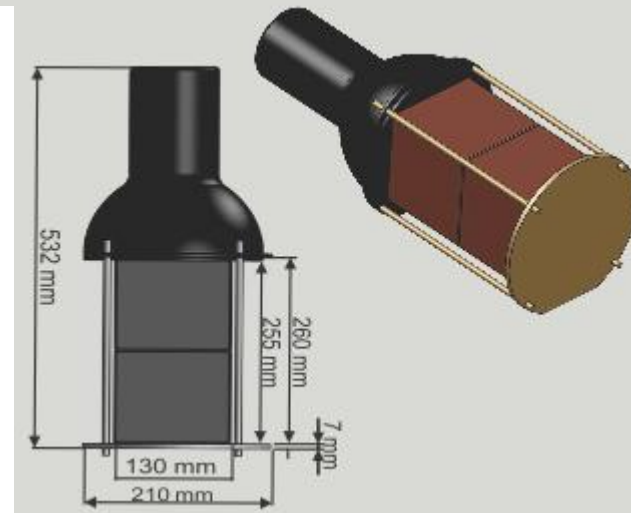
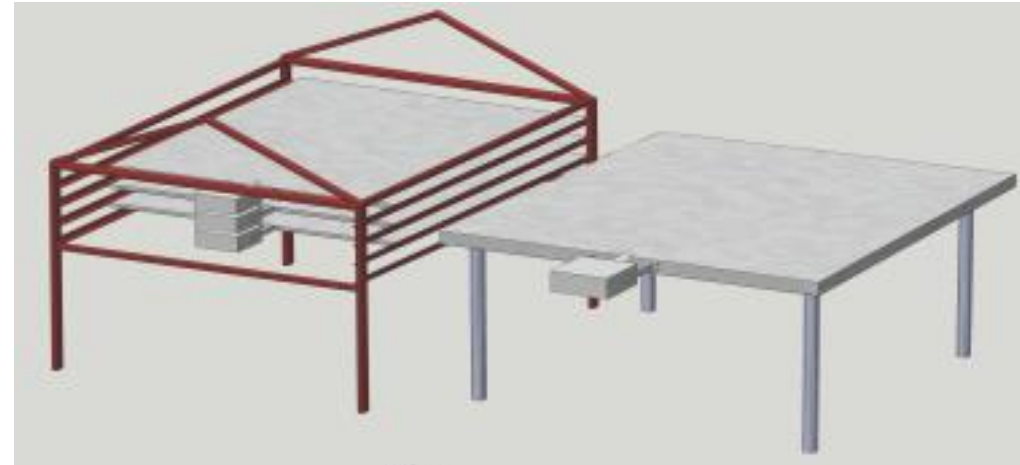
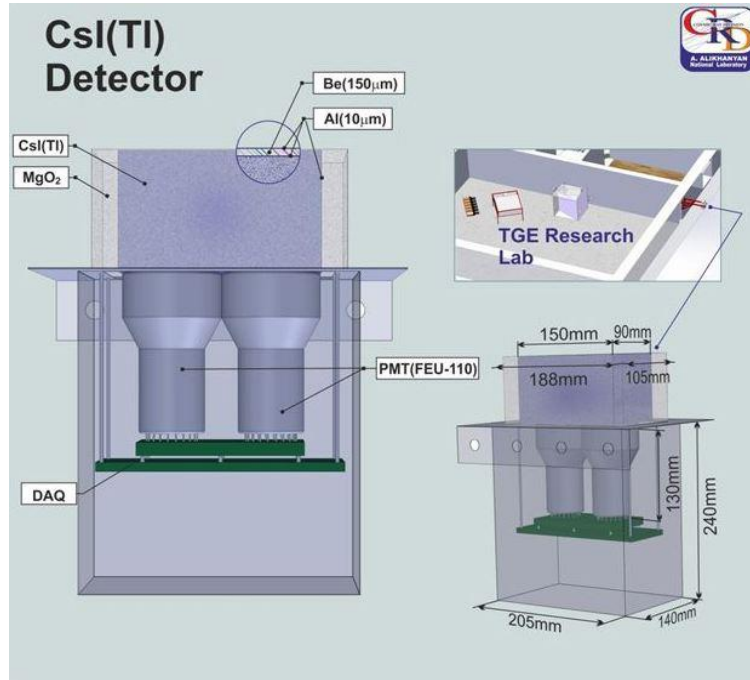


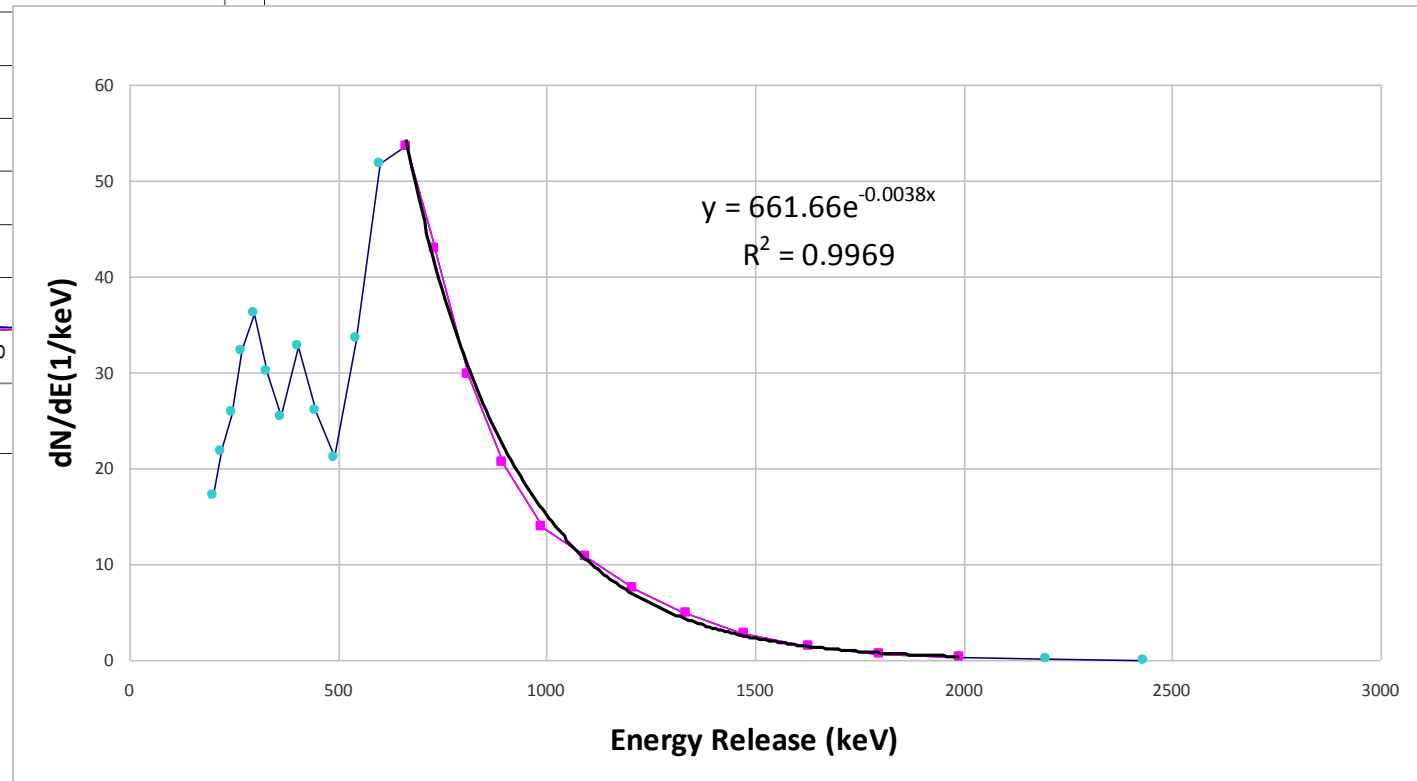
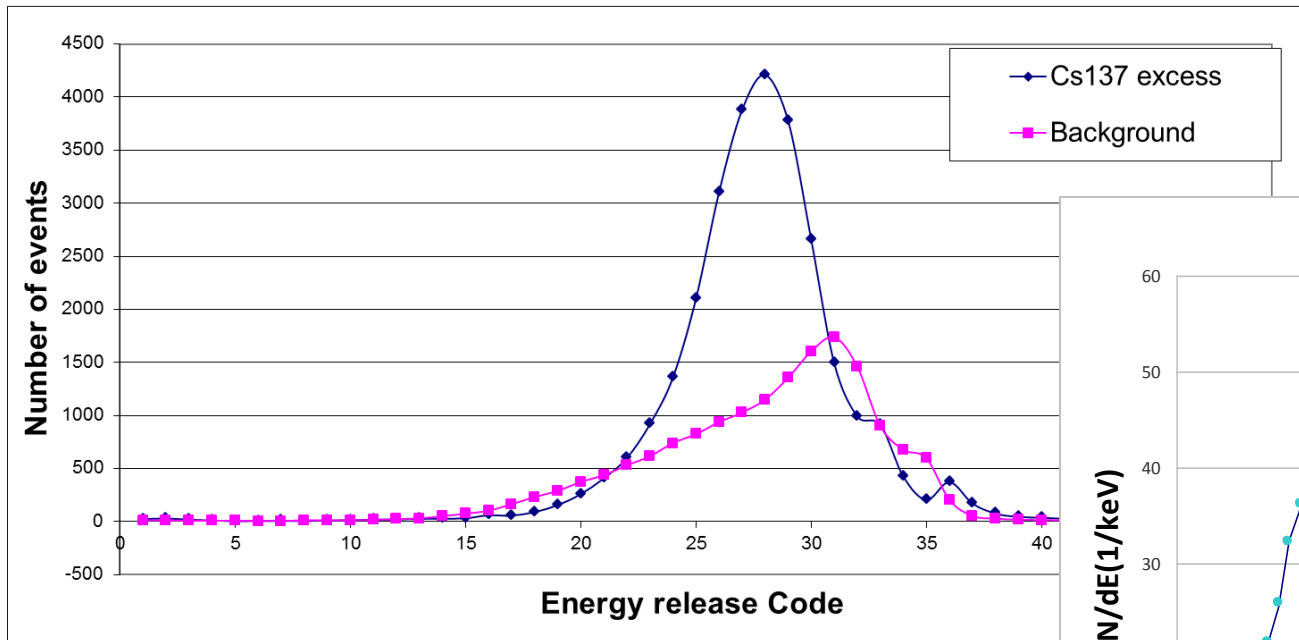
Measuring of Long lasting TGEs. Classification and Energy spectra preliminary analysis

L. Vanyan*, A.Chilingaryan, E.Mnacakanyan, N.Bostanjyan
A.Alikhanyan National Laboratory (Yerevan Physics Institute)

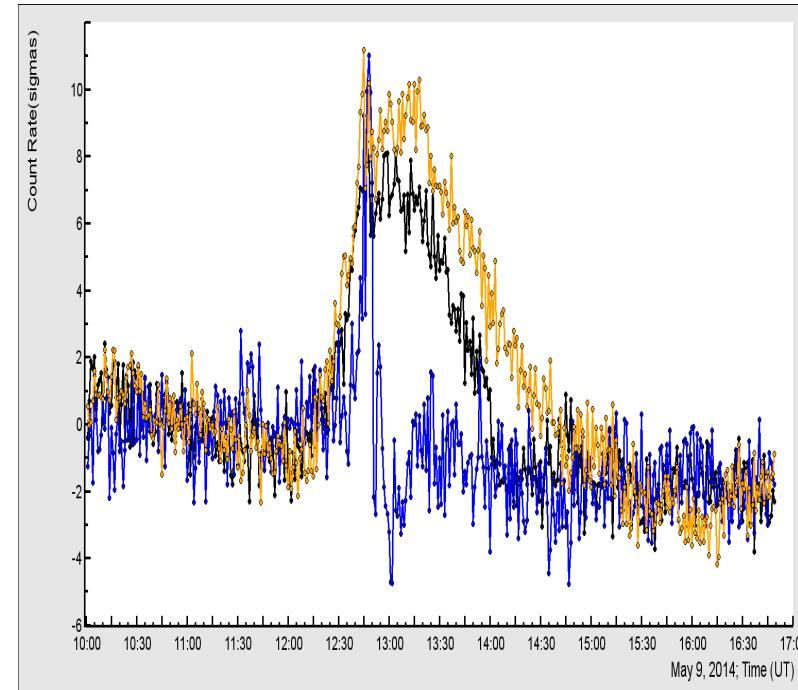
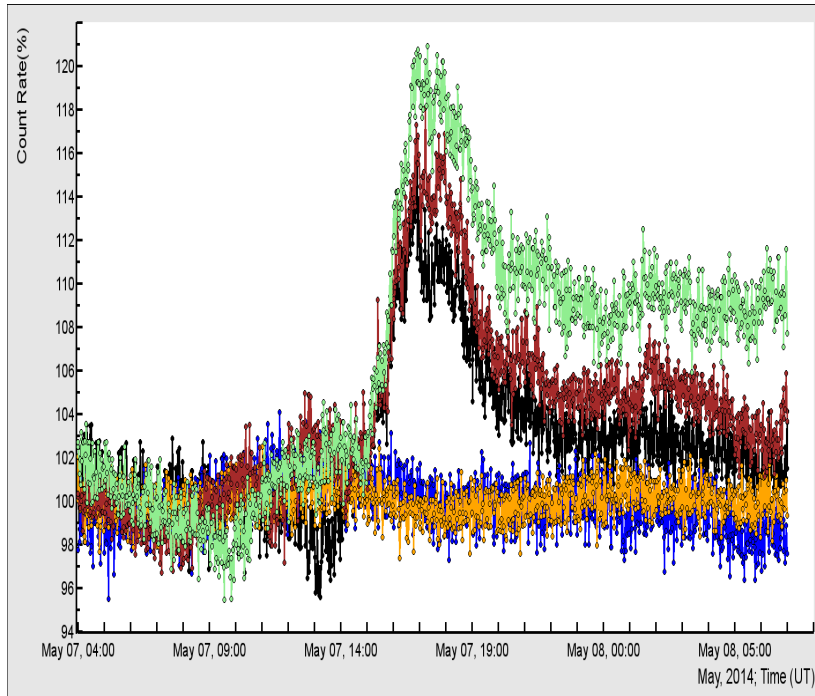
ASEC detectors with low energy threshold.



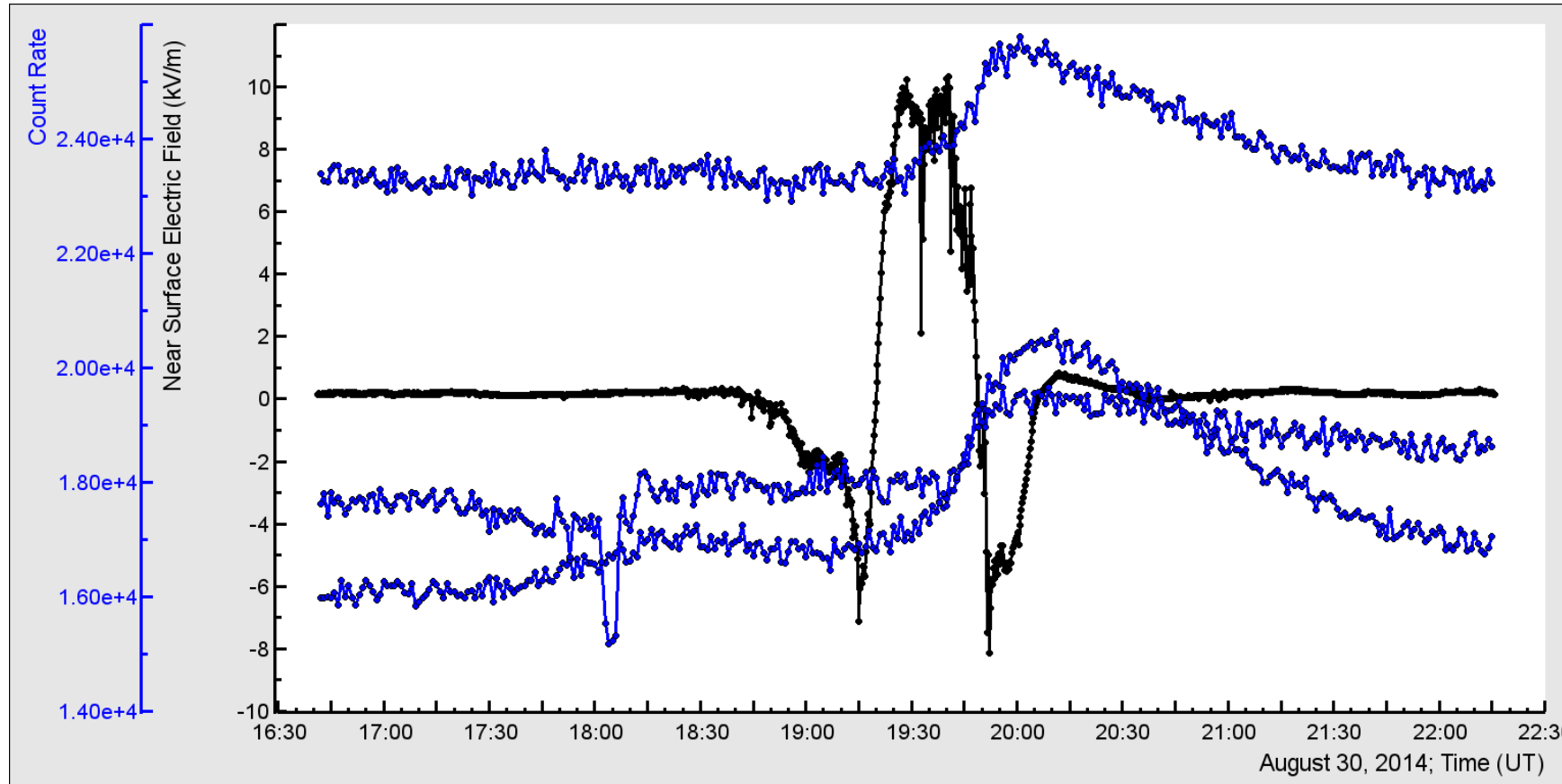
Calibration of CsI(Tl) detector. Cs^{137} gamma ray line, provided by ADC.



Examples of long increases of CR count rate, associated with Near surface electric field disturbances. Such increases are observed on detectors with a threshold ~ 1 MeV. On detectors with thresholds >3 MeV long increases are not observed.

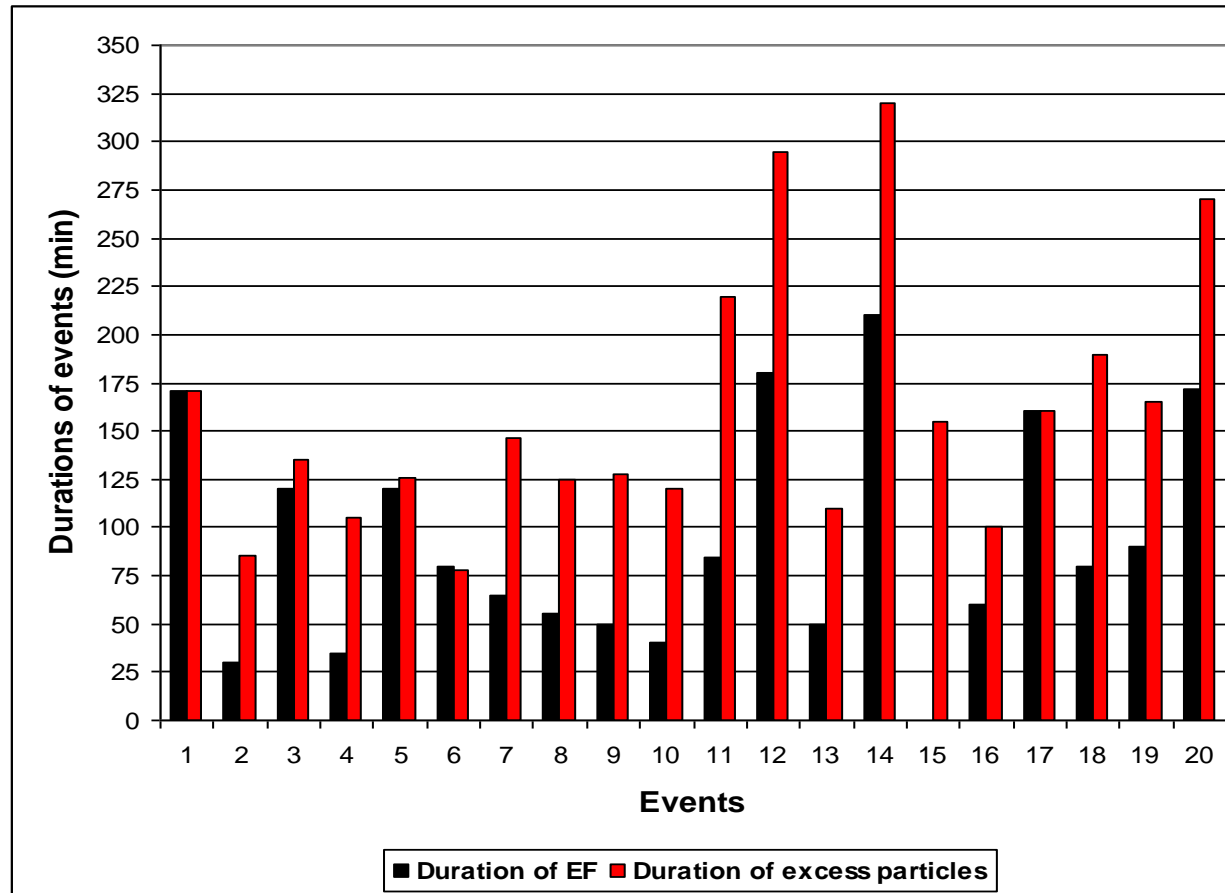


Long duration TGE, simultaneously registered by three low energy threshold detectors on August 30

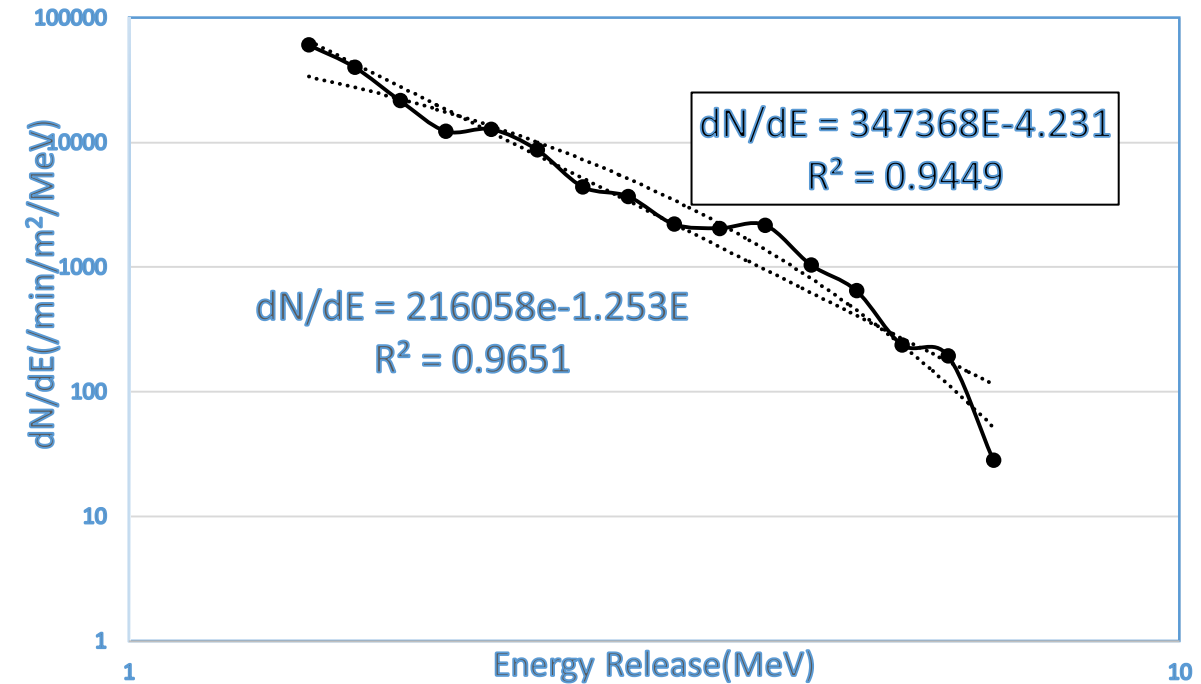
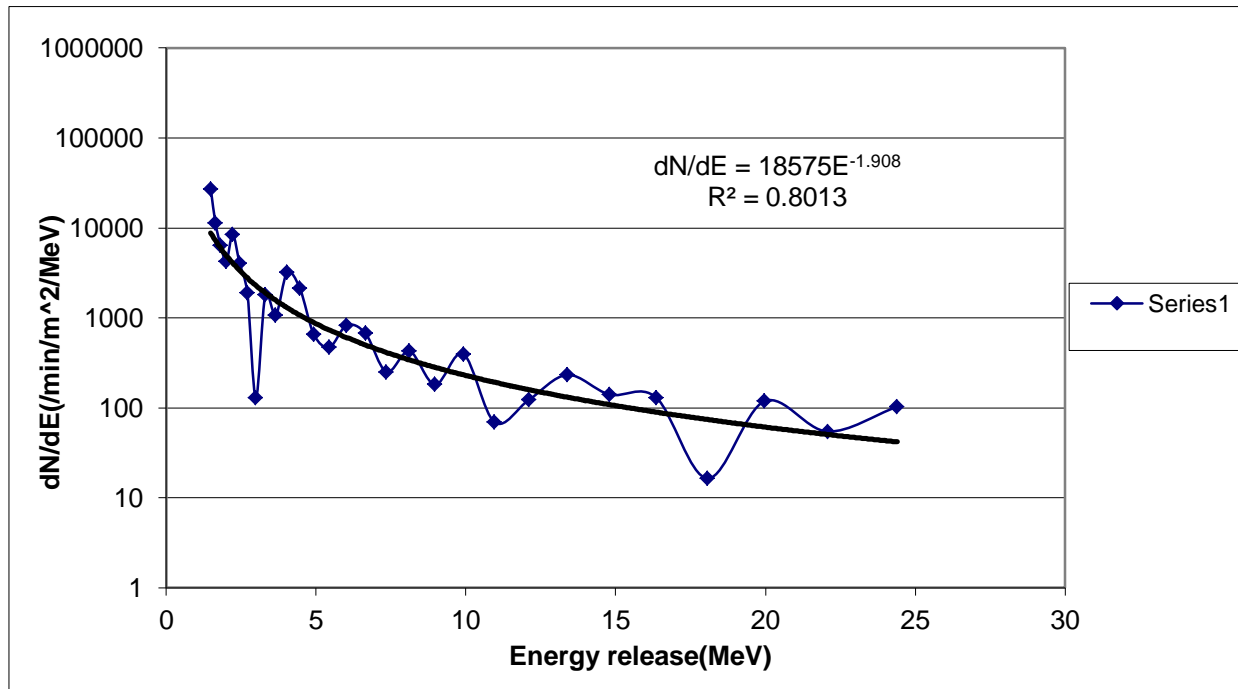


Data	Duration of excitation of EF (min)	Duration of events by Stand 1cm (min)	Duration of events by Stand3cm (min)	Duration of decrease phase by Stand1cm (min)	Humidity on the decrease phase
*18/09/10	171	171	171	40min	-
18/09/10	30	85	20min	83	-
18.09.10	120	135	130	100	-
22/10/10	75 min	105	9 min	70 min	Not data
11/07/11	120	126	30min	70min	92
11/07/11	85	85	9 min	32min	
11/07/11	60	110		1h 35	76
11/10/12	55min	125	15min	1h 7m	97
25/07/13	45min	221		2h 8m	84
25/07/13	42min	240	-	2h	96
10/04/14	84	220	-	2h	97
20/04/14	180	295	-	1h50m	97
28/04/14	97				95
28/04/14	58	115	13min	1h 58	95
7/5/14	210	320	-	2h 35	97
9/5/14	There is not EF	155	-	95min	96-92
9/5/14	60	100	-	40m	97-86
12/06/14	190	190	24		96
28/07/14	160	160	-	1h20min	Not data
28/07/14	80	190	-	1h11min	
30/07/14	90	165	-	1h26m	
30/07/14	172	270	-	1h45m	95-80
3.08.14					60
13/08/14					60
19/08/14					50
28/08/14	1h	2h		1h10	50-40
30/08/14	1h57	2h25m	-		
31/08/14	1h10	2h	-	1h 20	85
7/09/14	3h	3h			55
7/09/14	1h 10	2h20	20 (9;10)	1h50	77

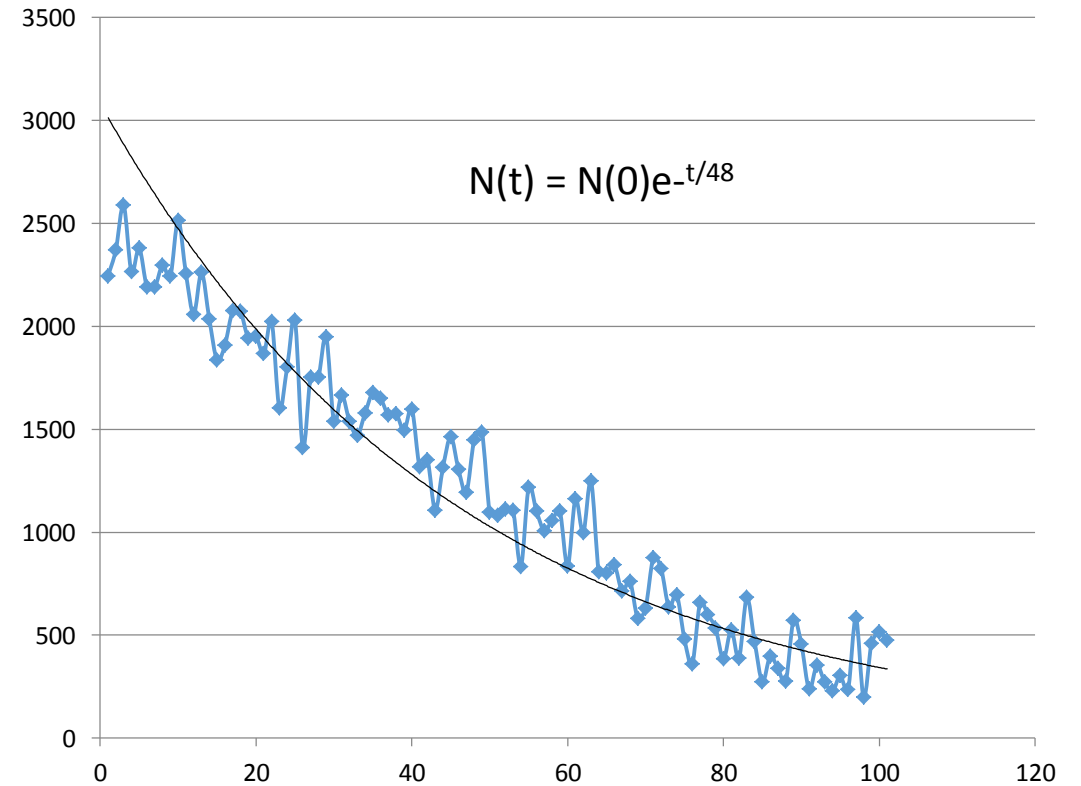
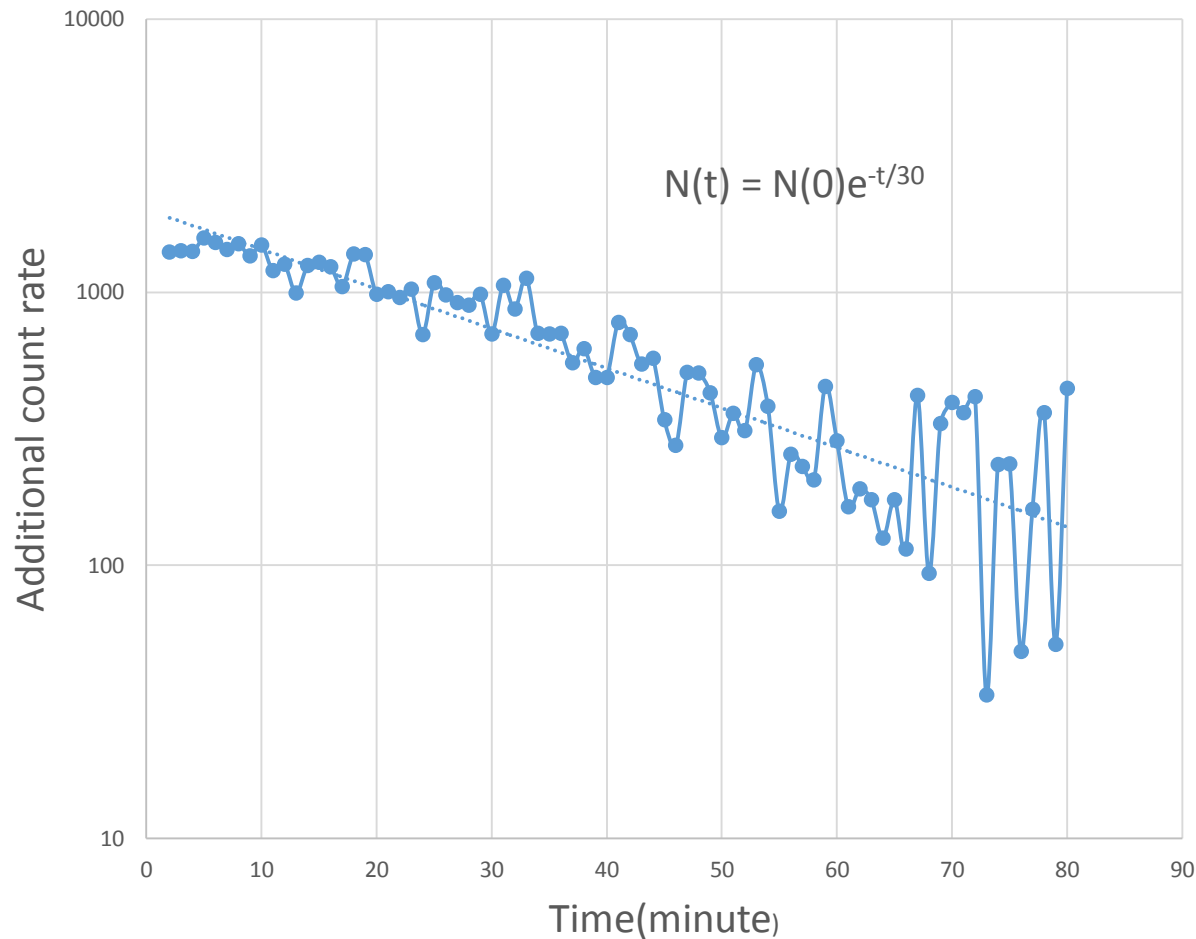
The durations of electric field and particle excess for each event. Events with identical duration of electric field and particle excess and events, where duration of particle excess much more of electric field are observed.



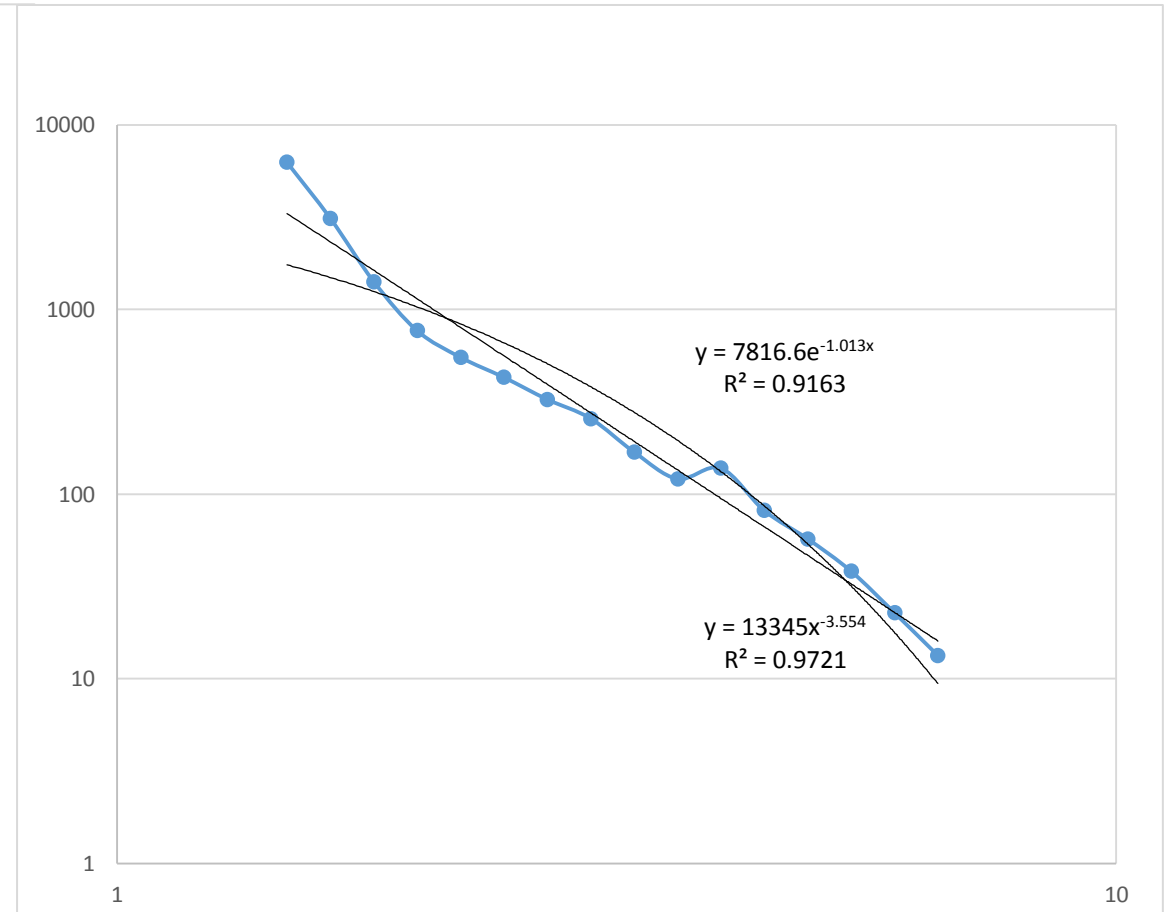
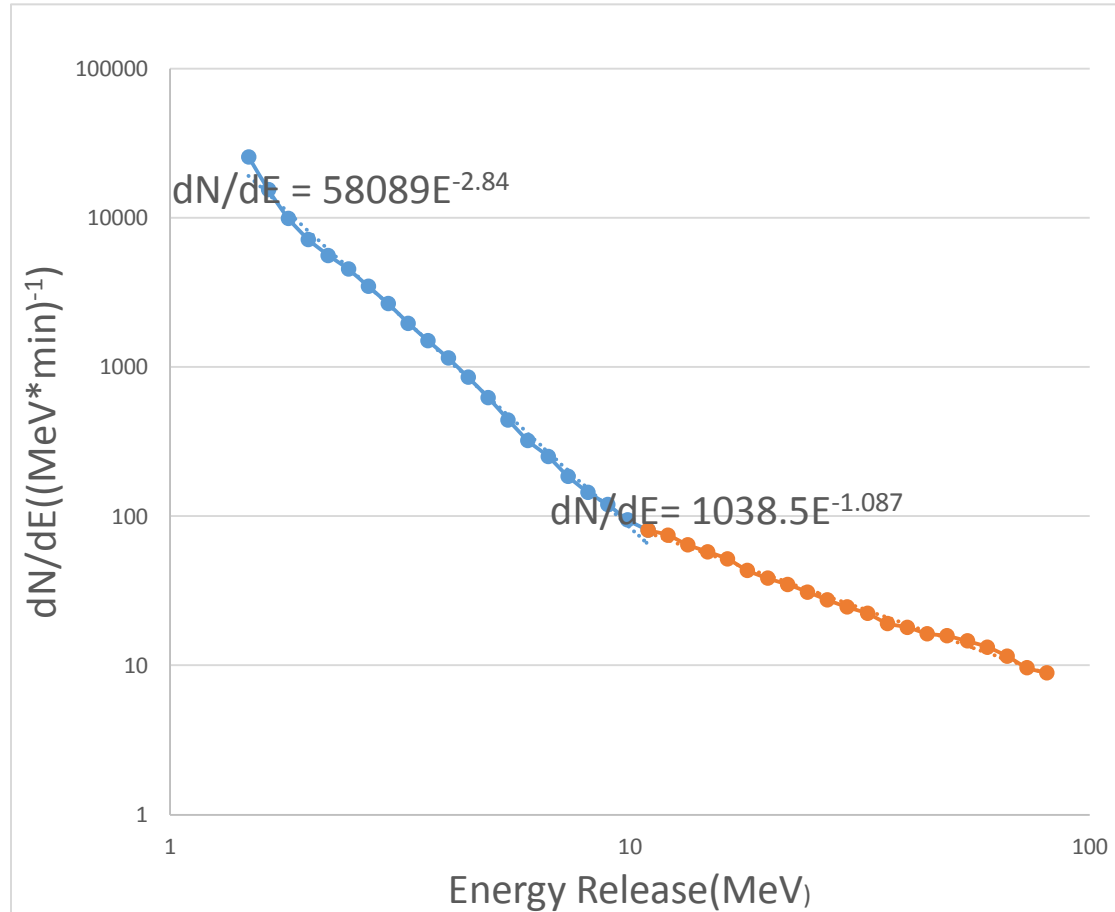
Energy release spectrum of additional particles provided by NaI(Tl) detector. August 6 TGE. During(left) and after Electric field disturbances (right)



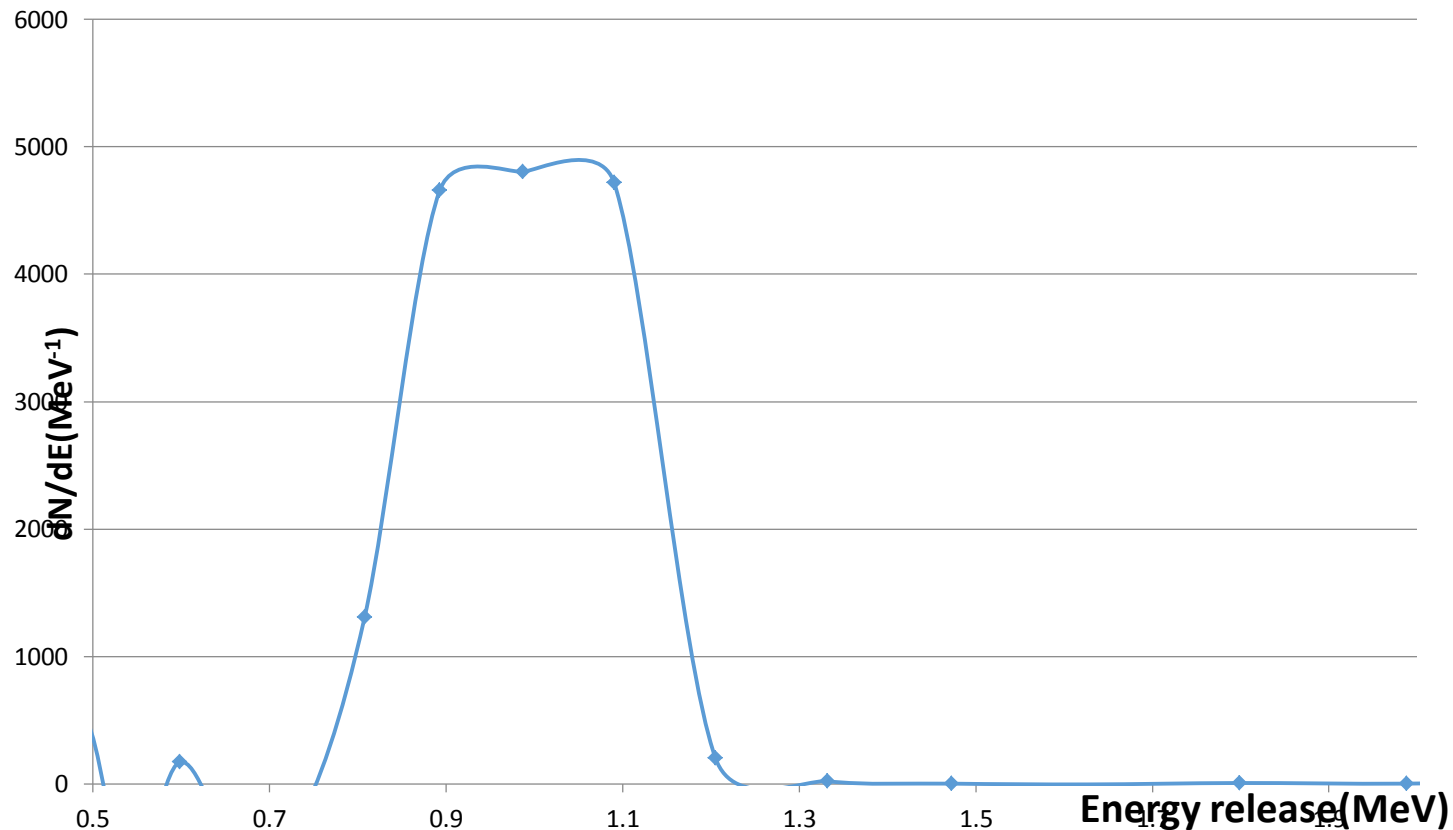
Exponentially decaying rates of NaI(Tl) and CsI(Tl) additional count rates August 30.



Differential energy release spectrum of august 30 TGE. NaI(Tl) 4th detector.



Energy release spectra during TGE Maximum and during TGE decay. Spectra provided by CsI(Tl). No significant changes in time



We assume, long duration
TGEs connected with

- 1. Radioactive isotopes, exploded by Metsamor Atomic Station**
- 2. Decaying of electric fields in thunderclouds**
- 3. Changes of chemical compound of atmosphere (humidity changes)**