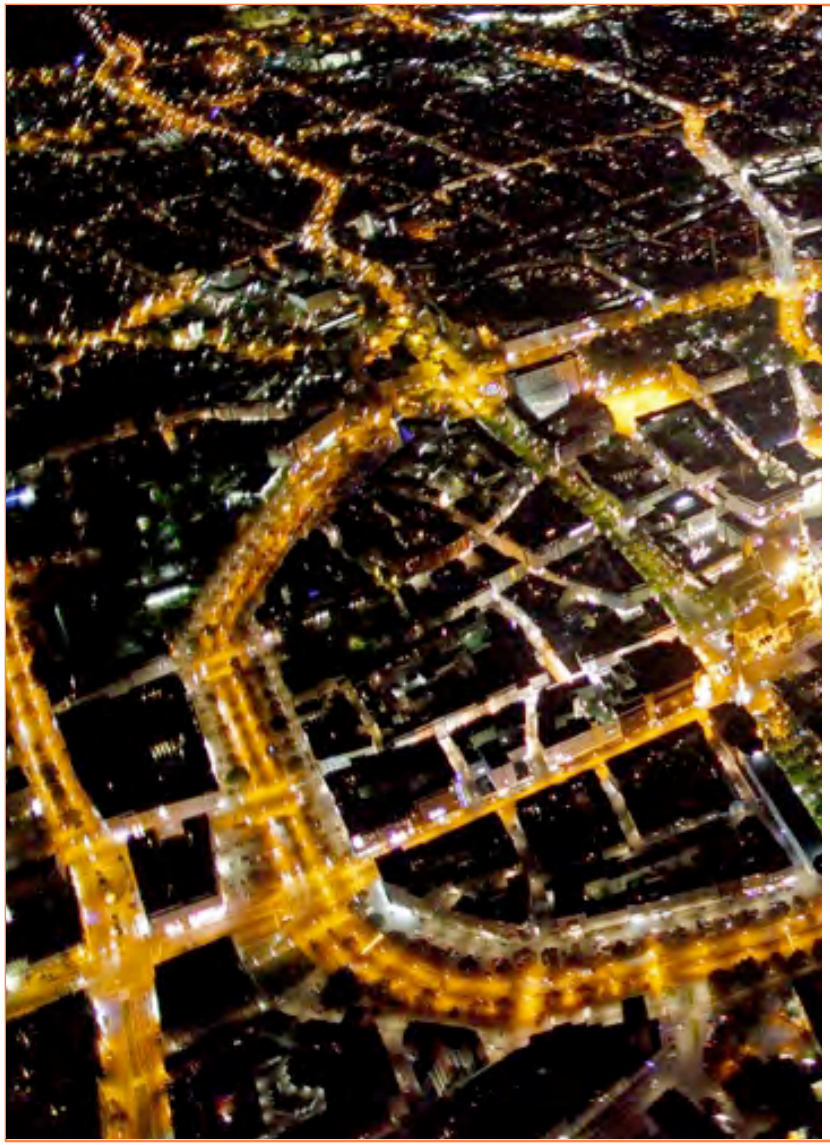

Small insight in our approach

Who needs when, where and how long light or darkness

We collect all spatial information – allocate a specific profile to the lighting-device by GIS.

.Do we need the light-post in general?
.Are there alternatives to secure the situation
.Allocation of a specific profile:

- *economical interactions*
- *ecological requirements*
- *social needs*
- *cultural circumstances*

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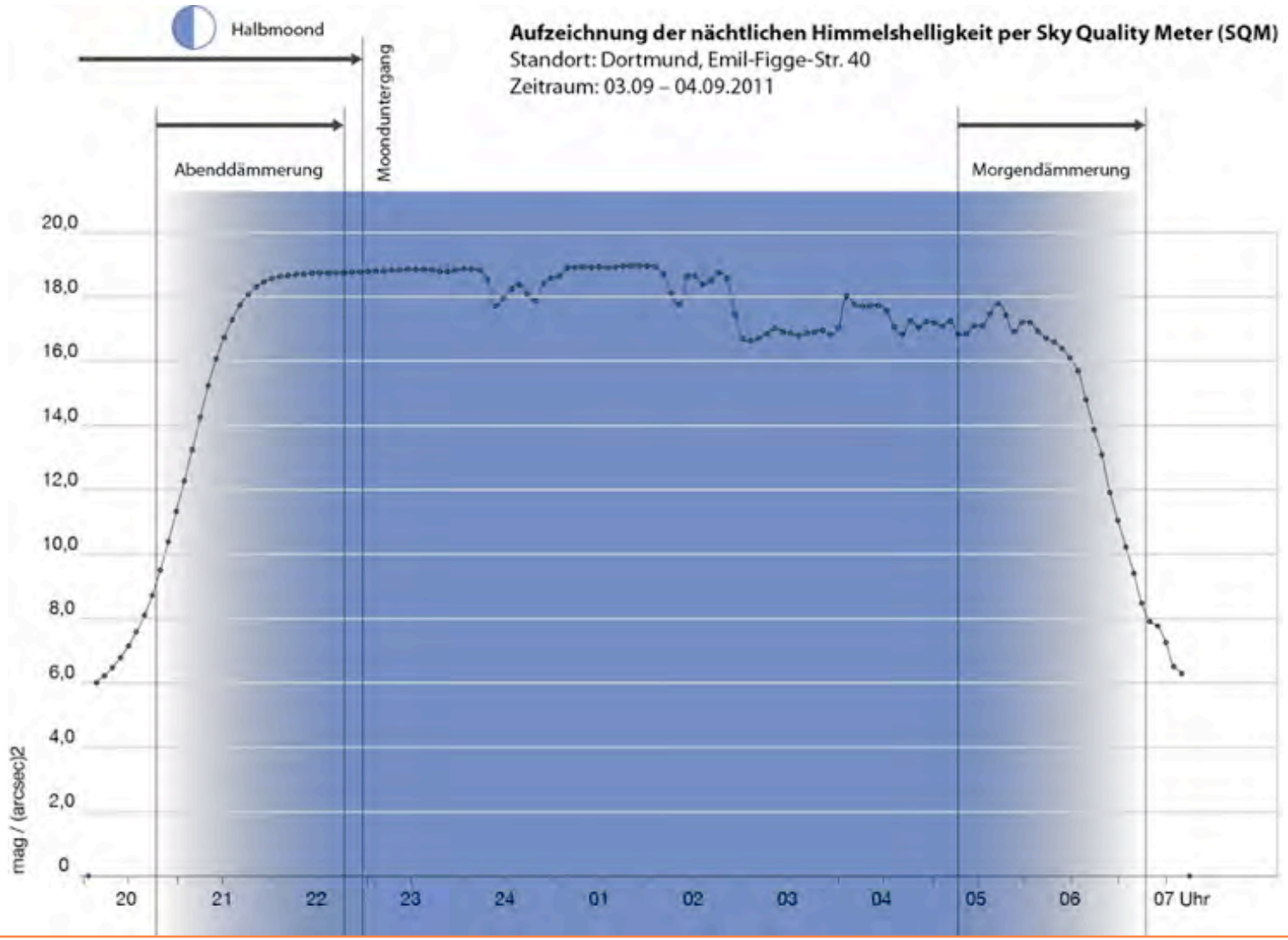
Dortmund-Eving
Dortmund-Innenstadt
Stahlwerk
Universität
> 0,20 cd/m²
0,15 cd/m²
0,10 cd/m²
0,05 cd/m²
< 0,01 cd/m²


Halbmoond
Aufzeichnung der nächtlichen Himmelshelligkeit per Sky Quality Meter (SQM)
Standort: Dortmund, Emil-Figge-Str. 40
Zeitraum: 03.09 – 04.09.2011
Abenddämmerung
Moonduntergang
Morgendämmerung
20,0
18,0
16,0
14,0
12,0
10,0
8,0
6,0
4,0
2,0
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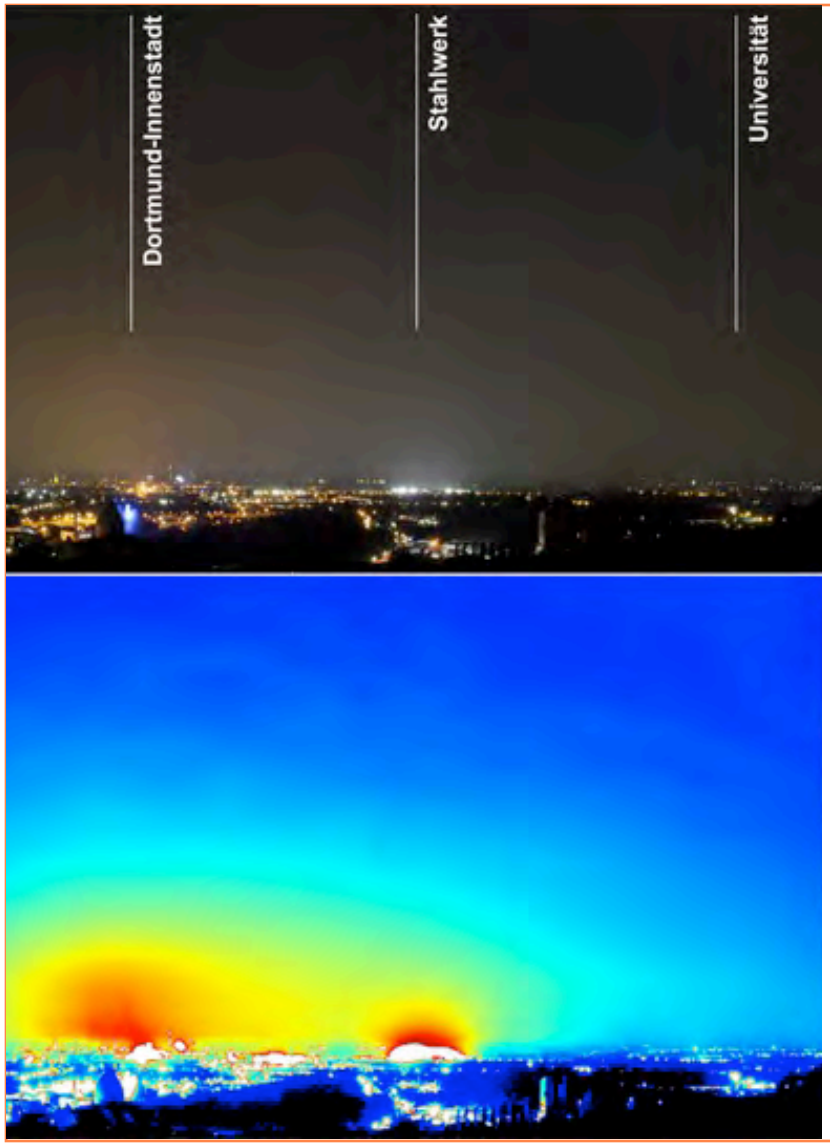
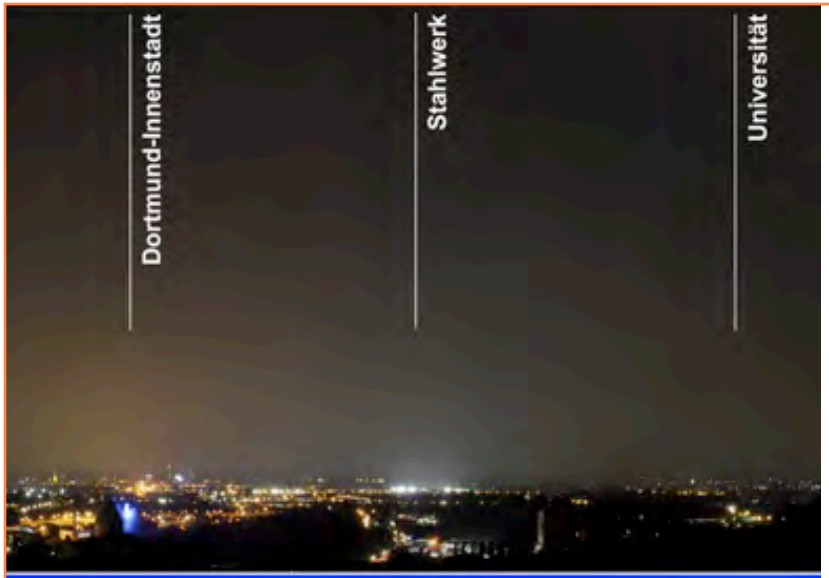
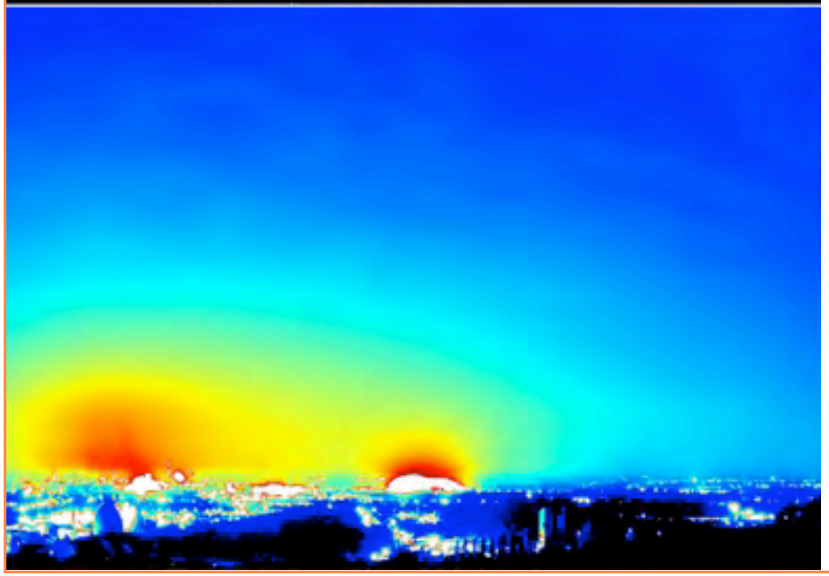


Some notes on what we need to enable the Masterplan Light as an appropriate tool for reducing light pollution....





In a legal way:

.national law /european law
.community regulations

In a theoretical way:

.auditable limits (e.g. for advertisement)
.easy techniques to measure (for non-astronomers)
.scales to compare citys and their specific contingent

In a practical way:

.competence within the administrative bodies
.an agent within the administration
.awareness within the society
.instruments to handle the infrastructure

LichtRegion –
Positionen und
Perspektiven
im Ruhrgebiet

Publisher: Klartext, Essen
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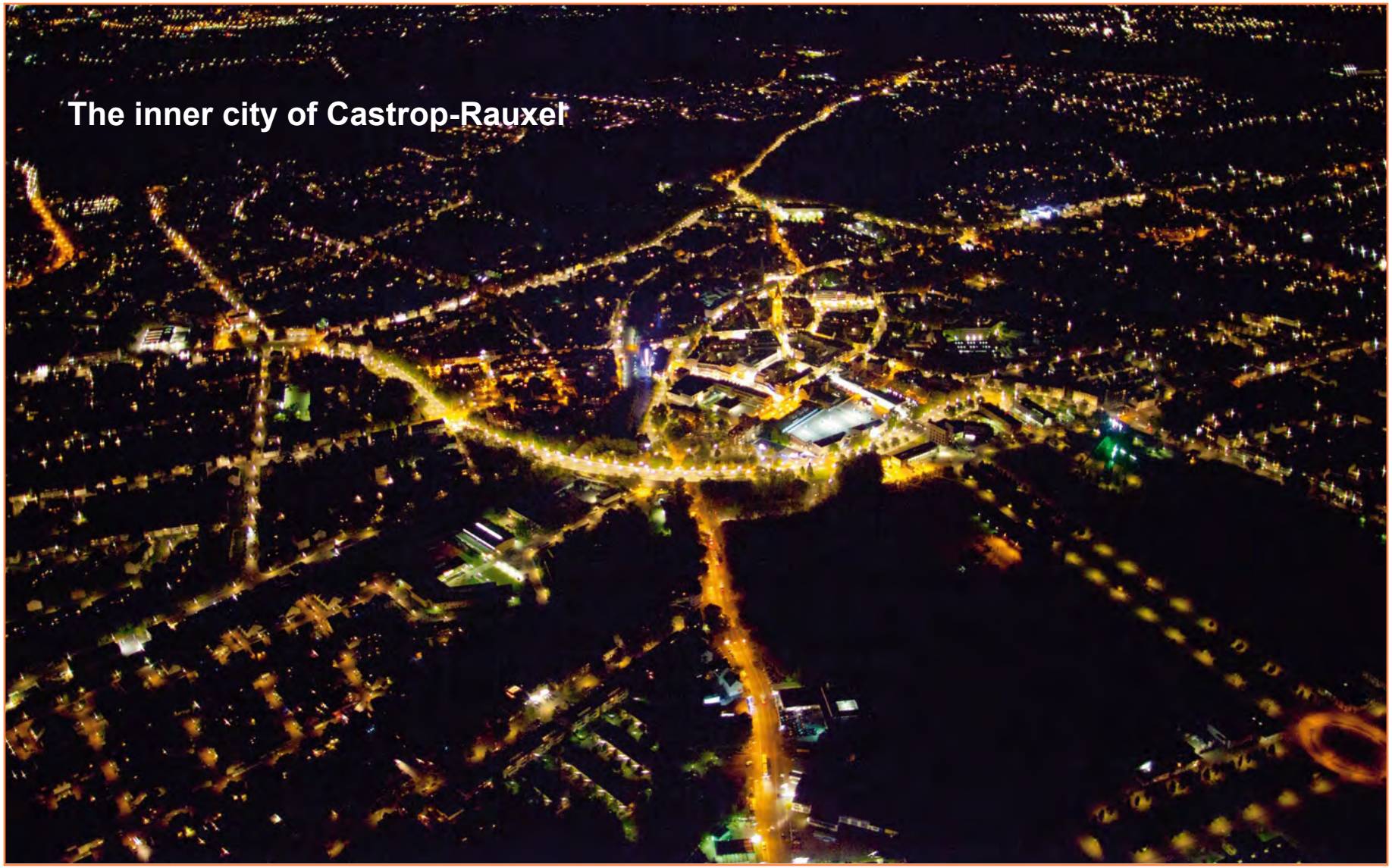
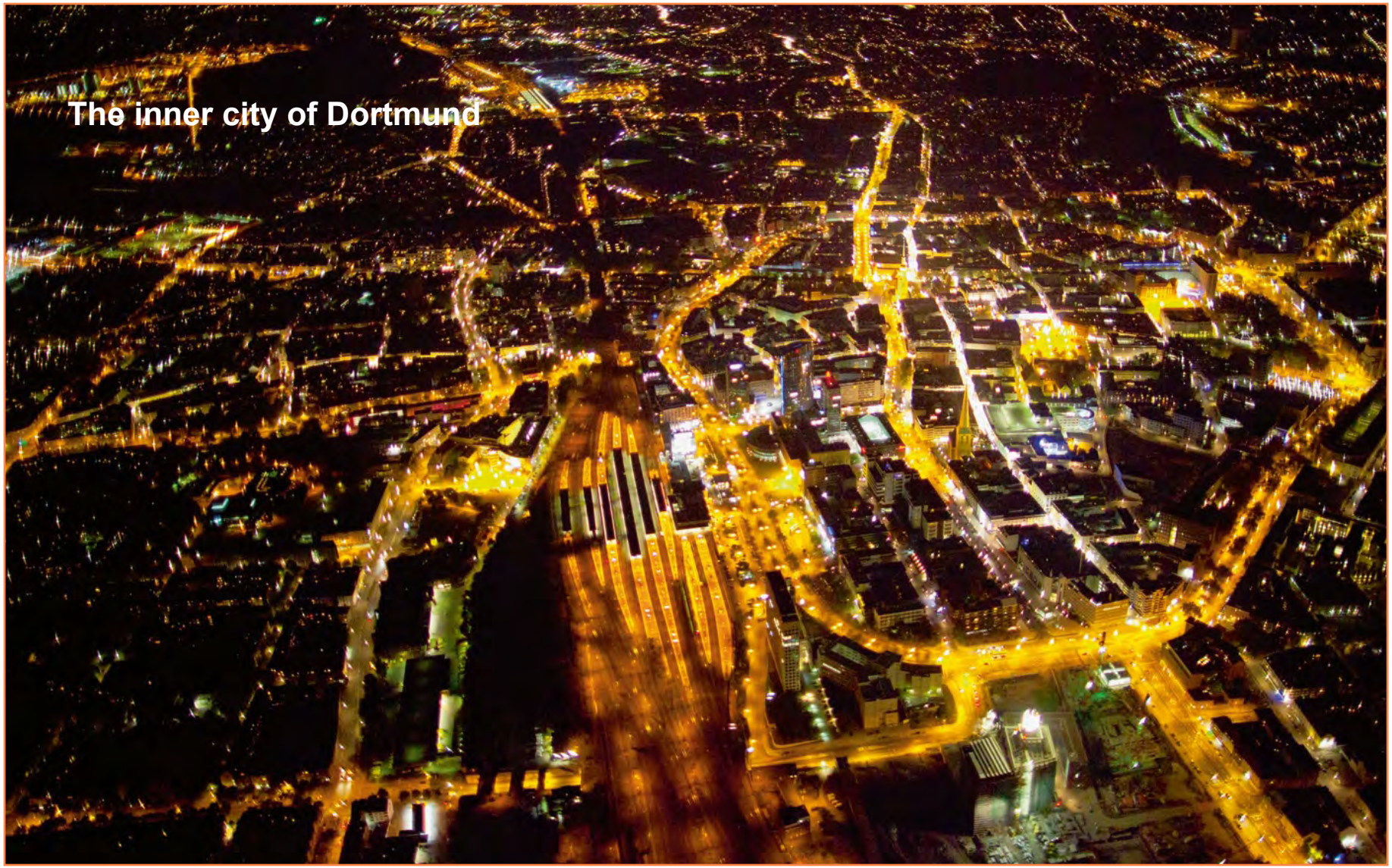
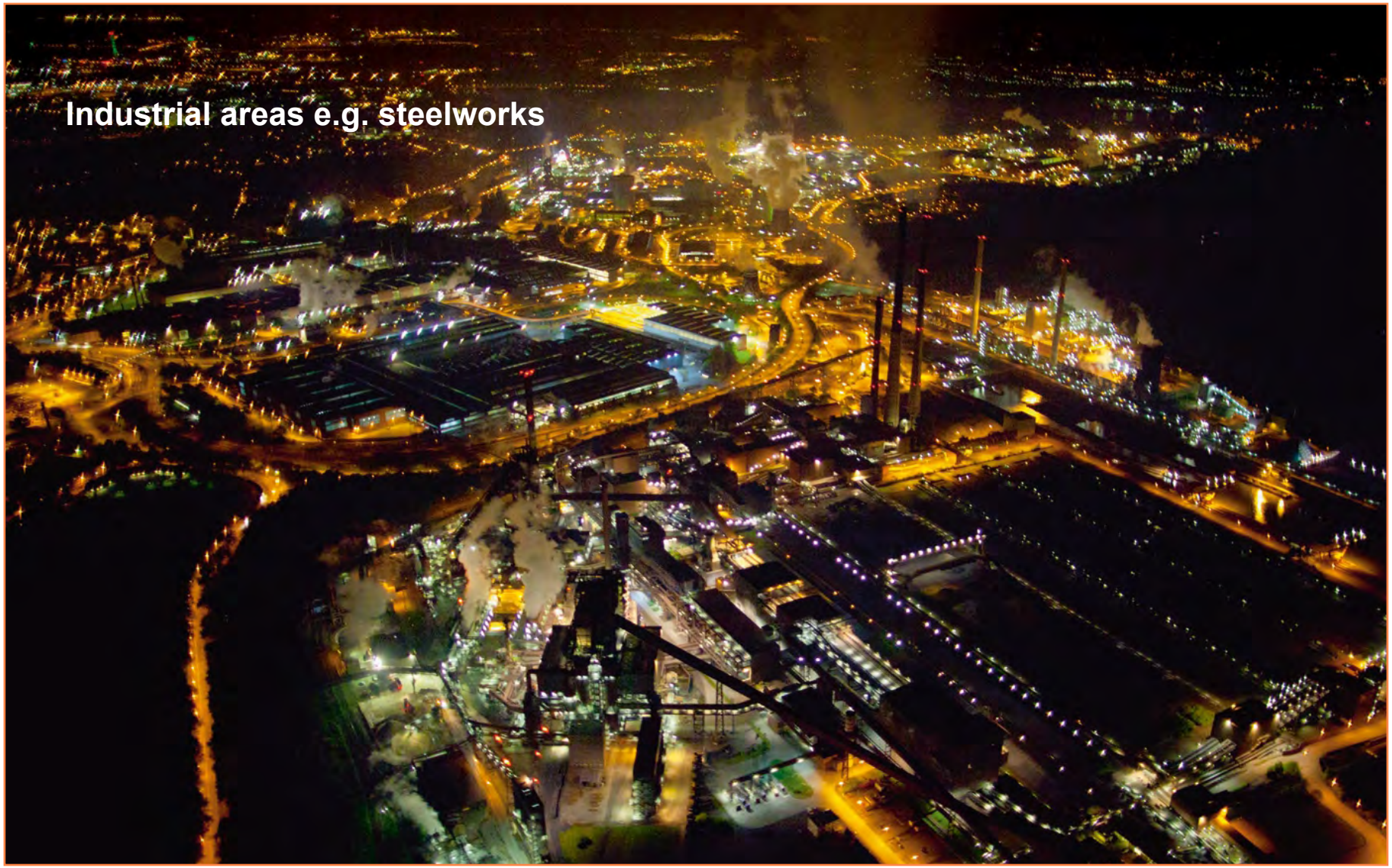
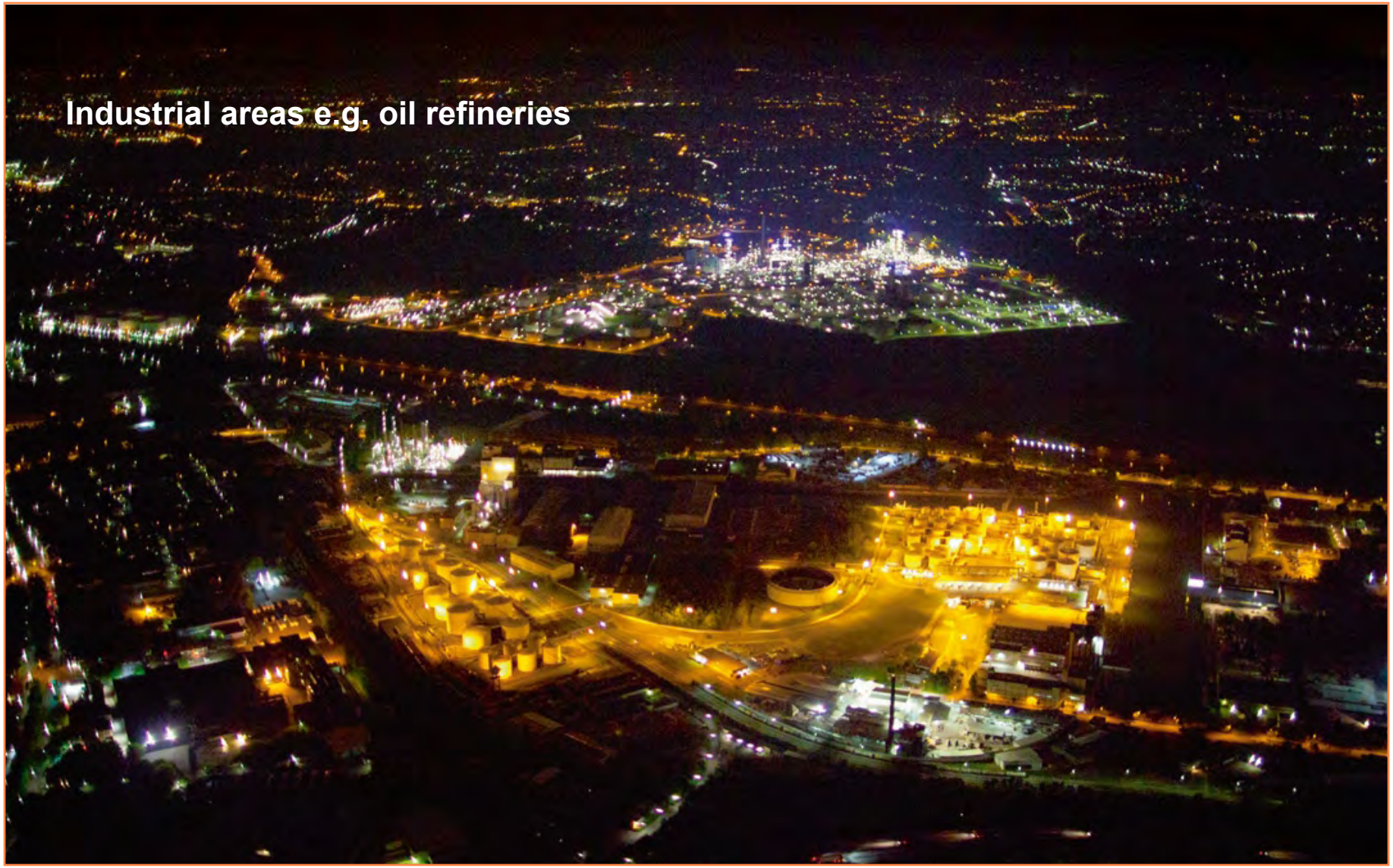
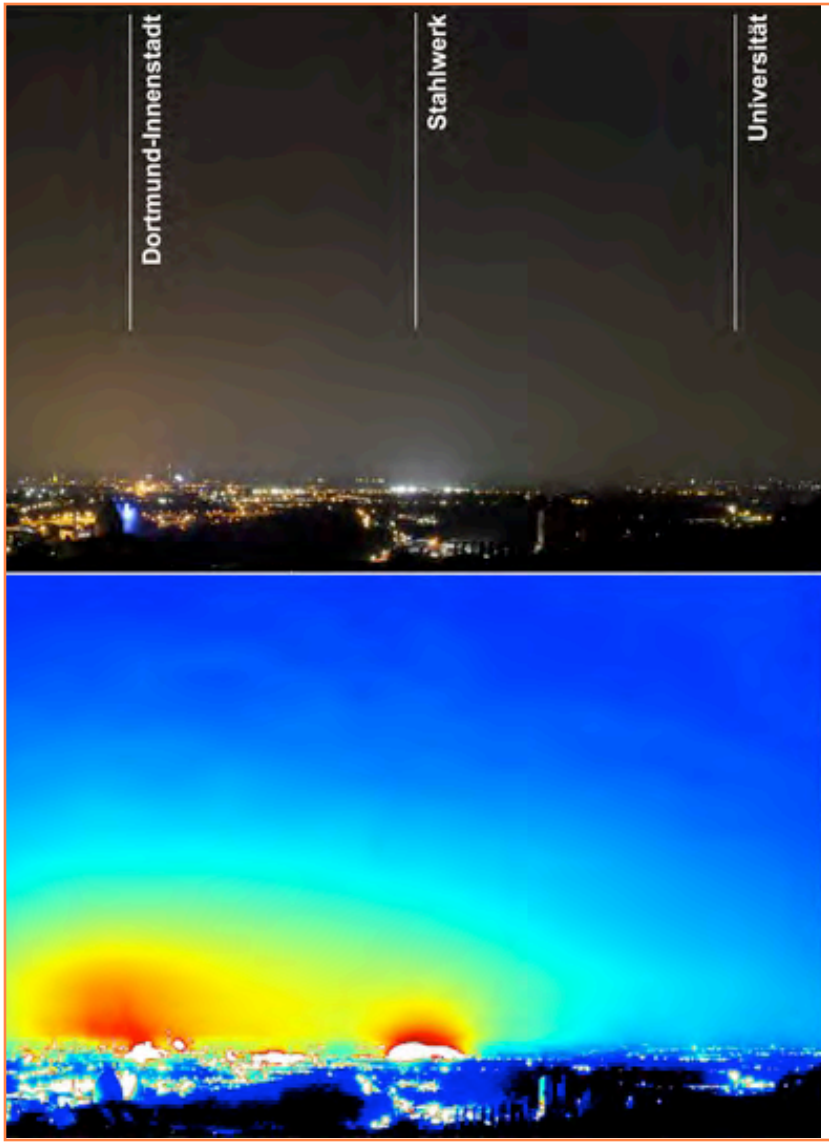
EAN: 978-383 750 4040
Price: € 24,95











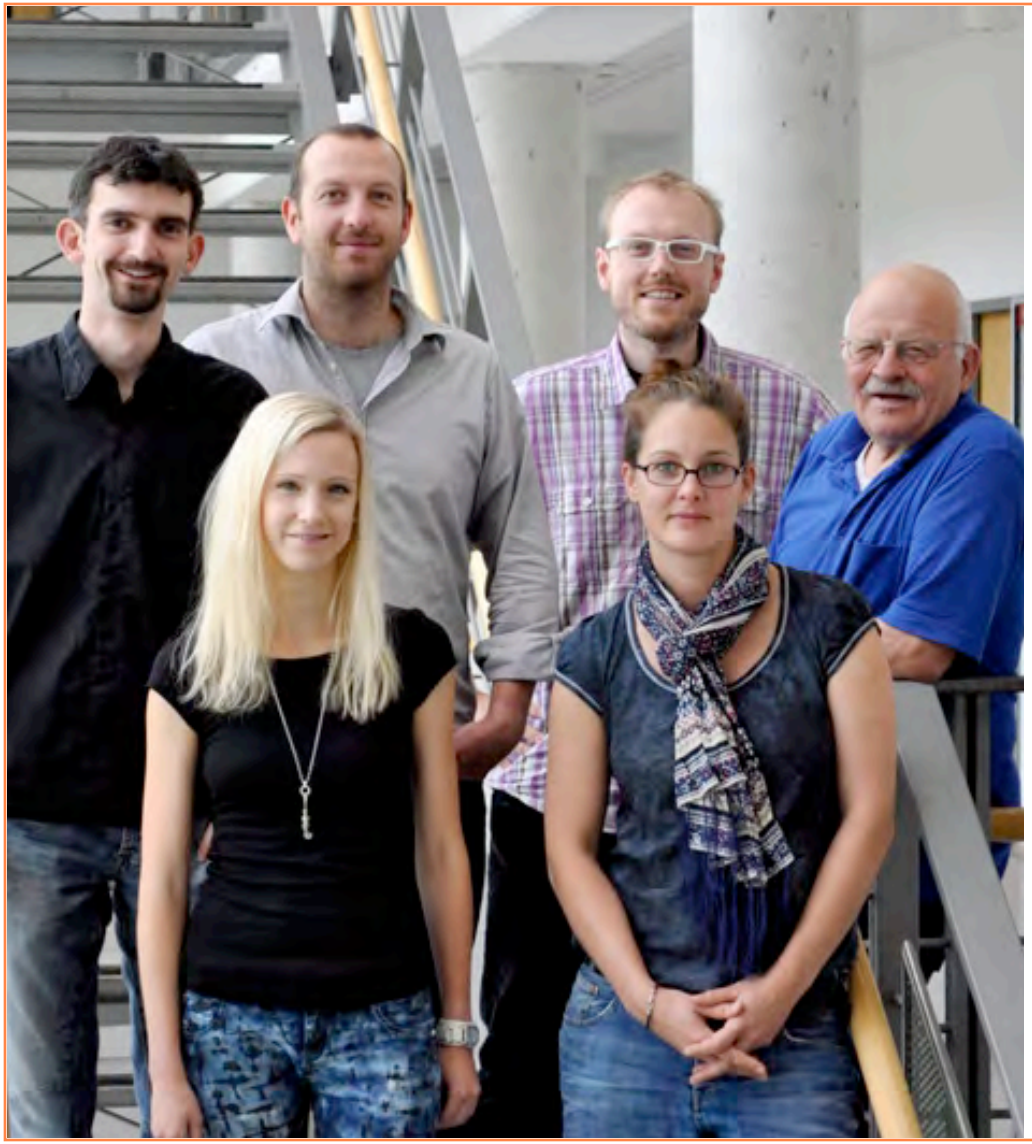
Further steps:

.measure the light pollution profile of the Ruhr Vally

- along the interstates with SQM

- from the top of spoil piles with luminance-meter (picture based)

.get a more detailed impression of light pollution as shown in current maps



More Information

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The research project „Integrierte Lichtplanung im öffentlichen Raum“ is supported by:

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