Tap Oil T/47 3D PSTM

Swell Noise Attenuation Test
Sail line 1198P1049
Shots display

Processing Flow

- Reformat

- Navigation merge

- Low cut filter 3Hz 18dB

- De-signature

- Resample to 4ms using AA filter 110Hz 96dB

- Source and receiver correction

- Spherical divergence correction V*V*T

- Swell noise attenuation Test

CGGVERITAS

Test Summary

- Four tests have been conducted:

- **Test 1**
    - The test is conducted in shot domain
    - Parameters are:
    - Frequency range: 0 to 20 Hz
    - No. of traces : 101
    - Window length: 0 to 6000ms
    - Start time: Time   channel

| Time	channel
1160	1
1500	75
1750	115
2000	160
4700	480

    - Threshold tested: 2.0, 2.25 and 2.5

Test Summary

- **Test 2**

  - The test is conducted in Channel domain

  - Parameters are:

  - Frequency range: 0 to 20 Hz

  - No. of traces : 101

  - Window length: 0 to 6000ms

  - Start time: 1300ms

  - Threshold tested: 1.25, 1.5 and 1.75

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Test Summary

- **Test 3**
  - The test is conducted in Channel domain + Shot domain
  - First pass of swell noise attenuation is done in channel domain and second pass in shot domain
  - Parameters are:
  - Frequency range: 0 to 20 Hz
  - No. of traces : 101
  - Window length: 0 to 6000ms
  - Start time for 1st pass is 1300ms
  - Start time for 2nd pass is

Time	channel
1160	1
1500	75
1750	115
2000	160
4700	480

  - Threshold used: 1.5 for 1st pass and 2.25 for 2nd pass

Test Summary

- **Test 4**
  - The test is conducted in shot domain
  - Two passes of swell noise attenuation is done – 1st pass is for swell noise attenuation and 2nd pass is for despiking
  - Parameters for 1st pass are:
  - Frequency range: 0 to 20 Hz
  - No. of traces : 101
  - Window length: 0 to 6000ms
  - Threshold used: 2.25
  - Parameters for 2nd pass are:
  - Frequency range: 0 to 70 Hz
  - No. of traces: 41
  - Window length: 500ms
  - Threshold tested: 1.75, 2.0 and 2.25
  - Start time is same for both passes:

Time	channel
1160	1
1500	75
1750	115
2000	160
4700	480

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Input

Tango:vegas:spr224ws:s563tap:1198 div v2t sht.1
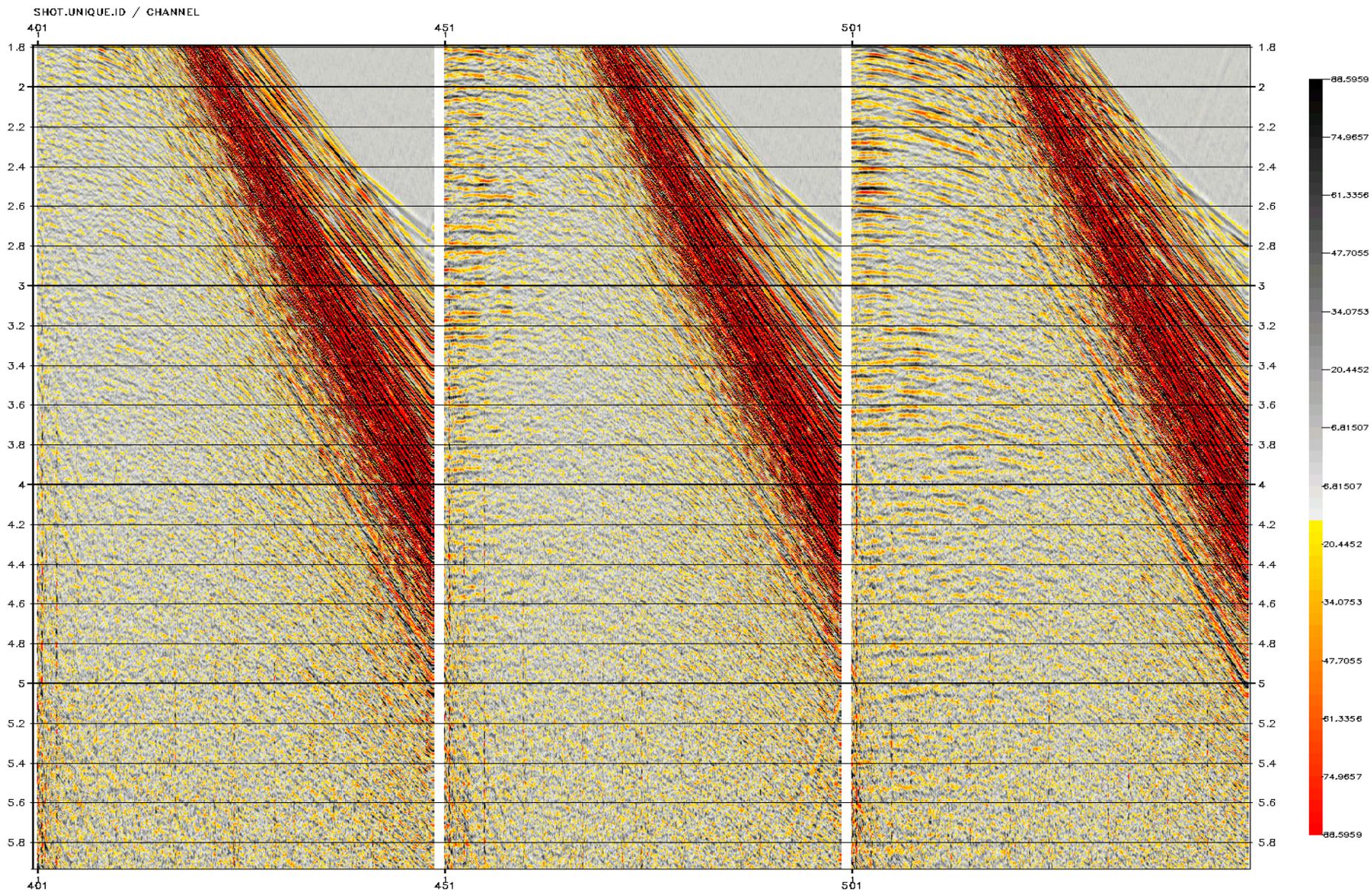
Test 1: Threshold 2.5

Tango:vegas:spr224ws:s563tap:1198 fx1p 25i.1
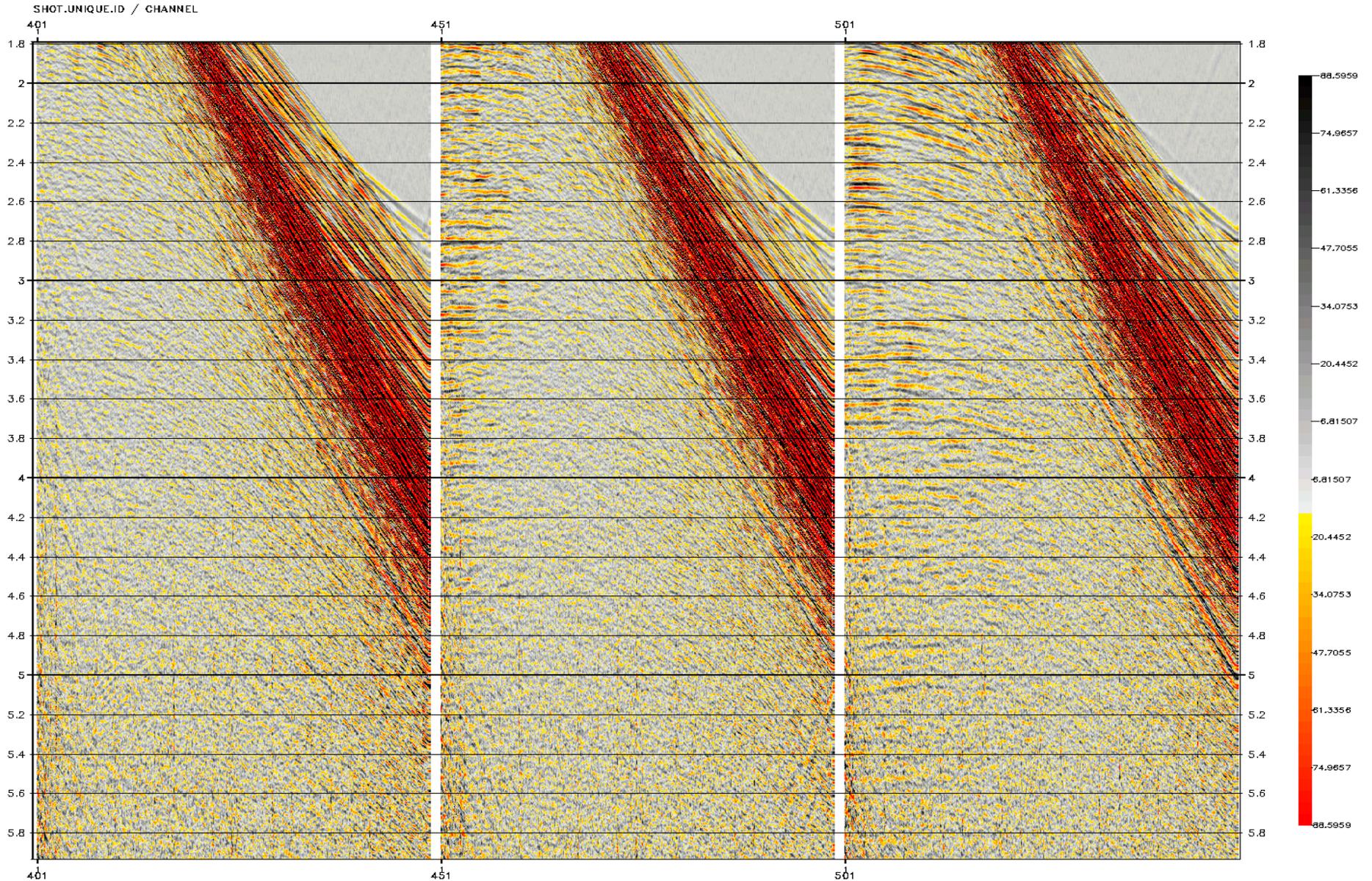
Test 1: Threshold 2.25

Tango:vegas:spr224ws:s563tap:1198 fx1p 225i.1
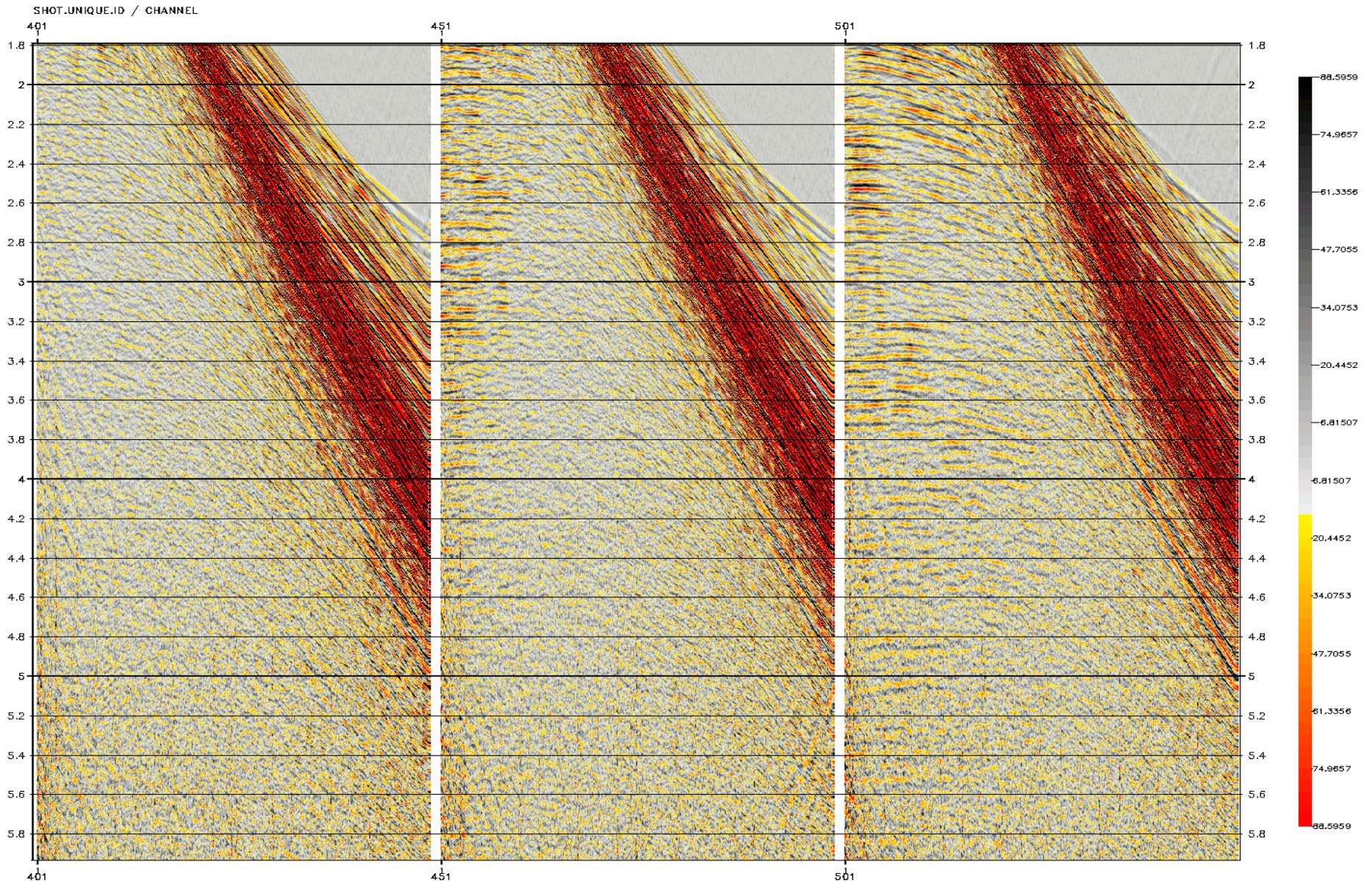
Test 1: Threshold 2.0

Tango:vegas:spr224ws:s563tap:1198 fx1p 20i.1

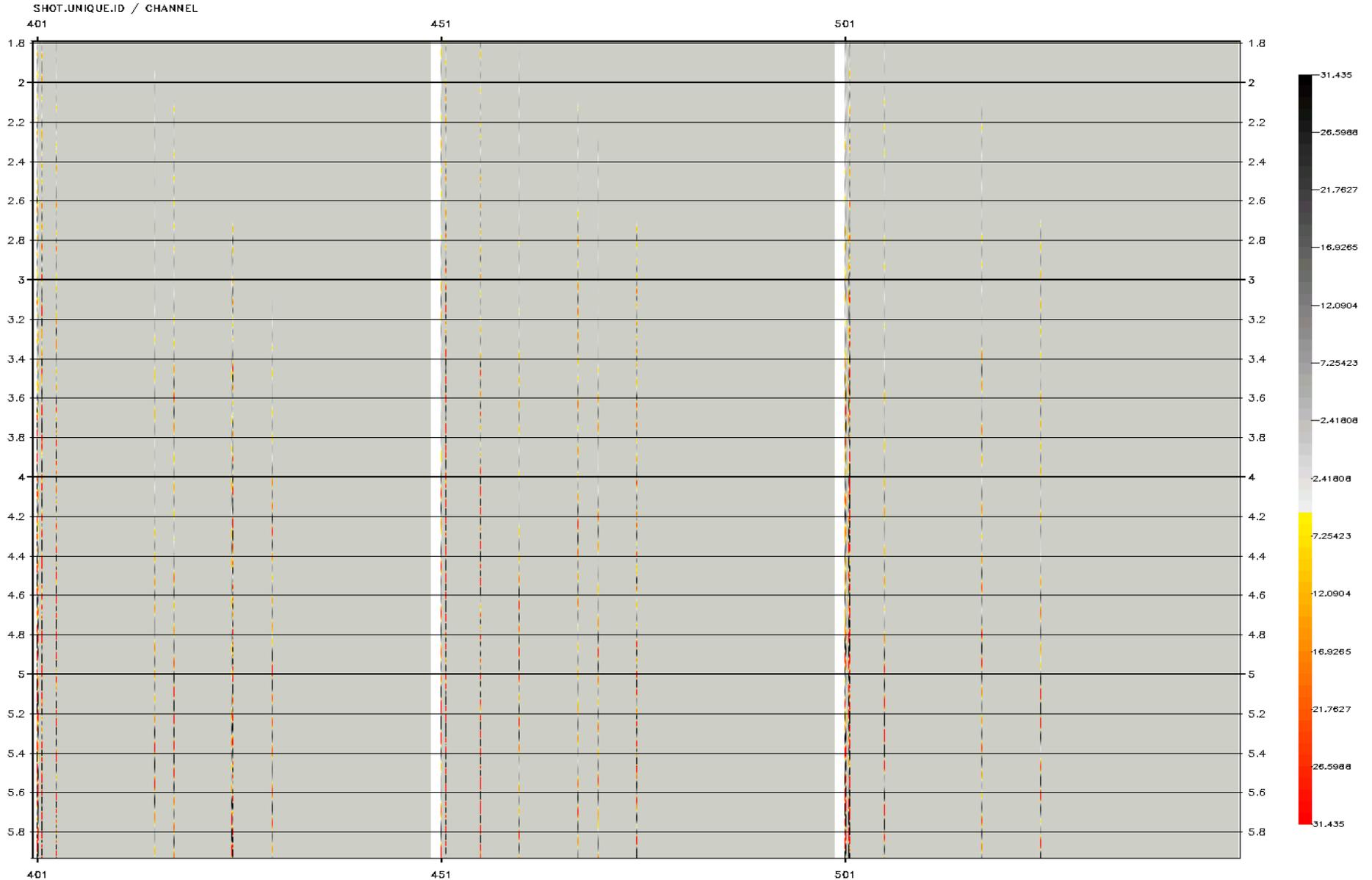# Test 1- Difference display (display gain 9dB): Threshold 2.5

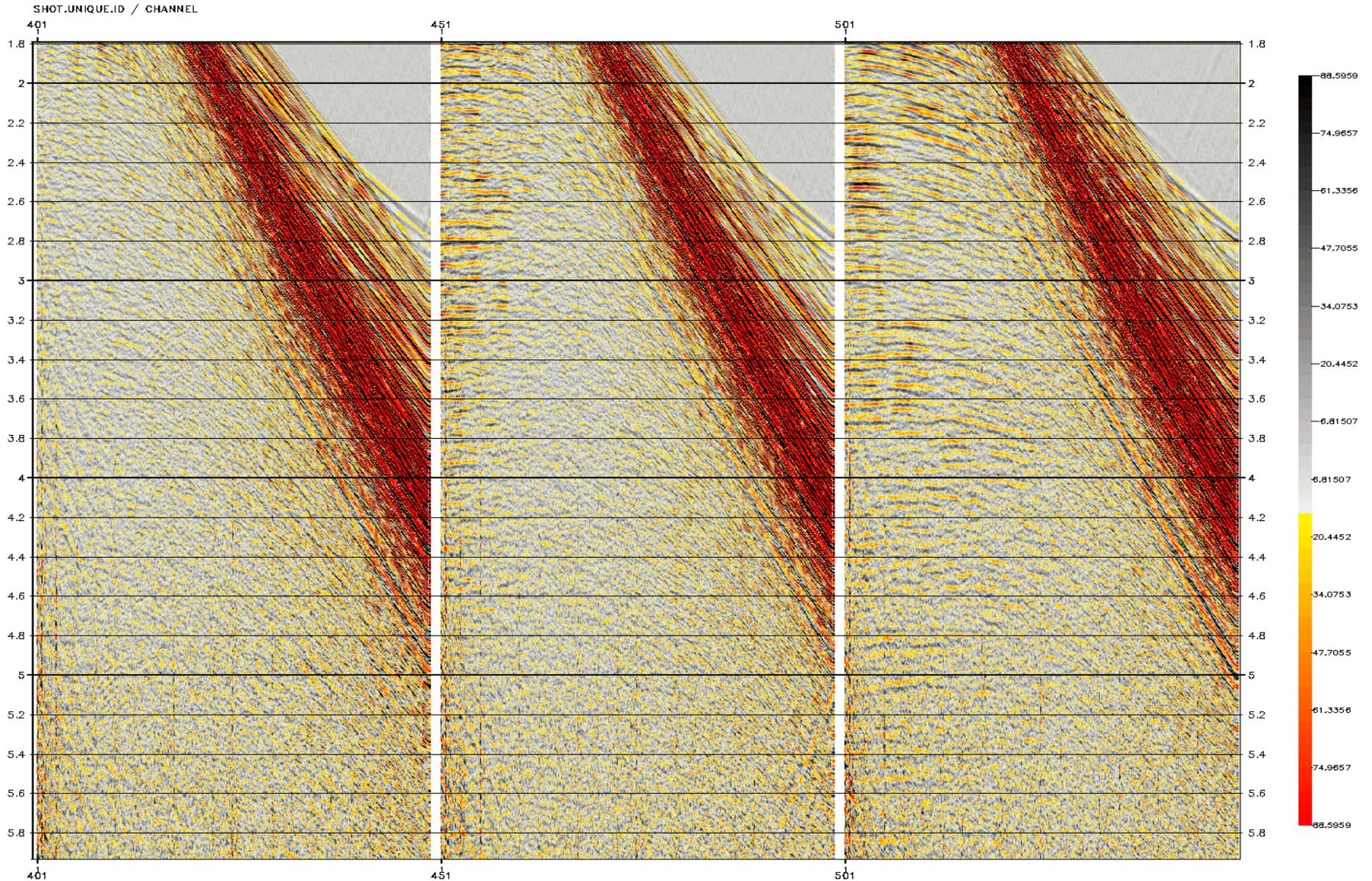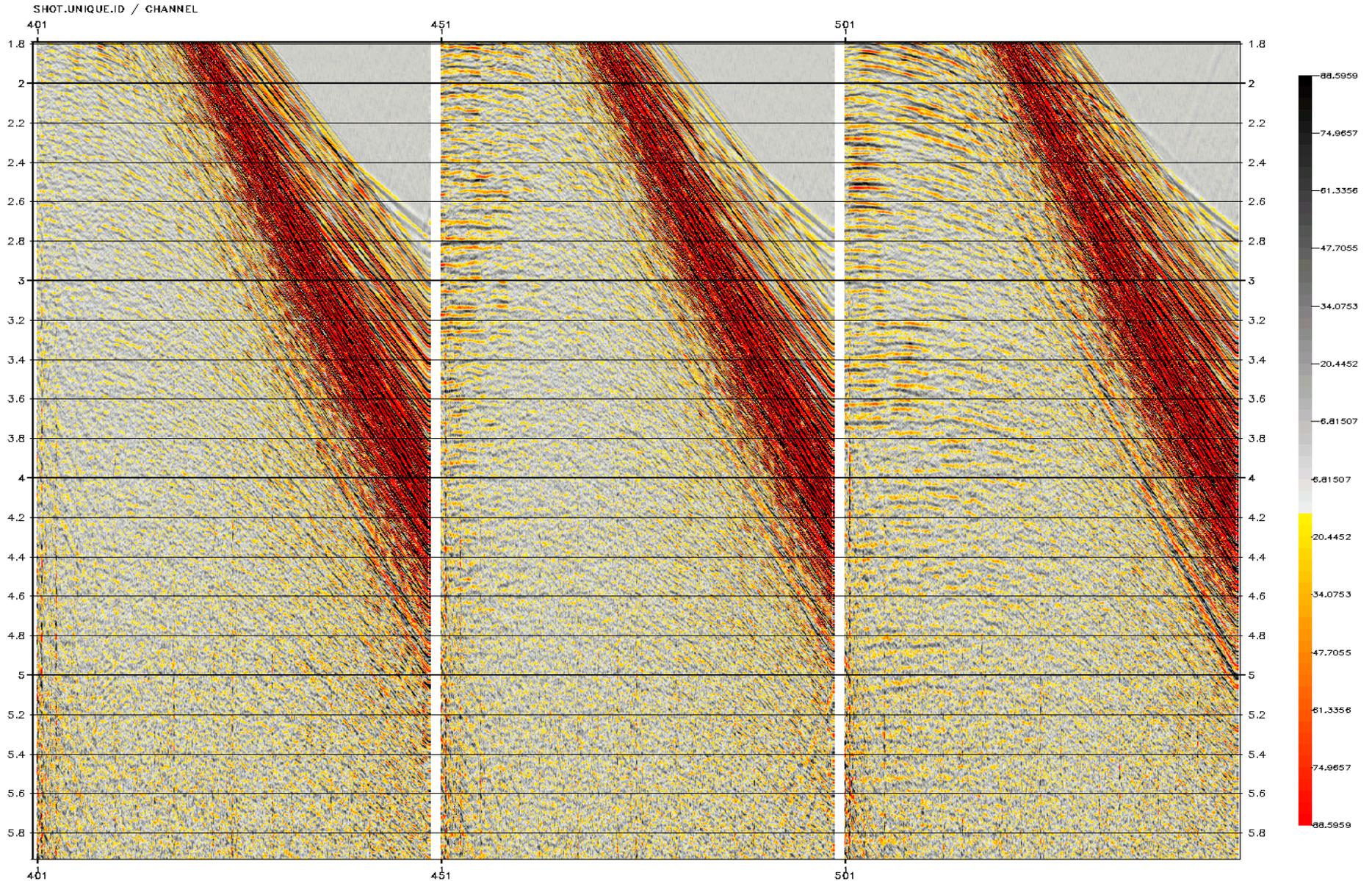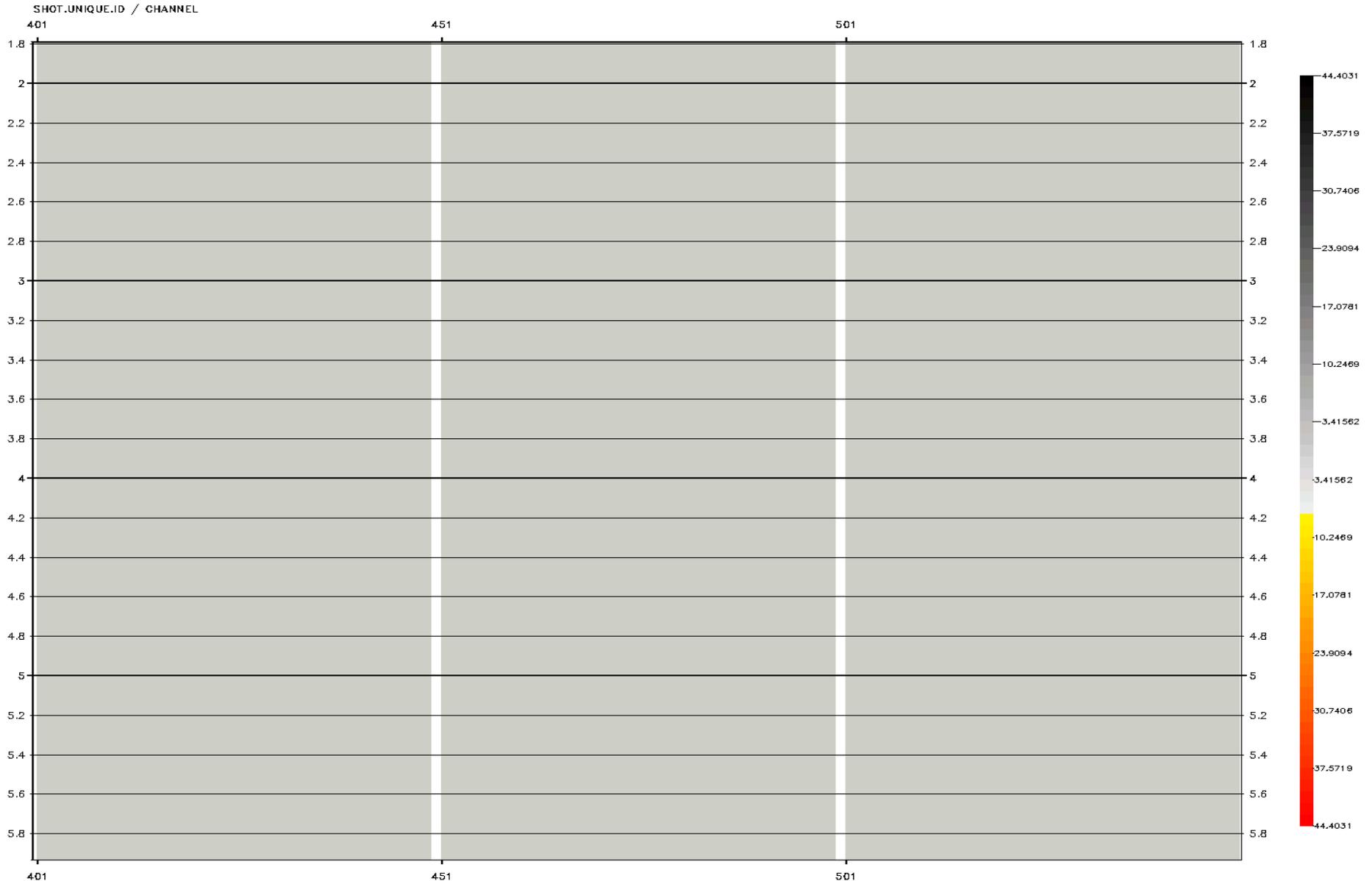# Test 1- Difference display (display gain 9dB): Threshold 2.25

Test 1- Difference display (display gain 9dB): Threshold 2.0

1198 div v2t sht—1198 fx1p 20i

Test 2: Threshold 1.75

Tango:vegas:spr224ws:s563tap:1198 fxch 175b.1
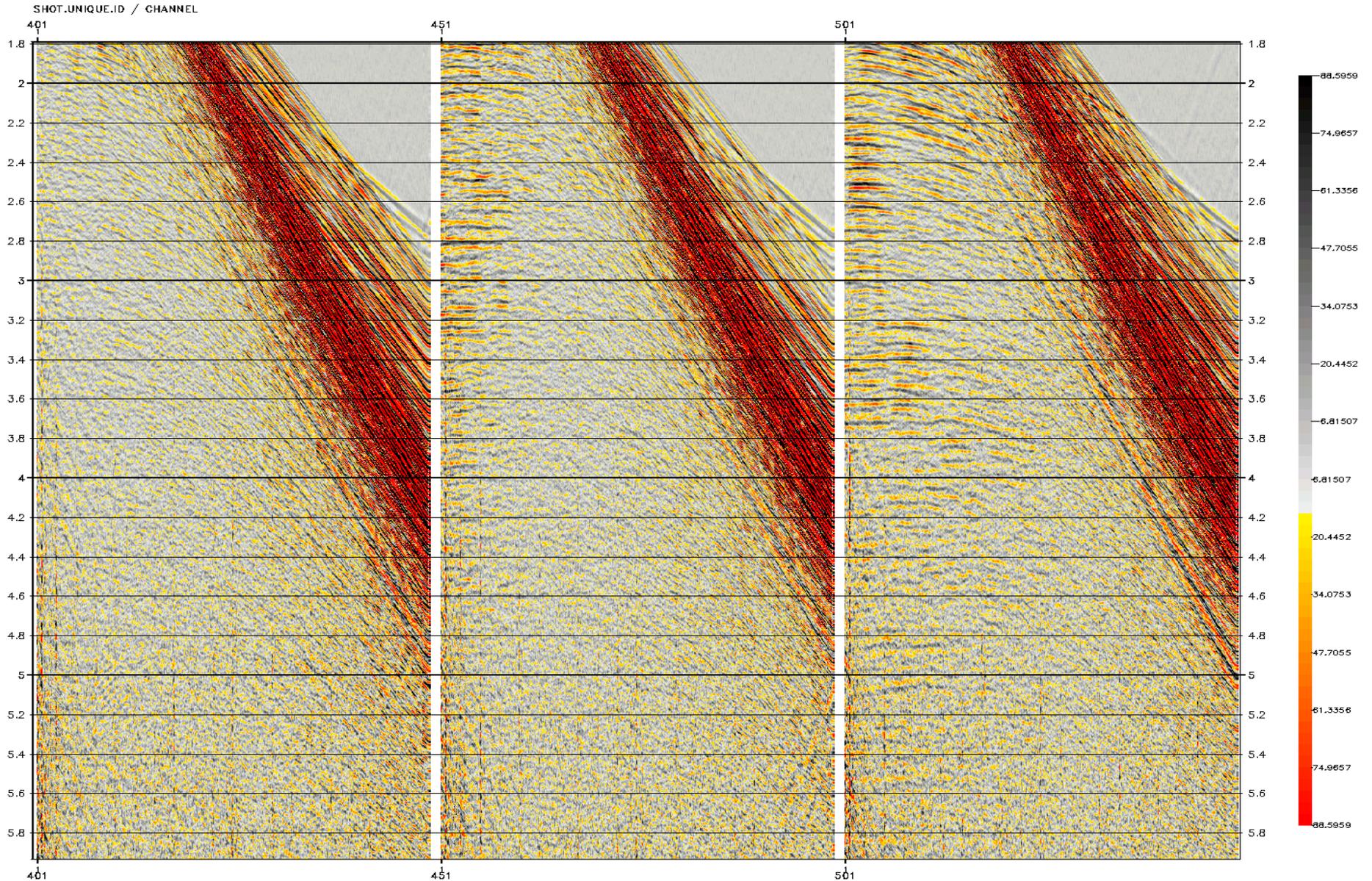
Test 2: Threshold 1.5
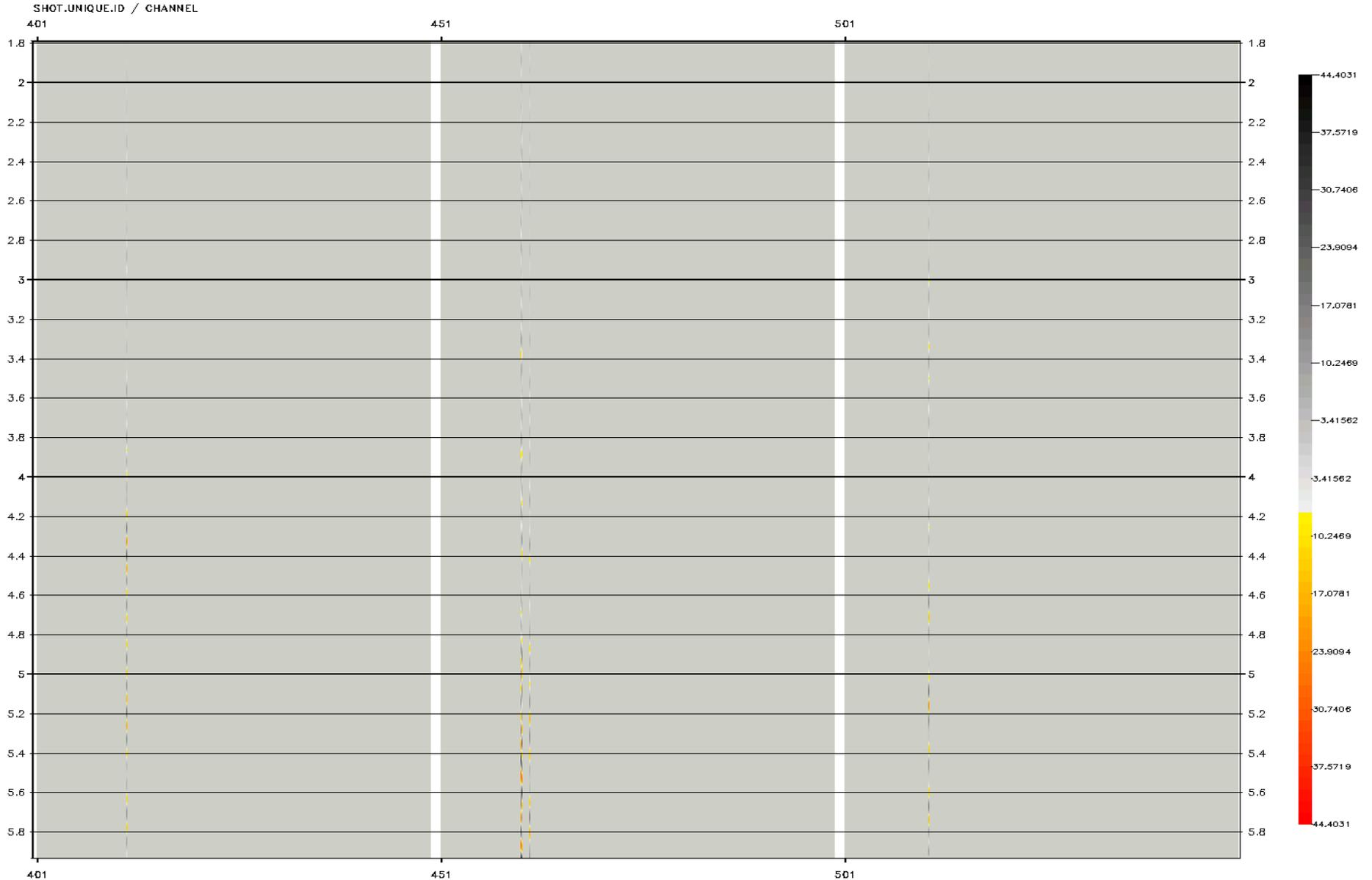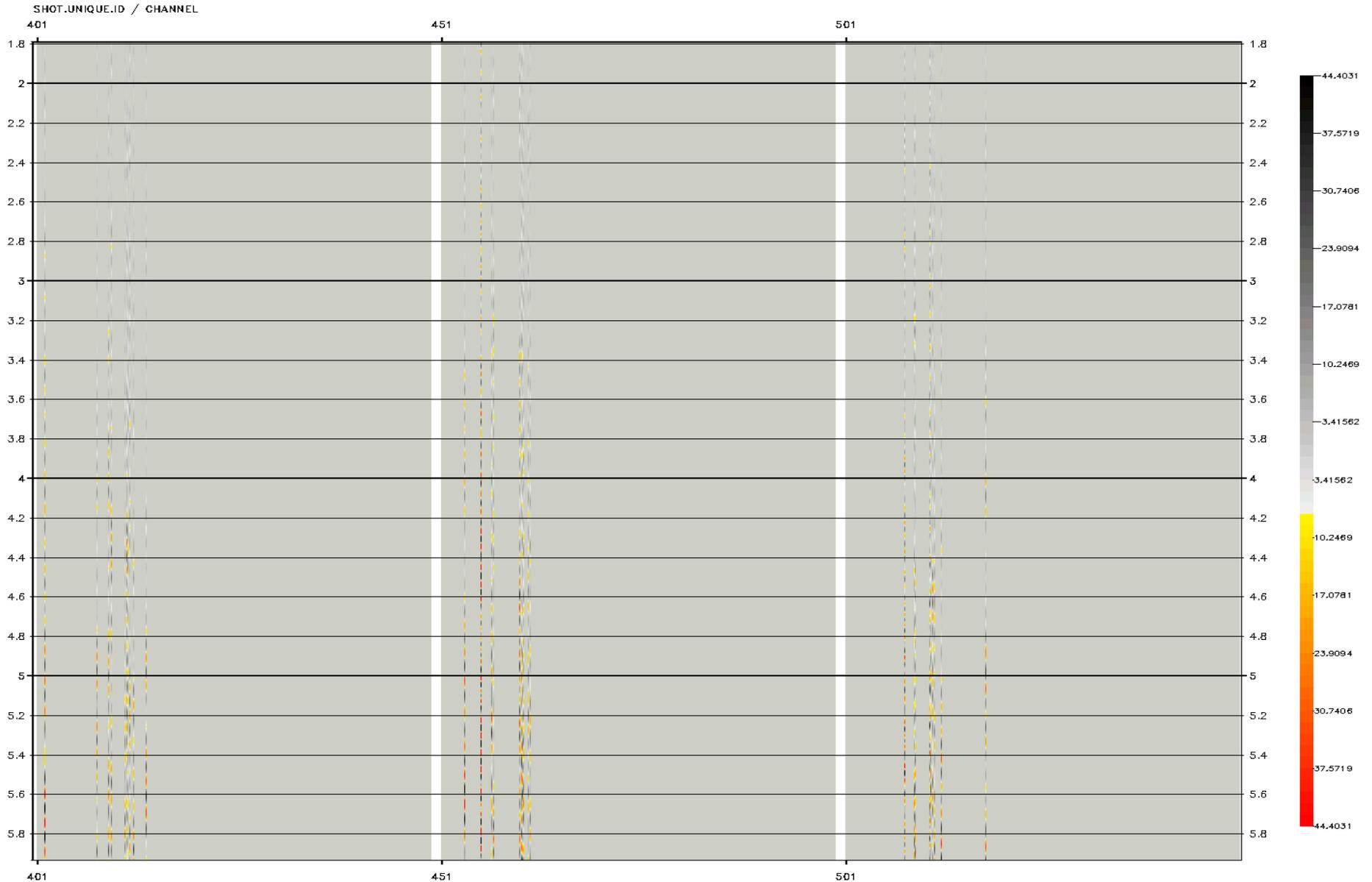

Tango:vegas:spr224ws:s563tap:1198 fxch 15b.1

Test 2: Threshold 1.25

Tango:vegas:spr224ws:s563tap:1198 fxch 125b.1

Test 2- Difference display (display gain 9dB): Threshold 1.75

1198 div v2t sht—1198 fxch 175b

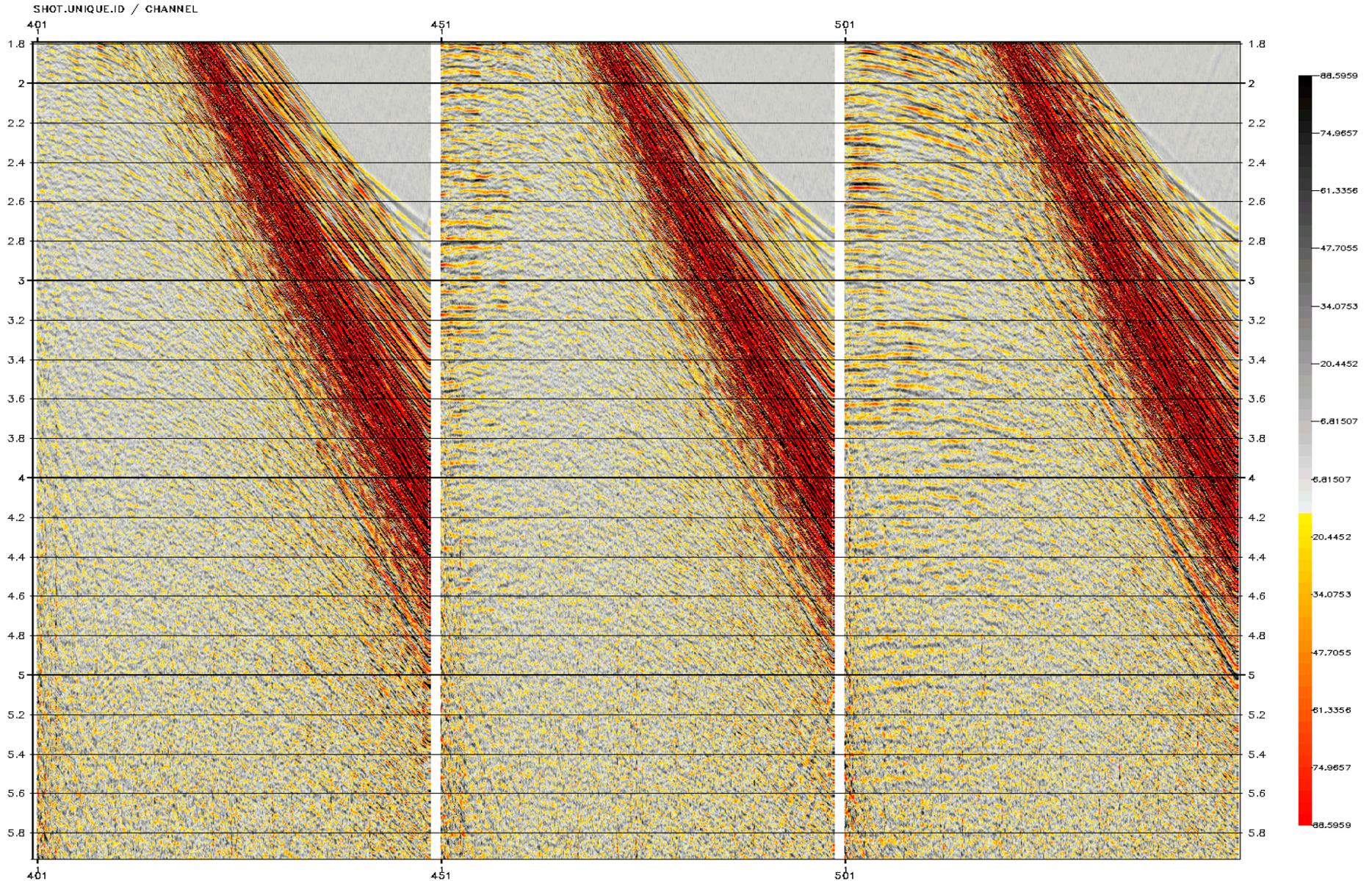# Test 2- Difference display (display gain 9dB): Threshold 1.5
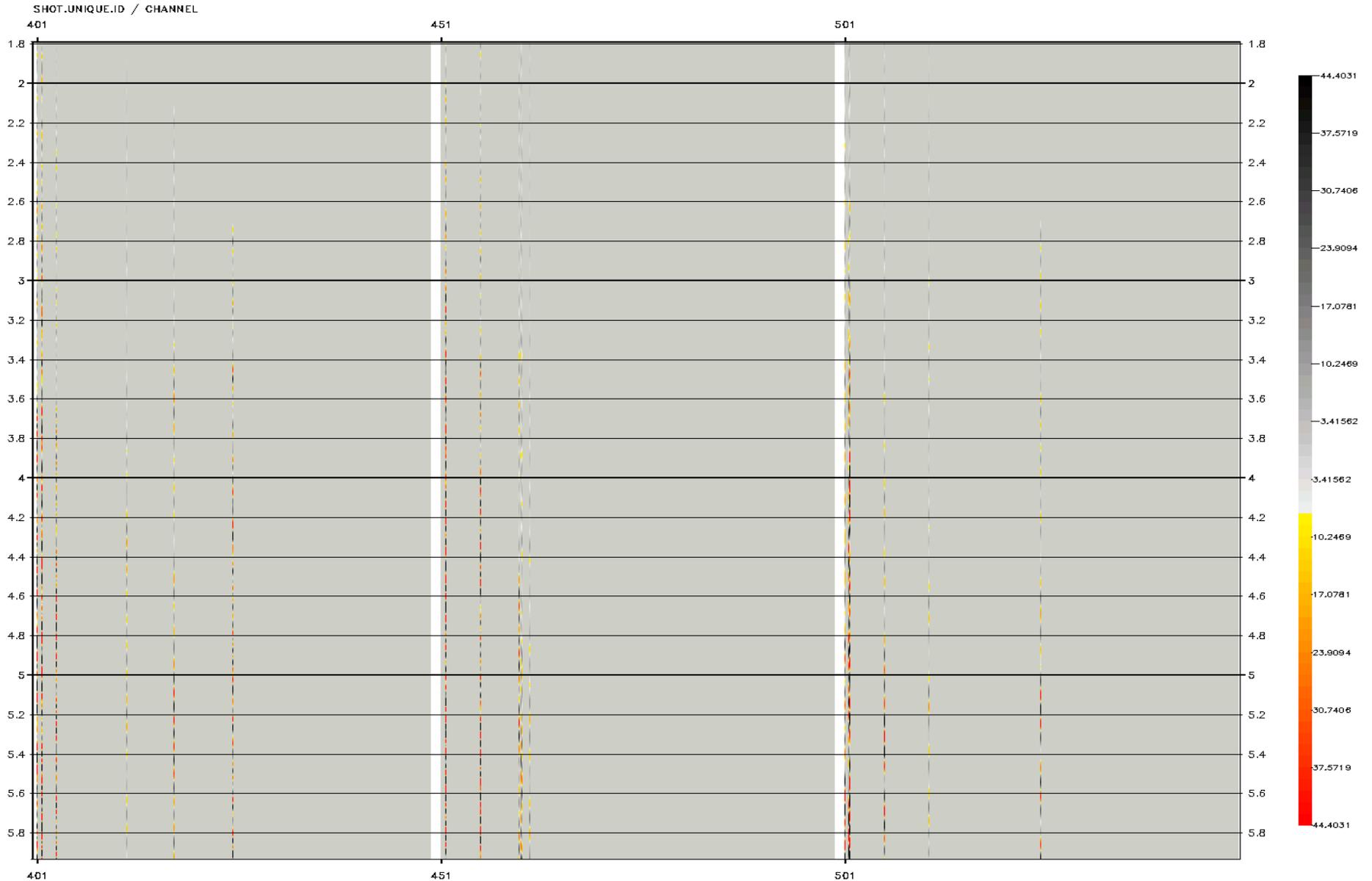
Test 2- Difference display (display gain 9dB): Threshold 1.25

Test 3

Tango:vegas:spr224ws:s563tap:1198 fxch sh b.1

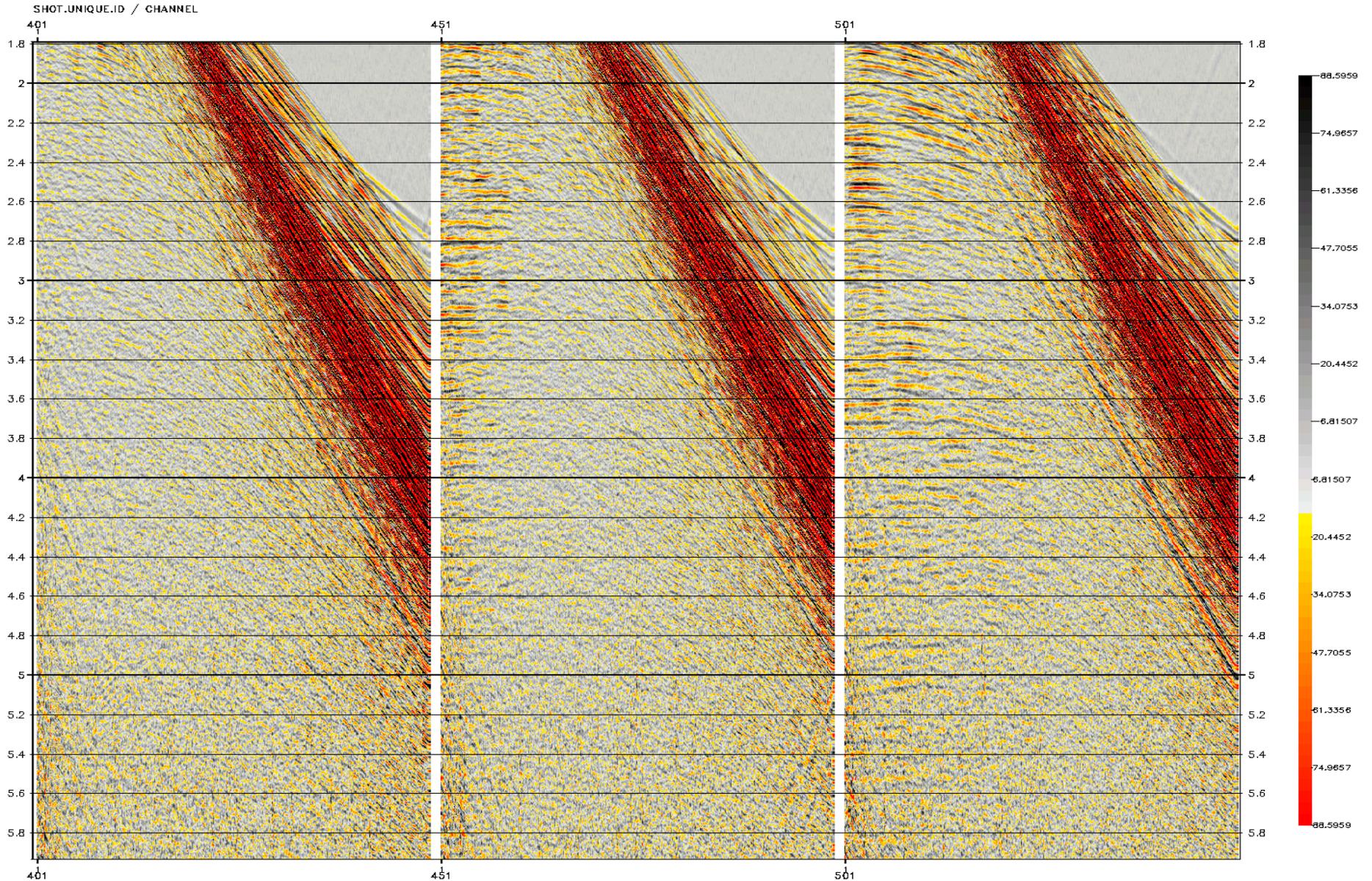# Test 3- Difference display (display gain 9dB)
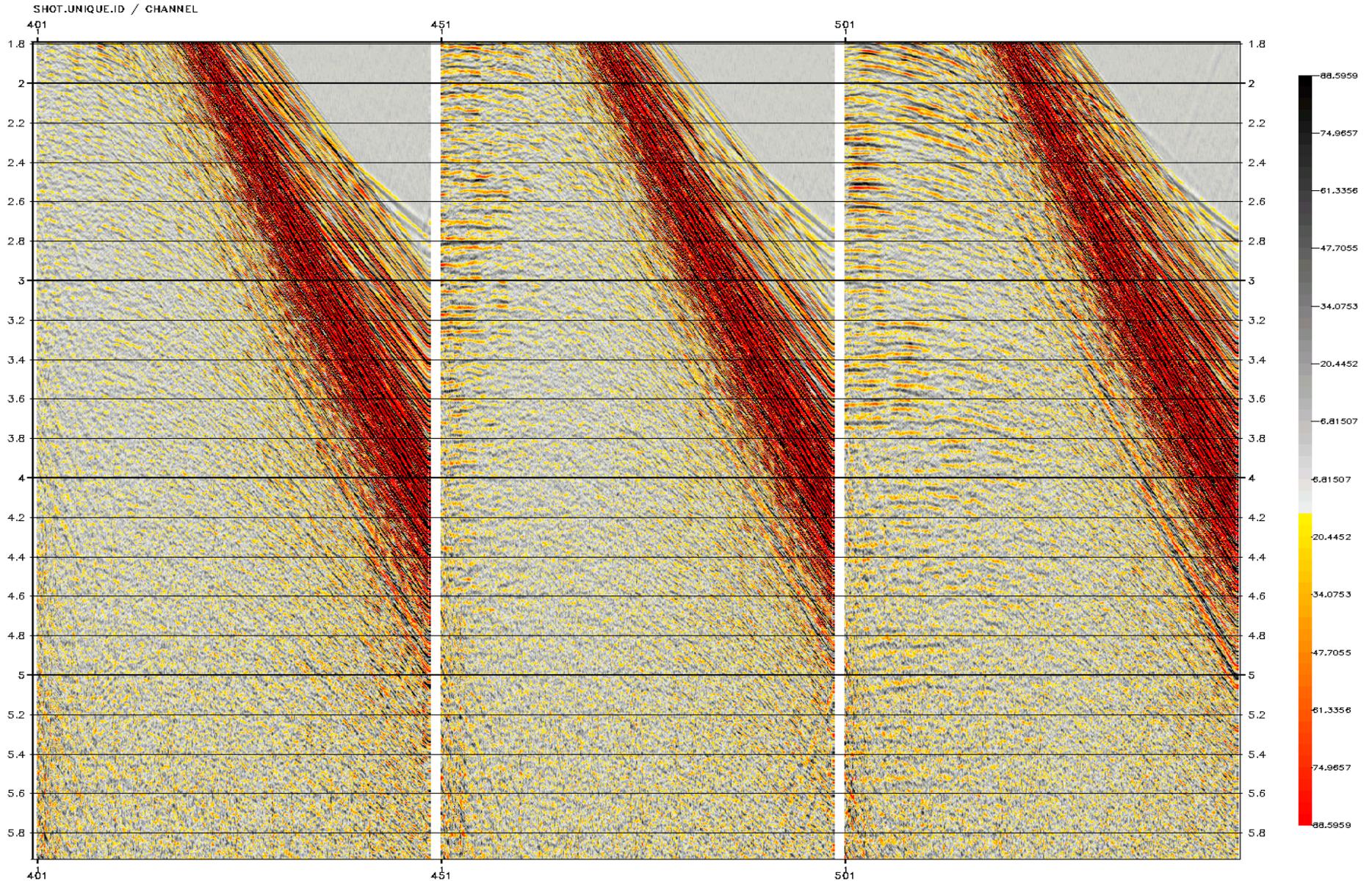
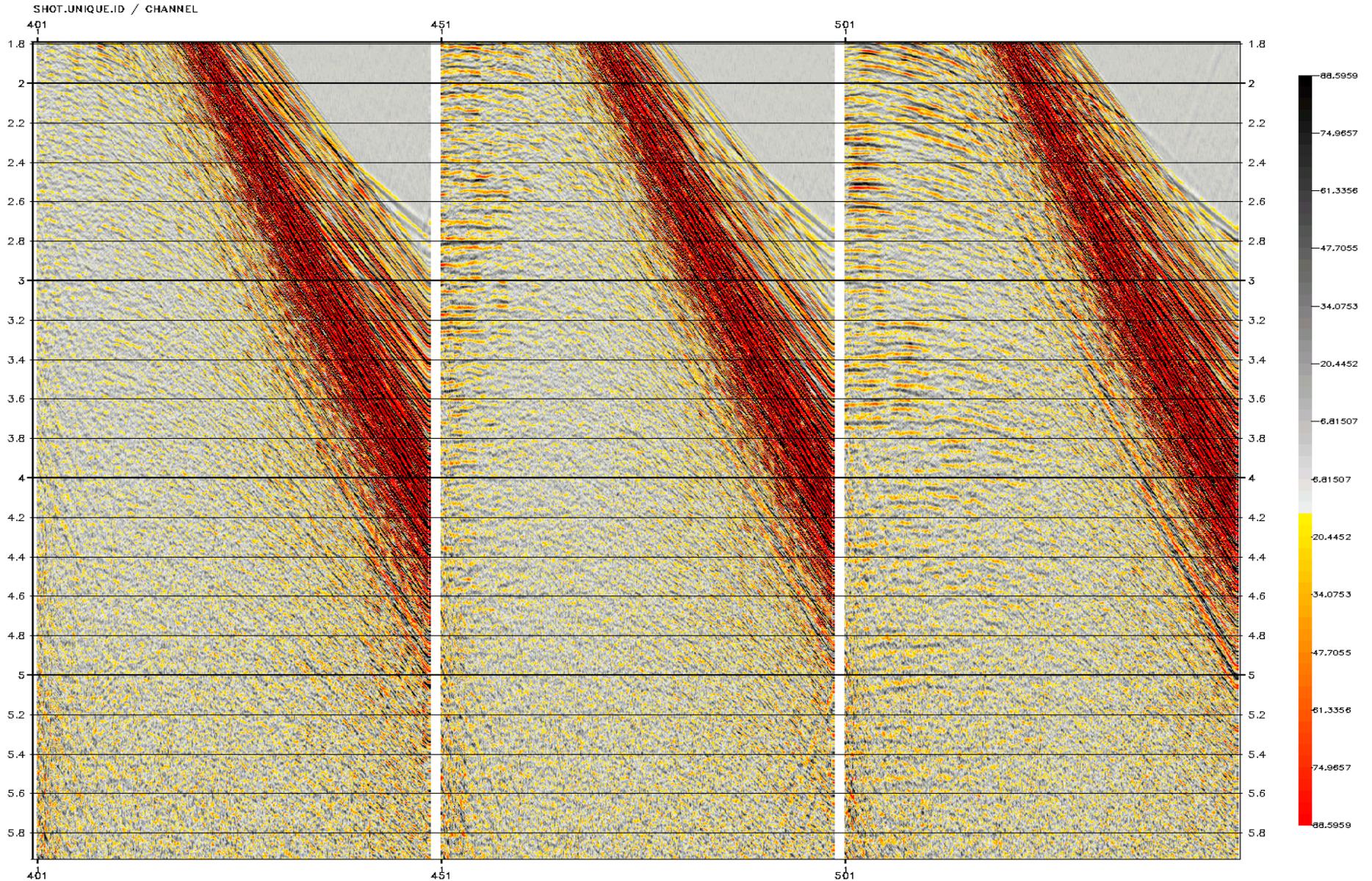# Test 4: Threshold 2.25

Test 4: Threshold 2.0

Tango:vegas:spr224ws:s563tap:1198 fxsh2p 20f.1
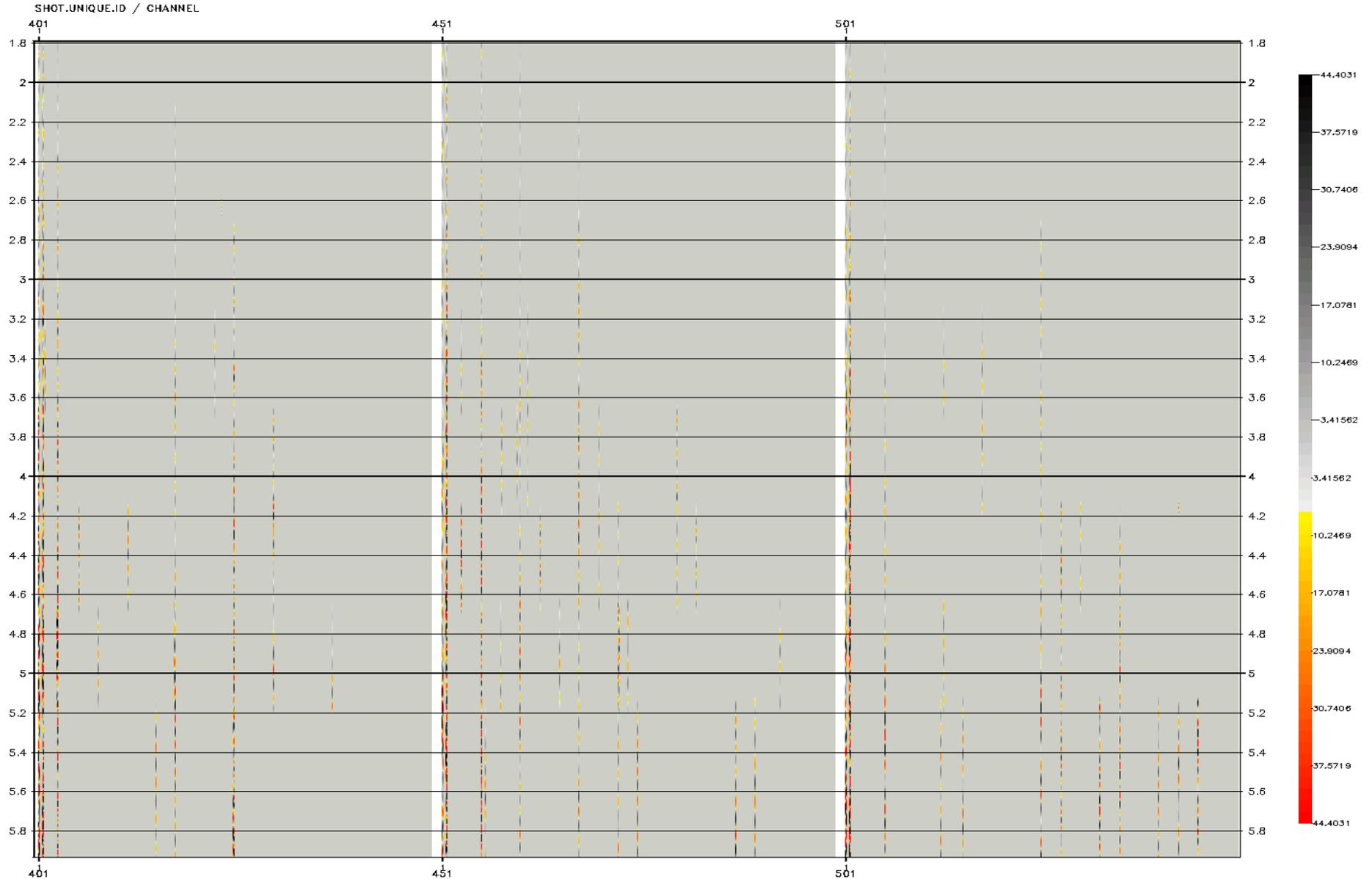
Test 4: Threshold 1.75

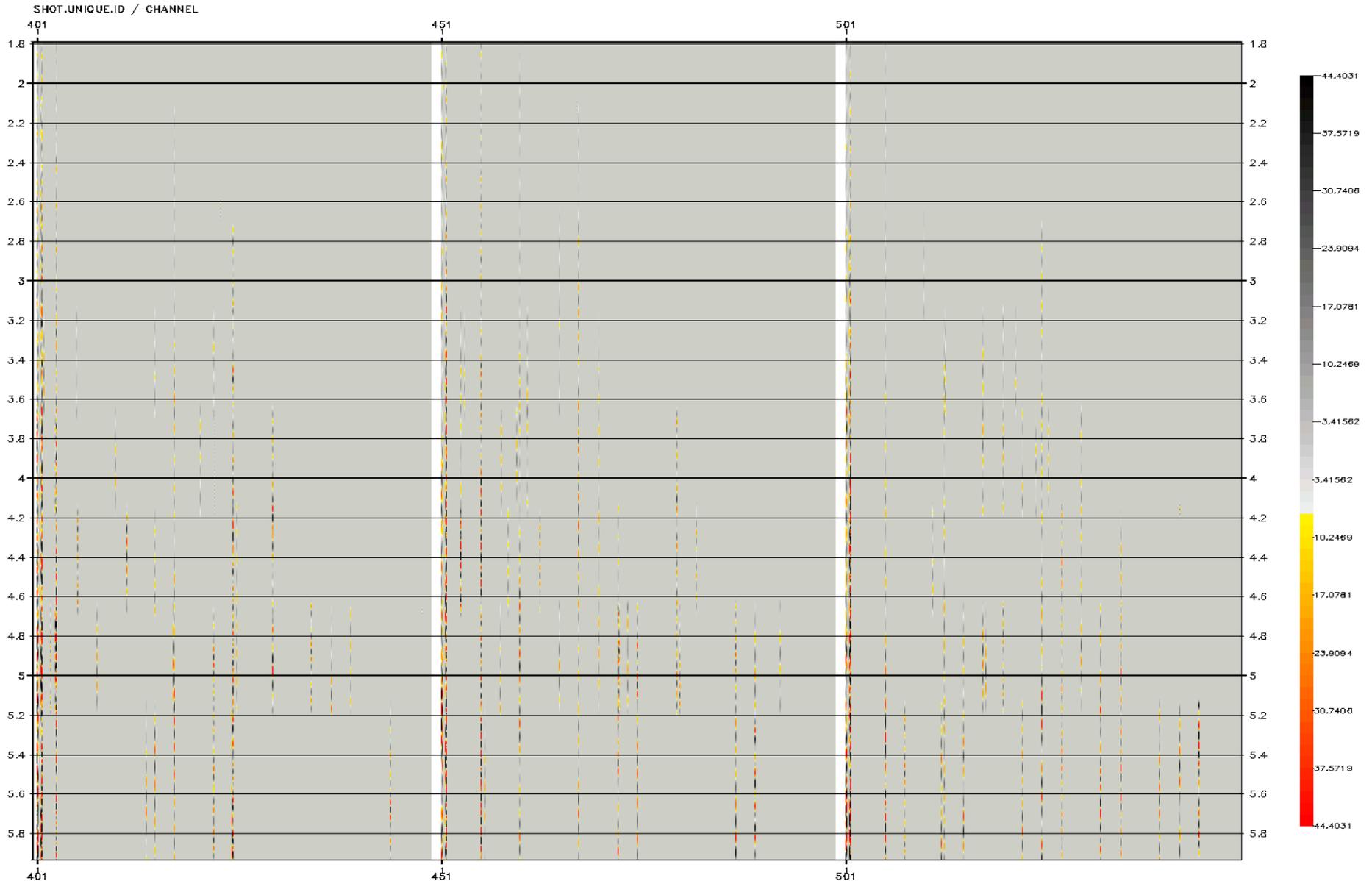Tango:vegas:spr224ws:s563tap:1198 fxsh2p 175f.1

Test 4- Difference display (display gain 9dB): Threshold 2.25
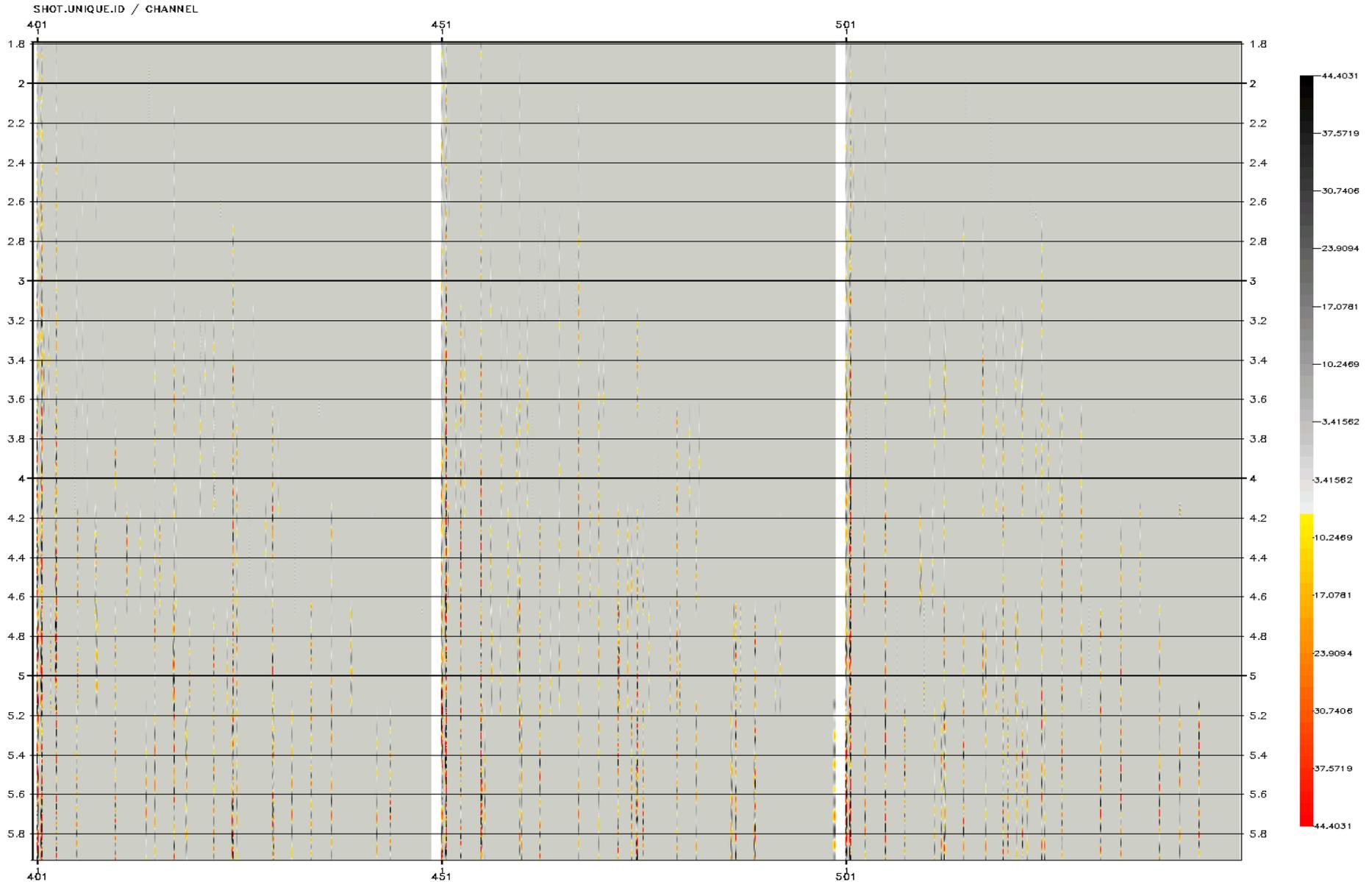

1198 div v2t sht-1198 fxsh2p 225f

Test 4- Difference display (display gain 9dB): Threshold 2.0

1198 div v2t sht−1198 fxsh2p 20f

Test 4- Difference display (display gain 9dB): Threshold 1.75

Observation and Recommendation

- There are not strong swell noise in the data
- By viewing the tests, it looks like test 4 is handling the swell noise better.