

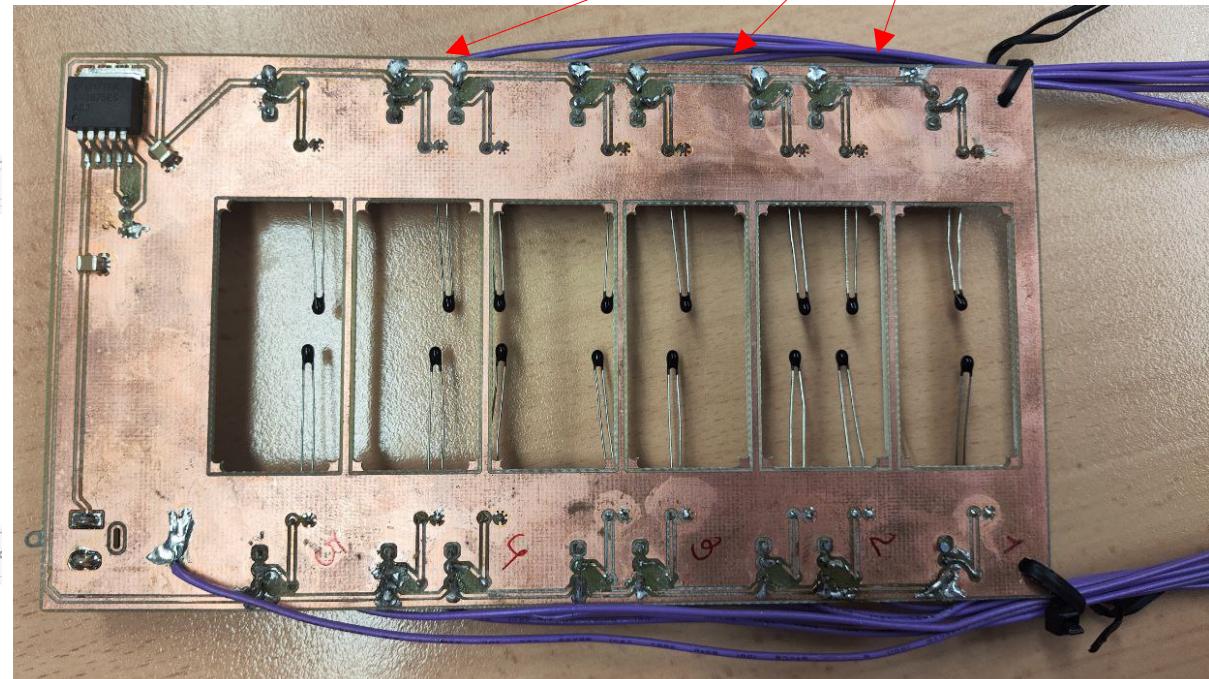
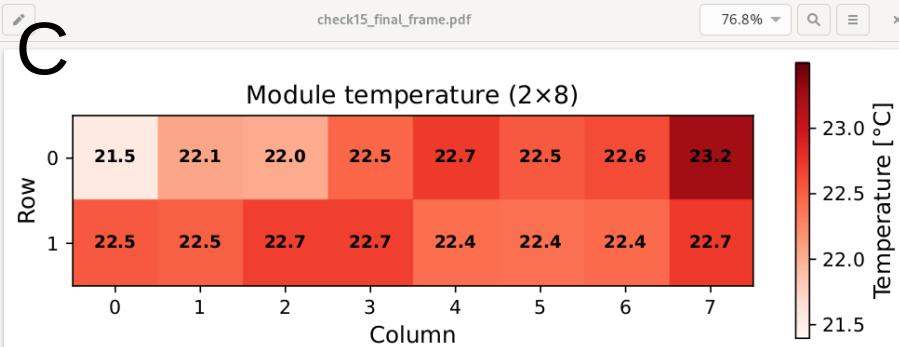
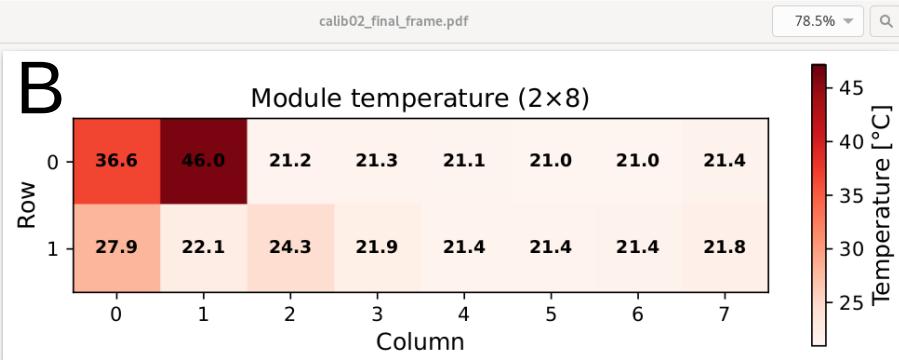
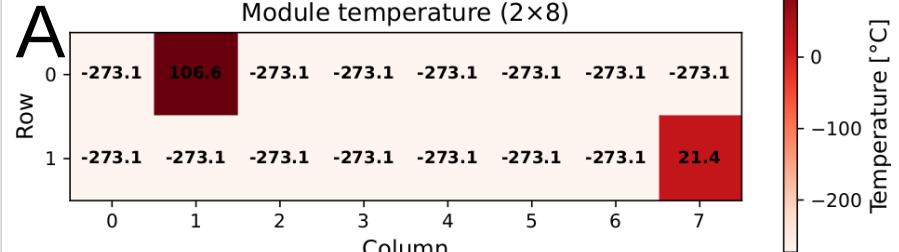
# All-Silicon Update

22.01.2026

Nana Chychkalo

# NTC board got repaired

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



A – Fully broken board.

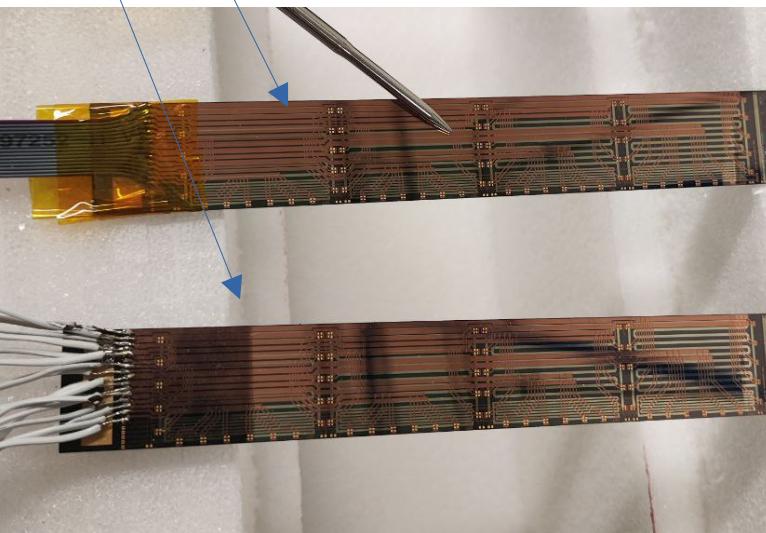
B – Partially repaired board.

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

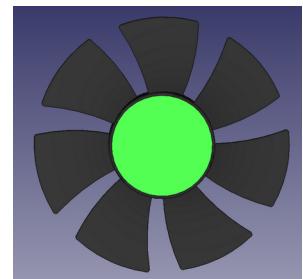


Power recovery algorithm was used in every measurement.

Temperature with fan stabilized after 3-5 minutes.

Thicker module gives slightly higher temperatures.

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



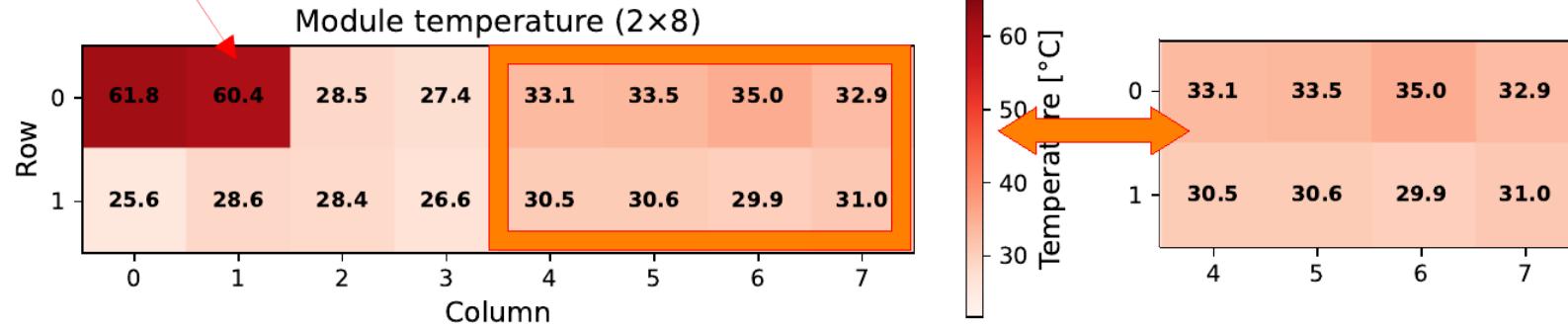
~ 12 m/s fan tip velocity

# 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 µm	2.396	4.131	6.527	91.9	11.8	34.1	35
400 µm	2.573	4.264	6.837	90.1	6.15	42.5	43
300 µm	2.408	4.151	6.558	84.7	11.81	32.8	33.1
300 µm	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

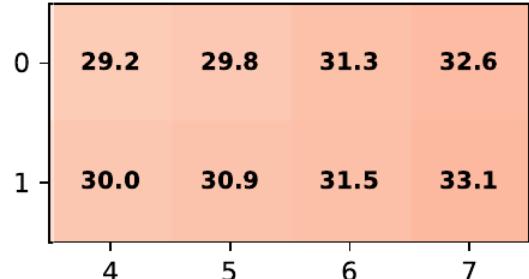


# Airflow Measurements with NTC board

January 2026 measurements (working part of the NTC board)



400 µm, 12V fan

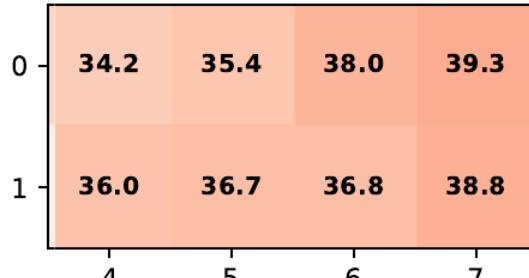


300 µm, 12V fan

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



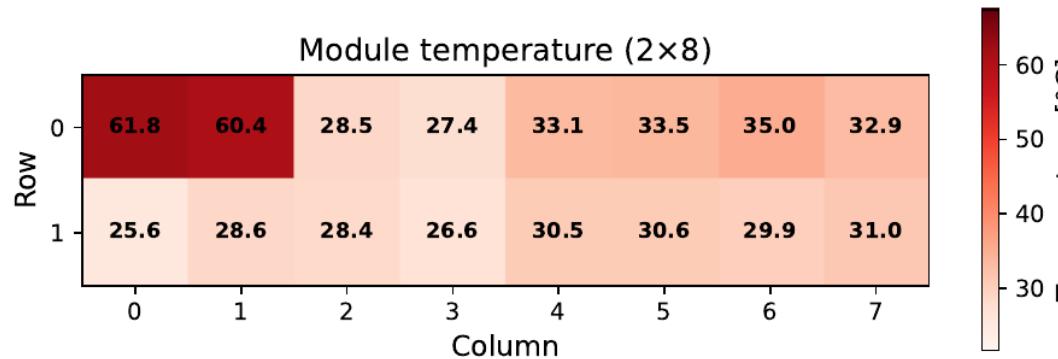
400 µm, 6V fan



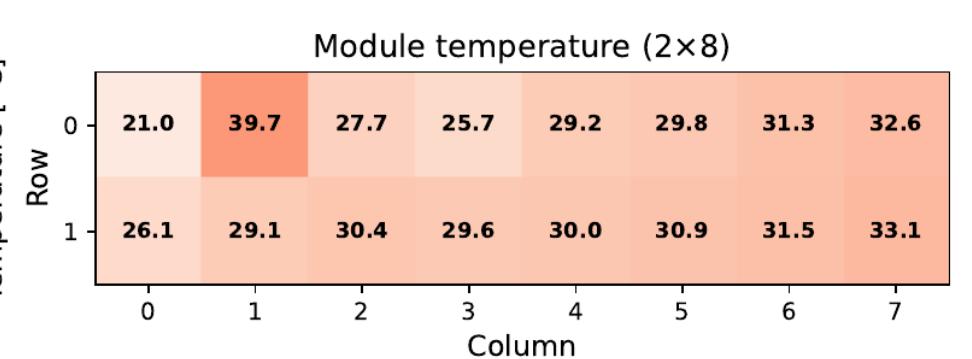
300 µm, 6V fan

# Airflow Measurements with NTC board

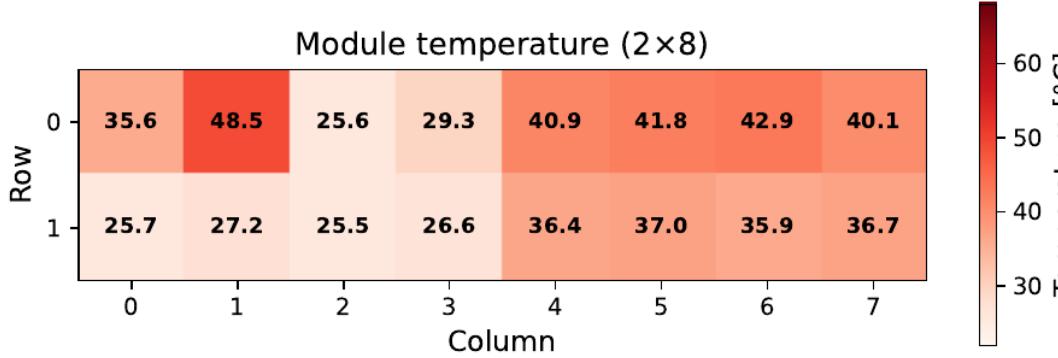
January 2026 measurements (working part of the NTC board)



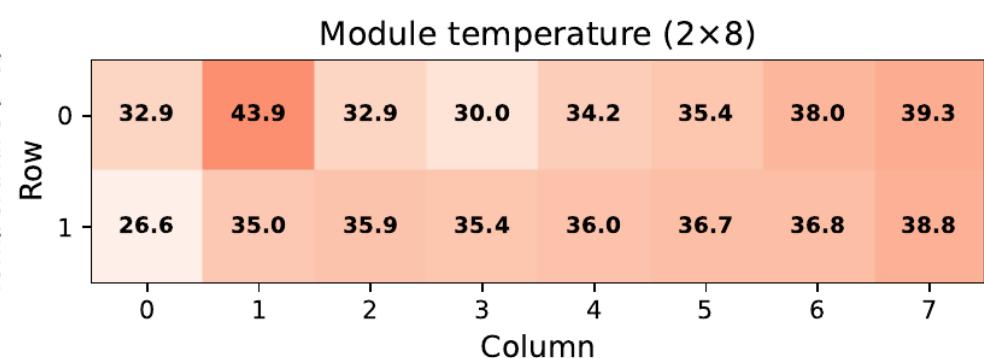
400 μm, 12V fan



300 μm, 12V fan

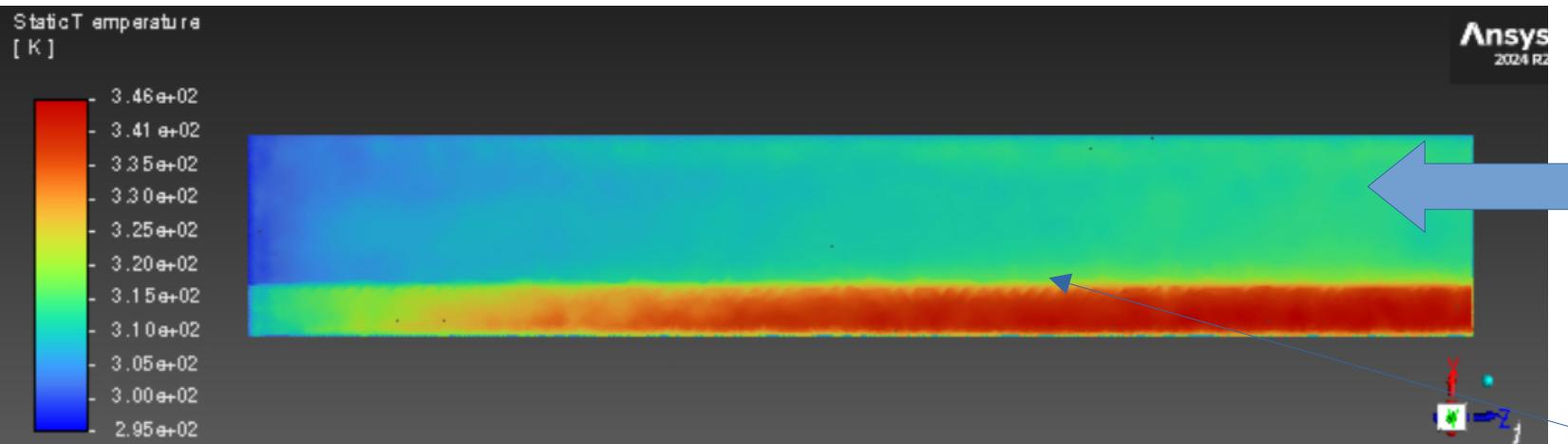


400 μm, 6V fan

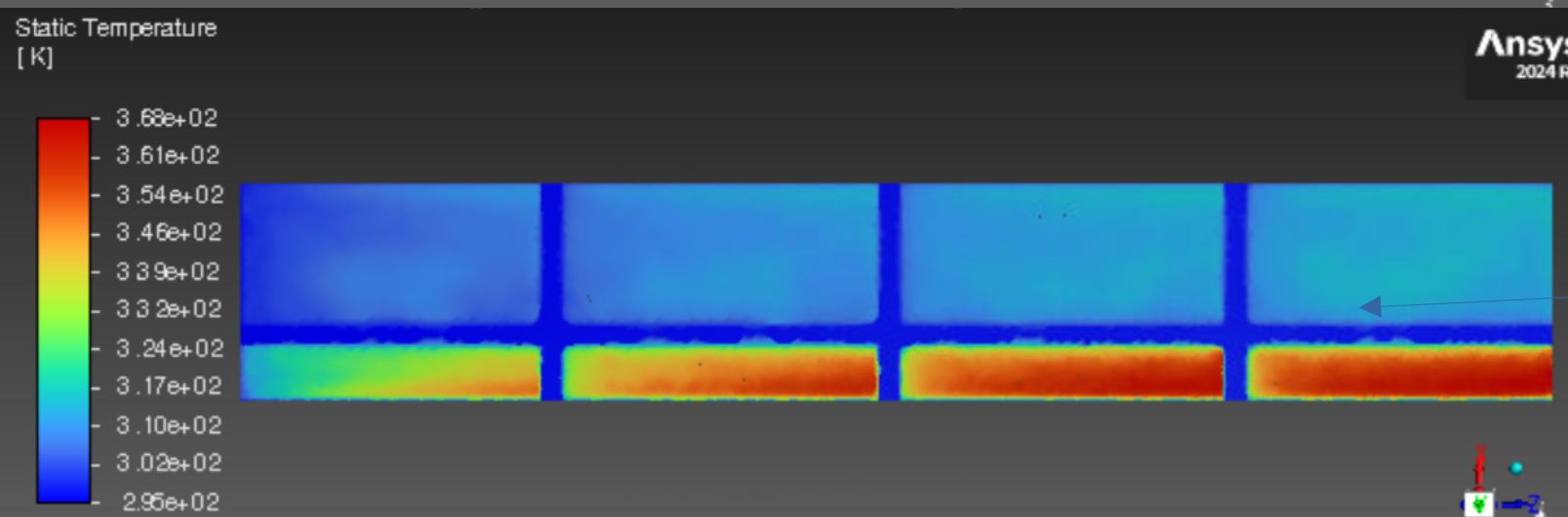


300 μm, 6V fan

# Tests for Segmentation of Matrix and Periphery

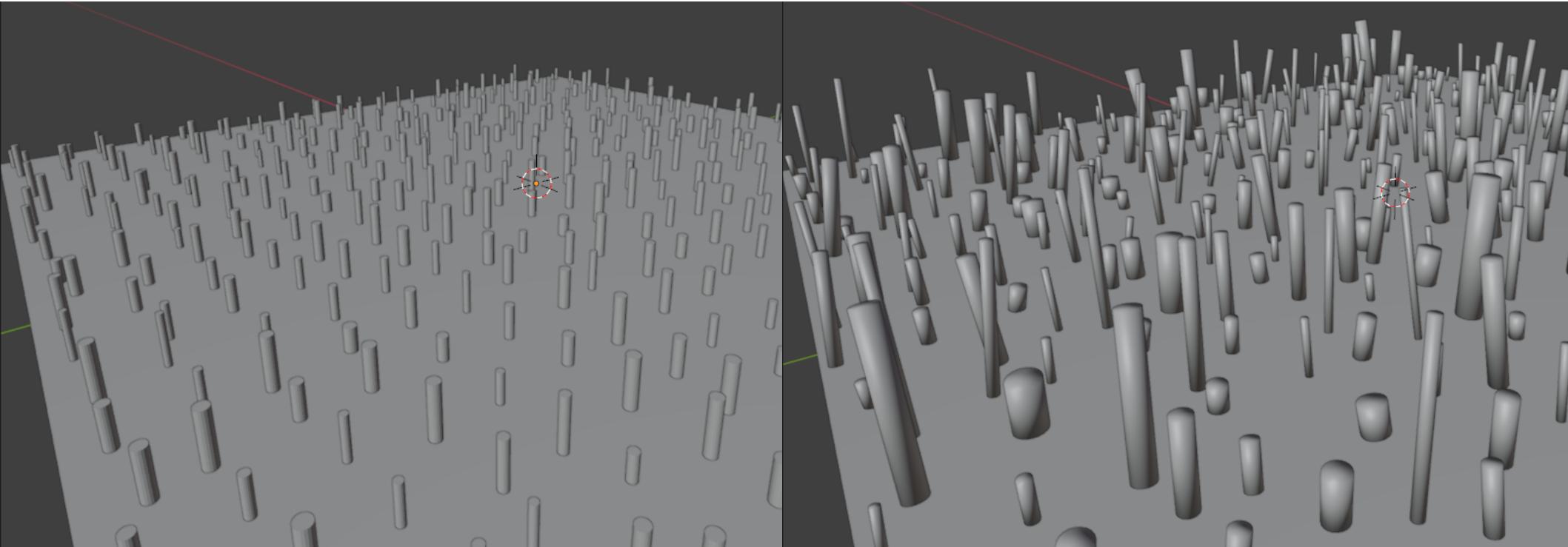


Matrix is well-simulated.  
Maximum ~40°C.



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.