# Abstract

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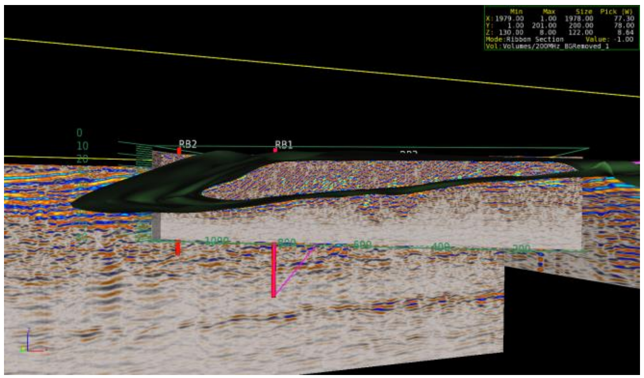
**3D MAPPING OF RADAR FACIES IN A LATE PLEISTOCENE CARBONATE PLATFORM DEPOSIT, BAHAMAS**

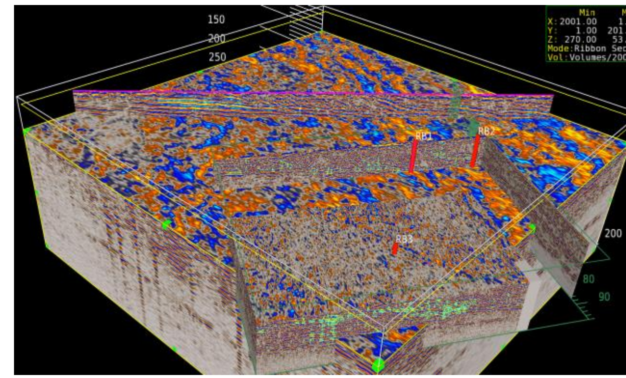
**HAZARD, Colby S.**, MCBRIDE, John H., RITTER, Scott M., TINGEY, David G., and KEACH, R. William II, Department of Geological Sciences, Brigham Young University, Provo, UT 84602, colbyhazard@gmail.com

Two 3D ground-penetrating radar (GPR) surveys collected on northwest Andros Island, Bahamas, facilitate understanding the architecture and evolution of carbonate sedimentary environments that are often unseen in 2D outcrop and core. A 200-MHz 3D GPR dataset was collected over Late Pleistocene (isotope stage 5e) bedrock at a schoolyard in northwest Andros over an area of 61 m x 61 m. This survey reveals a ~18-m wide oolitic barform that trends southwest-northeast through the study area with foresets dipping to the northwest and a ~12-m-wide tidal channel that trends north-northwest through the northeast part of the survey. These two prominent features are surrounded and underlain by low-energy mud deposits. A deeper radar surface can be seen at ~6.4 m depth dipping gently to the west, and is interpreted to be a sequence boundary. In order to better resolve the lateral and vertical spatial interaction between the shallower features (<3.5 m), a higher resolution, 35.8 m x 29.6 m 400-MHz 3D GPR dataset was collected with the survey direction optimized to image the barform and its foresets (i.e., the profiles were collected in the direction of dip). The interpretation of these features is enhanced by modern analogs found nearby at Joulters Cays, and by three cores and 56 thin sections collected through the crest and toe of the barform, and through the channel feature. The integration of geophysical and geological data enables the recognition and reconstruction of a Pleistocene depositional environment and its associated fine-scale process sedimentology, including changing current directions, barform accumulation patterns and non-depositional and erosional events.

# 3D MAPPING OF RADAR FACIES IN A LATE PLEISTOCENE CARBONATE PLATFORM DEPOSIT, BAHAMAS




**Colby S. Hazard**
**John H. Mcbride**
**Scott M. Ritter**
**David G. Tingey**
**William R. Keach II**




***Brigham Young University, Provo, Utah***

GSA 2014
19-22 October | Vancouver, BC, Canada

# Outline

1. Introduction
2. Methods
3. The 3D Datasets
4. Advantages of Seismic Interpretation Software
5. The Cores
6. Radar Facies
7. Conclusion

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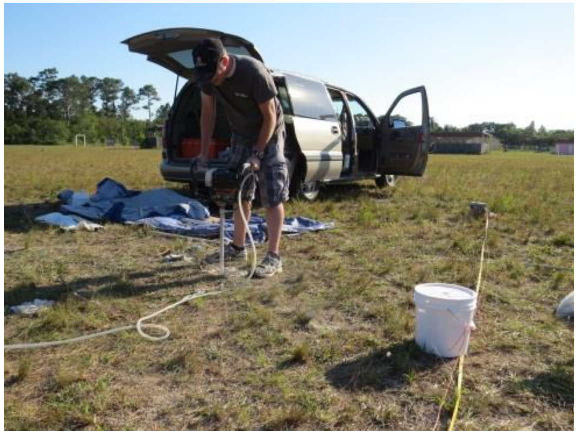
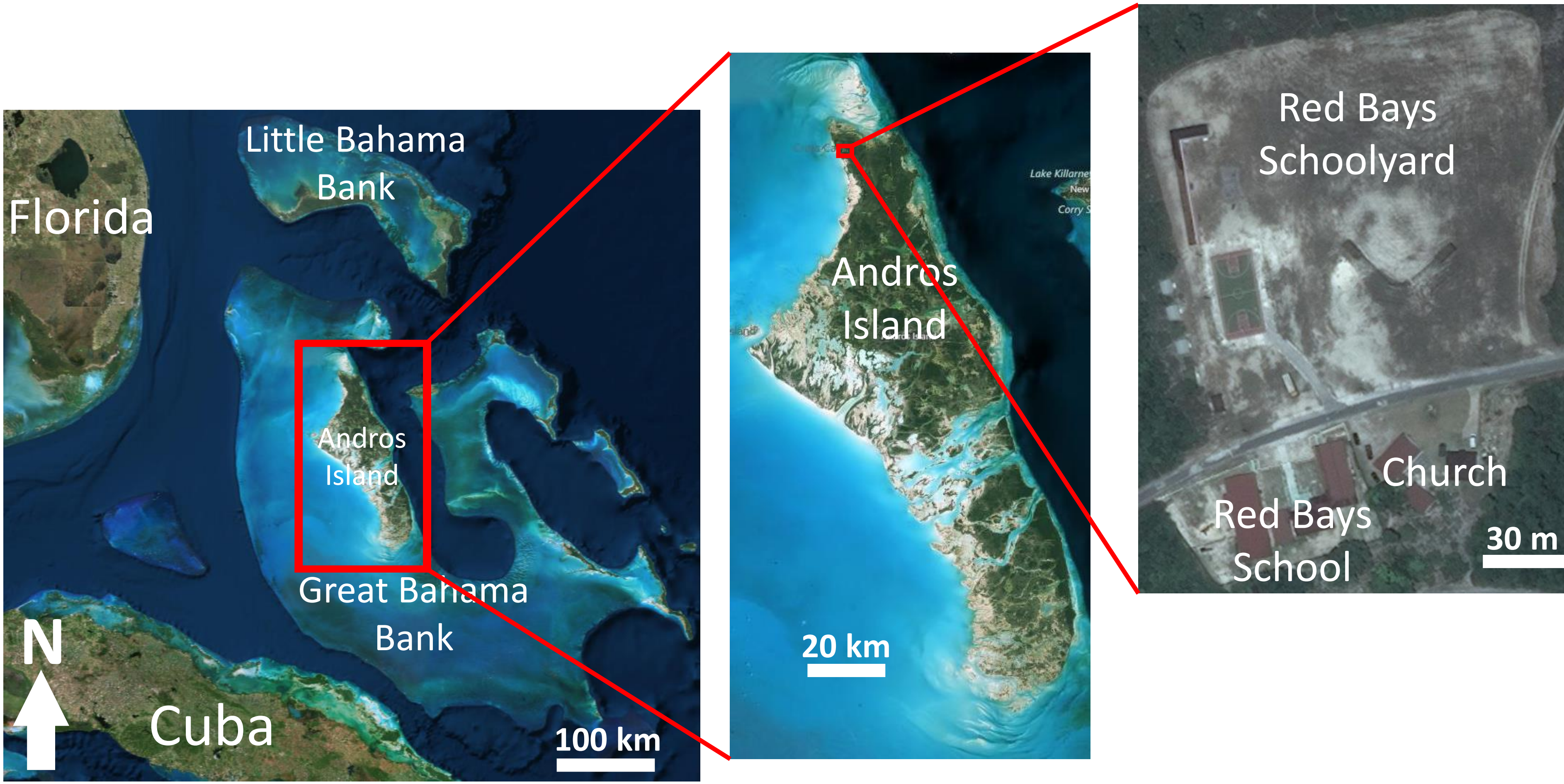
# 1. Introduction

# 1. Introduction



# 1. Location




From www.bing.com/maps/ and http://corpsmapu.usace.army.mil/cm_apex/cm2.cm2.map

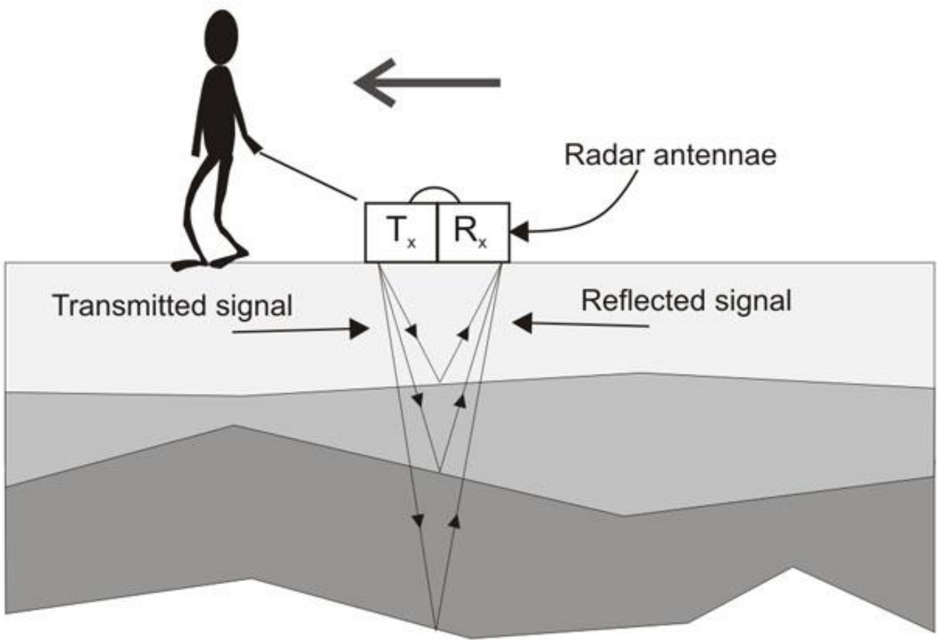
# Why the Bahamas?

- The formation of modern limestones can be studied immediately adjacent to Pleistocene limestones preserved onshore
- The Pleistocene rock record reveals thousands of years of sedimentation patterns and how such patterns have evolved over time
- Clean limestone has a high resistivity, making it great for GPR

→

# What is GPR?

- Remote sensing method of imaging the shallow subsurface




http://www.environmental-geophysics.co.uk

# GPR vs. Seismic Reflection

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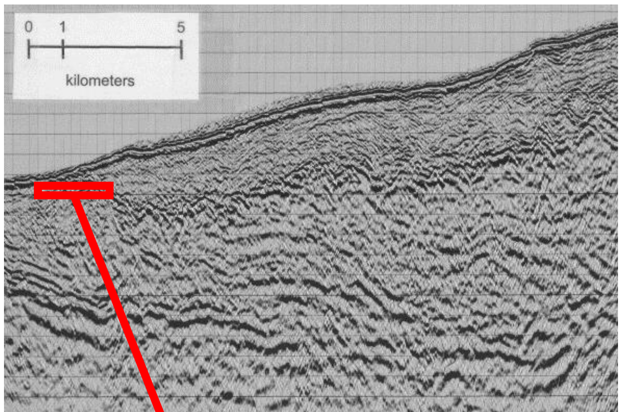
BYU

## Seismic

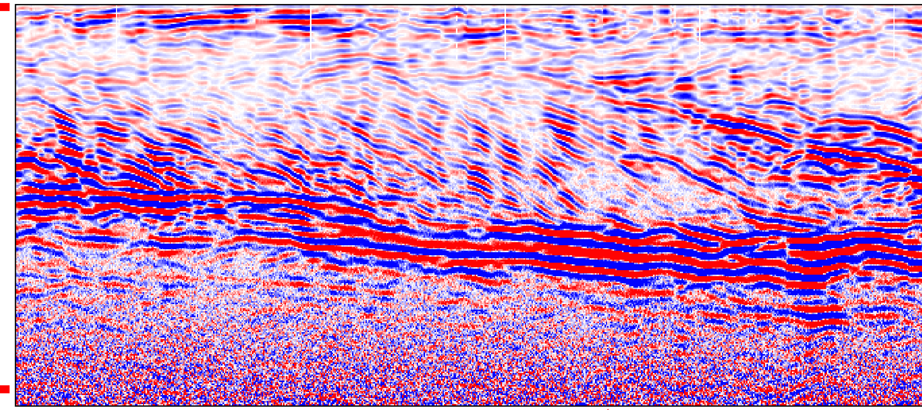
4 km




http://walter.kessinger.com/work/seisx_interpretation.html

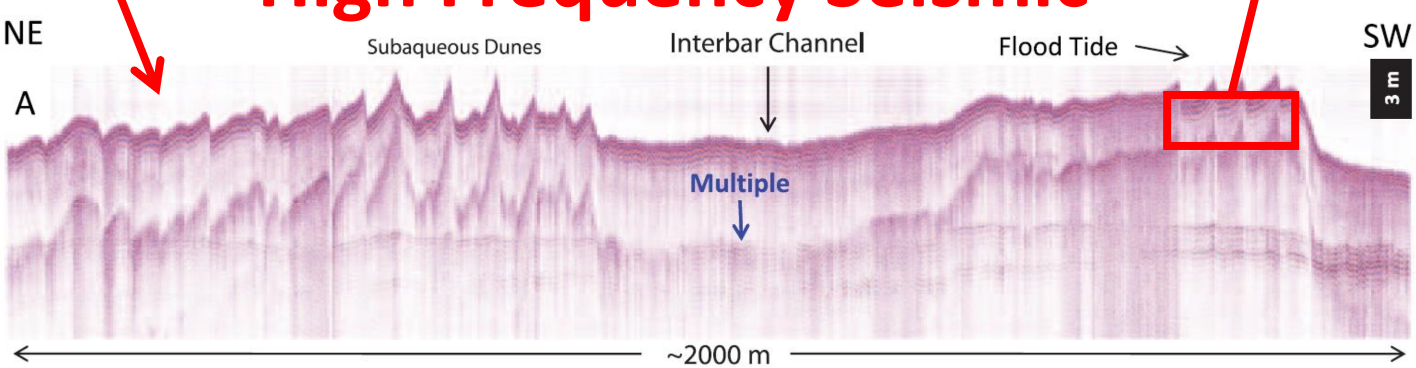
## GPR

3 m



## High Frequency Seismic

12 m



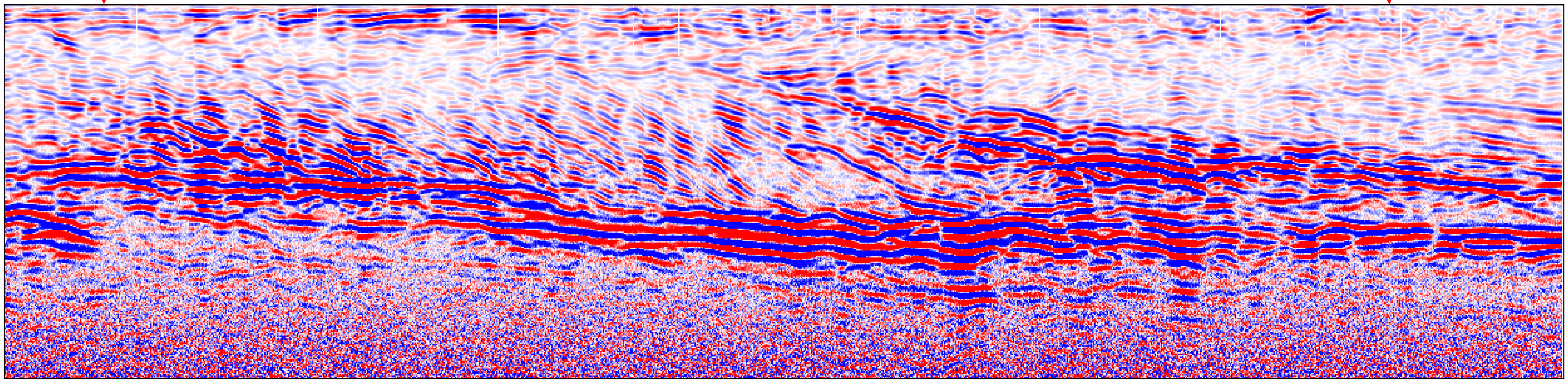

Sparks and Rankey, 2013

# GPR = High resolution

3 m

5-10 cm vertical resolution!

3 m



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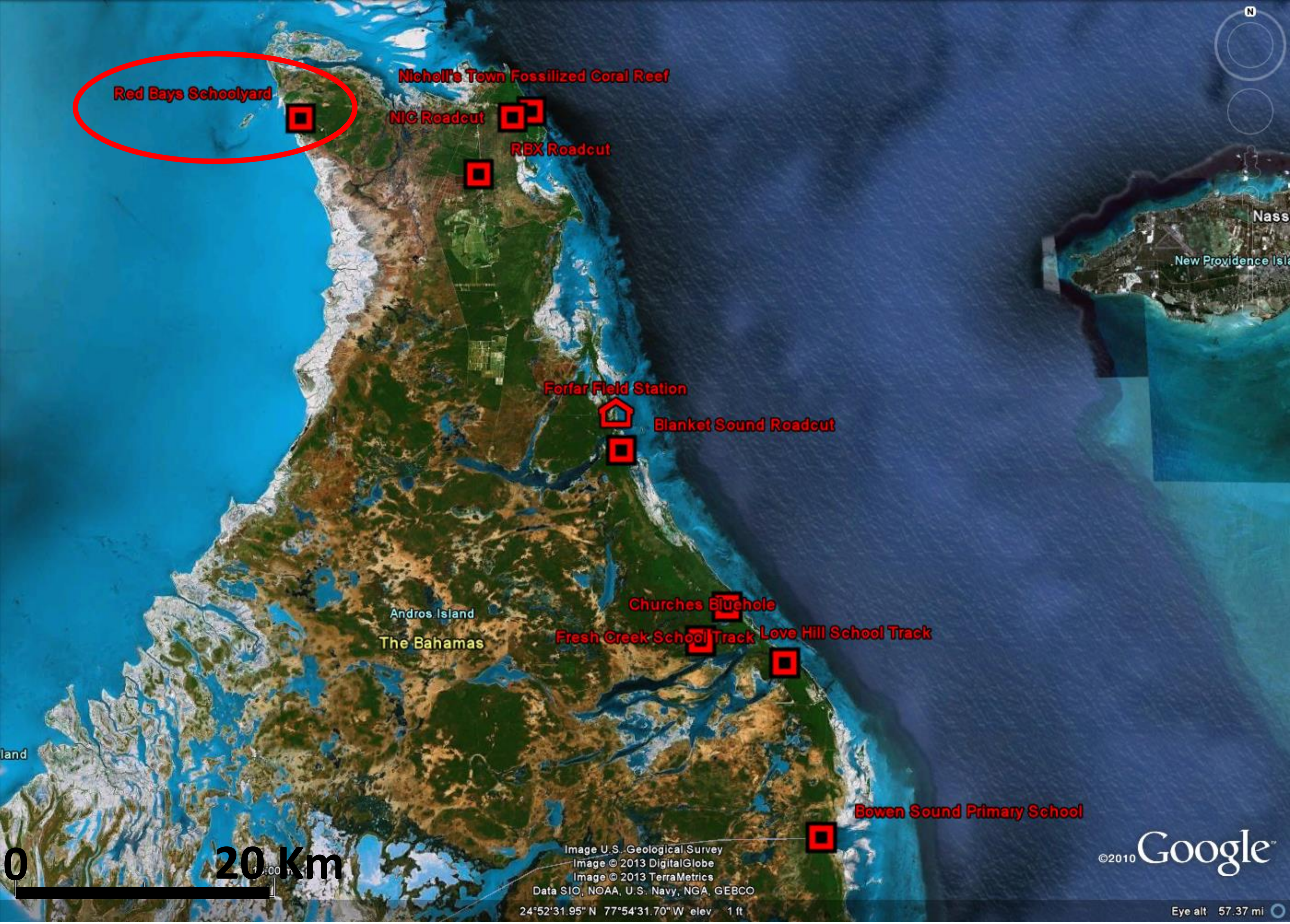

Red Bays Schoolyard
Nicholl's Town Fossilized Coral Reef
NIC Roadcut
RBX Roadcut
Forfar Field Station
Blanket Sound Roadcut
Churches Bluehole
Fresh Creek School Track
Love Hill School Track
Bowen Sound Primary School
Andros Island
The Bahamas
Nass
New Providence Isla
land
0
20 Km
Image U.S. Geological Survey
Image © 2013 DigitalGlobe
Image © 2013 TerraMetrics
Data SIO, NOAA, U.S. Navy, NGA, GEBCO
24°52'31.95" N 77°54'31.70" W elev 1 ft
Eye alt 57.37 mi
©2010 Google

# 2. Methods

# 2. Methods

- **200 ft X 200 ft (61 m X 61 m) 200 MHz survey**
  - 2 ft spacing between profiles


From www.bing.com/maps/

# 2. Methods

- **200 ft X 200 ft (61 m X 61 m) 200 MHz survey**
  - 2 ft spacing between profiles
- **117.5 X 97 ft (35.8 X 29.6 m) 400 MHz survey**
  - 1 ft spacing between profiles


From www.bing.com/maps/

# 2. Methods

- **200 ft X 200 ft (61 m X 61 m) 200 MHz survey**
  - 2 ft spacing between profiles
- **117.5 X 97 ft (35.8 X 29.6 m) 400 MHz survey**
  - 1 ft spacing between profiles
- **3 Cores:**
  - 38 ft, 11 in (12.5 m) total core from 3 holes


From www.bing.com/maps/

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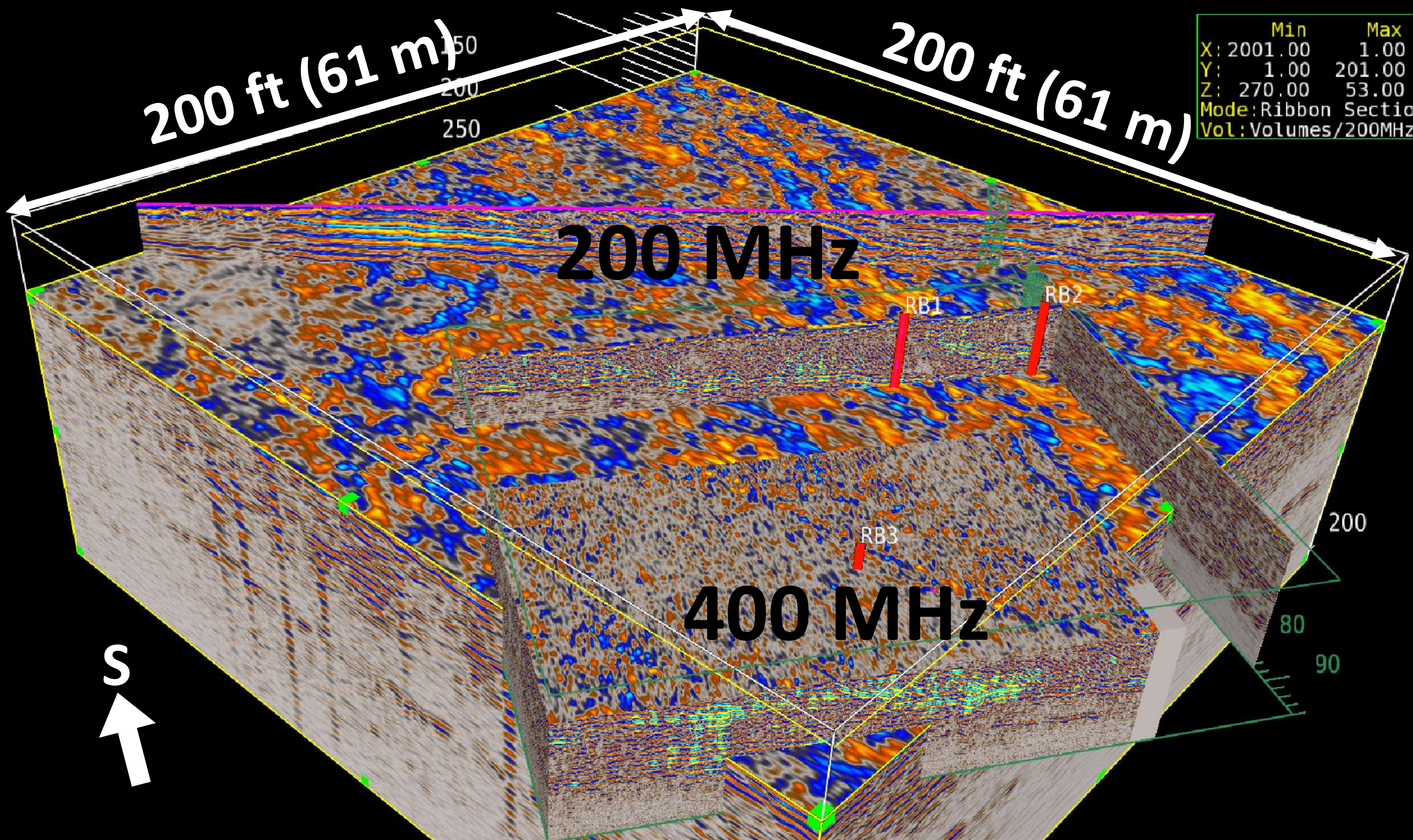
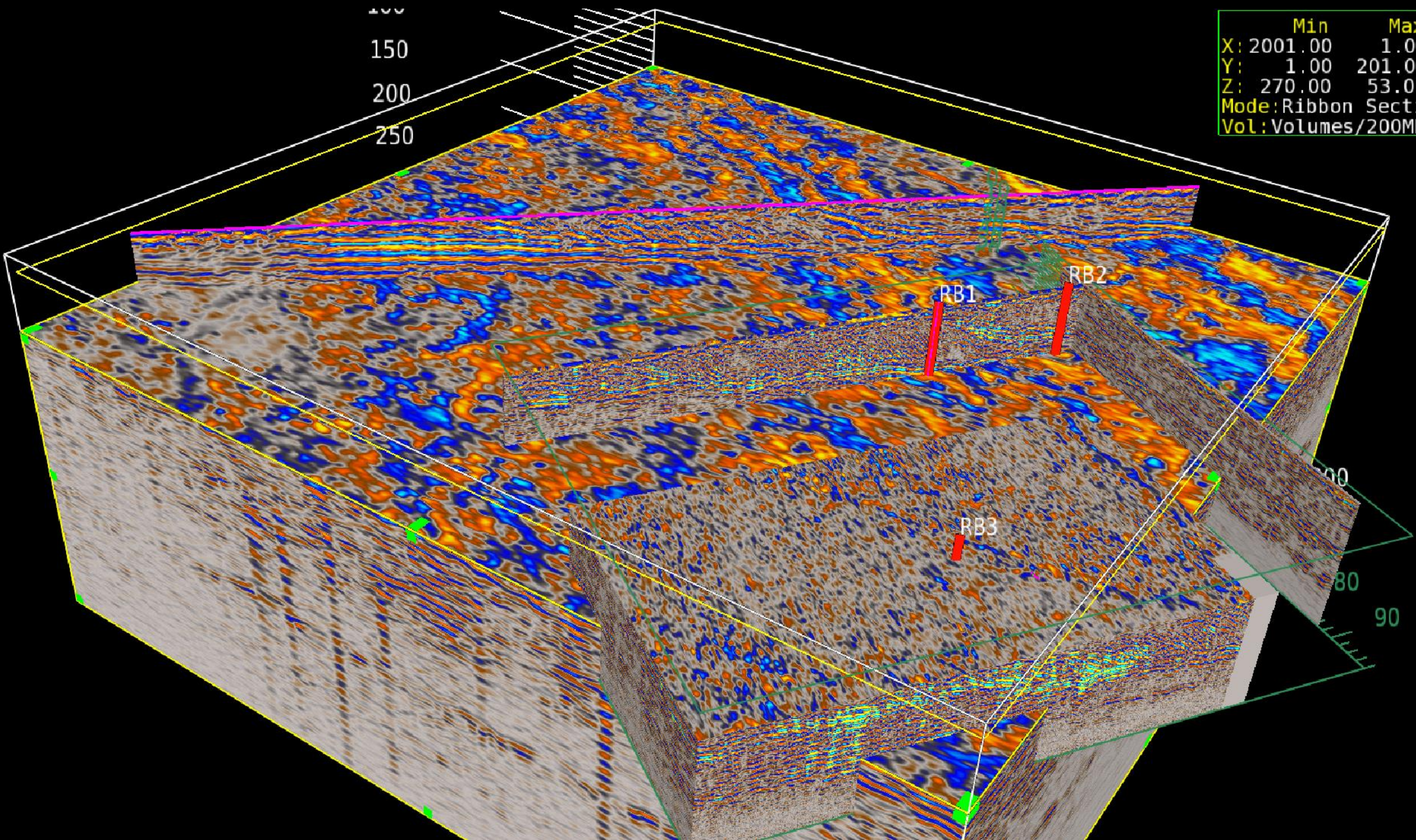
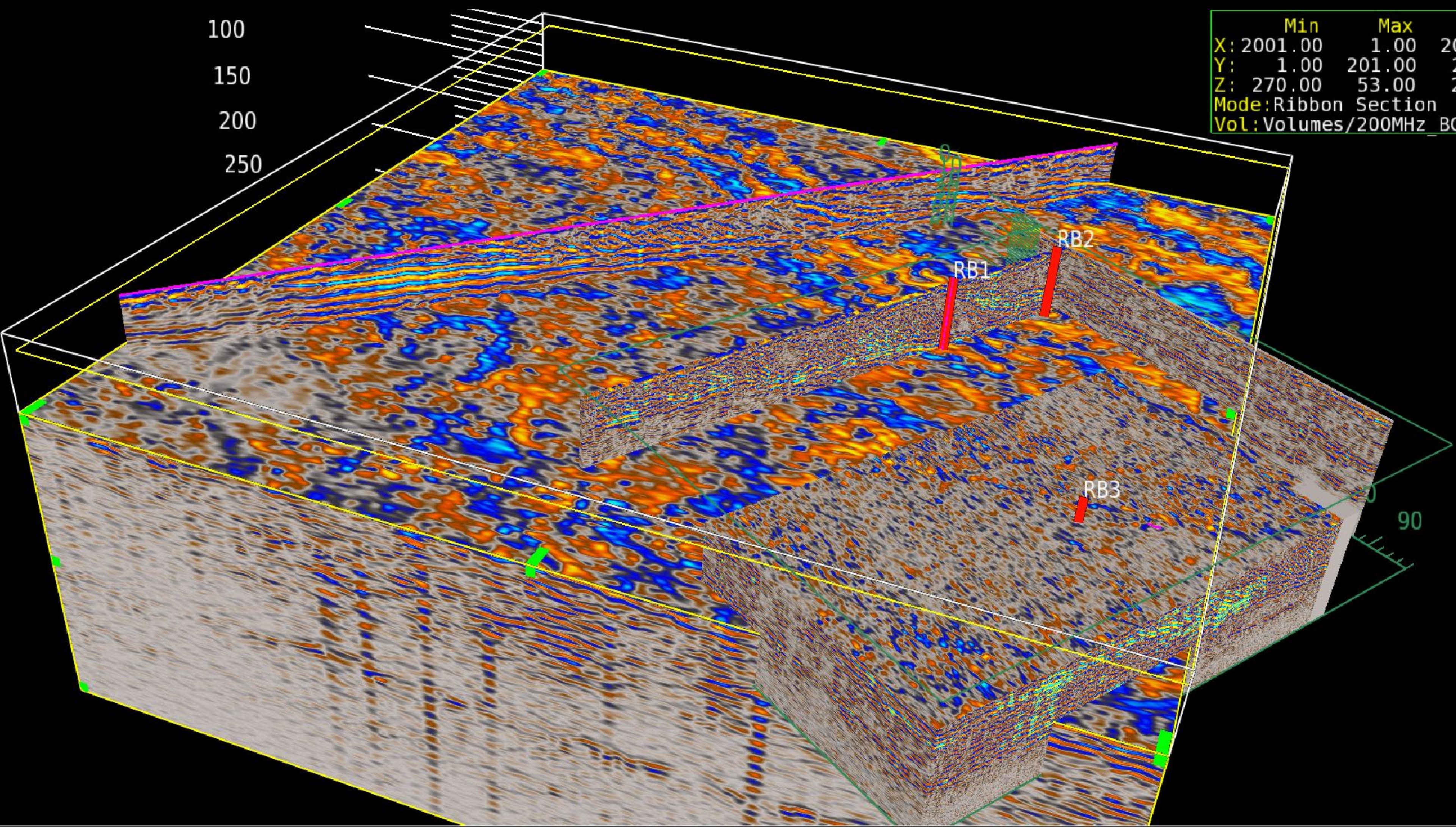
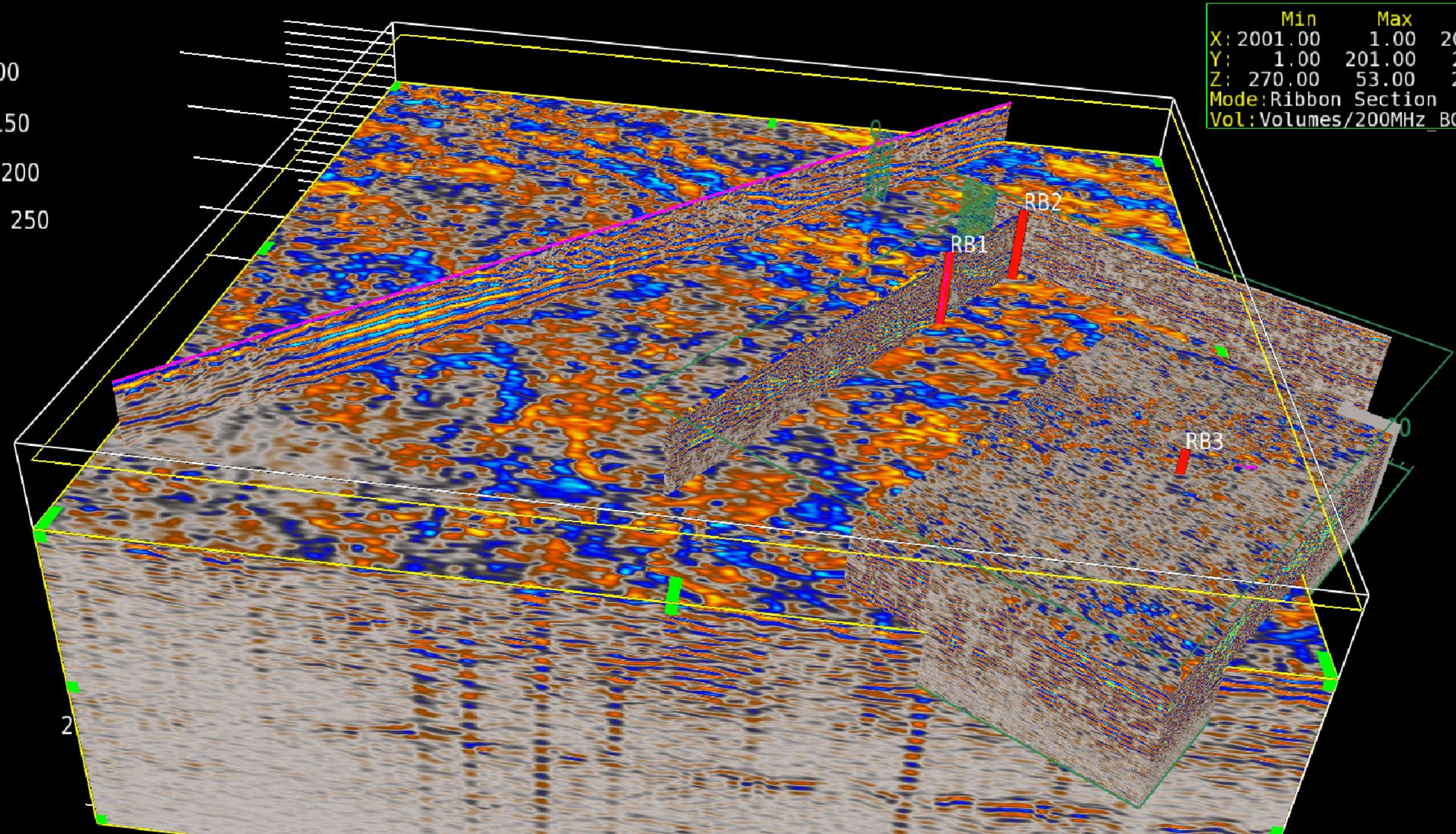
# 3D 200 MHz Dataset (61 x 61 m)
# 3D 400 MHz Dataset




150
200
250
Min Max
X: 2001.00 1.0
Y: 1.00 201.0
Z: 270.00 53.0
Mode:Ribbon Sect
Vol:Volumes/200M
RB1
RB2
RB3
80
90


100
150
200
250
Min Max
X: 2001.00 1.00
Y: 1.00 201.00
Z: 270.00 53.00
Mode: Ribbon Section
Vol: Volumes/200MHz_B
RB1
RB2
RB3
90



00
150
200
250
Min Max
X: 2001.00 1.00
Y: 1.00 201.00
Z: 270.00 53.00
Mode:Ribbon Section
Vol:Volumes/200MHz_
RB2
RB1
RB3
2

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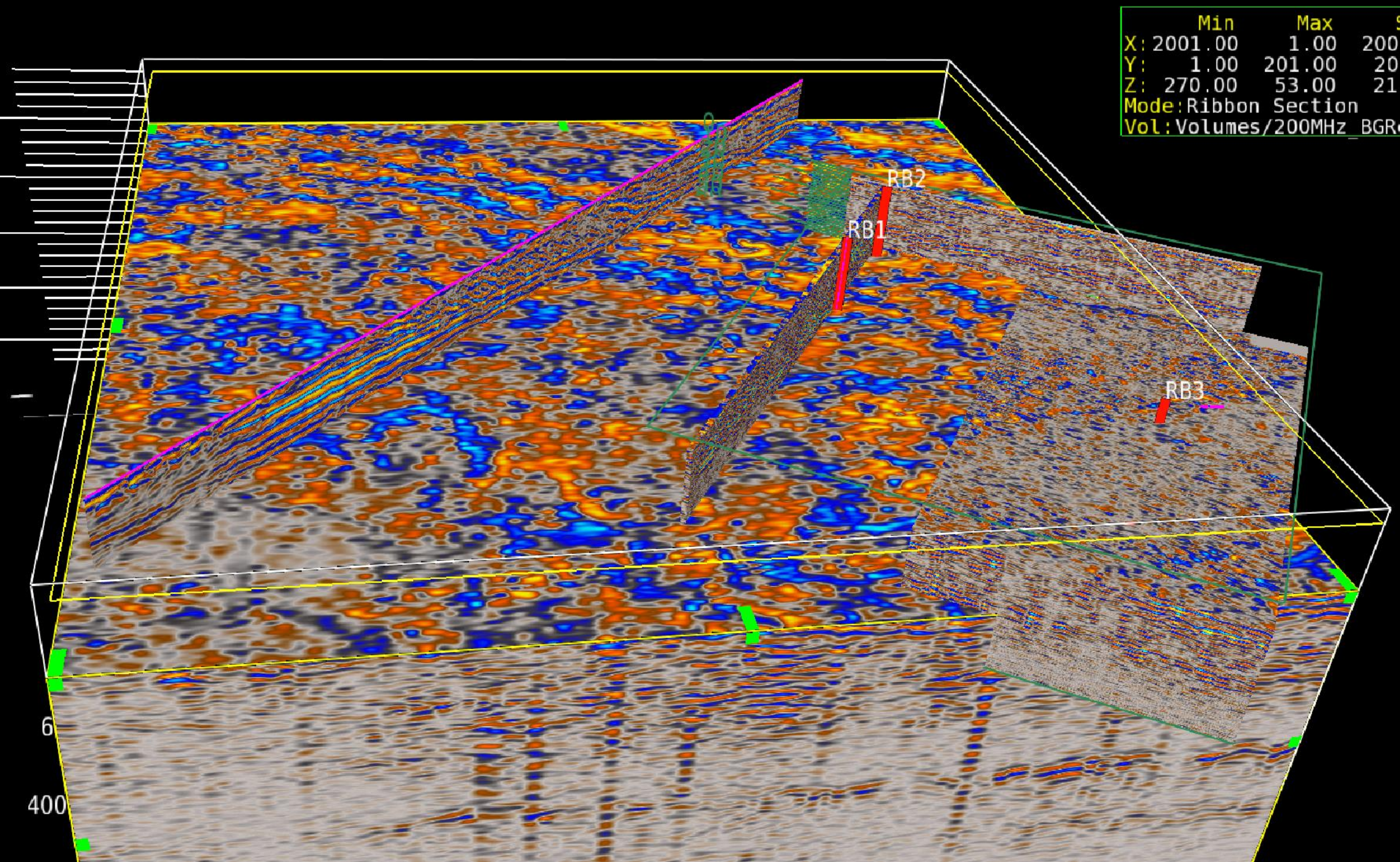

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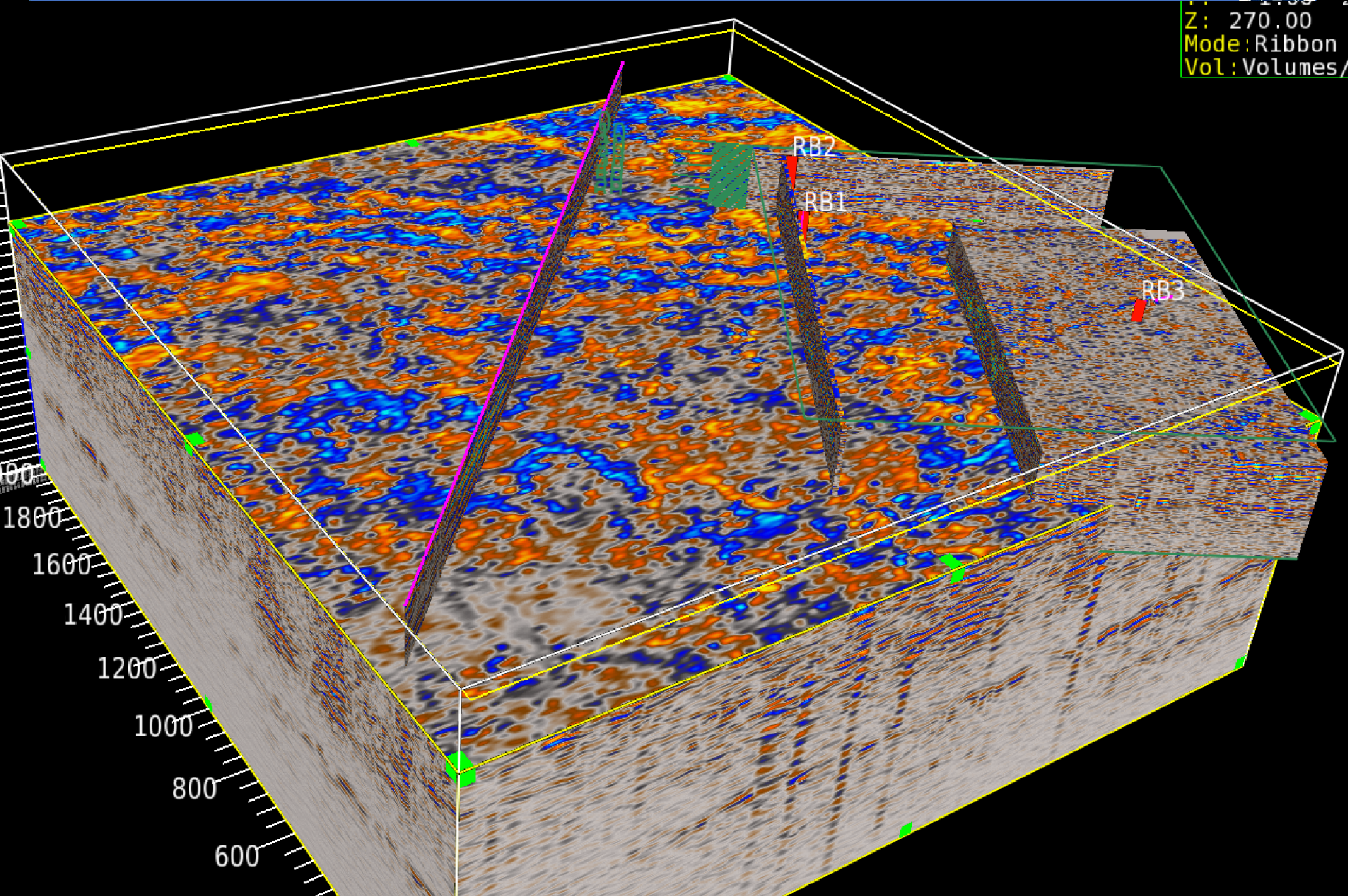
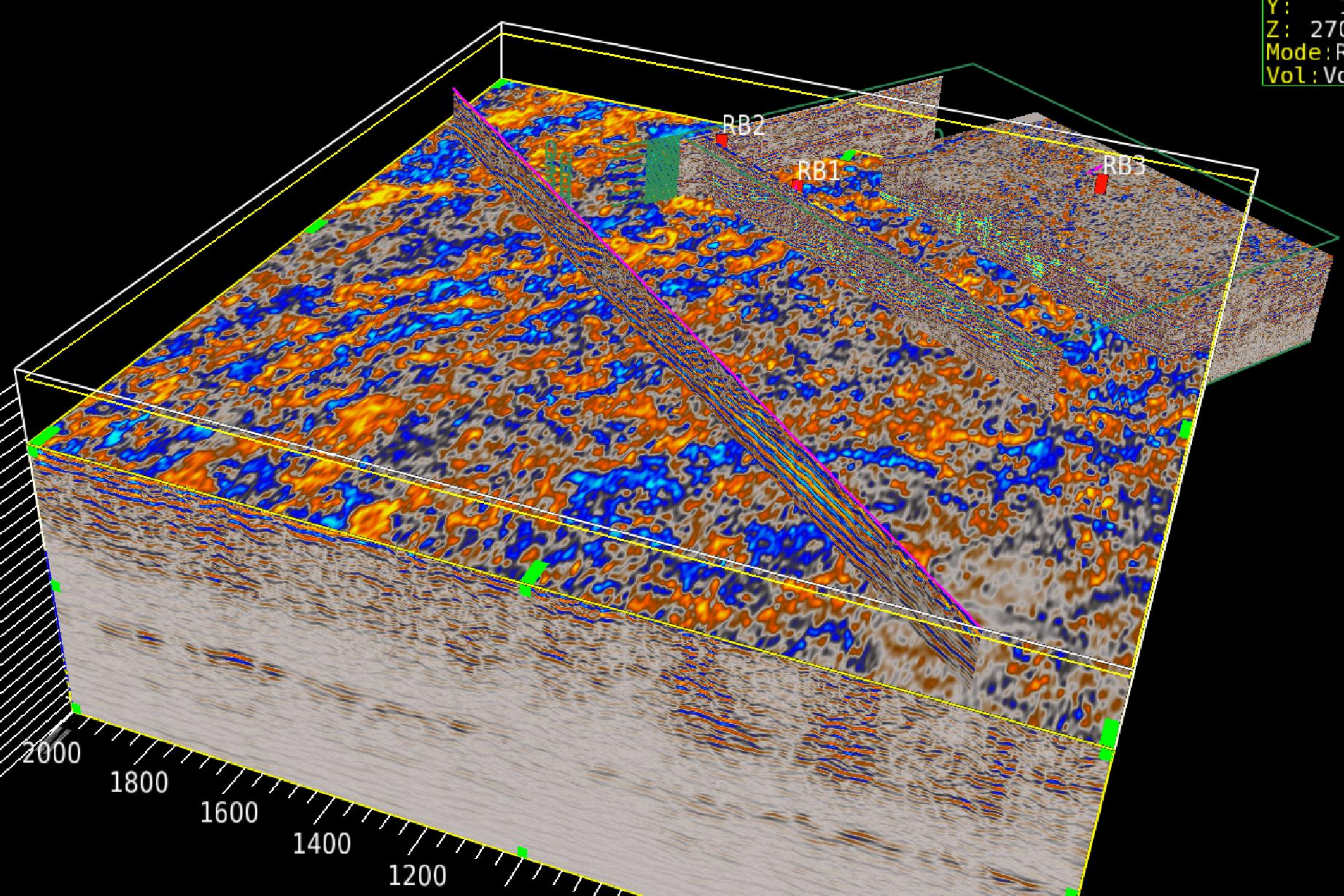
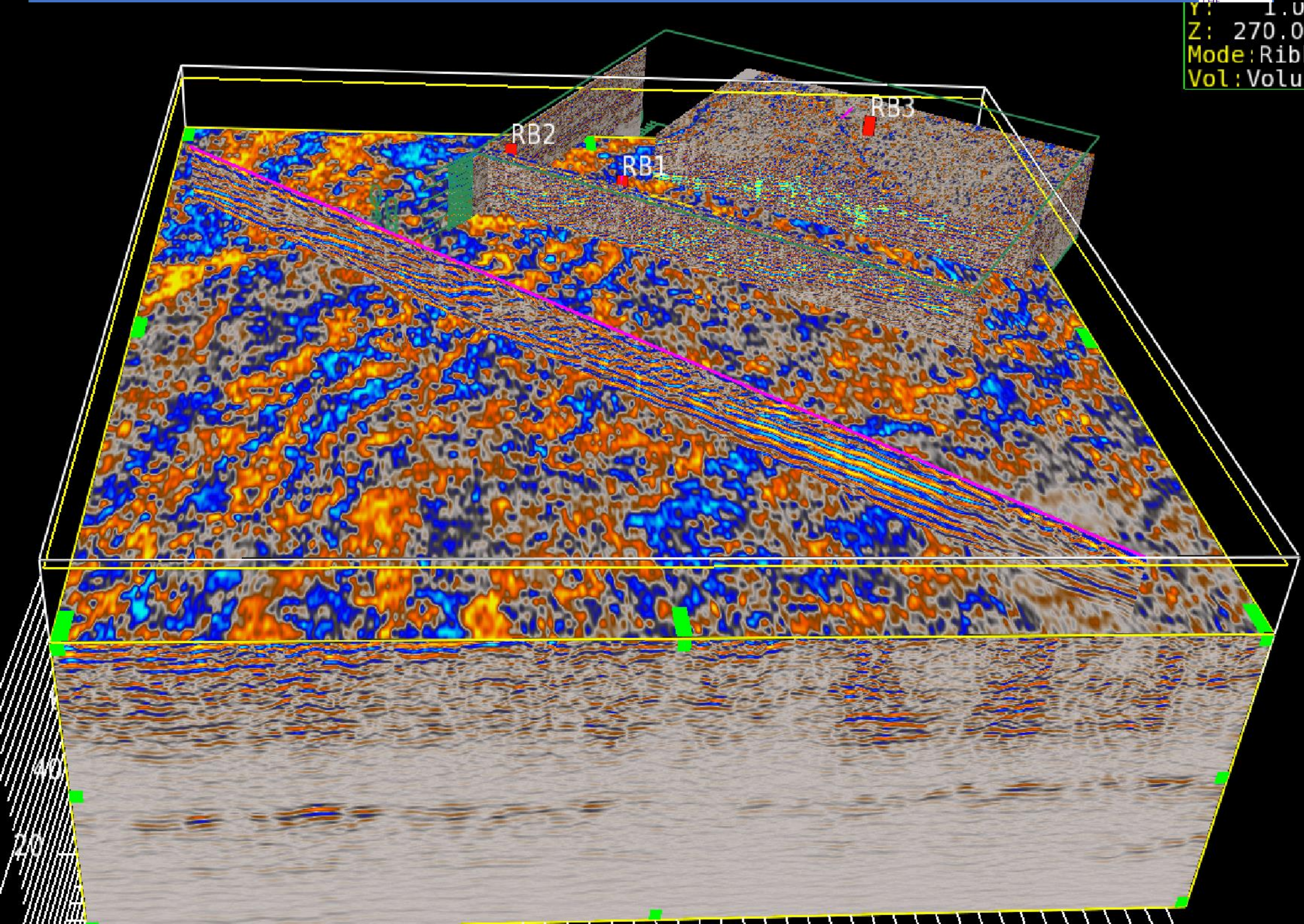
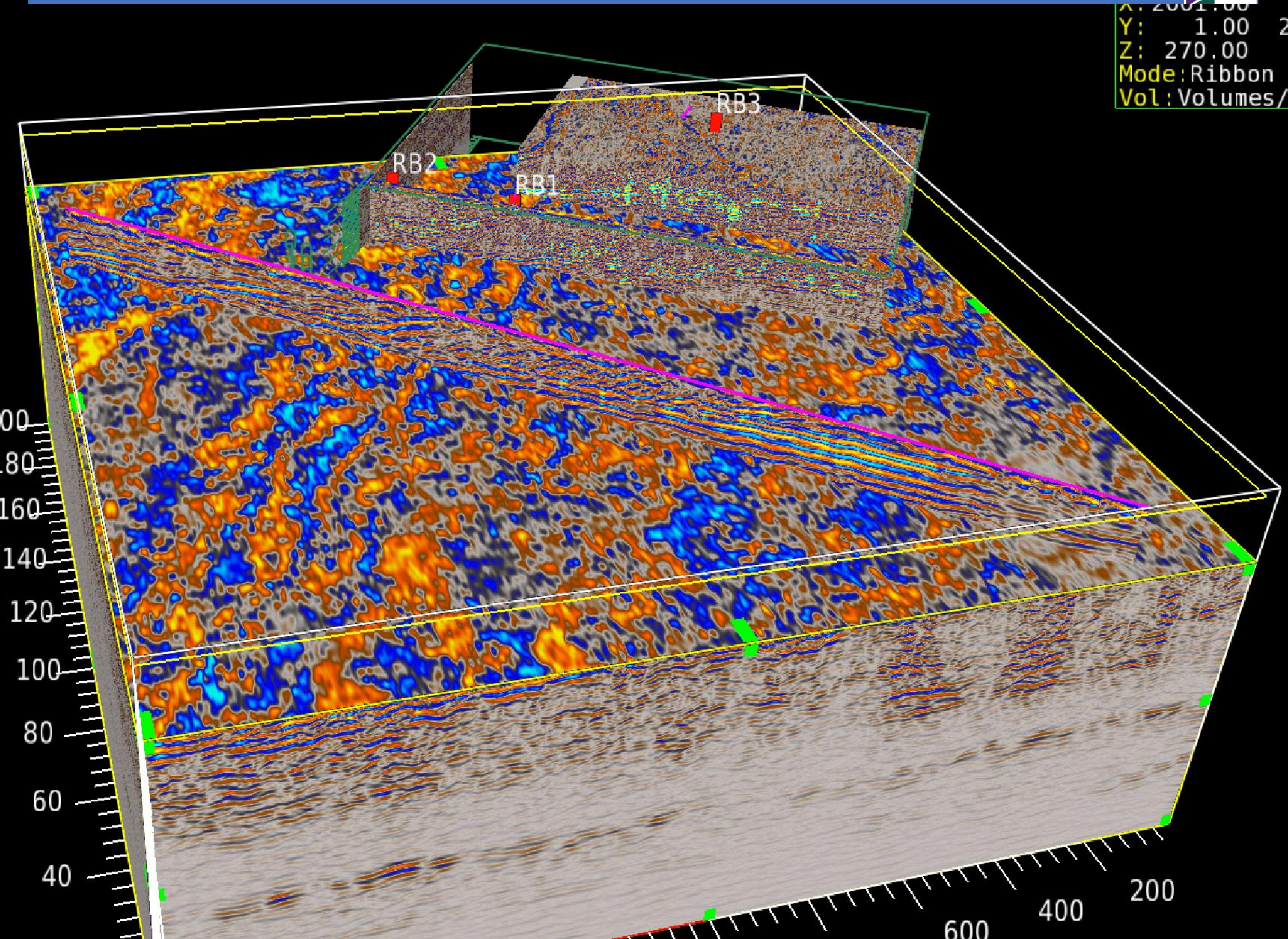
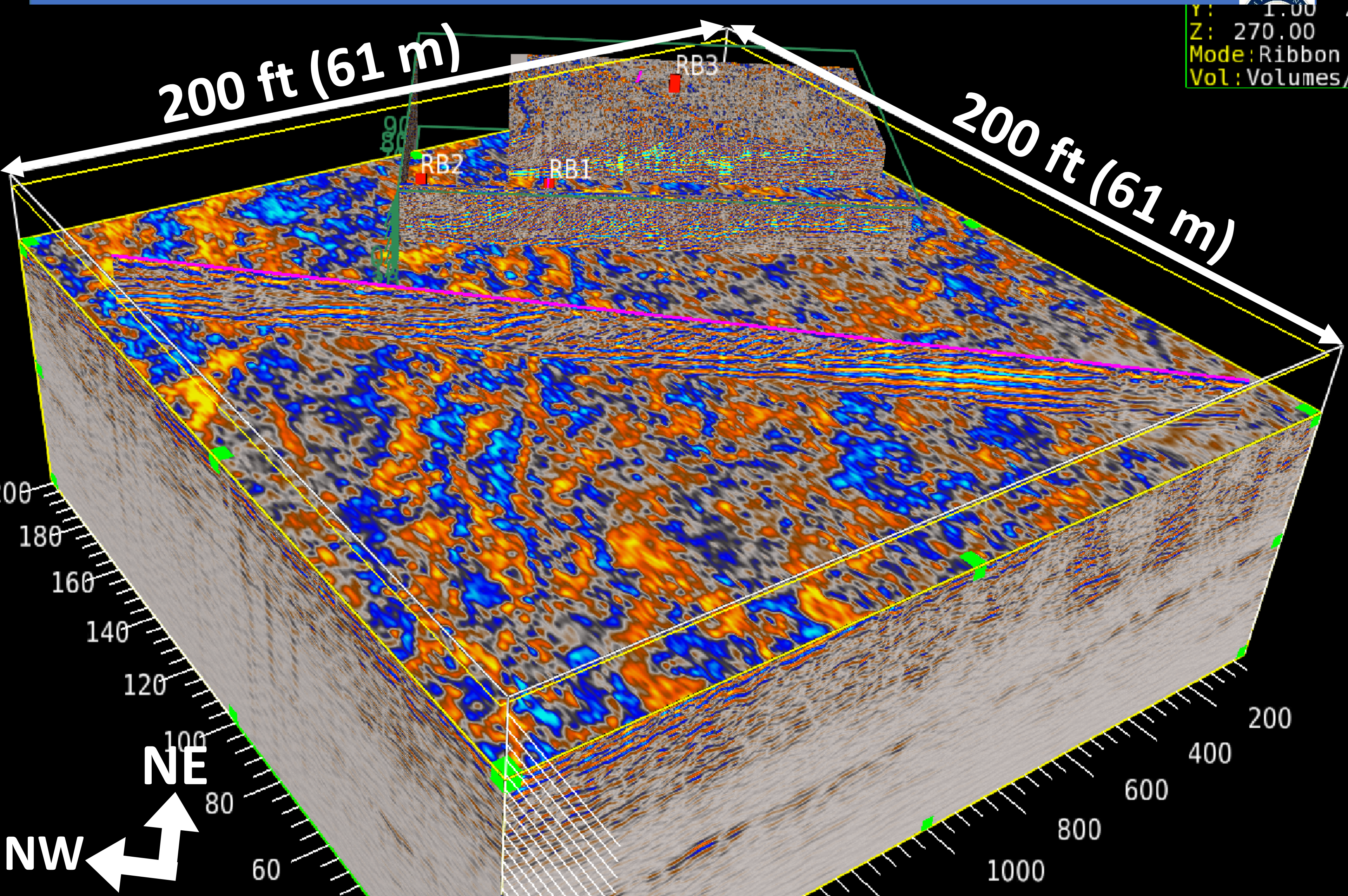




RB2
RB1
RB3
Y:
Z: 270
Mode:R
Vol:Vo
2000
1800
1600
1400
1200


Z: 270.0
Mode:Rib
Vol:Volu
RB2
RB1
RB3
40
20


X: 2001.00
Y: 1.00
Z: 270.00
Mode:Ribbon
Vol:Volumes/
RB3
RB2
RB1
00
180
160
140
120
100
80
60
40
200
400
600


200 ft (61 m)
200 ft (61 m)
RB3
RB2
RB1
Z: 270.00
Mode:Ribbon
NE
NW
200
180
160
140
120
100
80
60
200
400
600
800
1000

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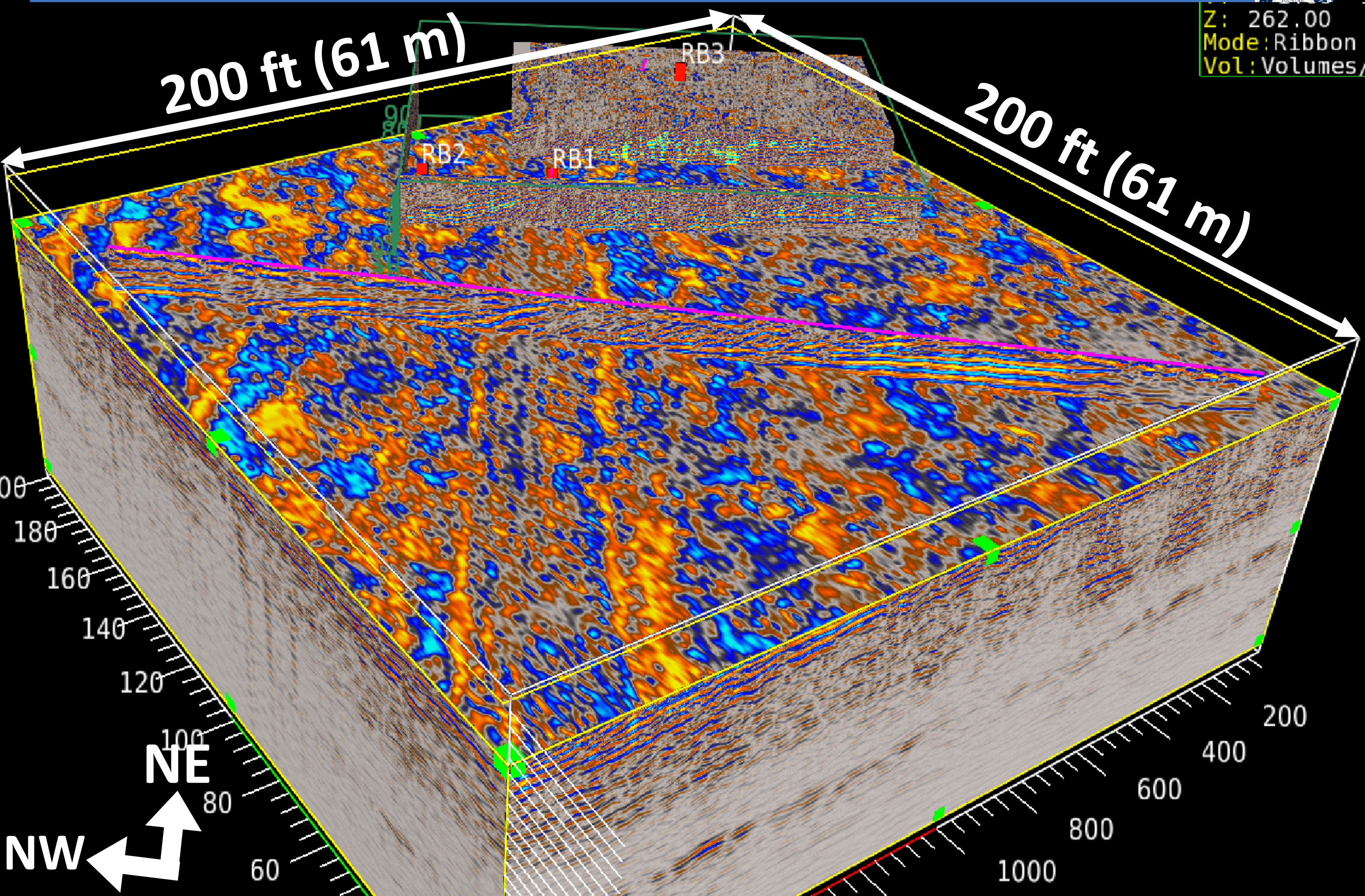

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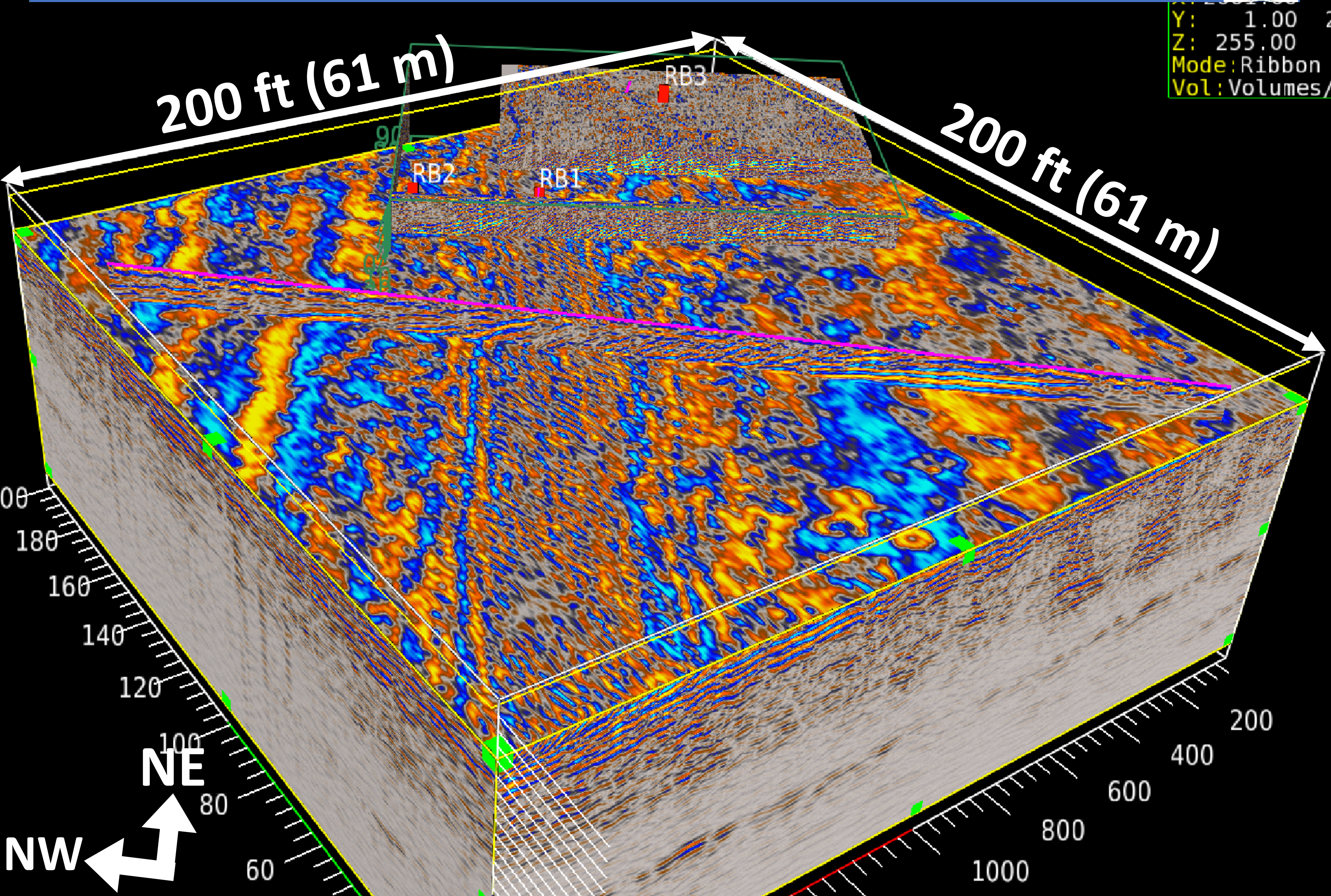

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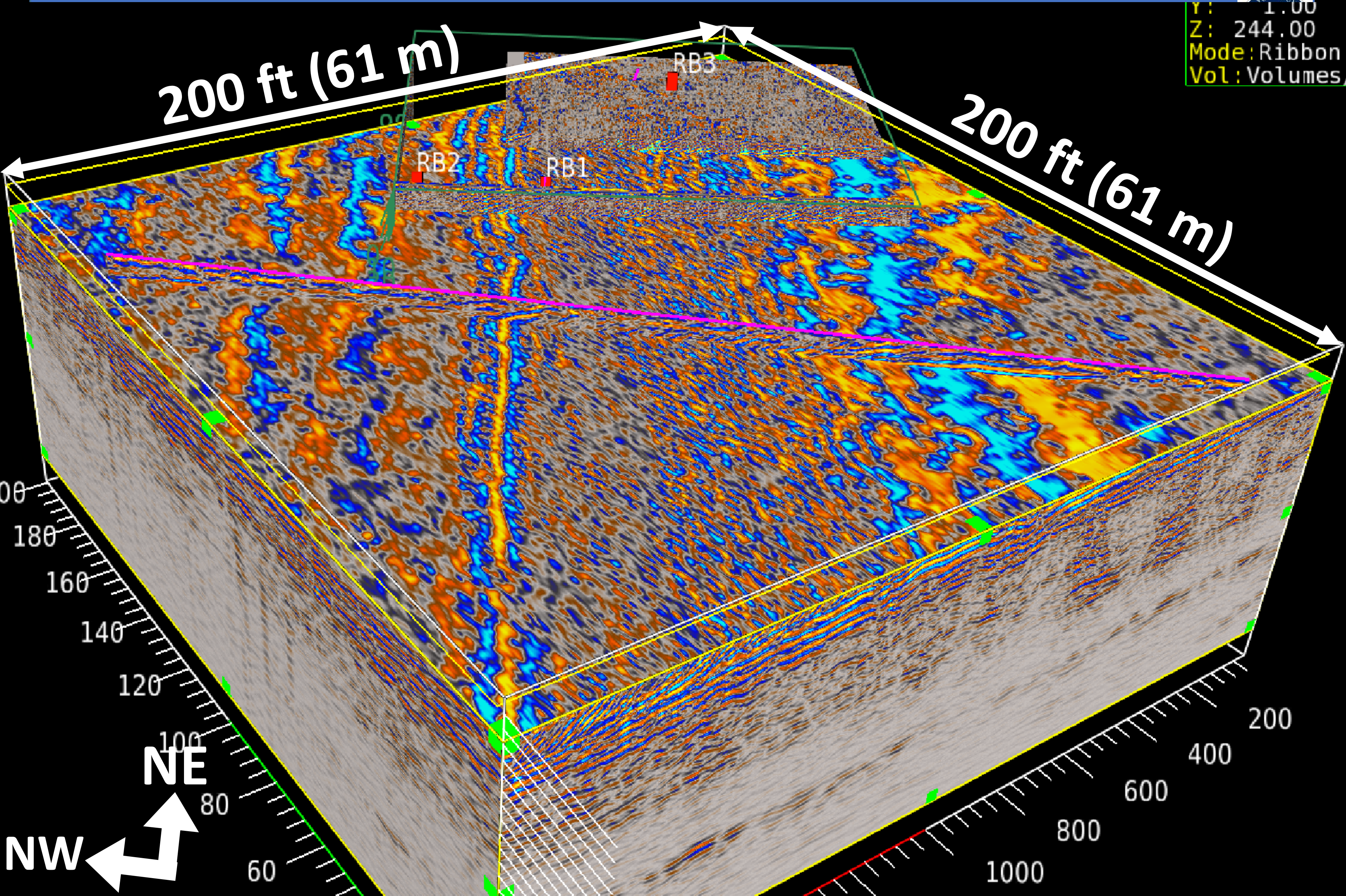
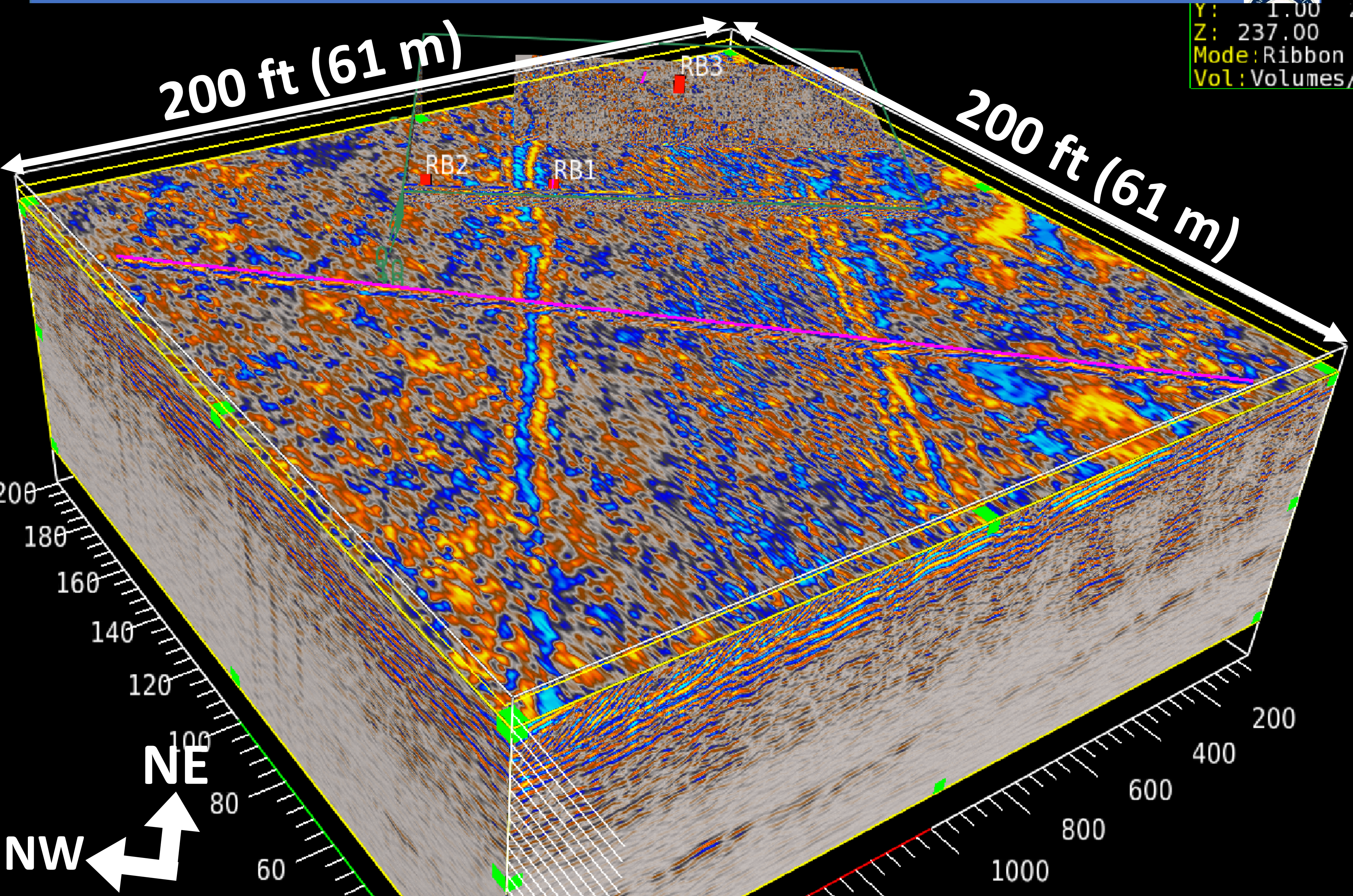
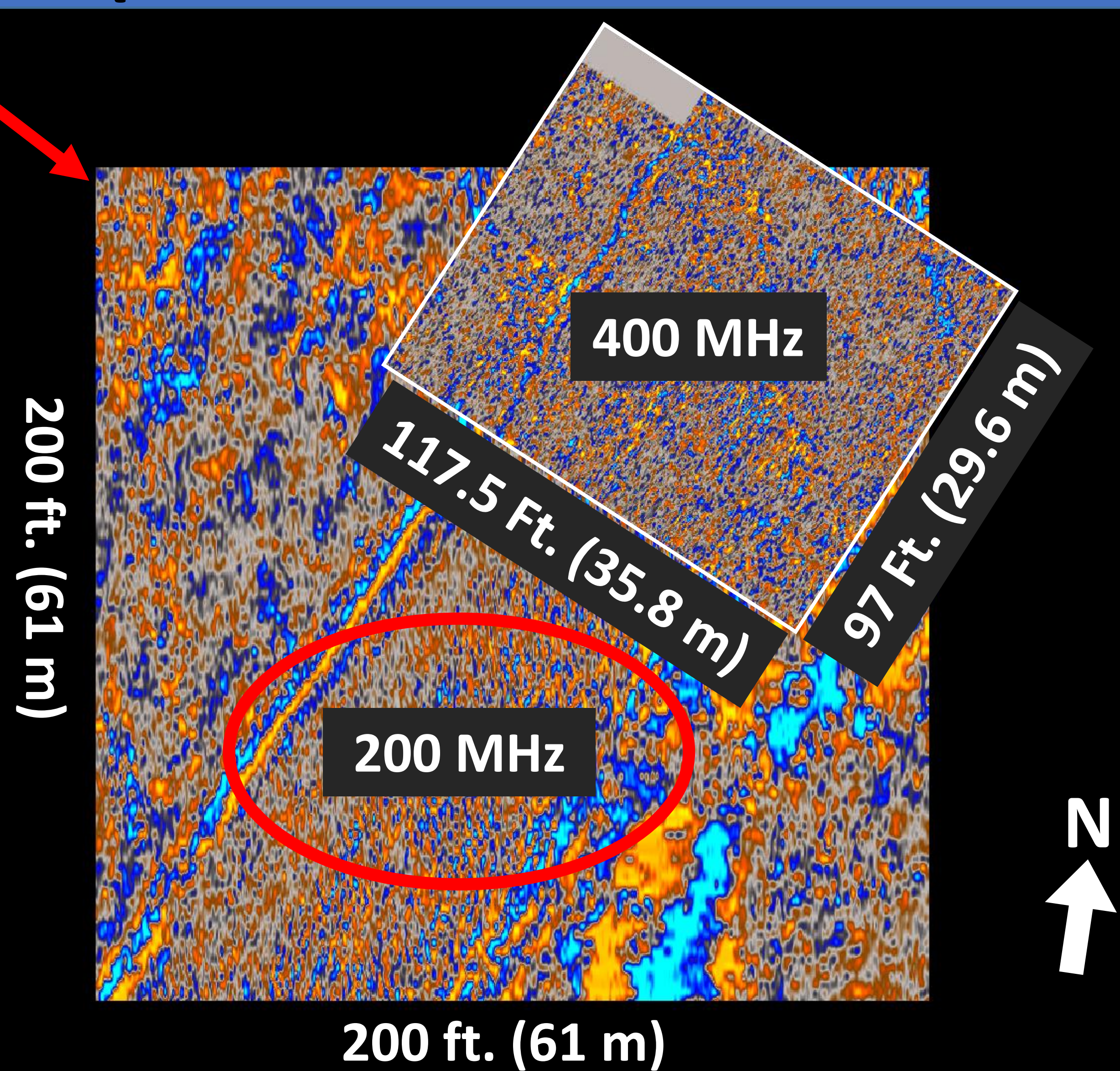
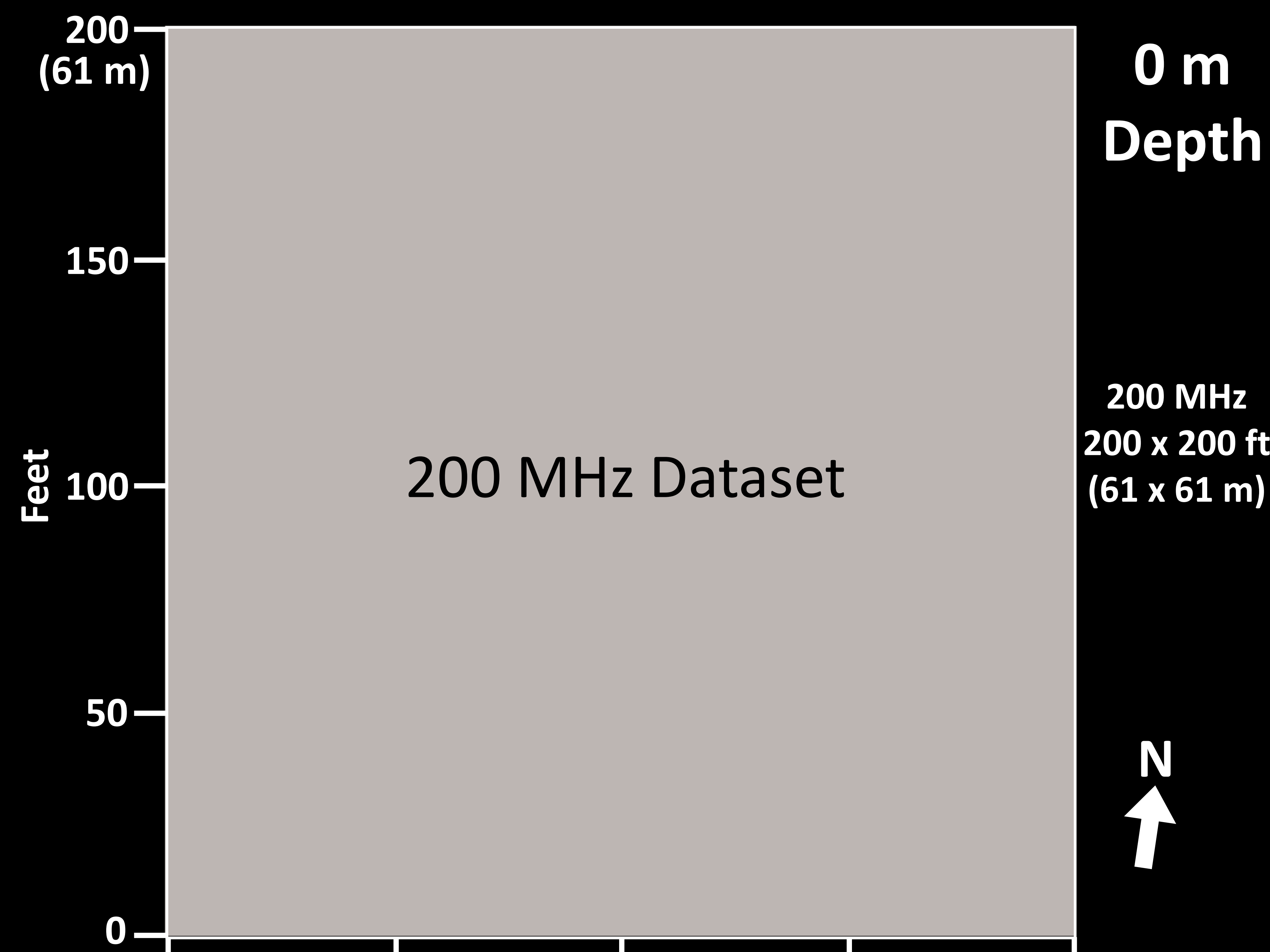
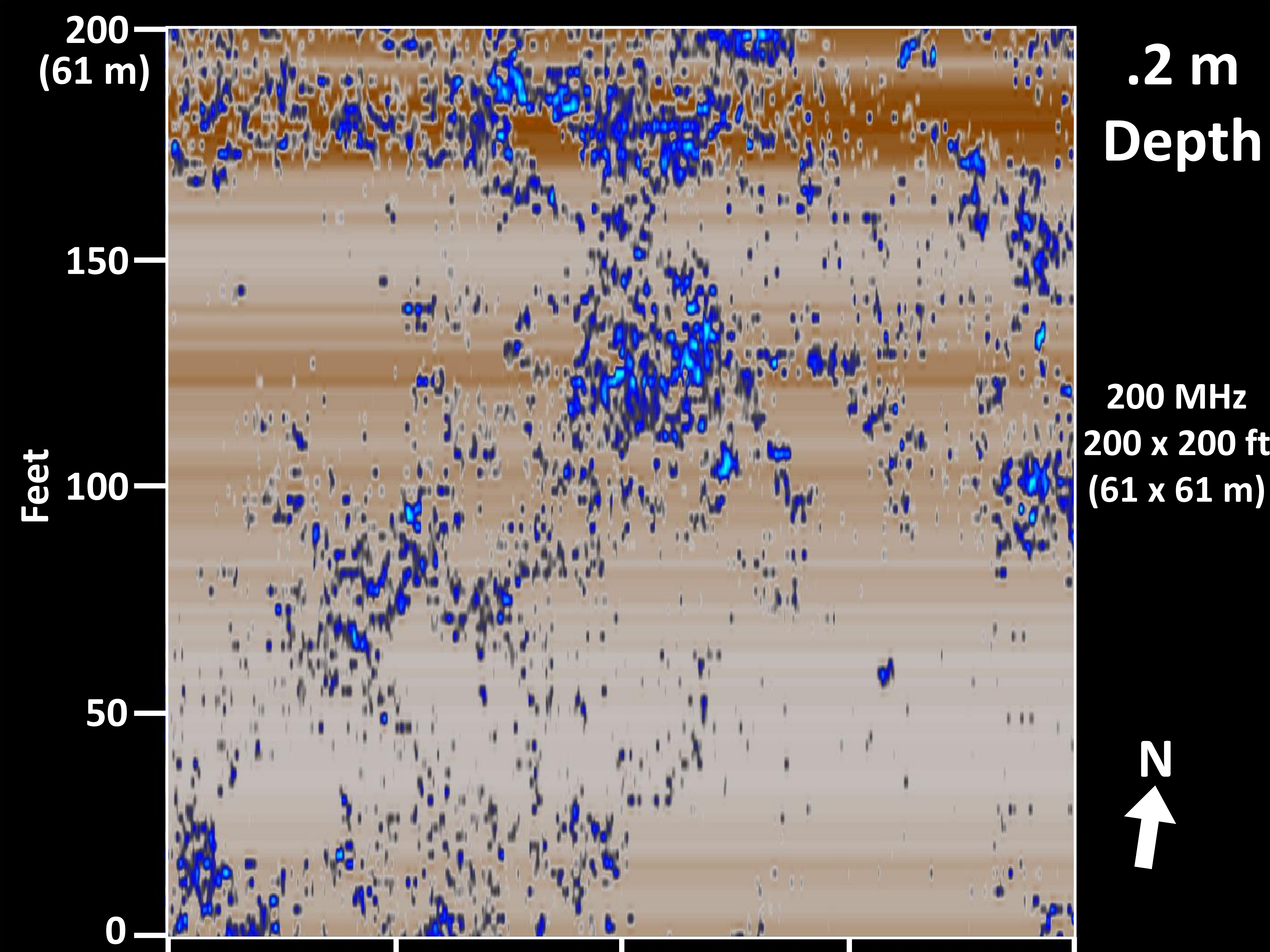


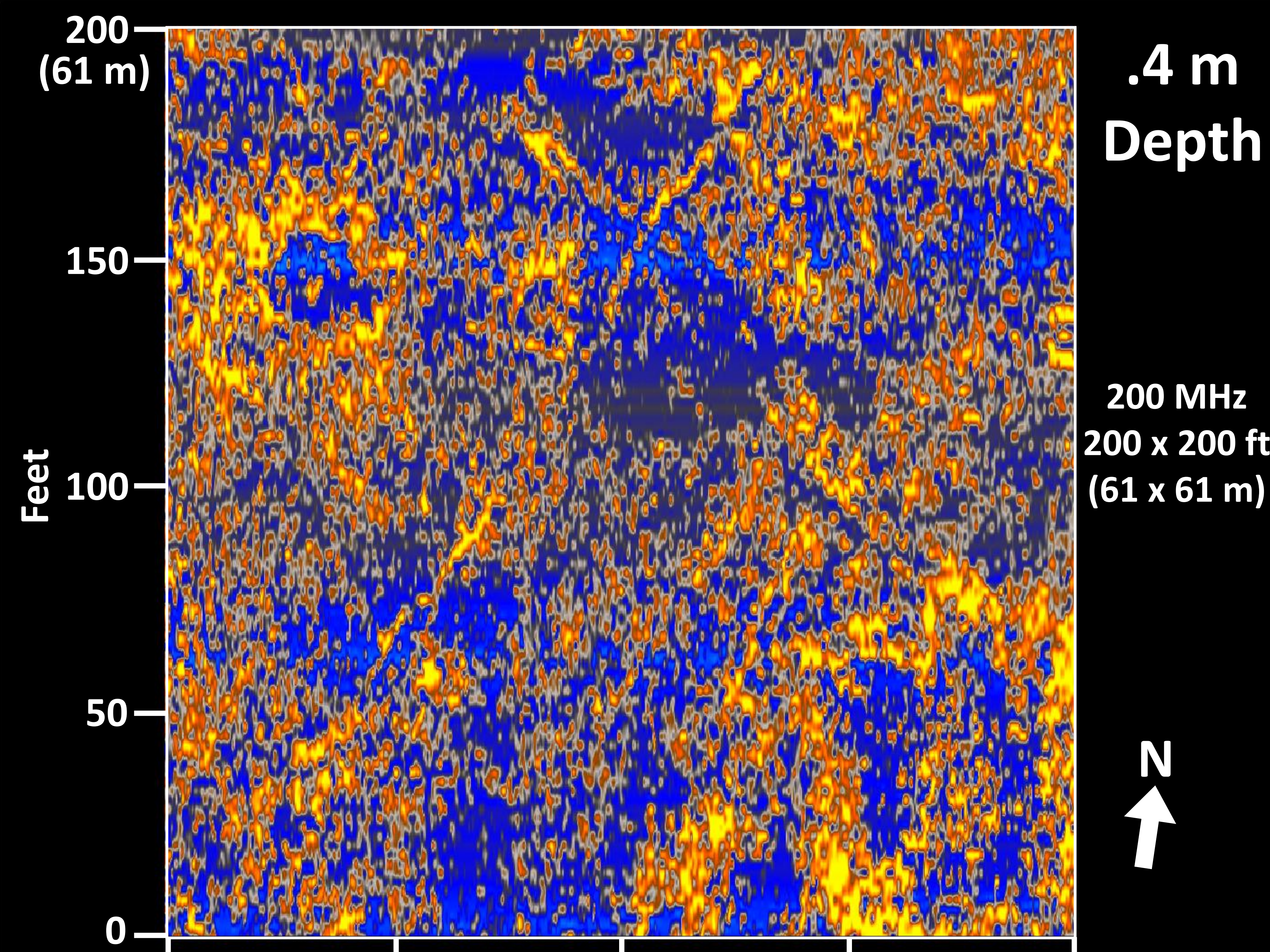

200 ft (61 m)
200 ft (61 m)
RB3
RB2
RB1
Z: 237.00
Mode:Ribbon
NE
NW
200
180
160
140
120
100
80
60
200
400
600
800
1000

# Two 3D GPR Data Sets:
# 200 MHz (~10 cm Vertical Resolution)

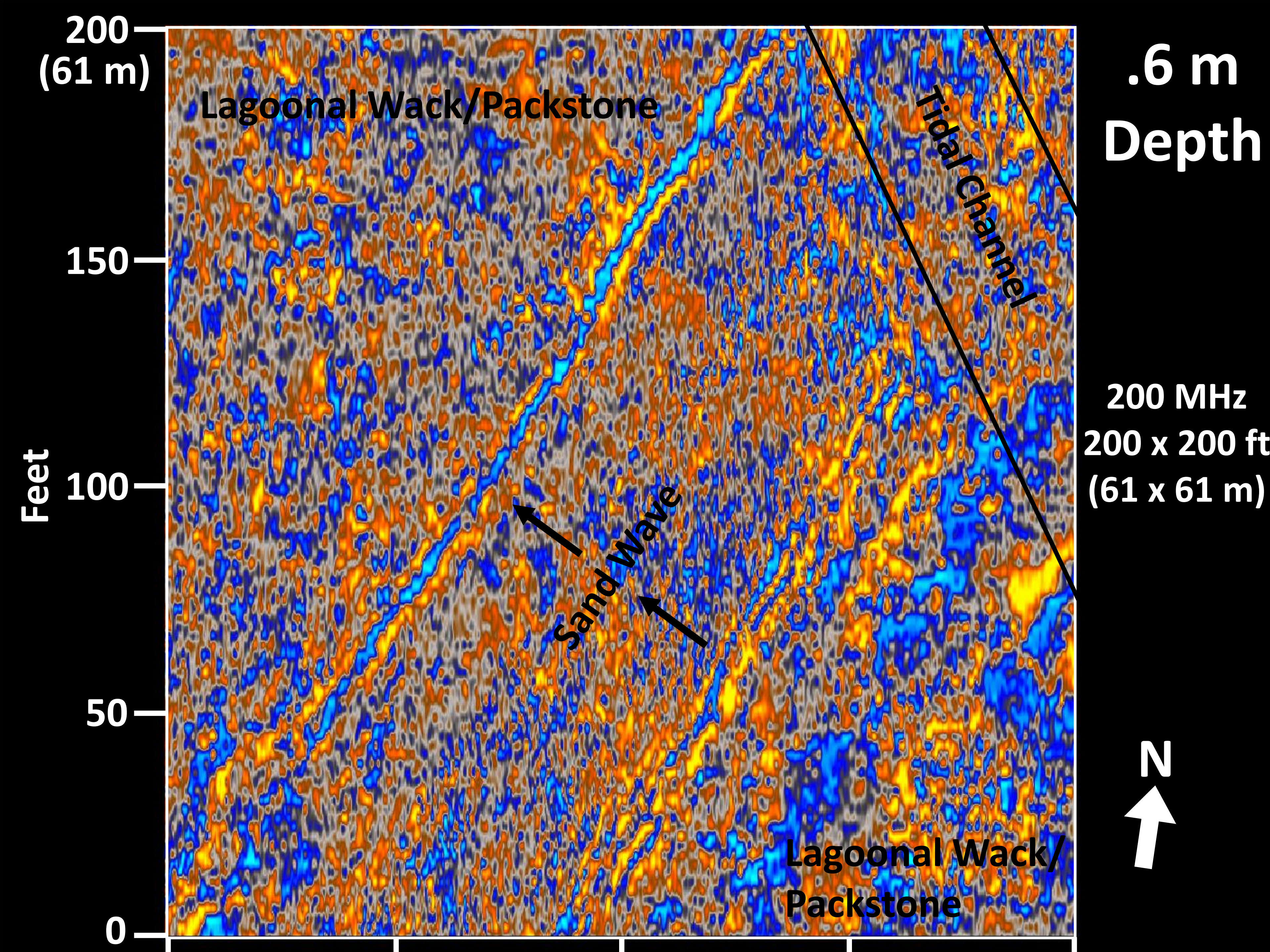



200
(61 m)
150
100
50
0
Feet
200 MHz Dataset
0 m
Depth
200 MHz
200 x 200 ft
(61 x 61 m)
N

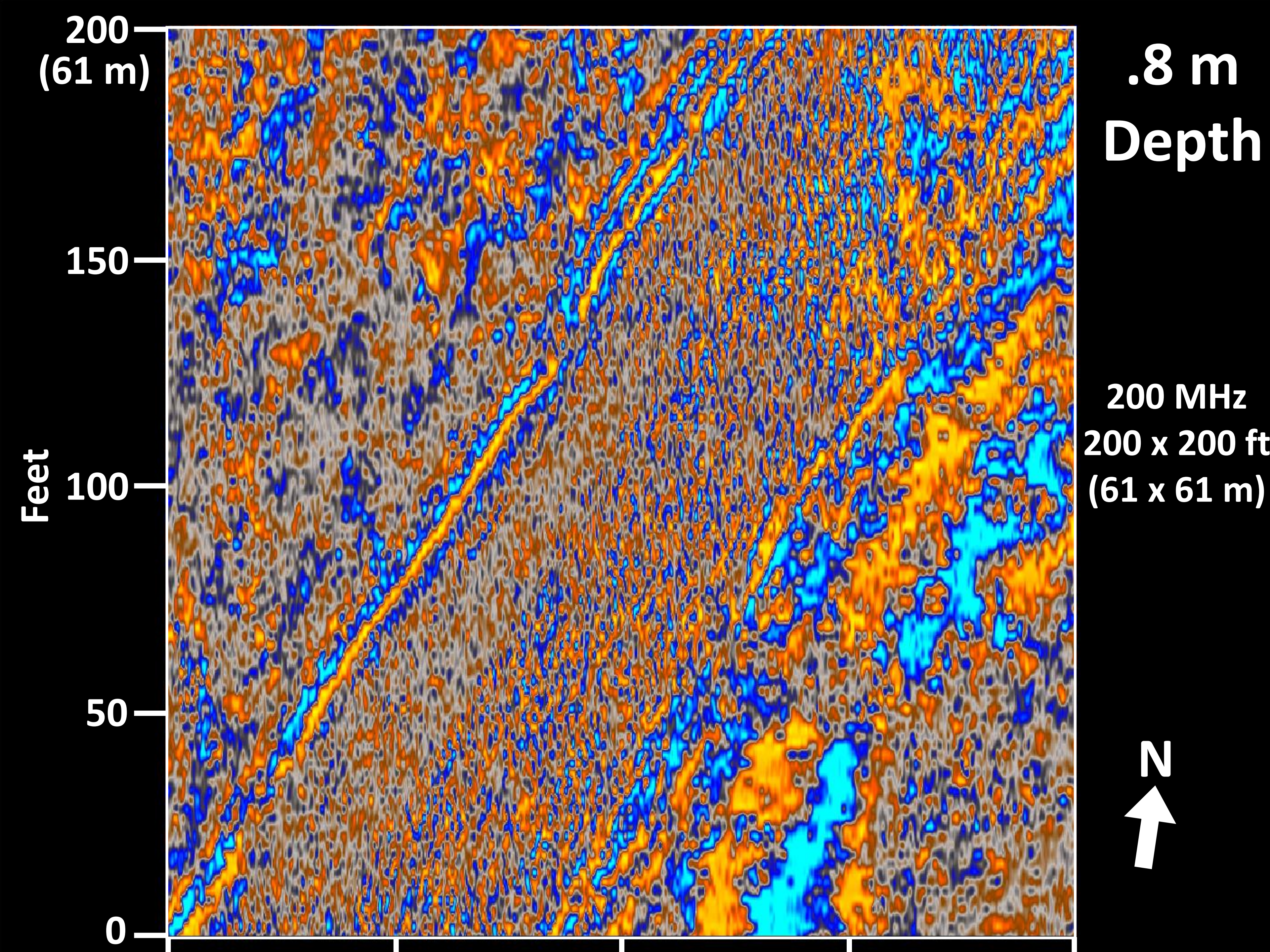

200
(61 m)
150
Feet
100
50
0
.2 m
Depth
200 MHz
200 x 200 ft
(61 x 61 m)
N



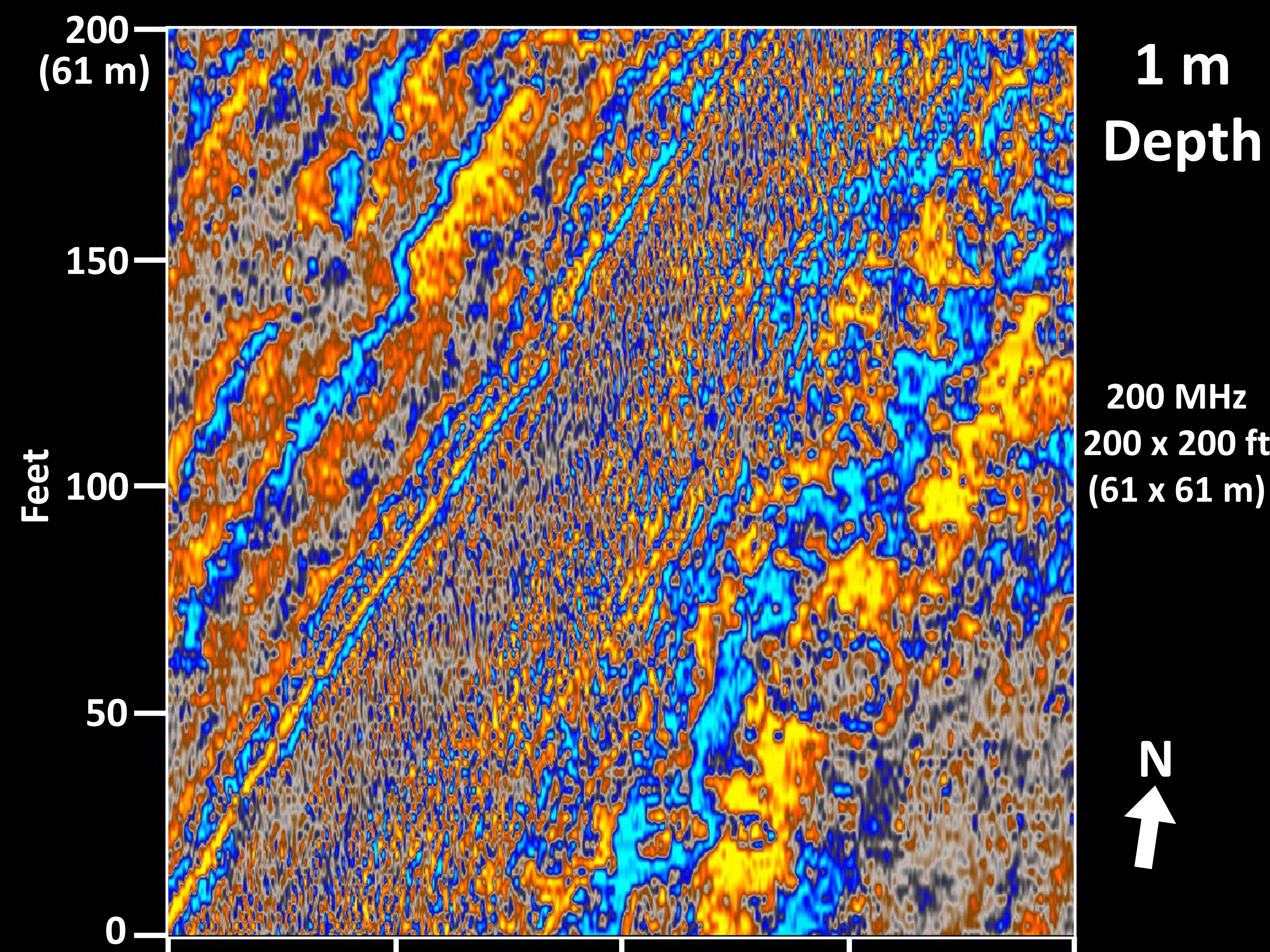
200 (61 m)
150
100
50
0
Feet
.4 m Depth
200 MHz
200 x 200 ft
(61 x 61 m)
N

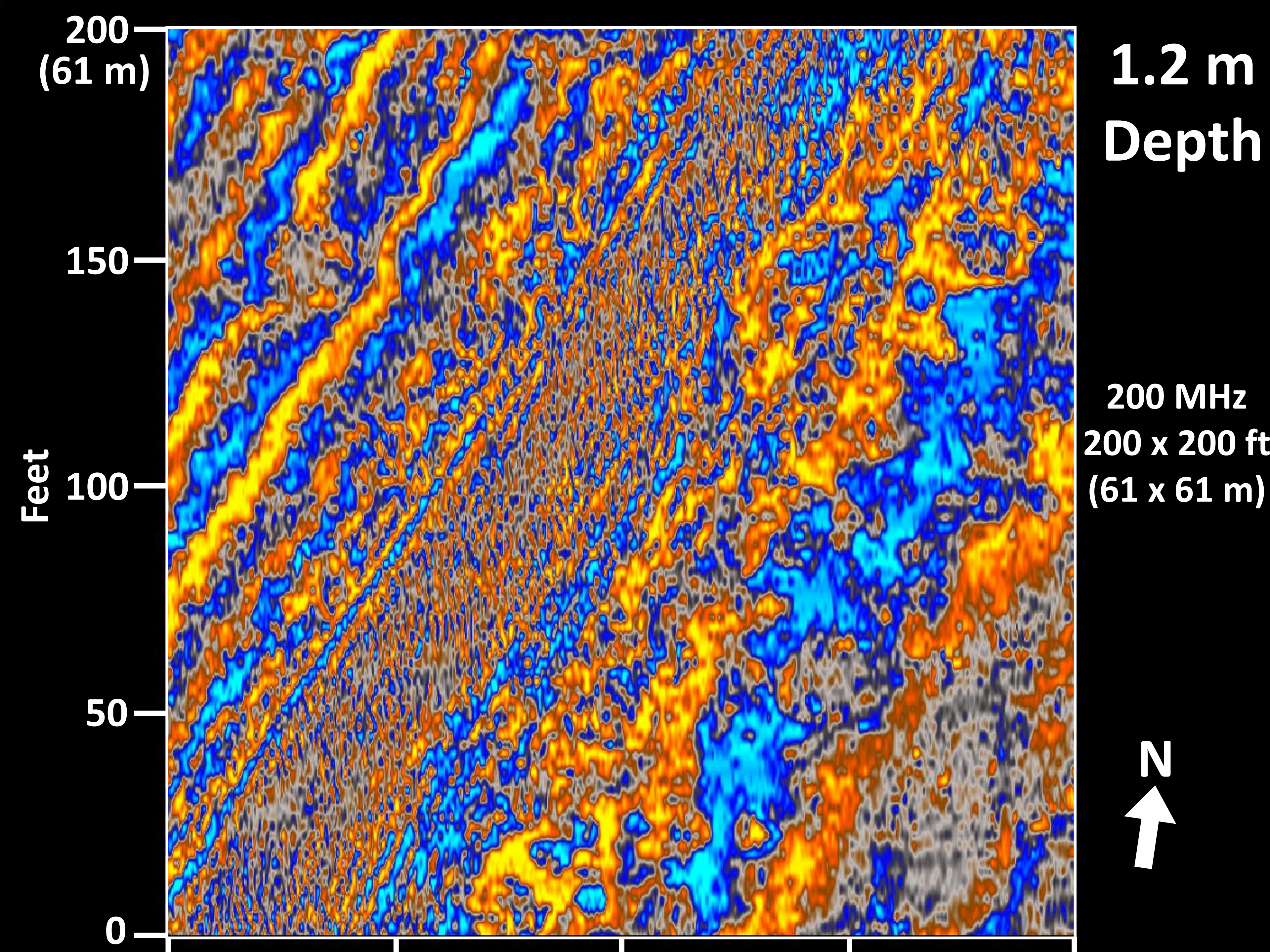


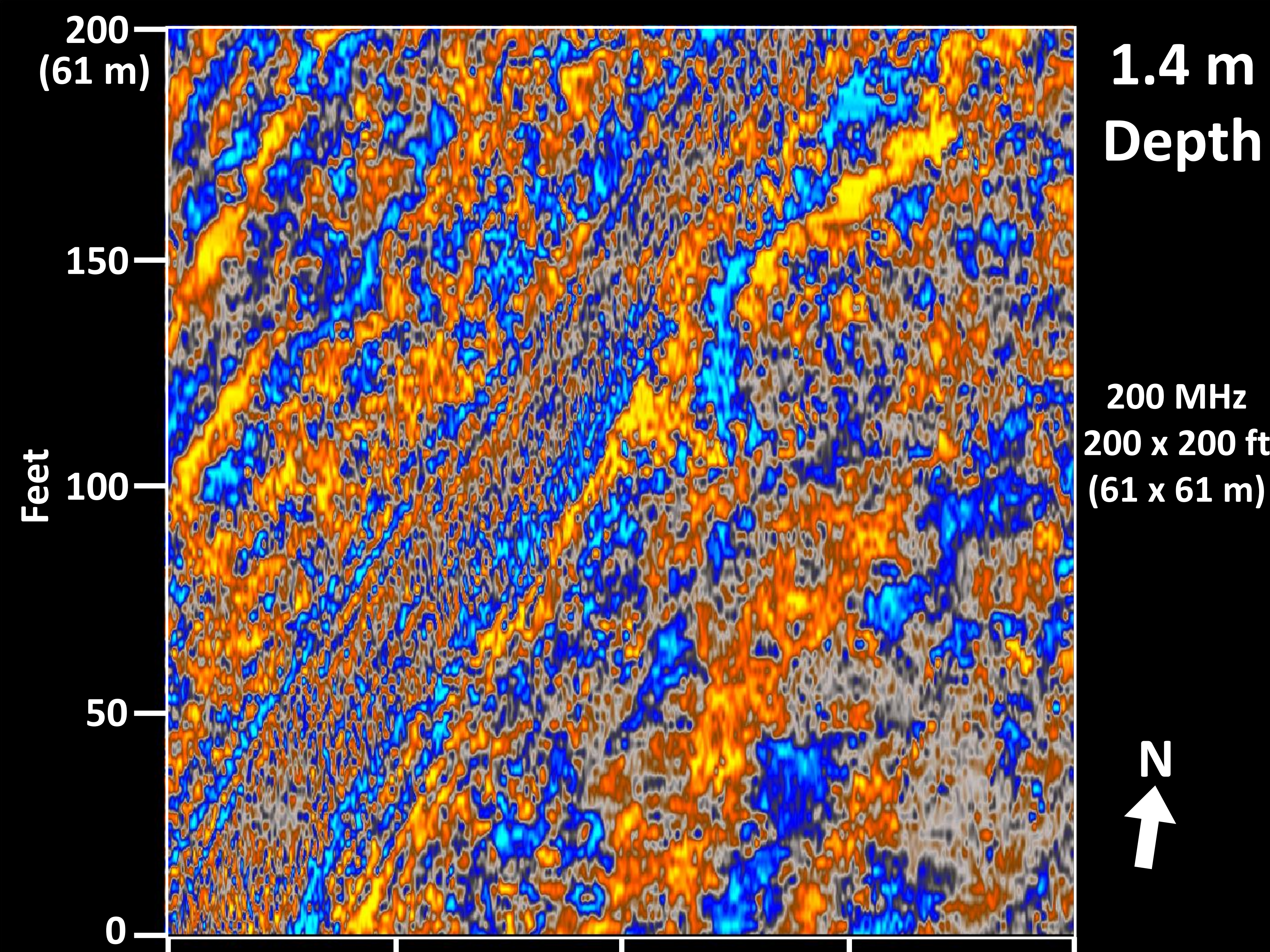
200
(61 m)
150
100
50
0
Feet
Lagoonal Wack/Packstone
Tidal Channel
Sand Wave
Lagoonal Wack/
Packstone
.6 m
Depth
200 MHz
200 x 200 ft
(61 x 61 m)
N

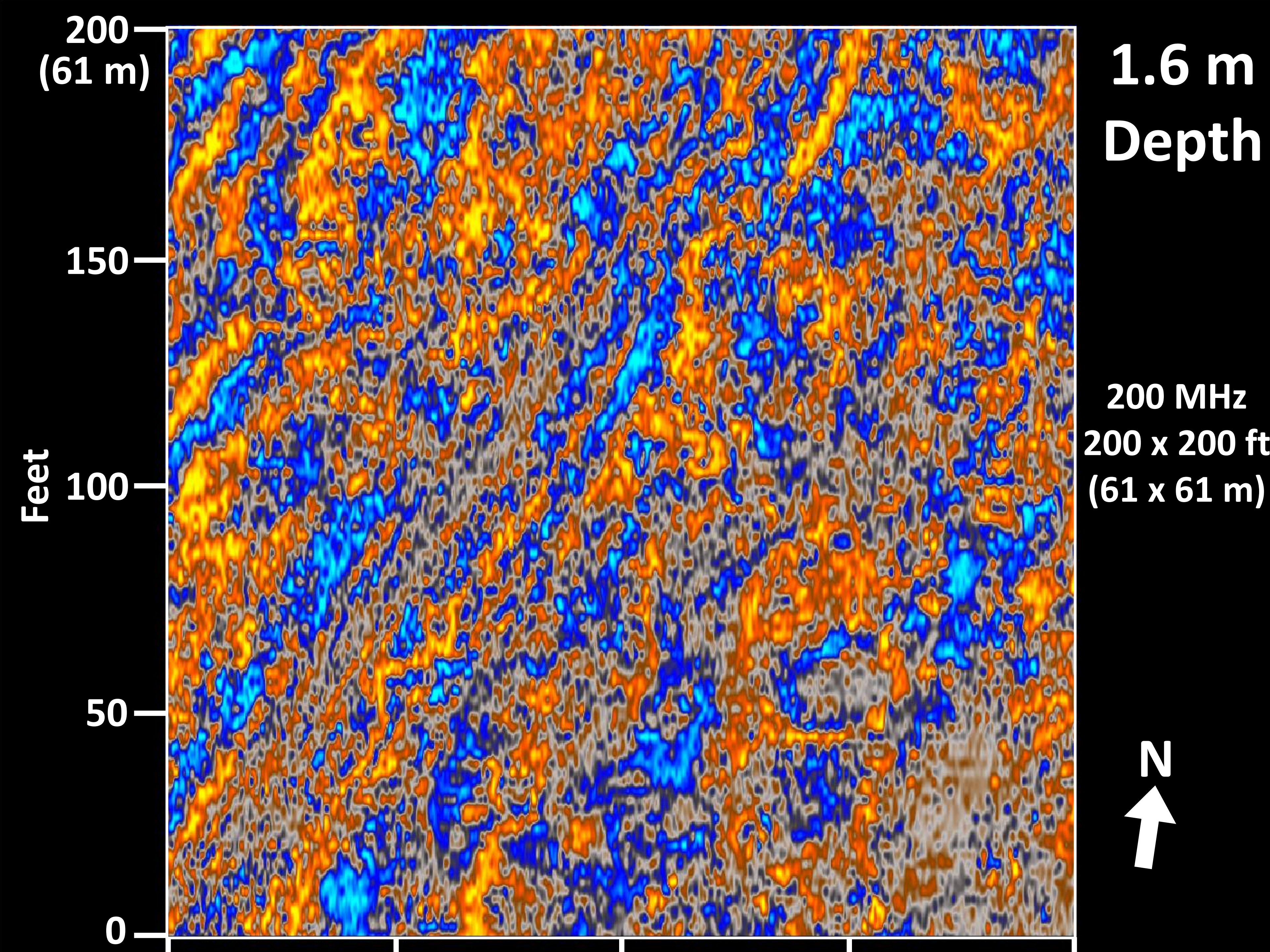


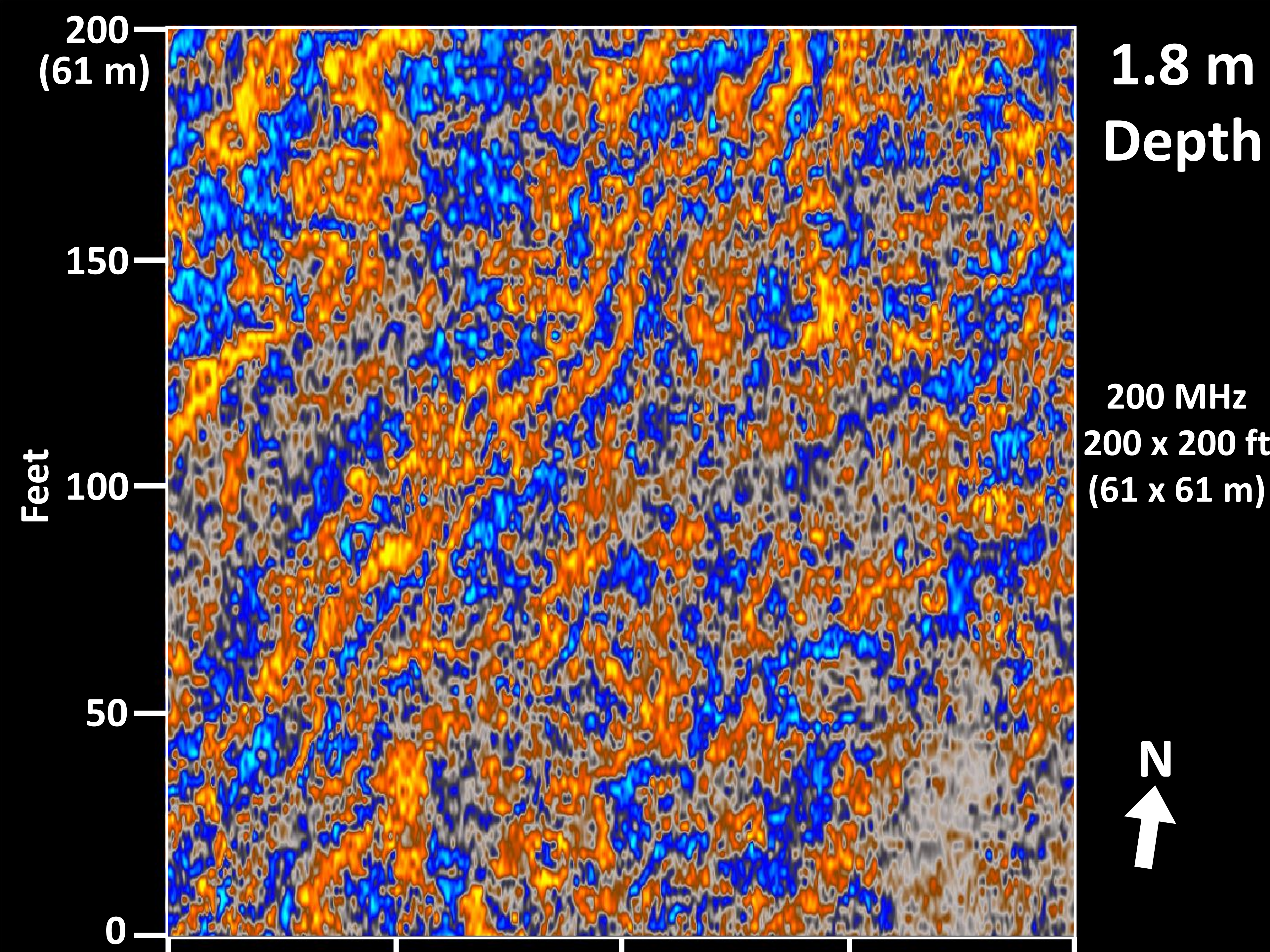
200
(61 m)
150
100
50
0
Feet
.8 m
Depth
200 MHz
200 x 200 ft
(61 x 61 m)
N

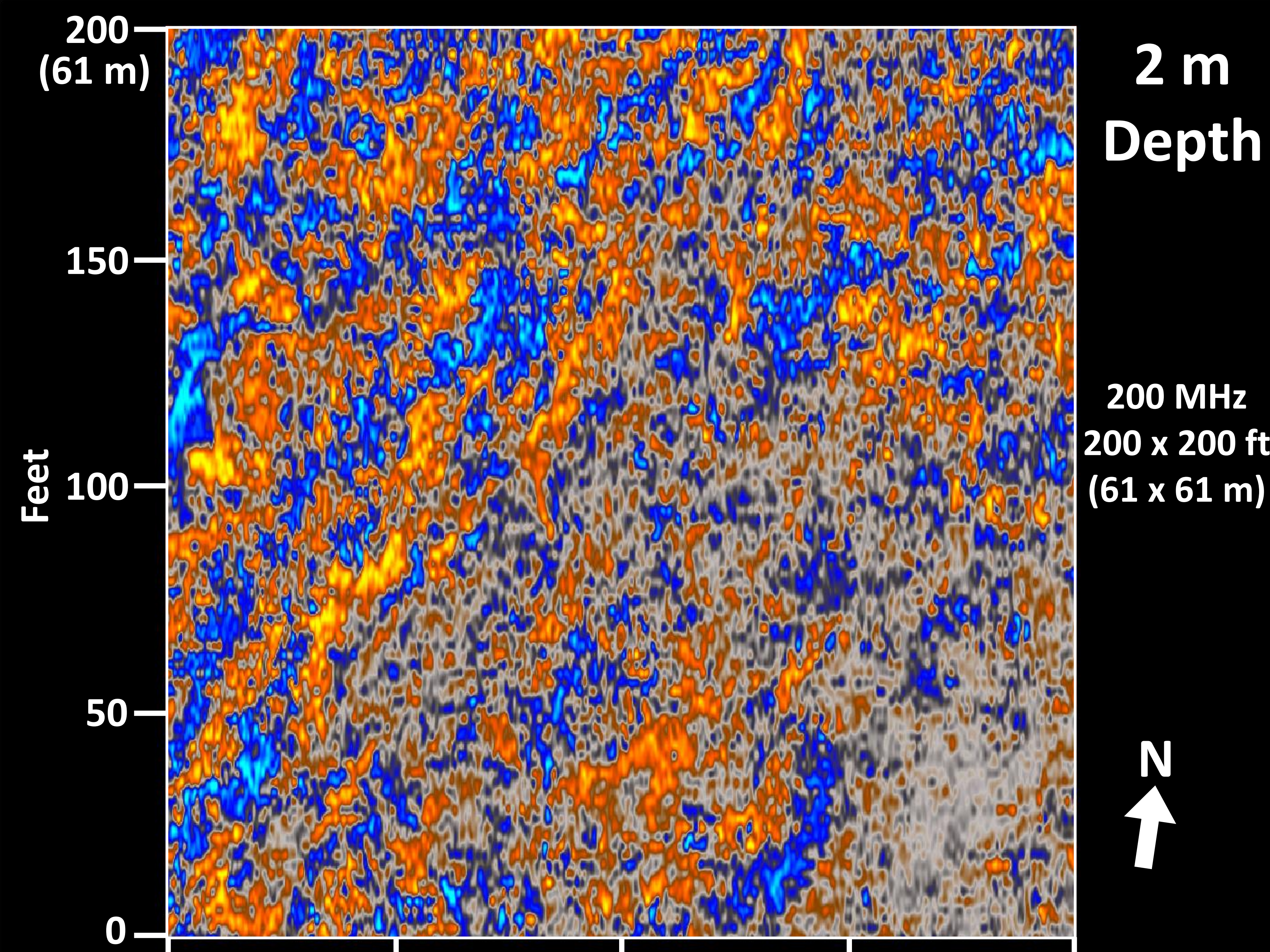

200
(61 m)
150
100
50
0
Feet
1 m
Depth
200 MHz
200 x 200 ft
(61 x 61 m)
N


1.2 m
Depth
200 MHz
200 x 200 ft
(61 x 61 m)
N
Feet
200
(61 m)
150
100
50
0

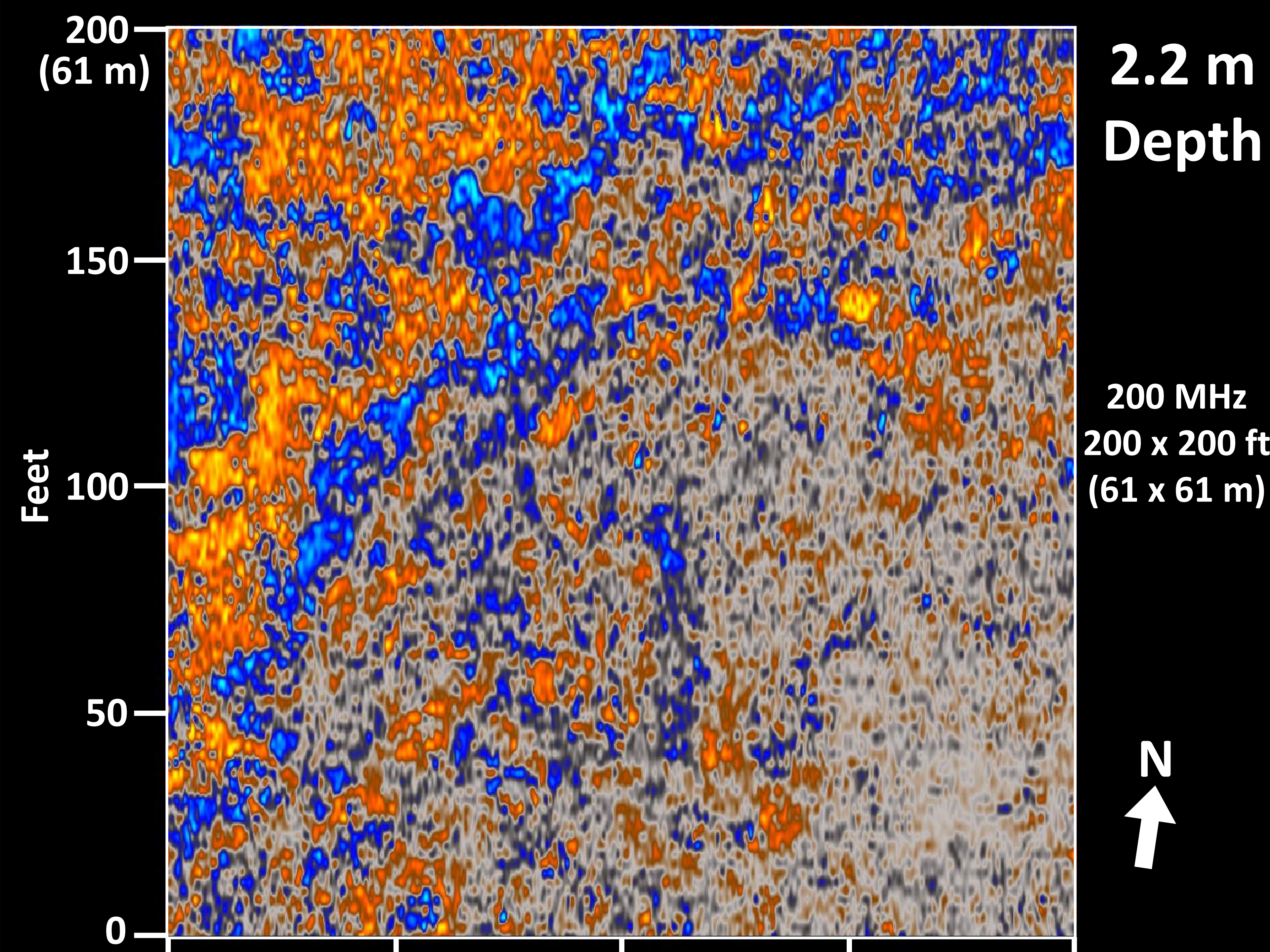

200
(61 m)
150
100
50
0
Feet
1.4 m
Depth
200 MHz
200 x 200 ft
(61 x 61 m)
N

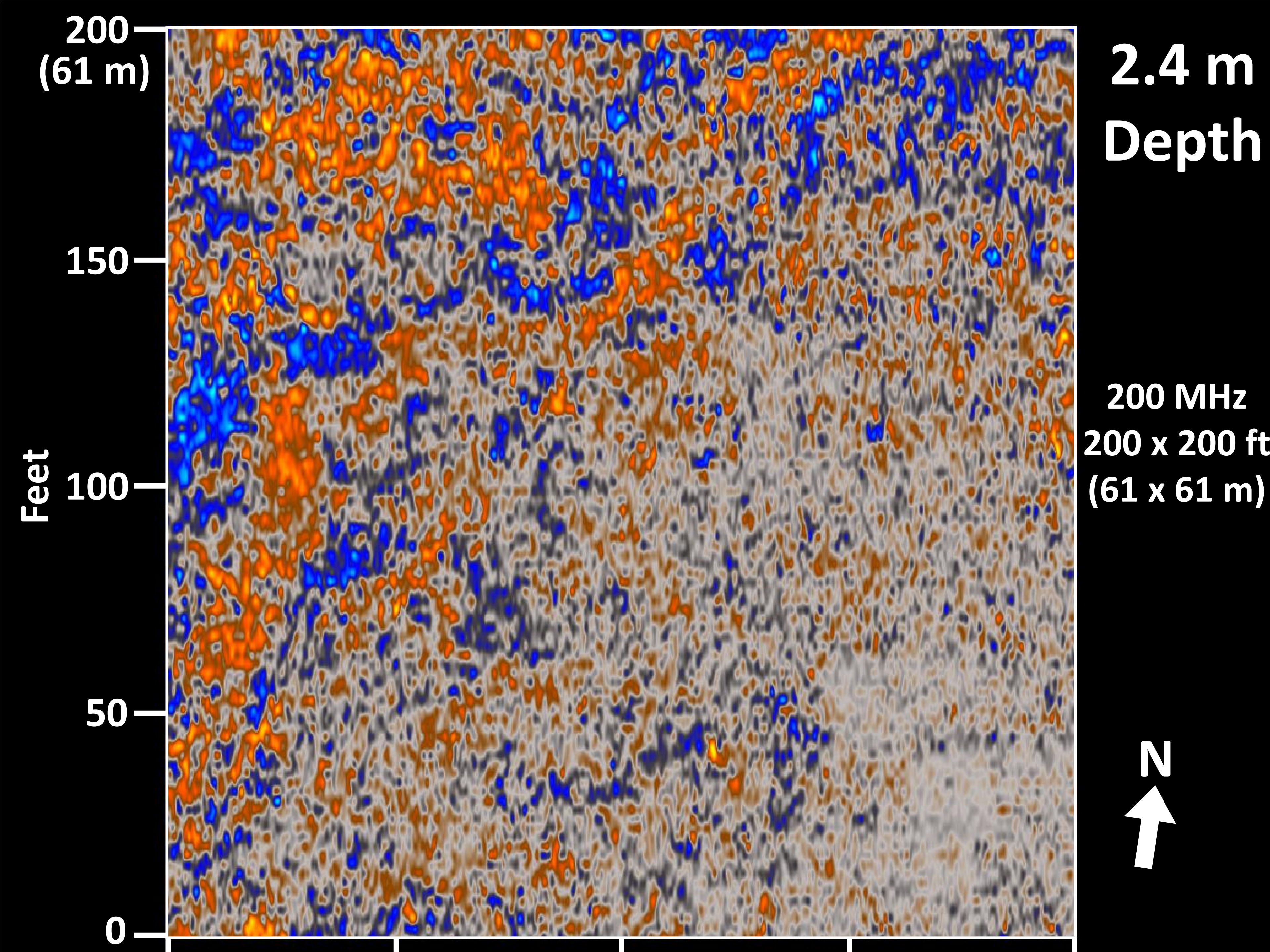

200
(61 m)
150
100
50
0
Feet
1.6 m
Depth
200 MHz
200 x 200 ft
(61 x 61 m)
N

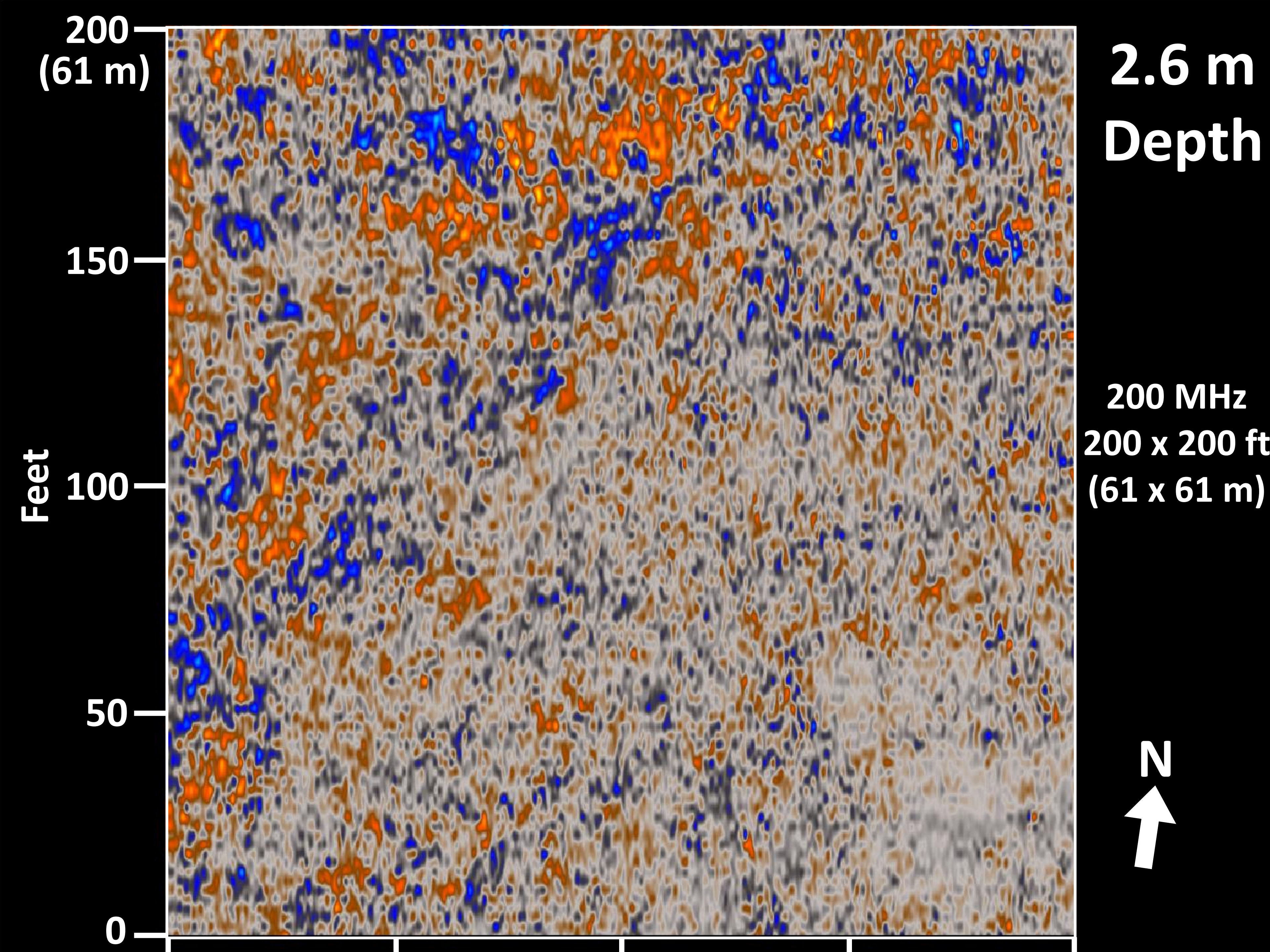

200
(61 m)
150
100
50
0
Feet
1.8 m
Depth
200 MHz
200 x 200 ft
(61 x 61 m)
N

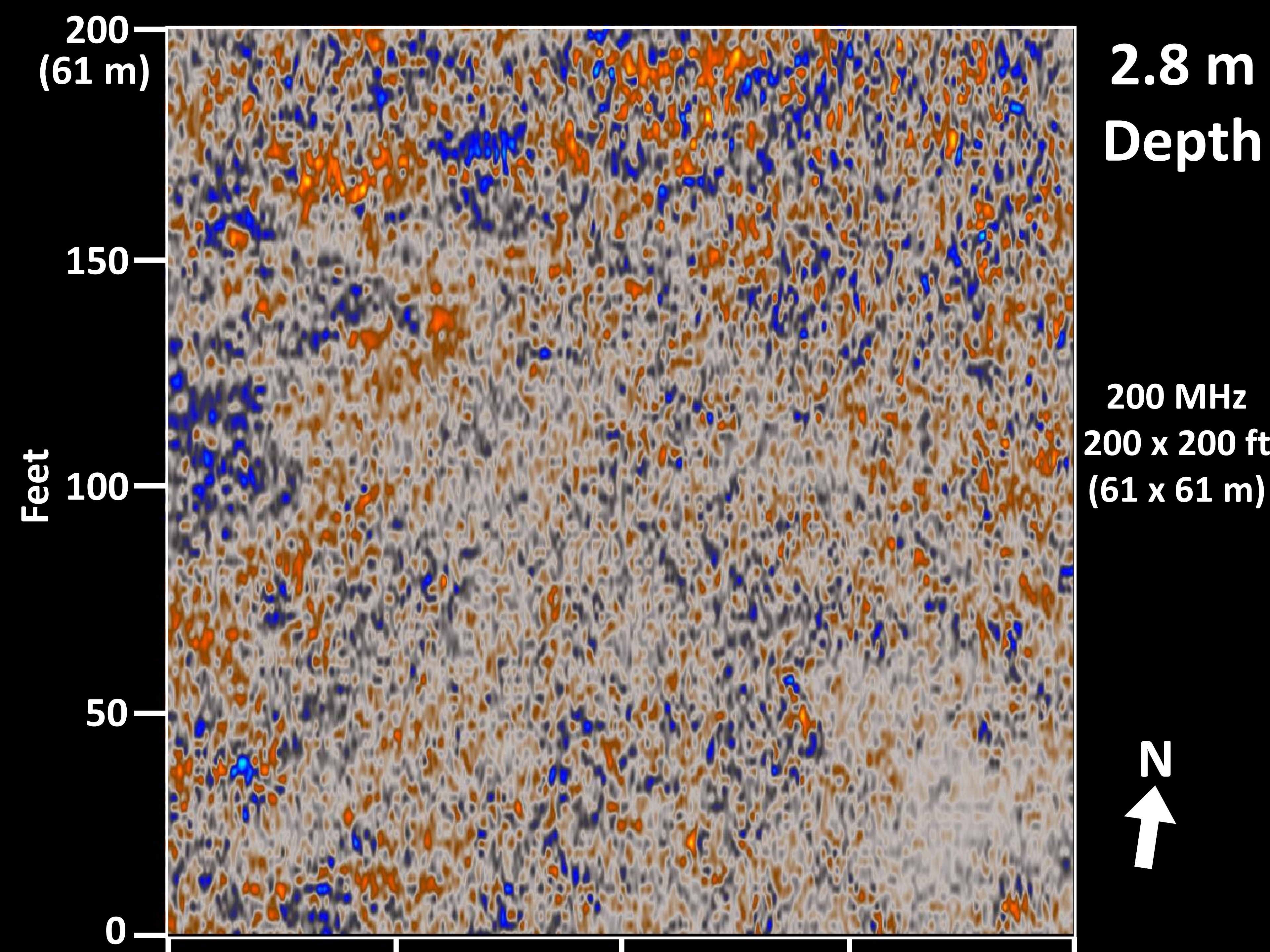


200
(61 m)
150
100
50
0
Feet
2 m
Depth
200 MHz
200 x 200 ft
(61 x 61 m)
N

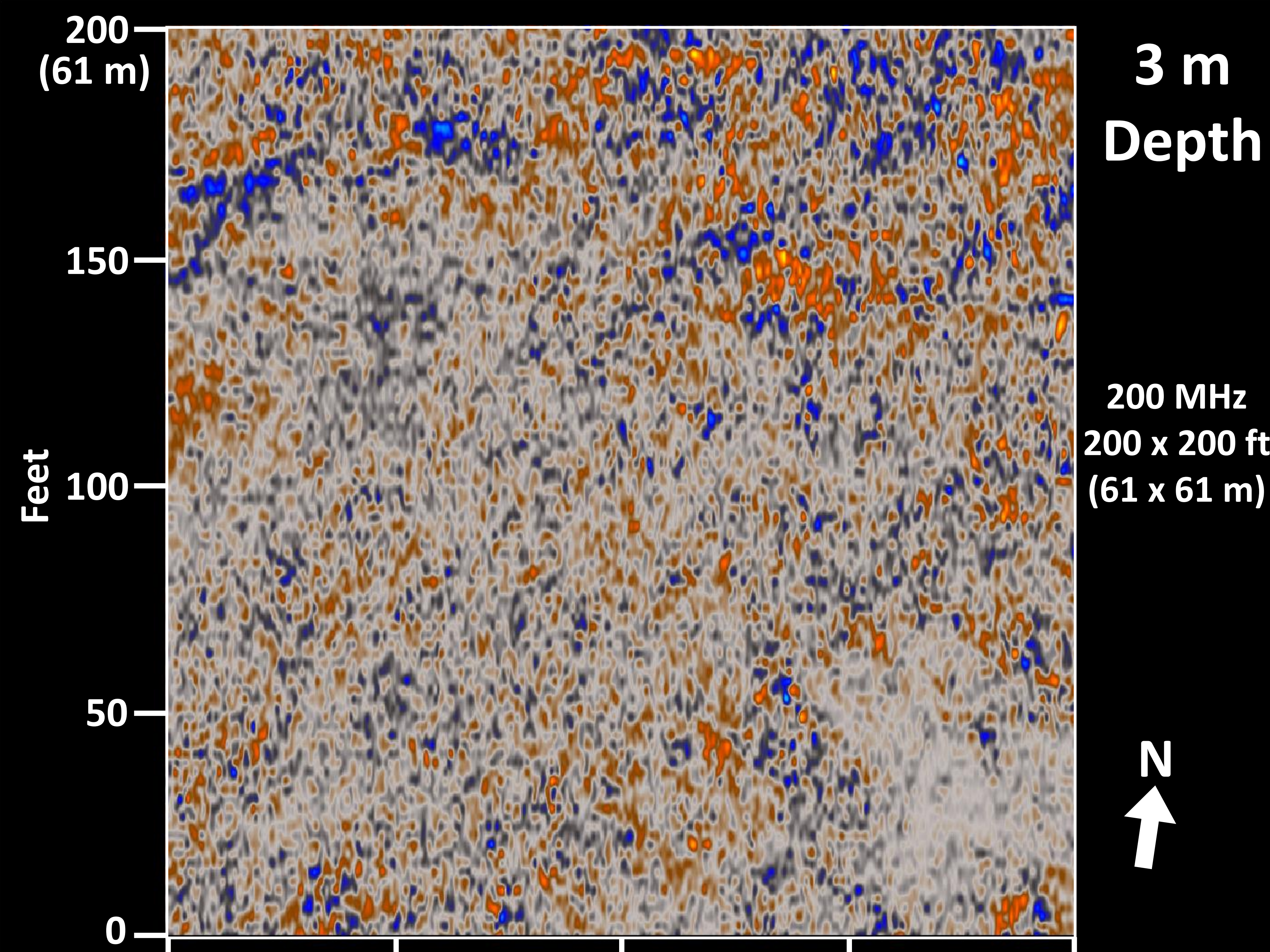

200
(61 m)
150
100
50
0
Feet
2.2 m
Depth
200 MHz
200 x 200 ft
(61 x 61 m)
N


200
(61 m)
150
100
50
0
Feet
2.4 m
Depth
200 MHz
200 x 200 ft
(61 x 61 m)
N

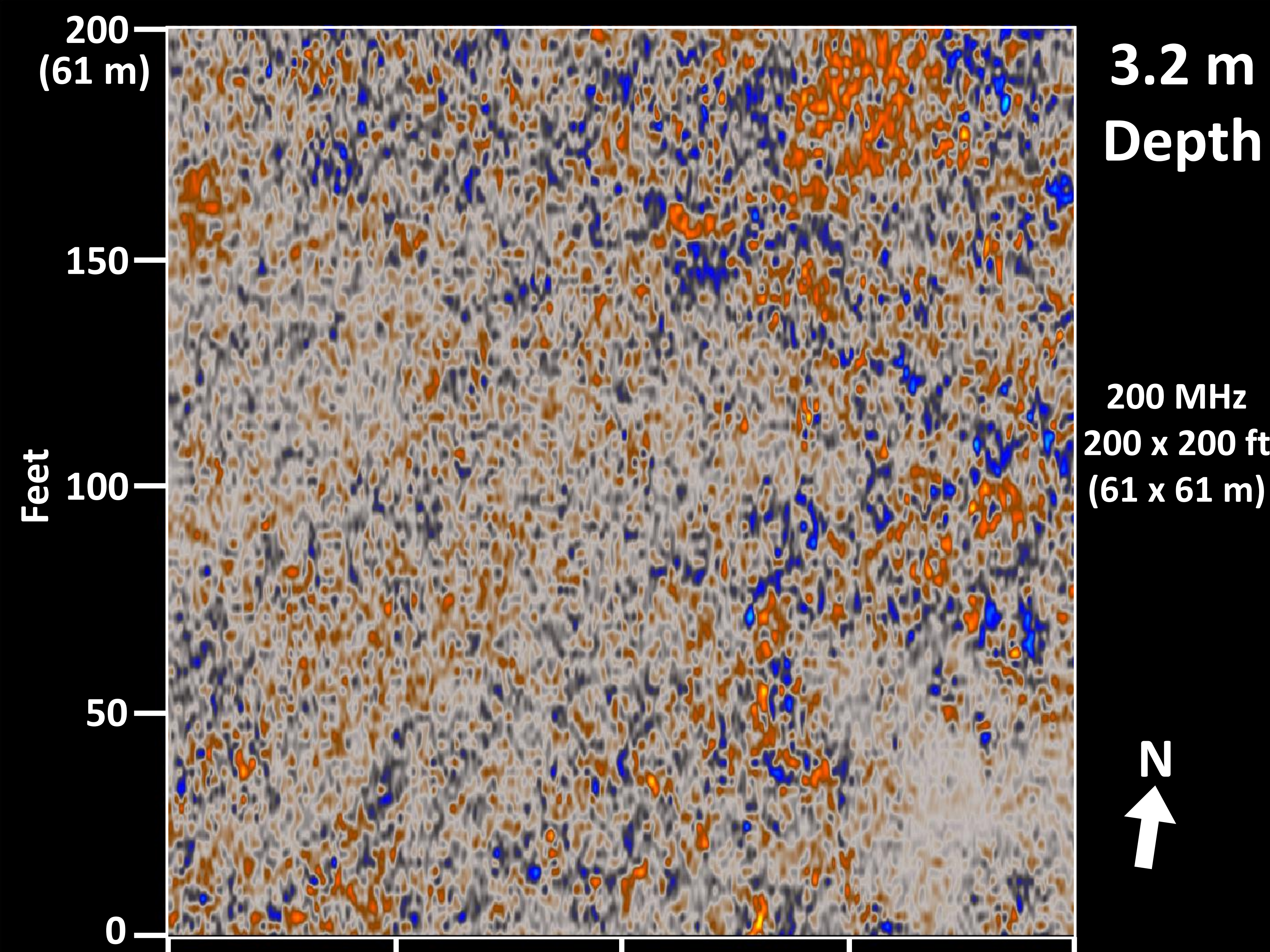

200
(61 m)
150
100
50
0
Feet
2.6 m
Depth
200 MHz
200 x 200 ft
(61 x 61 m)
N

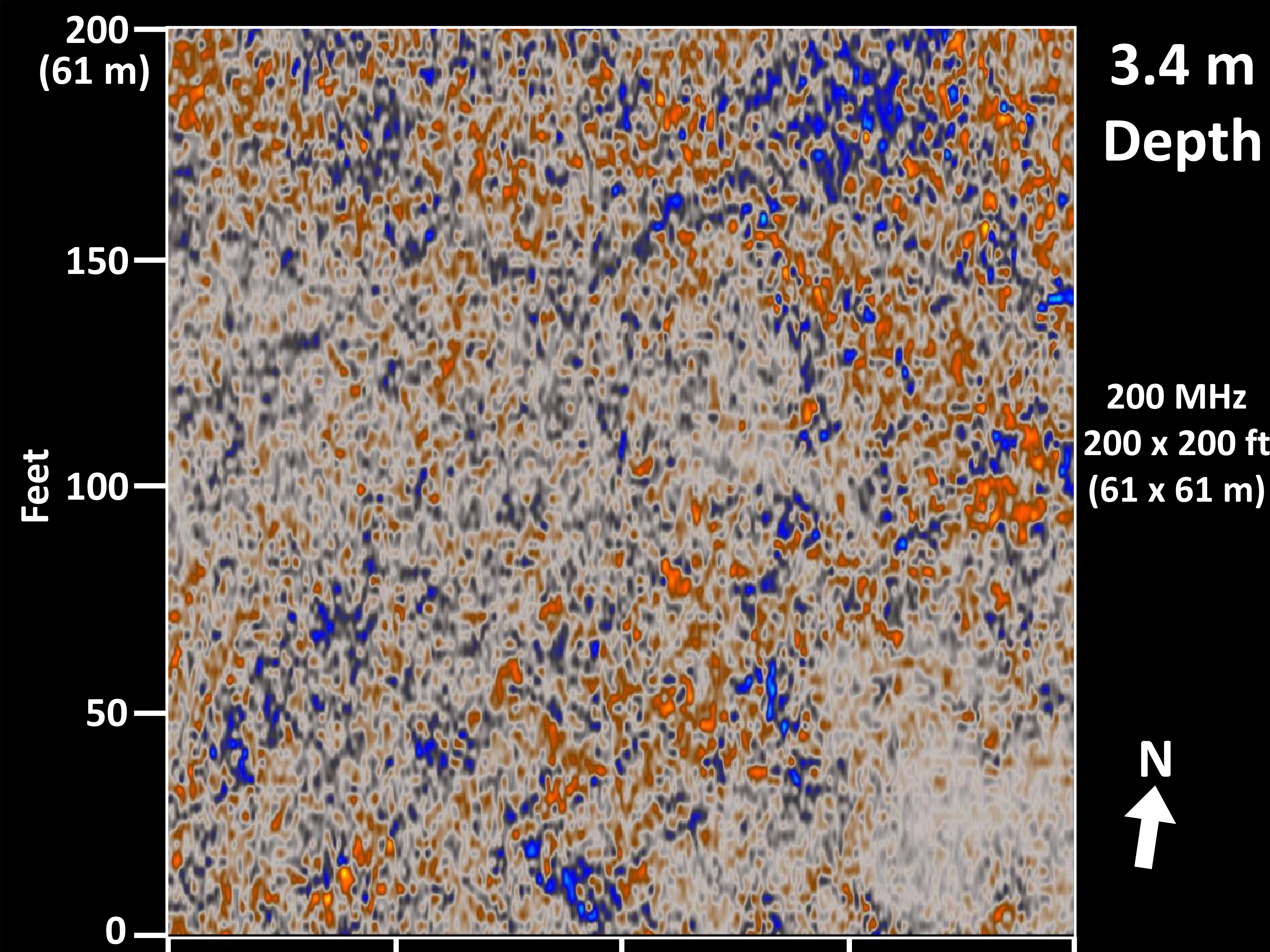


2.8 m Depth
200 MHz
200 x 200 ft
(61 x 61 m)
N
Feet
200
(61 m)
150
100
50
0

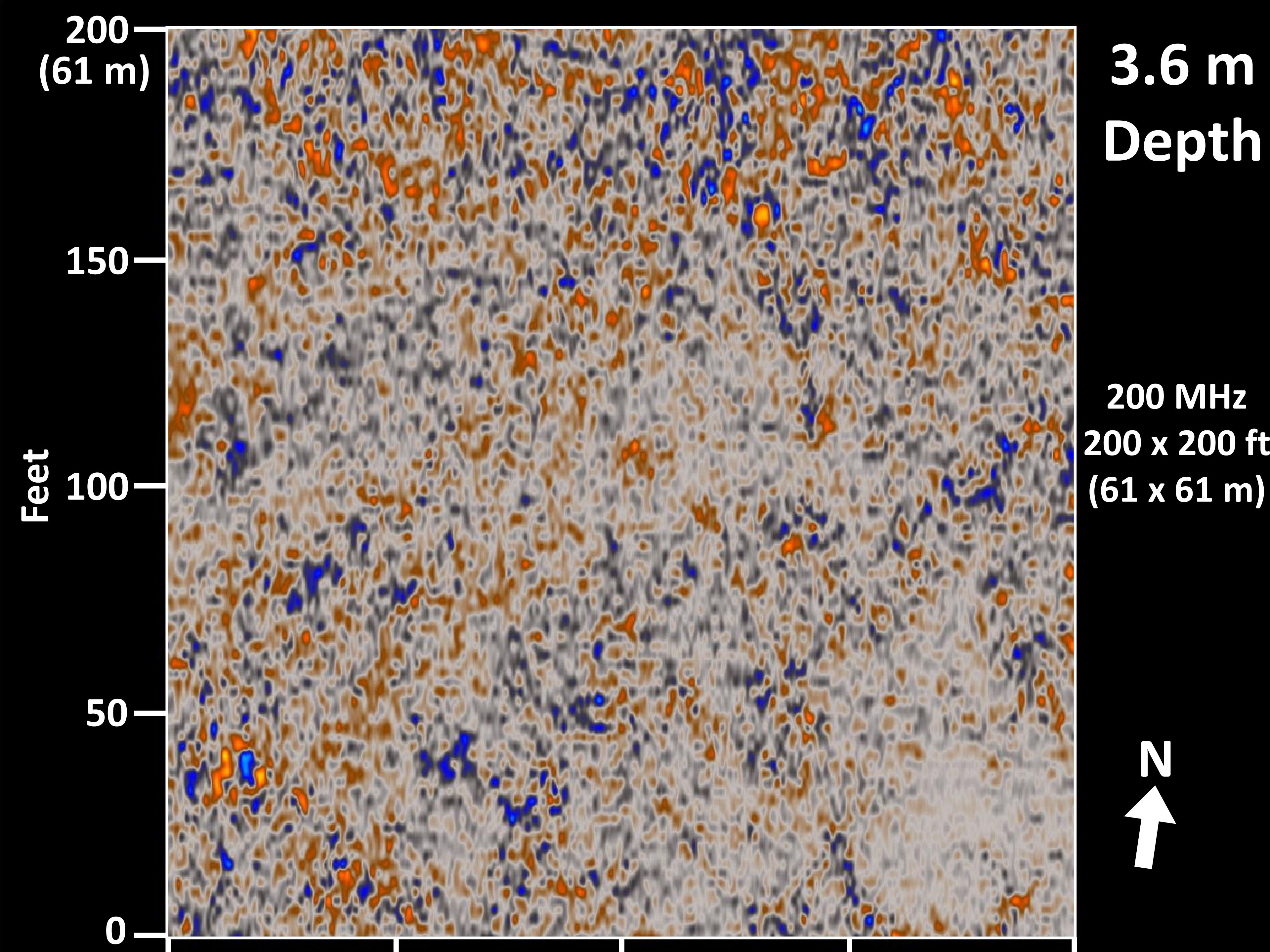


200
(61 m)
150
100
50
0
Feet
3 m
Depth
200 MHz
200 x 200 ft
(61 x 61 m)
N

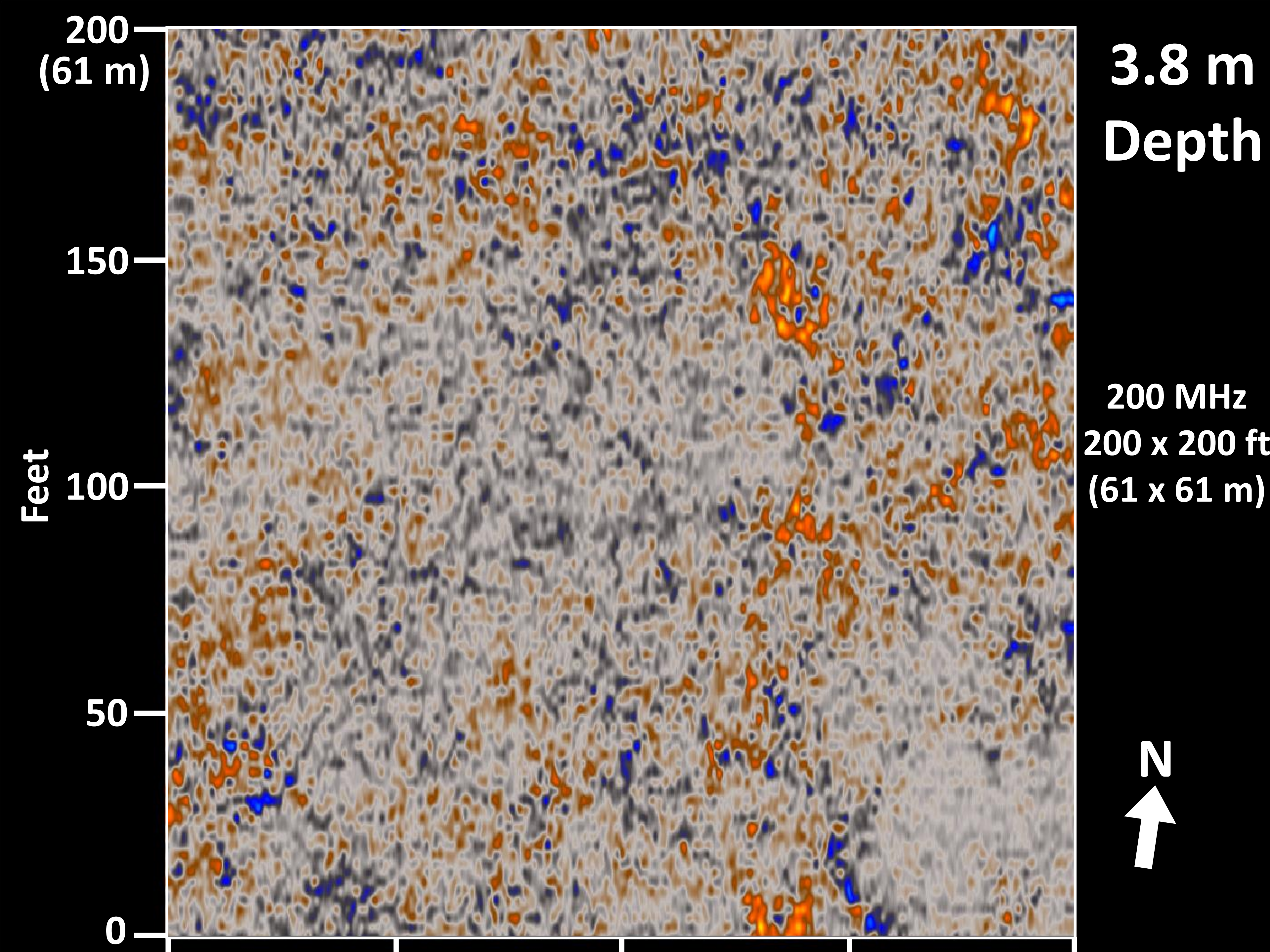

200
(61 m)
150
100
50
0
Feet
3.2 m
Depth
200 MHz
200 x 200 ft
(61 x 61 m)
N



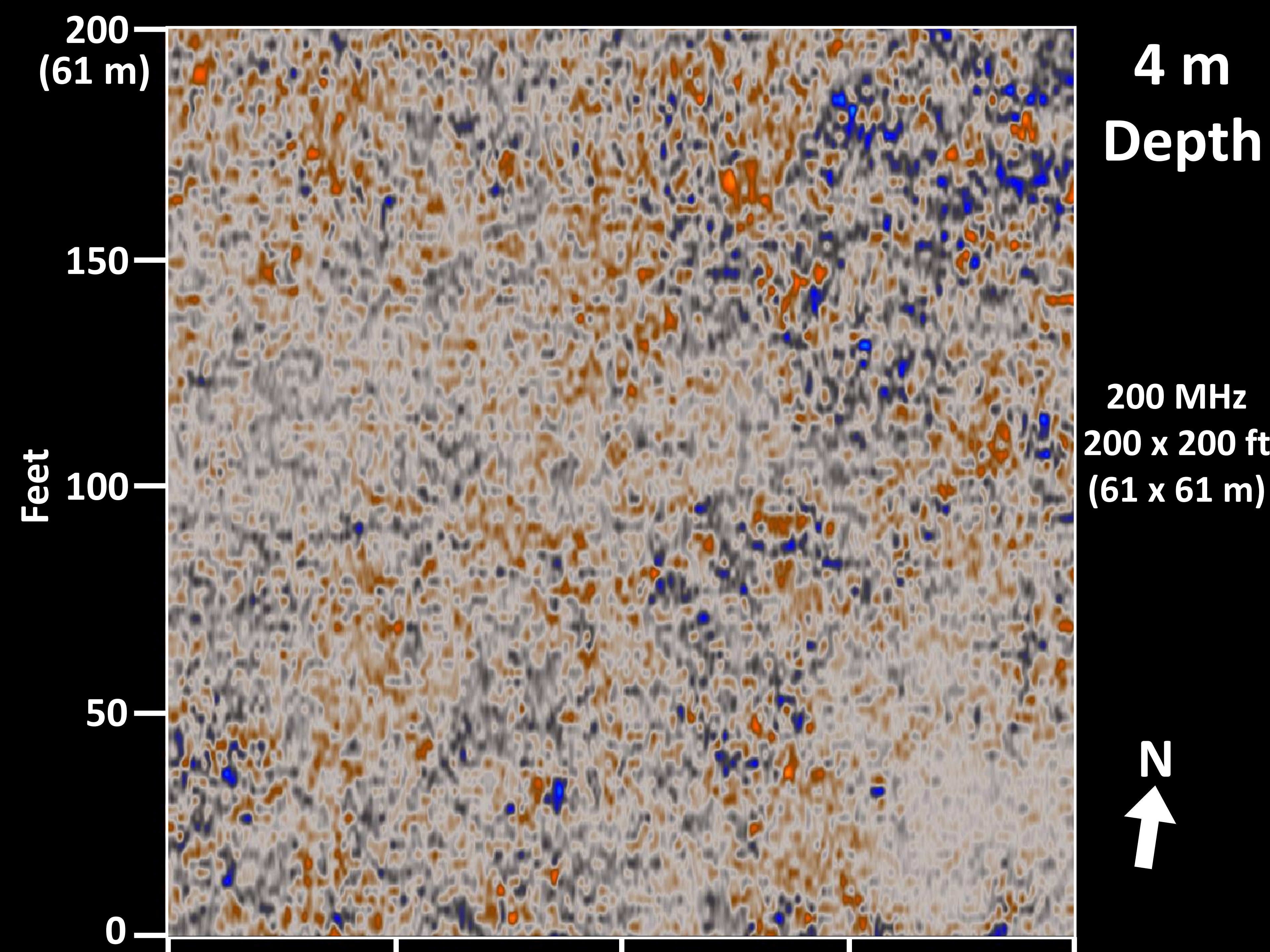
200
(61 m)
150
100
50
0
Feet
3.4 m
Depth
200 MHz
200 x 200 ft
(61 x 61 m)
N



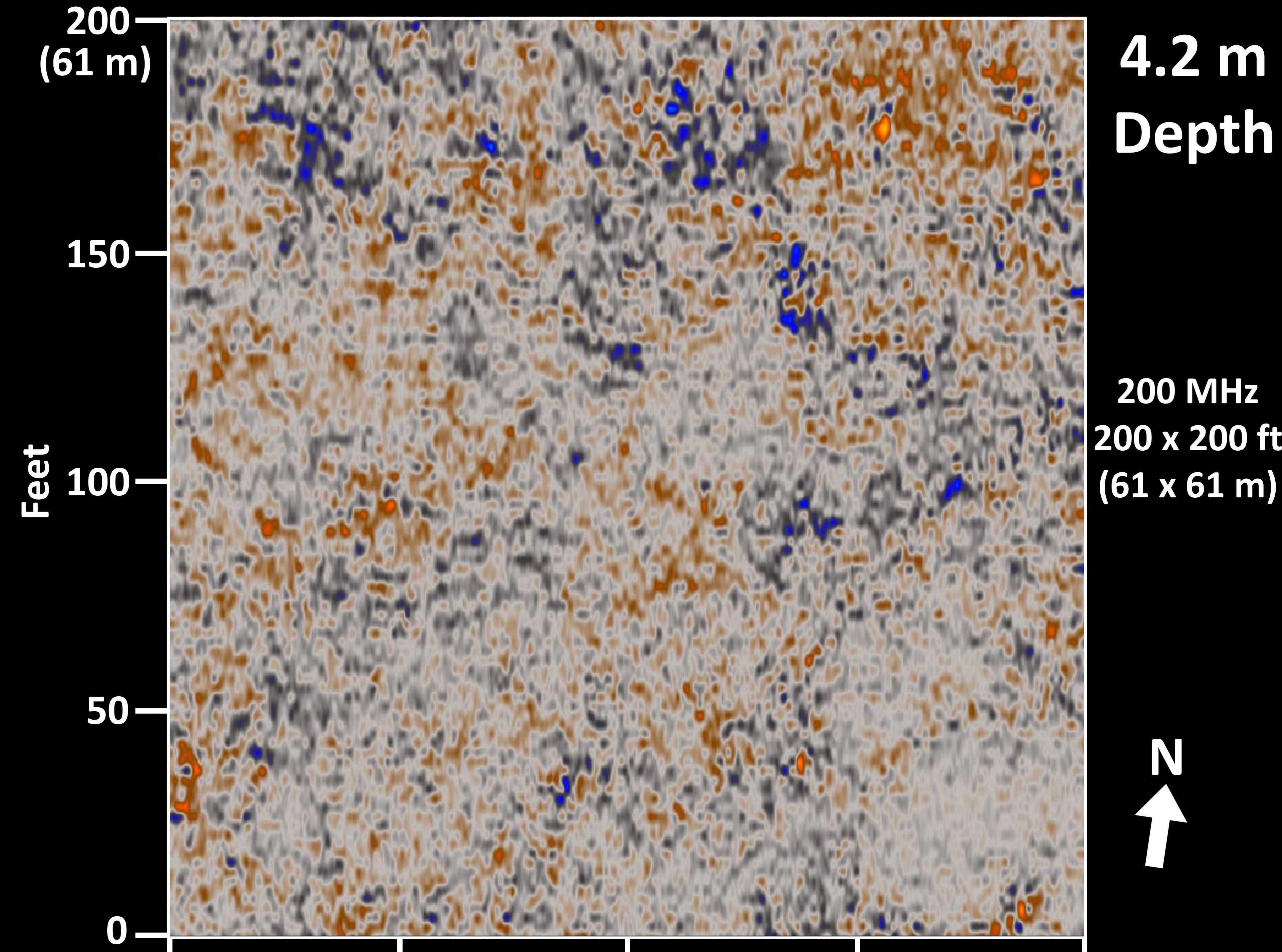
3.6 m
Depth
200 MHz
200 x 200 ft
(61 x 61 m)
N
Feet
200
(61 m)
150
100
50
0



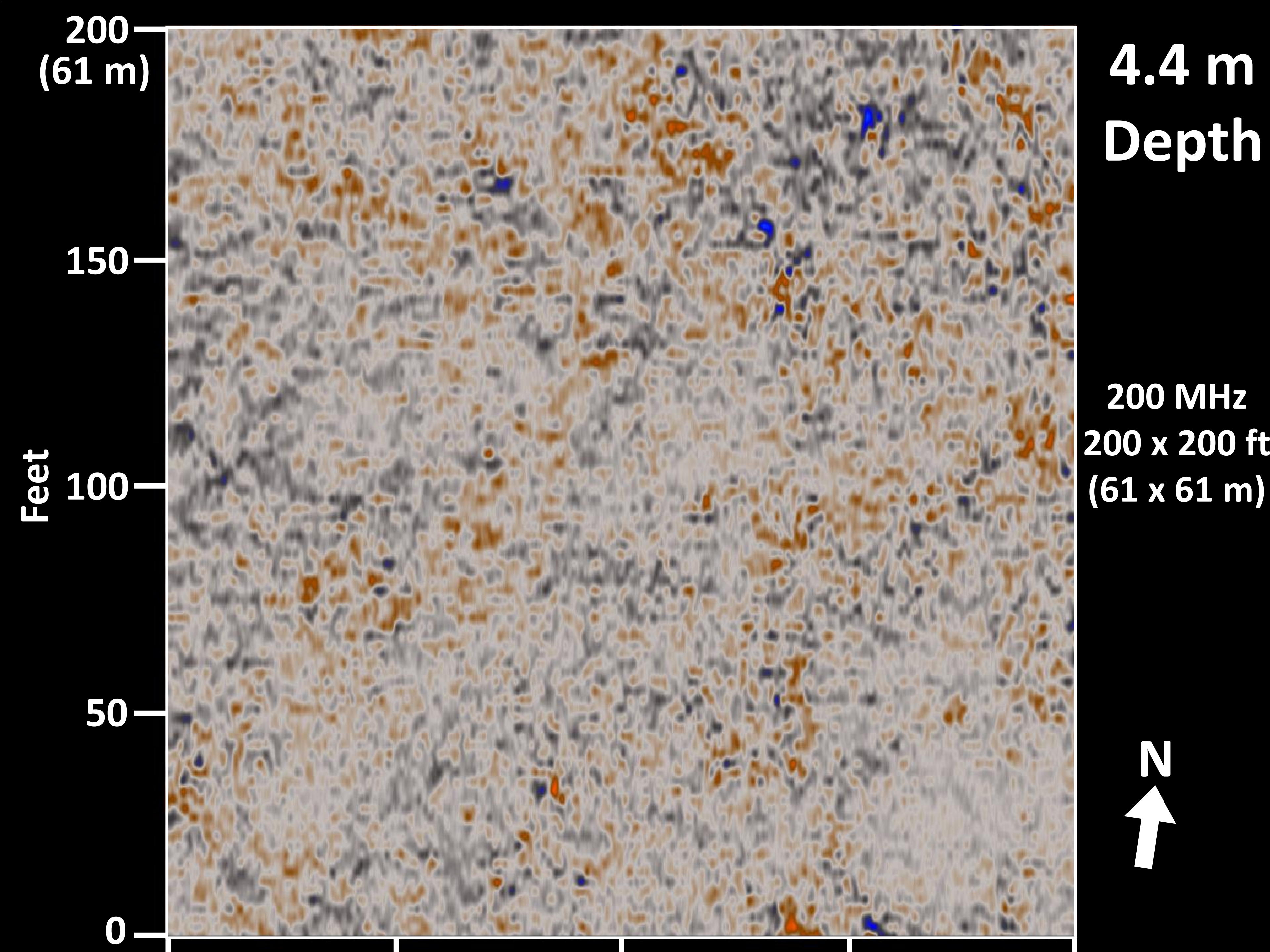
200
(61 m)
150
100
50
0
Feet
3.8 m
Depth
200 MHz
200 x 200 ft
(61 x 61 m)
N



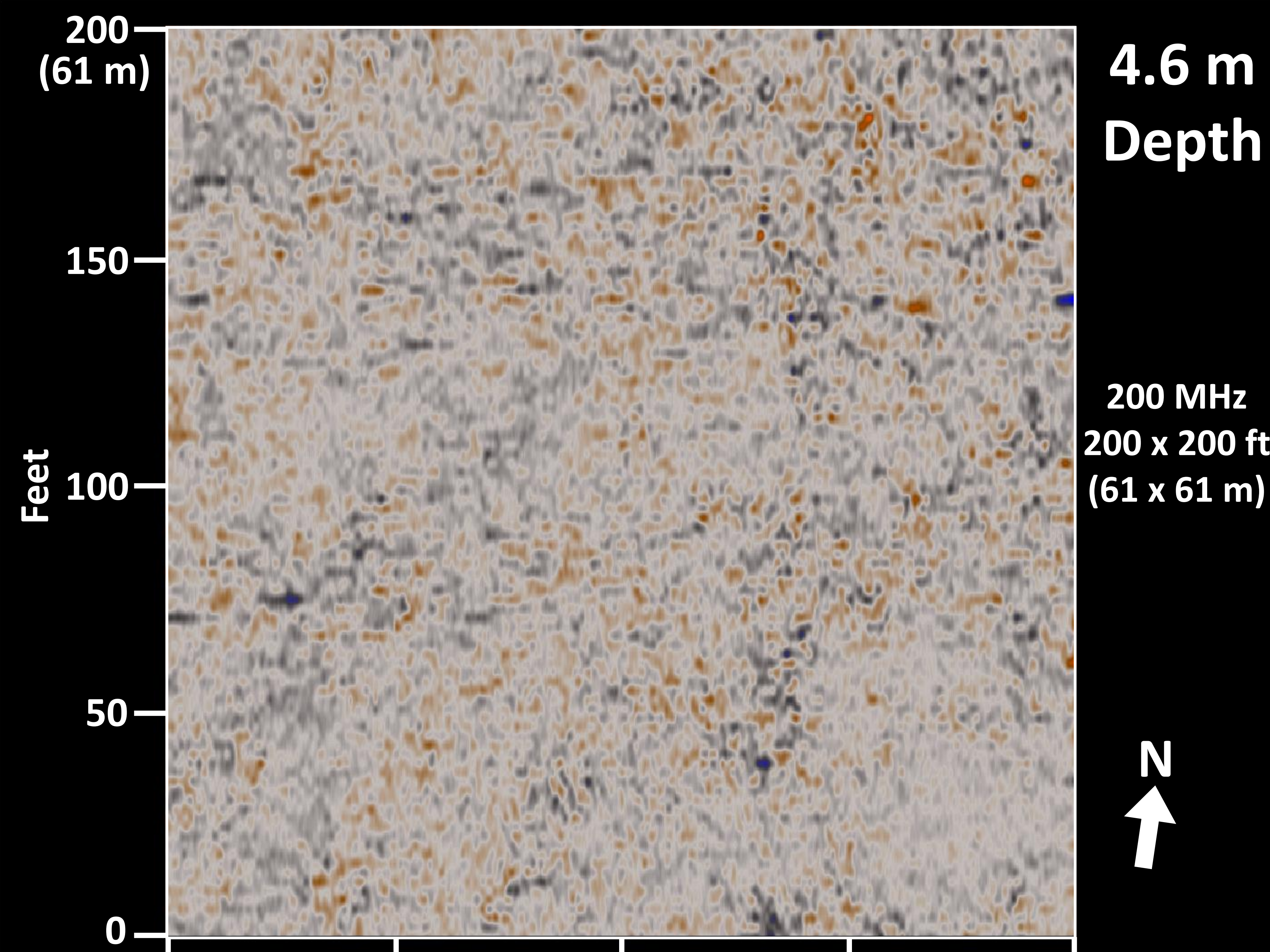
4 m
Depth
200 MHz
200 x 200 ft
(61 x 61 m)
N
Feet
200
(61 m)
150
100
50
0



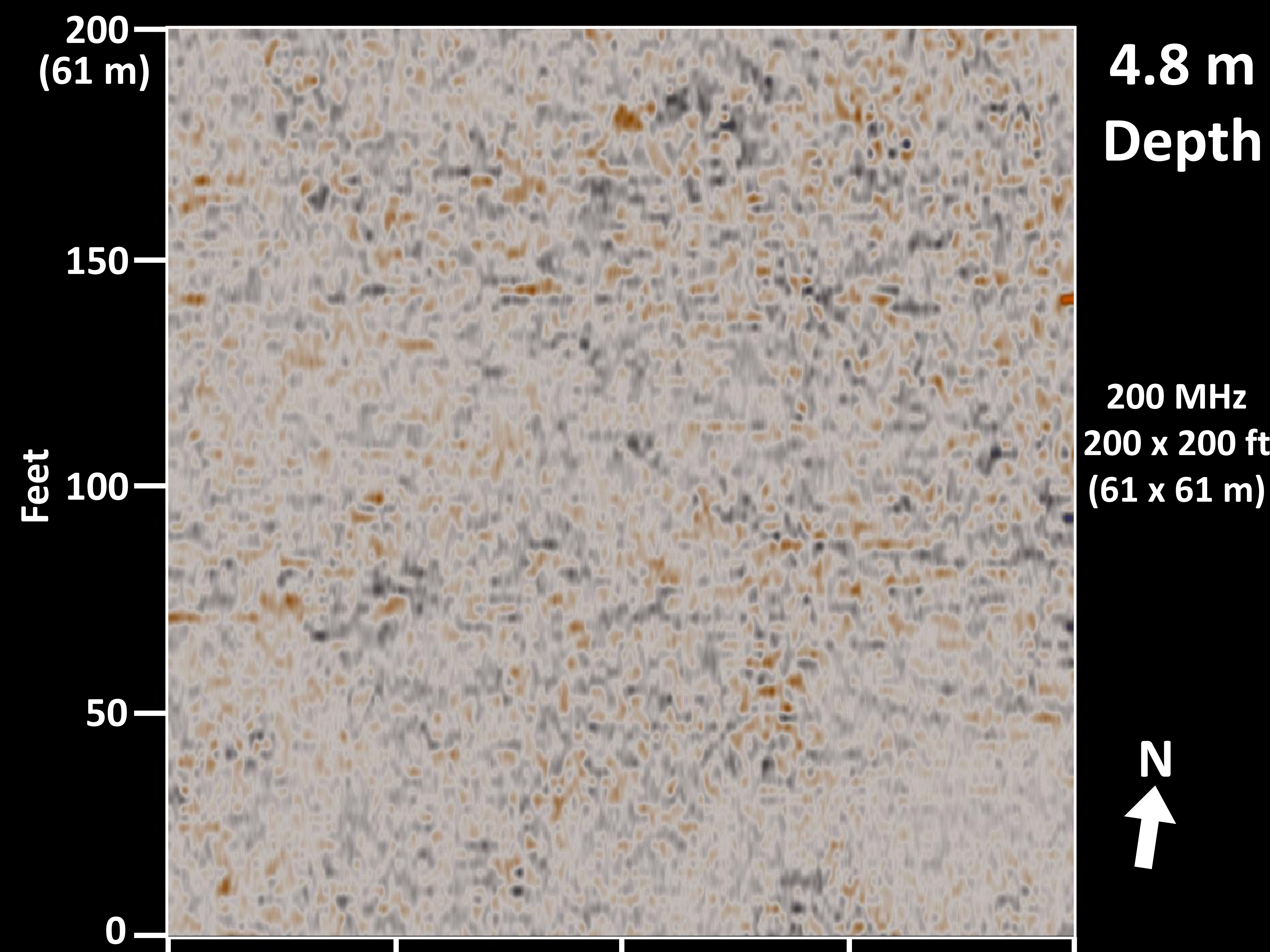
200
(61 m)
150
100
50
0
Feet
4.2 m
Depth
200 MHz
200 x 200 ft
(61 x 61 m)
N

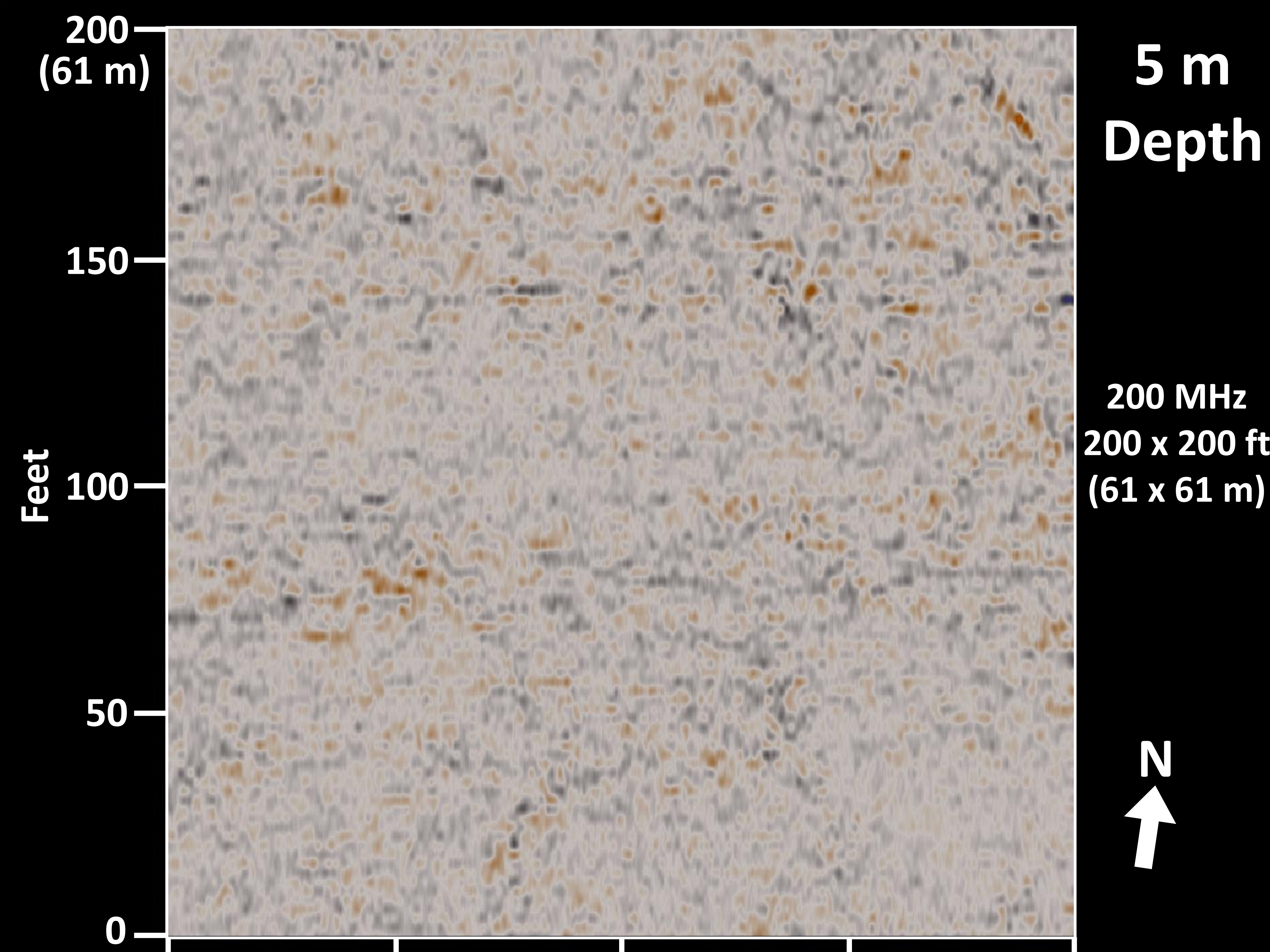


200
(61 m)
150
100
50
0
Feet
4.4 m
Depth
200 MHz
200 x 200 ft
(61 x 61 m)
N

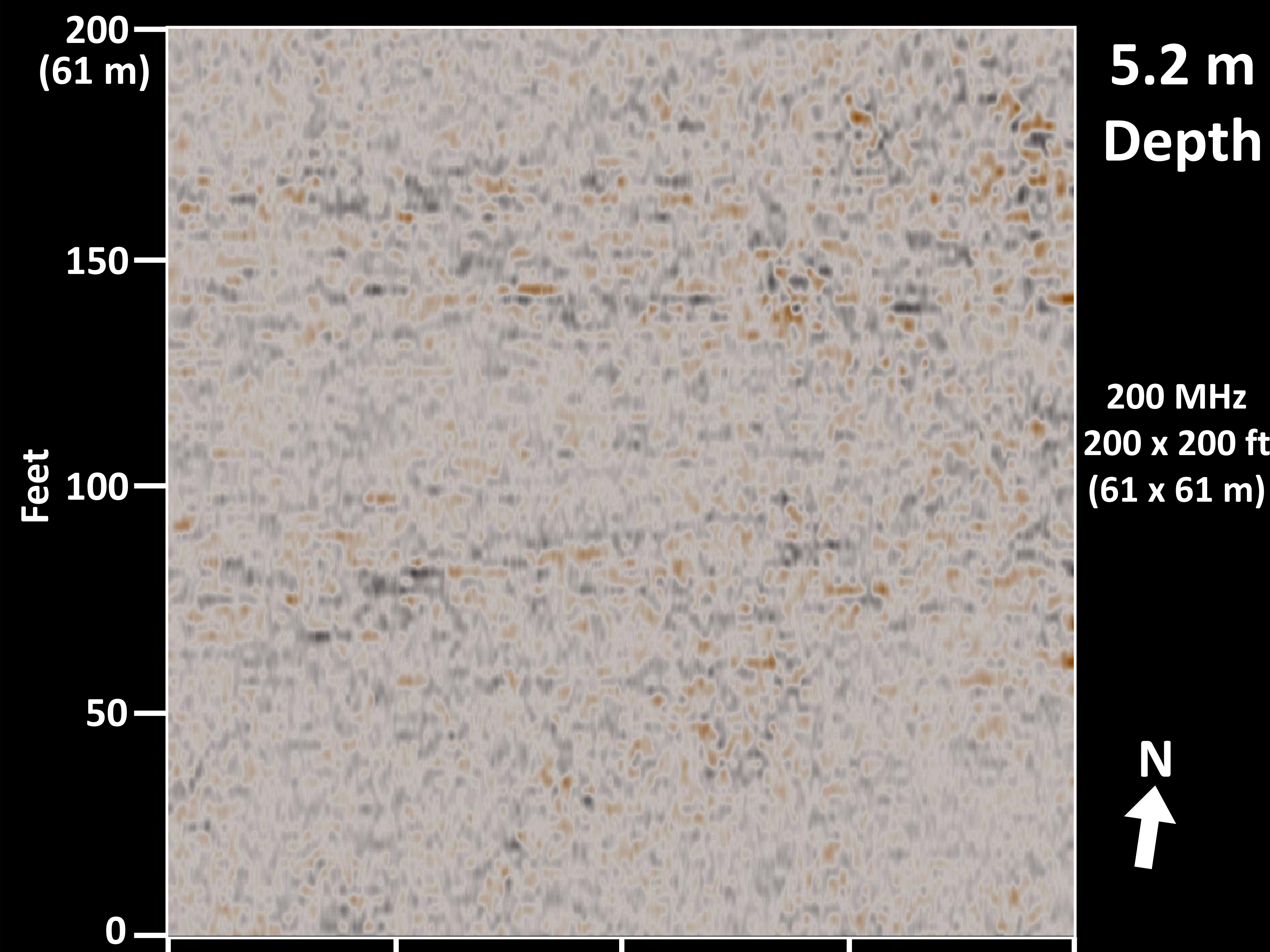


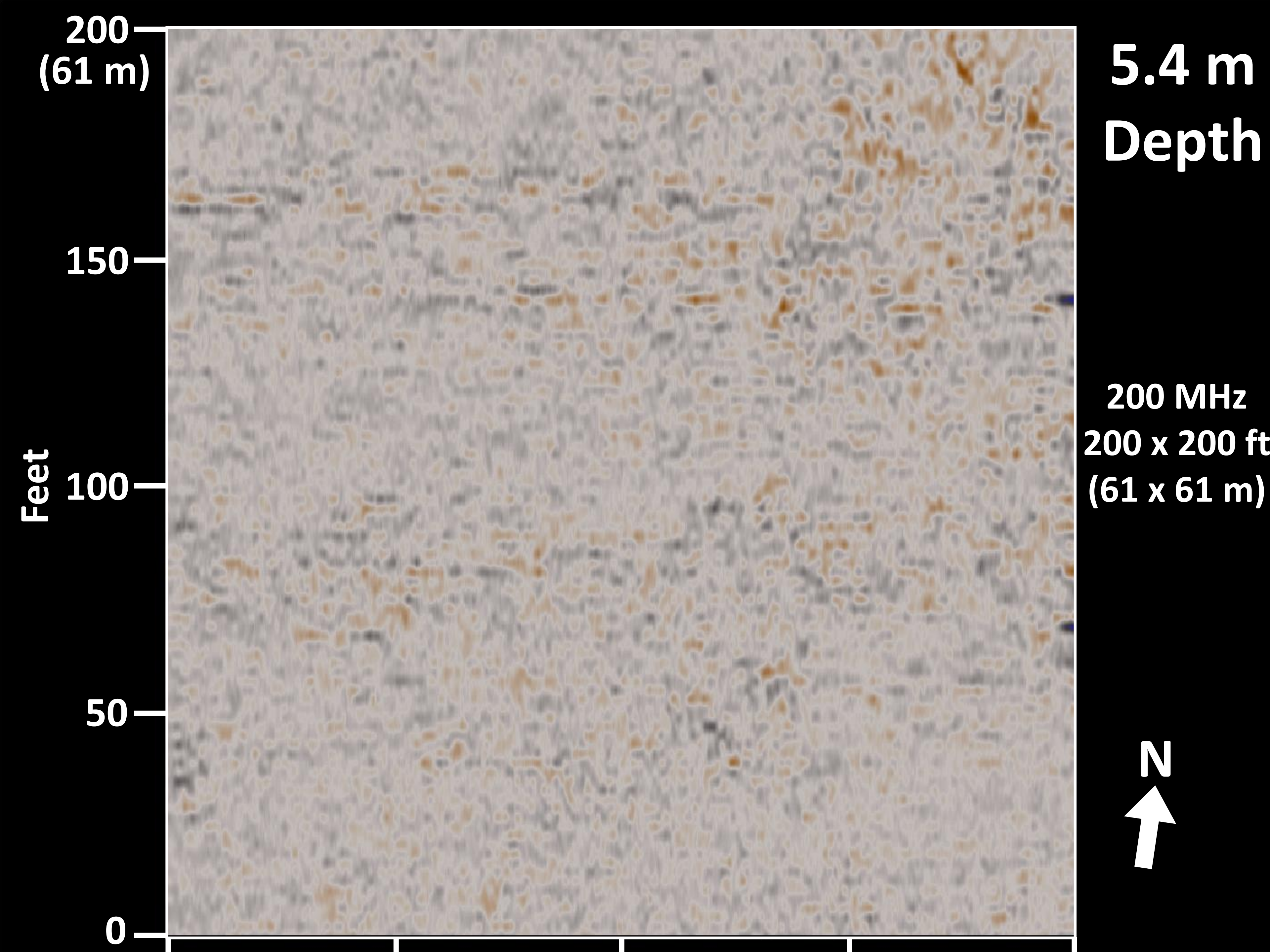
200
(61 m)
150
100
50
0
Feet
4.6 m
Depth
200 MHz
200 x 200 ft
(61 x 61 m)
N

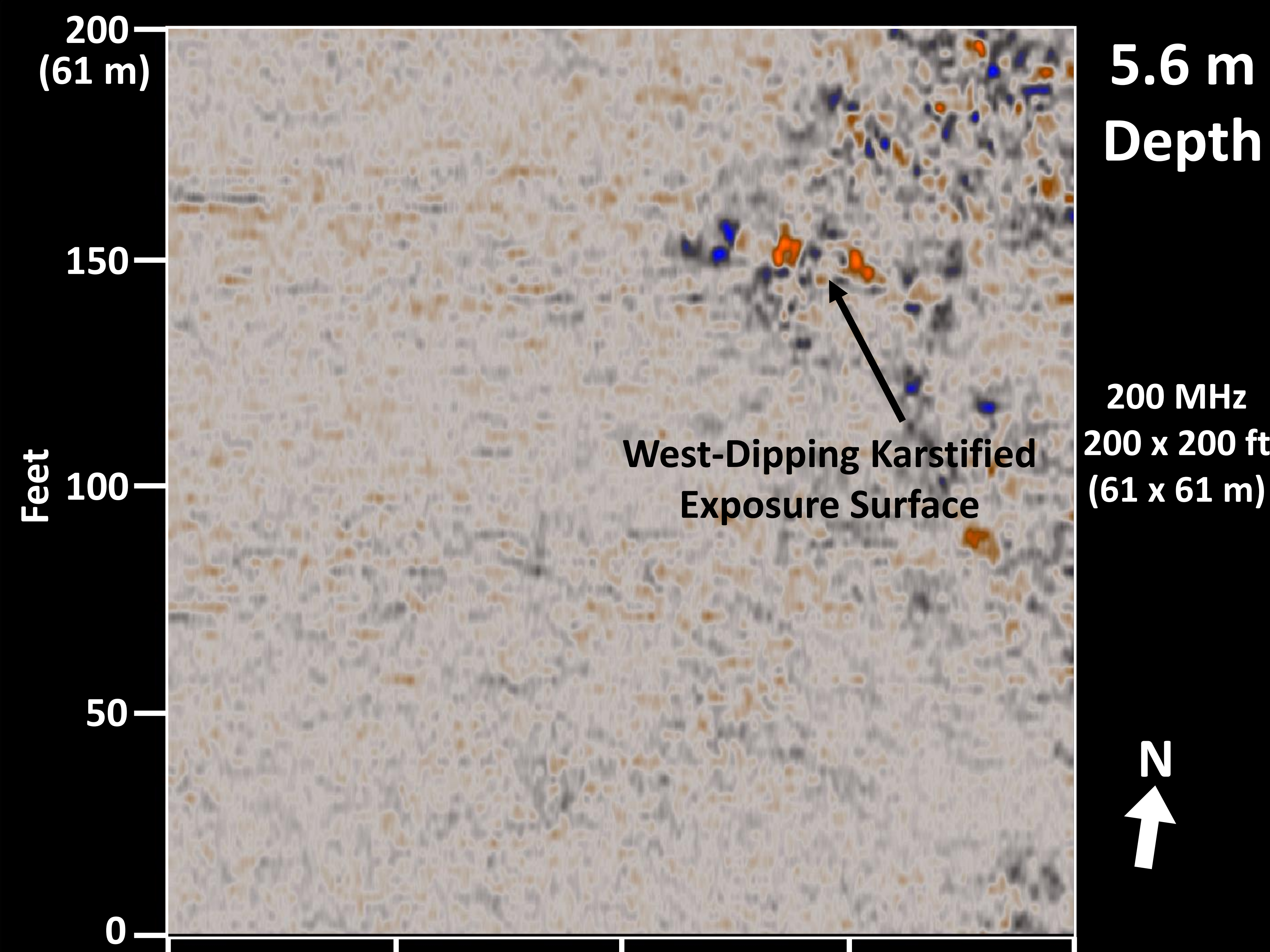

200
(61 m)
150
100
50
0
Feet
4.8 m
Depth
200 MHz
200 x 200 ft
(61 x 61 m)
N

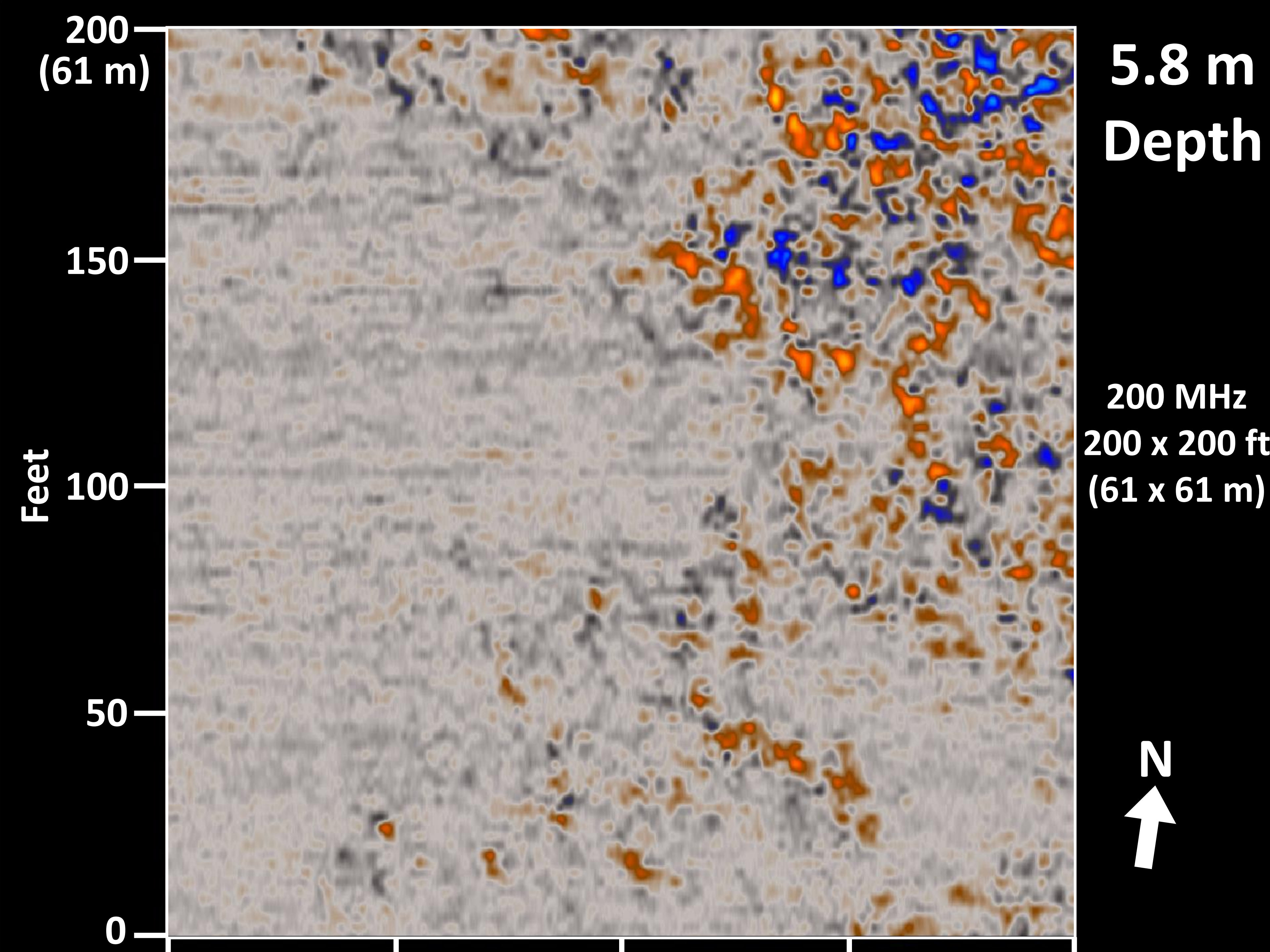


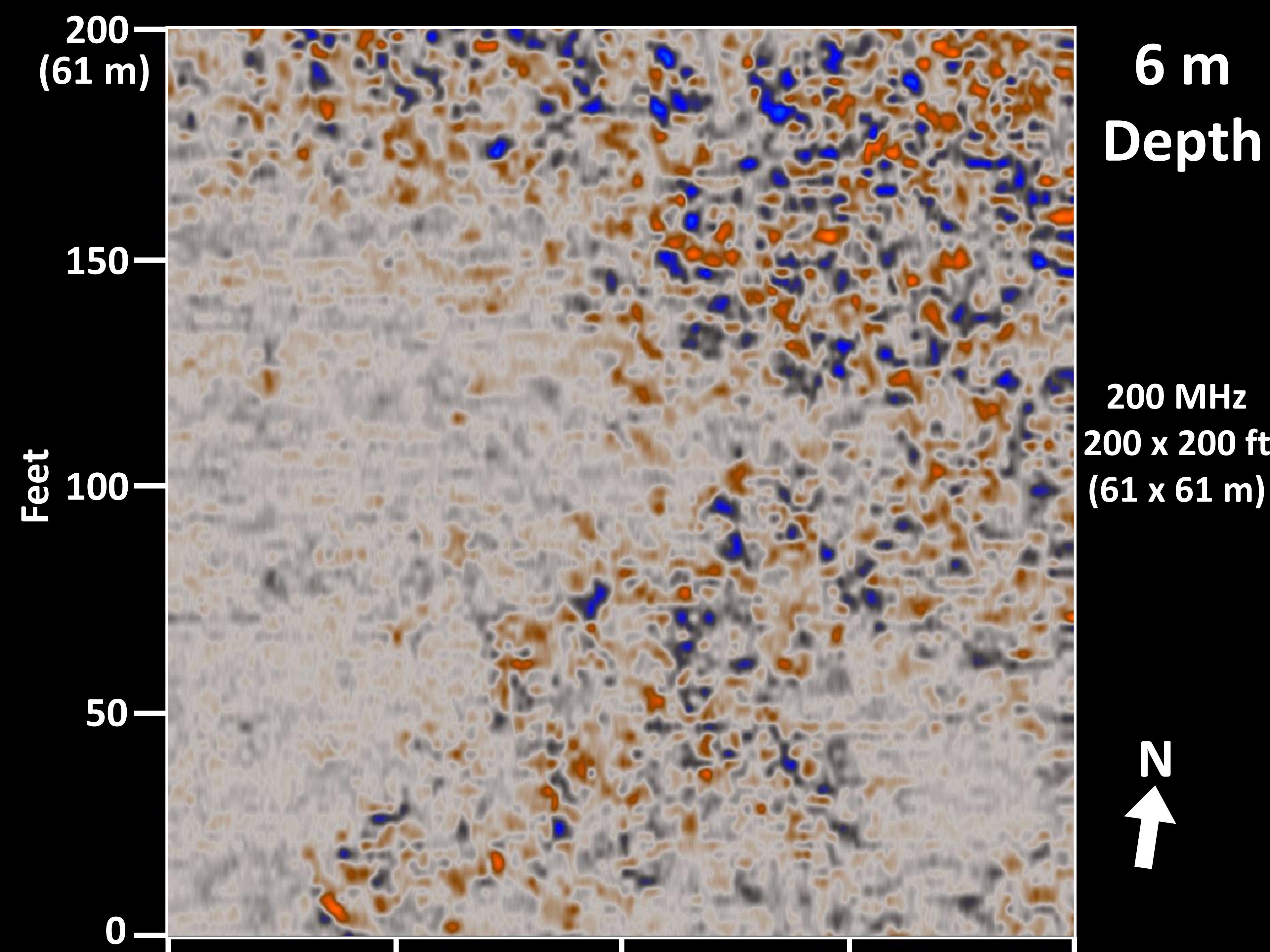
200
(61 m)
150
100
50
0
Feet
5 m
Depth
200 MHz
200 x 200 ft
(61 x 61 m)
N


200
(61 m)
150
100
50
0
Feet
5.2 m
Depth
200 MHz
200 x 200 ft
(61 x 61 m)
N

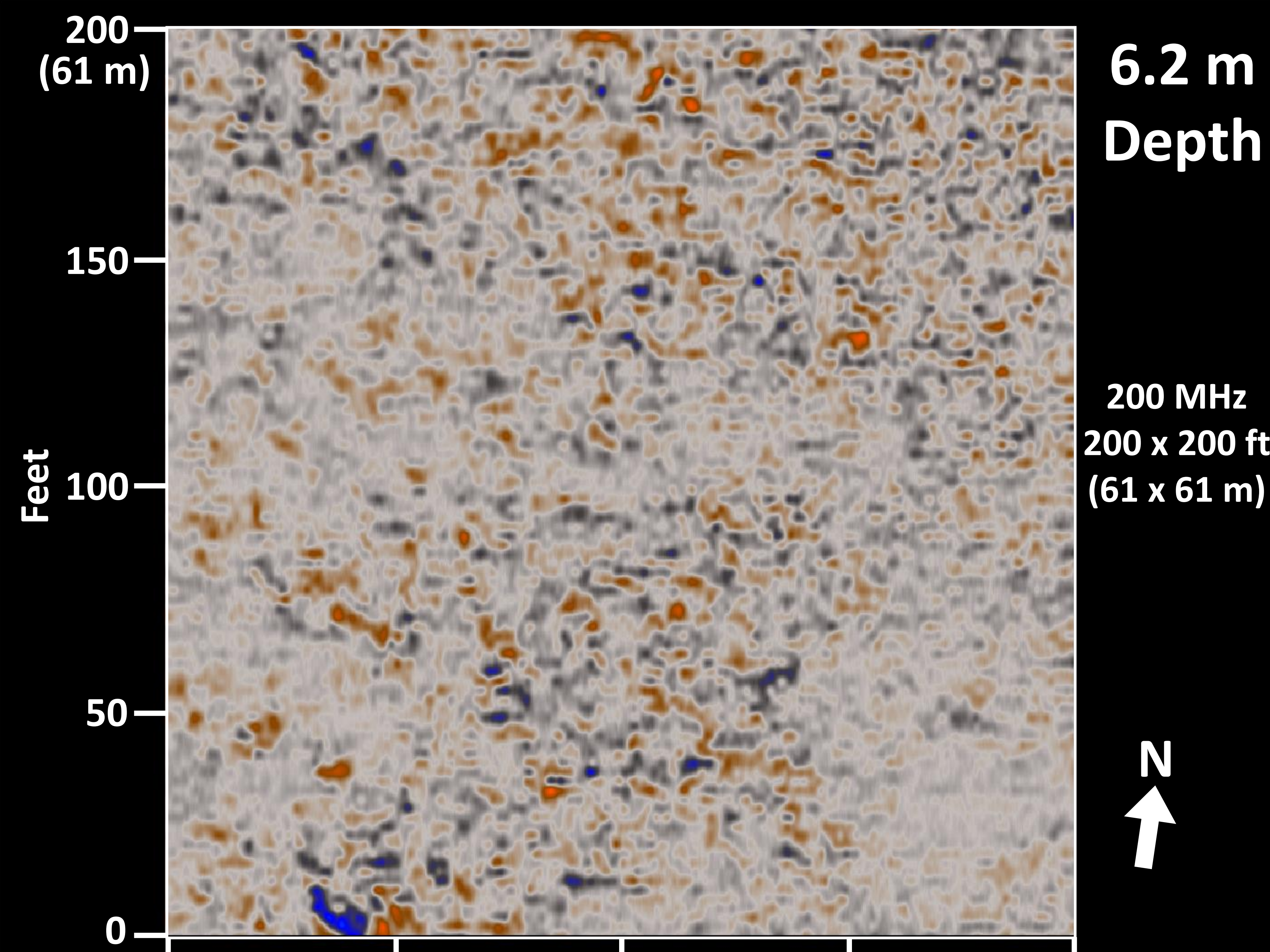

200
(61 m)
150
100
50
0
Feet
5.4 m
Depth
200 MHz
200 x 200 ft
(61 x 61 m)
N


200
(61 m)
150
100
50
0
Feet
West-Dipping Karstified
Exposure Surface
5.6 m
Depth
200 MHz
200 x 200 ft
(61 x 61 m)
N

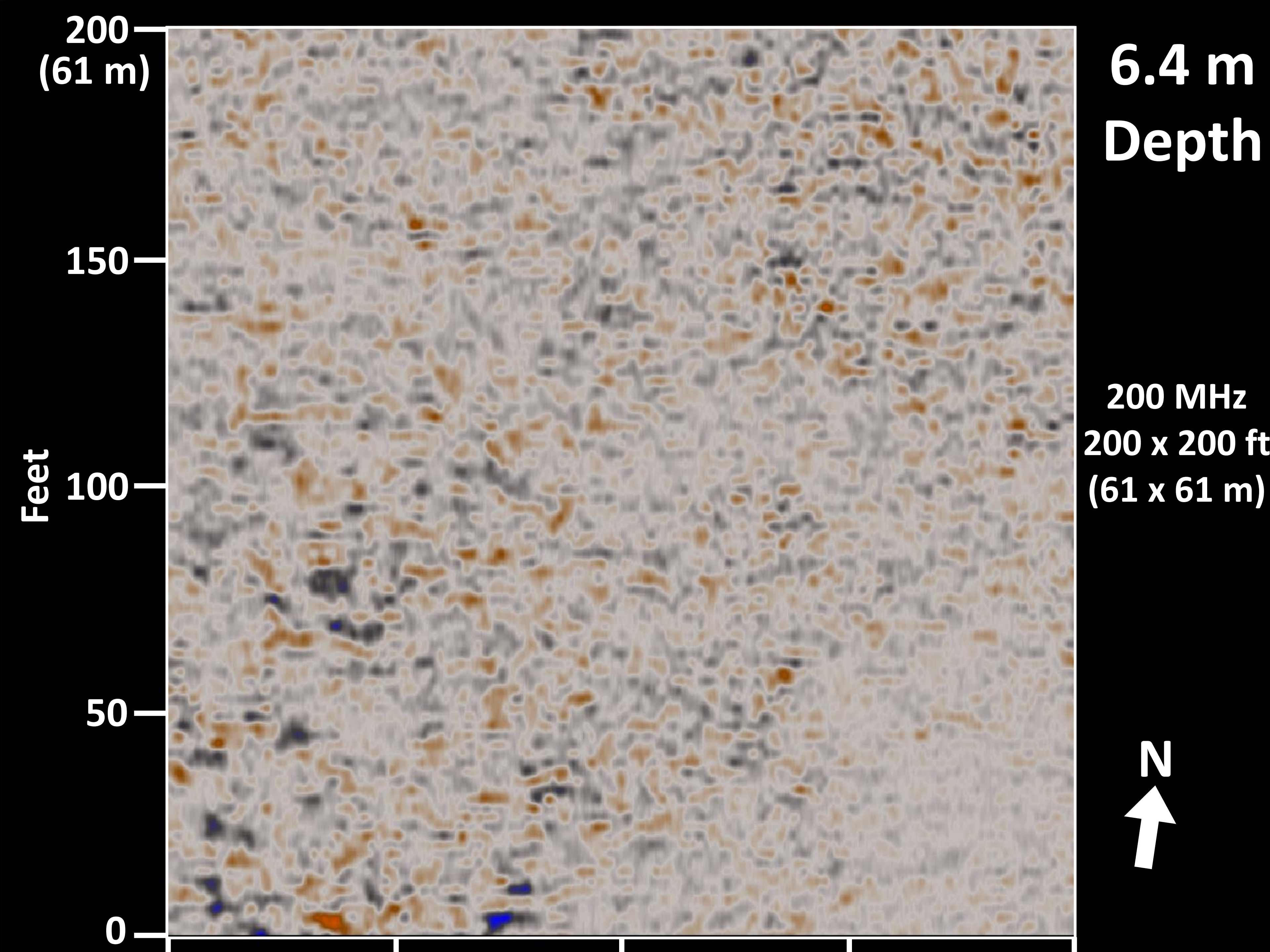

200
(61 m)
150
100
50
0
Feet
5.8 m
Depth
200 MHz
200 x 200 ft
(61 x 61 m)
N

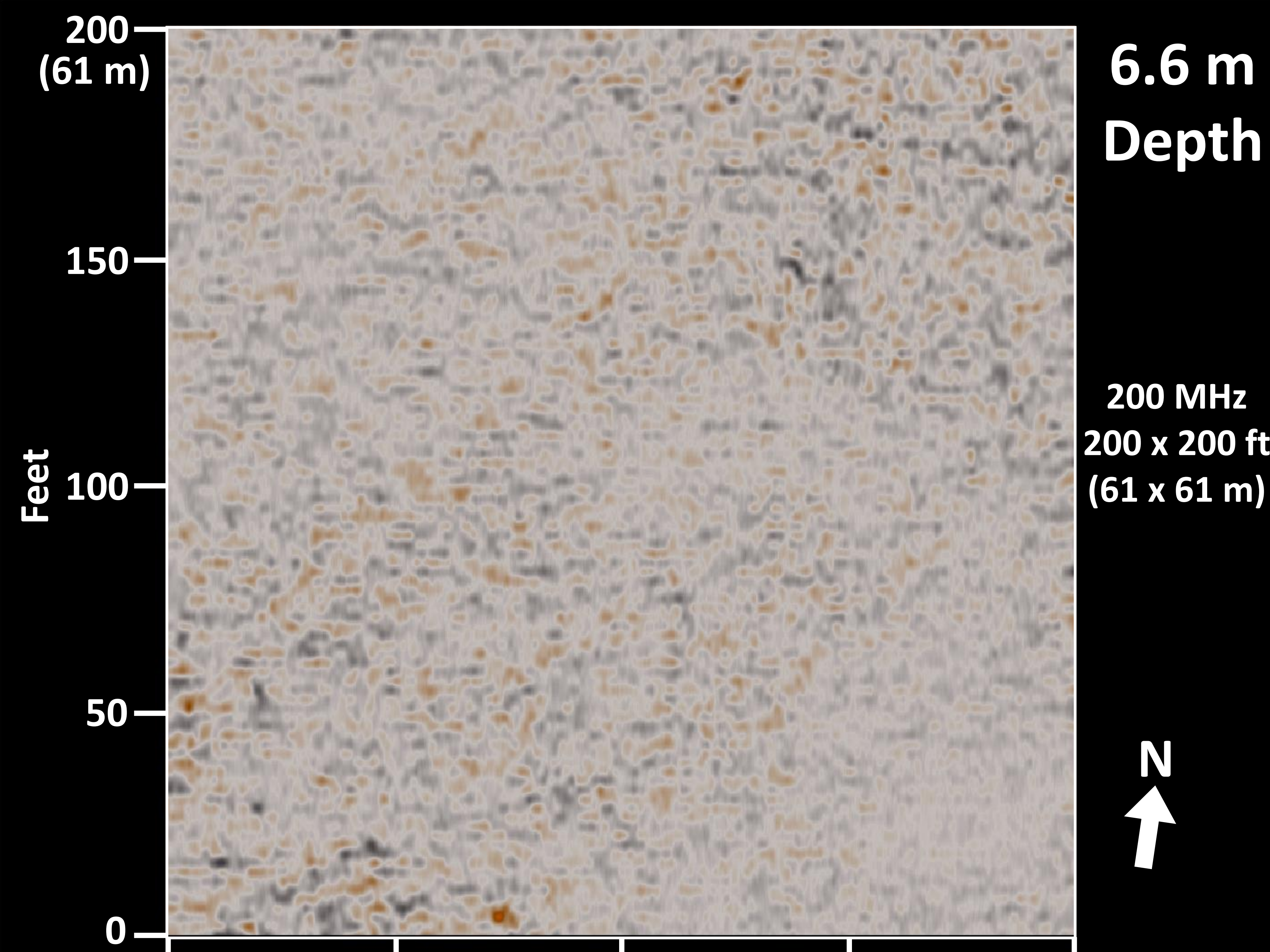


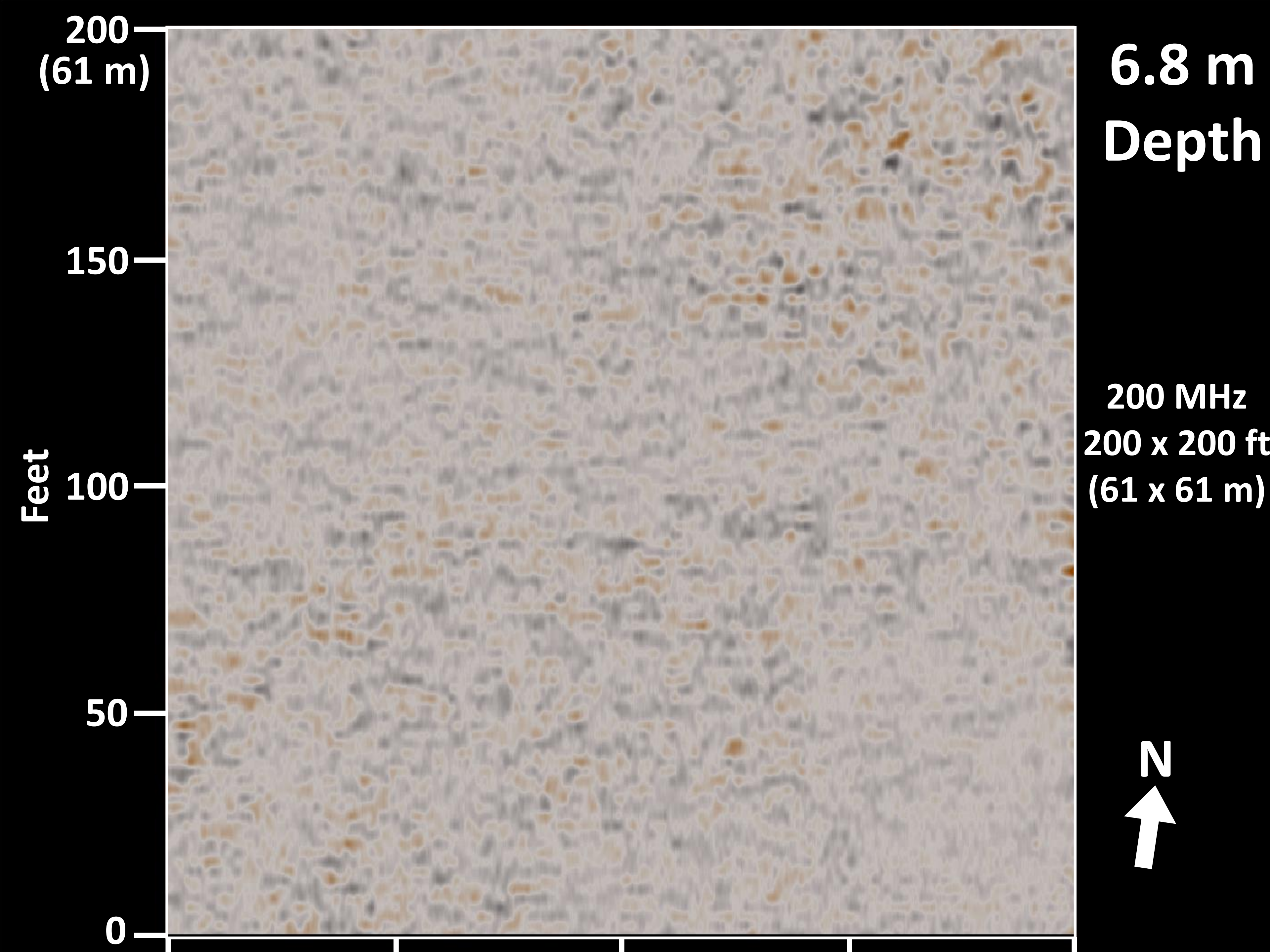
200
(61 m)
150
100
50
0
Feet
6 m
Depth
200 MHz
200 x 200 ft
(61 x 61 m)
N



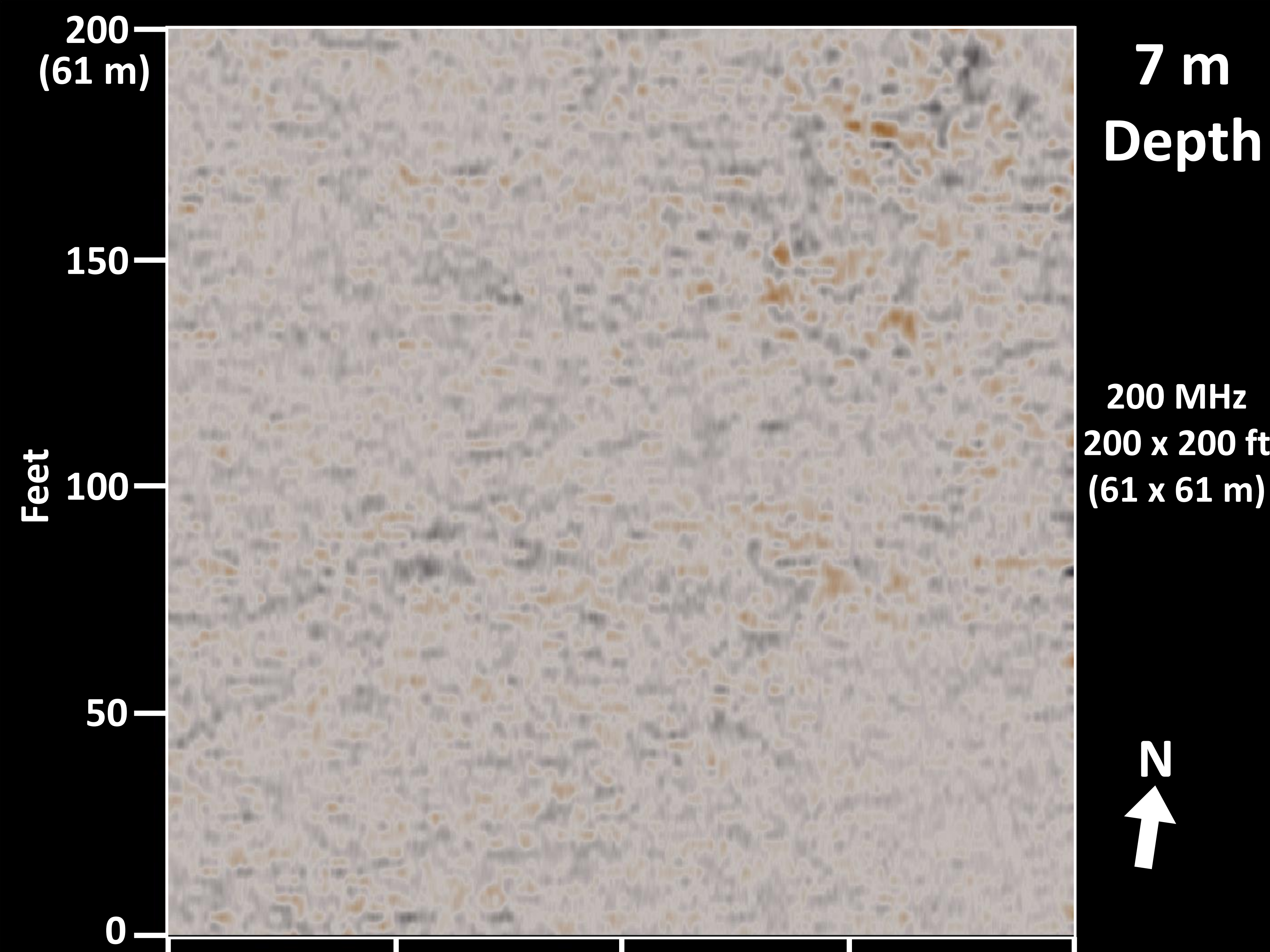
200
(61 m)
150
100
50
0
Feet
6.2 m
Depth
200 MHz
200 x 200 ft
(61 x 61 m)
N

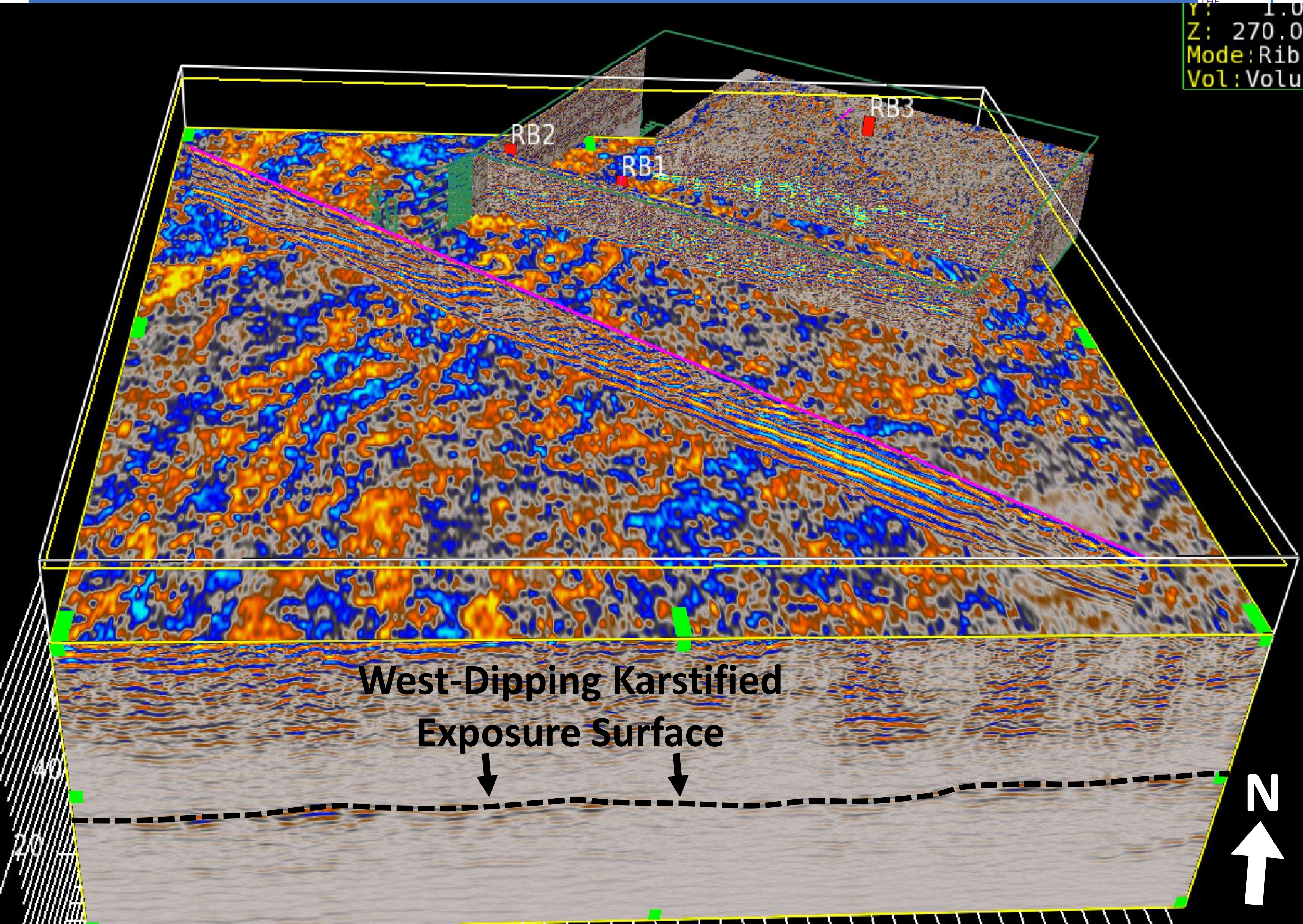

200
(61 m)
150
100
50
0
Feet
6.4 m
Depth
200 MHz
200 x 200 ft
(61 x 61 m)
N


200
(61 m)
150
100
50
0
Feet
6.6 m
Depth
200 MHz
200 x 200 ft
(61 x 61 m)
N

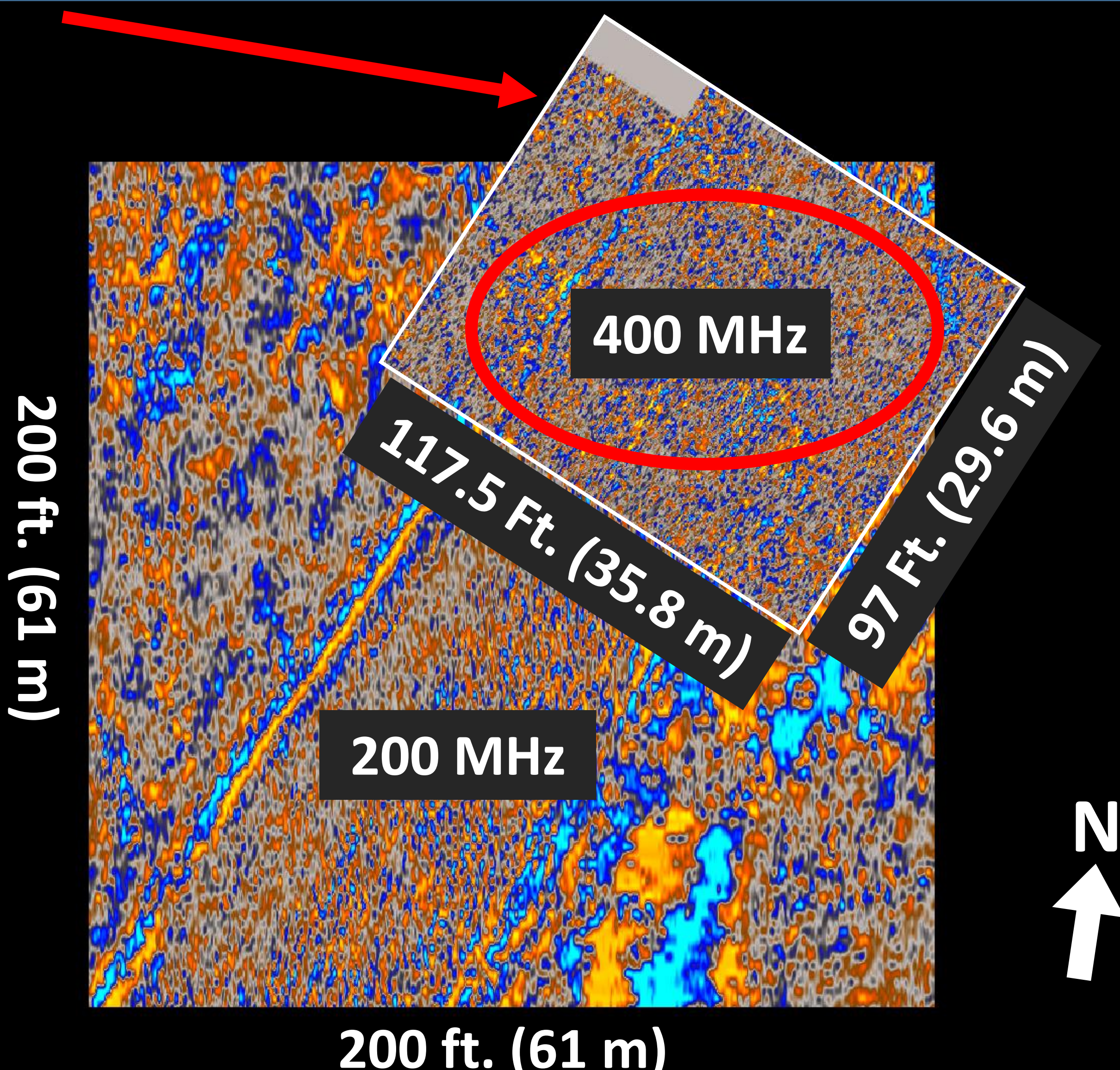


200 (61 m)
150
100
50
0
Feet
6.8 m Depth
200 MHz
200 x 200 ft
(61 x 61 m)
N

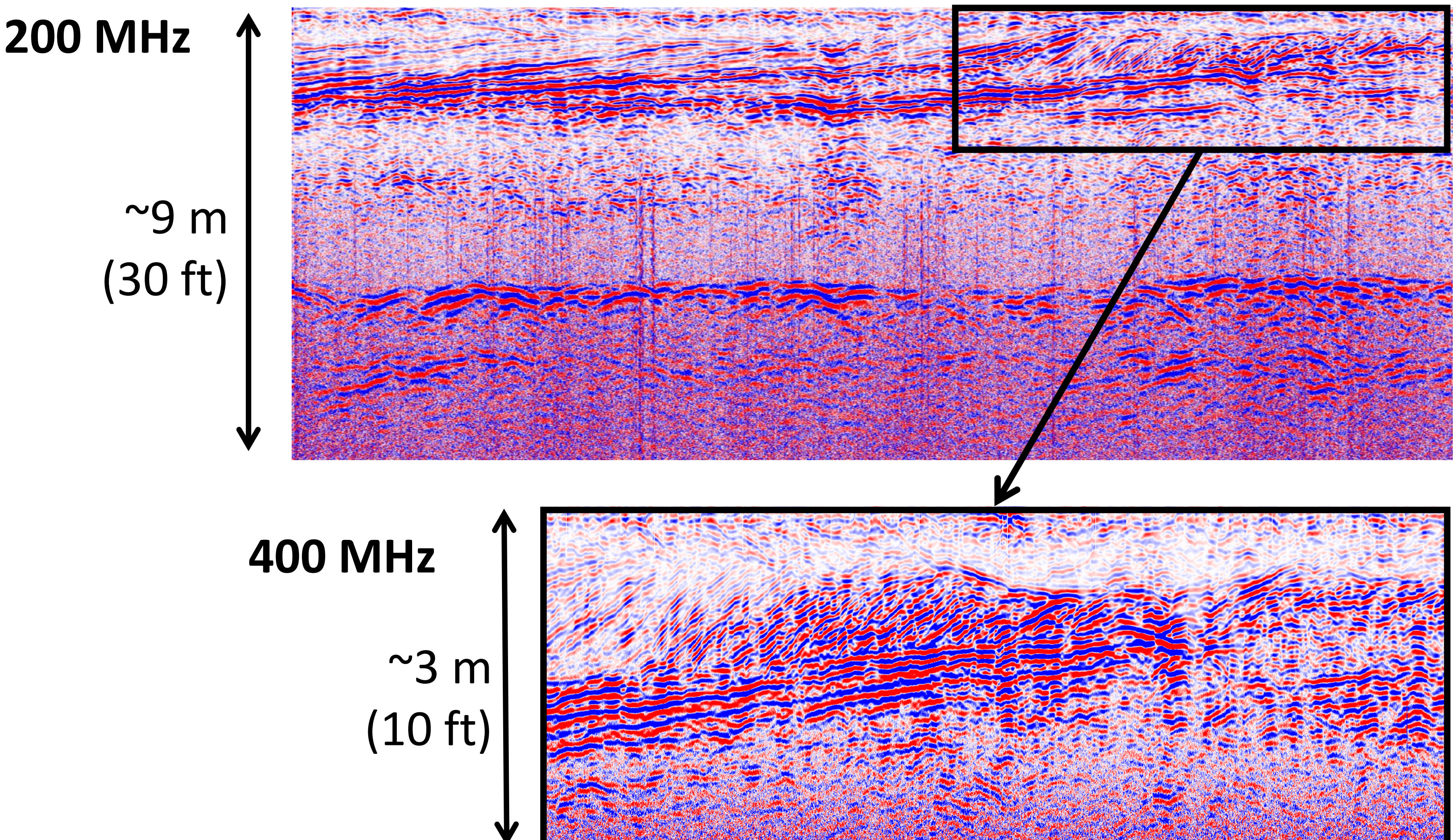

200
(61 m)
150
100
50
0
Feet
7 m
Depth
200 MHz
200 x 200 ft
(61 x 61 m)
N


Z: 270.0
Mode:Rib
Vol:Volu
RB2
RB1
RB3
West-Dipping Karstified
Exposure Surface
40
20
N

# Two 3D GPR Data Sets:
# 400 MHz (~5 cm Vertical Resolution)

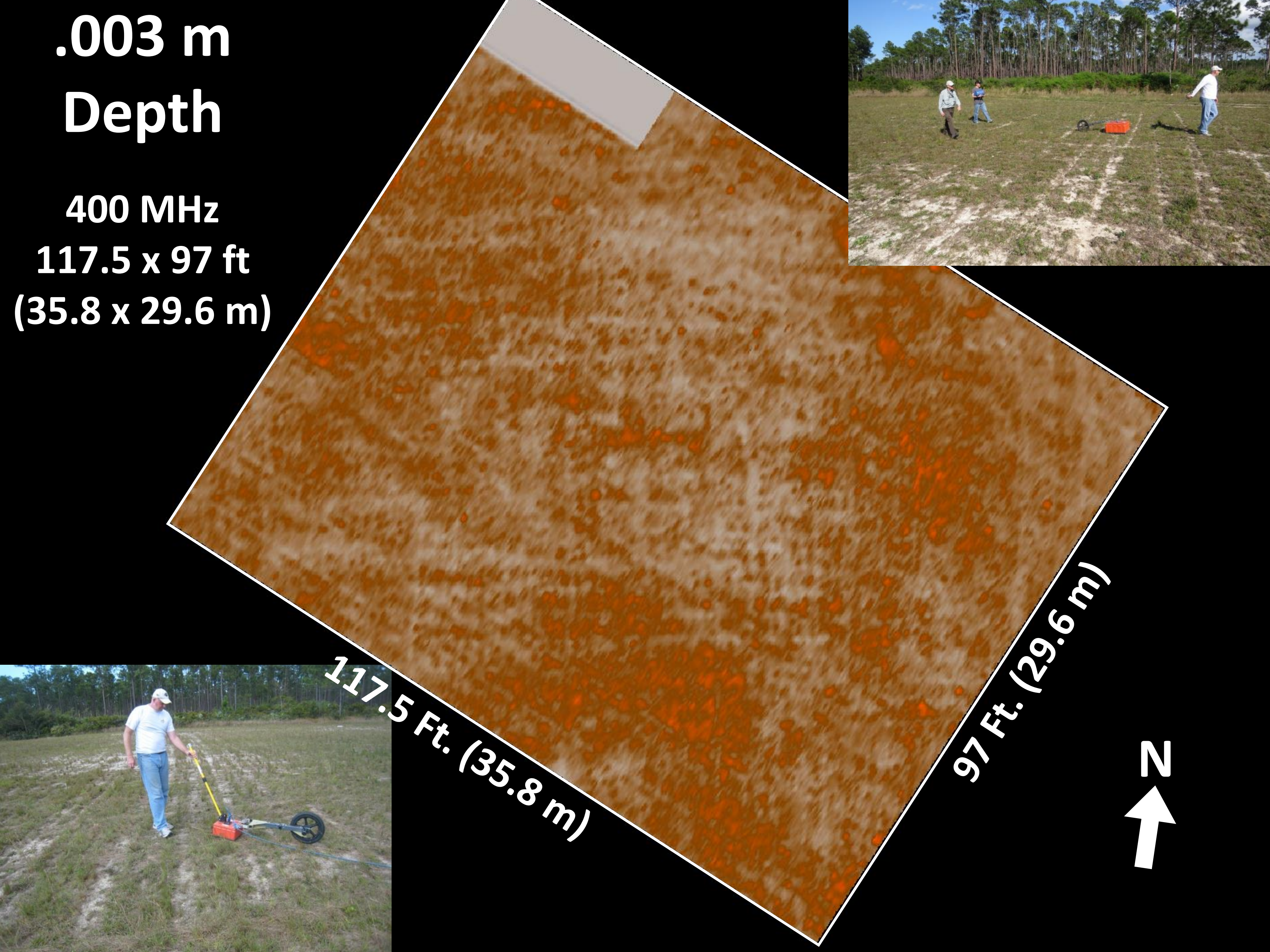


# 400 MHz Survey



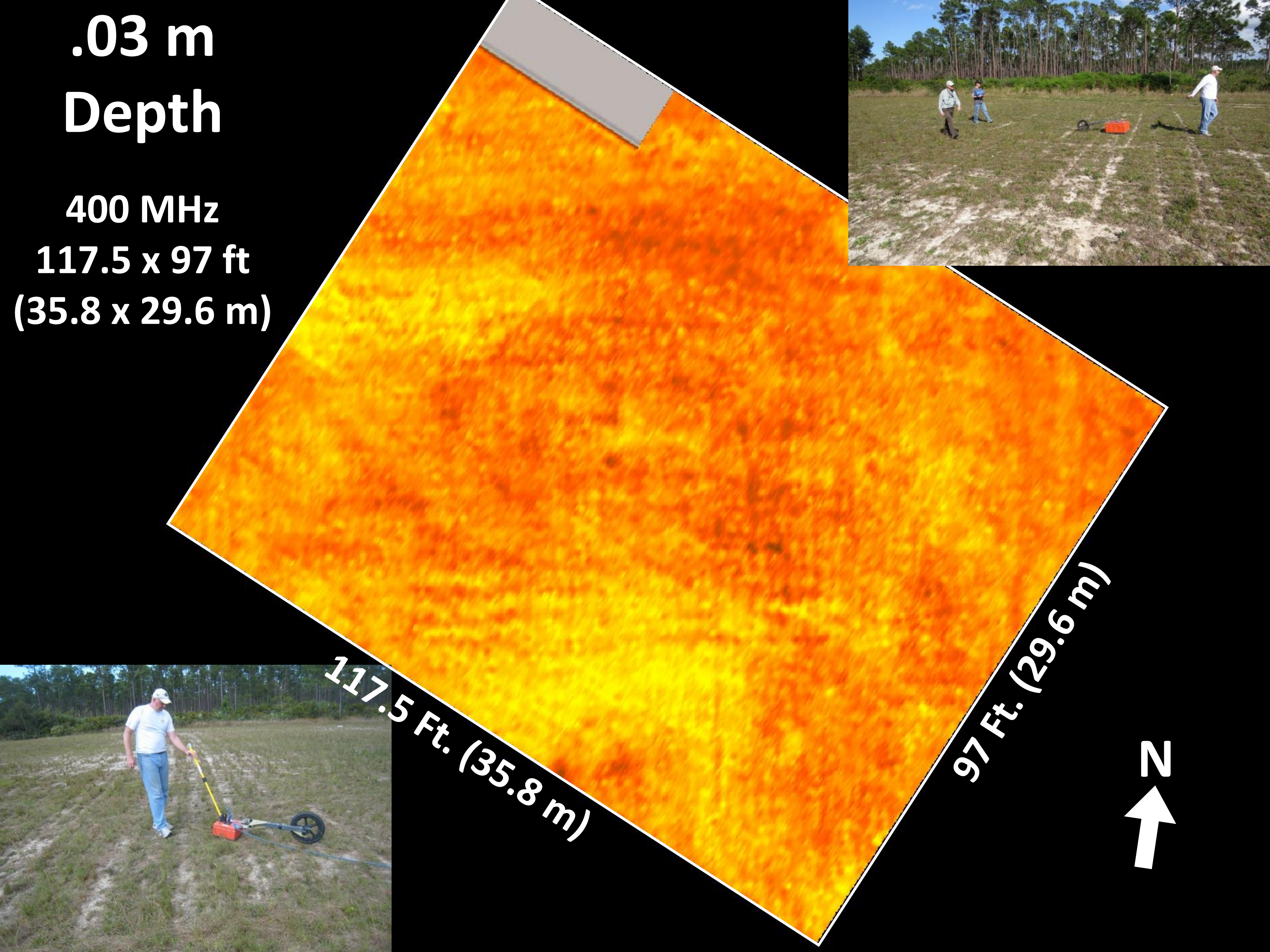
# .003 m Depth

**400 MHz**
**117.5 x 97 ft**
**(35.8 x 29.6 m)**



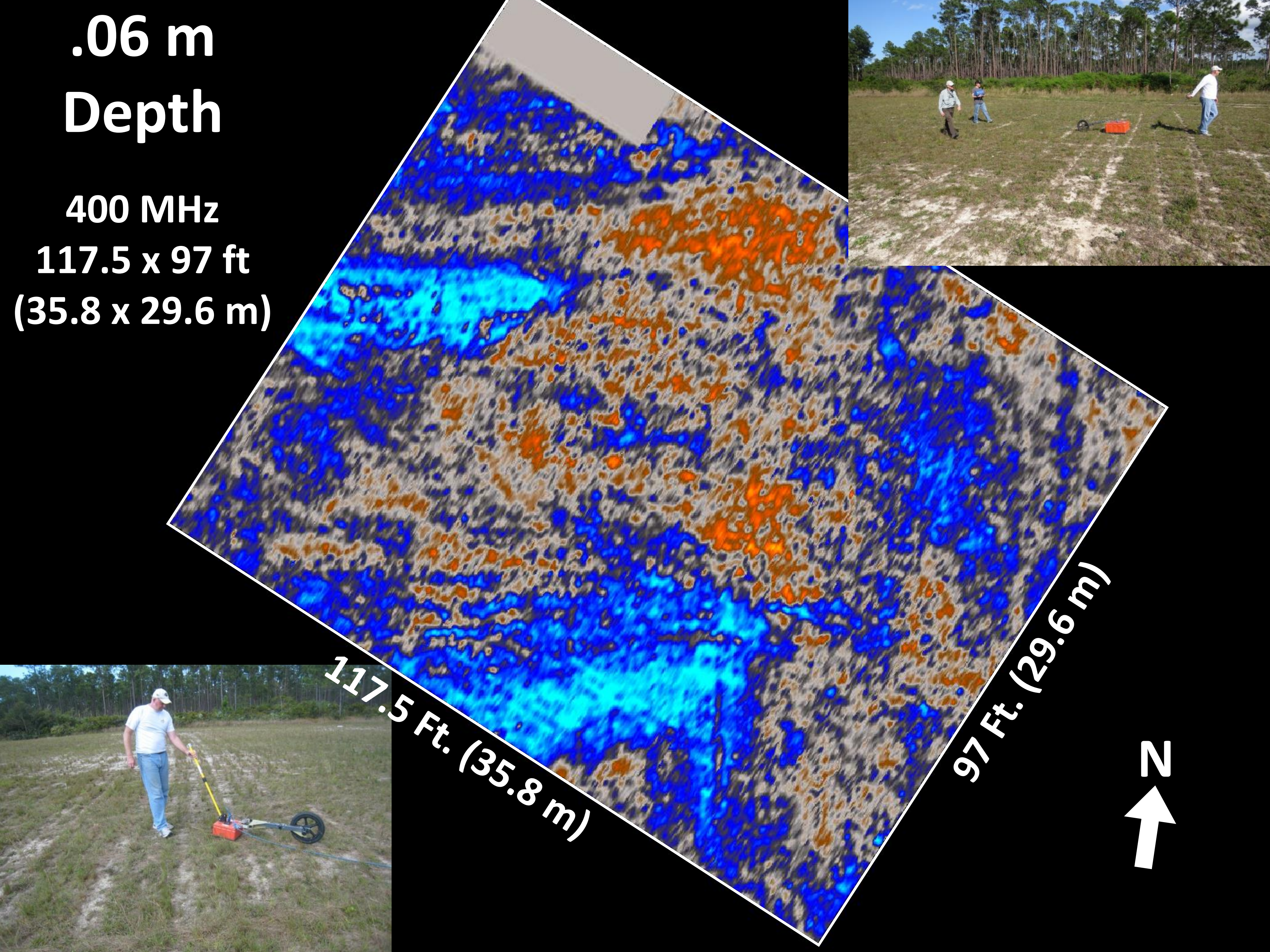
# .03 m Depth

**400 MHz**
**117.5 x 97 ft**
**(35.8 x 29.6 m)**



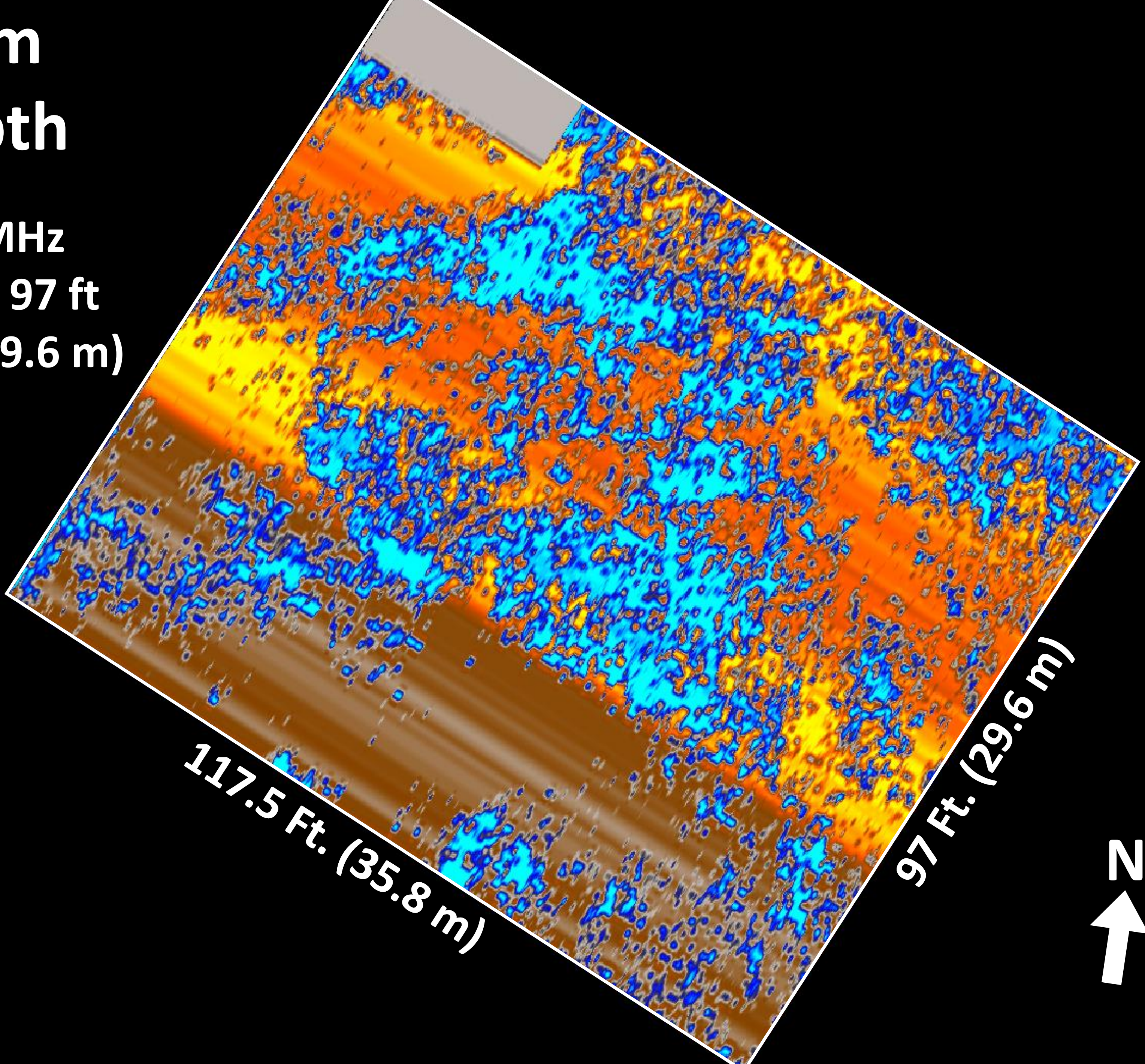
# .06 m Depth

**400 MHz**
**117.5 x 97 ft**
**(35.8 x 29.6 m)**



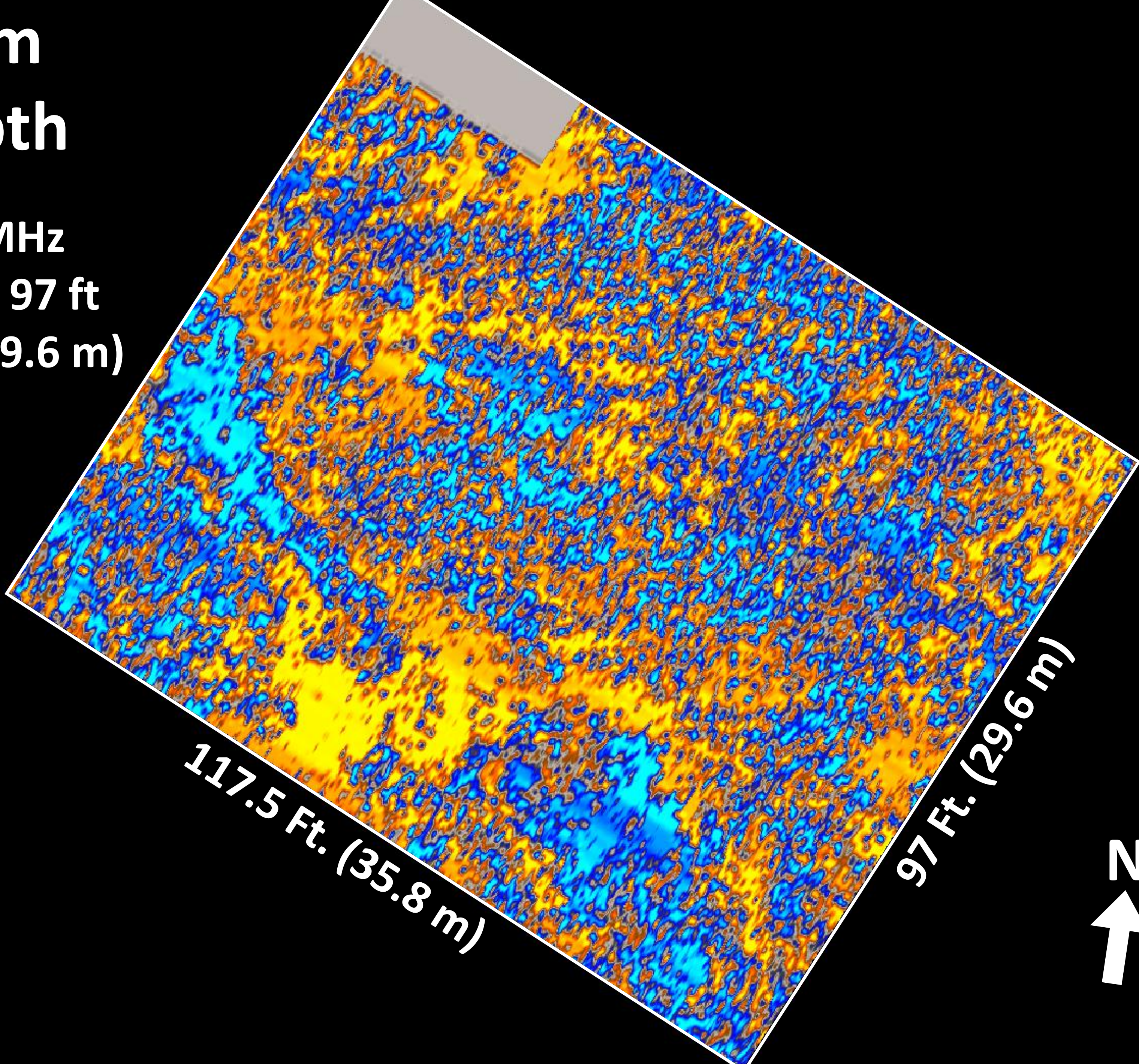
# .1 m Depth

**400 MHz**
**117.5 x 97 ft**
**(35.8 x 29.6 m)**



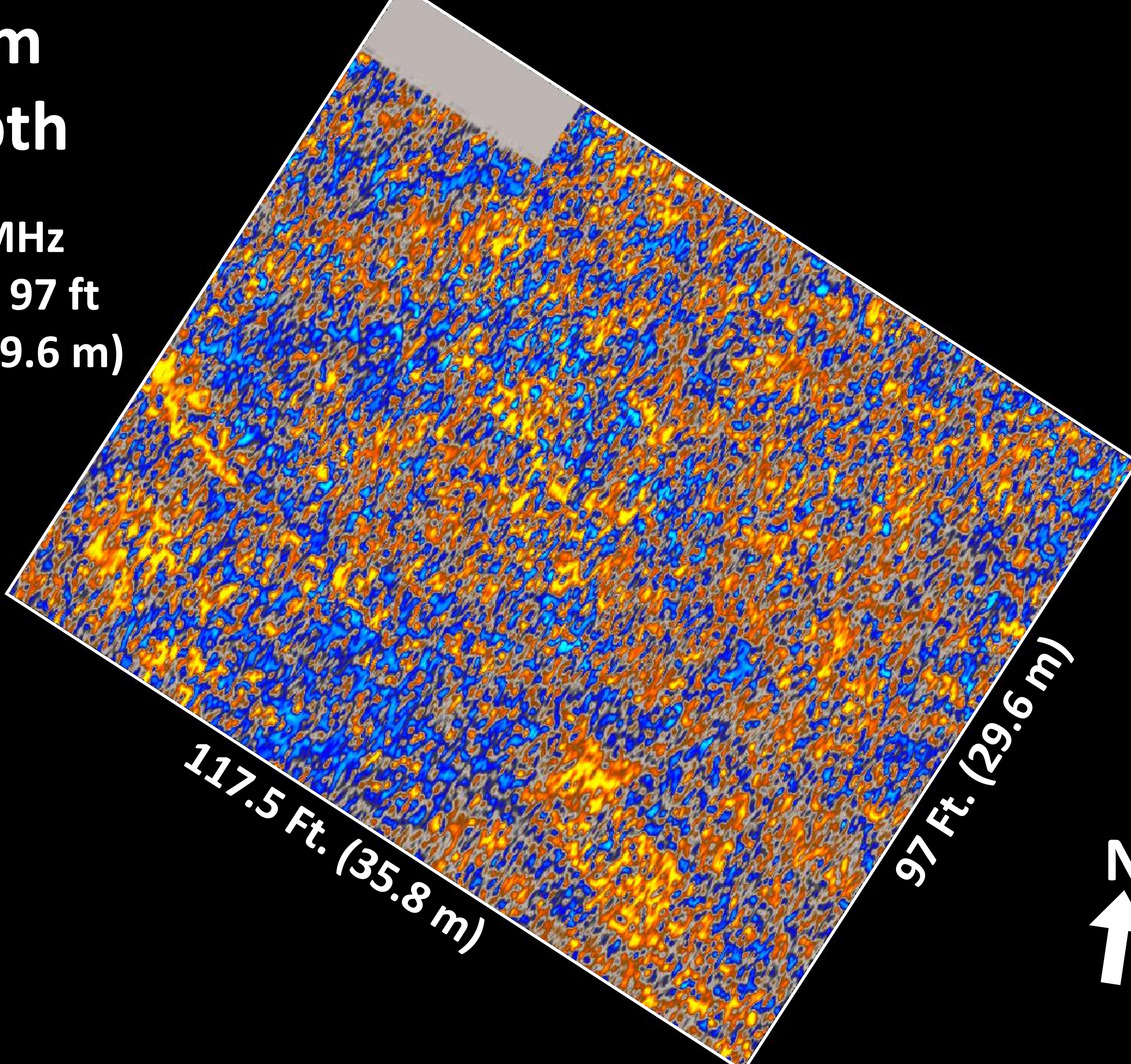
# .2 m Depth

**400 MHz**
**117.5 x 97 ft**
**(35.8 x 29.6 m)**



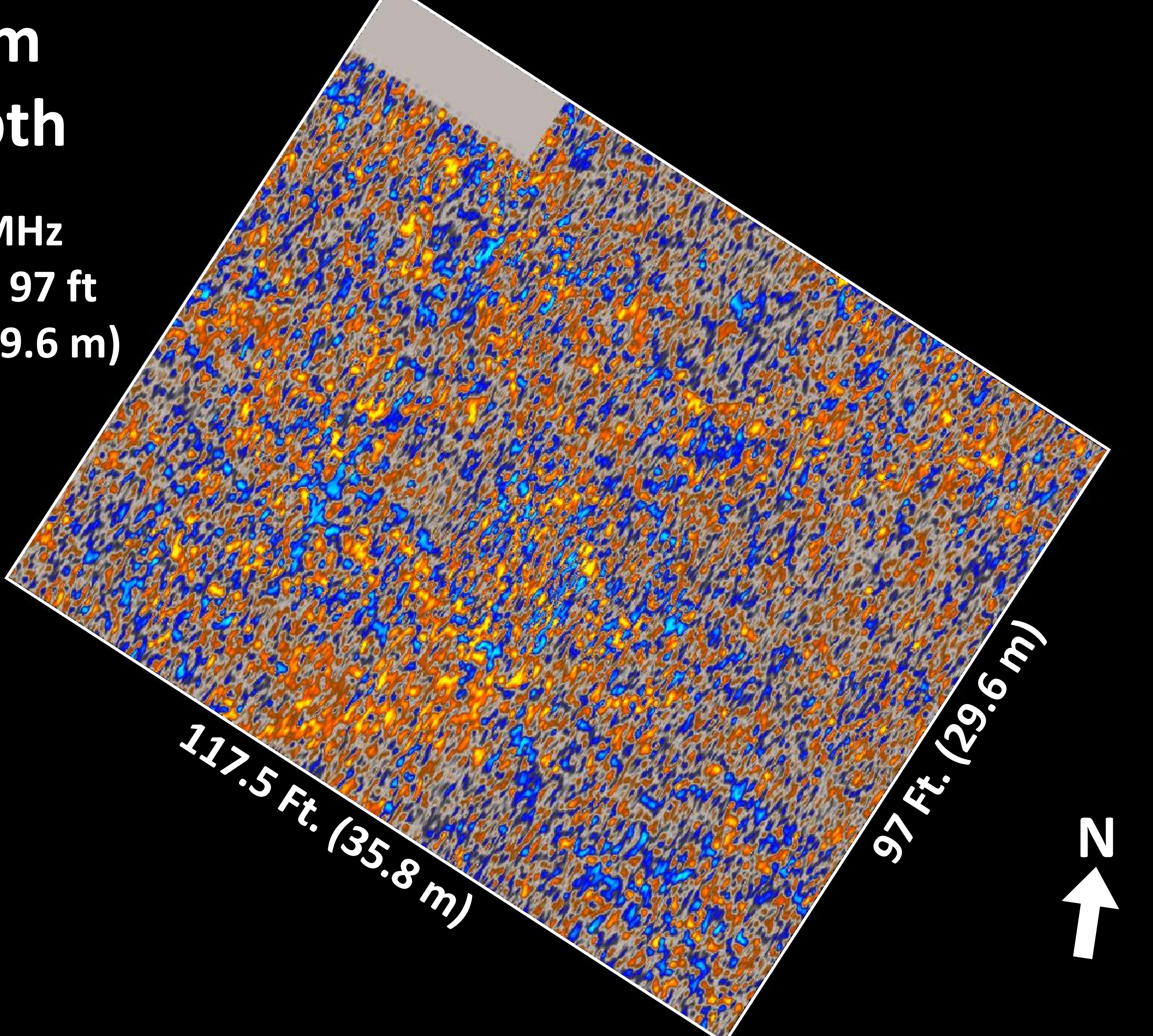
# .3 m Depth

**400 MHz**
**117.5 x 97 ft**
**(35.8 x 29.6 m)**



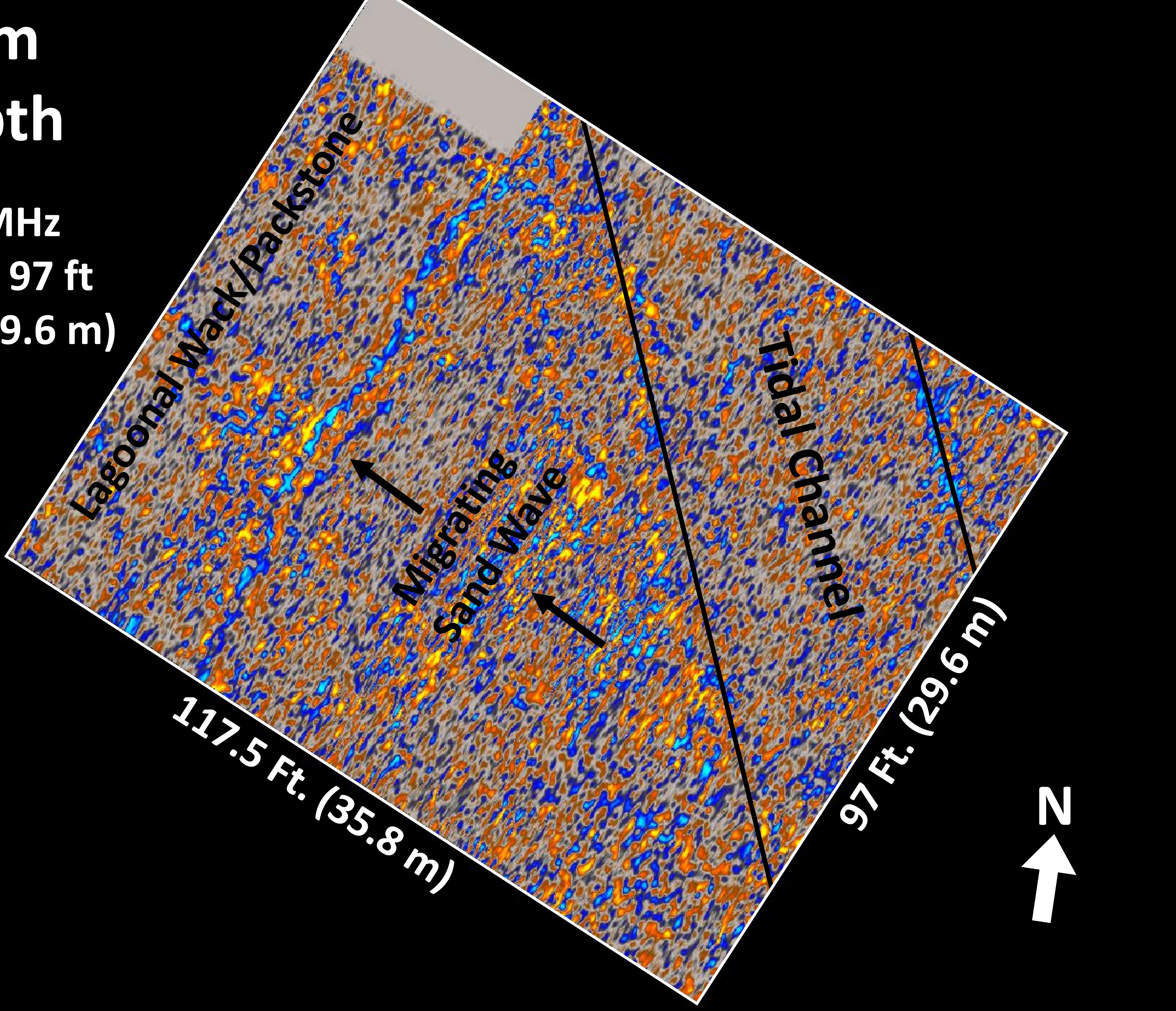
# .4 m Depth

**400 MHz**
**117.5 x 97 ft**
**(35.8 x 29.6 m)**



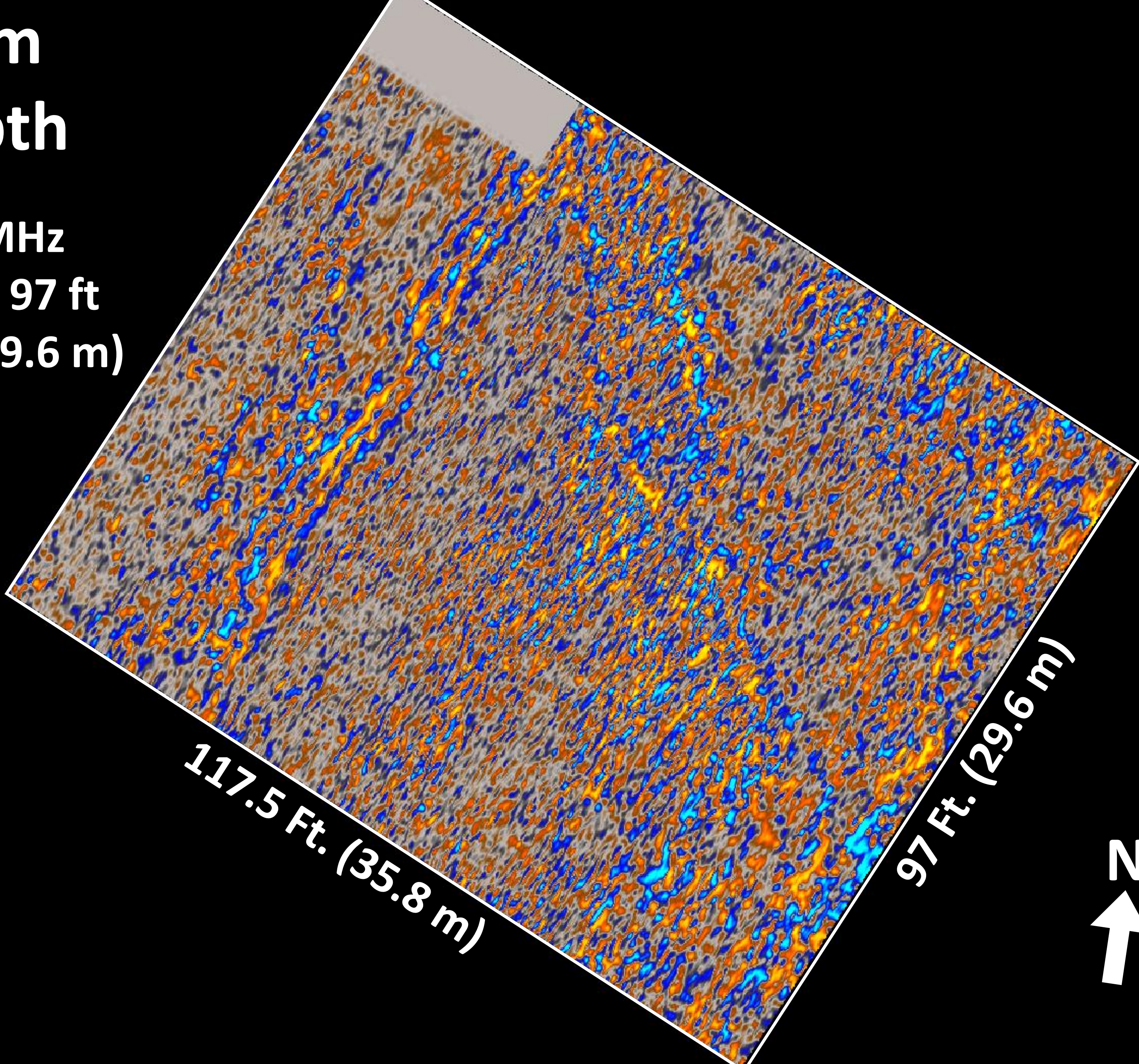
# .5 m Depth

**400 MHz**
**117.5 x 97 ft**
**(35.8 x 29.6 m)**



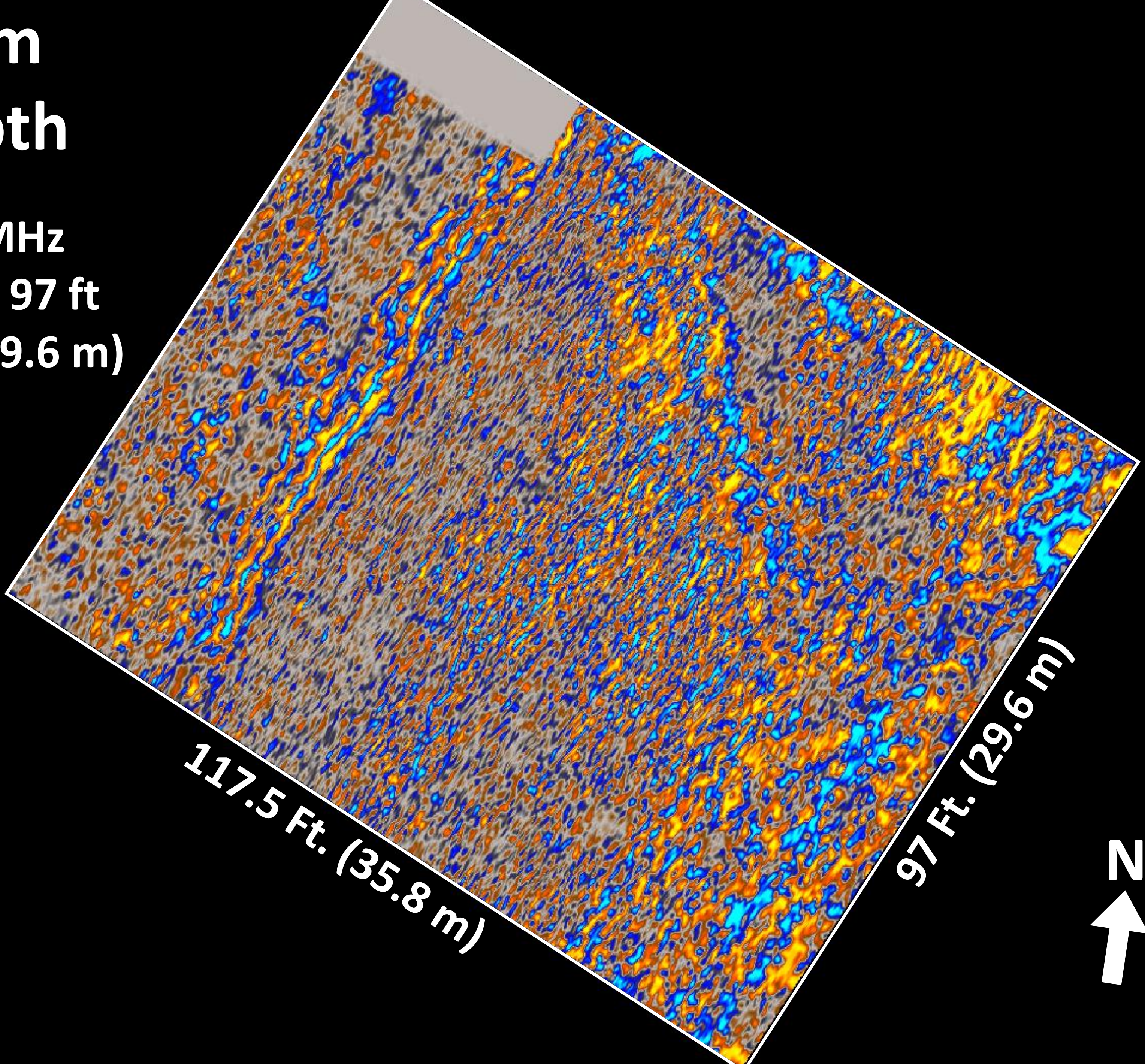
# .6 m Depth

**400 MHz**
**117.5 x 97 ft**
**(35.8 x 29.6 m)**



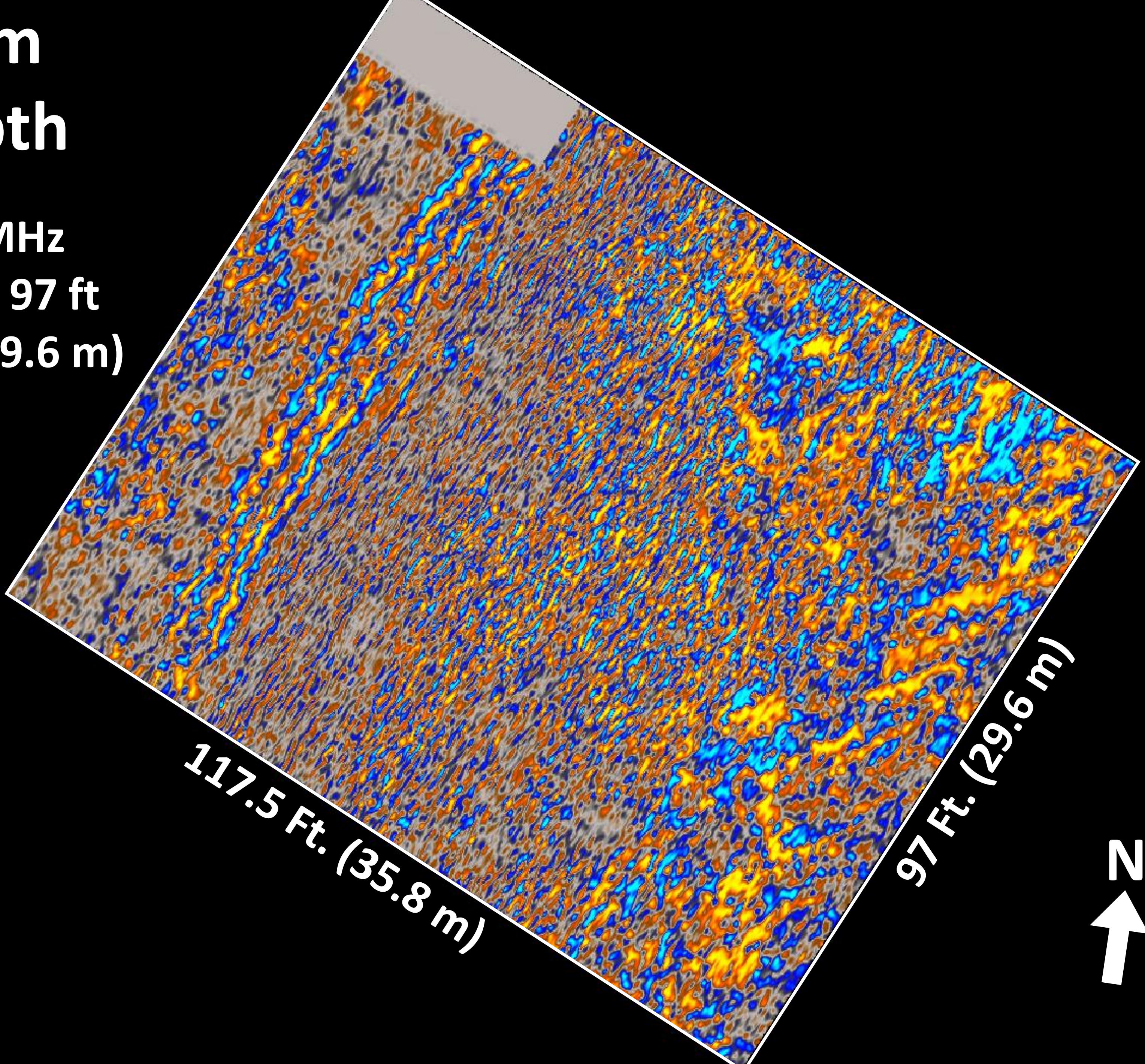
# .7 m Depth

**400 MHz**
**117.5 x 97 ft**
**(35.8 x 29.6 m)**



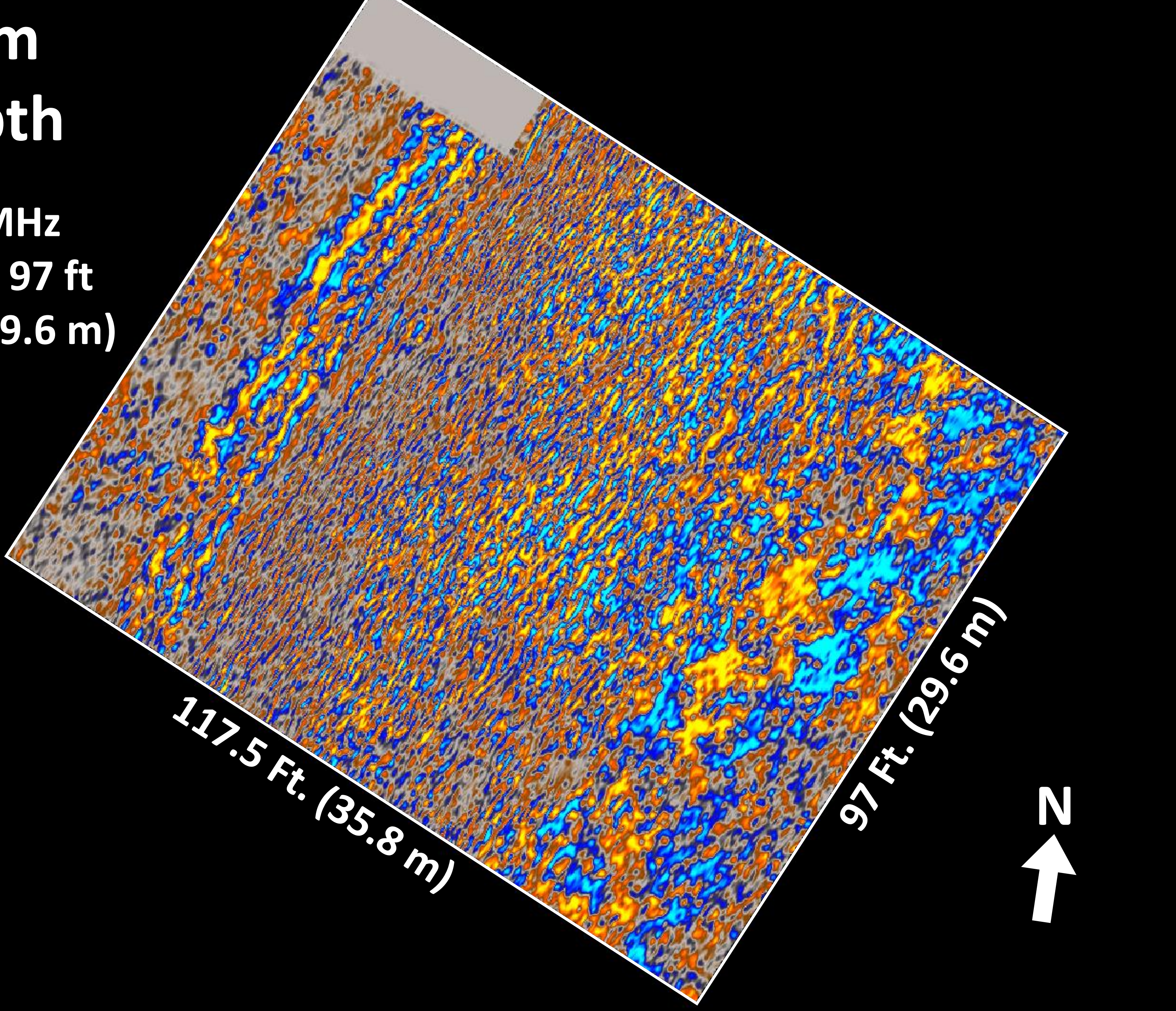
# .8 m Depth

**400 MHz**
**117.5 x 97 ft**
**(35.8 x 29.6 m)**



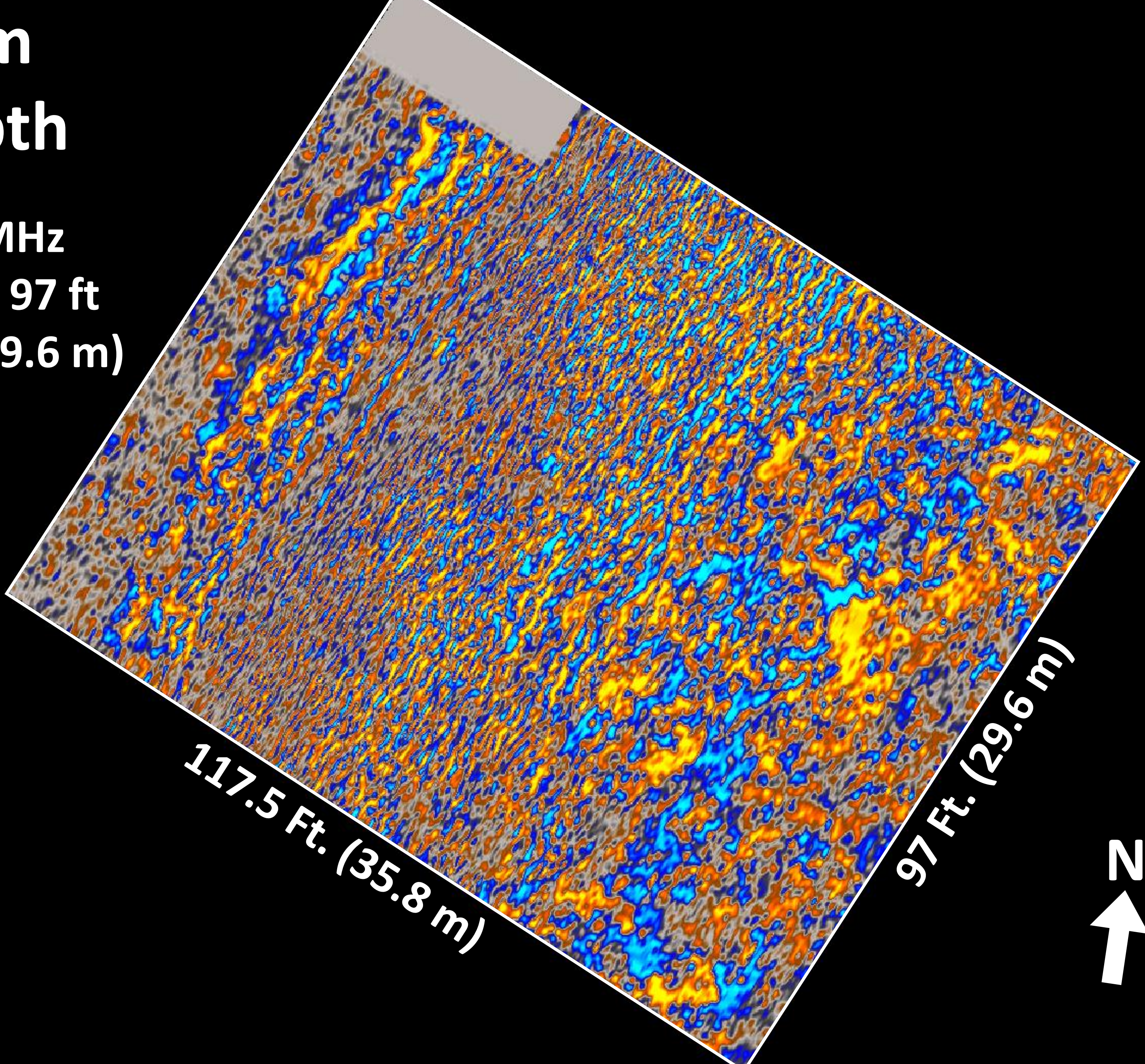
# .9 m Depth

**400 MHz**
**117.5 x 97 ft**
**(35.8 x 29.6 m)**



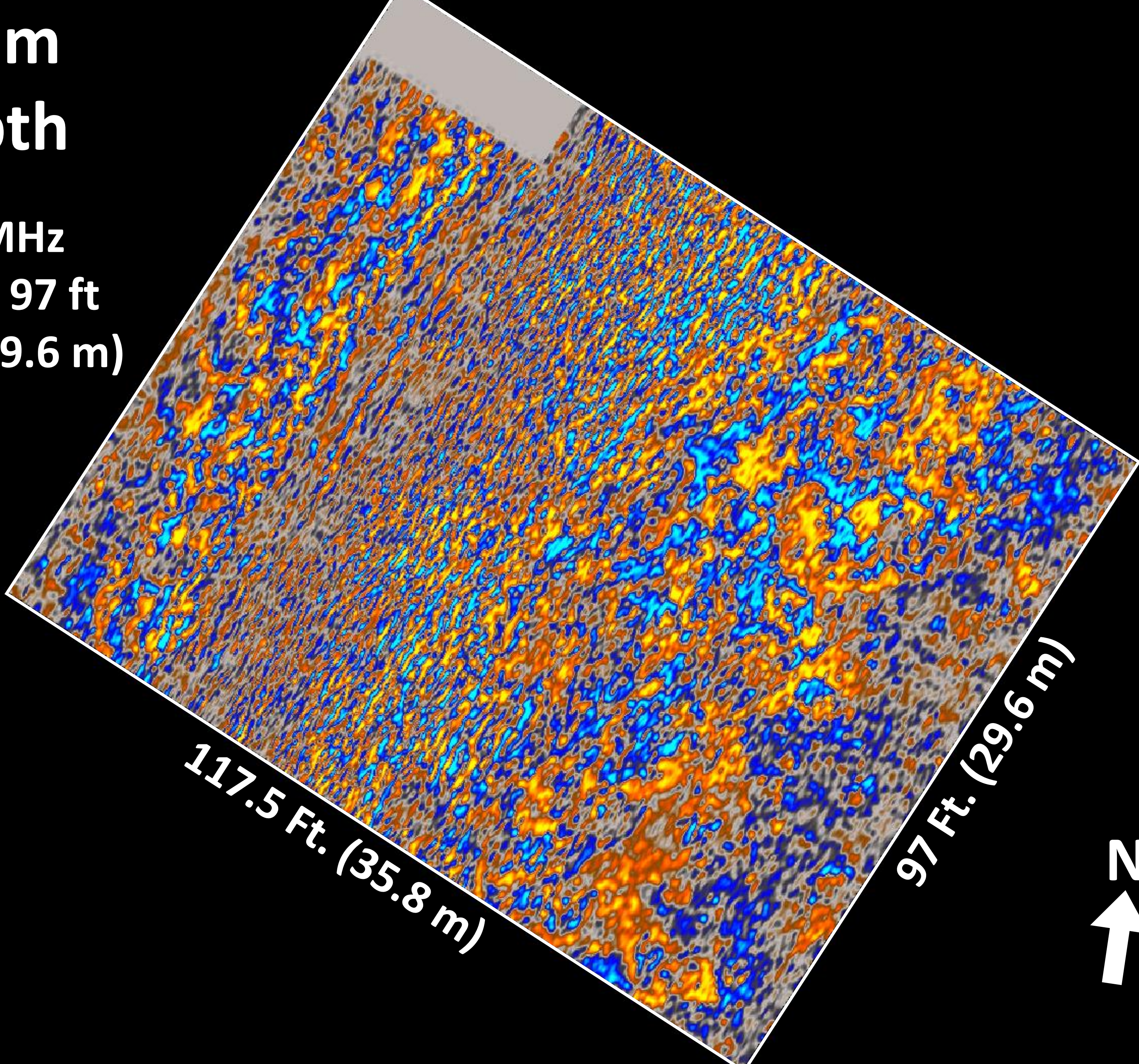
# 1 m Depth

**400 MHz**
**117.5 x 97 ft**
**(35.8 x 29.6 m)**



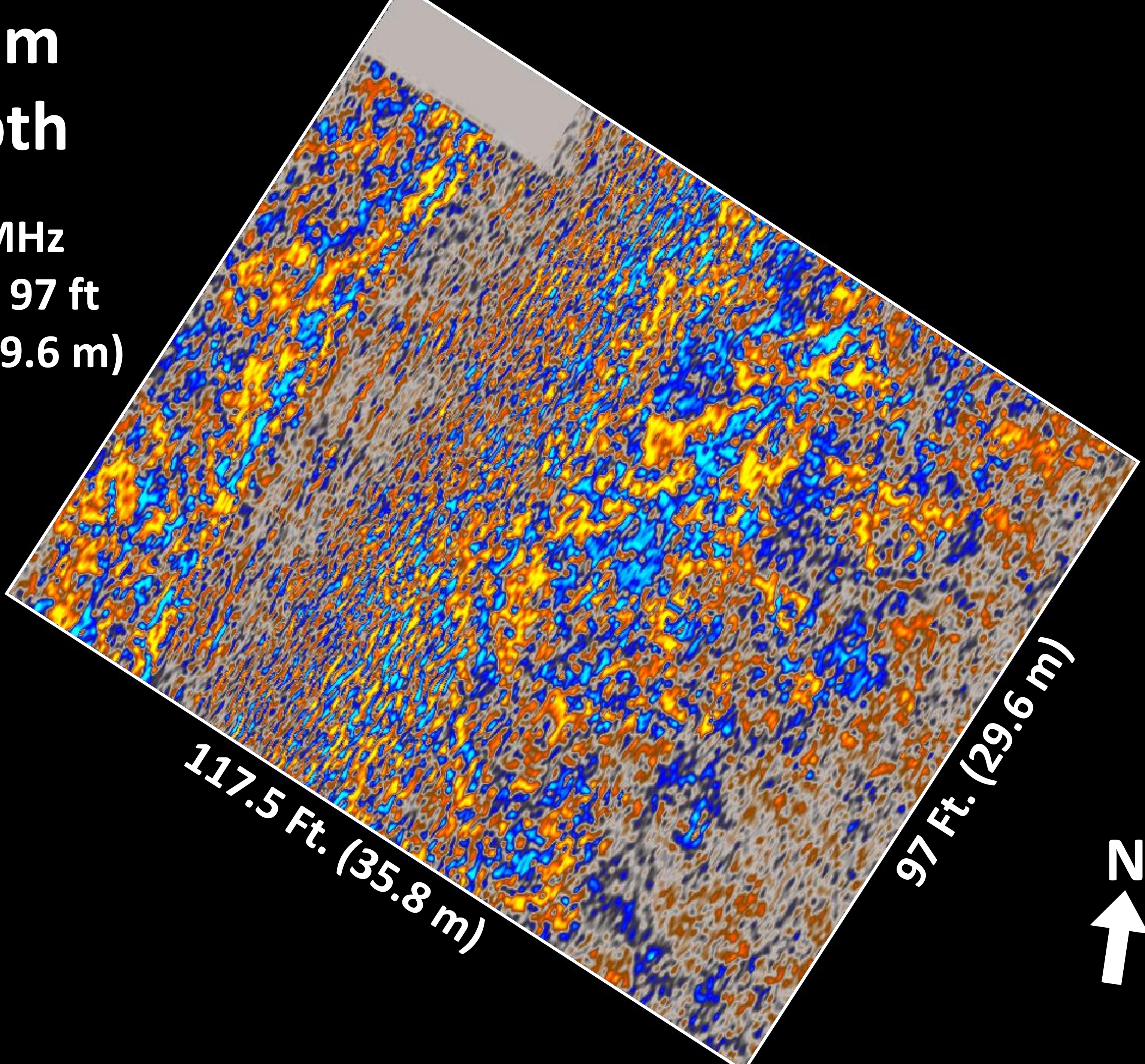
# 1.1 m Depth

**400 MHz**
**117.5 x 97 ft**
**(35.8 x 29.6 m)**



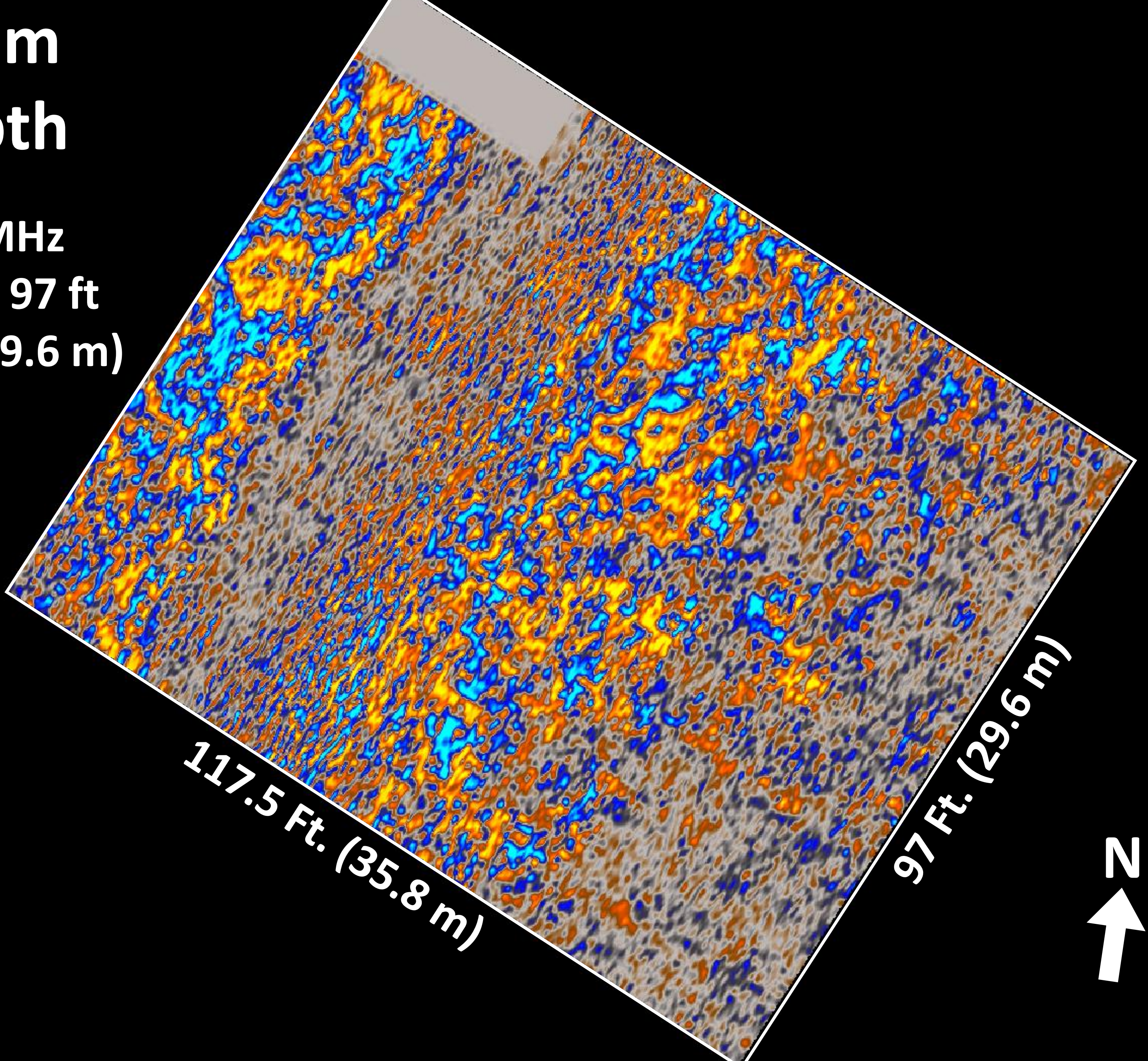
# 1.2 m Depth

**400 MHz**
**117.5 x 97 ft**
**(35.8 x 29.6 m)**



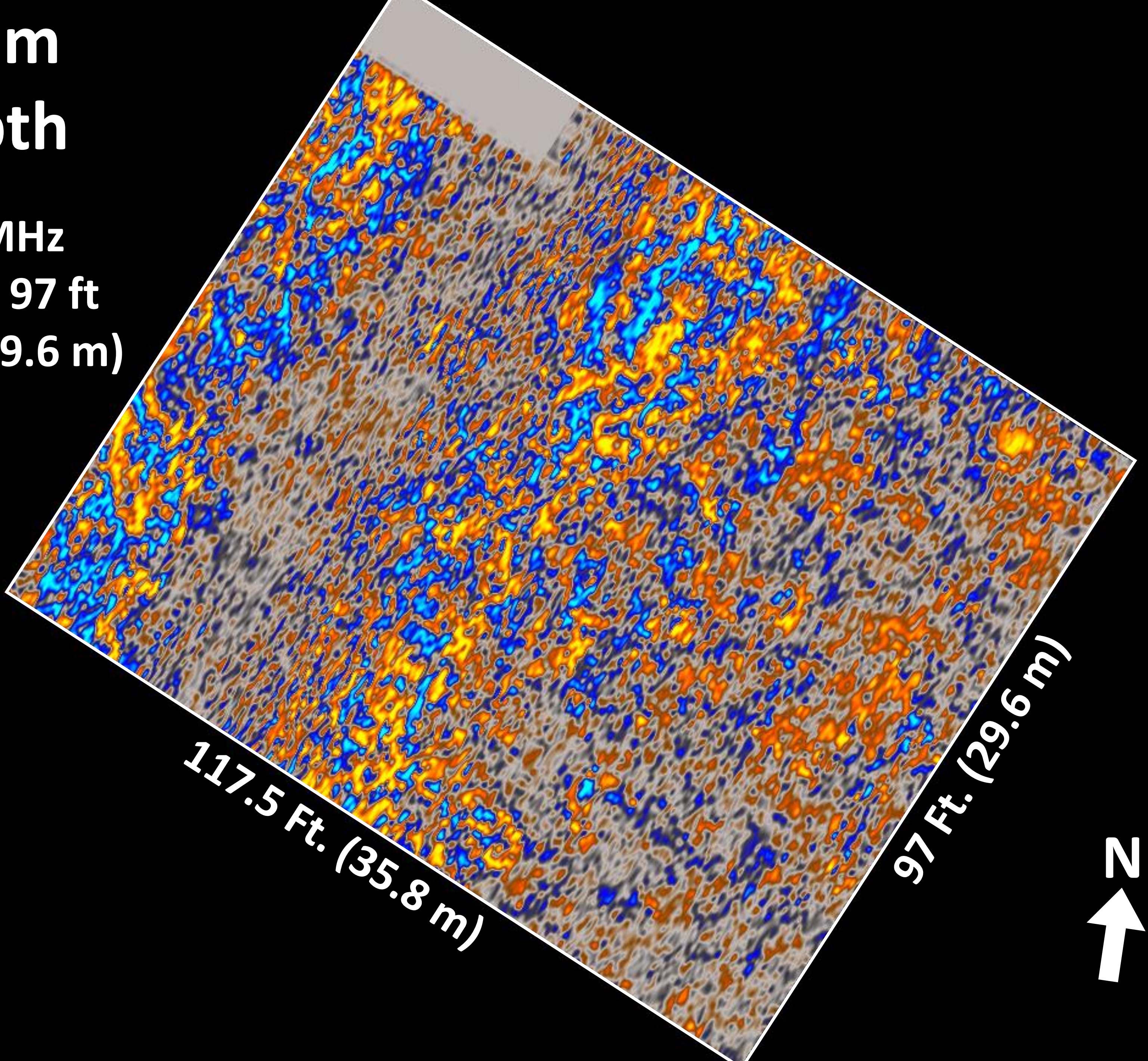
# 1.3 m Depth

**400 MHz**
**117.5 x 97 ft**
**(35.8 x 29.6 m)**



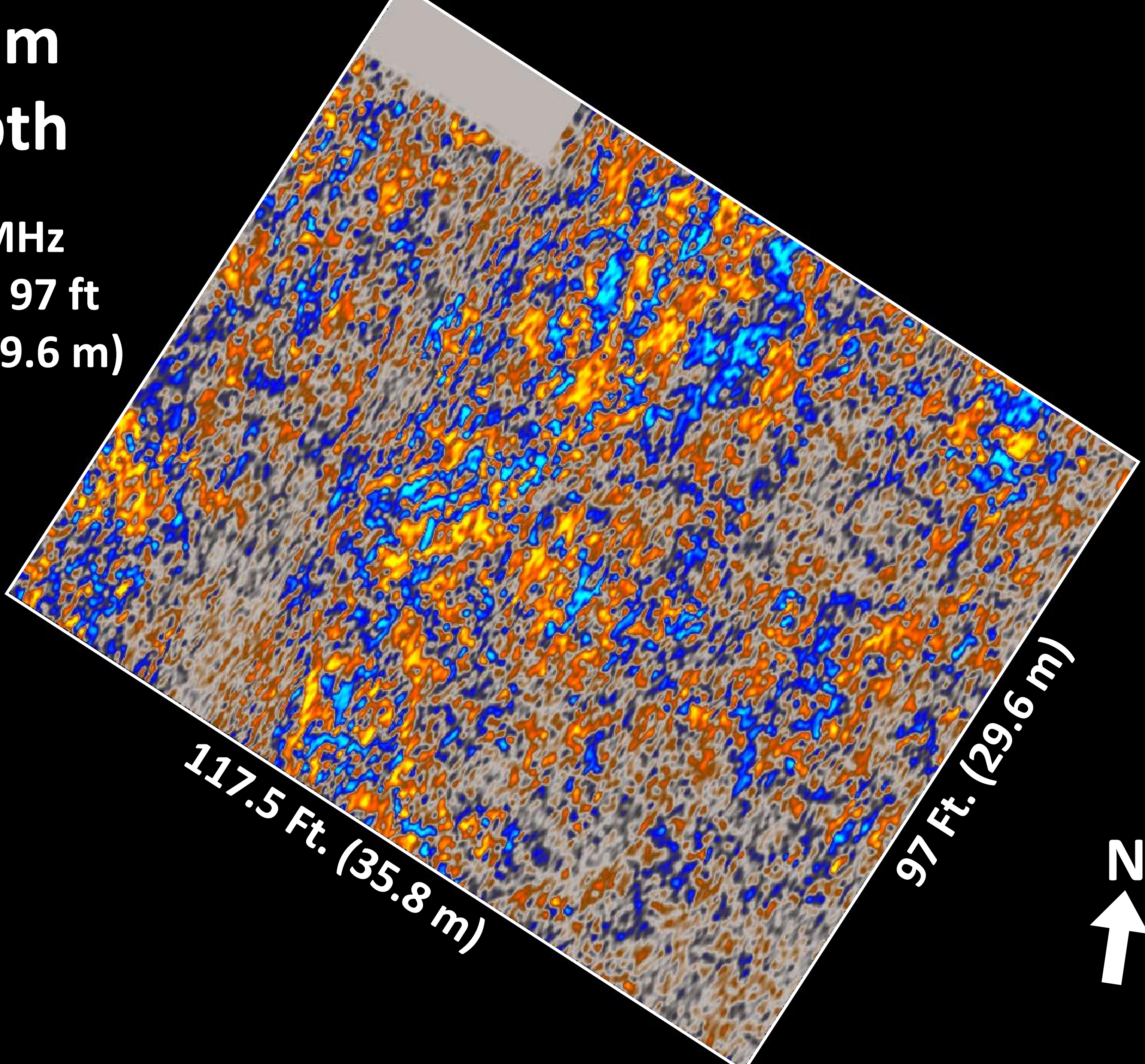
# 1.4 m Depth

**400 MHz**
**117.5 x 97 ft**
**(35.8 x 29.6 m)**



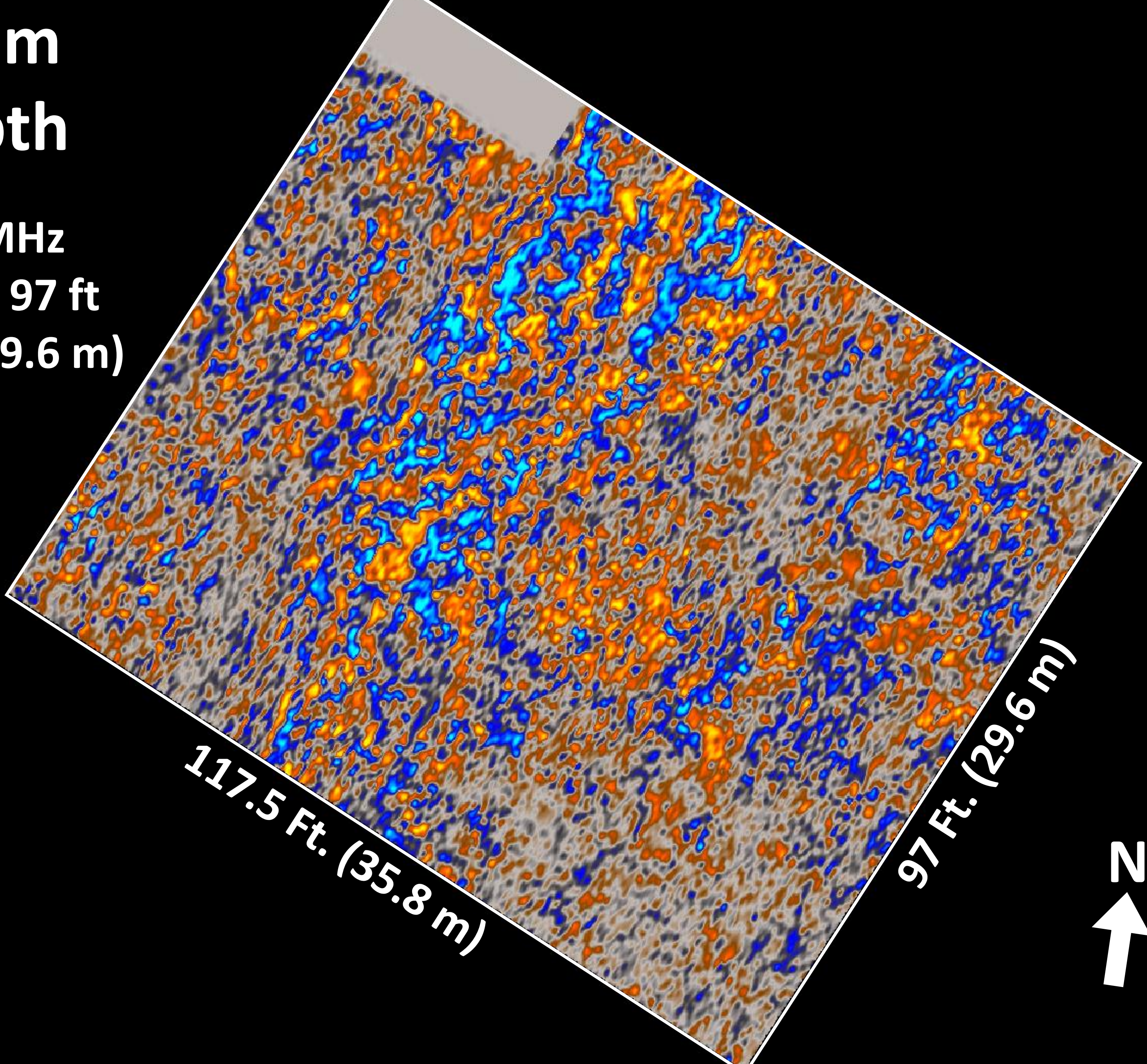
# 1.5 m Depth

**400 MHz**
**117.5 x 97 ft**
**(35.8 x 29.6 m)**



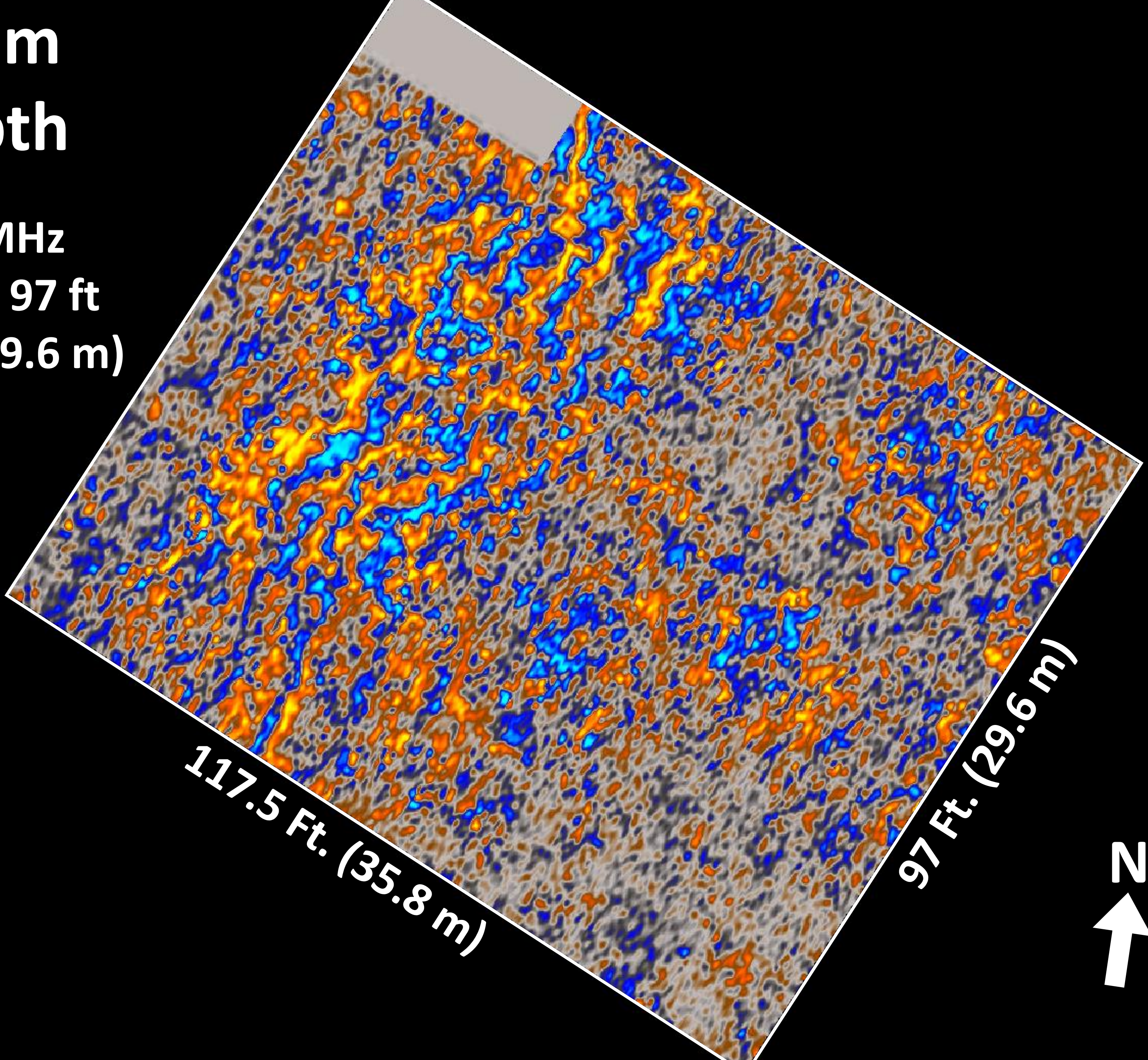
1.6 m Depth

400 MHz
117.5 x 97 ft
(35.8 x 29.6 m)



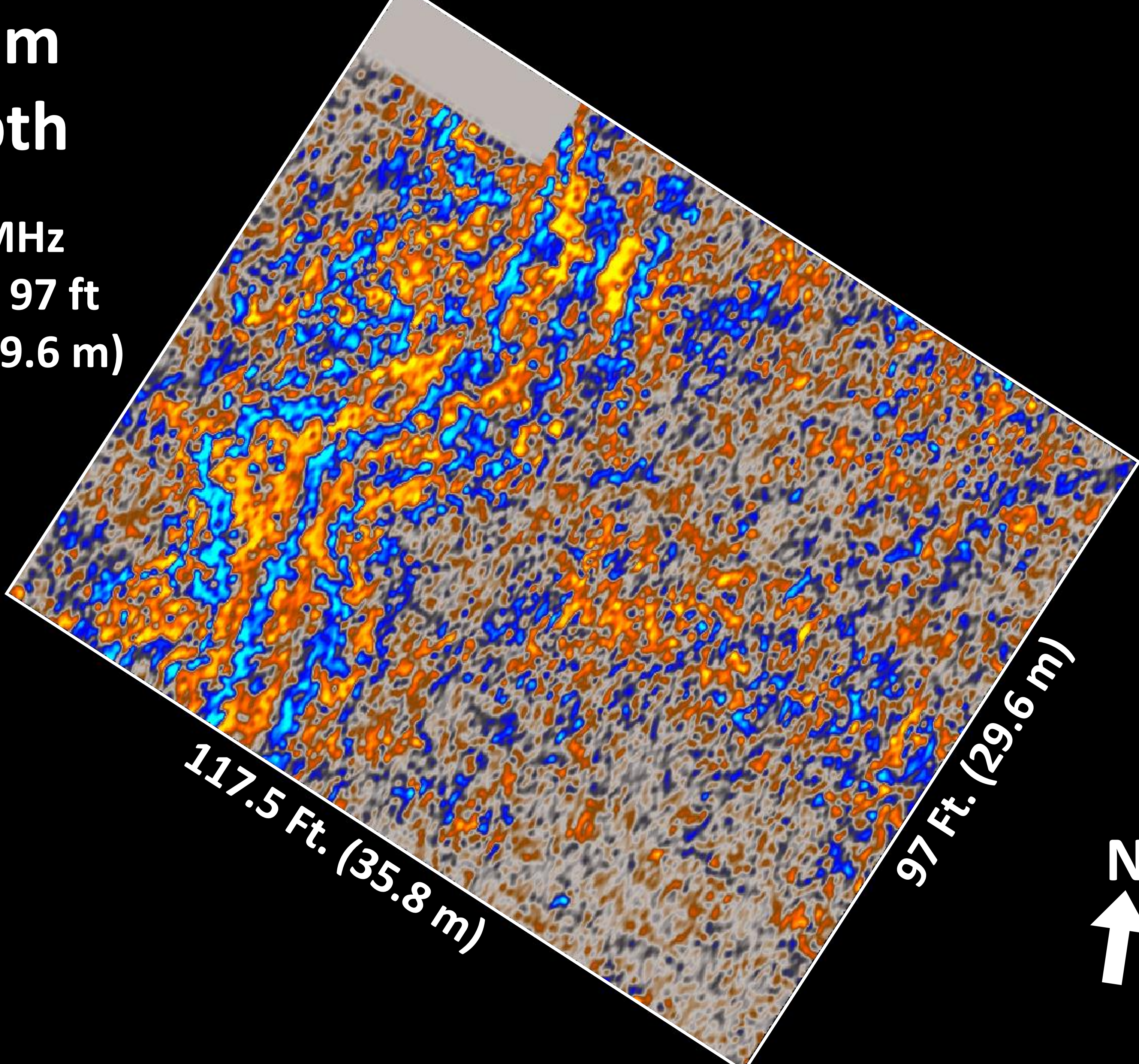
# 1.7 m Depth

**400 MHz**
**117.5 x 97 ft**
**(35.8 x 29.6 m)**



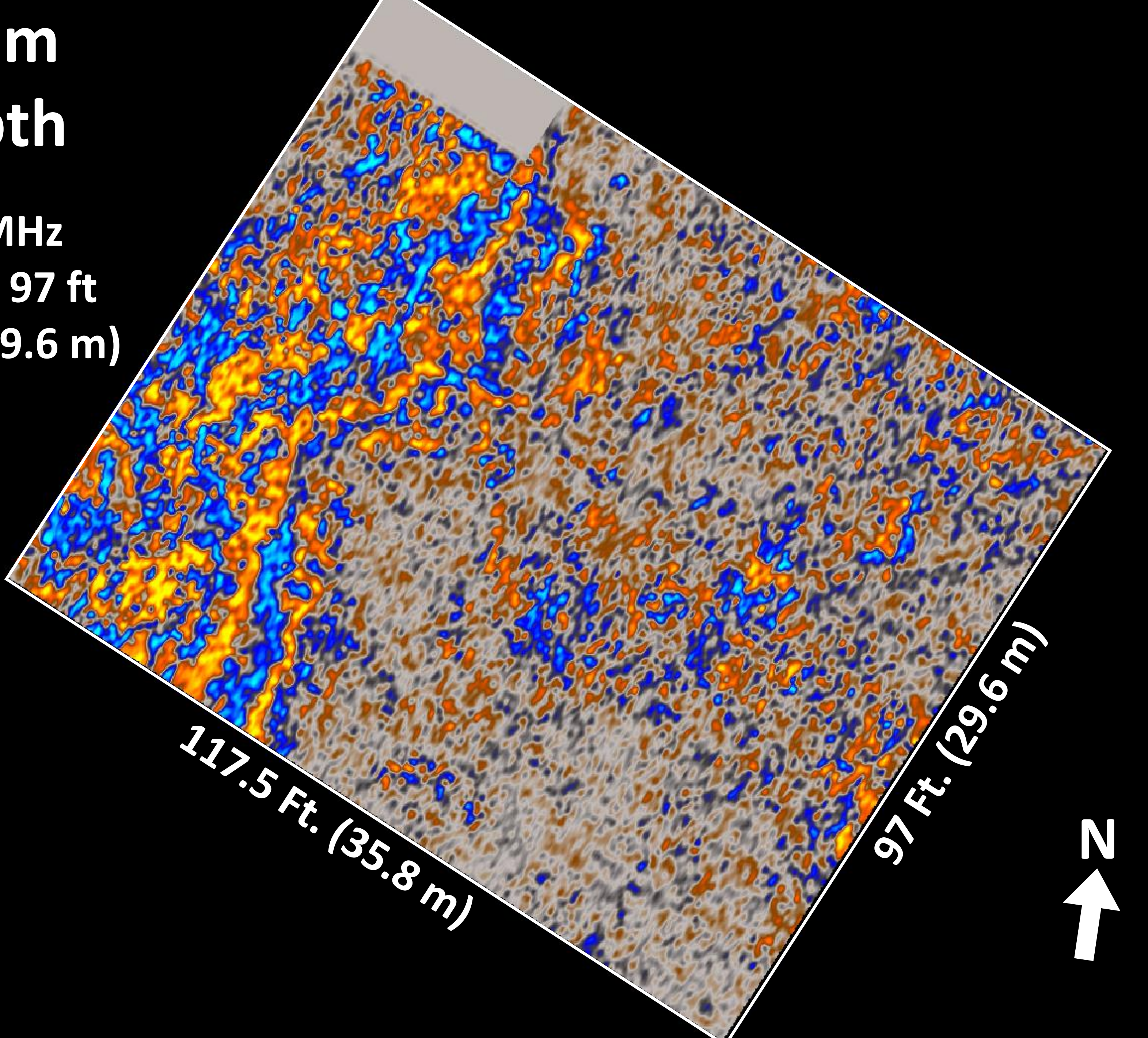
# 1.8 m Depth

**400 MHz**
**117.5 x 97 ft**
**(35.8 x 29.6 m)**



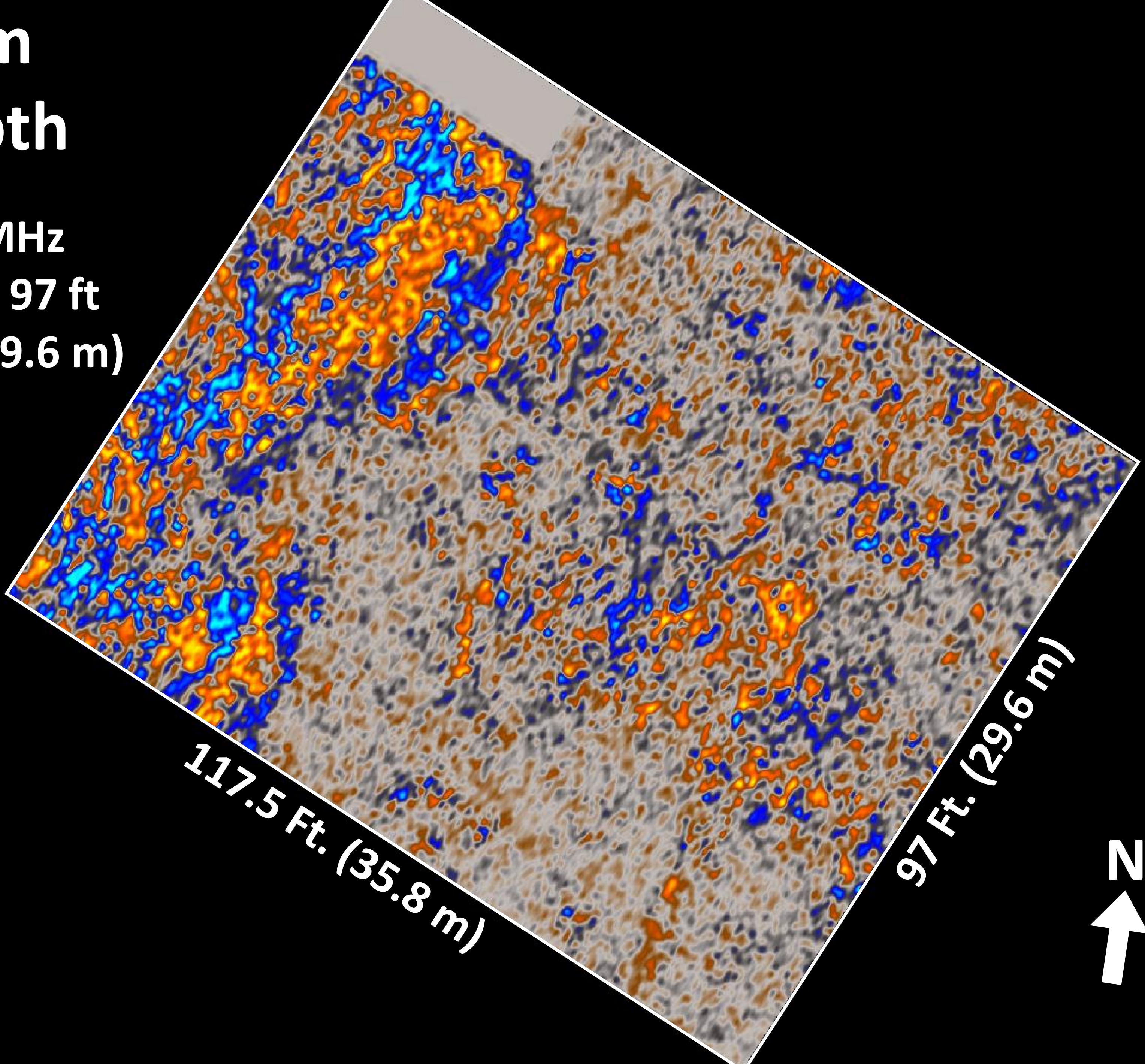
# 1.9 m Depth

**400 MHz**
**117.5 x 97 ft**
**(35.8 x 29.6 m)**



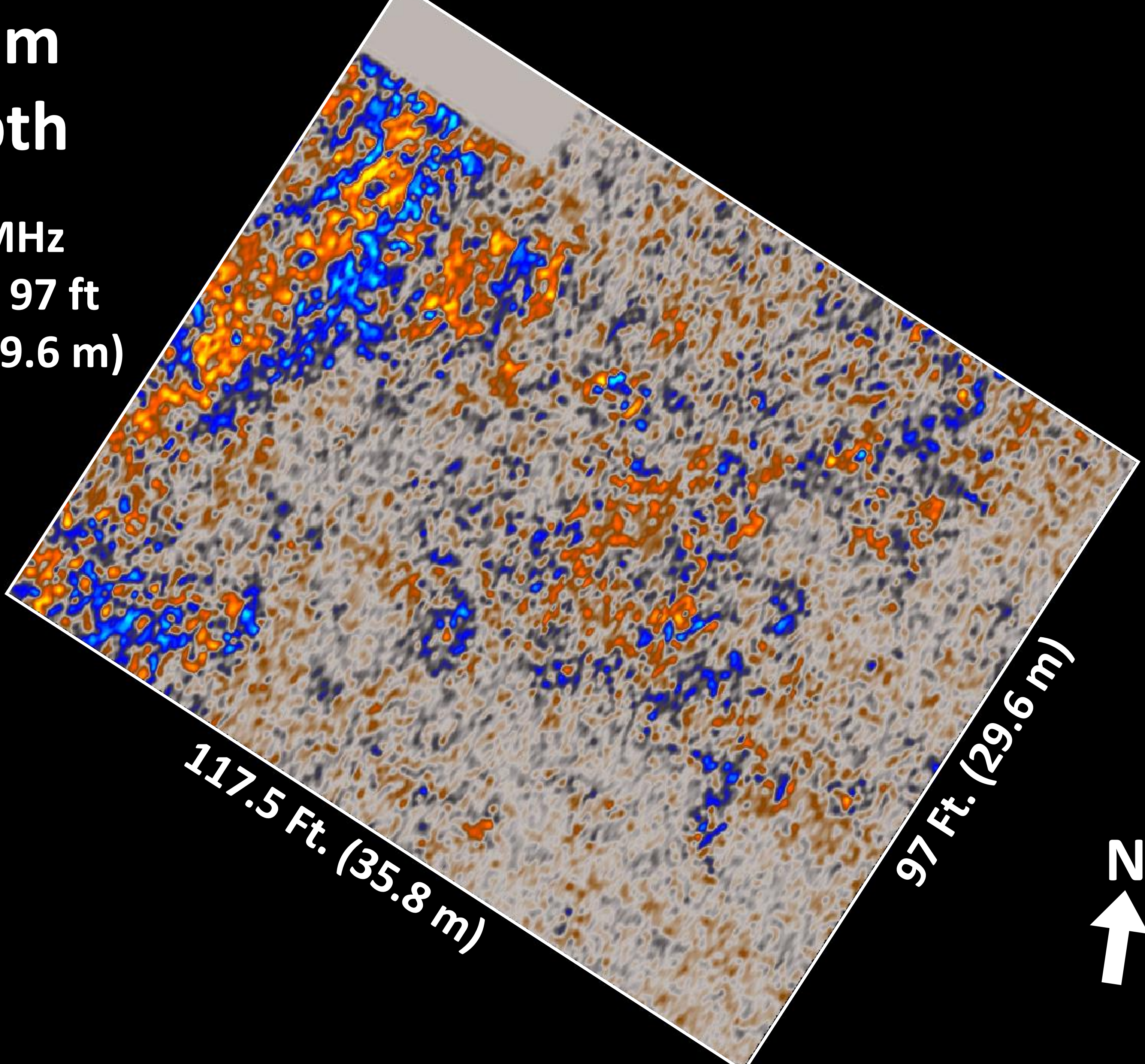
**2 m Depth**

**400 MHz**
**117.5 x 97 ft**
**(35.8 x 29.6 m)**



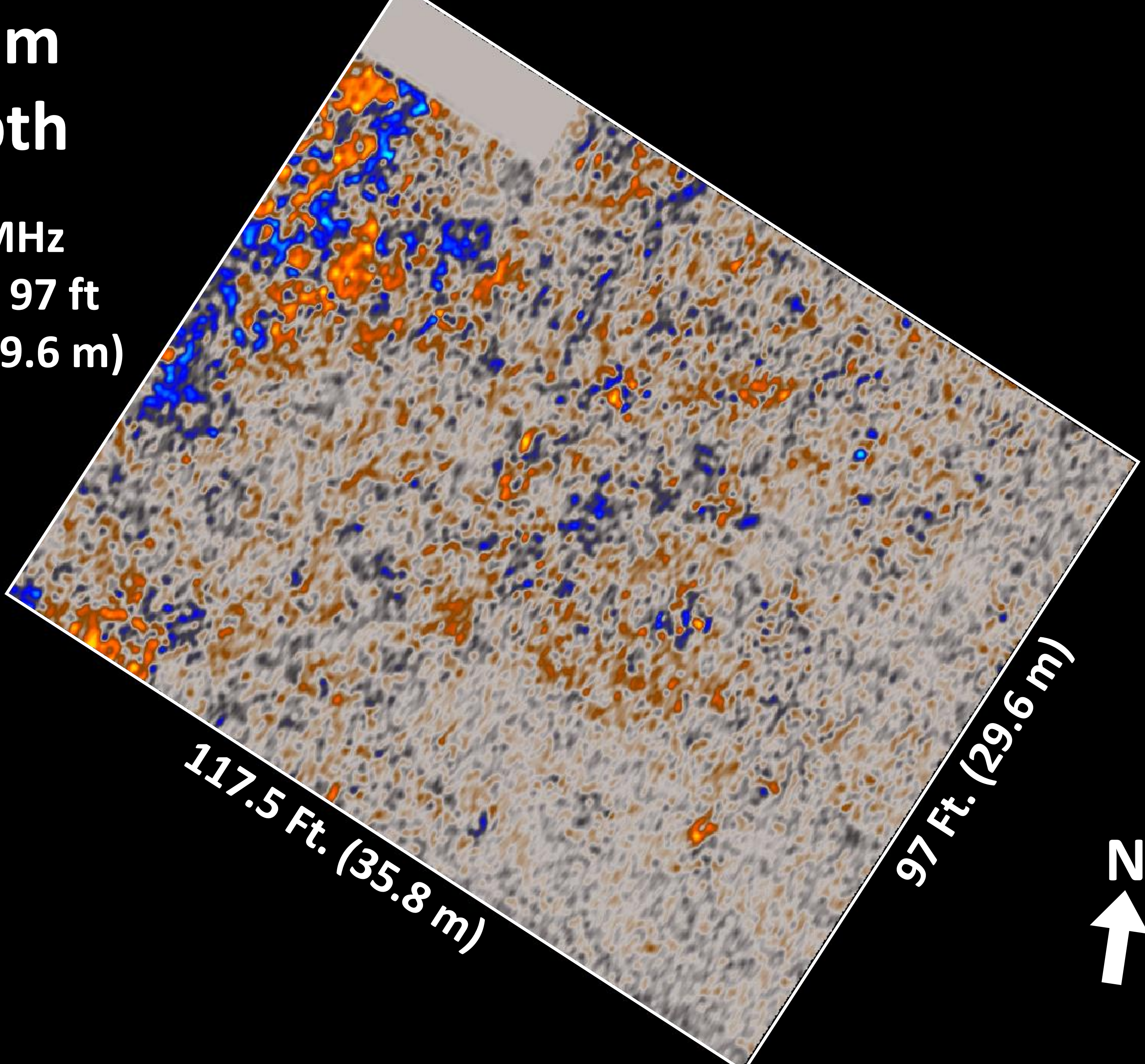
# 2.1 m Depth

**400 MHz**
**117.5 x 97 ft**
**(35.8 x 29.6 m)**



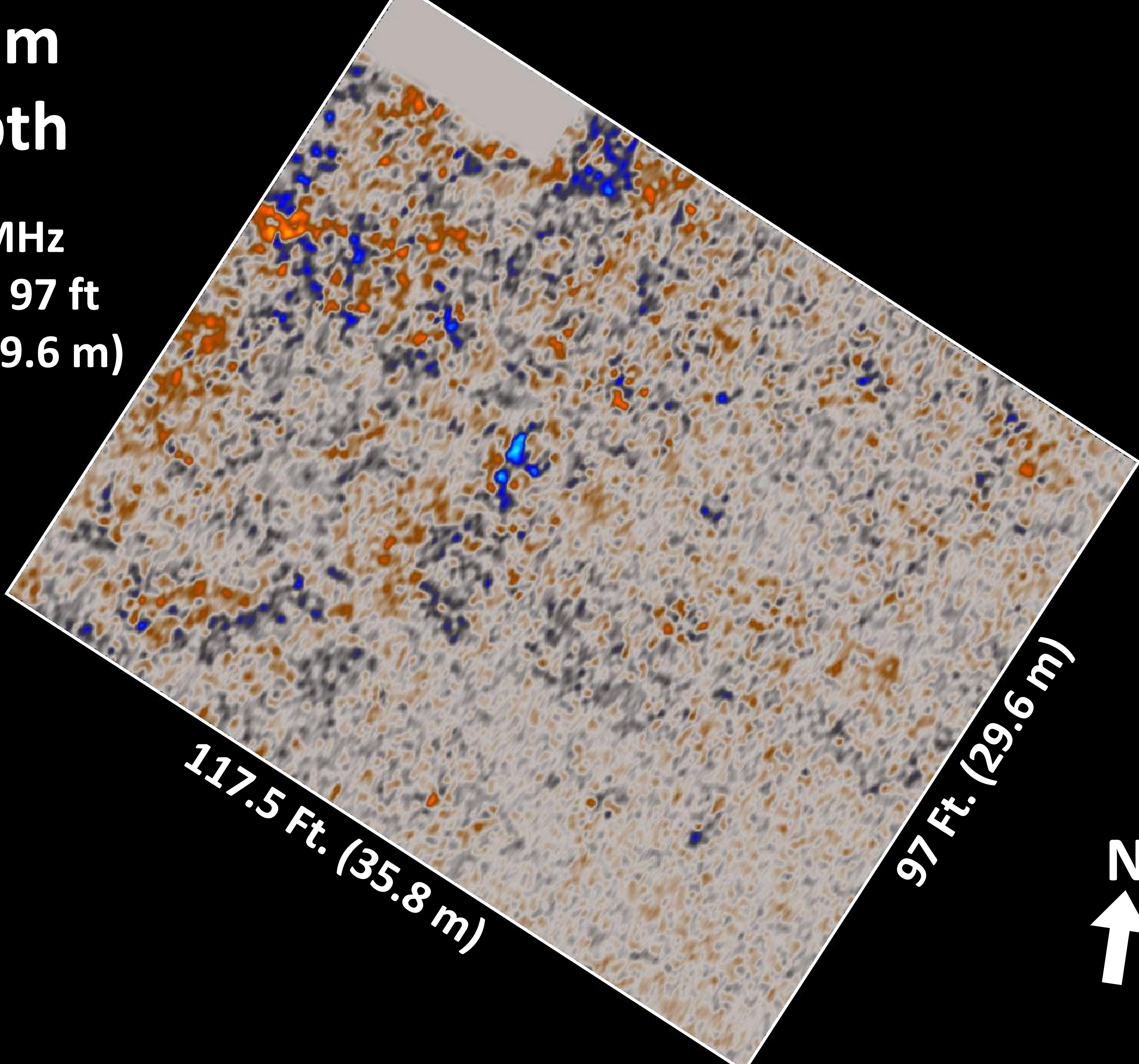
# 2.2 m Depth

**400 MHz**
**117.5 x 97 ft**
**(35.8 x 29.6 m)**



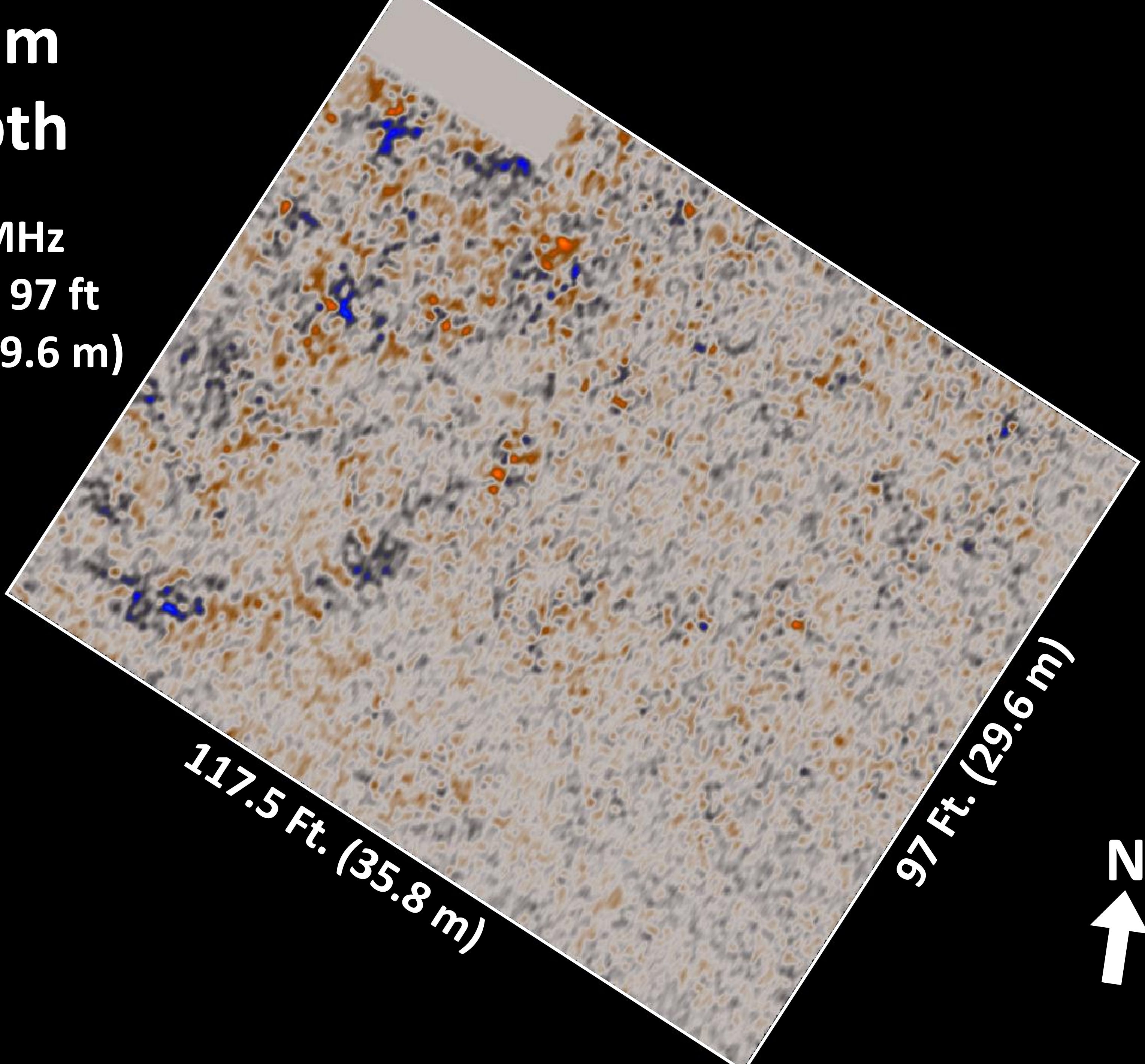
# 2.3 m Depth

**400 MHz**
**117.5 x 97 ft**
**(35.8 x 29.6 m)**



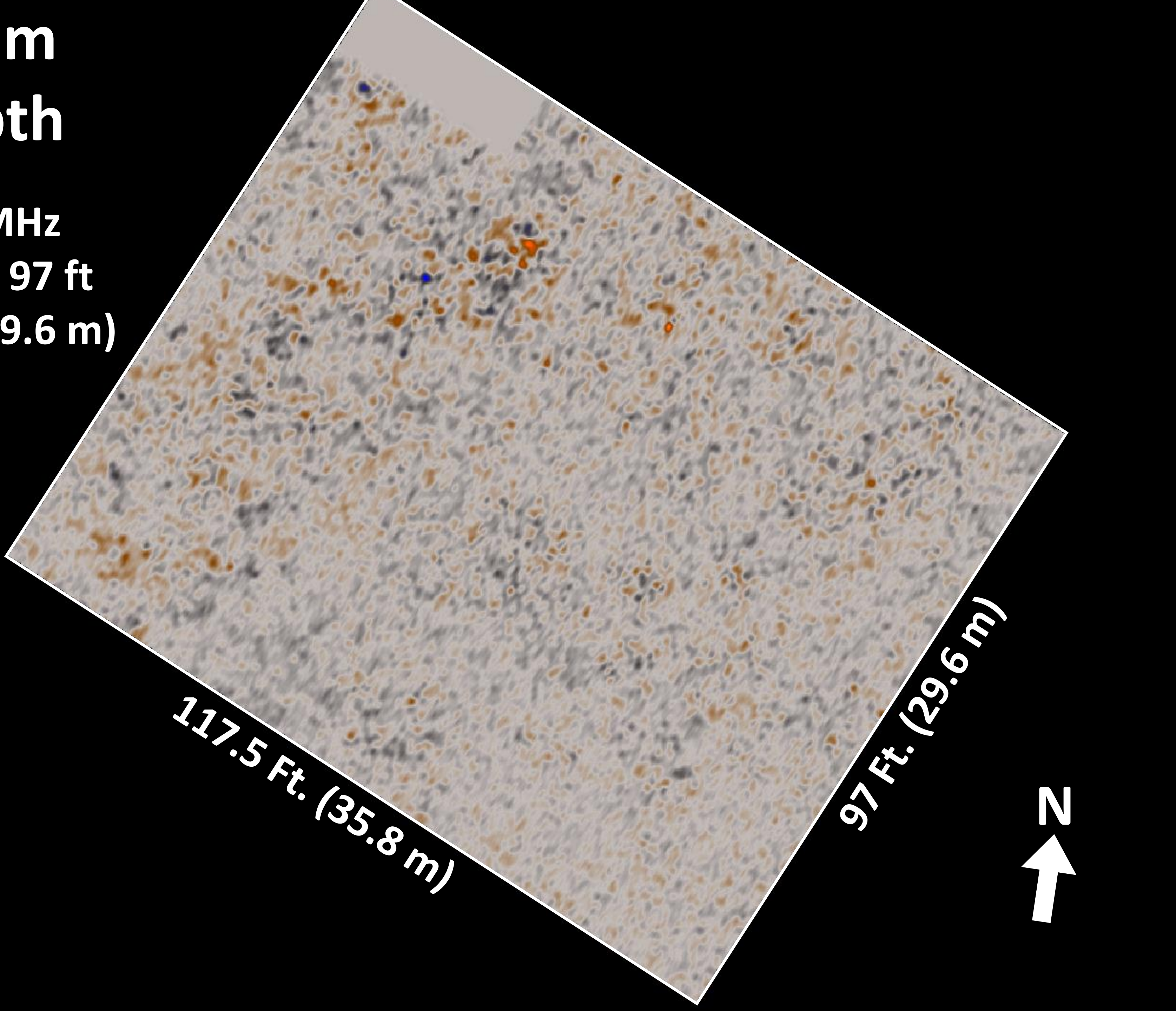
# 2.4 m Depth

**400 MHz**
**117.5 x 97 ft**
**(35.8 x 29.6 m)**



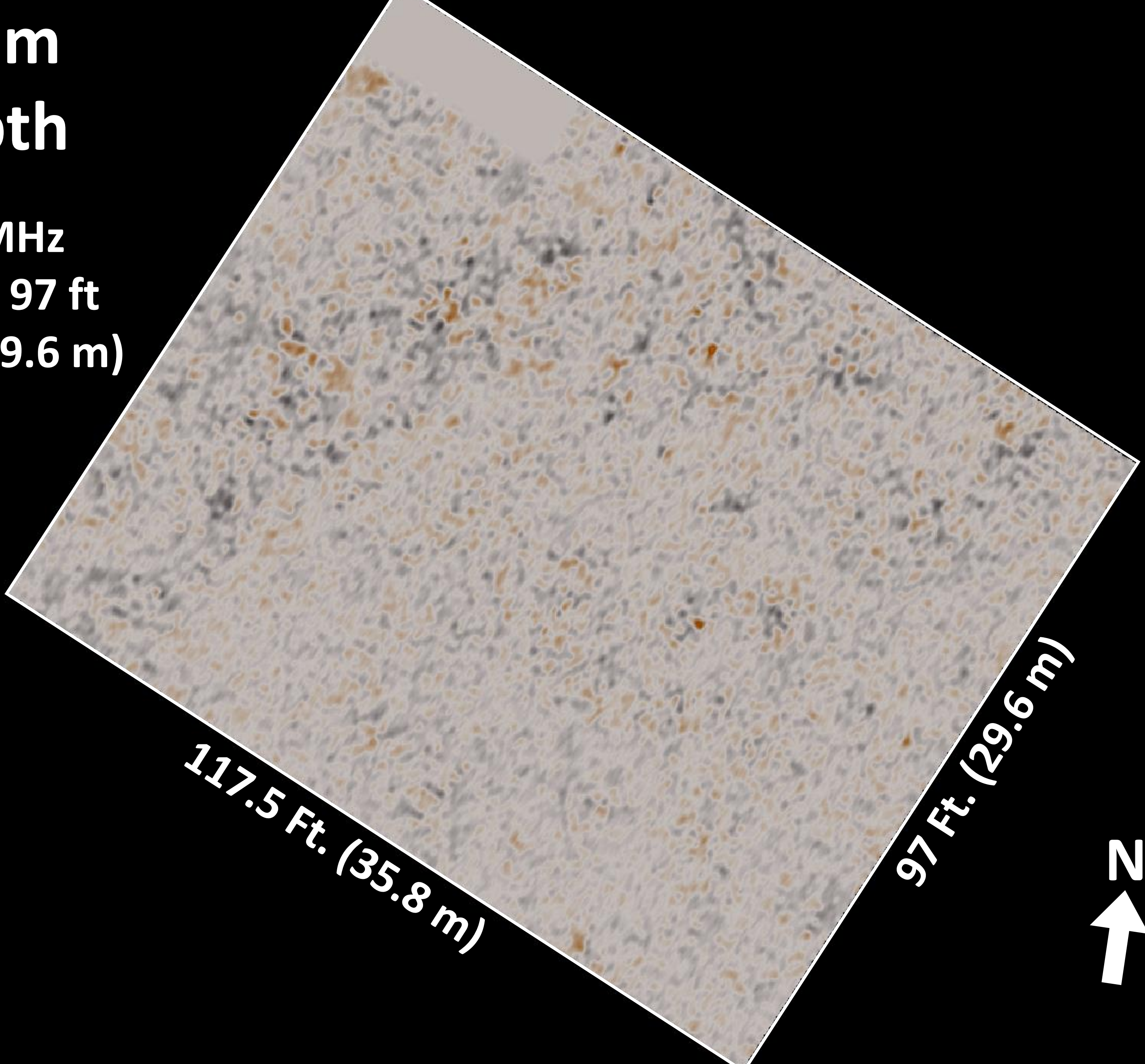
# 2.5 m Depth

**400 MHz**
**117.5 x 97 ft**
**(35.8 x 29.6 m)**



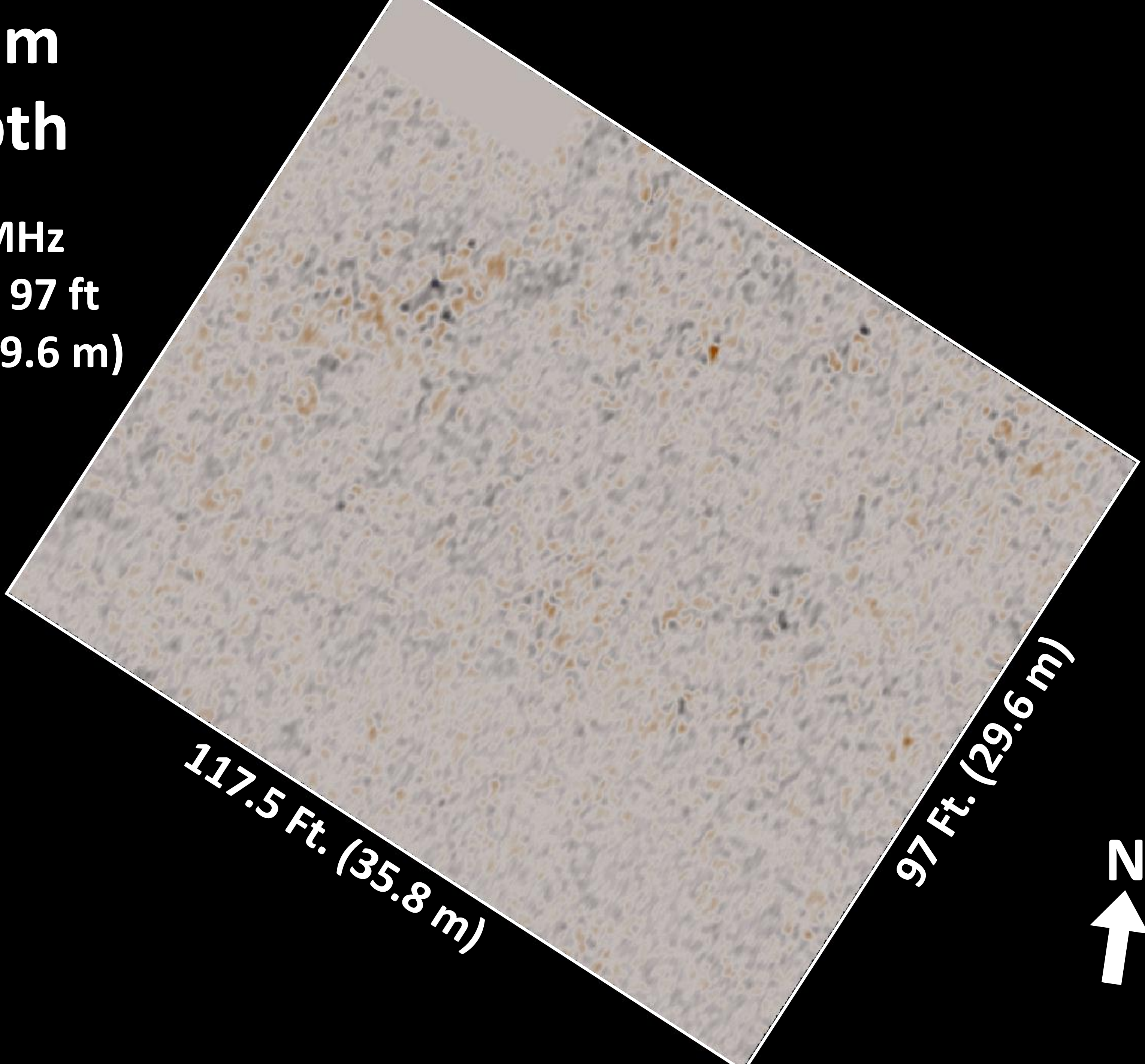
# 2.6 m Depth

**400 MHz**
**117.5 x 97 ft**
**(35.8 x 29.6 m)**



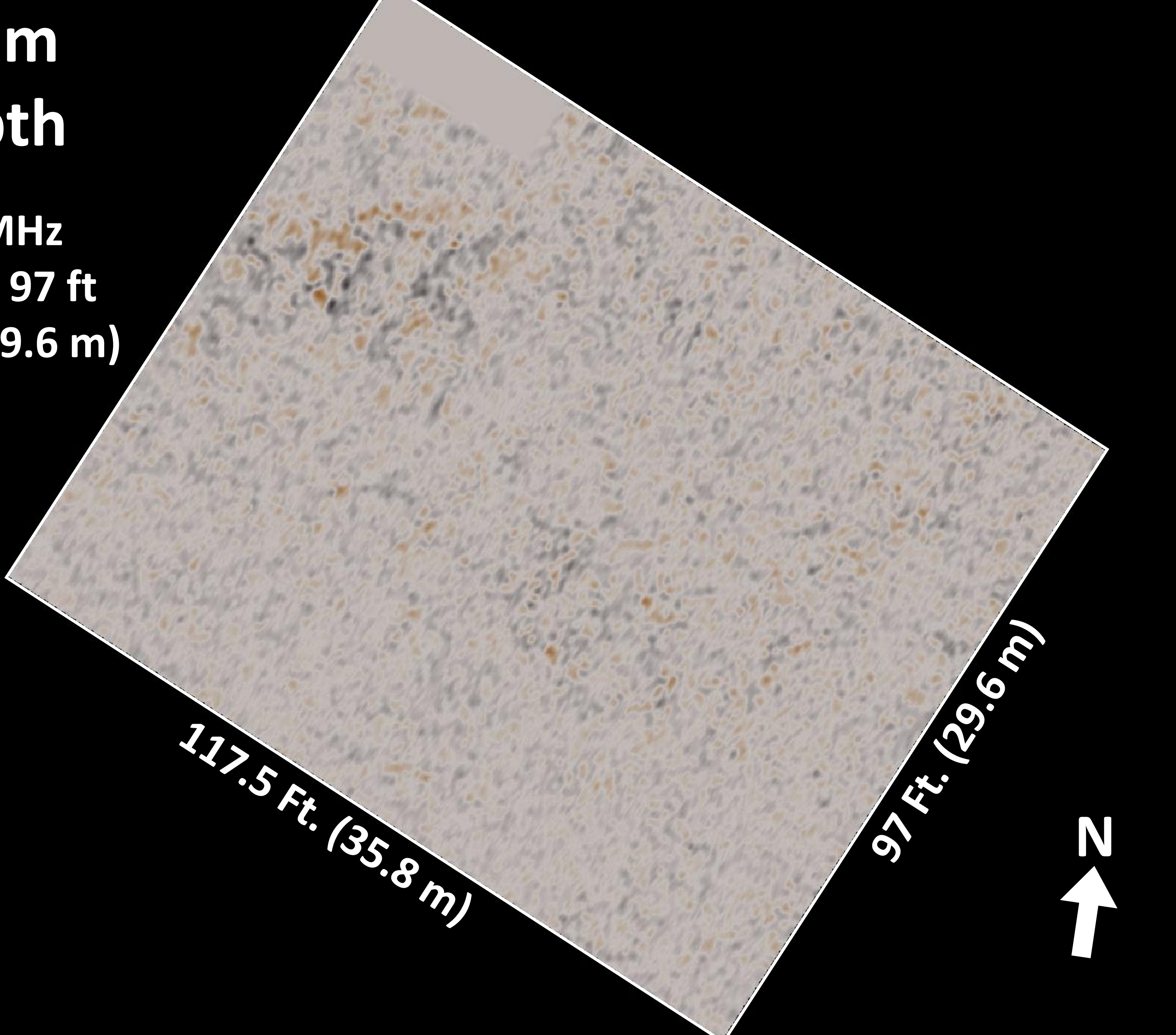
# 2.7 m Depth

**400 MHz**
**117.5 x 97 ft**
**(35.8 x 29.6 m)**



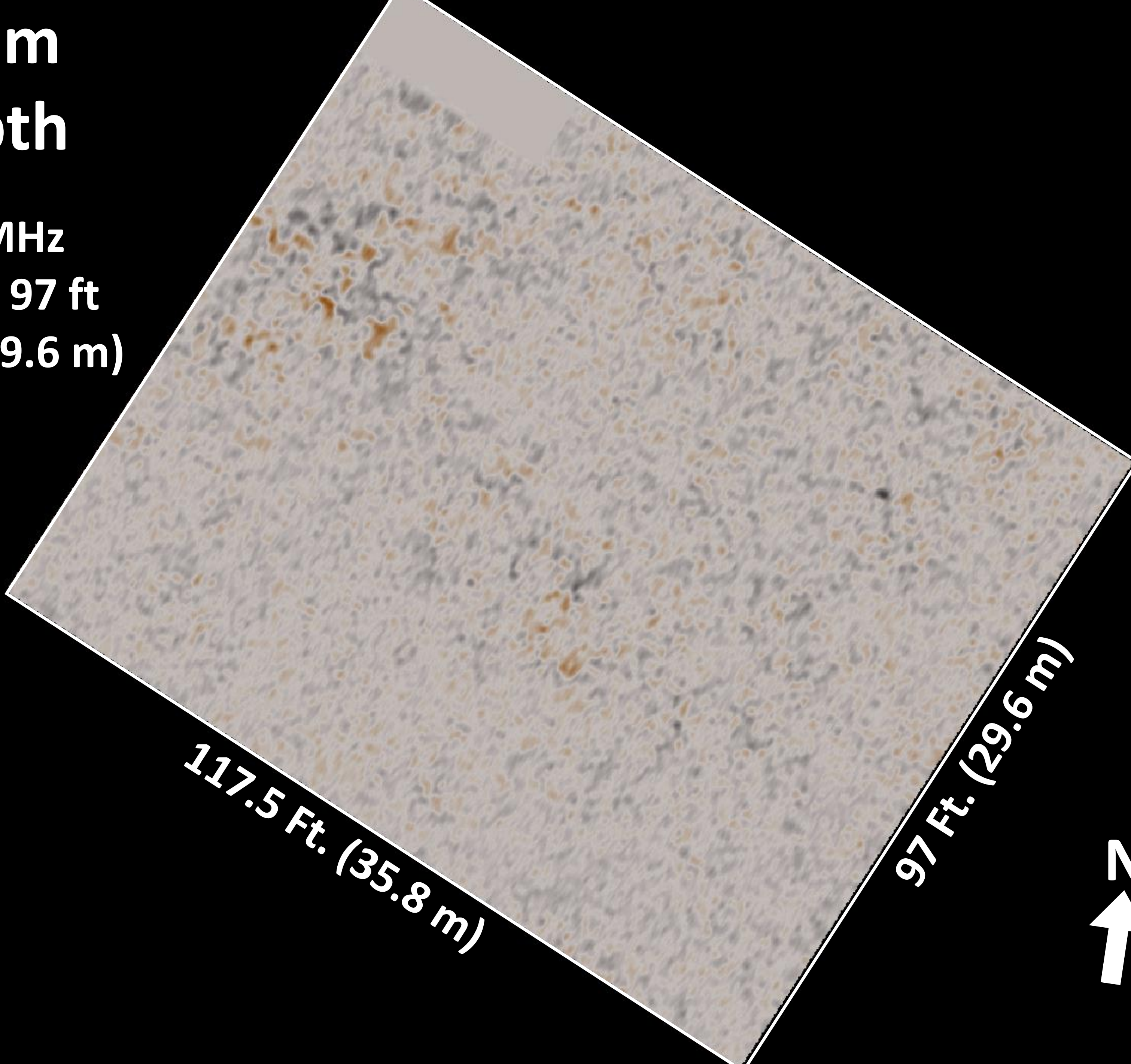
# 2.8 m Depth

**400 MHz**
**117.5 x 97 ft**
**(35.8 x 29.6 m)**



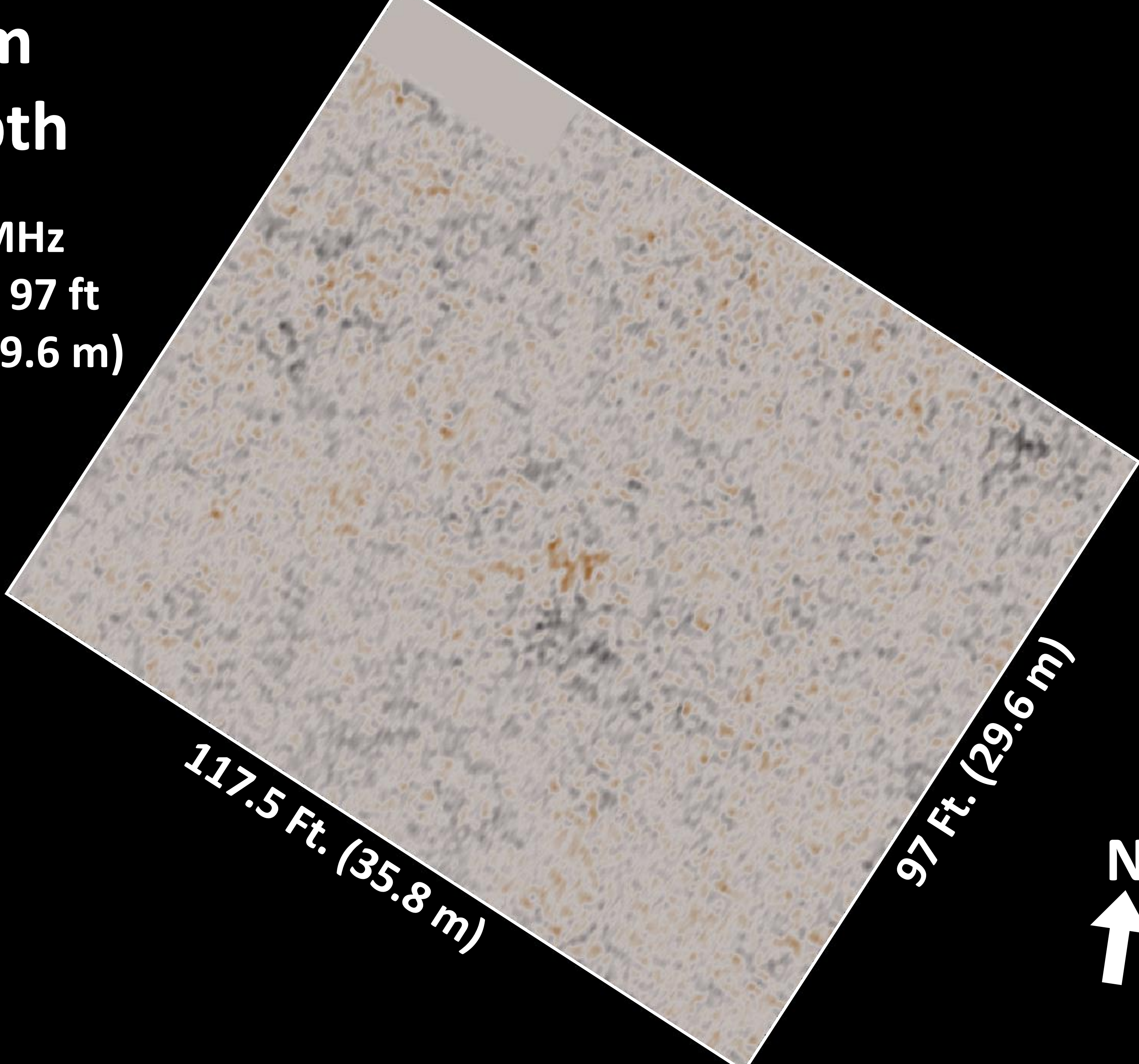
# 2.9 m Depth

**400 MHz**
**117.5 x 97 ft**
**(35.8 x 29.6 m)**



# 3 m Depth

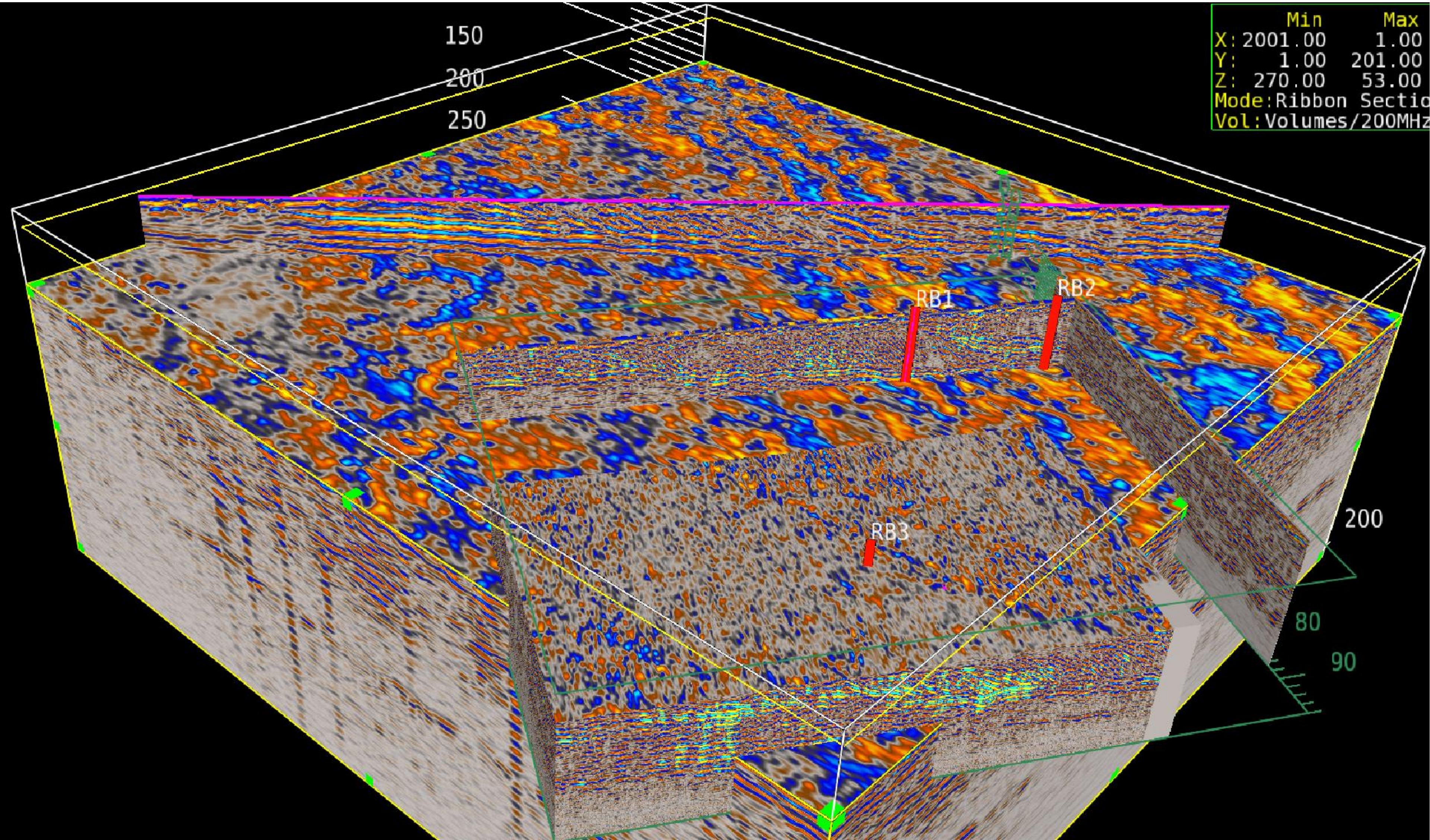
**400 MHz**
**117.5 x 97 ft**
**(35.8 x 29.6 m)**



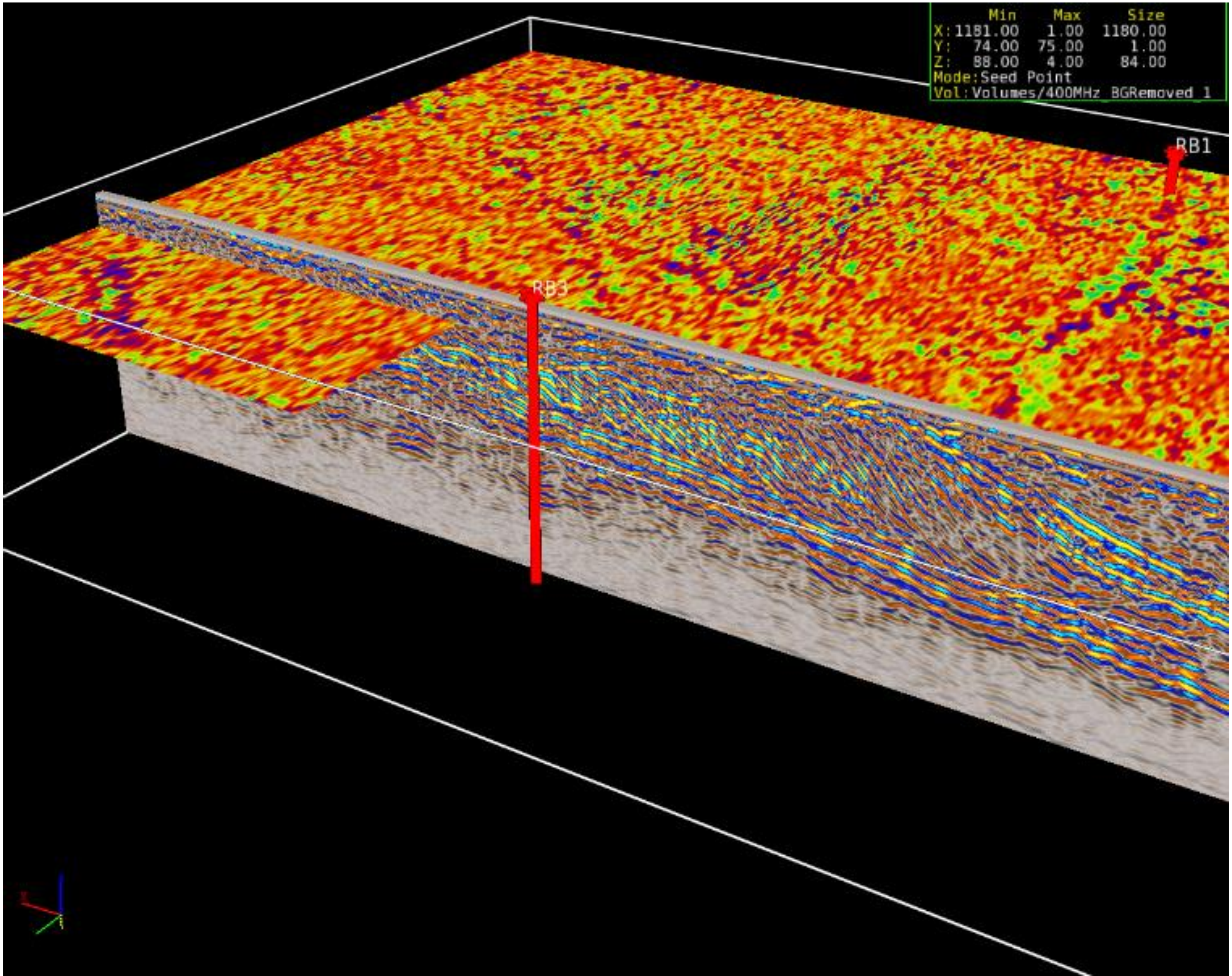
# Outline

1. Introduction
2. Methods
3. The 3D Datasets
4. **Advantages of Seismic Interpretation Software**
5. The Cores
6. Radar Facies
7. Conclusion

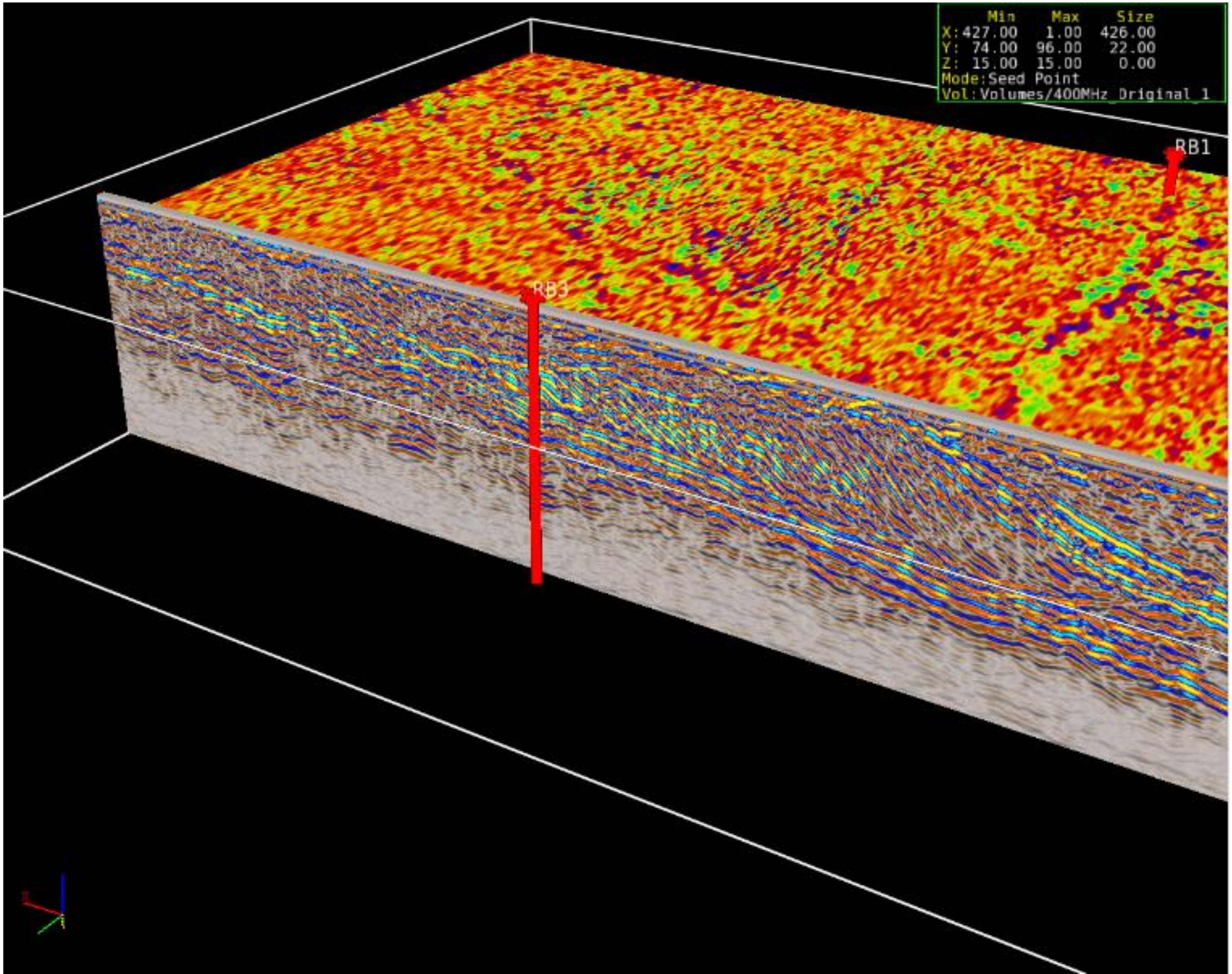
# Benefits of Using Advanced Seismic Interpretation Software



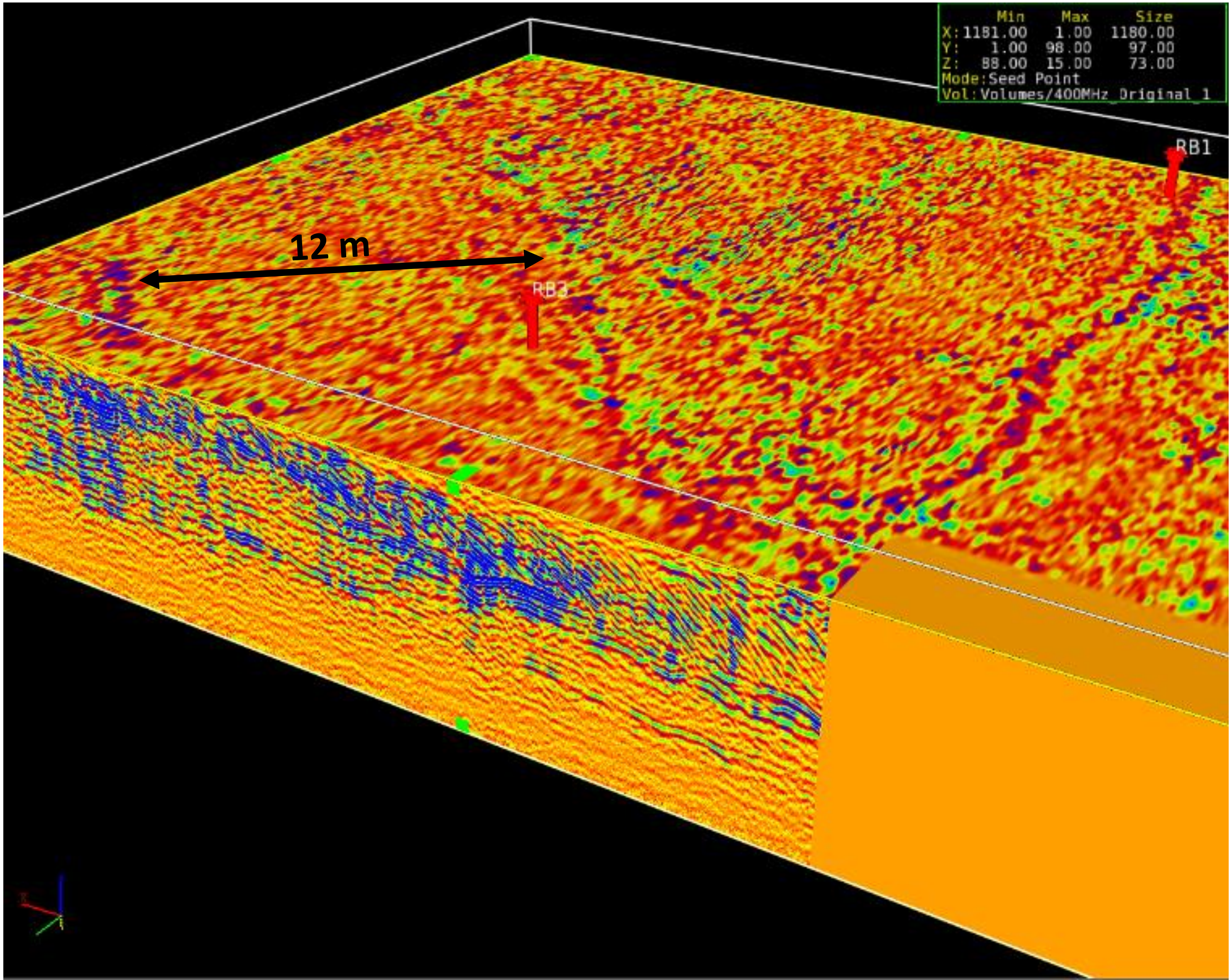
# Benefits of Using Advanced Seismic Interpretation Software



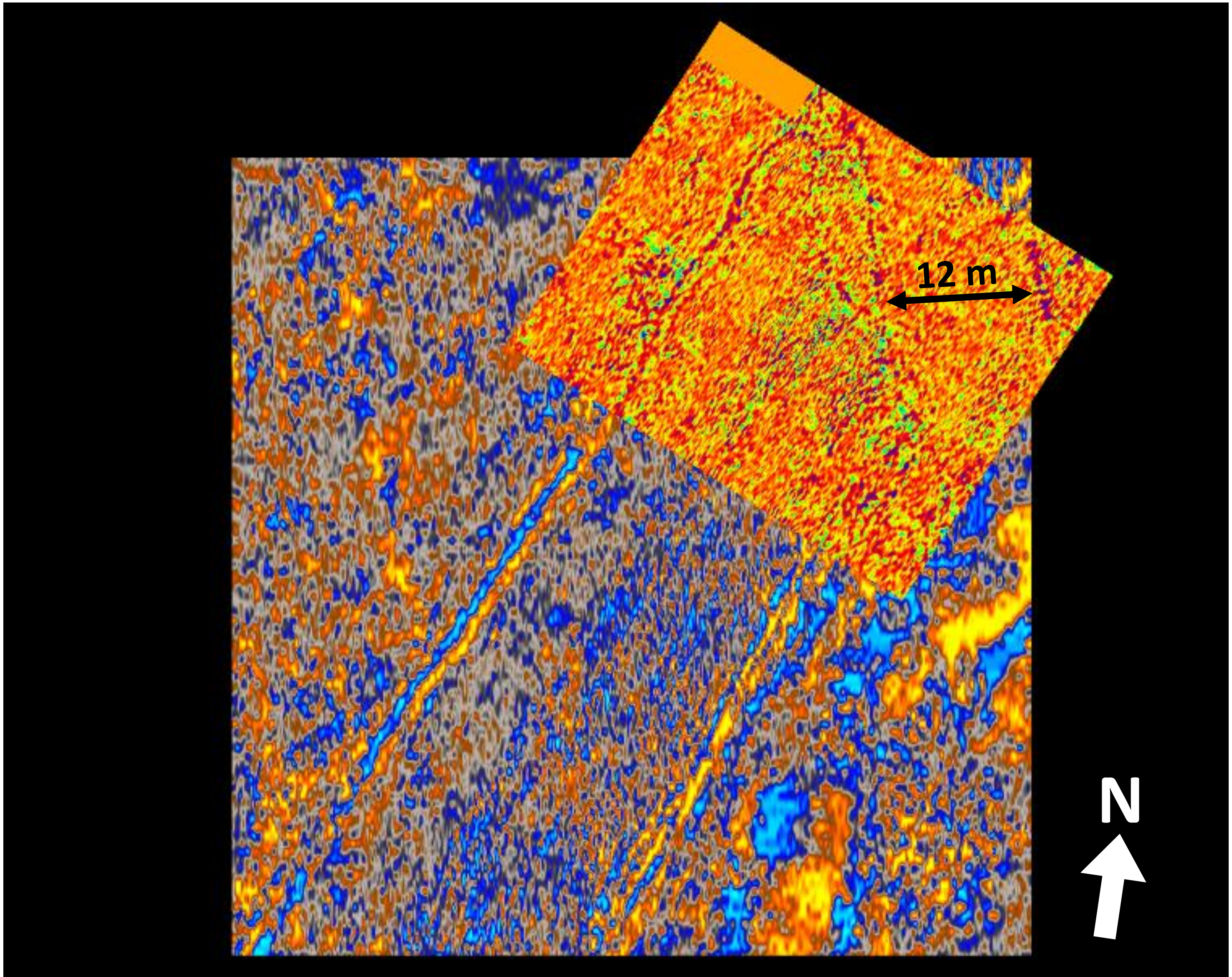
# Benefits of Using Advanced Seismic Interpretation Software



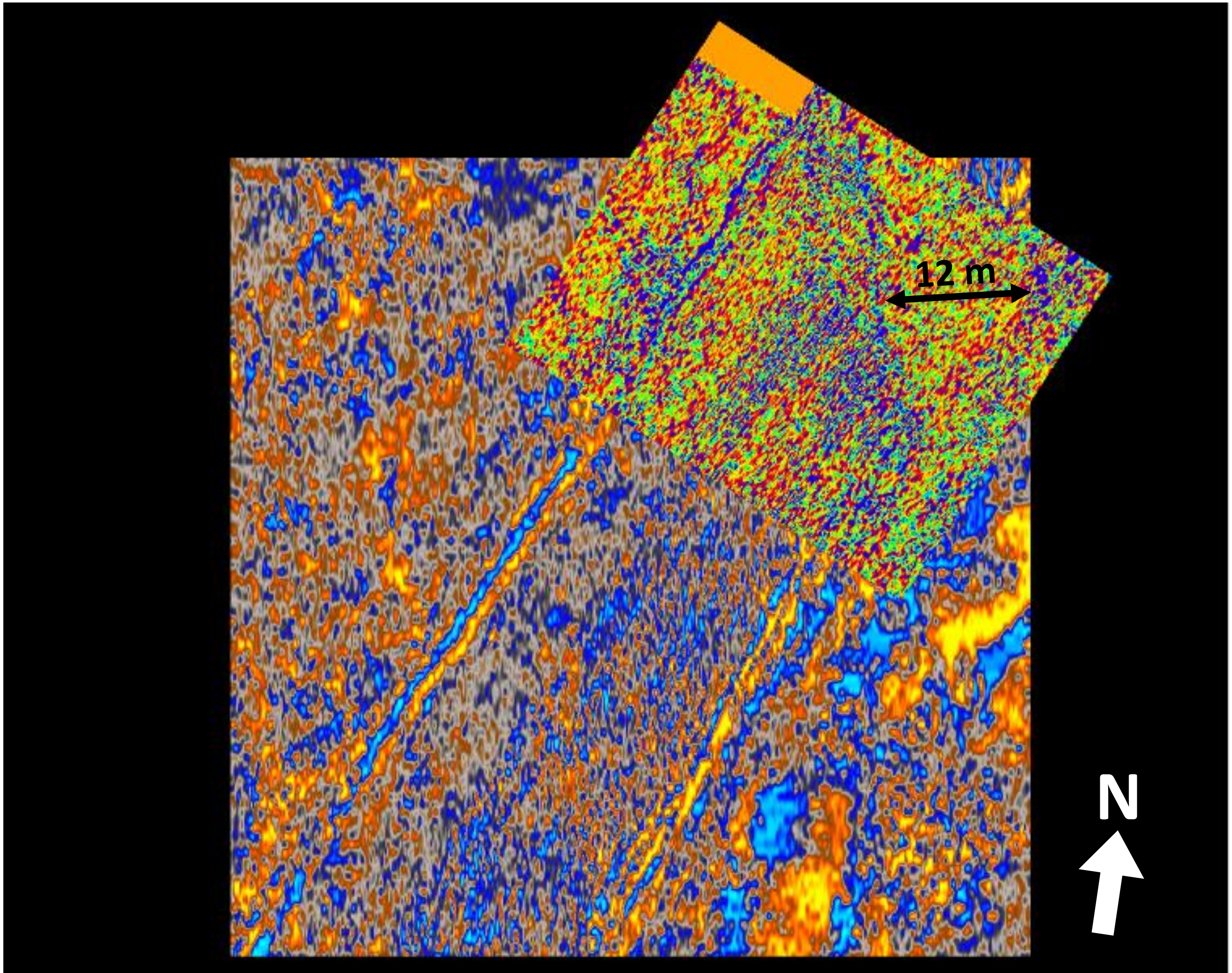
# Benefits of Using Advanced Seismic Interpretation Software



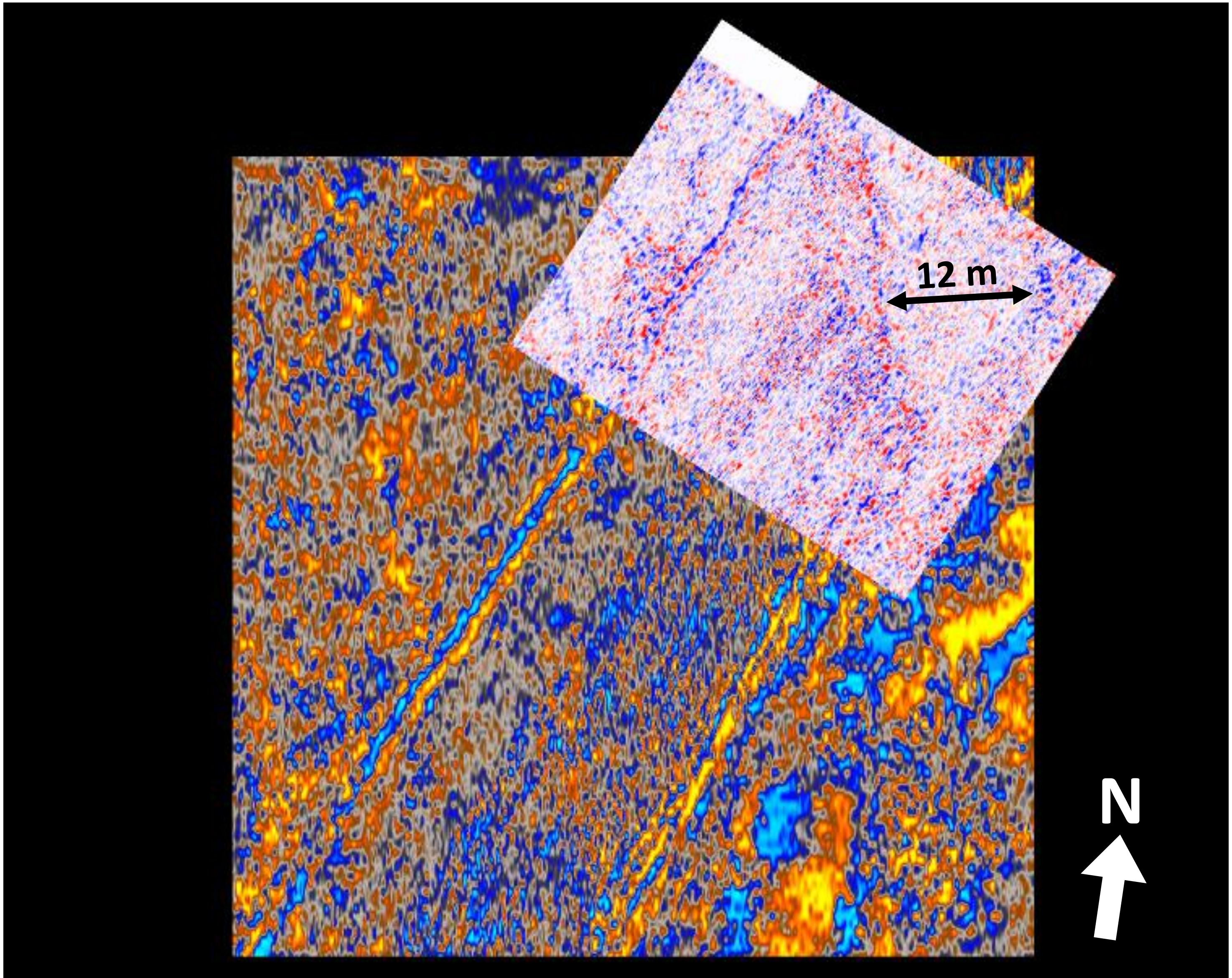
# Benefits of Using Advanced Seismic Interpretation Software



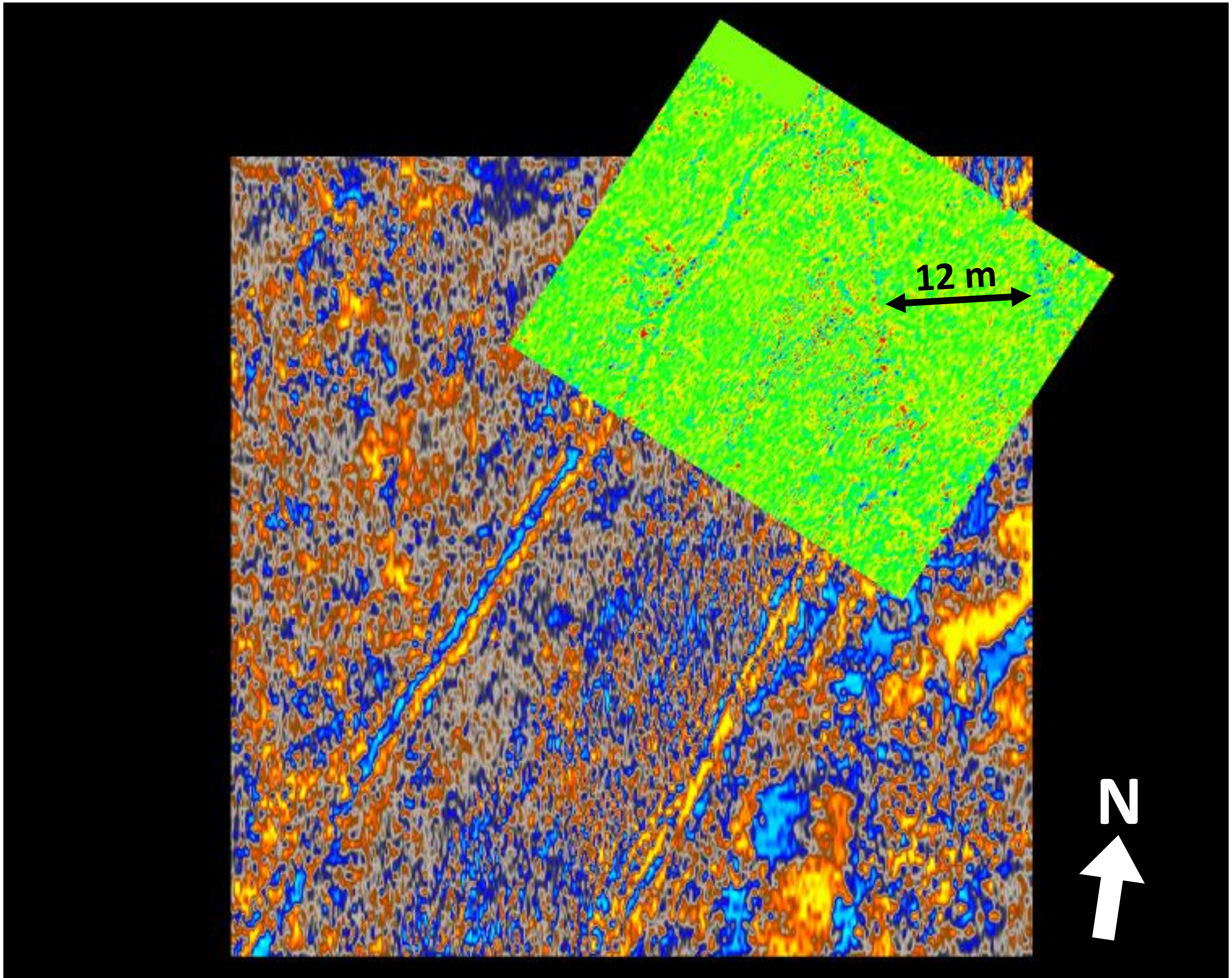
# Benefits of Using Advanced Seismic Interpretation Software



# Benefits of Using Advanced Seismic Interpretation Software



# Benefits of Using Advanced Seismic Interpretation Software



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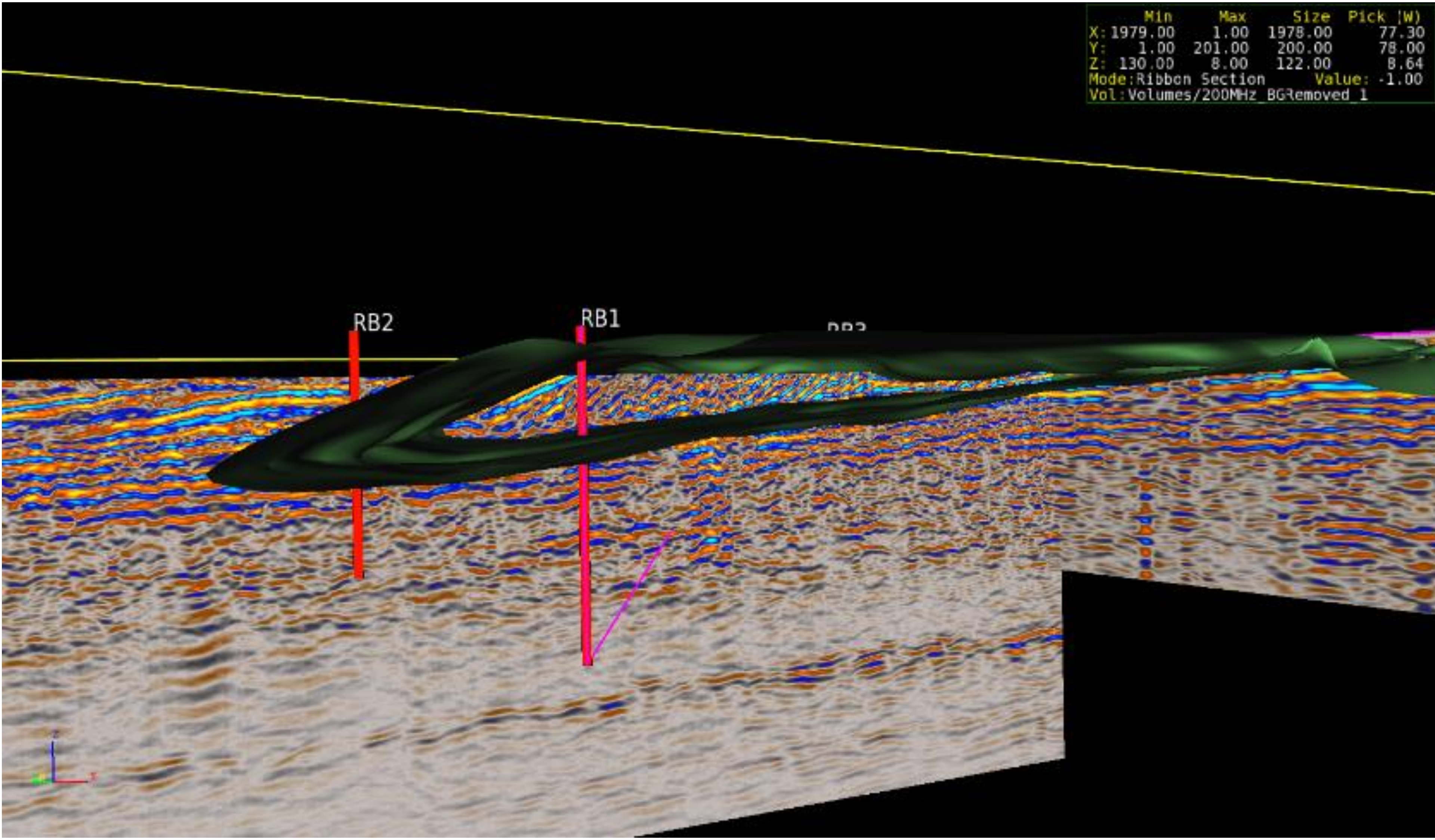

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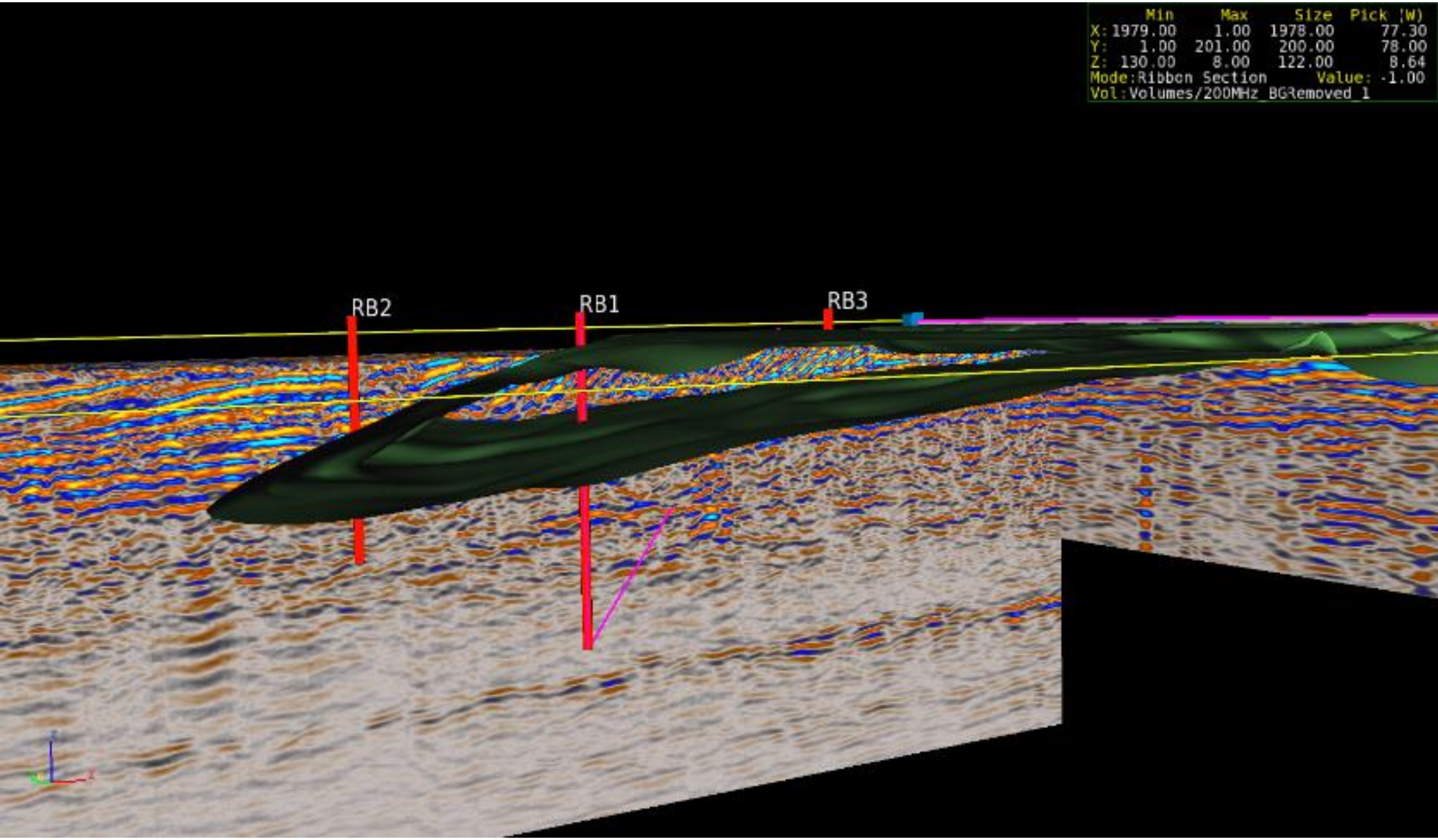
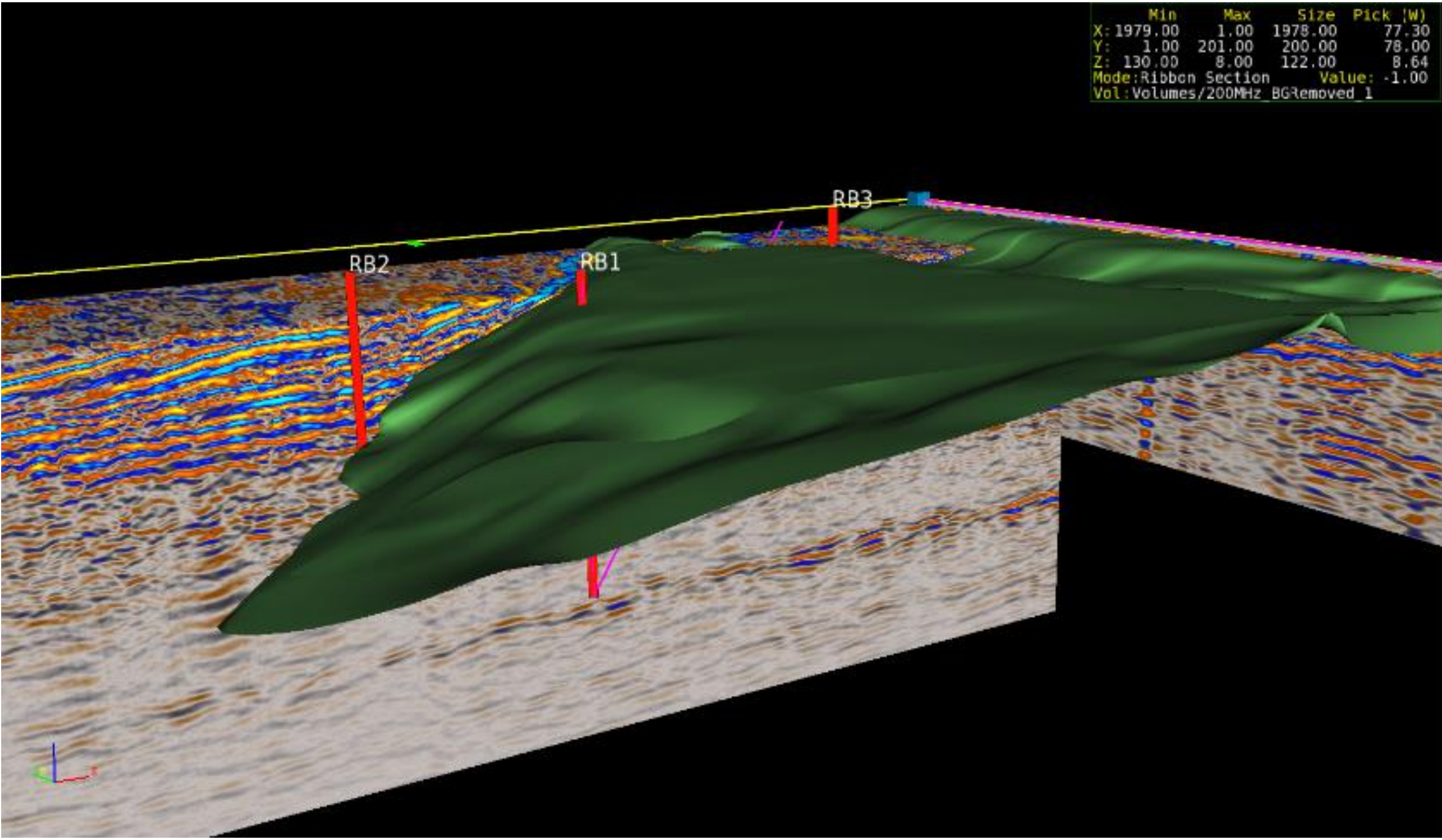
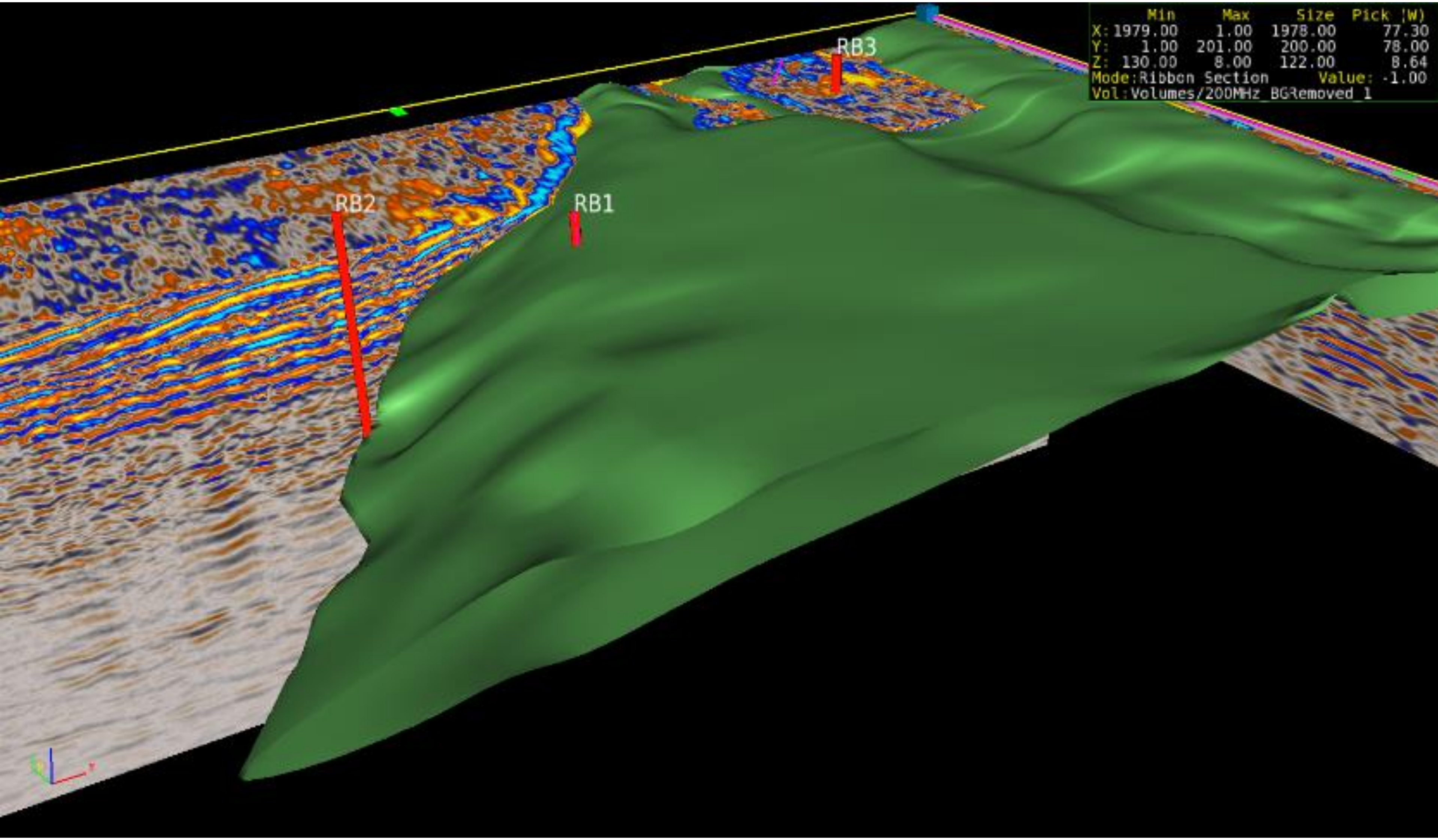


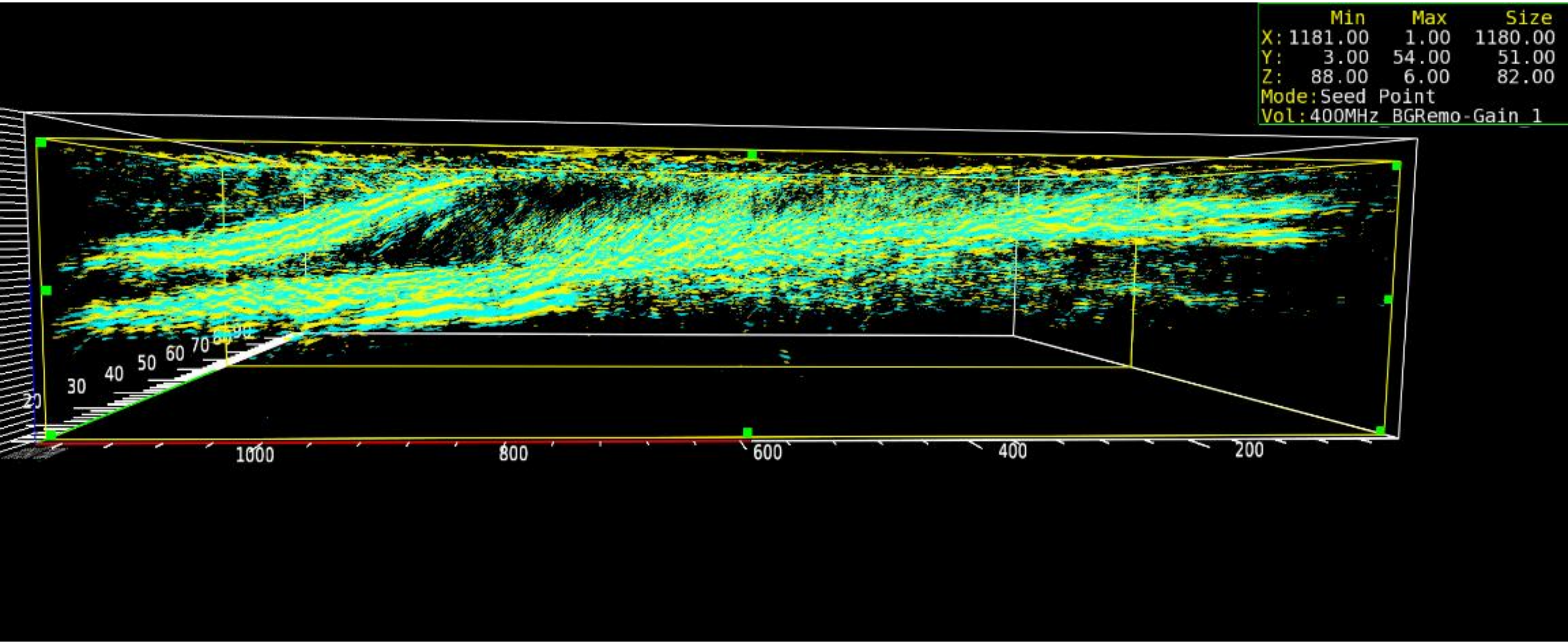
# Benefits of Using Advanced Seismic Interpretation Software



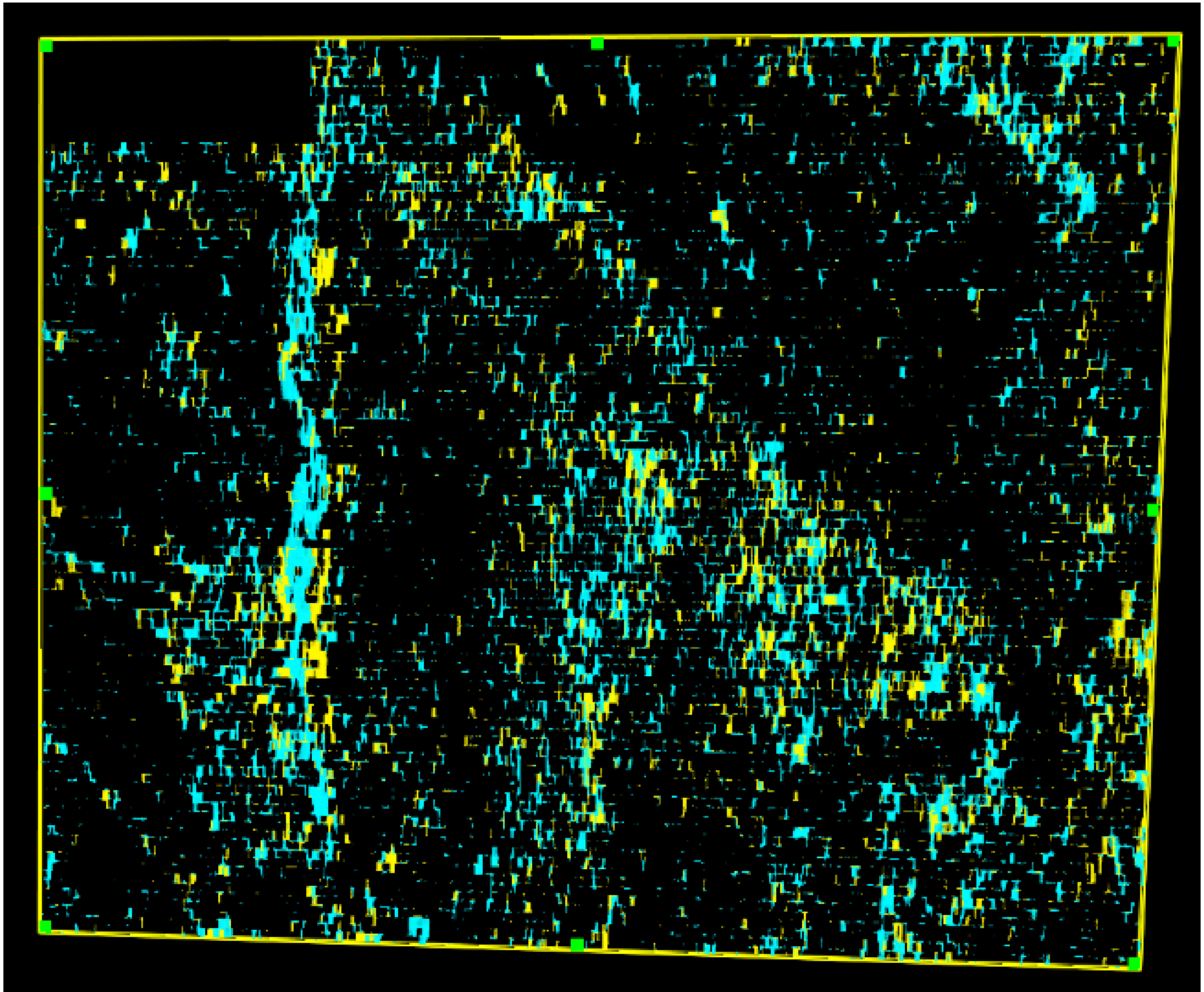
# Benefits of Using Advanced Seismic Interpretation Software



# Benefits of Using Advanced Seismic Interpretation Software



# Benefits of Using Advanced Seismic Interpretation Software



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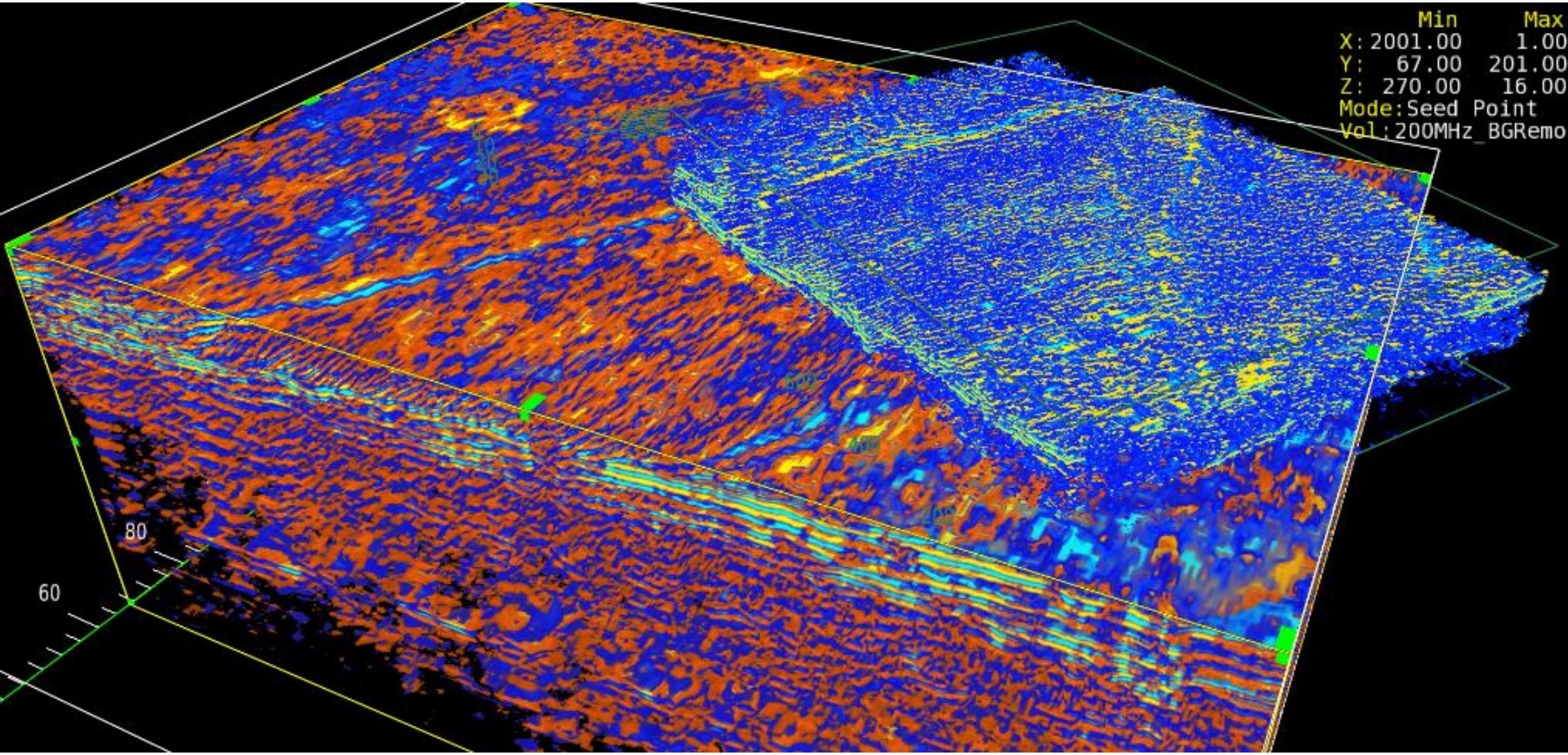
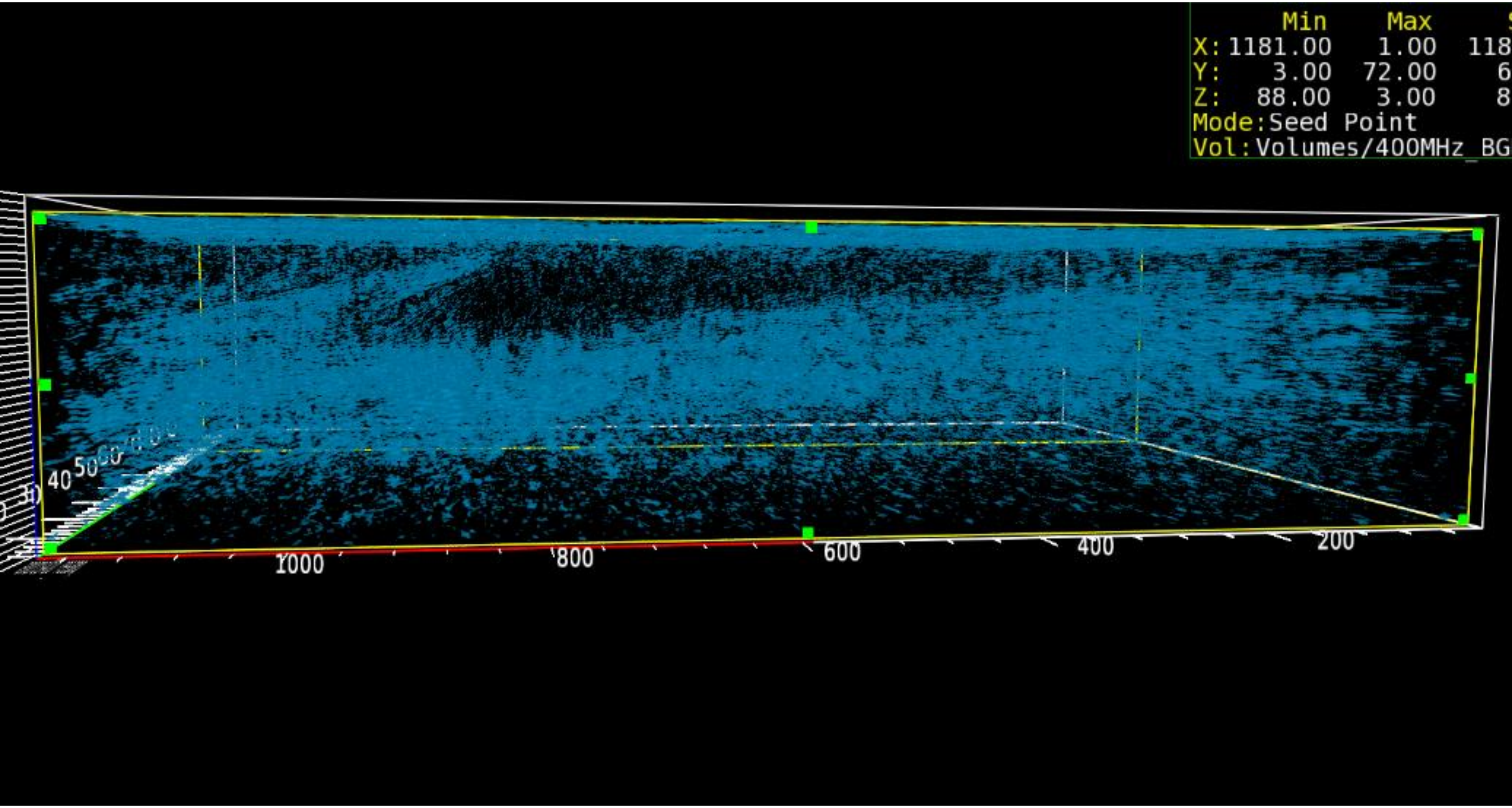


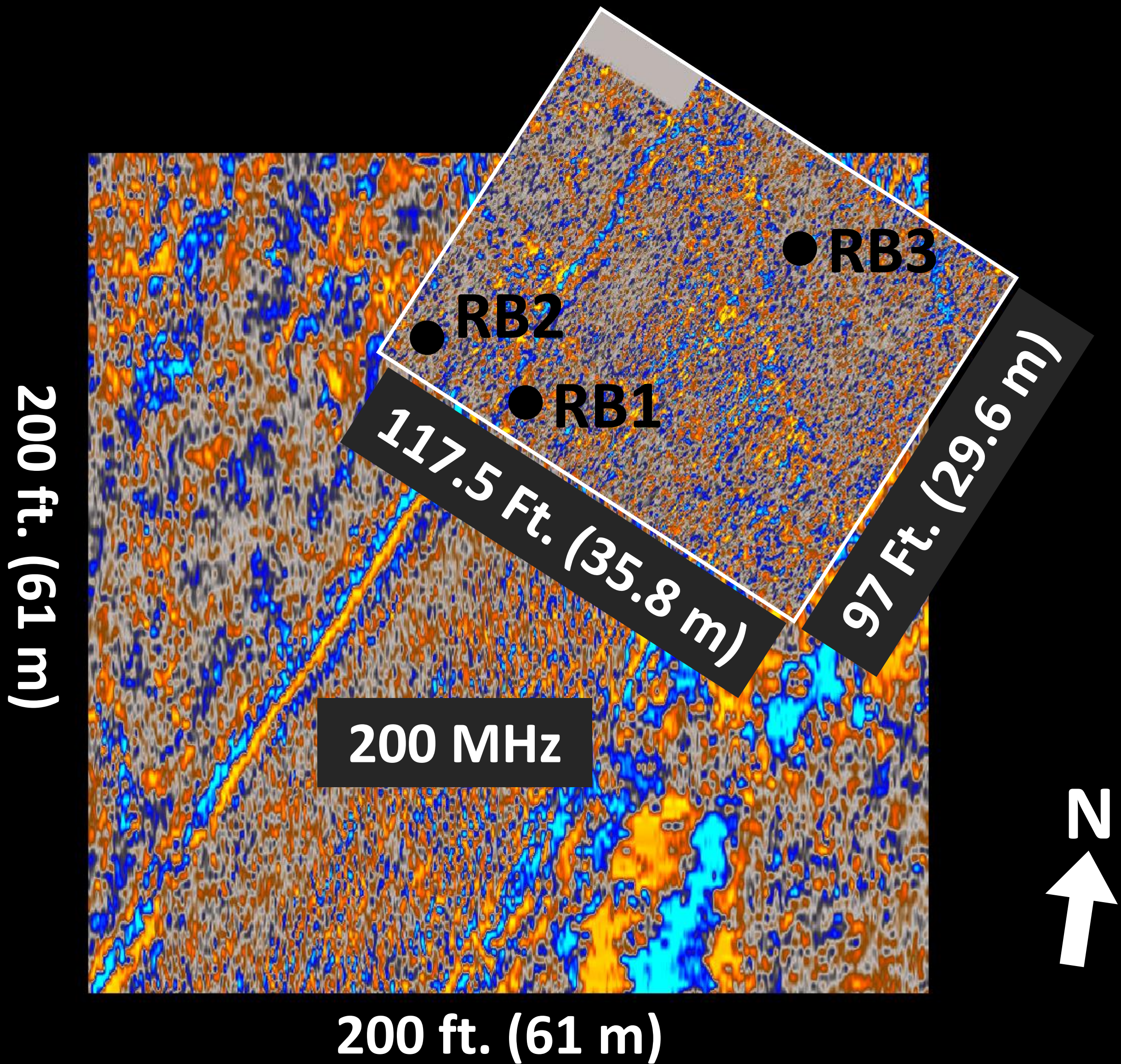
# Benefits of Using Advanced Seismic Interpretation Software



# Outline

1. Introduction
2. Methods
3. The 3D Datasets
4. Advantages of Seismic Interpretation Software
5. **The Cores**
6. Radar Facies
7. Conclusion

# Three Boreholes



# The Cores:
# 38 ft, 11 in. total (~12 m)

**RB1**
**(Crest)**

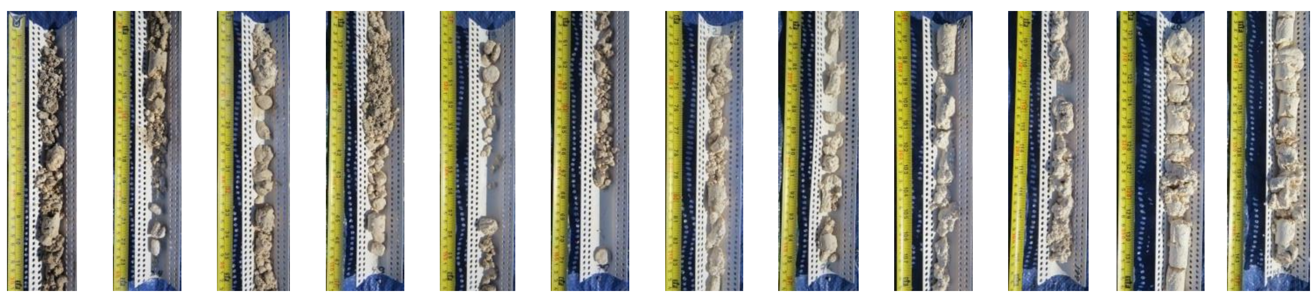
0 ft

2 ft

16 ft 4 in

**RB2**
**(Toe)**

0 ft

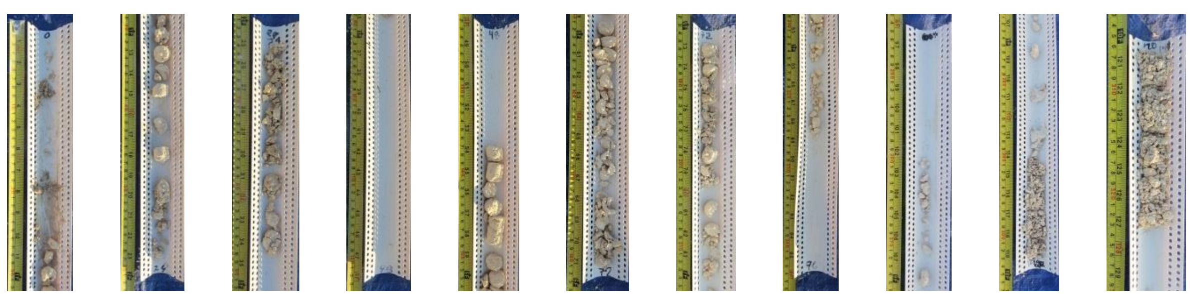


1 ft

12 ft

**RB3**
**(Channel)**

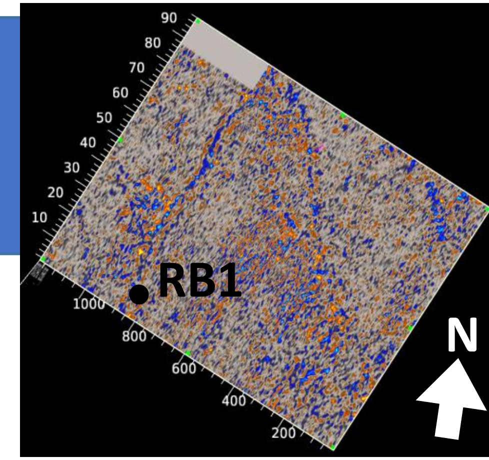
0 ft

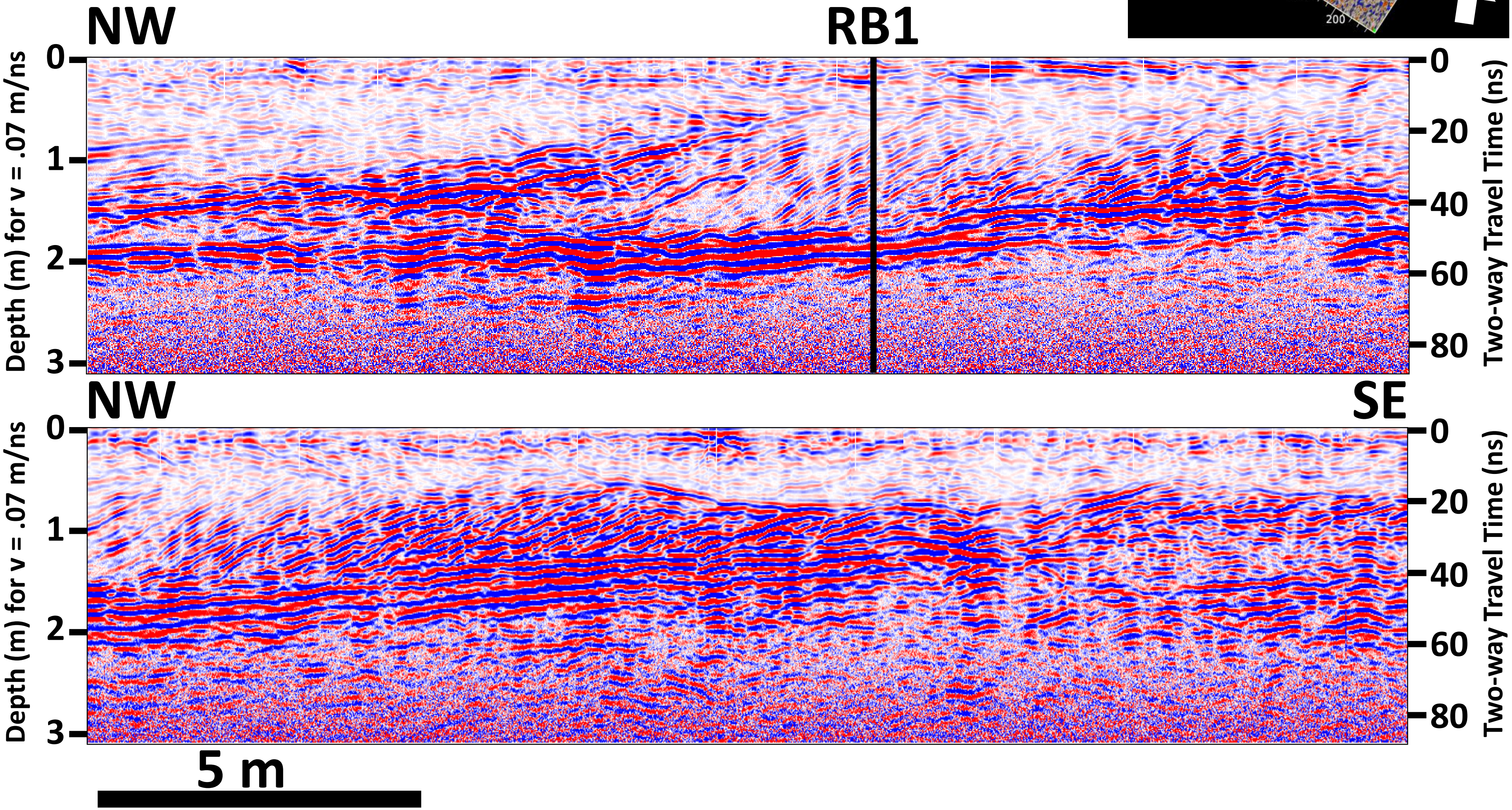


1 ft

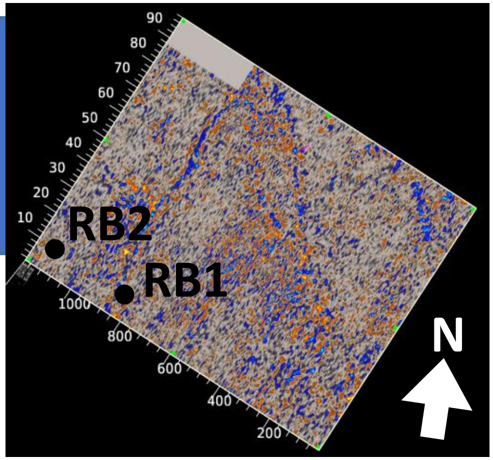
10 ft 7 in

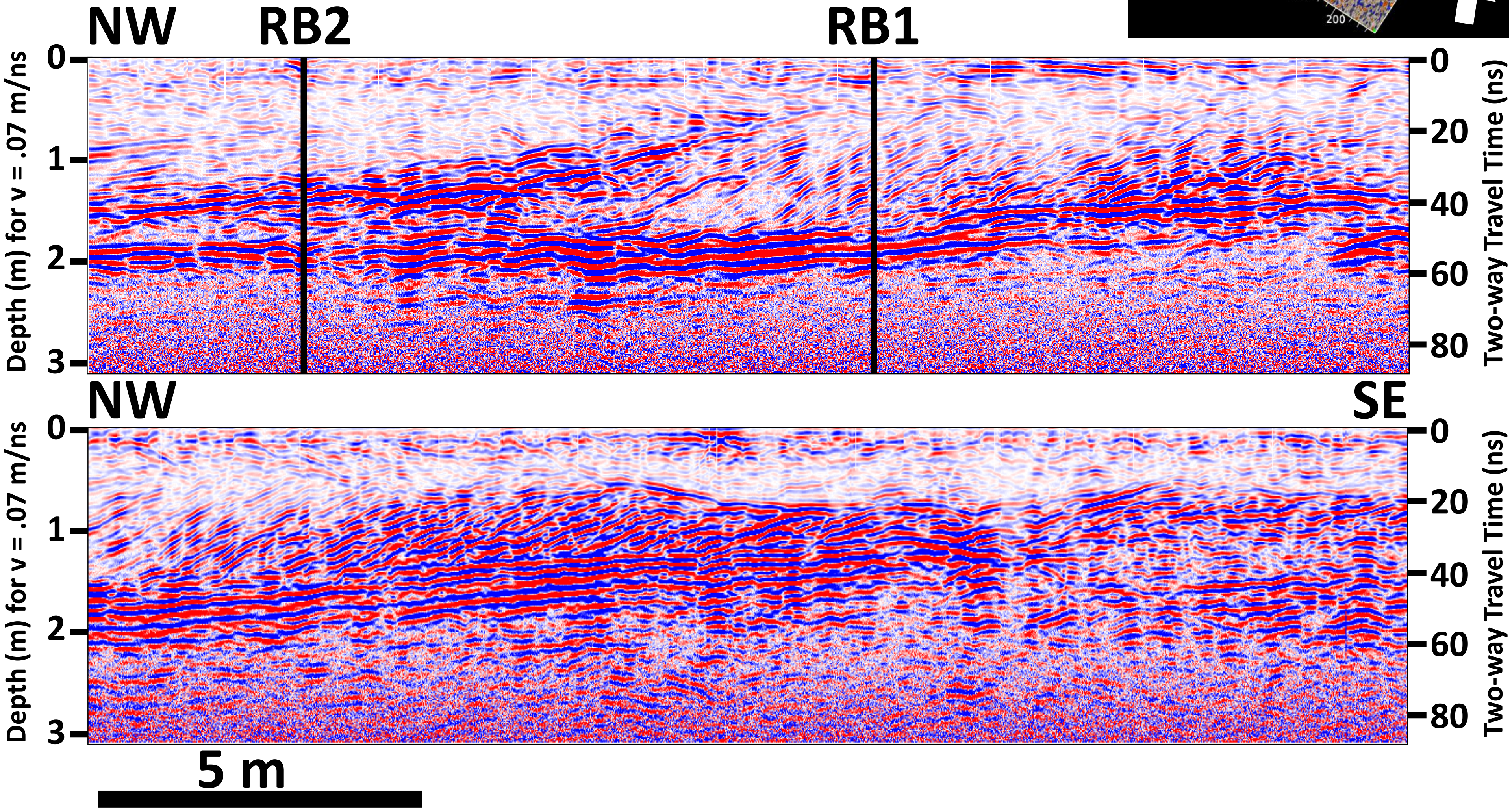
# Core: RB1
# (Crest of Sand Wave)



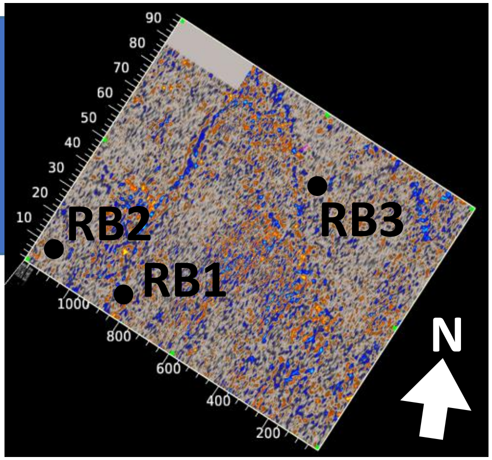



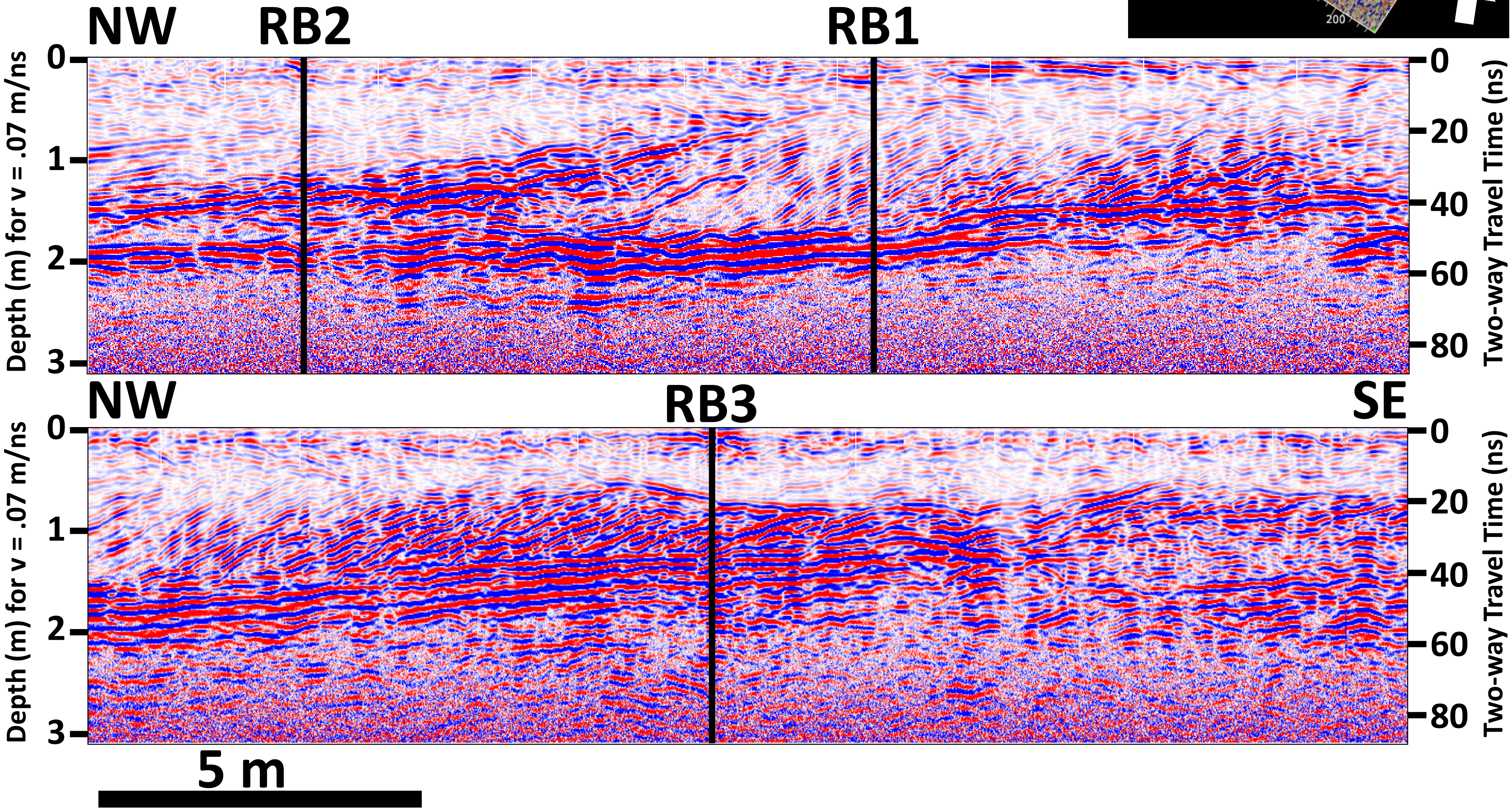
# Core: RB2
# (Toe of Sand Wave)



# Core: RB3 (Channel)



# Outline

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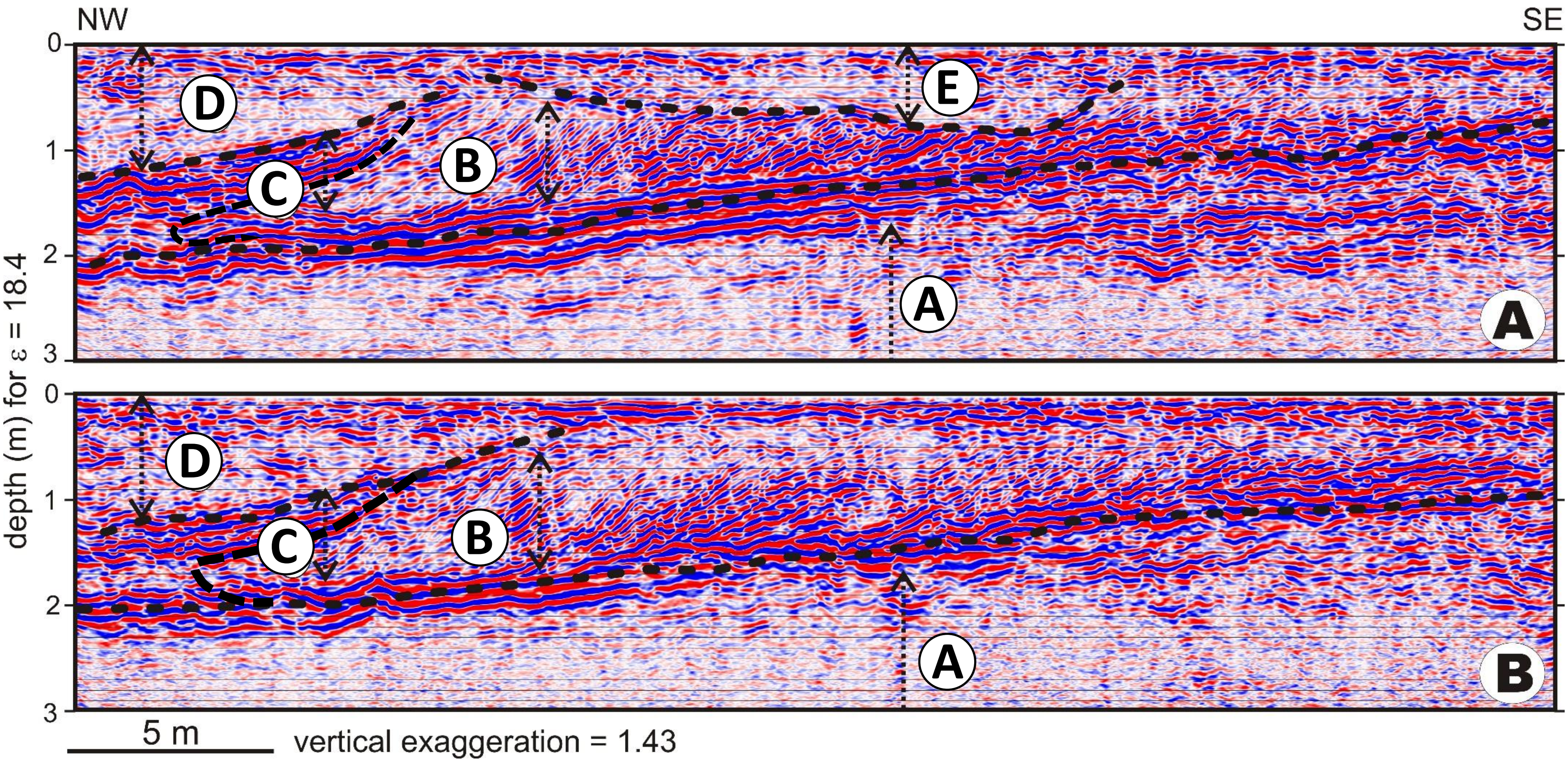
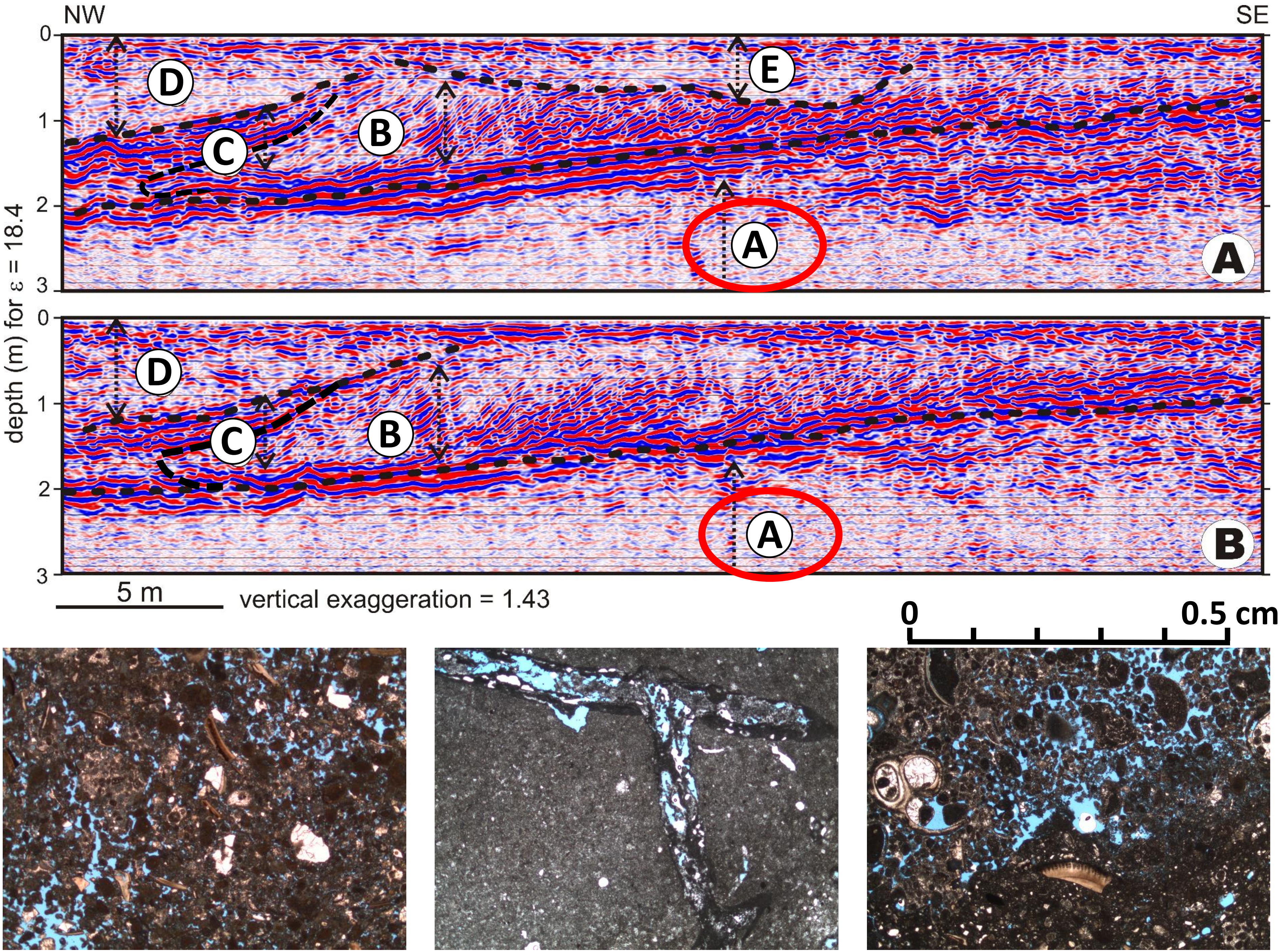
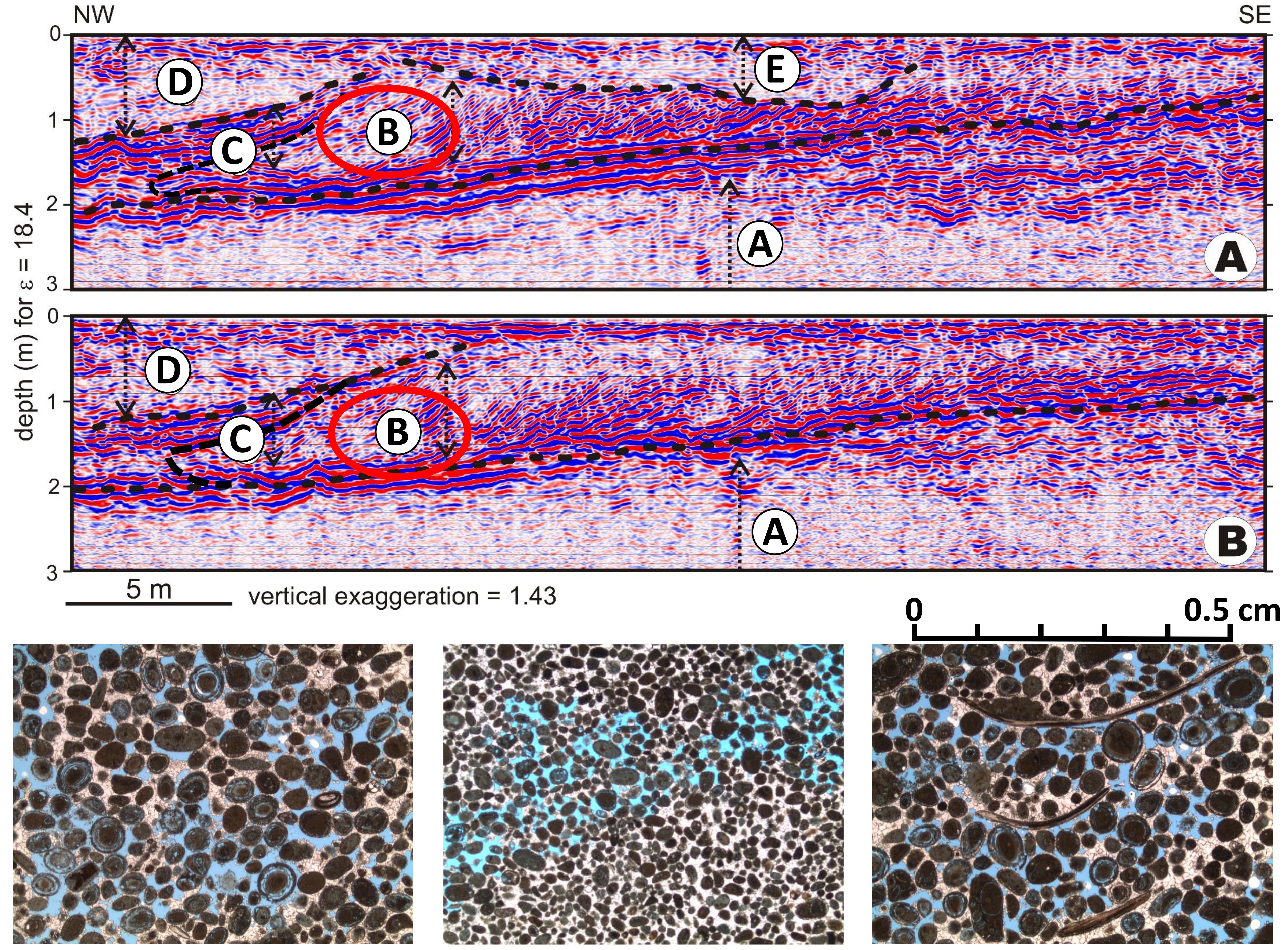
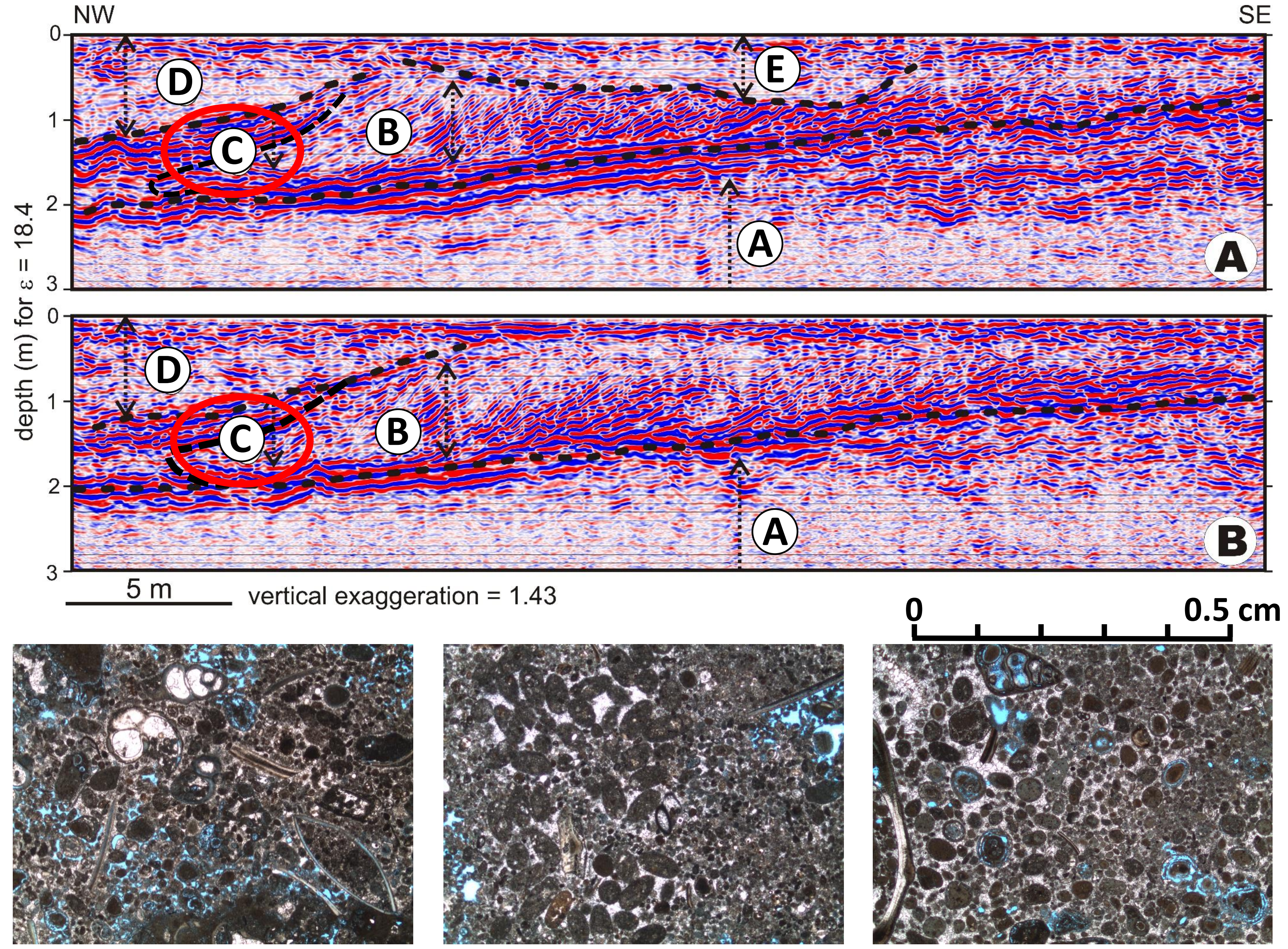
# Radar Facies




NW
SE
0
1
2
3
depth (m) for ε = 18.4
D
E
C
B
A
A
D
C
B
A
B
5 m
vertical exaggeration = 1.43
0
0.5 cm



NW
SE
0
1
2
3
depth (m) for ε = 18.4
D
E
B
C
A
A
D
B
C
A
B
5 m
vertical exaggeration = 1.43
0
0.5 cm


NW
SE
depth (m) for ε = 18.4
0
1
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D
C
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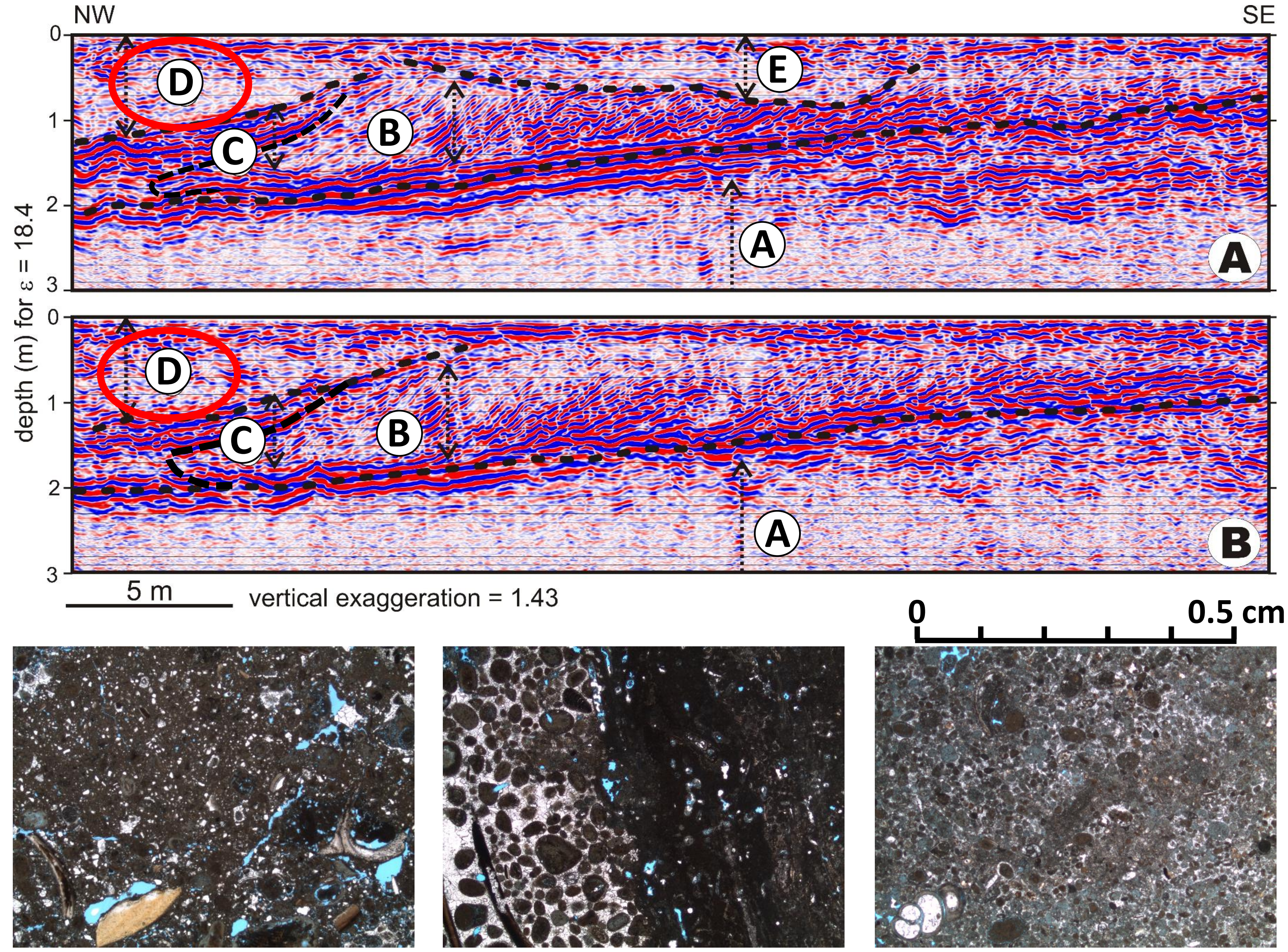
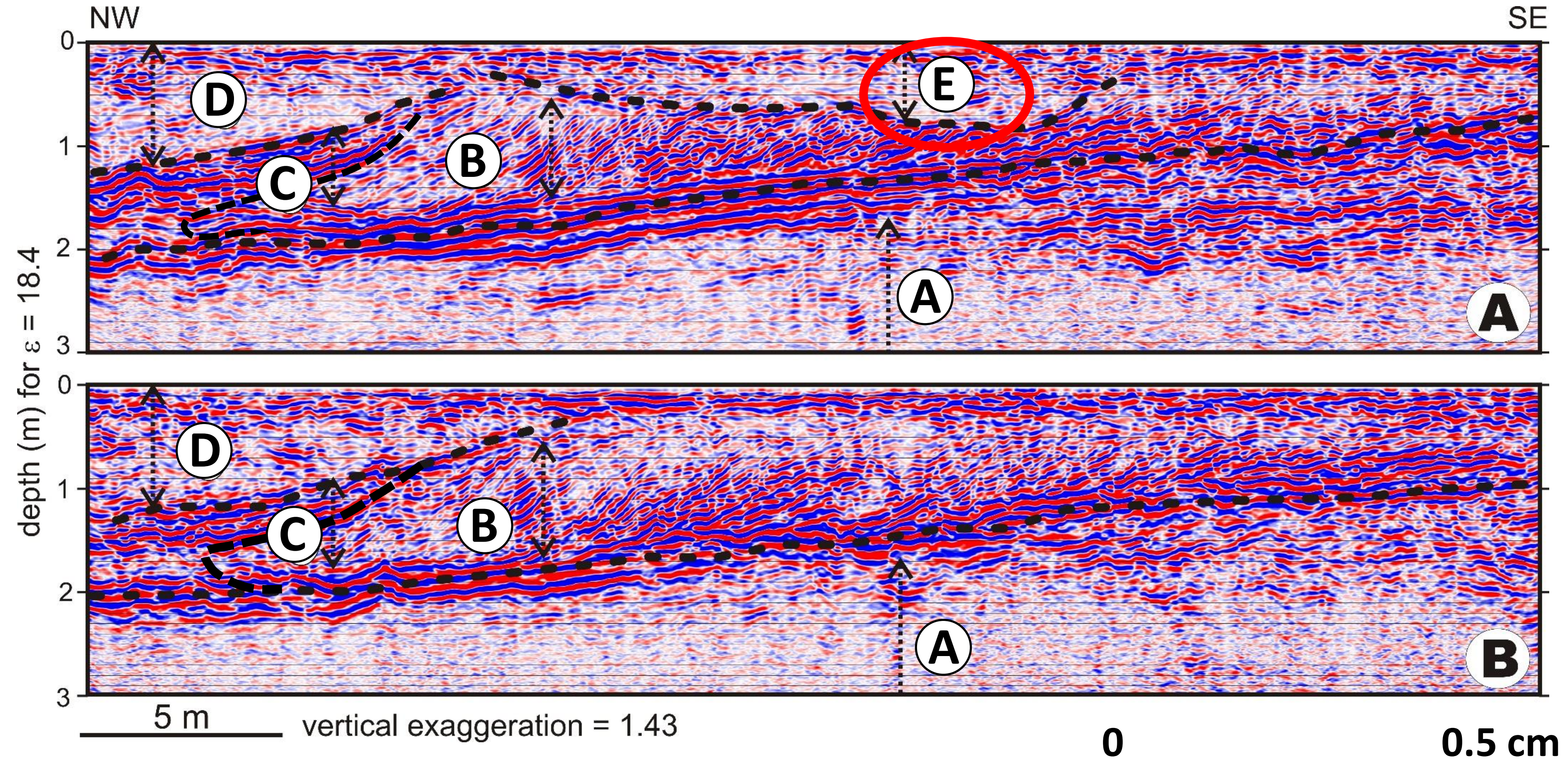
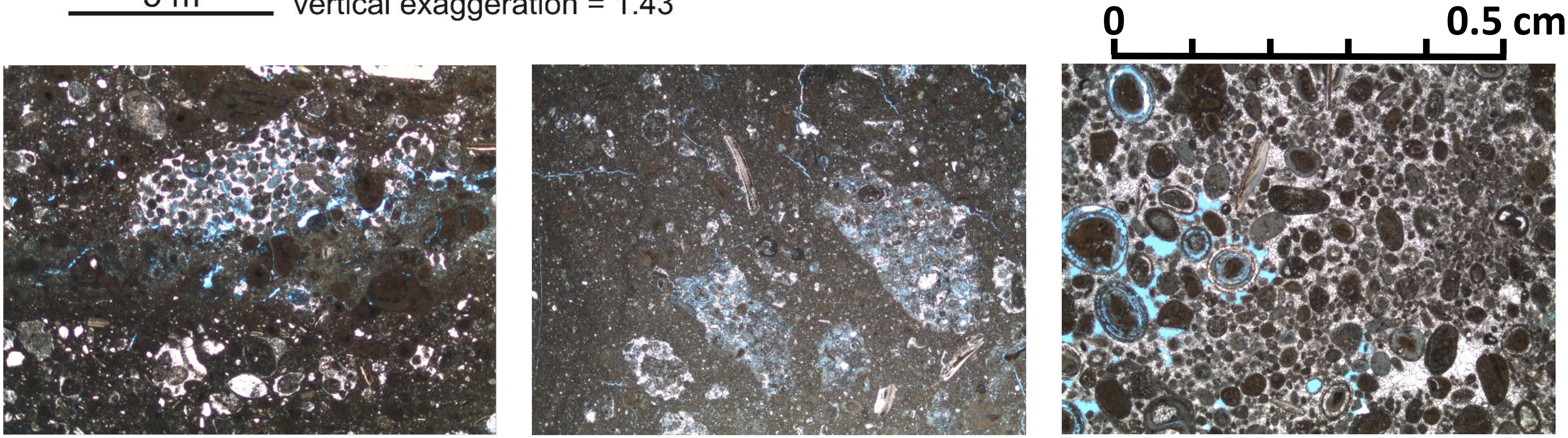
E
A
5 m
vertical exaggeration = 1.43
0
0.5 cm



NW
SE
D
E
B
C
A
A
B
depth (m) for ε = 18.4
0
1
2
3
5 m
vertical exaggeration = 1.43
0
0.5 cm


NW
SE
0
1
2
3
depth (m) for ε = 18.4
D
E
C
B
A
A
B
5 m
vertical exaggeration = 1.43


0
0.5 cm

# Conclusion

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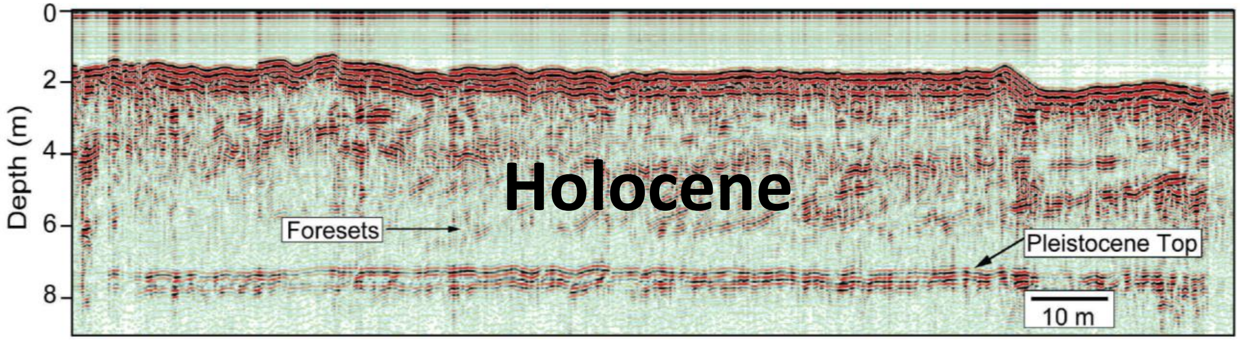
- 3D GPR imaging captures the complex heterogeneity and process sedimentology of a carbonate paleoenvironment, which are often missed in 2D studies
- Clean sediment from the sand wave is surrounded by muddy sediments, giving insights into aquifer/reservoir fluid flow and compartmentalization at the sub-seismic scale
- The presence of a clean, oolitic sand wave on NW Andros Island indicates a relatively high-energy environment once existed in an area previously assumed to be a low-energy, back-shoal environment, and offers new insights where no outcrops are available.

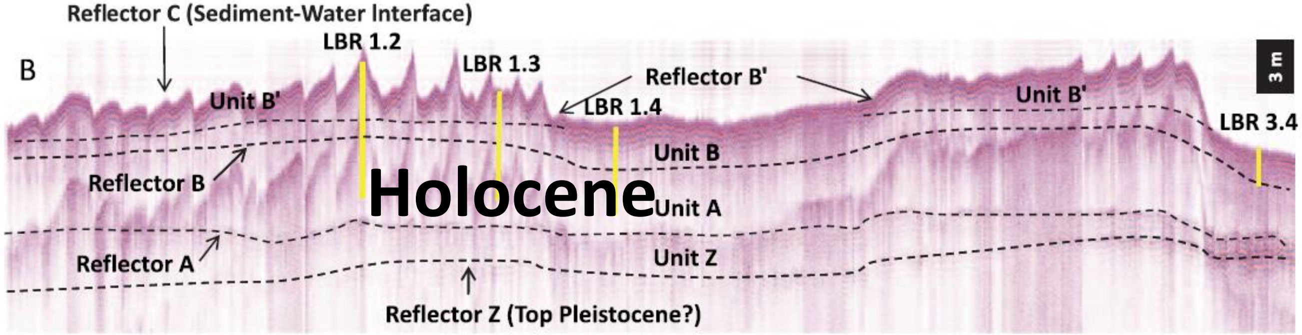
# Sequence Thicknesses for Thought

~5.5 m
(18 ft)



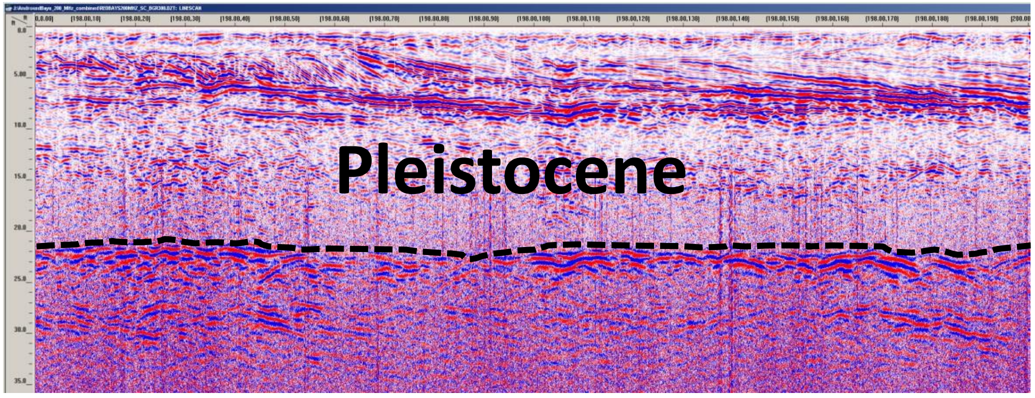

Cruz, 2007
(Cat Cay)

~7.5 m
(25 ft)




Sparks &
Rankey, 2013
(Lily Bank)

~6.5 m
(21 ft)

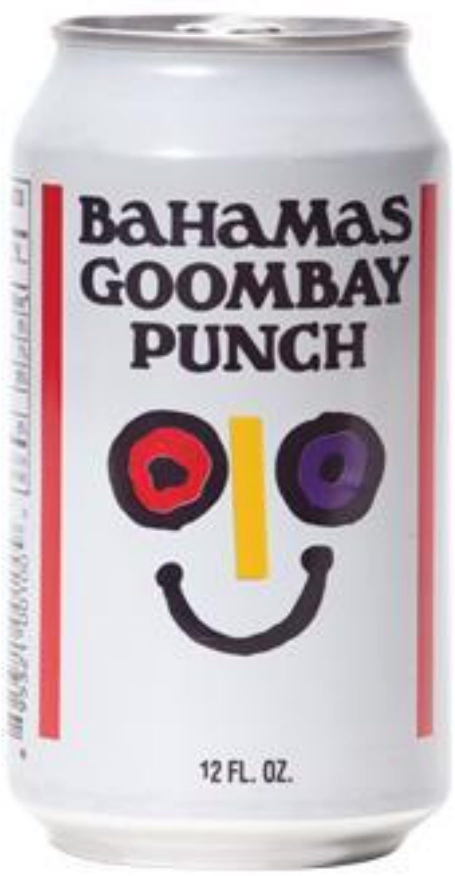



This Study

# Acknowledgements


- My professors
- Landmark (Halliburton)
- BYU College of Physical and Mathematical Sciences

# Thank You!



# References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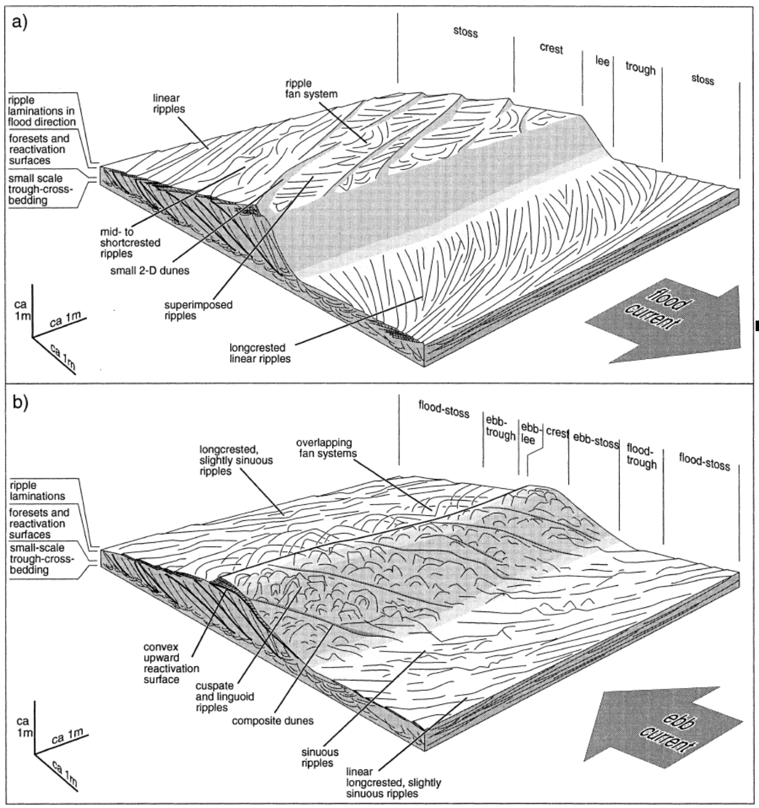
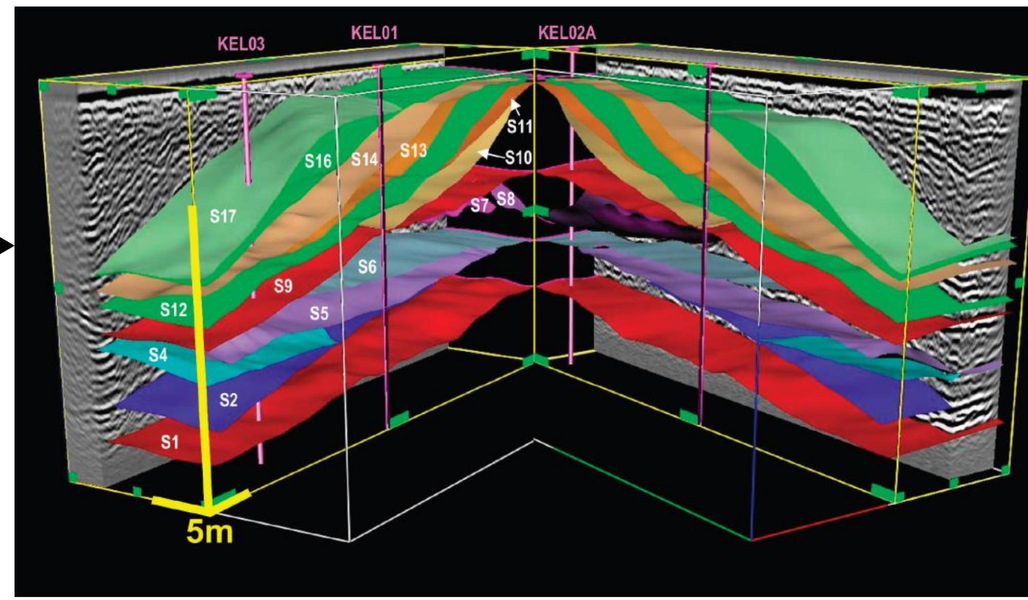
- Sparks, A. G., and Rankey, E. C., 2013, Relations between geomorphic form and sedimentologic-stratigraphic variability: Holocene ooid sand shoal, Lily Bank, Bahamas:  AAPG Bulletin, v. 97, p. 61-85.

# Why Ground-Penetrating Radar (GPR)?

**Models** **vs.** **3D GPR**




Gonzalez and Eberli, 1997

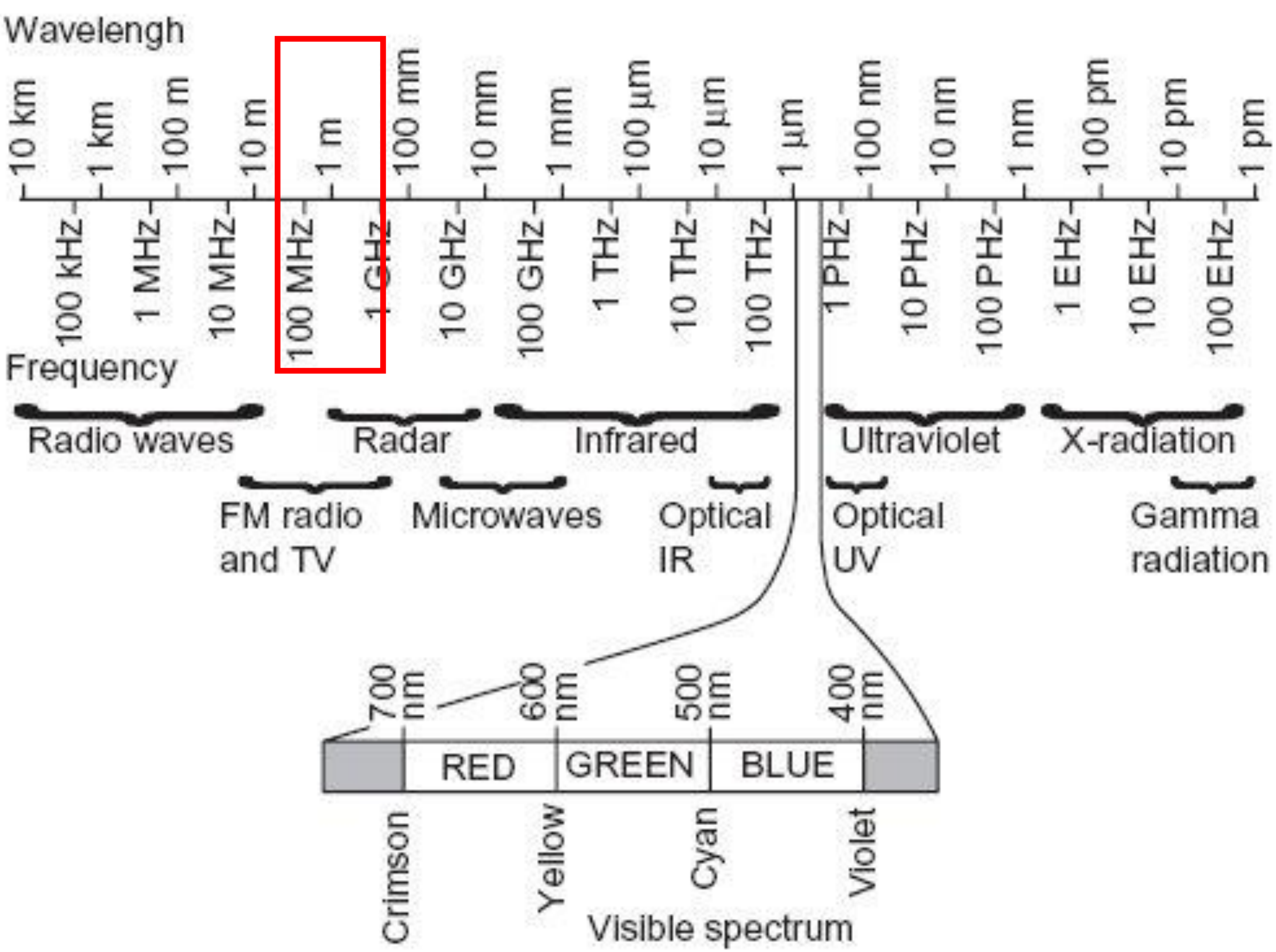



Neal et al., 2008

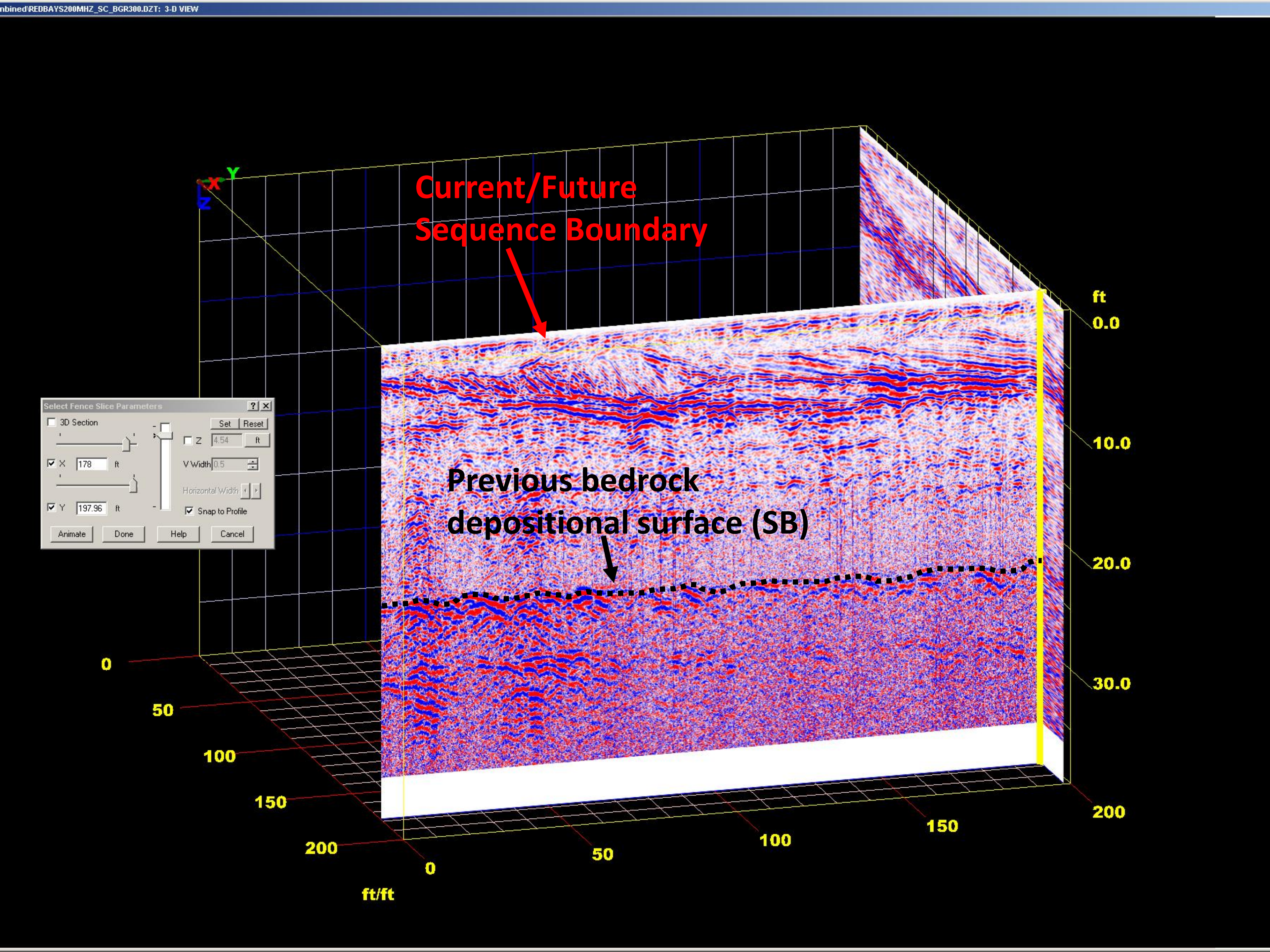
# Resolution

- “GPR can detect geological features thinner than the calculated vertical resolution (Grasmueck 1996; Lane et al. 2000), in this case ‘‘thin’’ beds (0.1 m 2 0.01 m) and laminae (, 0.01 m). Under these circumstances the radar response constitutes an interference pattern still providing useful information, namely the average dip angle and direction of crossbed sets or sets of laminae (Kruse and Jol 2003; Guha et al. 2005)” (Neal et al., 2008).

# 200 MHz and 400 MHz Antennas




http://content.answcdn.com/main/content/img/oxford


nbined\REDBAYS200MHZ_SC_BGR300.DZT: 3-D VIEW
Current/Future
Sequence Boundary
Previous bedrock
depositional surface (SB)
Select Fence Slice Parameters
3D Section
Set
Reset
Z
4.54
ft
X
178
ft
V Width
0.5
Horizontal Width
Y
197.96
ft
Snap to Profile
Animate
Done
Help
Cancel
ft
0.0
10.0
20.0
30.0
200
150
100
50
0
ft/ft