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How many buildings we need at once? Depends what we want to focus on!

Susanne Weyand, Benoît Gschwind, Thomas Krauss, Philippe Blanc

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How many buildings we need at once? Depends what we want to focus on!

PV panel surface calculations for PV penetration of urban zones



O.I.E.

Center O.I.E.

Observation, Impacts, Energy
(Sophia Antipolis, France)

AUTHORS

Susanne Weyand ^{1,2}

Benoît Gschwind ¹

Thomas Krauß ³

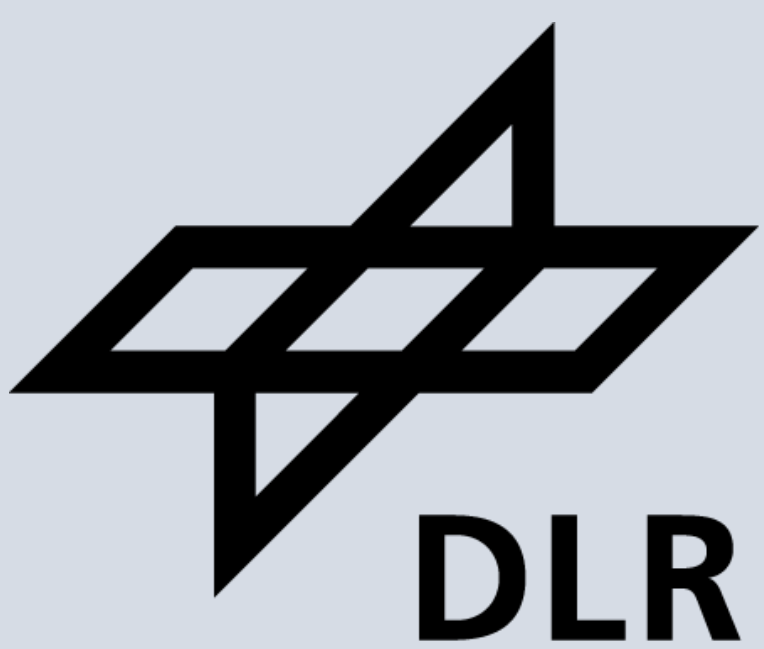
Philippe Blanc ¹

¹ Mines Paris, Université PSL, Centre O.I.E.

² DLR Institute of Networked Energy Systems

³ DLR Remote Sensing Technology Institute

PARTNERS



CONTACT

susanne.weyand@minesparis.psl.eu

Website:



Context

Increasing rooftop PV development in urban areas is on the forefront and allows renewable electricity production at low cost close to consumption points on already anthropized surfaces.

The Solar Assessment and Forecasting as a Service tool was developed within the Horizon2020 project e-shape (2019-2023) to provide EO based information about accurate electric production accounting local shadow effects and orientations.

Method

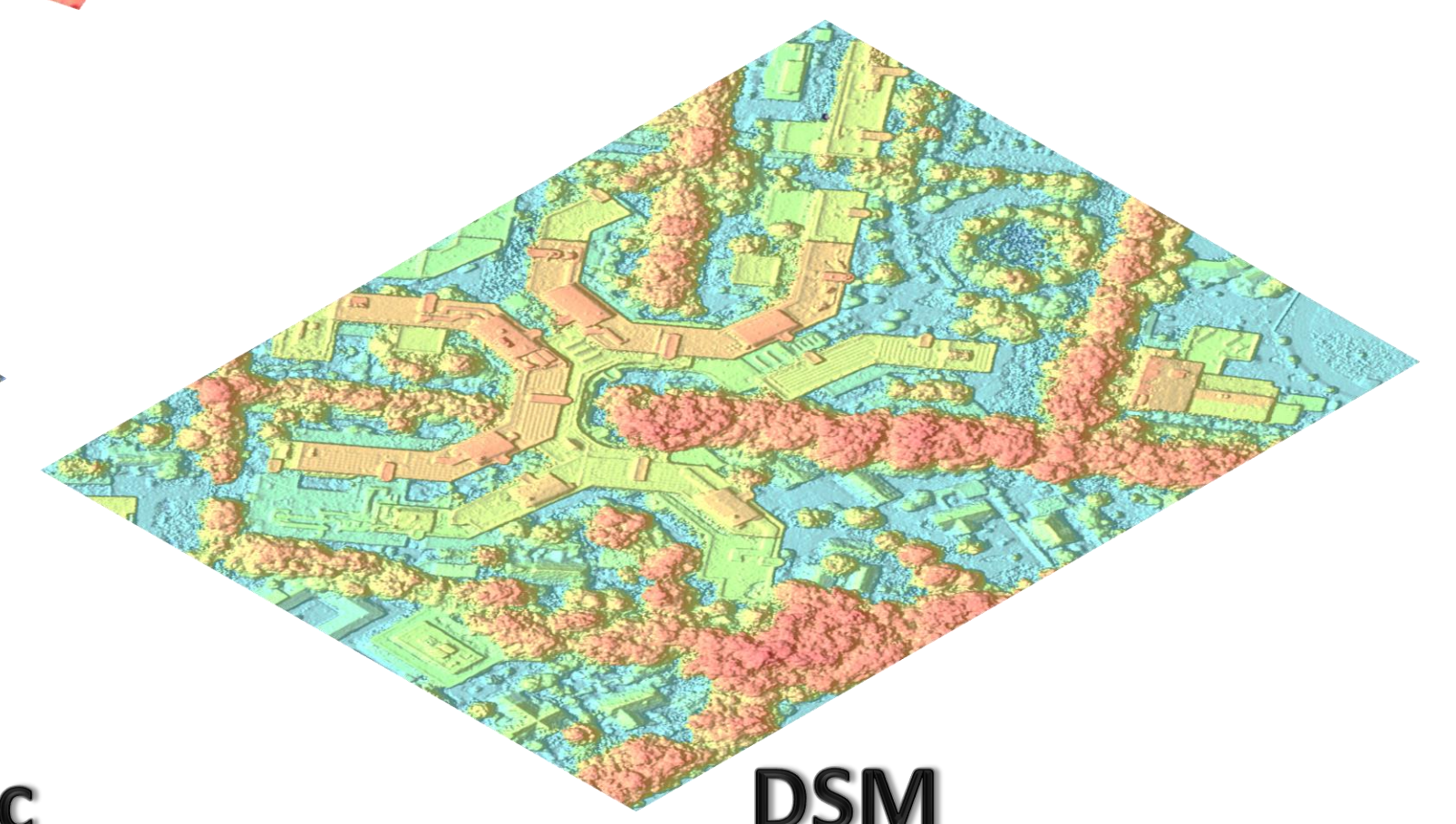
1.
3K Data
Collection



2.
Level 1
Post-Processing



3k Ortho-Mosaic



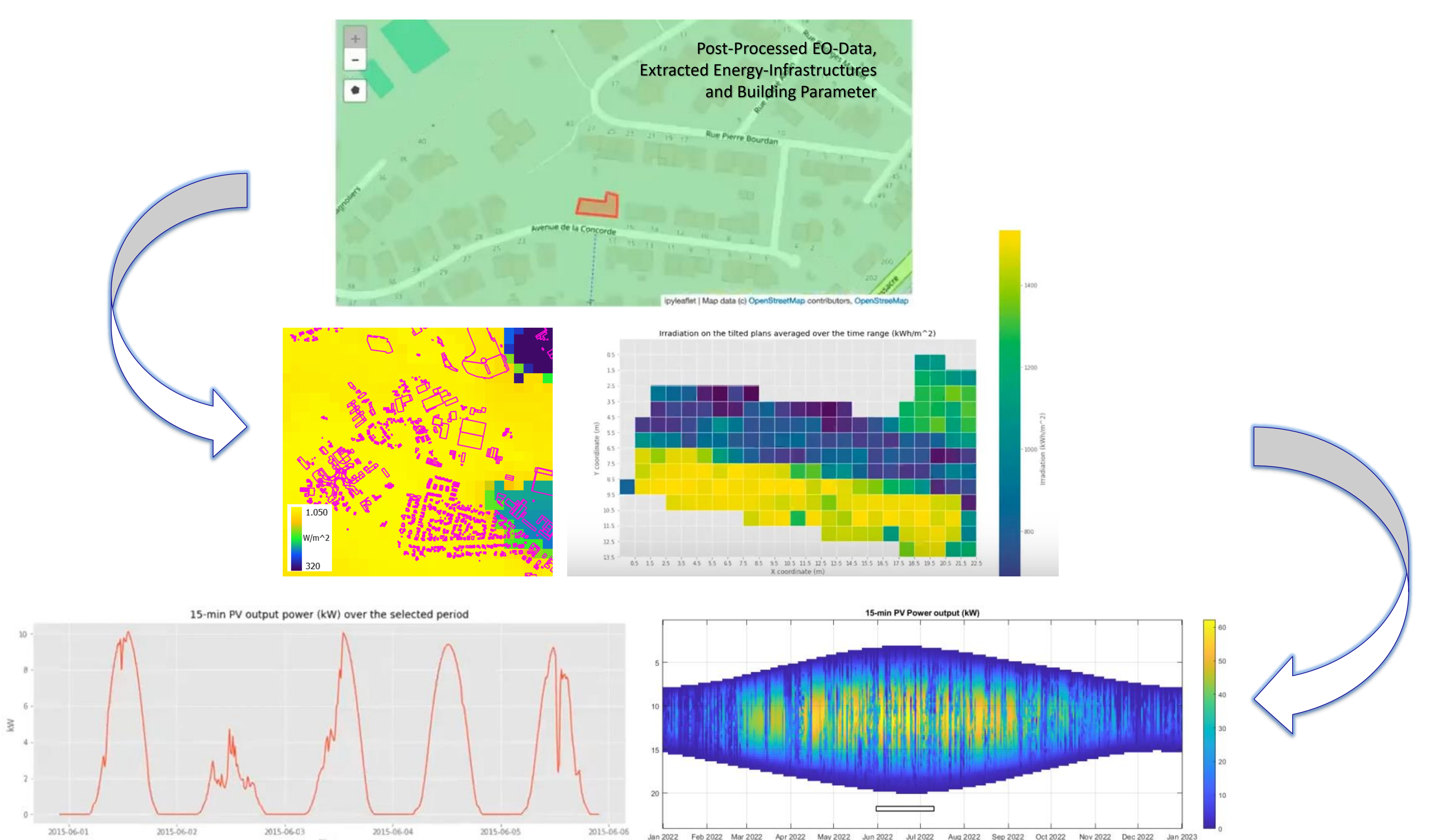
DSM

3.
Level 2
Post-Processing

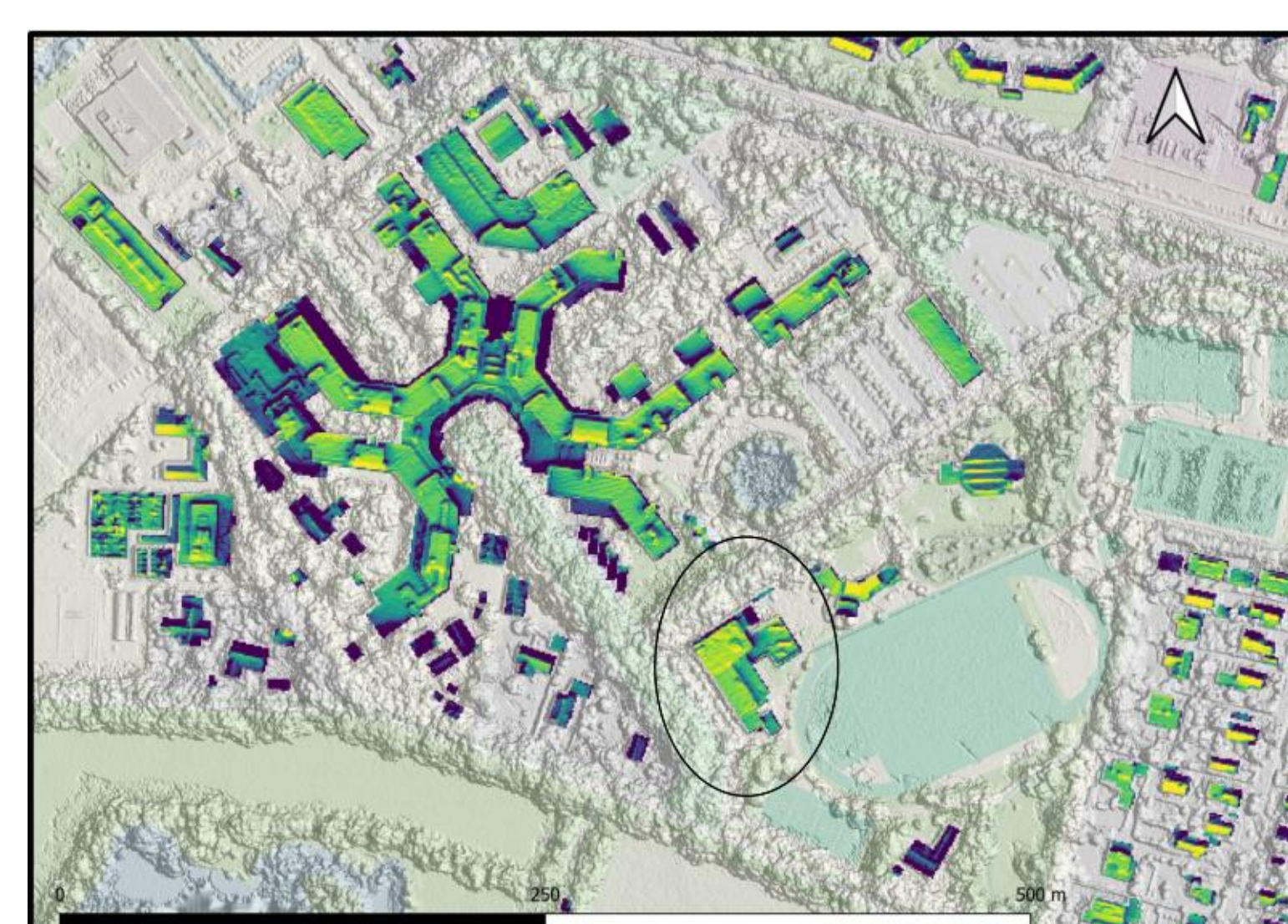
Hight, Aspect, Tilt, Shadow
&
Building + PV Shape, Location and Type

4.
SAFaaS

Publication and Software
Scan Me



Results



Monte-Carlo spatial subsampling of 20 % of the roof-top surface (district of Oldenburg) at yearly basis leads to:

- One building: 15% uncertainty,
- 10 buildings: 7% uncertainty,
- And with 300 buildings uncertainty becomes negligible.