

Thunderstorm Ground Enhancement (TGE) events observed on Aragats in 2018-2019 years

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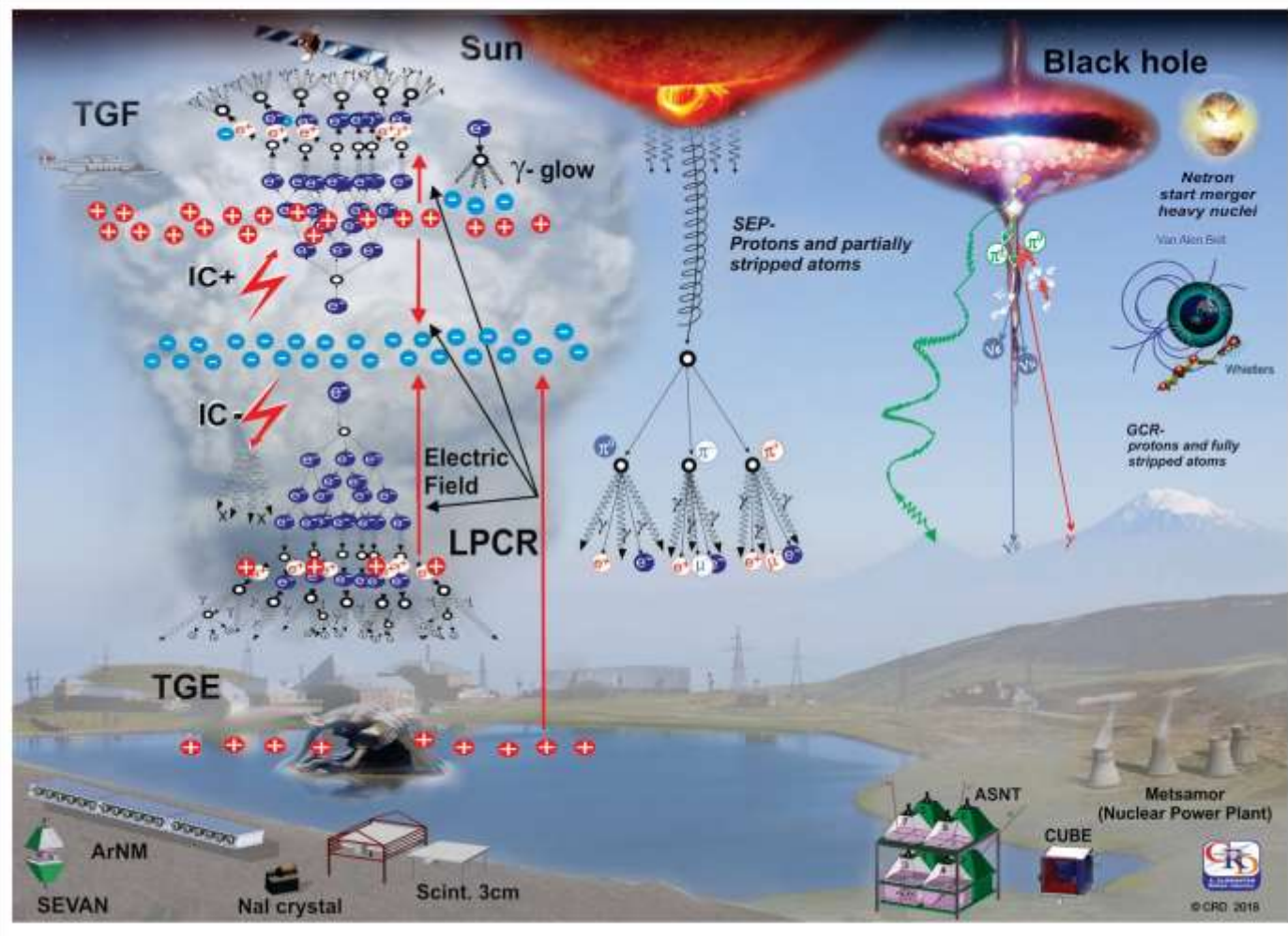
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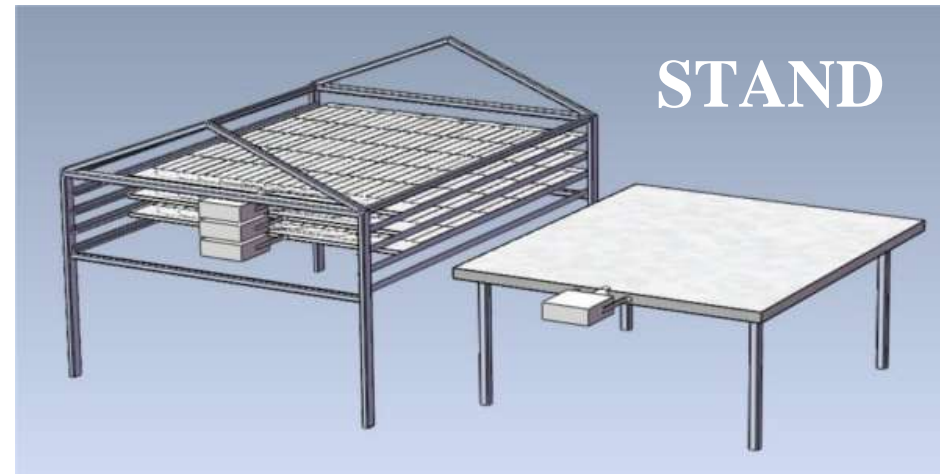
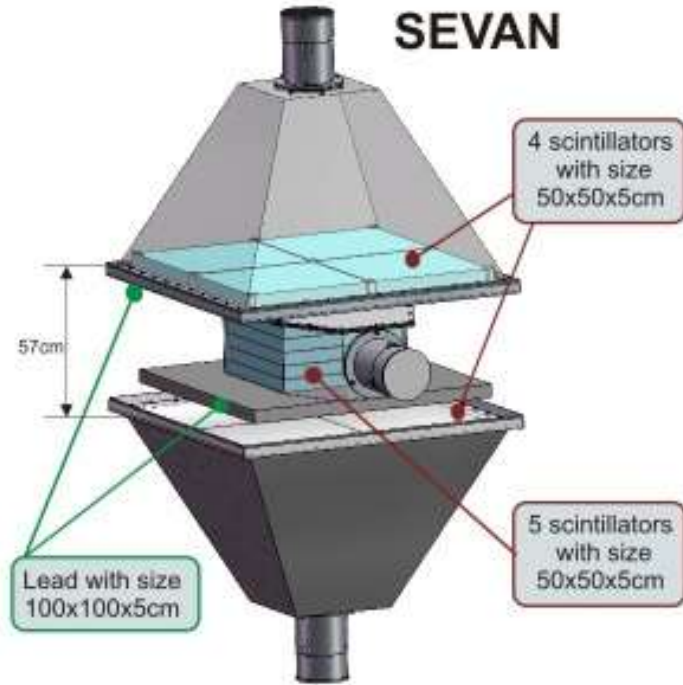
³Center for Space Plasma and Aeronomic Research, University of Alabama in Huntsville

Overview

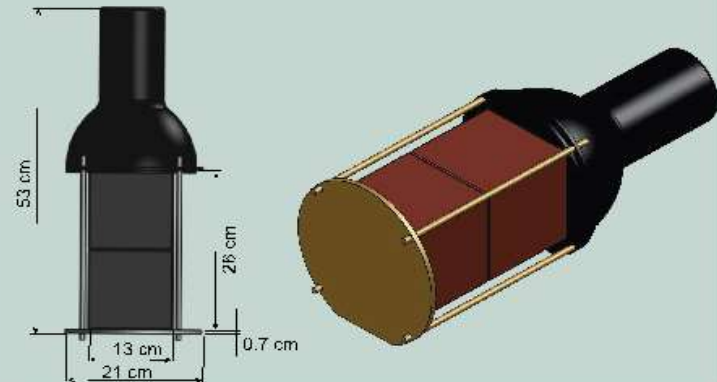
- Instrumentation
- Monthly and yearly distribution of TGEs
- Electric field disturbance distribution
- Temperature distribution



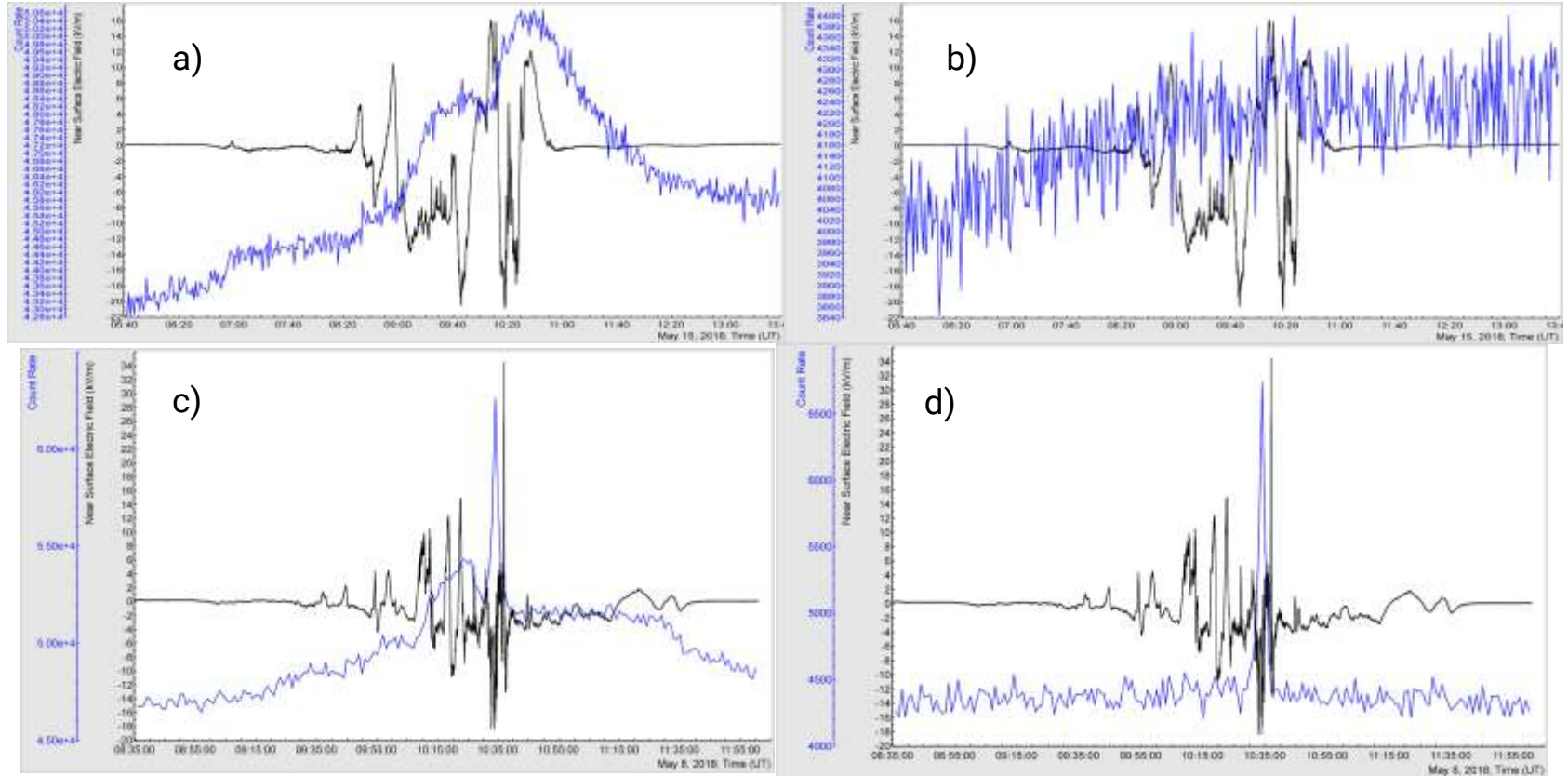
Instrumentation



Nal Detector

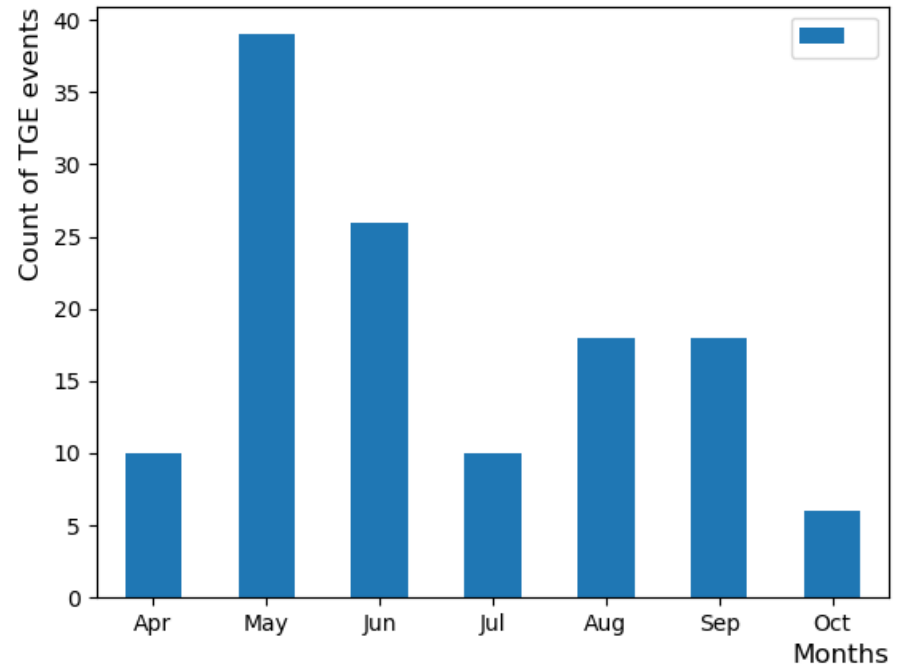
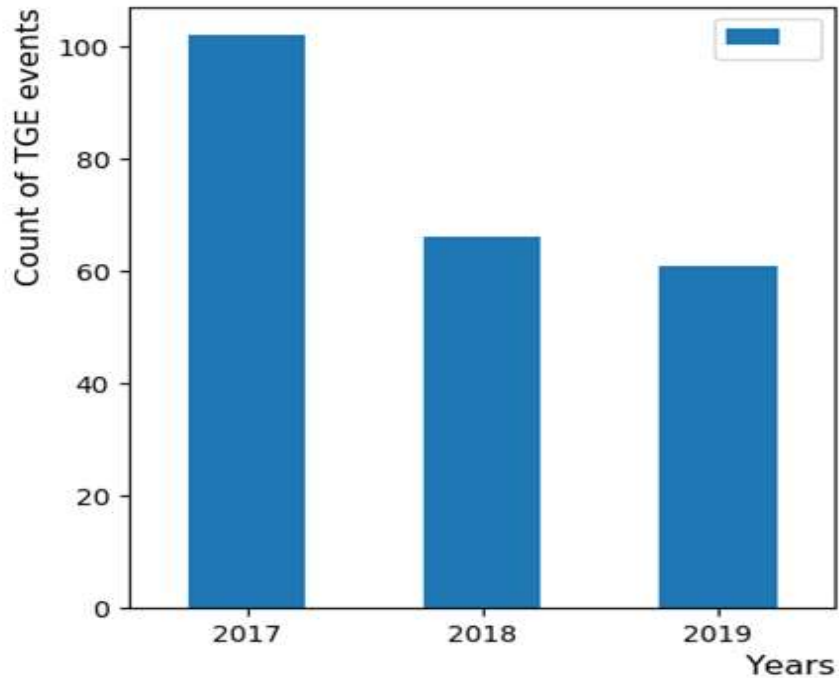


Events and without HEP.

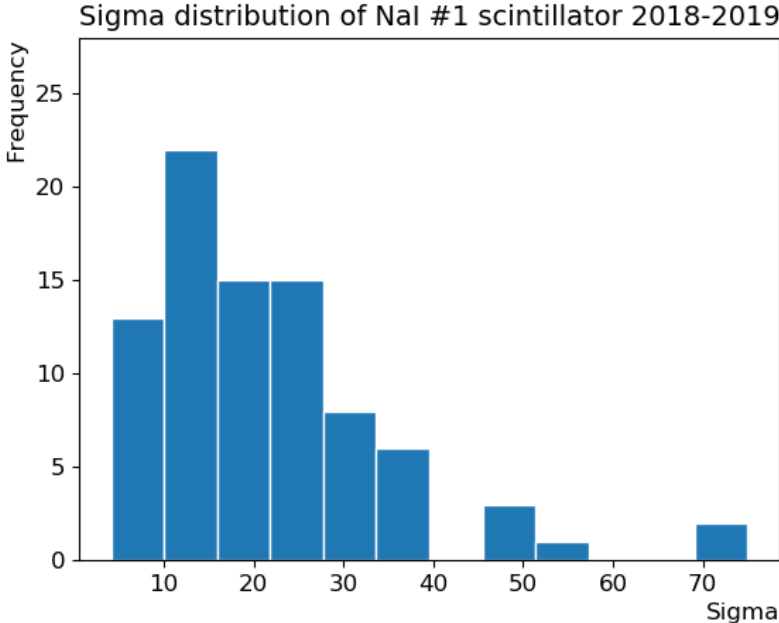
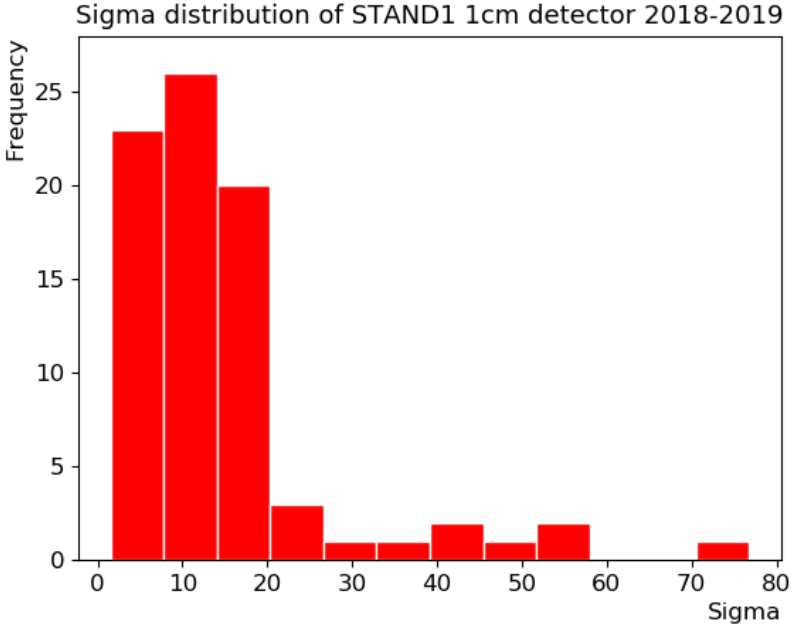


May 15, 2018(without HEP) and May 8, 2018(HEP) events. a),c) Nal scintillator #1; b),d) Nal scintillator #5

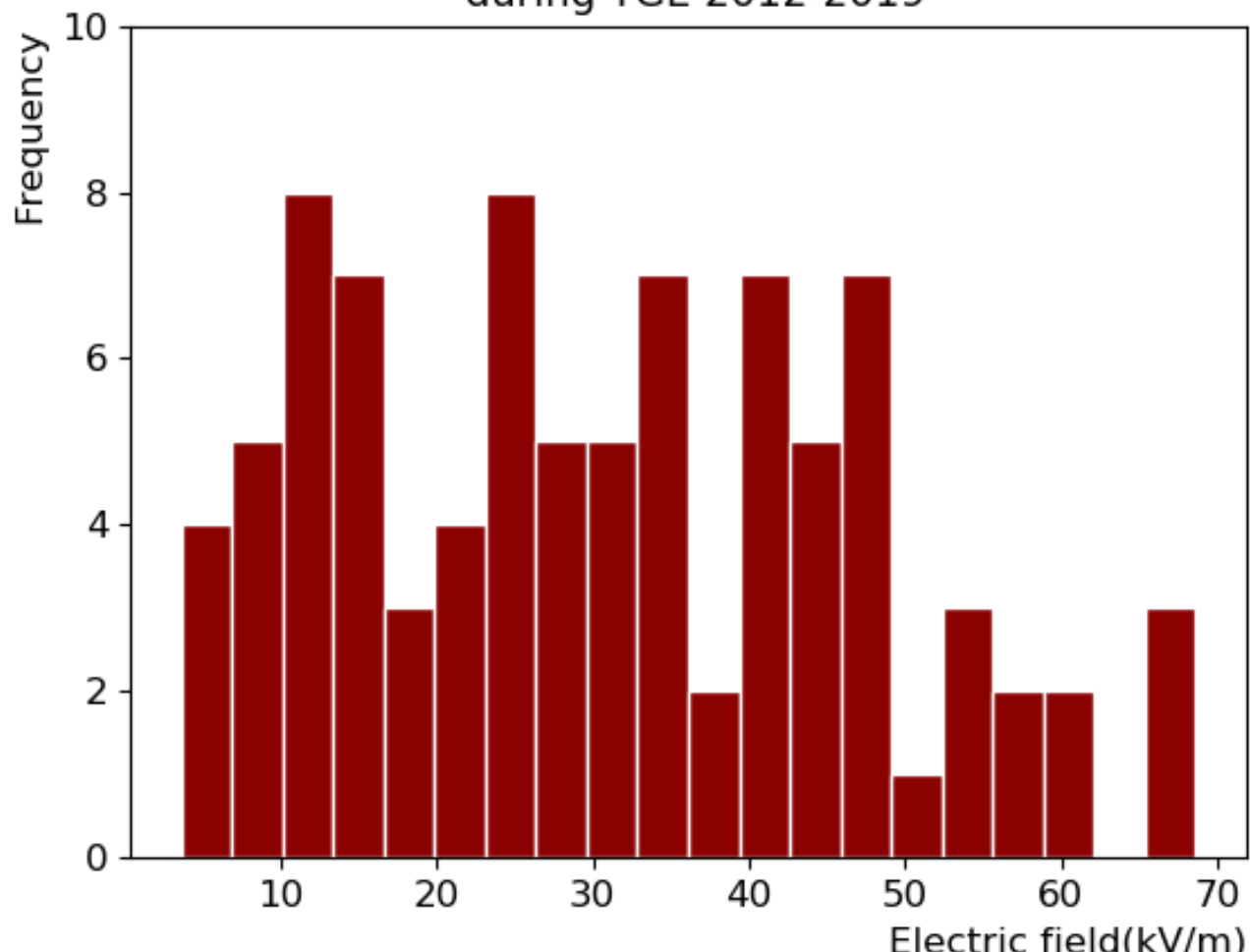
Yearly and monthly distribution of TGEs



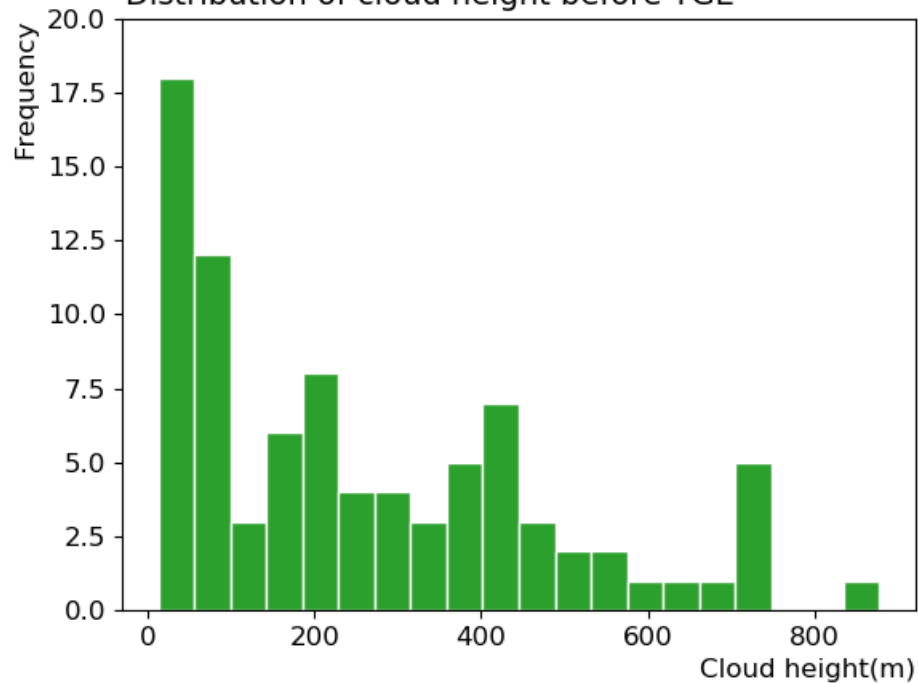
Sigma distribution for STAND1 and NaI #1 scintillator for 2018-2019



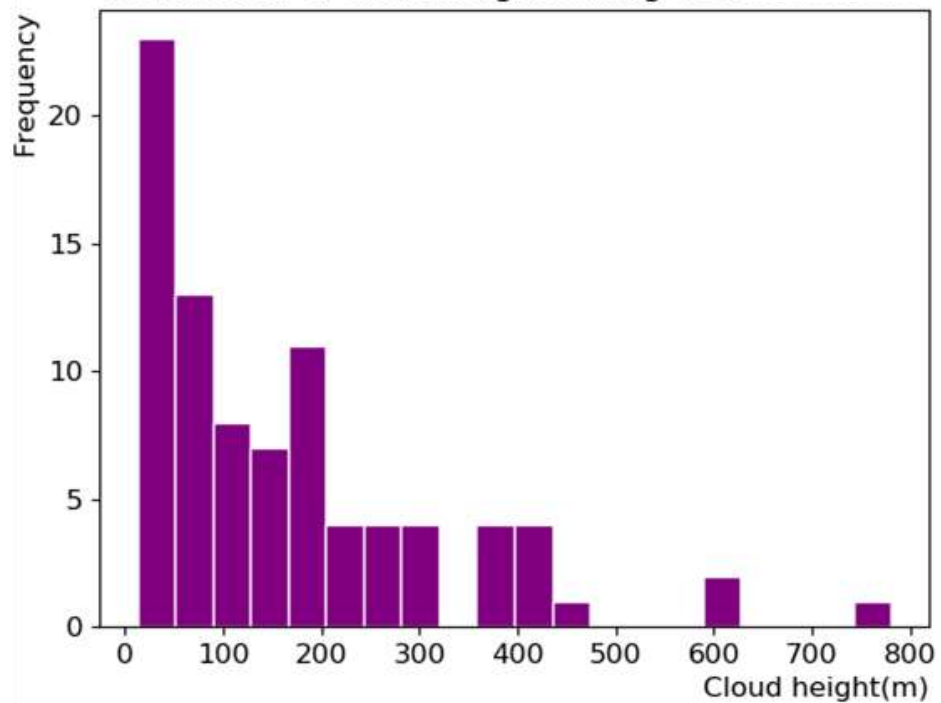
Distribution of absolute value of electric field difference during TGE 2012-2019

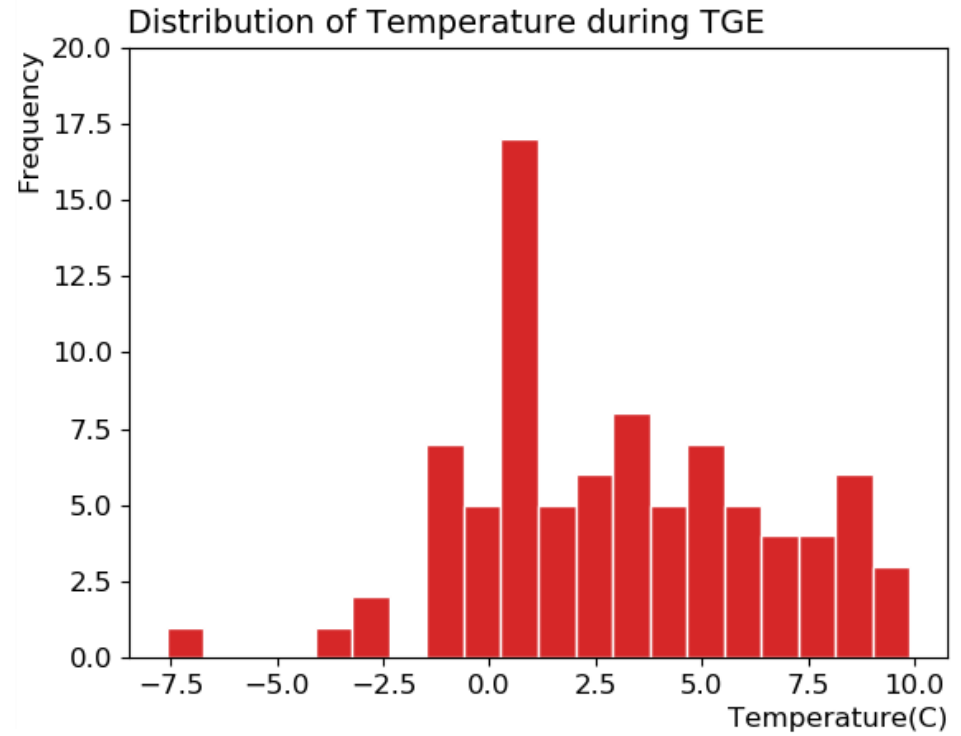
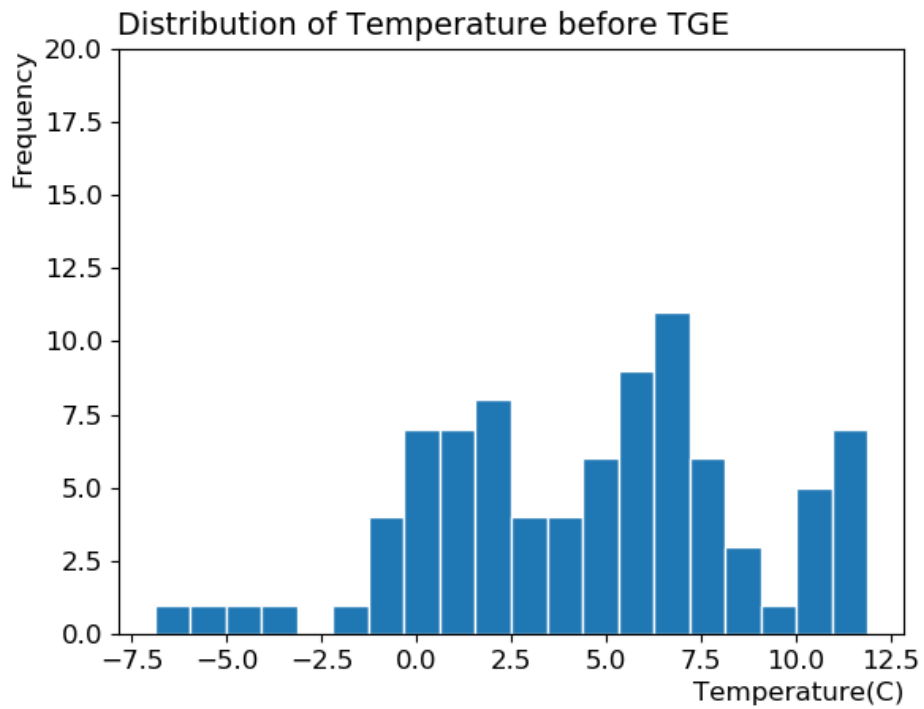


Distribution of cloud height before TGE



Distribution of cloud height during TGE





Conclusions

- More than 100 TGEs in 2018 and 2019 were analysed. Around 60 events will be further investigated
- We observe high activity during May, June, August and September, with May having the highest activity for 2018 and September for 2019.
- Big TGEs are rare, with most falling within 10 to 20 sigmas from the mean.
- We see clouds usually within 100 to 200 metres above the station before TGEs and during the TGE the clouds come closer to the station.

Thank you!