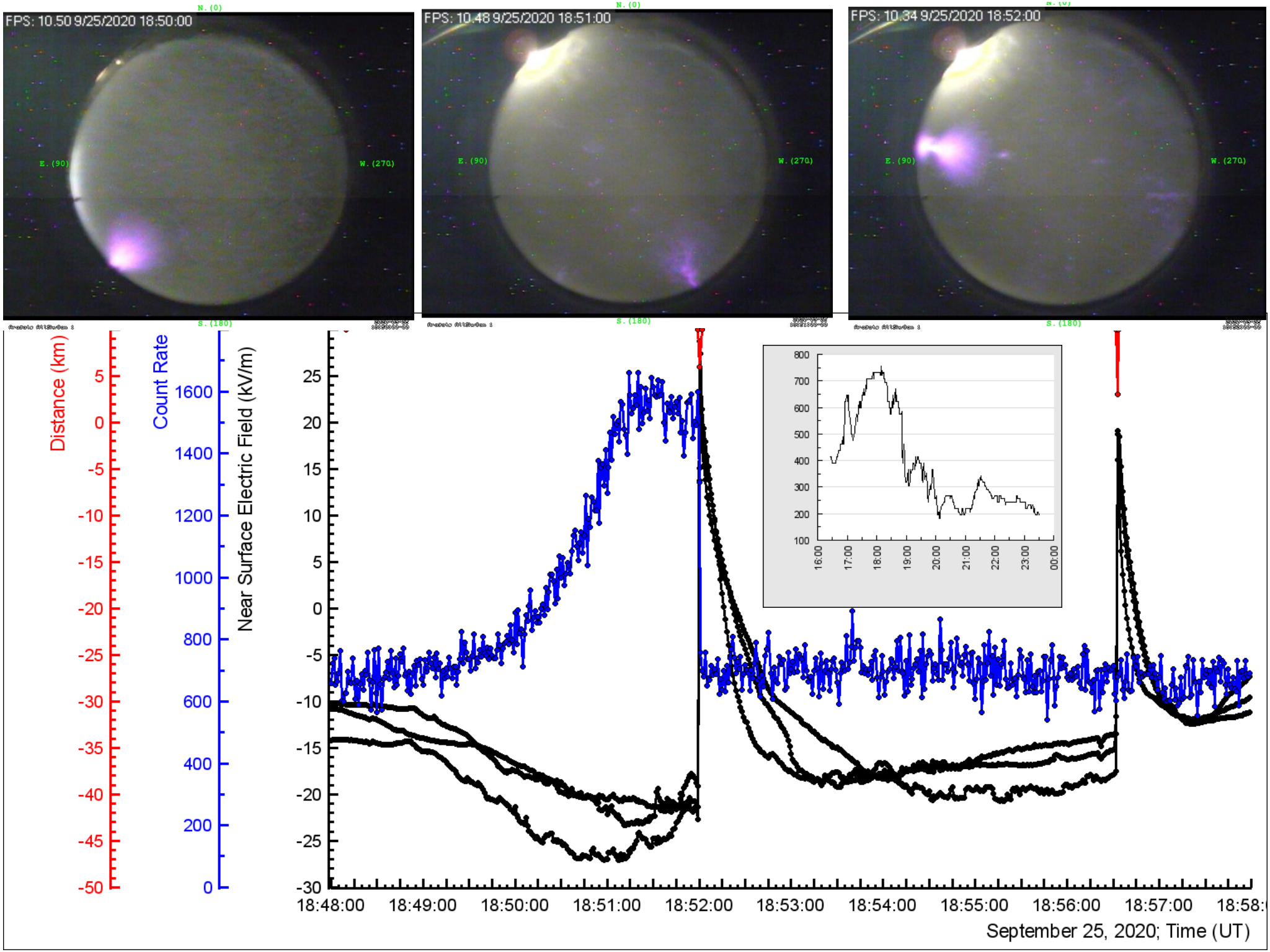
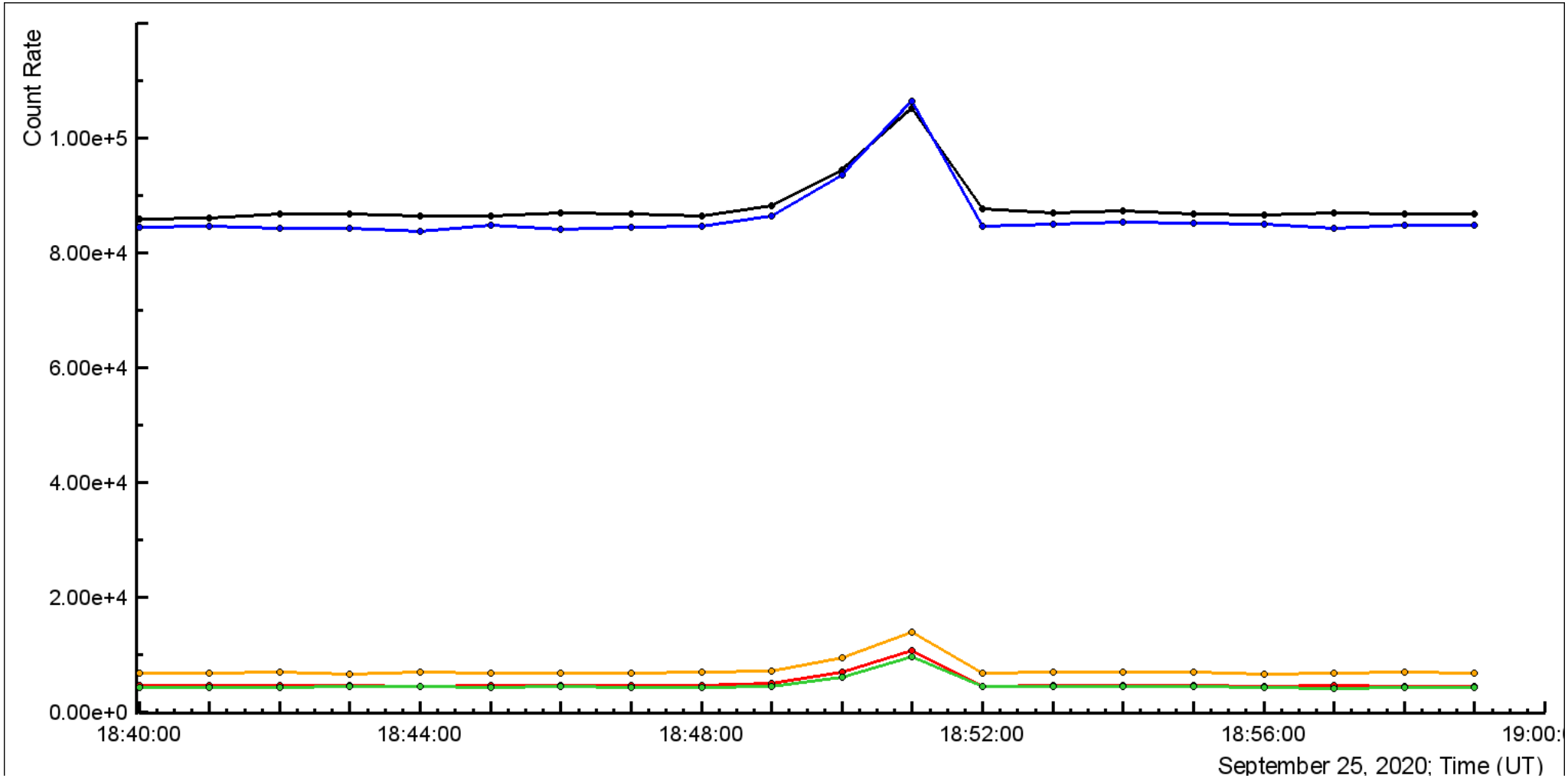
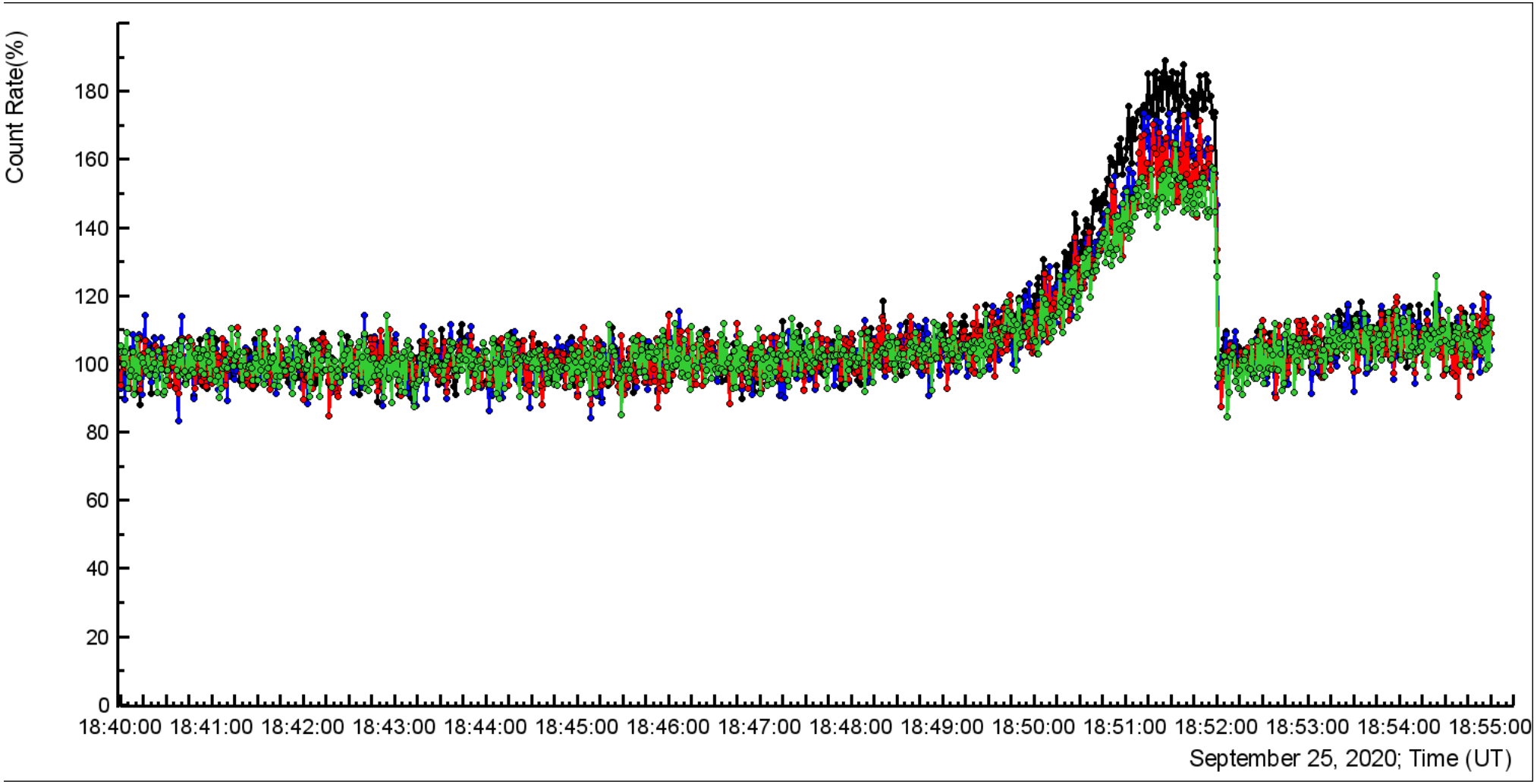

FPS: 10.50 9/25/2020 18:50:00
FPS: 10.48 9/25/2020 18:51:00
FPS: 10.34 9/25/2020 18:52:00
N. (0)
E. (90)
W. (270)
S. (180)
Distance (km)
Count Rate
Near Surface Electric Field (kV/m)
18:48:00
18:49:00
18:50:00
18:51:00
18:52:00
18:53:00
18:54:00
18:55:00
18:56:00
18:57:00
September 25, 2020; Time (UT)

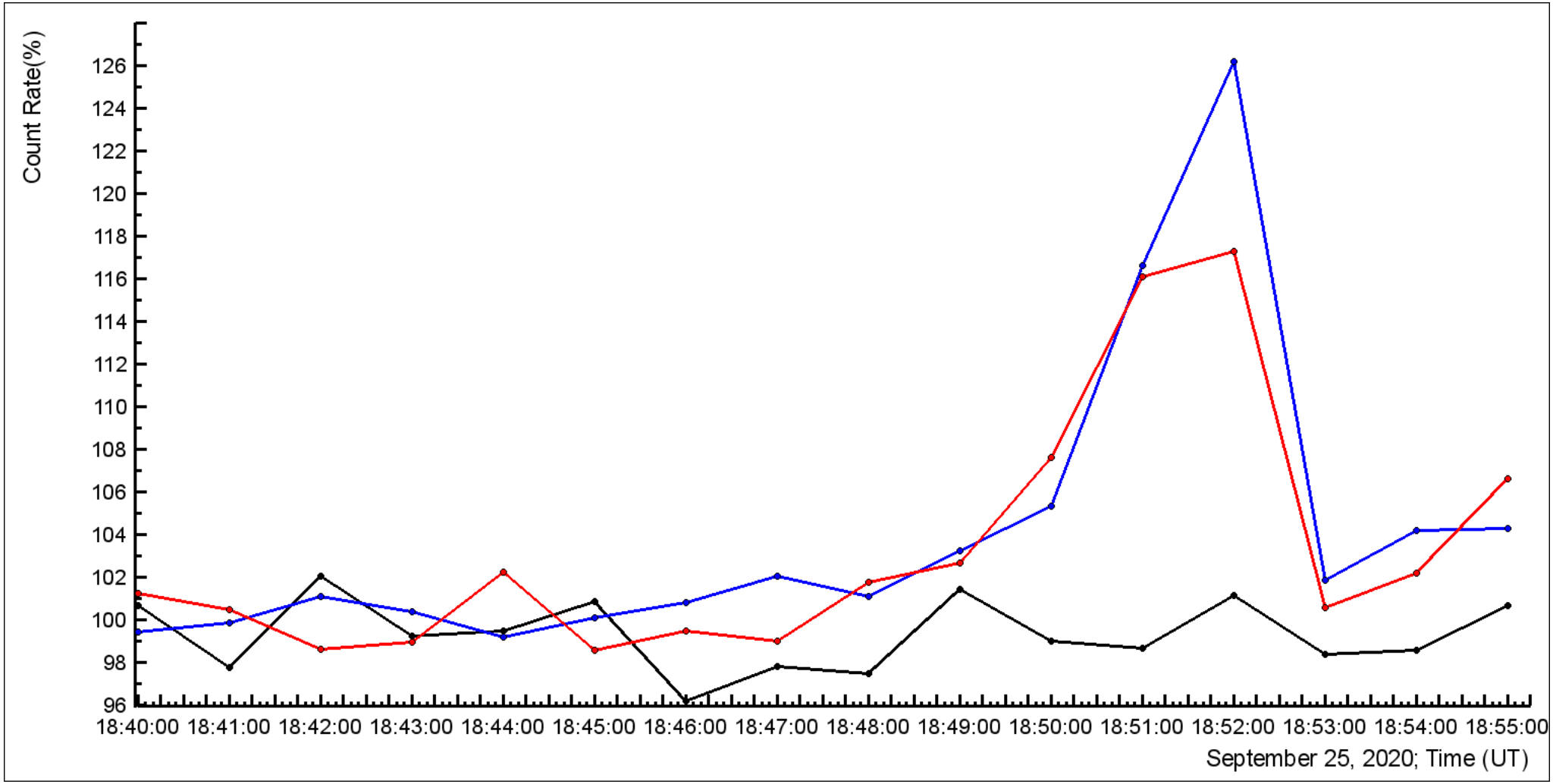
NaI spectrometers after moving to room with stable temperature

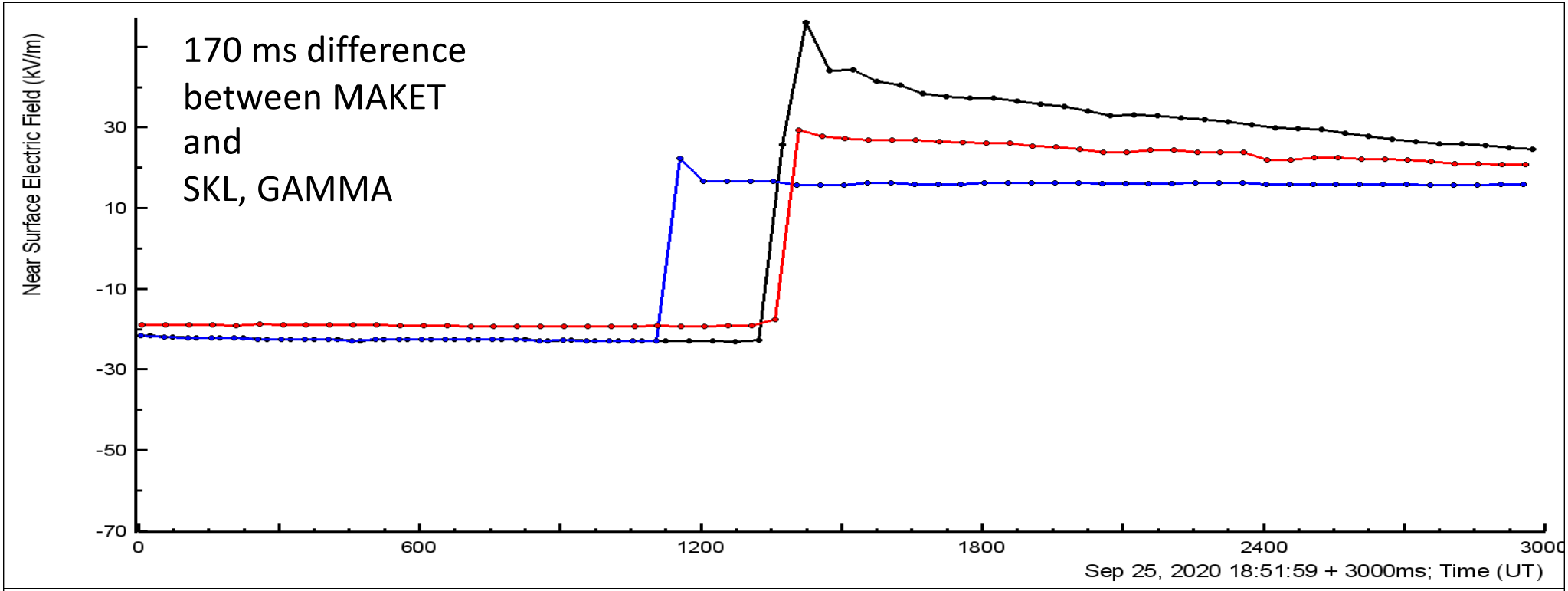


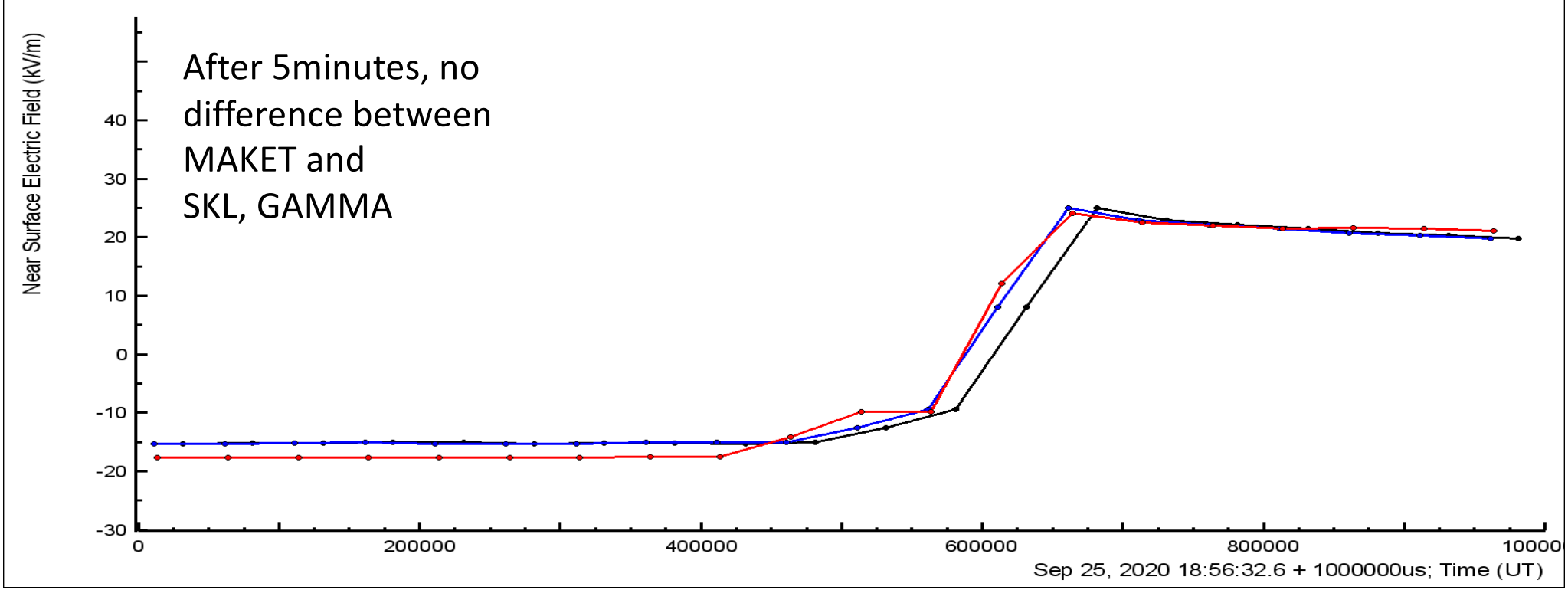
4 channels of the SKL STAND1 detector



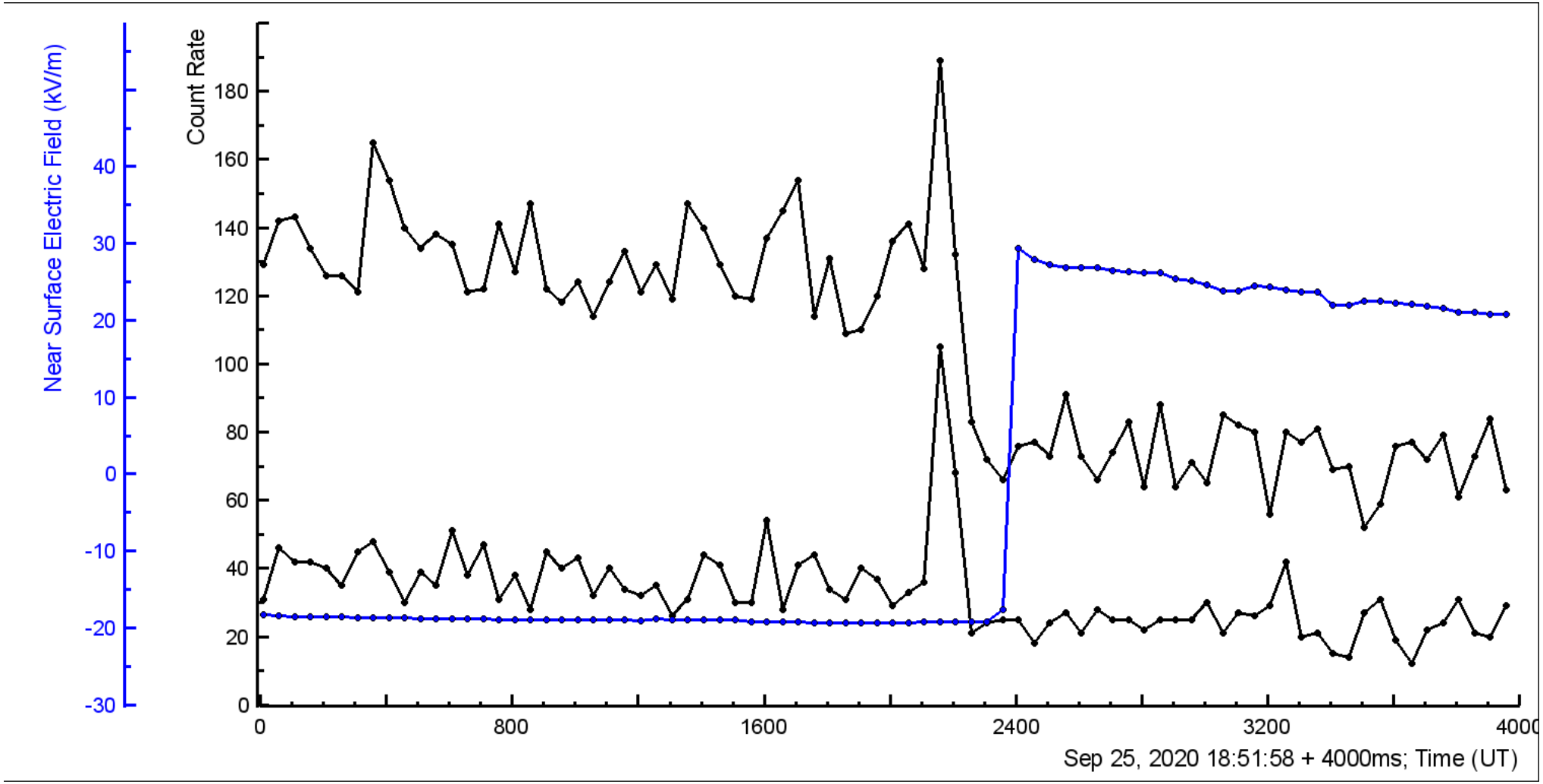
SEVAN 111 (muons), 100 and 010 (gamma rays and neutrons)



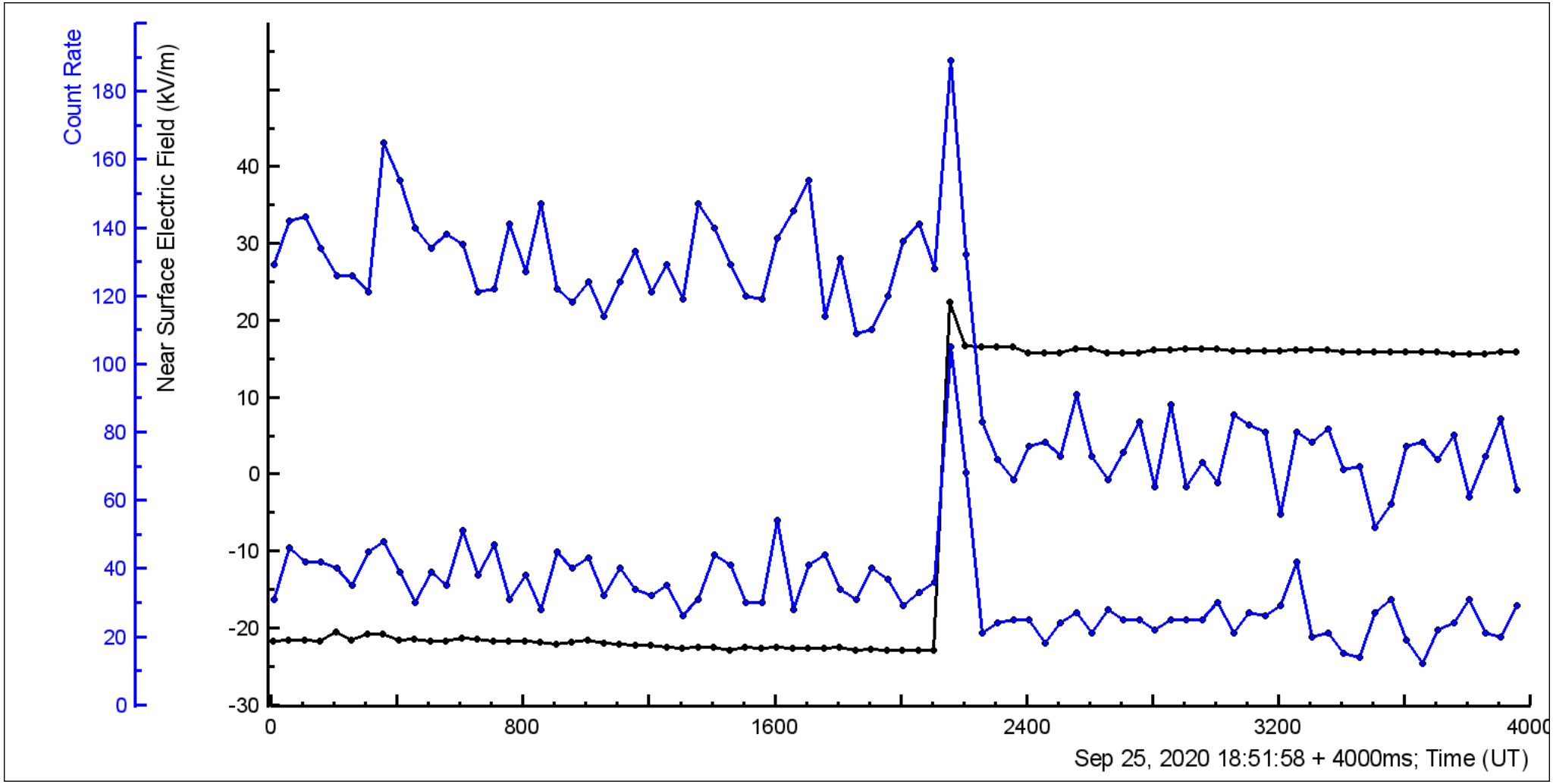

170 ms difference
between MAKET
and
SKL, GAMMA
Near Surface Electric Field (kV/m)
30
10
-10
-30
-50
-70
0
600
1200
1800
2400
3000
Sep 25, 2020 18:51:59 + 3000ms; Time (UT)


After 5minutes, no
difference between
MAKET and
SKL, GAMMA
Near Surface Electric Field (kV/m)
40
30
20
10
0
-10
-20
-30
0
200000
400000
600000
800000
1000000
Sep 25, 2020 18:56:32.6 + 1000000us; Time (UT)

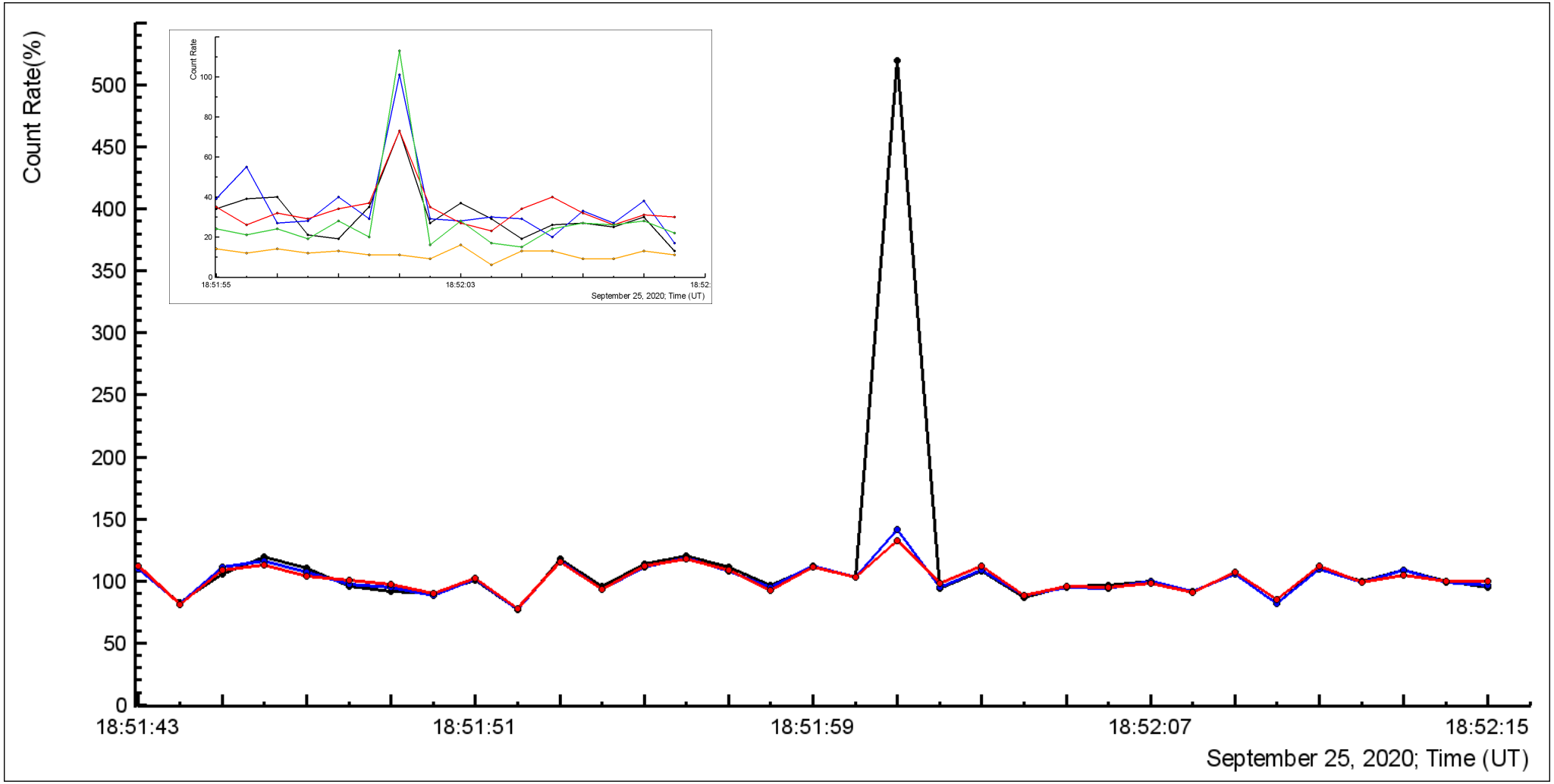
NaI and 3 cm thick scintillator SKL, SKL electric sensor: particle burst before lightning or interference?



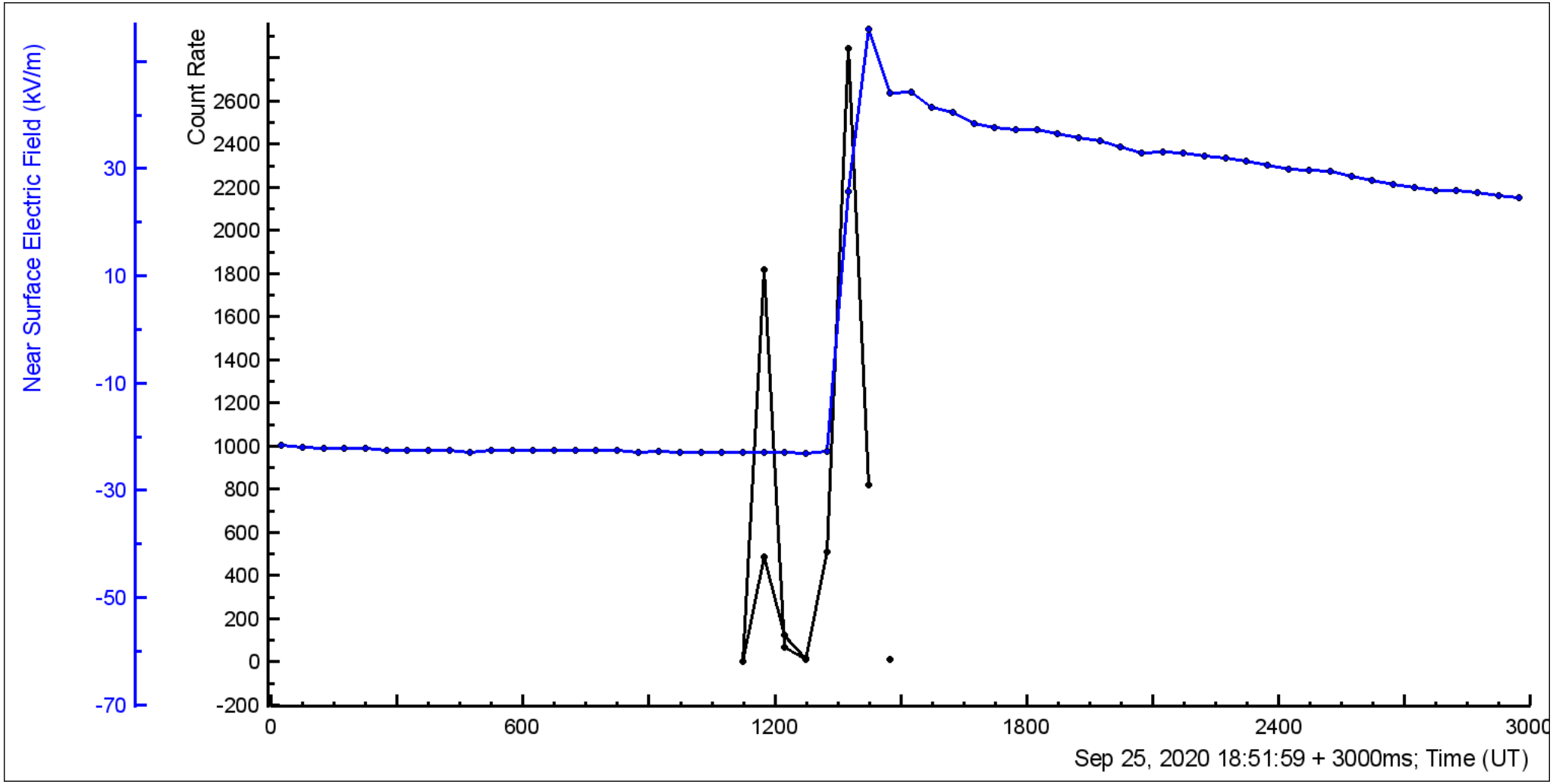
NaI, 3 cm thick scintillator and MAKET electric sensor: interference?

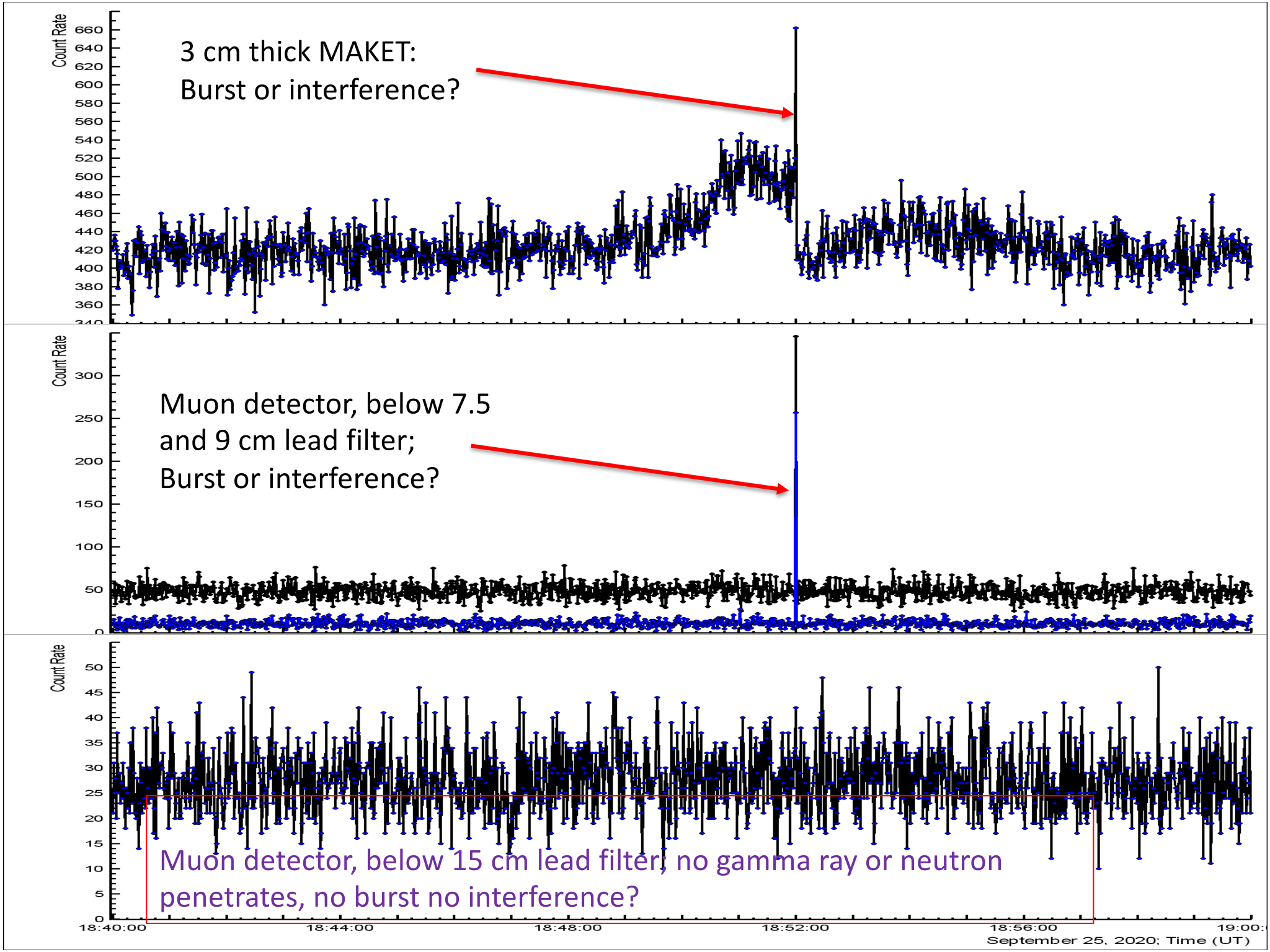


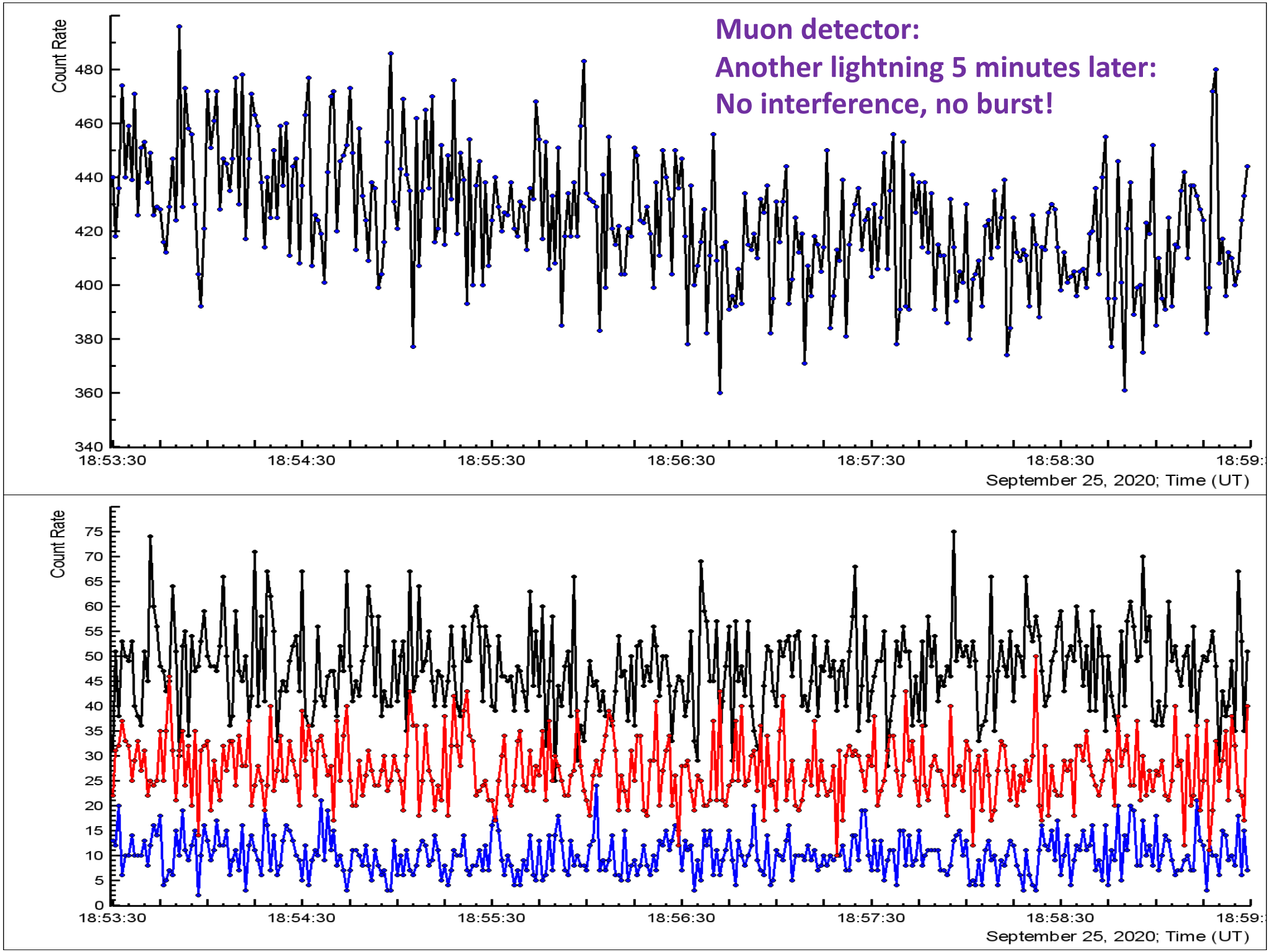
ArNM neutrons in all operating channels the same second!



Dufik+ SKL EFM: 2 UV peaks one – burst (or corona discharge?), second lightning?




3 cm thick MAKET:
Burst or interference?
Muon detector, below 7.5
and 9 cm lead filter;
Burst or interference?
Muon detector, below 15 cm lead filter; no gamma ray or neutron
penetrates, no burst no interference?
Count Rate
18:40:00
18:44:00
18:48:00
18:52:00
18:56:00
September 25, 2020; Time (UT)


Muon detector:
Another lightning 5 minutes later:
No interference, no burst!
Count Rate
480
460
440
420
400
380
360
340
18:53:30
18:54:30
18:55:30
18:56:30
18:57:30
18:58:30
18:59:
September 25, 2020; Time (UT)
Count Rate
75
70
65
60
55
50
45
40
35
30
25
20
15
10
5
0
18:53:30
18:54:30
18:55:30
18:56:30
18:57:30
18:58:30
18:59:
September 25, 2020; Time (UT)

25 September large TGE: clouds 300 m above station: first time detected TGE from such a high cloud

- Gagik, Balabek, energy spectra by NaI and ASNT – look for electrons!
- Suren, Gena, compare electromagnetic radiation and signals from particle detectors on nanosecond time scale;
- Suren – determine the lightning type!
- David – time synchronization with MyRio network;
- Balabek – one-second photos from panoramic camera and “spy” camera to reveal a corona discharge!
- Harut, Balabek: how to have data from all cameras in one database and how to make looking photos user-friendly!