

Appendix to report:

SBJ-33-C5-OON-22-RE-022
MARINE GEOTECHNICAL DESIGN

Appendix title:

APPENDIX E: PLAXIS - SLOPE CALCULATIONS

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Project number: 5187772/12777
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Approved by: Kolbjørn Høyland

Tillatt for offentliggjøring.
Batymetridata er nedskalert til
50x50 m oppløsning.

CONCEPT DEVELOPMENT FLOATING BRIDGE E39 BJØRNAFJORDEN



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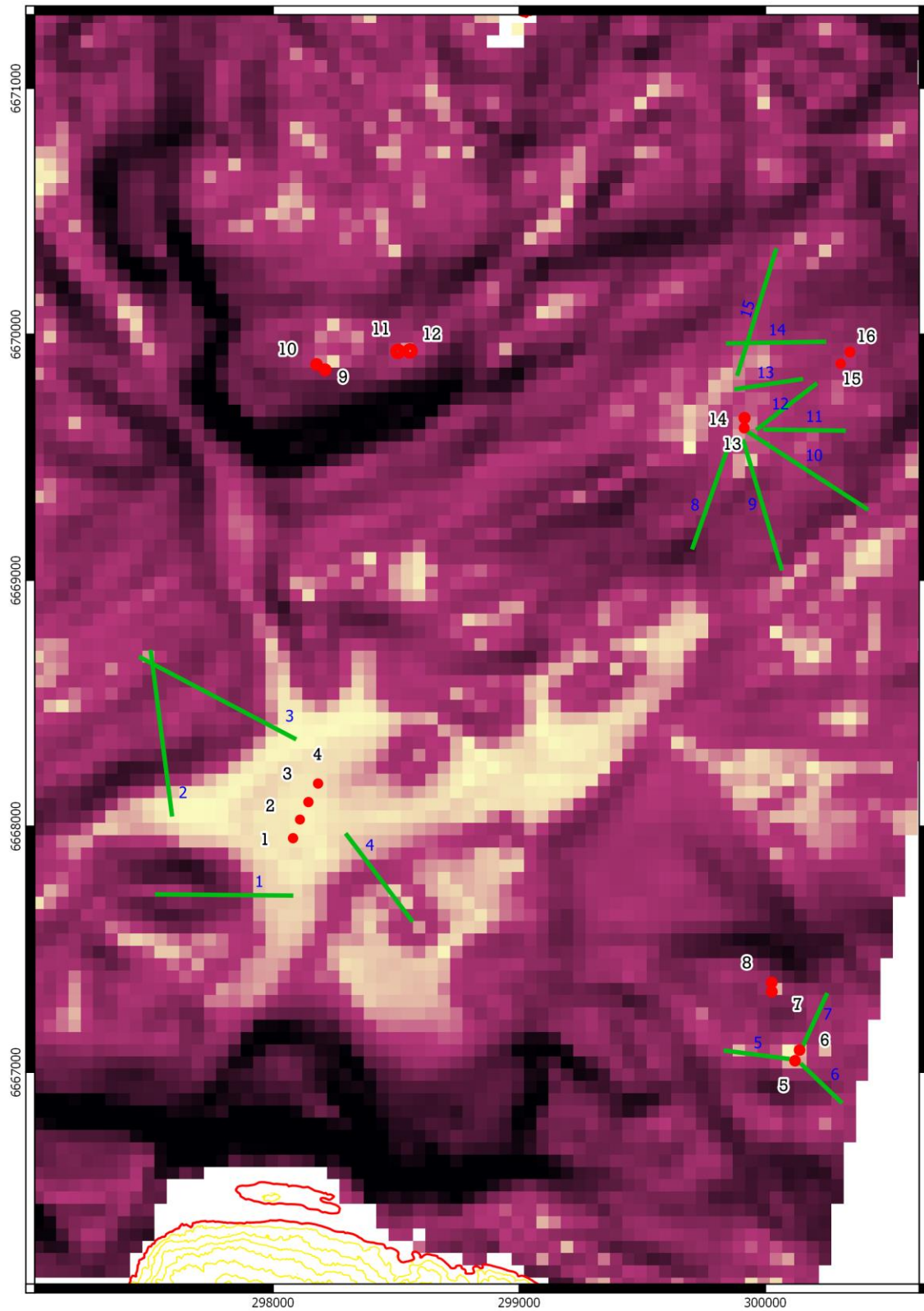
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1 OVERVEIW OF PROFILES

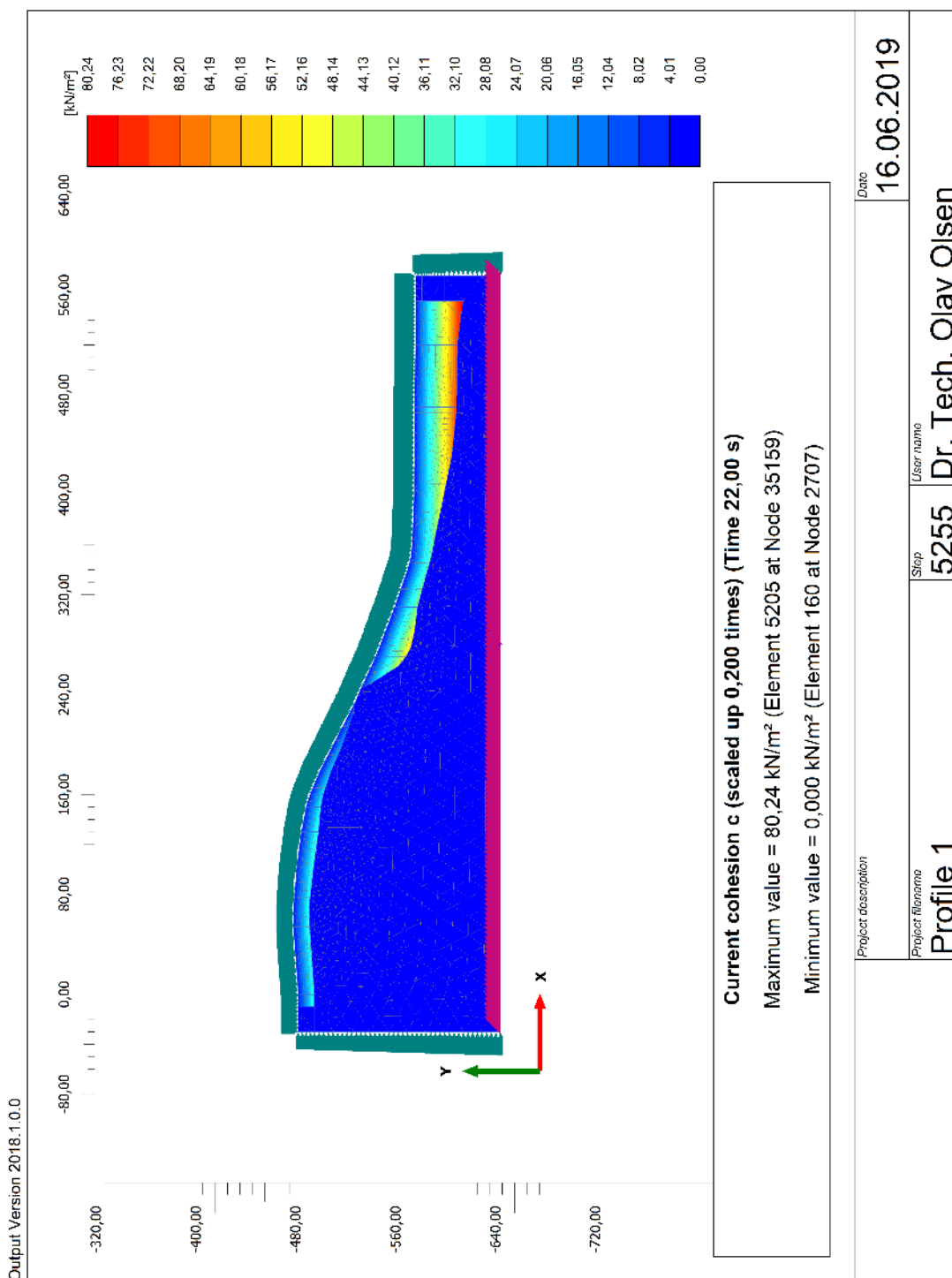


2 PROFILE 1

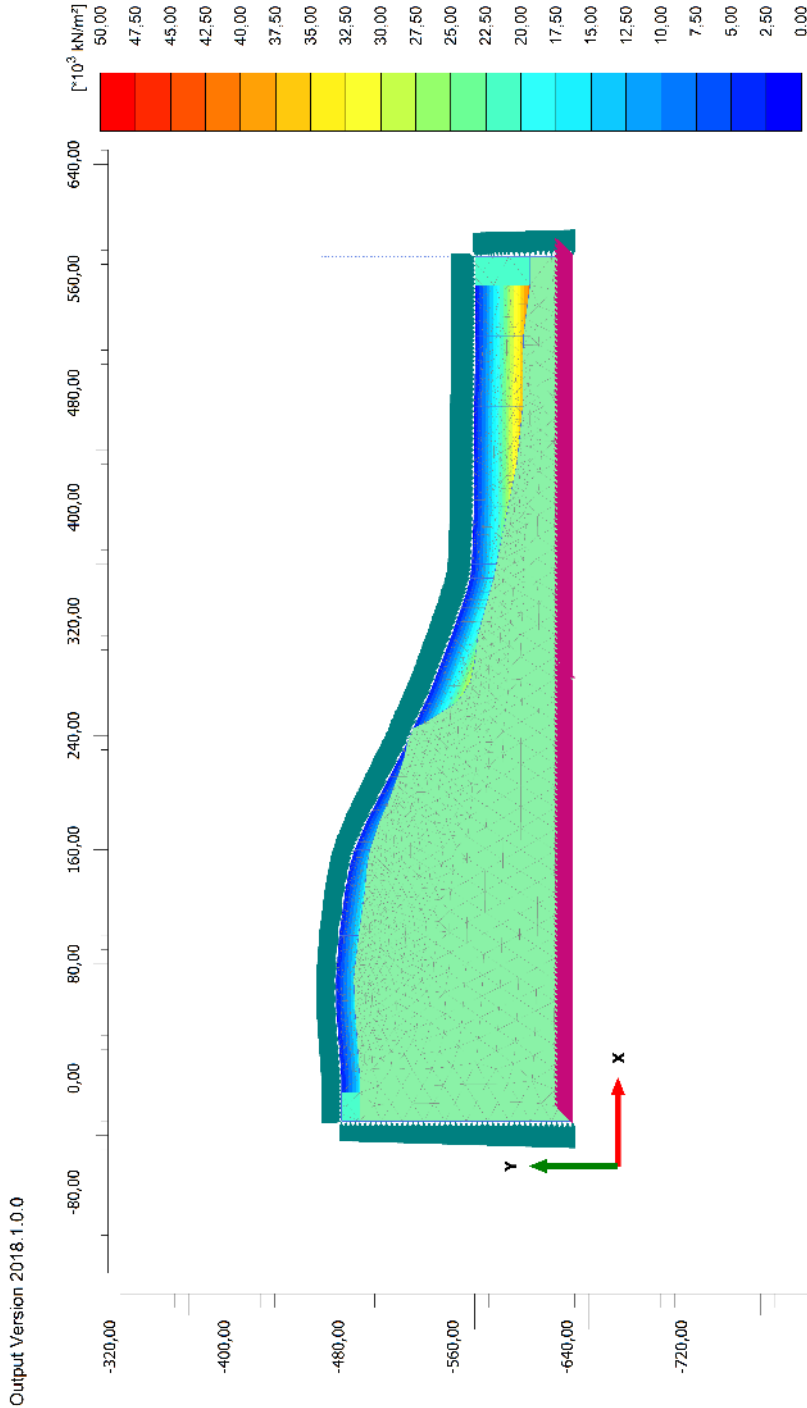
2.1 Model



2.2 Cohesion



2.3 Stiffness



Current young's modulus E (scaled up $2,00 \cdot 10^{-6}$ times) (Time 22,00 s)

Maximum value = $9,600 \cdot 10^6$ kN/m² (Element 3608 at Node 8096)

Minimum value = 2035 kN/m² (Element 3304 at Node 14382)

Project description

Project filename
Profile 1

Step

5255

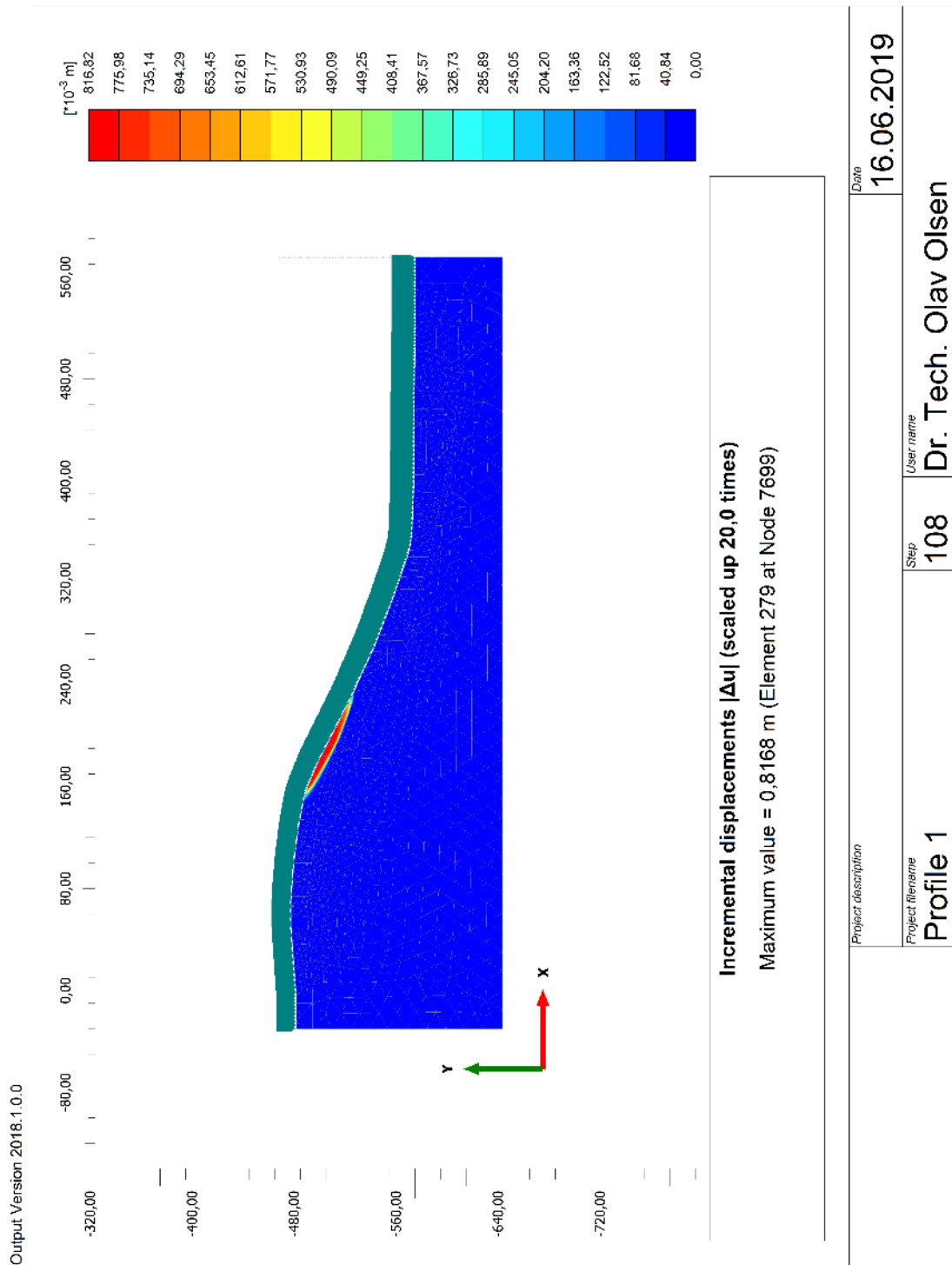
User name

Dr. Tech. Olav Olsen

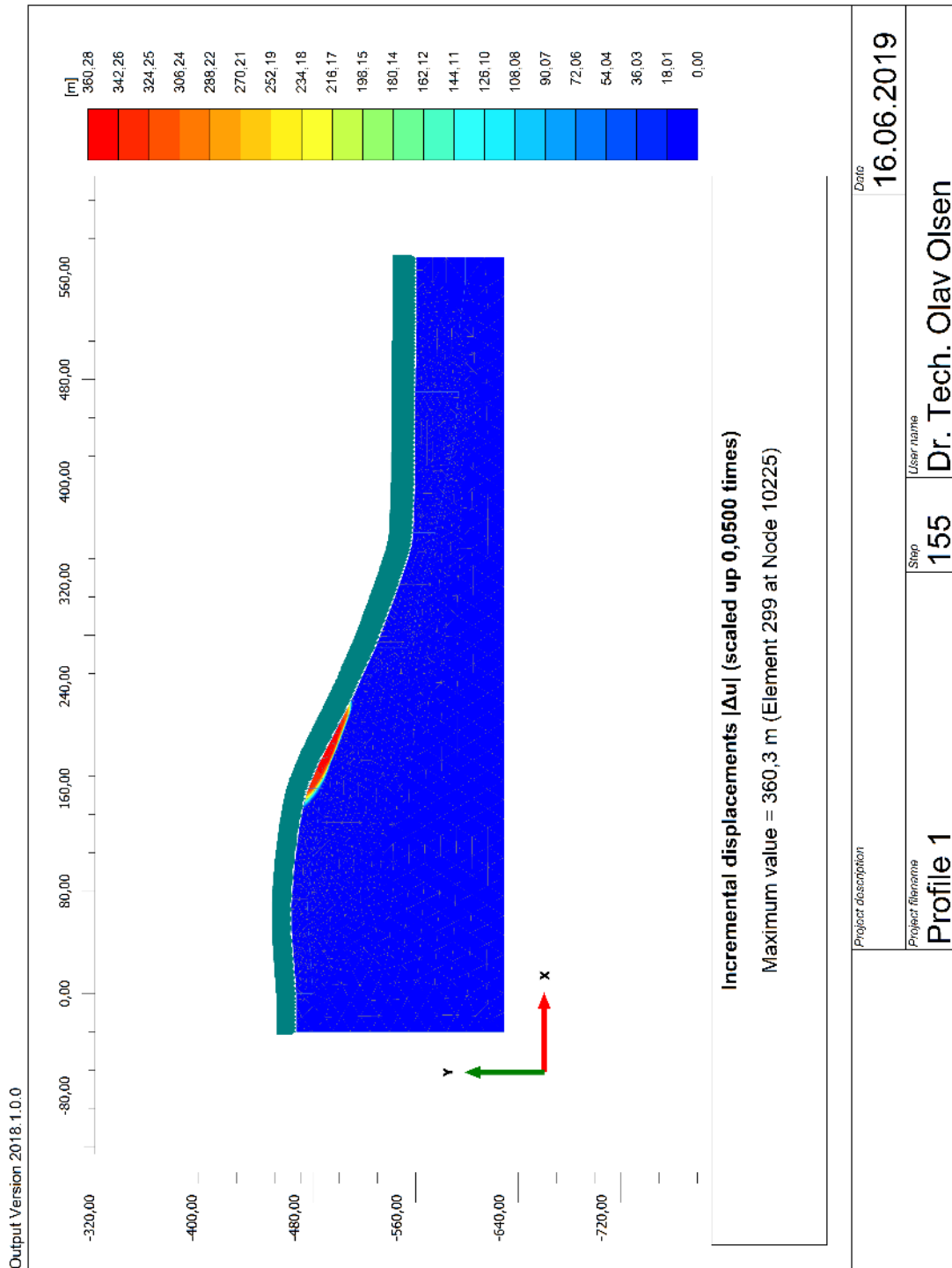
Date

16.06.2019

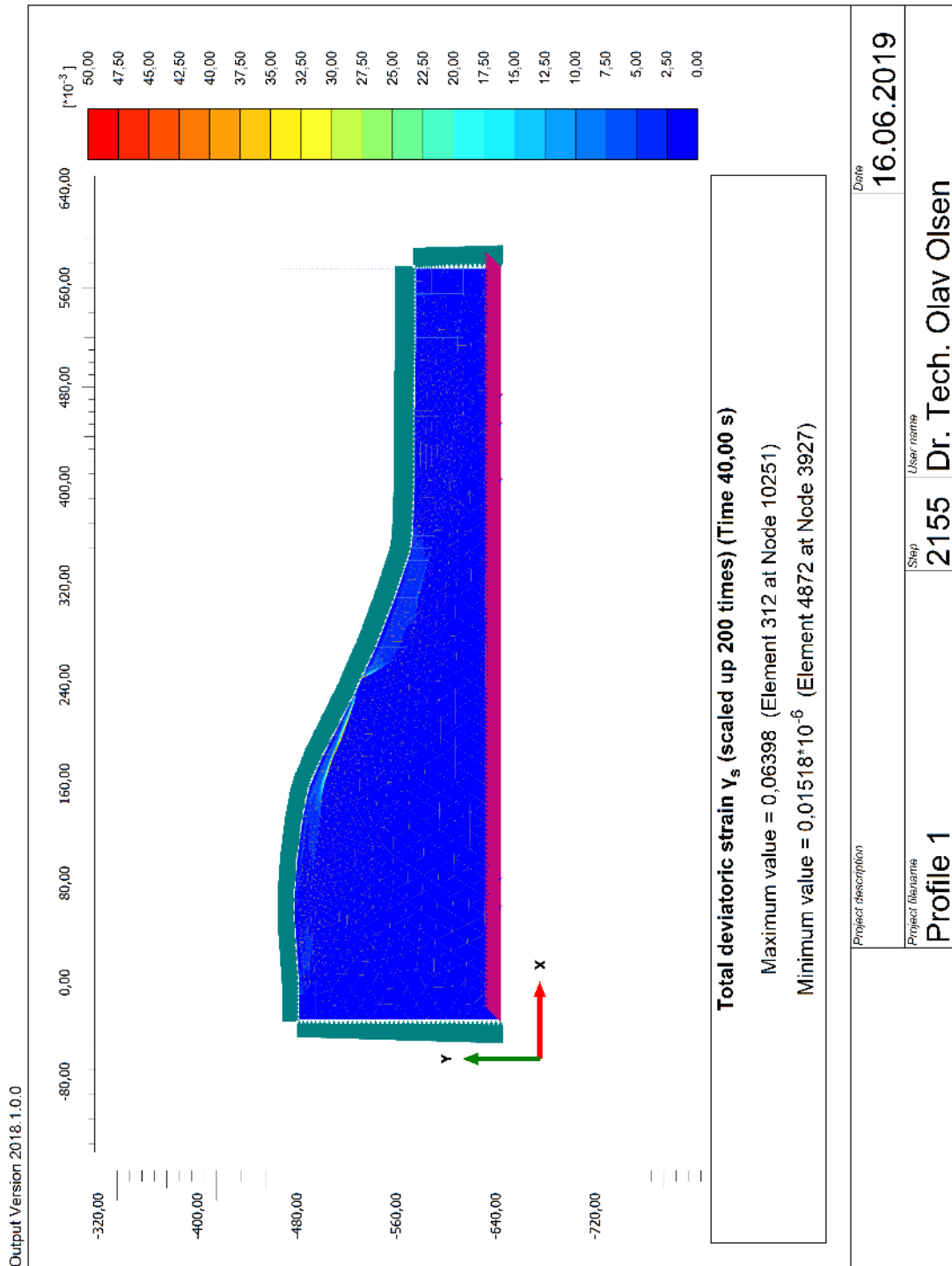
2.4 Drained failure



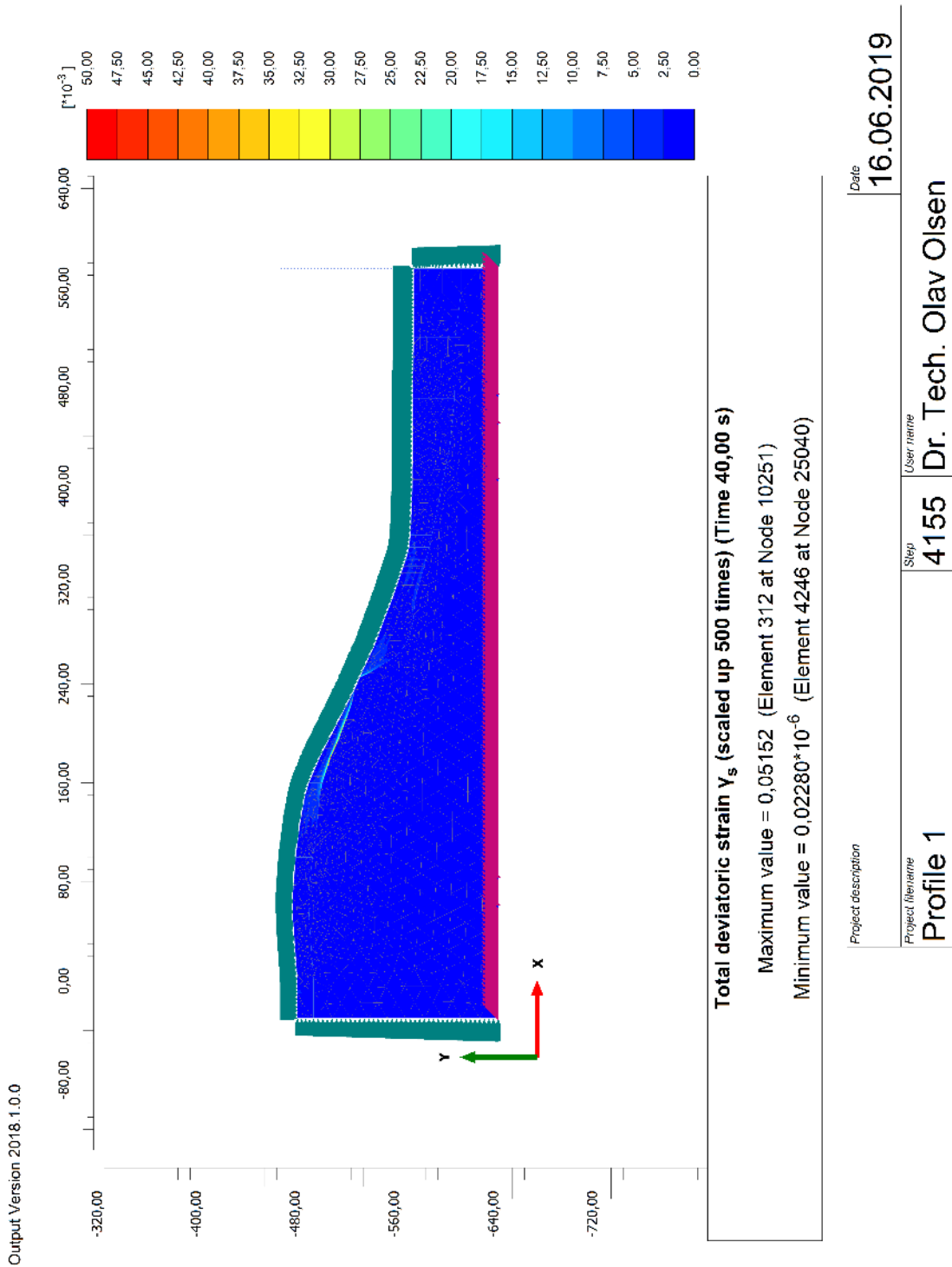
2.5 Undrained failure



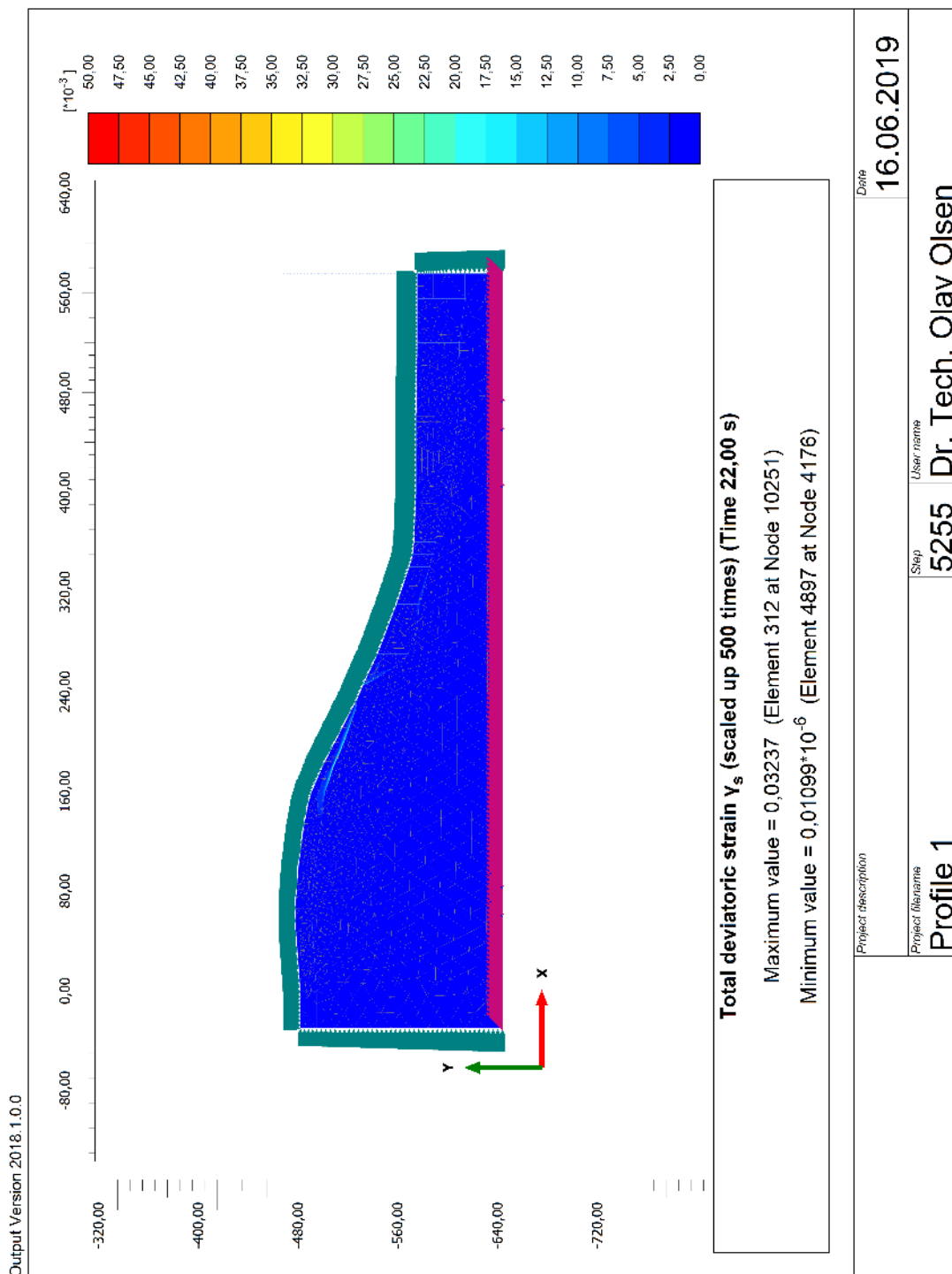
2.6 Permanent shear strain – Sierra Madre



2.7 Permanent shear strain – Whittier Narrows main shock

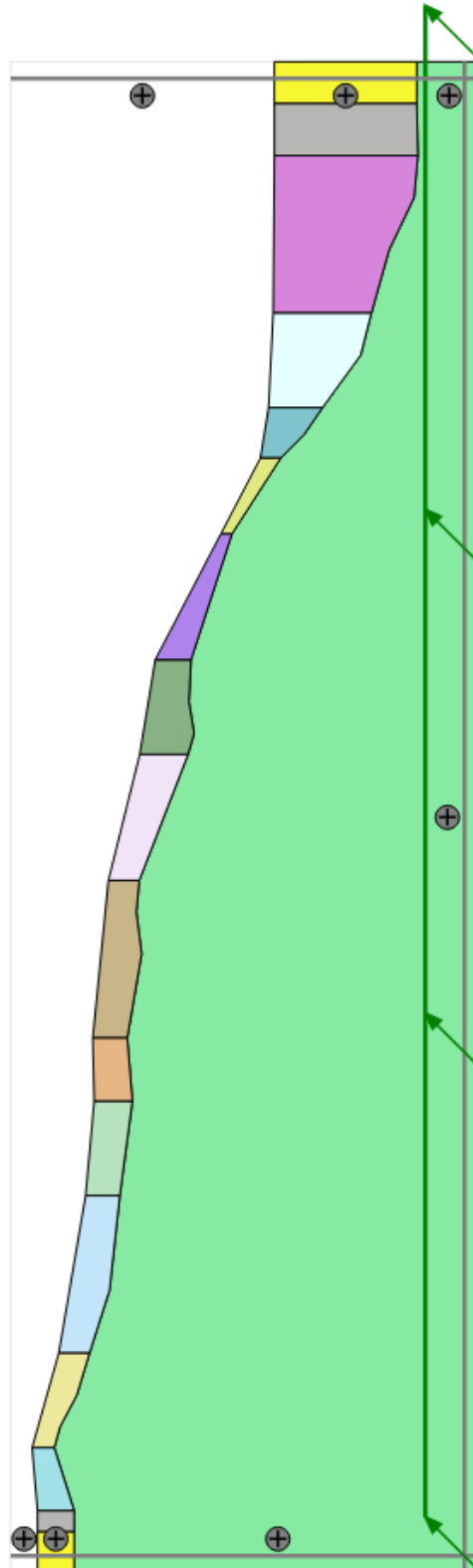


2.8 Permanent shear strain – Whittier aftershock

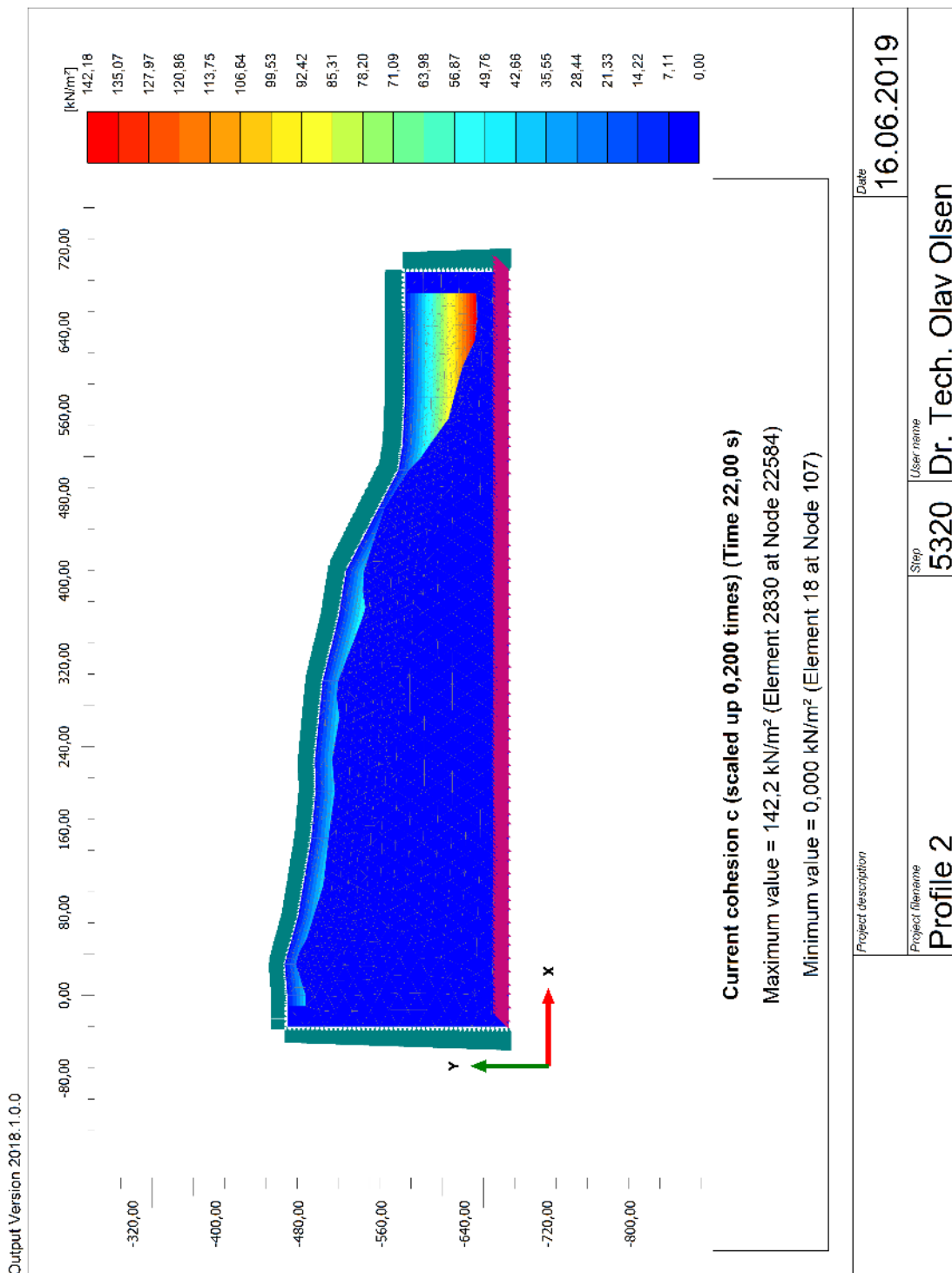


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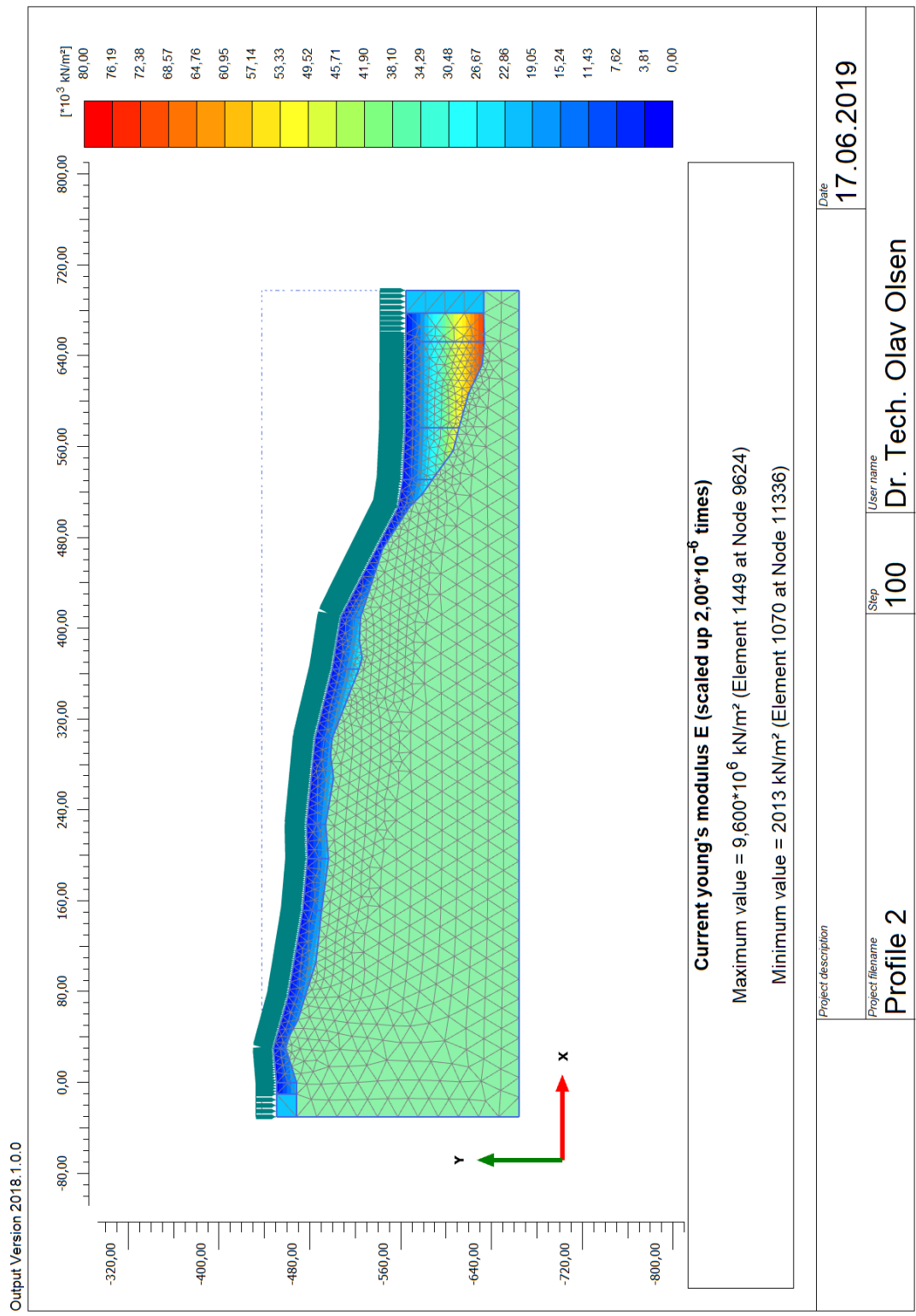
3.1 Model



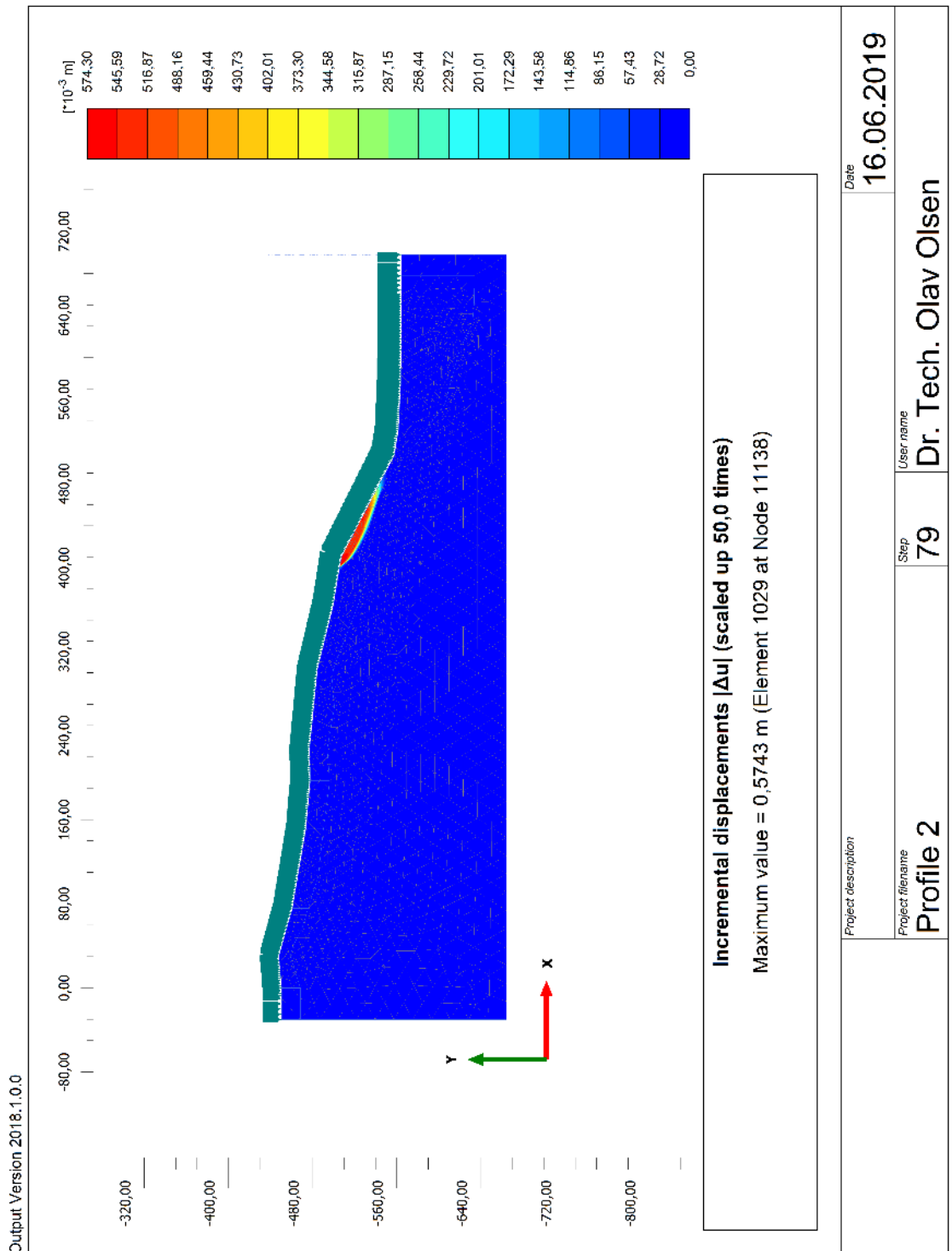
3.2 Cohesion



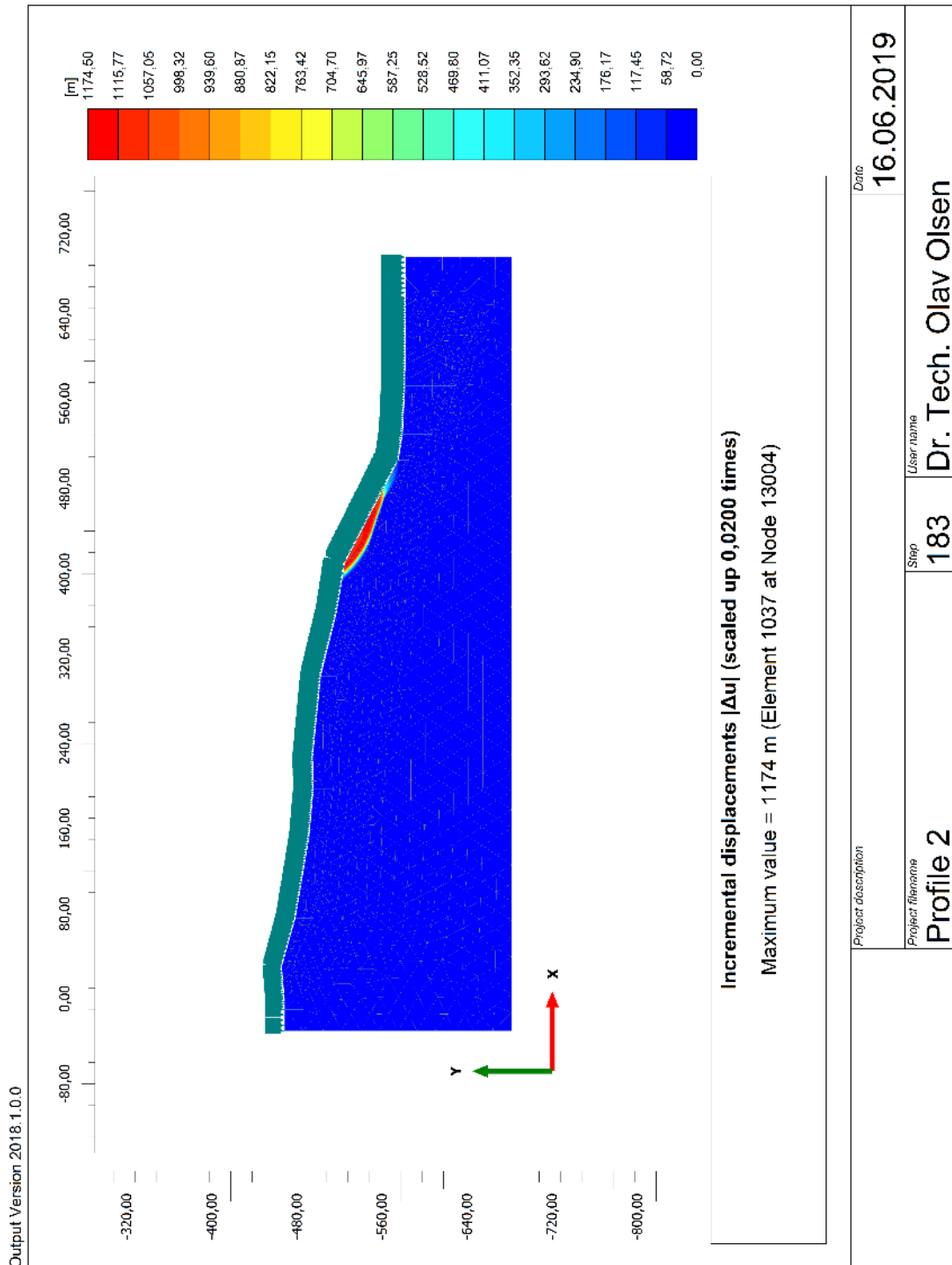
3.3 Stiffness



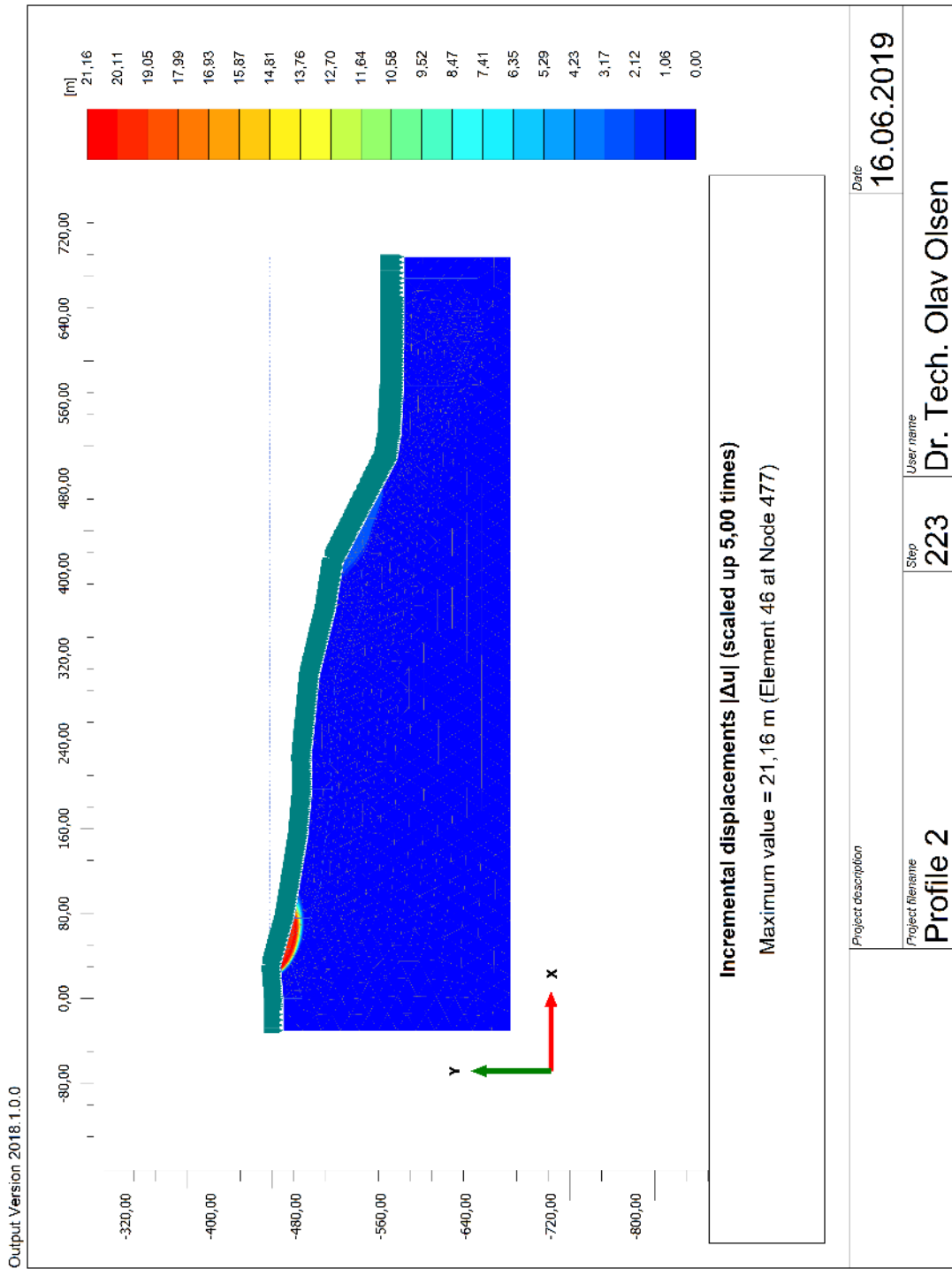
3.4 Drained failure



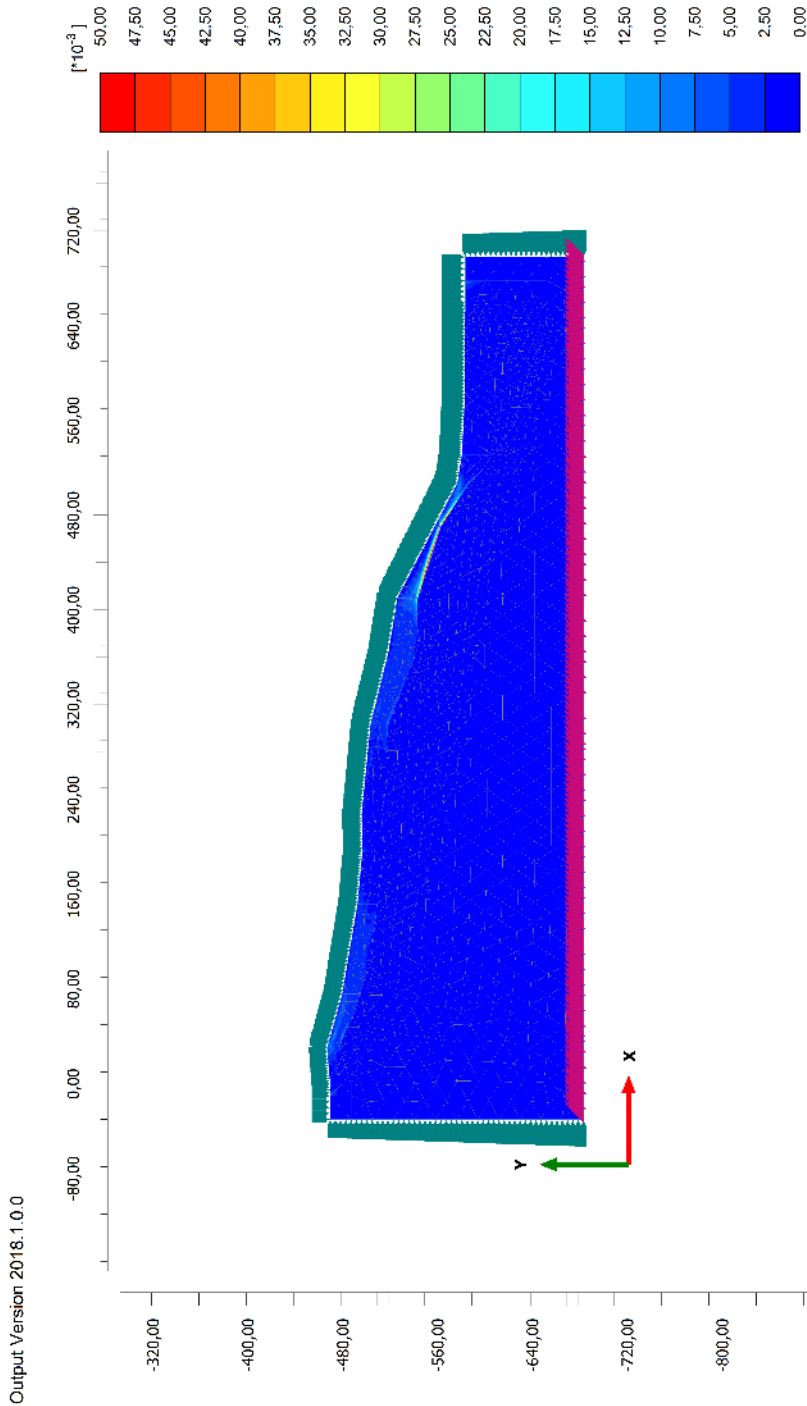
3.5 Undrained failure 1



3.6 Undrained failure 2

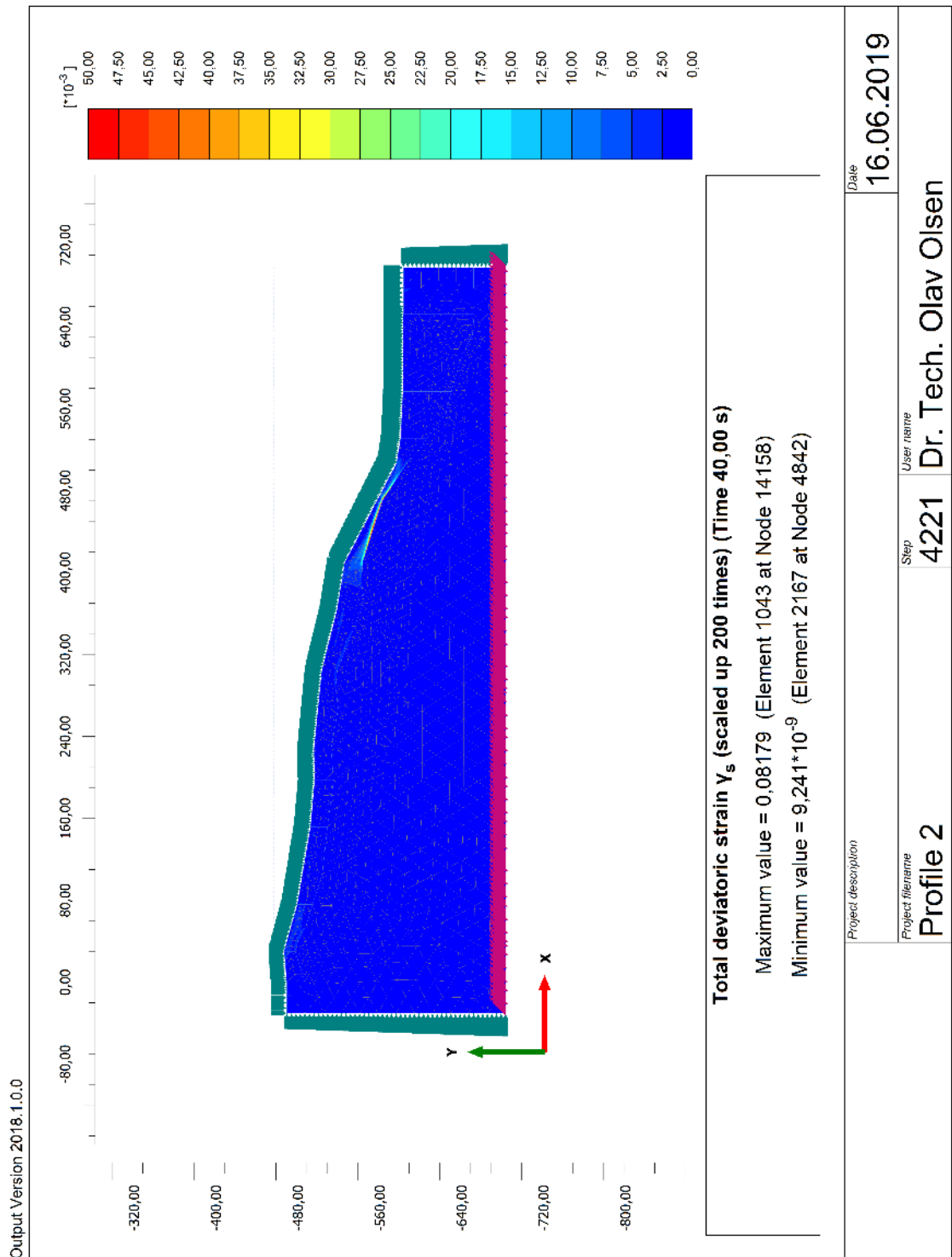


3.7 Permanent shear strain – Sierra Madre

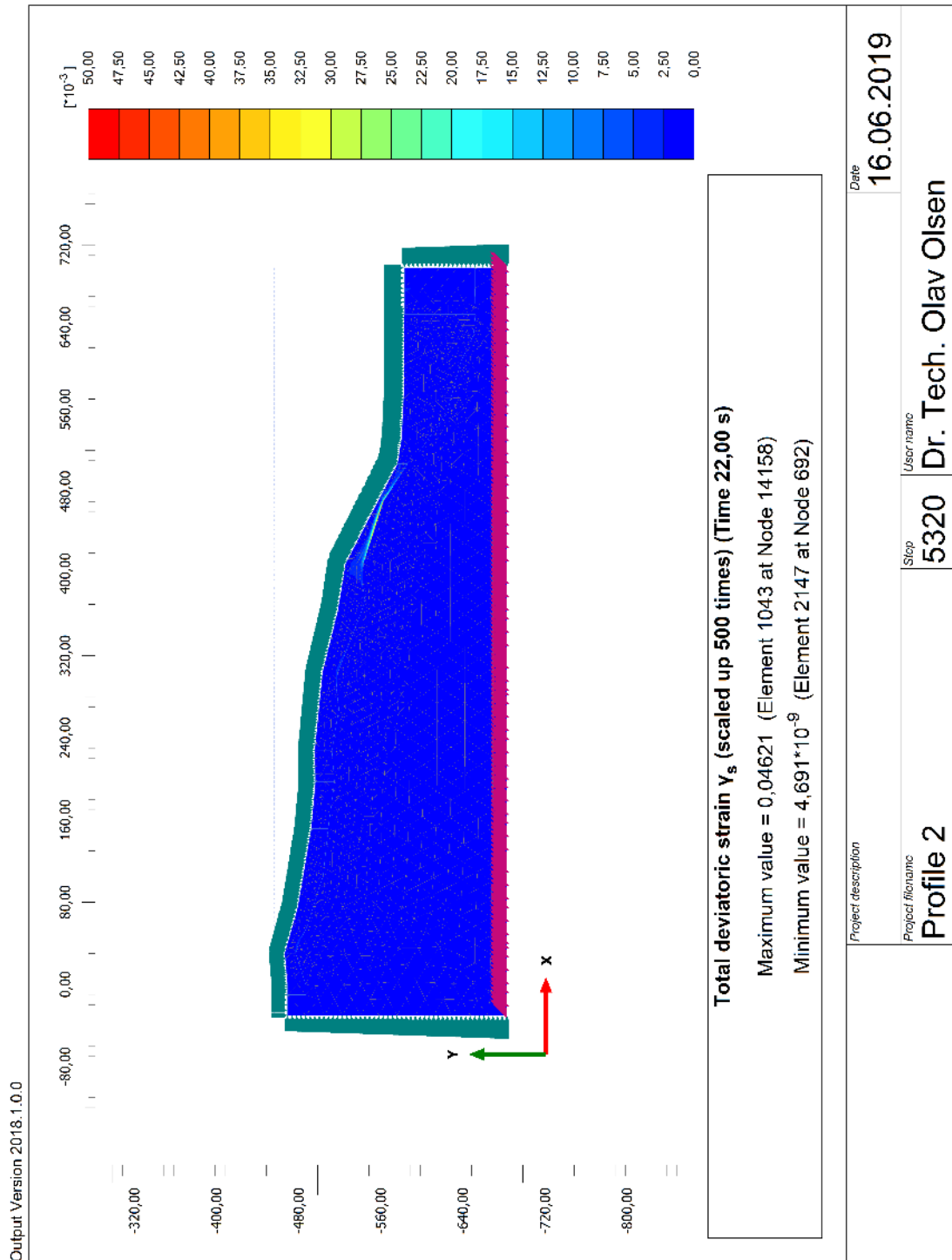


Project description		Date
Project filename		16.06.2019
Step	User name	
2222	Dr. Tech. Olav Olsen	
Profile 2		

3.8 Permanent shear strain – Whittier Narrows main shock

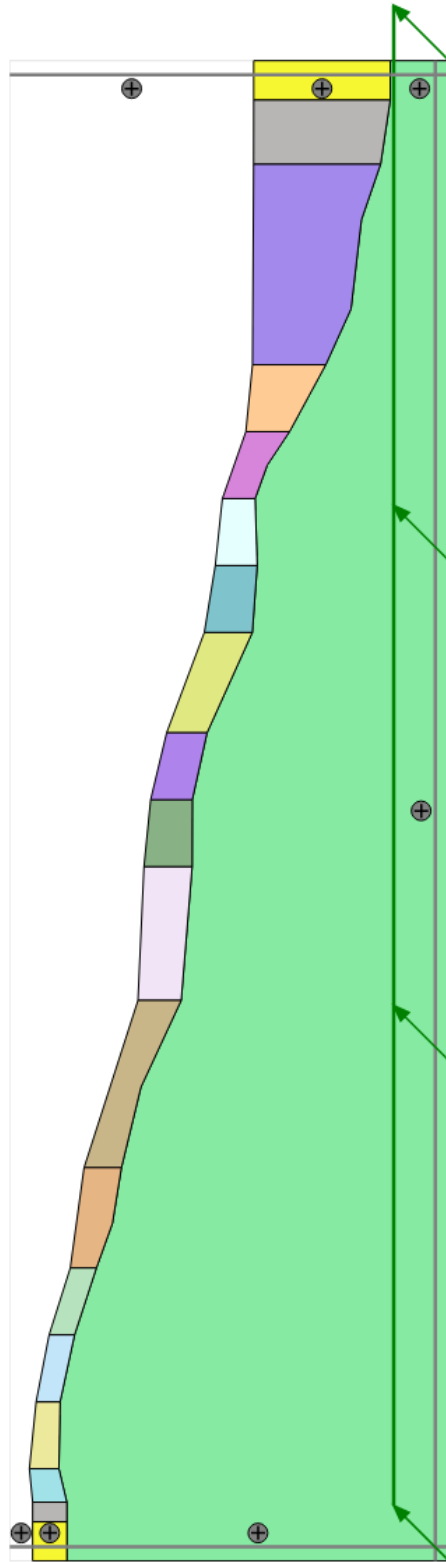


3.9 Permanent shear strain – Whittier aftershock

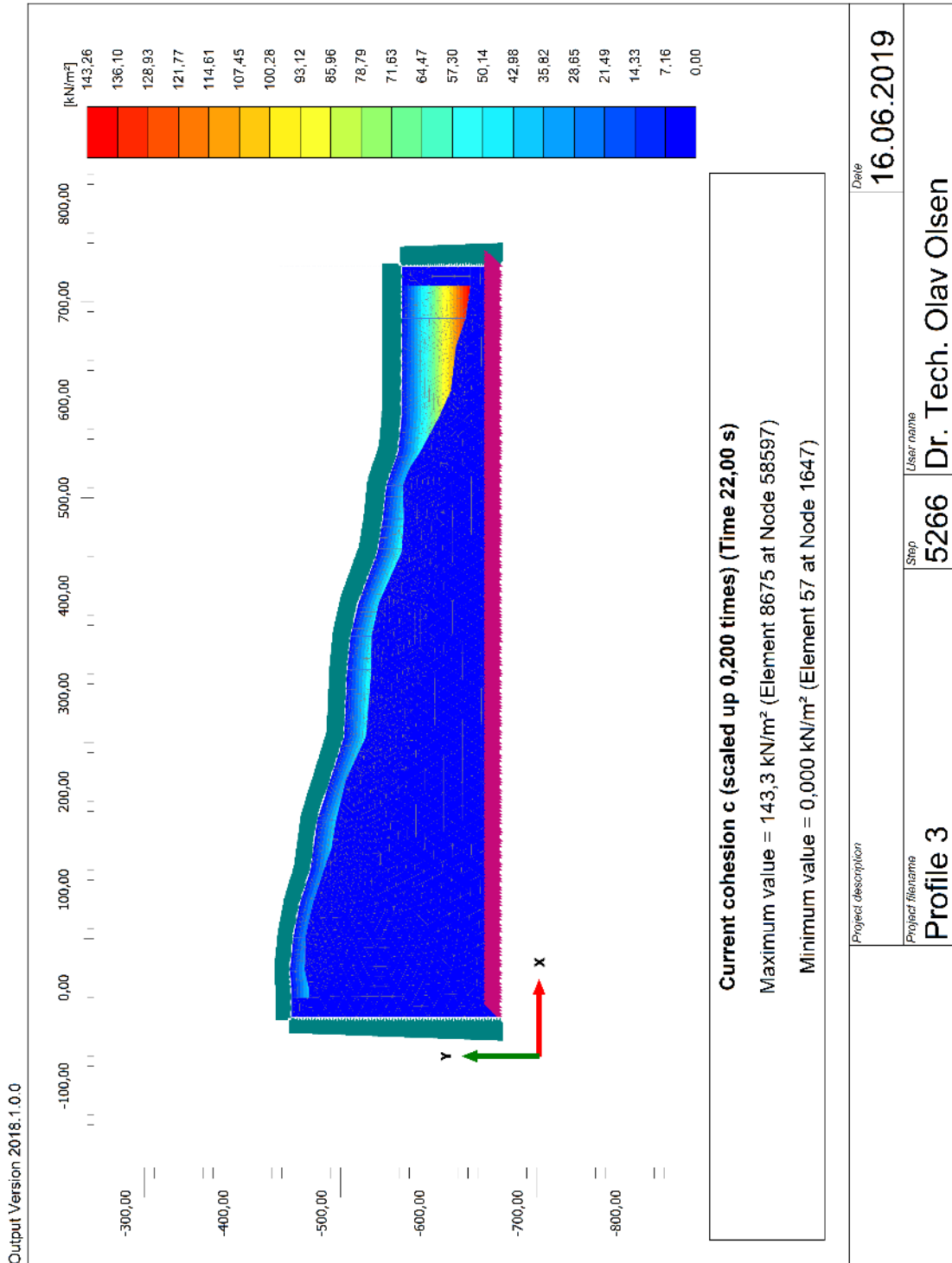


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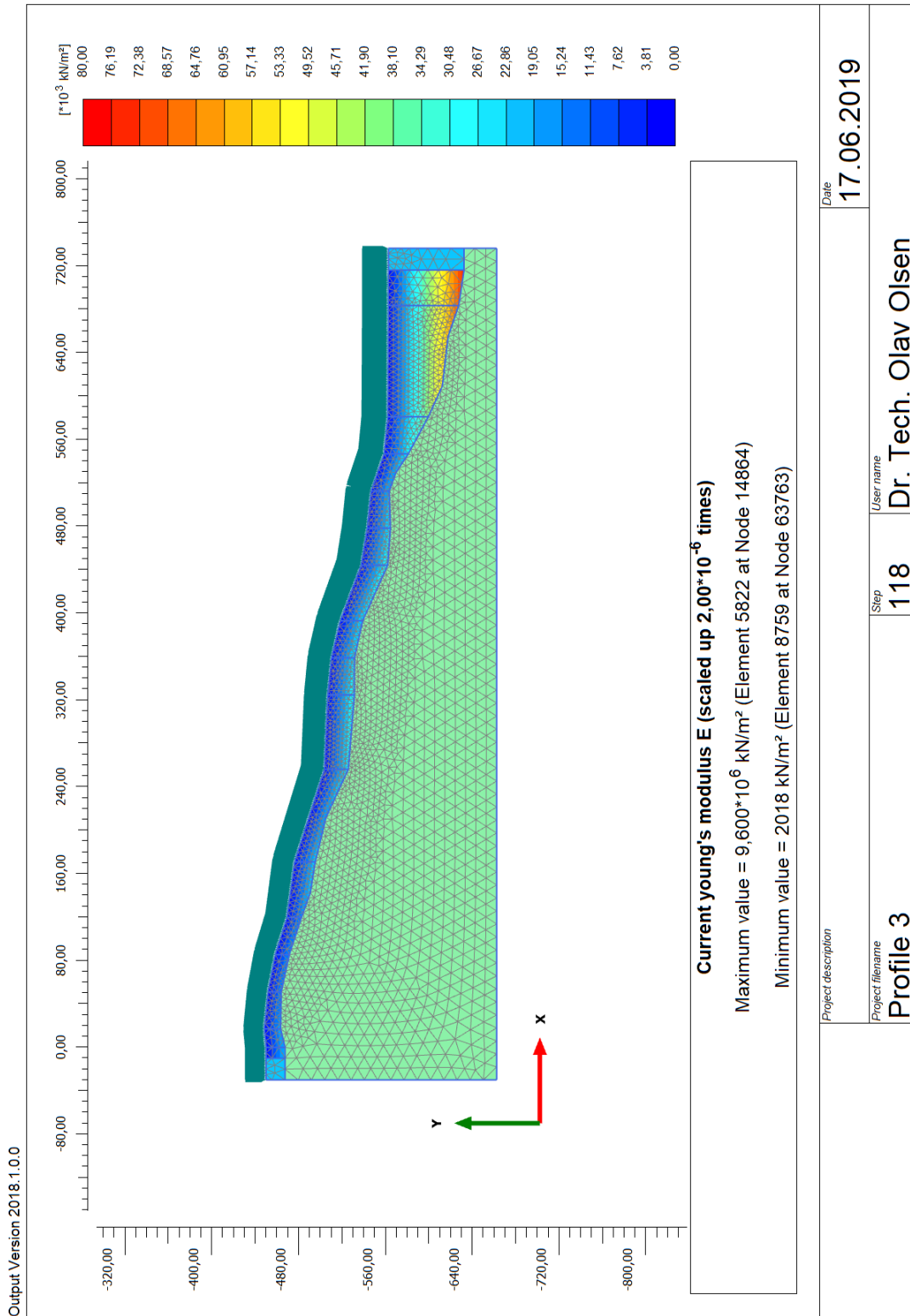
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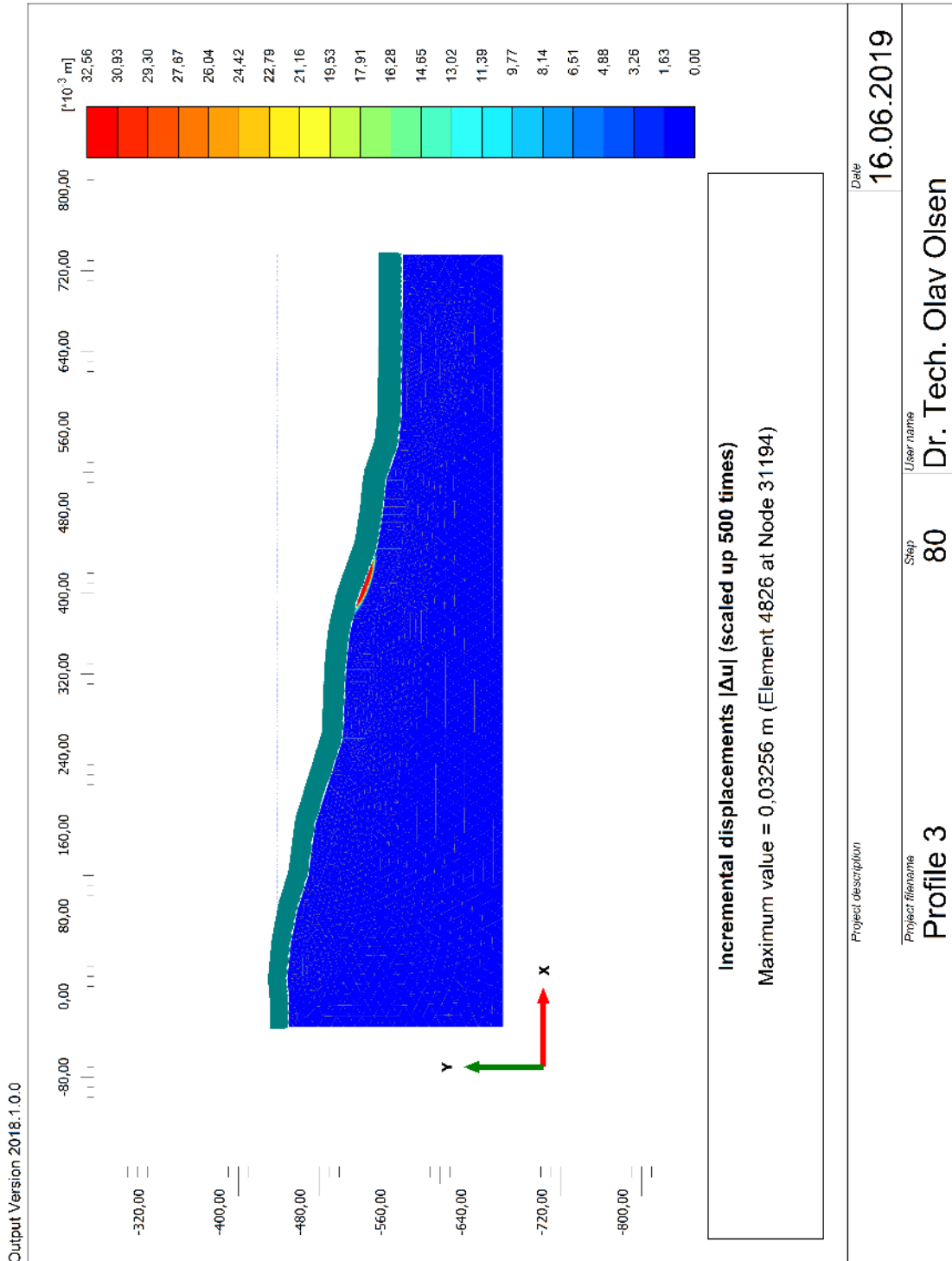
4.2 Cohesion



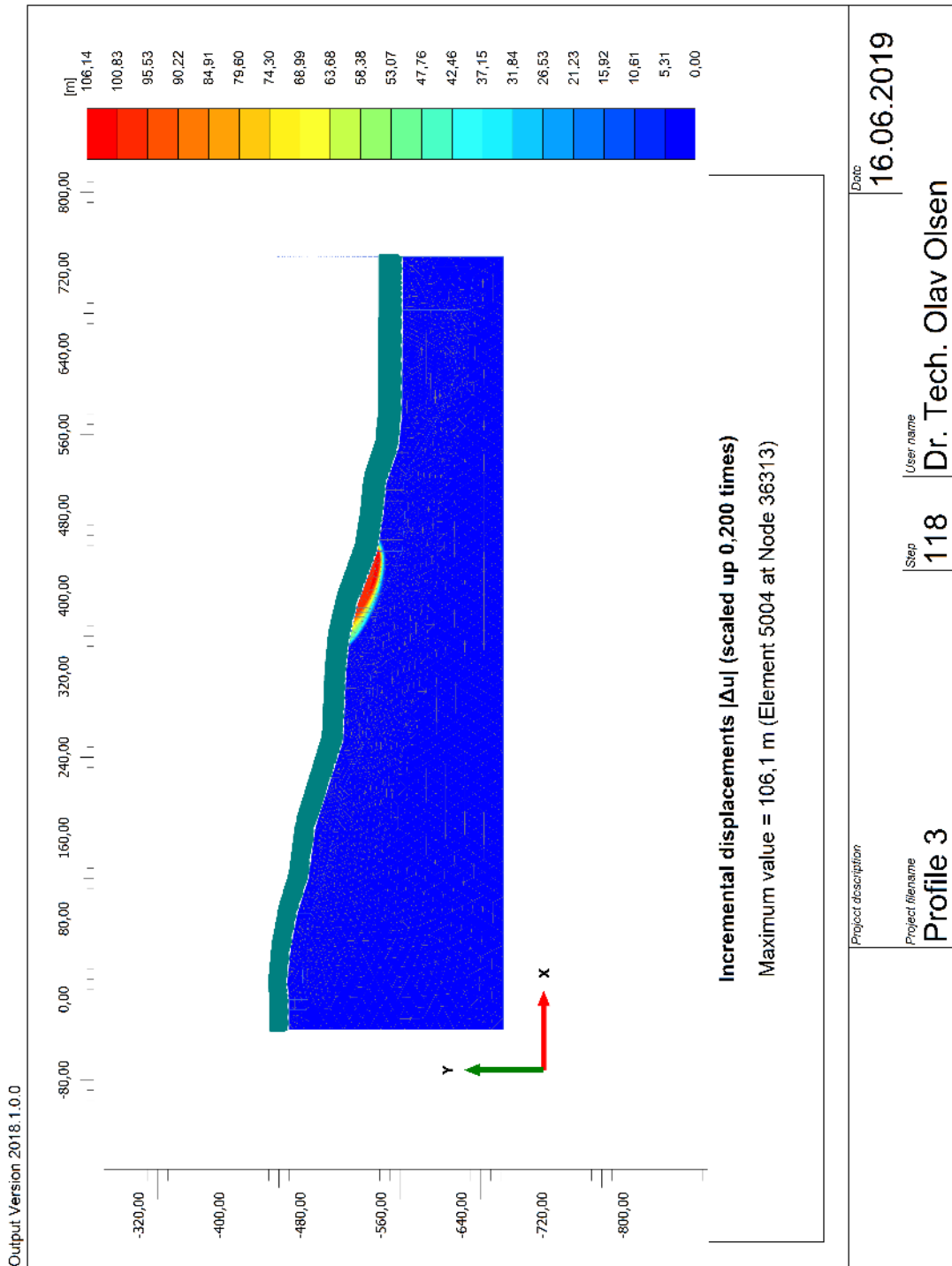
4.3 Stiffness



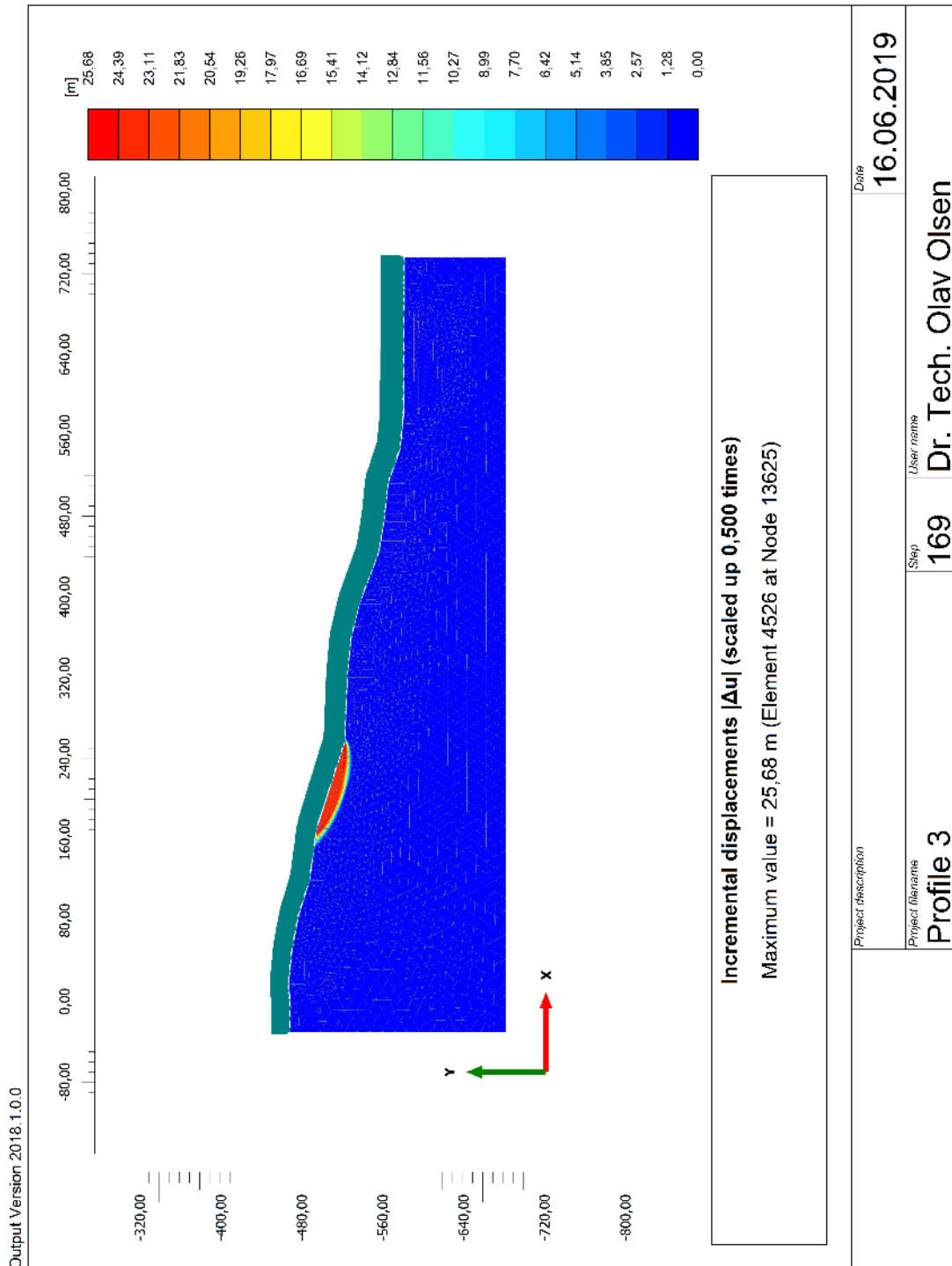
4.4 Drained failure



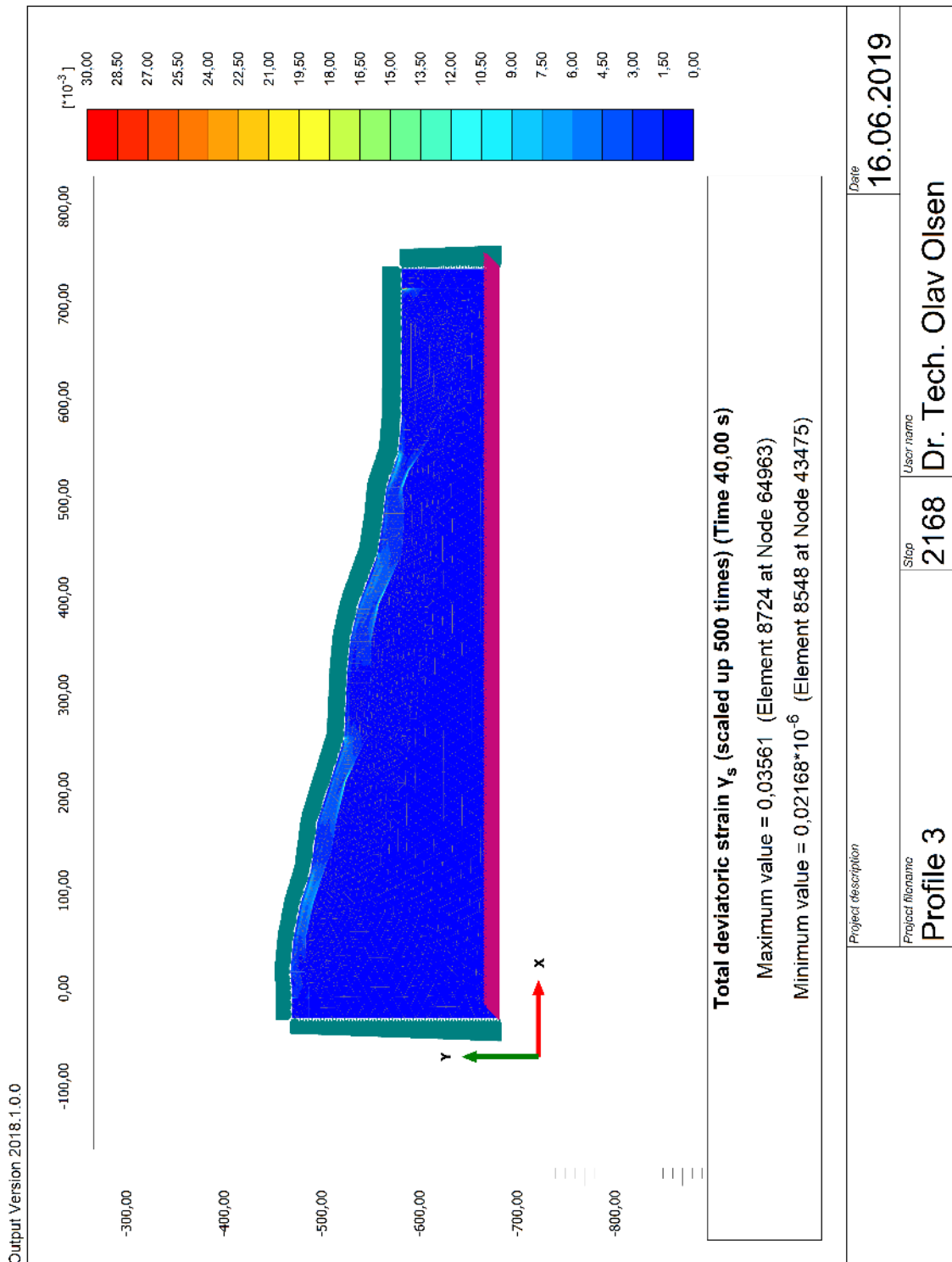
4.5 Undrained failure 1



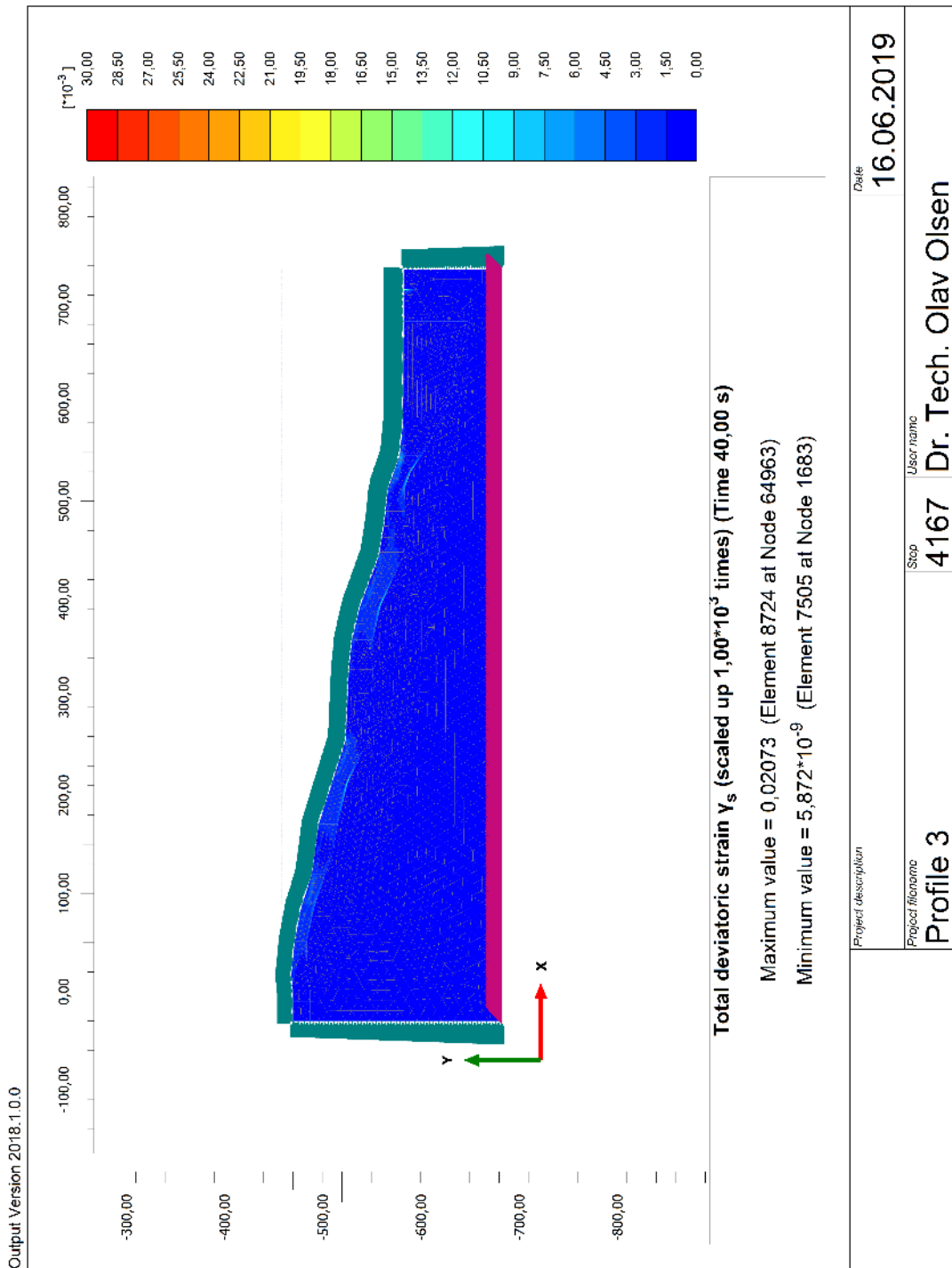
4.6 Undrained failure 2



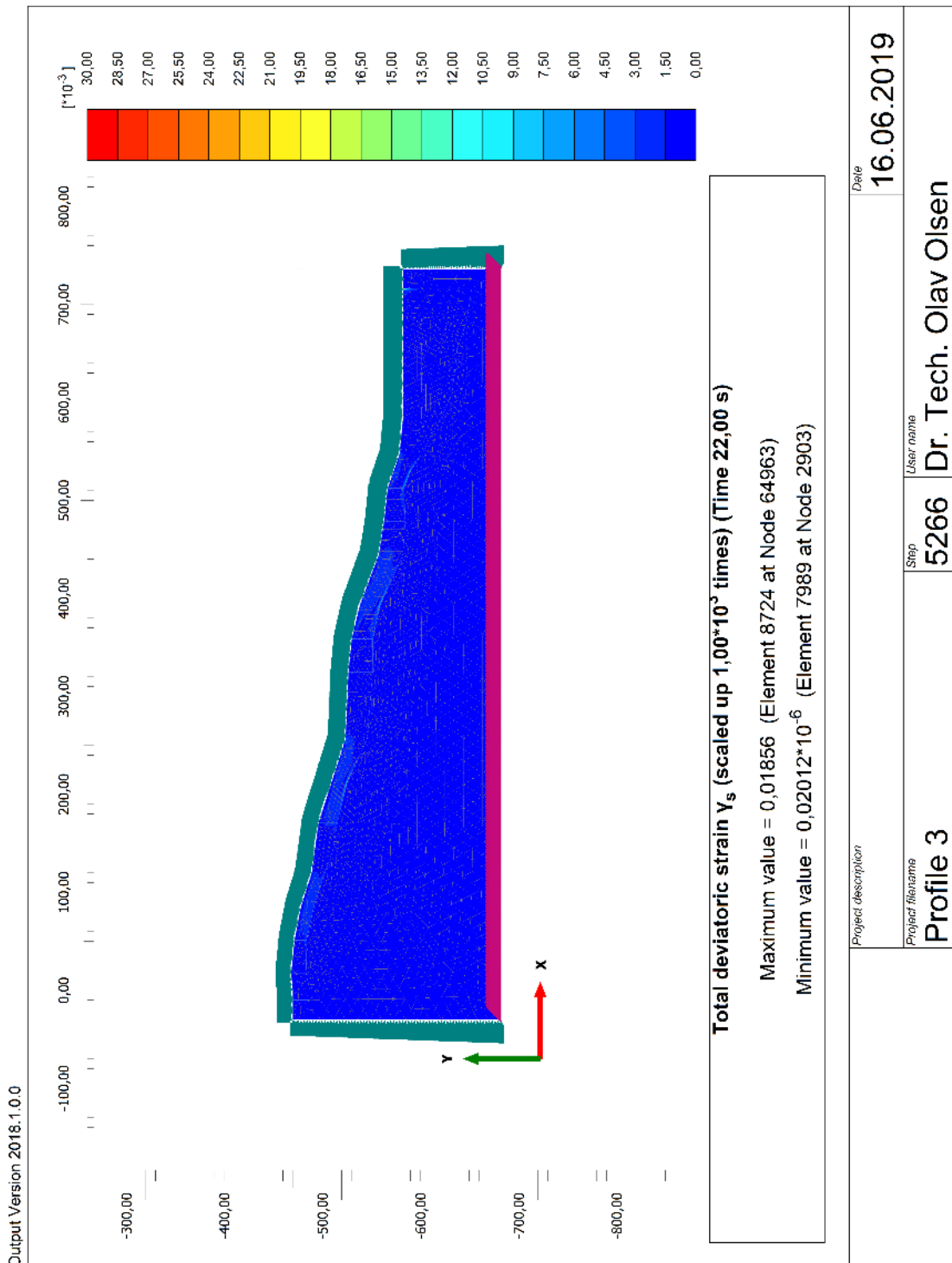
4.7 Permanent shear strain – Sierra Madre



4.8 Permanent shear strain – Whittier Narrows main shock

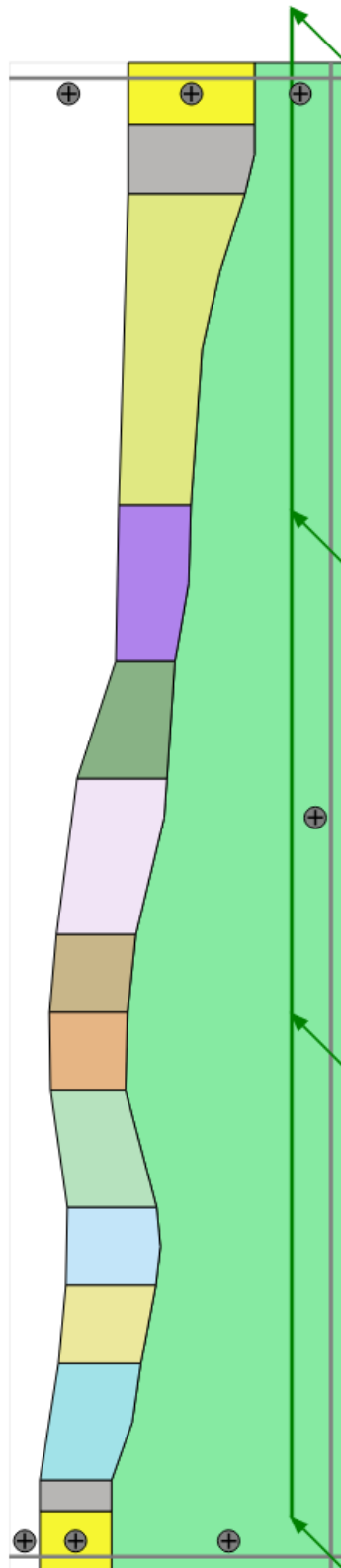


4.9 Permanent shear strain – Whittier aftershock

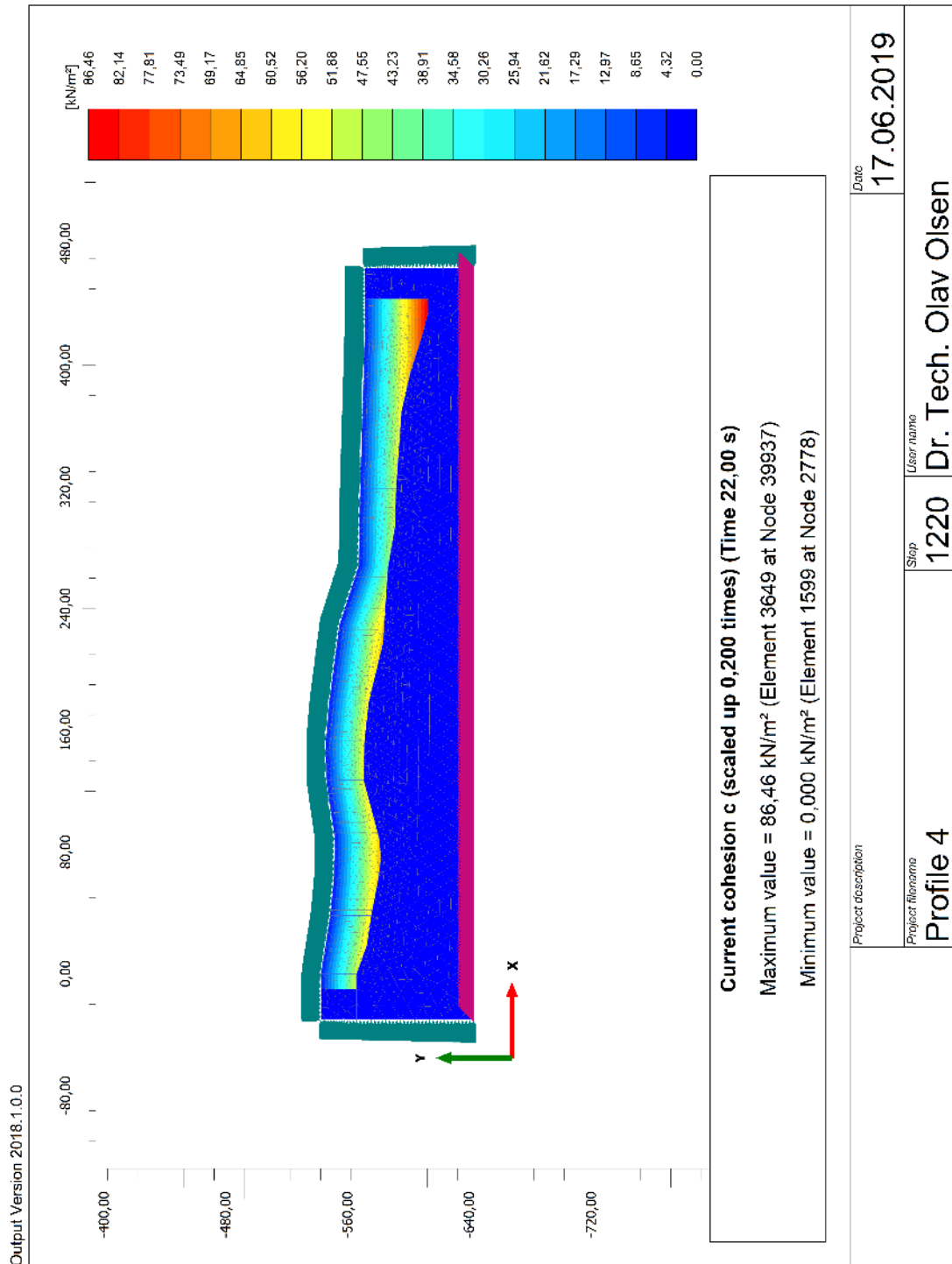


5 PROFILE 4

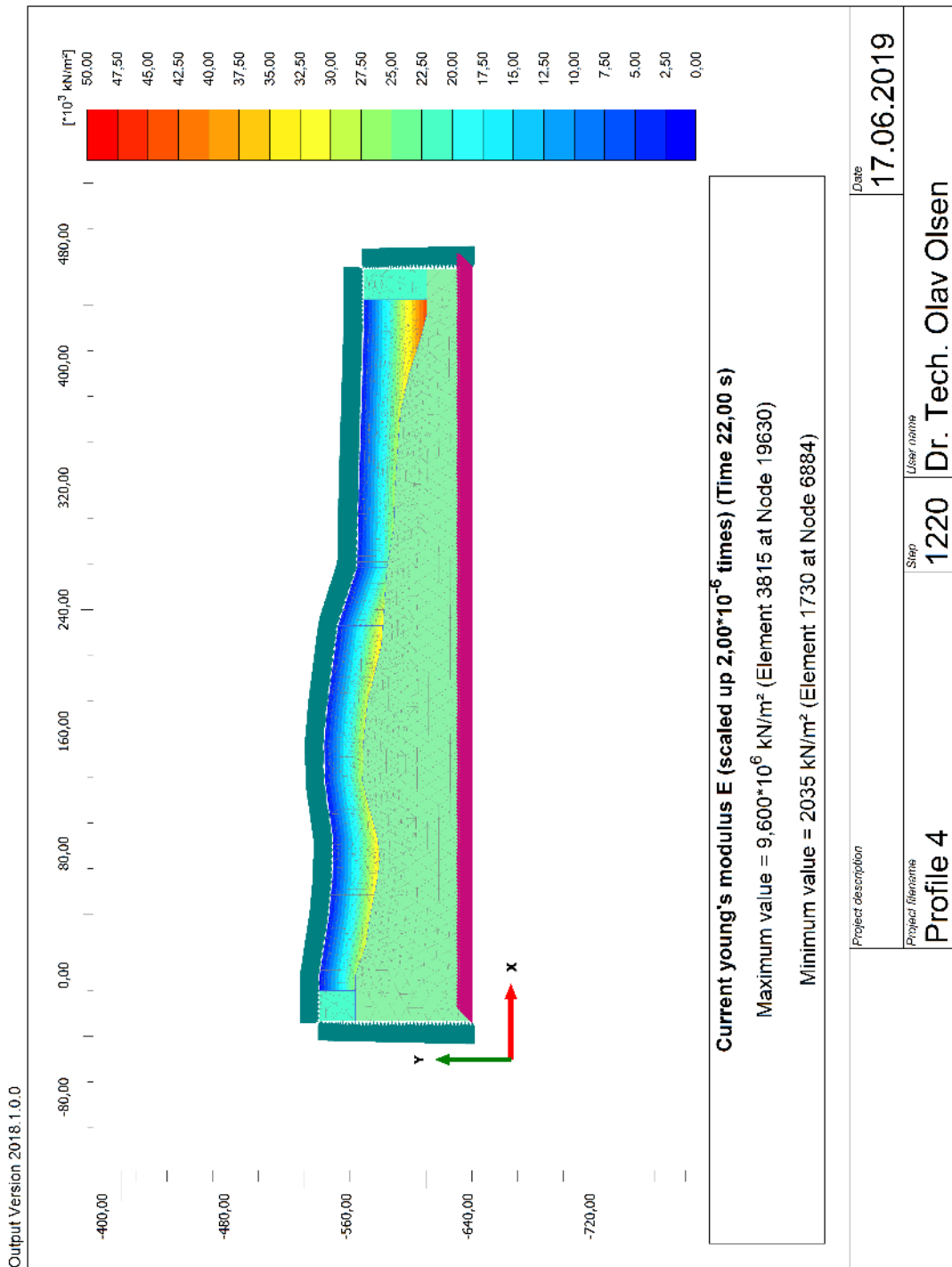
5.1 Model



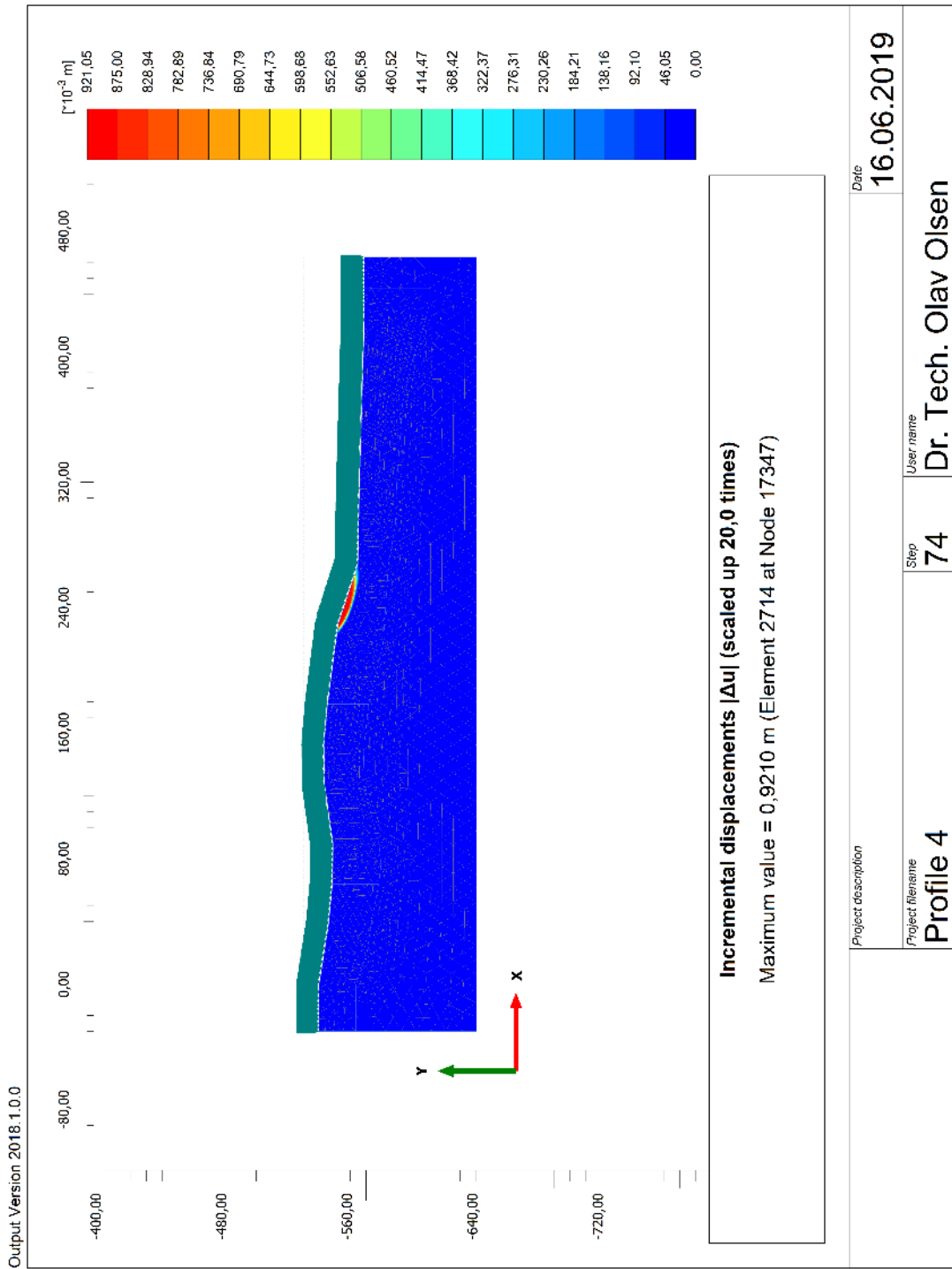
5.2 Cohesion



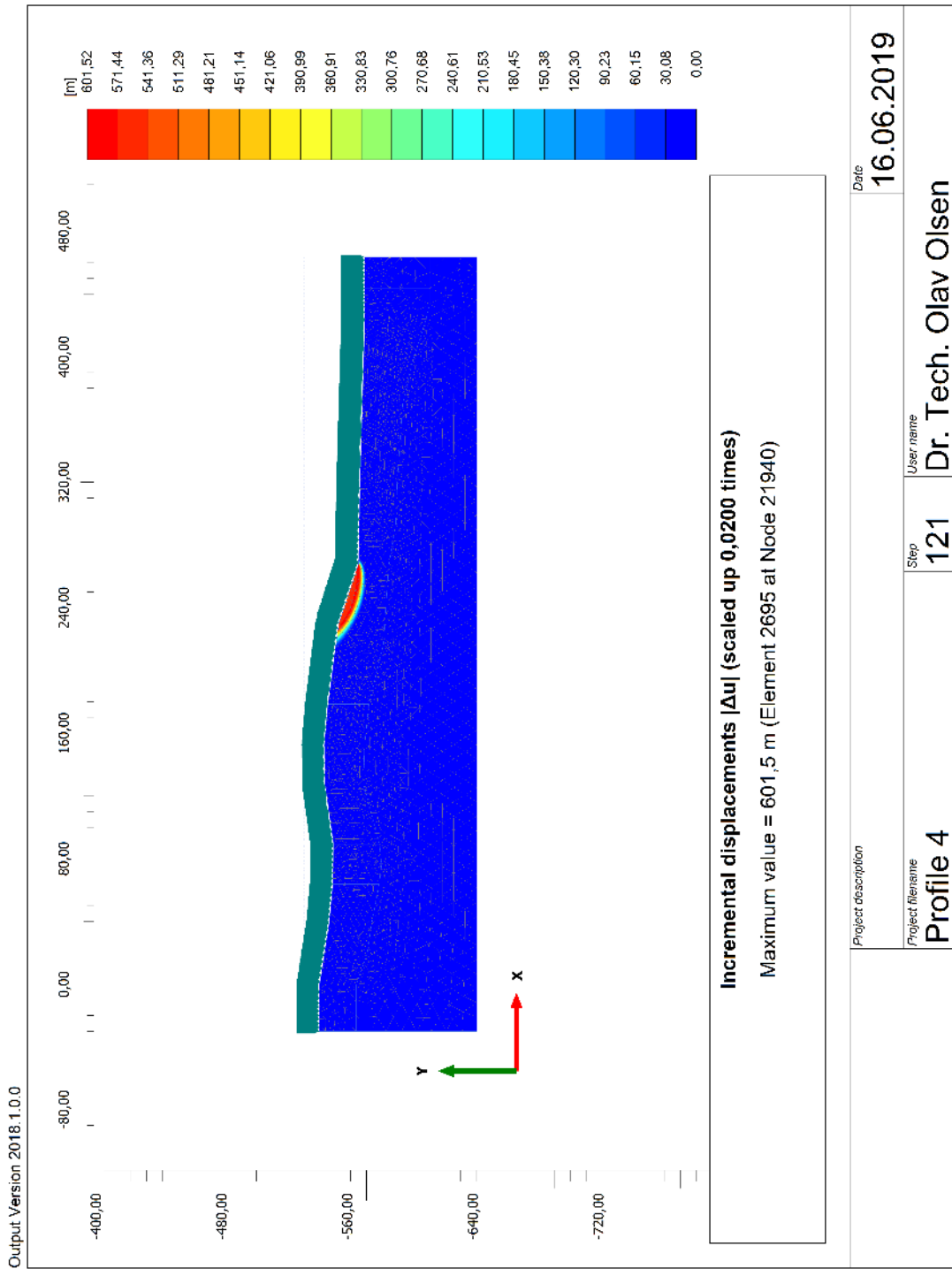
5.3 Stiffness



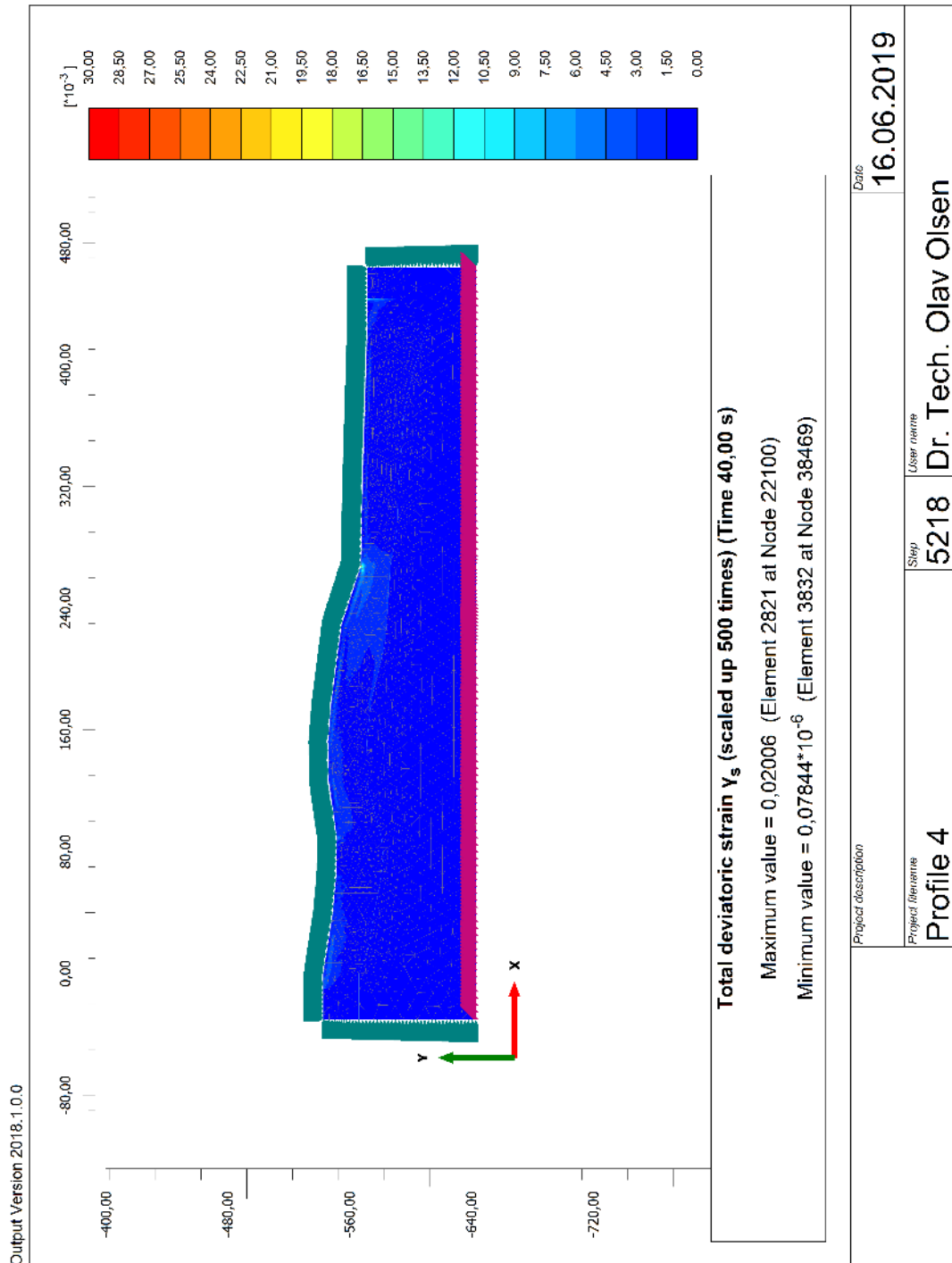
5.4 Drained failure



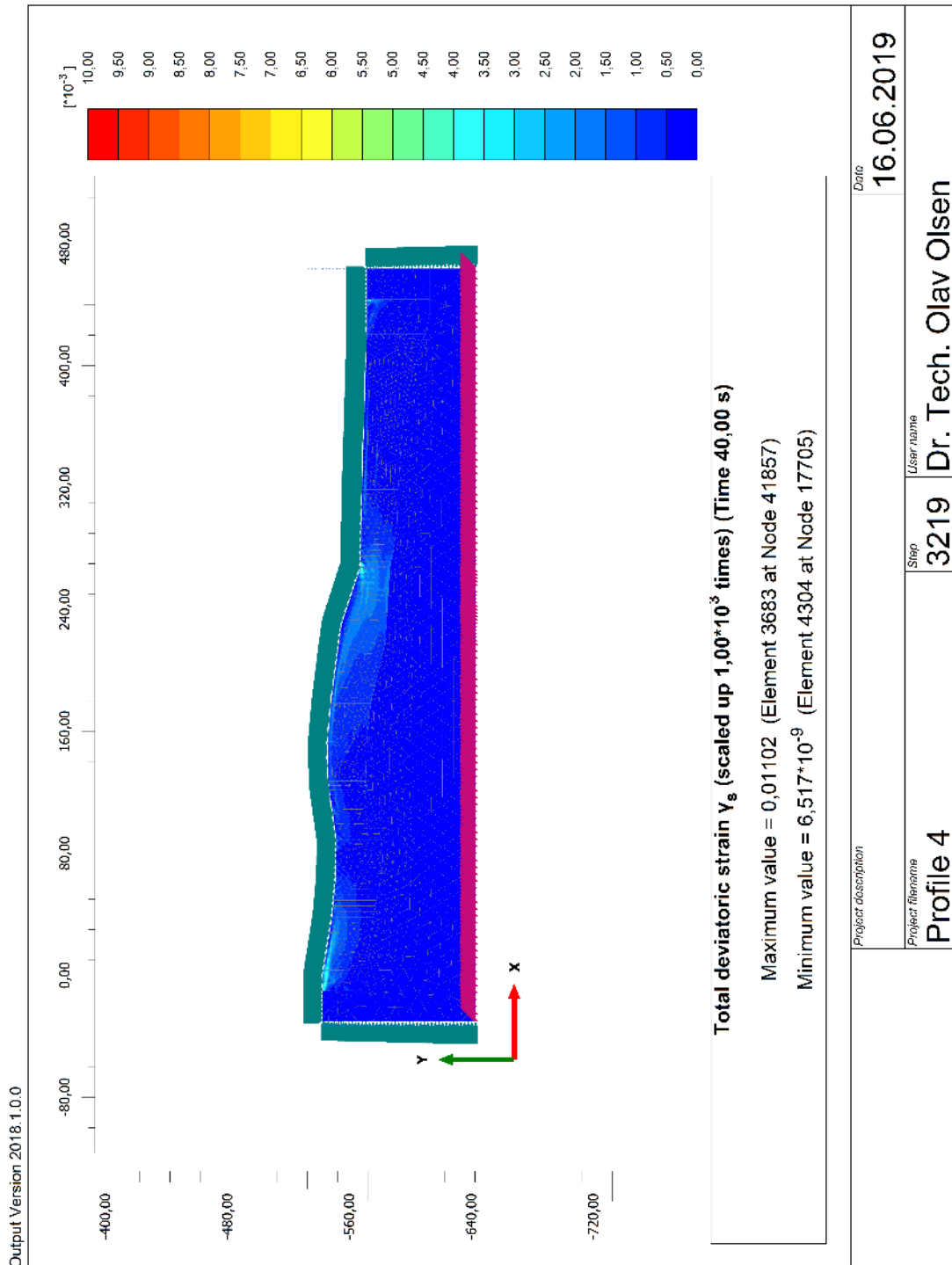
5.5 Undrained failure



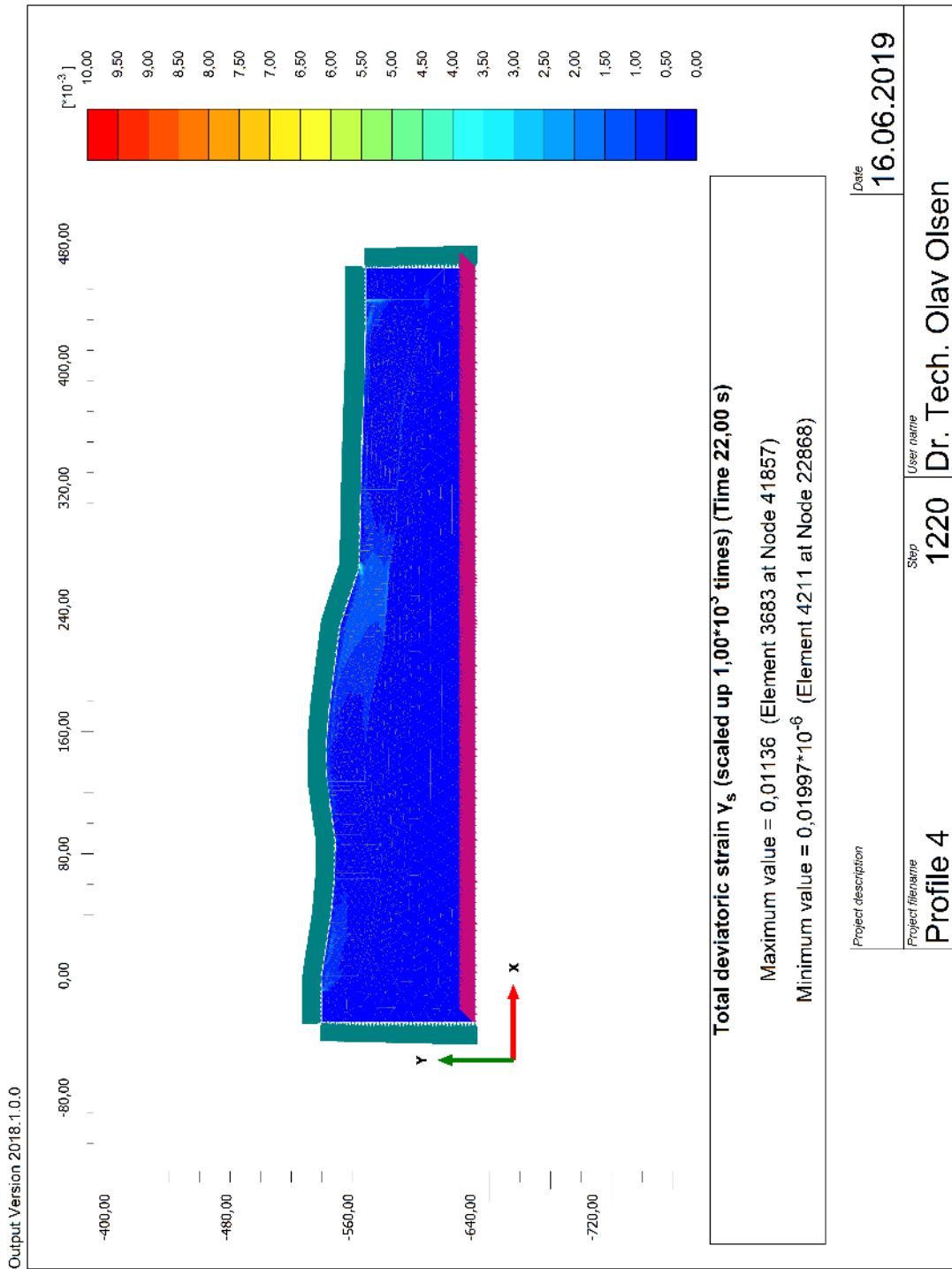
5.6 Permanent shear strain – Sierra Madre



5.7 Permanent shear strain – Whittier Narrows main shock

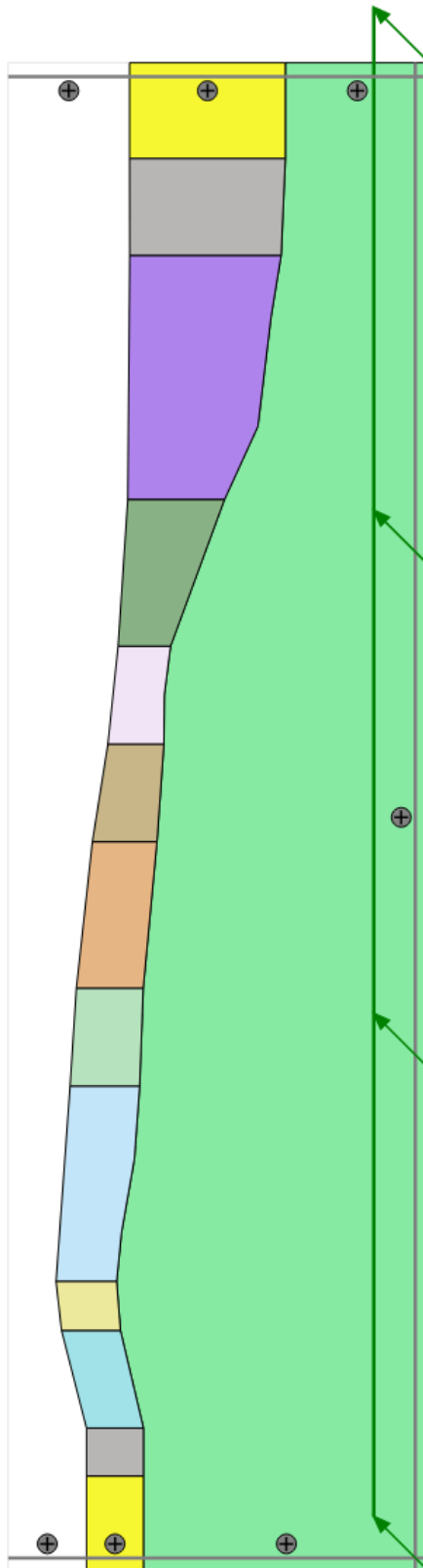


5.8 Permanent shear strain – Whittier aftershock

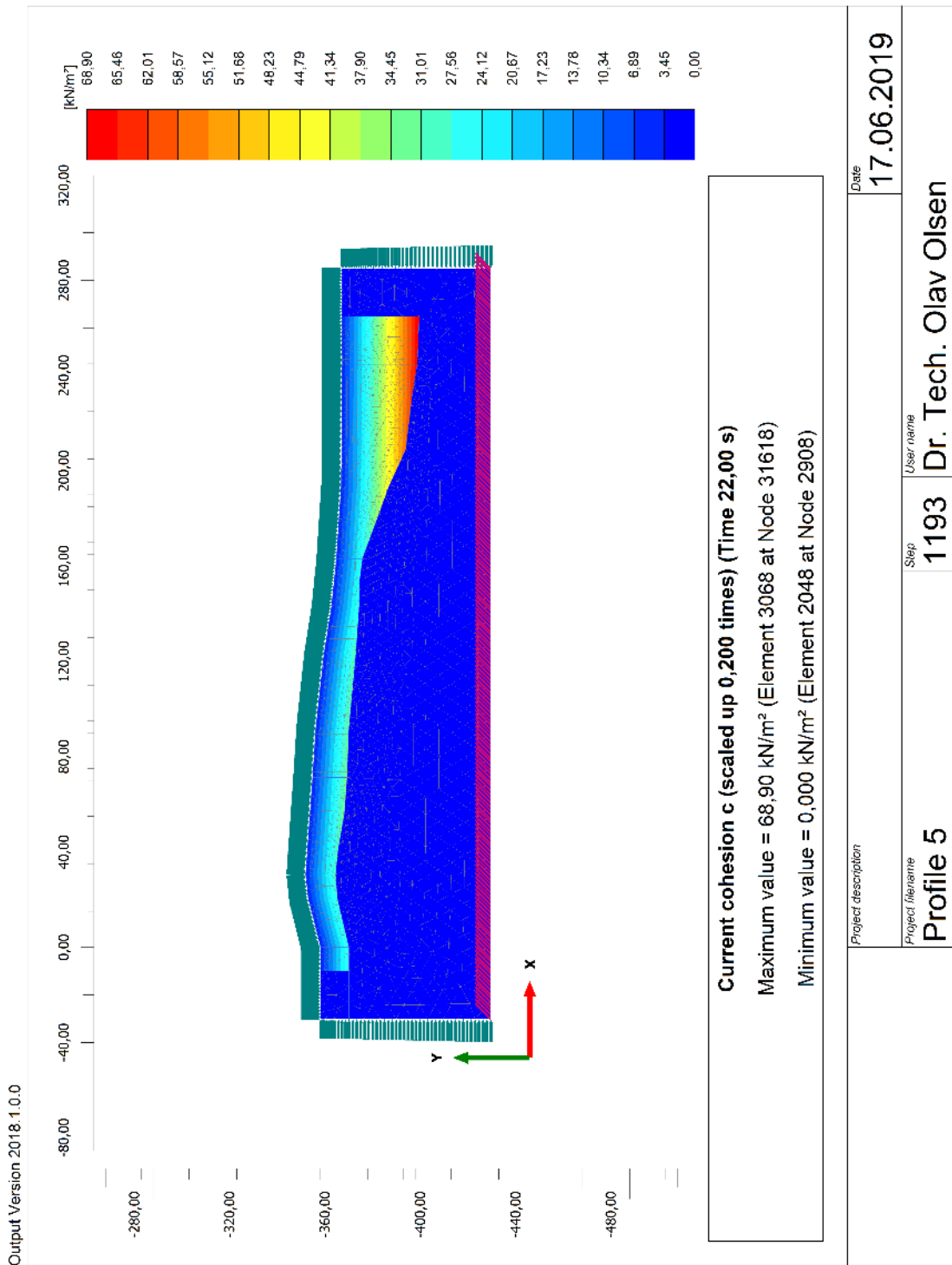


6 PROFILE 5

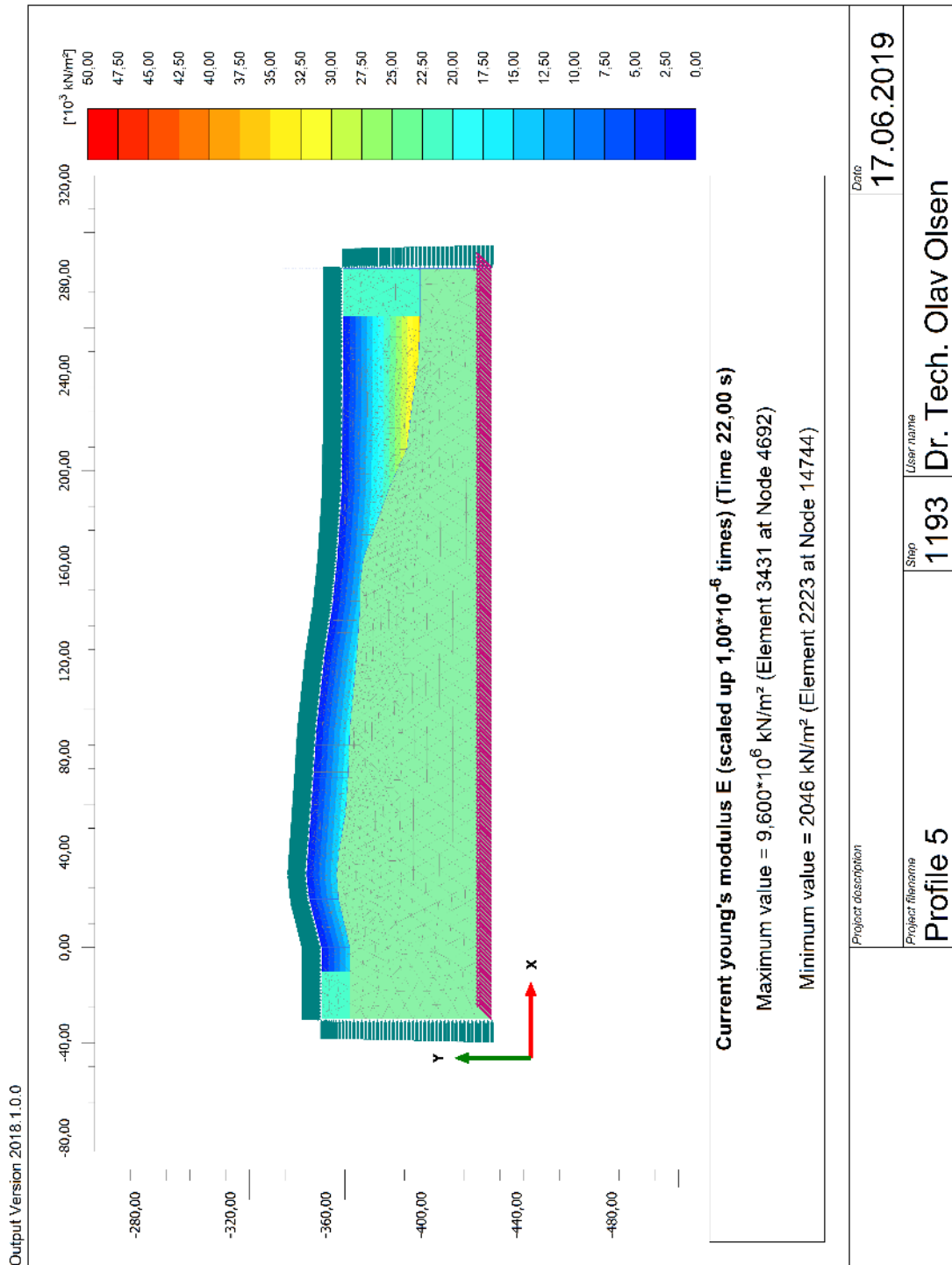
6.1 Model



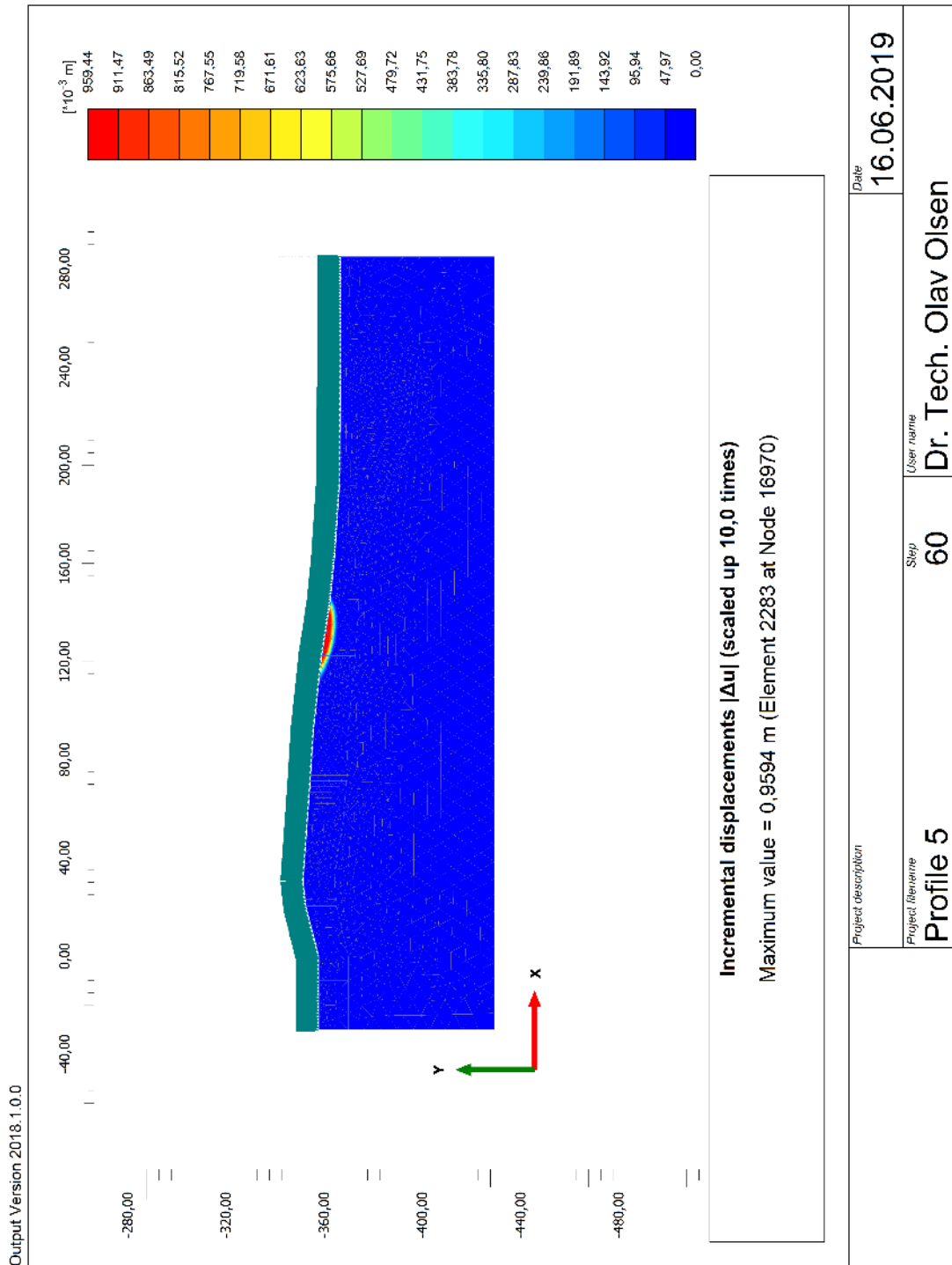
6.2 Cohesion



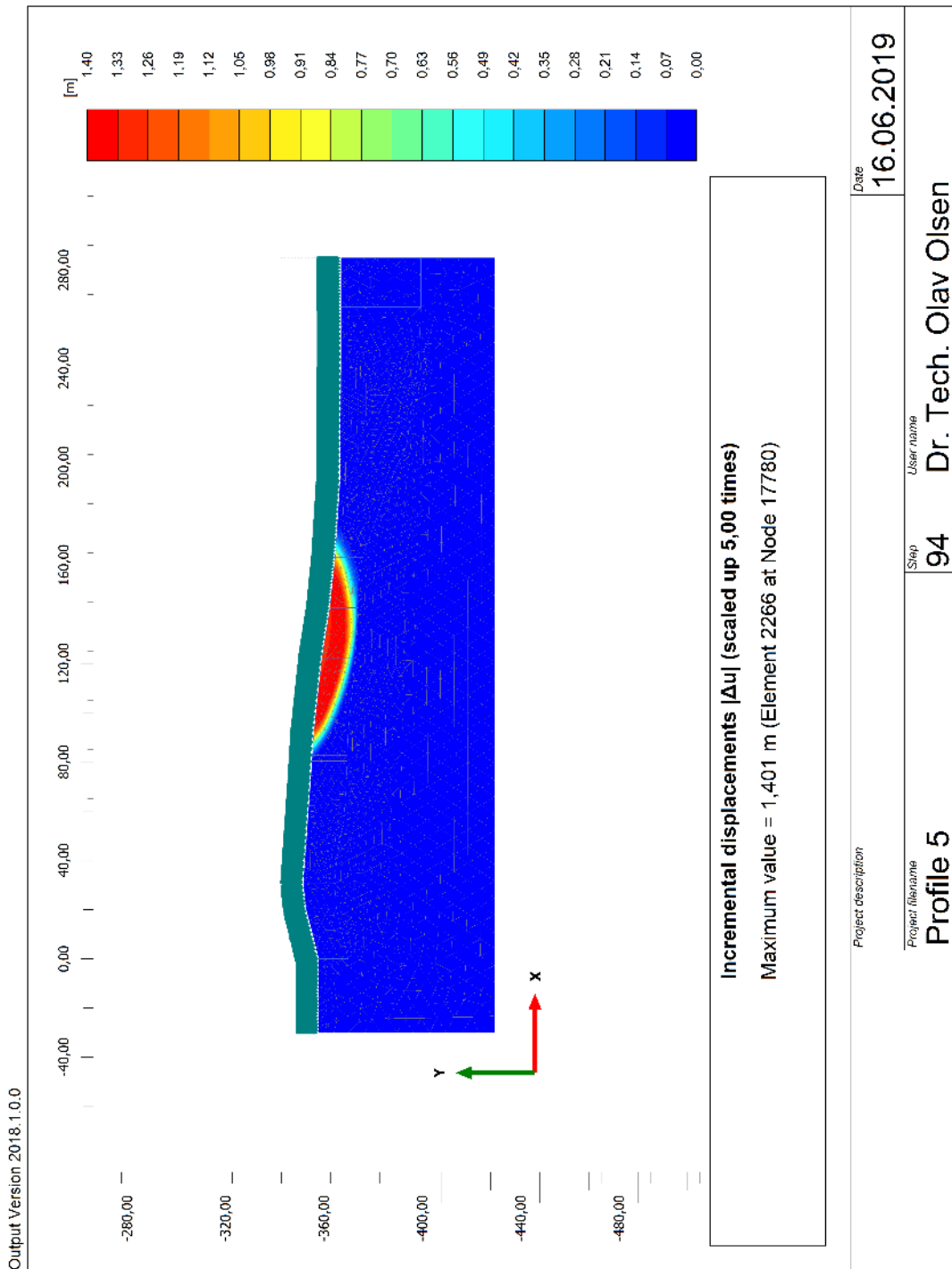
6.3 Stiffness



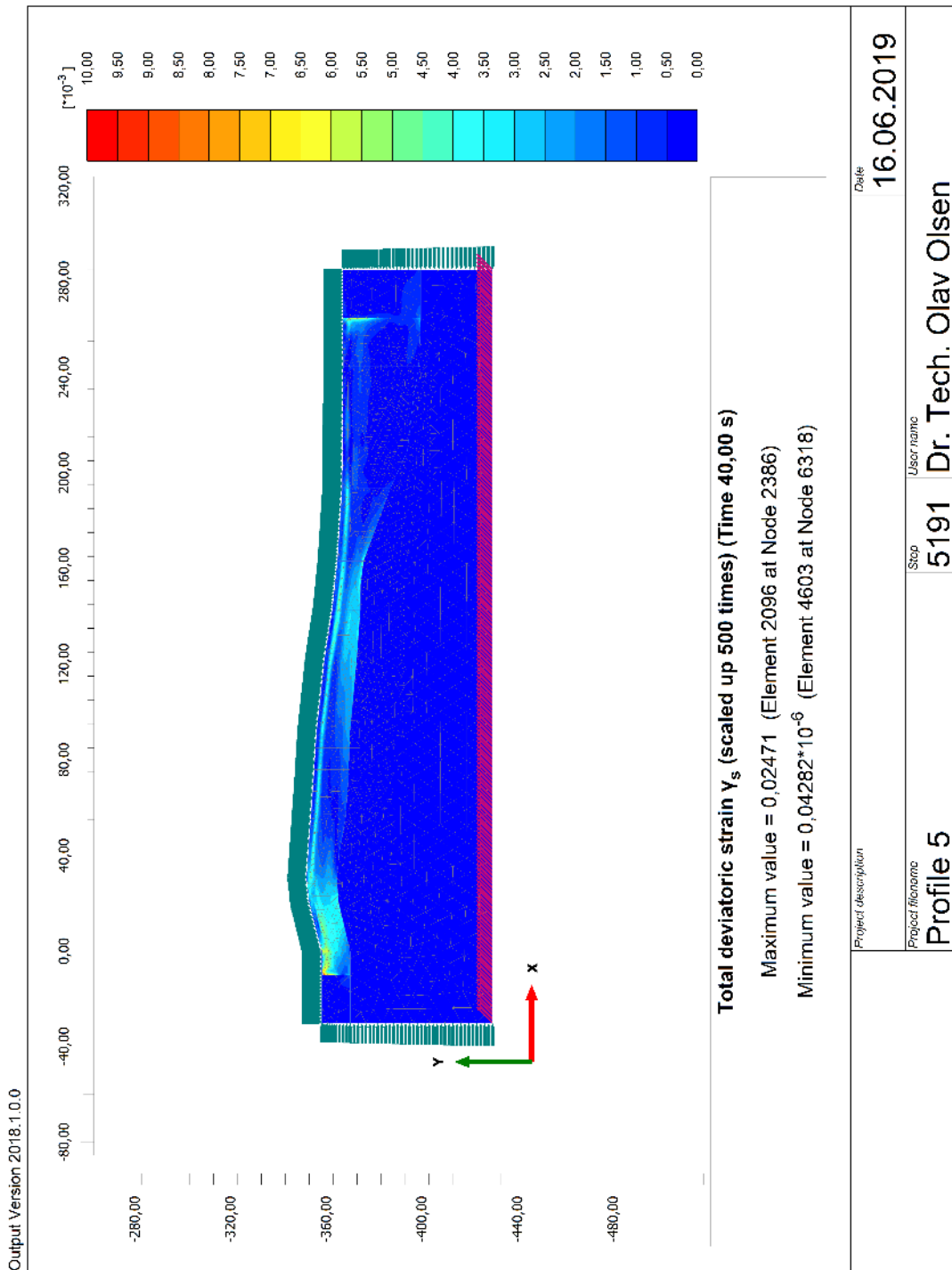
6.4 Drained failure



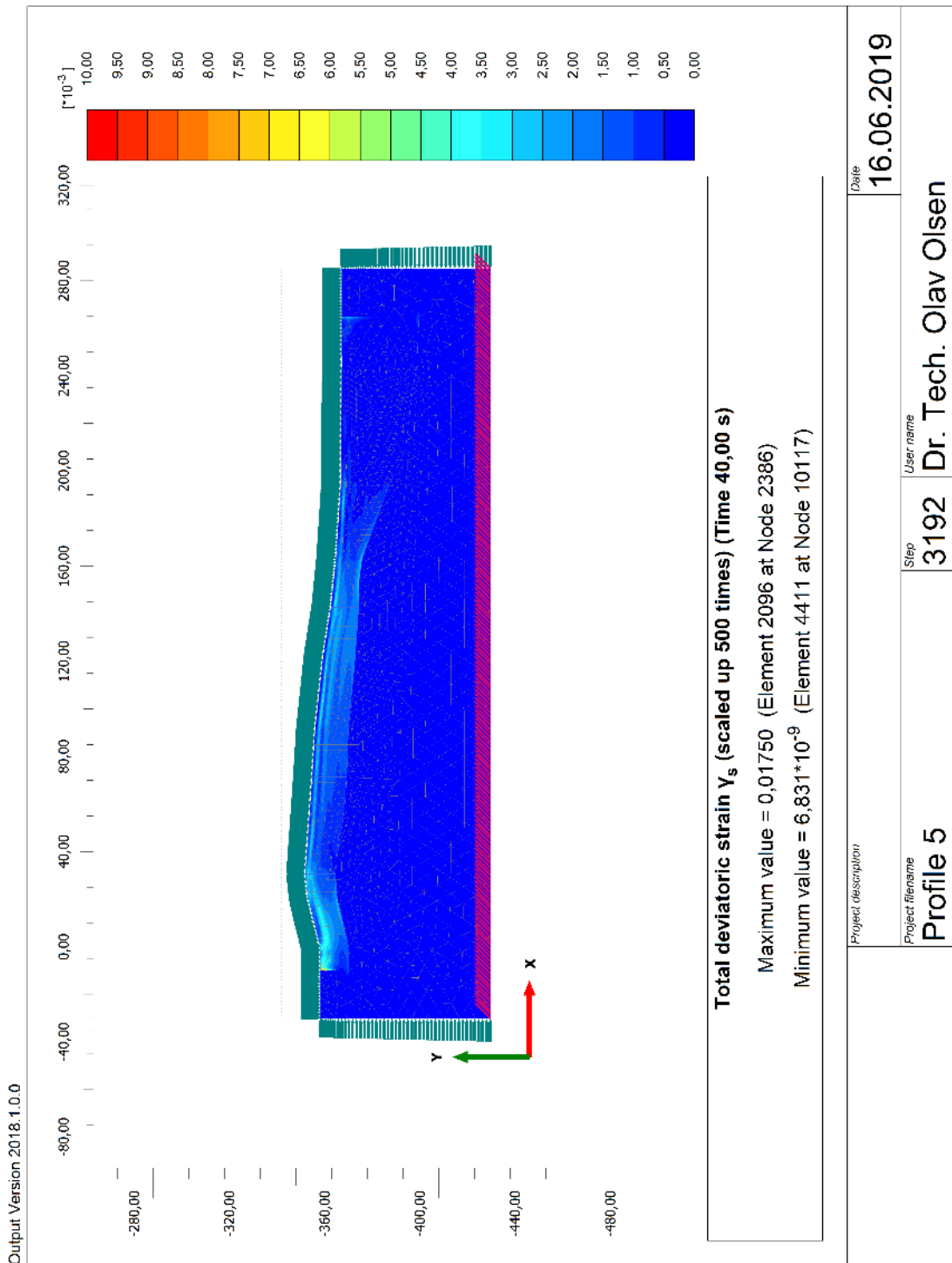
6.5 Undrained failure



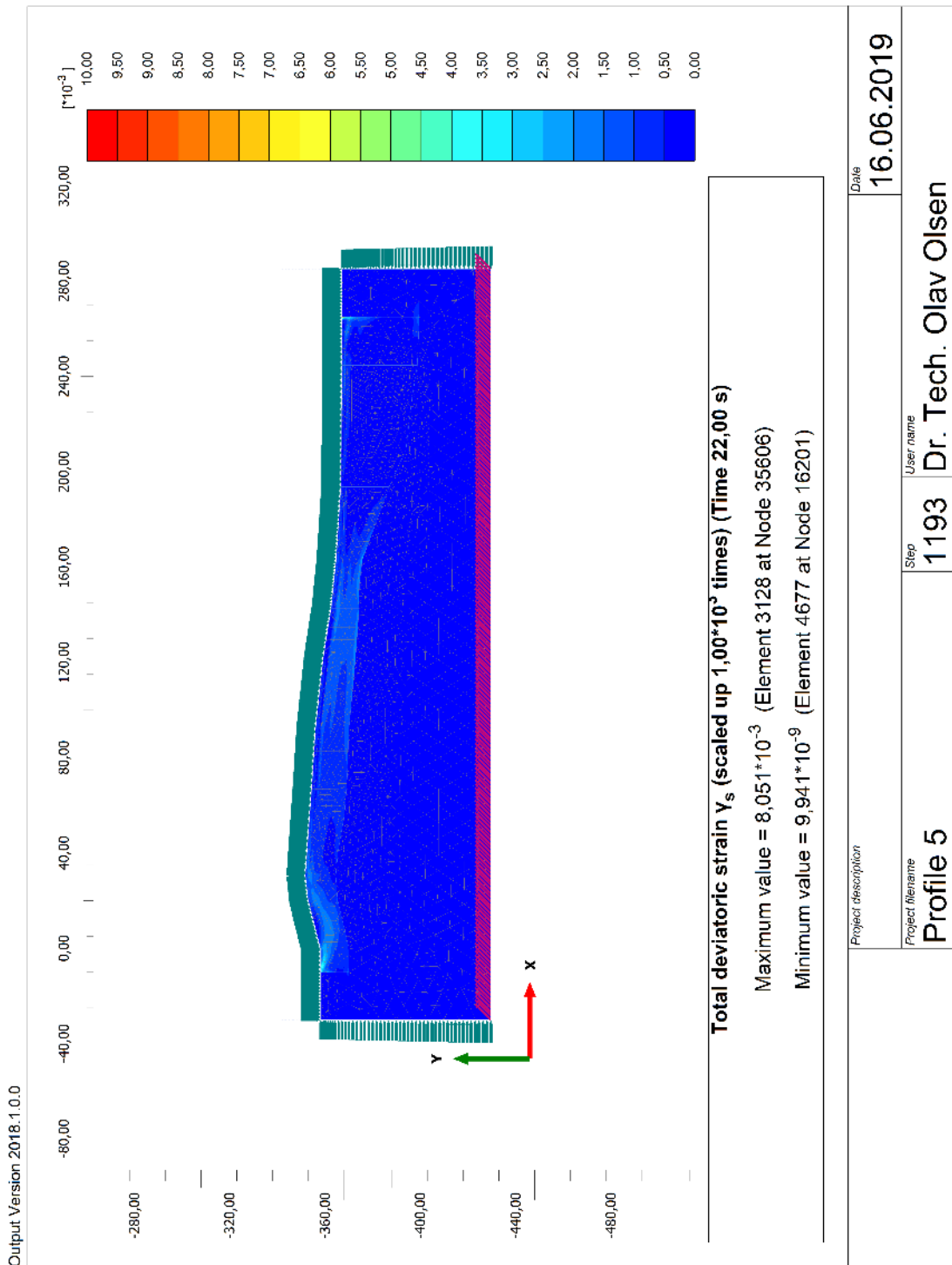
6.6 Permanent shear strain – Sierra Madre



6.7 Permanent shear strain – Whittier Narrows main shock

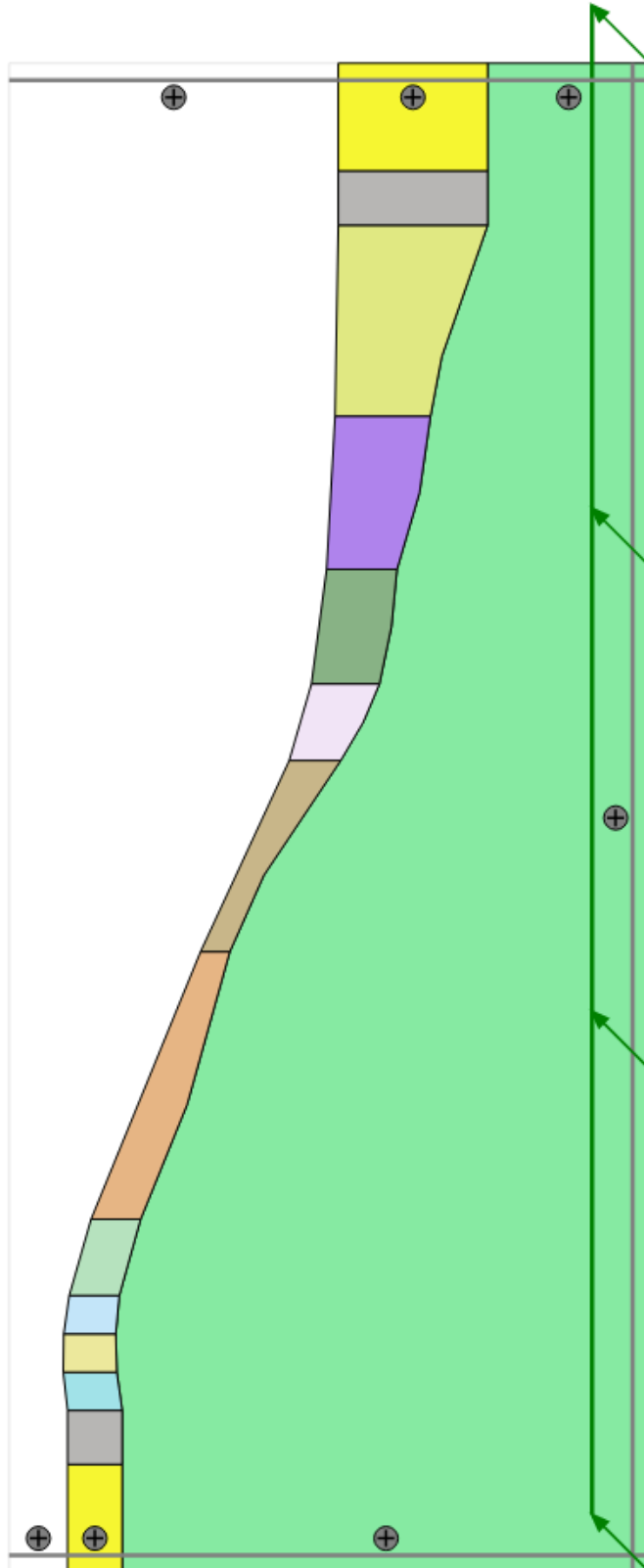


6.8 Permanent shear strain – Whittier aftershock

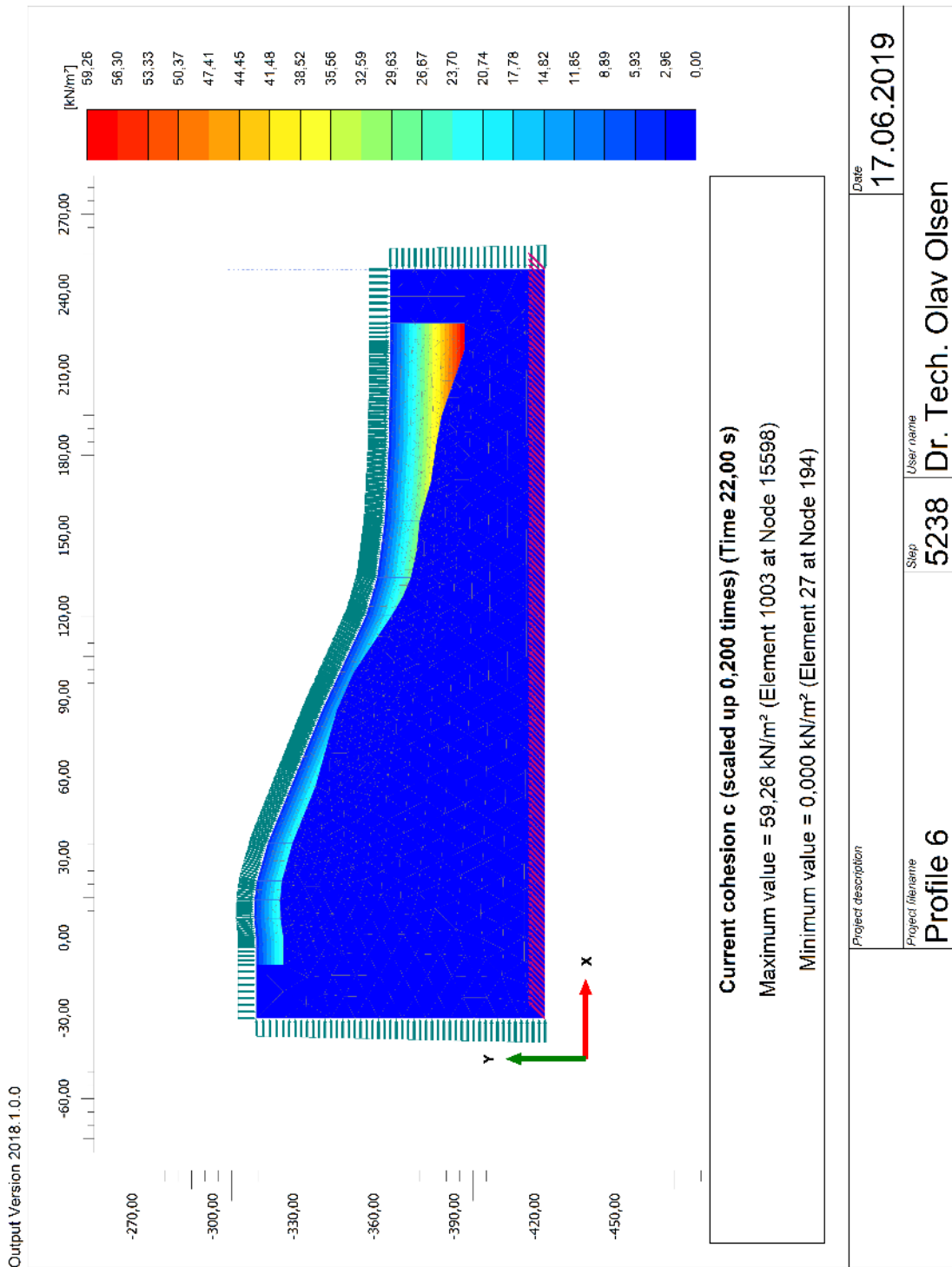


7 PROFILE 6

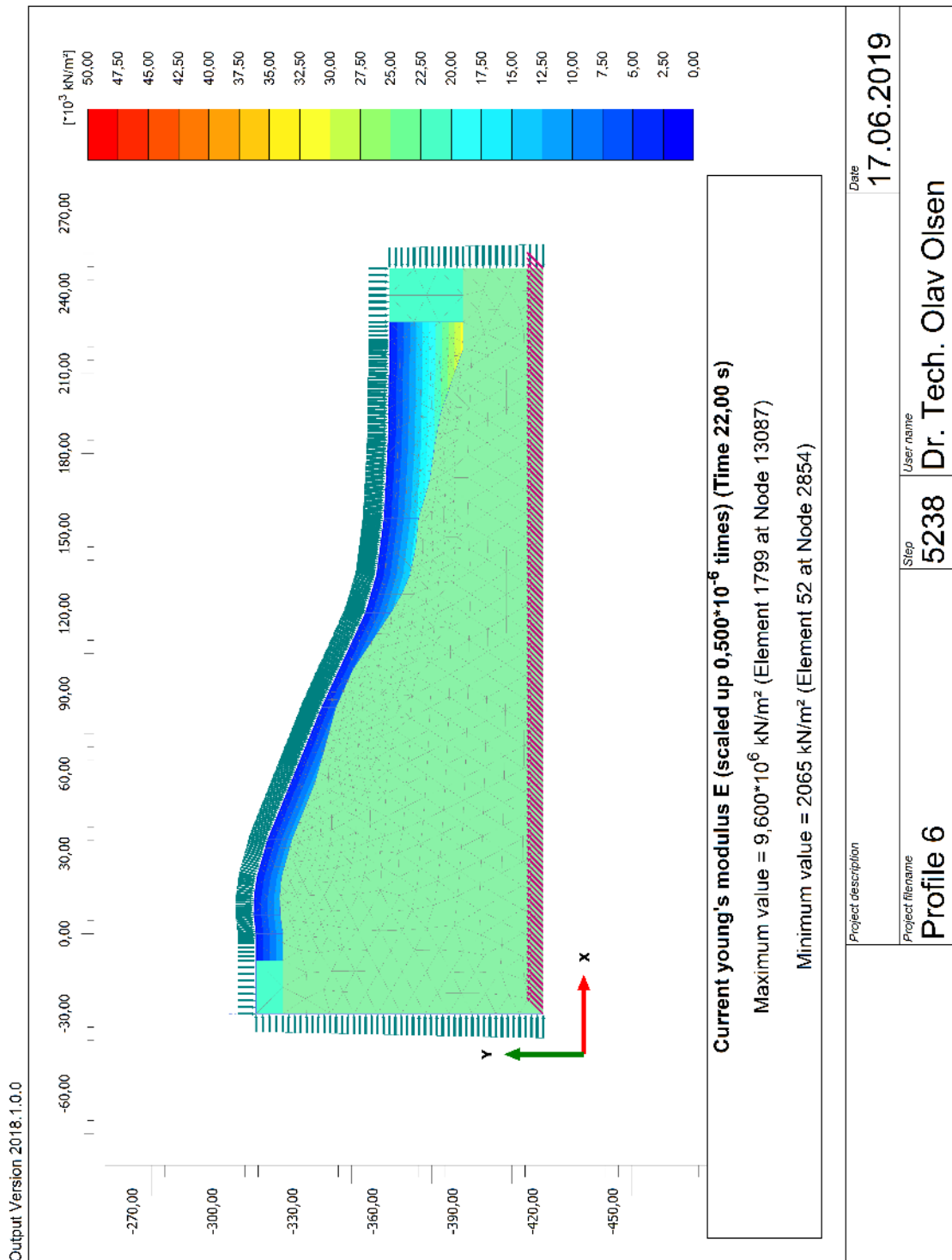
7.1 Model



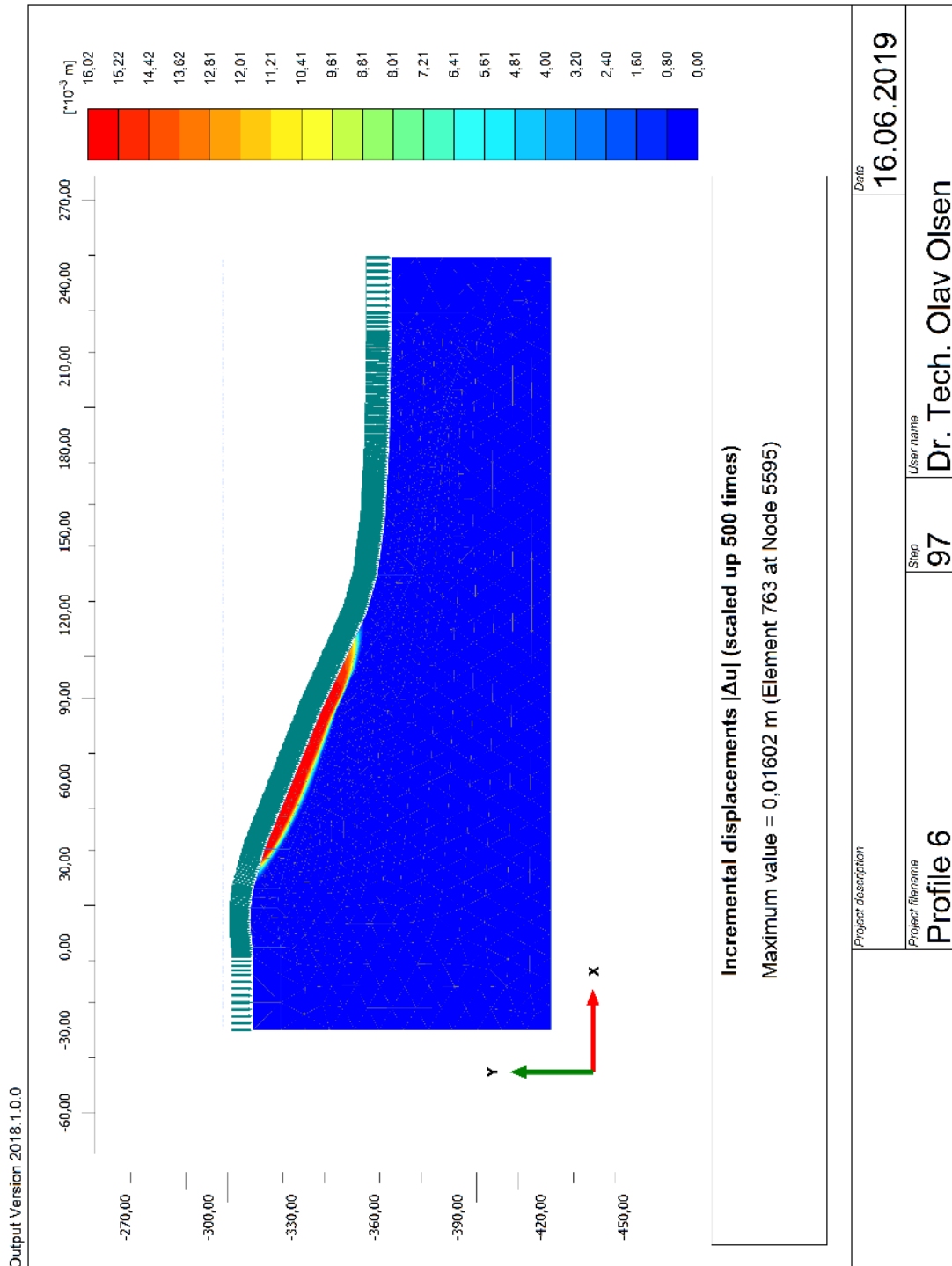
7.2 Cohesion



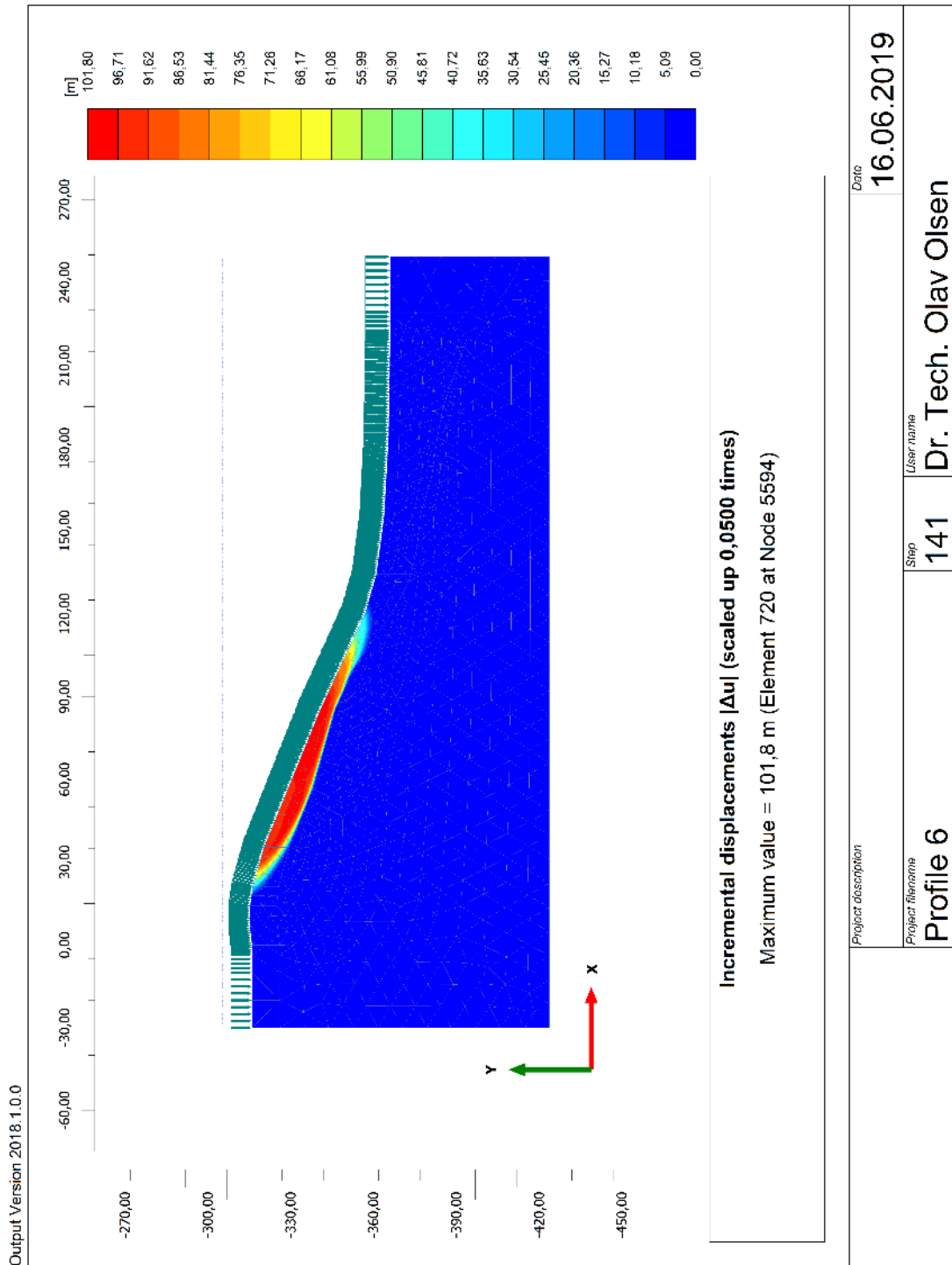
7.3 Stiffness



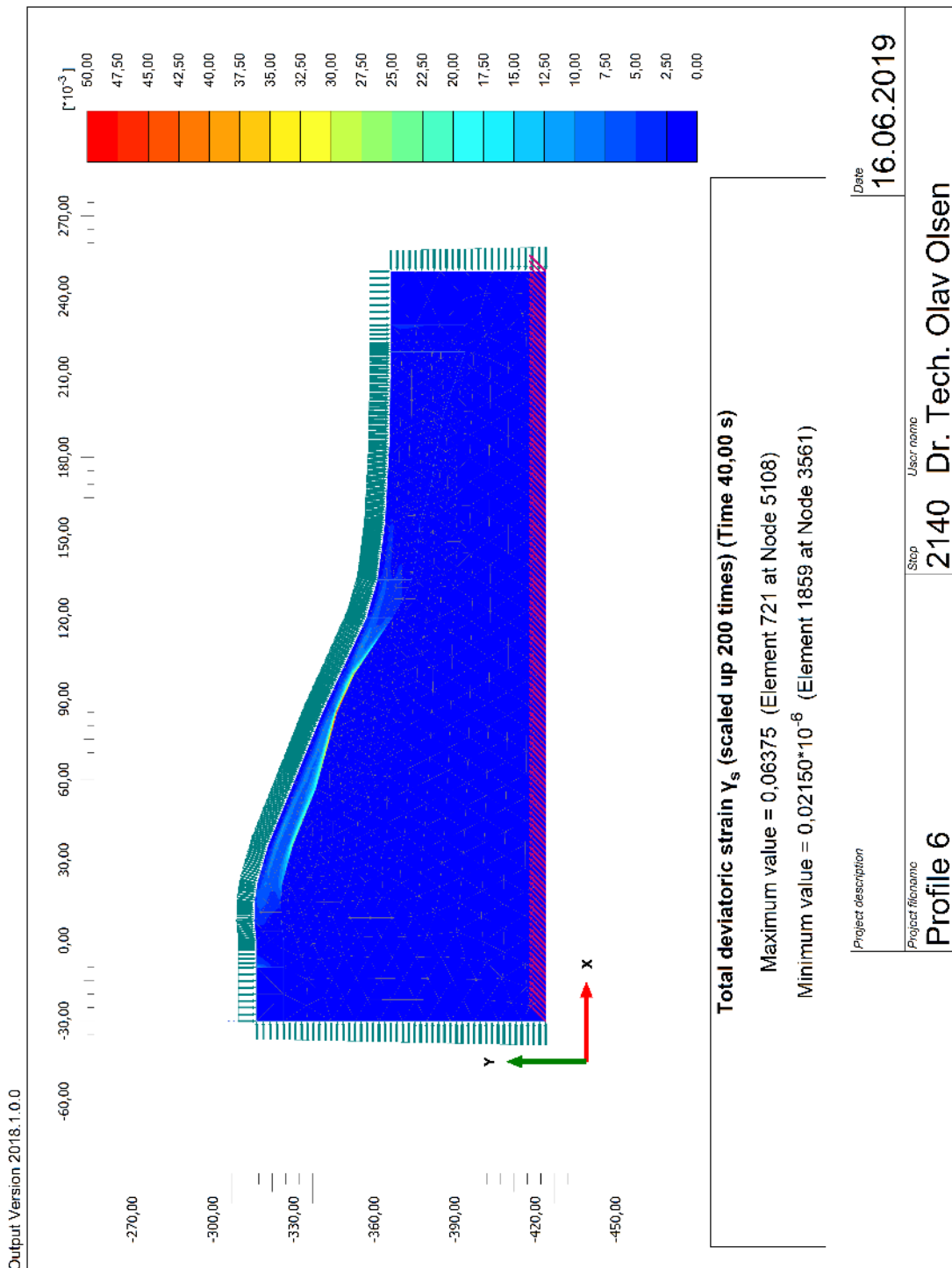
7.4 Drained failure



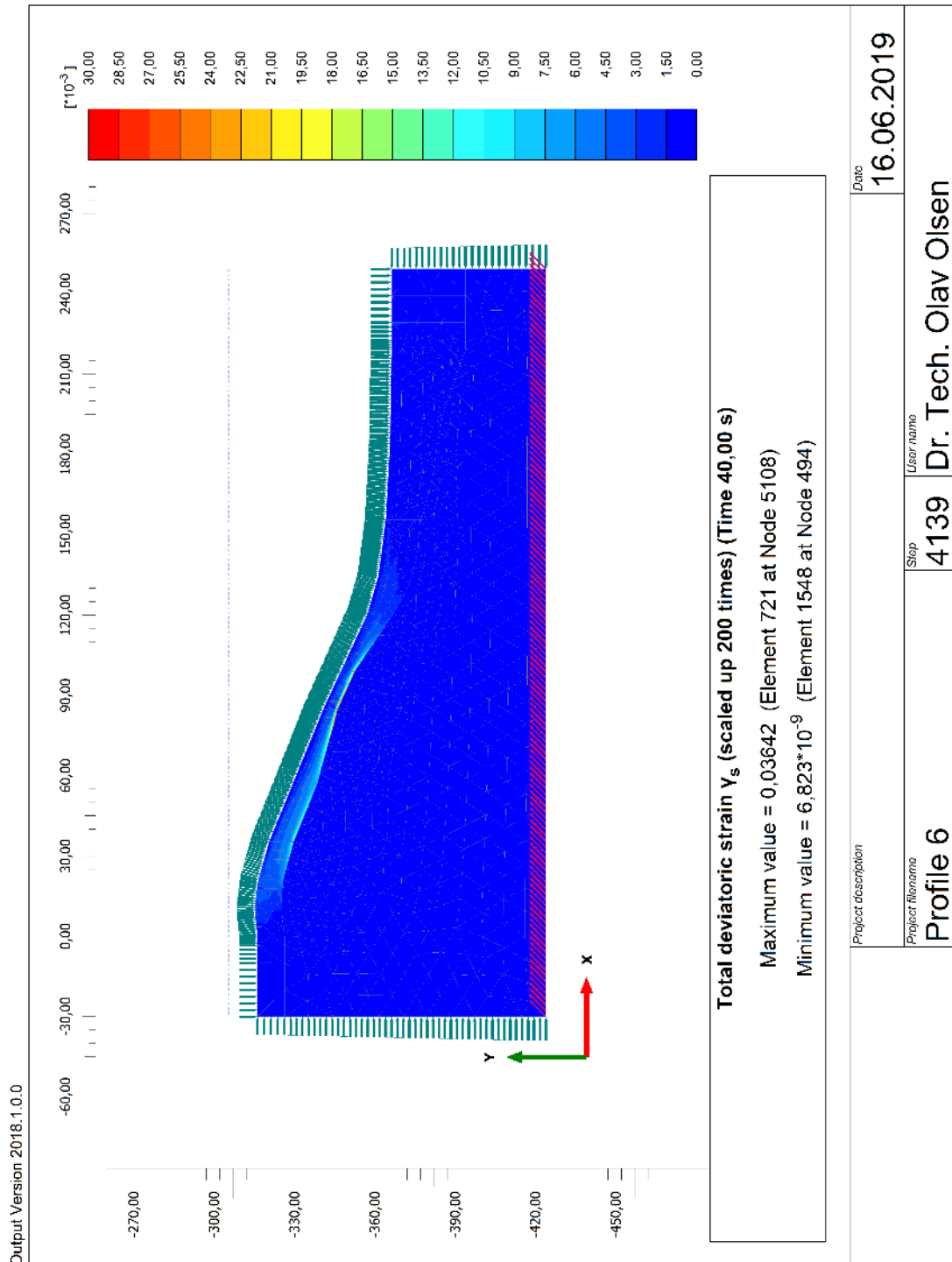
7.5 Undrained failure



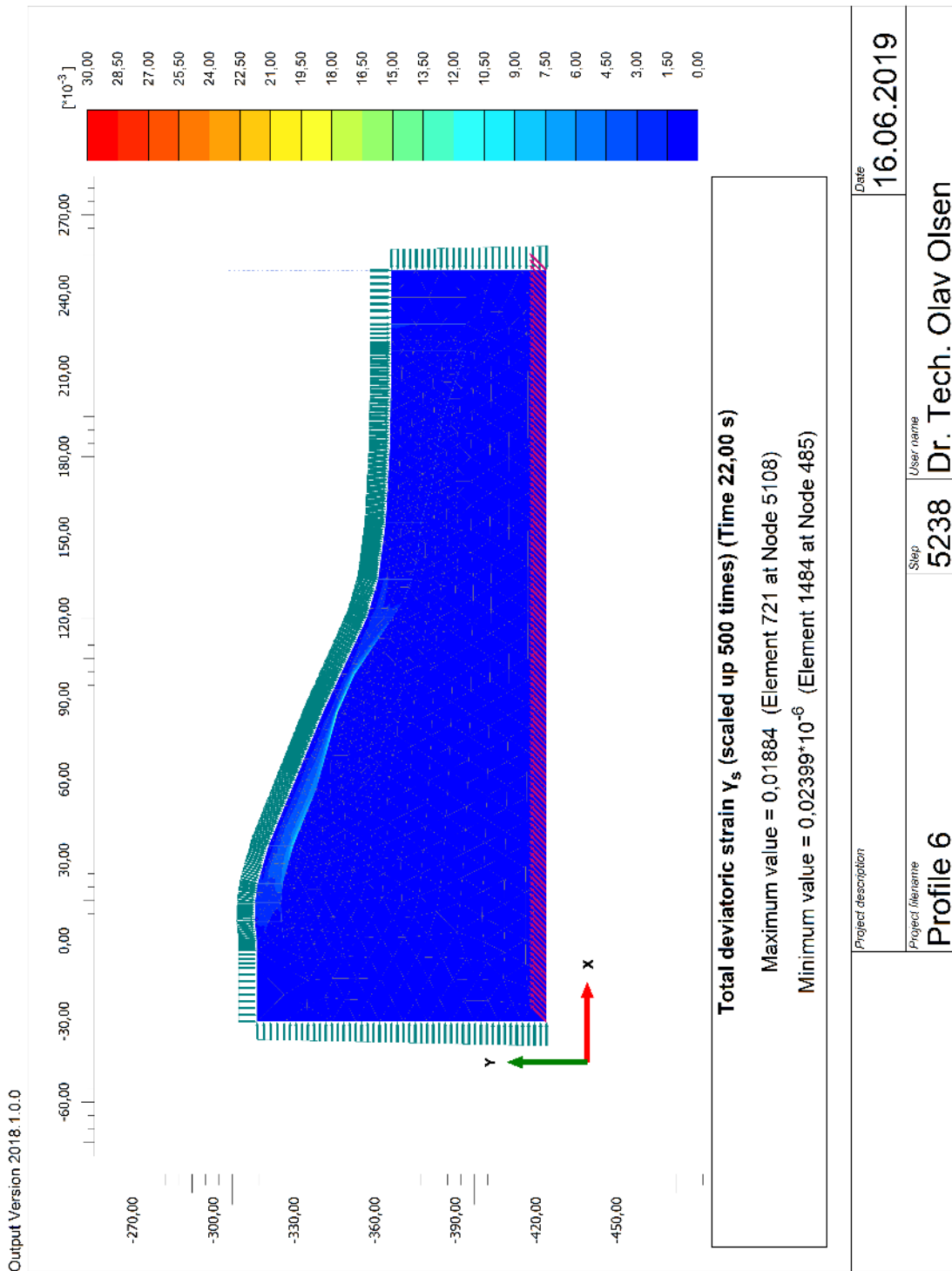
7.6 Permanent shear strain – Sierra Madre



7.7 Permanent shear strain – Whittier Narrows main shock

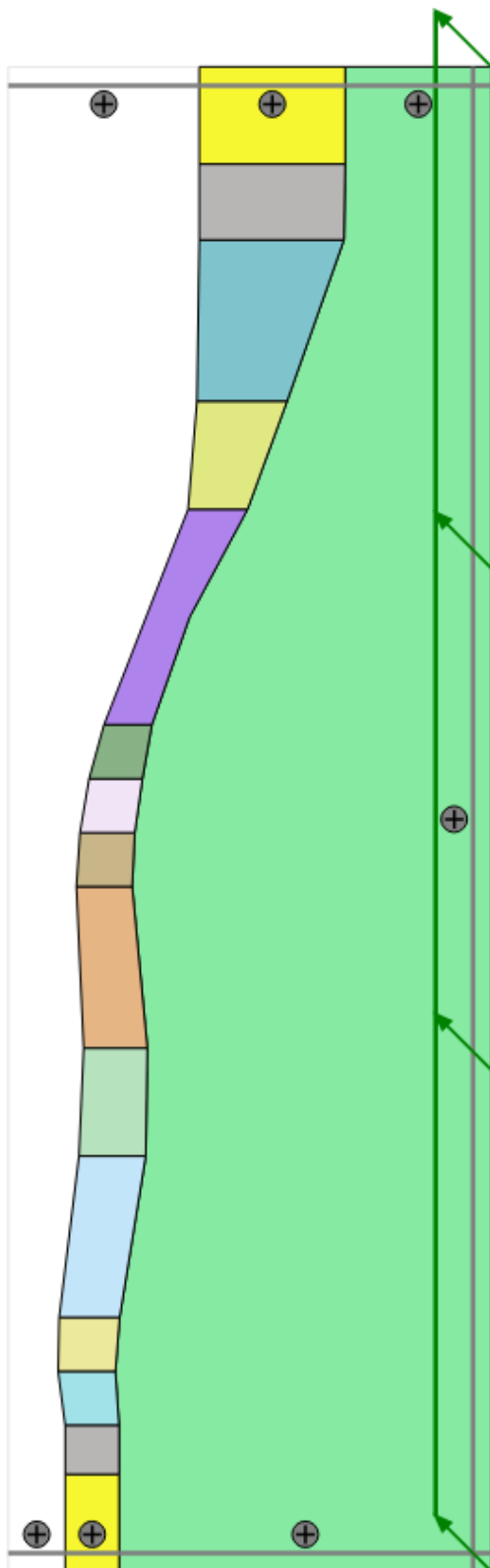


7.8 Permanent shear strain – Whittier aftershock

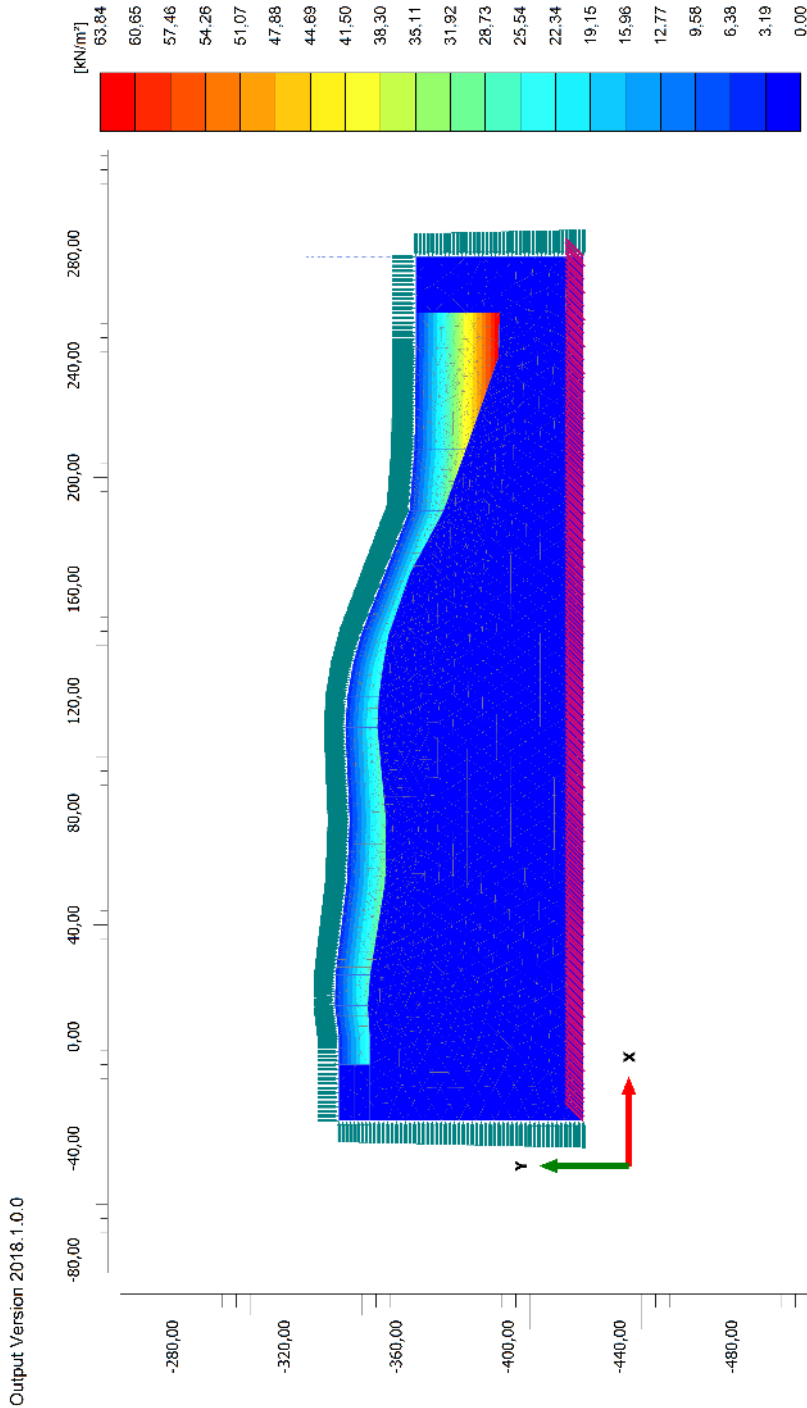


8 PROFILE 7

8.1 Model



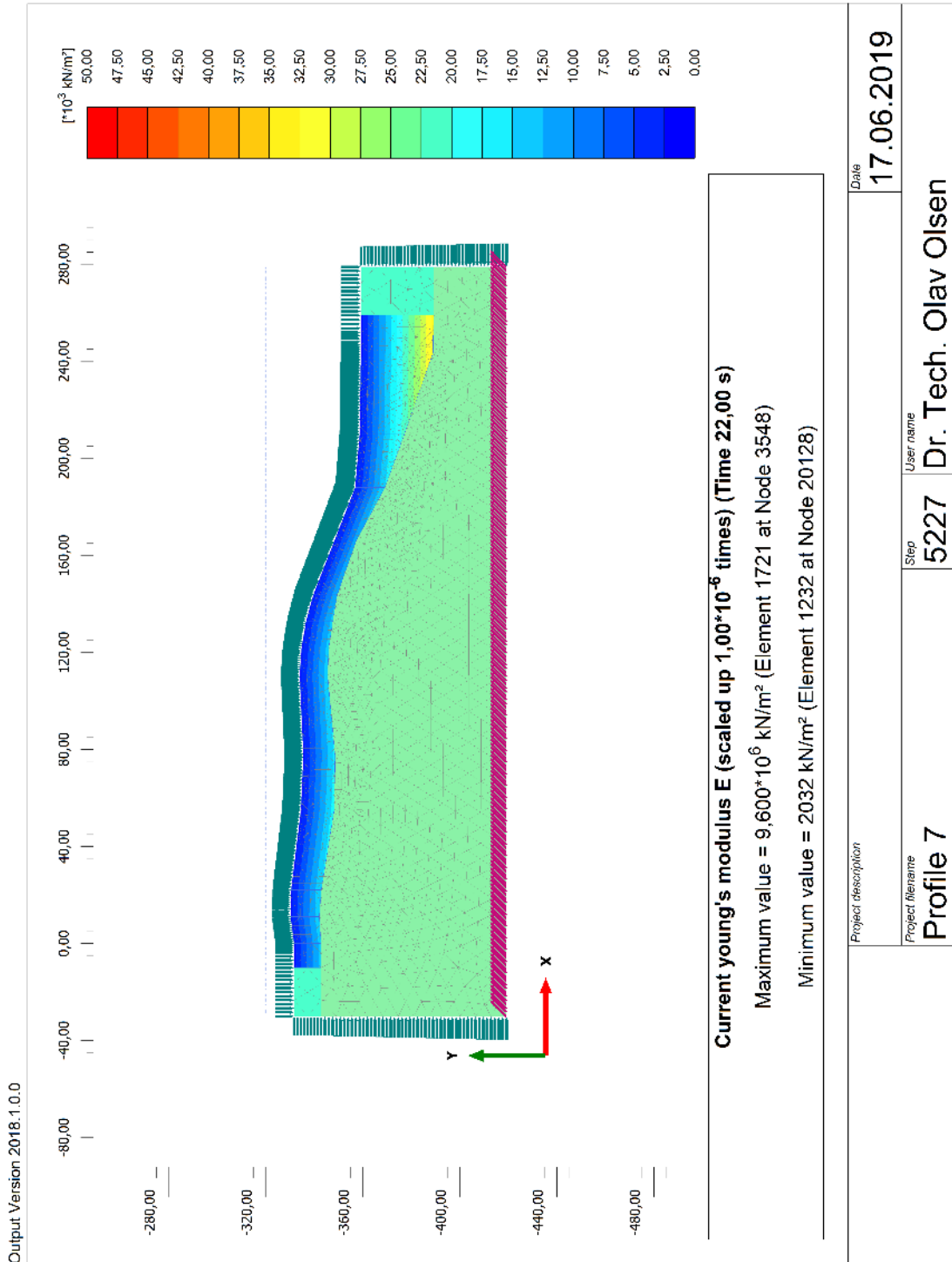
8.2 Cohesion



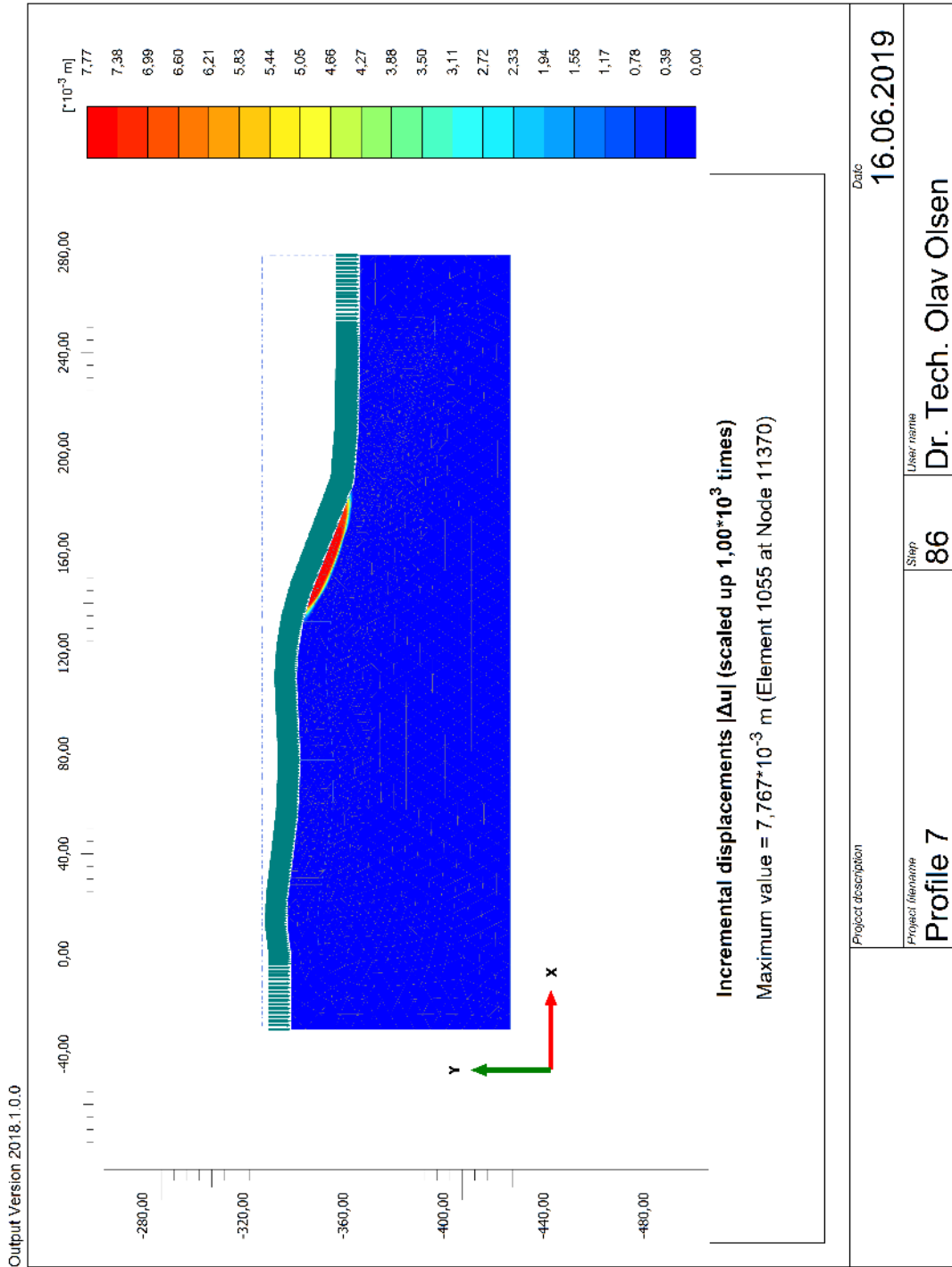
Current cohesion c (scaled up 0,200 times) (Time 22,00 s)
 Maximum value = 63,84 kN/m² (Element 1587 at Node 27369)
 Minimum value = 0,00 kN/m² (Element 720 at Node 371)

Project description		Date
Profile 7		17.06.2019
Step	User name	
5227	Dr. Tech. Olav Olsen	

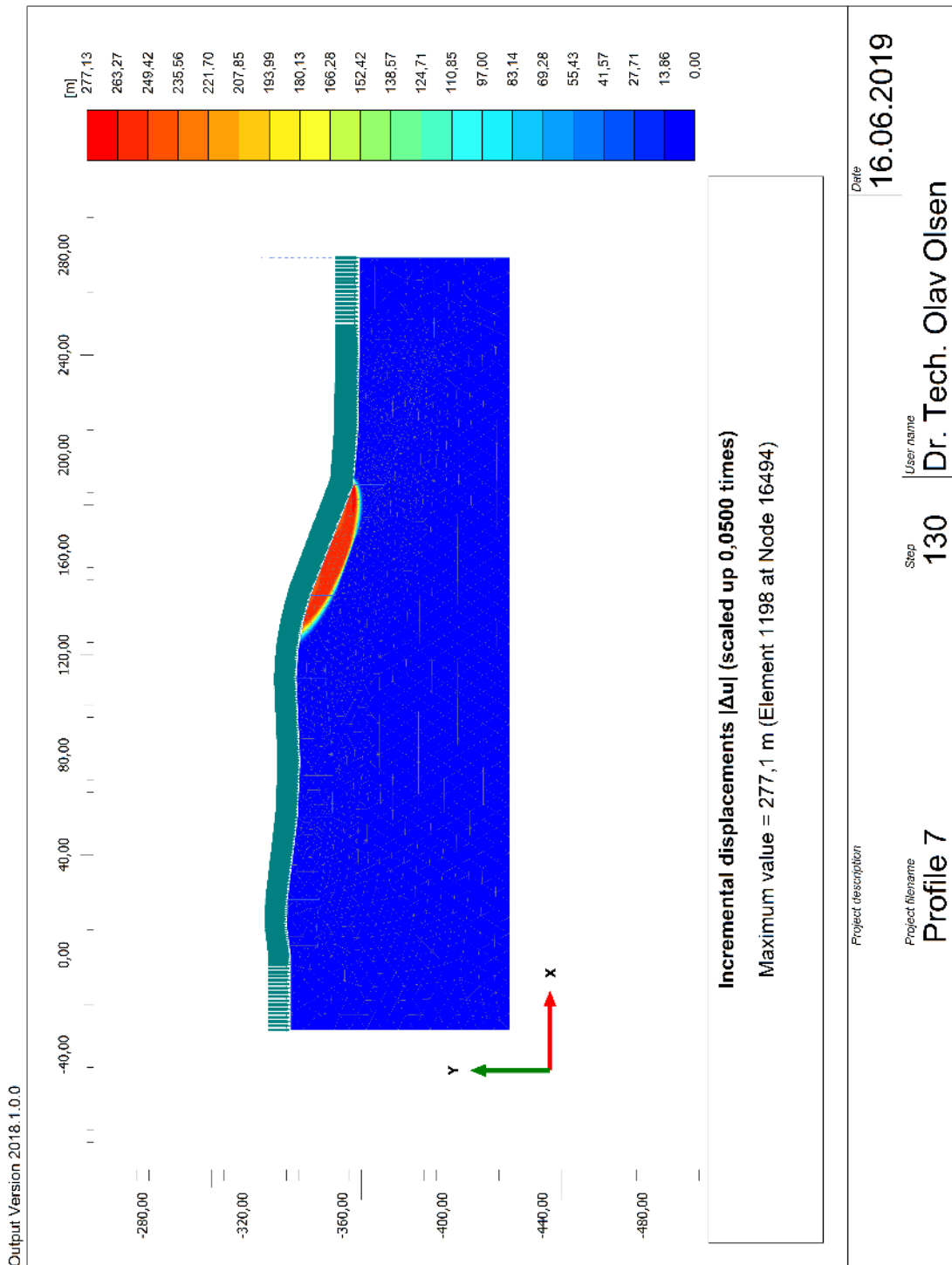
8.3 Stiffness



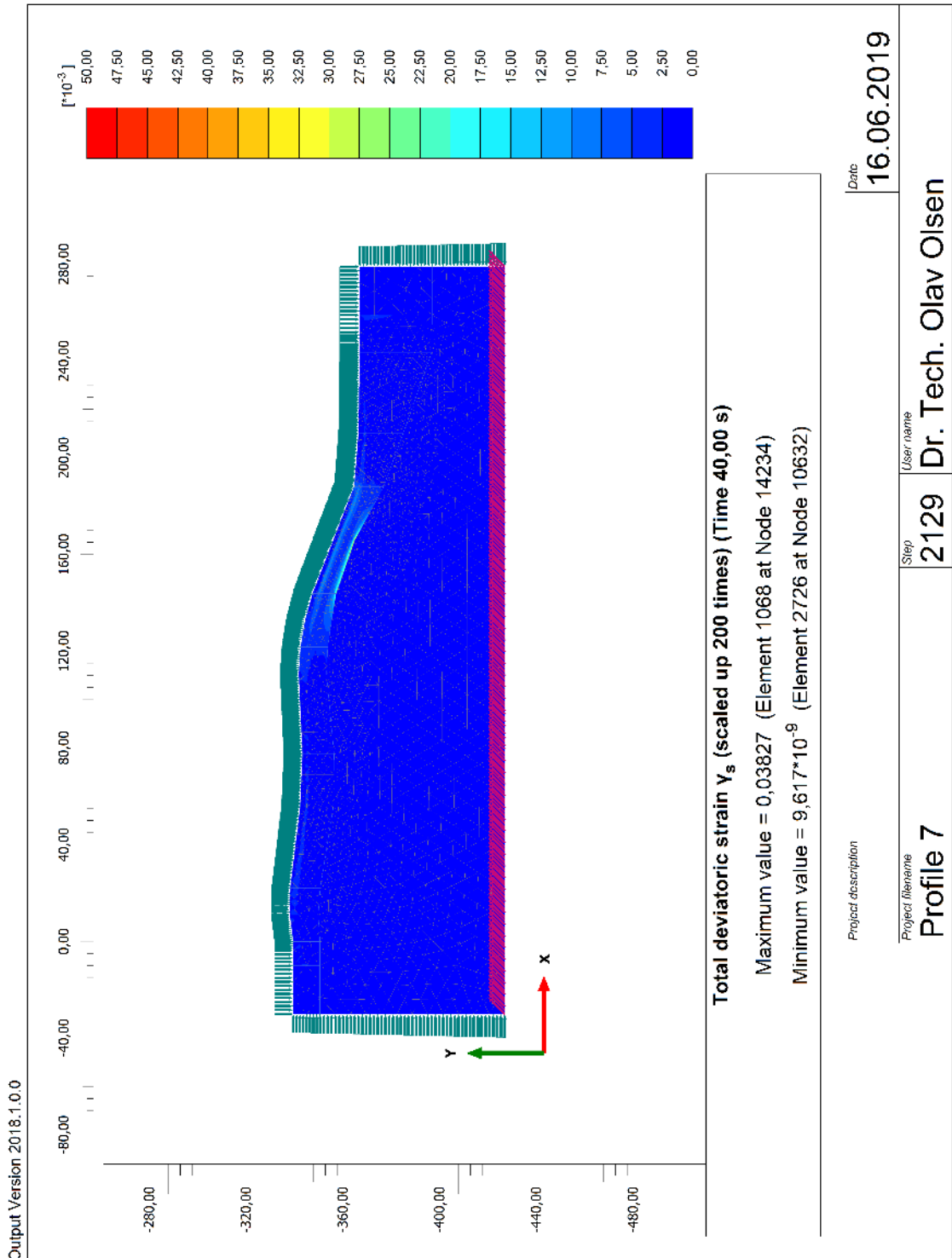
8.4 Drained failure



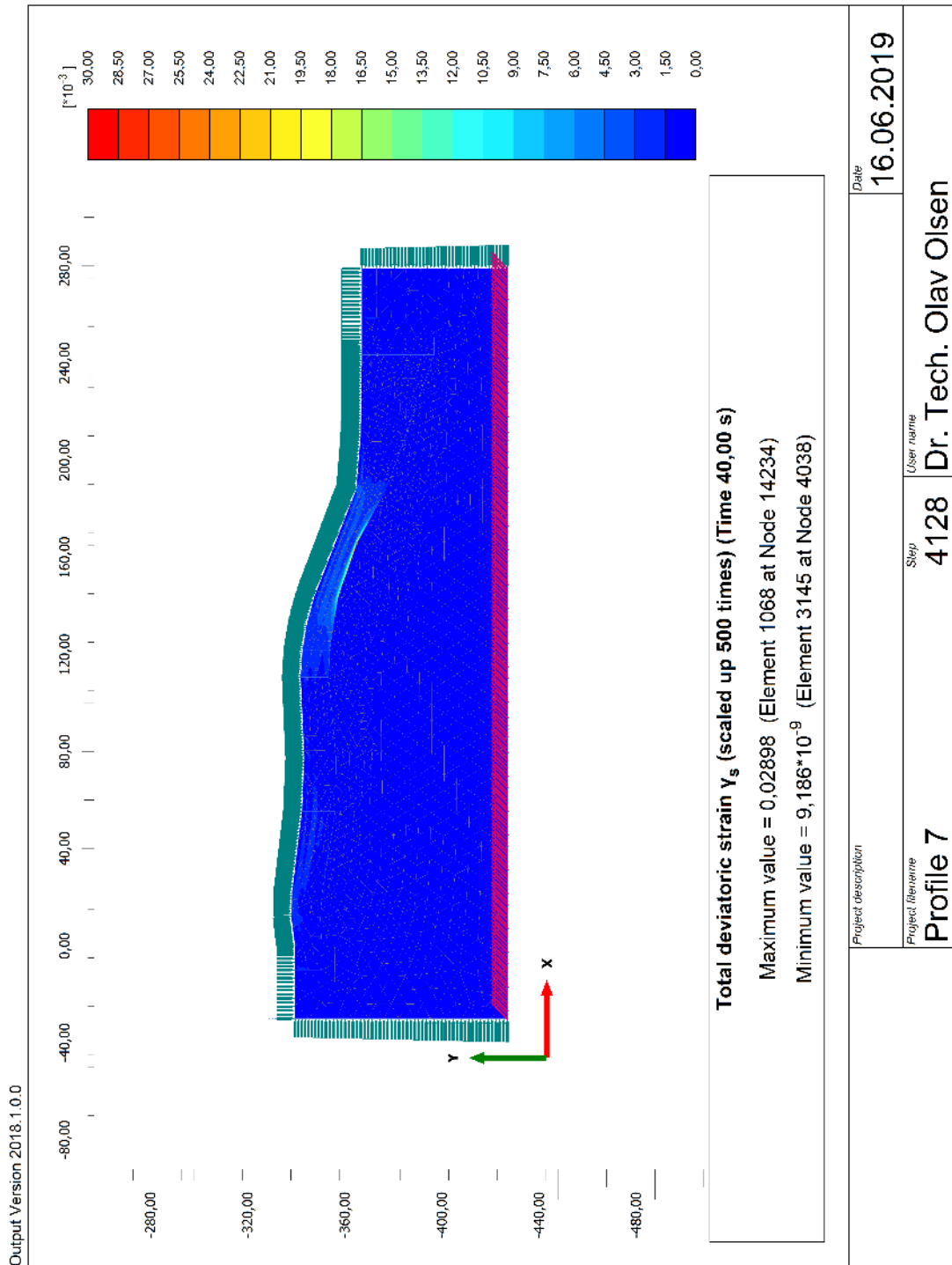
8.5 Undrained failure



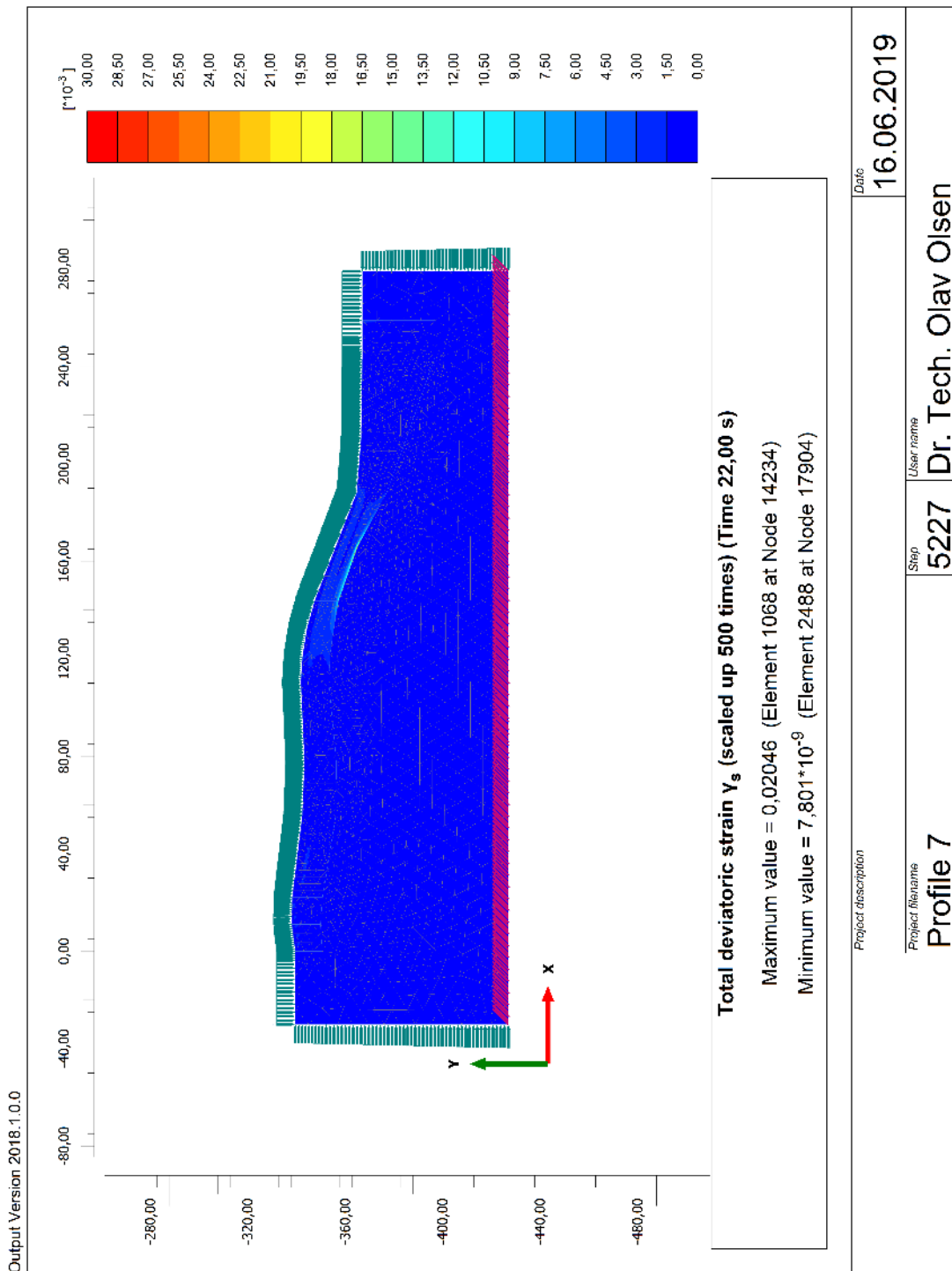
8.6 Permanent shear strain – Sierra Madre



8.7 Permanent shear strain – Whittier Narrows main shock



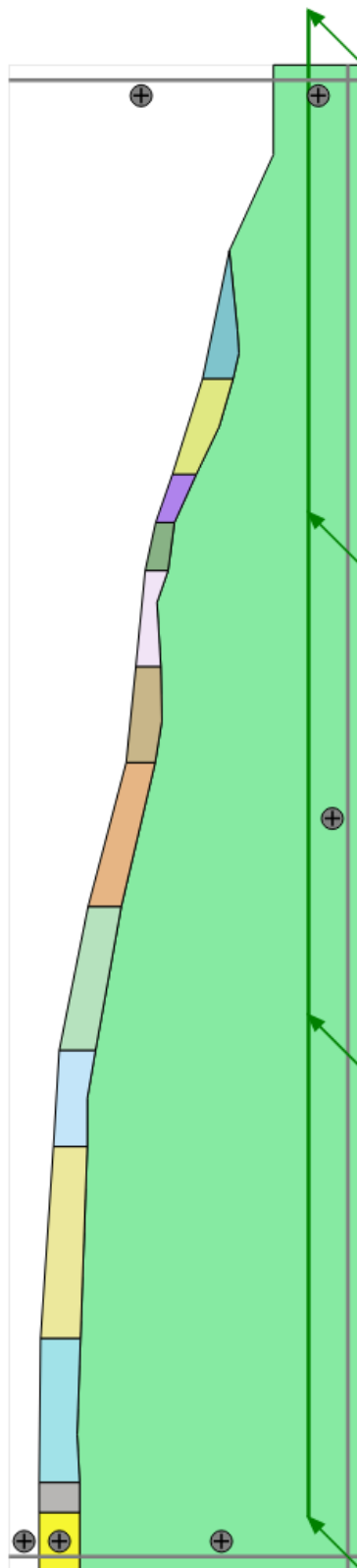
8.8 Permanent shear strain – Whittier aftershock



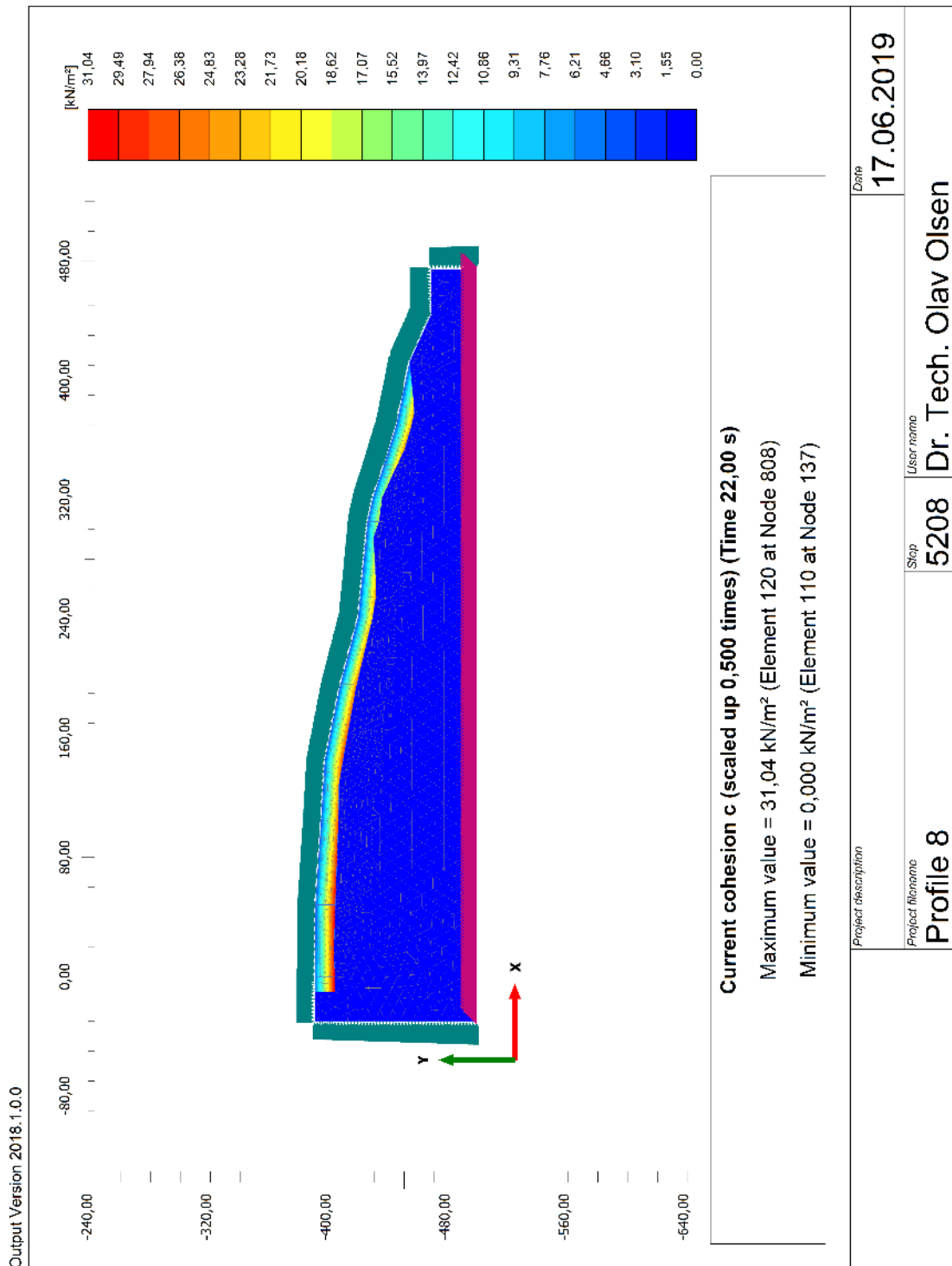
9 PROFILE 8

65

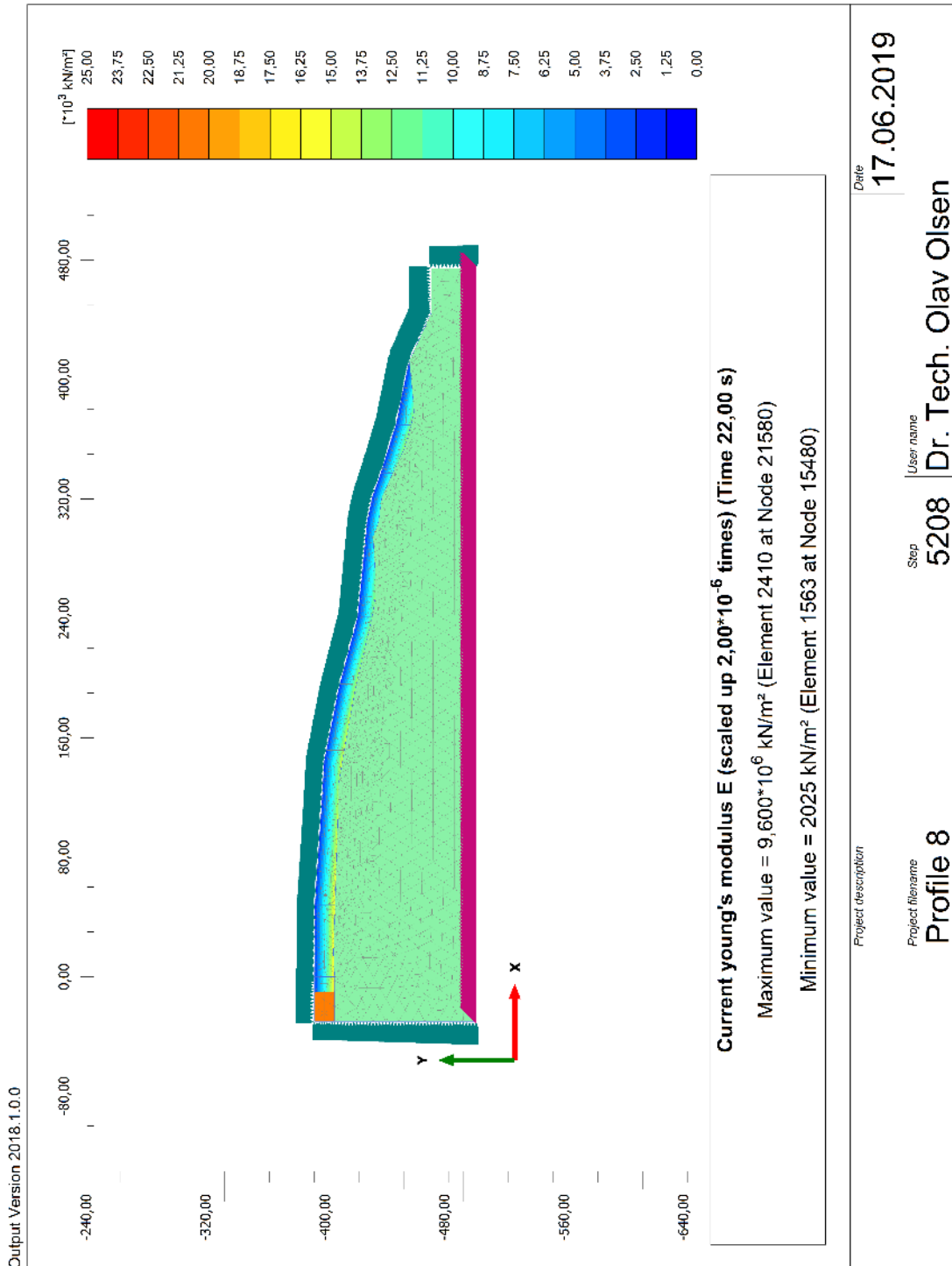
9.1 Model



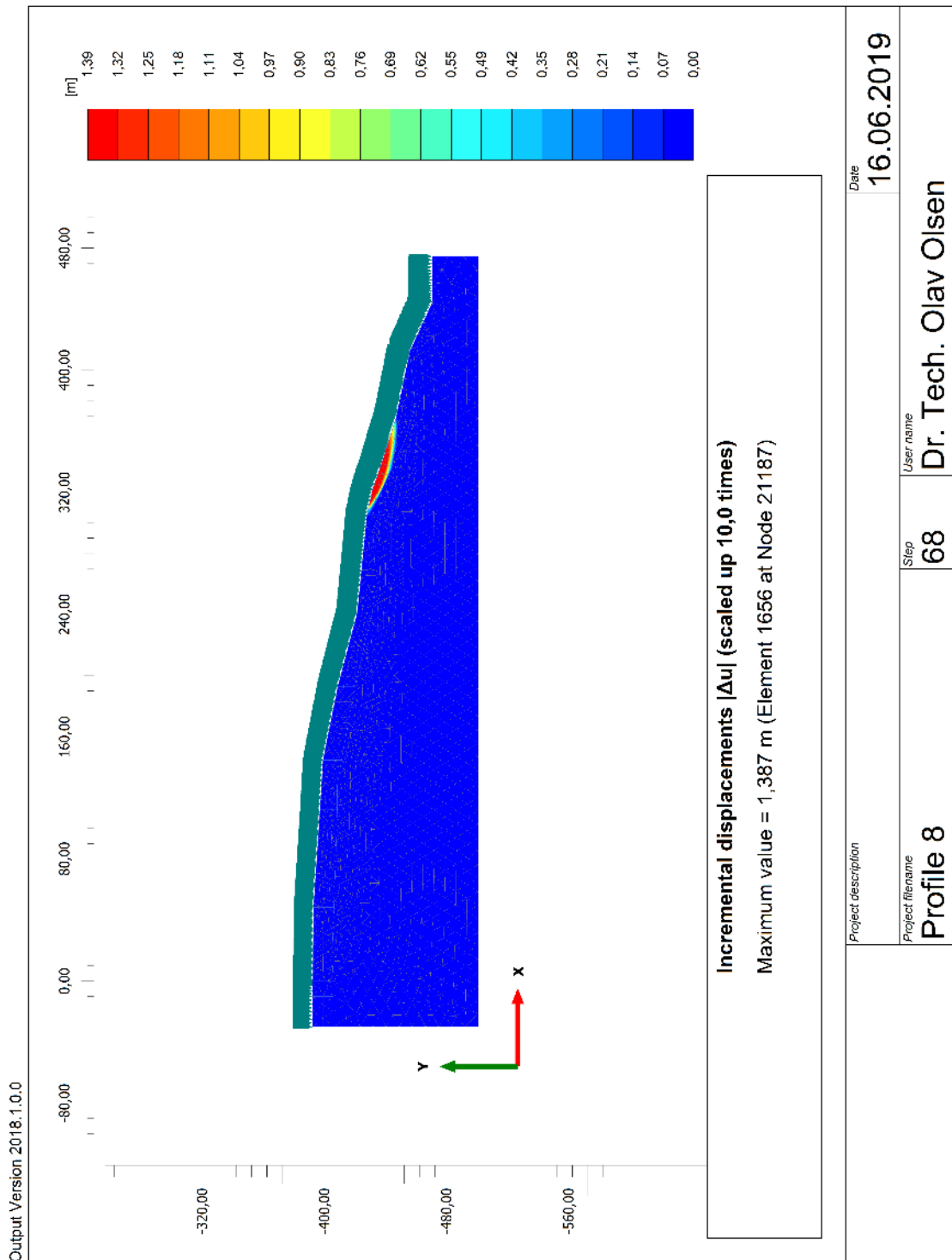
9.2 Cohesion



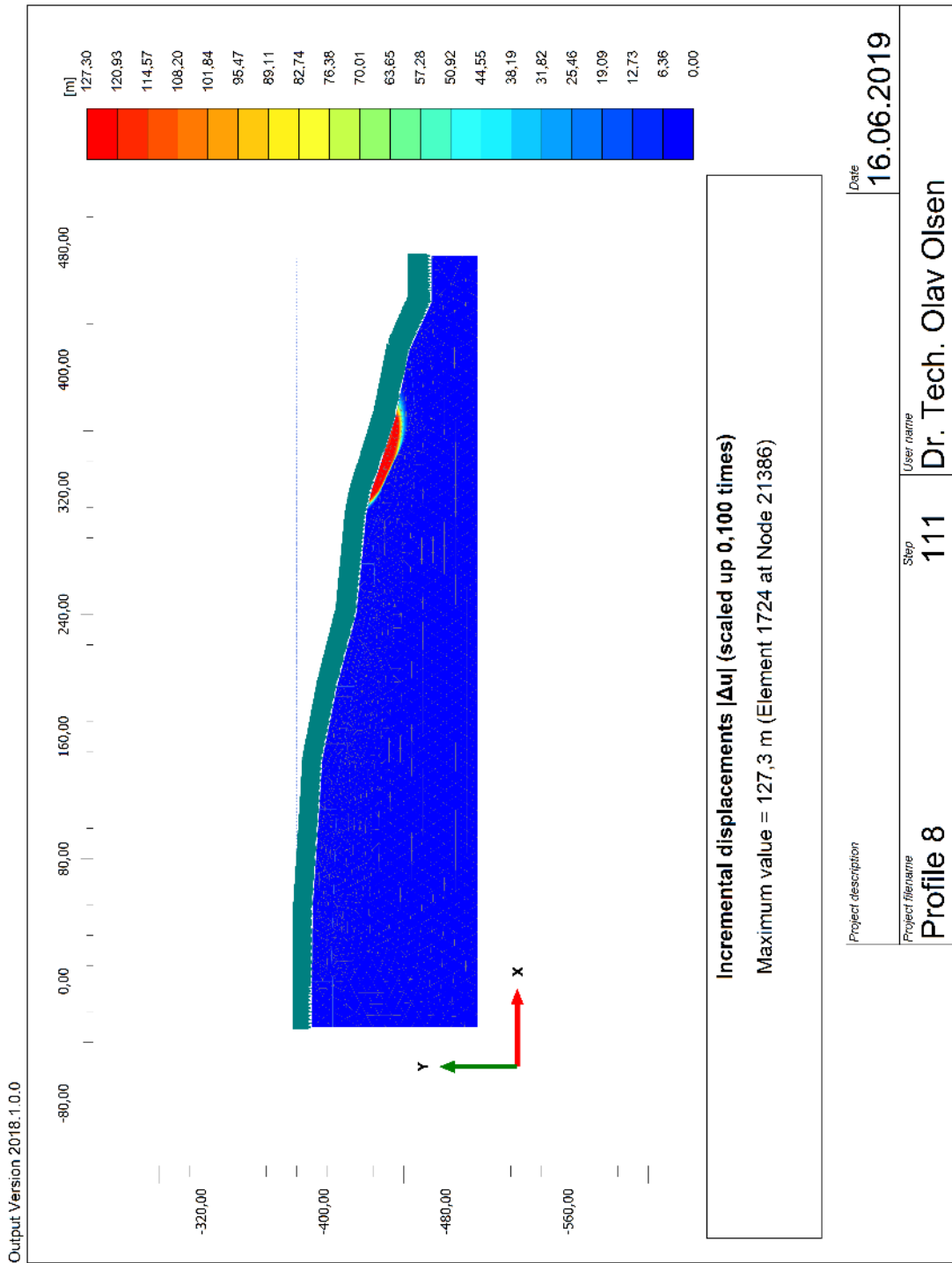
9.3 Stiffness



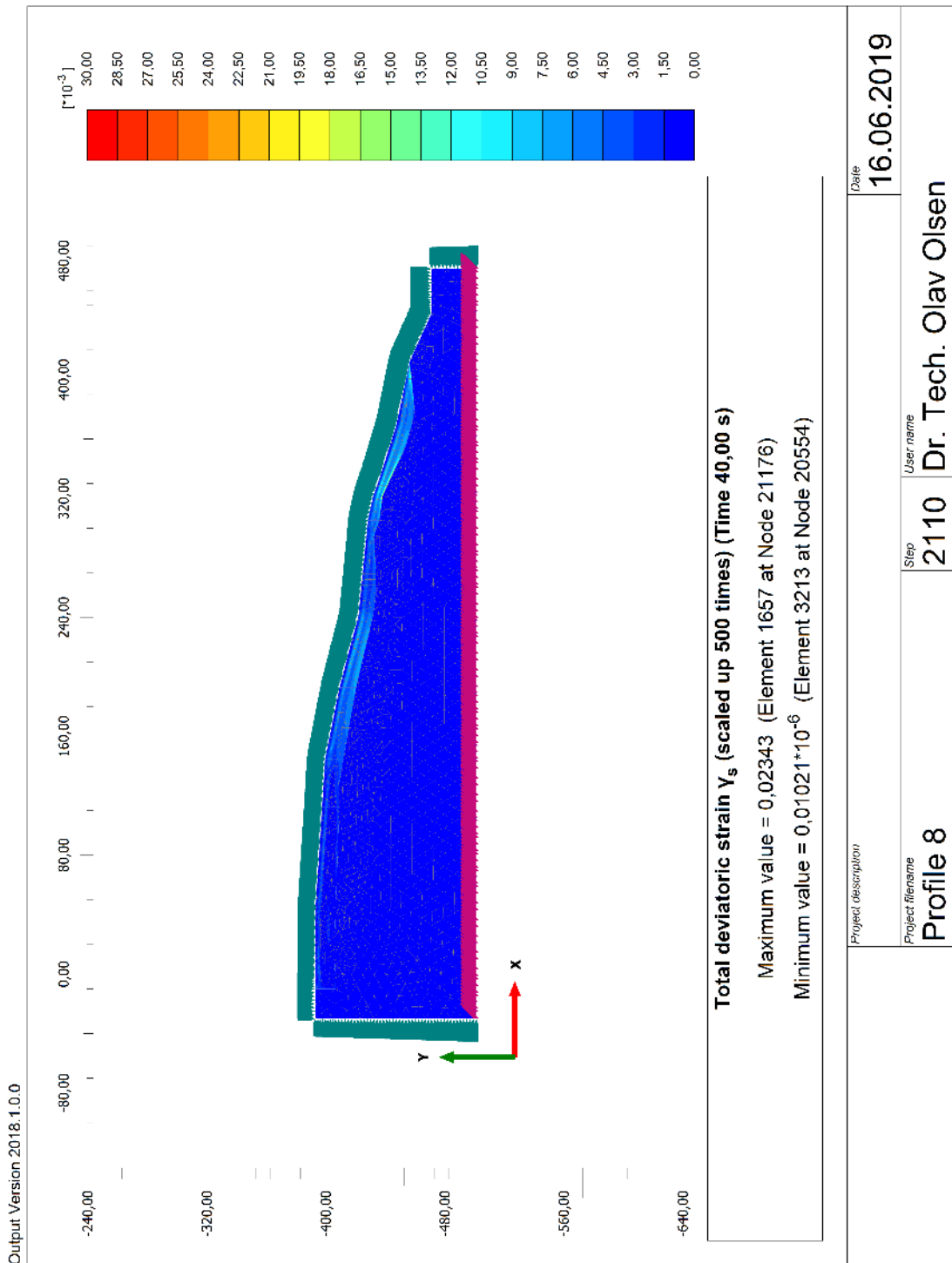
9.4 Drained failure



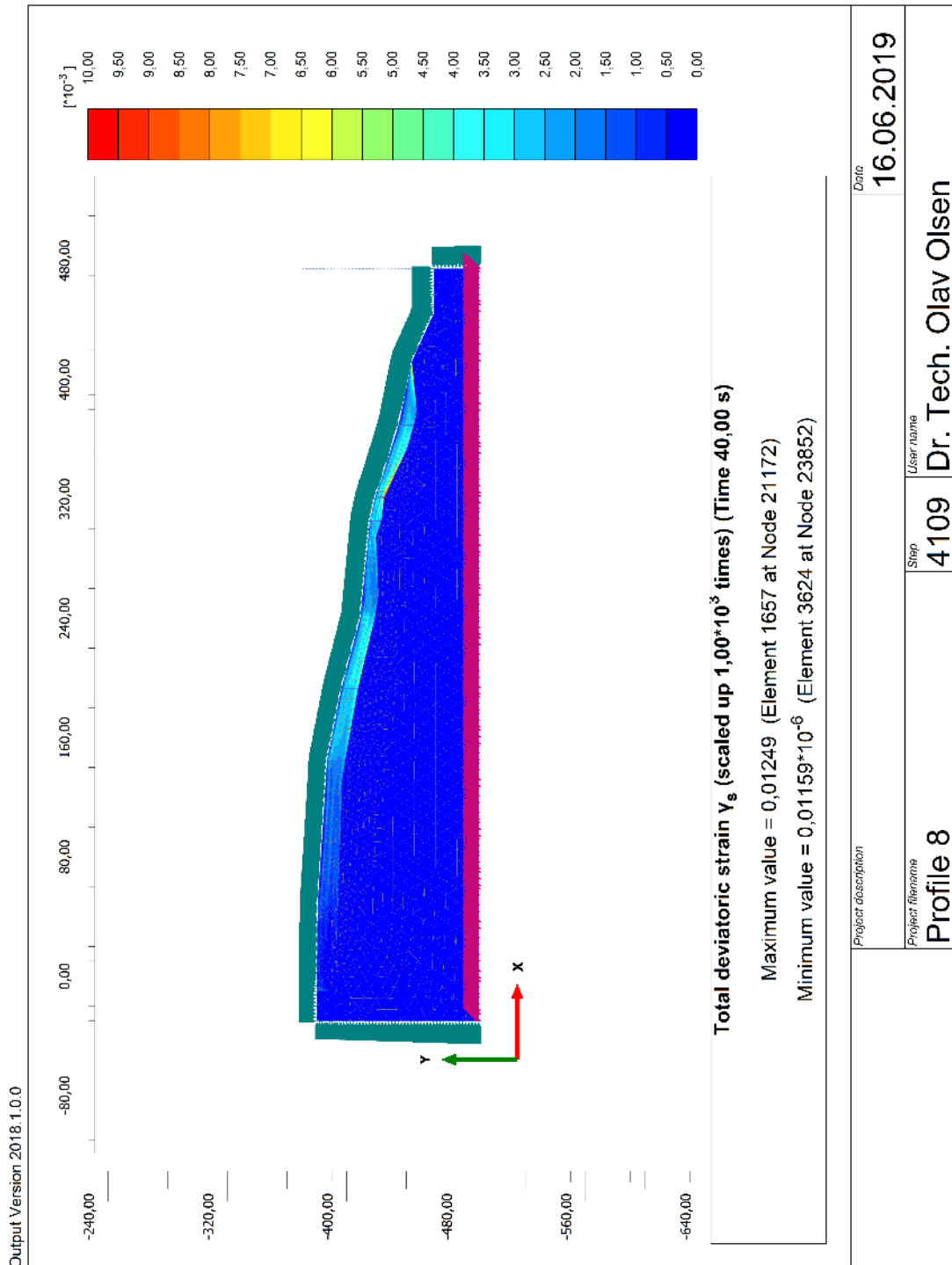
9.5 Undrained failure



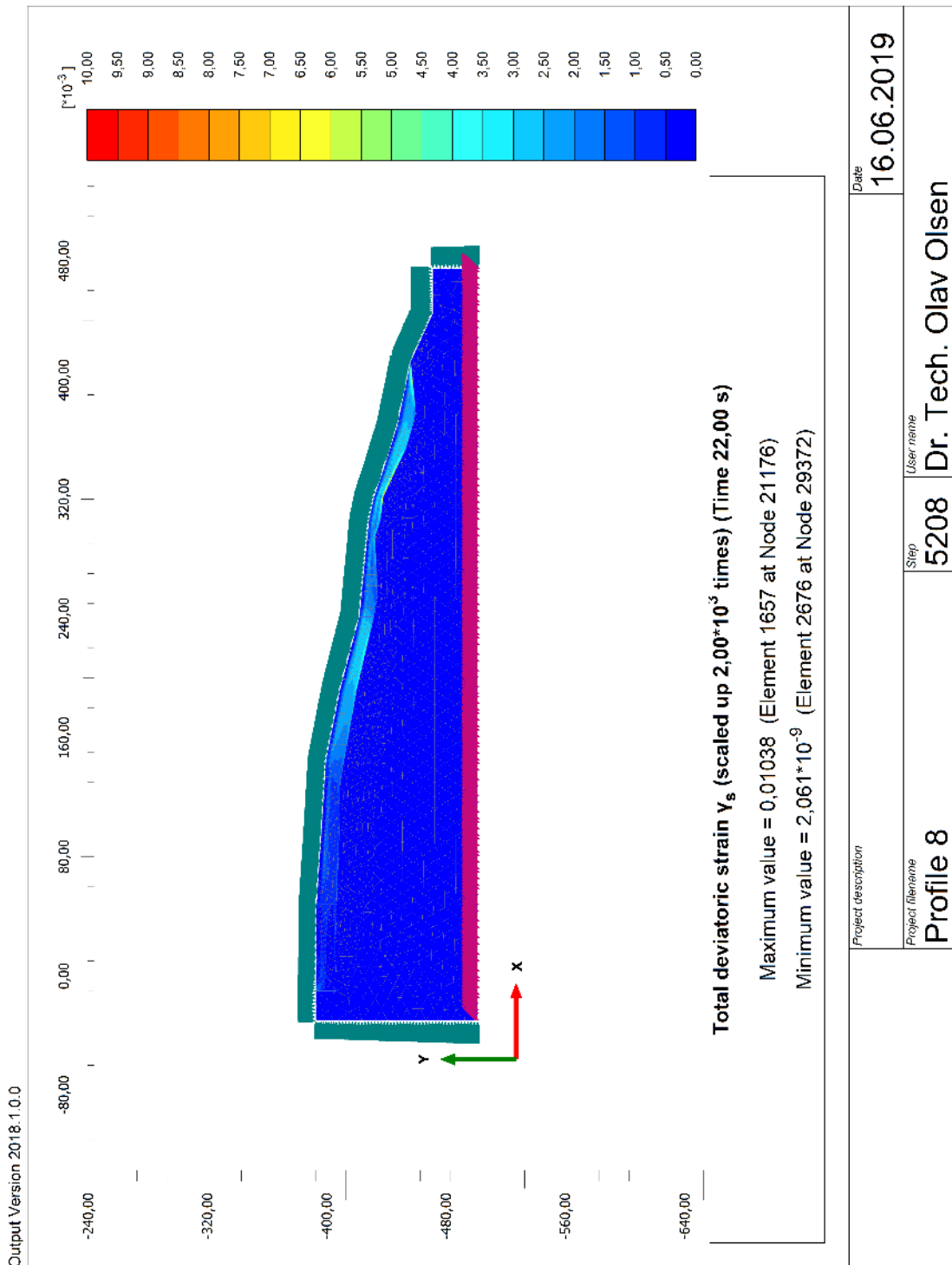
9.6 Permanent shear strain – Sierra Madre



9.7 Permanent shear strain – Whittier Narrows main shock

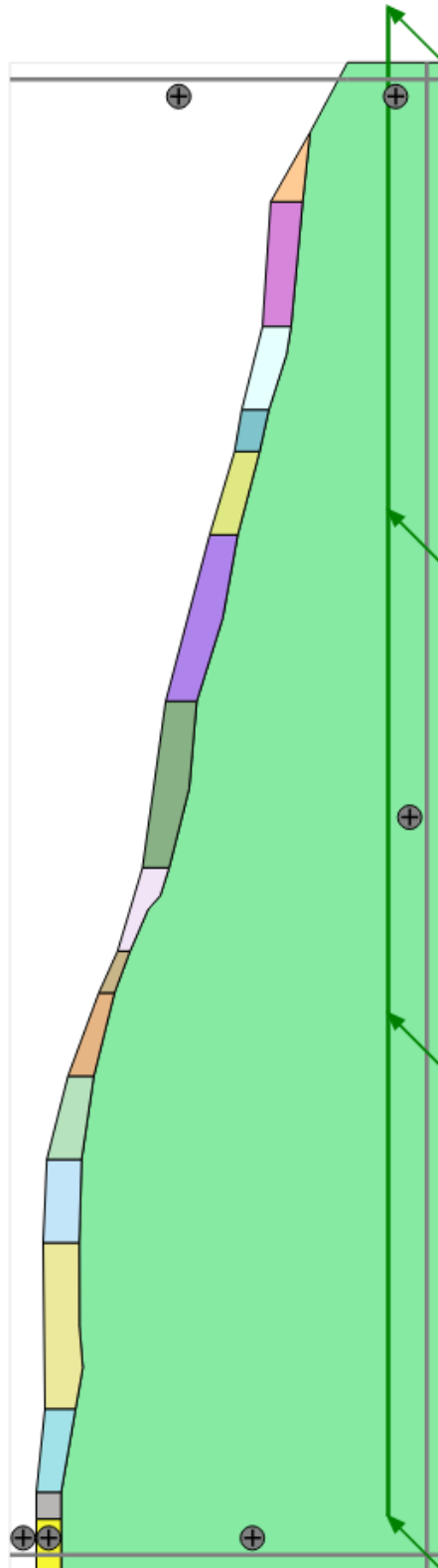


9.8 Permanent shear strain – Whittier aftershock

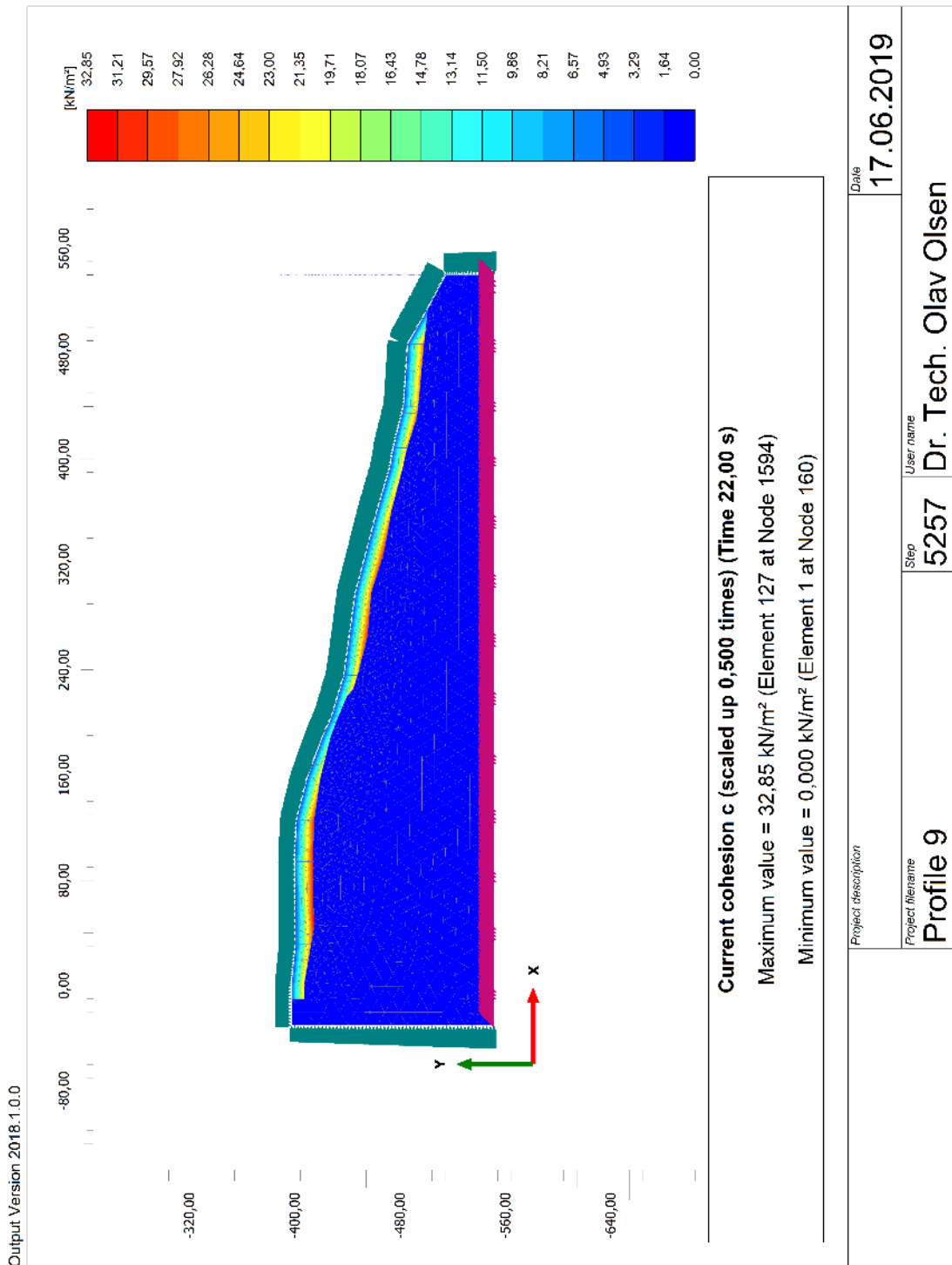


10 PROFILE 9

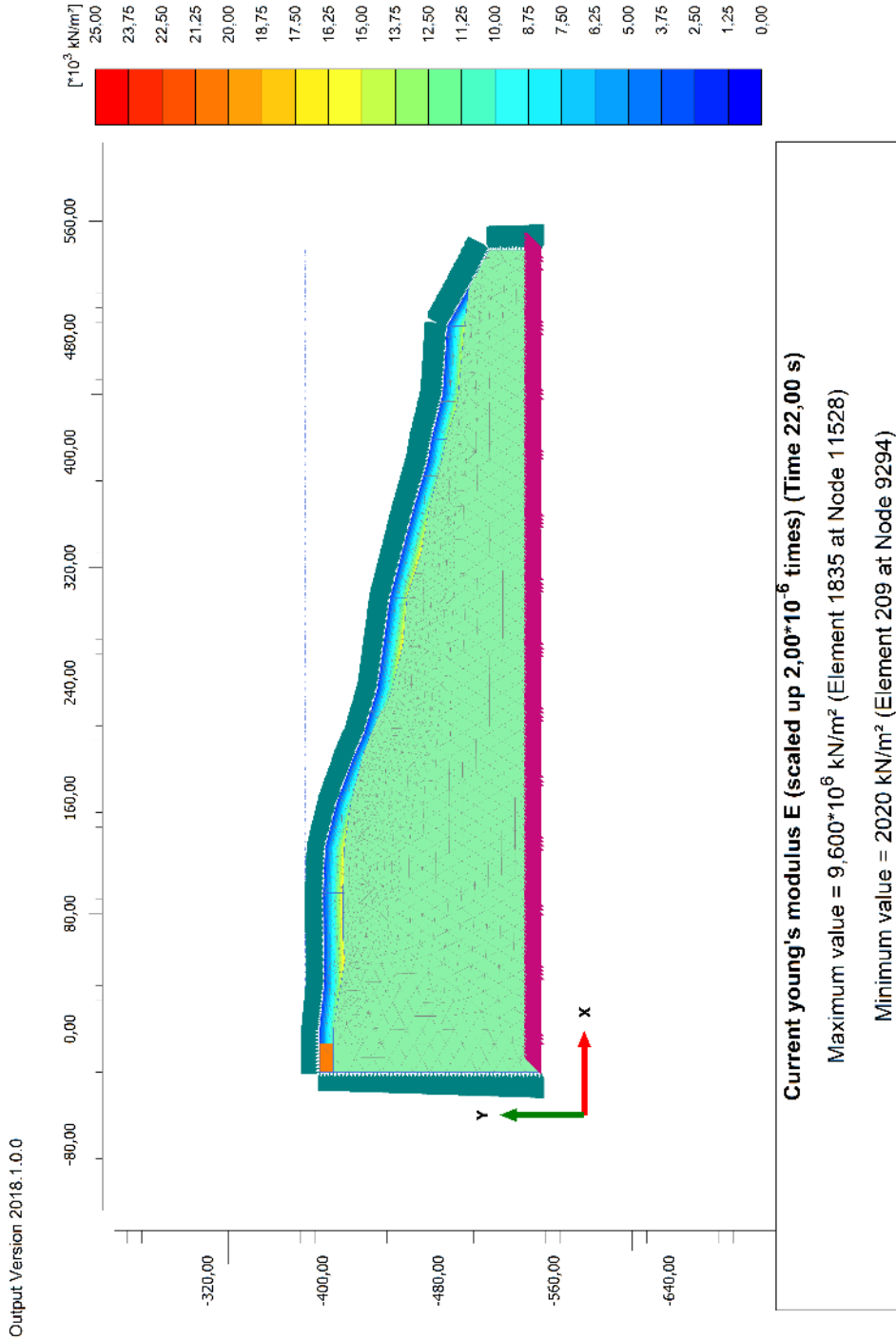
10.1 Model



10.2 Cohesion

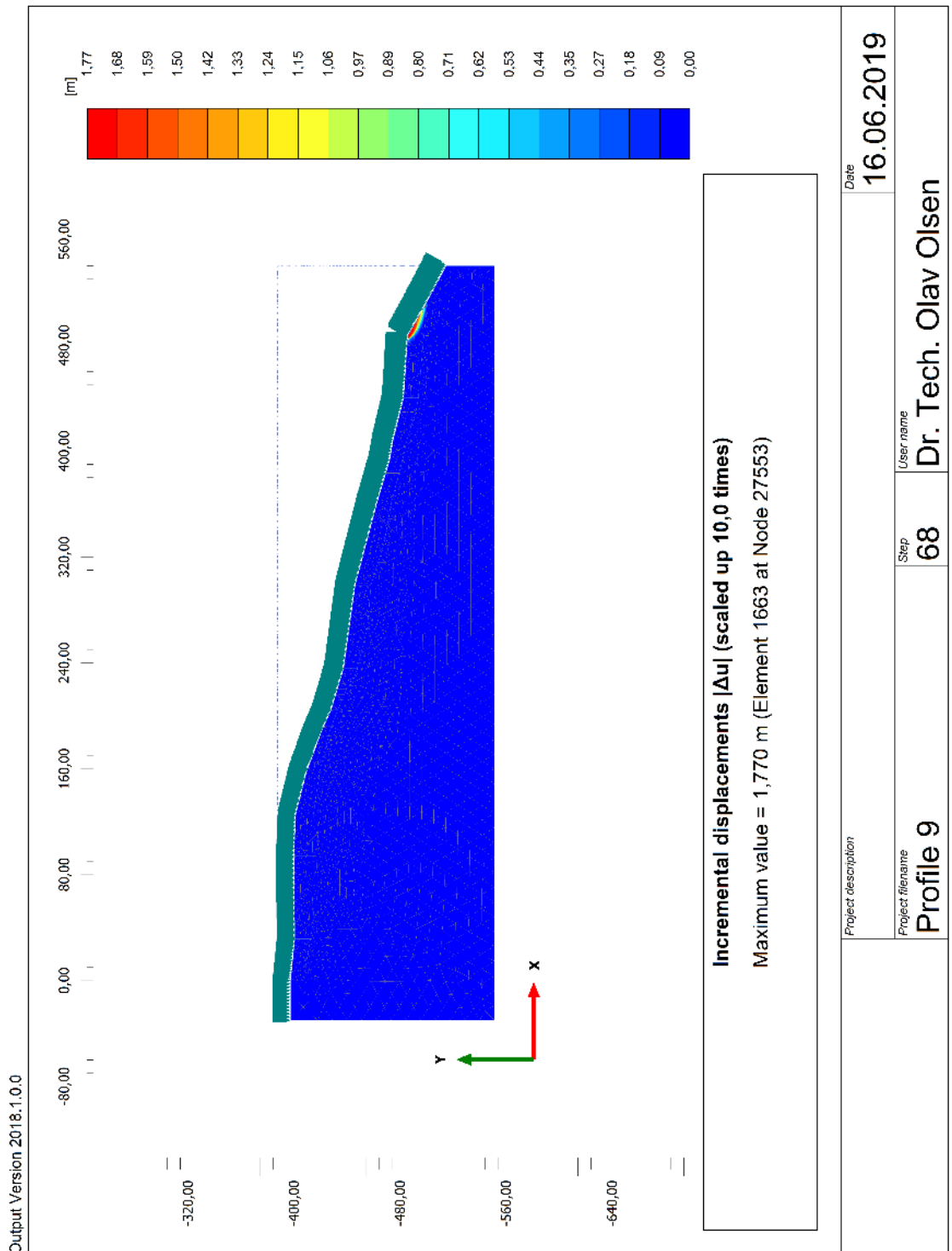


10.3 Stiffness

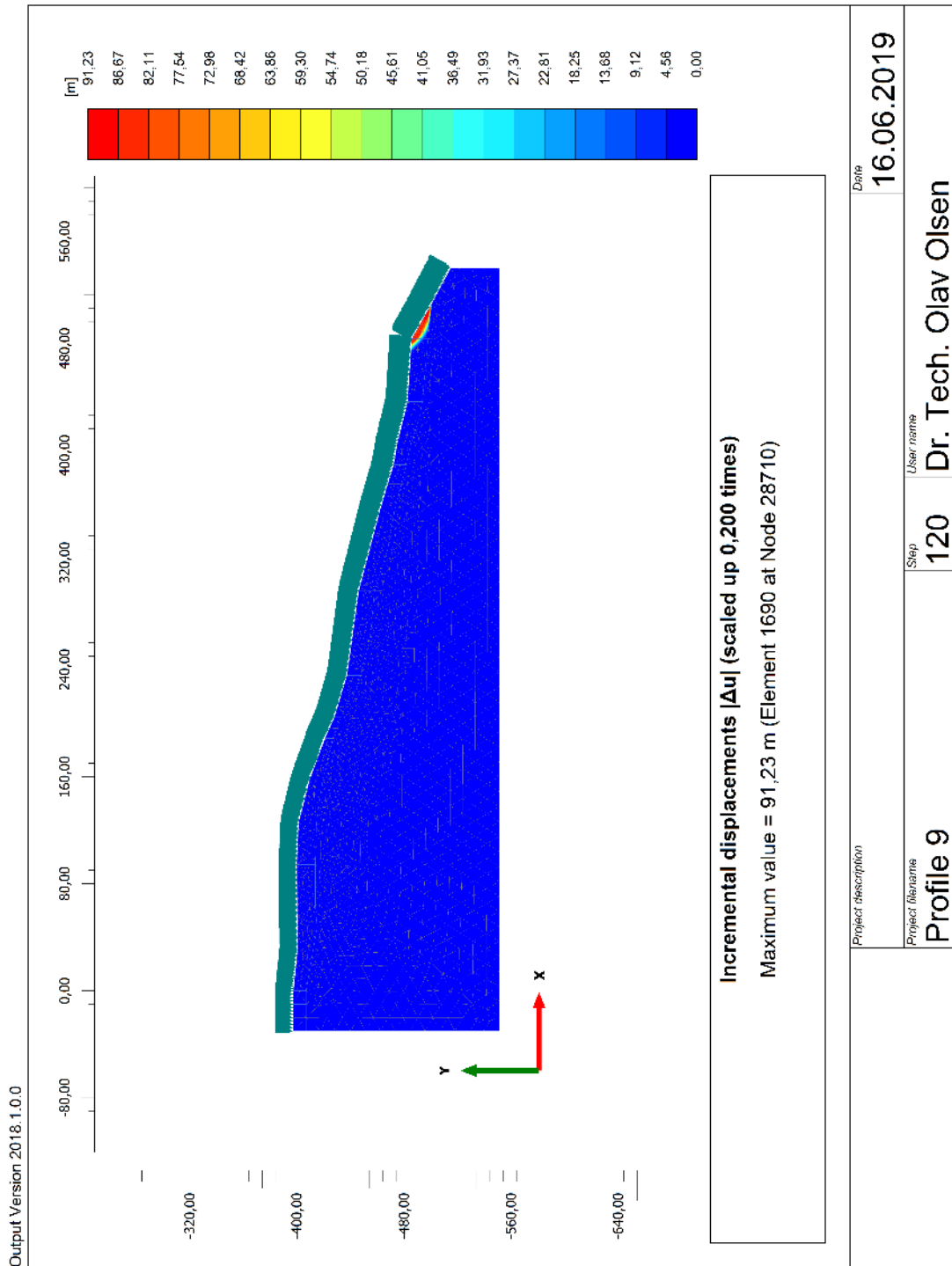


Project description		Date
Profile 9		17.06.2019
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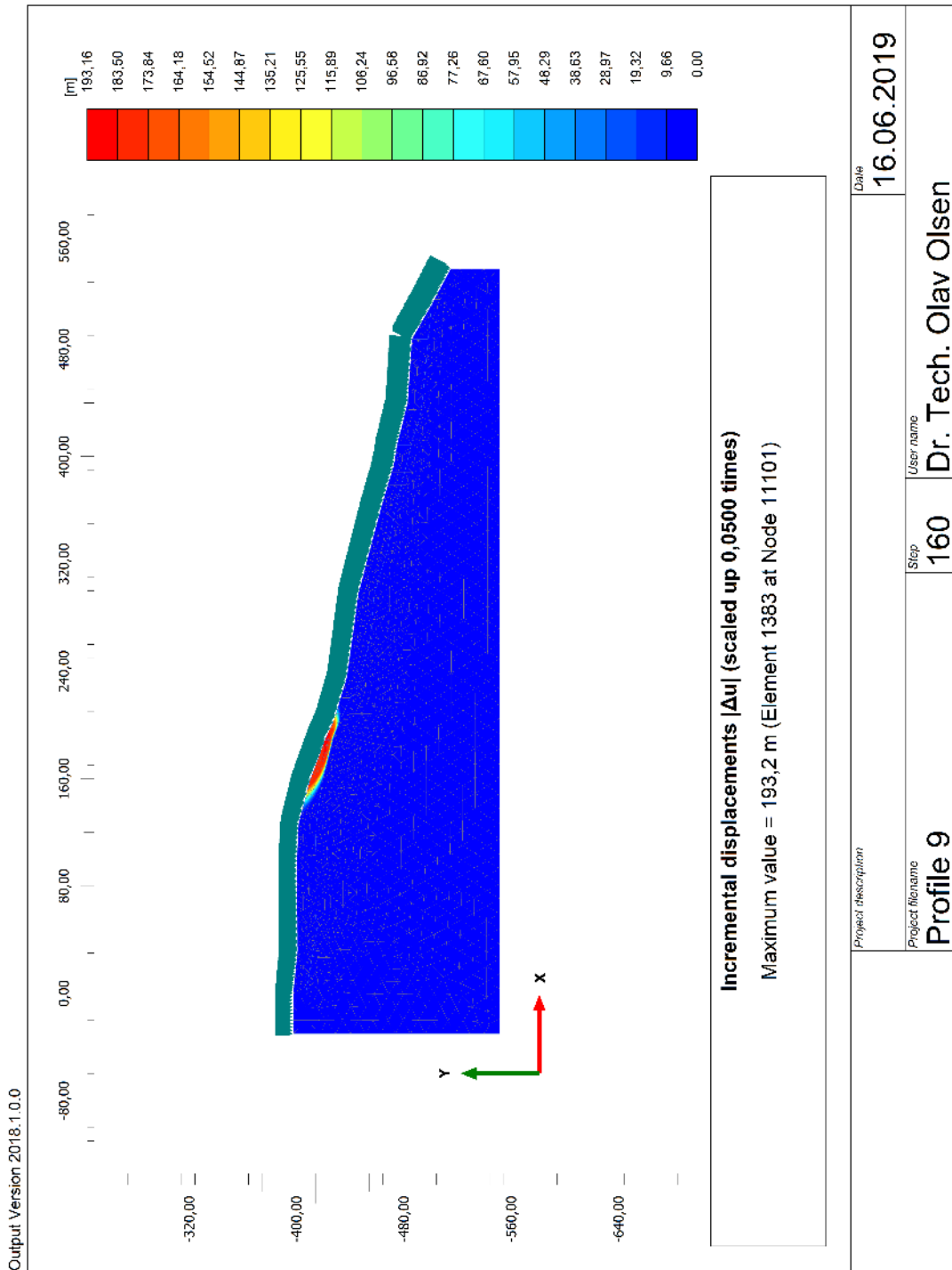
10.4 Drained failure



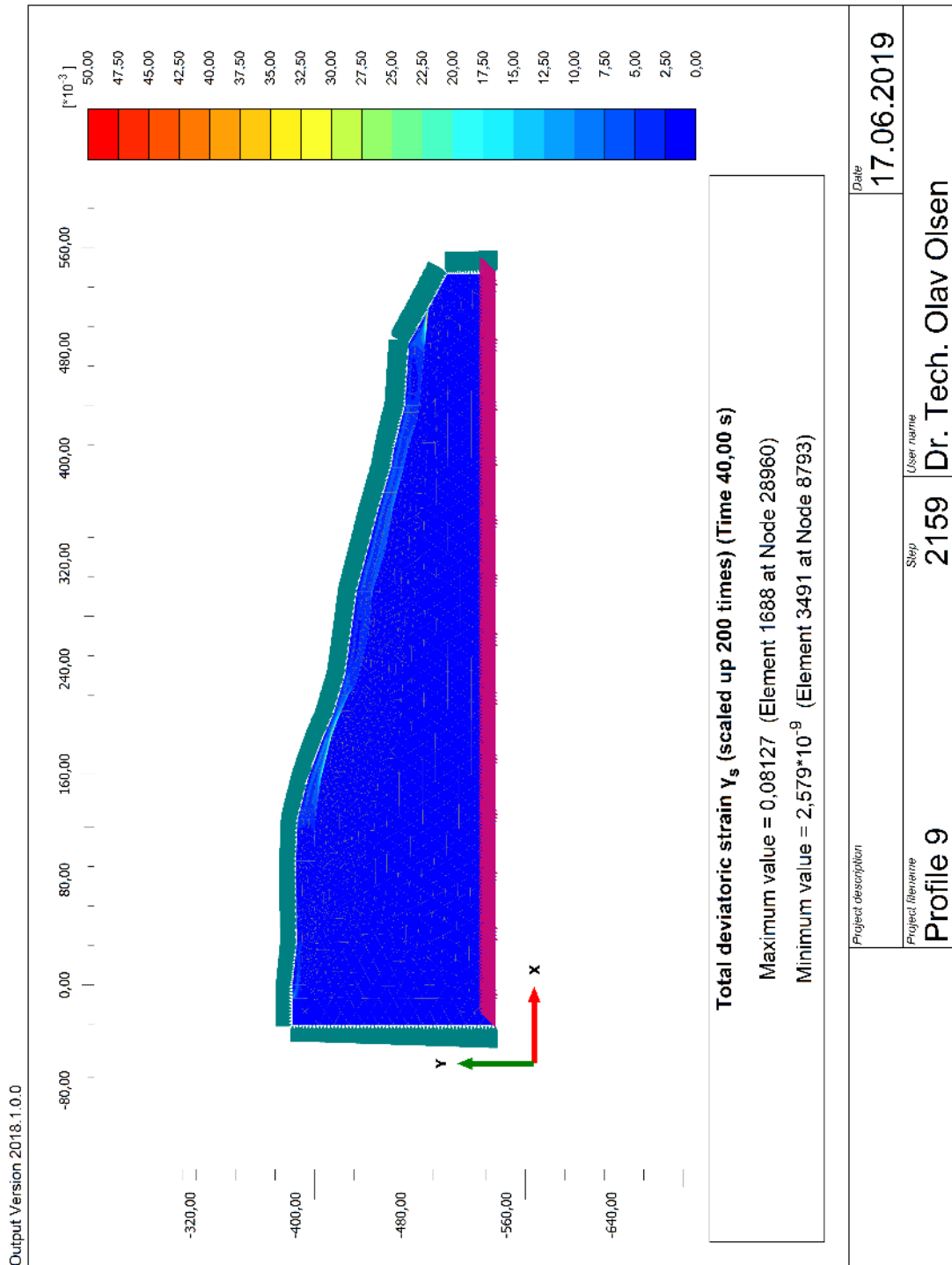
10.5 Undrained failure 1



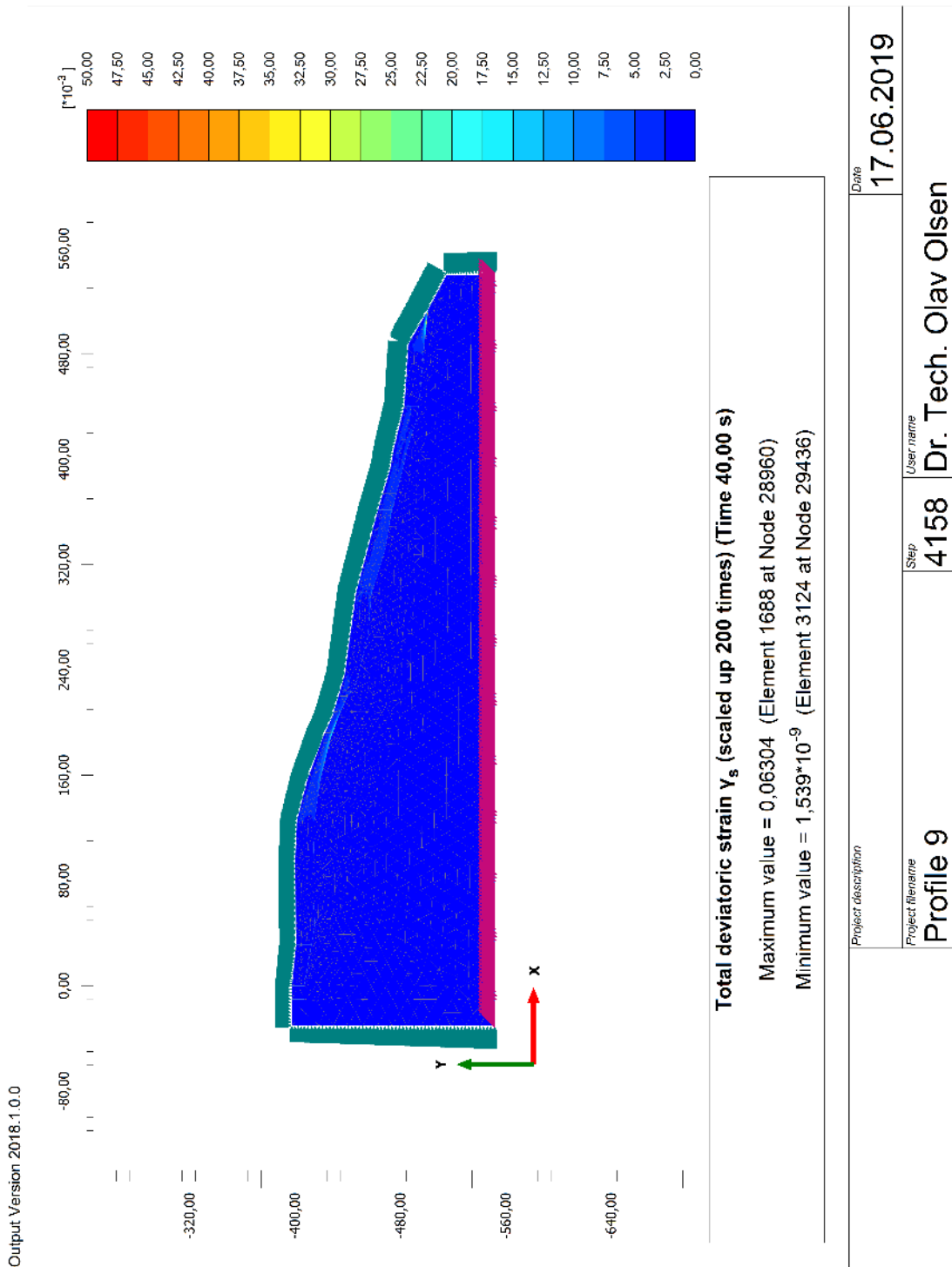
10.6 Undrained failure 2



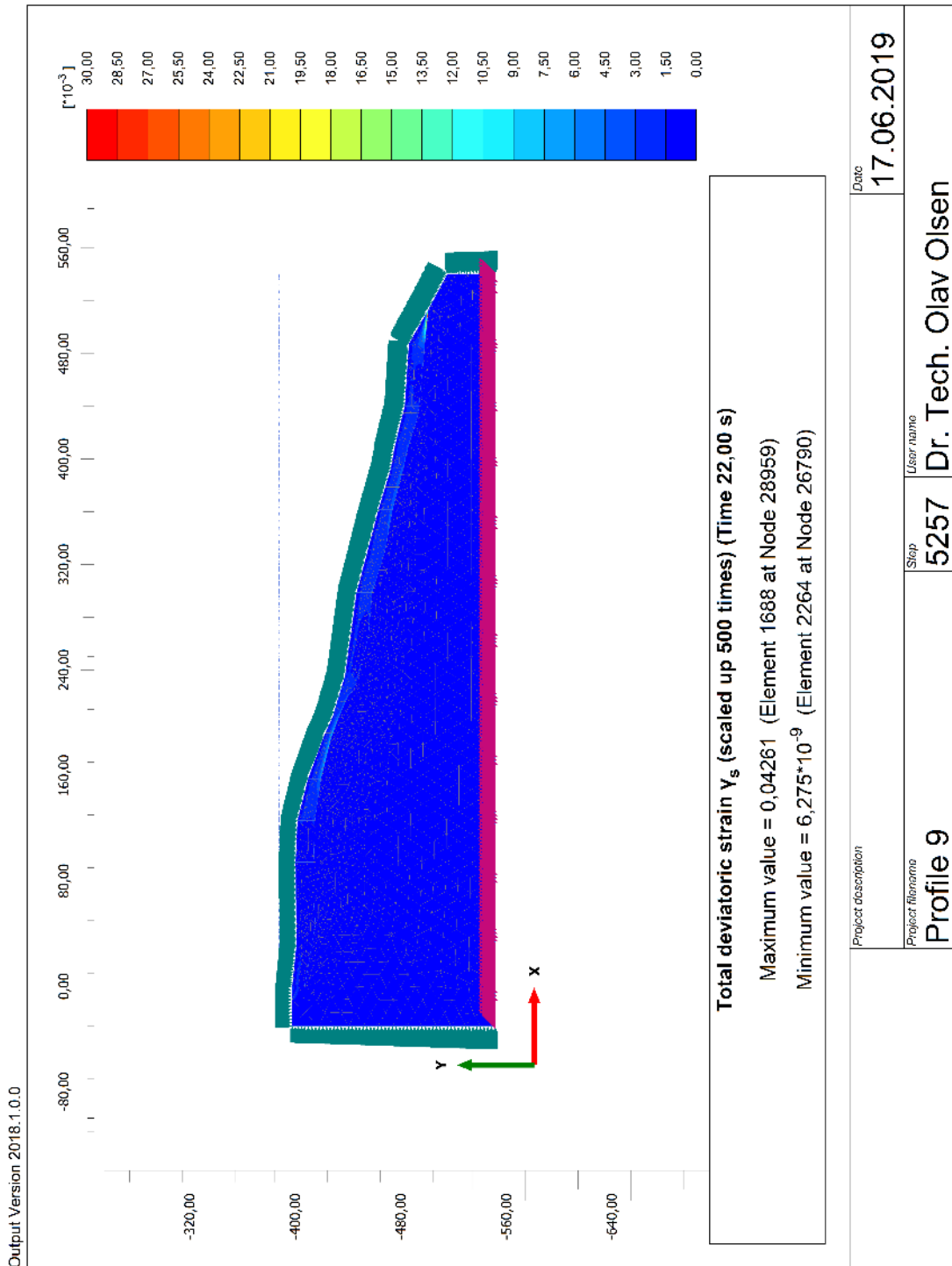
10.7 Permanent shear strain – Sierra Madre



10.8 Permanent shear strain – Whittier Narrows main shock

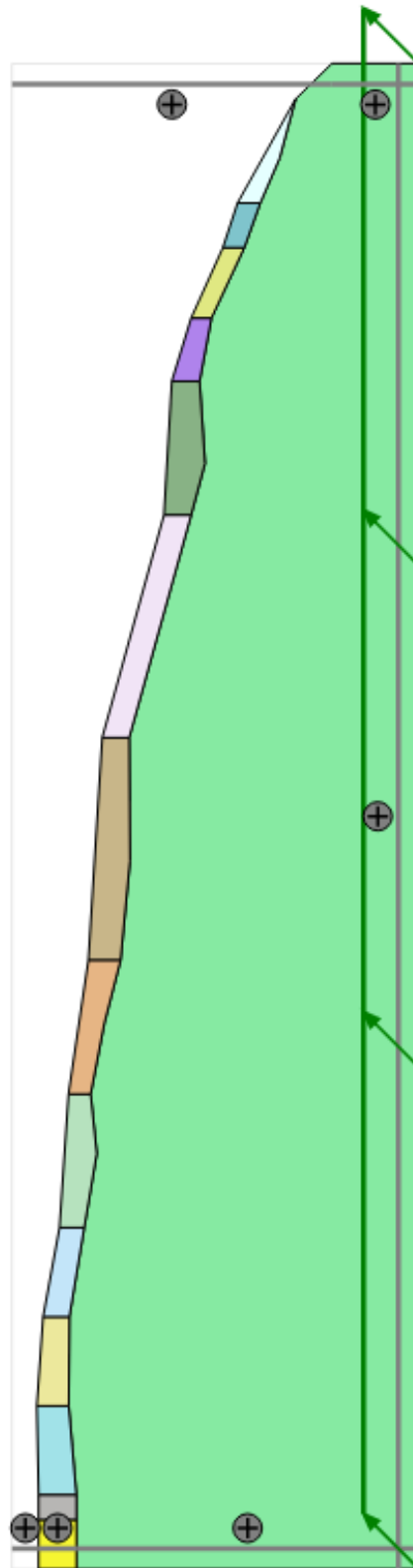


10.9 Permanent shear strain – Whittier aftershock

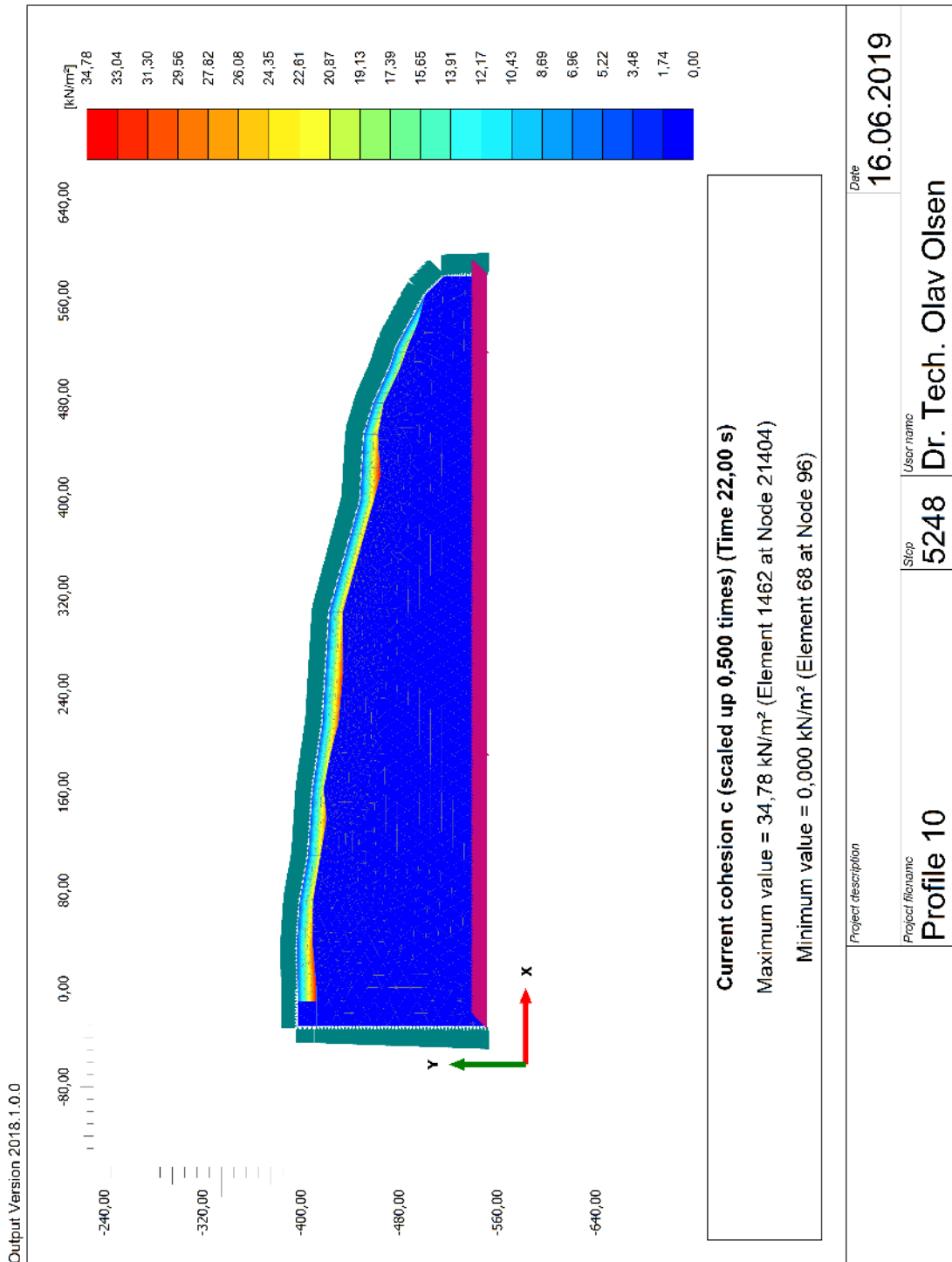


11 PROFILE 10

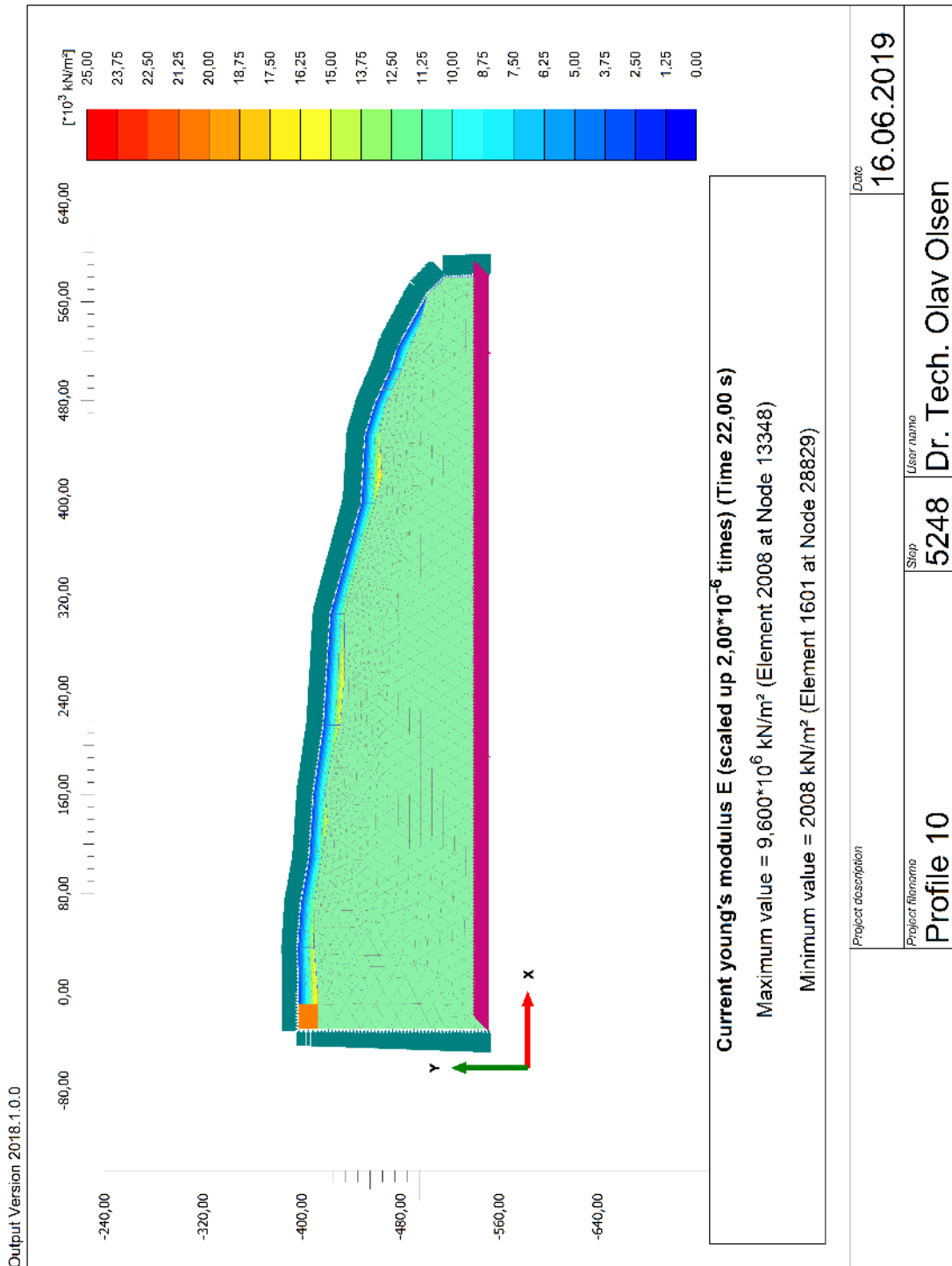
11.1 Model



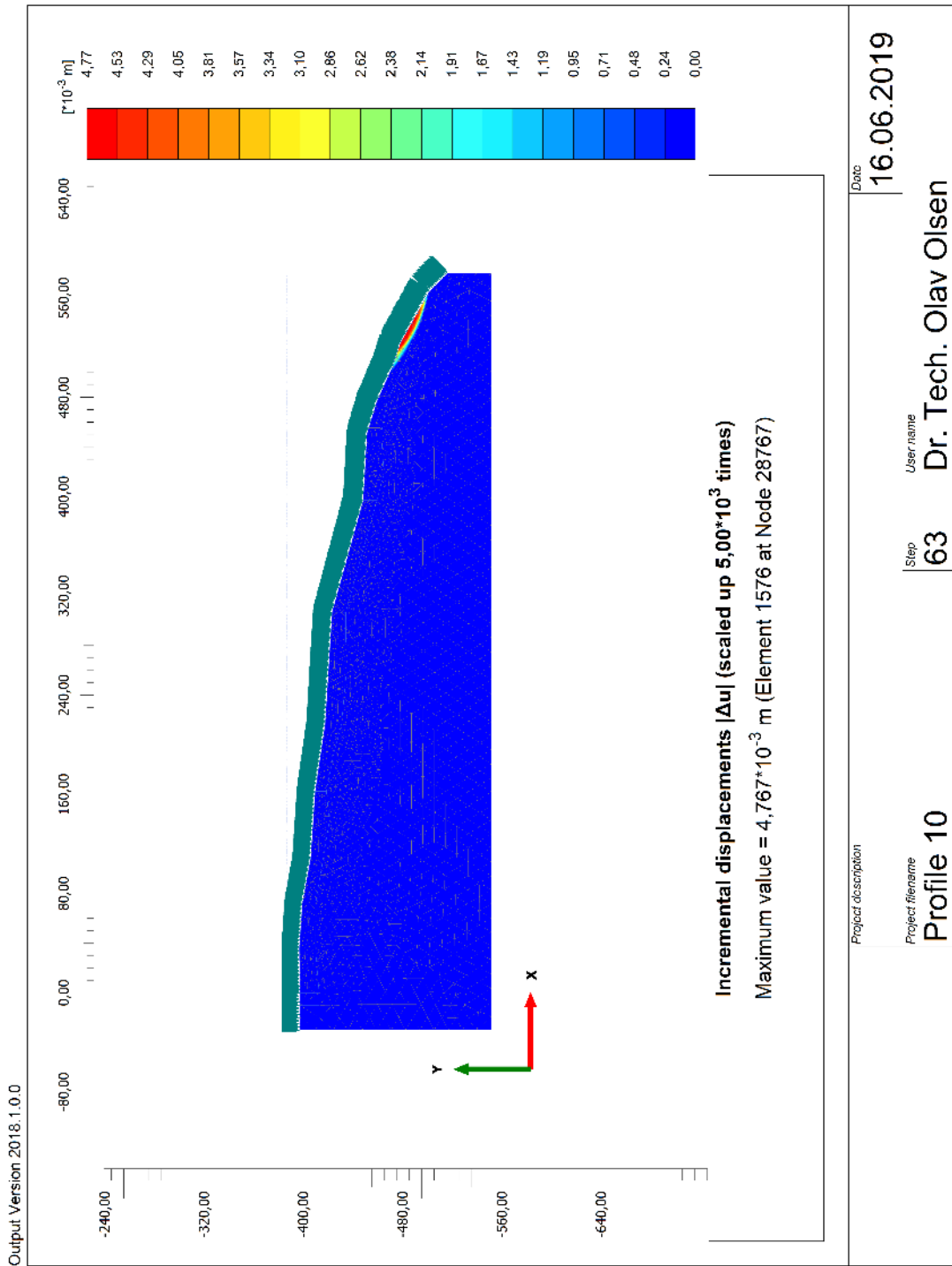
11.2 Cohesion



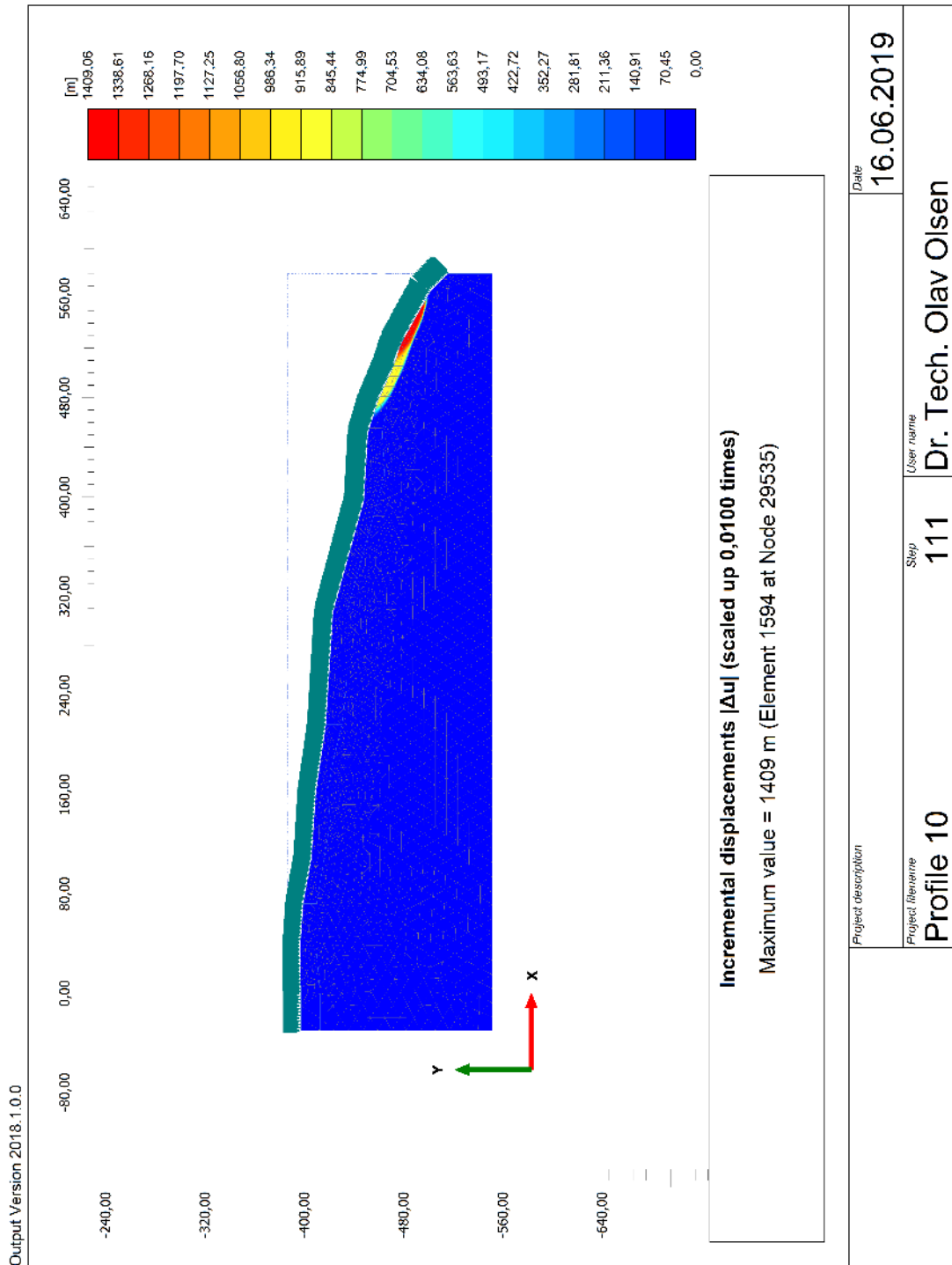
11.3 Stiffness



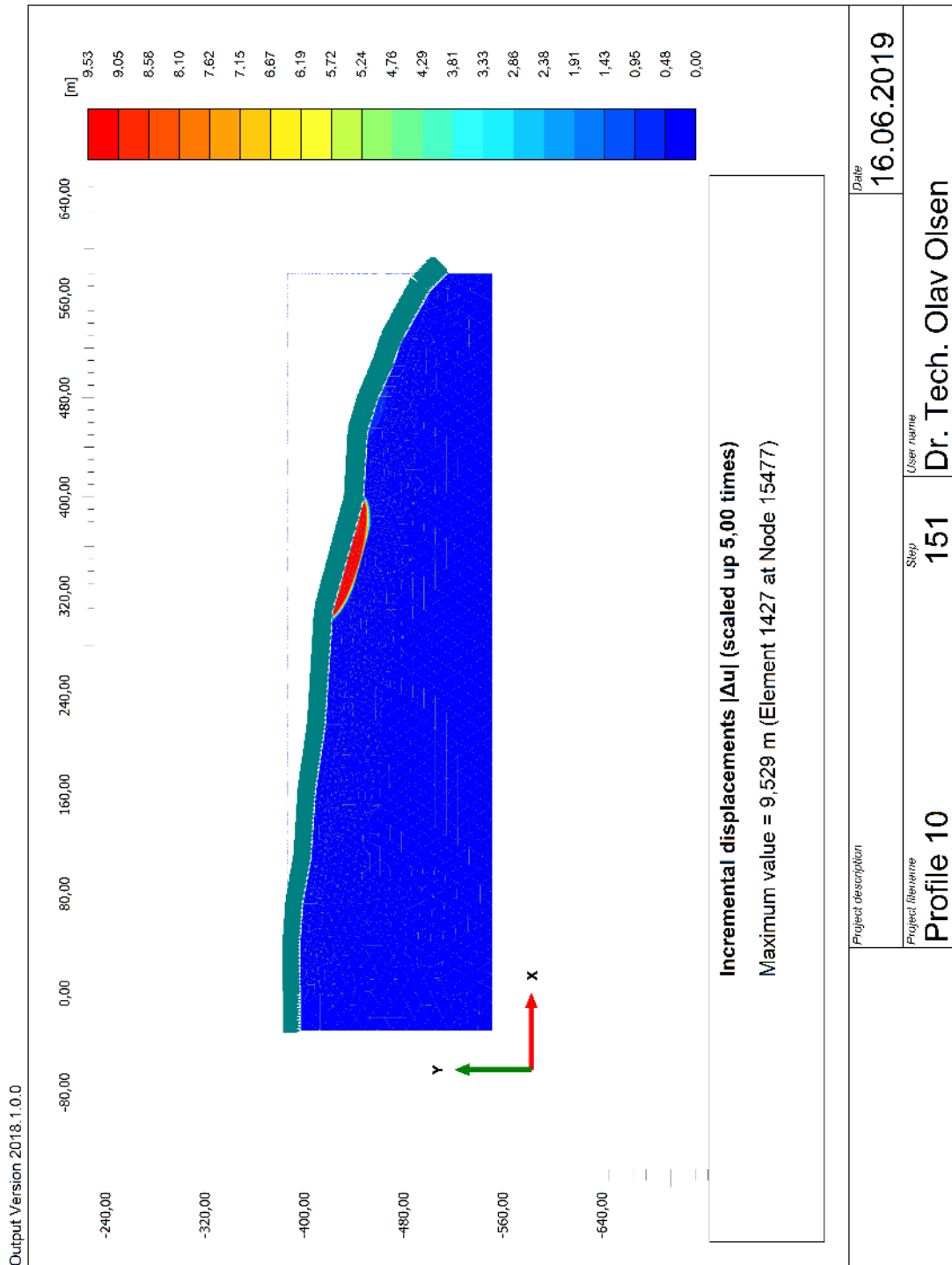
11.4 Drained failure



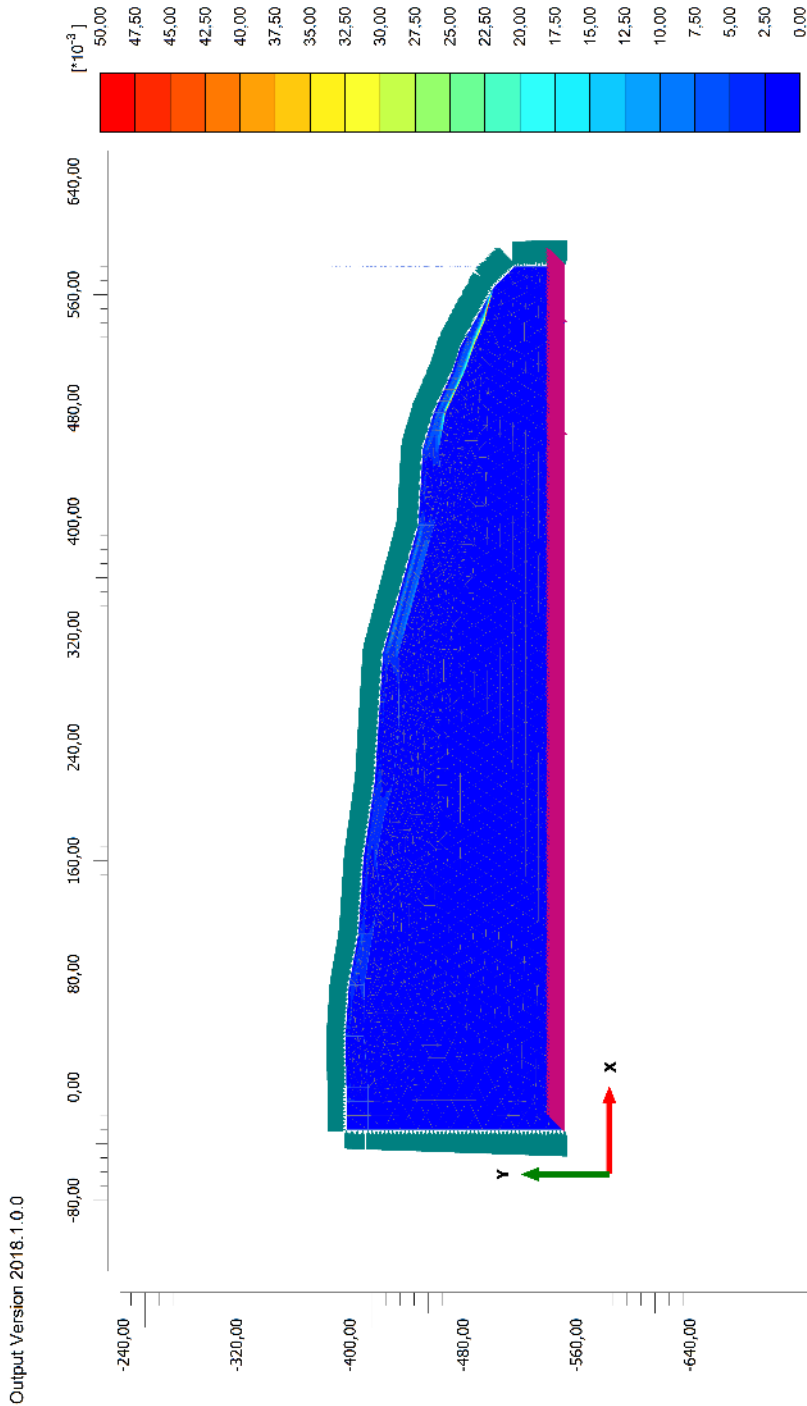
11.5 Undrained failure 1



11.6 Undrained failure 2

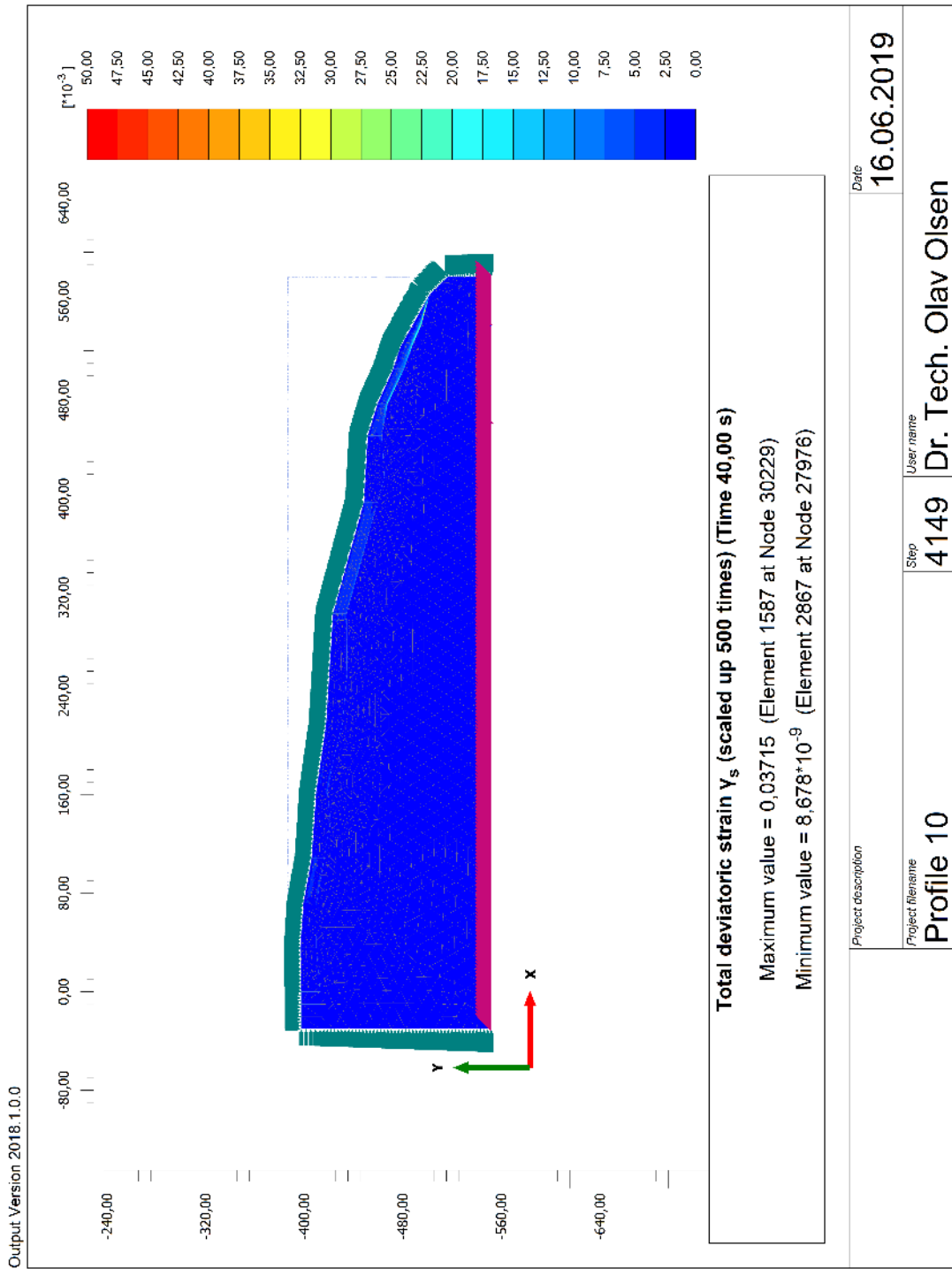


11.7 Permanent shear strain – Sierra Madre

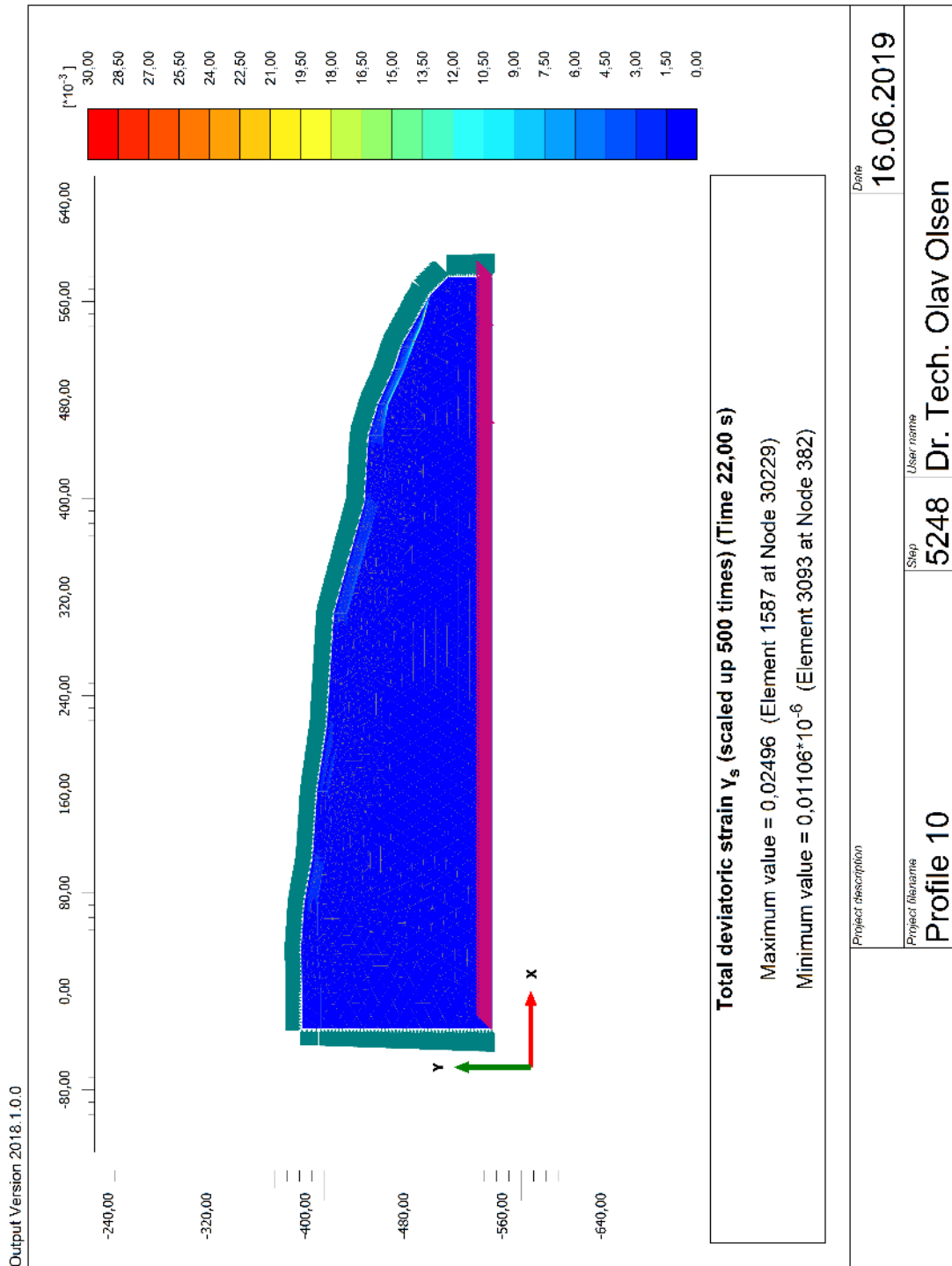


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11.8 Permanent shear strain – Whittier Narrows main shock

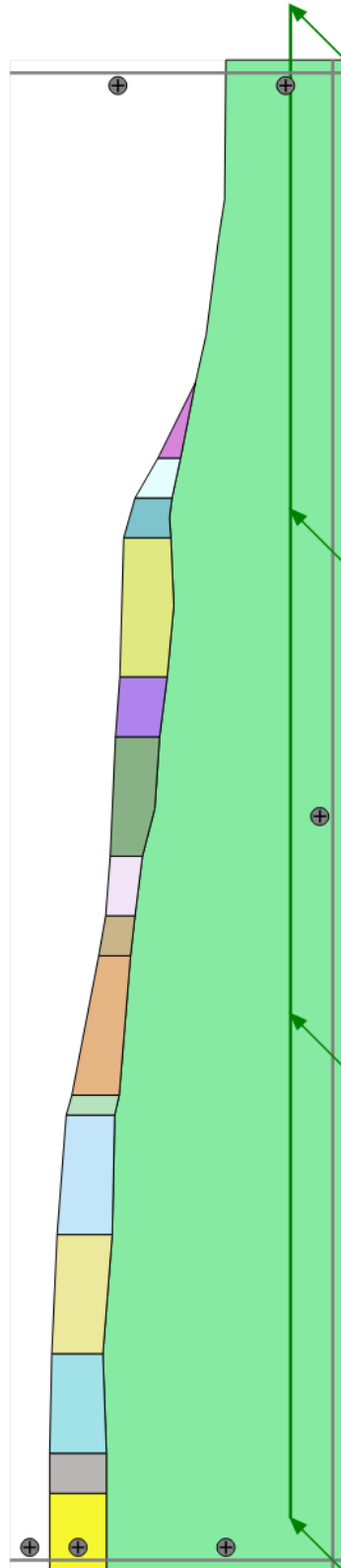


11.9 Permanent shear strain – Whittier aftershock

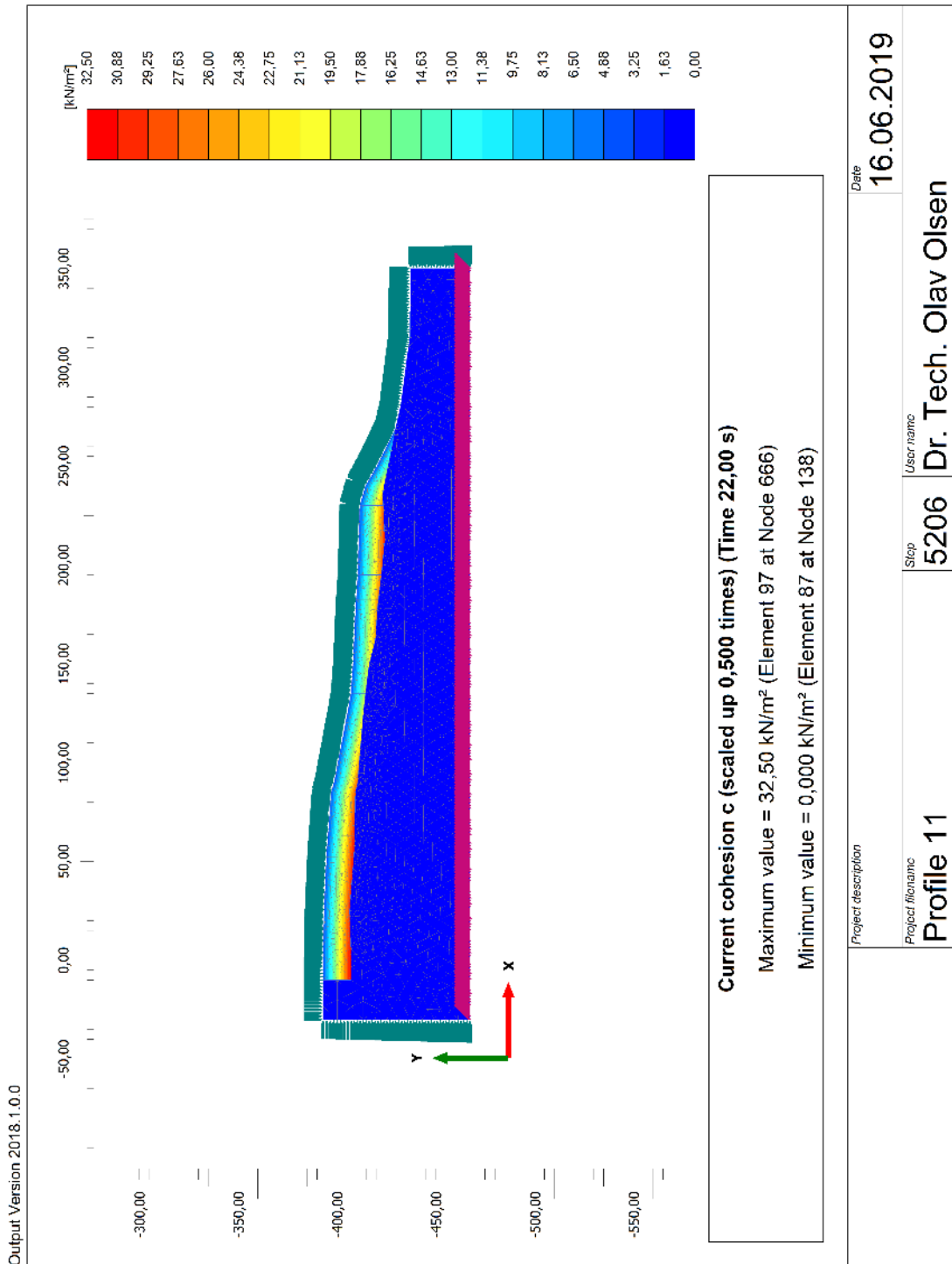


12 PROFILE 11

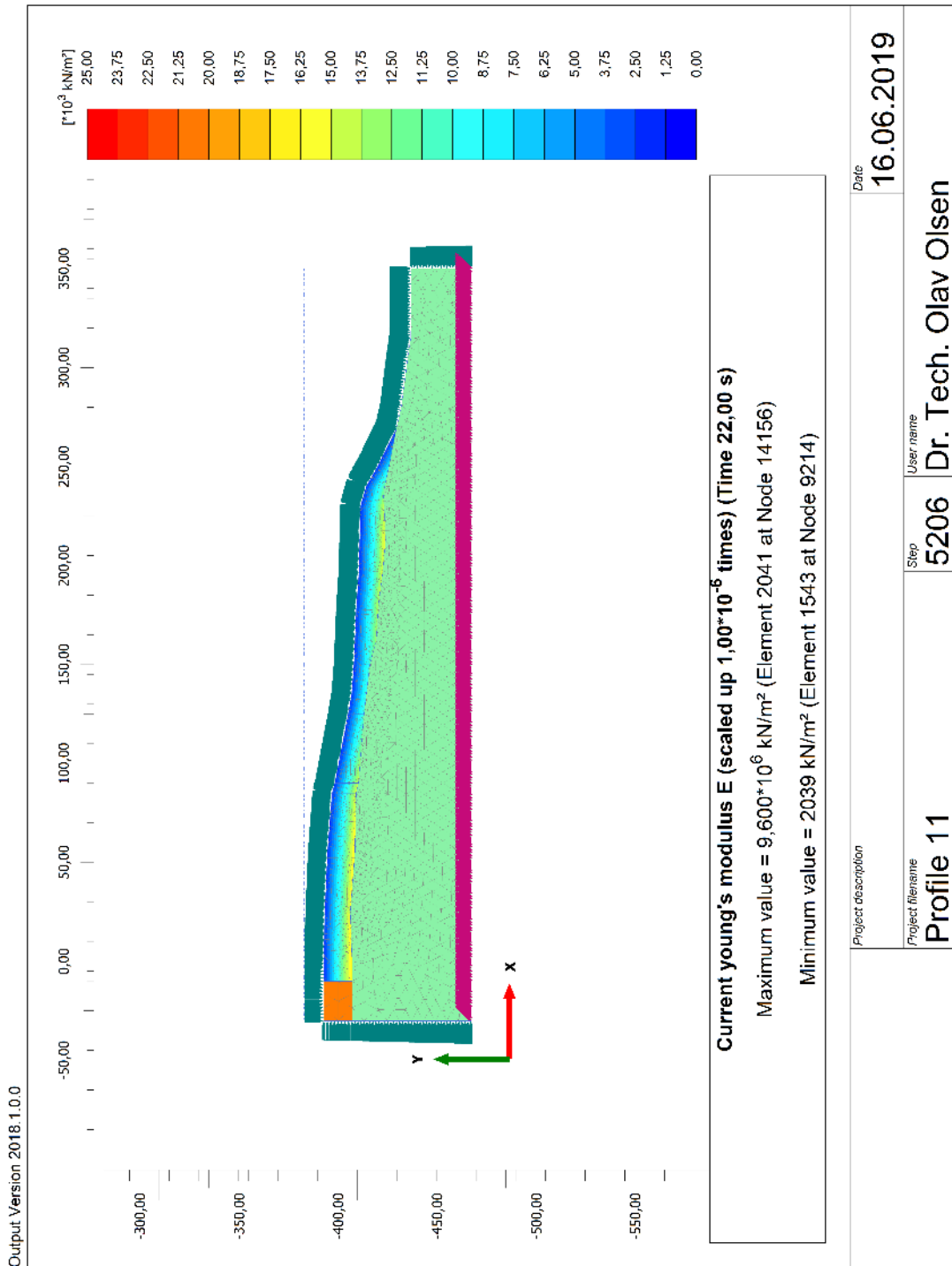
12.1 Model



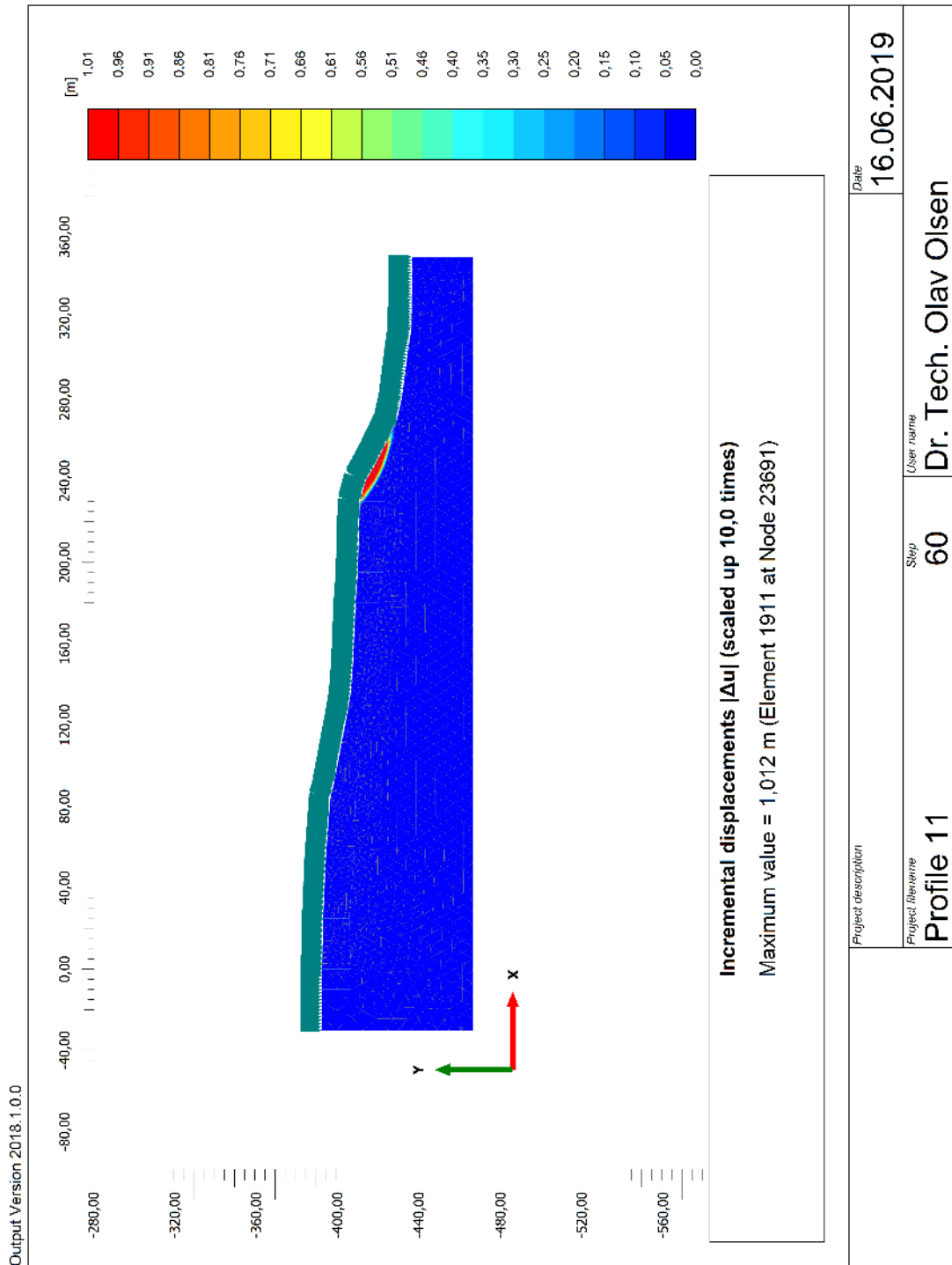
12.2 Cohesion



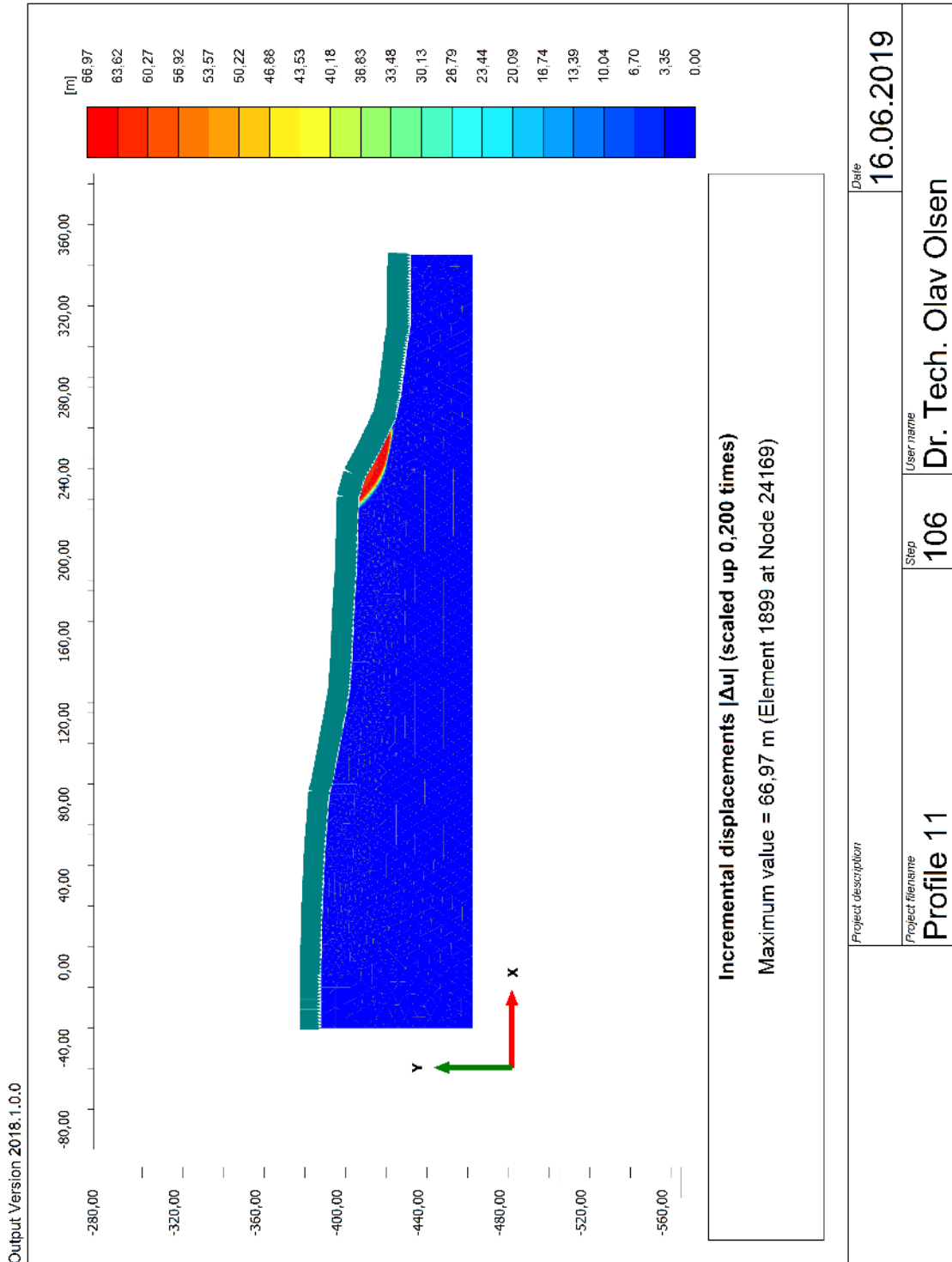
12.3 Stiffness



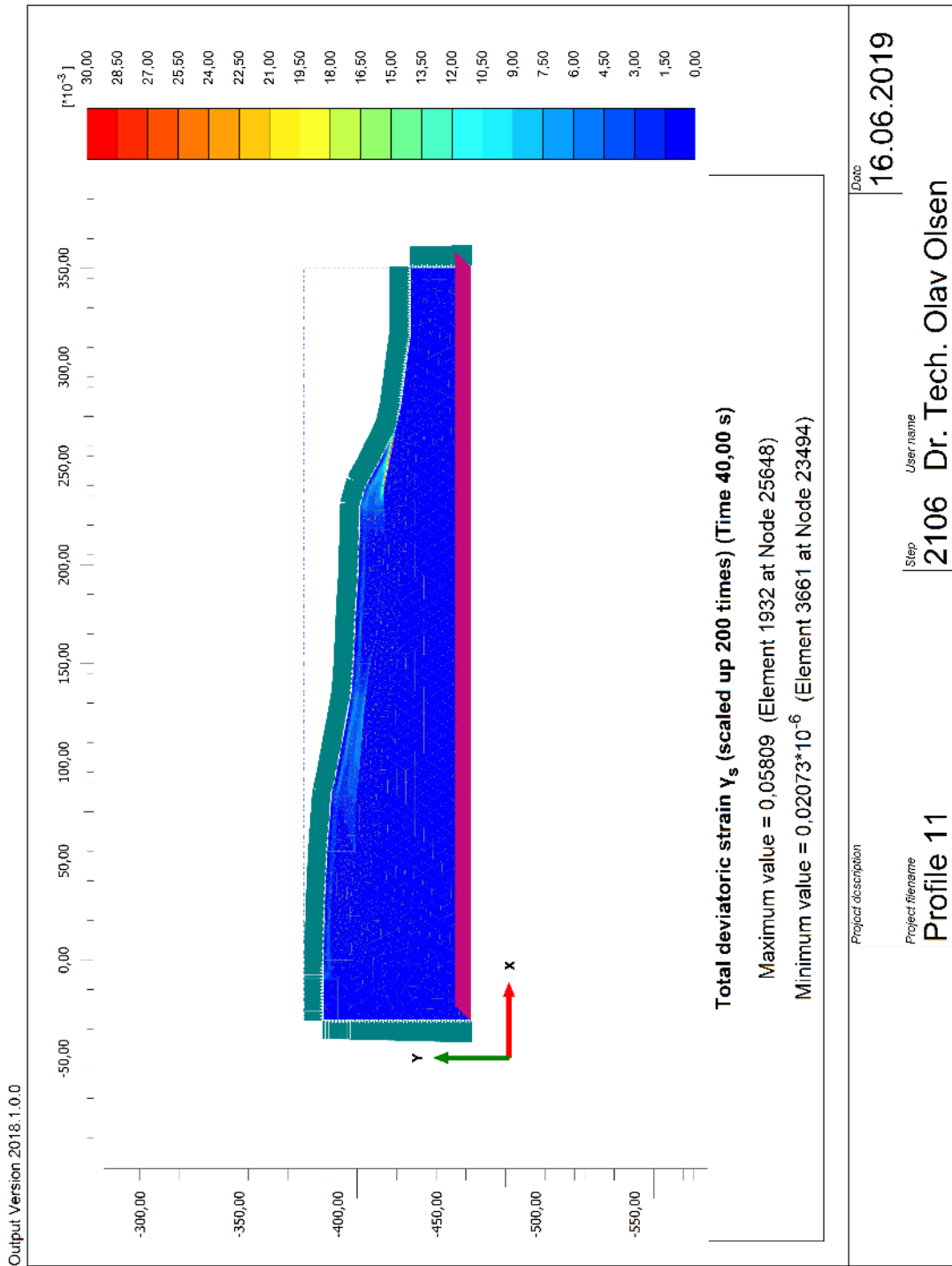
12.4 Drained failure



12.5 Undrained failure

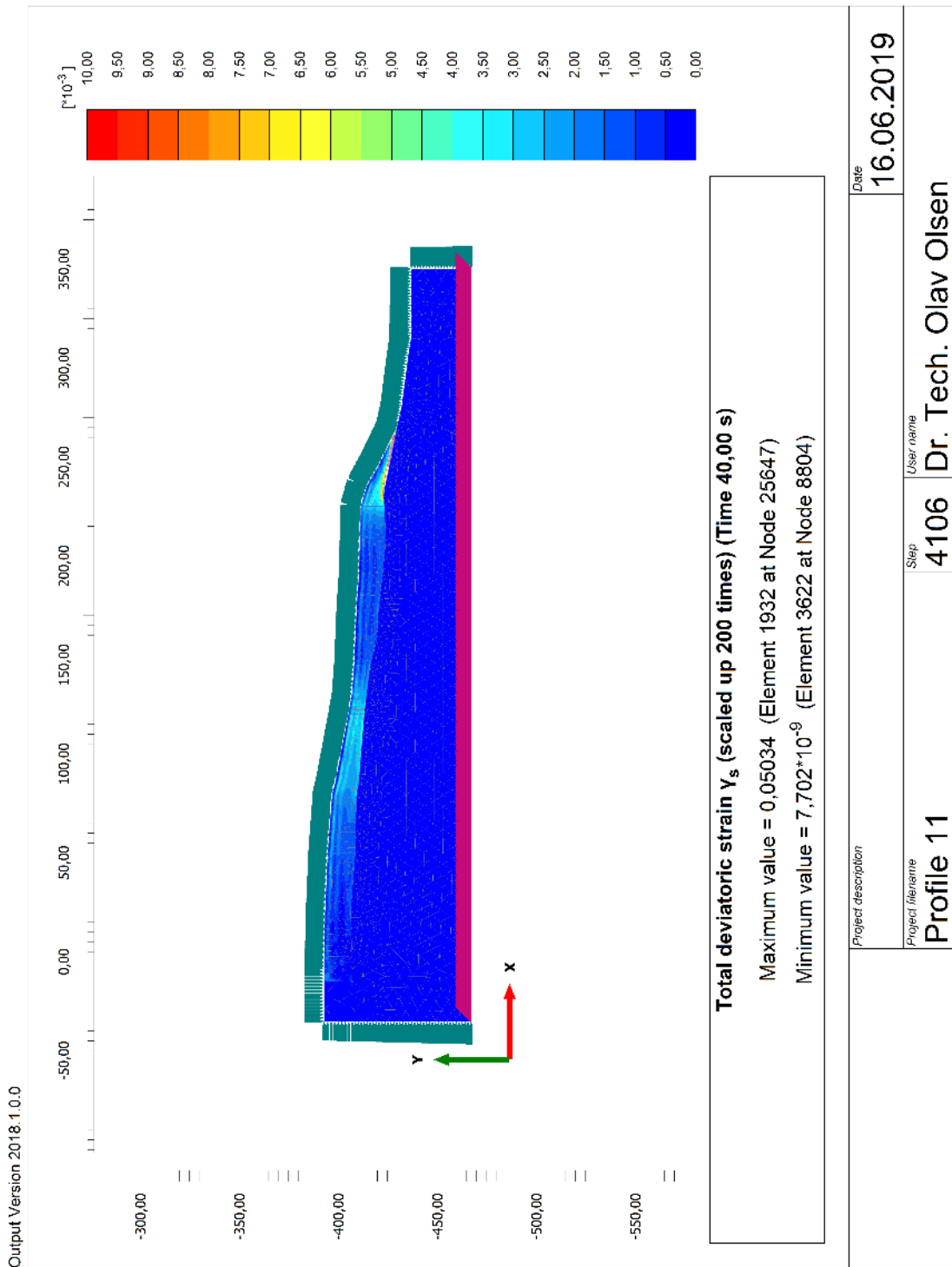


12.6 Permanent shear strain – Sierra Madre

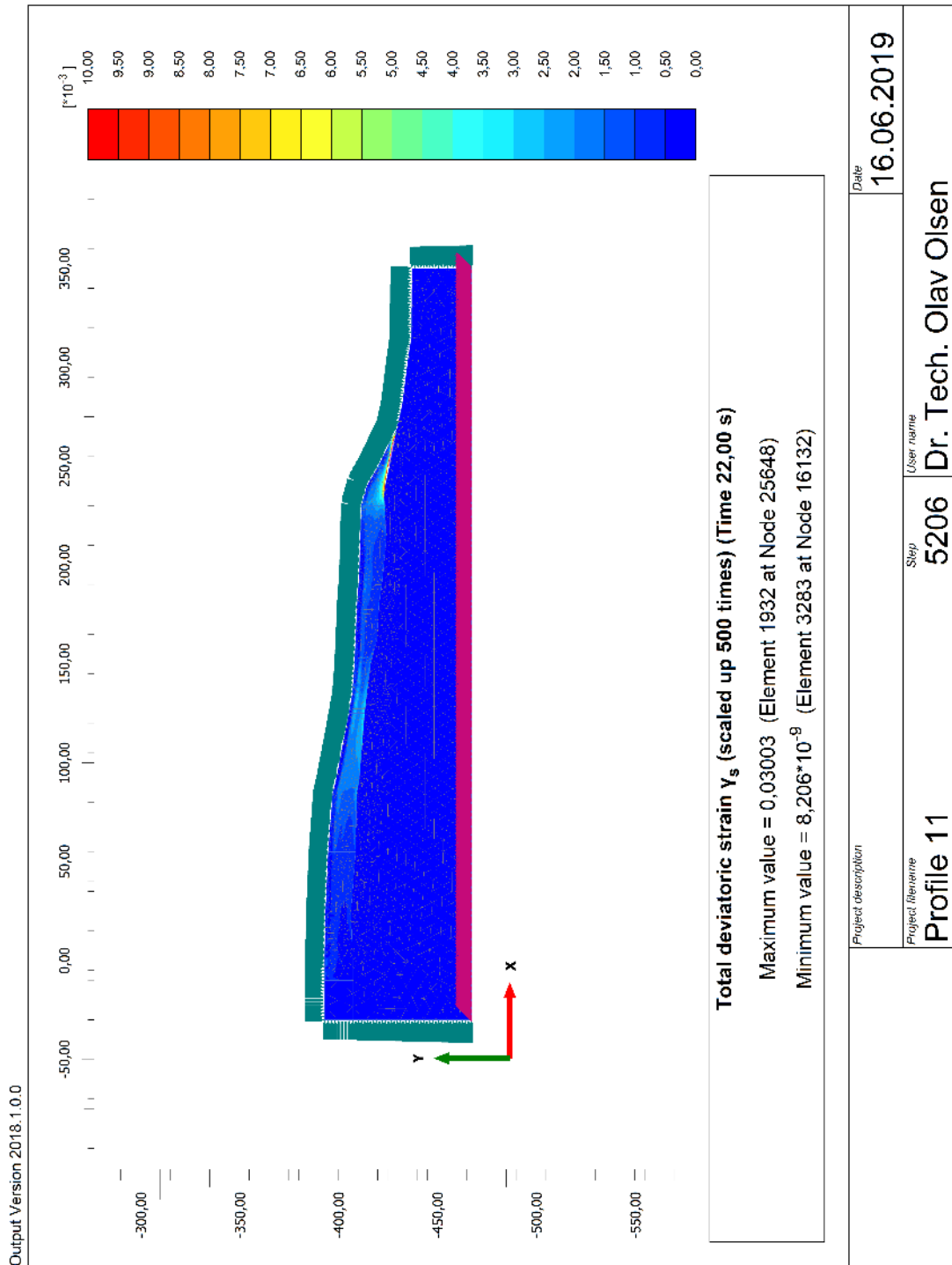


12.7 Permanent shear strain – Whittier Narrows main shock

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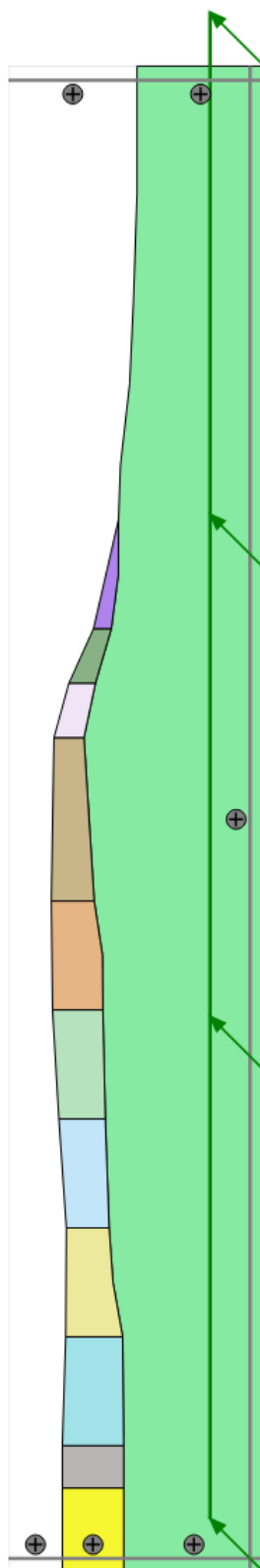


12.8 Permanent shear strain – Whittier aftershock

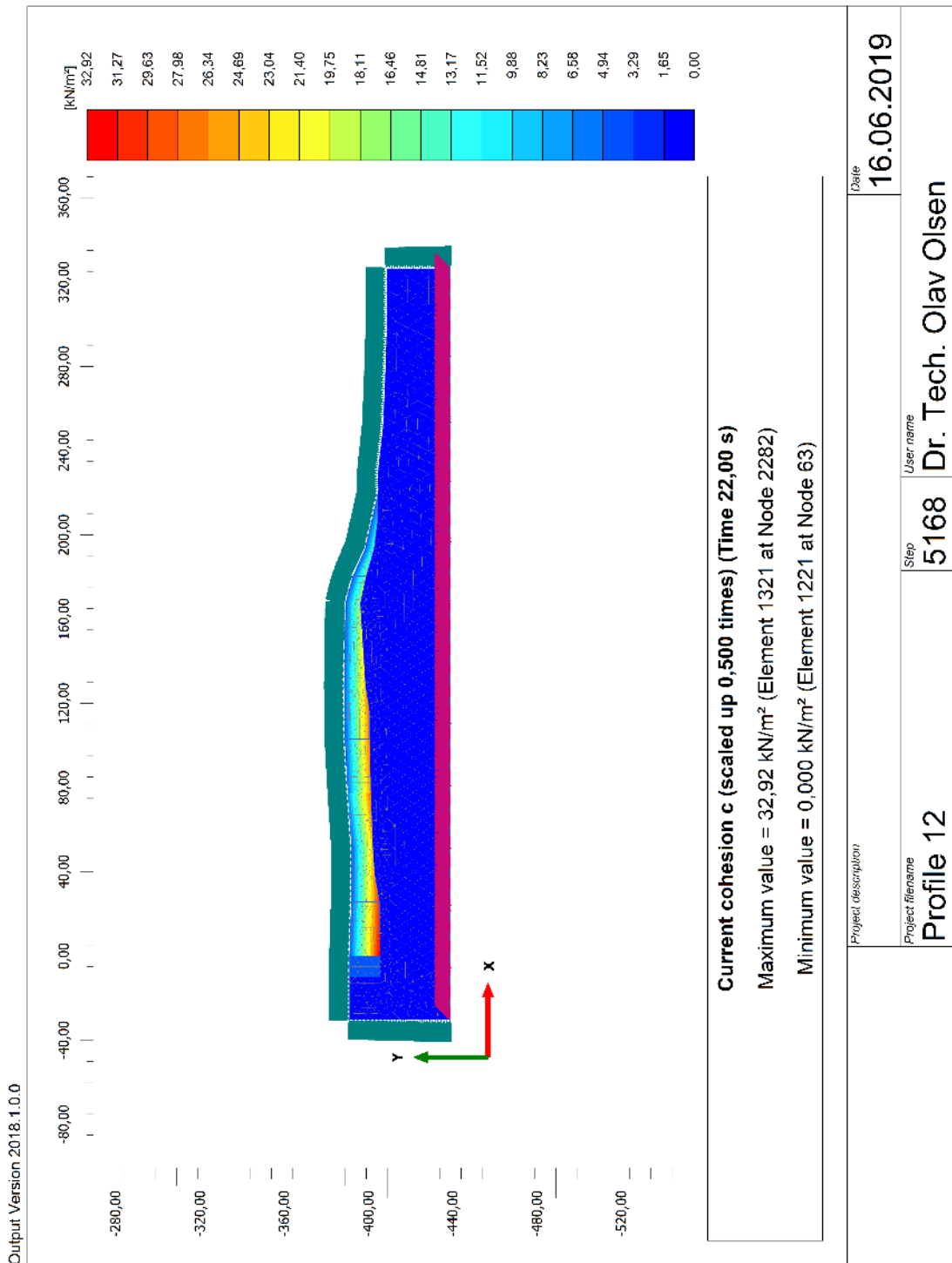


13 PROFILE 12

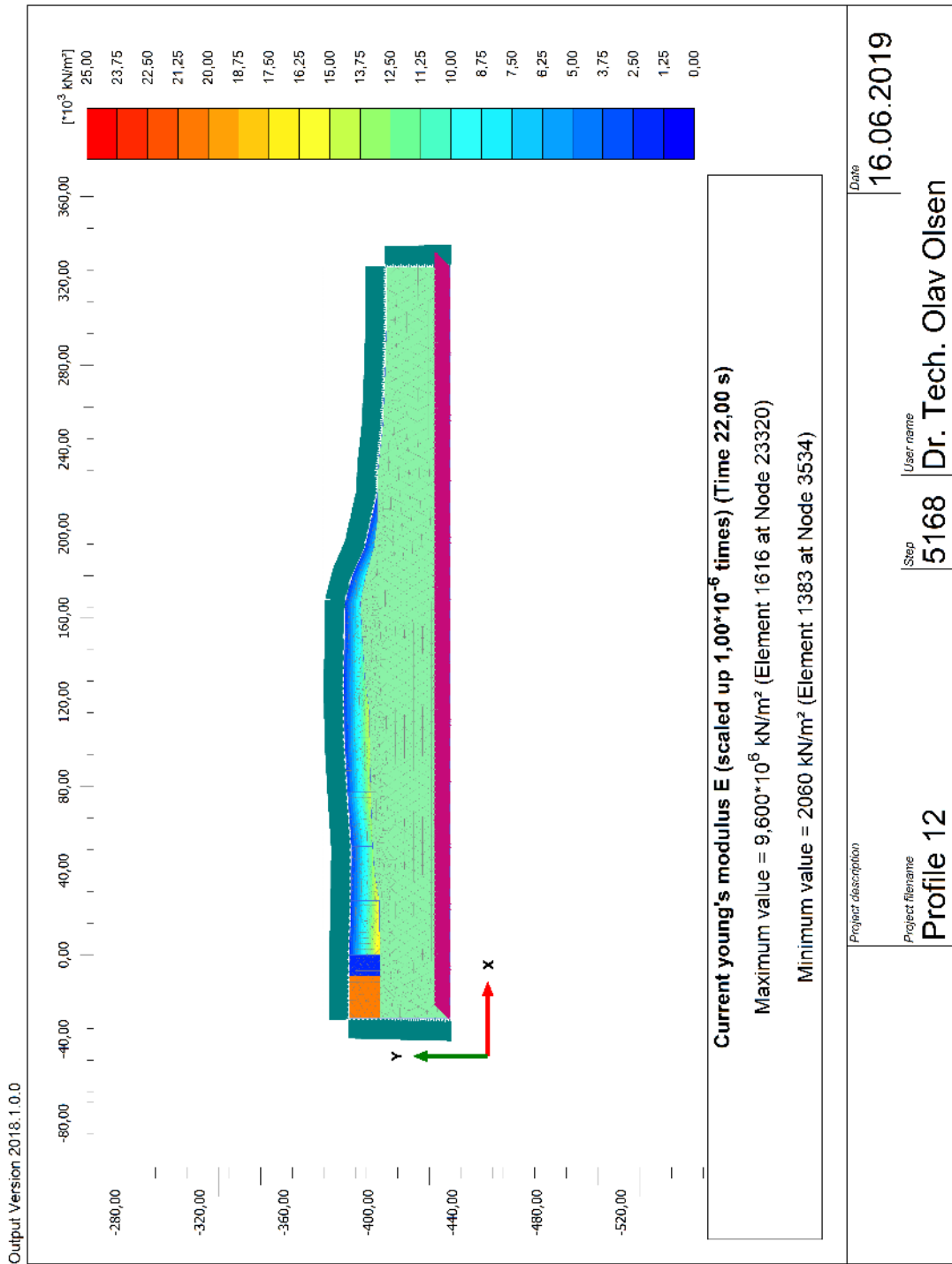
13.1 Model



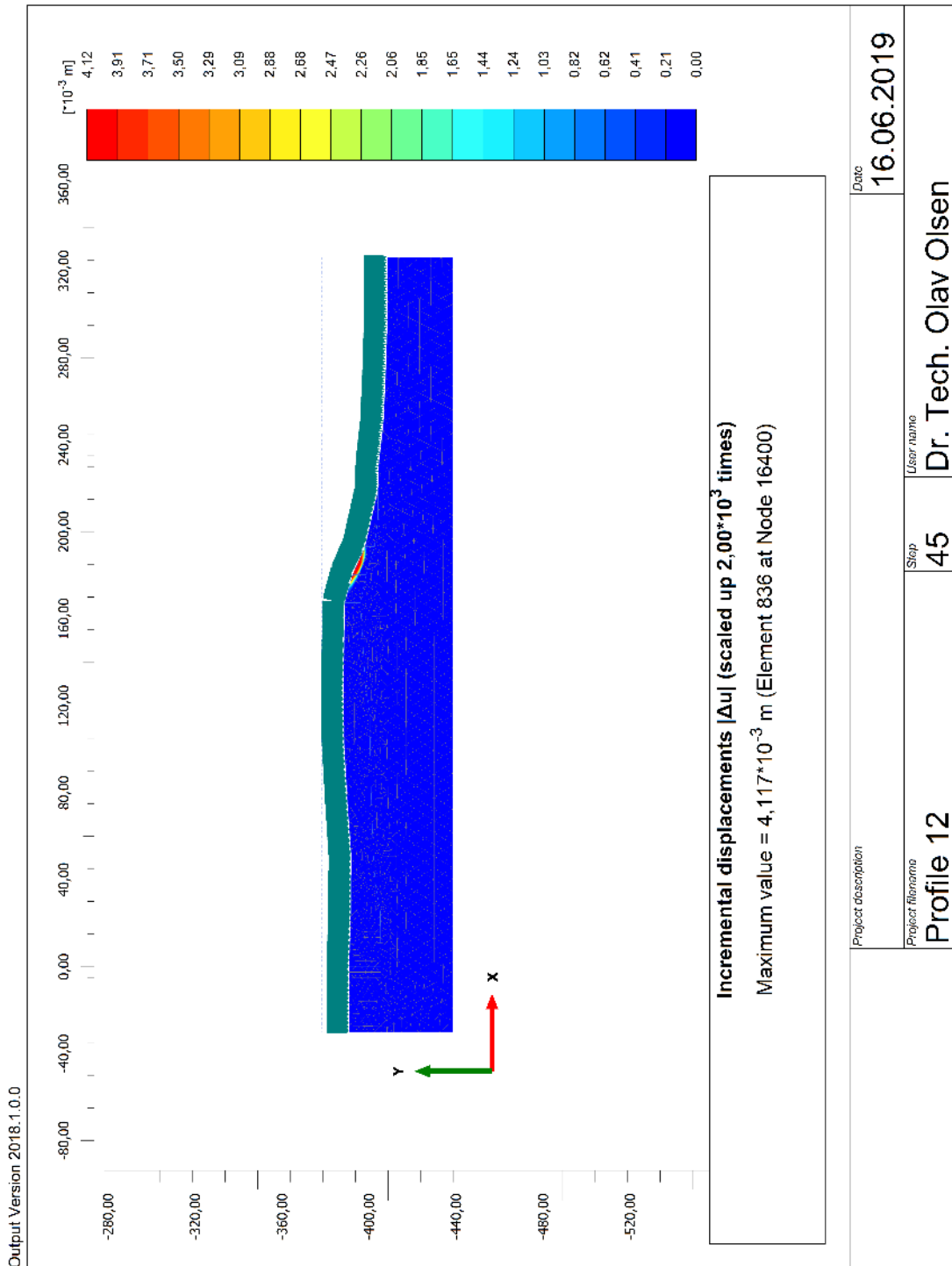
13.2 Cohesion



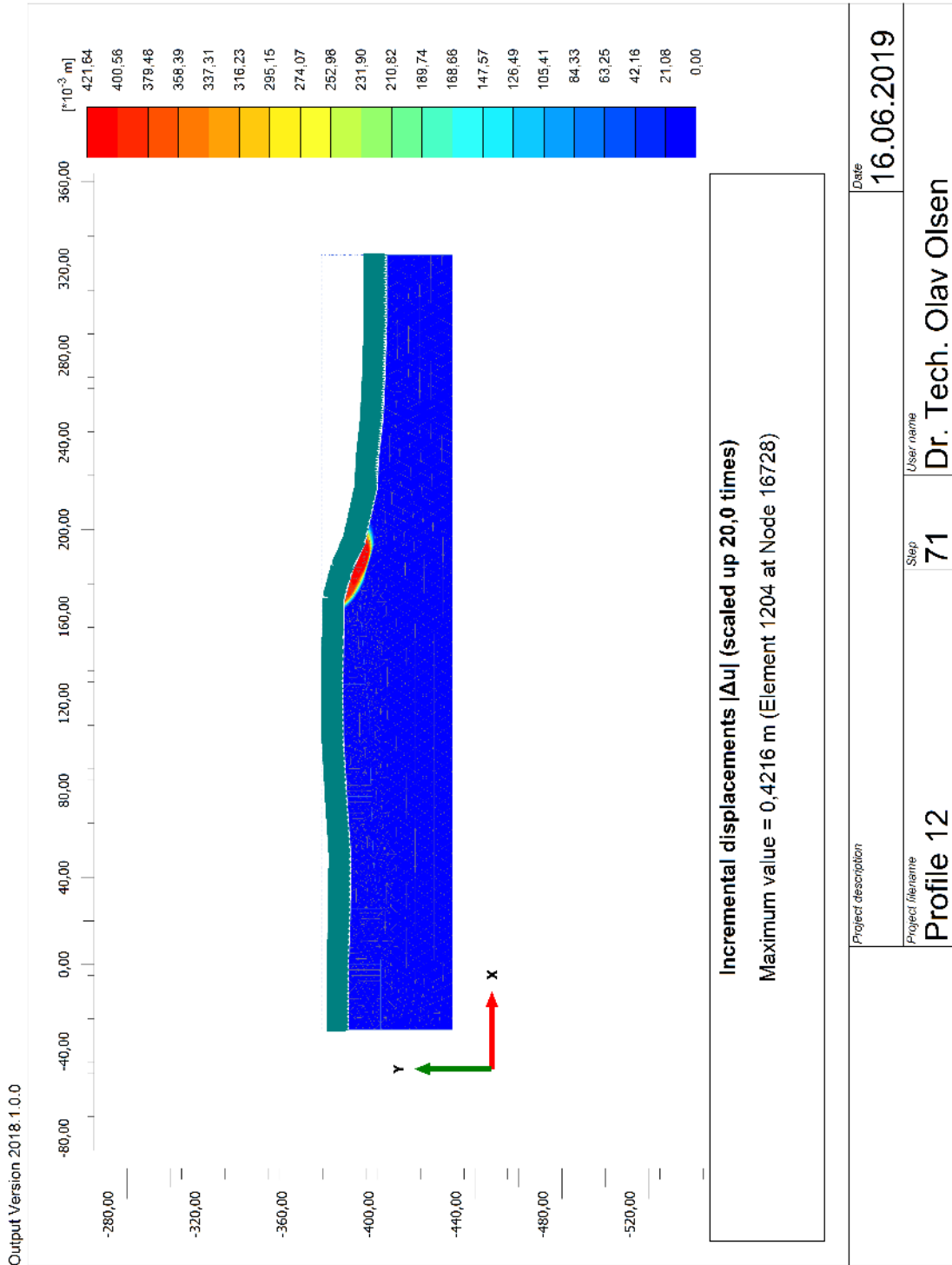
13.3 Stiffness



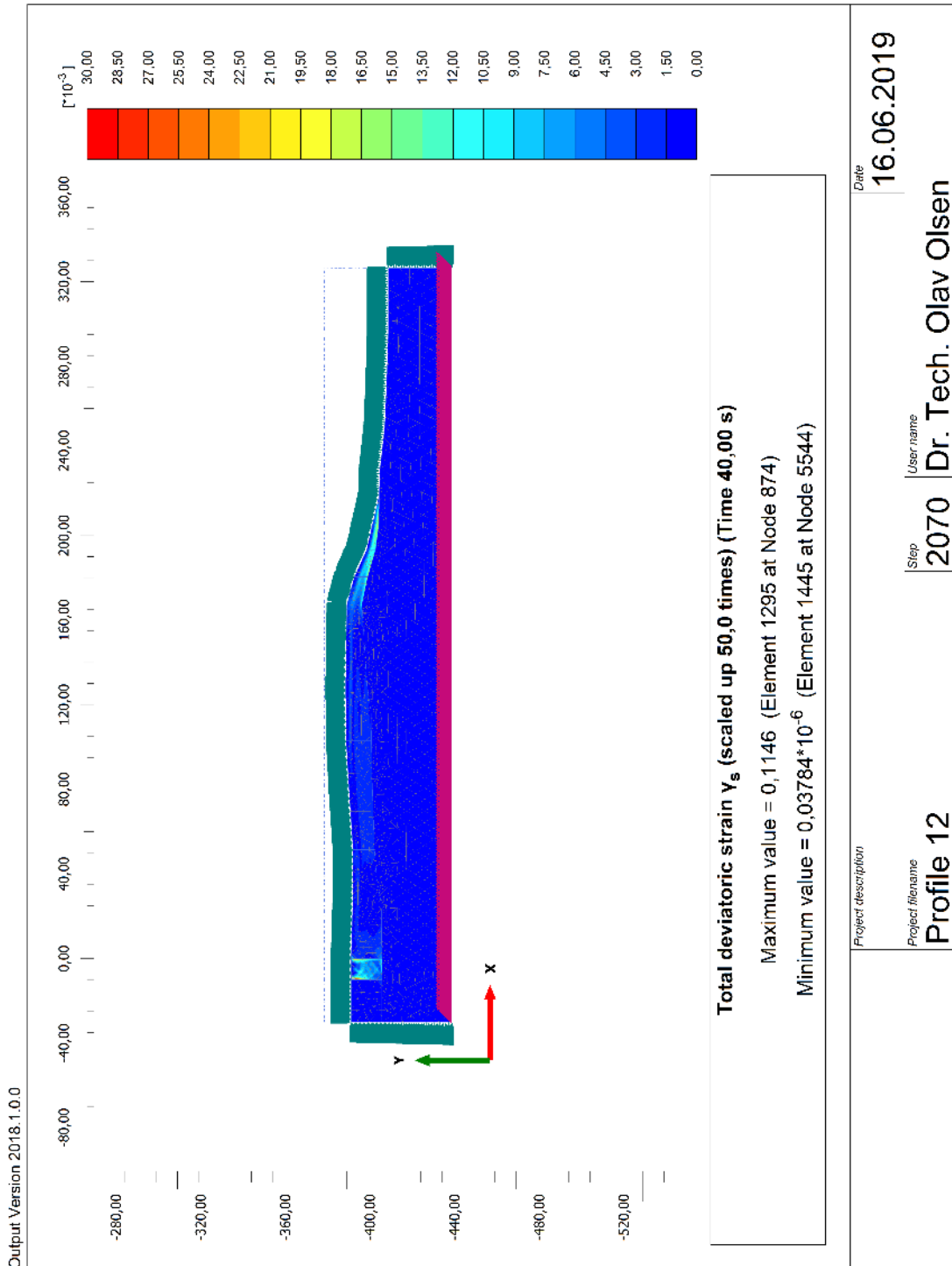
13.4 Drained failure



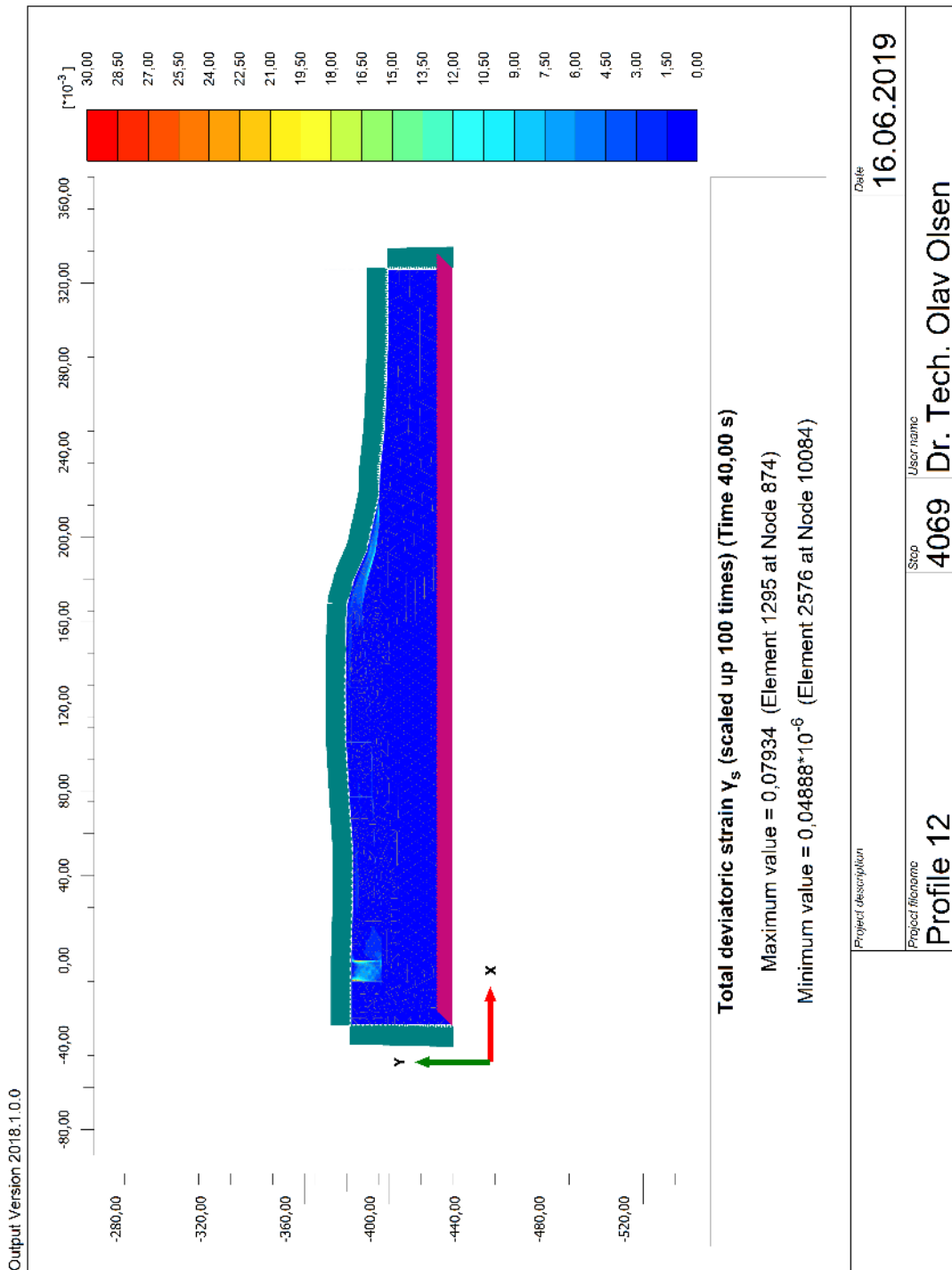
13.5 Undrained failure



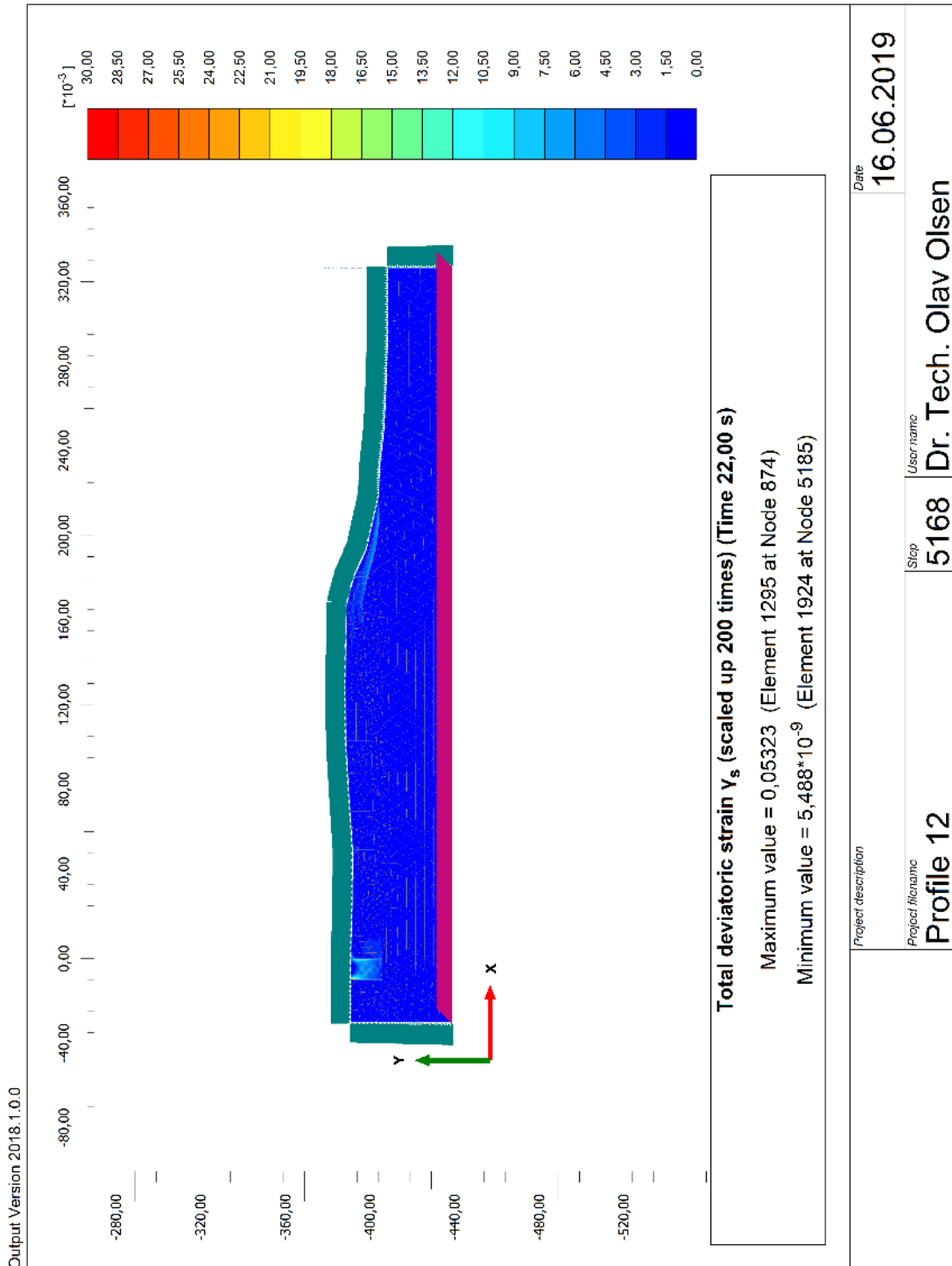
13.6 Permanent shear strain – Sierra Madre



13.7 Permanent shear strain – Whittier Narrows main shock

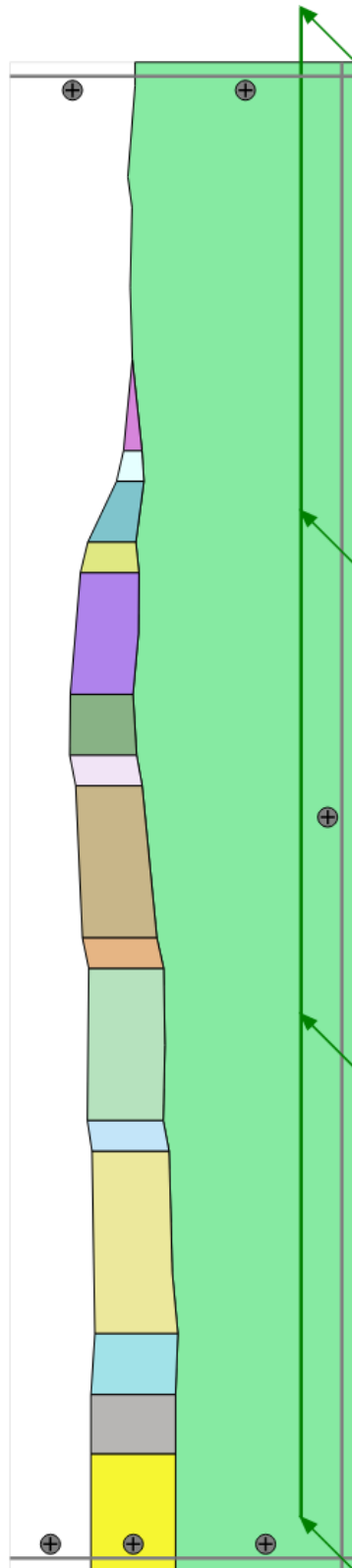


13.8 Permanent shear strain – Whittier aftershock

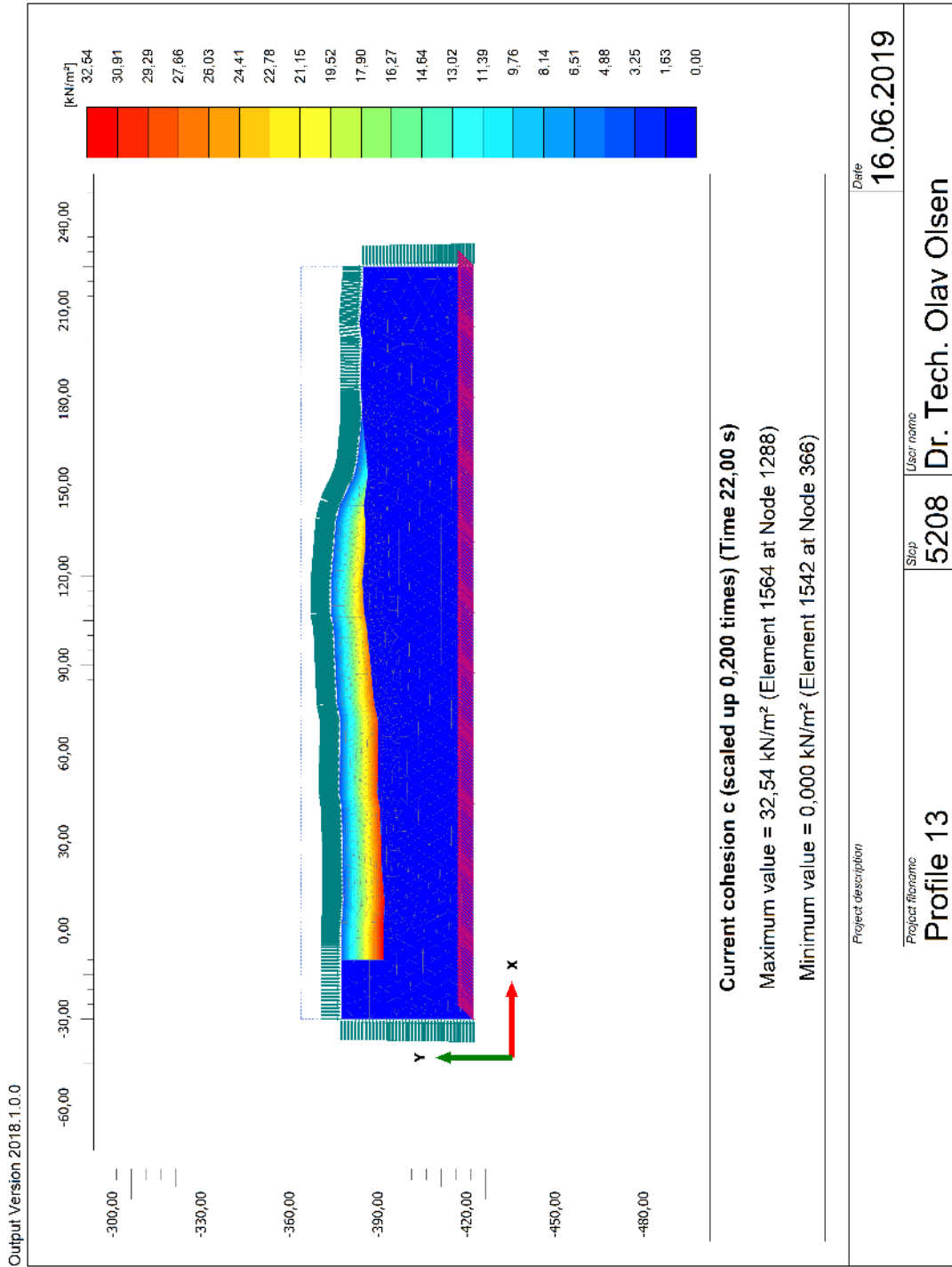


14 PROFILE 13

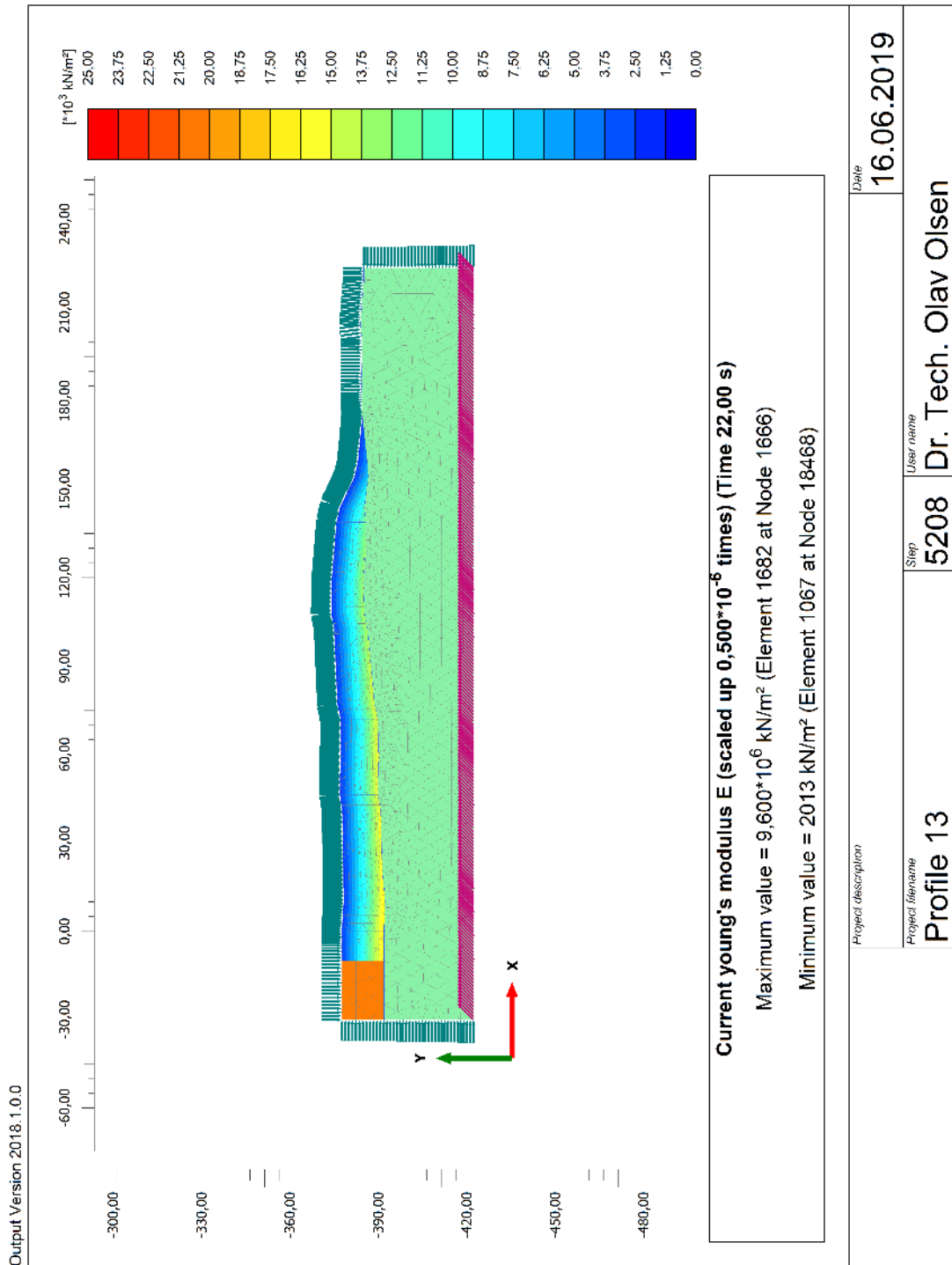
14.1 Model



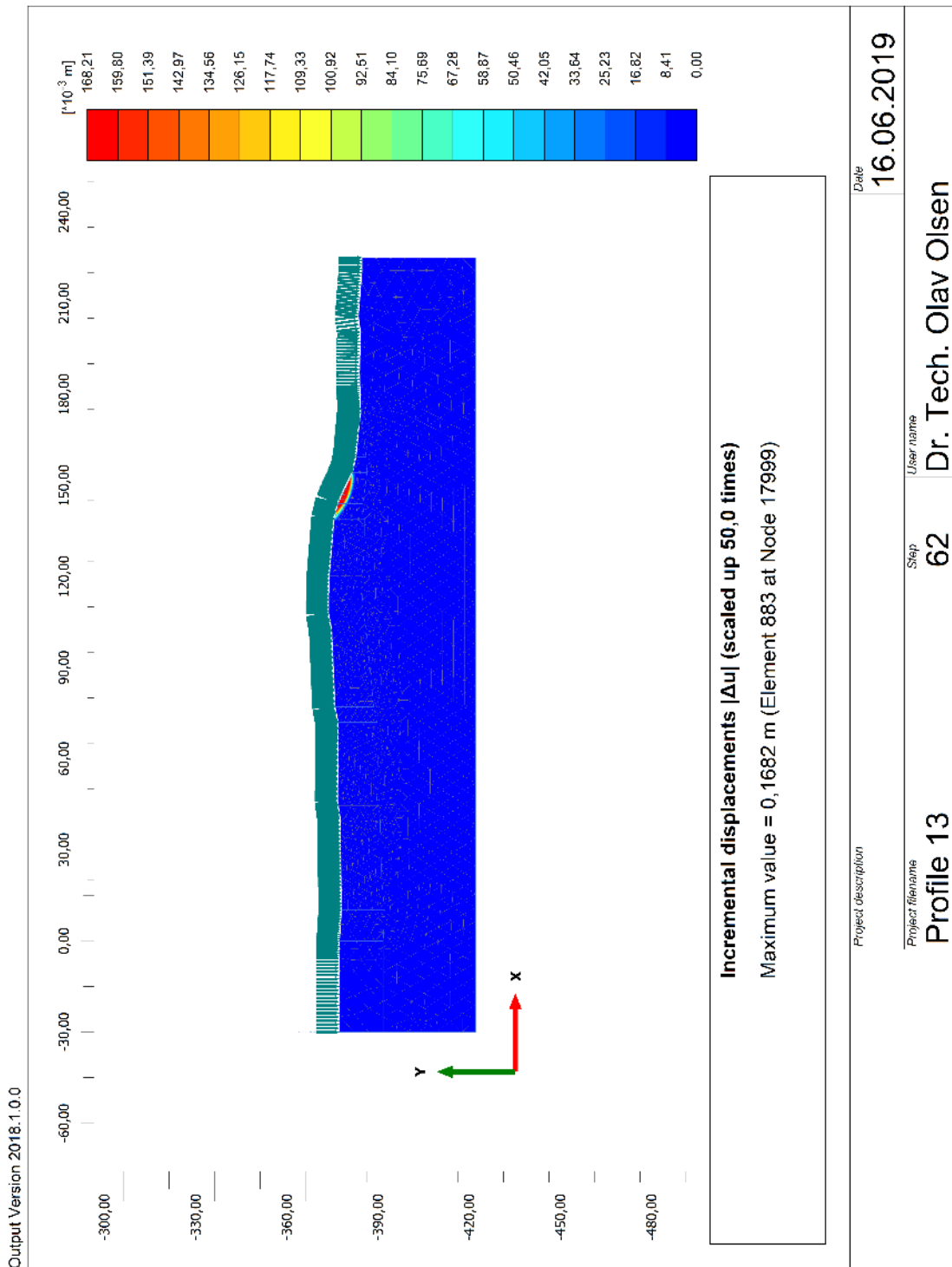
14.2 Cohesion



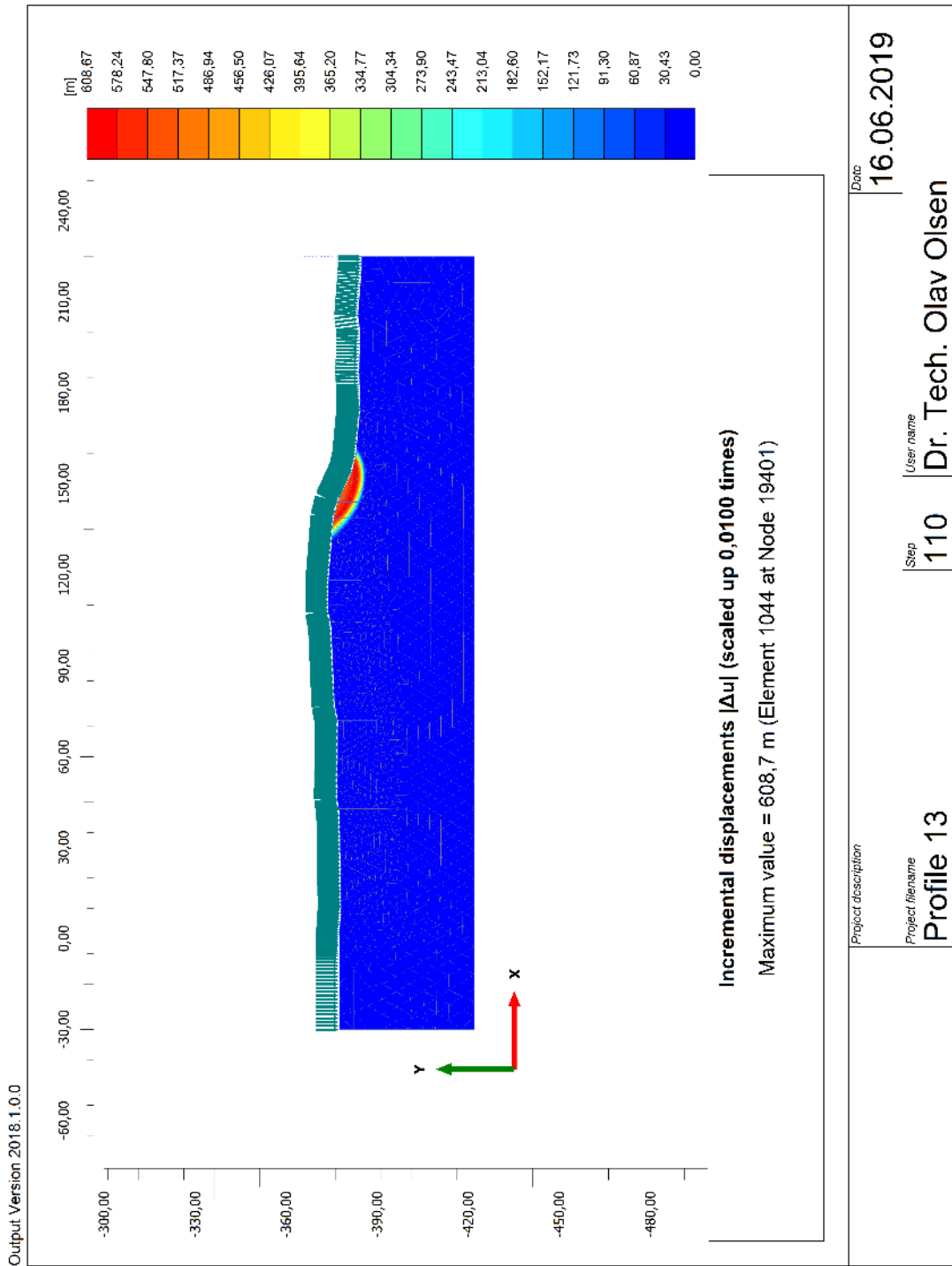
14.3 Stiffness



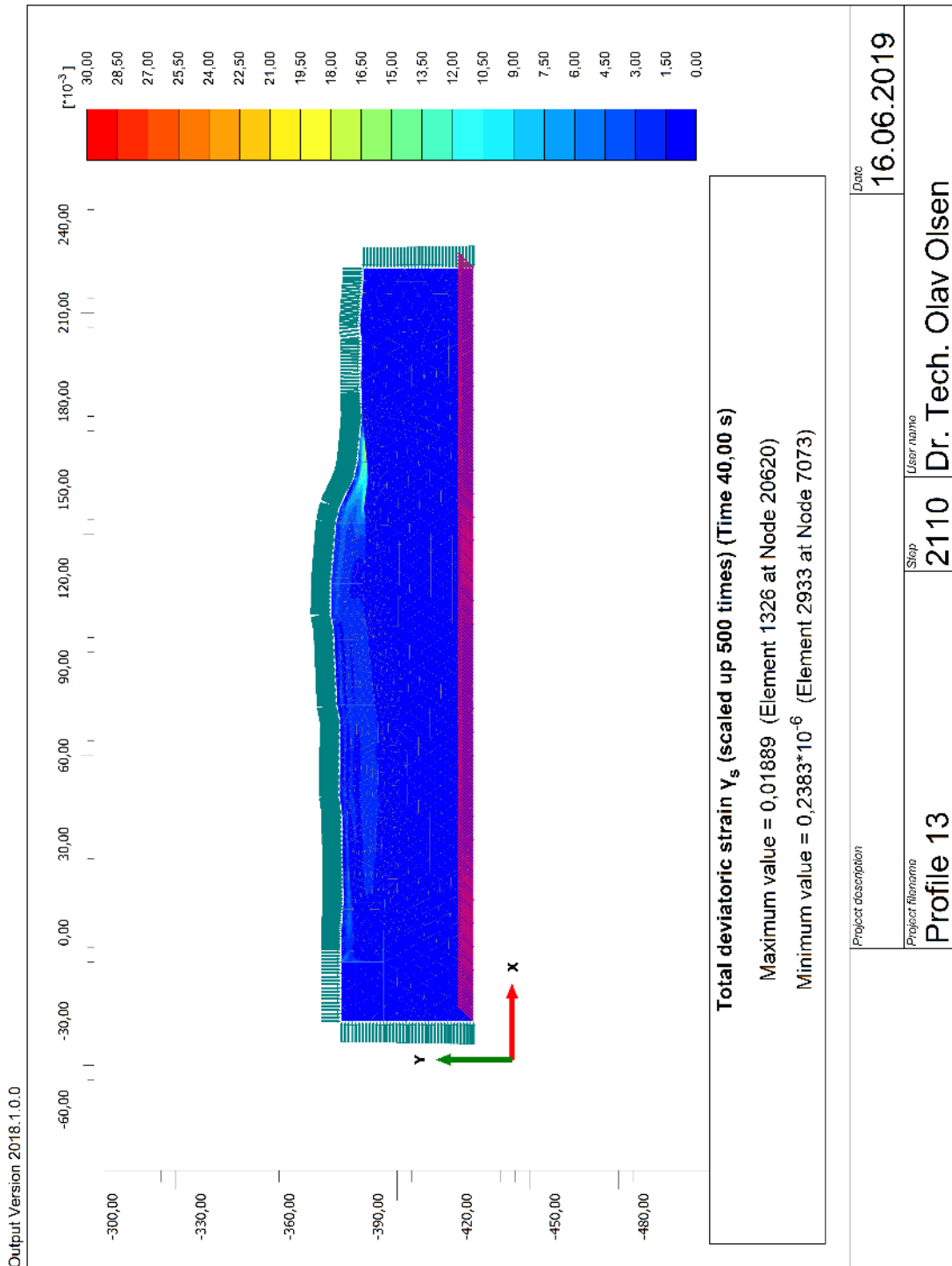
14.4 Drained failure



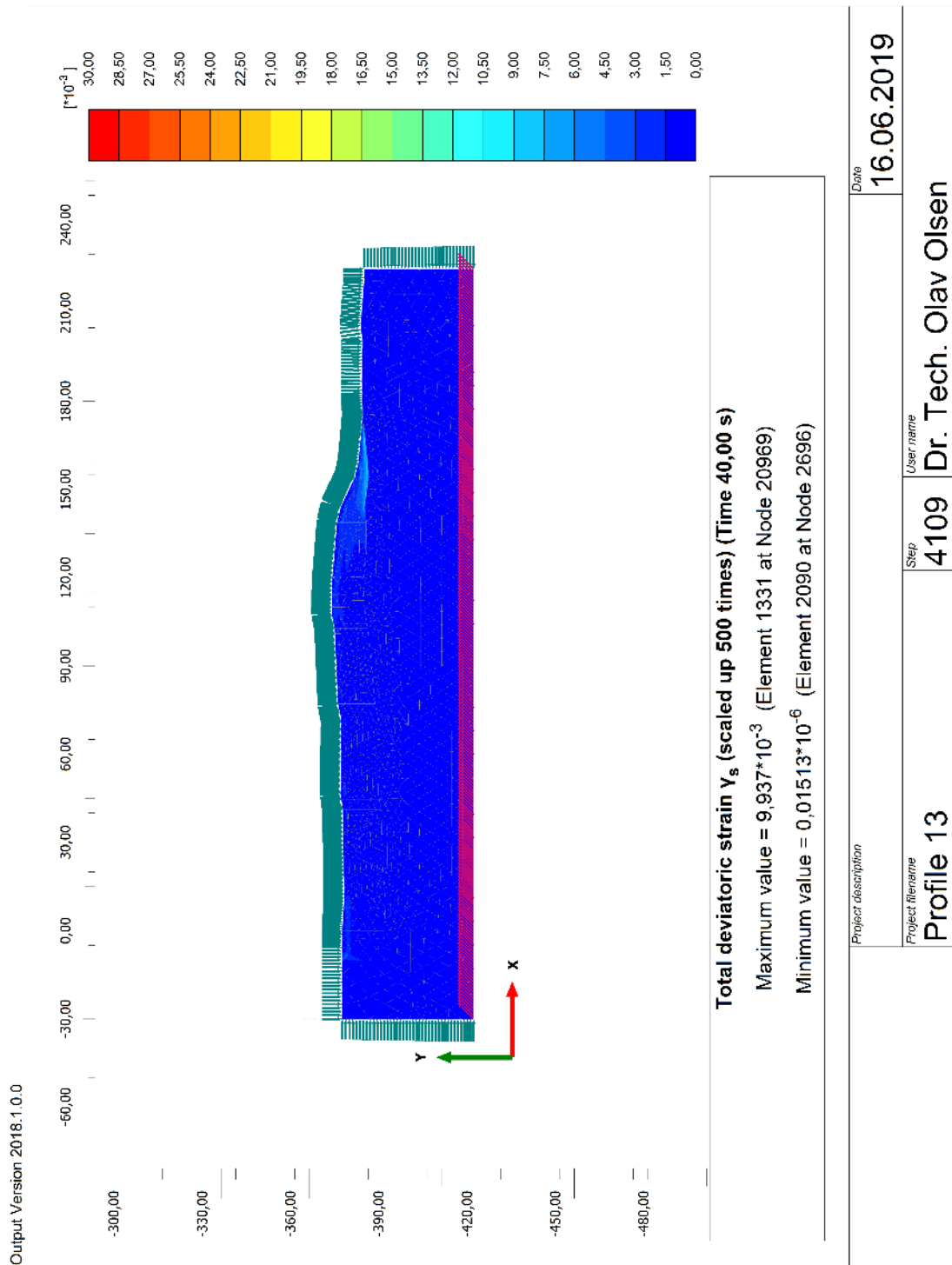
14.5 Undrained failure



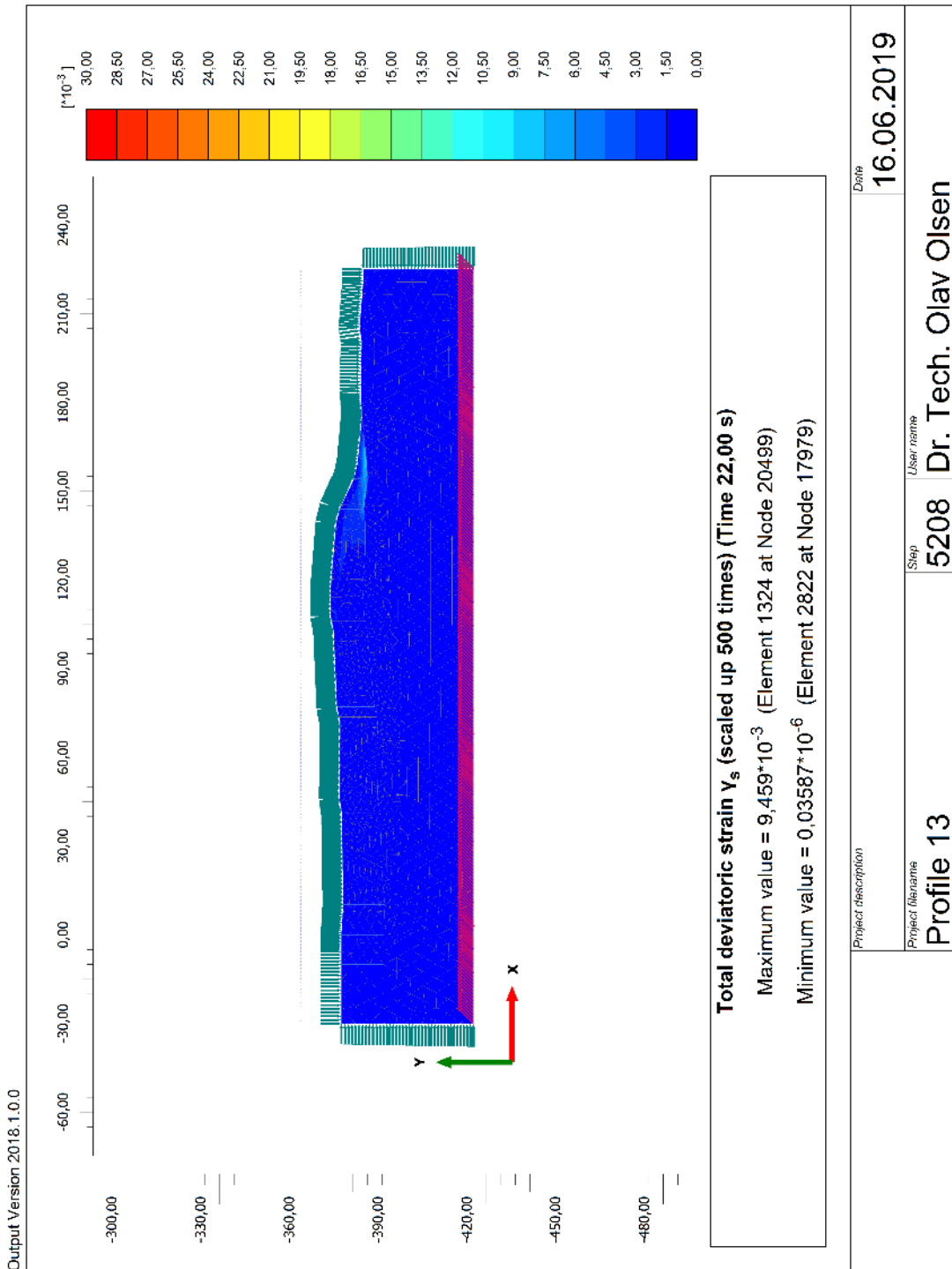
14.6 Permanent shear strain – Sierra Madre



14.7 Permanent shear strain – Whittier Narrows main shock

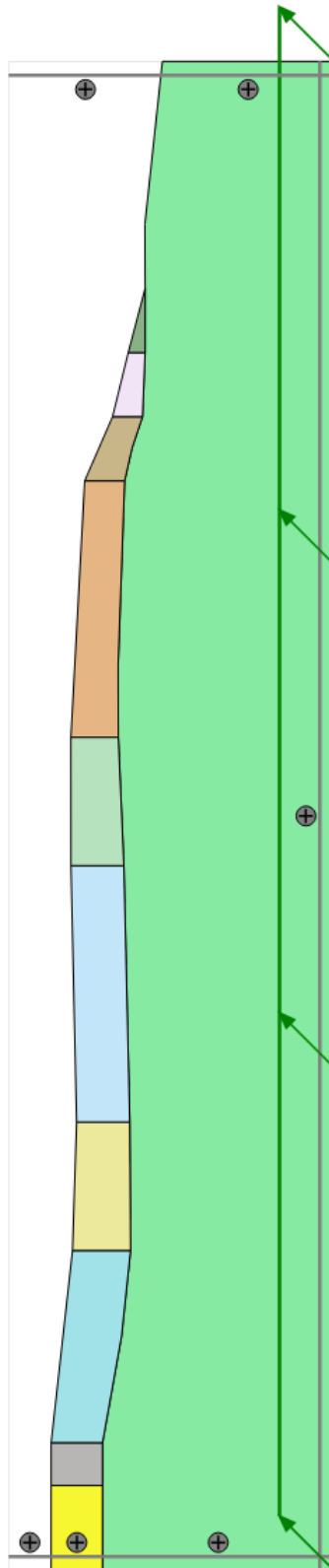


14.8 Permanent shear strain – Whittier aftershock

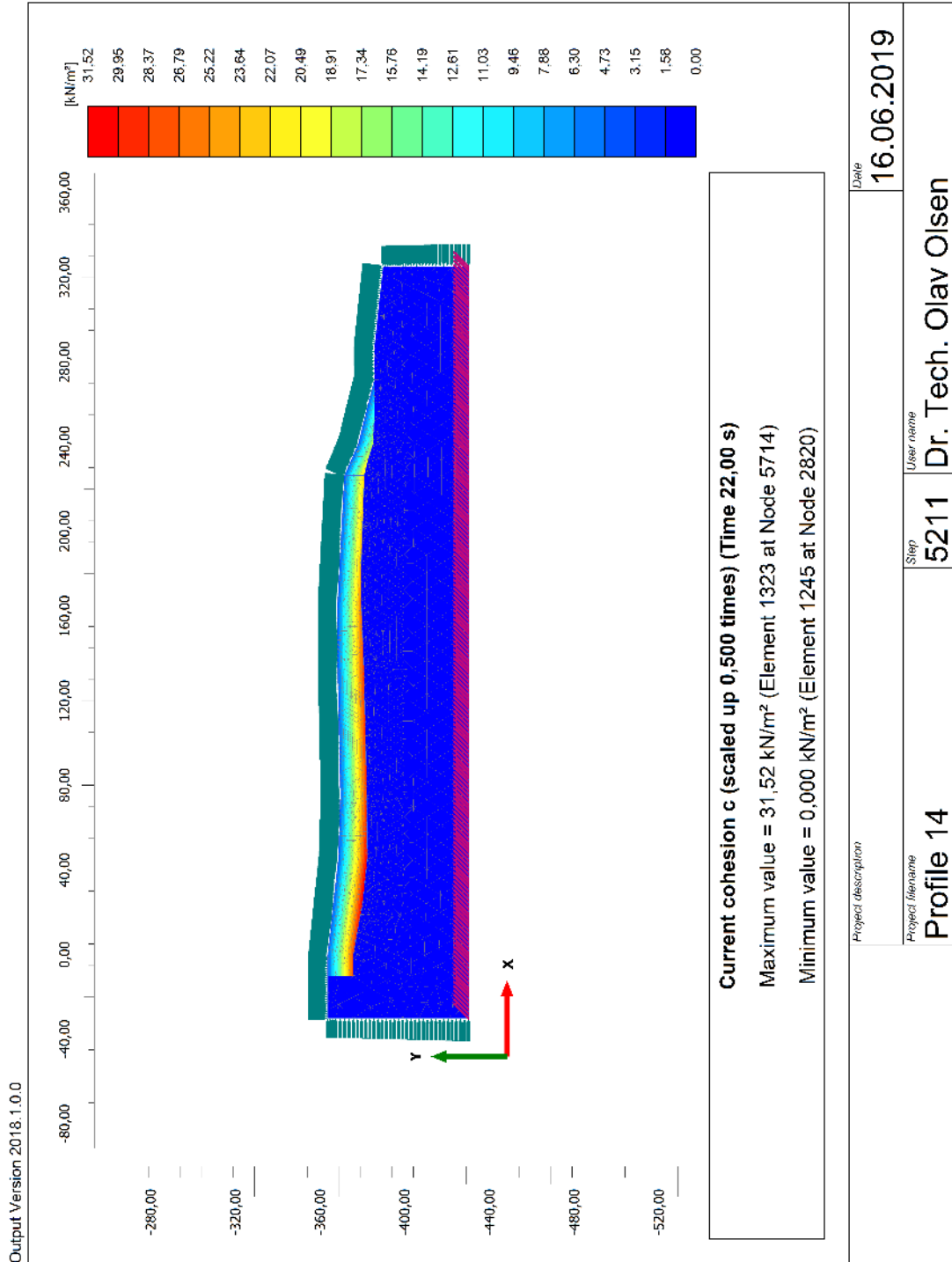


15 PROFILE 14

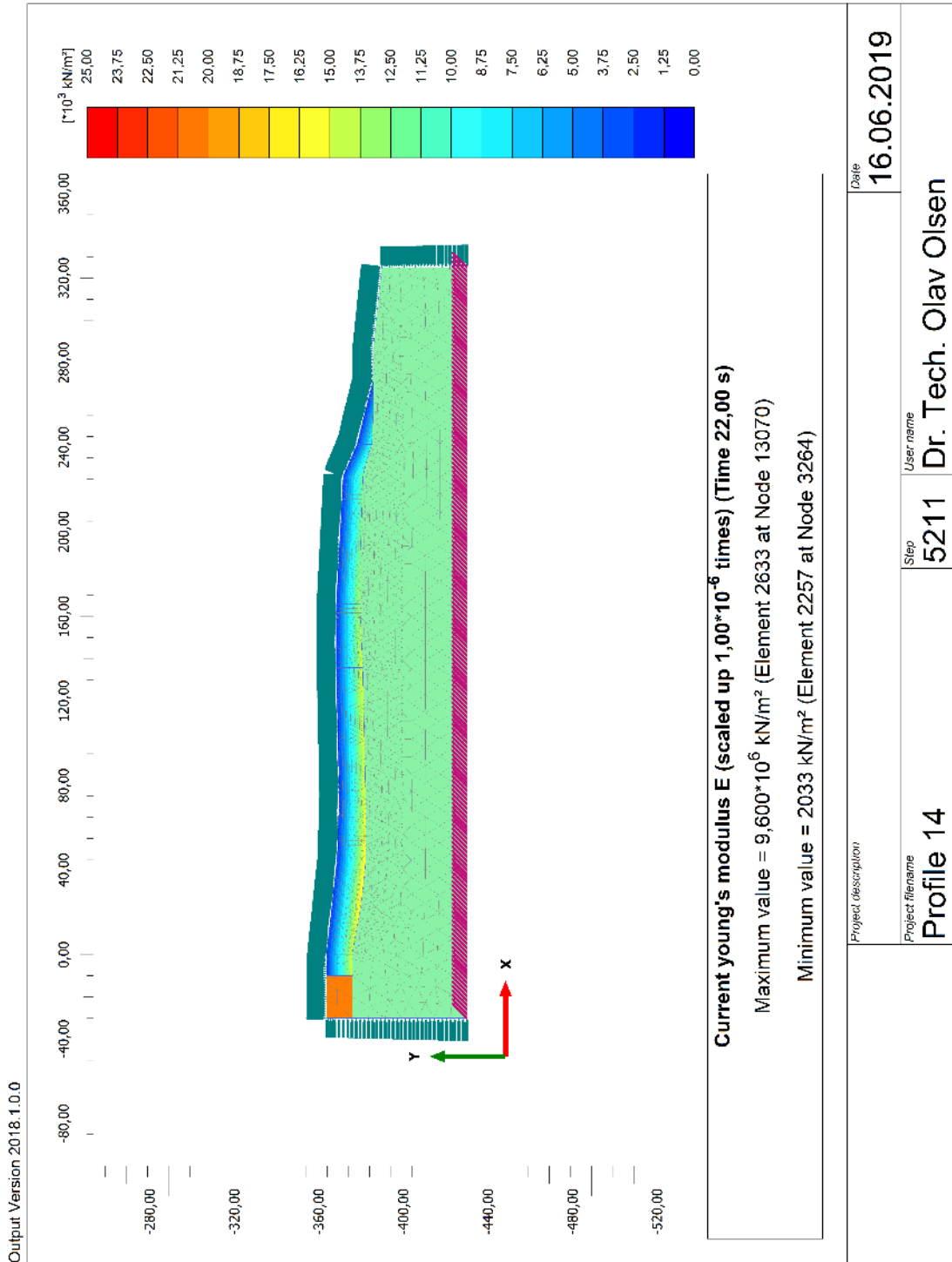
15.1 Model



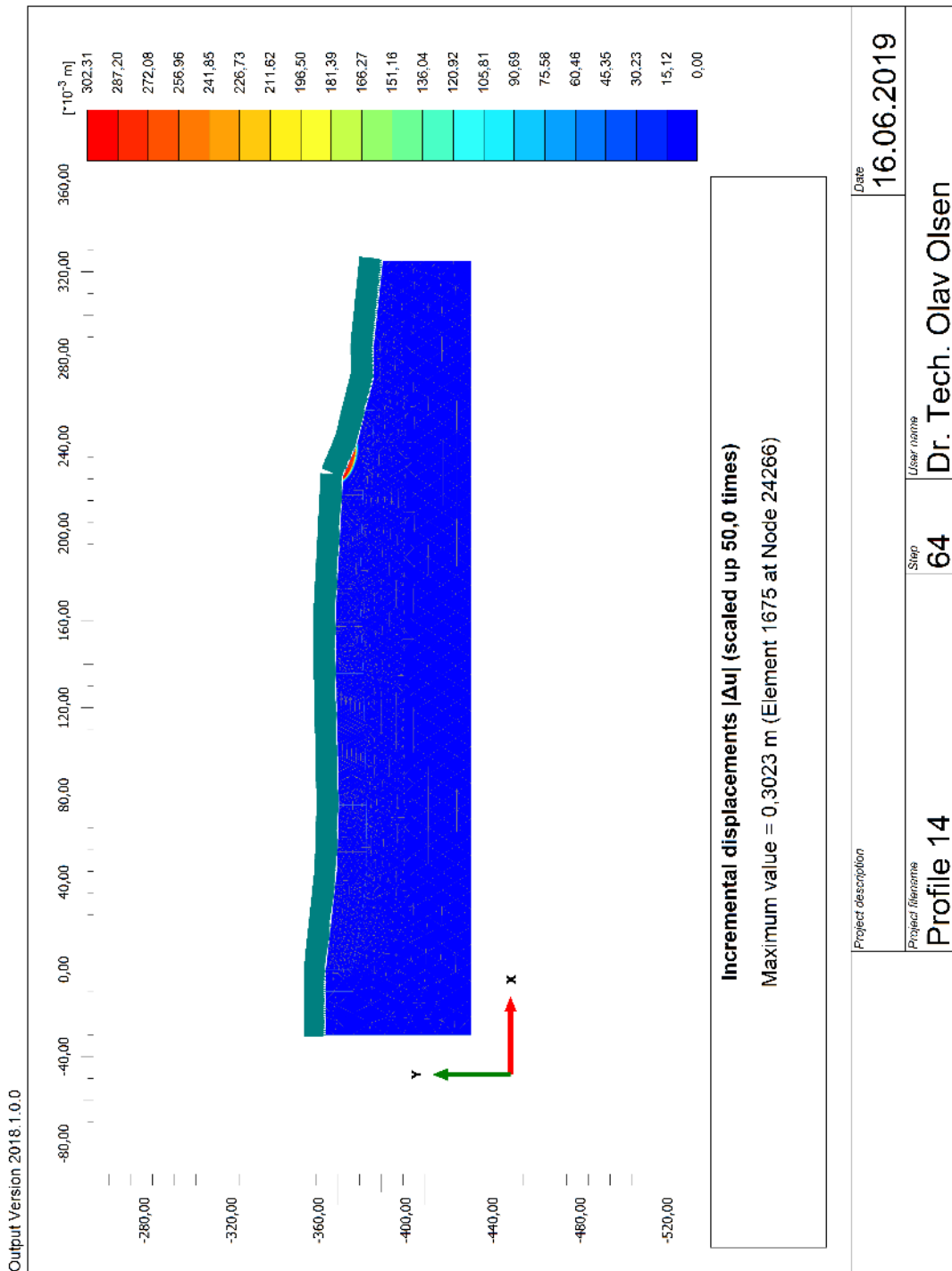
15.2 Cohesion



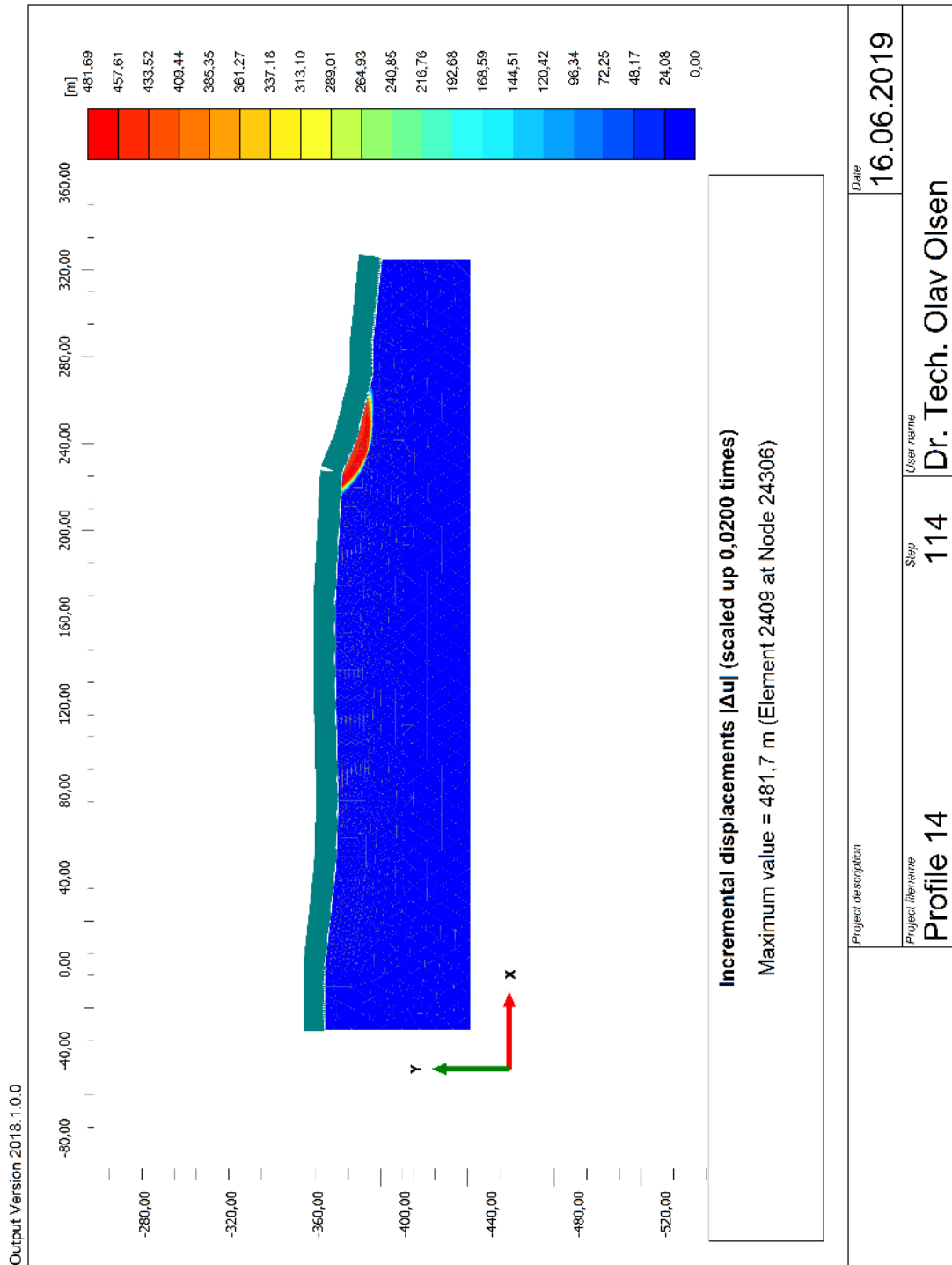
15.3 Stiffness



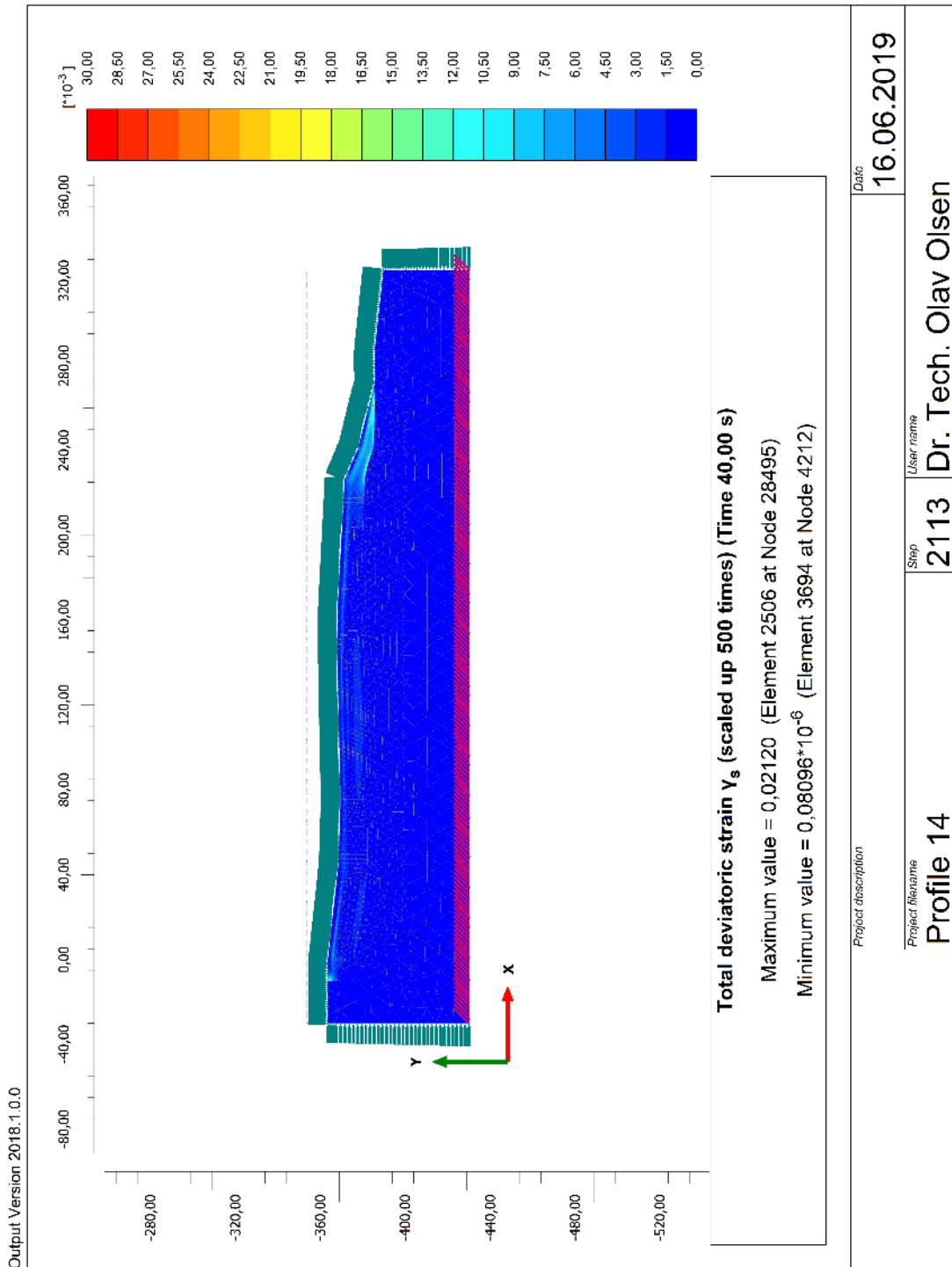
15.4 Drained failure



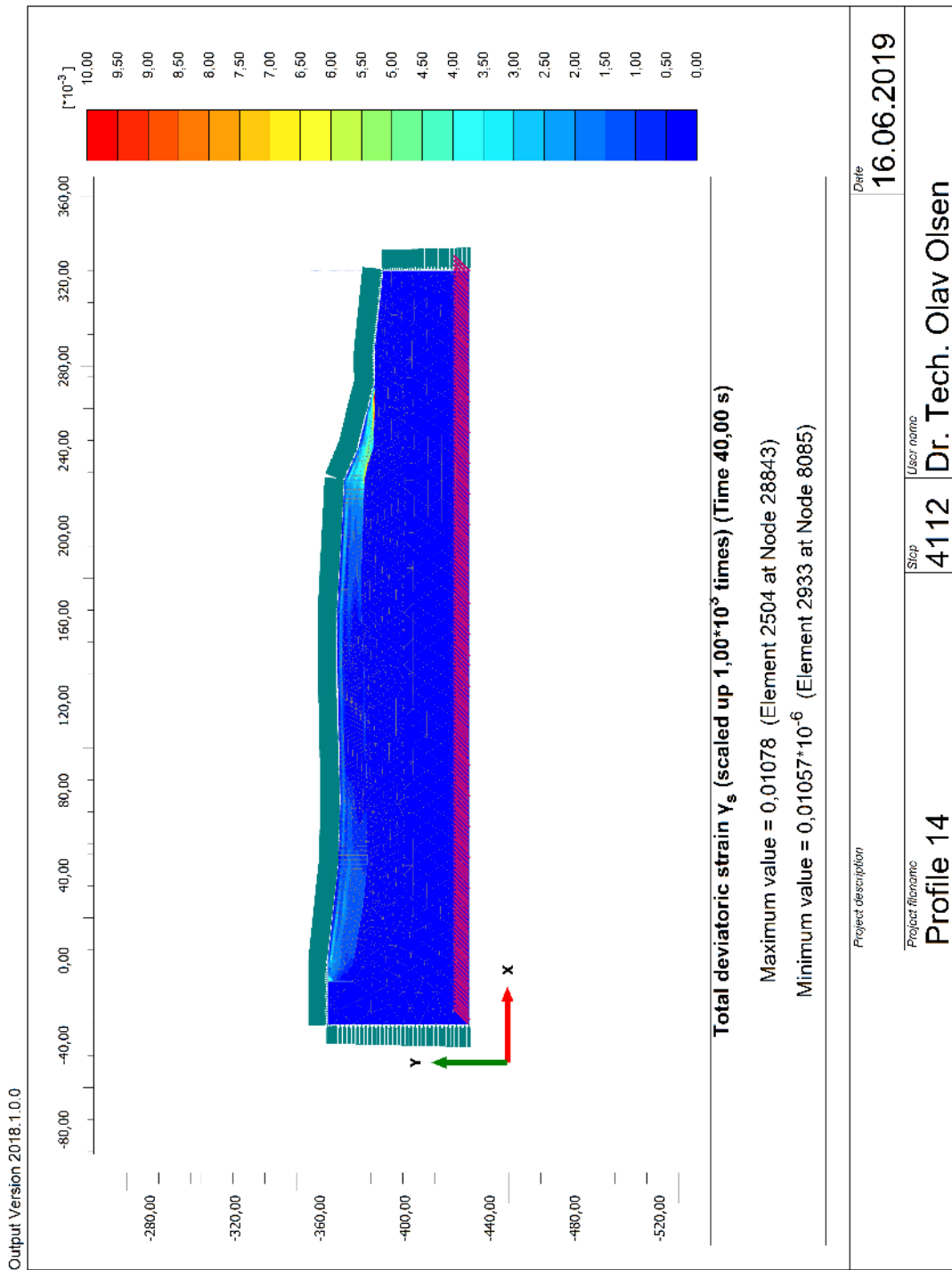
15.5 Undrained failure



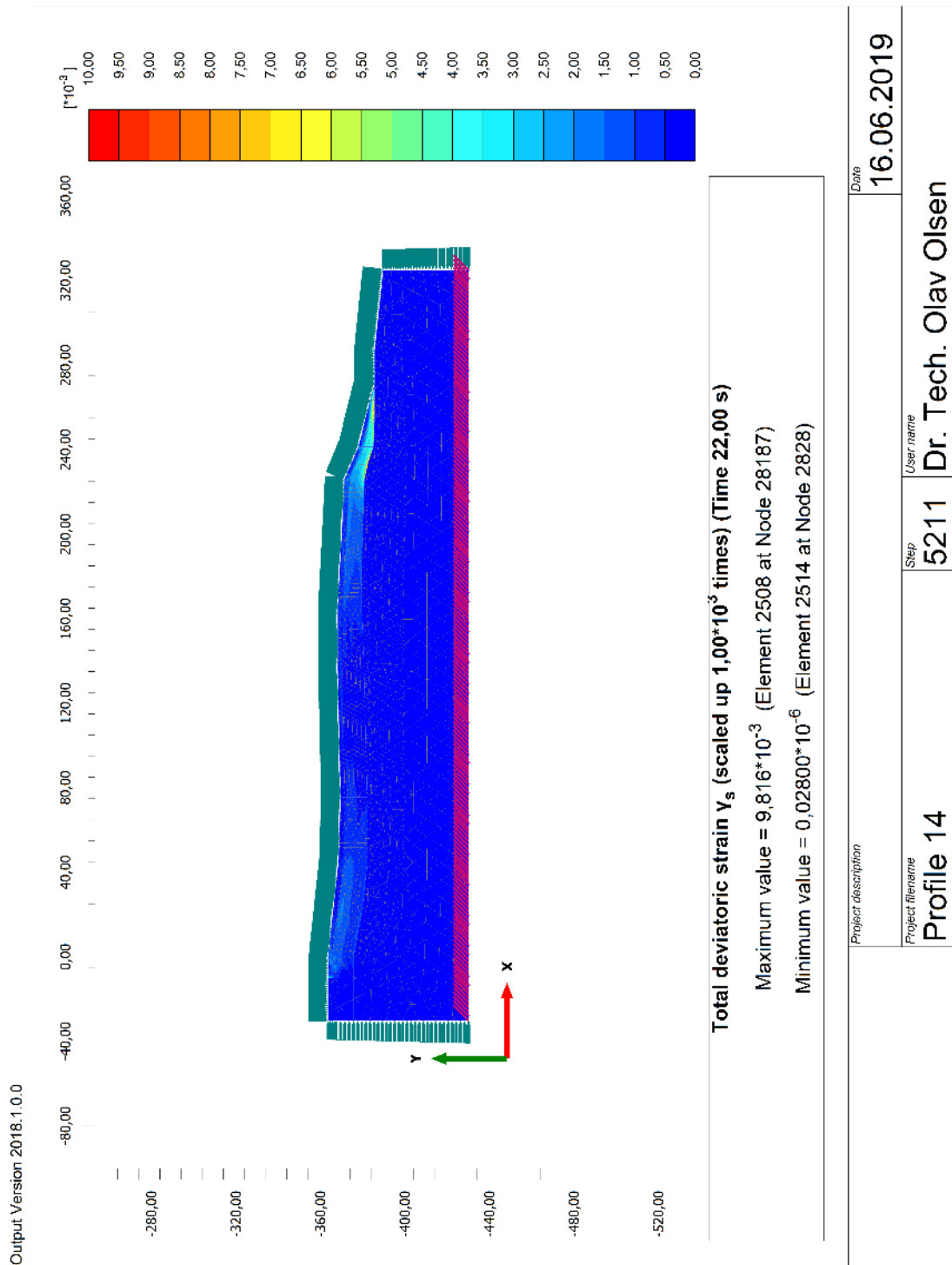
15.6 Permanent shear strain – Sierra Madre



15.7 Permanent shear strain – Whittier Narrows main shock

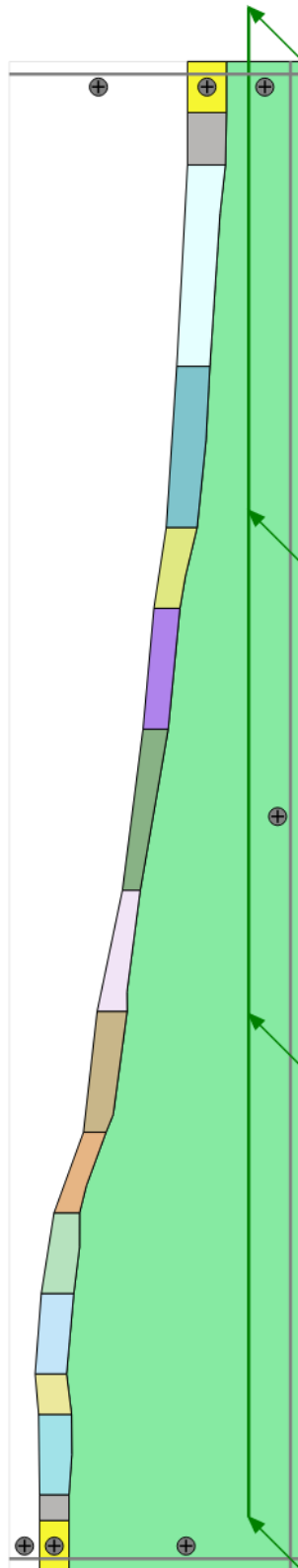


15.8 Permanent shear strain – Whittier aftershock

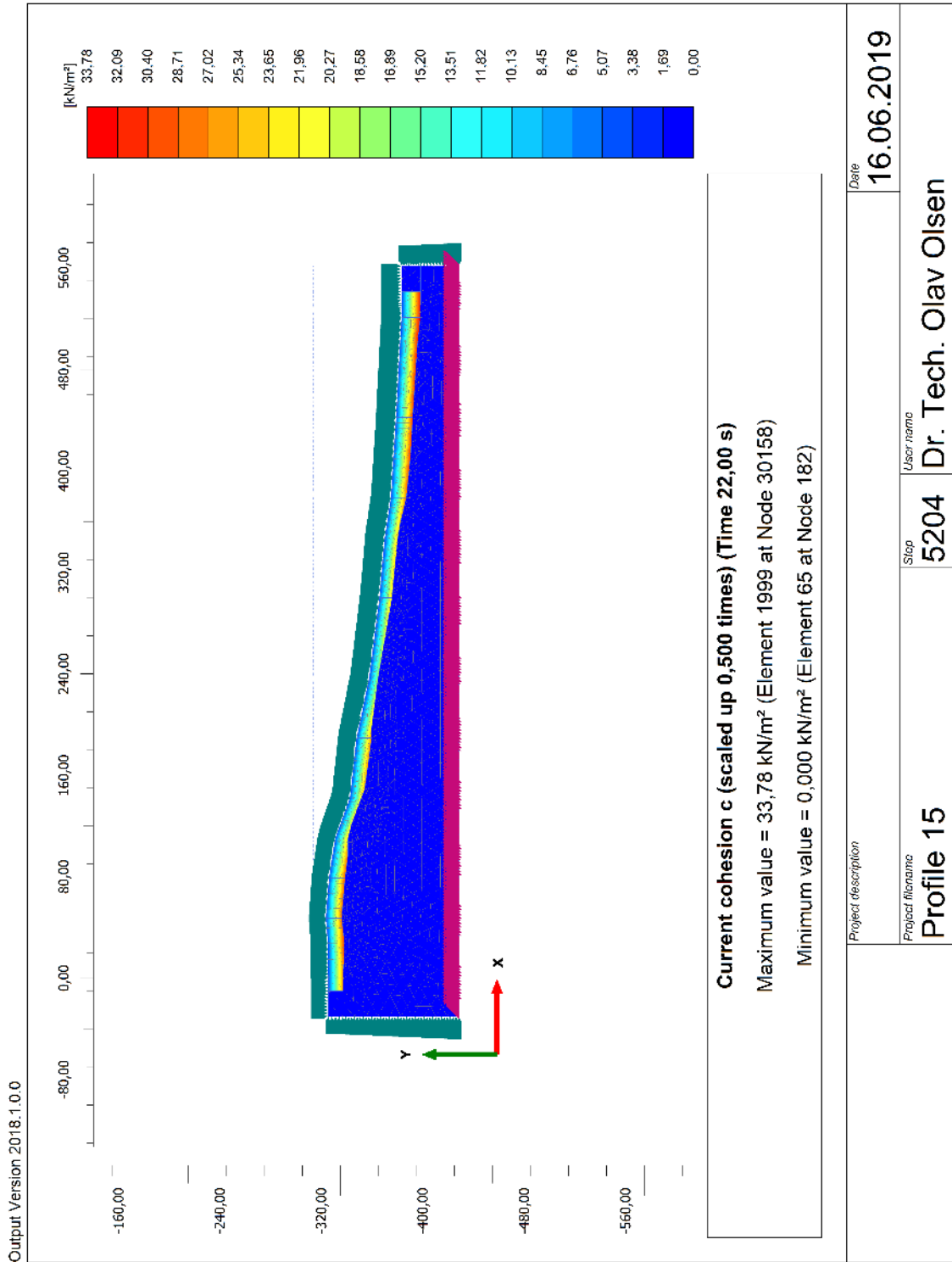


16 PROFILE 15

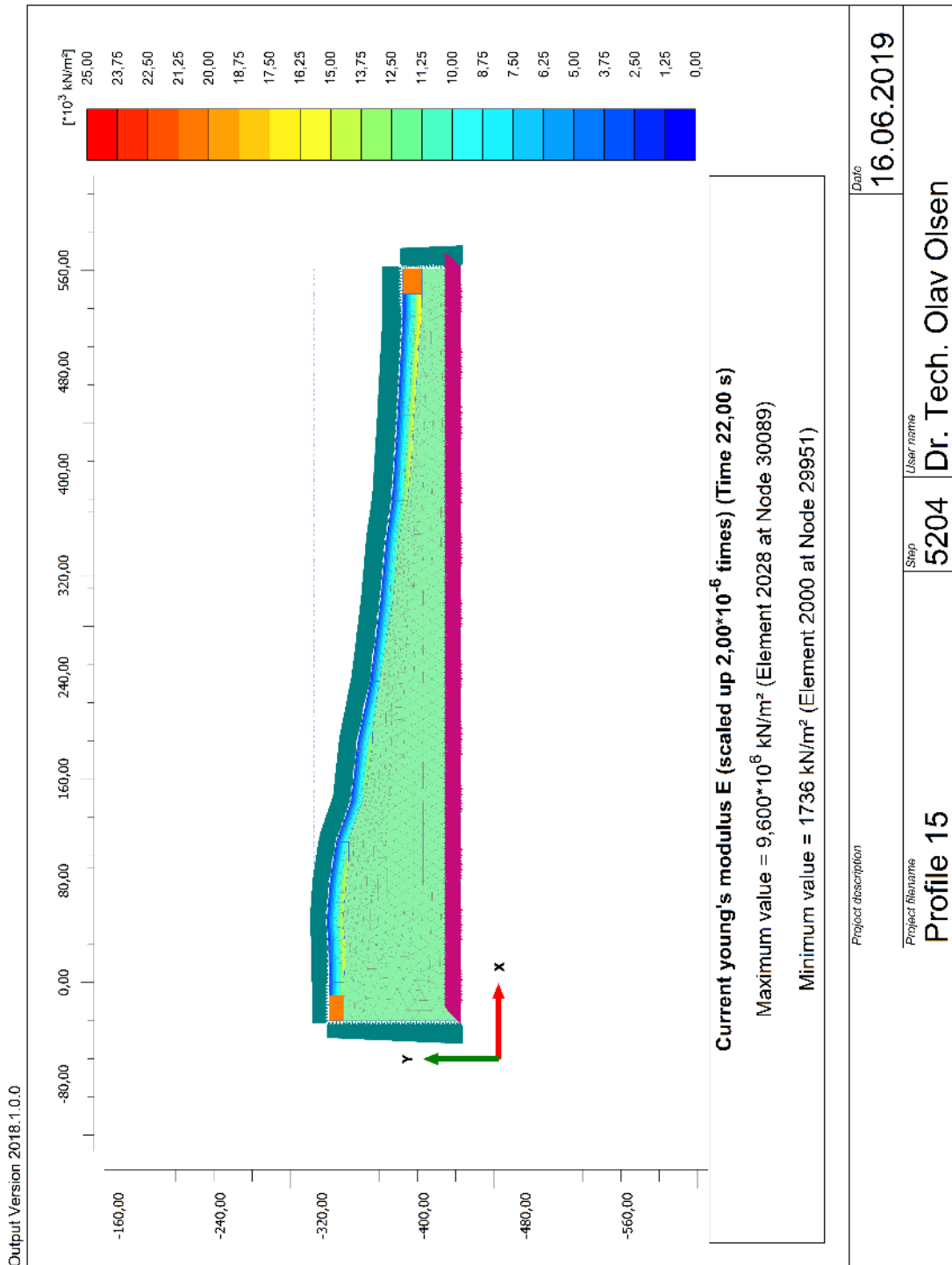
16.1 Model



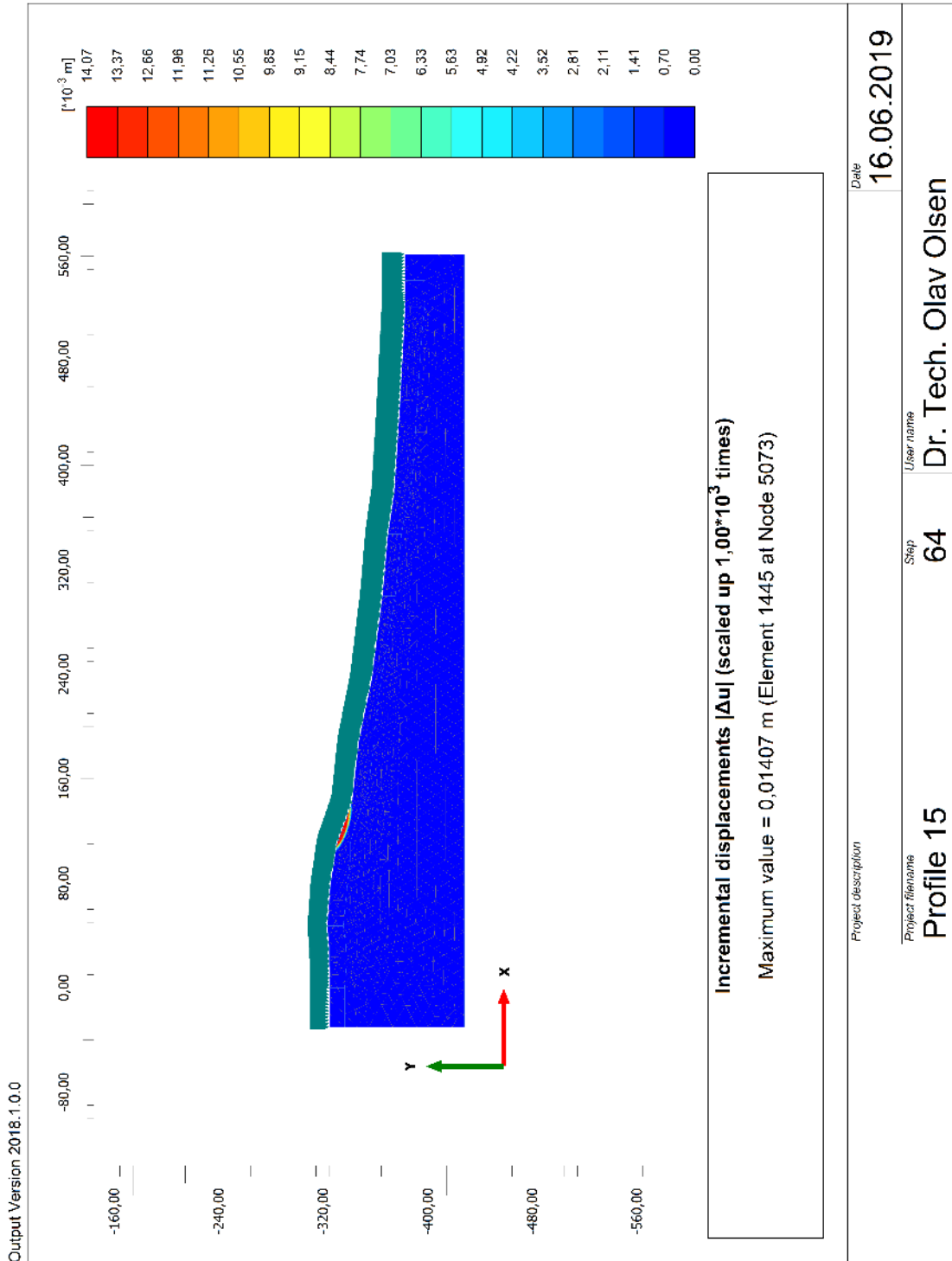
16.2 Cohesion



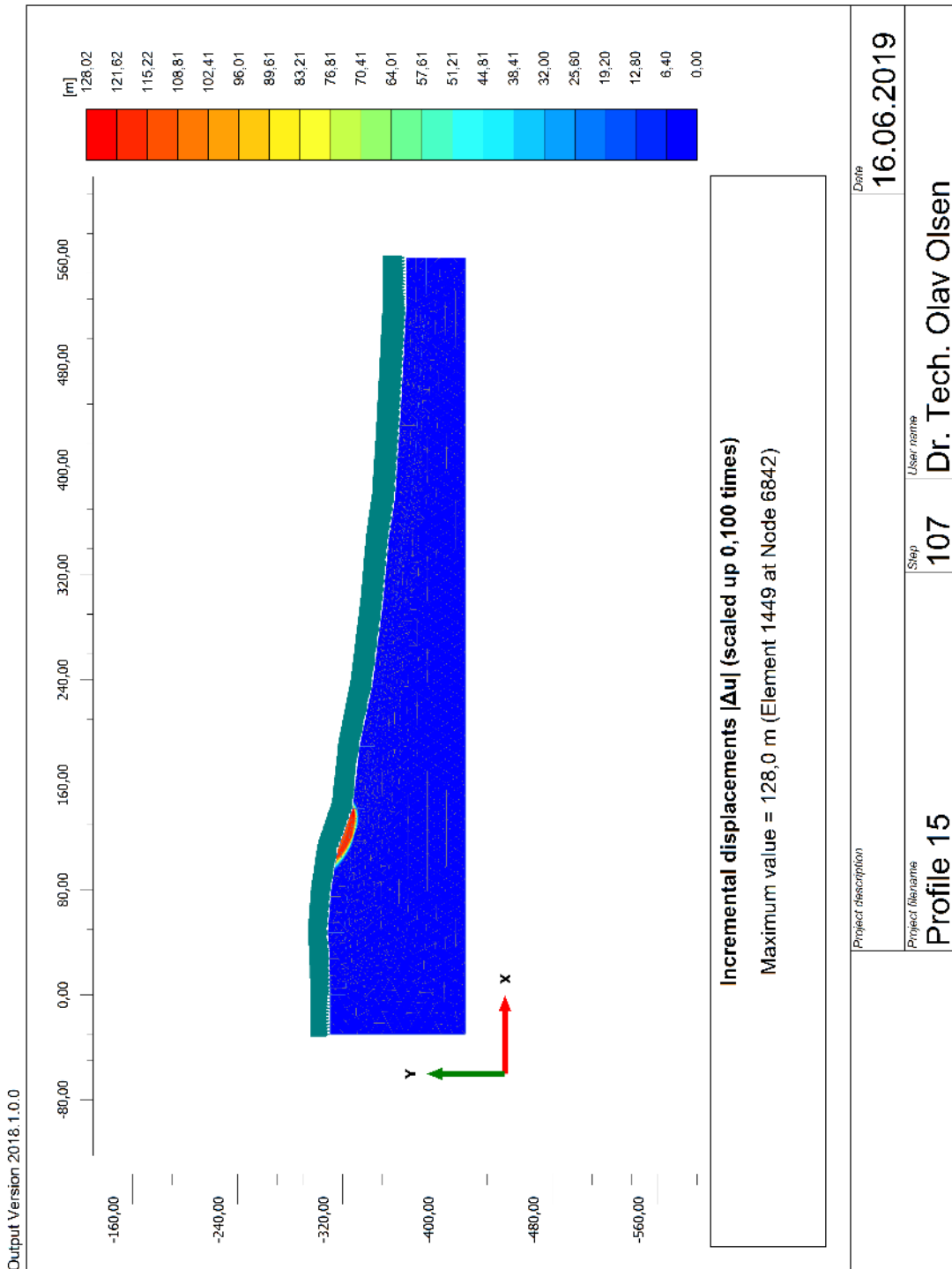
16.3 Stiffness



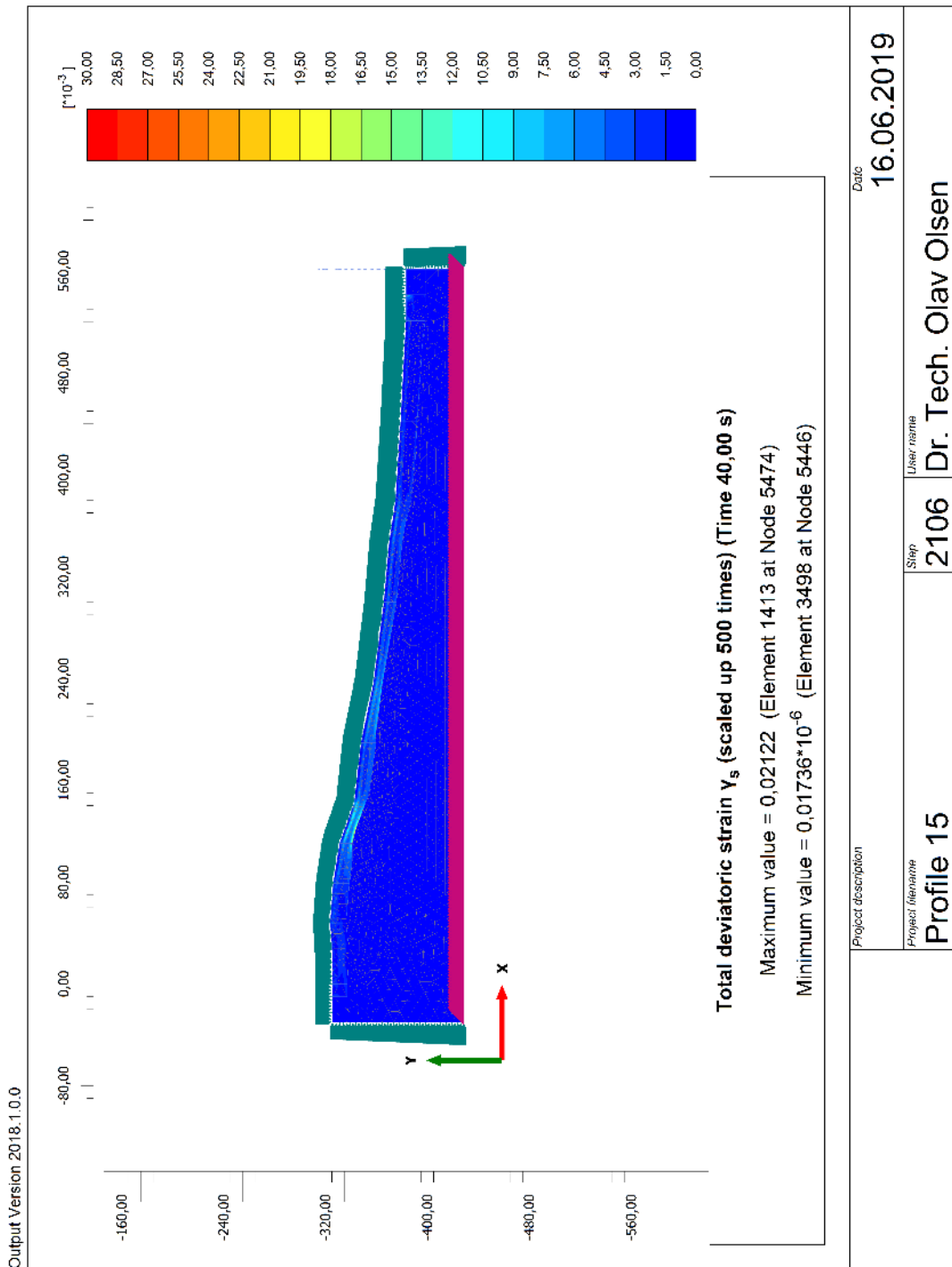
16.4 Drained failure



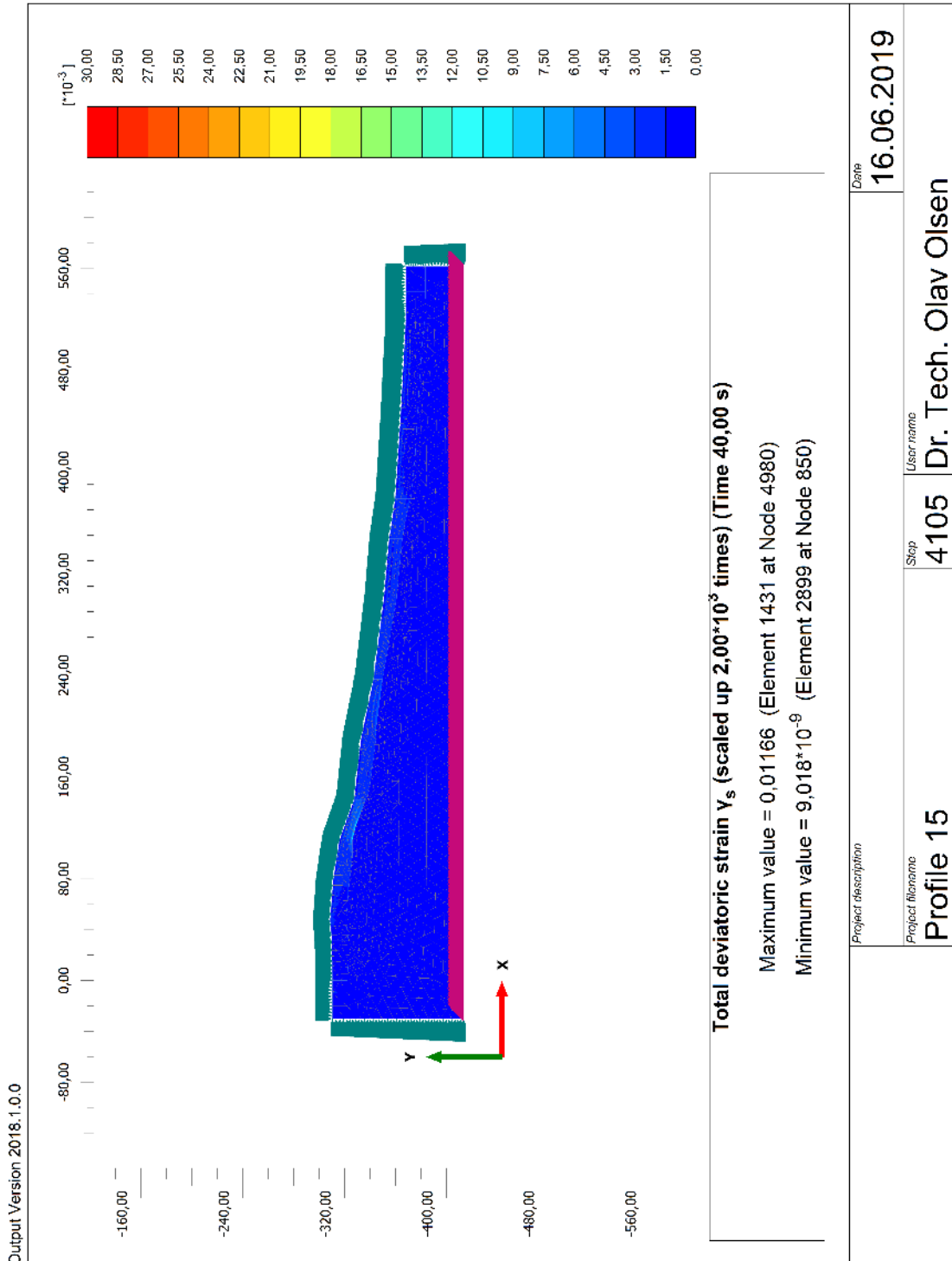
16.5 Undrained failure



16.6 Permanent shear strain – Sierra Madre



16.7 Permanent shear strain – Whittier Narrows main shock



16.8 Permanent shear strain – Whittier aftershock

