WEEKLY ANALYSIS UPDATE

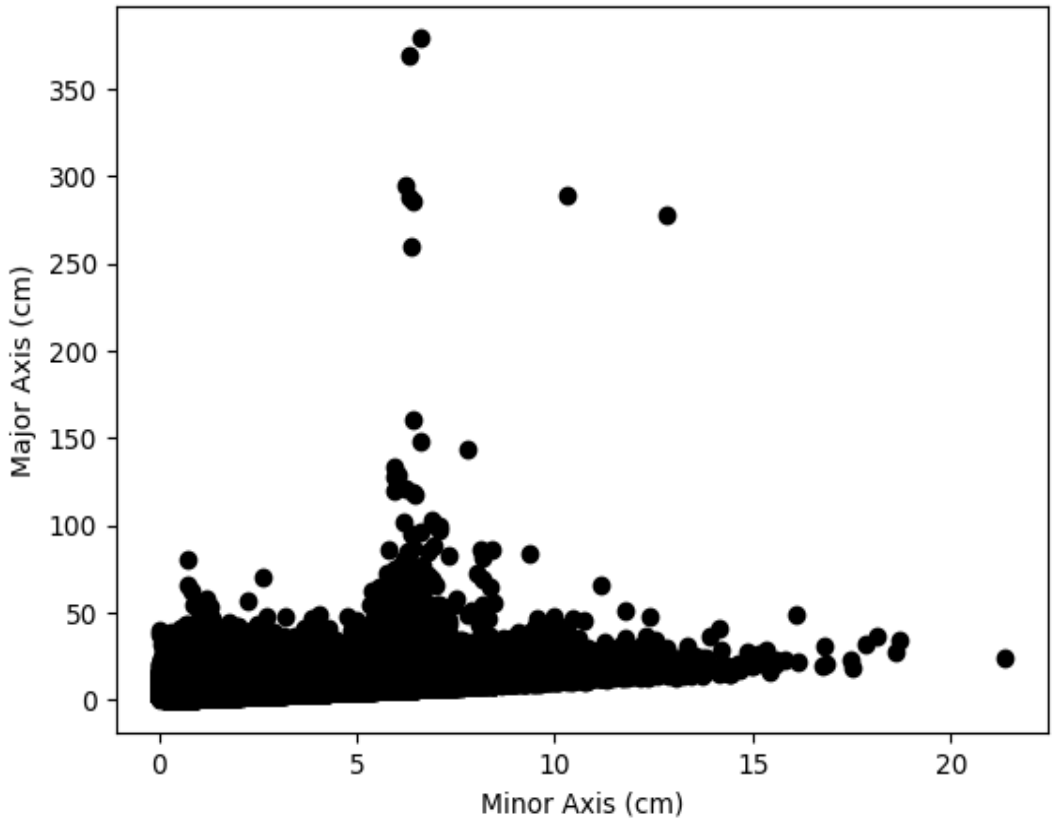
17 May 2024

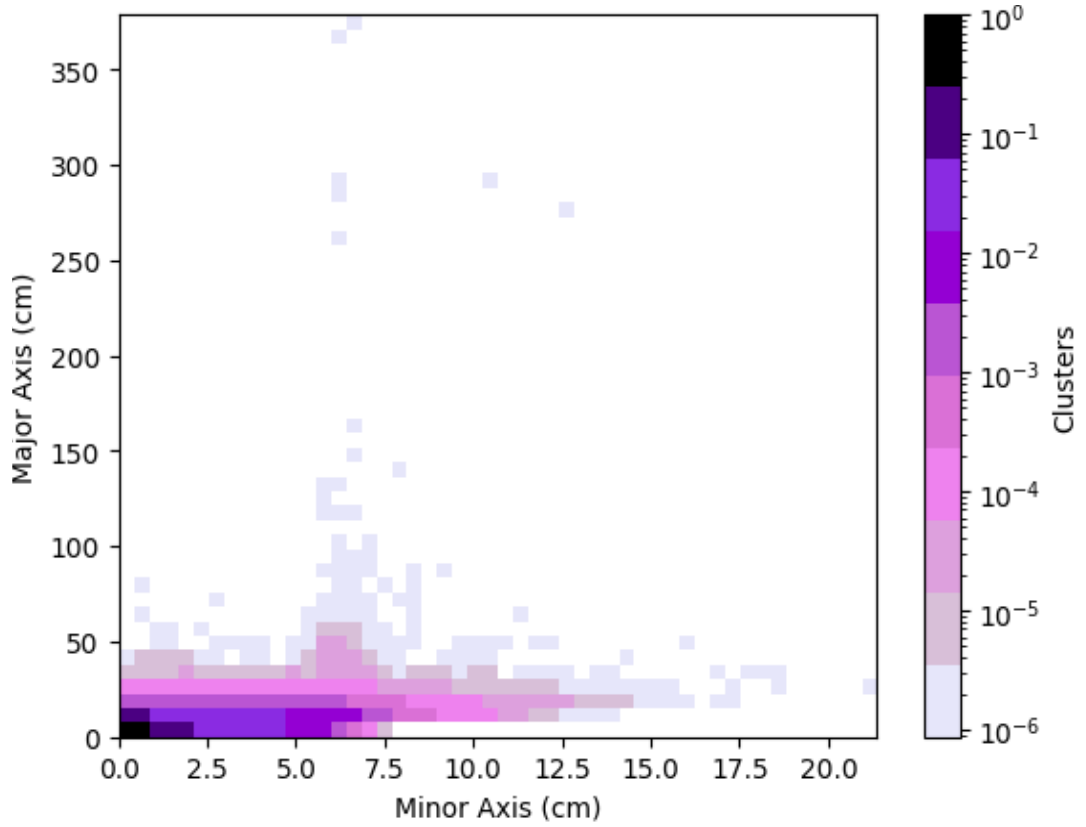
Samikshya Kar

Outline

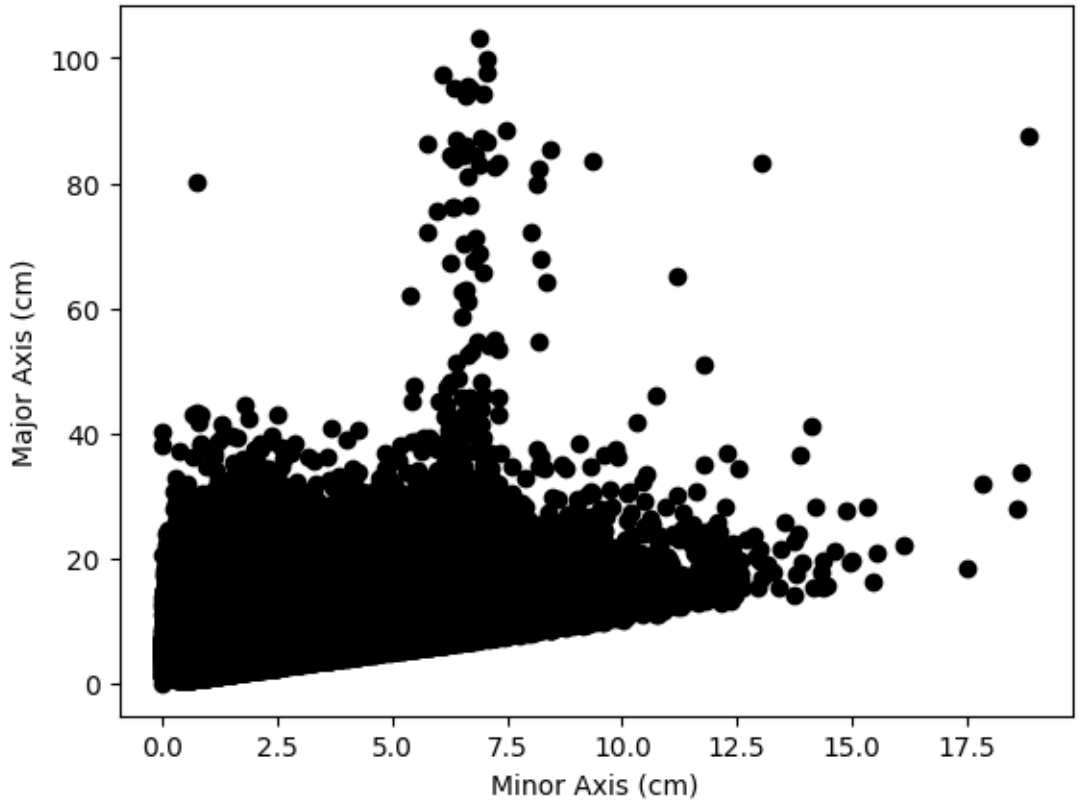
- Use of `justintime` package to read TPstream files and Trigger Records
- The `justintime` gives the information about the wire on which a TP is recorded
- Values used for Normalisation:
  - Tick = 16e-9 s
  - Drift velocity = 150000 cm/s (?)
  - CRP Channel space = 0.51 cm

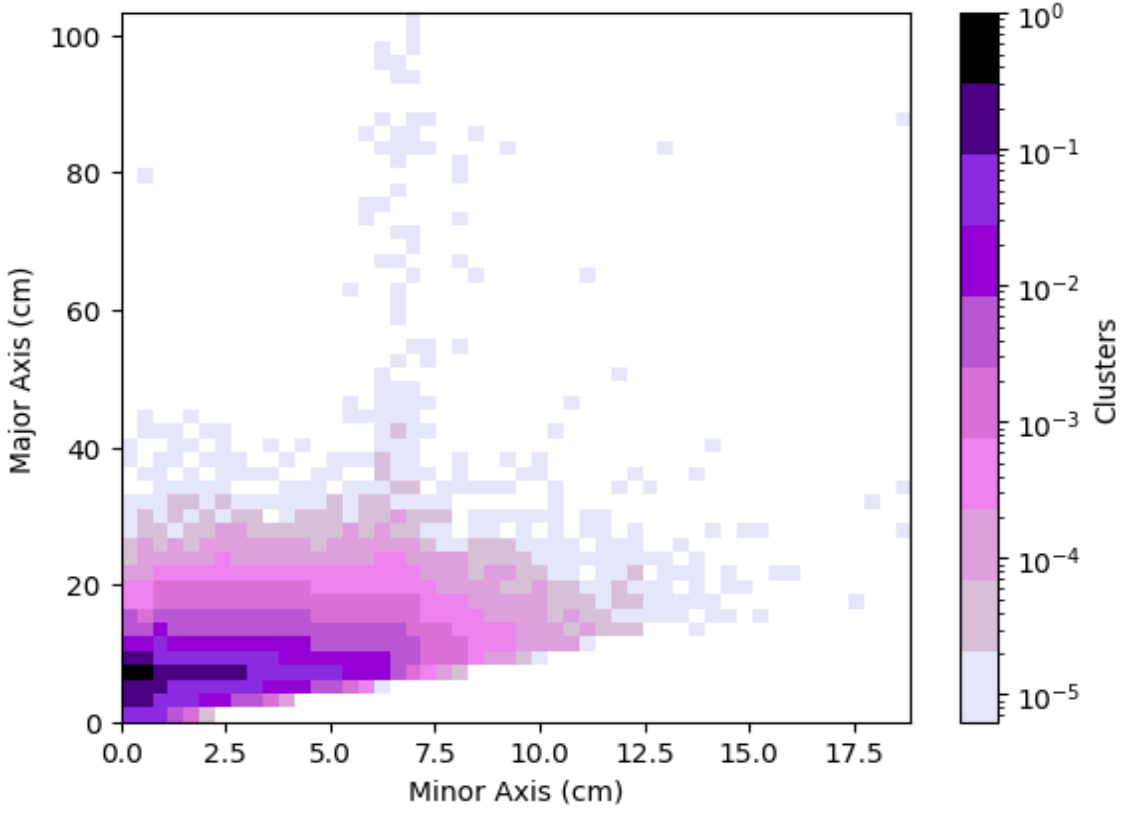
For TP-stream file





For only Collection Plane



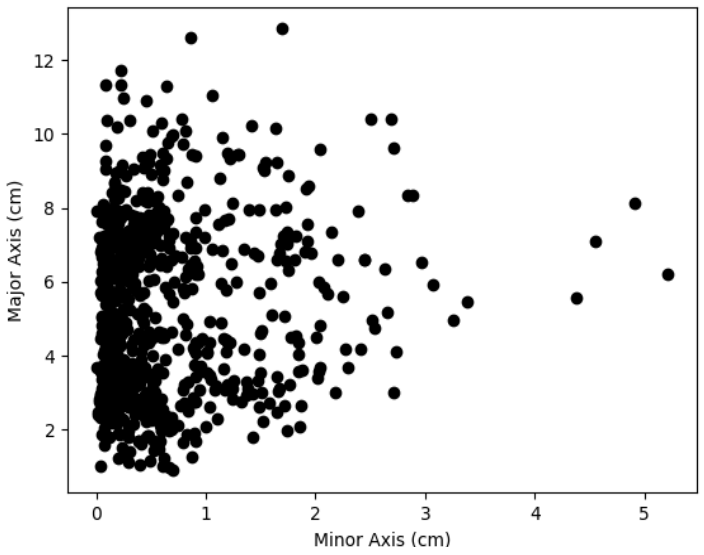


Further Tasks

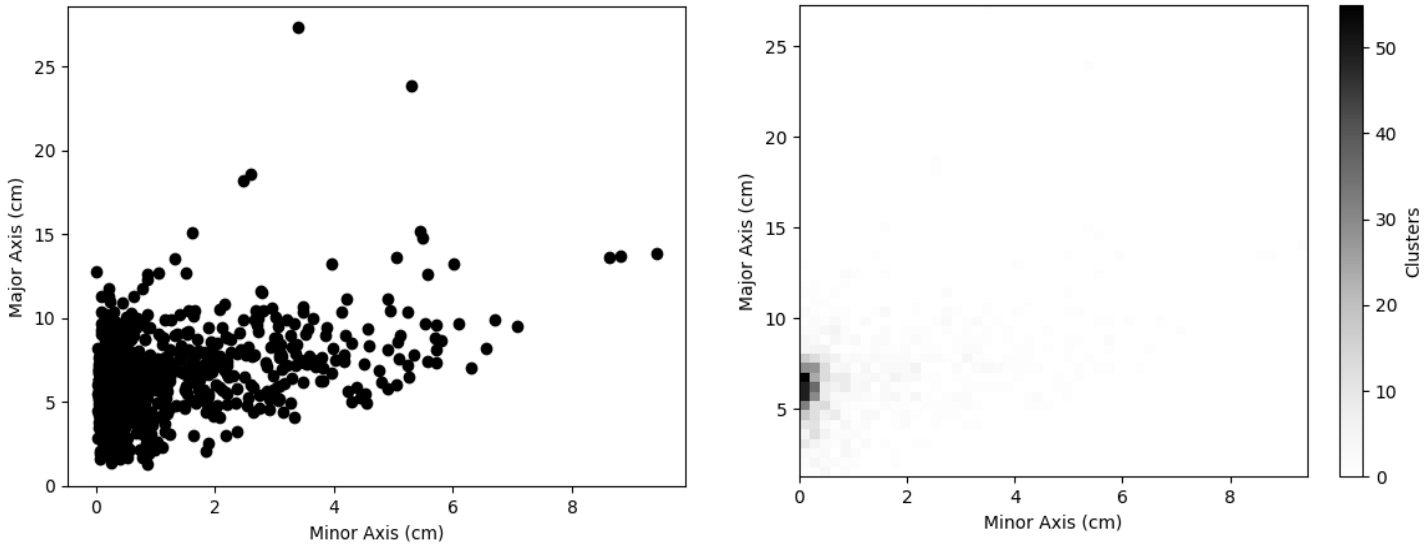
- Repeating the analysis on a Trigger Record files using `justintime`
- Selection of Clusters with a high ‘major axis’ value
- Run TPG algorithm on raw ADC data (get input from Ivana?)

THANK YOU!

For a Single Time-Fragment



Before Normalisation



After Normalisation

Outline

- Dennis's `Cluster_Finder` using `DBSCan` to perform Clustering on Trigger Primitives
- Clustering parameter: Channel number and Time peak of the TPs
- Normalisation of the two parameters:
  - Channel range: 0 - 3071
  - Time range: ~ 10^{18}
- Visualisation of the minor axes (depicts channel number) and major axes (depicts time peak)

STEPS :

- Read the fragment using `trgtools.TPReader`
- Perform the clustering using `cluster_finder.db_cluster_tps`
- Creating an array that contains the clusters as its elements with the clusters in array formats having the TP indices within them using `cluster_finder.create_clusters_array`
- Getting the corresponding time peak and channel number values for each clustered TP using the `cluster_finder.make_ak_slicer`
- Making a similar array as the third step for Channel and Time peak and plotting them