

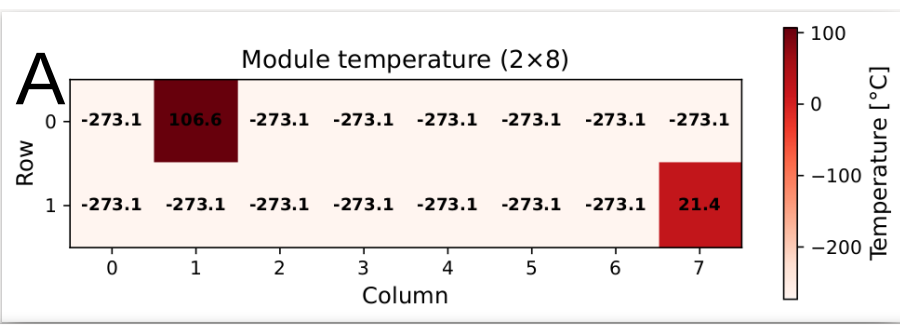
All-Silicon Update

22.01.2026

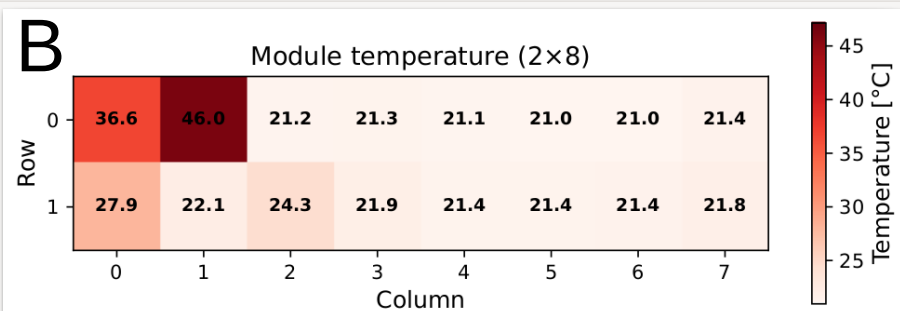
Nana Chychkalo

NTC board got repaired

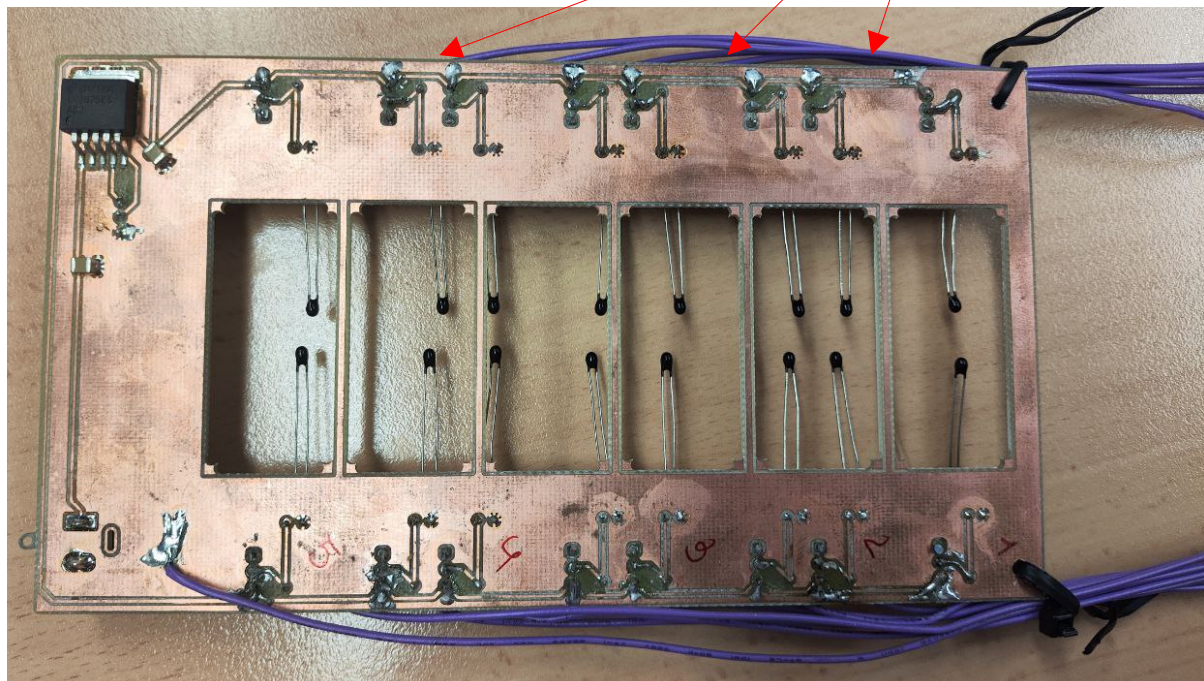
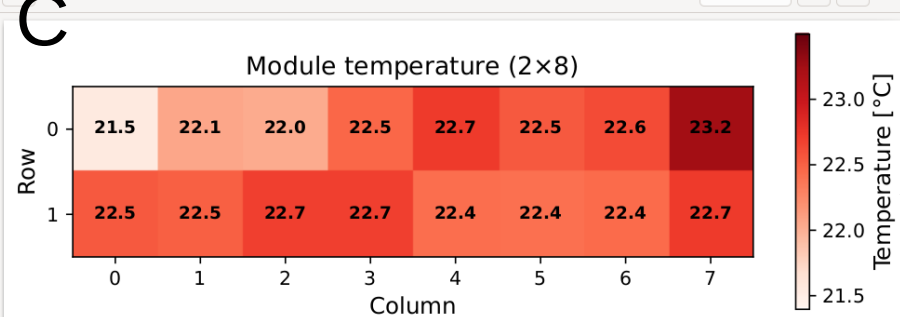
Temporary modifications for the board below.
New board designs are under discussion.



calib02_final_frame.pdf 78.5% Q



check15_final_frame.pdf 76.8% Q



A – Fully broken board.

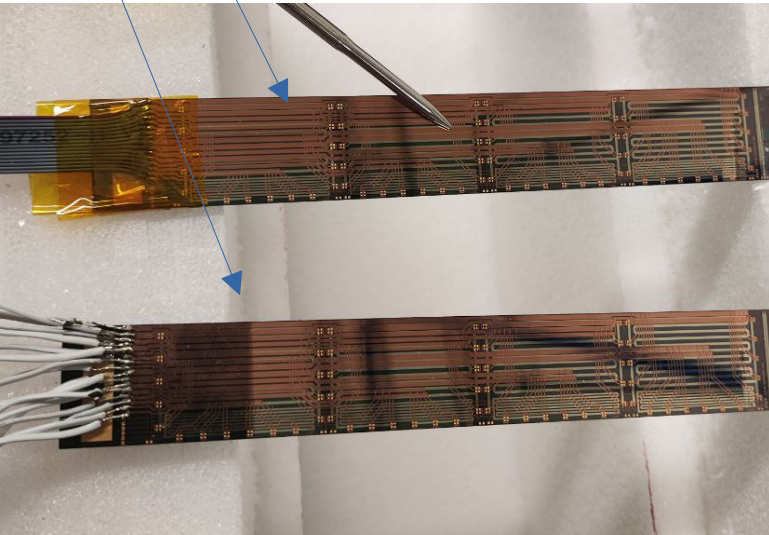
B – Partially repaired board.

C – Fully repaired board (before tuning).

Airflow Measurements with T probe (December 2025)

Too optimistic → needs further measurements.

Module	Matrix V (V)	Matrix I (A)	Periph. V (V)	Periph. I (A)	Matrix Power (W)	Periph. Power (W)	Total Power (W)	Temp No Fan (°C)	Fan V (V)	Temp With Fan (°C)
400 μm	3.3	0.726	4.5	0.918	2.396	4.131	6.527	91.9	11.8	34.1
400 μm	3.29	0.782	4.32	0.987	2.573	4.264	6.837	90.1	6.15	42.5
300 μm	3.52	0.684	4.76	0.872	2.408	4.151	6.558	84.7	11.81	32.8
300 μm	3.46	0.686	4.79	0.881	2.374	4.22	6.594	86.0	6.25	38.3

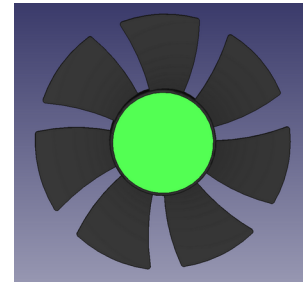


Power recovery algorithm was used in every measurement.

Temperature with fan stabilized after 3-5 minutes.

Thicker module gives slightly higher temperatures.

Aircooled: below specifications (<50°C) even with minimally powered fan.



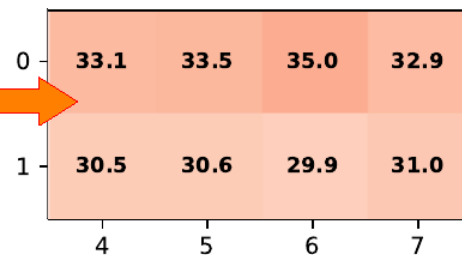
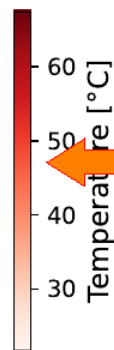
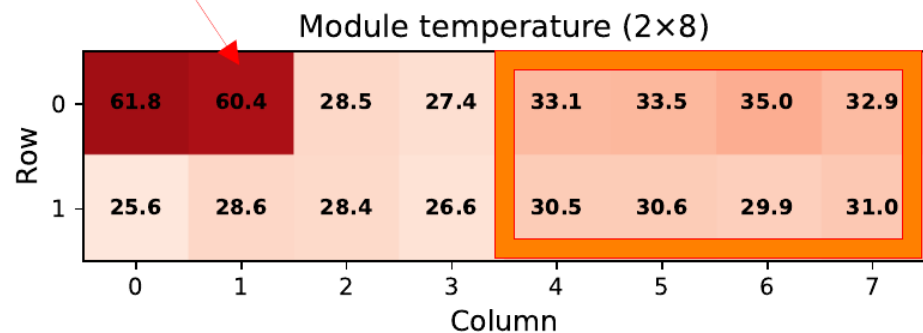
~ 12 m/s fan tip velocity

Airflow Measurements with NTC board

January 2026 measurements (working part of the NTC board)

Module	Matrix Power (W)	Periph. Power (W)	Total Power (W)	Temp No Fan (°C)	Fan V (V)	Temp With Fan (°C)	NTC Board Max (°C)
400 μ m	2.396	4.131	6.527	91.9	11.8	34.1	35
400 μ m	2.573	4.264	6.837	90.1	6.15	42.5	43
300 μ m	2.408	4.151	6.558	84.7	11.81	32.8	33.1
300 μ m	2.374	4.22	6.594	86.0	6.25	38.3	39.3

Excluded channels from this measurement, the board was shifted by one chip

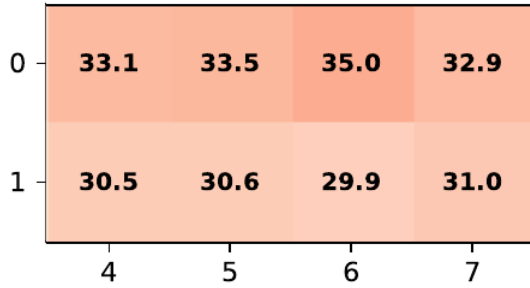


T probe
from before

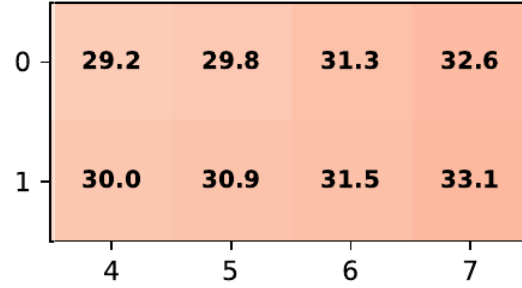
NTC board shows
alike output as the T
probe before

Airflow Measurements with NTC board

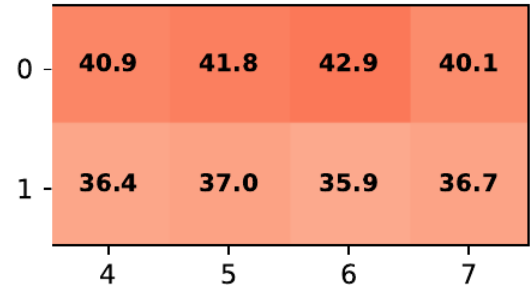
January 2026 measurements (working part of the NTC board)



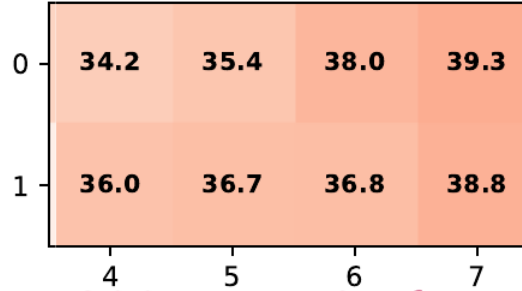
400 mm, 12V fan



300 mm, 12V fan



400 mm, 6V fan

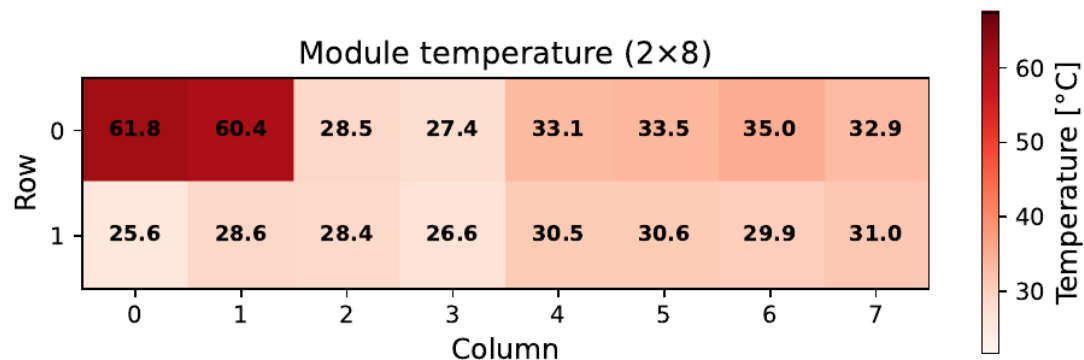


300 mm, 6V fan

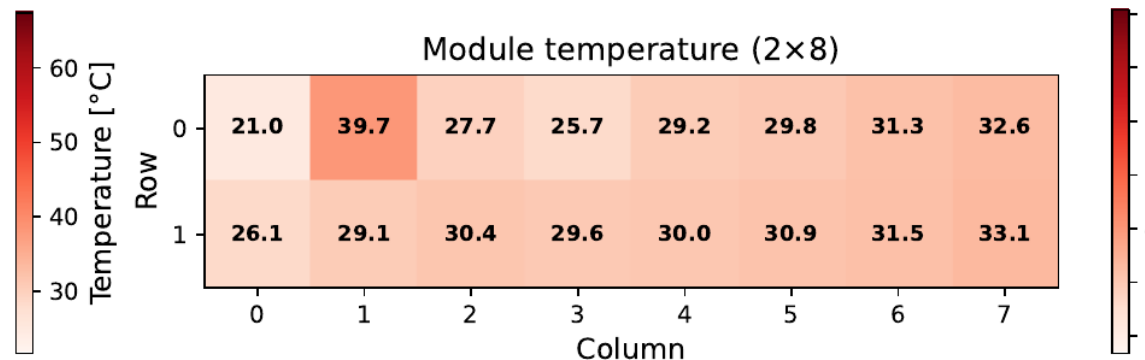
Temp With Fan (°C)	NTC Board Max (°C)
34.1	35
42.5	43
32.8	33.1
38.3	39.3

Airflow Measurements with NTC board

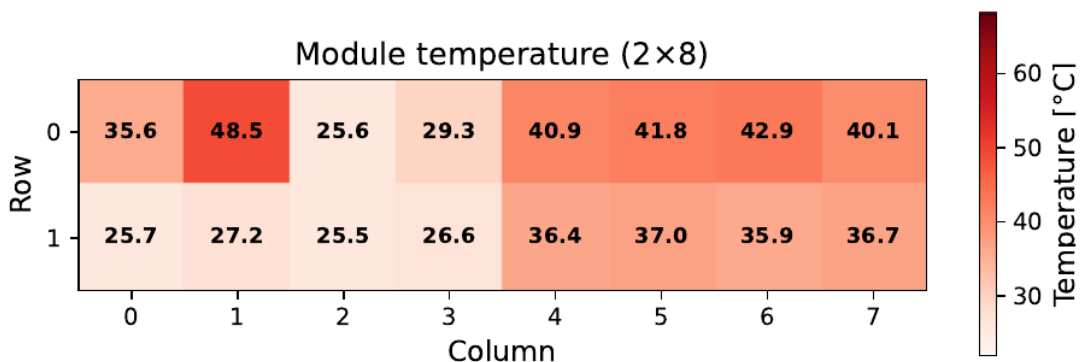
January 2026 measurements (working part of the NTC board)



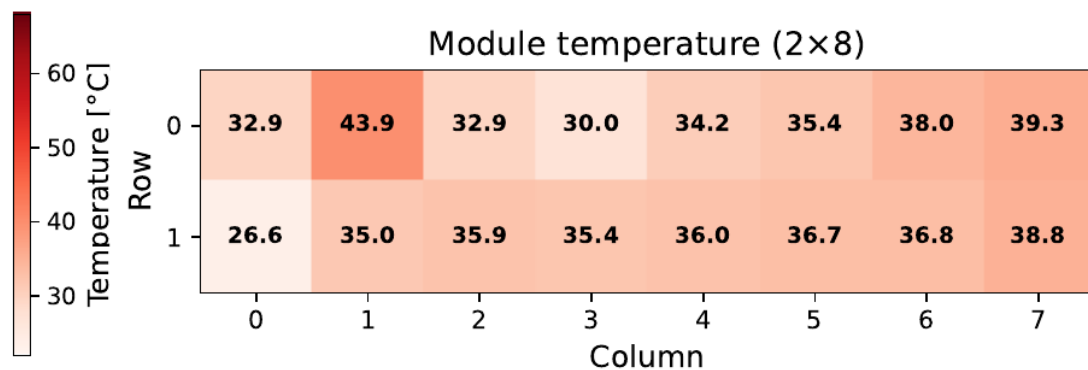
400 mm, 12V fan



300 mm, 12V fan

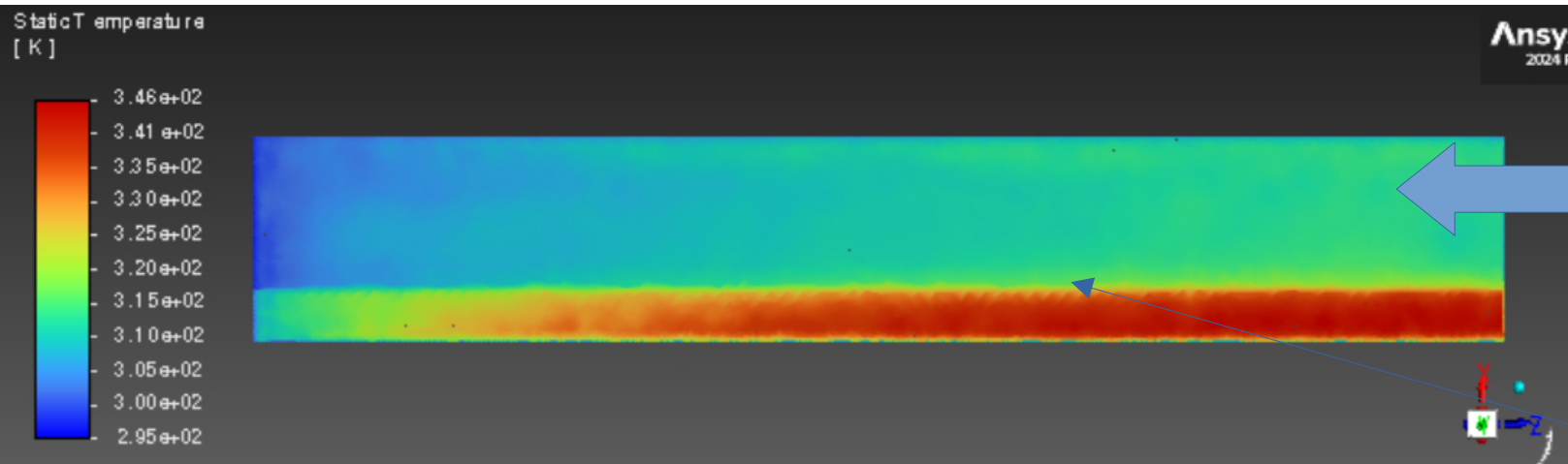


400 mm, 6V fan

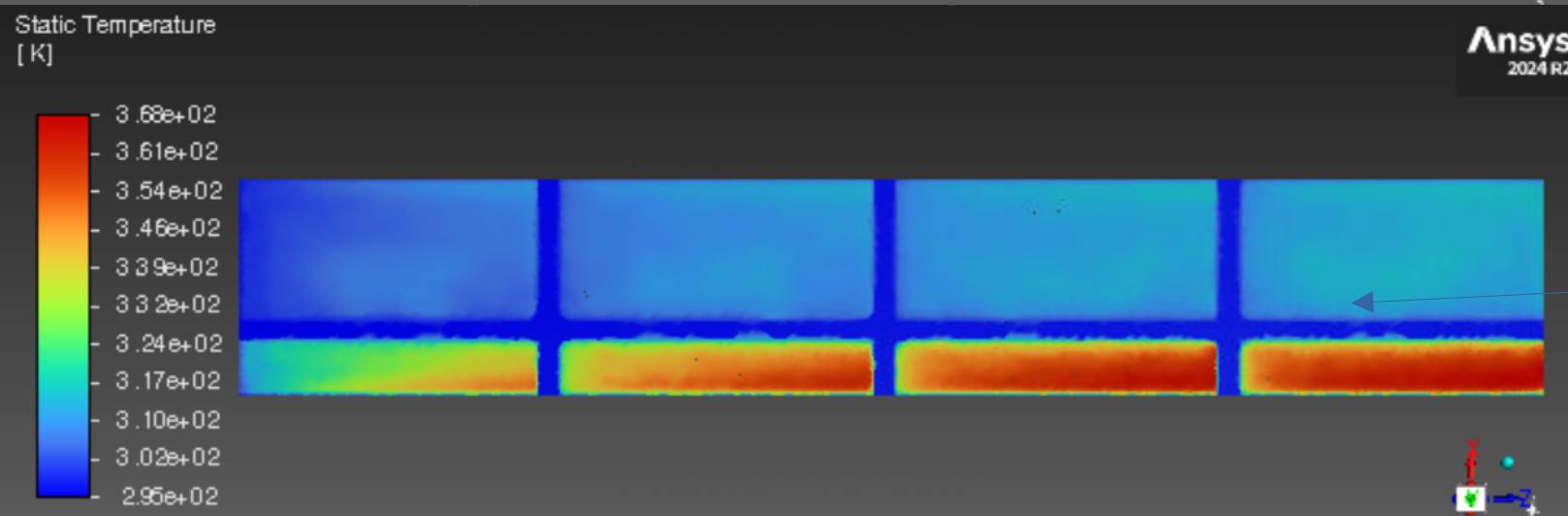


300 mm, 6V fan

Tests for Segmentation of Matrix and Periphery



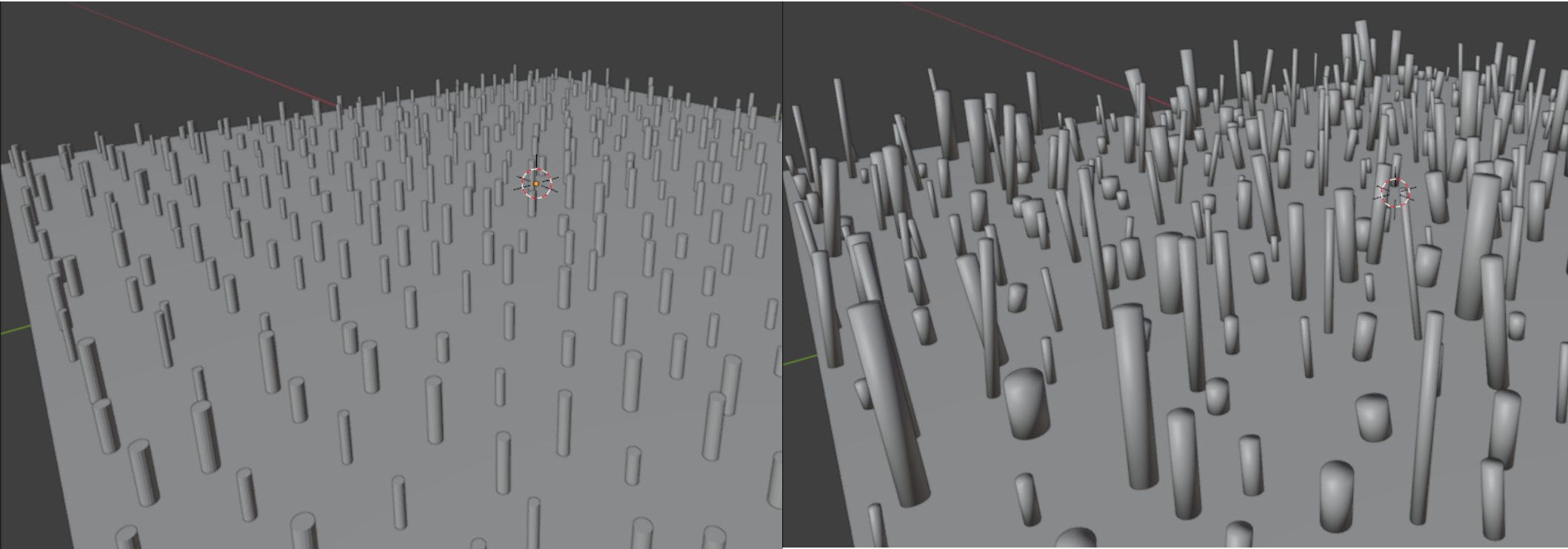
Matrix is well-simulated.
Maximum
~40°C.



Automatic “insulation”
of segments.

→
I’m running tests for
removing insulation.

Pillars for increasing turbulence: some 3D models



Which configuration would be better/doable in real life?

Left → minimum randomization.

Right → medium randomization.