

Dataset: Water-flume model geometries of a tall-building cluster in Beijing

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1. General information

This dataset contains CAD drawings (.stl files) of five geometry variations of a cluster of tall buildings in Beijing at two model scales (S1 = 1:2400; S2 = 1:4800). The models were used in water-flume experiments at the University of Southampton in collaboration with the University of Reading (flow and concentration measurements).

The site is a modified version of a cluster of tall buildings and the surrounding lower buildings for an area north of the Institute of Atmospheric Physics 320 m measurement tower. These data are based on analysis undertaken by Christoph Kent and the institute of Urban Meteorology (Beijing, CMA).

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2. Dataset content

The file 'wf_geometry.zip' contains five CAD drawings of water-flume model geometries at two model scales (S1 = 1:2400; S2 = 1:4800). The building dimensions are in model scale and have units of mm. The model drawings include the circular ground-plate needed to mount the models in the water flume. The ground plate has a fixed diameter 240 mm for both model scales.

Filename	Scale	Description	Figure
Low_Tall_2400.stl	1:2400	Tall-building cluster plus low-rise neighbourhood	Fig. 1
Low_2400.stl	1:2400	Low-rise neighbourhood plus reduced-height building cluster	Fig. 2
Tall_2400.stl	1:2400	Isolated tall-building cluster (S1)	Fig. 3
Tall_4800.stl	1:4800	Isolated tall-building cluster (S2)	Fig. 4
Cluster_4800.stl	1:4800	Repeating units of the isolated tall-building cluster	Fig. 5

Scale 1 ($S1 = 1:2400$)

Filename: Low_Tall_2400.stl

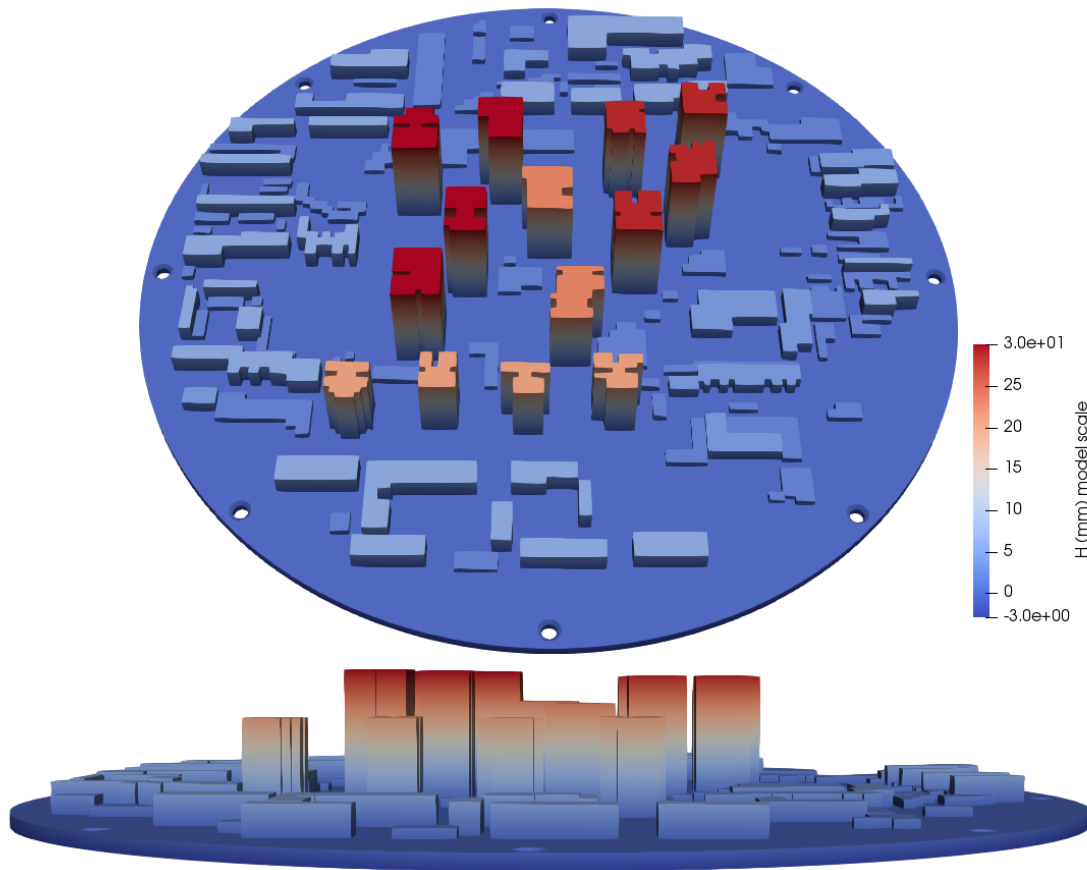


Fig. 1: Tall-building cluster plus low-rise neighbourhood.

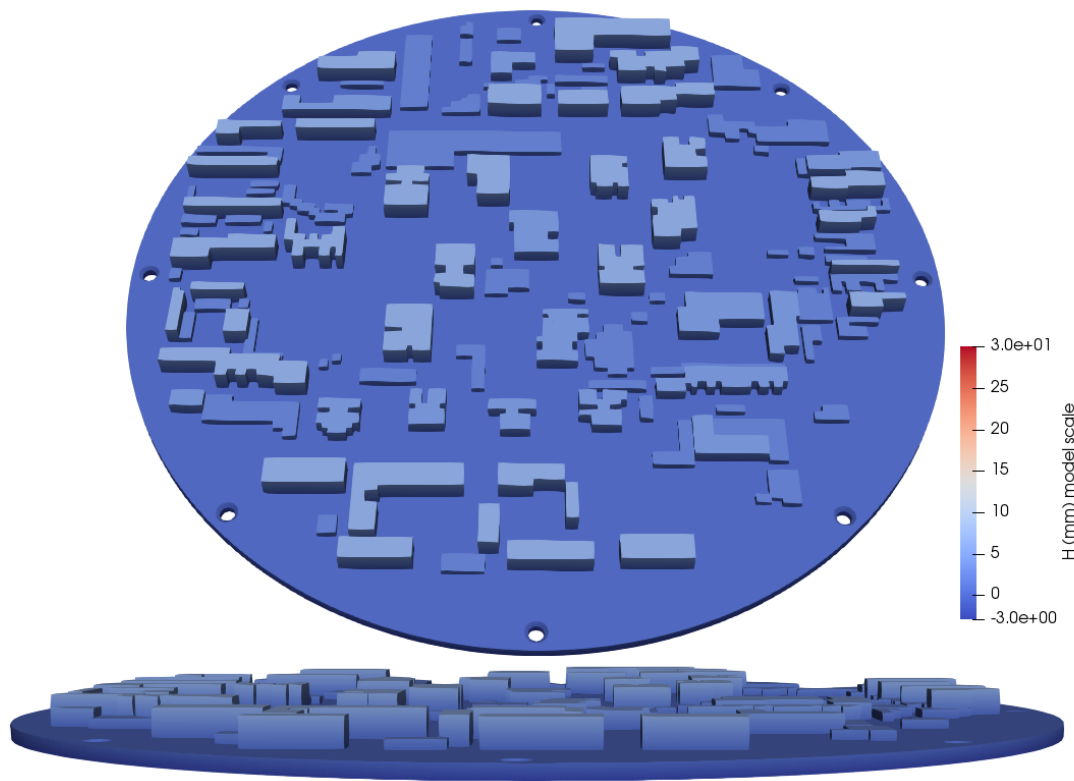
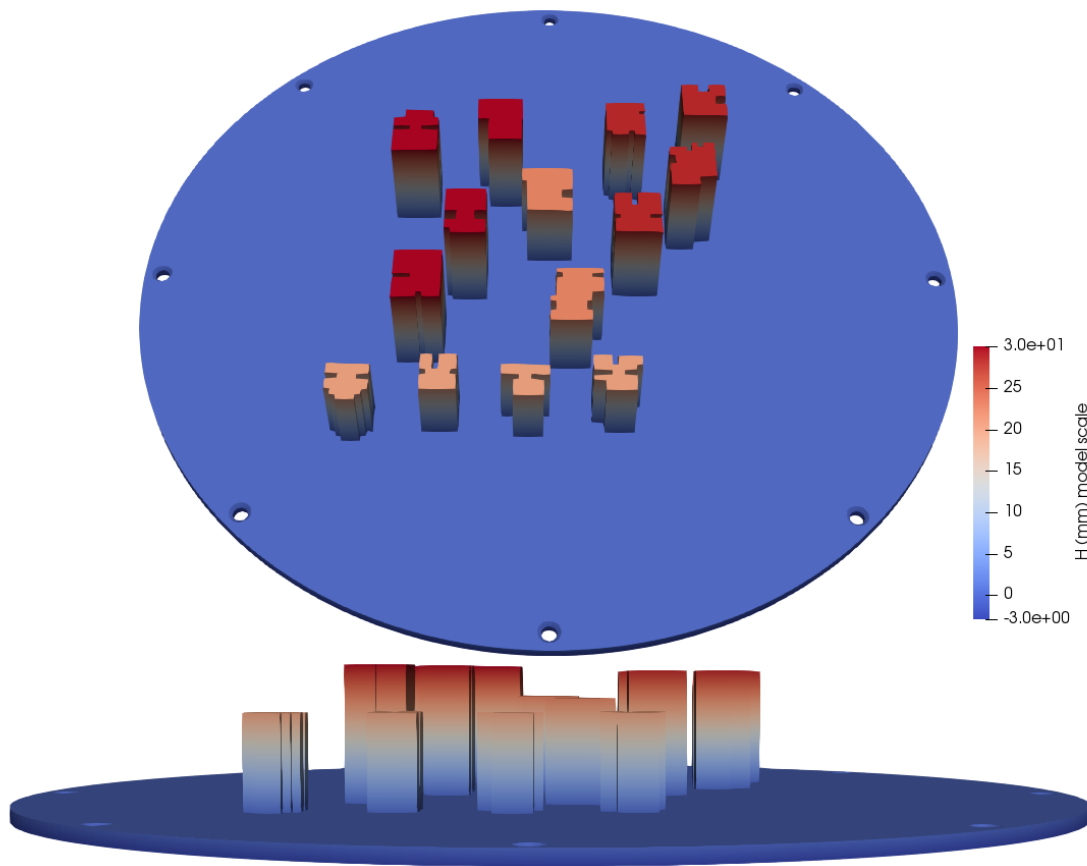
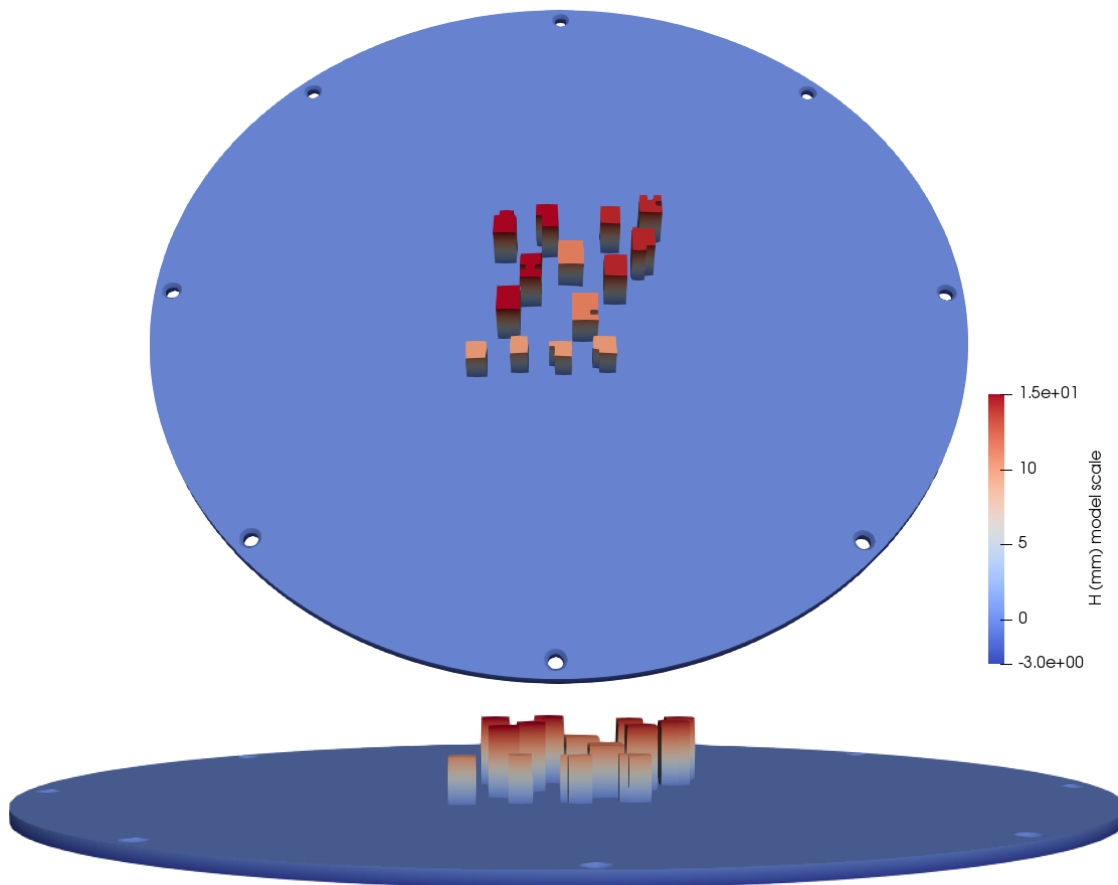
Scale 1 ($S1 = 1:2400$)**Filename: Low_2400.stl**

Fig. 2: Low-rise neighbourhood plus reduced-height building cluster.

Scale 1 ($S1 = 1:2400$)**Filename: Tall_2400.stl****Fig. 3:** Isolated tall-building cluster (S1).

Scale 2 ($S2 = 1:4800$)**Filename: Tall_4800.stl****Fig. 4:** Isolated tall-building cluster (S2).

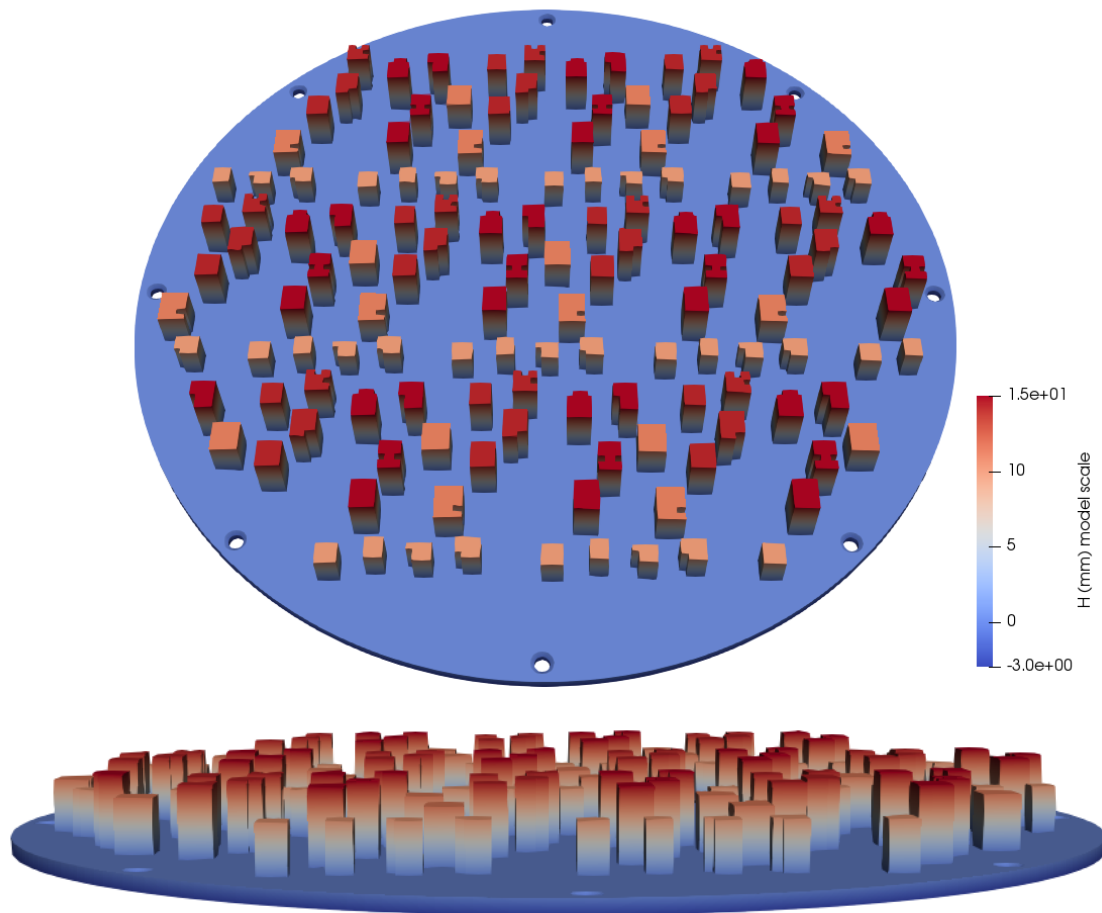
Scale 2 ($S2 = 1:4800$)**Filename: Cluster_4800.stl**

Fig. 5: Repeating units of the isolated tall-building cluster.