



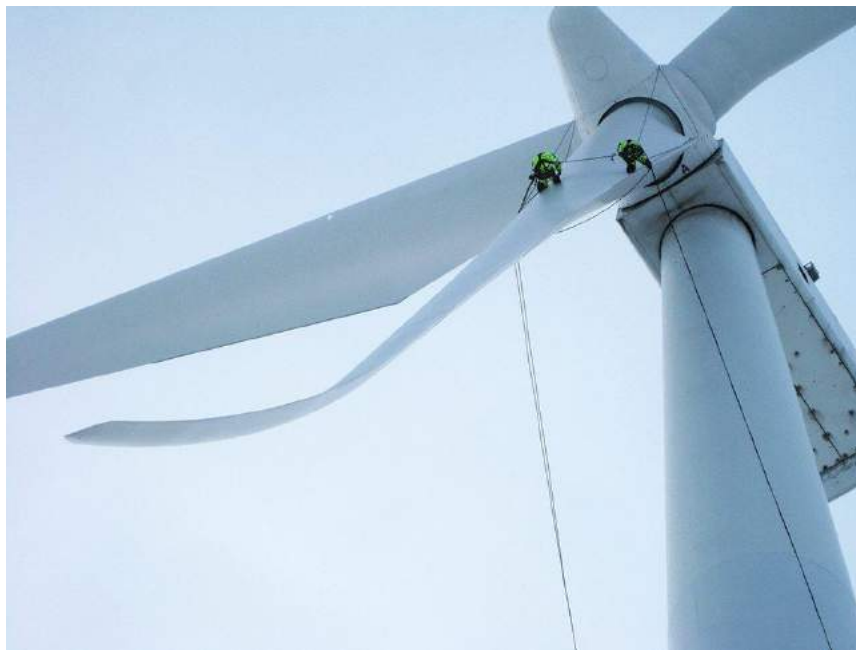
3D Laser Scanning Results

Prepared for: **ACME**

ACME Wind Power

Albuquerque, NM

T-20



Date Scanned: 6-27-18

Scanning Engineer: Kowseegan Suppiah

GPS Coordinates: (12.345, -67.8910)

Tower Type: BFT 1.7

3D Scanning Instrument: Leica C10 Laser Scanner

Arrival 3D, Inc.

12220 South State Hwy 51 STE 1, Coweta, OK 74429

Phone number: +1 (866) 687-7784

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Plant: ACME Wind Power/Albuquerque, NM

Turbine: T-20

Date: 6-27-18



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PROJECT DESCRIPTION

Arrival 3D was given the task of scanning turbine T-20 at the ACME Wind Power Plant in Albuquerque, New Mexico. The objective was to identify any dents in the tower walls and analyze their size and depth. Additionally, the tower shape as a whole was analyzed to detect any bends or other defects. A Leica C10 3D Laser scanner was used to collect an existing conditions point cloud of the tower. Scan inspection software was then used to compare the scan with an idealized CAD model of the tower, identifying location, size, shape and depth of any dents present. The same process also detects whether the tower has other defects such as being out of round, bent or other difference in shape from a perfect tower.

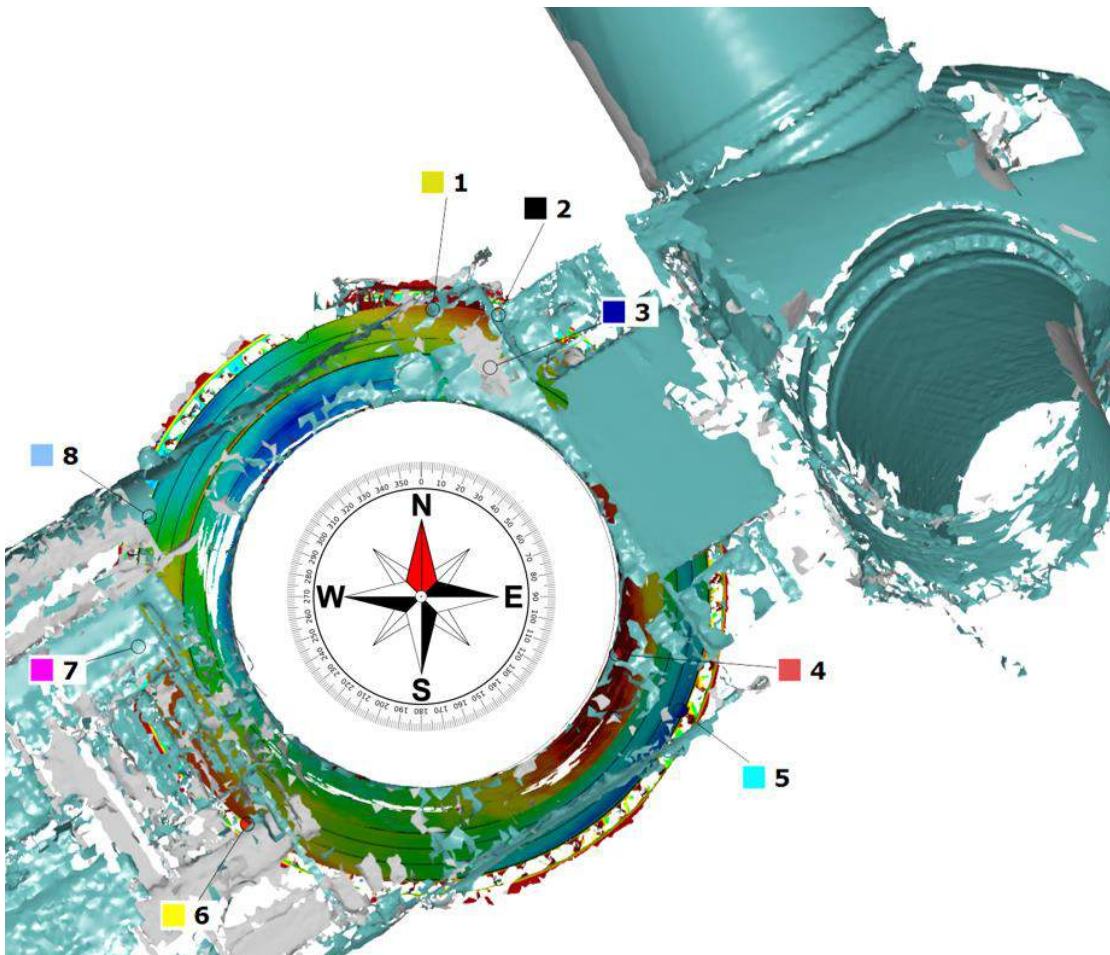
TOWER DEFORMATION MAP OVERVIEW

Deformation #	W (mm)	H (mm)	Angle (deg)	Height (m)	Max Deformation (mm)
1	1900	13570	2	10.97	-21.36
2	2375	17250	15	28.06	+18.68
3	2150	22430	15	50.26	-25.01
4	2585	10650	105	62.30	+29.36
5	2360	19540	115	27.00	-24.57
6	2250	20650	220	26.52	+20.57
7	1430	7925	260	10.62	+21.15
8	20550	1890	285	27.05	-23.57

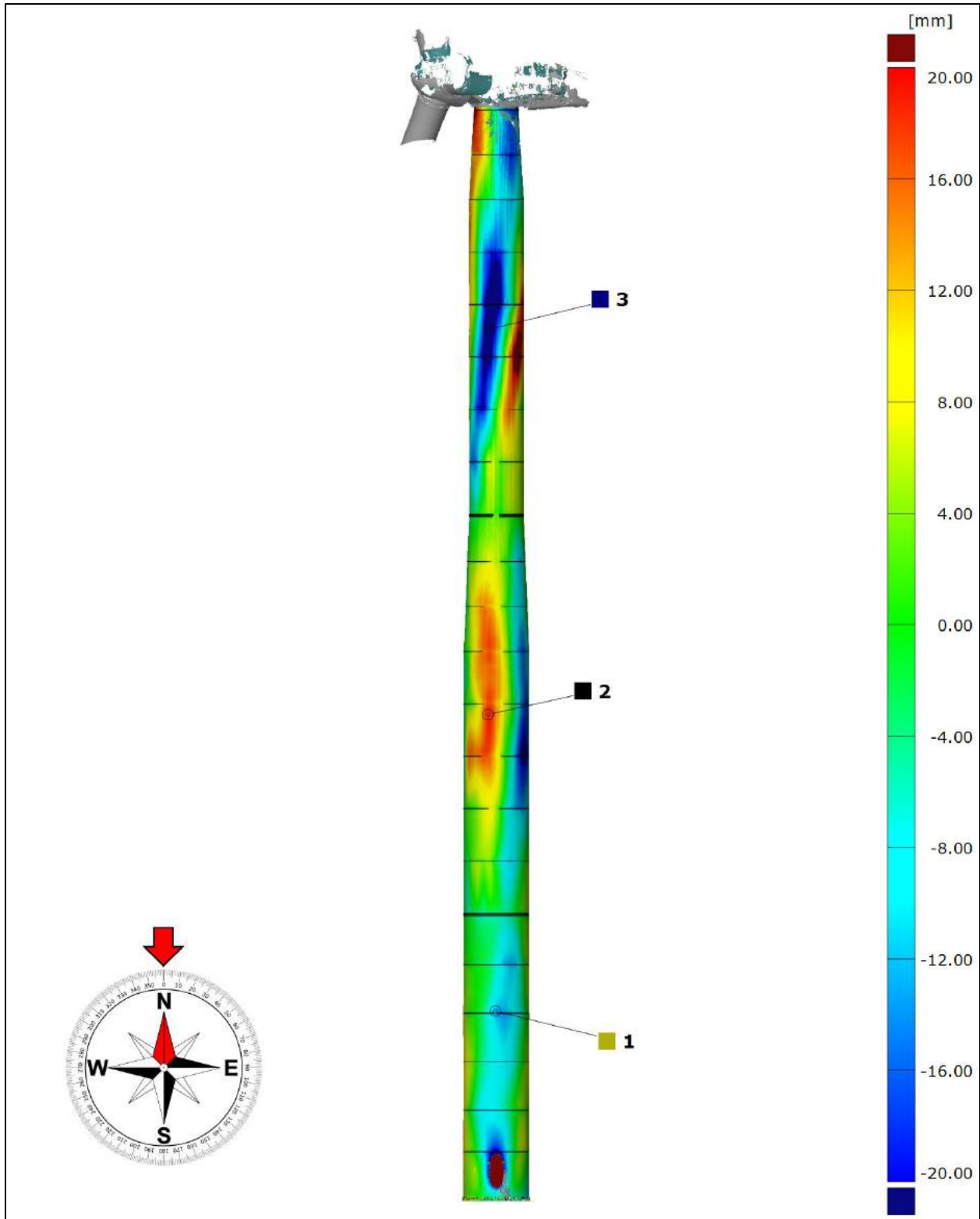
NOTICE: Deformation of surfaces occur in the form of dents or bumps.

Positive deformation sign (+) is for bumps (actual surface of the scanned object is over CAD nominal surface). Deformation is orientated from the outer surface away from pole axis.

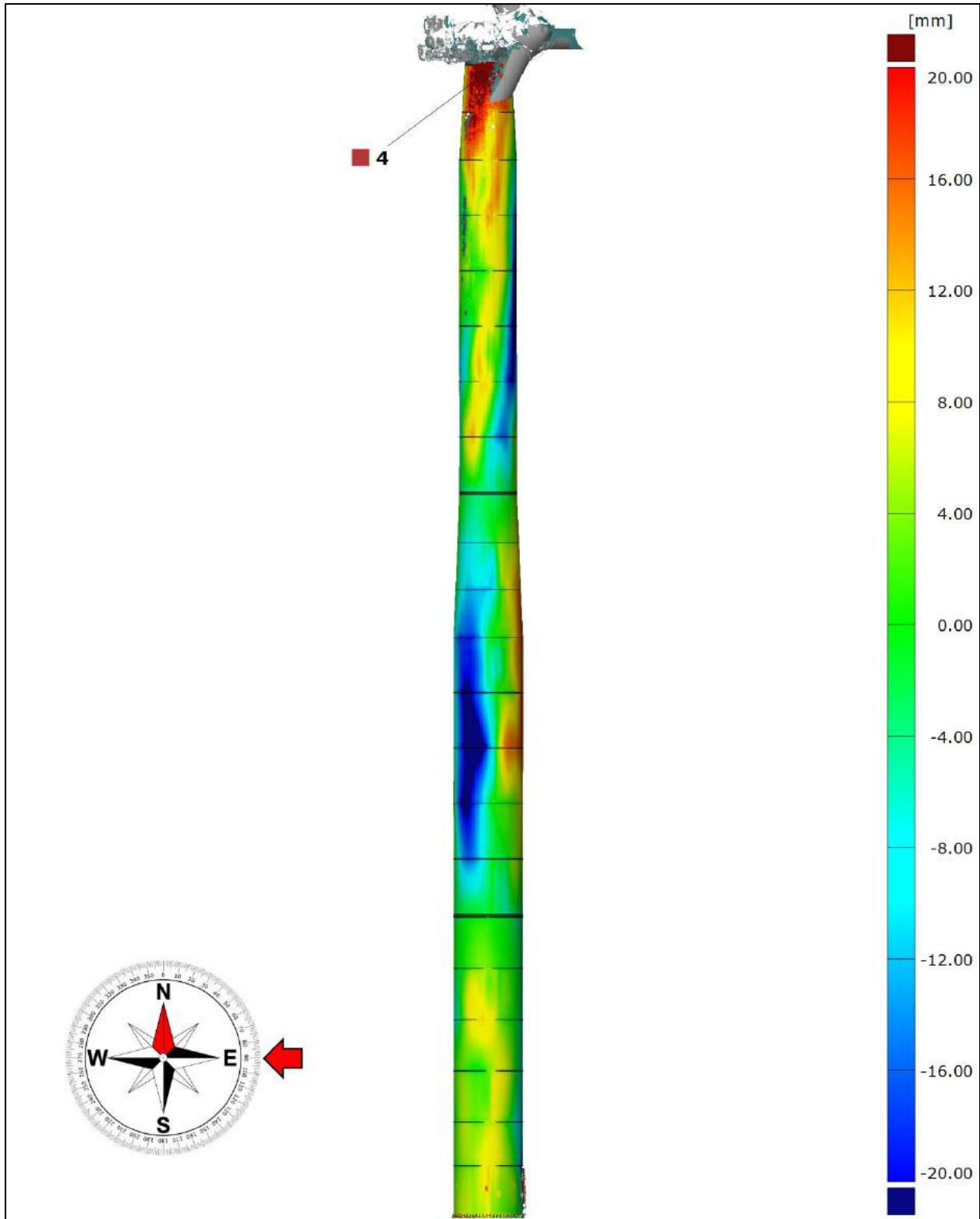
Negative deformation sign (-) is for dents (actual surface of the scanned object is under CAD nominal surface). Deformation is orientated from outer surface toward pole axis.



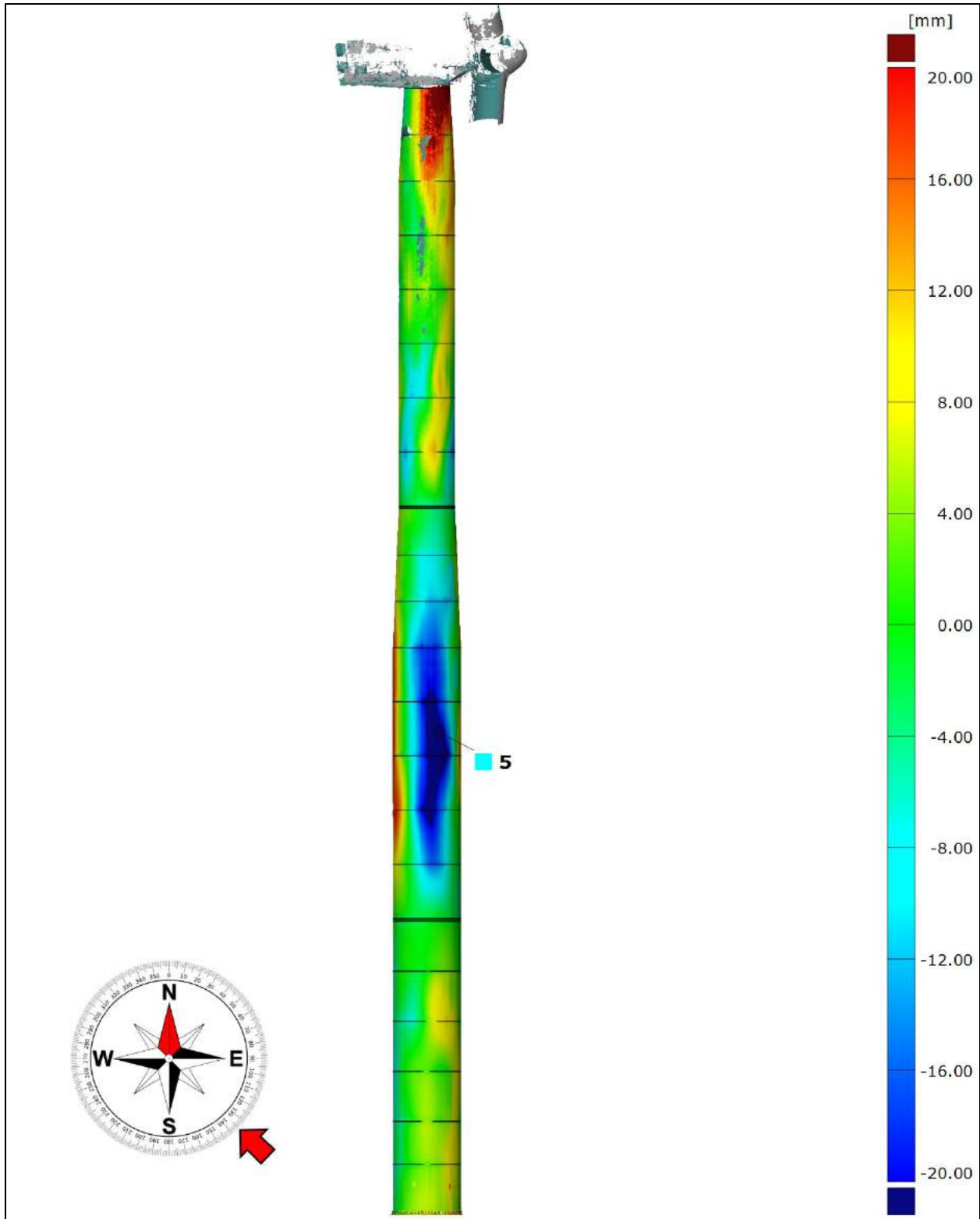
Deformation 1,2 and 3 locations



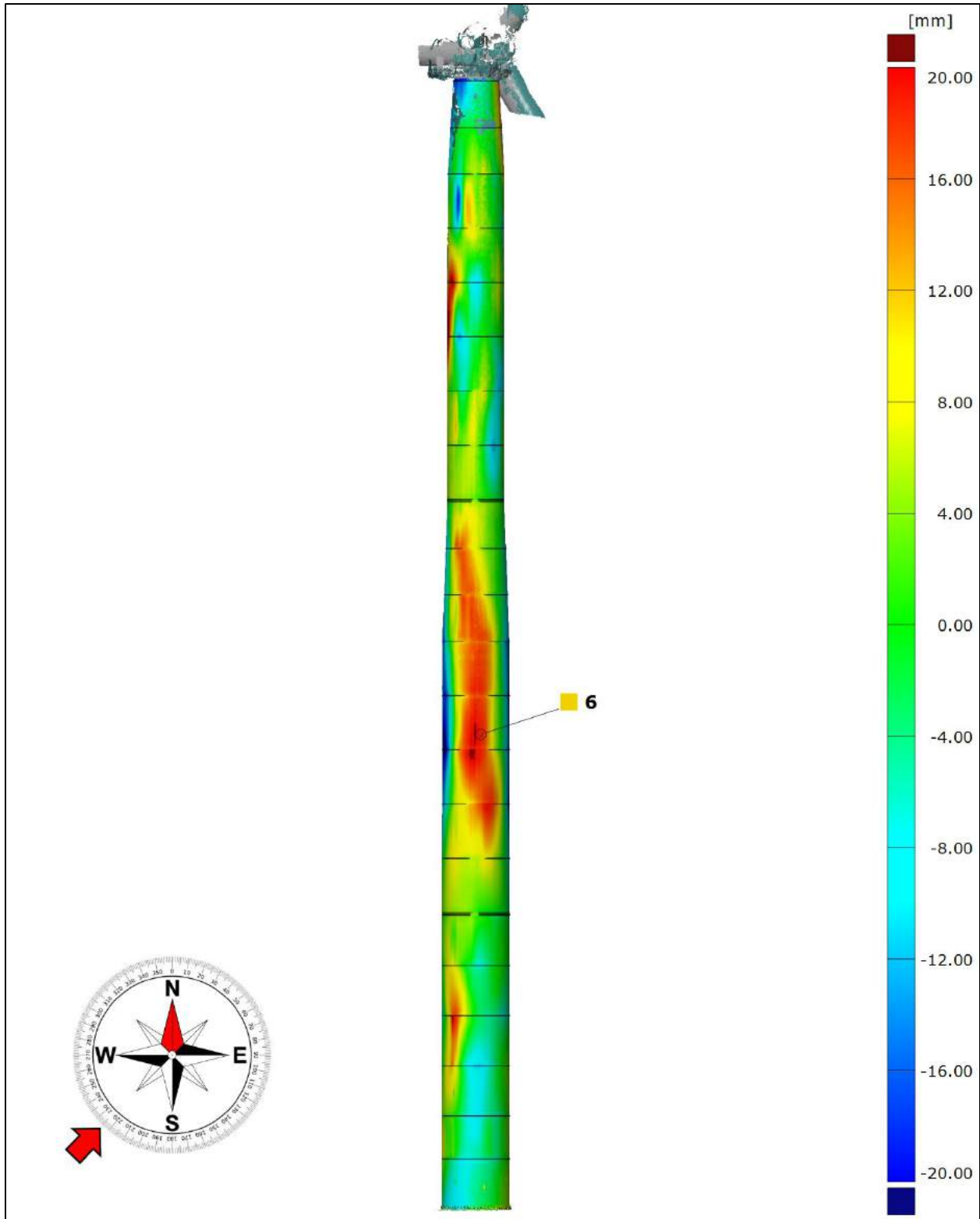
Deformation 4 location



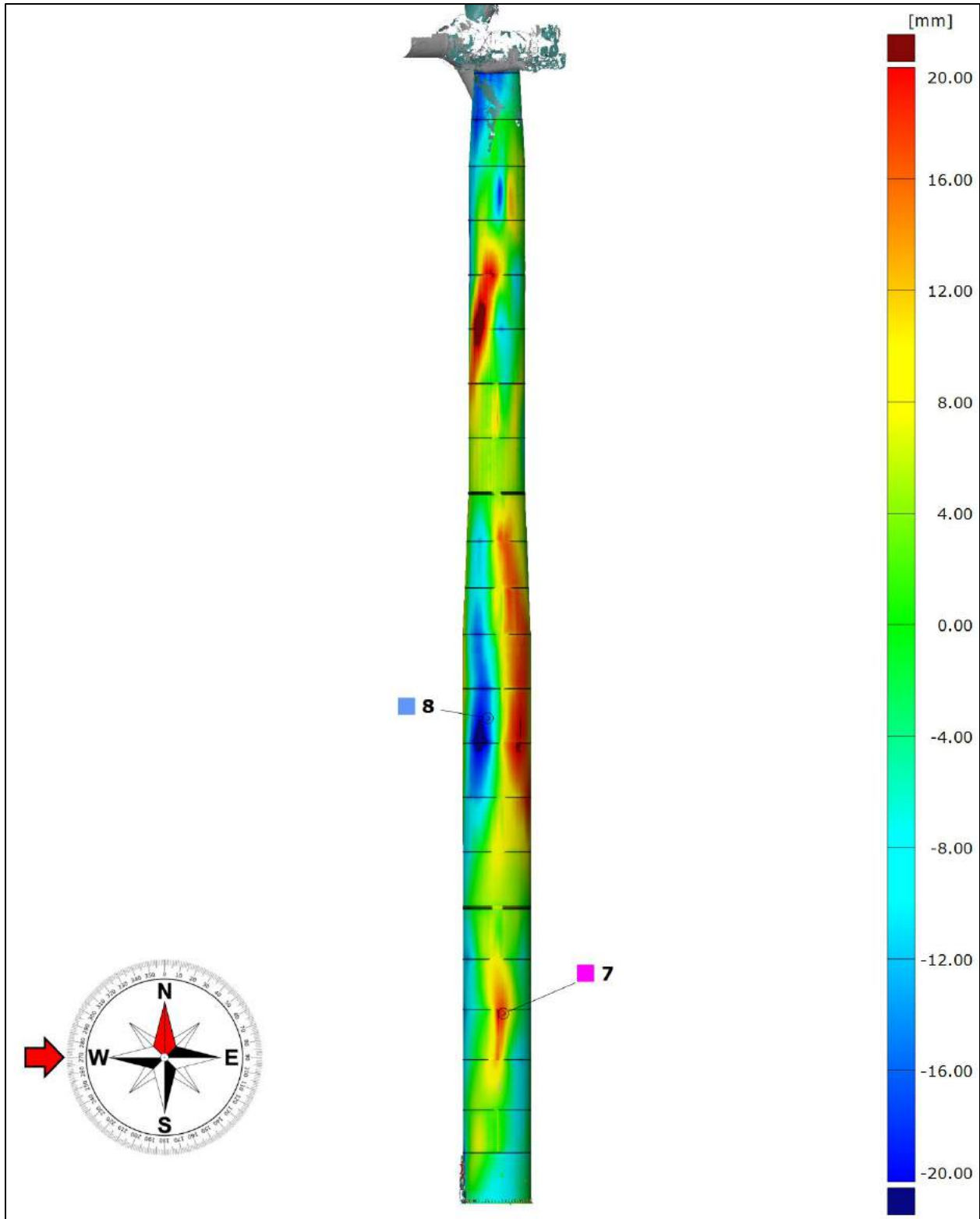
Deformation 5 location



Deformation 6 location

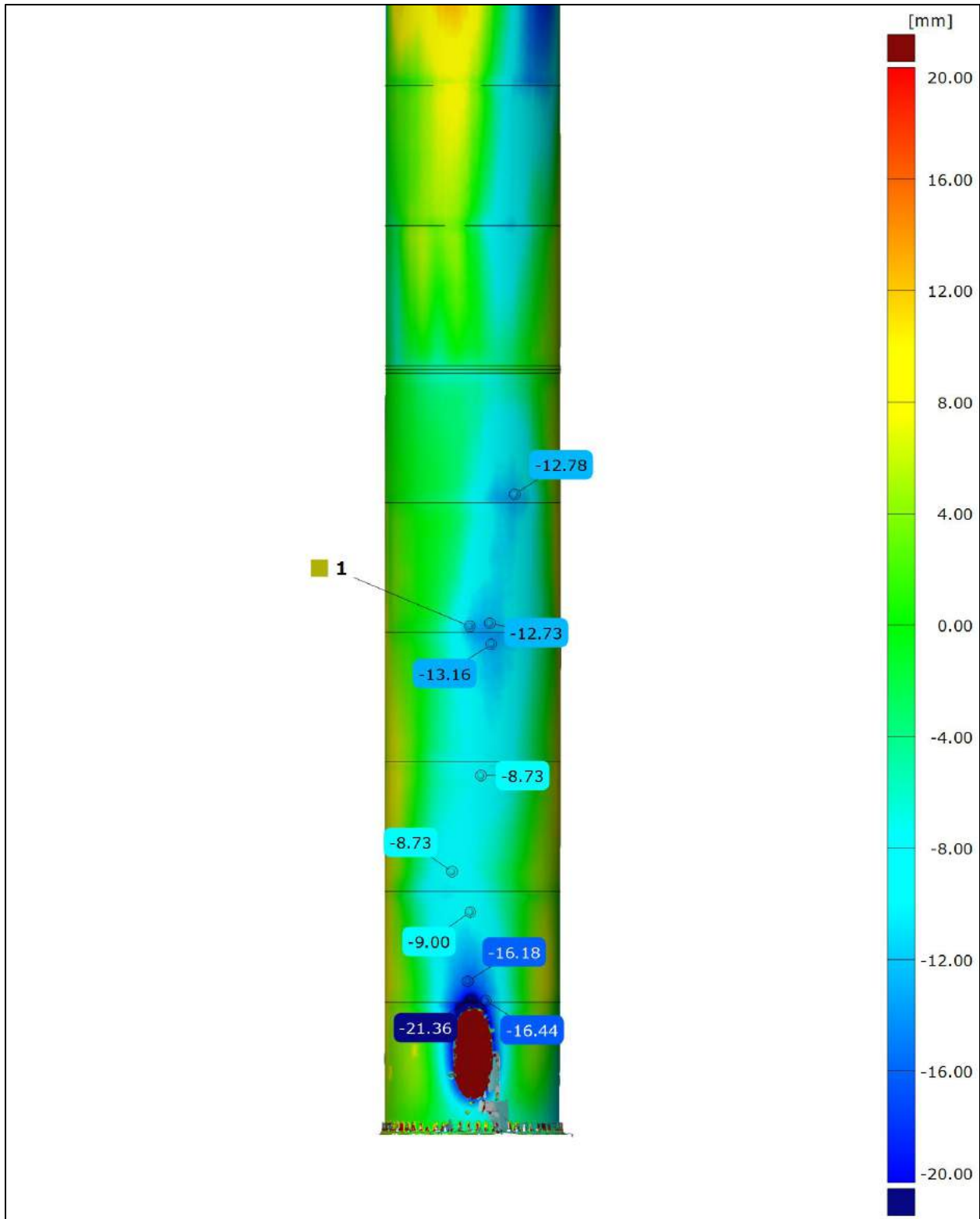


Deformation 7 and 8 locations

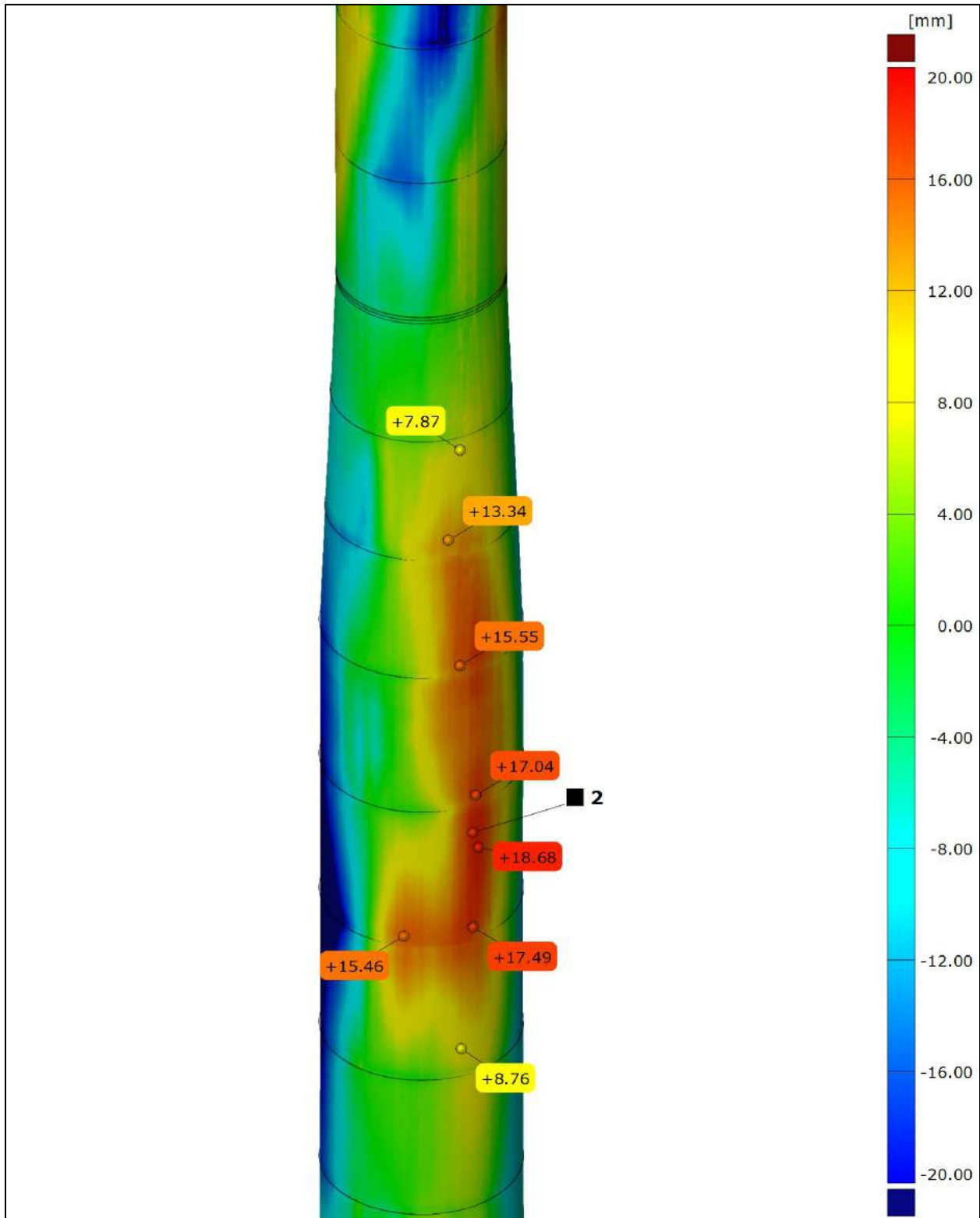


DEFORMATION DETAILS

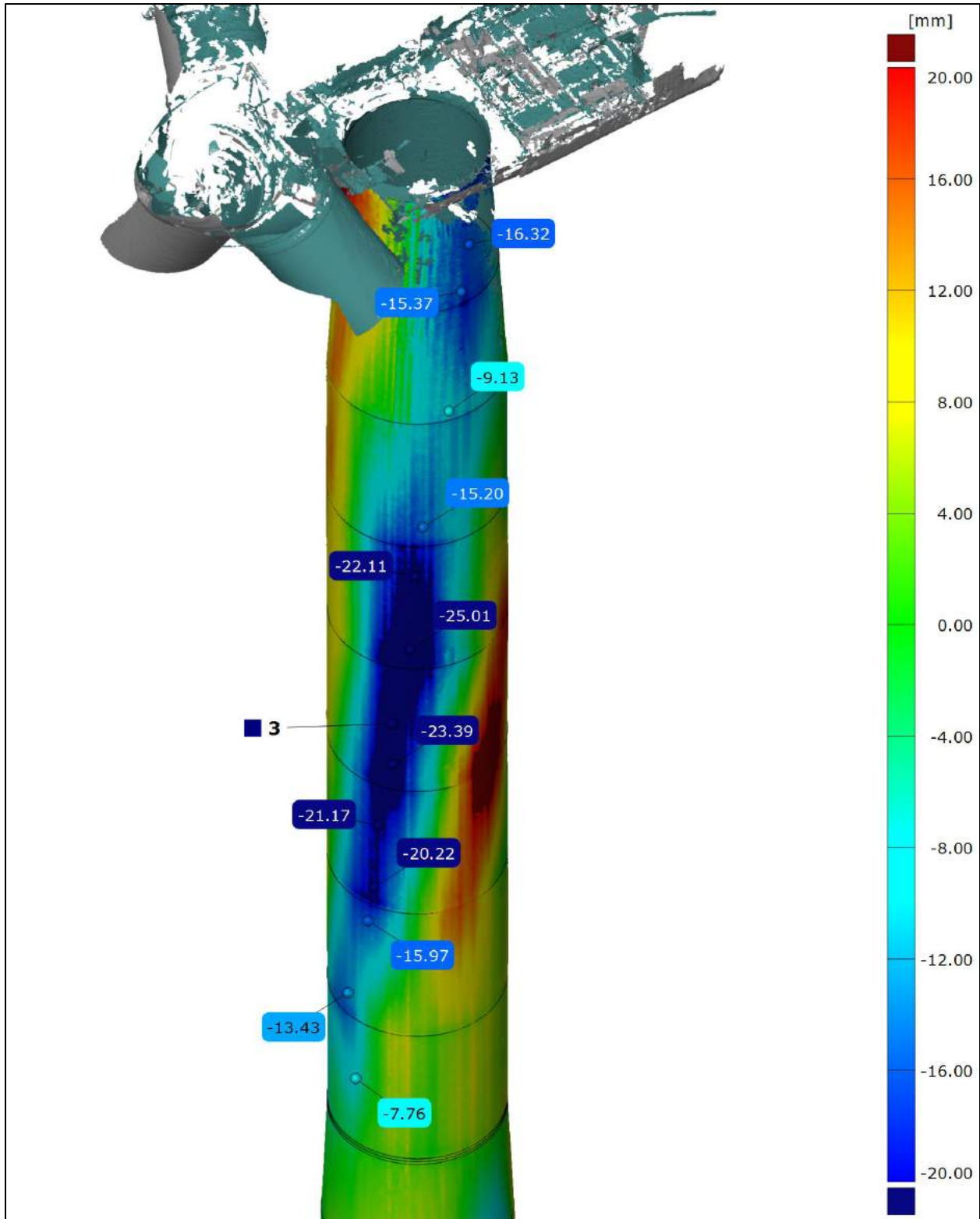
Deformation 1 Detail



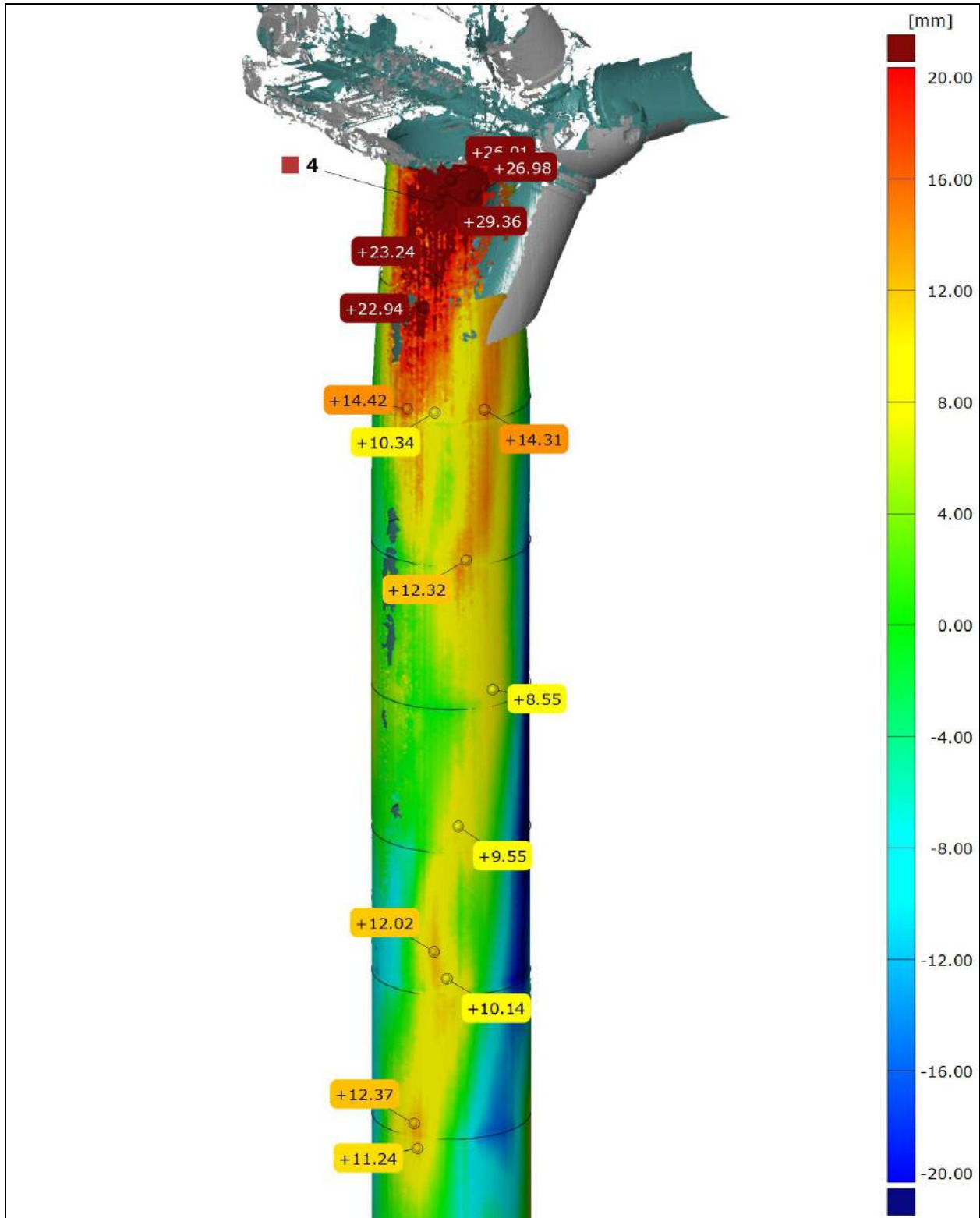
Deformation 2 Detail



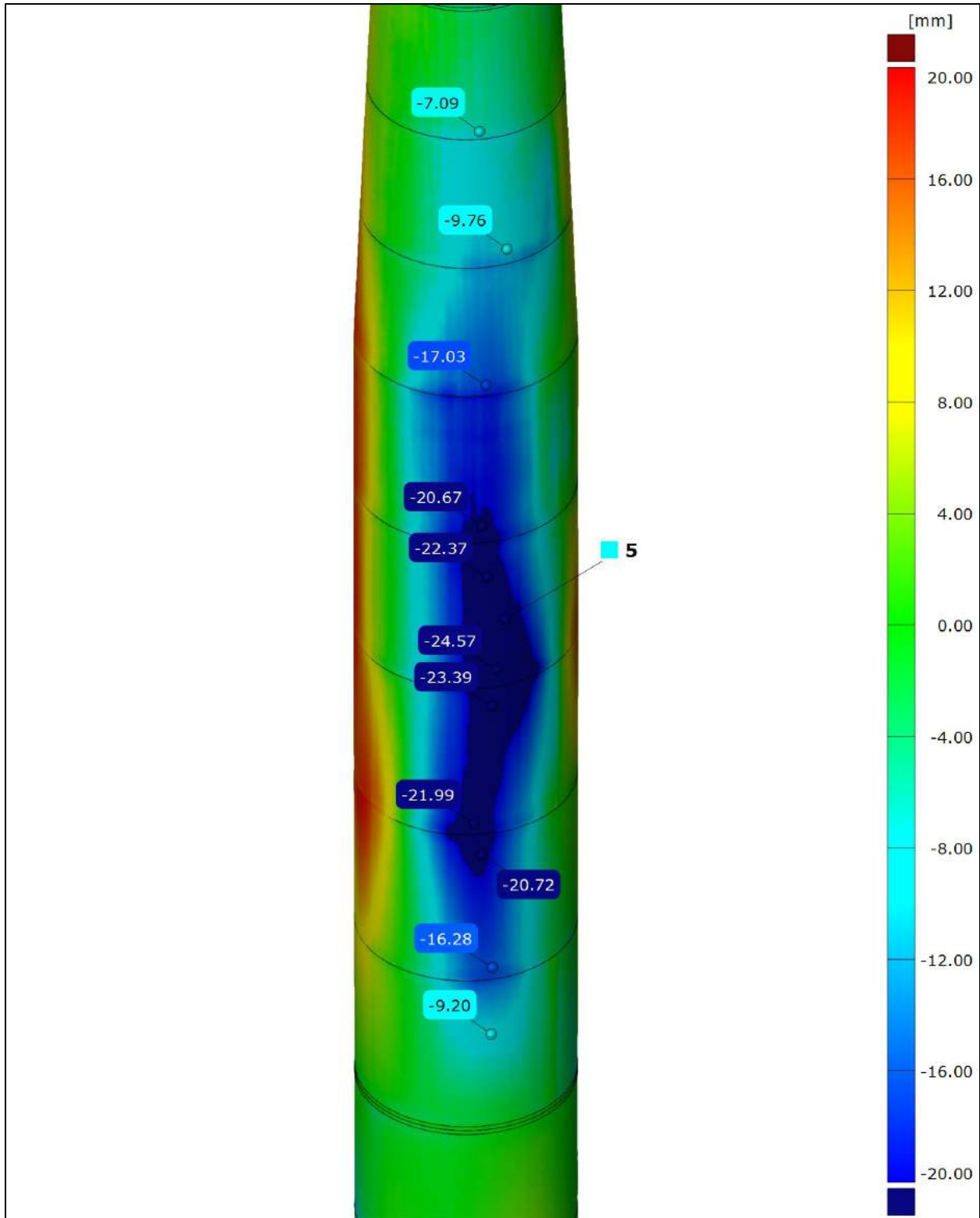
Deformation 3 Detail



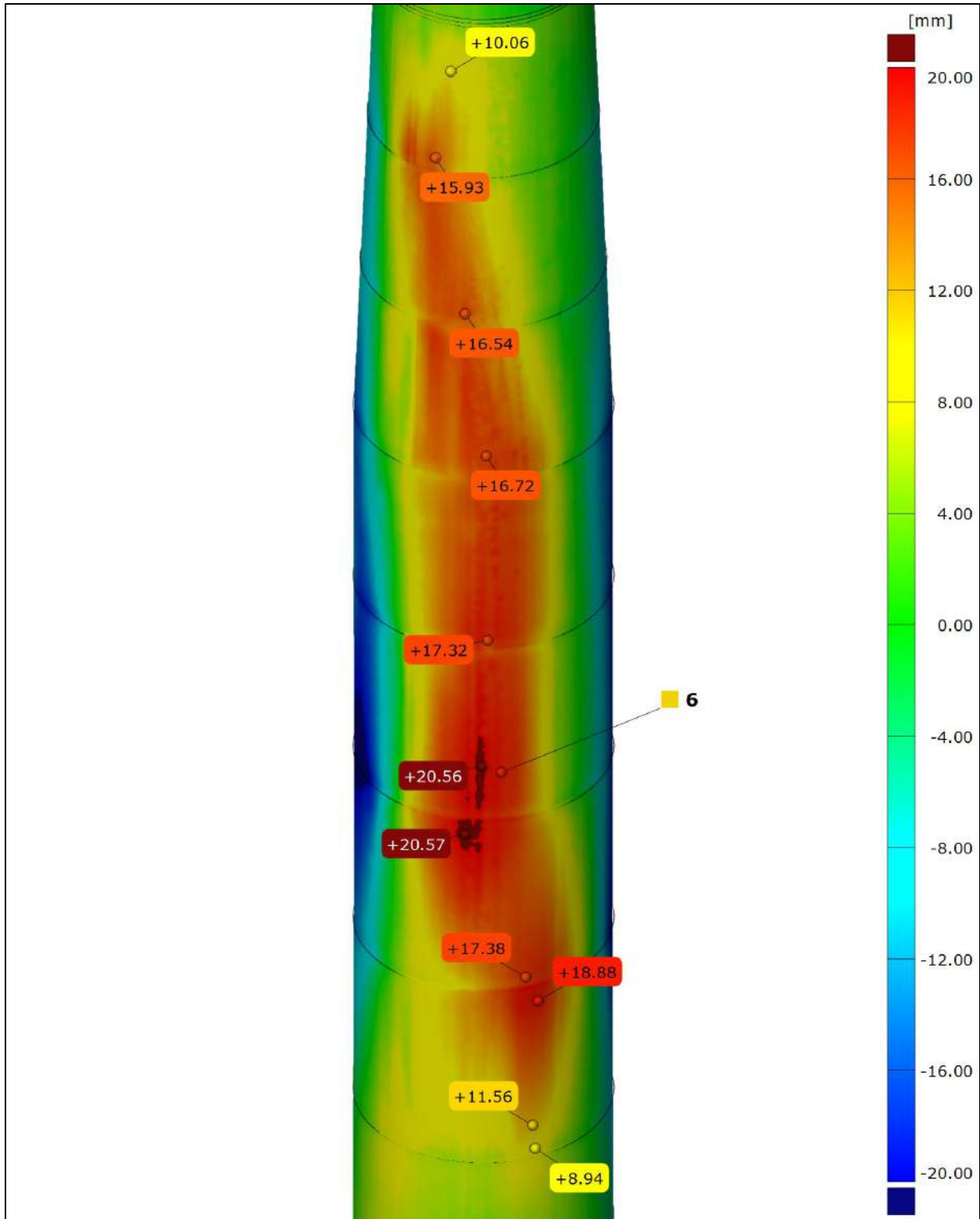
Deformation 4 Detail



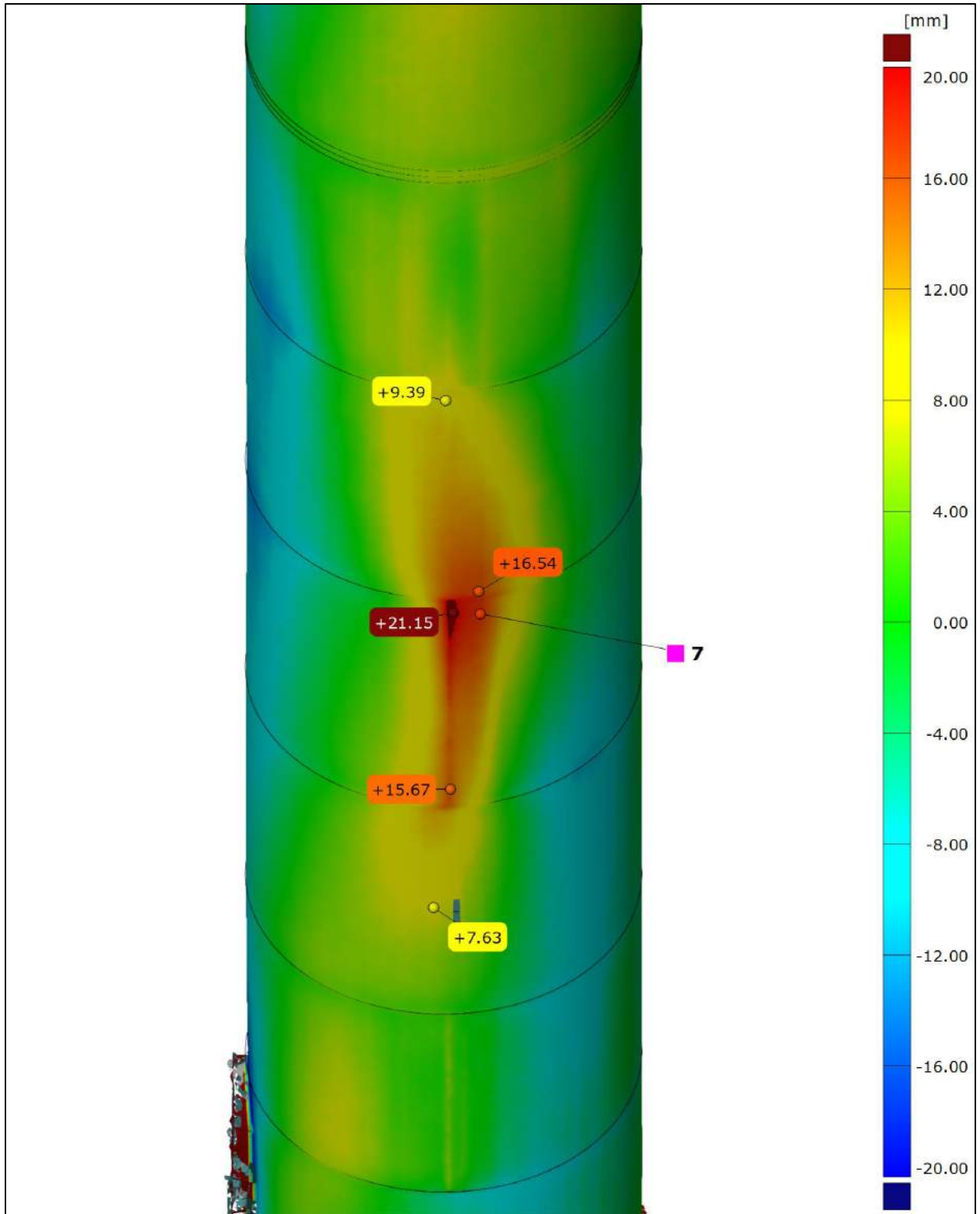
Deformation 5 Detail



Deformation 6 Detail



Deformation 7 Detail



Deformation 8 Detail

