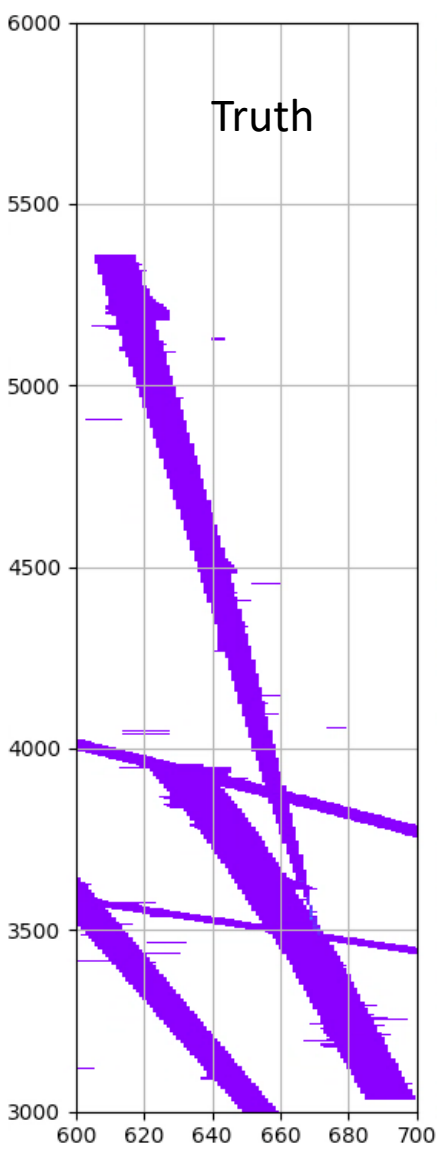
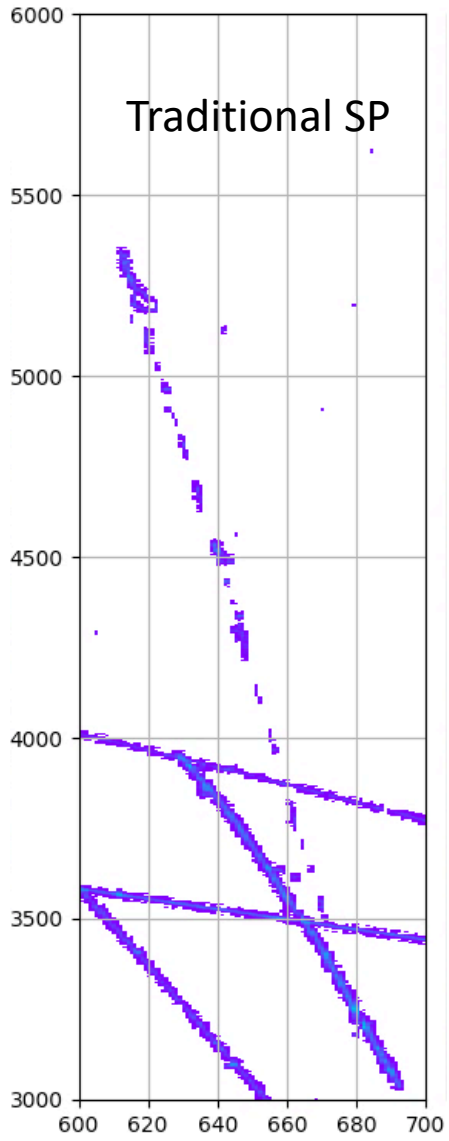
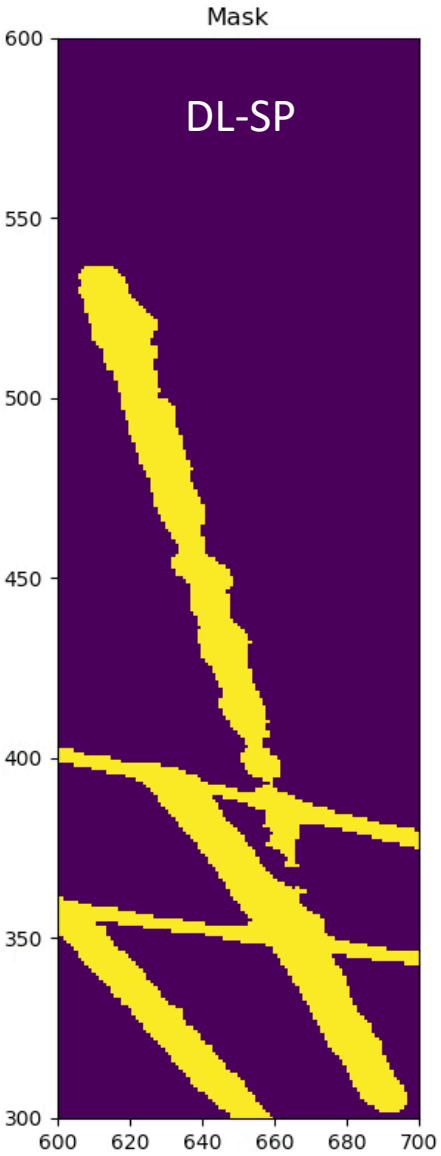
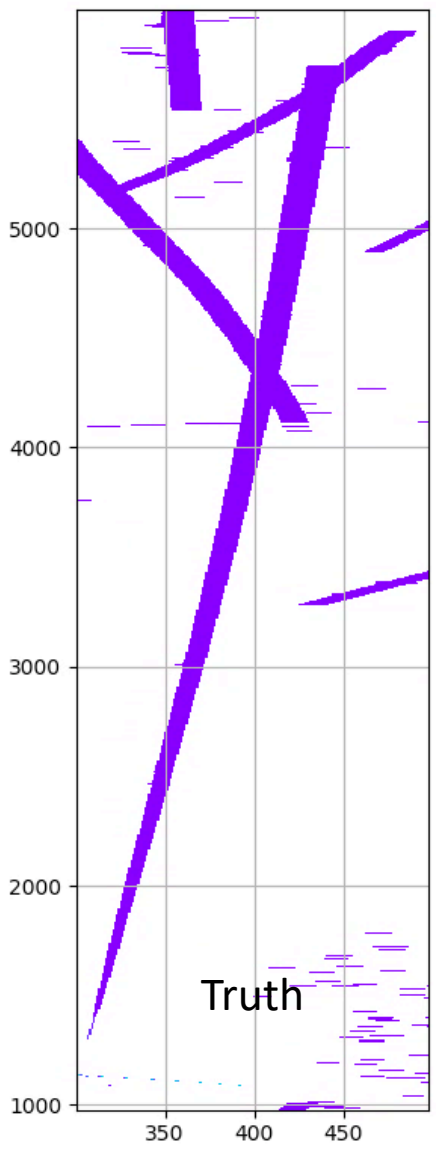
Event 2

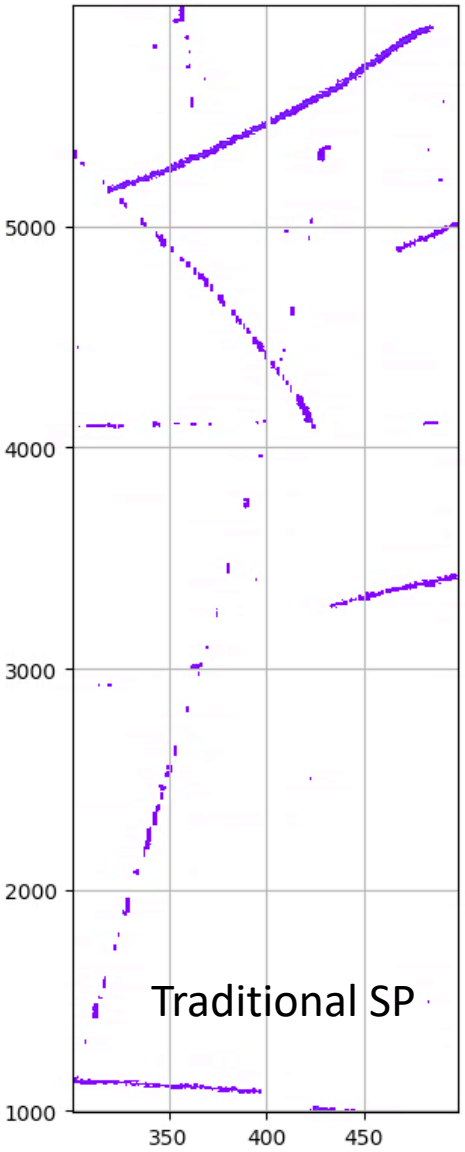

Truth
6000
5500
5000
4500
4000
3500
3000
600
620
640
660
680
700

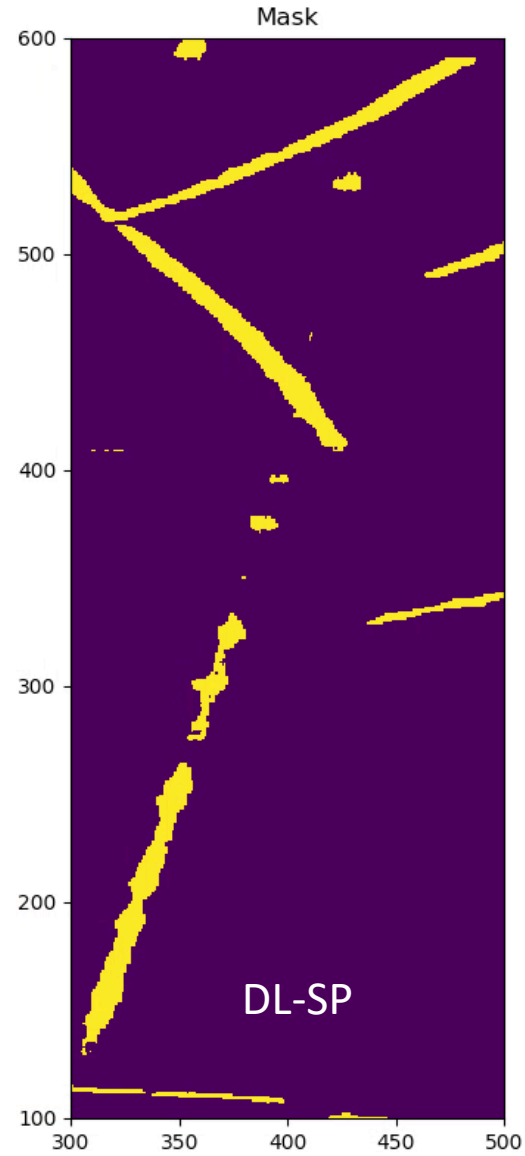

Traditional SP
6000
5500
5000
4500
4000
3500
3000
600
620
640
660
680
700


Mask
DL-SP
600
550
500
450
400
350
300
600
620
640
660
680
700

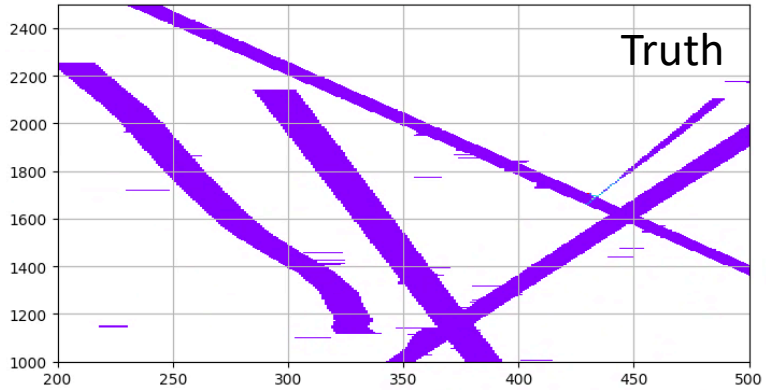
Event 6

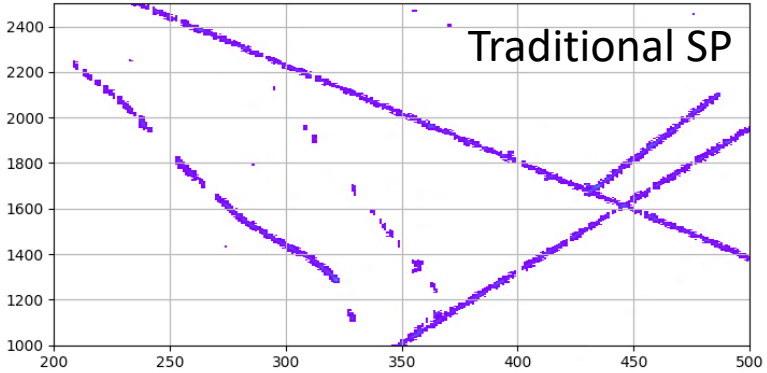

5000
4000
3000
2000
1000
350
400
450
Truth

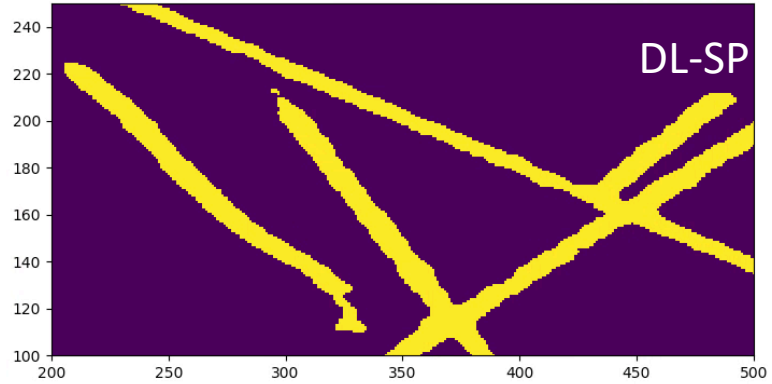

5000
4000
3000
2000
1000
350
400
450
Traditional SP


Mask
600
500
400
300
200
100
300
350
400
450
500
DL-SP

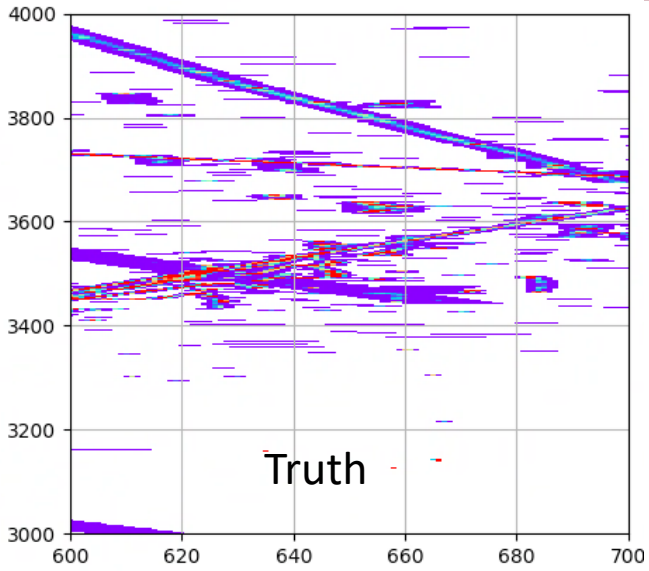
Event 7

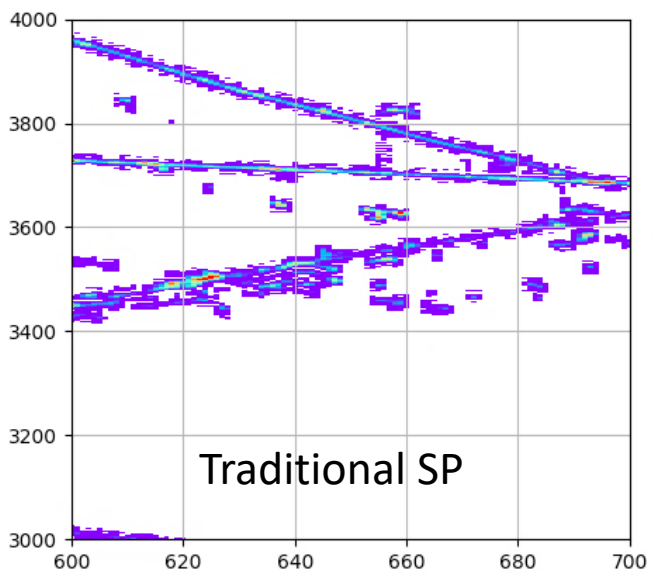

Truth
2400
2200
2000
1800
1600
1400
1200
1000
200
250
300
350
400
450
500

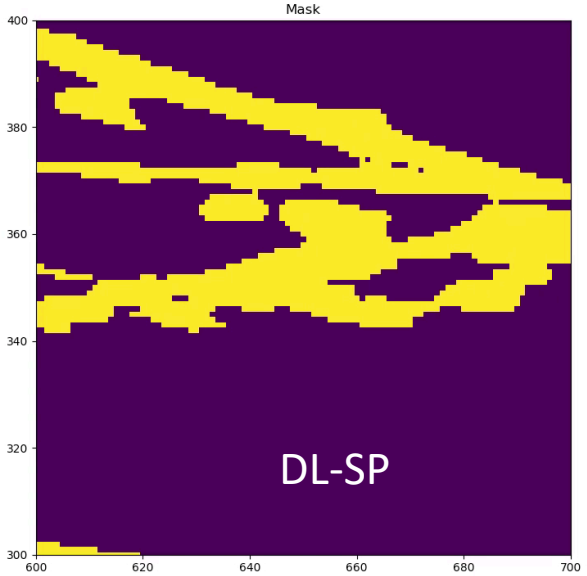

Traditional SP
2400
2200
2000
1800
1600
1400
1200
1000
200
250
300
350
400
450
500

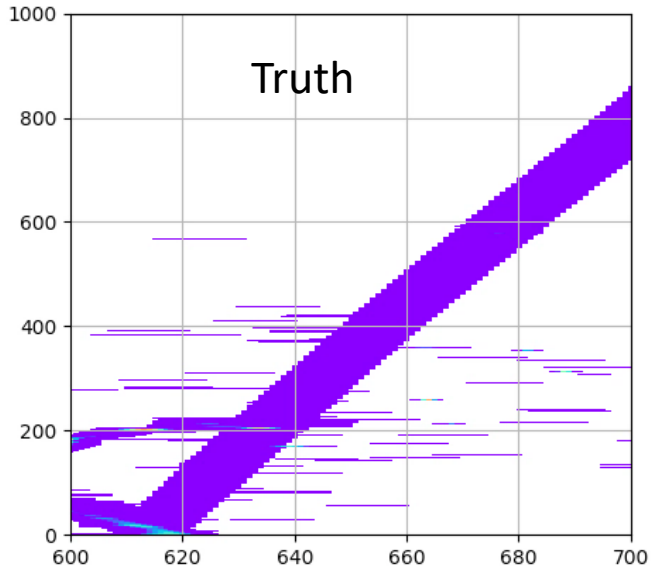

DL-SP
240
220
200
180
160
140
120
100
200
250
300
350
400
450
500

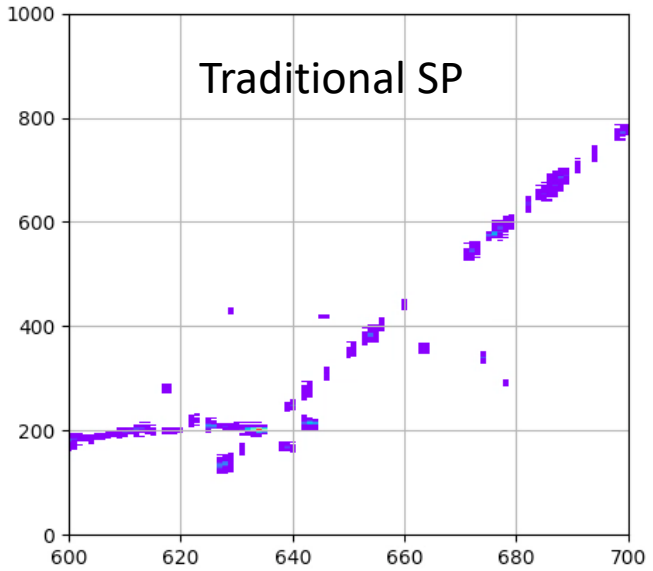
Event 1

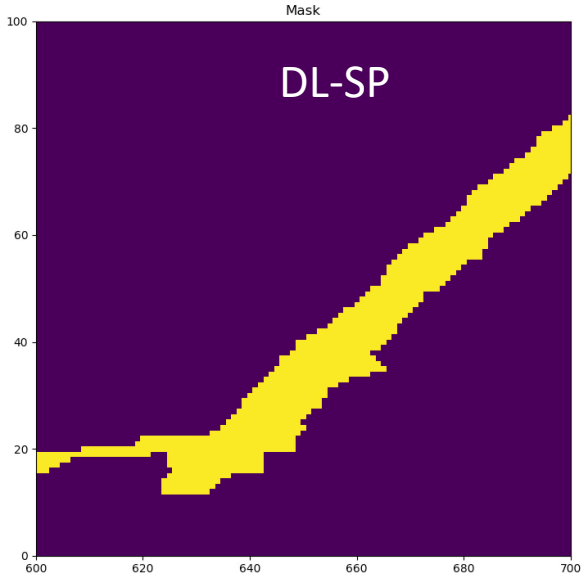

Truth

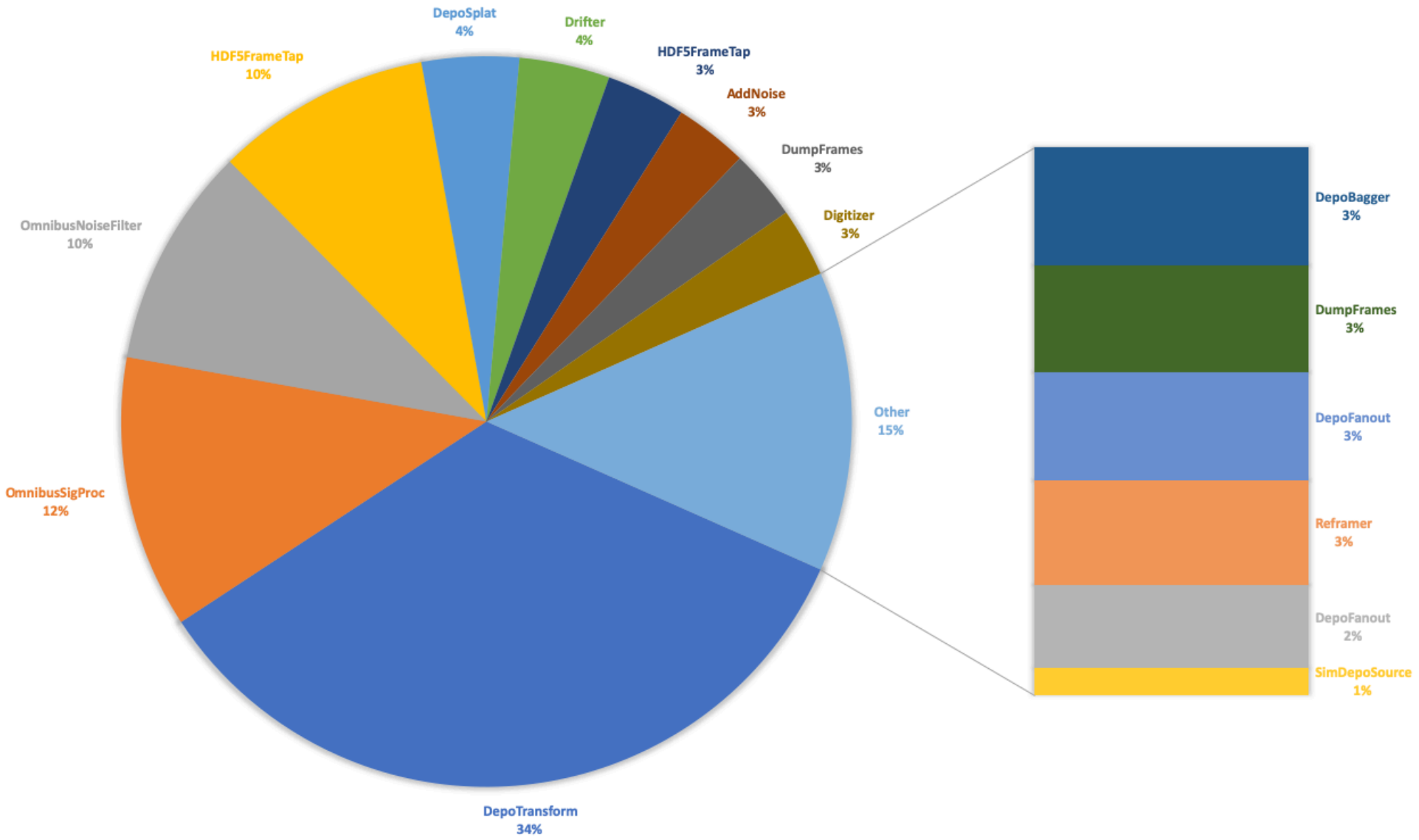

Traditional SP


Mask
DL-SP

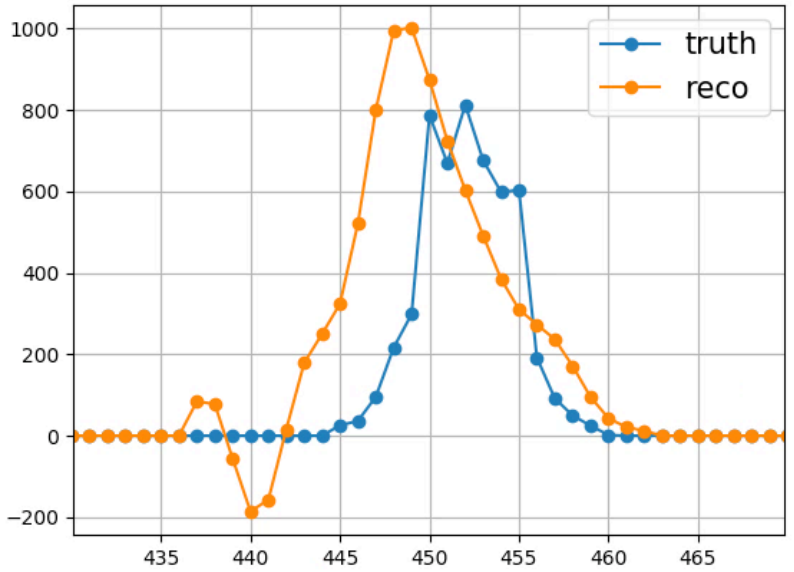

Truth


Traditional SP

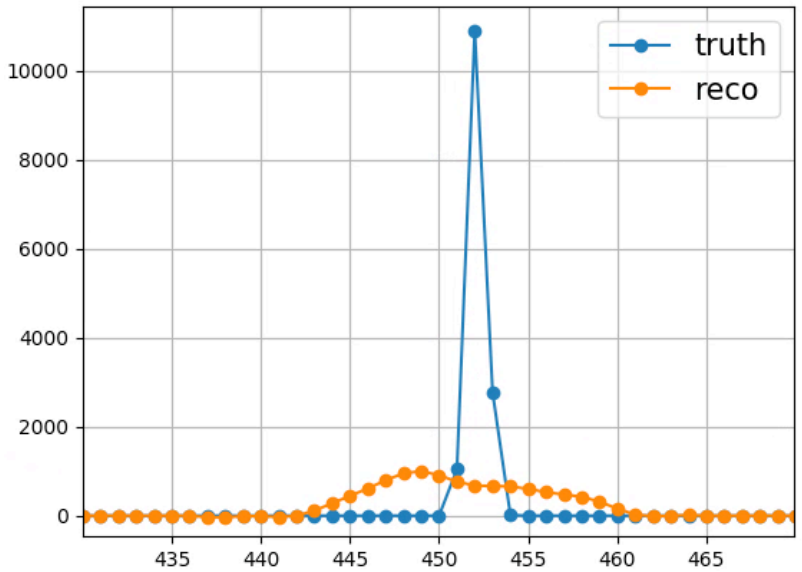

Mask
DL-SP

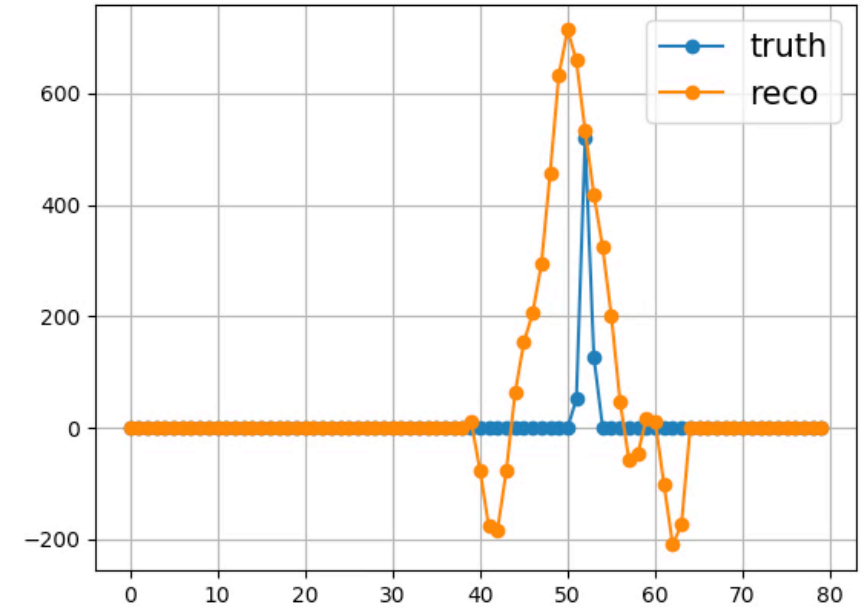

DepoSplat
4%
Drifter
4%
HDF5FrameTap
3%
AddNoise
3%
DumpFrames
3%
Digitizer
3%
Other
15%
DepoTransform
34%
OmnibusSigProc
12%
OmnibusNoiseFilter
10%
HDF5FrameTap
10%
DepoBagger
3%
DumpFrames
3%
DepoFanout
3%
Reframer
3%
DepoFanout
2%
SimDepoSource
1%

const double difusion_scaler = 6.;
const double charge_scaler = 18.;

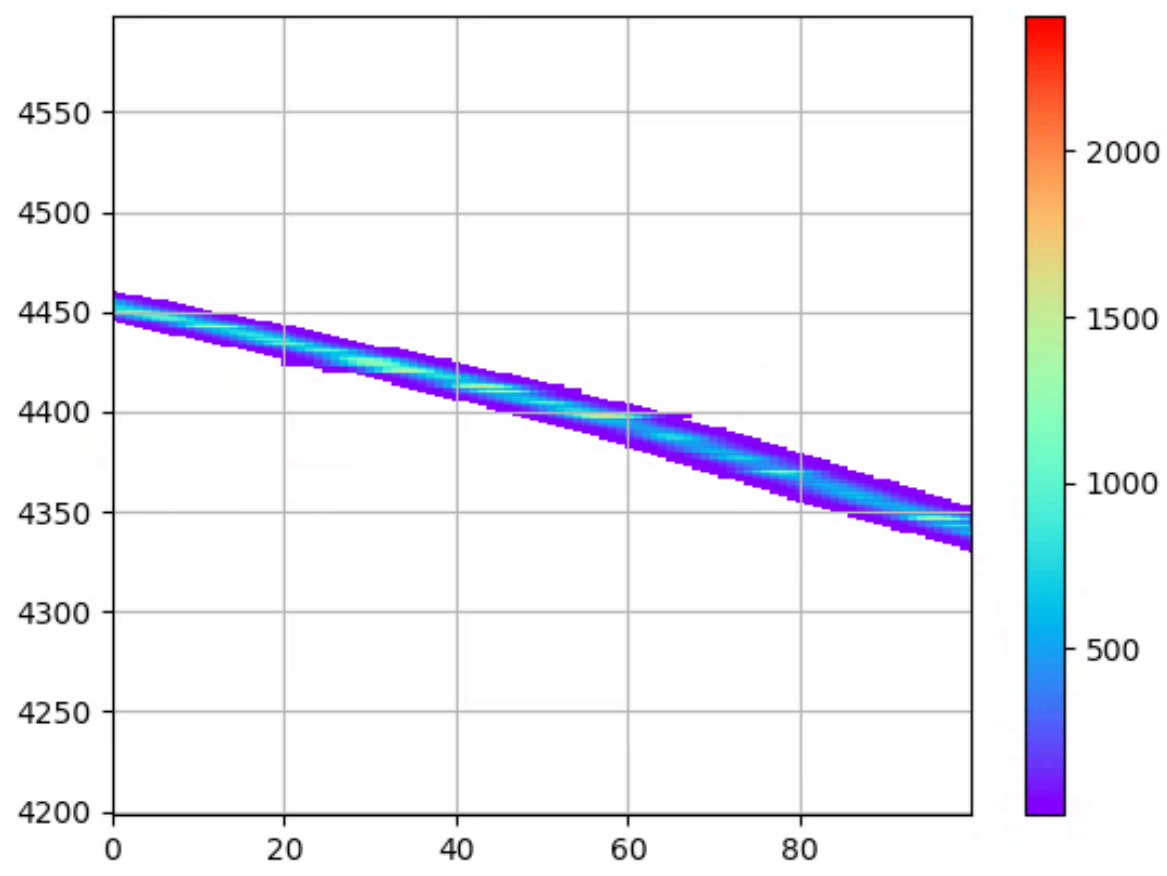


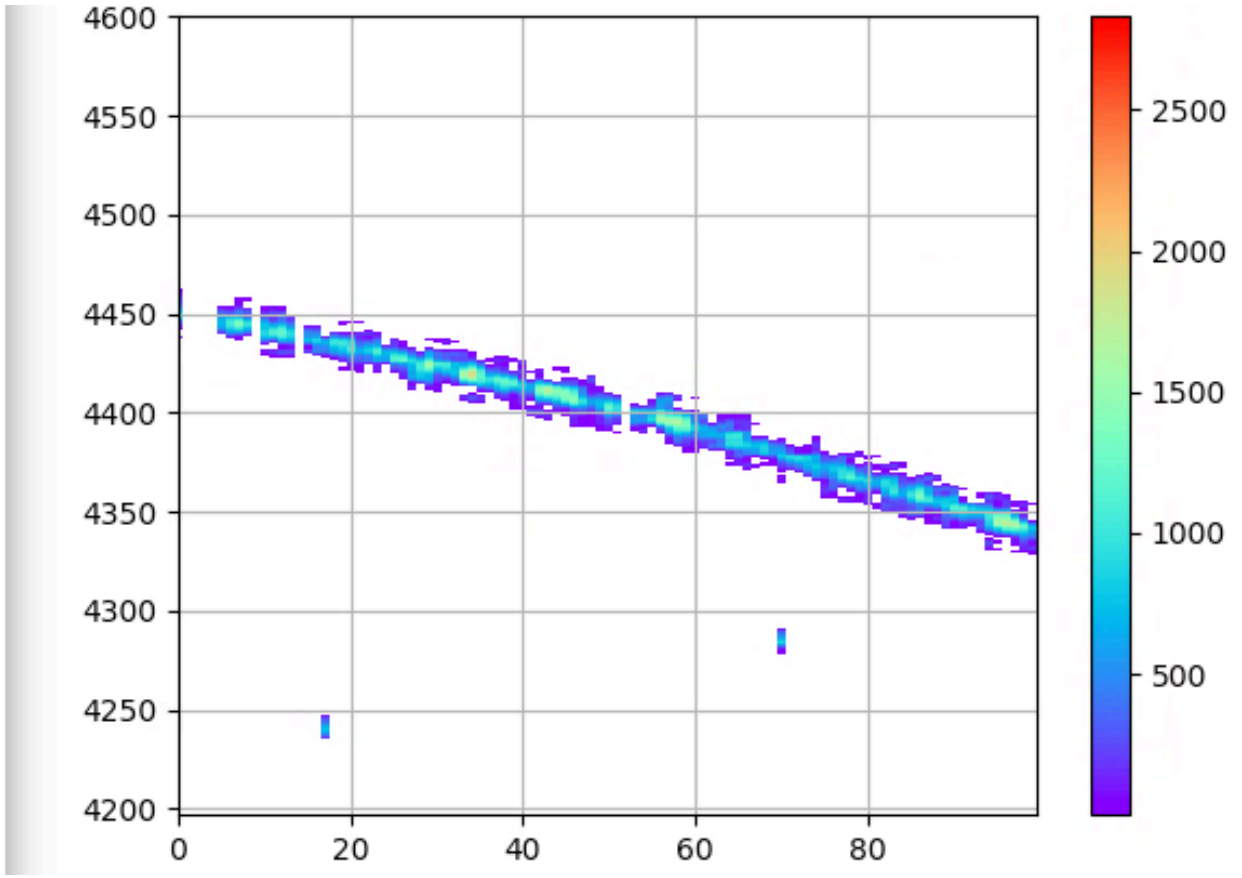
SimChannelSink diffusion
const double charge_scaler = 18.;

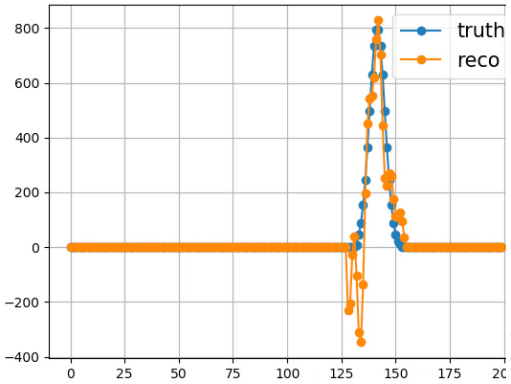
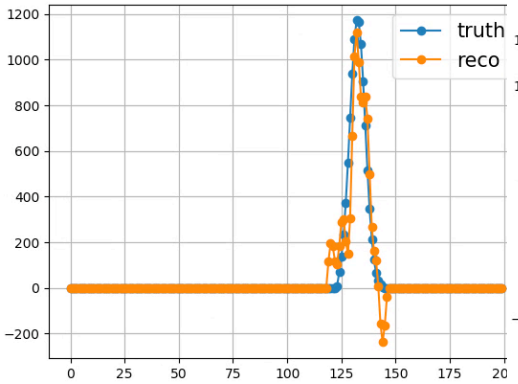
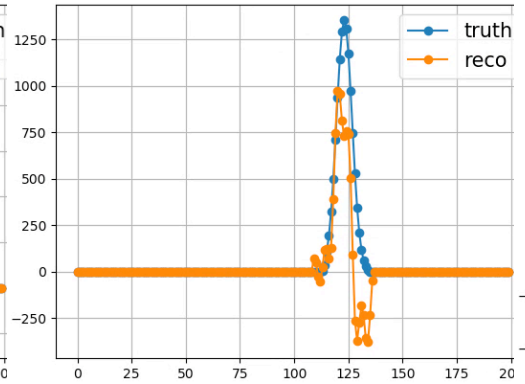
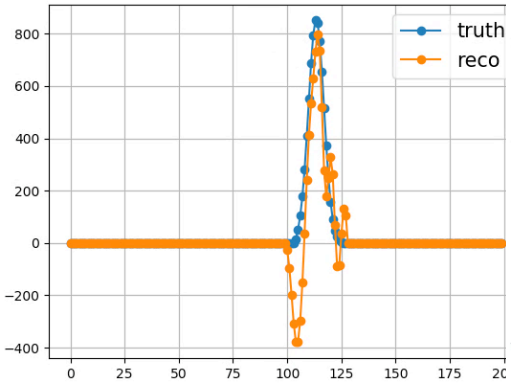
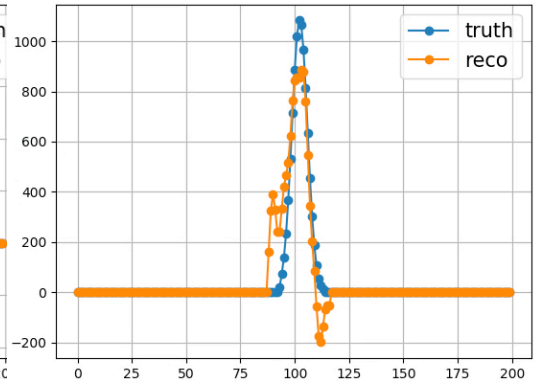



truth
reco
600
400
200
0
−200
0
10
20
30
40
50
60
70
80

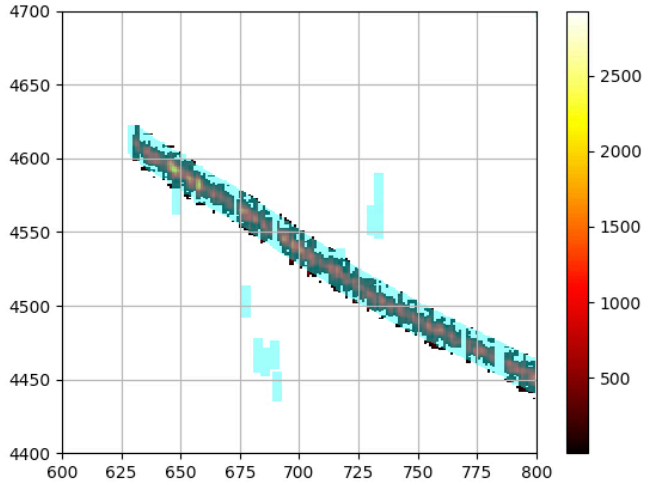
const double difusion_scaler = 6.;
const double charge_scaler = 18.;



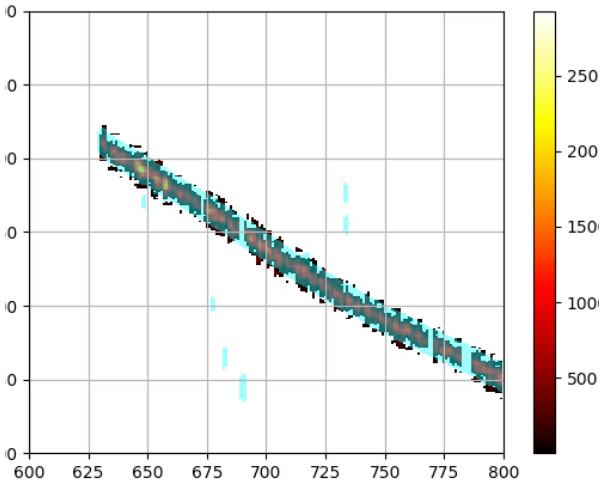



truth
reco

truth
reco

truth
reco

truth
reco

truth
reco

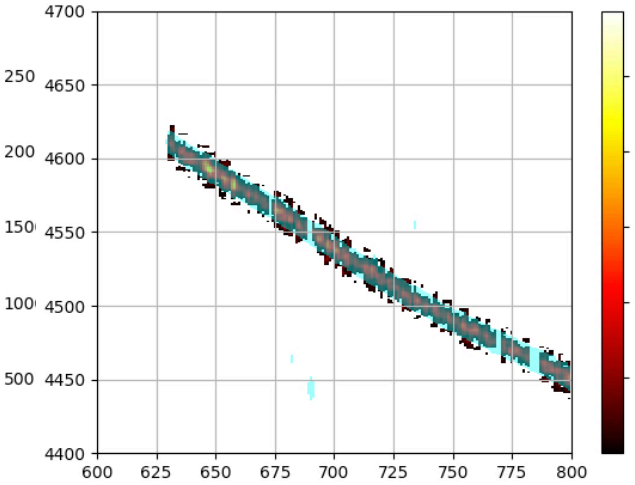
0


4700
4650
4600
4550
4500
4450
4400
600
625
650
675
700
725
750
775
800
2500
2000
1500
1000
500

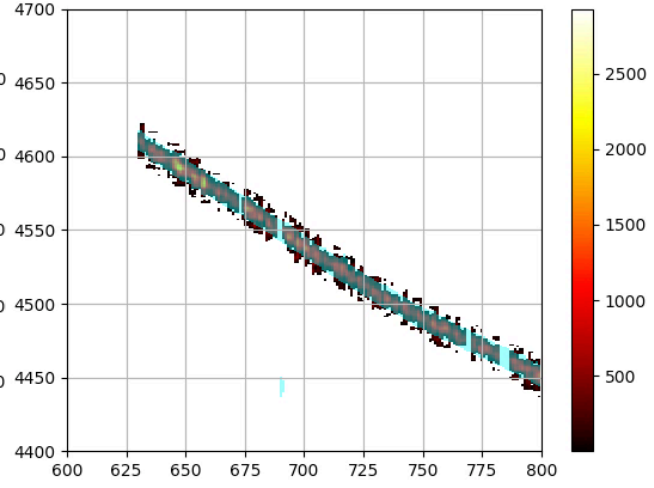
10


0
0
0
0
0
0
600
625
650
675
700
725
750
775
800
250
200
150
100
500

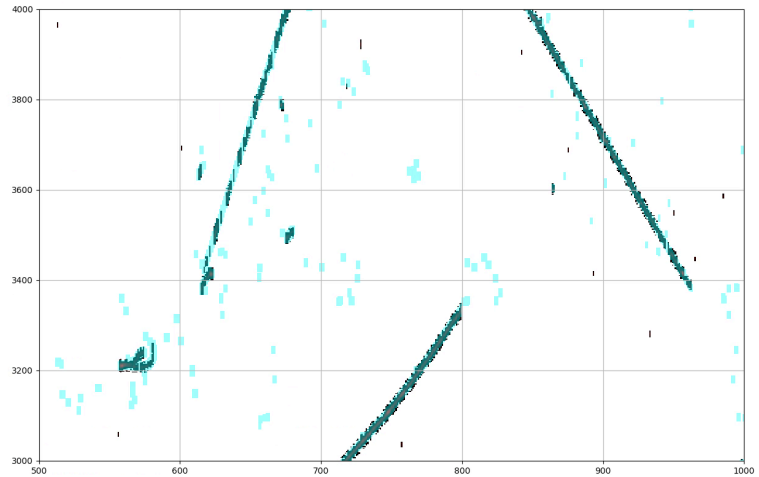
50


4700
4650
4600
4550
4500
4450
4400
600
625
650
675
700
725
750
775
800
250
200
150
100
500

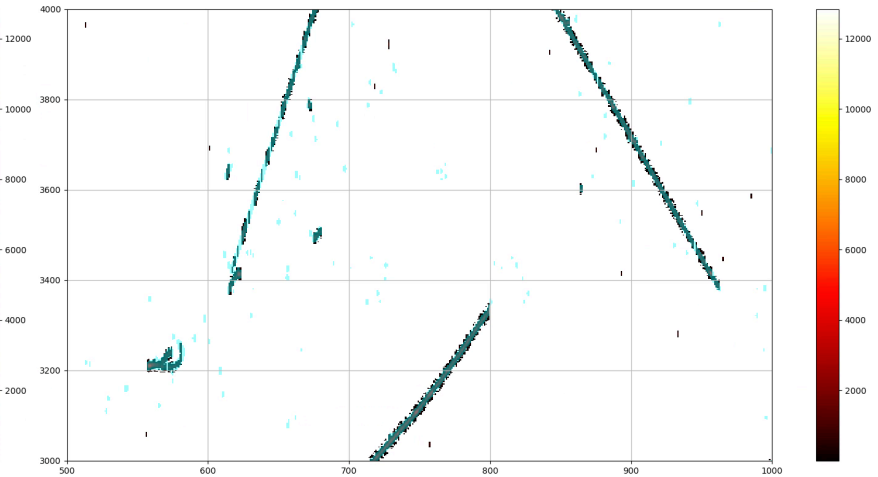
100


4700
4650
4600
4550
4500
4450
4400
600
625
650
675
700
725
750
775
800
2500
2000
1500
1000
500

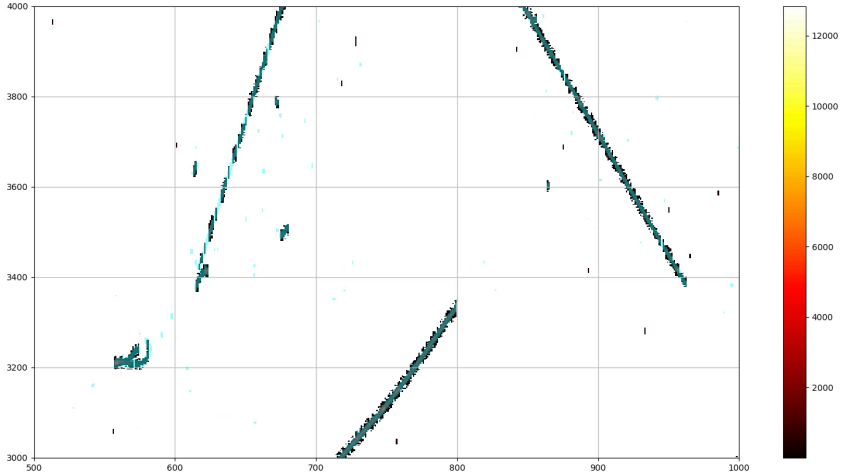
0


4000
3800
3600
3400
3200
3000
500
600
700
800
900
1000
12000
10000
8000
6000
4000
2000

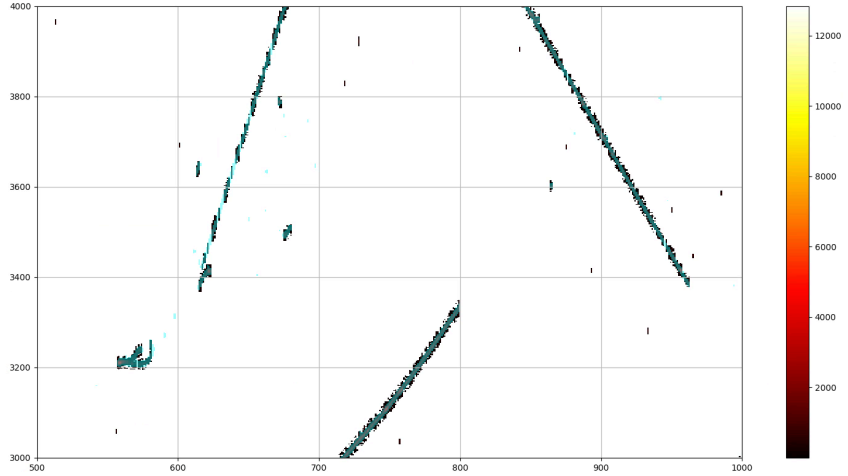
10


4000
3800
3600
3400
3200
3000
500
600
700
800
900
1000
12000
10000
8000
6000
4000
2000

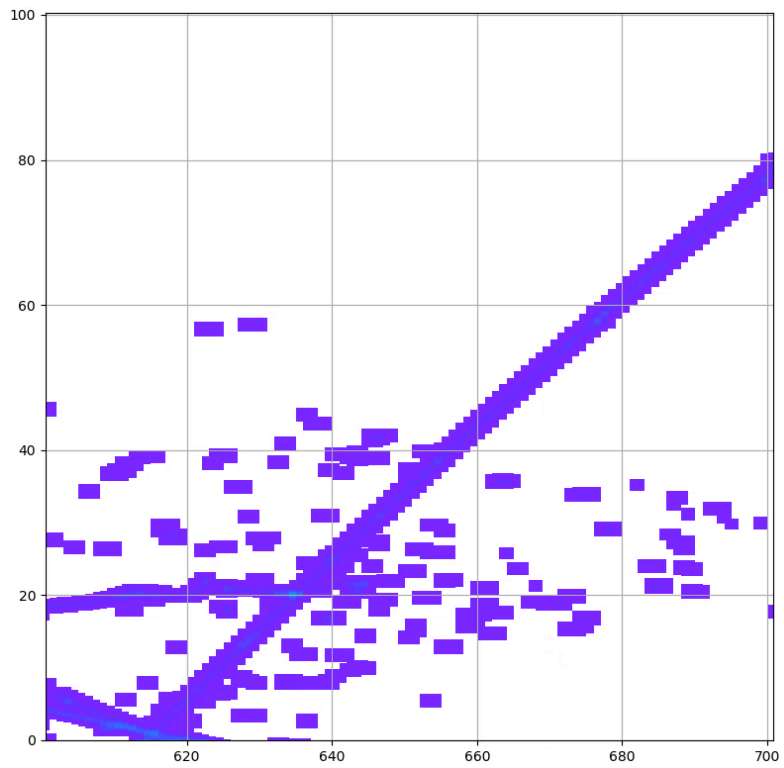
50

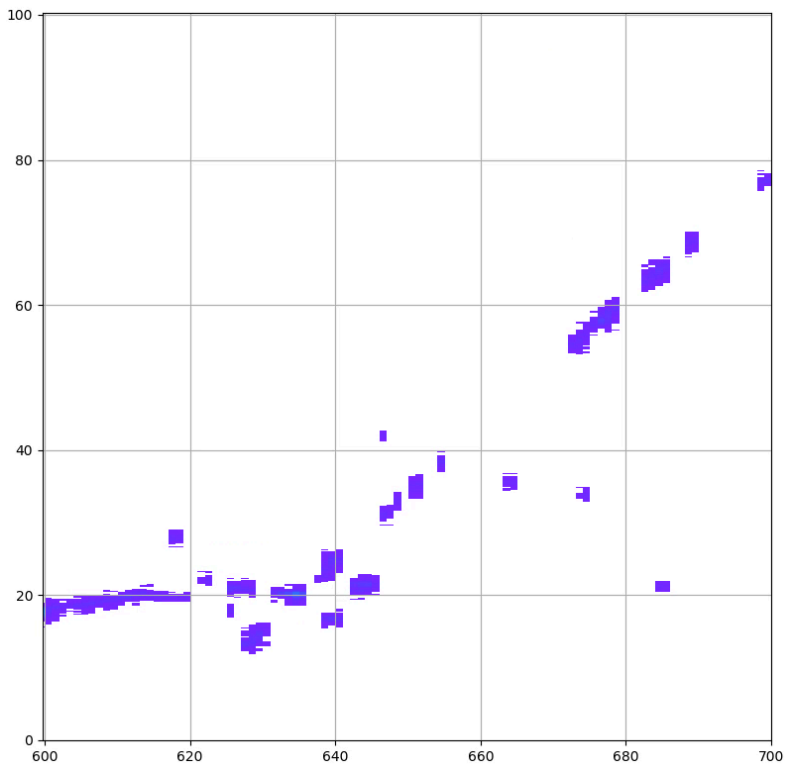

4000
3800
3600
3400
3200
3000
500
600
700
800
900
1000
12000
10000
8000
6000
4000
2000

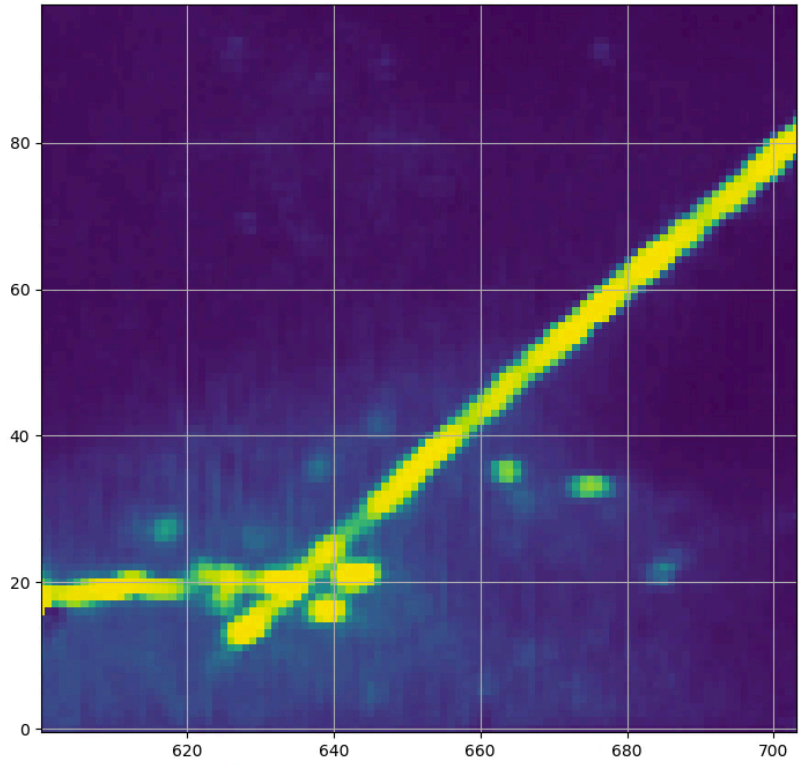
100


4000
3800
3600
3400
3200
3000
500
600
700
800
900
1000
12000
10000
8000
6000
4000
2000

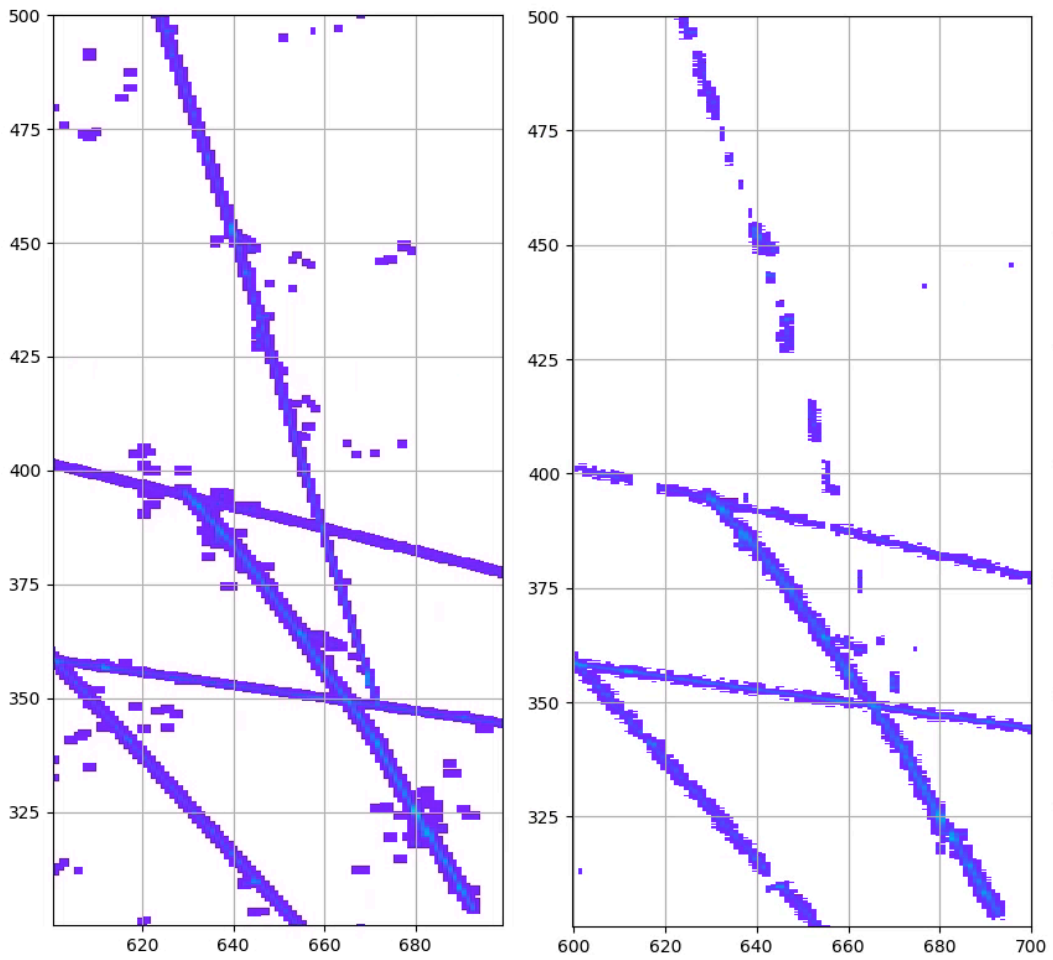
Event 1


100
80
60
40
20
0
620
640
660
680
700

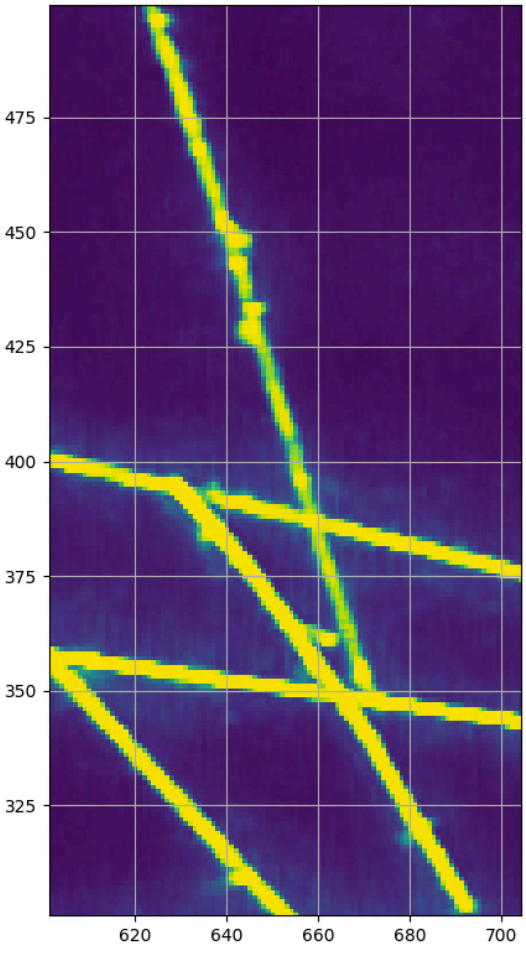

100
80
60
40
20
0
600
620
640
660
680
700


80
60
40
20
0
620
640
660
680
700

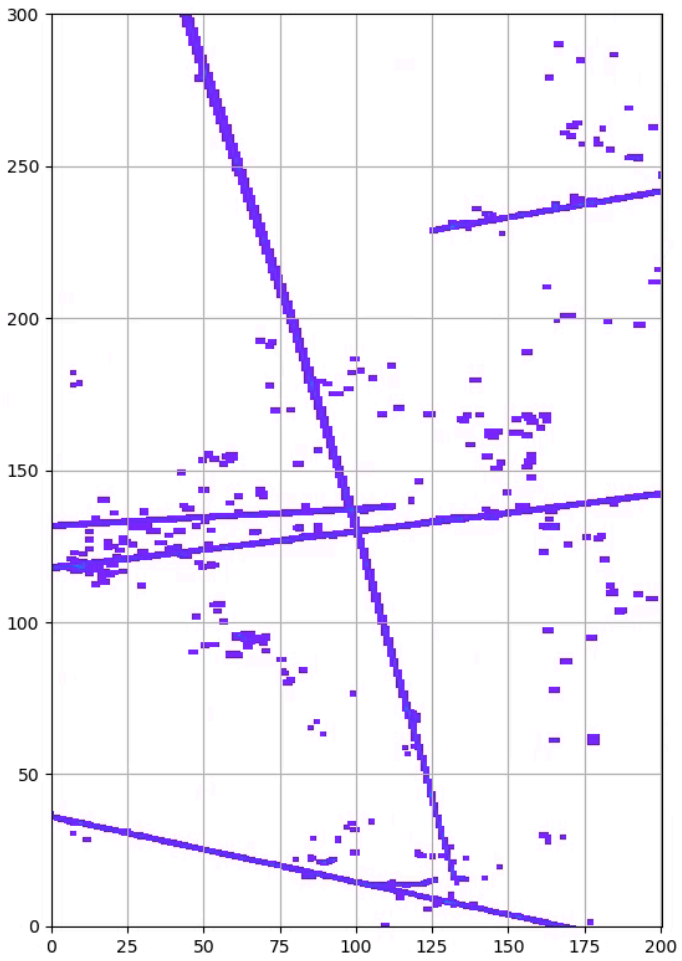
Event 2

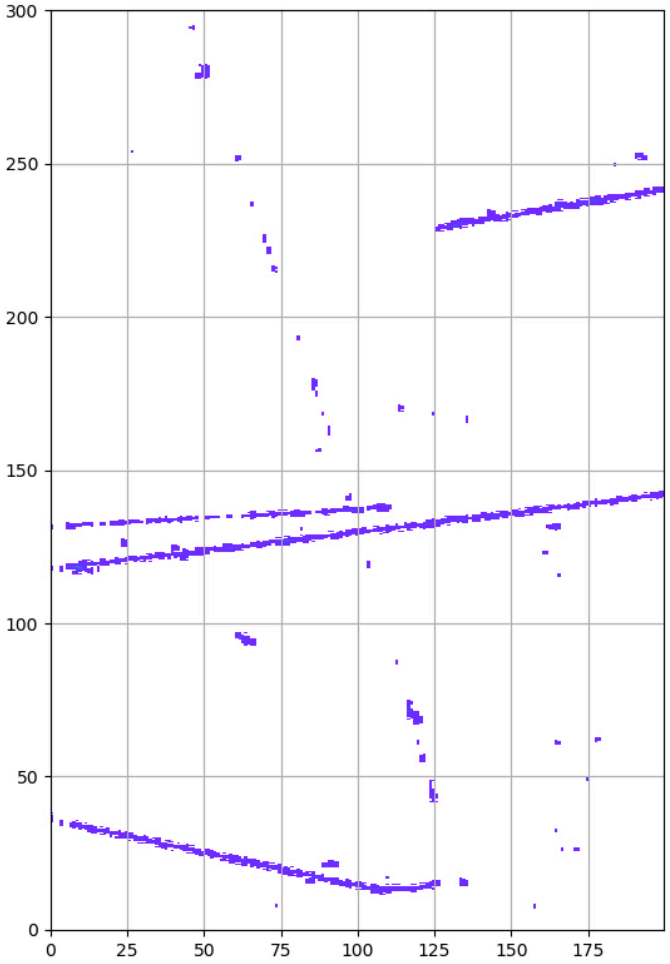

500
475
450
425
400
375
350
325
620
640
660
680

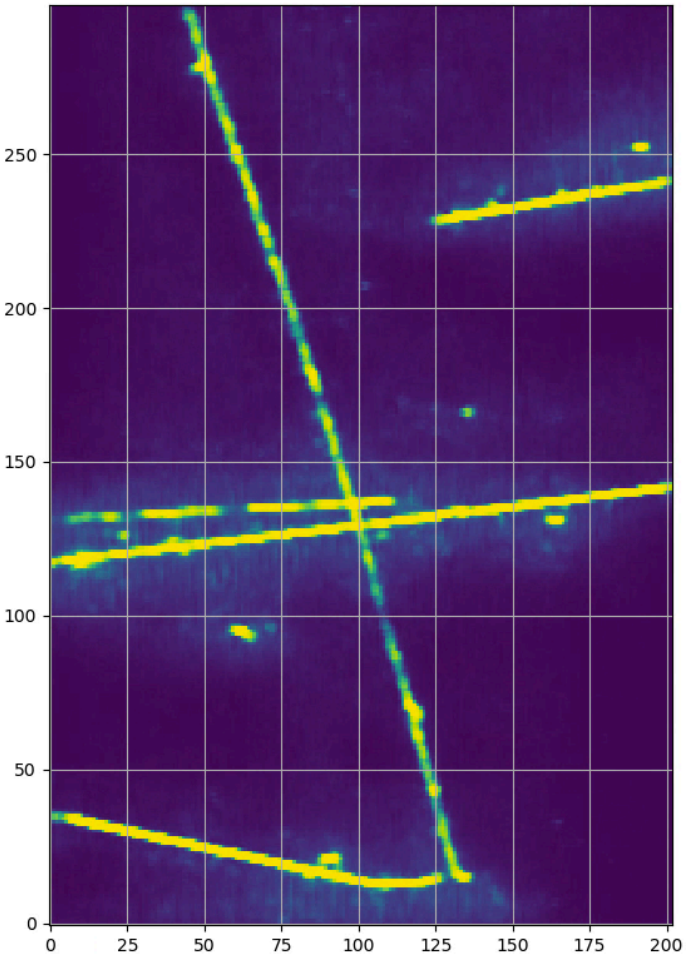
500
475
450
425
400
375
350
325
600
620
640
660
680
700


475
450
425
400
375
350
325
620
640
660
680
700

Event 97

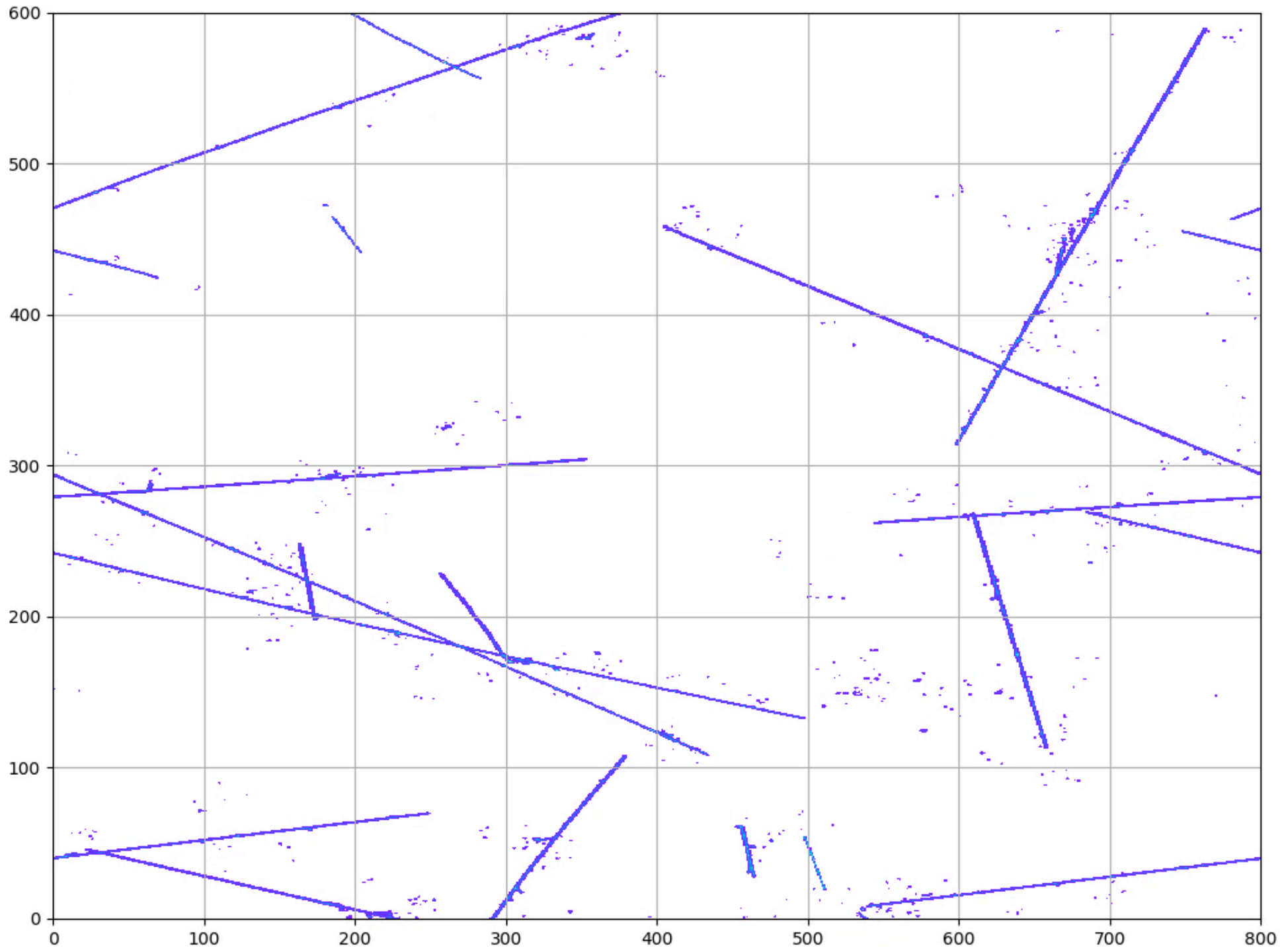

300
250
200
150
100
50
0
0 25 50 75 100 125 150 175 200


300
250
200
150
100
50
0
0 25 50 75 100 125 150 175

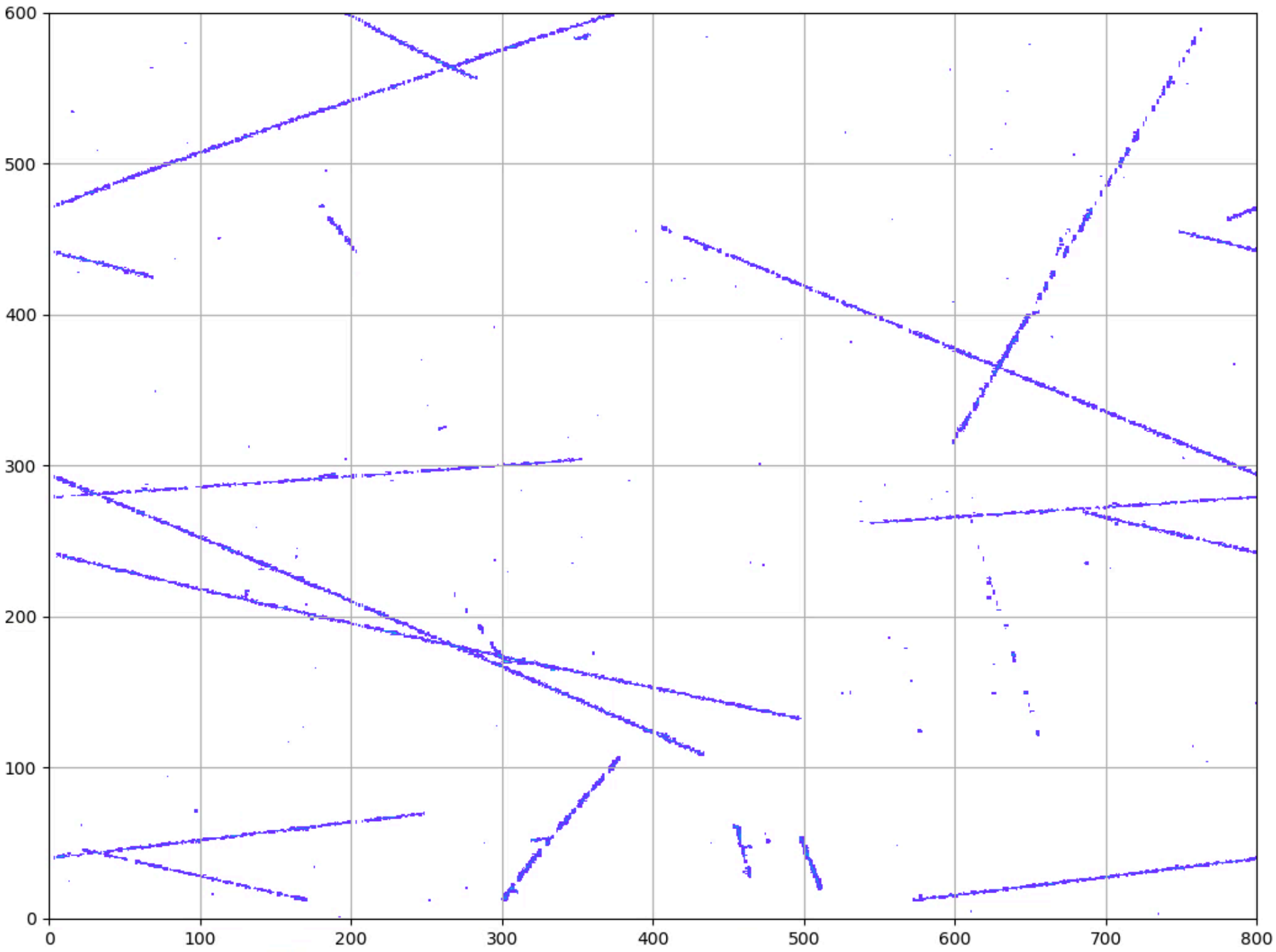

250
200
150
100
50
0
0 25 50 75 100 125 150 175 200

Event 98

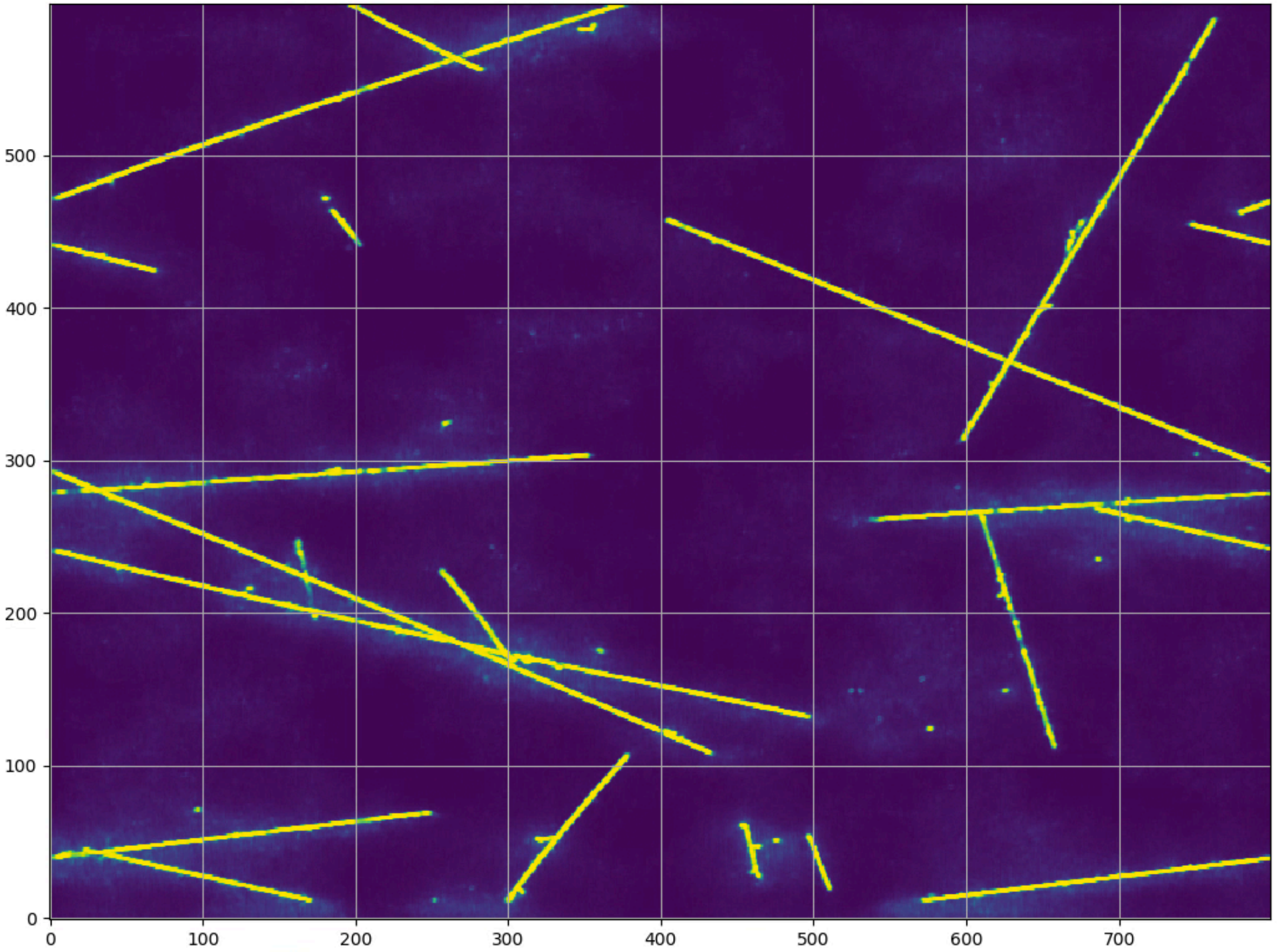
Truth
th@10



Event 98

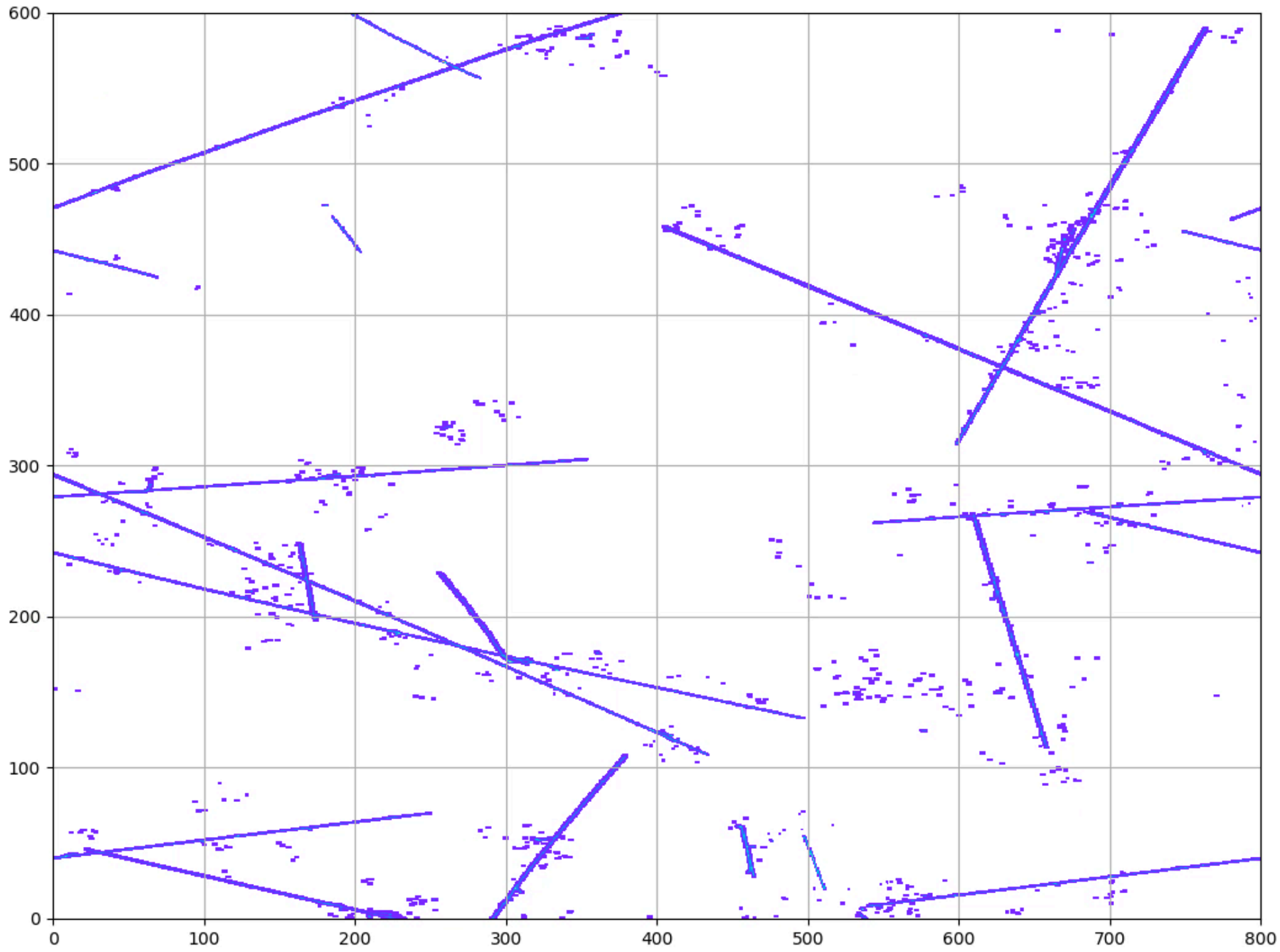


Event 98

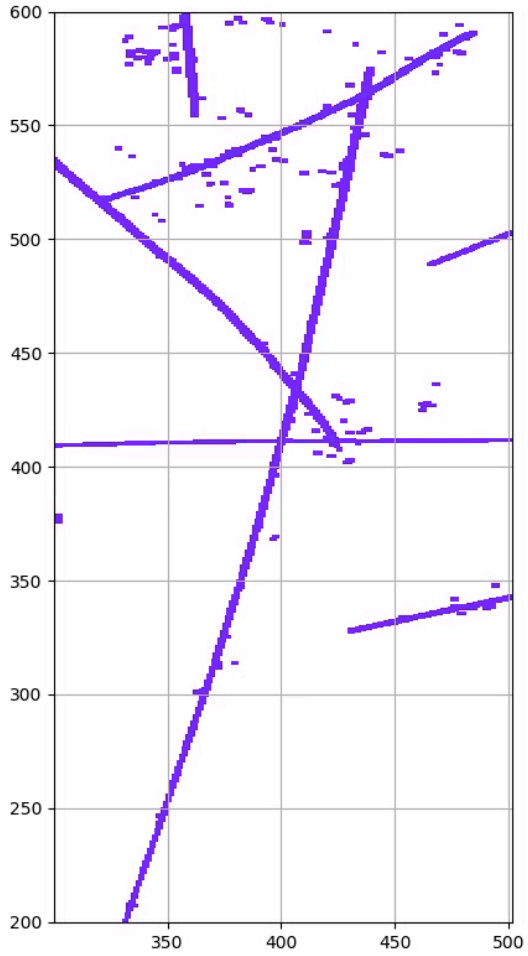


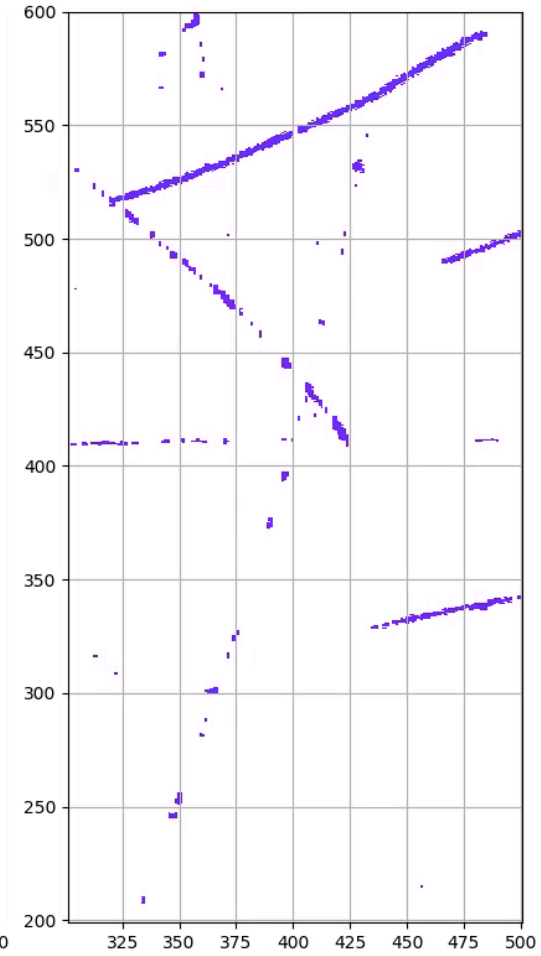
Event 98

Truth
th@0

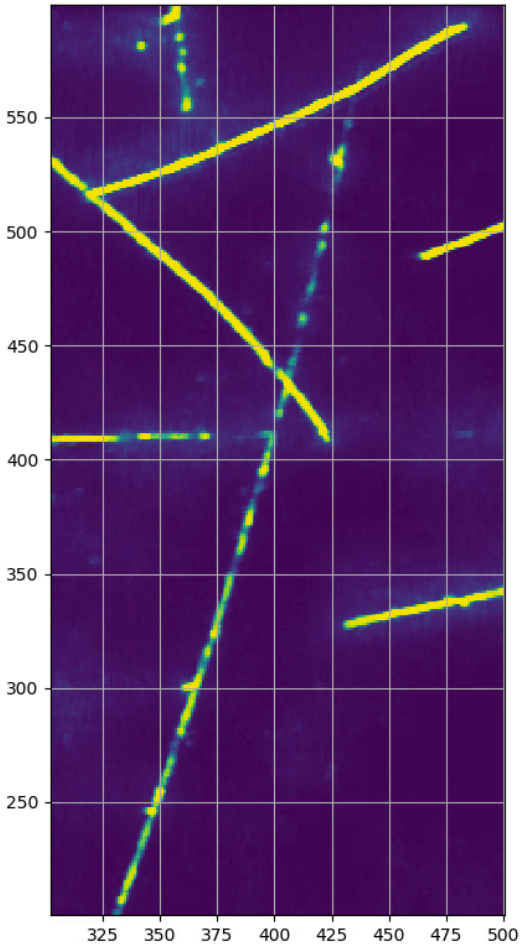


Event 6

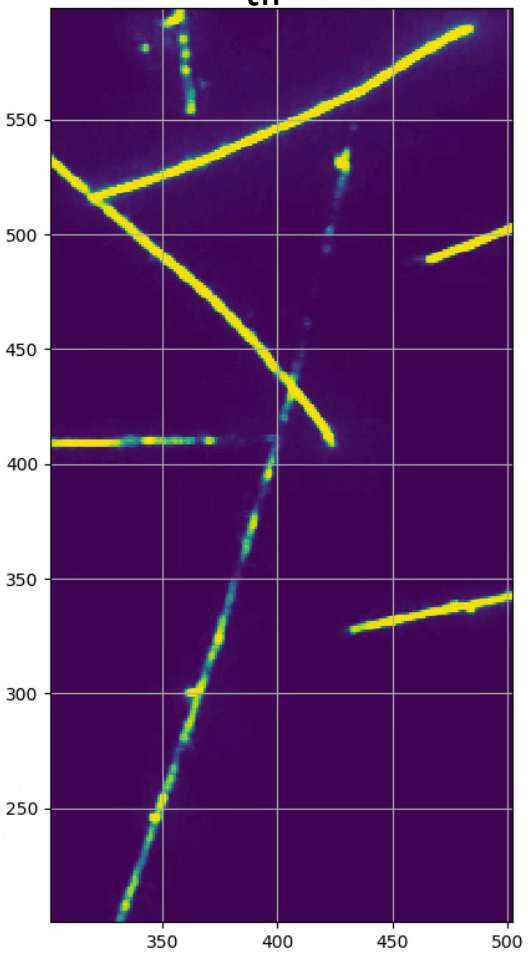




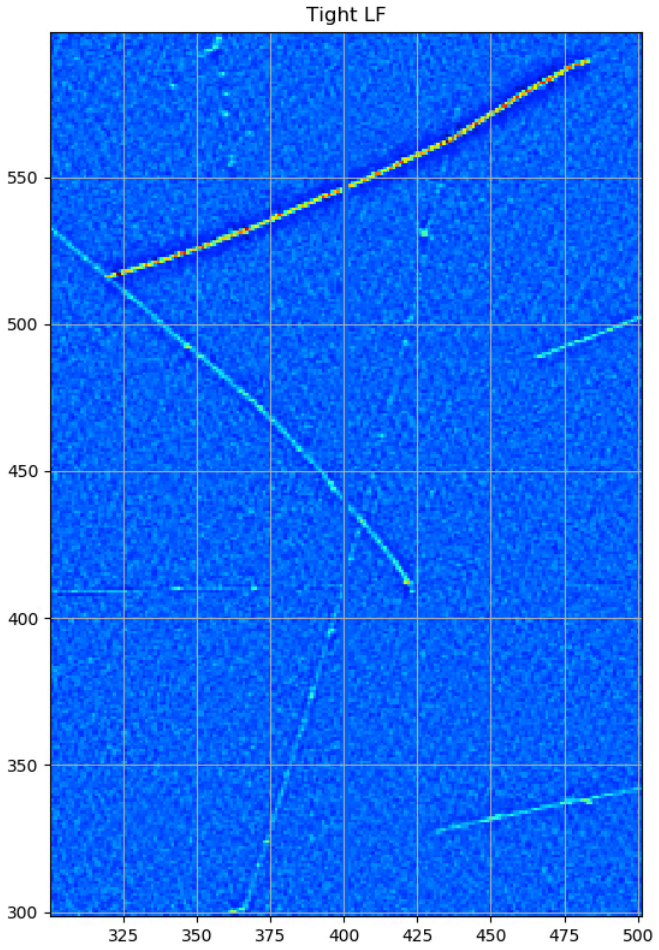
ttl

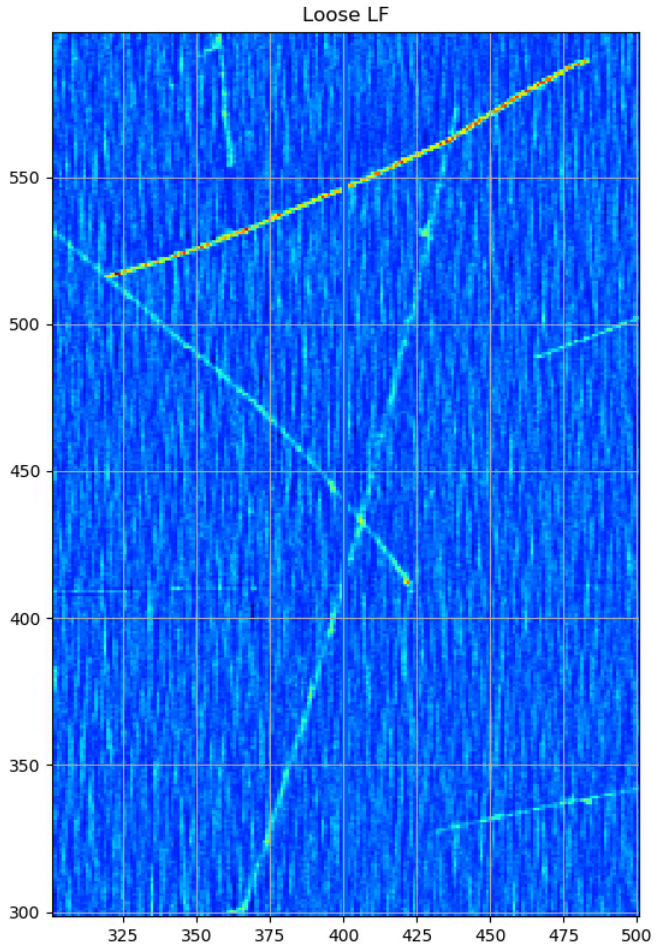


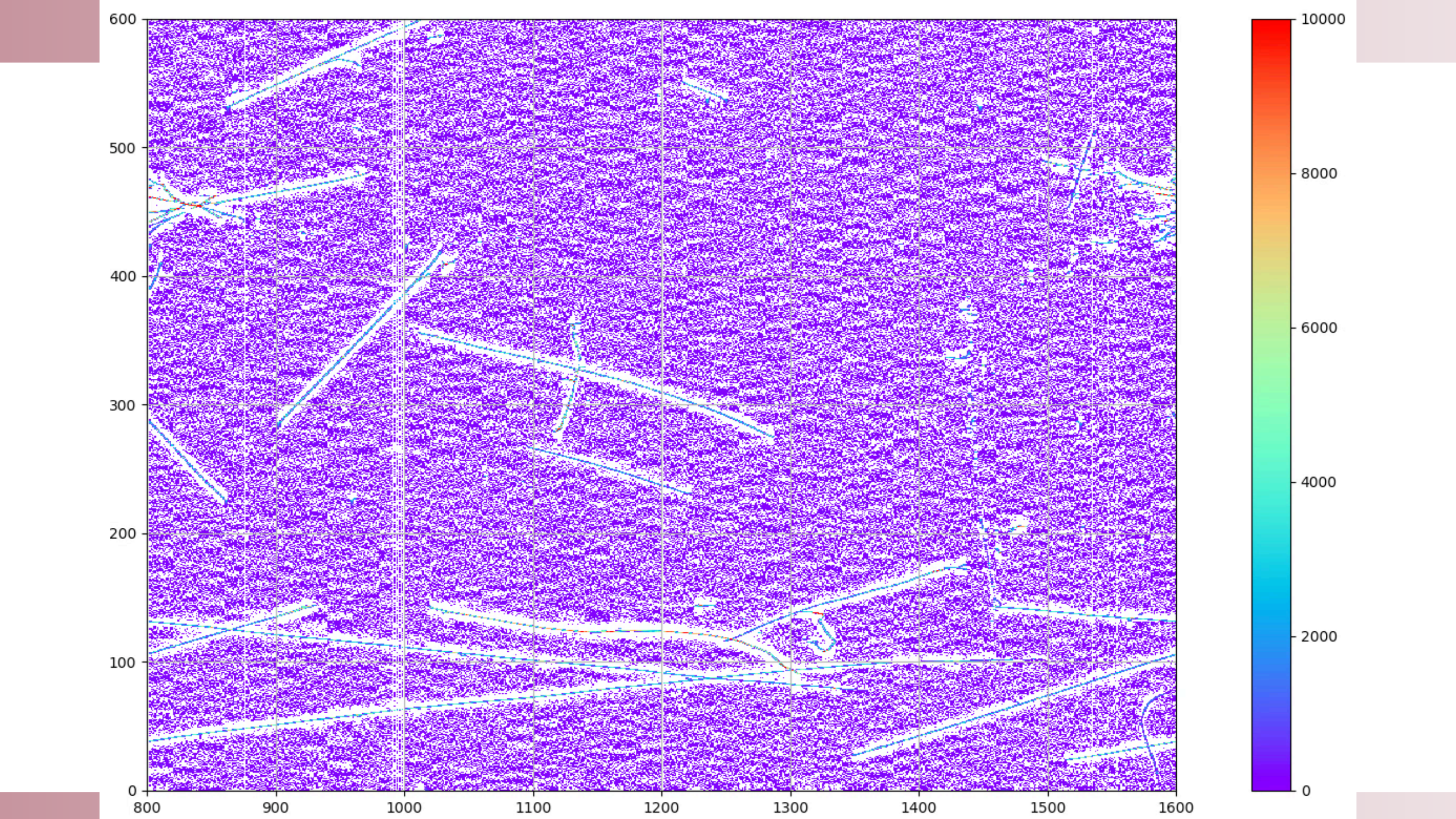
tll

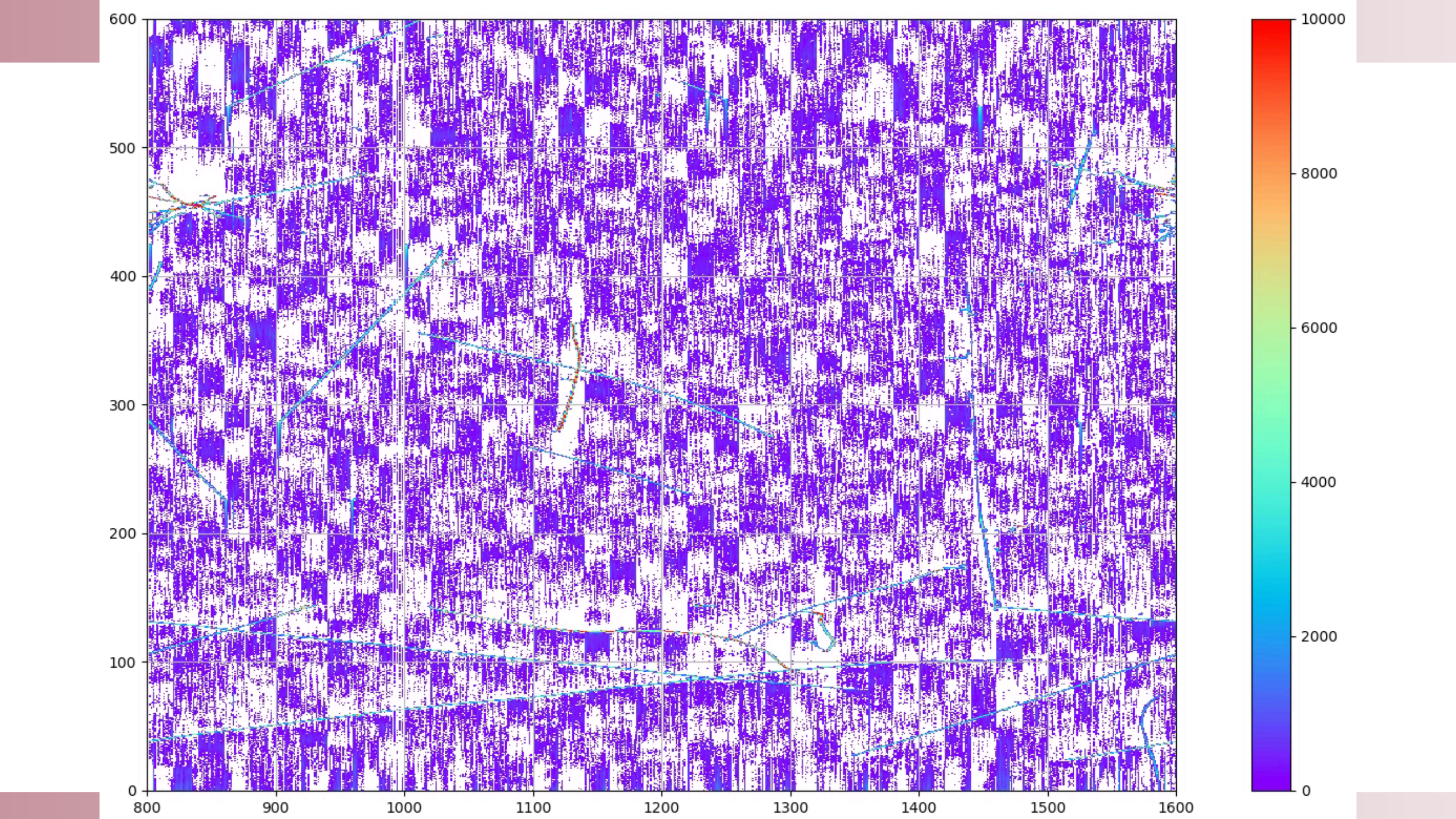


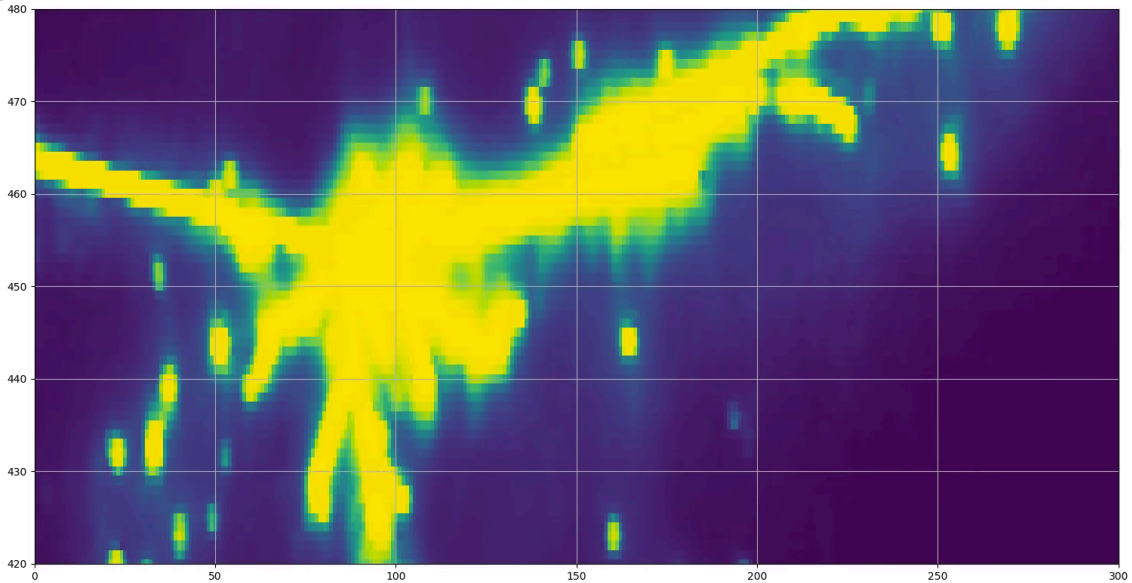
Event 6

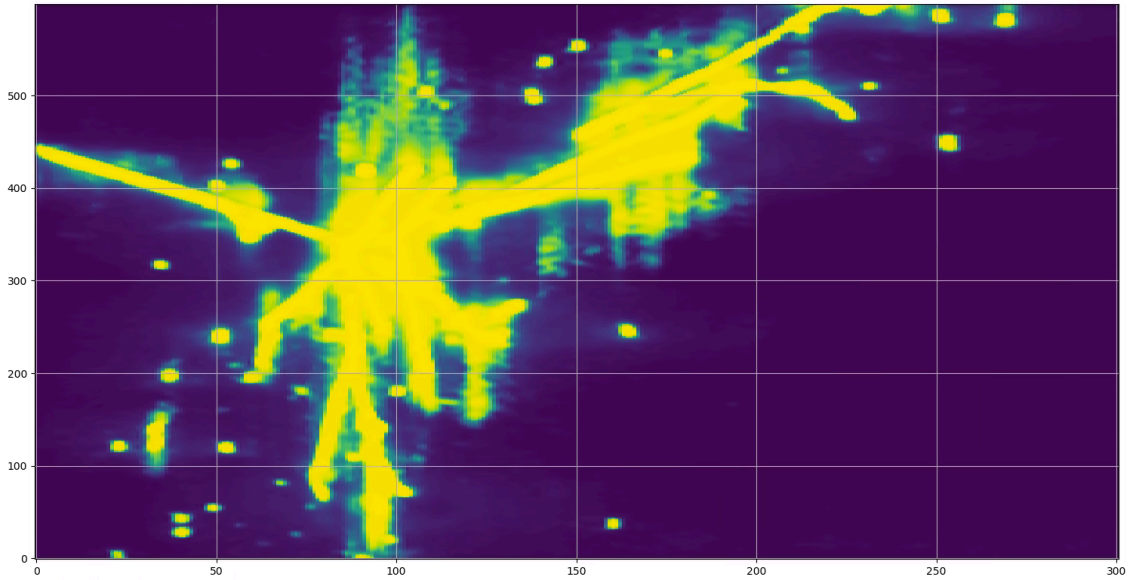

Tight LF
550
500
450
400
350
300
325
350
375
400
425
450
475
500


Loose LF
550
500
450
400
350
300
325
350
375
400
425
450
475
500

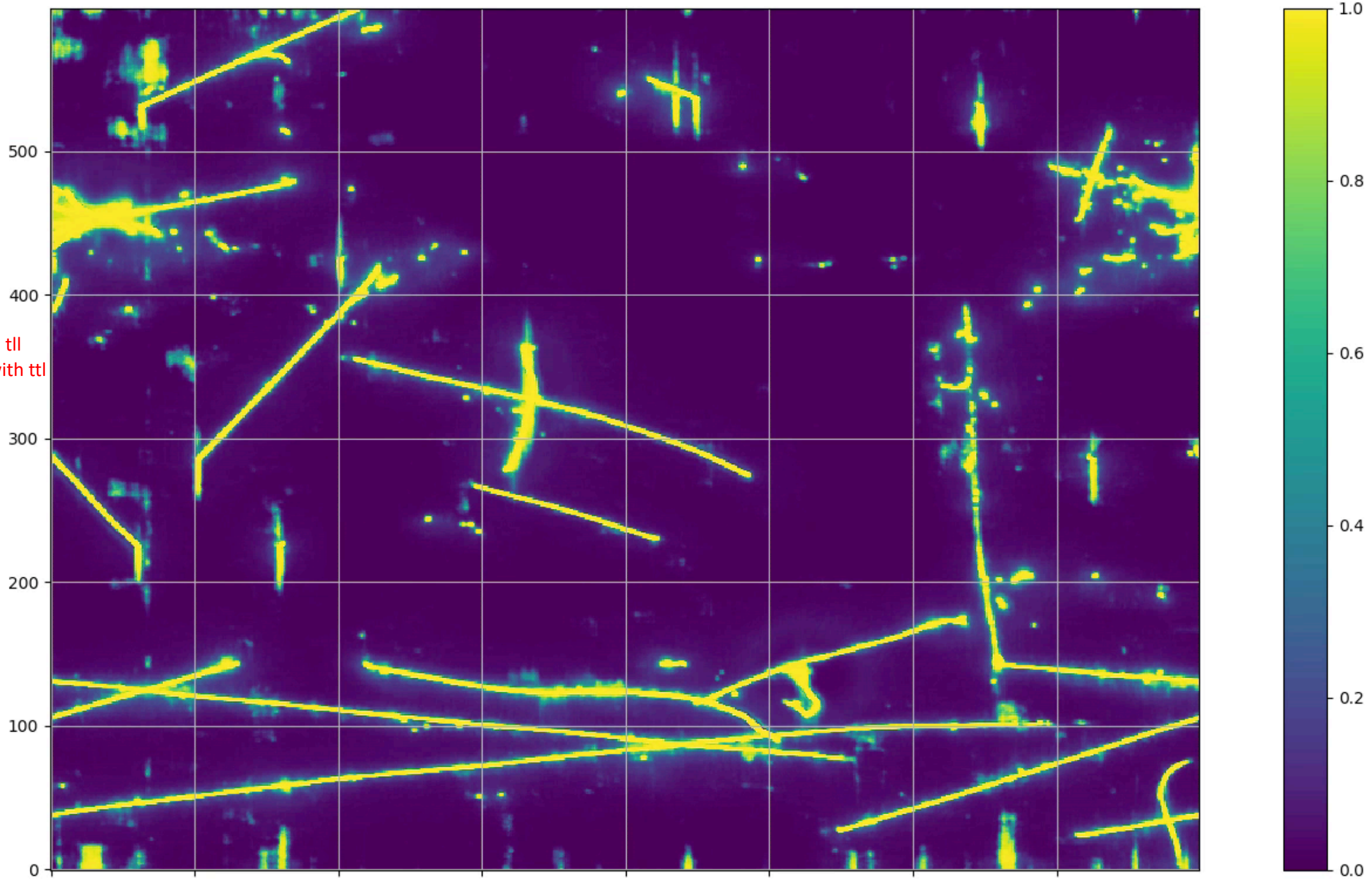

600
500
400
300
200
100
0
800
900
1000
1100
1200
1300
1400
1500
1600
10000
8000
6000
4000
2000
0

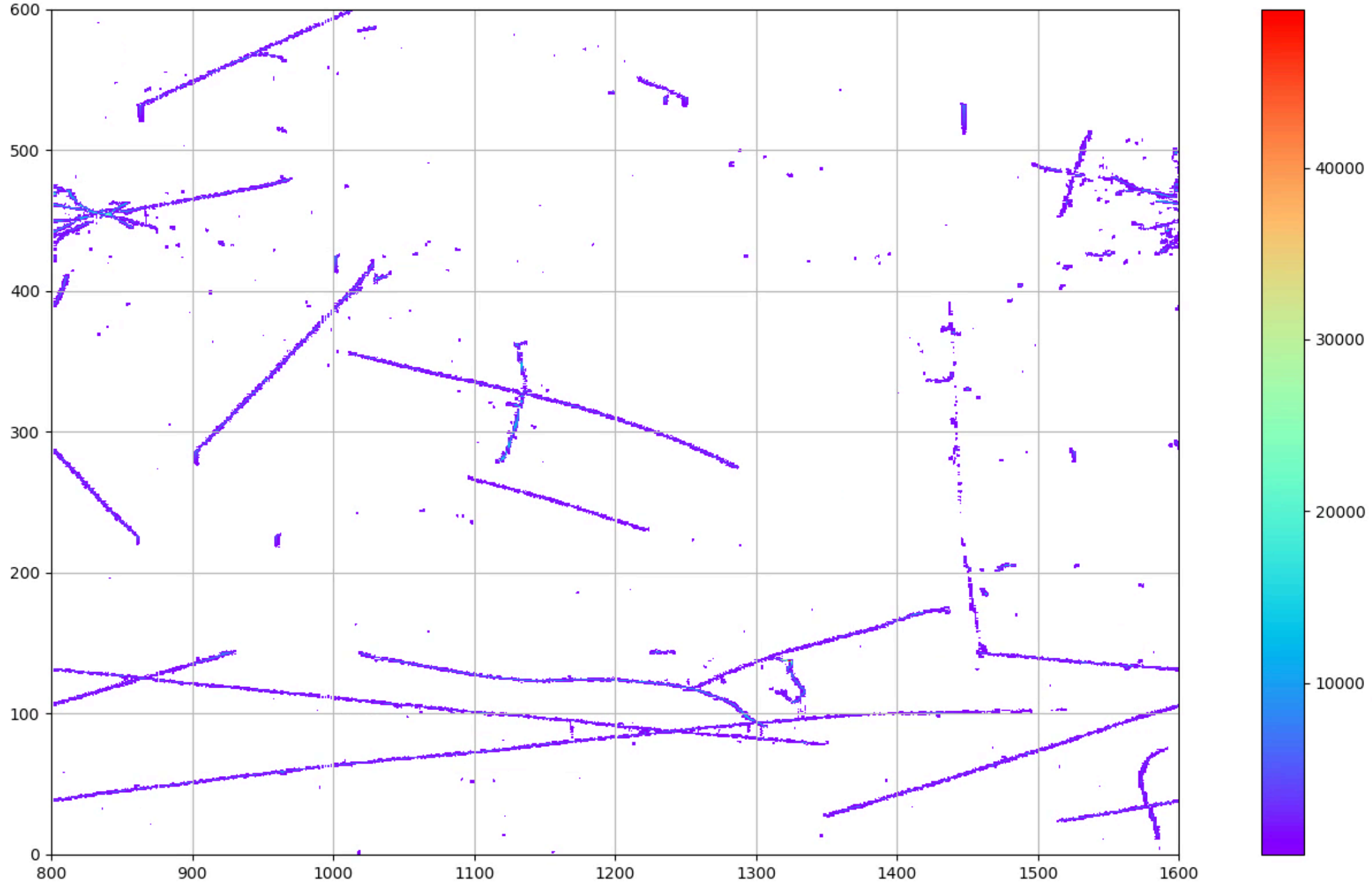

600
500
400
300
200
100
0
800
900
1000
1100
1200
1300
1400
1500
1600
10000
8000
6000
4000
2000
0

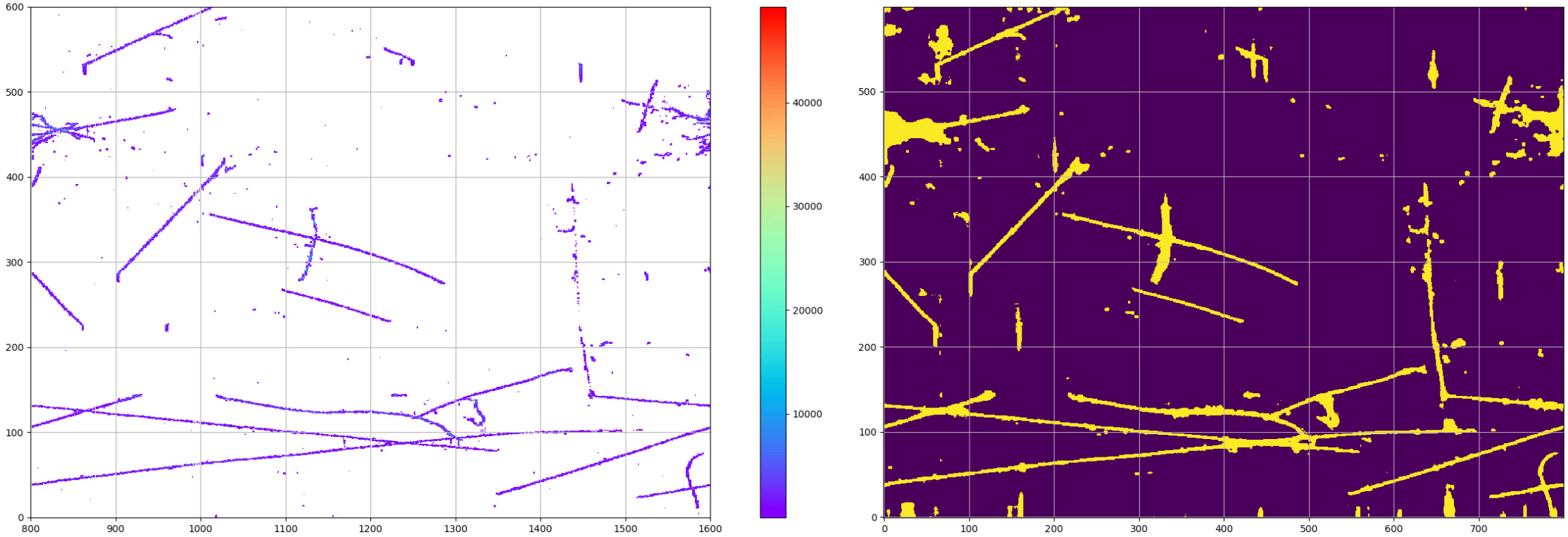

480
470
460
450
440
430
420
0
50
100
150
200
250
300

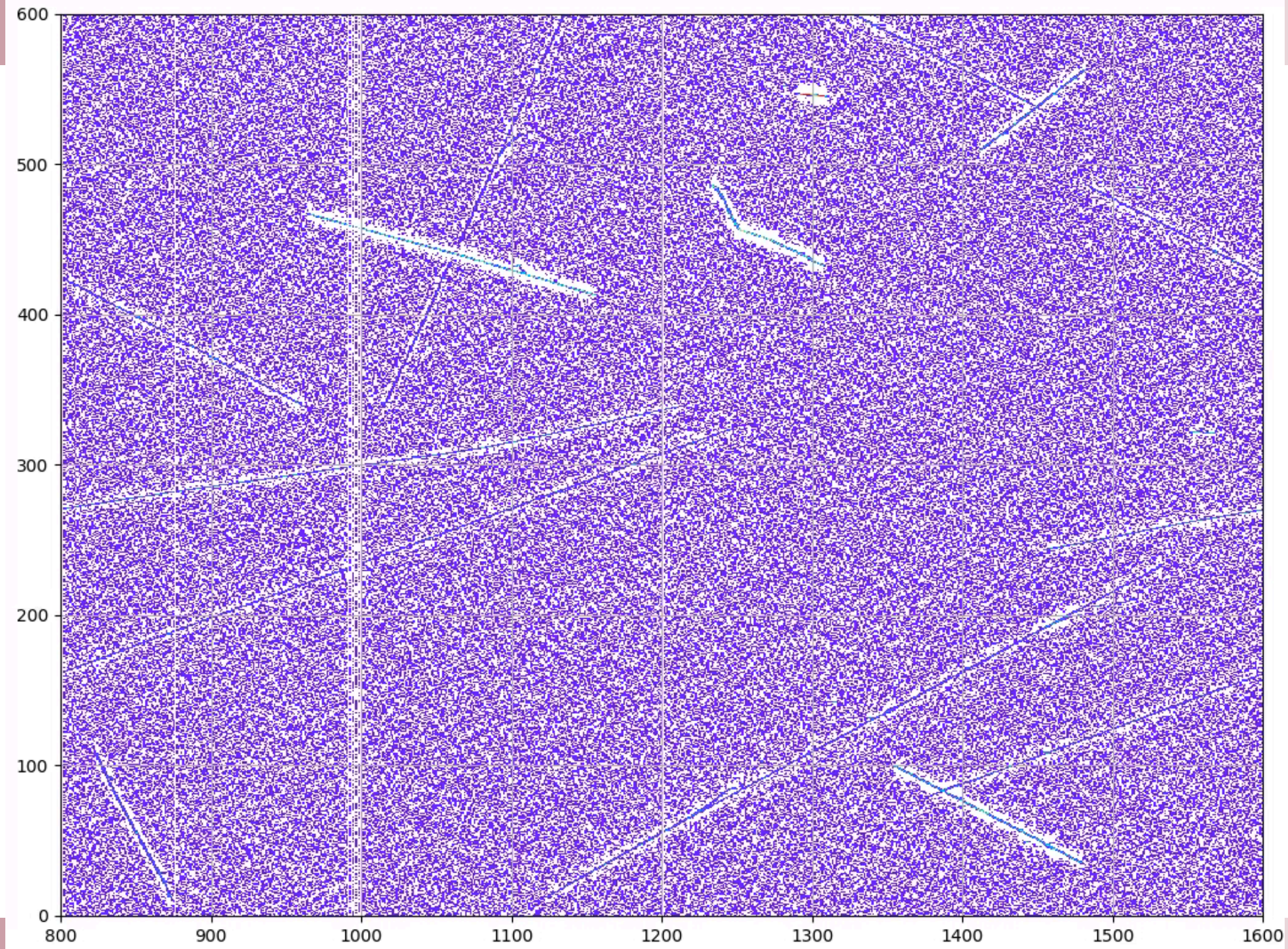

500
400
300
200
100
0
0
50
100
150
200
250
300

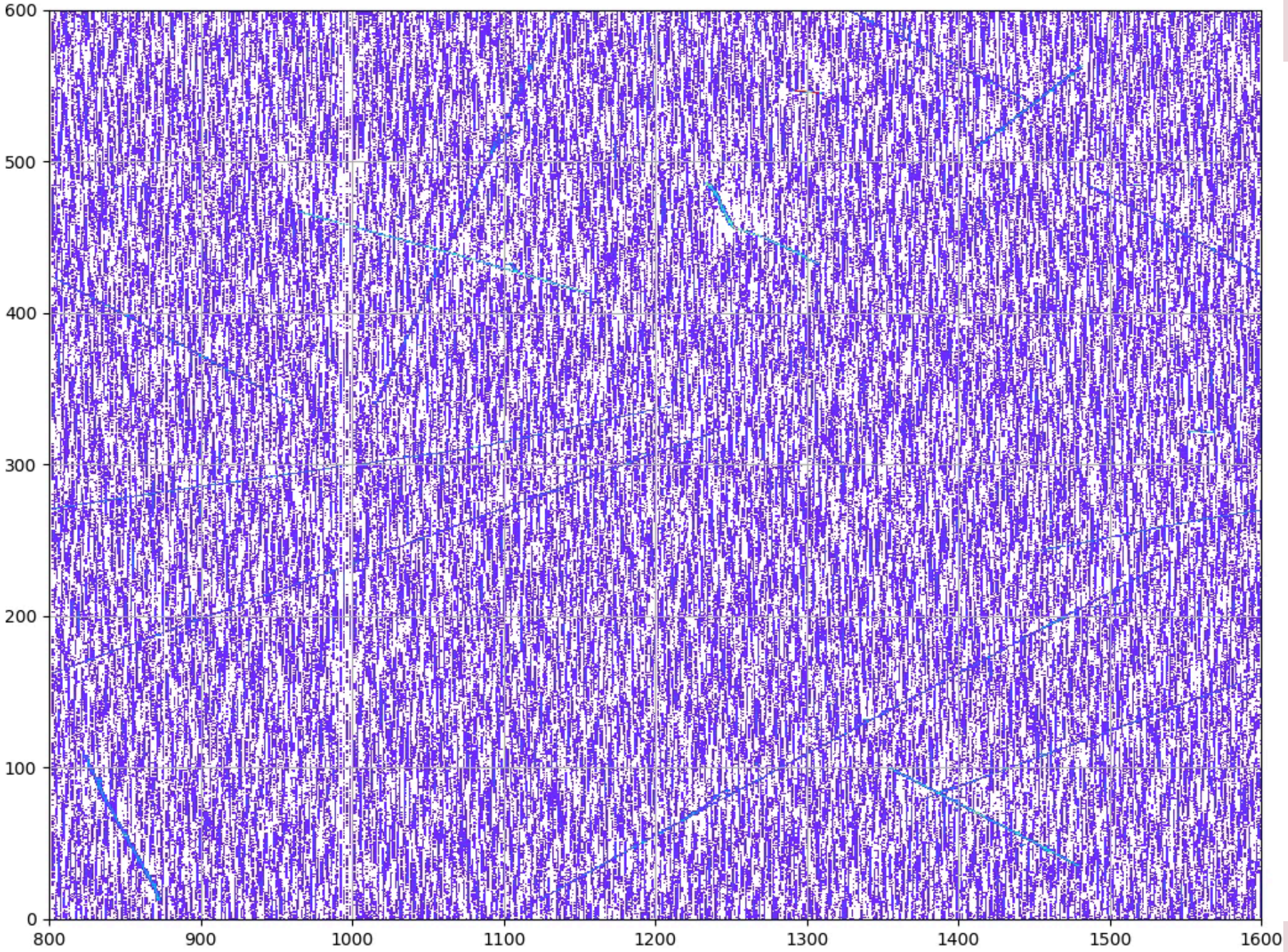
Trained with tll
Prediction with ttl

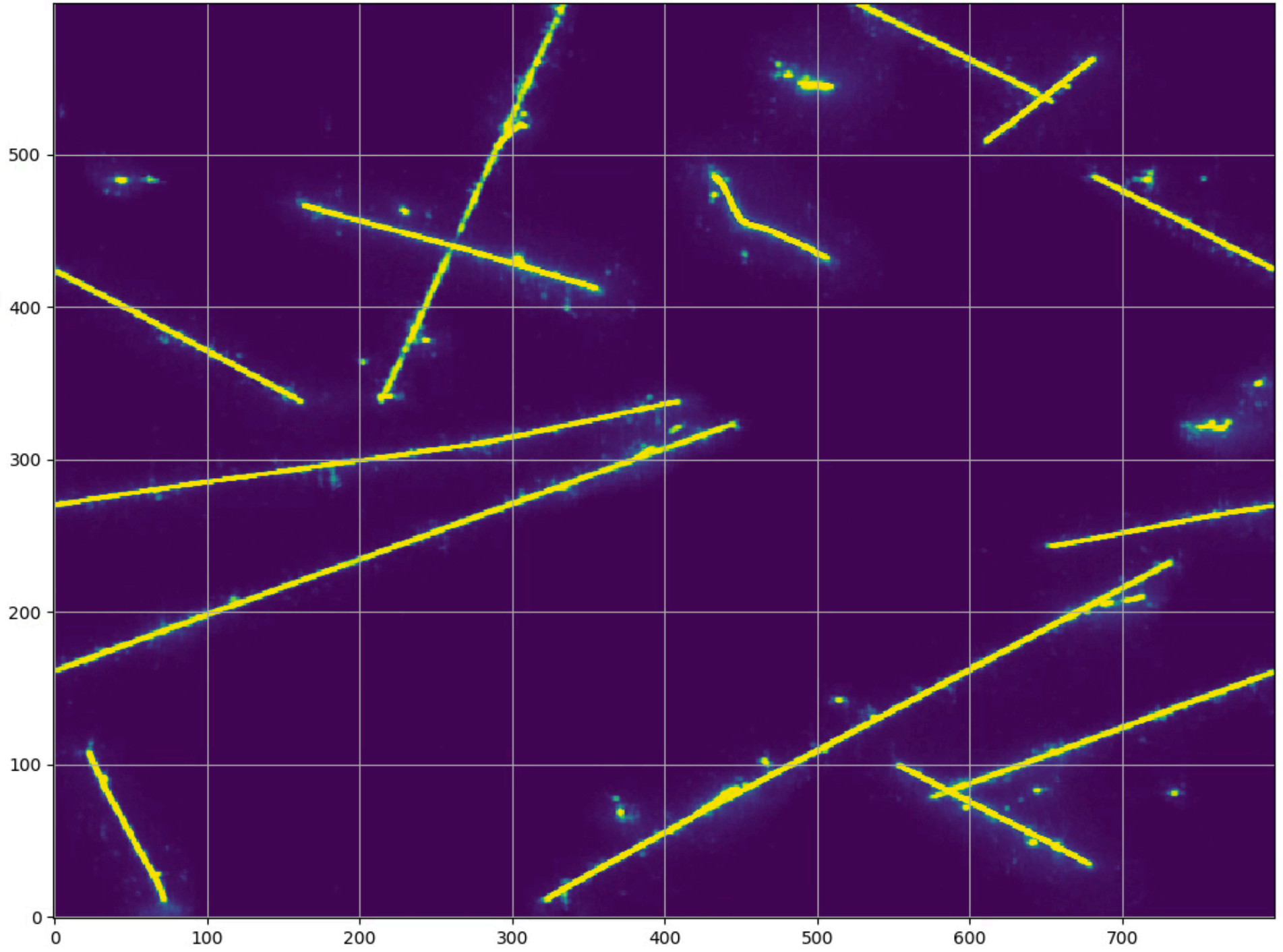


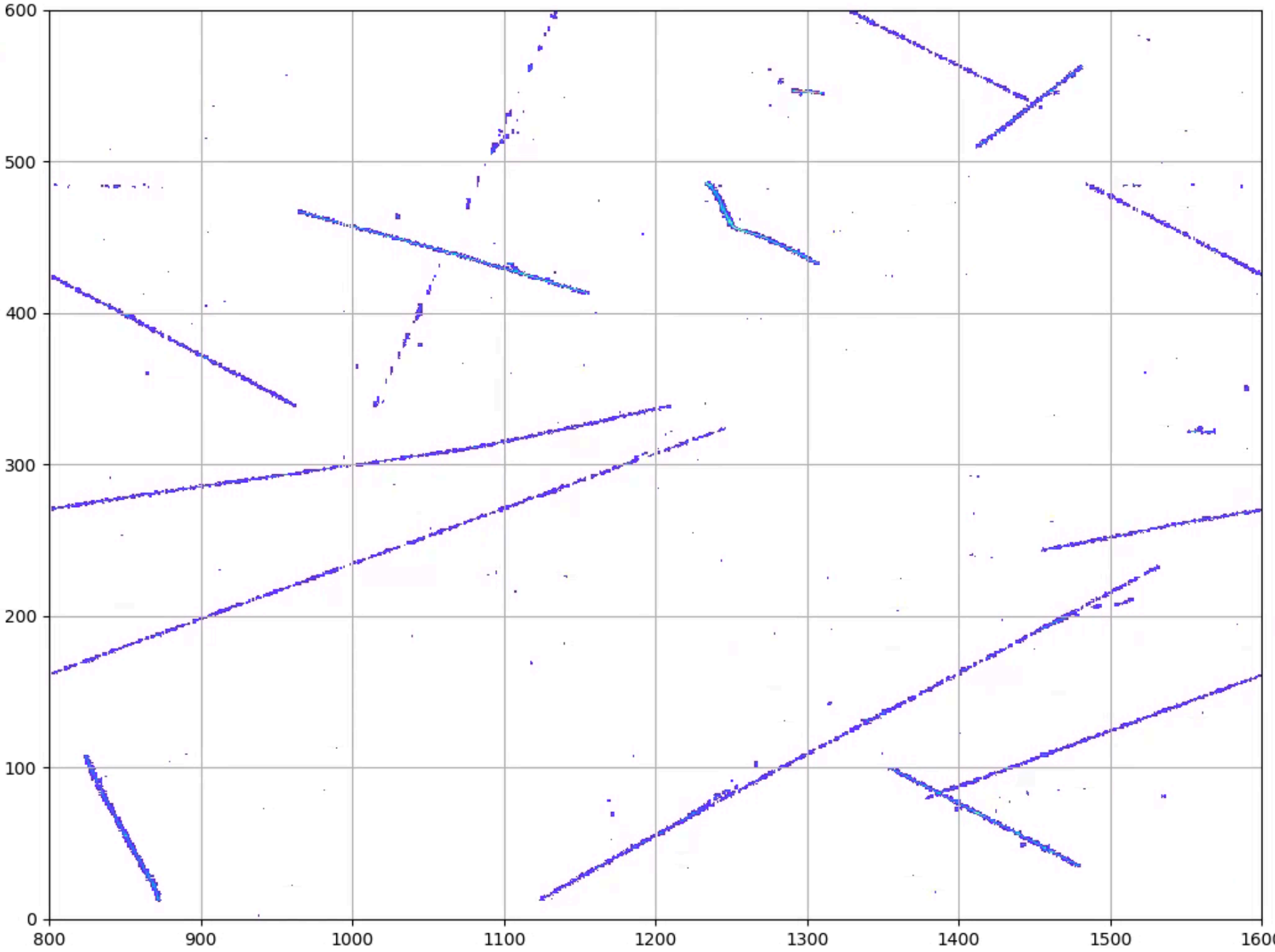

600
500
400
300
200
100
0
800
900
1000
1100
1200
1300
1400
1500
1600
40000
30000
20000
10000

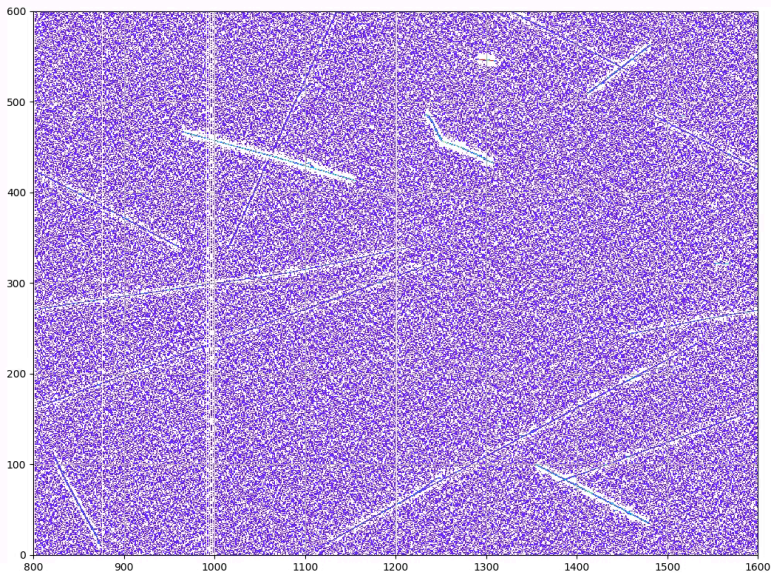

600
500
400
300
200
100
0
800
900
1000
1100
1200
1300
1400
1500
1600
40000
30000
20000
10000
500
400
300
200
100
0
0
100
200
300
400
500
600
700

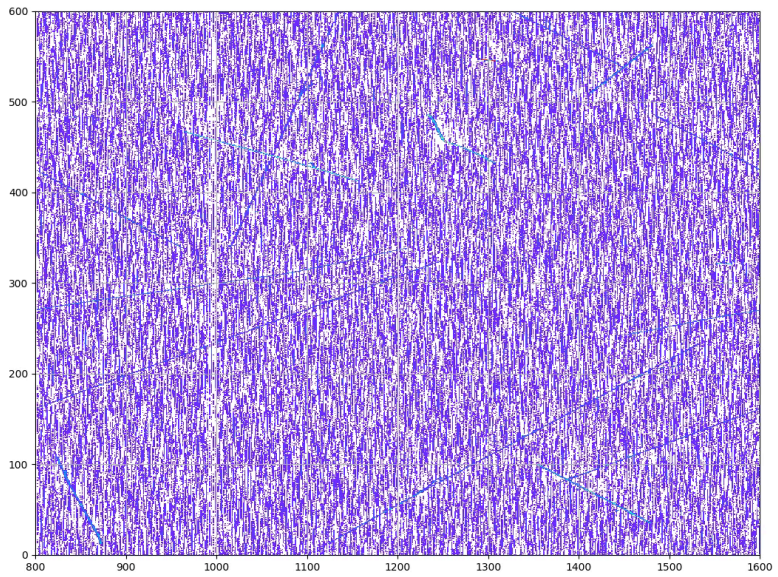

600
500
400
300
200
100
0
800
900
1000
1100
1200
1300
1400
1500
1600

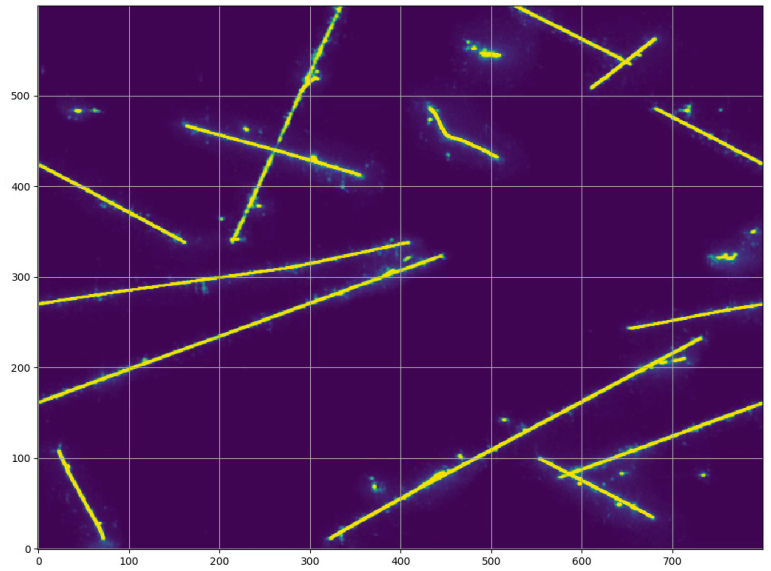

600
500
400
300
200
100
0
800
900
1000
1100
1200
1300
1400
1500
1600

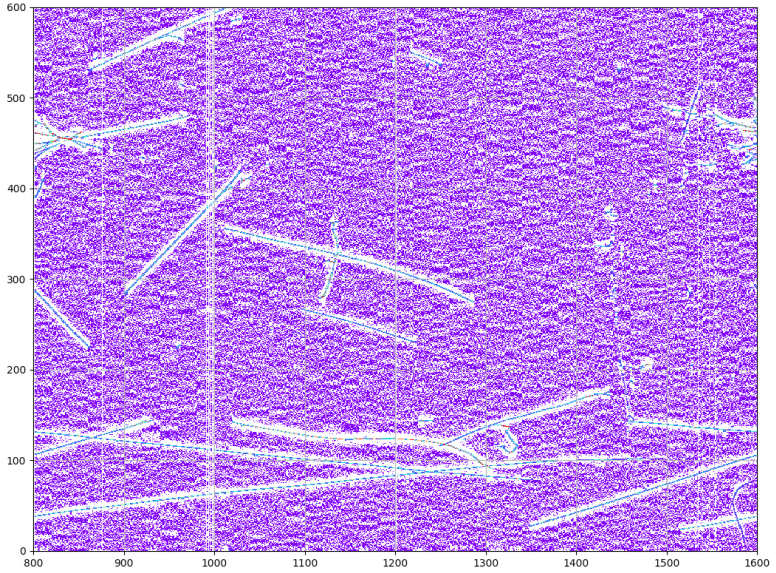

0
100
200
300
400
500
600
700

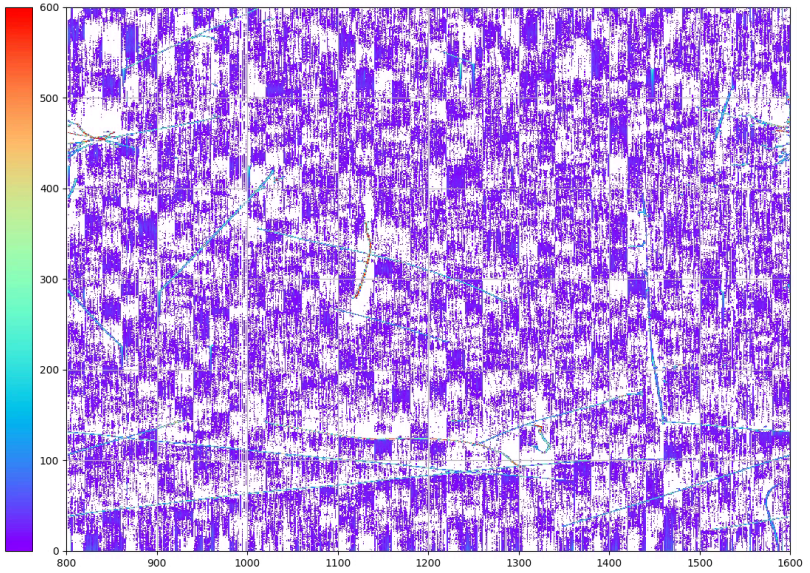

600
500
400
300
200
100
0
800
900
1000
1100
1200
1300
1400
1500
1600

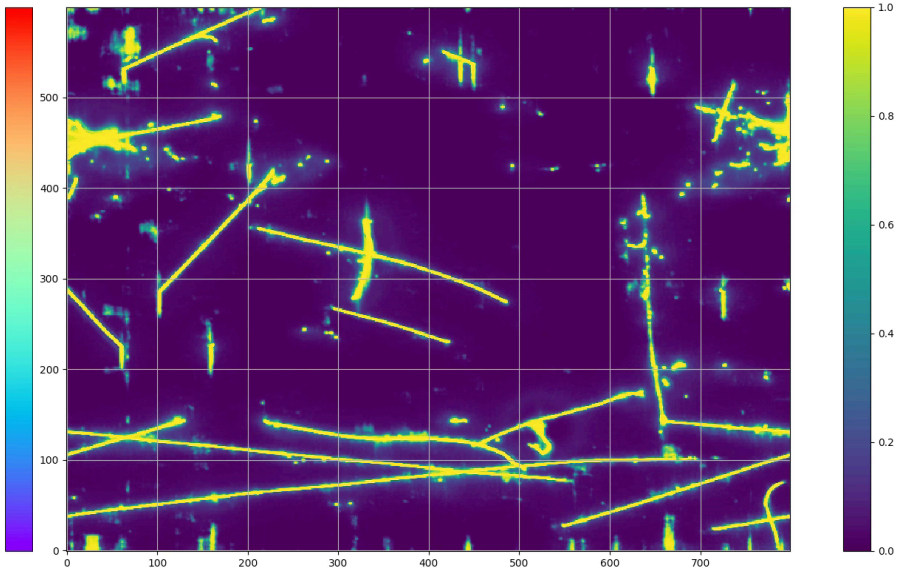

0
100
200
300
400
500
600
800
900
1000
1100
1200
1300
1400
1500
1600

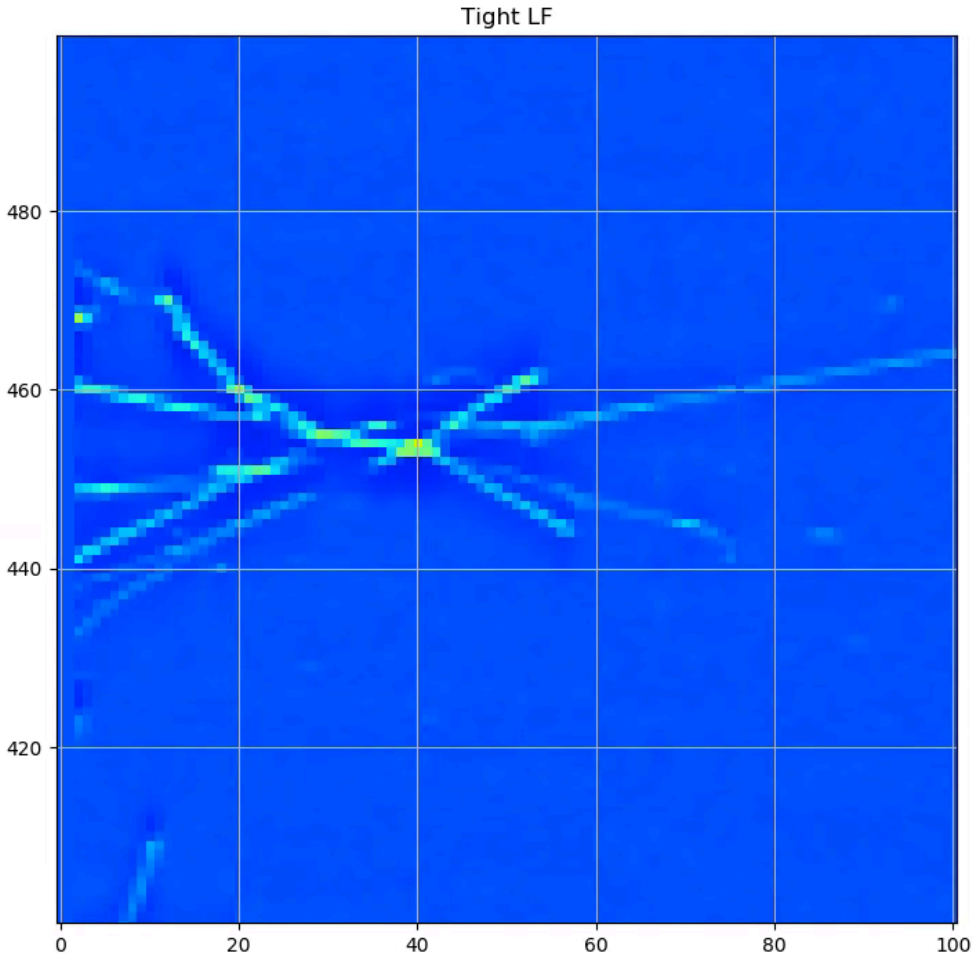

0
100
200
300
400
500
600
800
900
1000
1100
1200
1300
1400
1500
1600

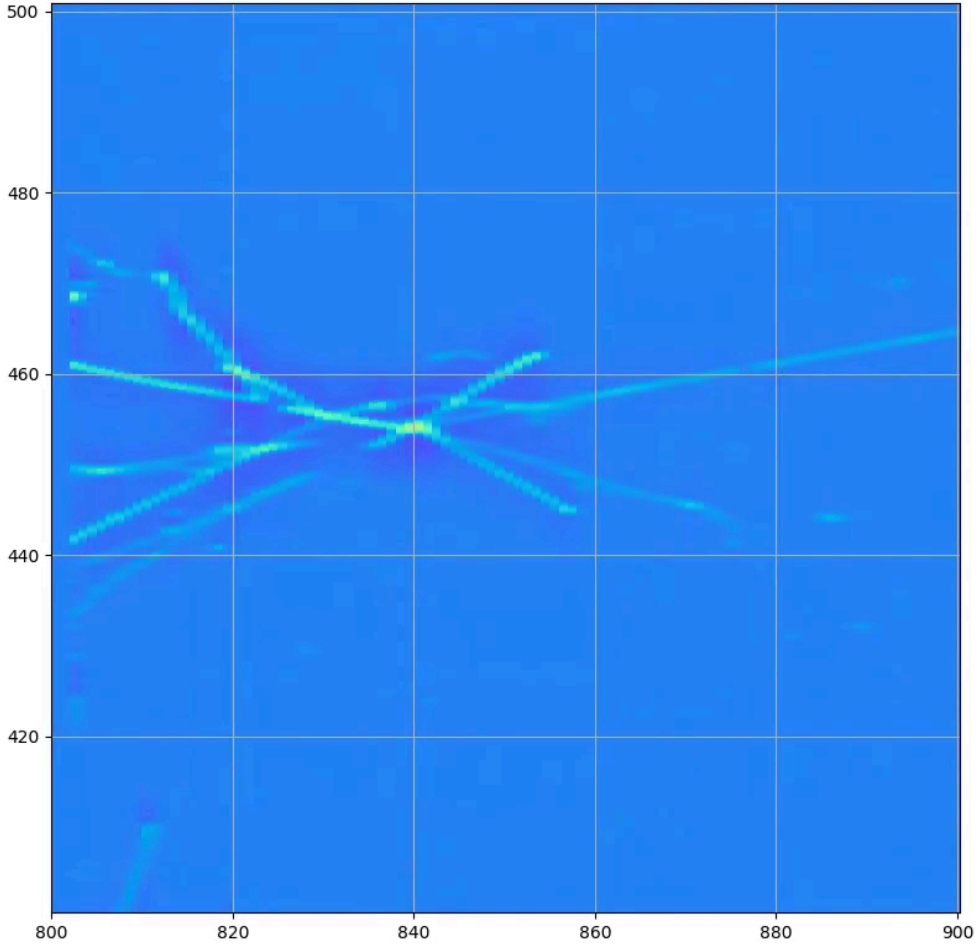

0
100
200
300
400
500
0
100
200
300
400
500
600
700

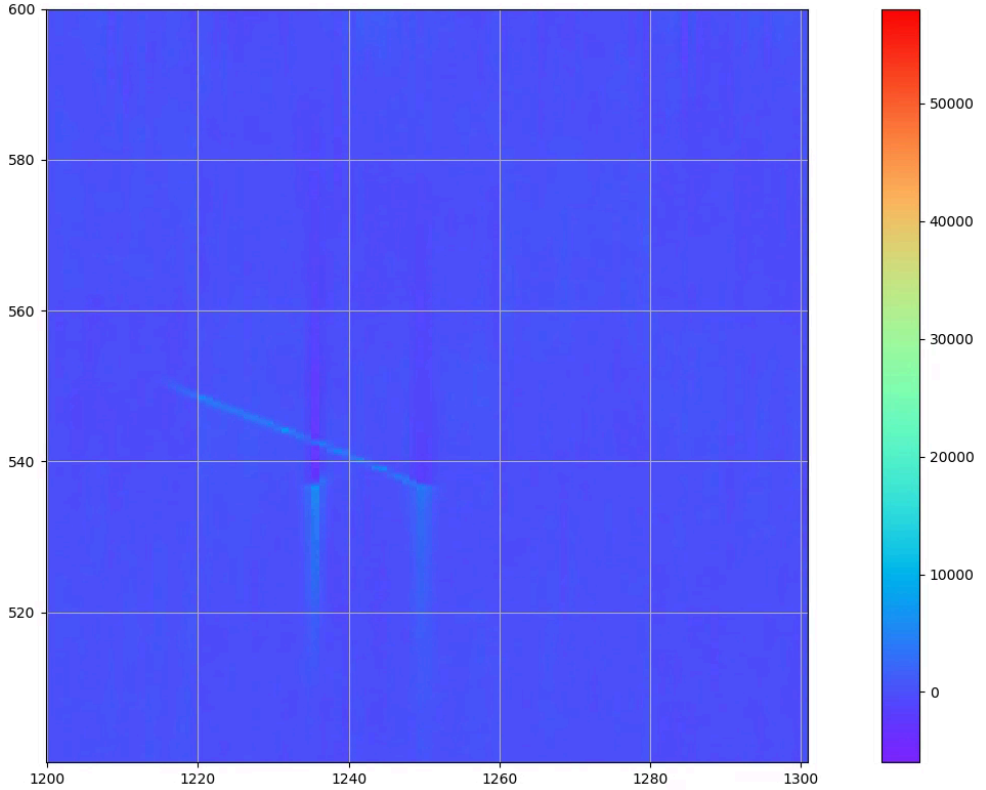

0
100
200
300
400
500
600
800
900
1000
1100
1200
1300
1400
1500
1600

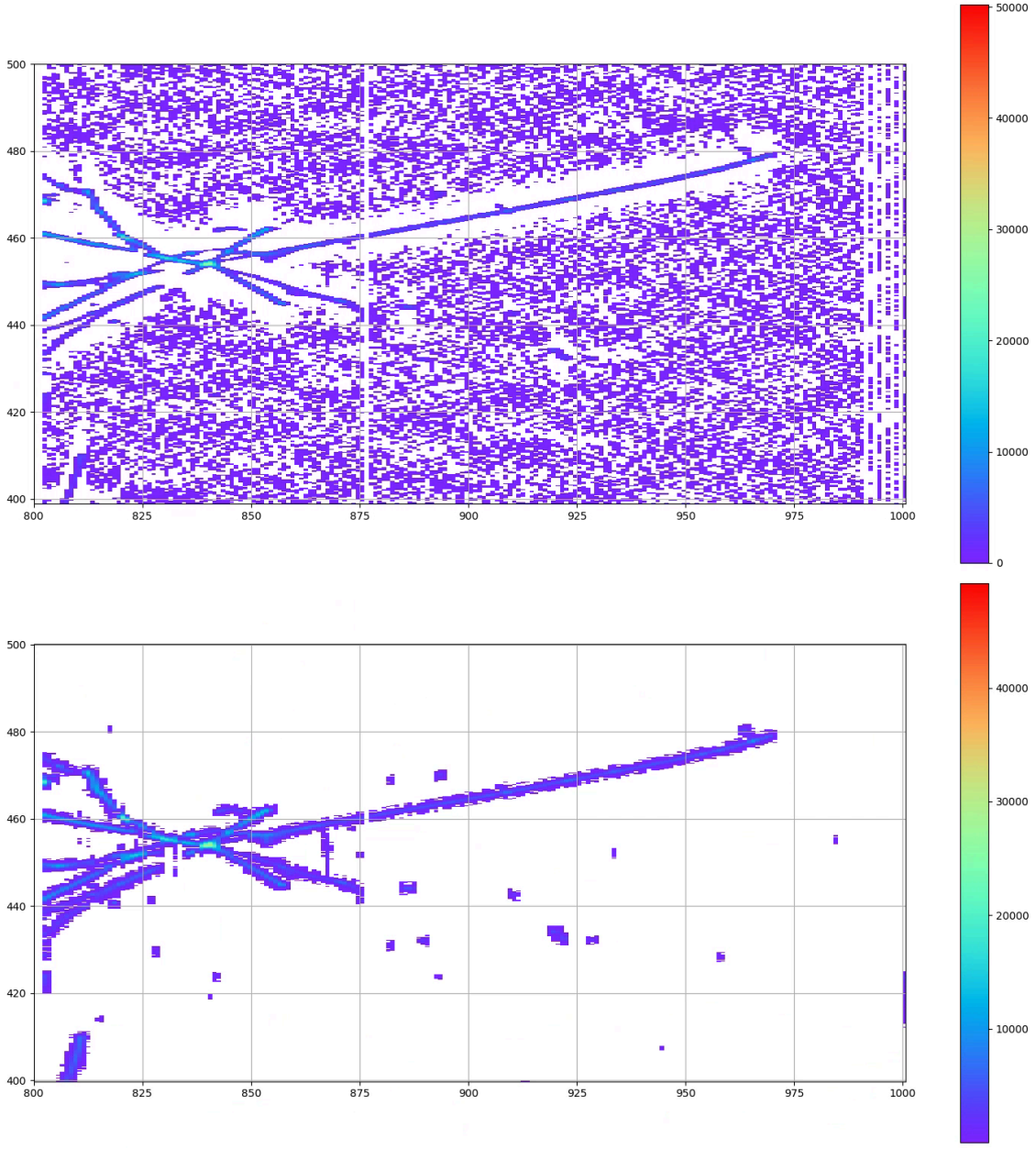

0
100
200
300
400
500
600
800
900
1000
1100
1200
1300
1400
1500
1600

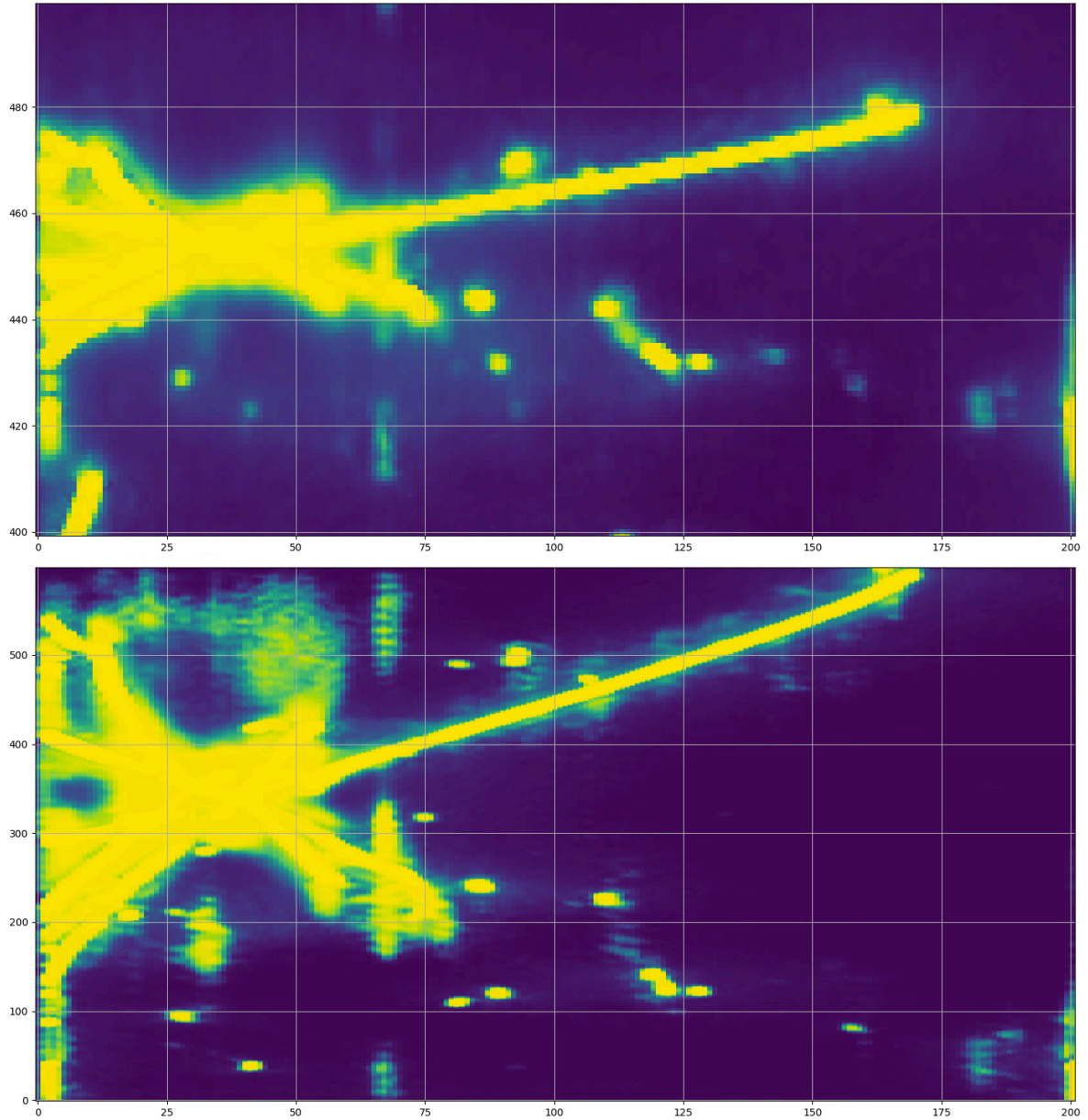

0
100
200
300
400
500
0
100
200
300
400
500
600
700
0.0
0.2
0.4
0.6
0.8
1.0


Tight LF
480
460
440
420
0
20
40
60
80
100

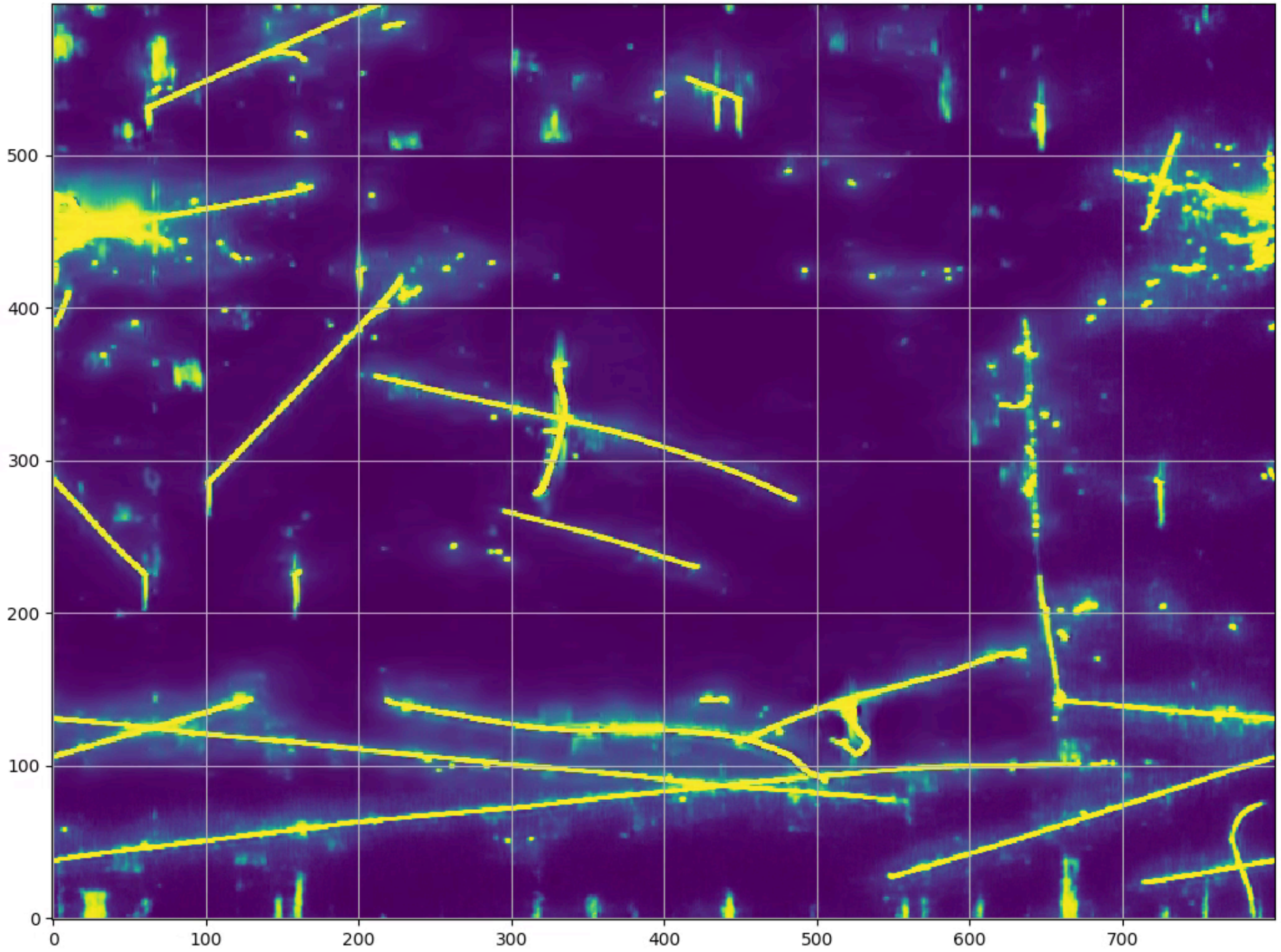

500
480
460
440
420
800
820
840
860
880
900


600
580
560
540
520
1200
1220
1240
1260
1280
1300
50000
40000
30000
20000
10000
0

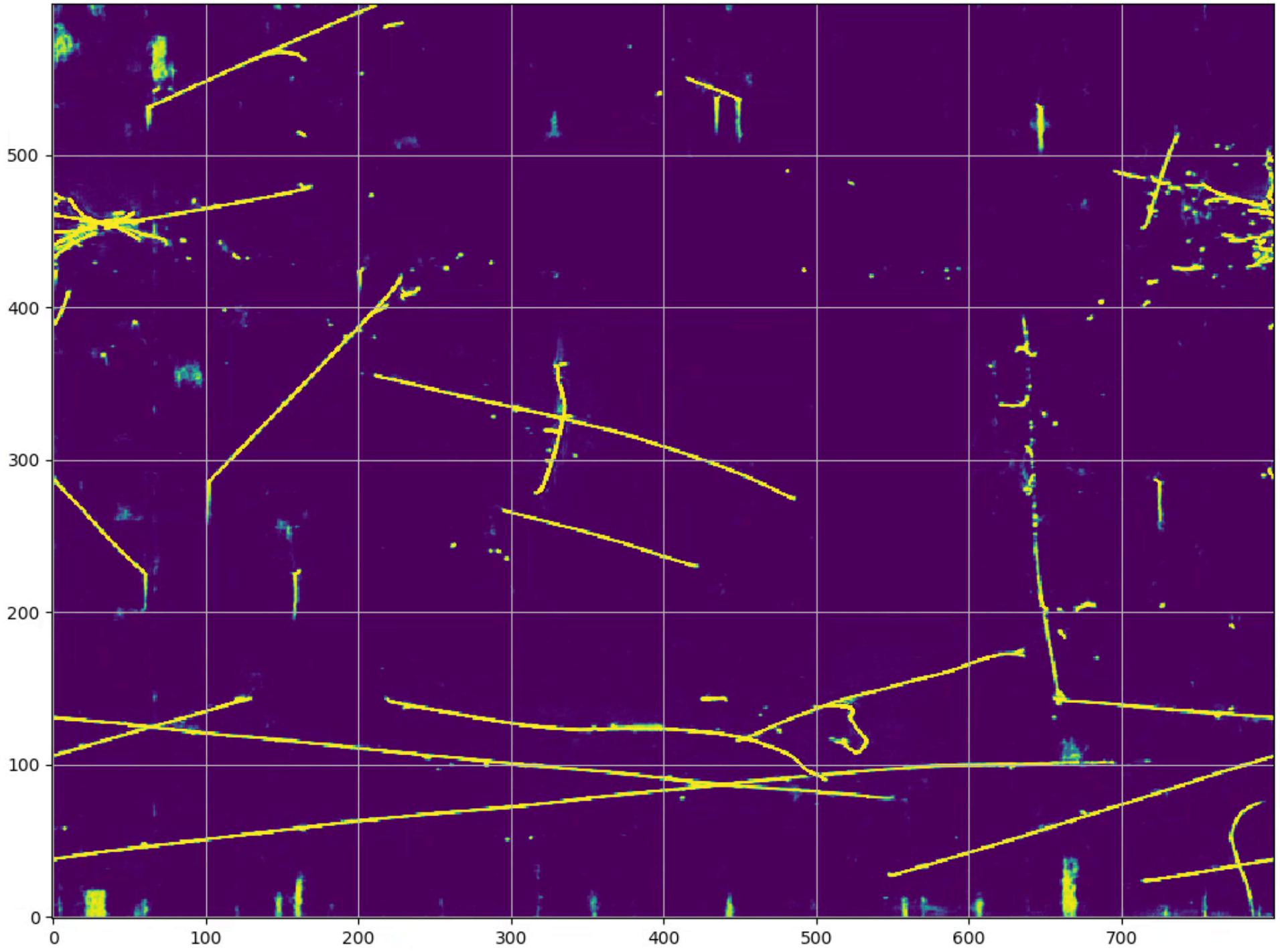

500
480
460
440
420
400
800
825
850
875
900
925
950
975
1000
50000
40000
30000
20000
10000
0


480
460
440
420
400
0
25
50
75
100
125
150
175
200

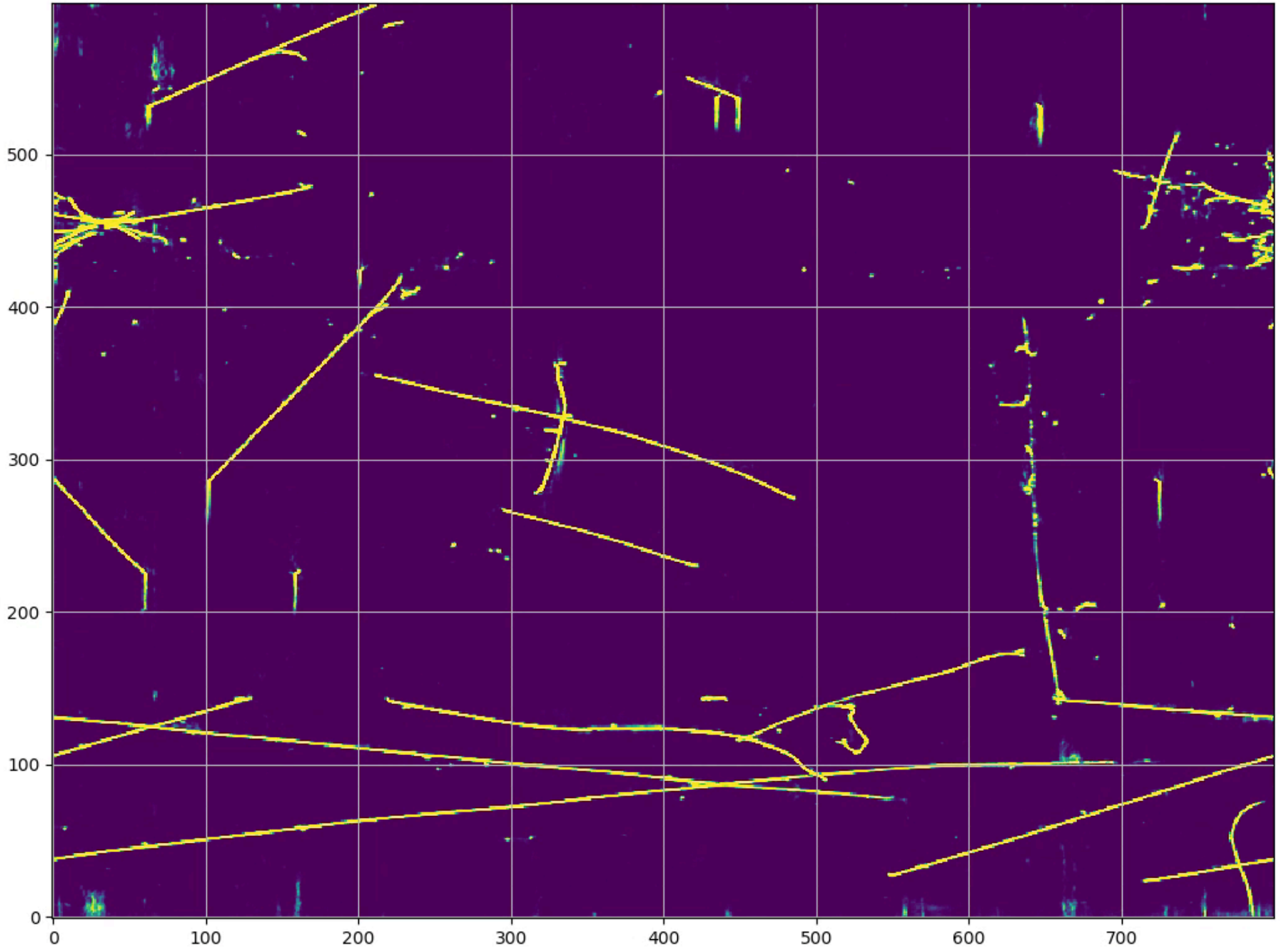
th@0



th@50

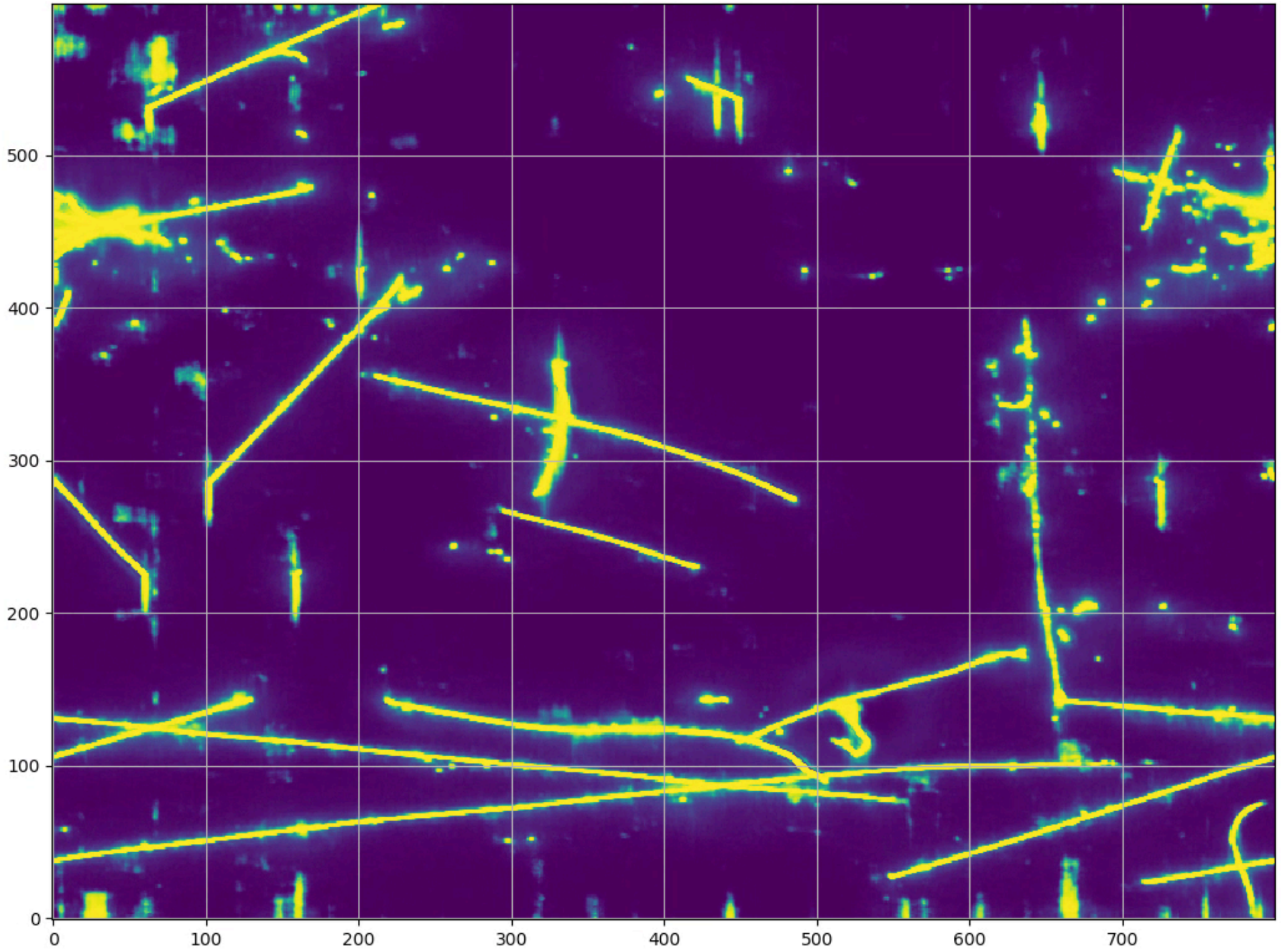


th@100



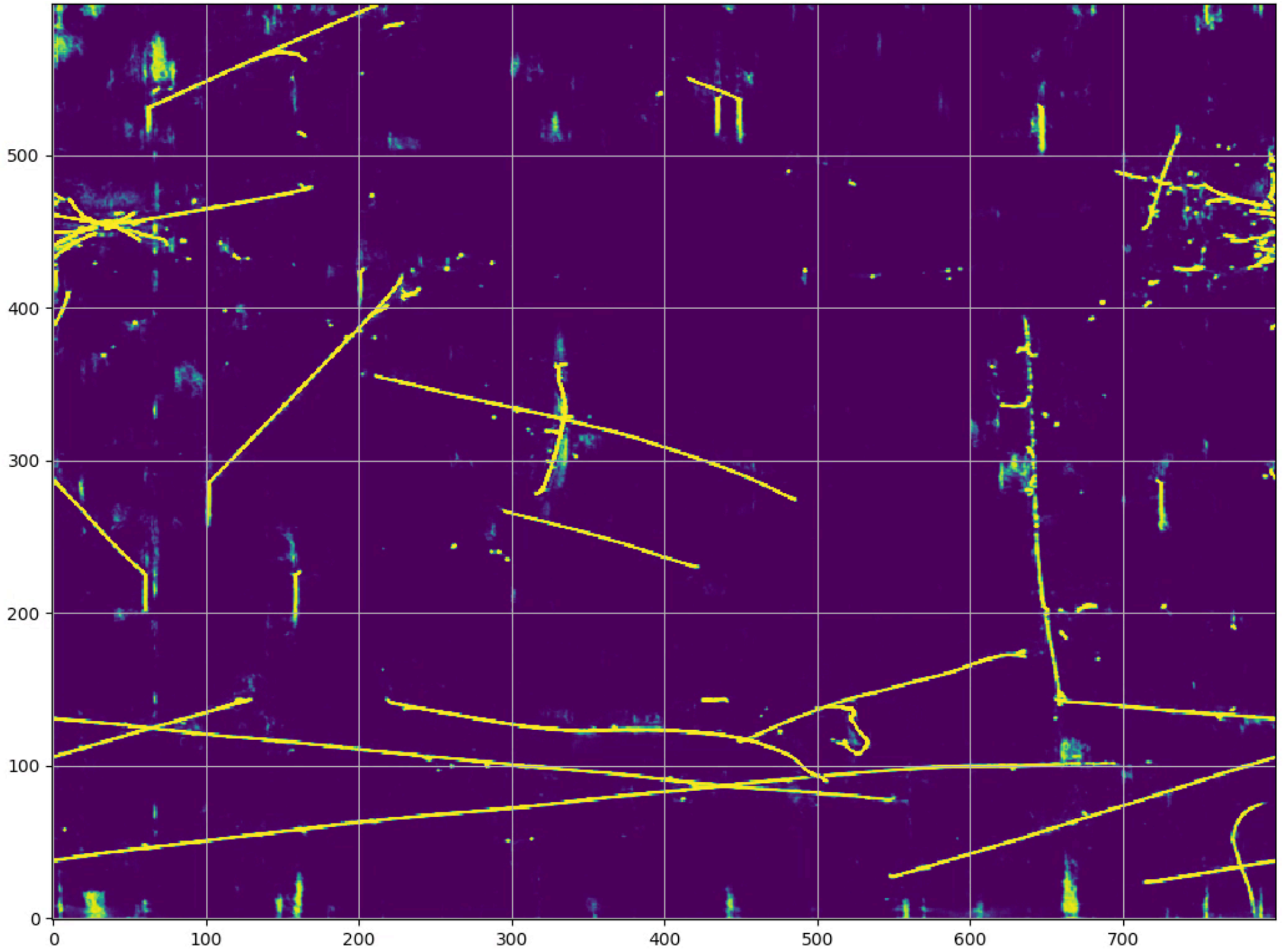
Trained with tll
Prediction with ttl

th@0



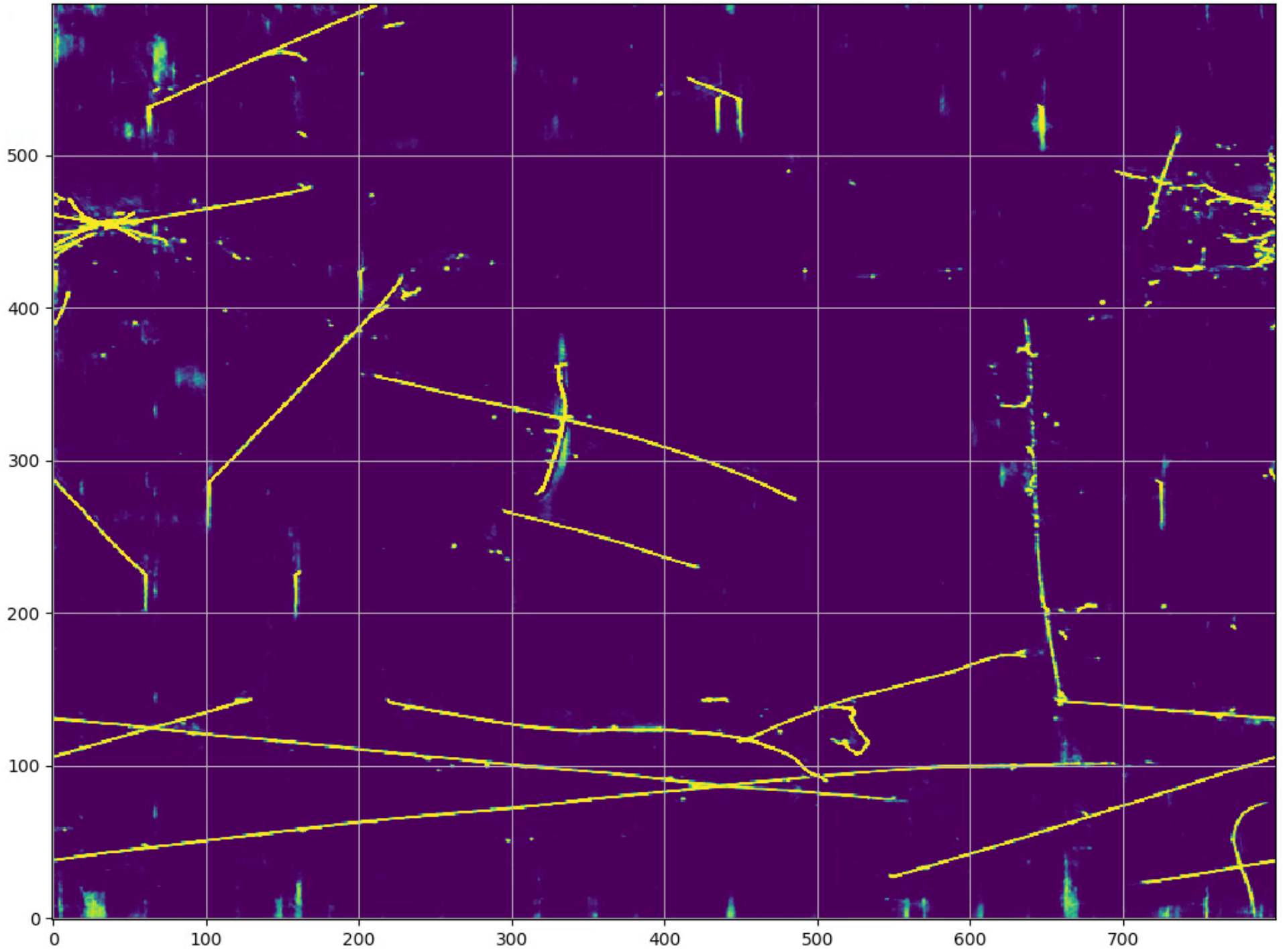
Trained with tll
Prediction with ttl

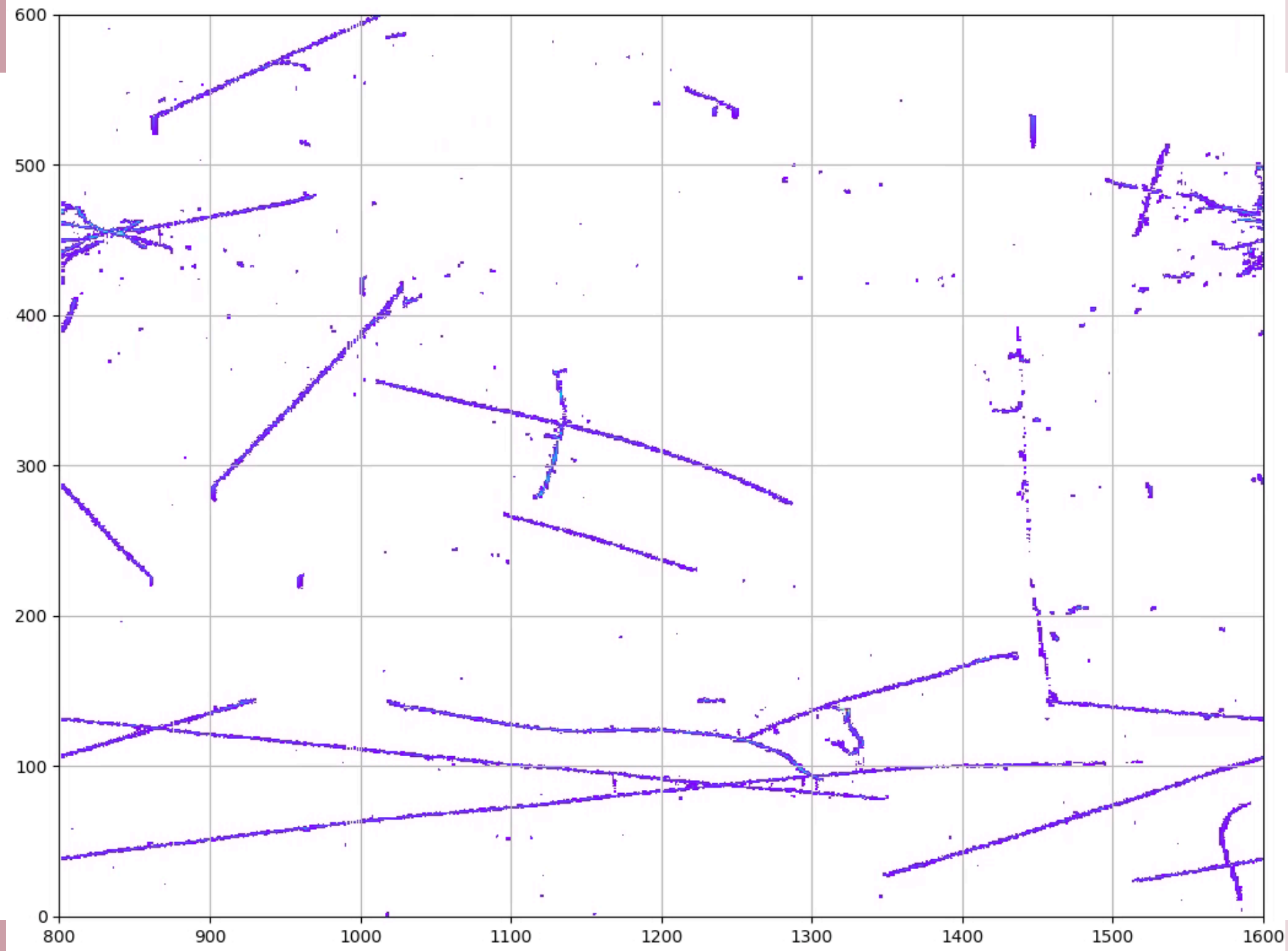
th = 50



Trained with tll
Prediction with ttl

th = 100




600
500
400
300
200
100
0
800
900
1000
1100
1200
1300
1400
1500
1600