SEIKOWAVE

Examples of 3D scanning for Civil Engineering (pick-ups)

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- Bridges ….. 3
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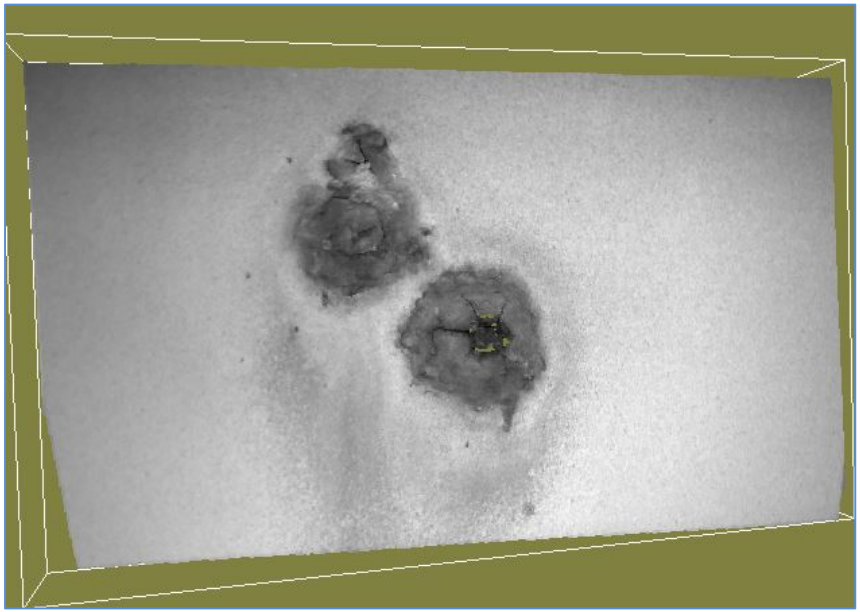
BRIDGES

Bridge on the coast

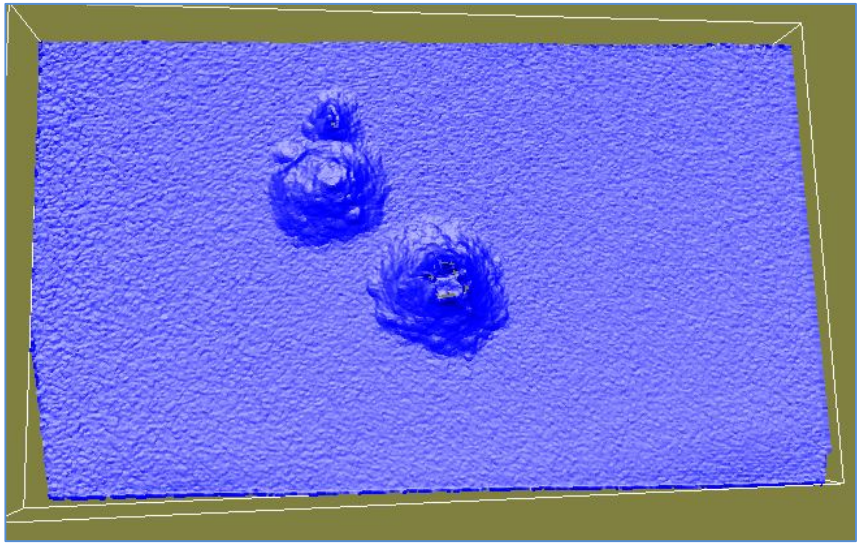
Monitoring point 1

Monitoring point 1

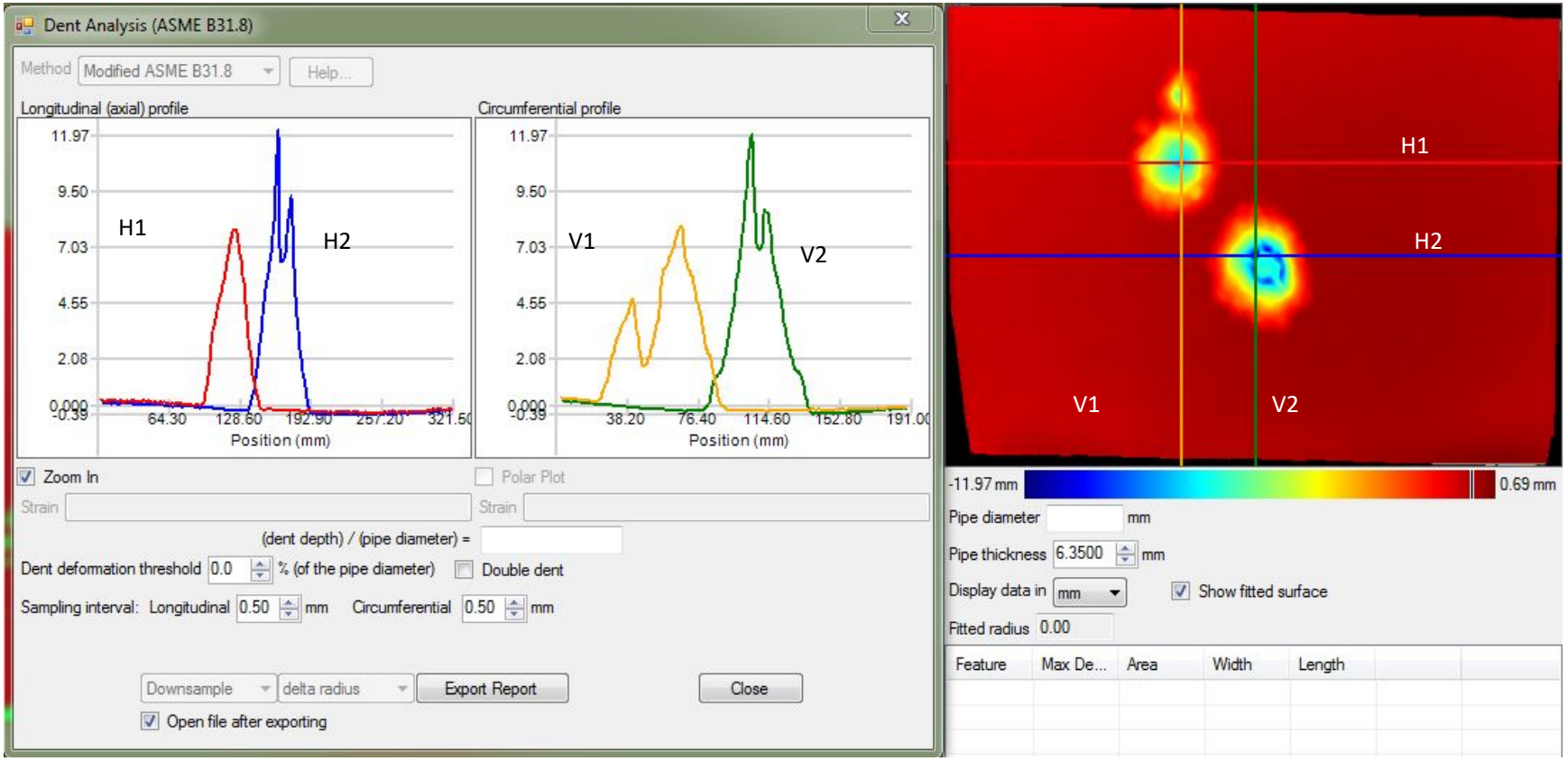
3D with texture



3D without texture



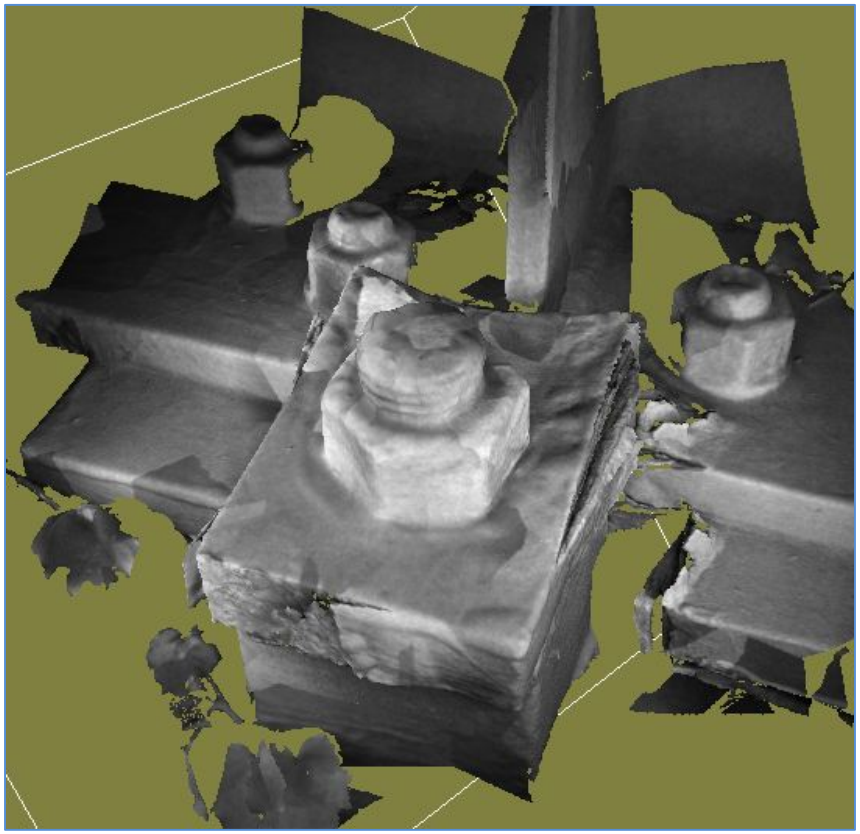
Monitoring point 1

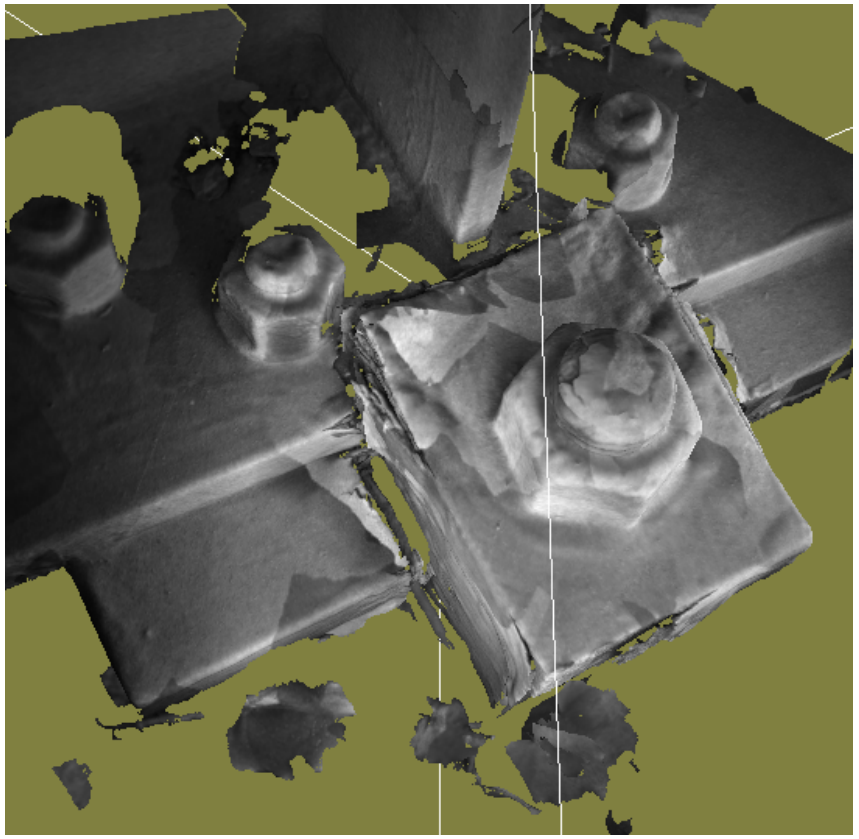


Global Analysis Mode

Monitoring point 3

Monitoring point 3; after merged





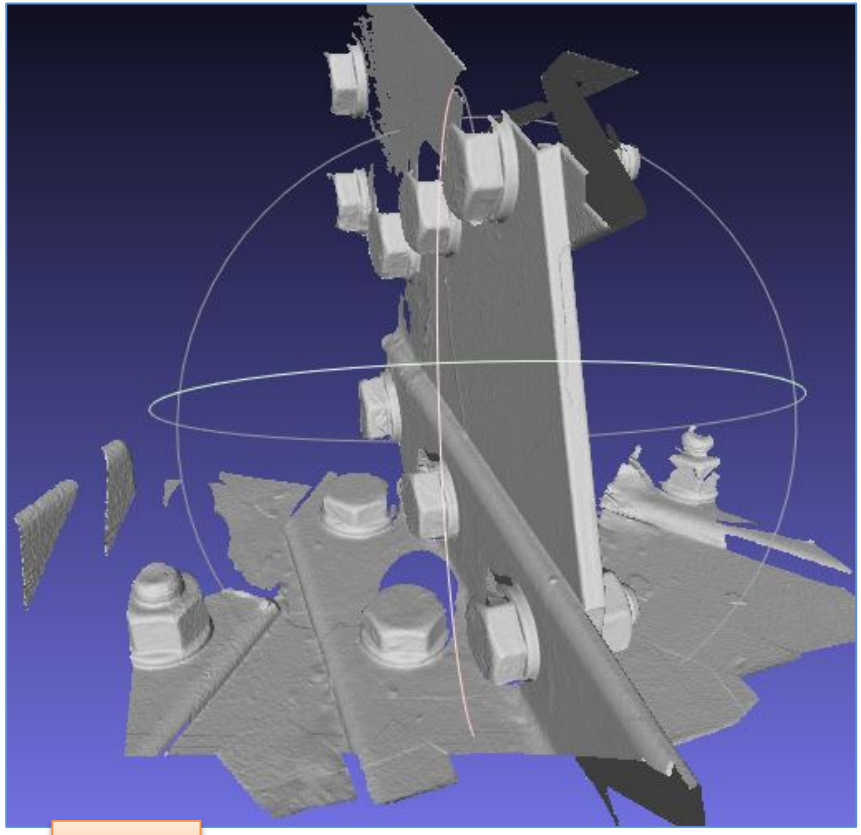
Monitoring point 4

Left side

Right side

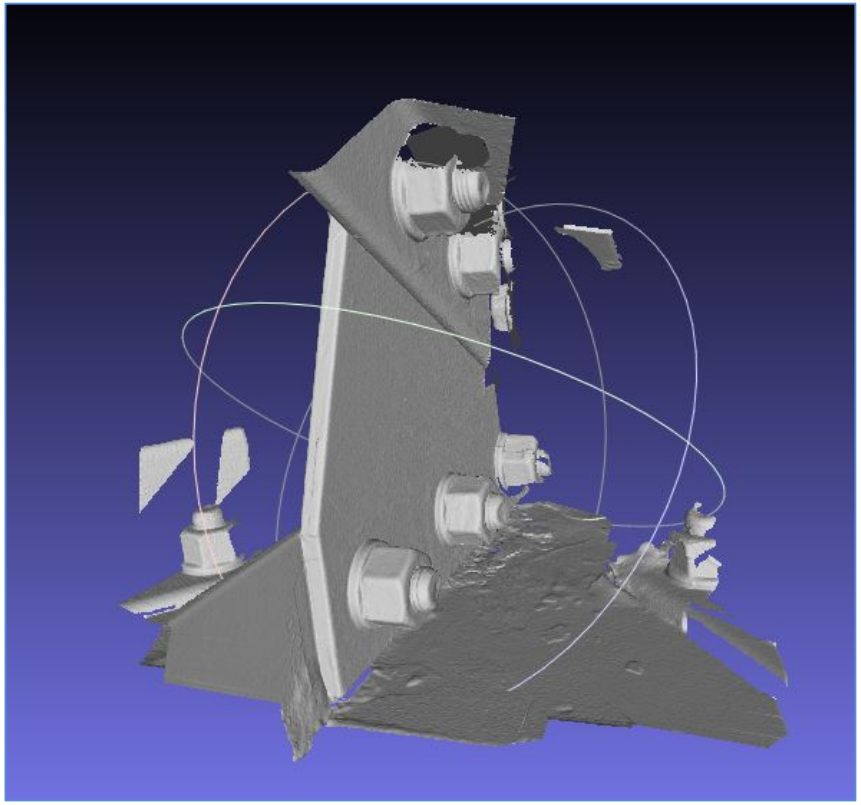
Monitoring point 4; after merged

Left side



Data9.ply

Right side

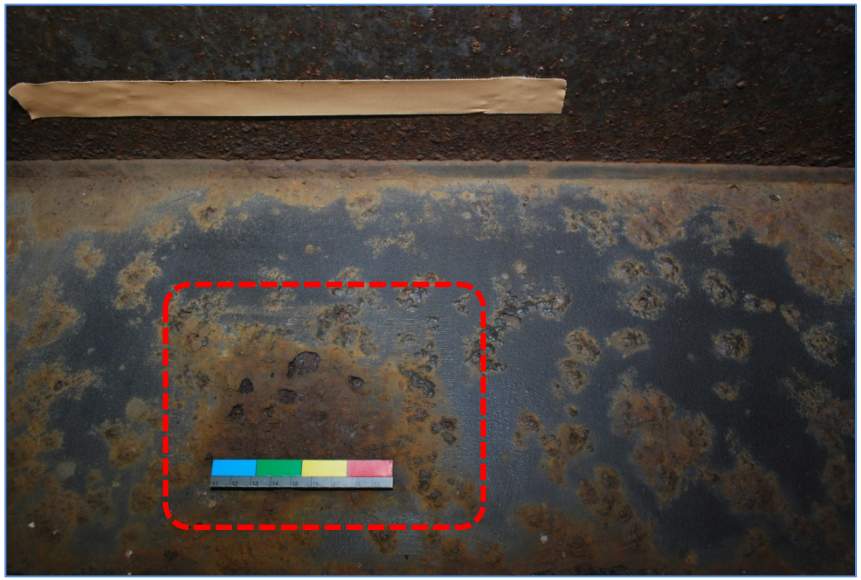


Monitoring point 5

Before cleaning

058

After wire-brushed

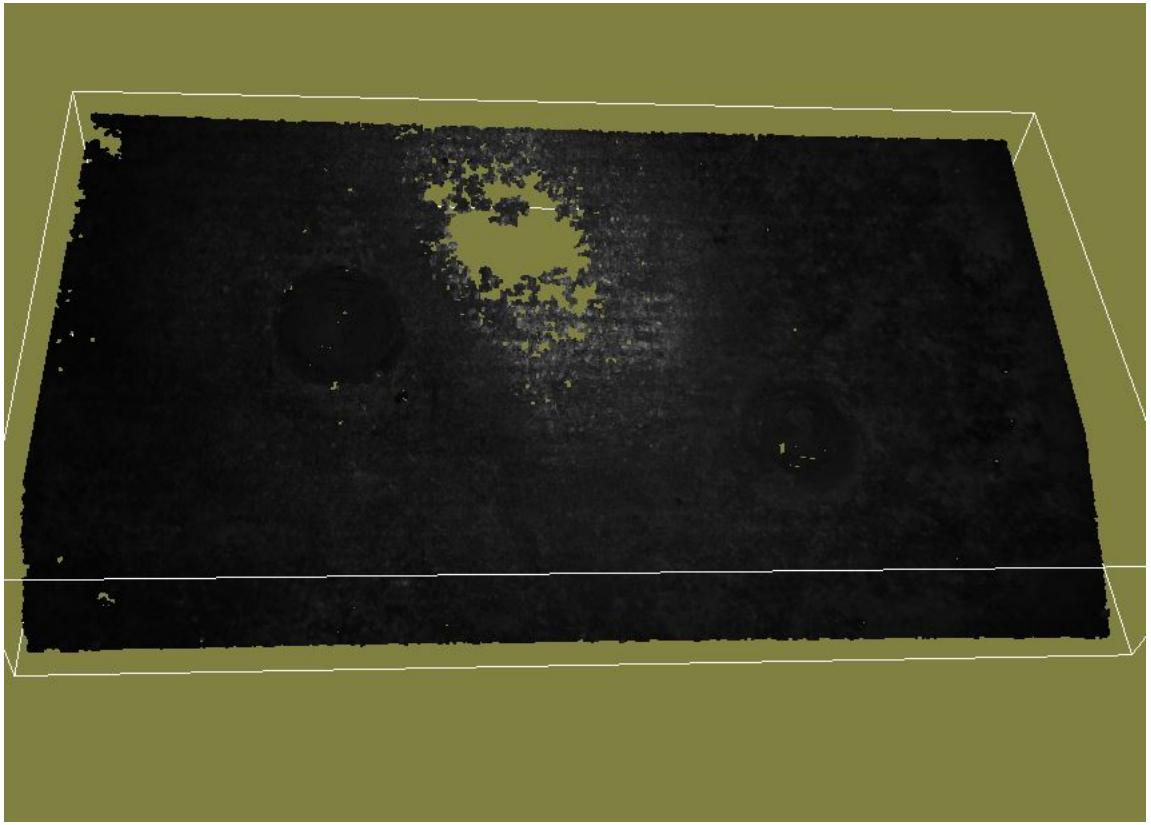


080

Courtesy by Miura, Yonden Consulting Corp.

Monitoring point 5; 3D data

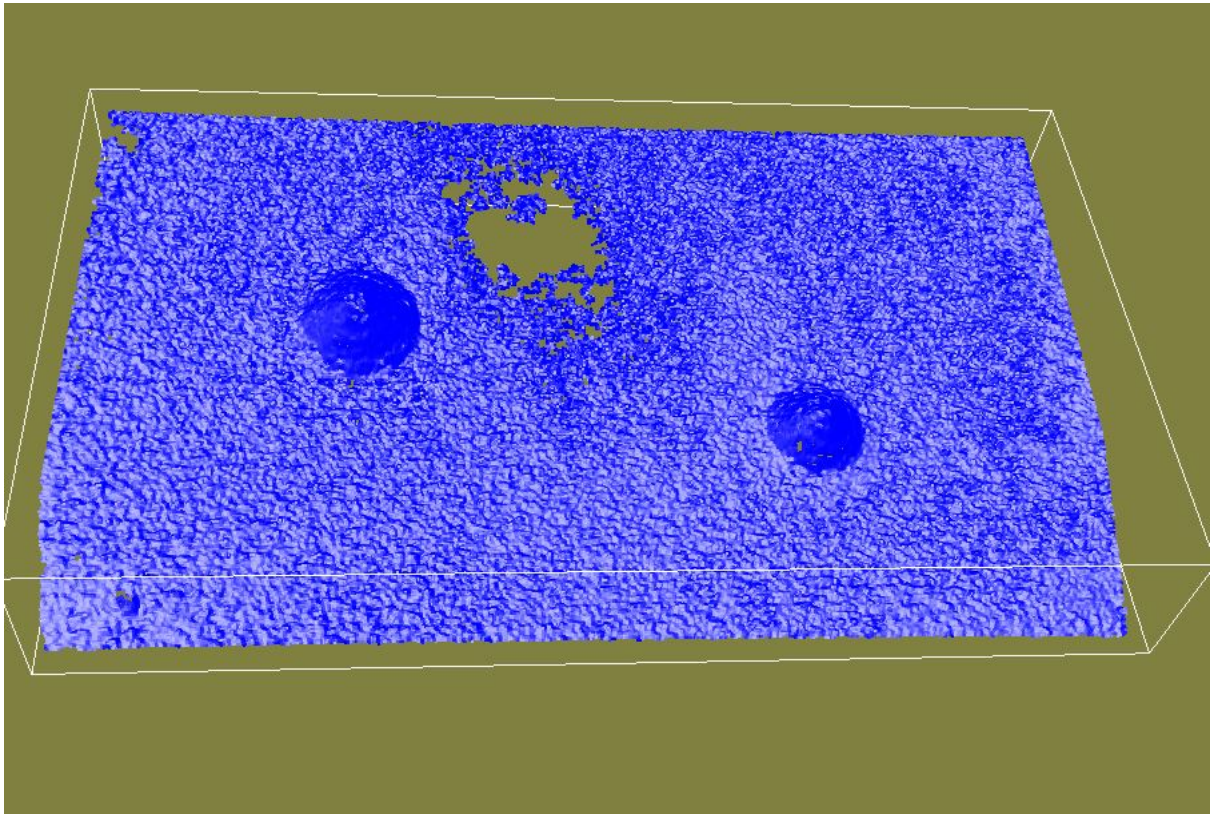
Before cleaning



Monitoring point 5; 3D data

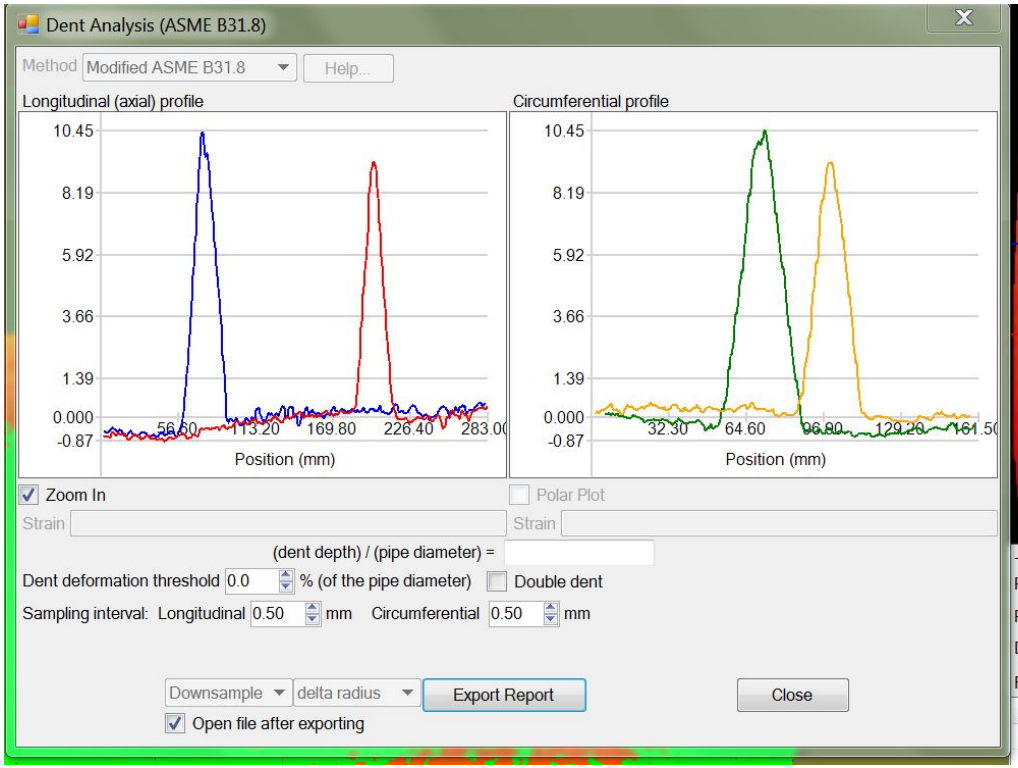
Before cleaning

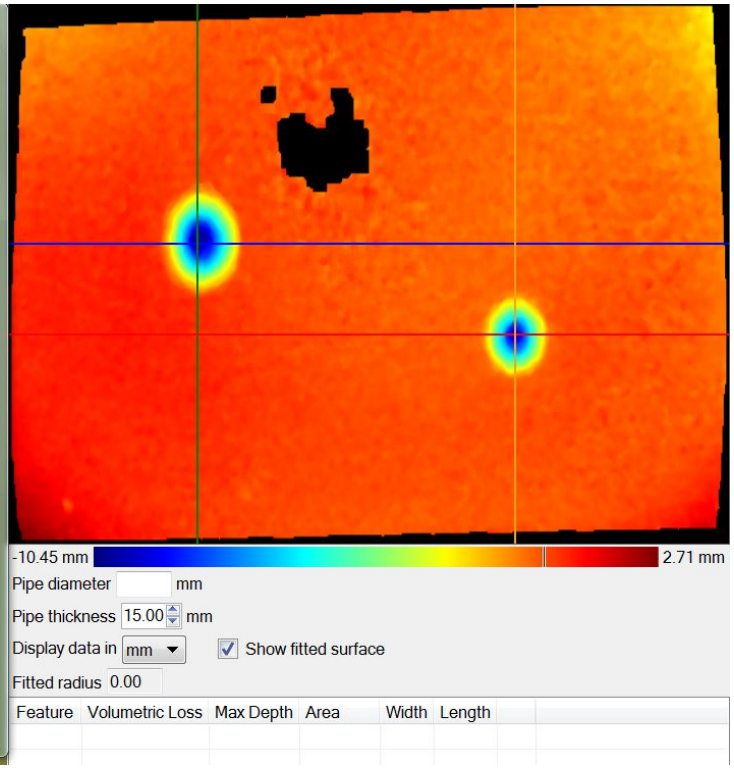
Texture off



Global analysis mode

Monitoring point 5

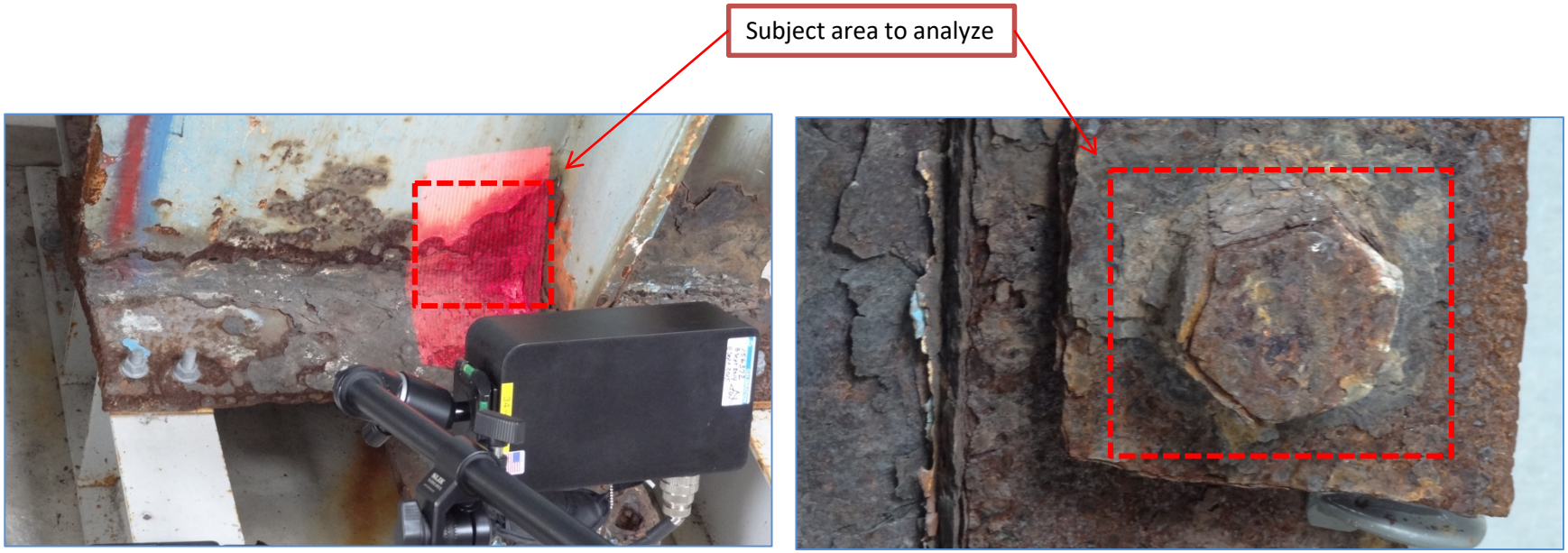




Monitoring point 6 & 7

Monitoring point 6

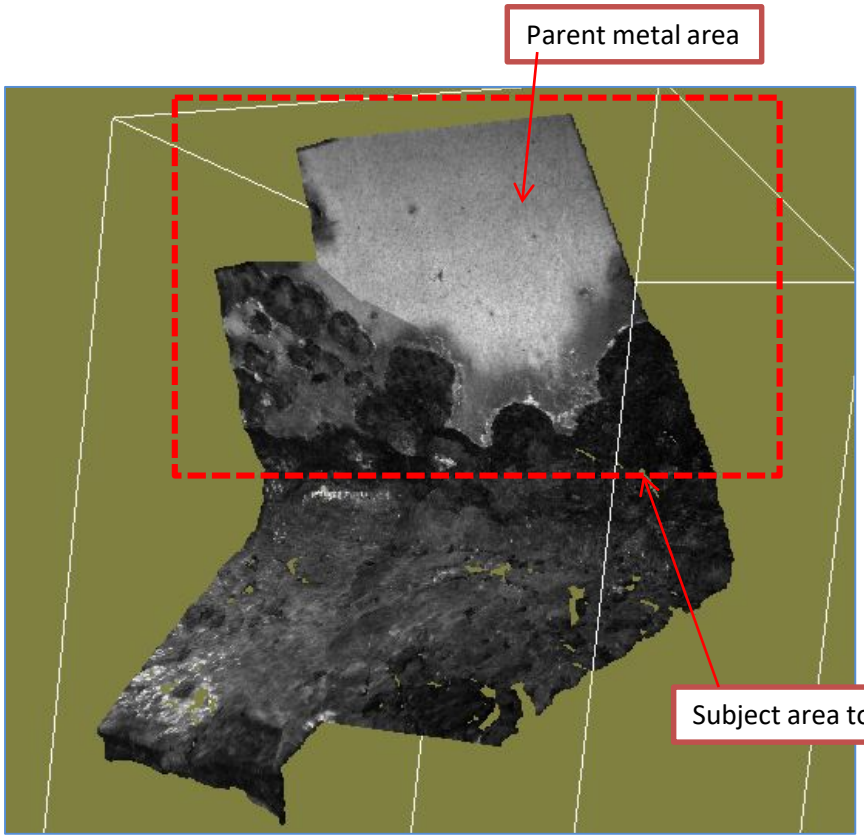
Monitoring point 7



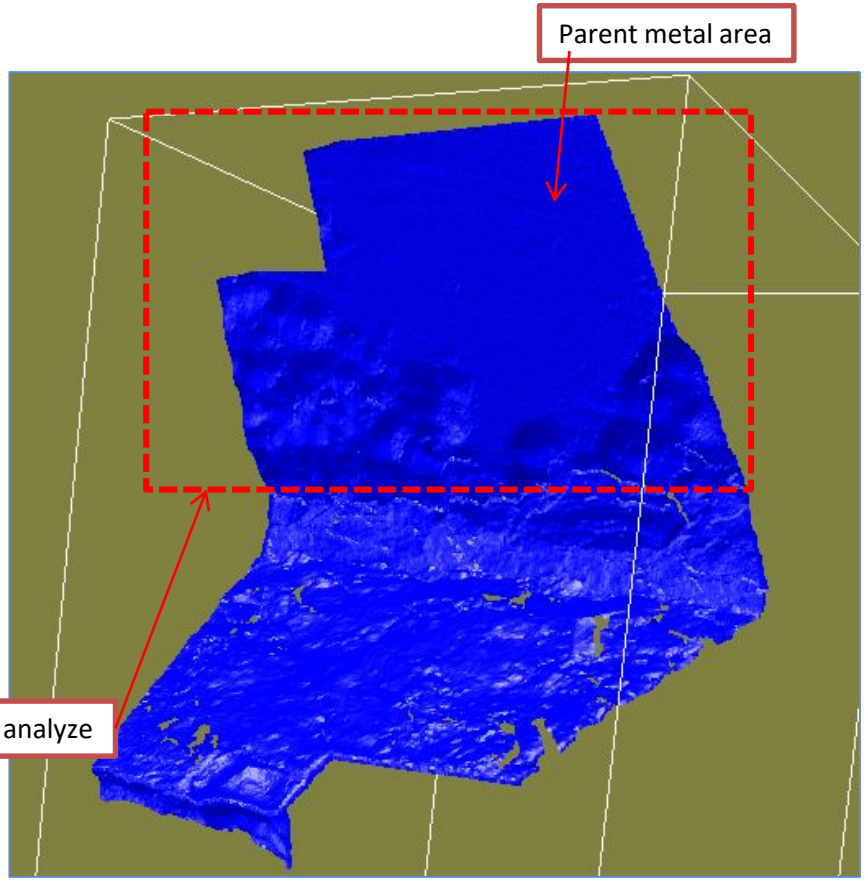
Courtesy by Prof. Kitano, Nagoya Univ.

Monitoring point 6

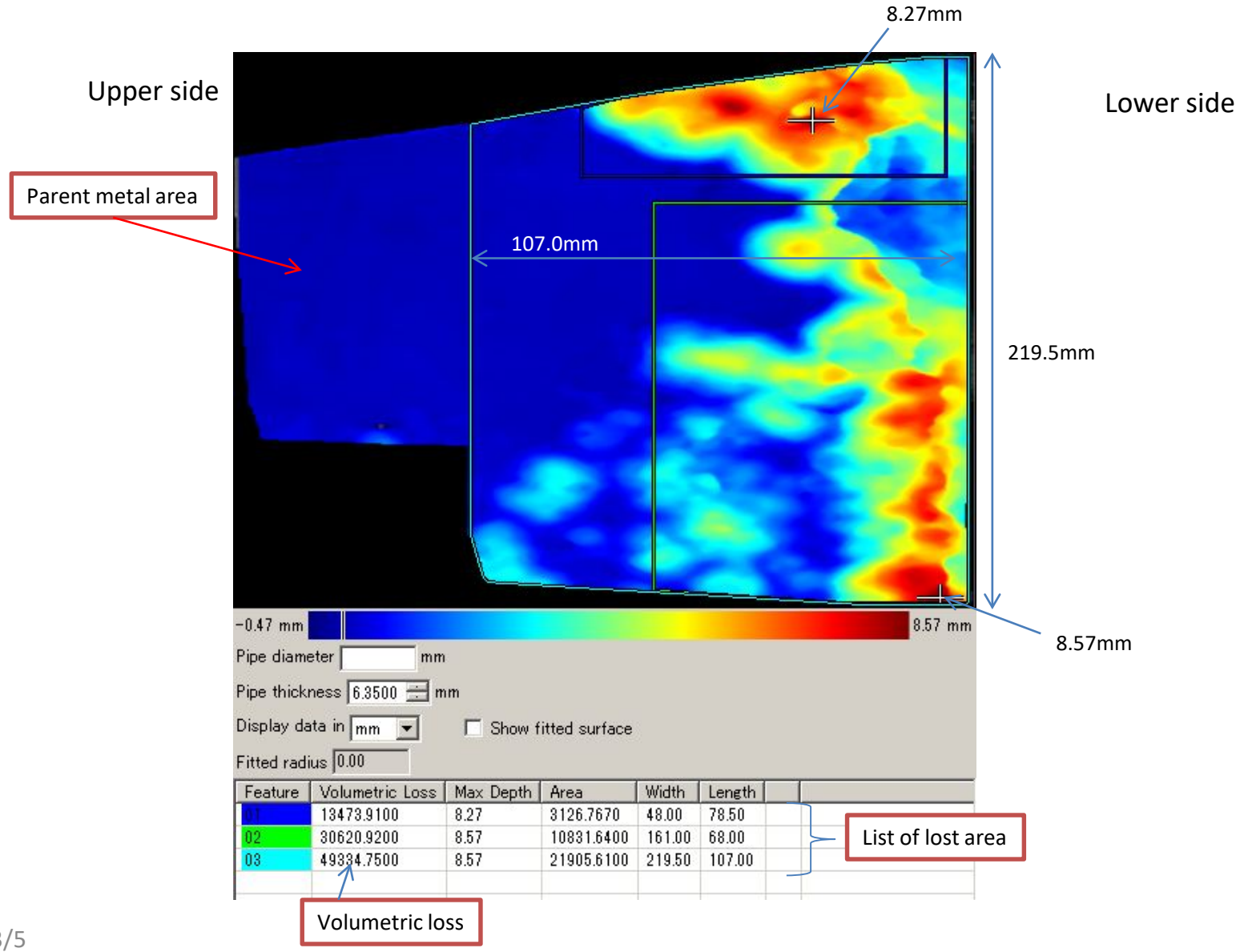
3D with texture



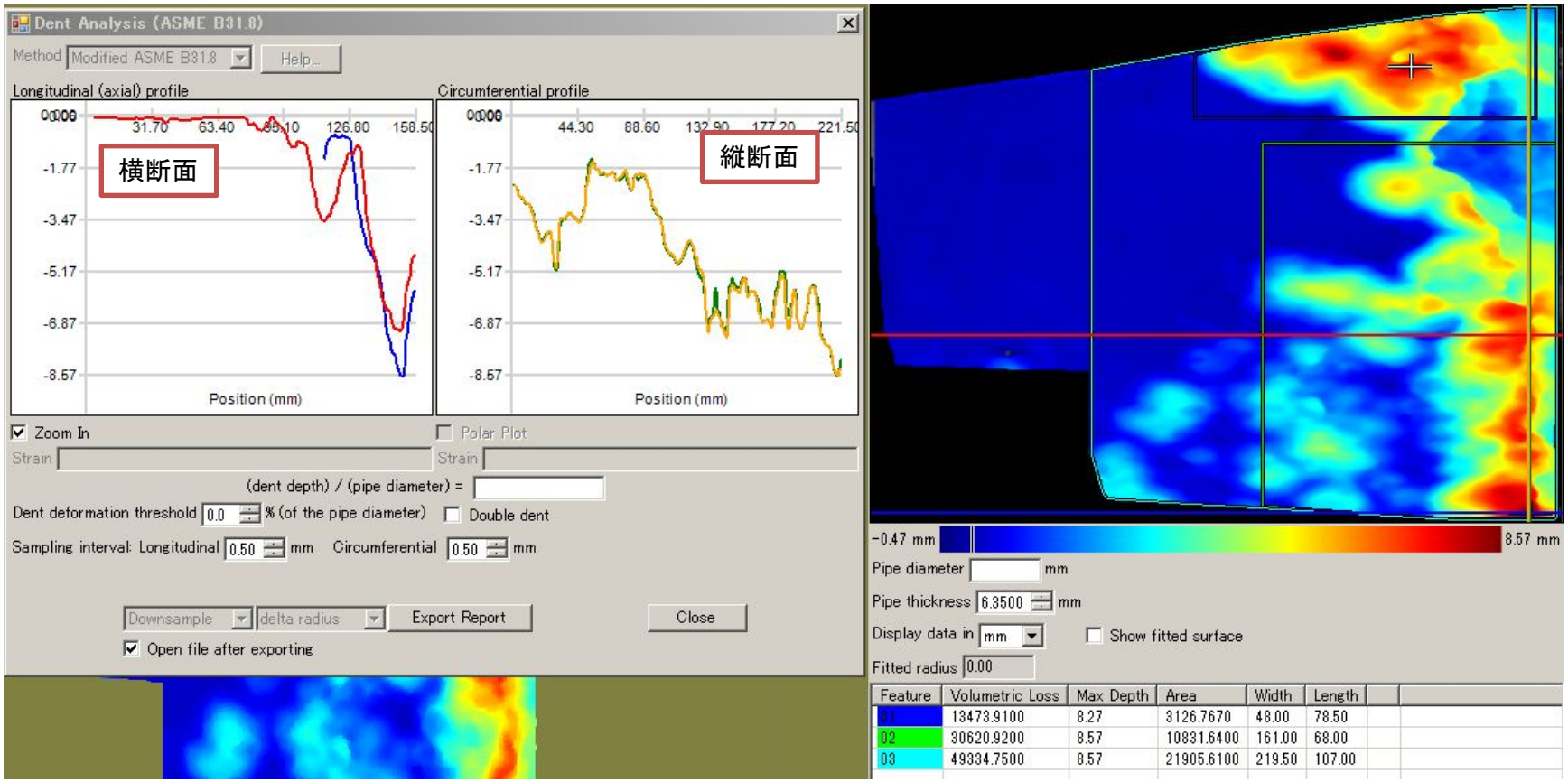
3D without texture



Monitoring point 6

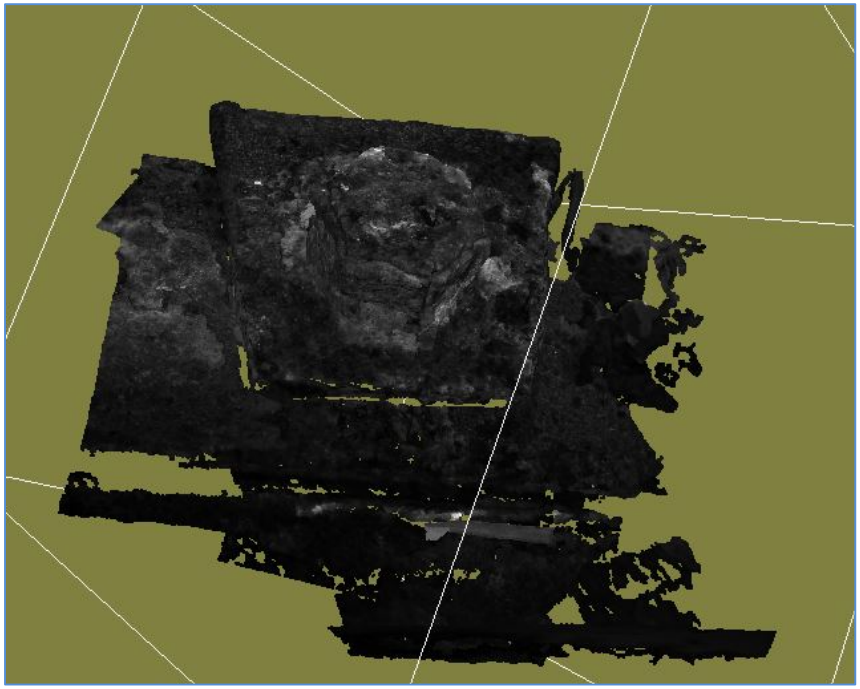


Monitoring point 6

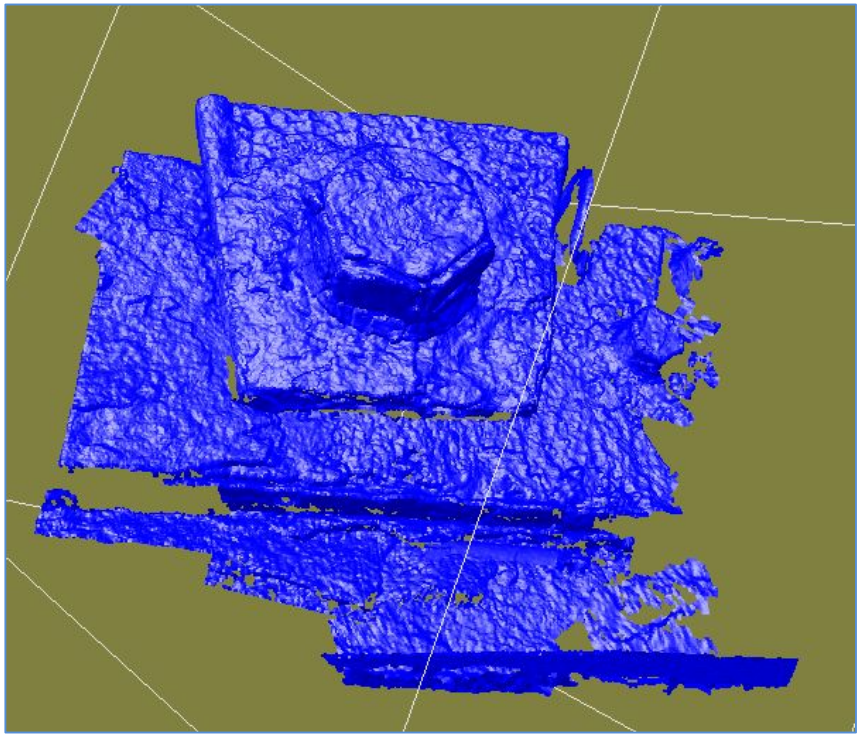


Monitoring point 7

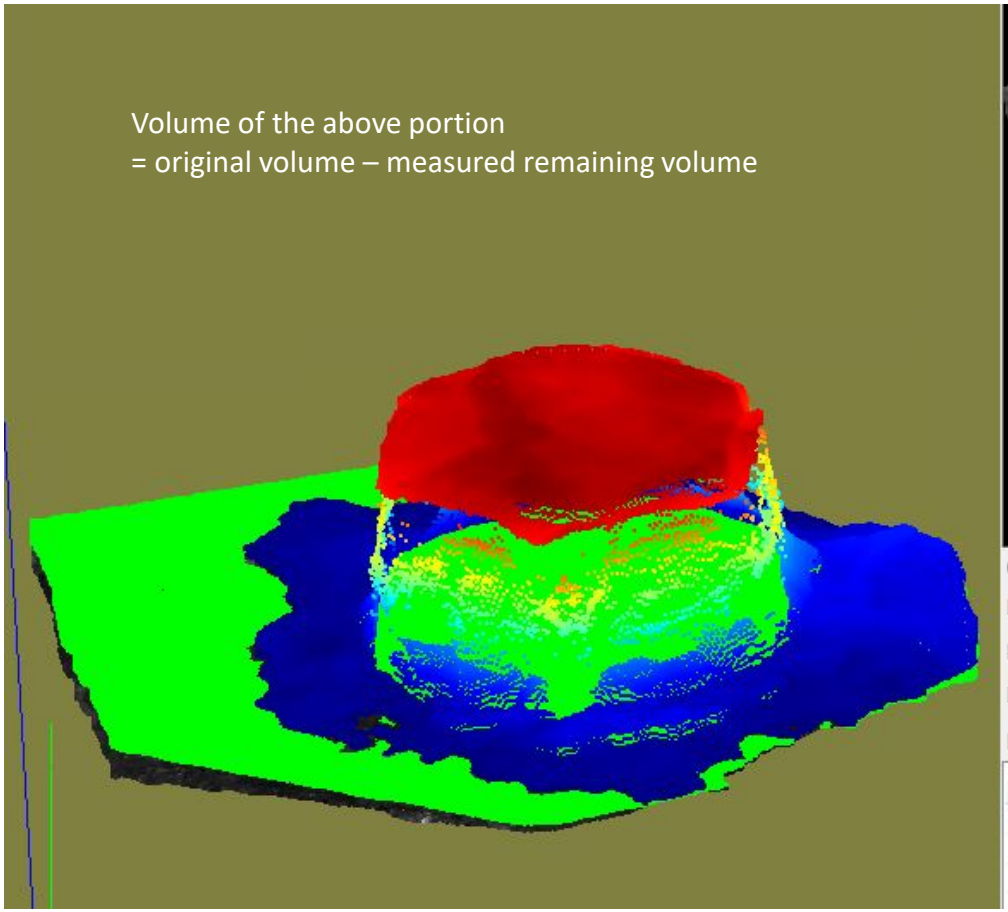
3D with texture

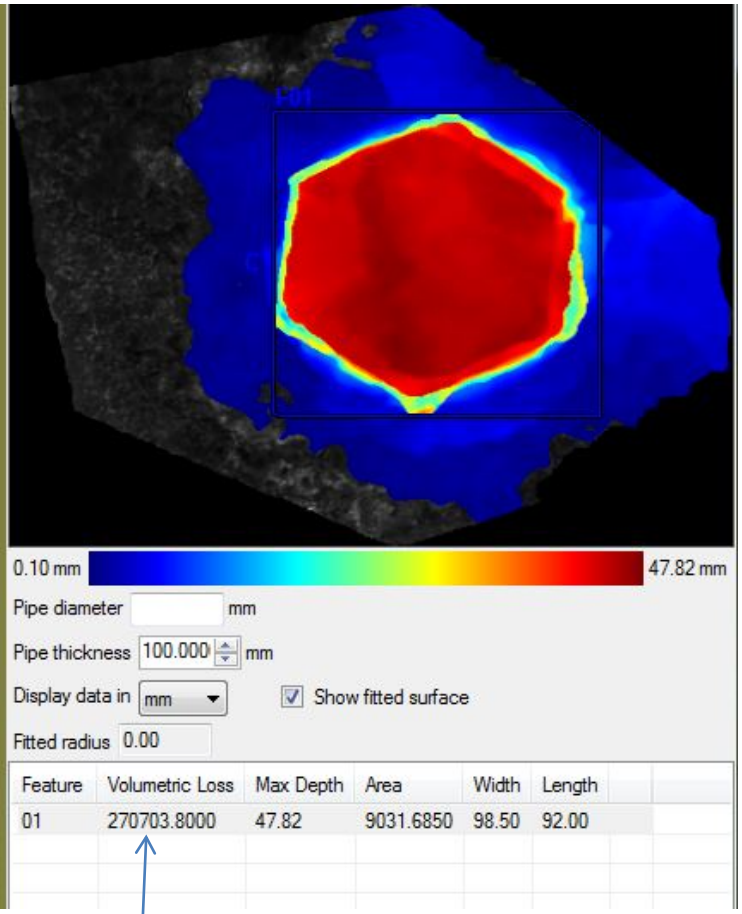


3D without texture



Monitoring point 7





Feature	Volumetric Loss	Max Depth	Area	Width	Length
01	270703.8000	47.82	9031.6850	98.50	92.00

Remaining volume

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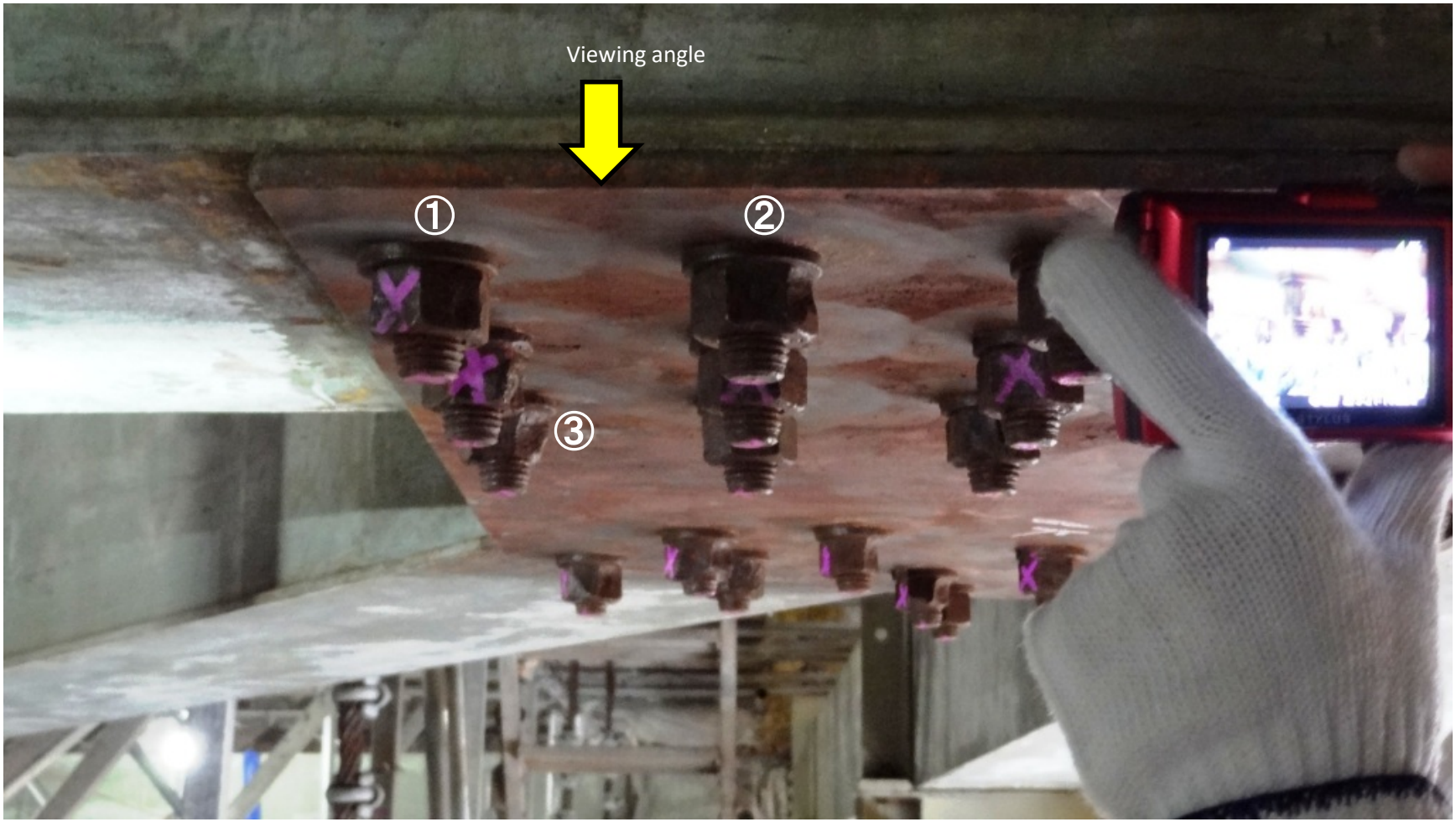
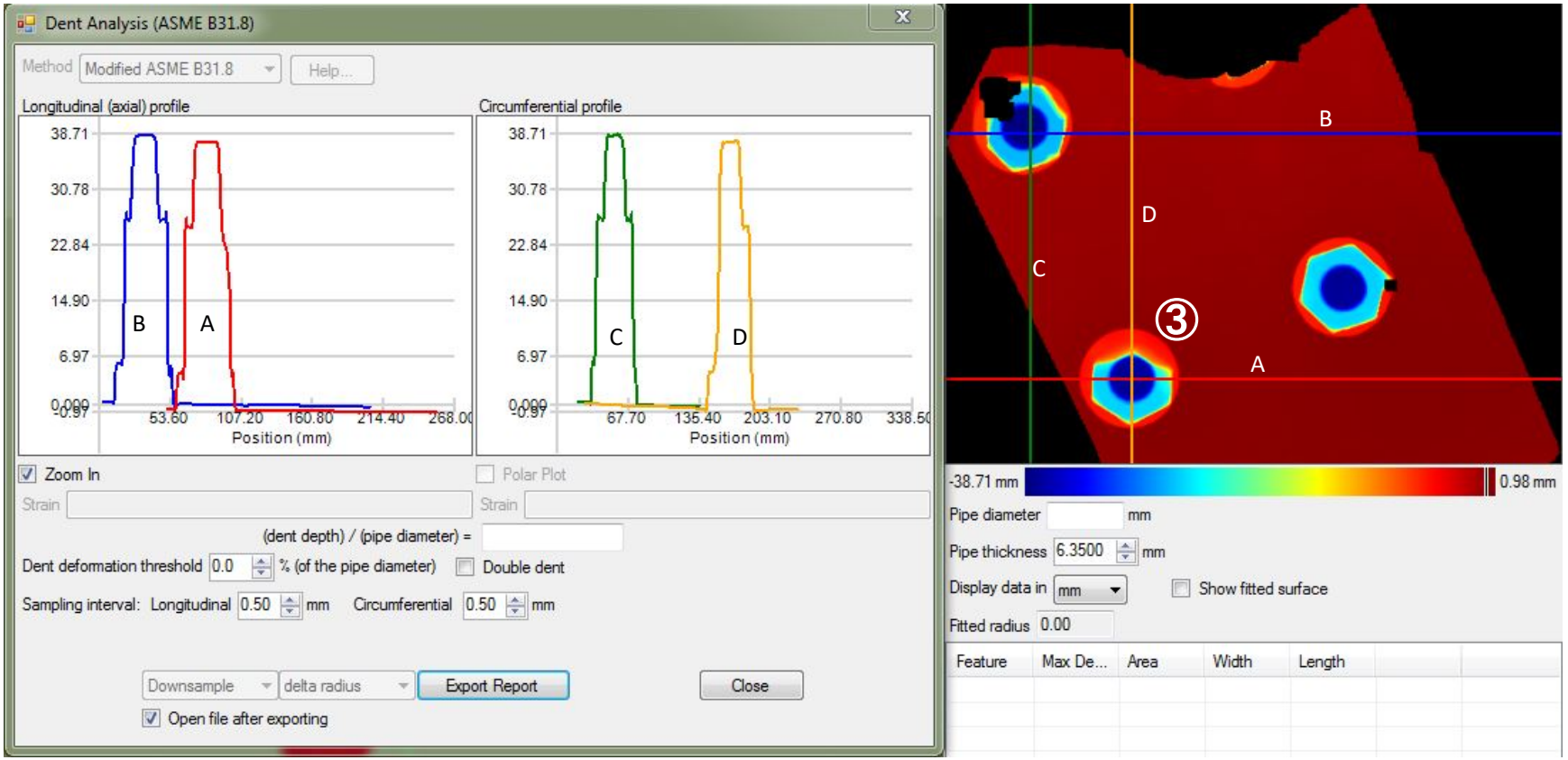
BOLTS & NUTS

Monitoring point 1

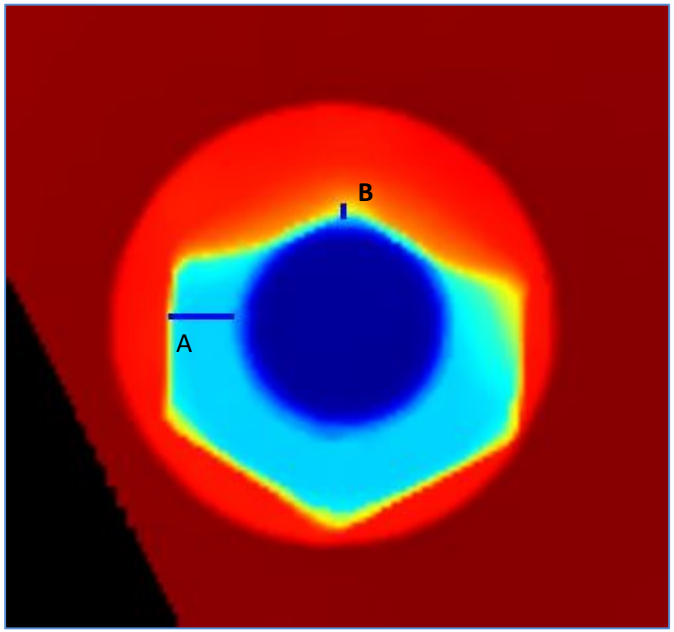


Bolt 3


Dent Analysis (ASME B31.8)
Method
Modified ASME B31.8
Help...
Longitudinal (axial) profile
Circumferential profile
38.71
30.78
22.84
14.90
6.97
0.000
-0.97
B
A
C
D
53.60
107.20
160.80
214.40
268.00
67.70
135.40
203.10
270.80
338.50
Position (mm)
Zoom In
Polar Plot
Strain
(dent depth) / (pipe diameter) =
Dent deformation threshold
0.0
% (of the pipe diameter)
Double dent
Sampling interval: Longitudinal
0.50
mm
Circumferential
Downsample
delta radius
Export Report
Close
Open file after exporting
③
-38.71 mm
0.98 mm
Pipe diameter
Pipe thickness
6.3500
Display data in
Show fitted surface
Fitted radius
0.00
Feature
Max De...
Area
Width
Length

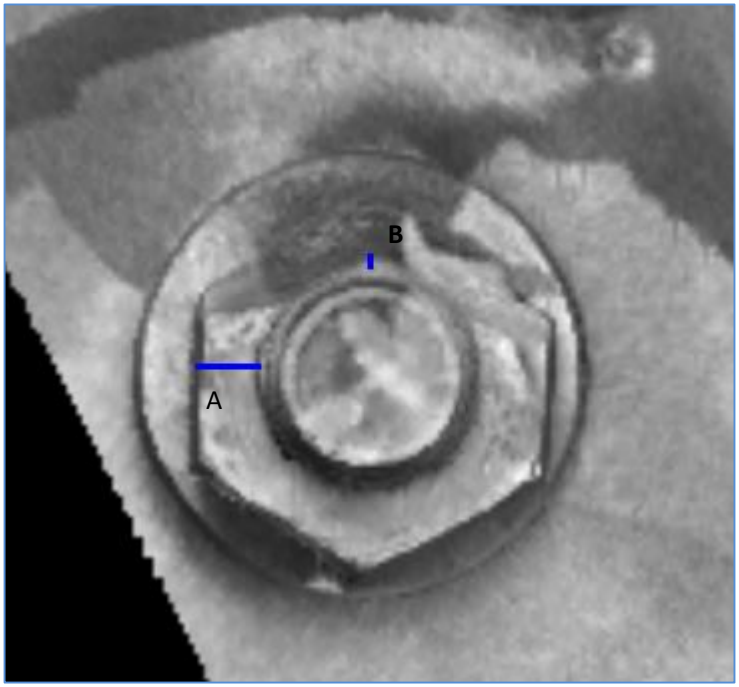
Bolt 3

Color map



Measurement of Line A and Line B

Texture only



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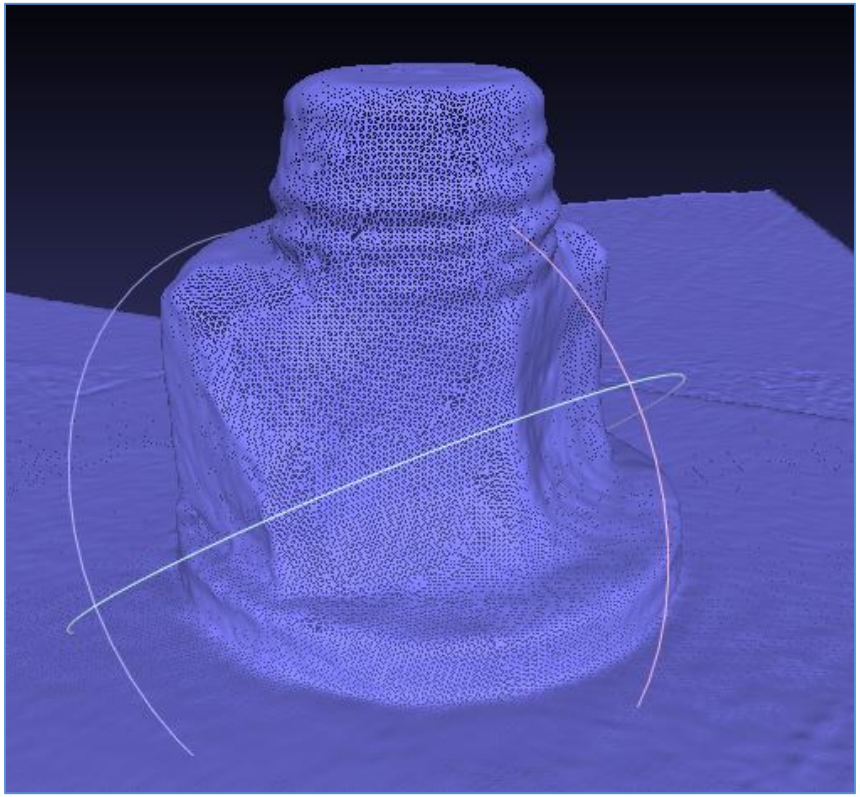
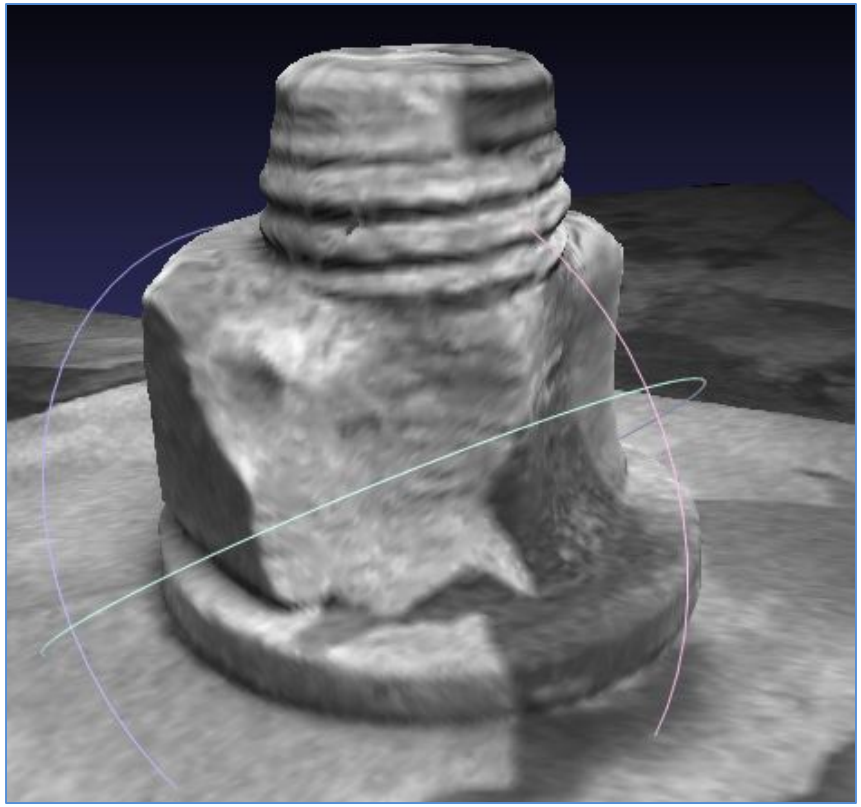
By MeshLab





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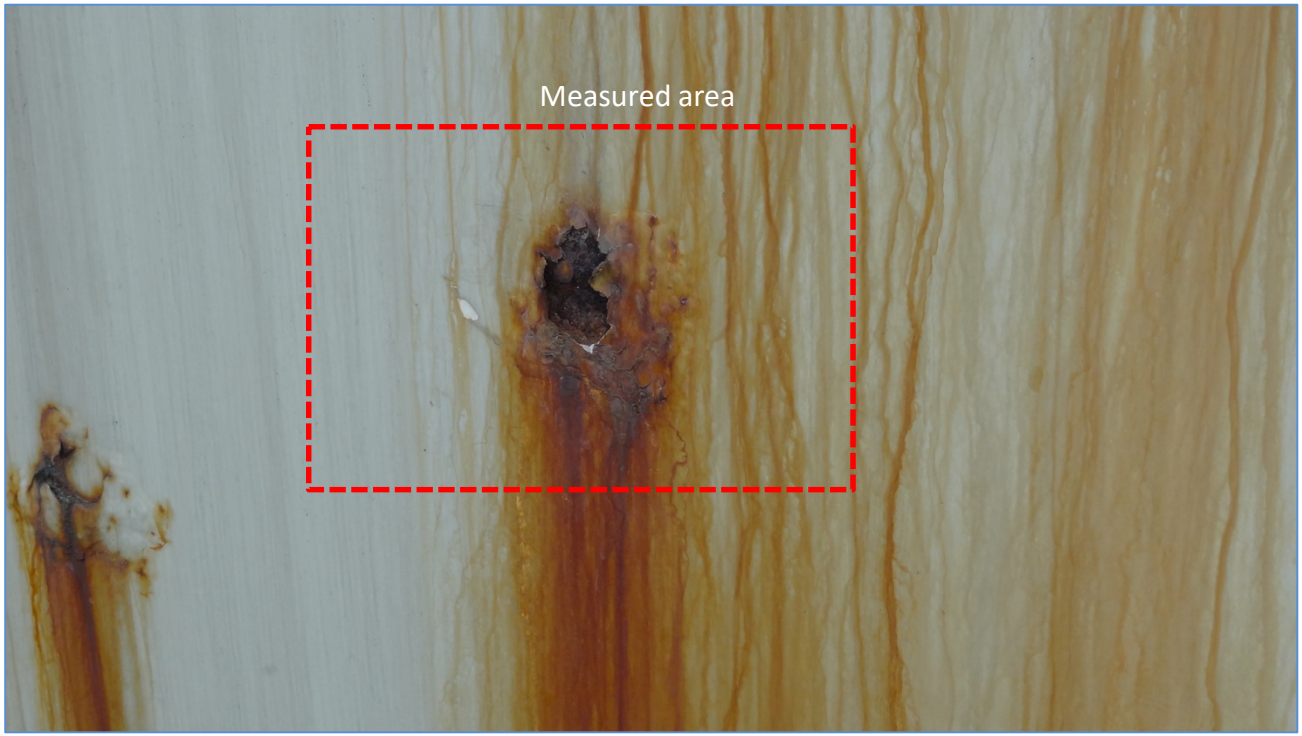
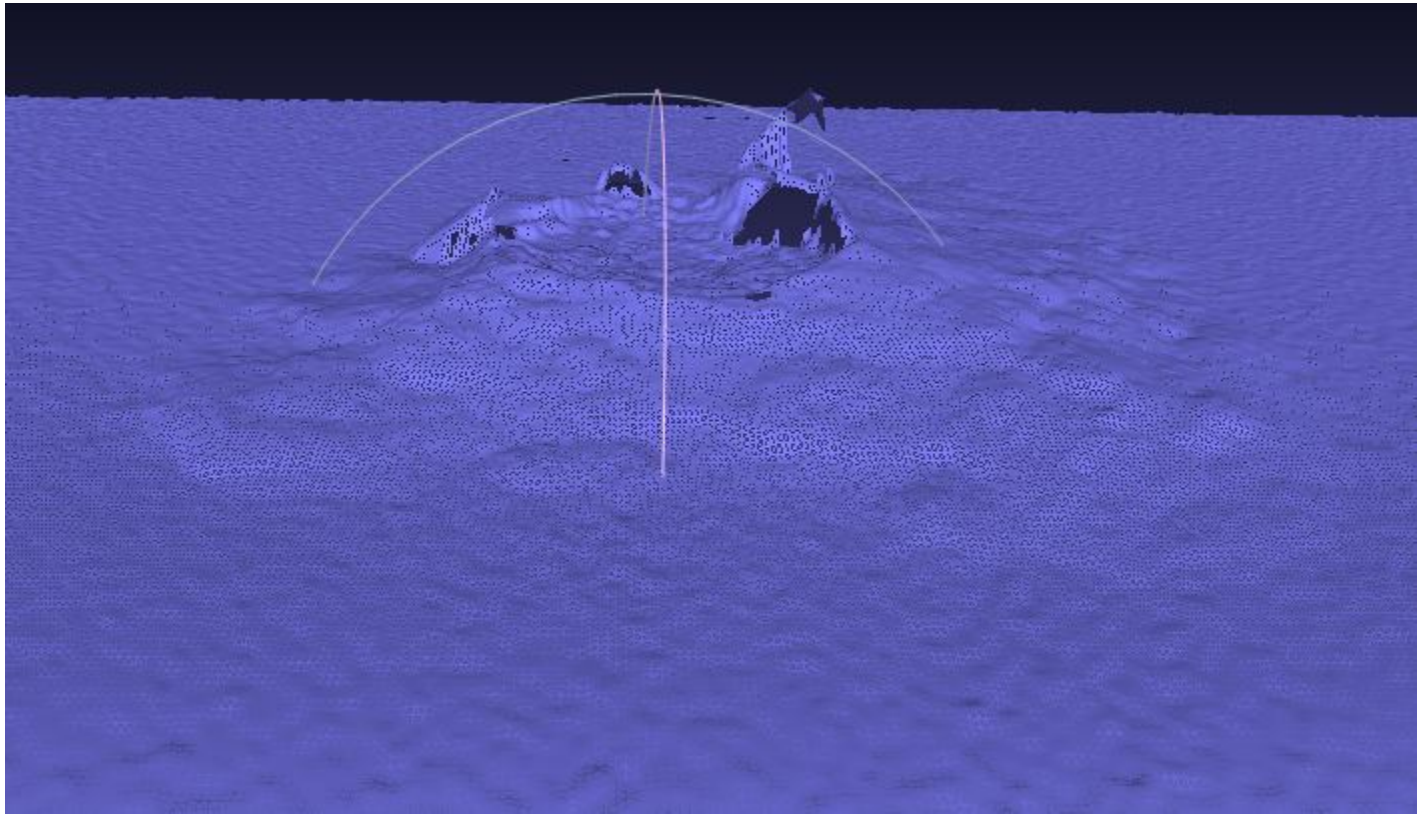
STEEL PILLARS

Corrosion on steel pillar

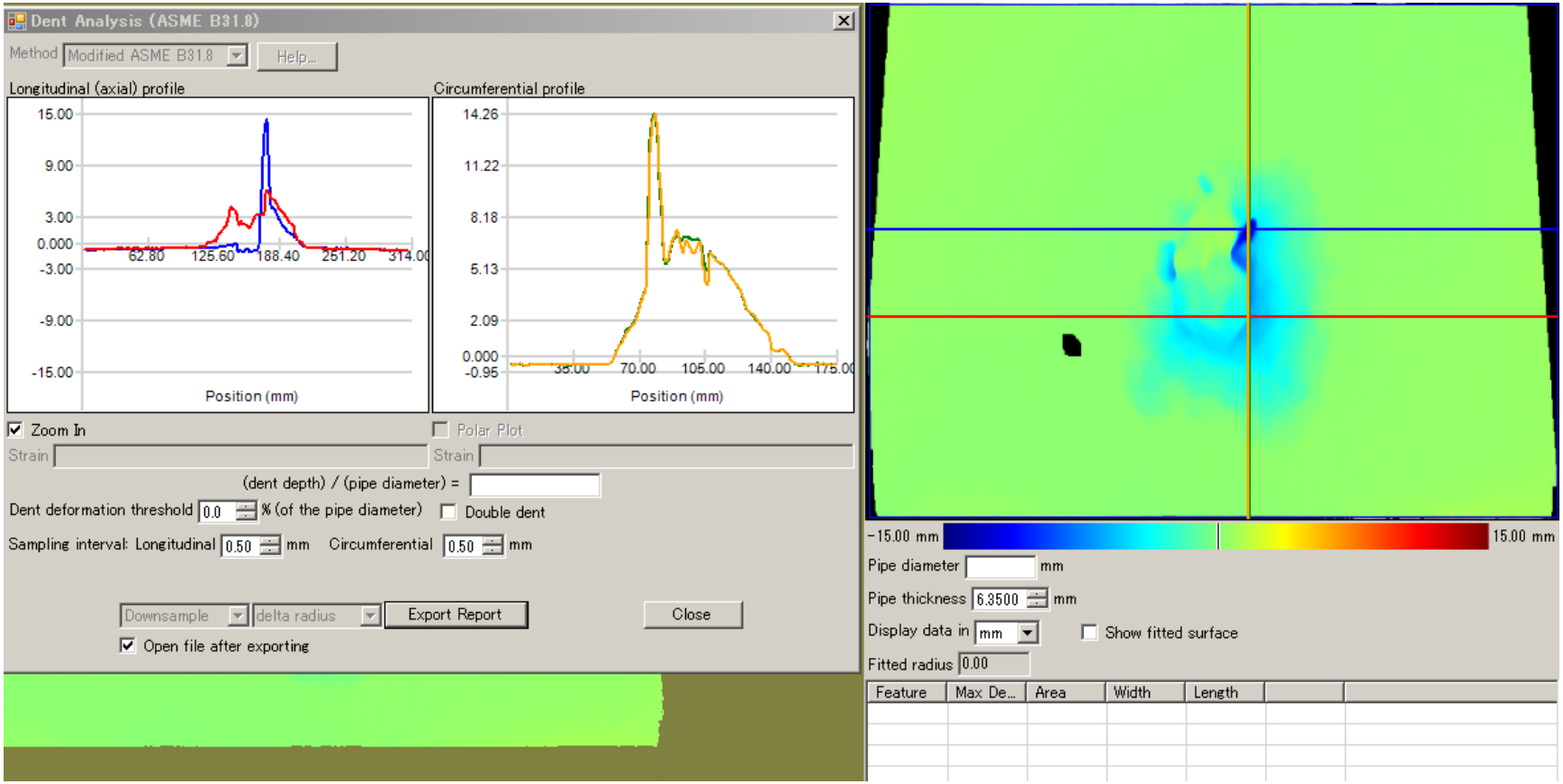


3D data without texture



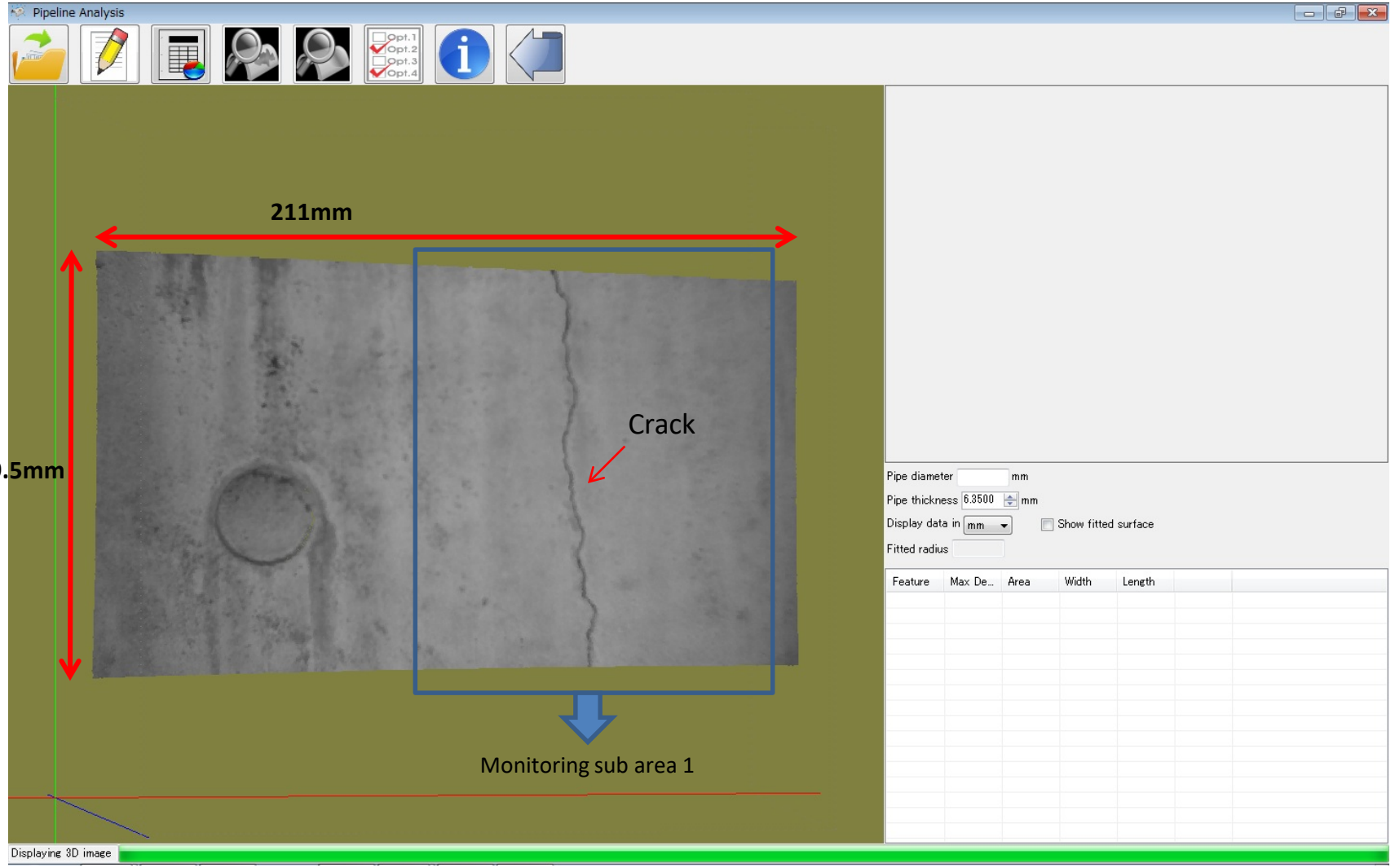
By MeshLab

Height of corrosion

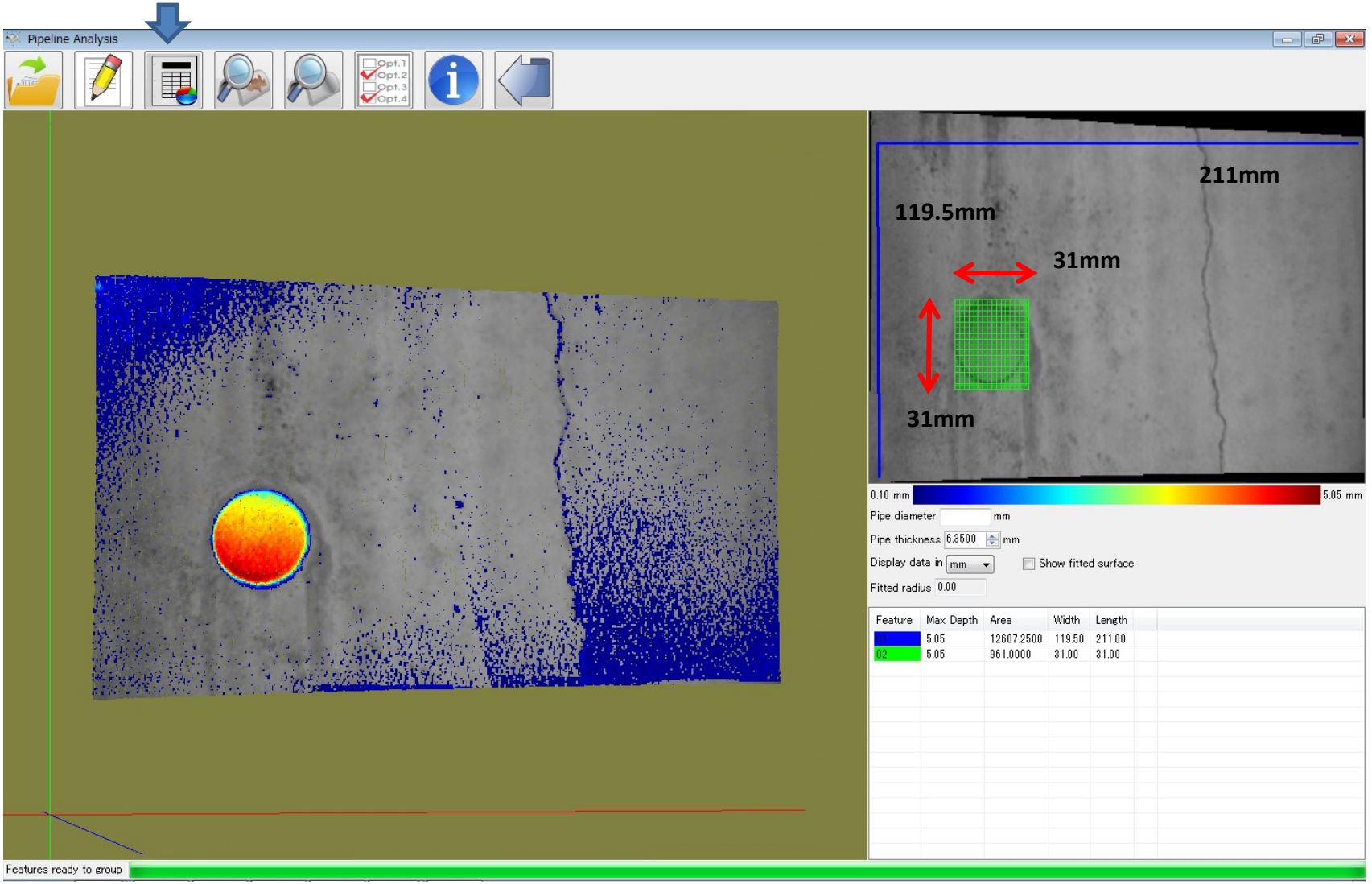


CONCRETE WALL

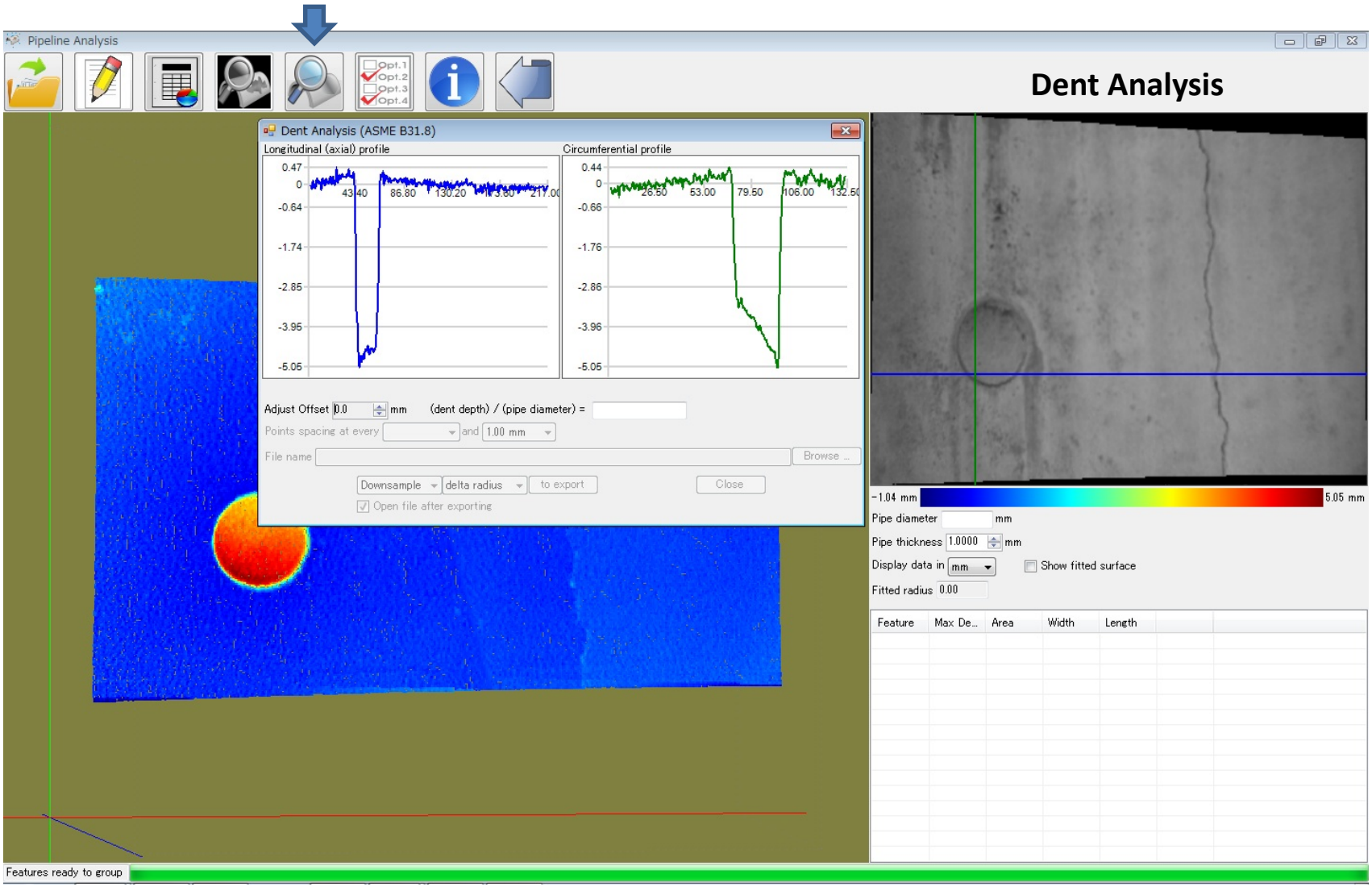
Monitoring point 1; 3D data



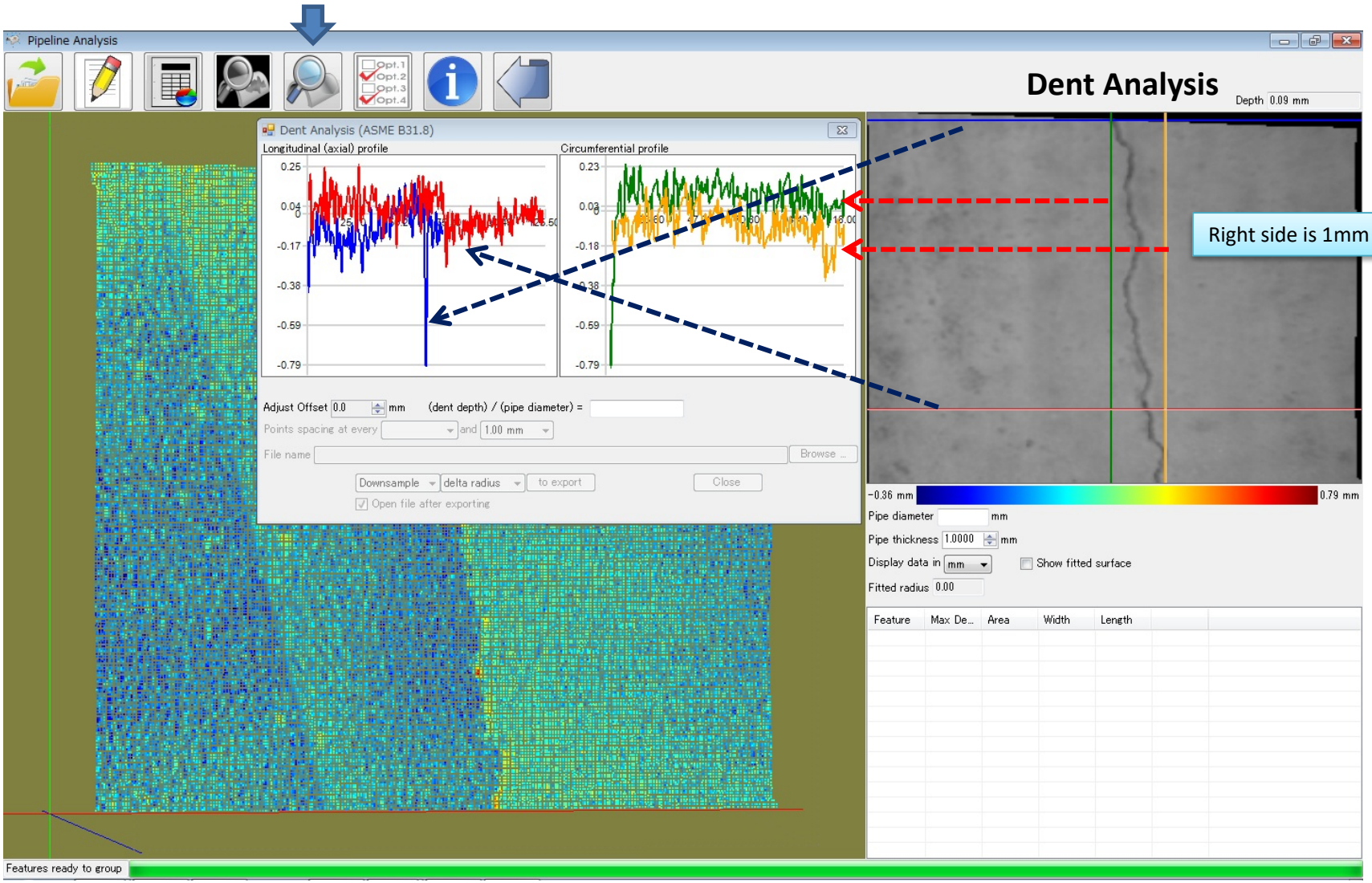
Monitoring point 1; 3D analysis



Monitoring point 1; 3D analysis

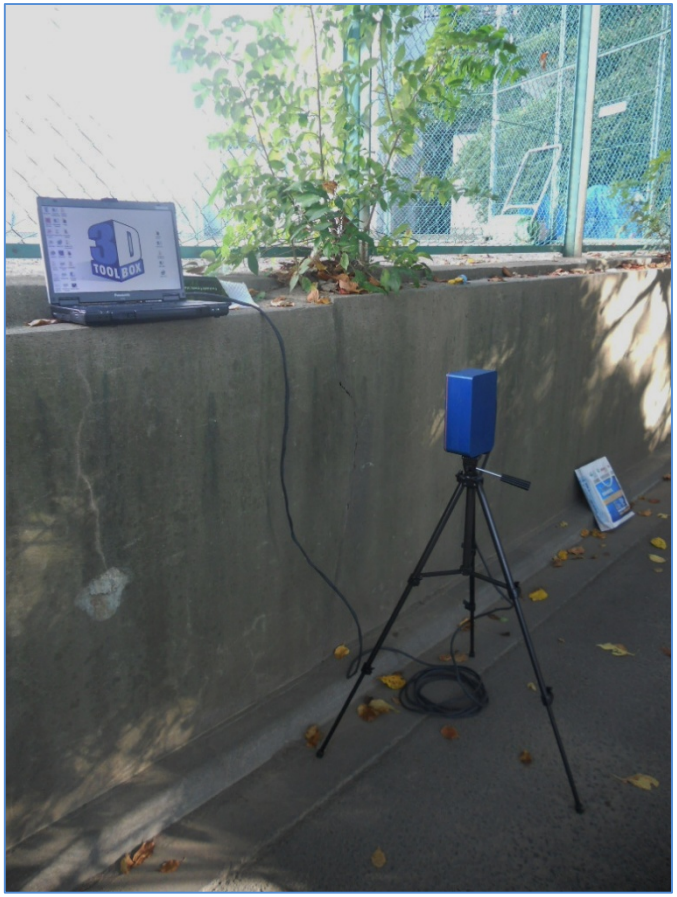


Monitoring sub area 1; 3D analysis

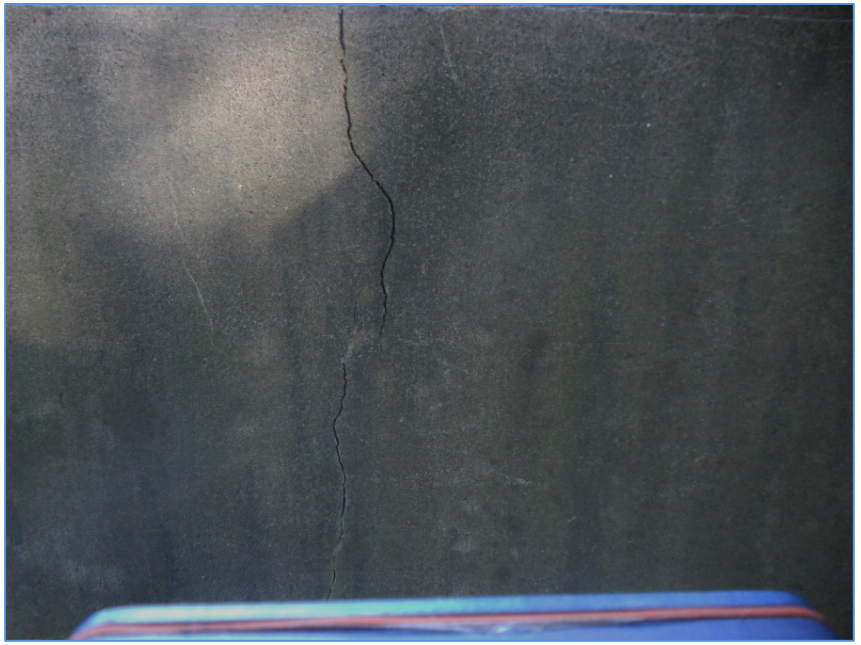


Monitoring Point 2

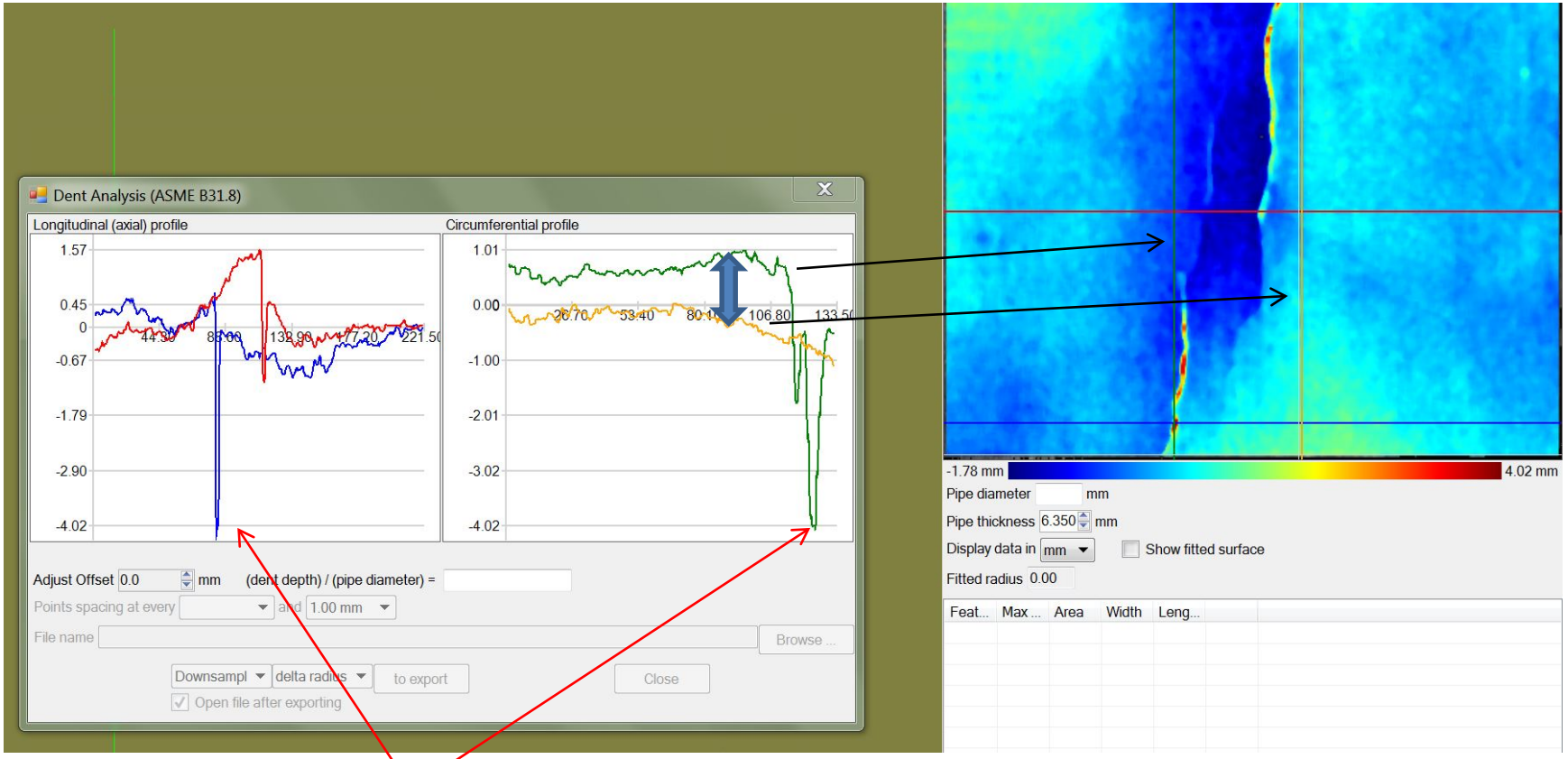
Monitoring scene



Subject area to monitor



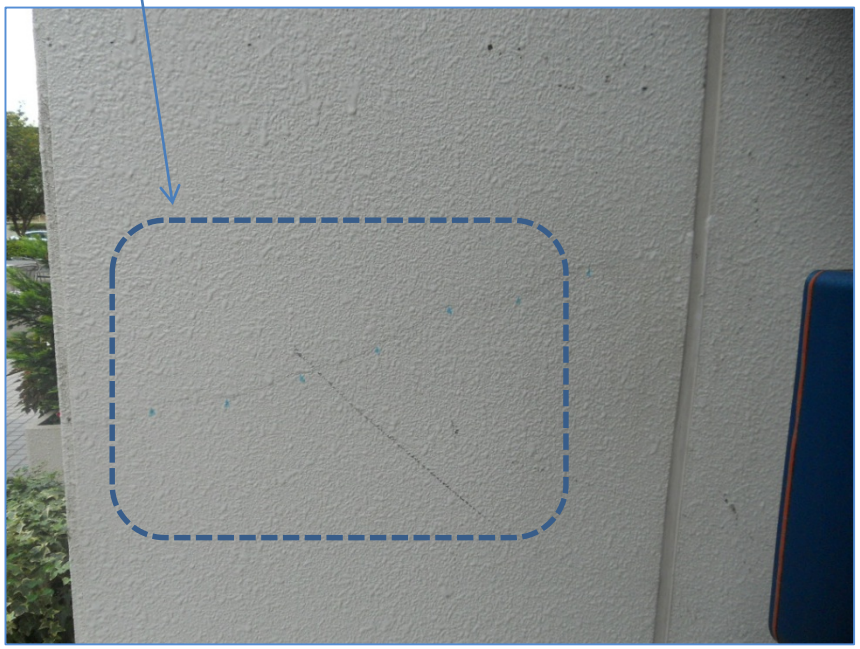
Monitoring Point 2; 3D analysis



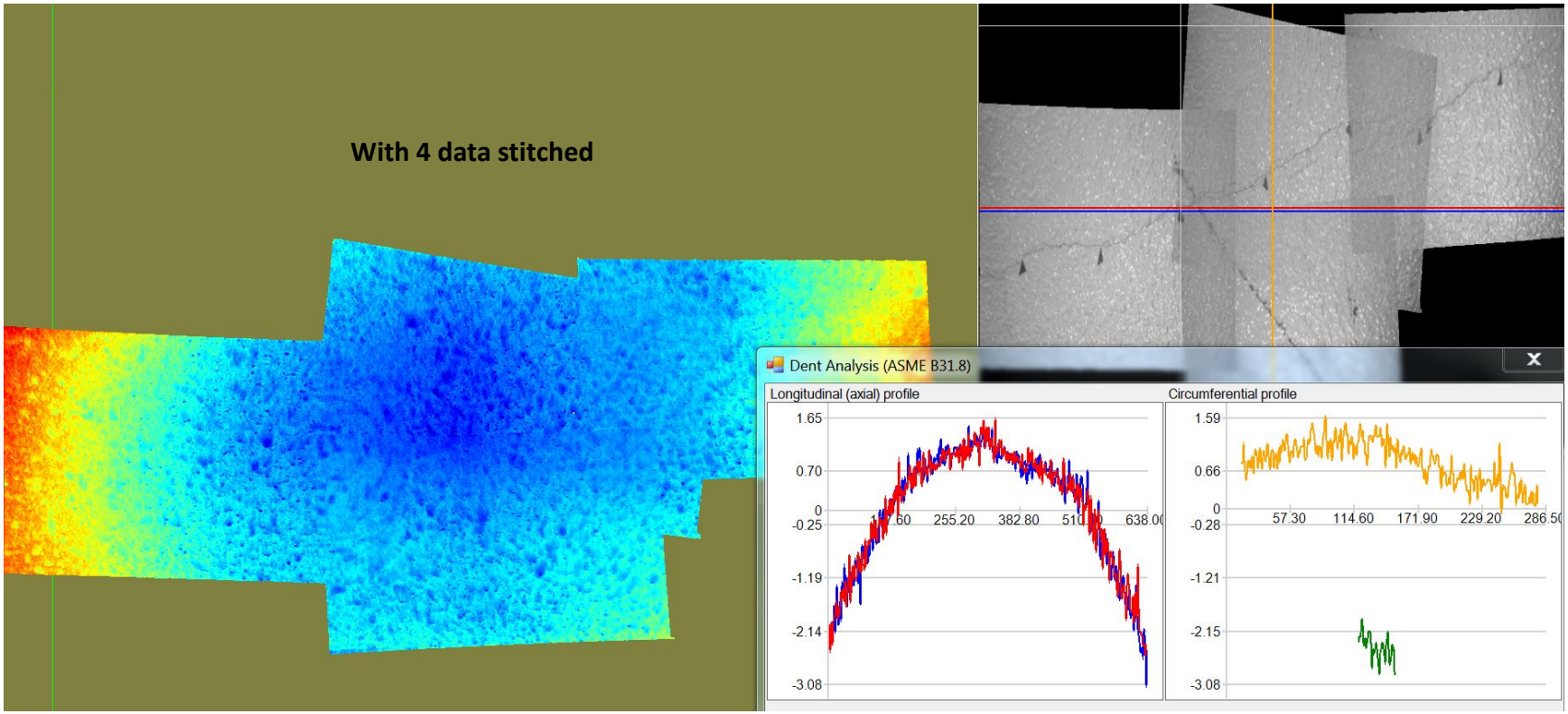
Monitoring Point 3

Monitoring scene

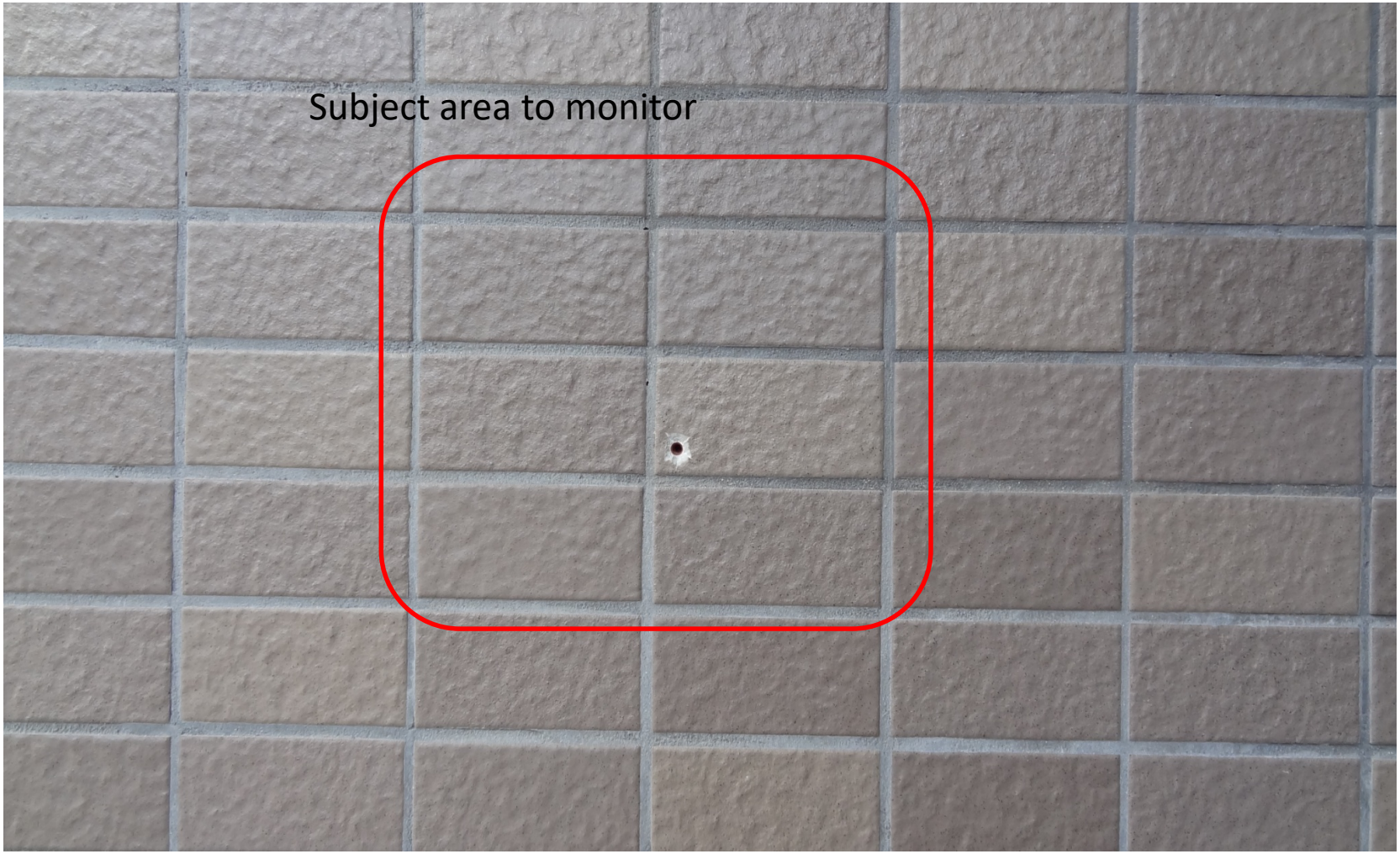
Subject area to monitor



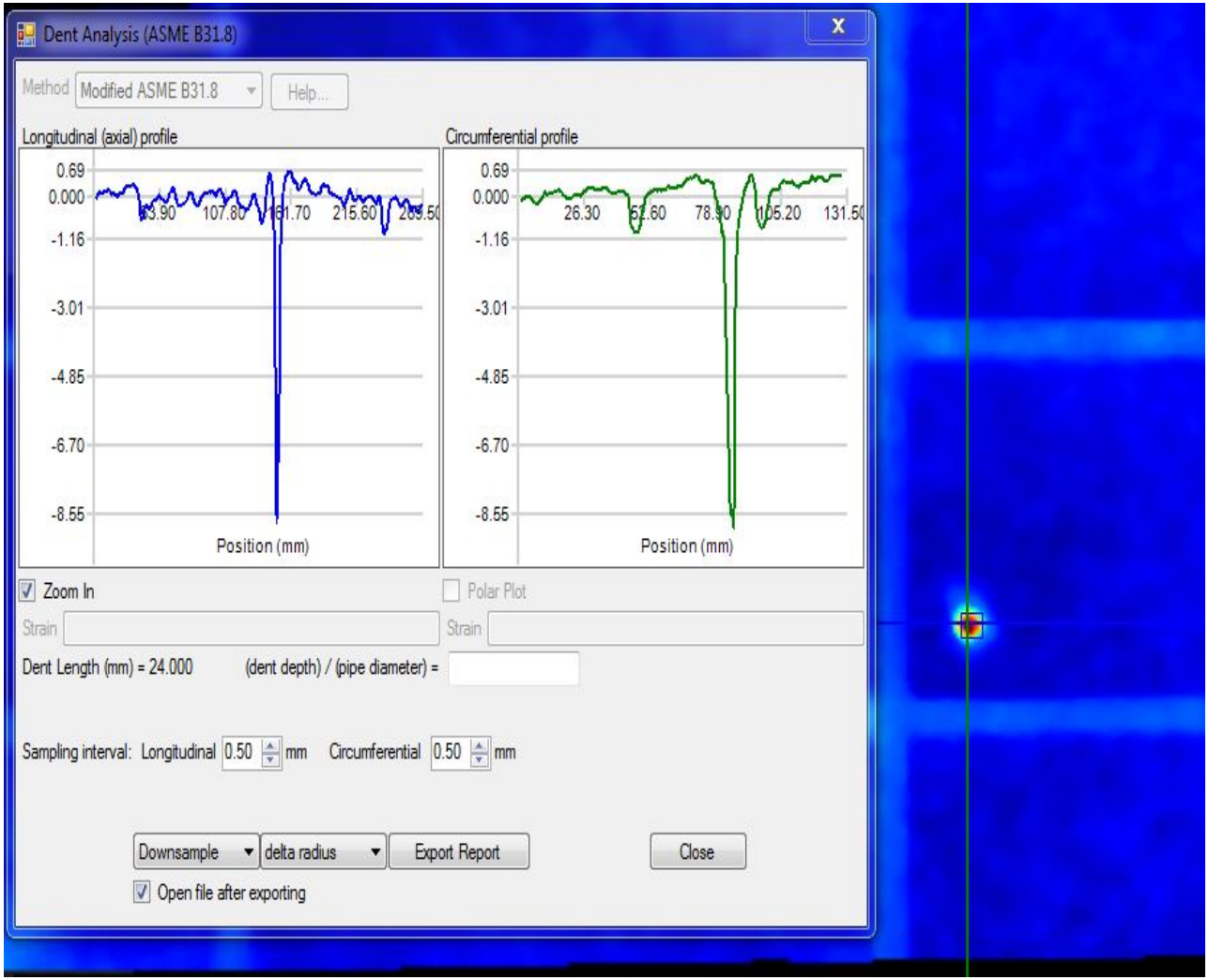
Monitoring Point 3; 3D analysis



Monitoring Point 4

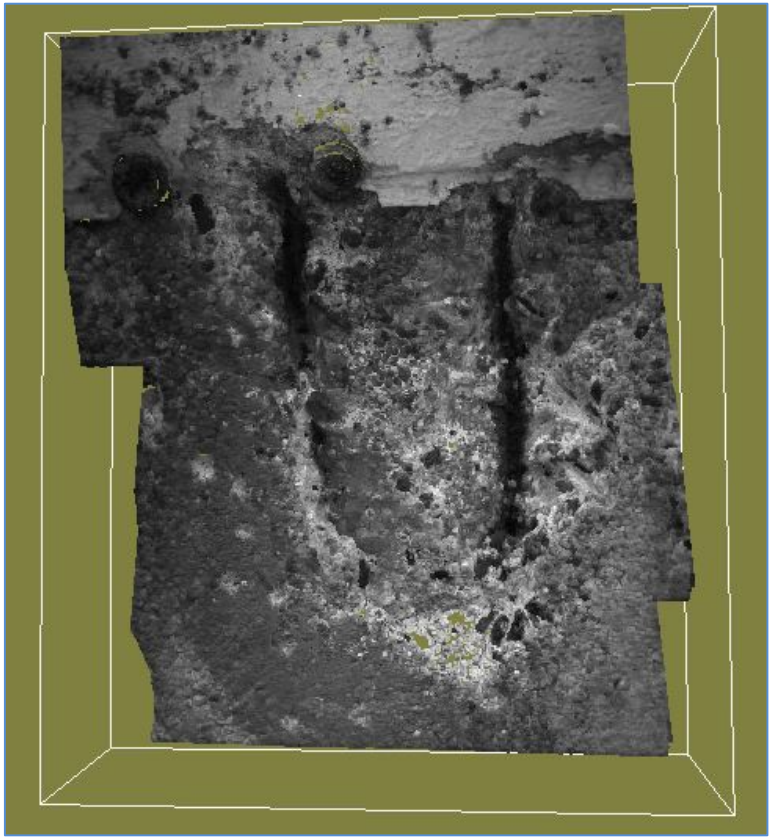


Monitoring Point 4; 3D analysis



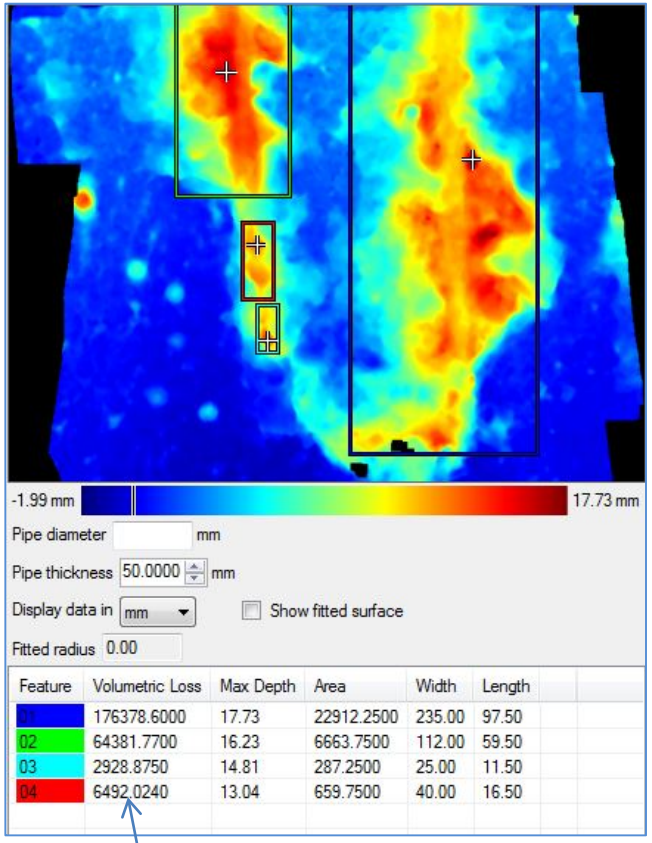
Monitoring Point 5

3D with texture



Courtesy by Prof. Kitano, Nagoya Univ.

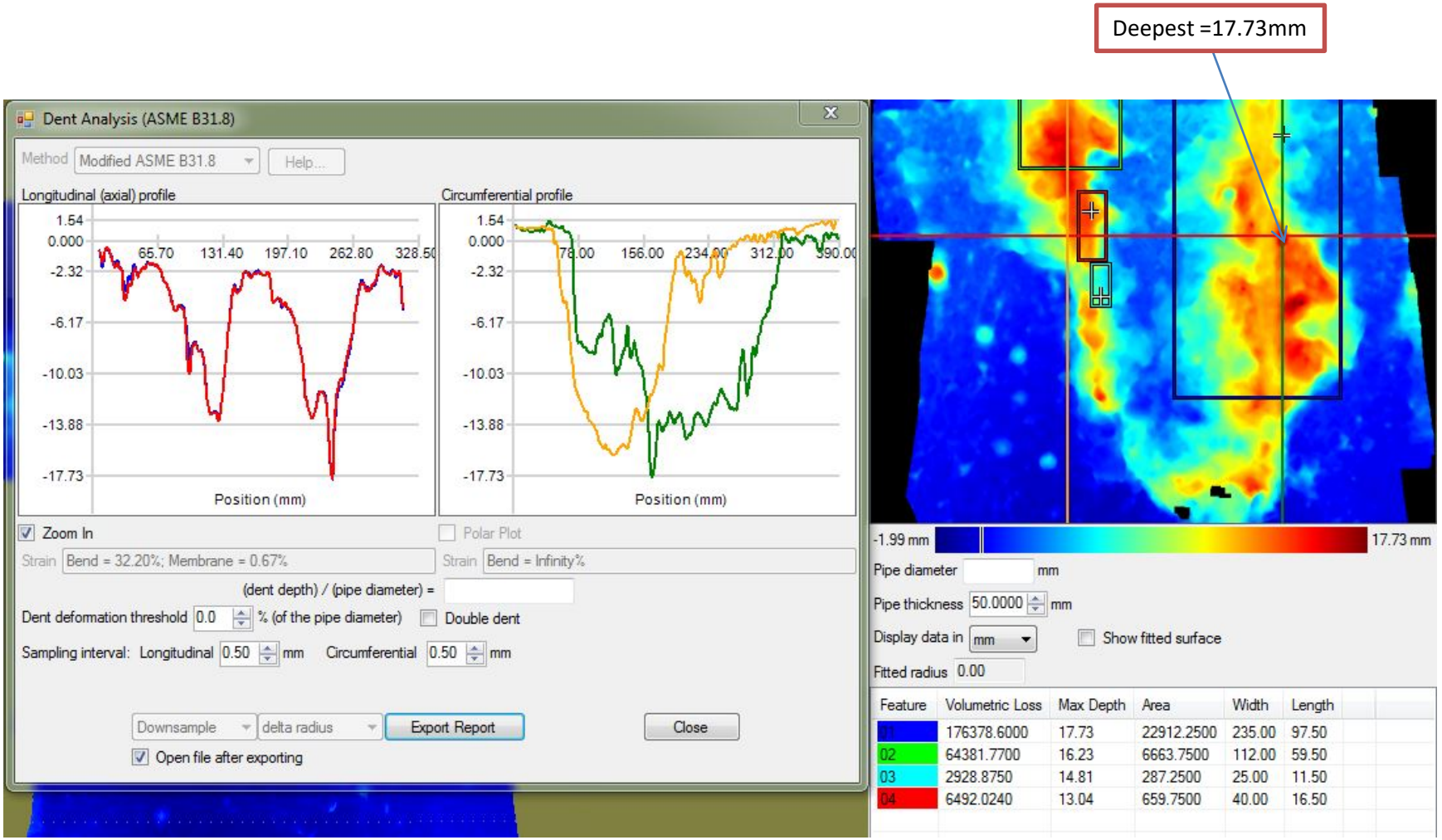
3D data



Feature	Volumetric Loss	Max Depth	Area	Width	Length
01	176378.6000	17.73	22912.2500	235.00	97.50
02	64381.7700	16.23	6663.7500	112.00	59.50
03	2928.8750	14.81	287.2500	25.00	11.50
04	6492.0240	13.04	659.7500	40.00	16.50

Volumetric loss

Monitoring Point 5; 3D analysis



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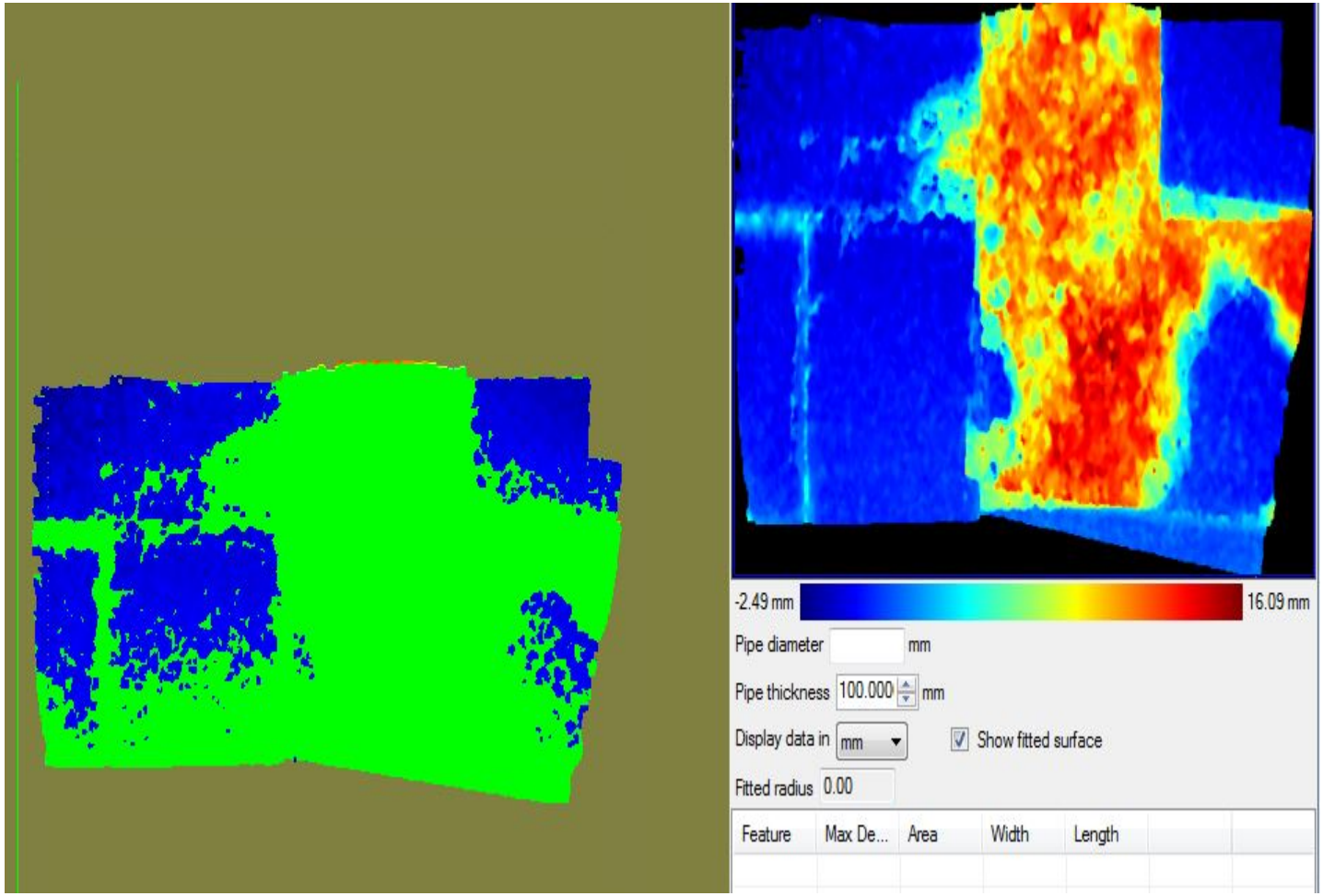
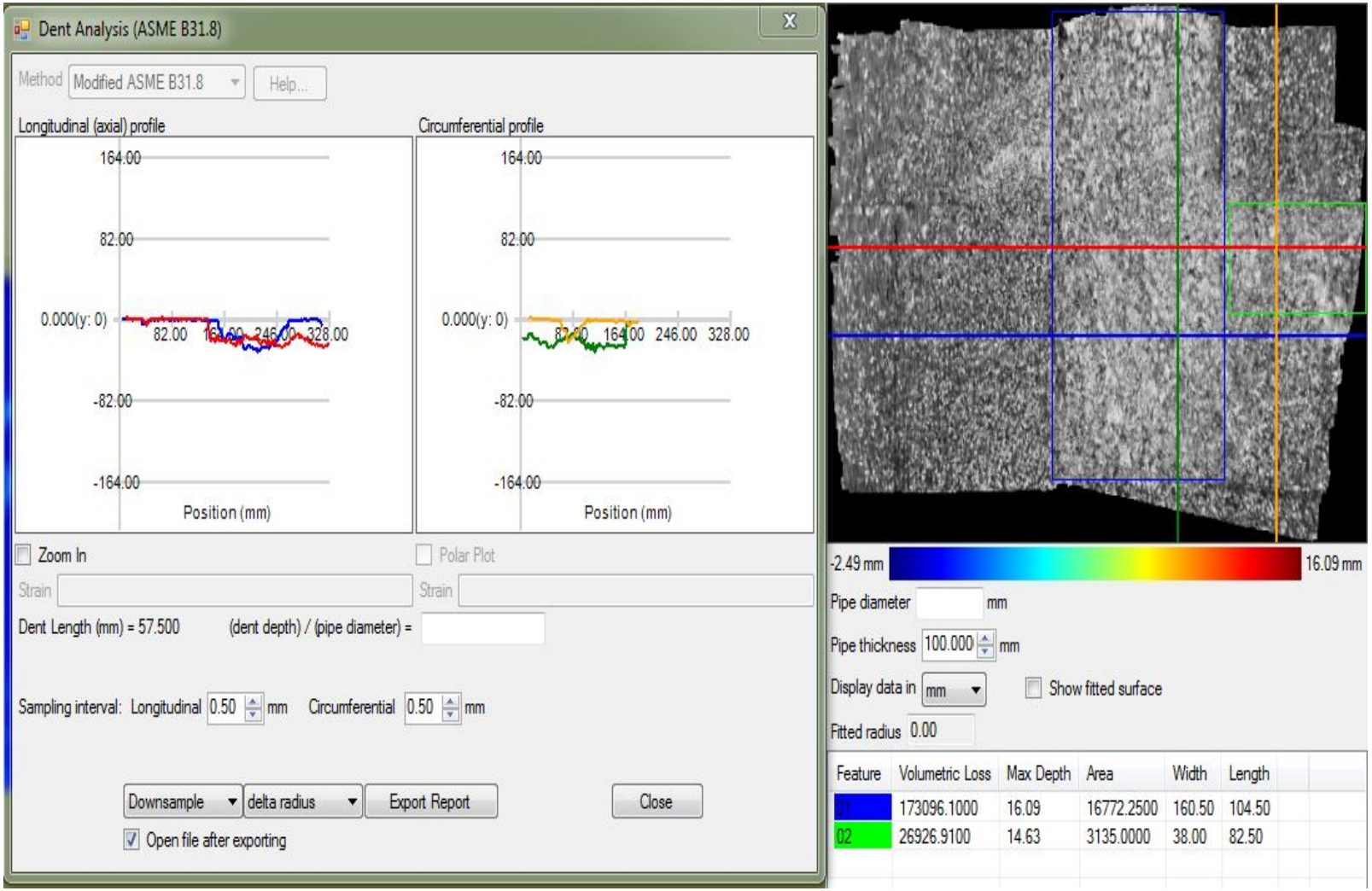
ROADS

Monitoring Point 1

Monitoring Point 1; 3D analysis

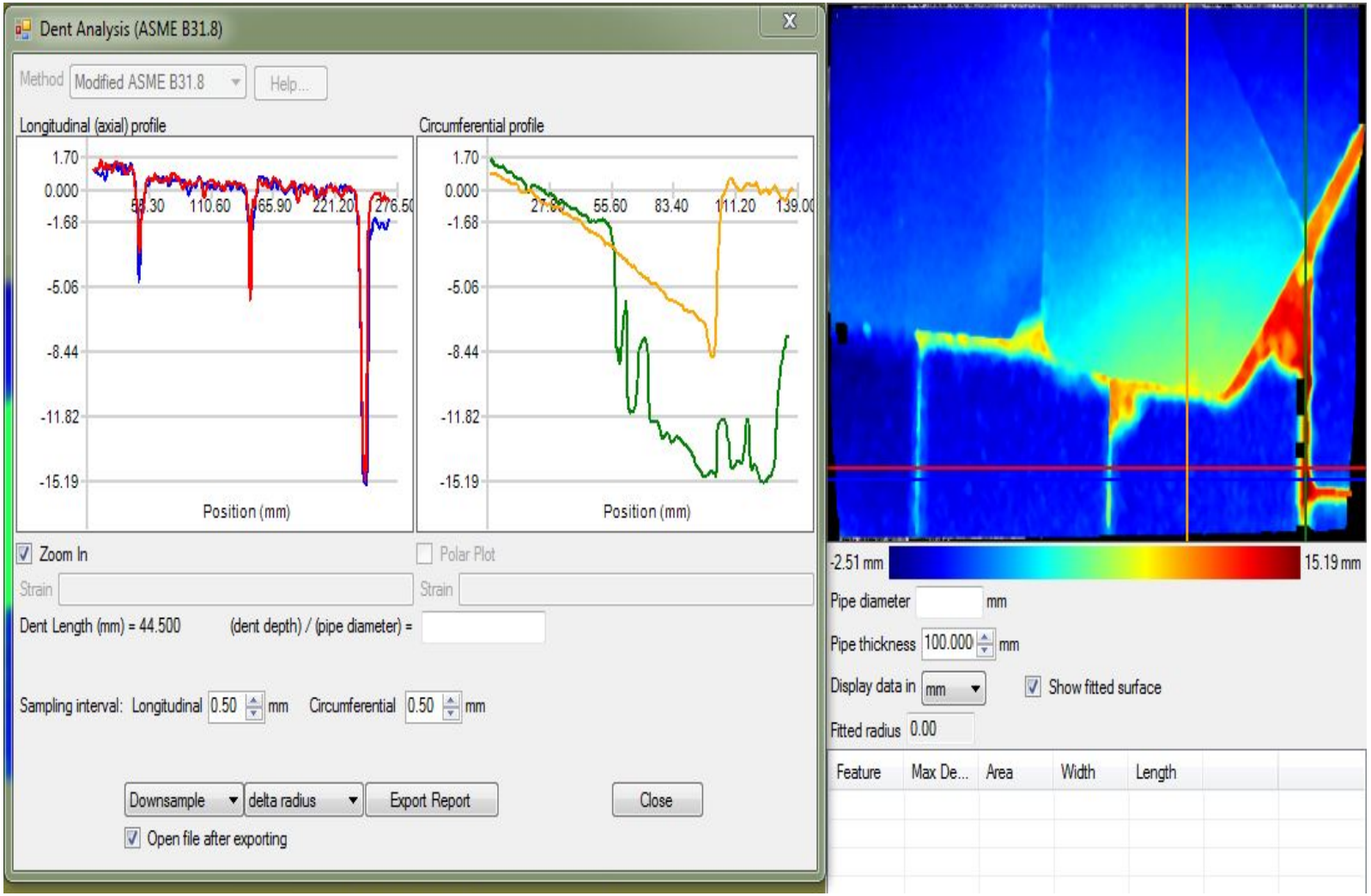


Monitoring Point 1; 3D analysis

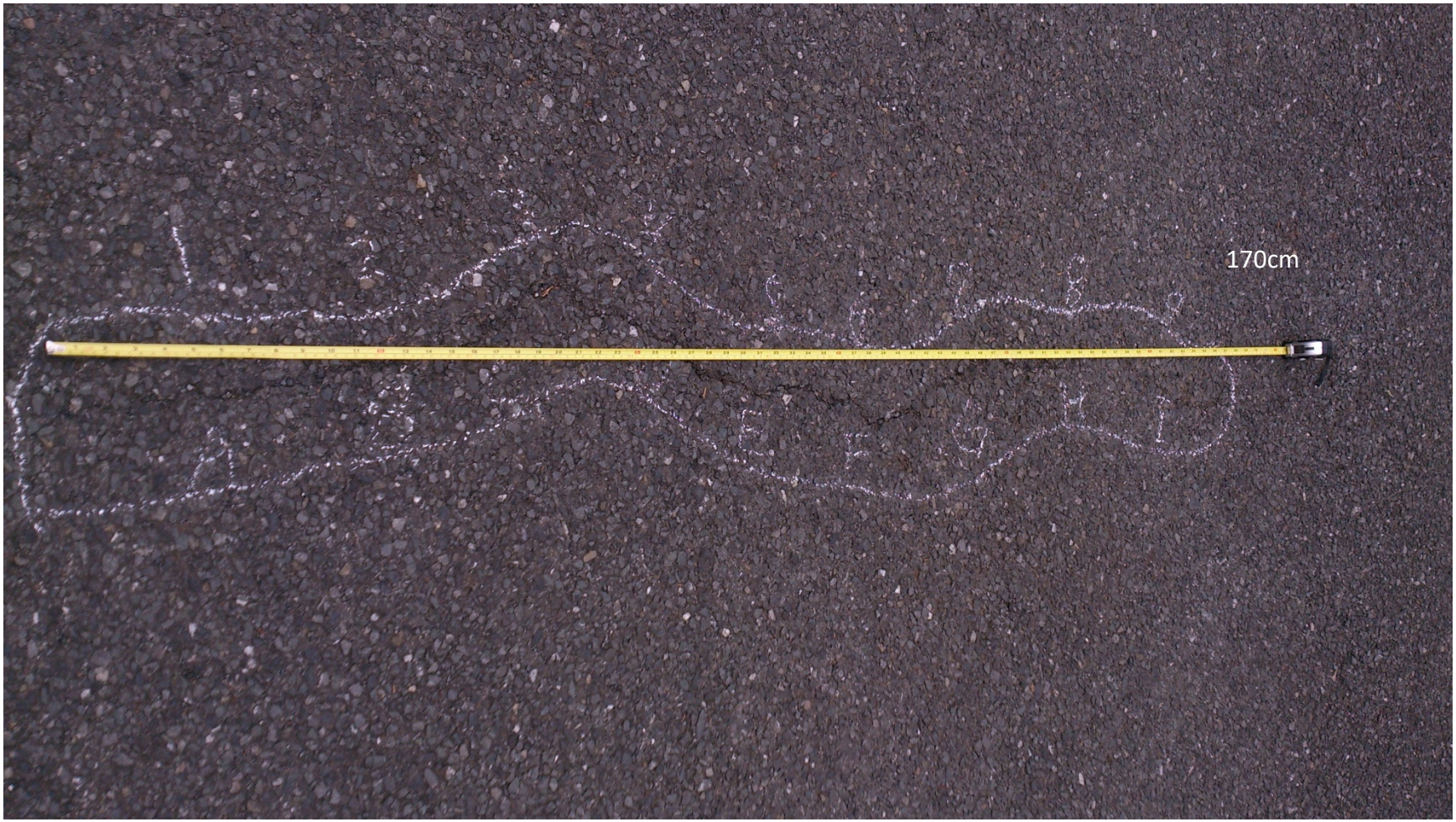


Monitoring Point 2

Monitoring Point 2; 3D analysis

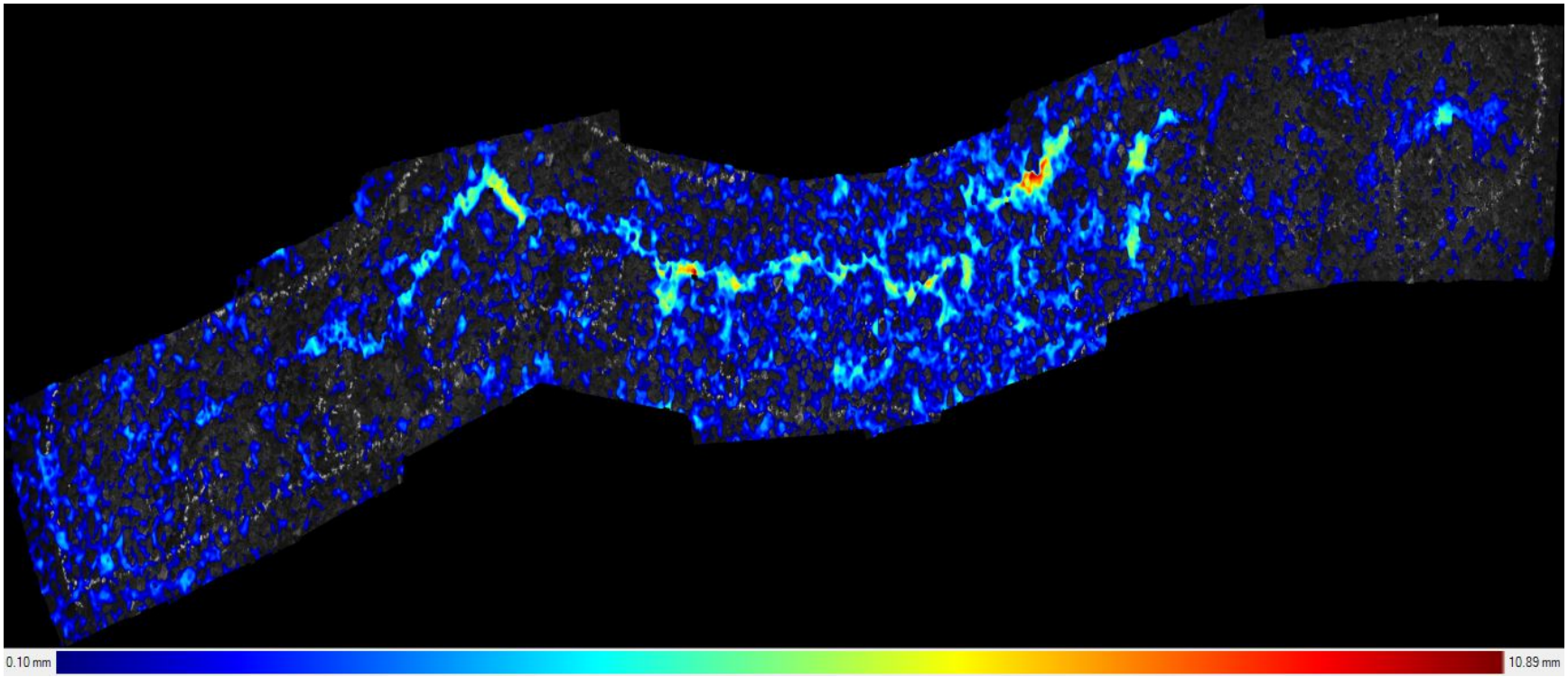


Monitoring point 3



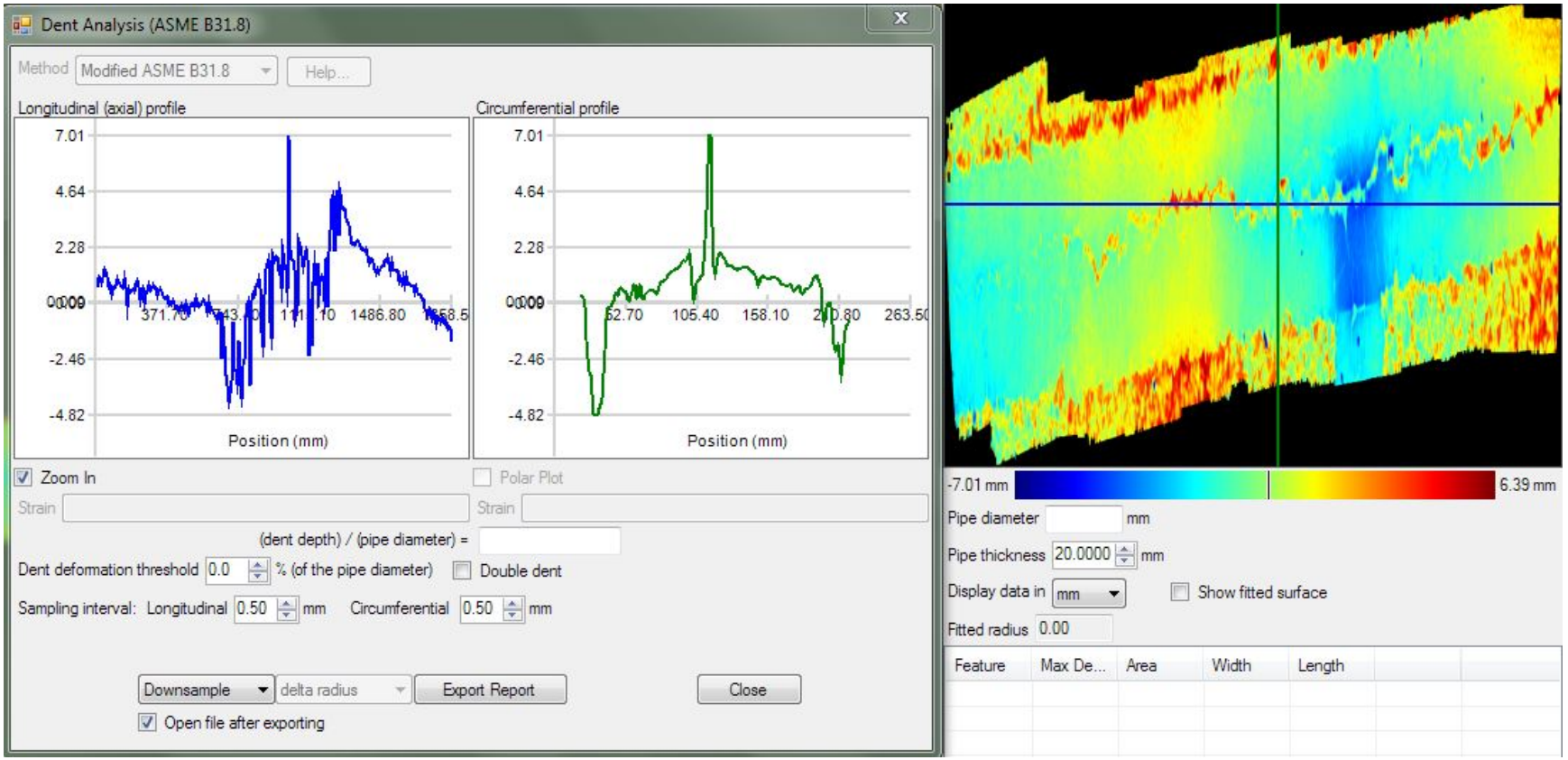
Monitoring point 3; 3D analysis

Local analysis



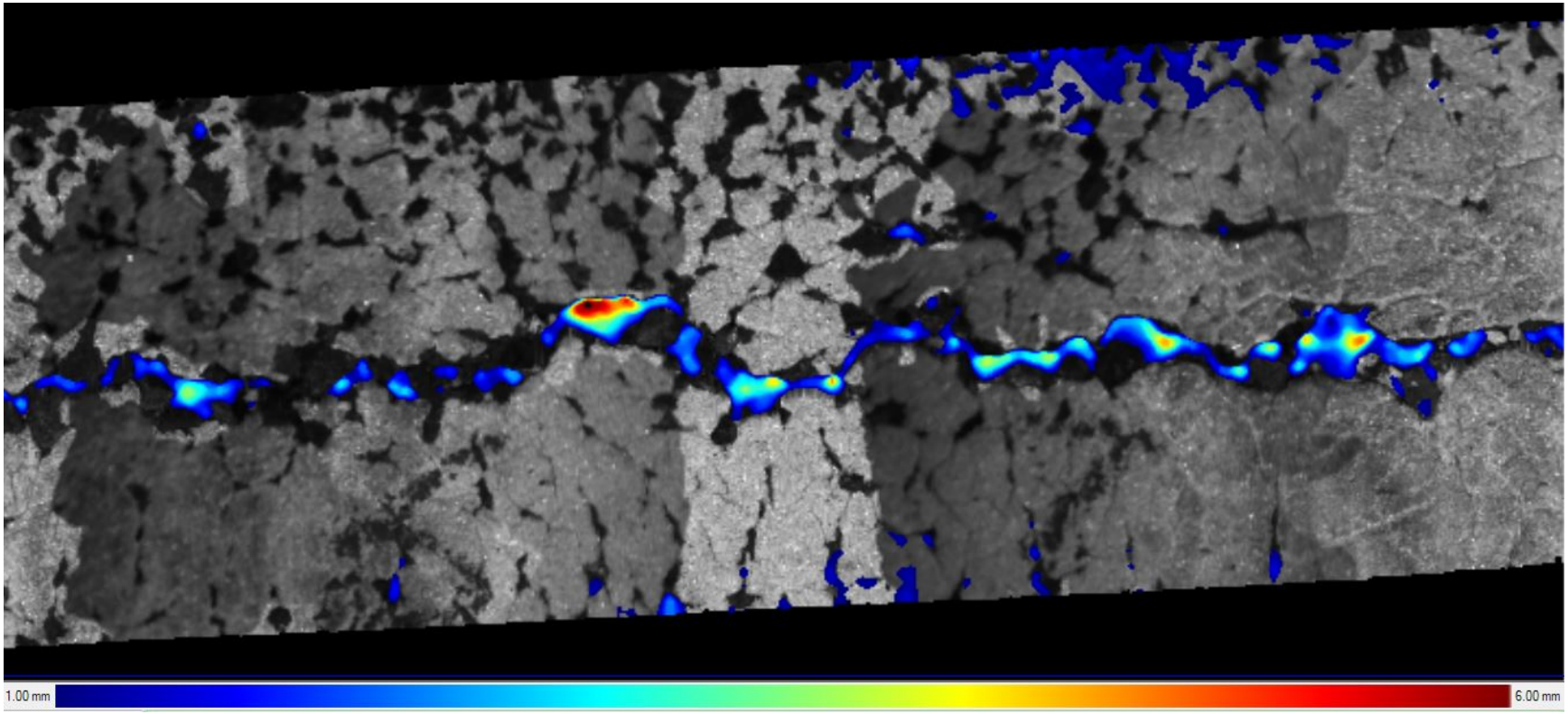
Monitoring point 4

Monitoring point 4; 3D analysis

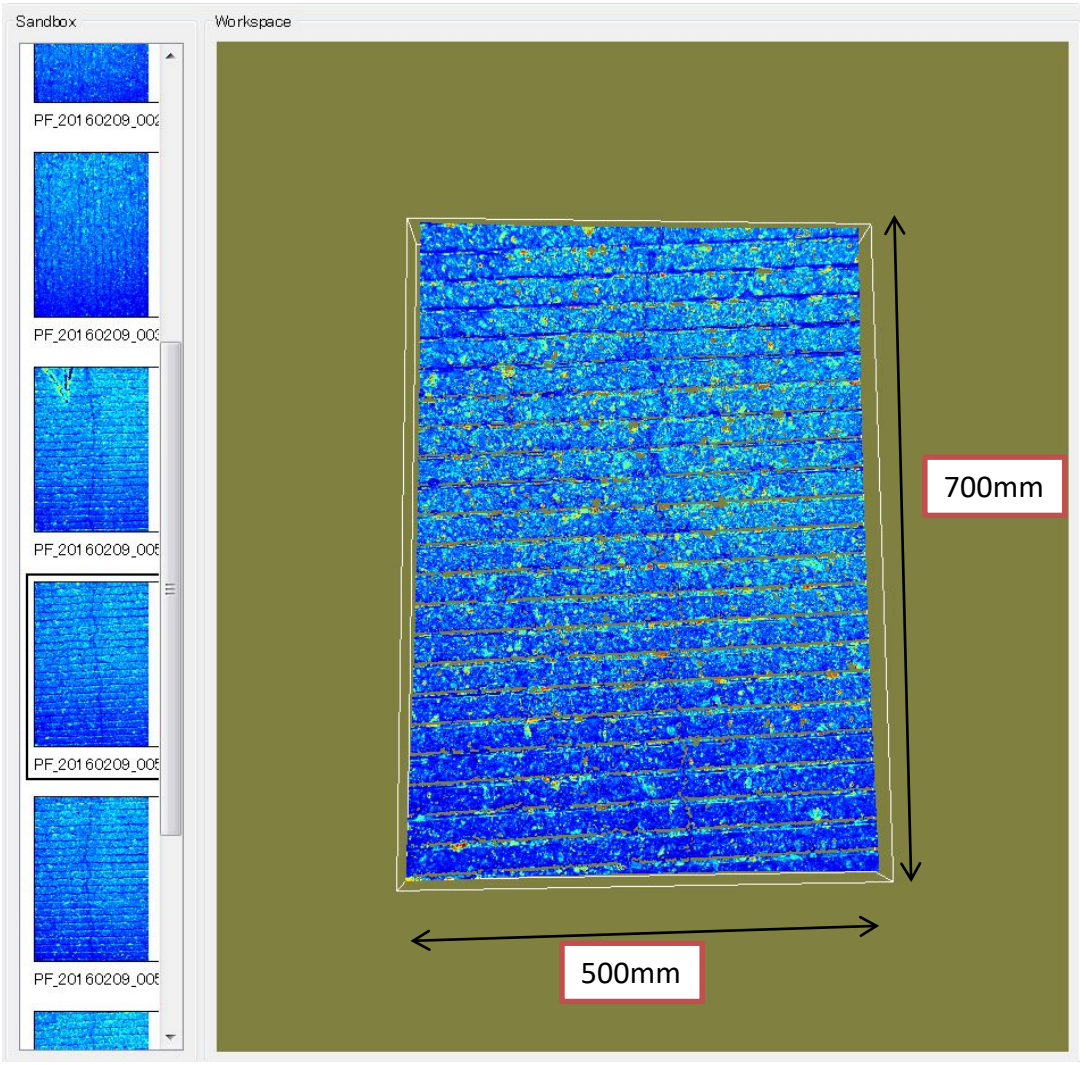
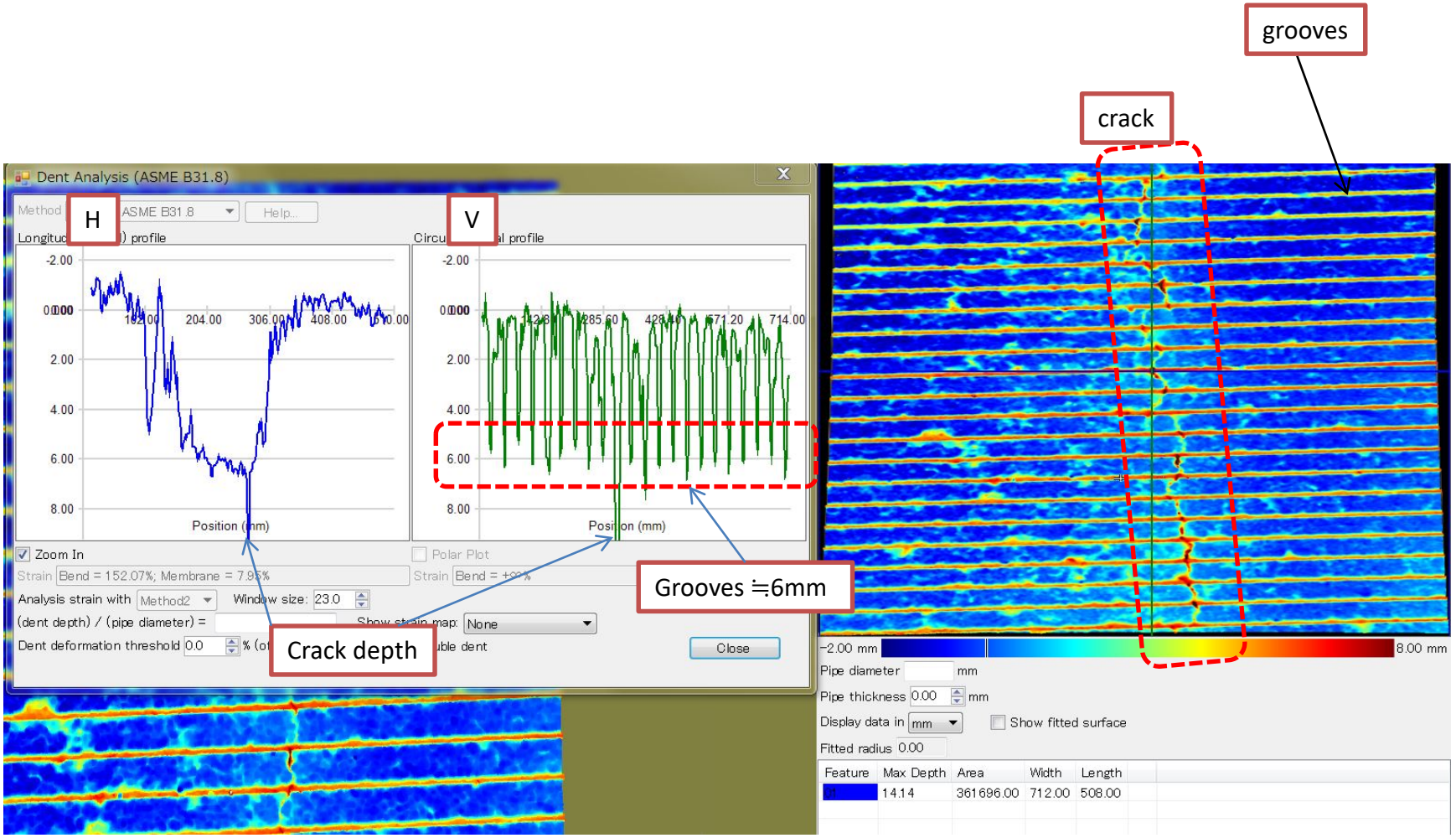


Monitoring point 4; 3D analysis

Colored only for 4mm or deeper



Monitoring point 5; runway



Monitoring point 5; 3D analysis