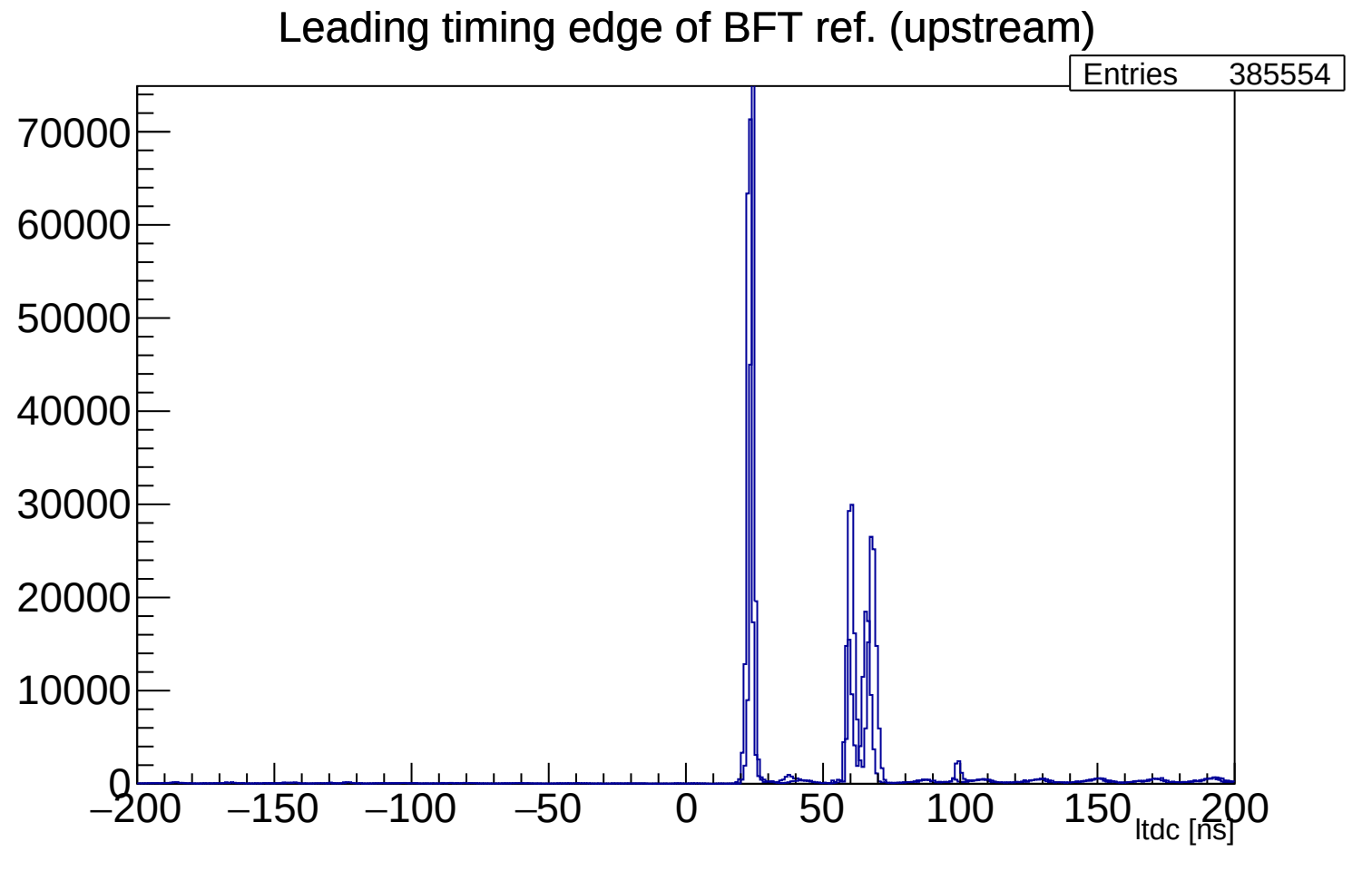
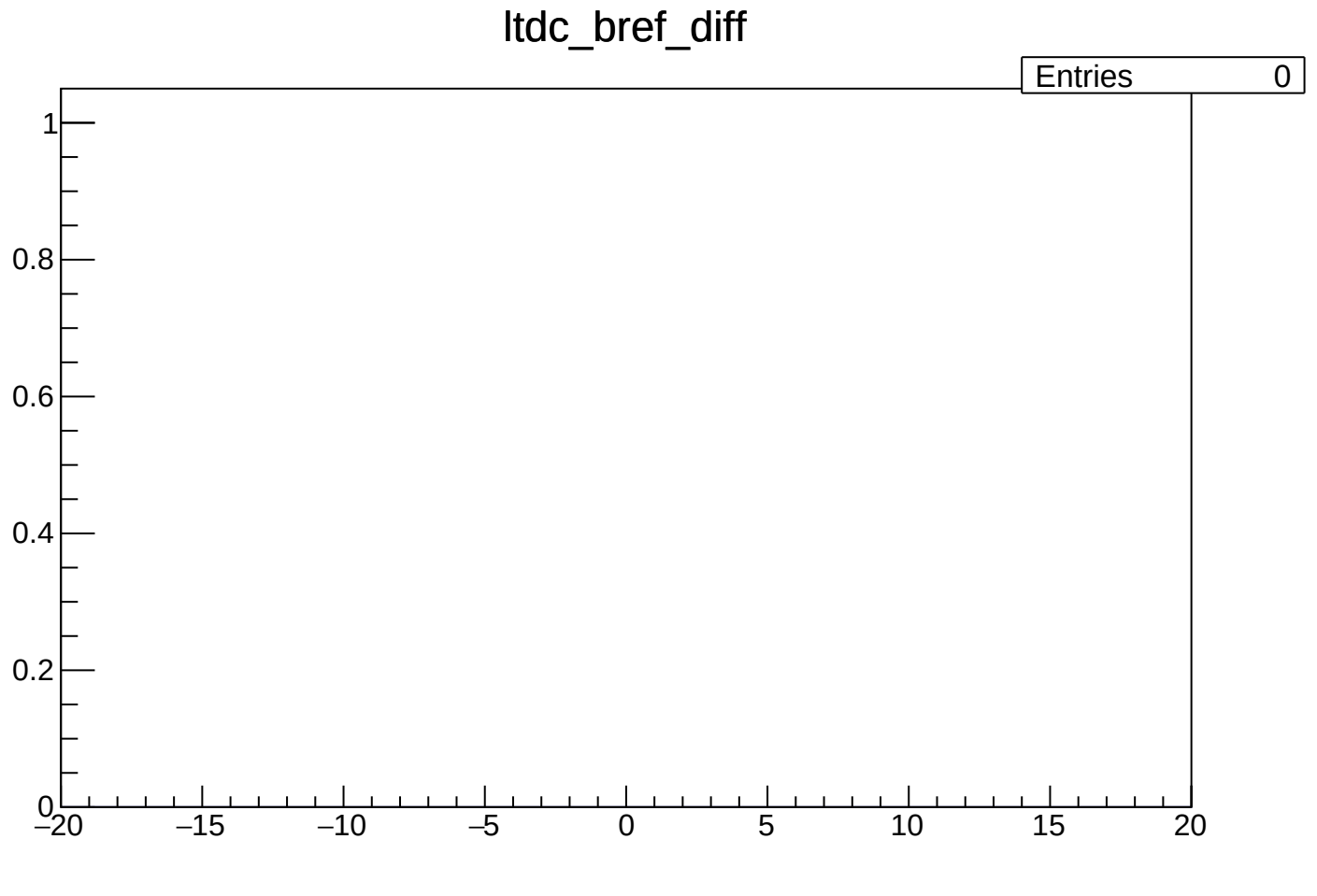
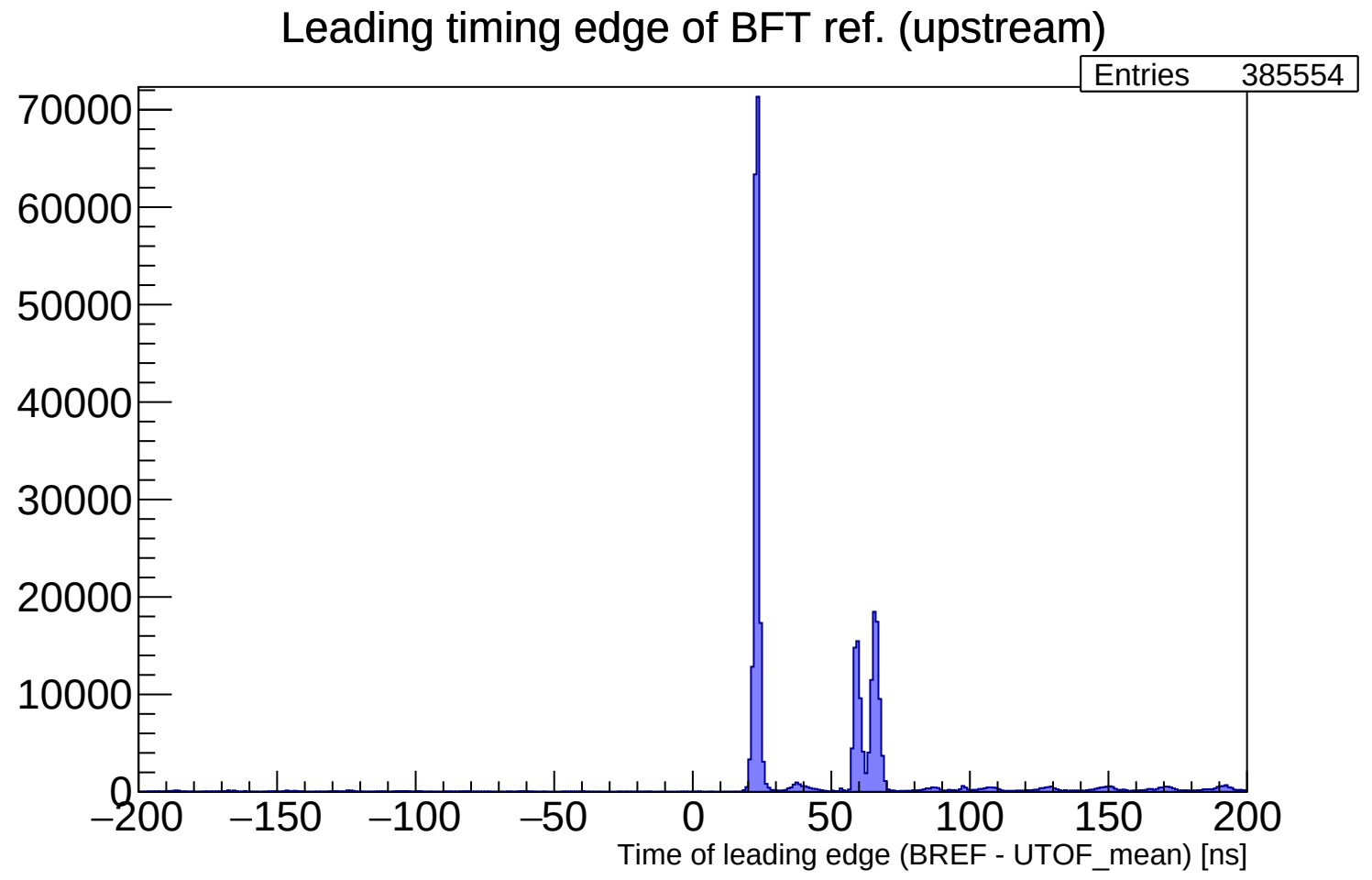
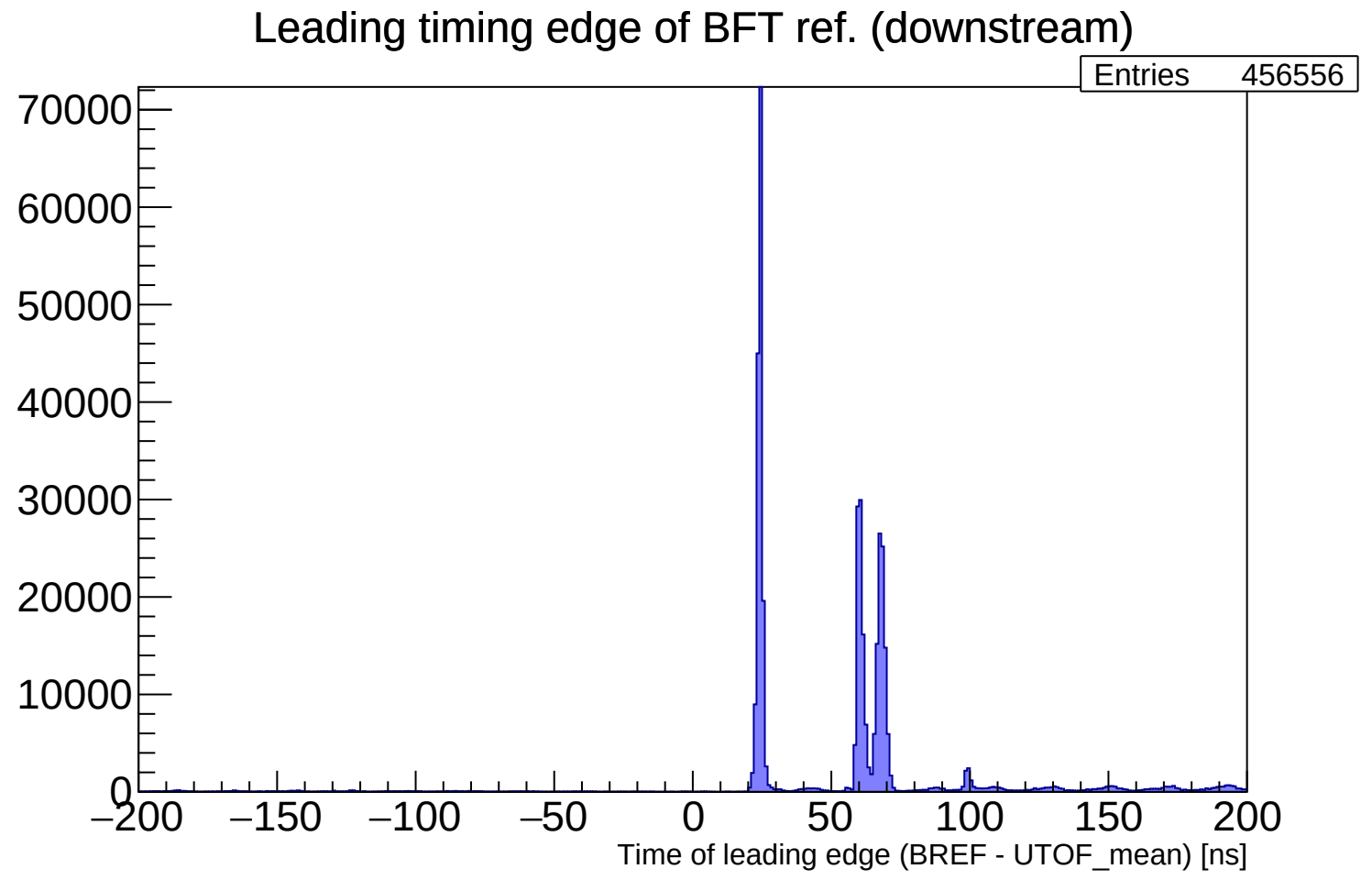
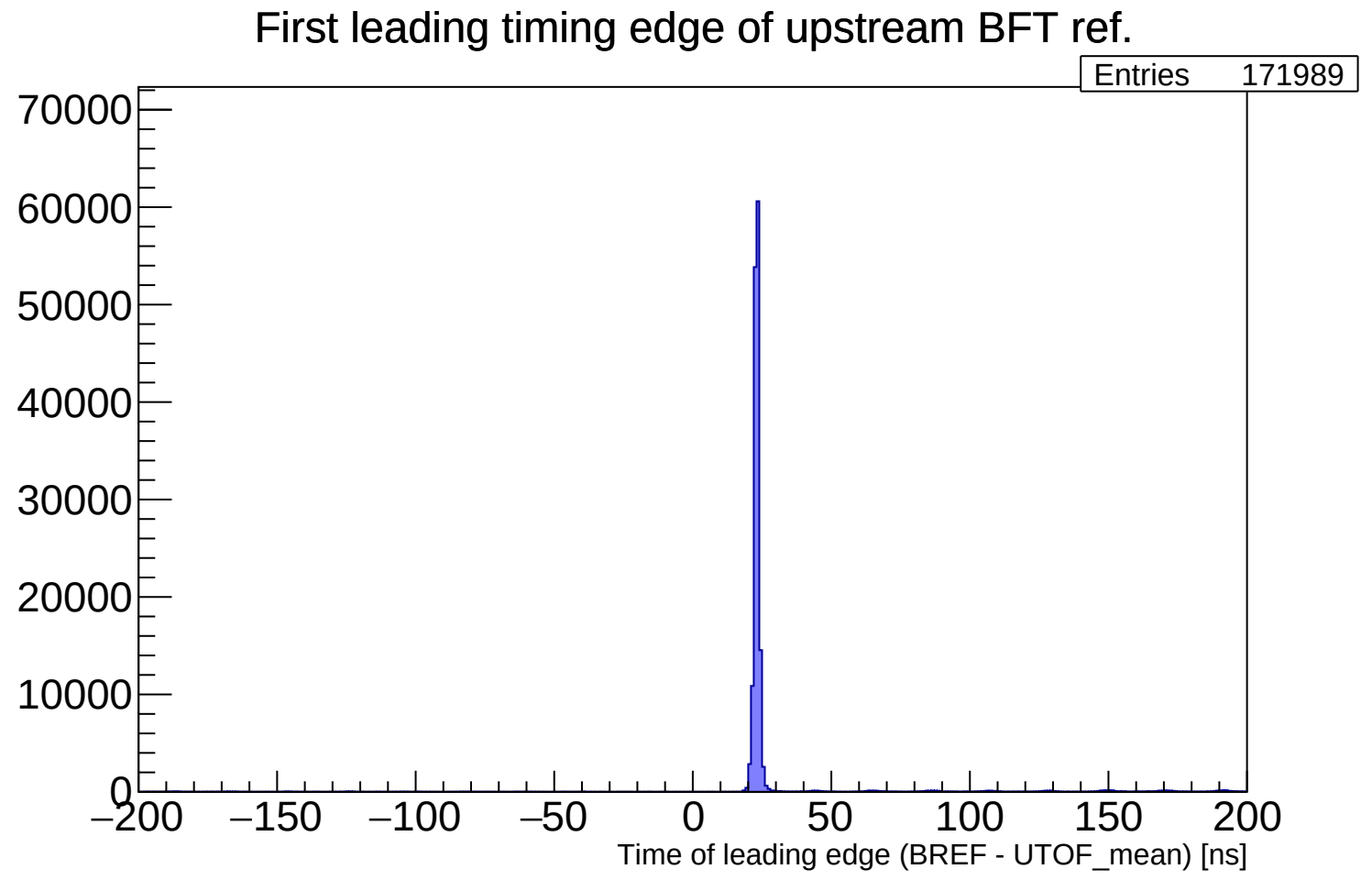
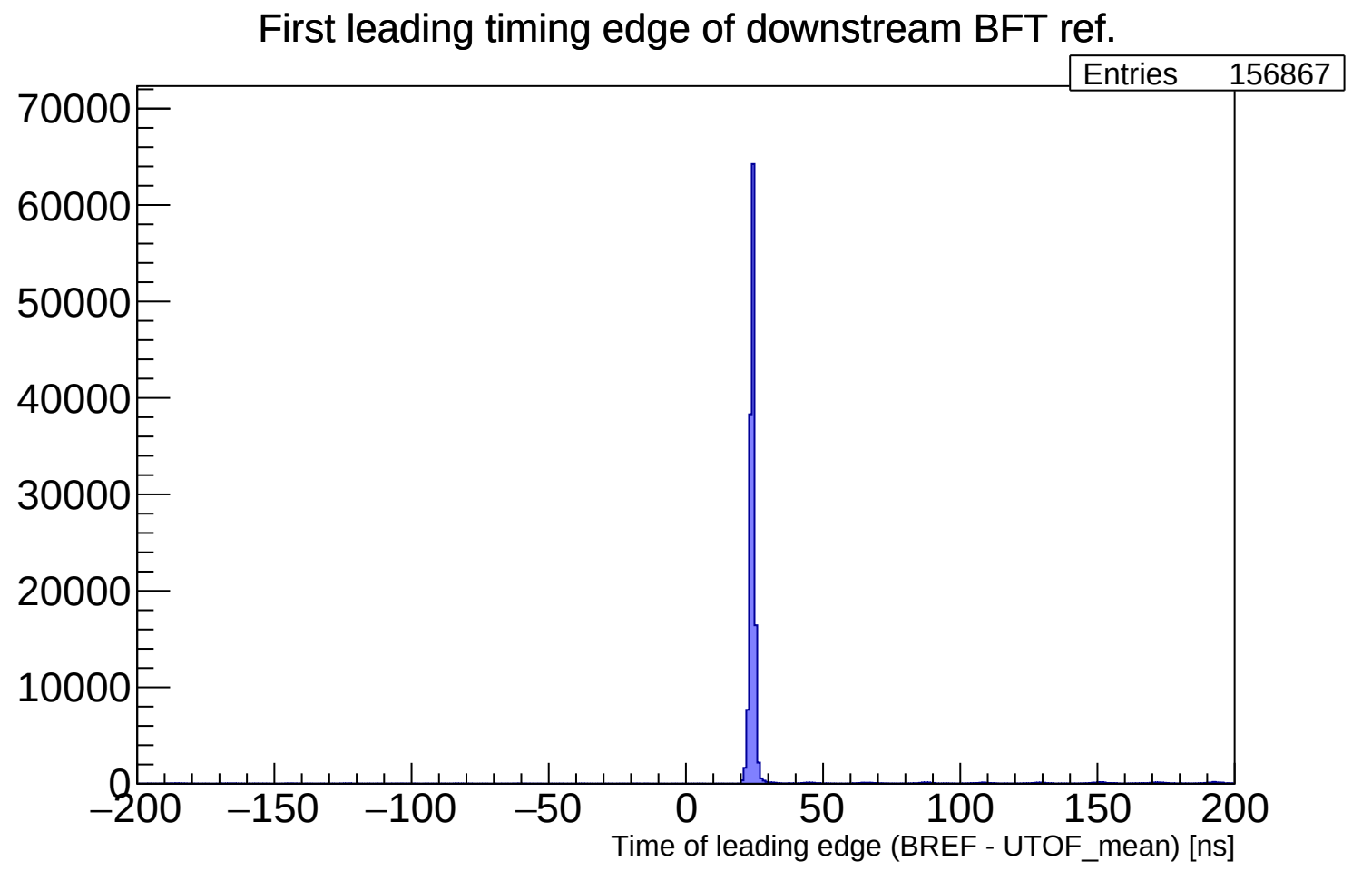

Leading timing edge of BFT ref. (upstream)
Entries 385554
70000
60000
50000
40000
30000
20000
10000
0
–200
–150
–100
–50
0
50
100
150
200
ltdc [ns]

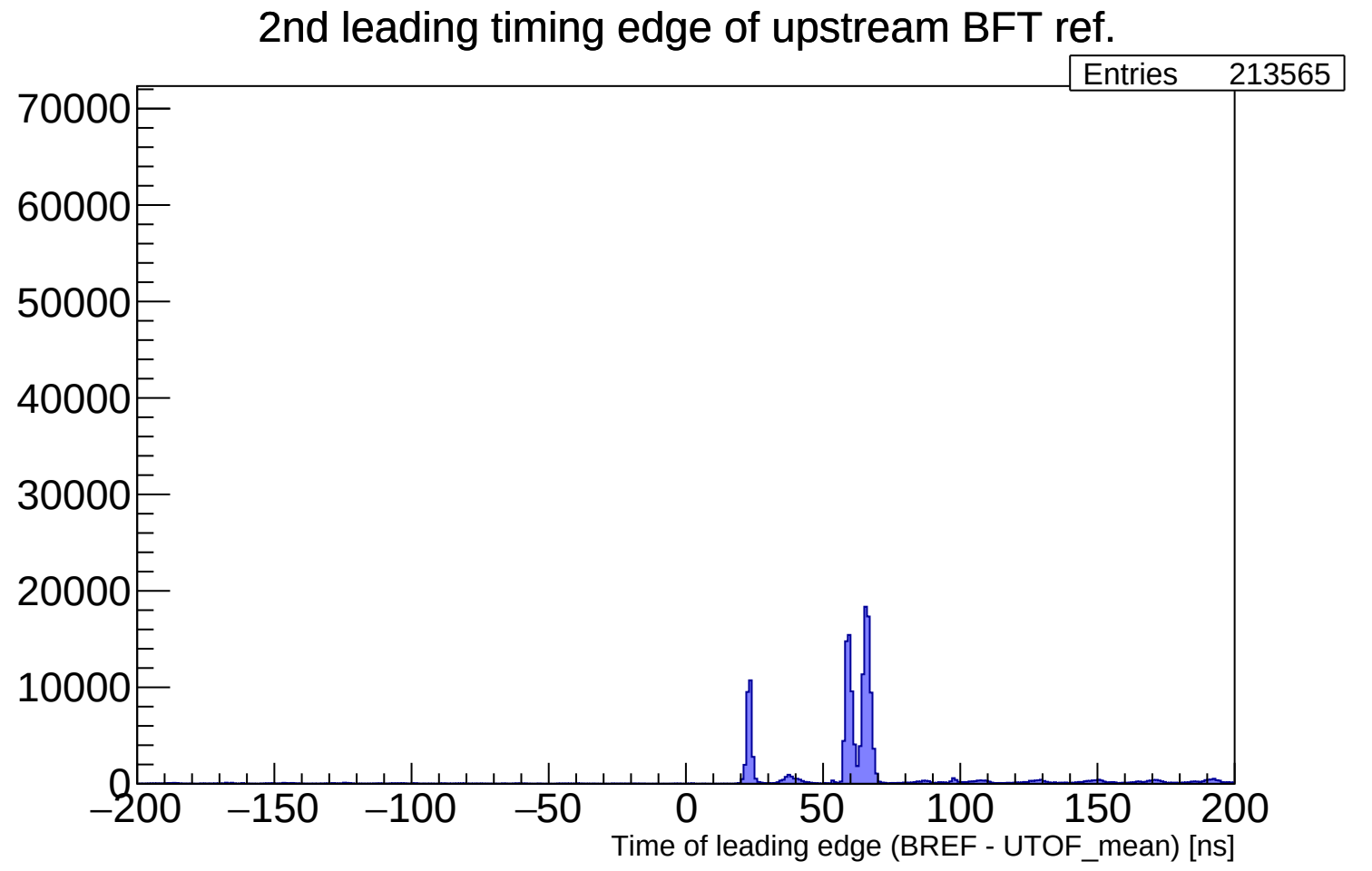

ltdc_bref_diff
Entries 0
1
0.8
0.6
0.4
0.2
0
–20
–15
–10
–5
0
5
10
15
20

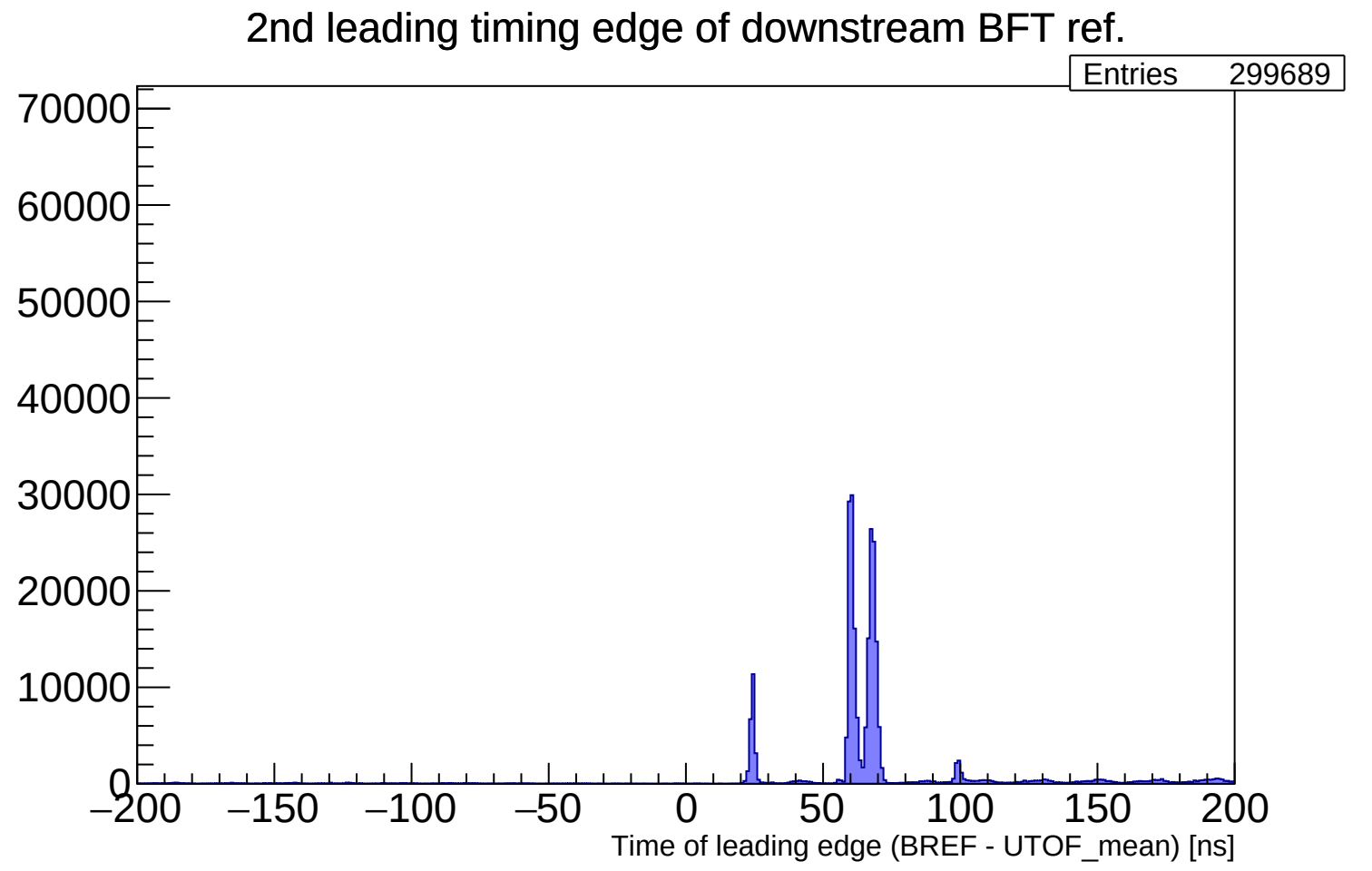

Leading timing edge of BFT ref. (upstream)
Entries 385554
70000
60000
50000
40000
30000
20000
10000
0
–200
–150
–100
–50
0
50
100
150
200
Time of leading edge (BREF - UTOF_mean) [ns]

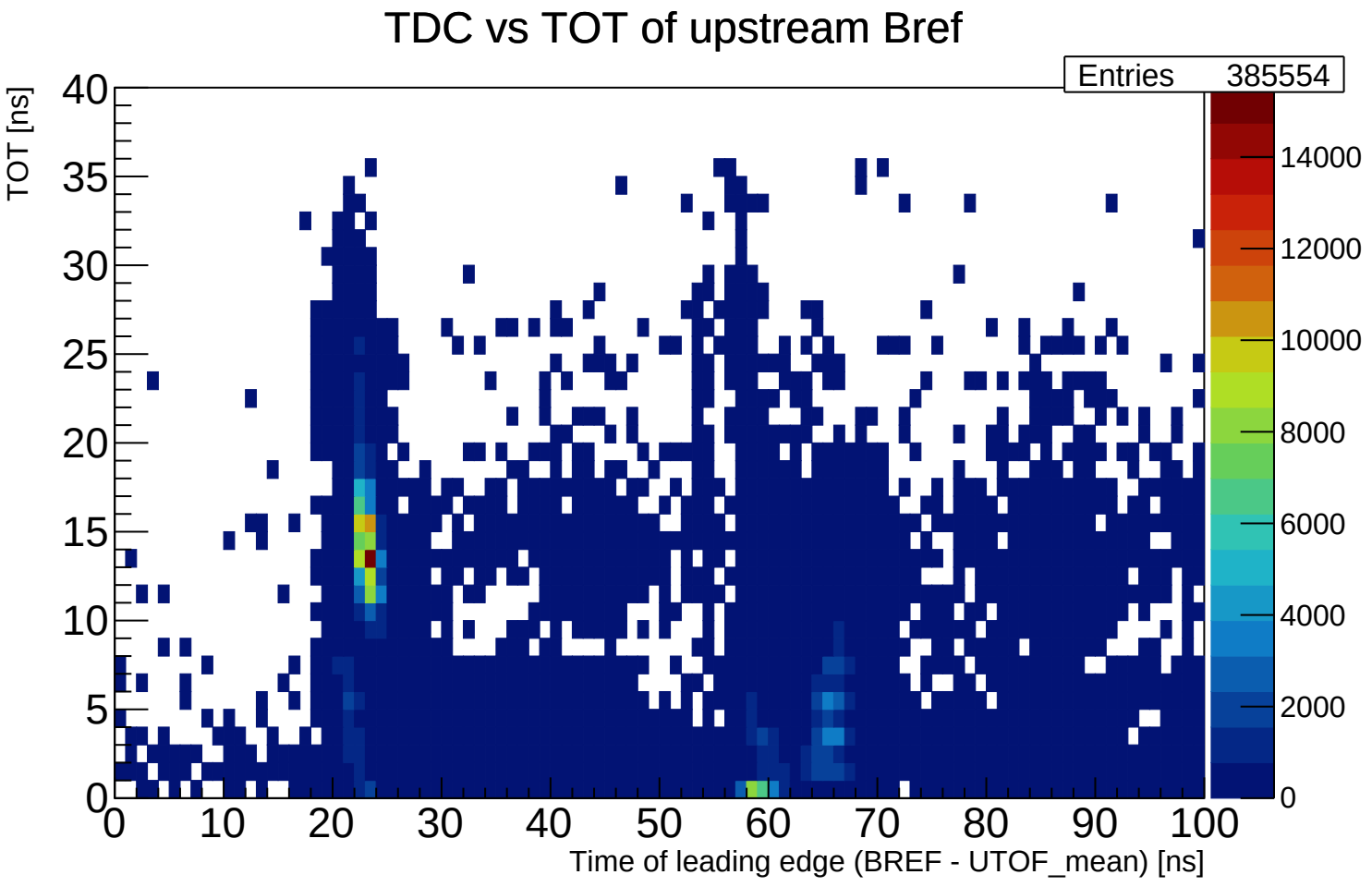

Leading timing edge of BFT ref. (downstream)
Entries 456556
70000
60000
50000
40000
30000
20000
10000
0
–200
–150
–100
–50
0
50
100
150
200
Time of leading edge (BREF - UTOF_mean) [ns]

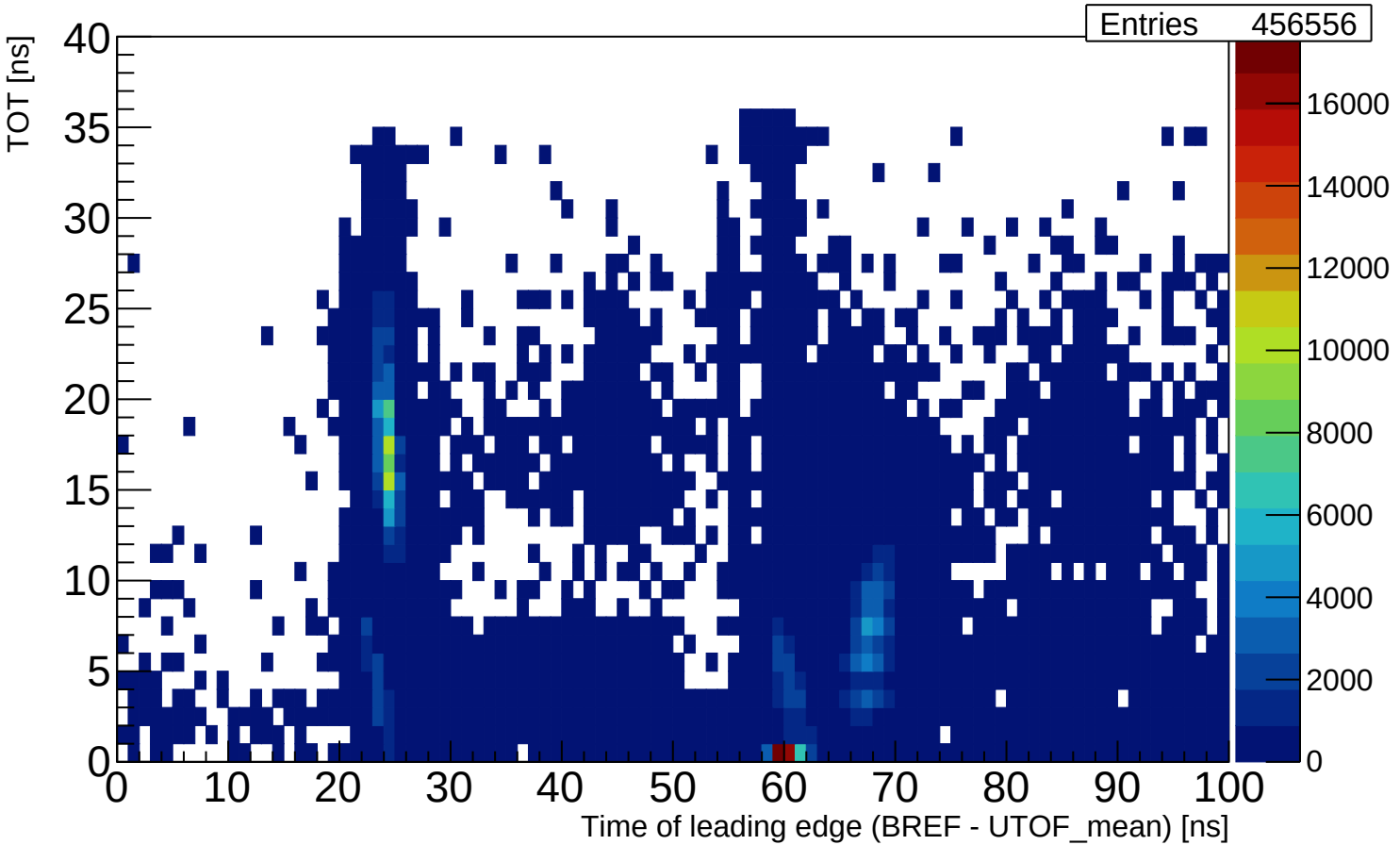

First leading timing edge of upstream BFT ref.
Entries 171989
70000
60000
50000
40000
30000
20000
10000
0
–200
–150
–100
–50
0
50
100
150
200
Time of leading edge (BREF - UTOF_mean) [ns]

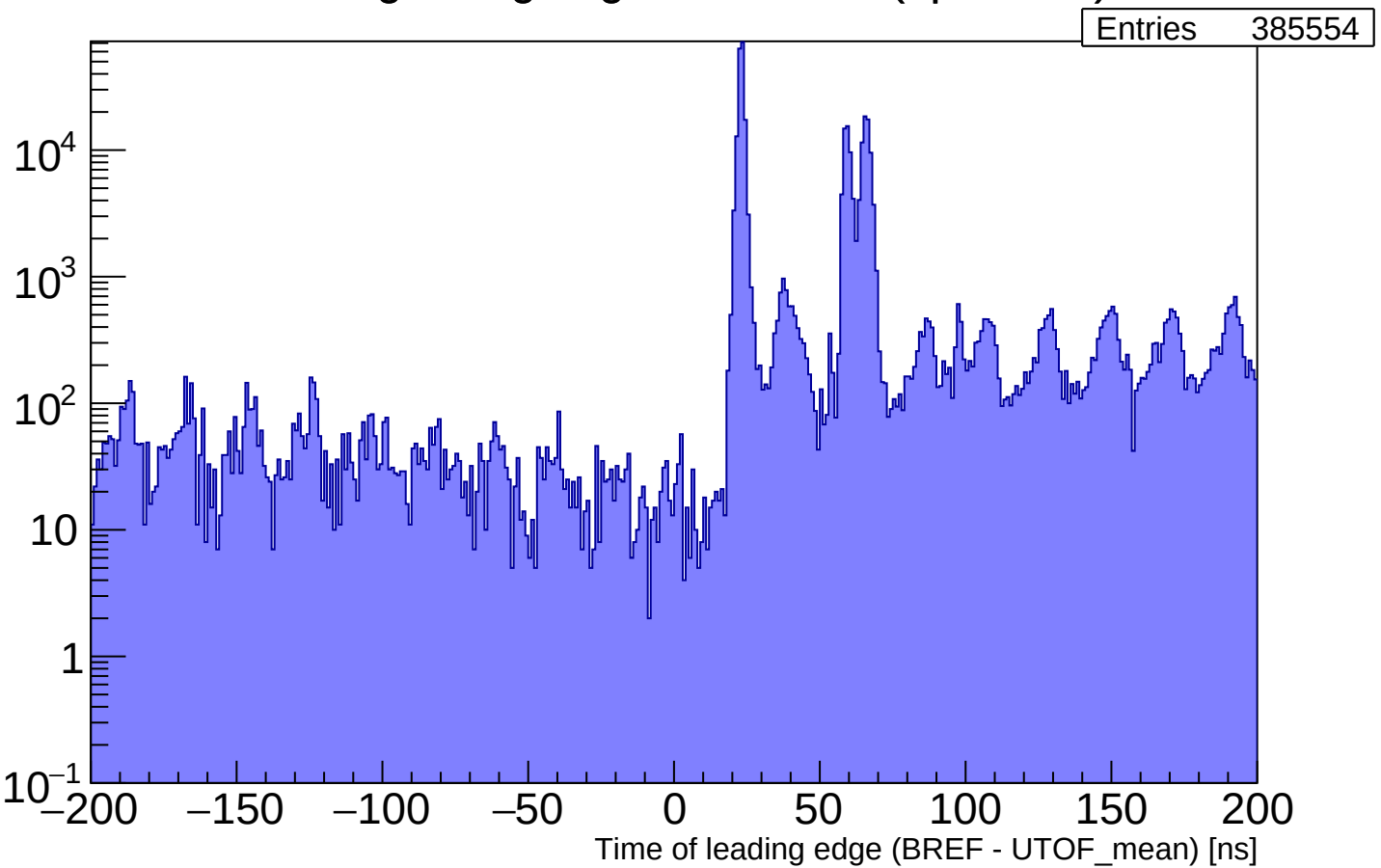

First leading timing edge of downstream BFT ref.
Entries 156867
70000
60000
50000
40000
30000
20000
10000
0
–200
–150
–100
–50
0
50
100
150
200
Time of leading edge (BREF - UTOF_mean) [ns]

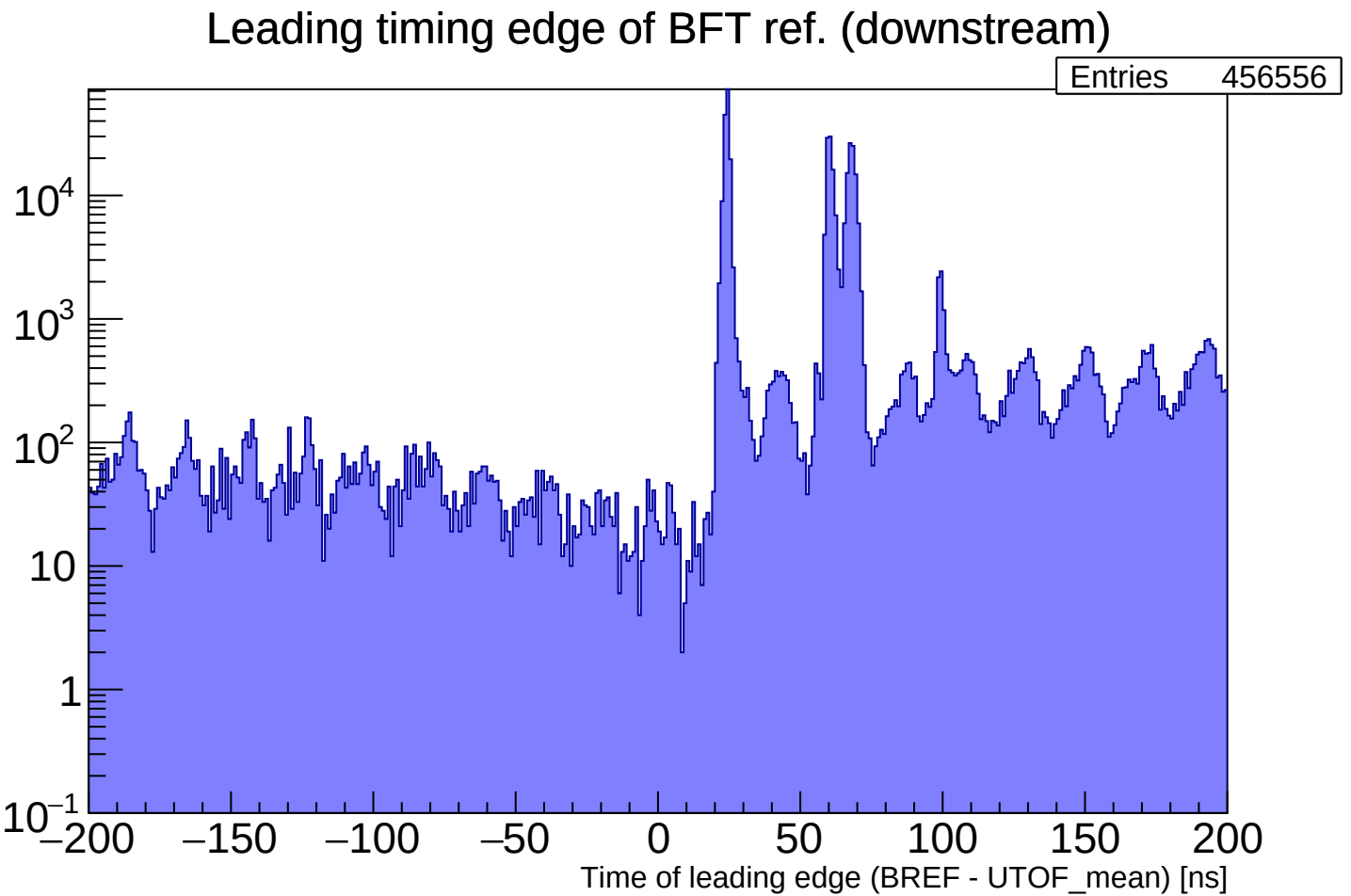

2nd leading timing edge of upstream BFT ref.
Entries 213565
70000
60000
50000
40000
30000
20000
10000
0
–200
–150
–100
–50
0
50
100
150
200
Time of leading edge (BREF - UTOF_mean) [ns]

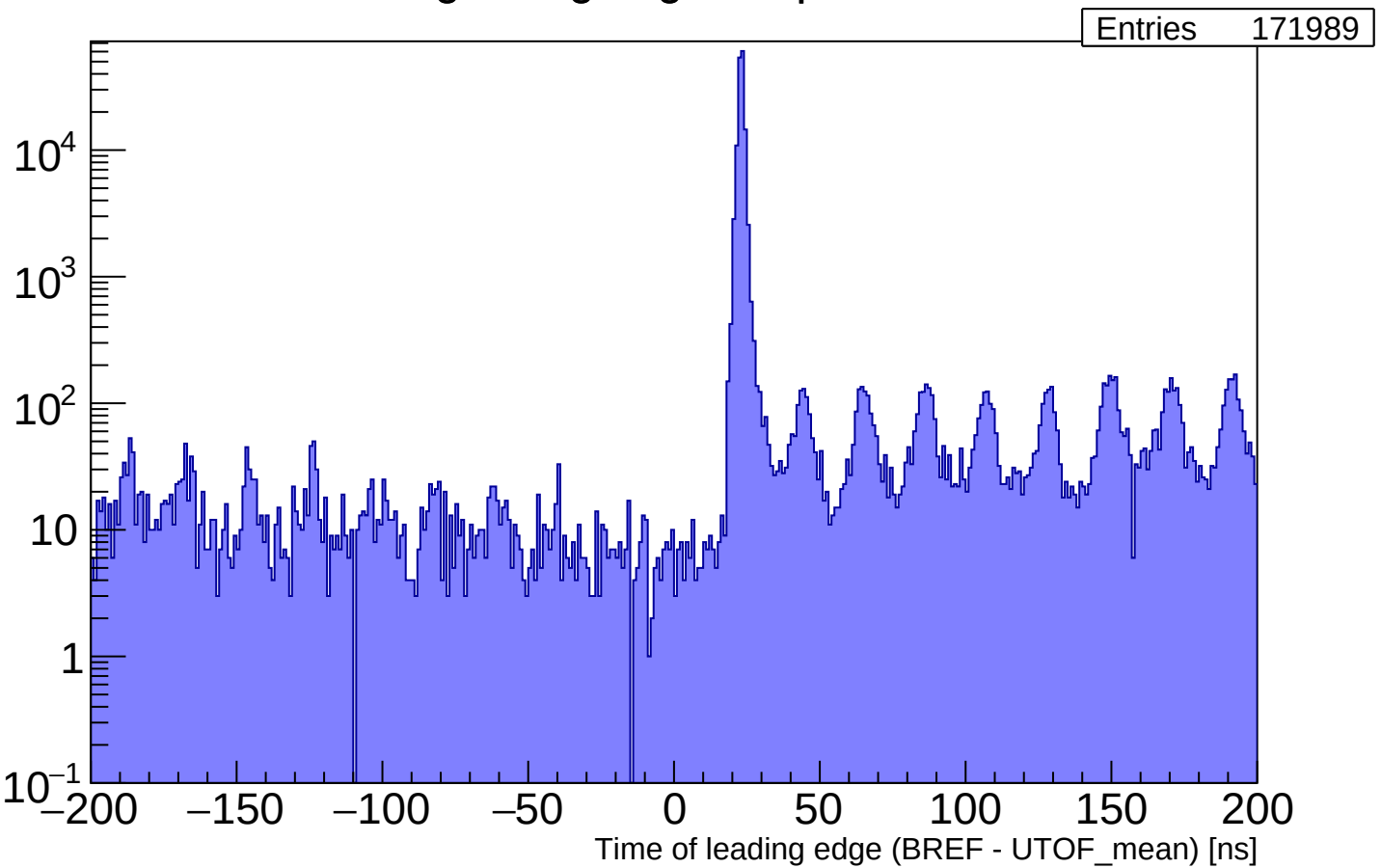

2nd leading timing edge of downstream BFT ref.
Entries 299689
70000
60000
50000
40000
30000
20000
10000
0
–200
–150
–100
–50
0
50
100
150
200
Time of leading edge (BREF - UTOF_mean) [ns]

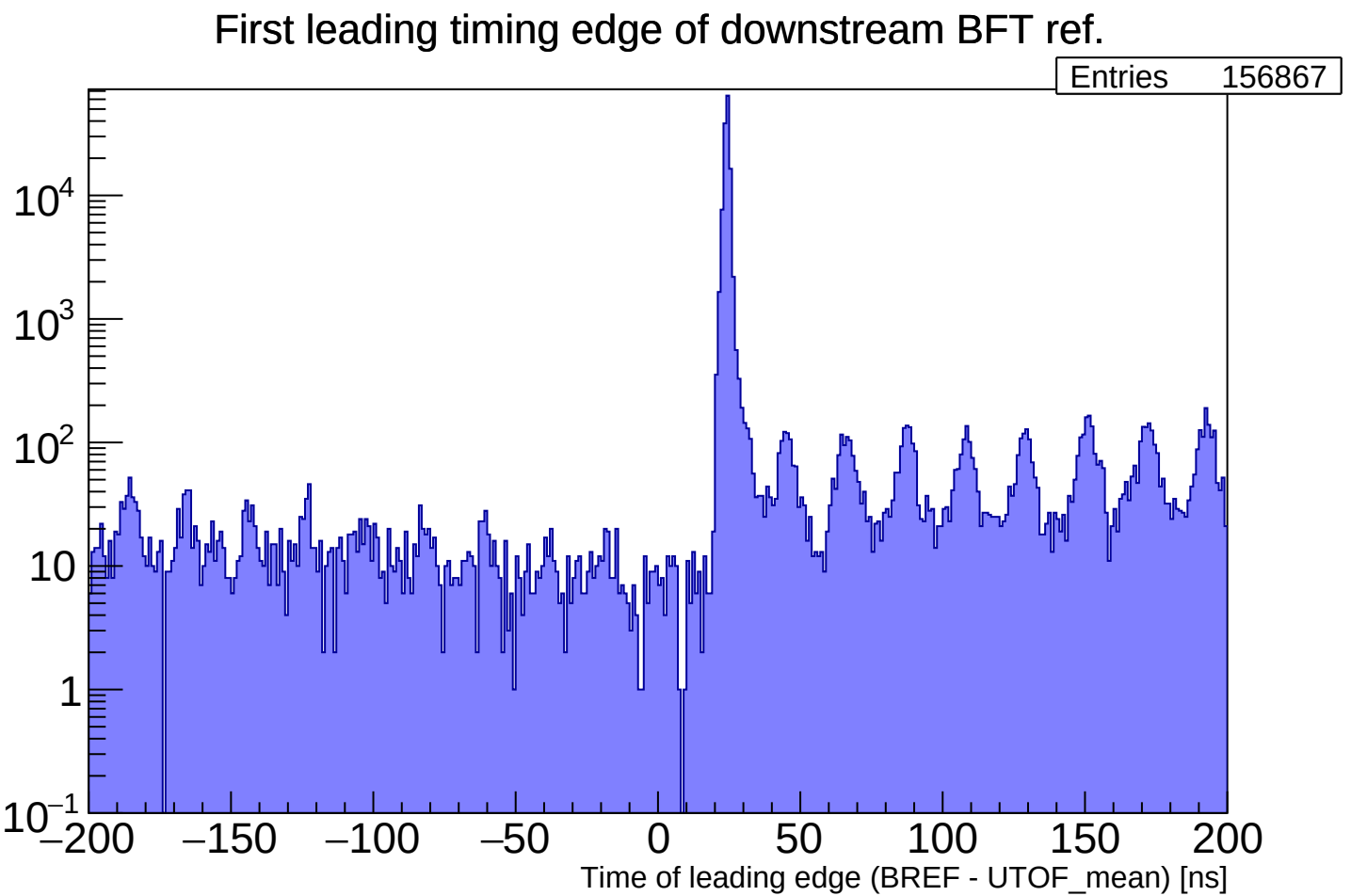

TDC vs TOT of upstream Bref
Entries 385554
TOT [ns]
0
5
10
15
20
25
30
35
40
0
10
20
30
40
50
60
70
80
90
100
Time of leading edge (BREF - UTOF_mean) [ns]
0
2000
4000
6000
8000
10000
12000
14000

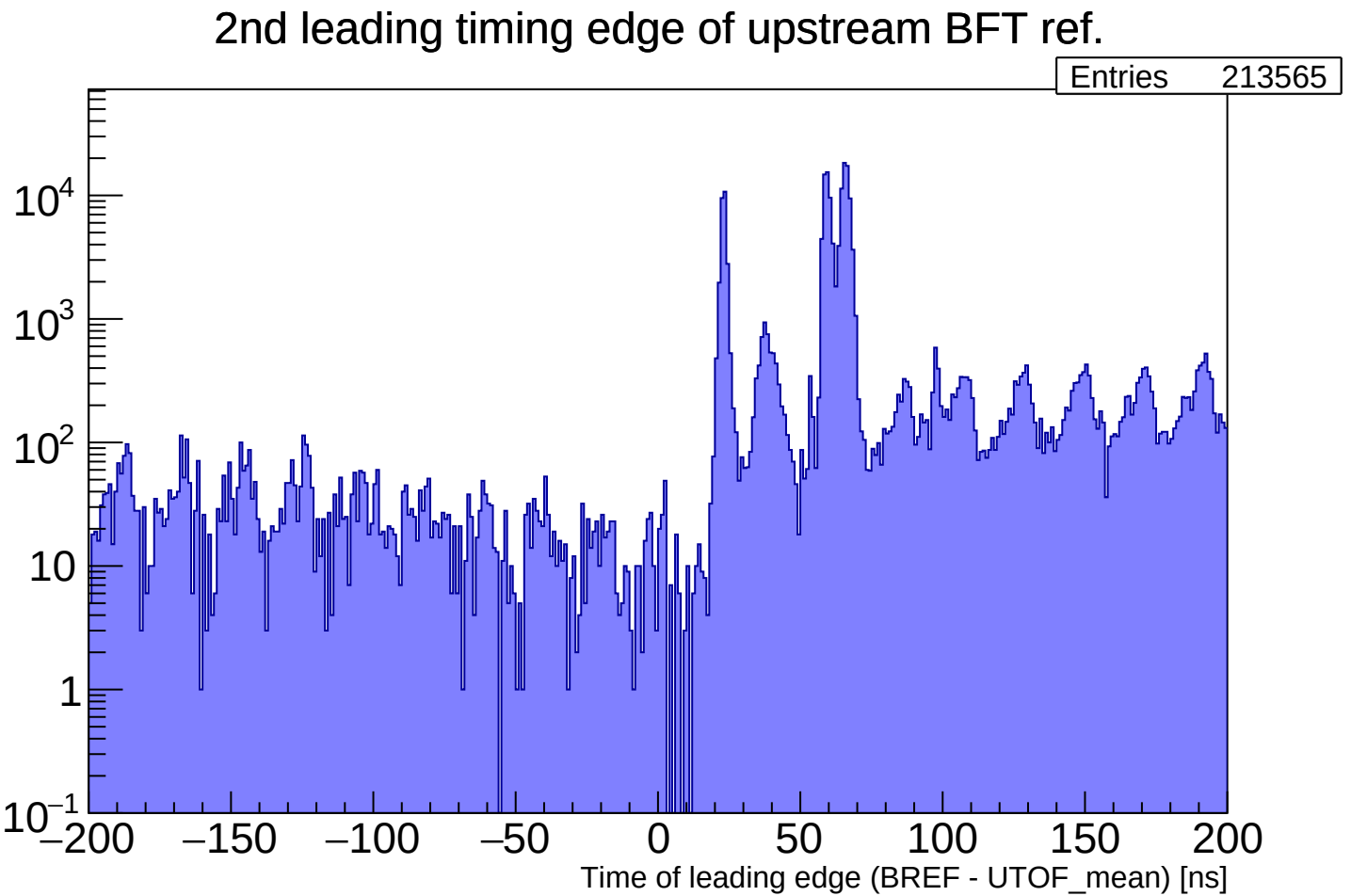

TDC vs TOT of downstream Bref
Entries 456556
TOT [ns]
Time of leading edge (BREF - UTOF_mean) [ns]
0
5
10
15
20
25
30
35
40
0
10
20
30
40
50
60
70
80
90
100
0
2000
4000
6000
8000
10000
12000
14000
16000

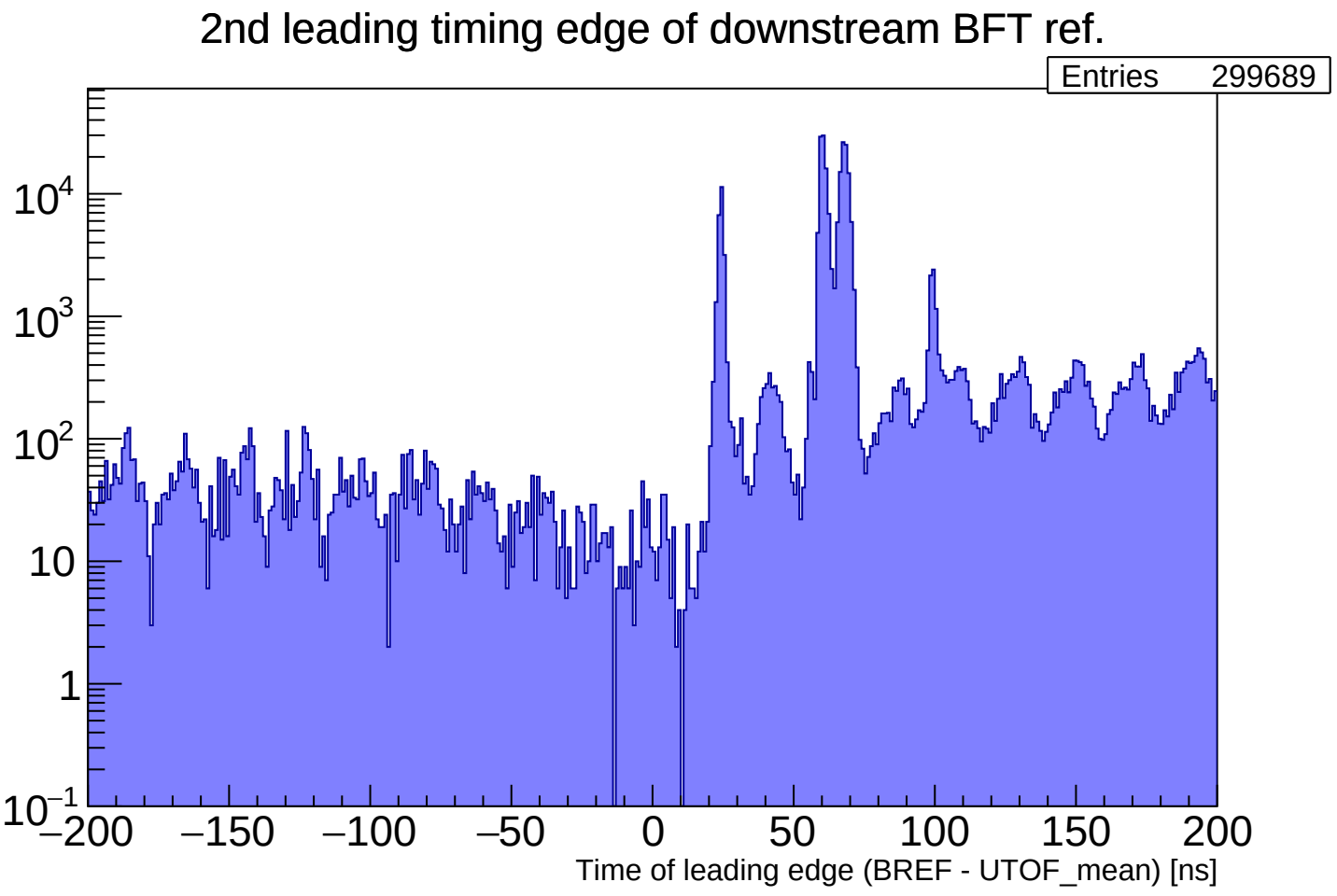

Leading timing edge of BFT ref. (upstream)
Entries 385554
10^4
10^3
10^2
10
1
10^{-1}
–200
–150
–100
–50
0
50
100
150
200
Time of leading edge (BREF - UTOF_mean) [ns]

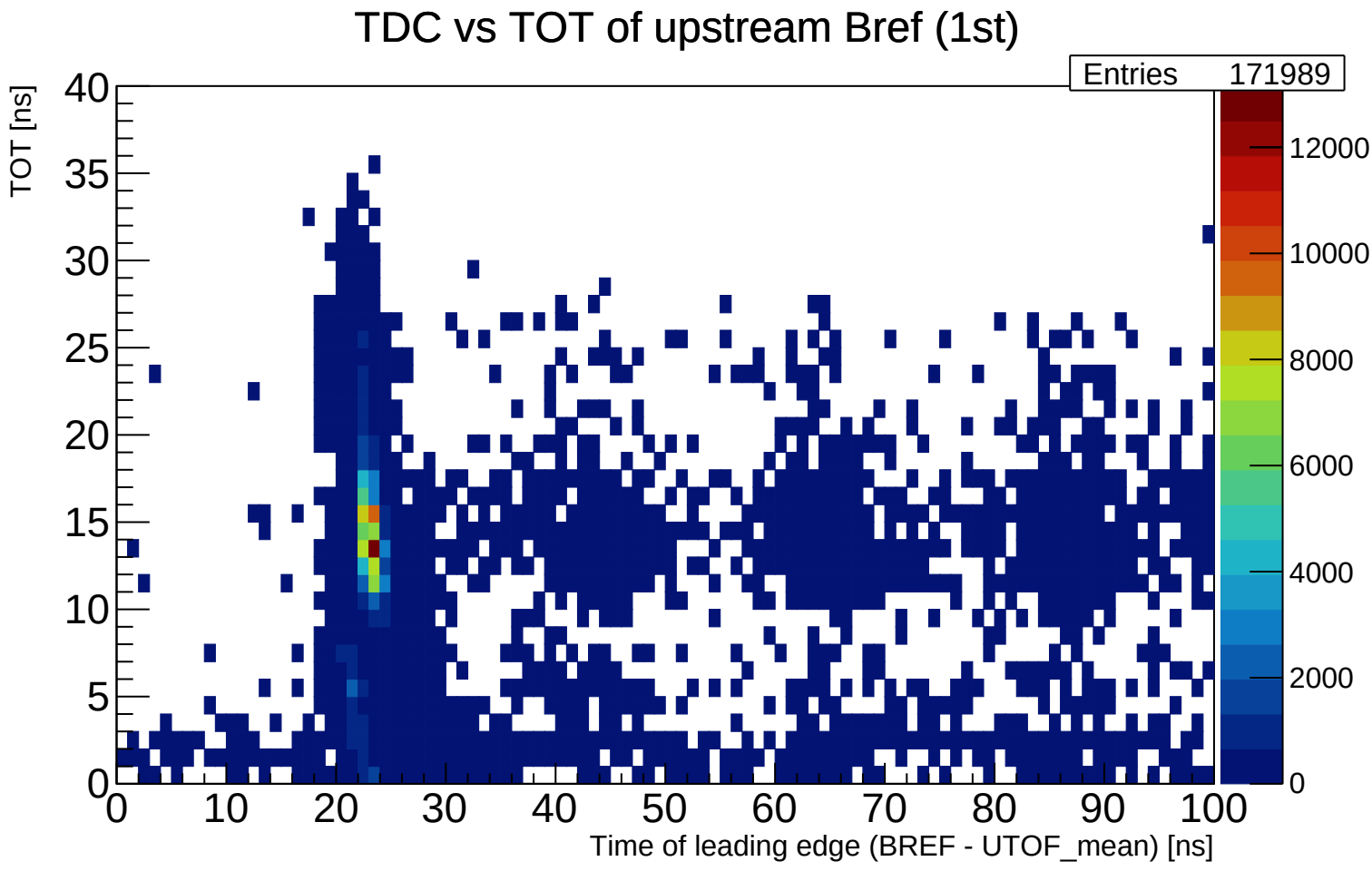

Leading timing edge of BFT ref. (downstream)
Entries 456556
10^4
10^3
10^2
10
1
10^{-1}
–200
–150
–100
–50
0
50
100
150
200
Time of leading edge (BREF - UTOF_mean) [ns]

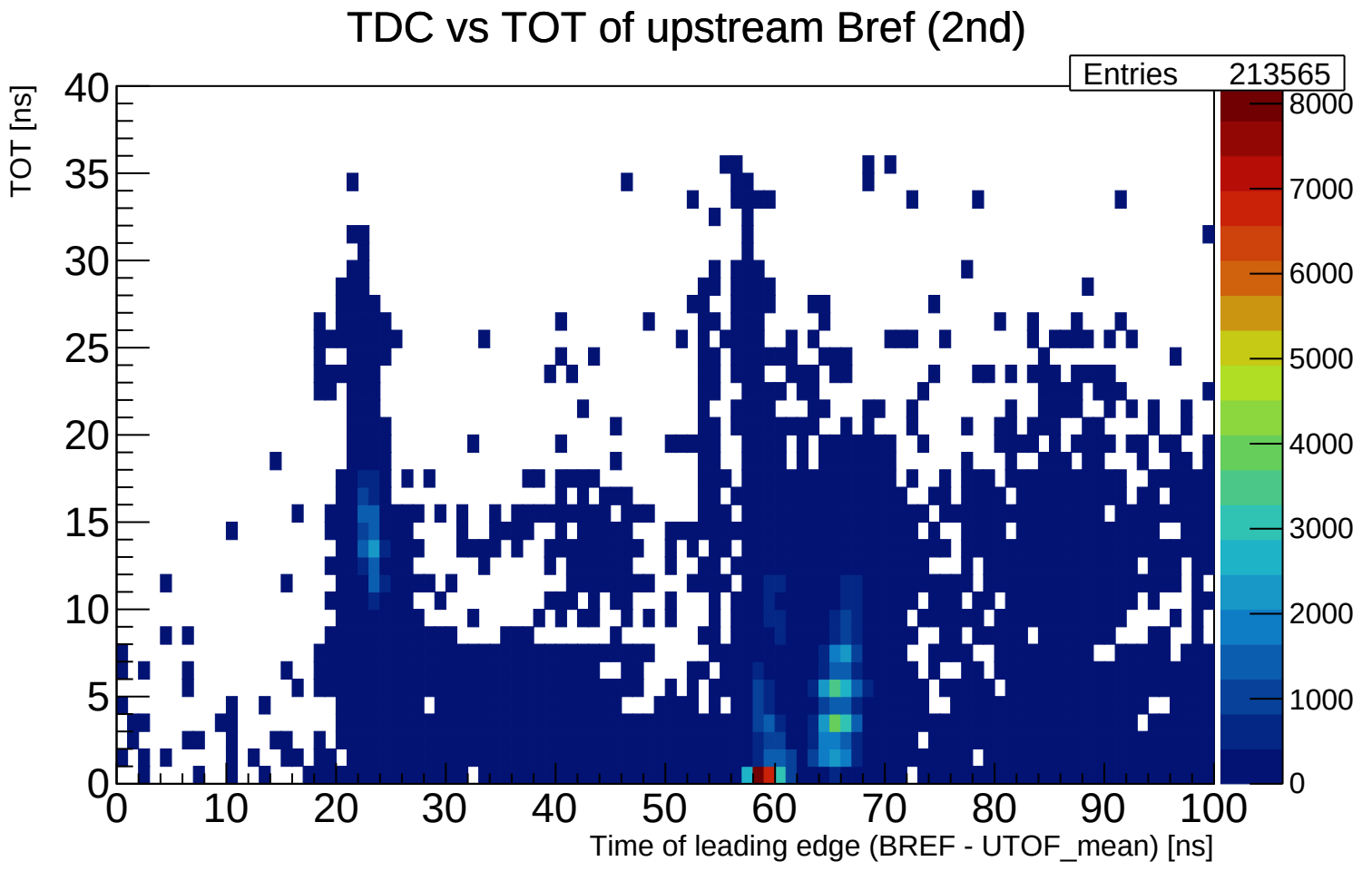

First leading timing edge of upstream BFT ref.
Entries 171989
10^4
10^3
10^2
10
1
10^{-1}
–200
–150
–100
–50
0
50
100
150
200
Time of leading edge (BREF - UTOF_mean) [ns]

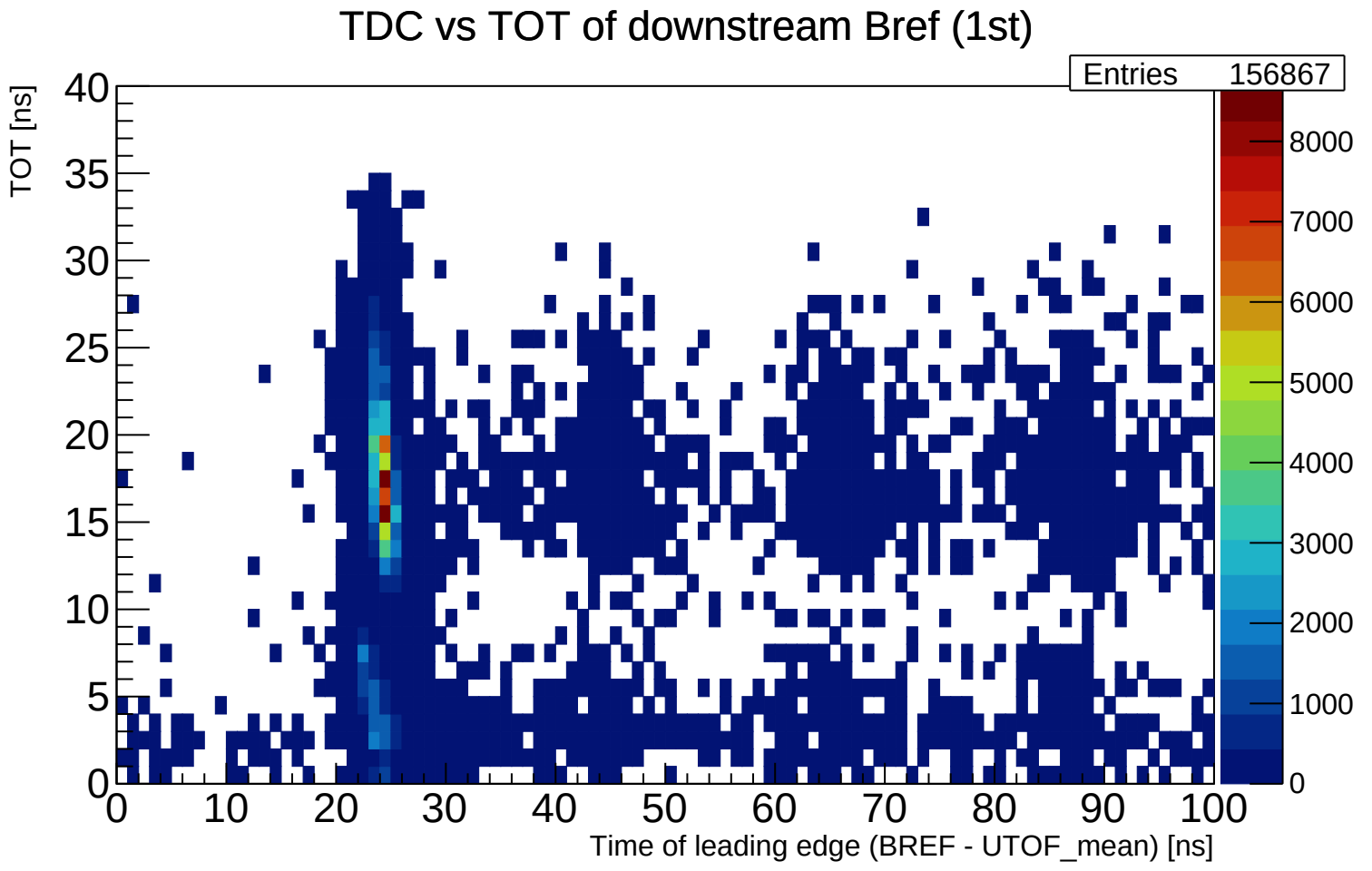

First leading timing edge of downstream BFT ref.
Entries 156867
10^4
10^3
10^2
10
1
10^{-1}
–200
–150
–100
–50
0
50
100
150
200
Time of leading edge (BREF - UTOF_mean) [ns]

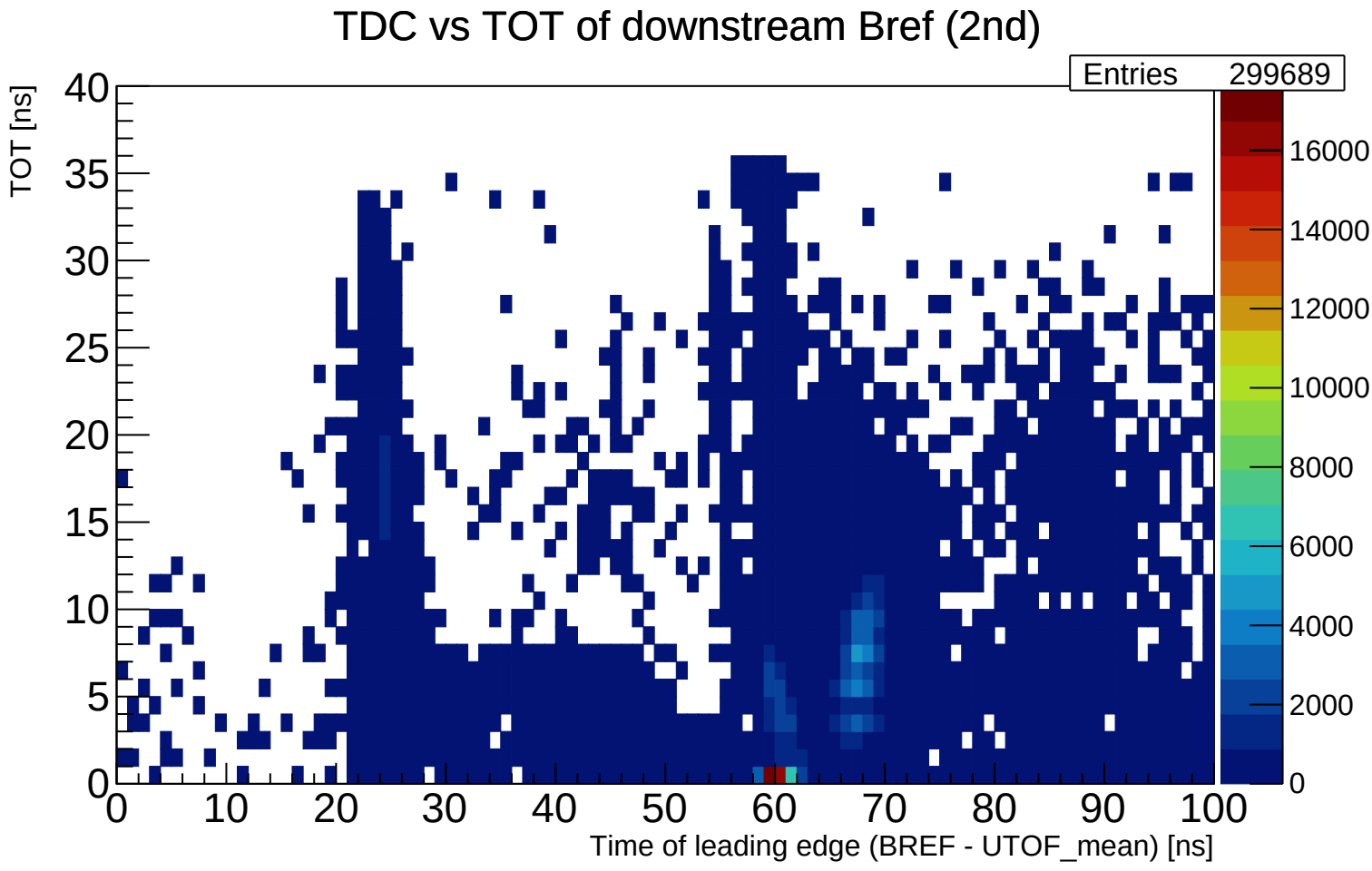

2nd leading timing edge of upstream BFT ref.
Entries 213565
10^4
10^3
10^2
10
1
10^{-1}
–200
–150
–100
–50
0
50
100
150
200
Time of leading edge (BREF - UTOF_mean) [ns]

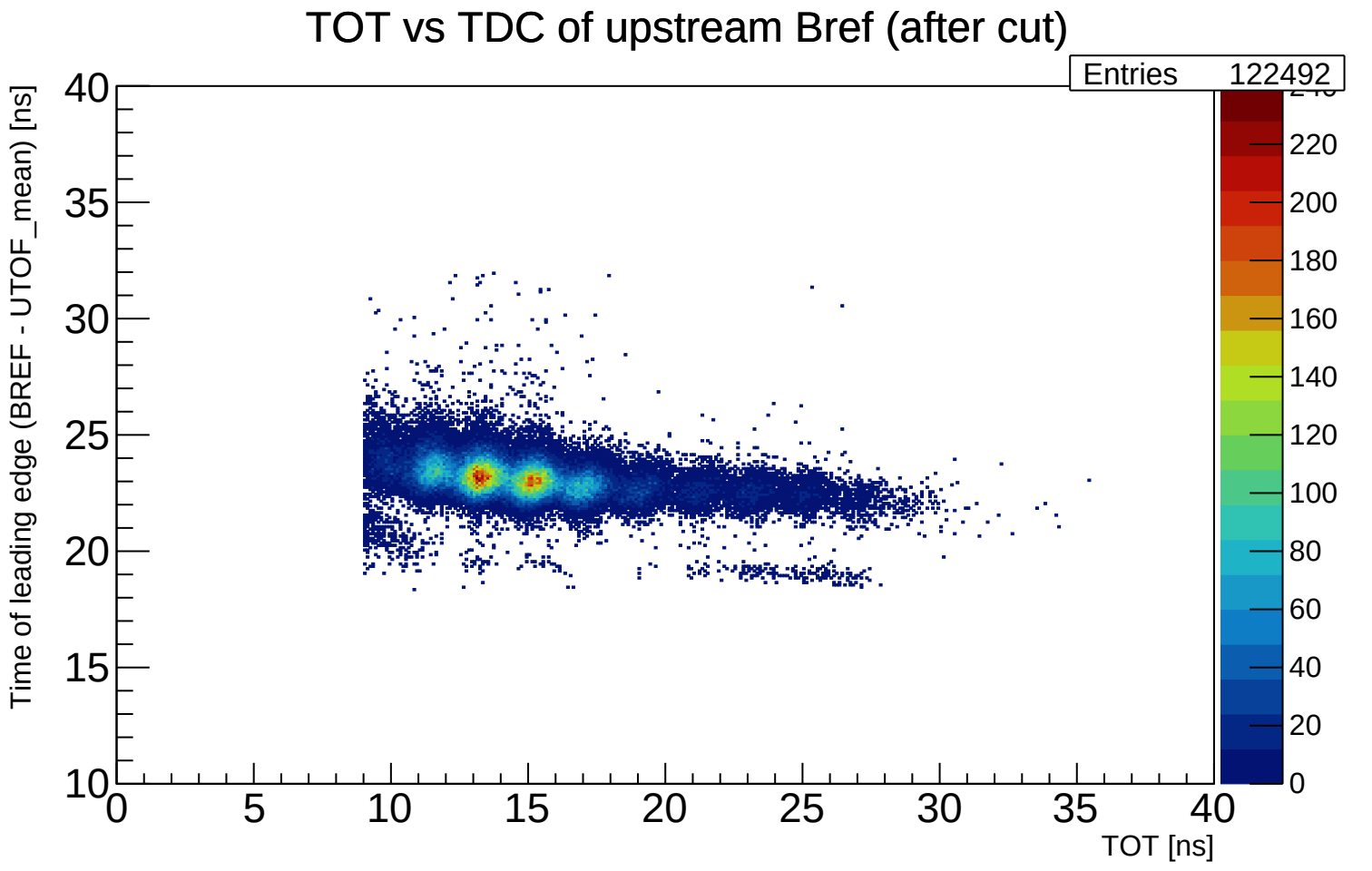

2nd leading timing edge of downstream BFT ref.
Entries 299689
10^4
10^3
10^2
10
1
10^{-1}
–200
–150
–100
–50
0
50
100
150
200
Time of leading edge (BREF - UTOF_mean) [ns]

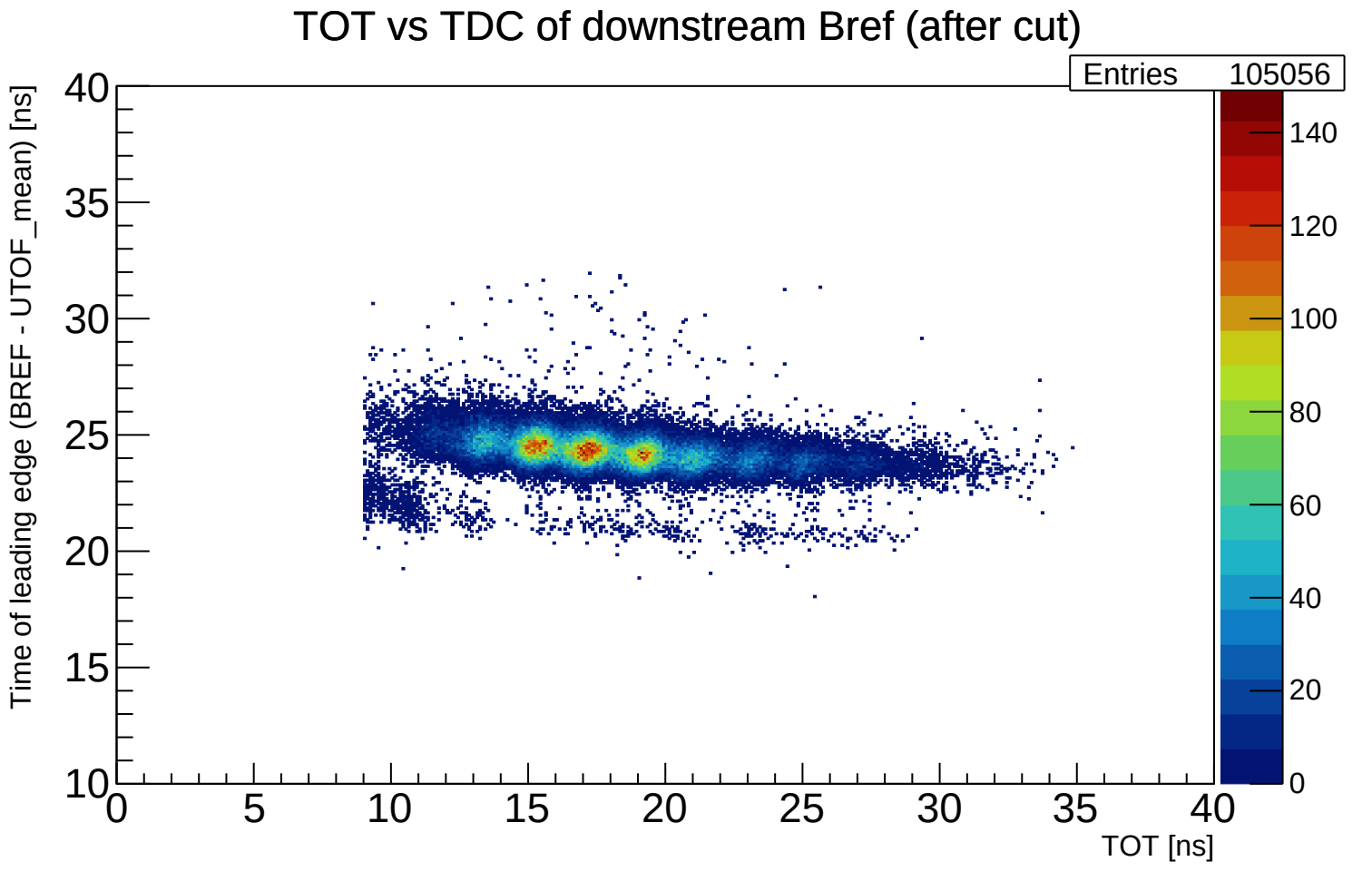

TDC vs TOT of upstream Bref (1st)
Entries 171989
TOT [ns]
Time of leading edge (BREF - UTOF_mean) [ns]
0
5
10
15
20
25
30
35
40
0
10
20
30
40
50
60
70
80
90
100
0
2000
4000
6000
8000
10000
12000

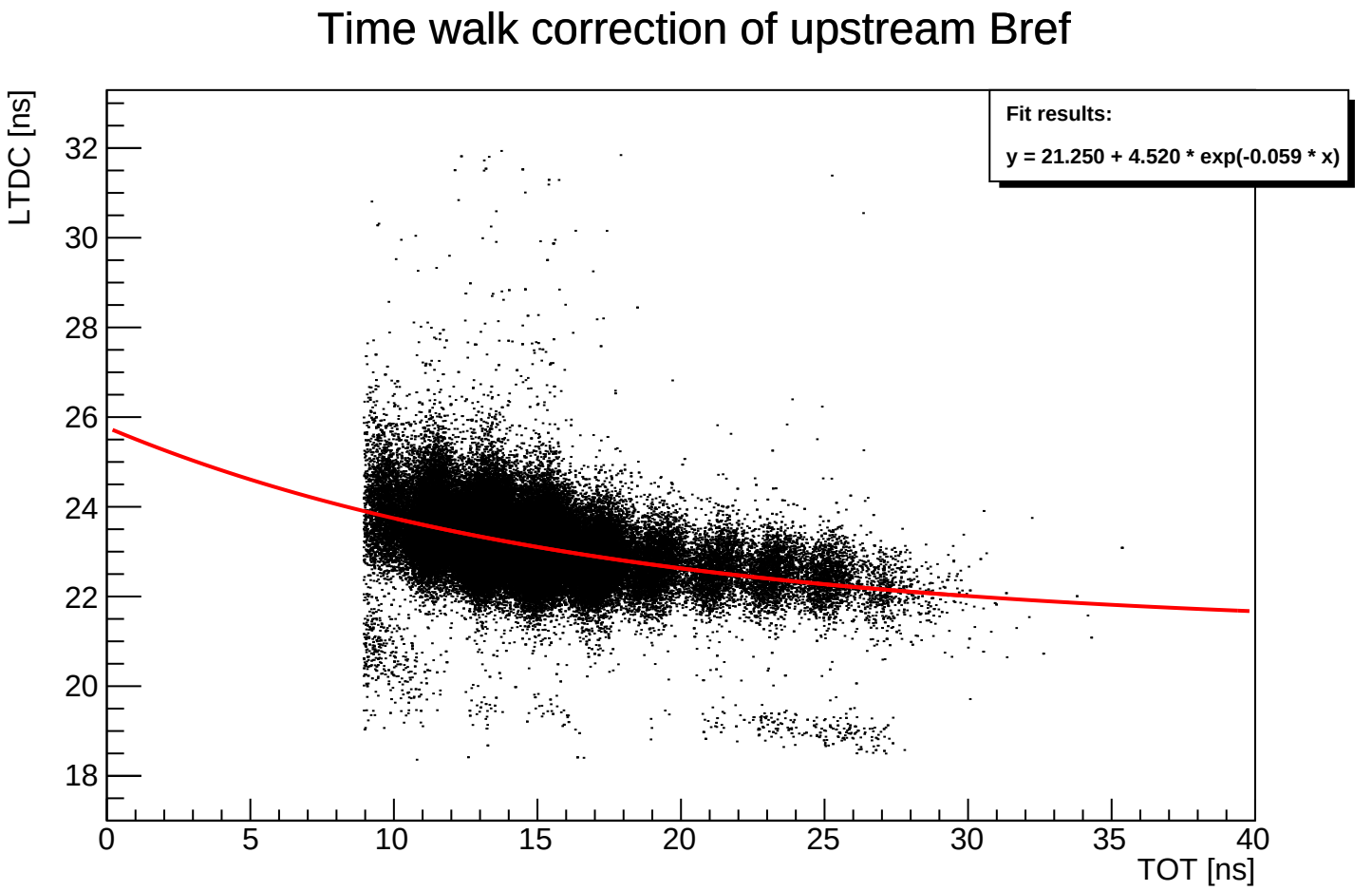

TDC vs TOT of upstream Bref (2nd)
Entries 213565
TOT [ns]
Time of leading edge (BREF - UTOF_mean) [ns]
0
5
10
15
20
25
30
35
40
0
10
20
30
40
50
60
70
80
90
100
0
1000
2000
3000
4000
5000
6000
7000
8000

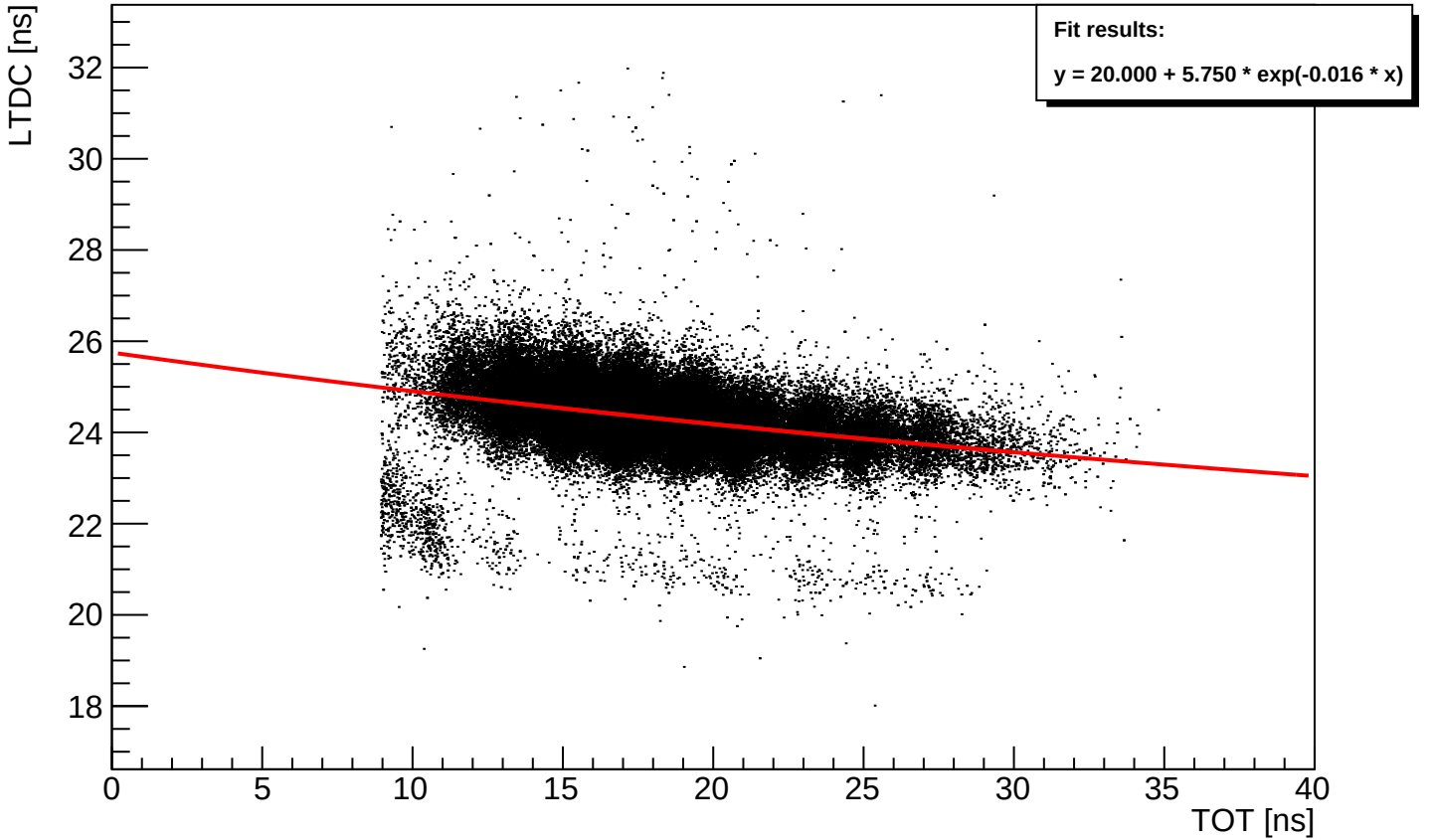

TDC vs TOT of downstream Bref (1st)
Entries 156867
TOT [ns]
Time of leading edge (BREF - UTOF_mean) [ns]
0
5
10
15
20
25
30
35
40
0
10
20
30
40
50
60
70
80
90
100
0
1000
2000
3000
4000
5000
6000
7000
8000

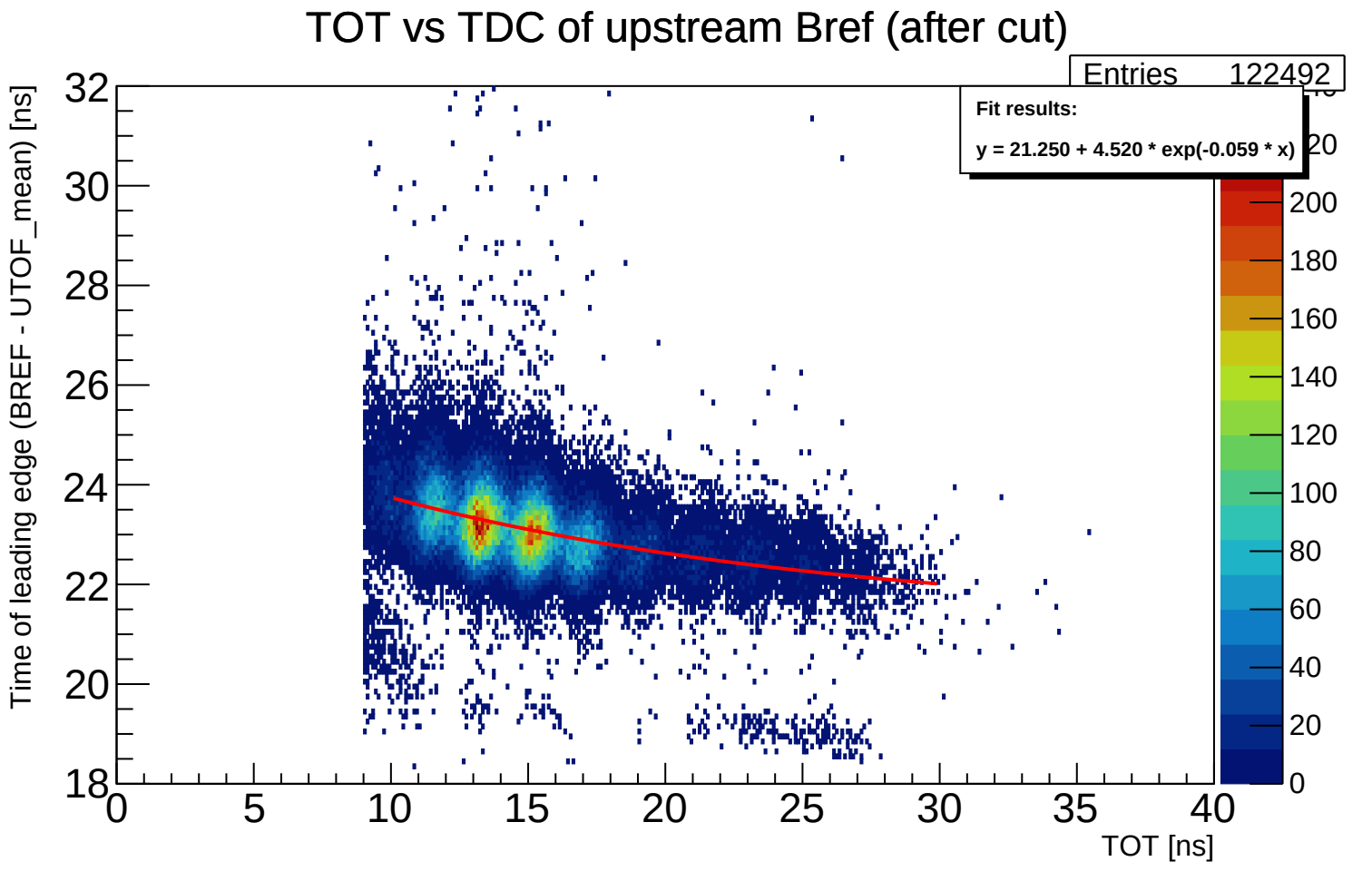

TDC vs TOT of downstream Bref (2nd)
Entries 299689
TOT [ns]
Time of leading edge (BREF - UTOF_mean) [ns]
0
5
10
15
20
25
30
35
40
0
10
20
30
40
50
60
70
80
90
100
0
2000
4000
6000
8000
10000
12000
14000
16000

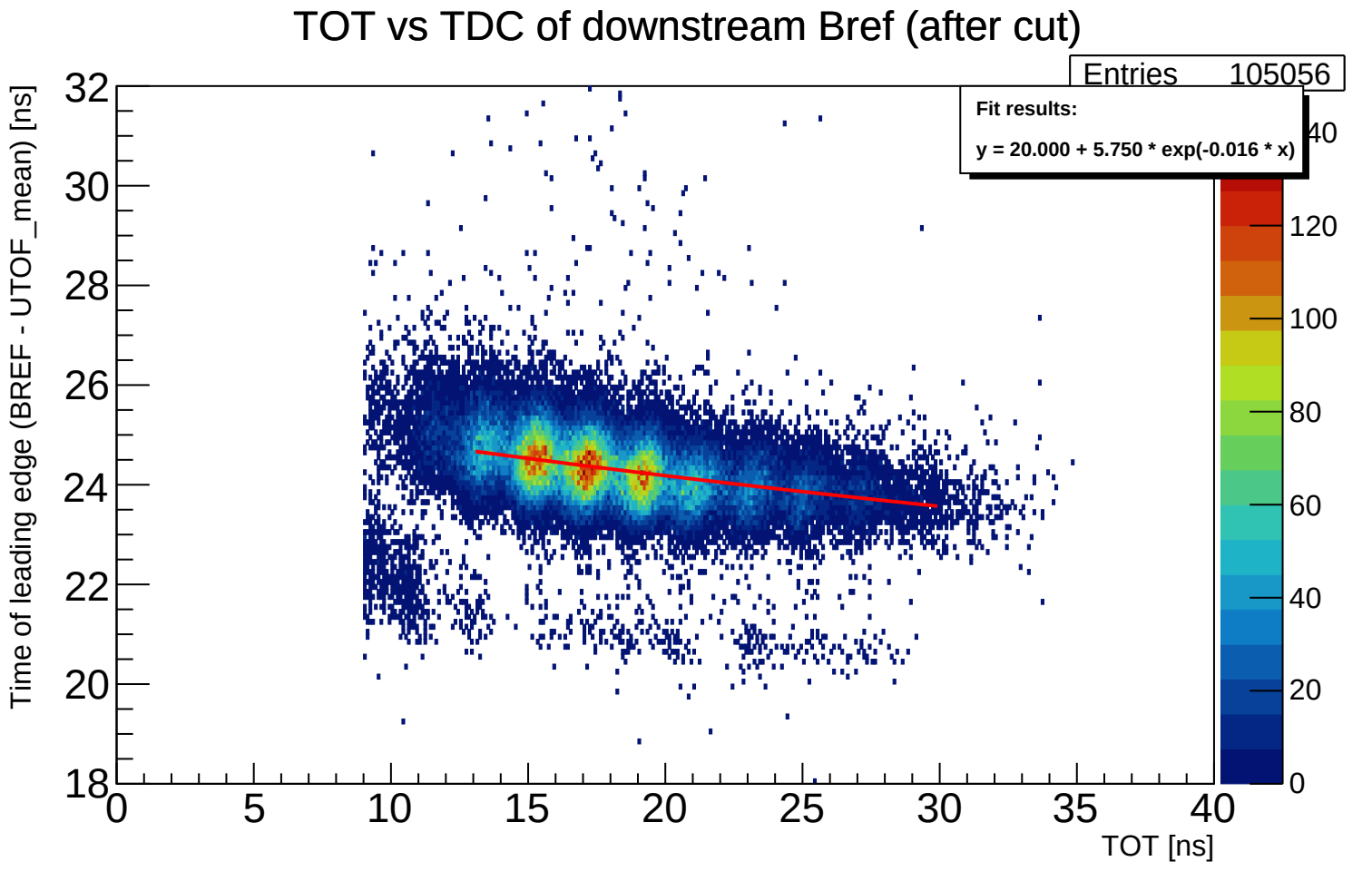

TOT vs TDC of upstream Bref (after cut)
Entries 122492
Time of leading edge (BREF - UTOF_mean) [ns]
TOT [ns]
40
35
30
25
20
15
10
0
5
10
15
20
25
30
35
40
220
200
180
160
140
120
100
80
60
40
20
0

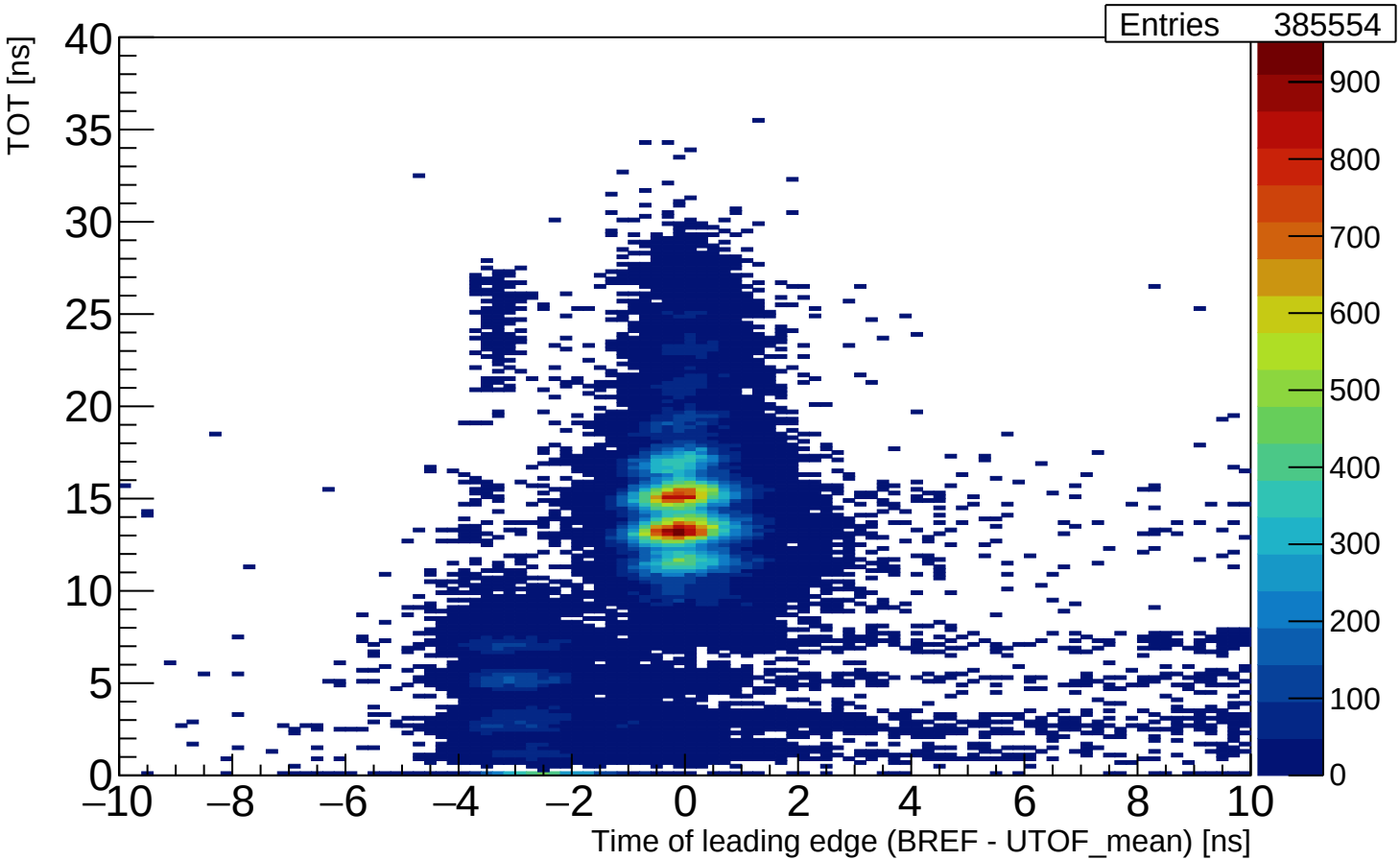

TOT vs TDC of downstream Bref (after cut)
Entries 105056
Time of leading edge (BREF - UTOF_mean) [ns]
TOT [ns]
40
35
30
25
20
15
10
0
5
10
15
20
25
30
35
40
140
120
100
80
60
40
20
0

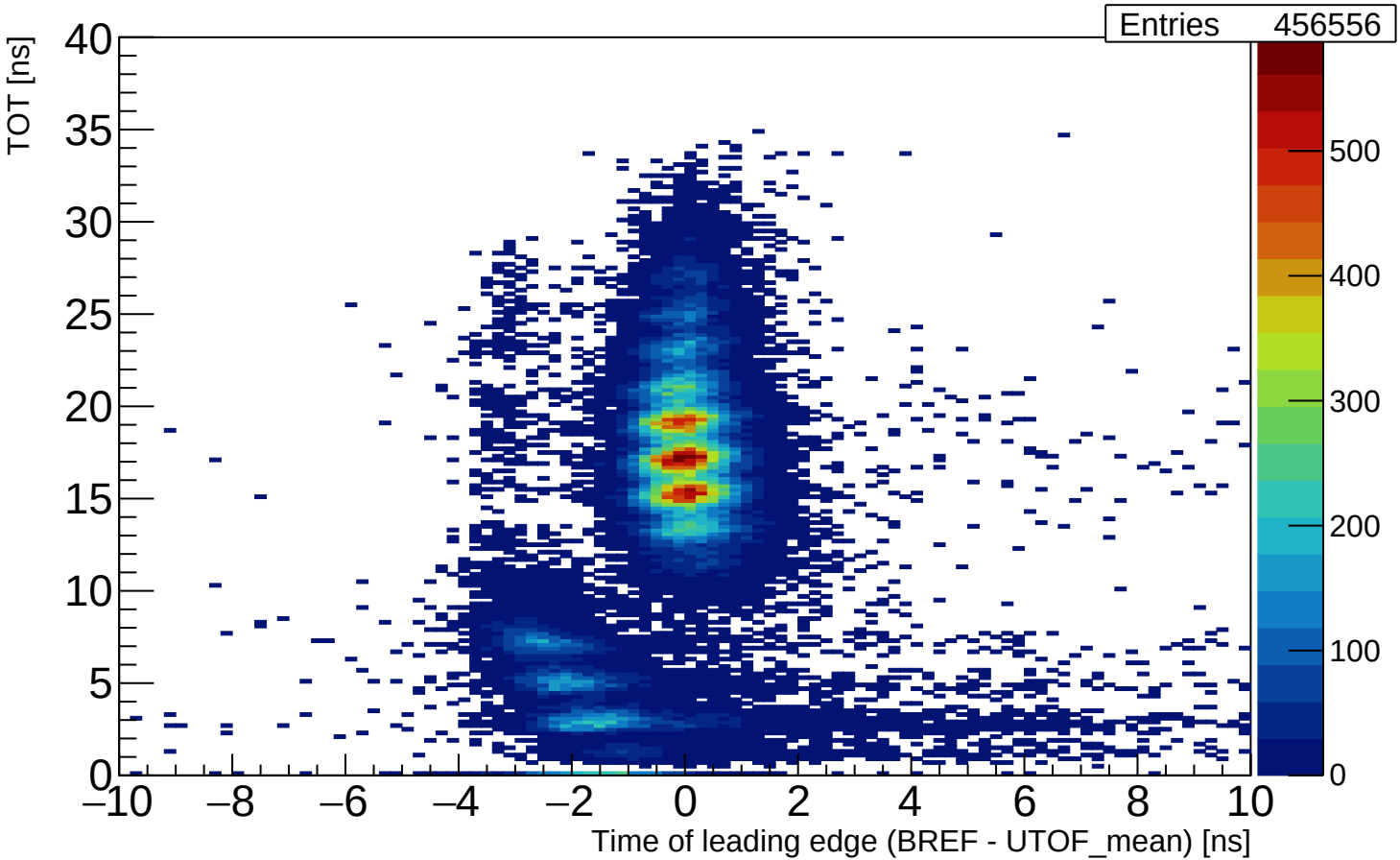

Time walk correction of upstream Bref
Fit results:
y = 21.250 + 4.520 * exp(-0.059 * x)
LTDC [ns]
32
30
28
26
24
22
20
18
0
5
10
15
20
25
30
35
40
TOT [ns]

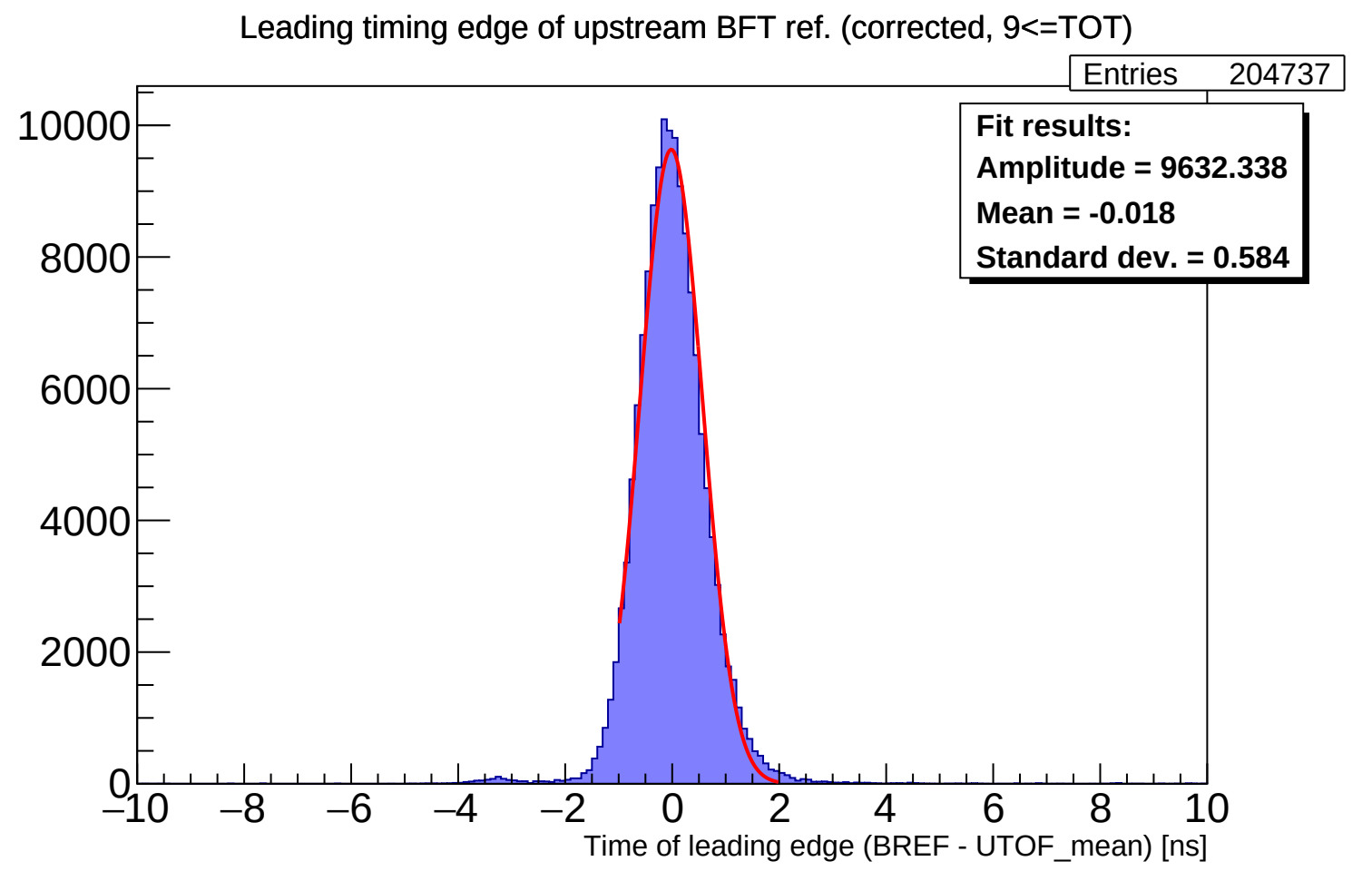

Time walk correction of downstream Bref
Fit results:
y = 20.000 + 5.750 * exp(-0.016 * x)
LTDC [ns]
32
30
28
26
24
22
20
18
0
5
10
15
20
25
30
35
40
TOT [ns]

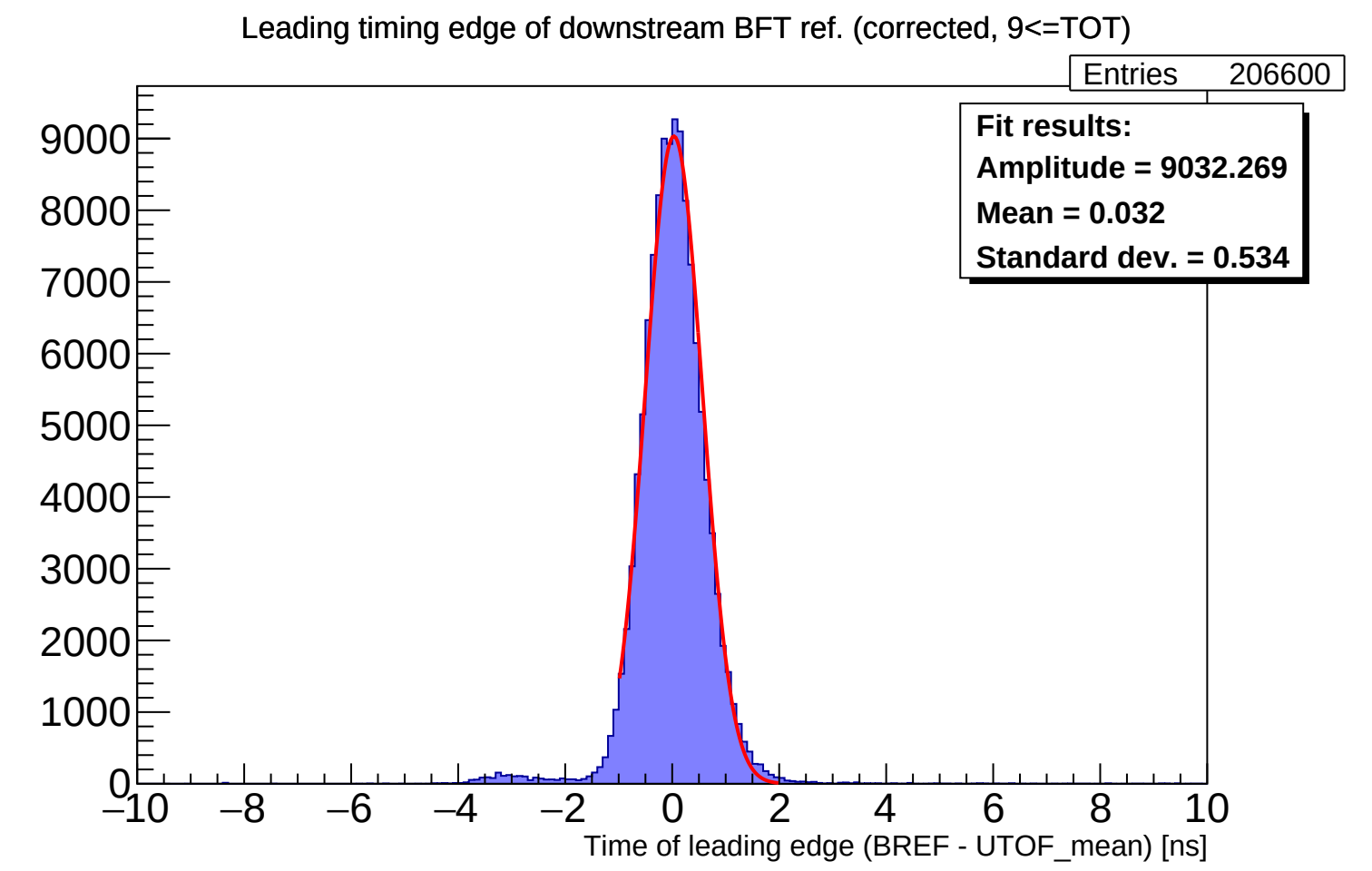

TOT vs TDC of upstream Bref (after cut)
Entries 122492
Fit results:
y = 21.250 + 4.520 * exp(-0.059 * x)
Time of leading edge (BREF - UTOF_mean) [ns]
TOT [ns]
32
30
28
26
24
22
20
18
0
5
10
15
20
25
30
35
40
200
180
160
140
120
100
80
60
40
20
0

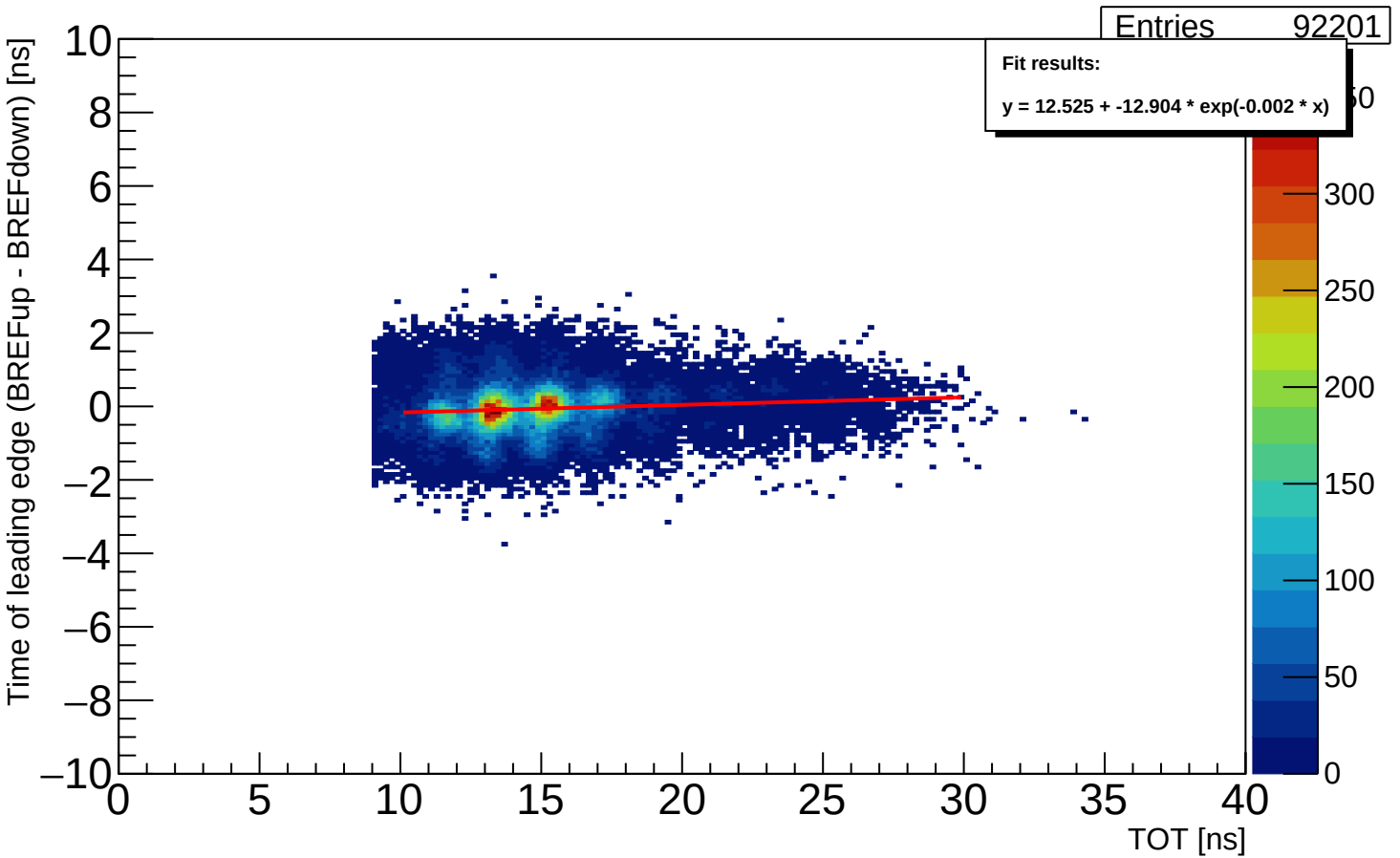

TOT vs TDC of downstream Bref (after cut)
Entries 105056
Fit results:
y = 20.000 + 5.750 * exp(-0.016 * x)
Time of leading edge (BREF - UTOF_mean) [ns]
TOT [ns]
32
30
28
26
24
22
20
18
0
5
10
15
20
25
30
35
40
120
100
80
60
40
20
0

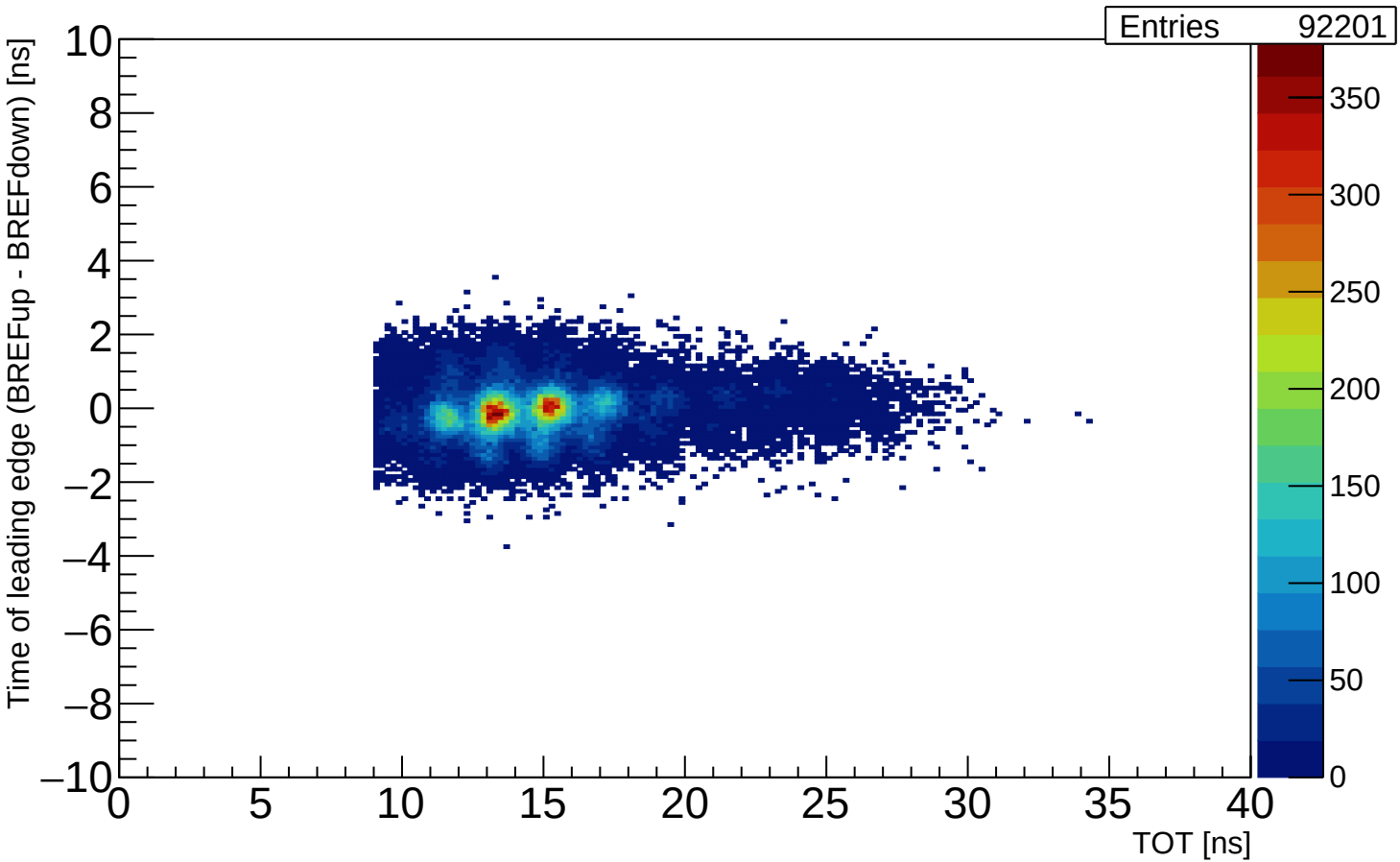

TDC vs TOT of upstream Bref (time walk corrected)
Entries 385554
TOT [ns]
40
35
30
25
20
15
10
5
0
−10
−8
−6
−4
−2
0
2
4
6
8
10
Time of leading edge (BREF - UTOF_mean) [ns]
900
800
700
600
500
400
300
200
100
0

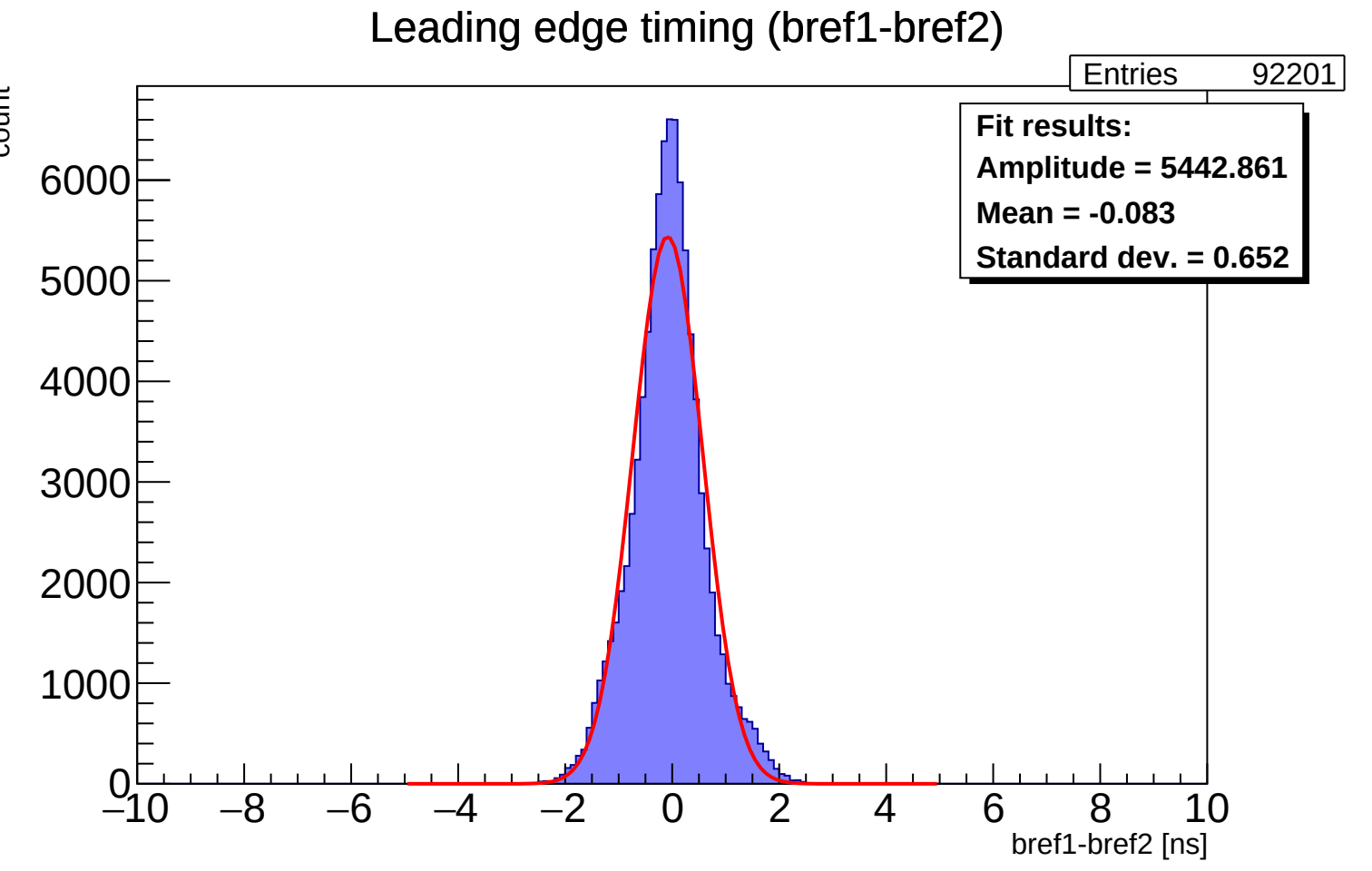

TDC vs TOT of downstream Bref (time walk corrected)
Entries 456556
TOT [ns]
40
35
30
25
20
15
10
5
0
−10
−8
−6
−4
−2
0
2
4
6
8
10
Time of leading edge (BREF - UTOF_mean) [ns]
500
400
300
200
100
0

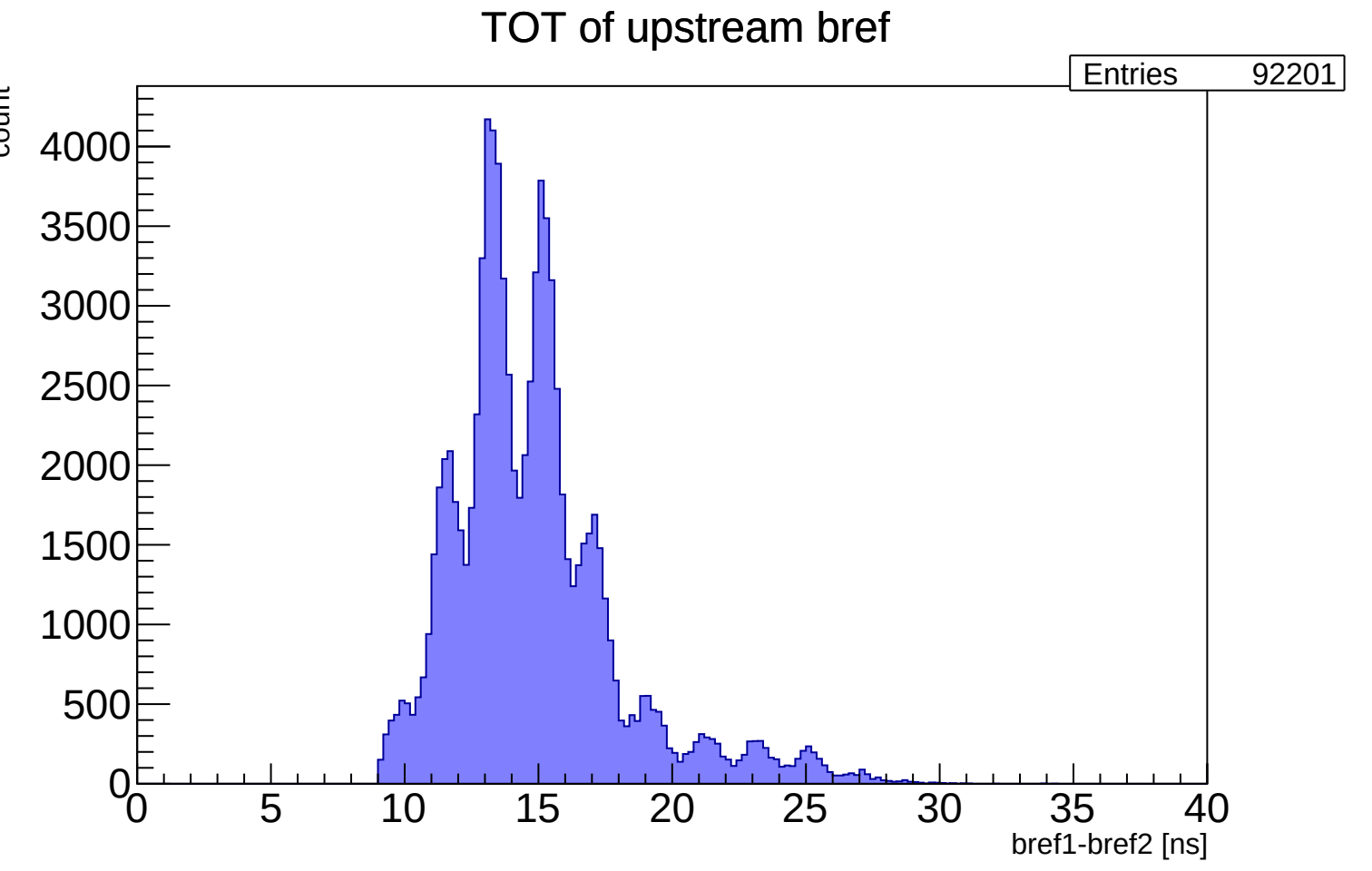

Leading timing edge of upstream BFT ref. (corrected, 9<=TOT)
Entries 204737
Fit results:
Amplitude = 9632.338
Mean = -0.018
Standard dev. = 0.584
10000
8000
6000
4000
2000
0
−10
−8
−6
−4
−2
0
2
4
6
8
10
Time of leading edge (BREF - UTOF_mean) [ns]

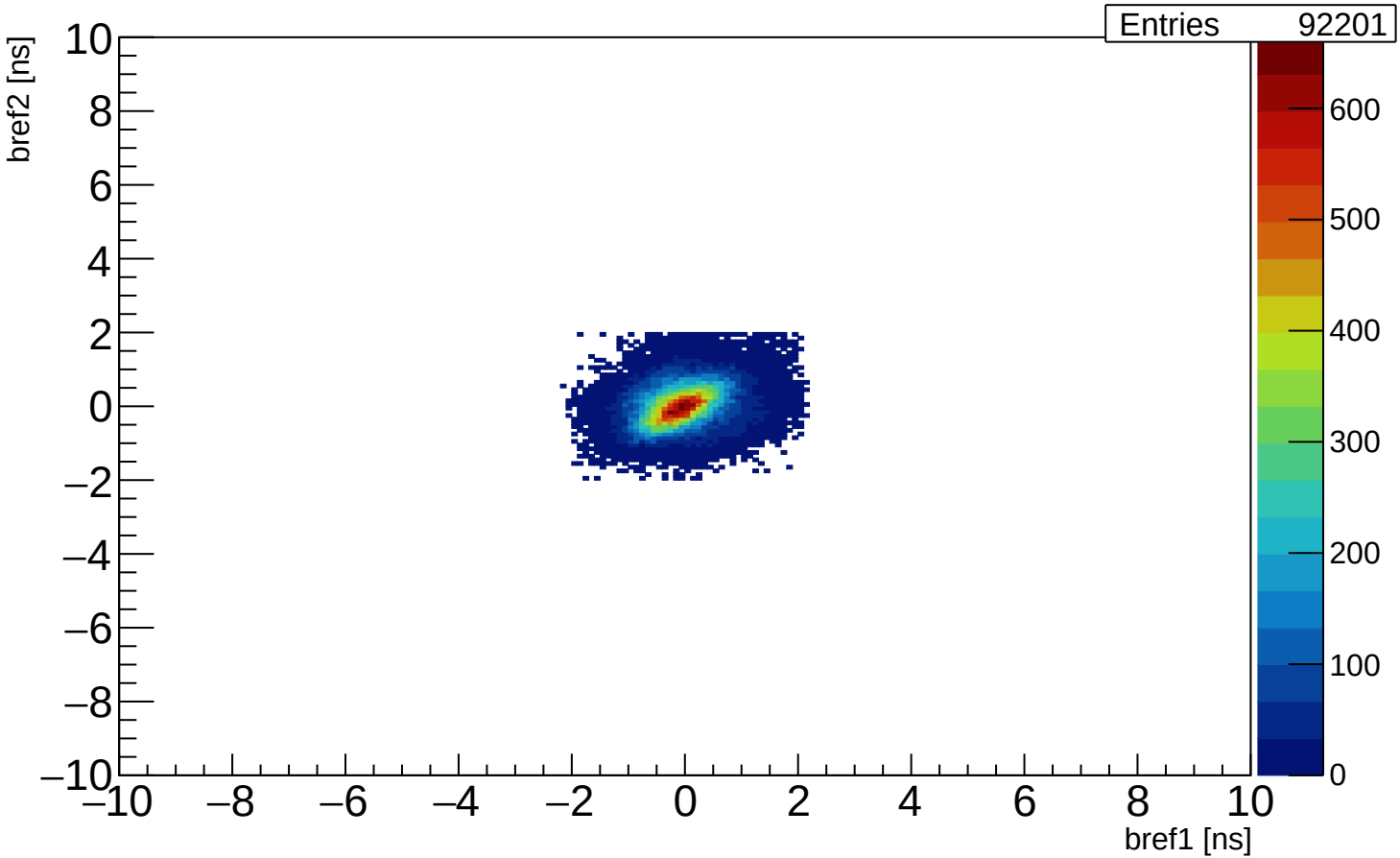

Leading timing edge of downstream BFT ref. (corrected, 9<=TOT)
Entries 206600
Fit results:
Amplitude = 9032.269
Mean = 0.032
Standard dev. = 0.534
9000
8000
7000
6000
5000
4000
3000
2000
1000
0
–10
–8
–6
–4
–2
0
2
4
6
8
10
Time of leading edge (BREF - UTOF_mean) [ns]


Time walk correction between Bref
Entries 92201
Fit results:
y = 12.525 + -12.904 * exp(-0.002 * x)
Time of leading edge (BREFup - BREFdown) [ns]
TOT [ns]
10
8
6
4
2
0
−2
−4
−6
−8
−10
0
5
10
15
20
25
30
35
40
300
250
200
150
100
50
0


Time walk correction between Bref
Entries 92201
Time of leading edge (BREFup - BREFdown) [ns]
TOT [ns]
10
8
6
4
2
0
−2
−4
−6
−8
−10
0
5
10
15
20
25
30
35
40
350
300
250
200
150
100
50
0


Leading edge timing (bref1-bref2)
Entries 92201
Fit results:
Amplitude = 5442.861
Mean = -0.083
Standard dev. = 0.652
count
6000
5000
4000
3000
2000
1000
0
–10
–8
–6
–4
–2
0
2
4
6
8
10
bref1-bref2 [ns]


TOT of upstream bref
Entries 92201
count
4000
3500
3000
2500
2000
1500
1000
500
0
0
5
10
15
20
25
30
35
40
bref1-bref2 [ns]


LTDC correction between Bref
Entries 92201
bref2 [ns]
bref1 [ns]
10
8
6
4
2
0
−2
−4
−6
−8
−10
600
500
400
300
200
100
0