First attempt to study Noise Dependence from Spacecraft Source Voltage

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Data Files

We are using two Towers Data:

- Run 35002052 : Baseline (28 V)
- Run 35002114 : Min Source Voltage (27 V)
- Run 35002116 : Max Source Voltage (29 V)

To verify there is no noise occupancy dependence from the Spacecraft Source Voltage

WARNING:

VERY PRELIMINARY ANALYSIS!!!!!!!
Event Selection

TkNumTracks = 1 (SVAC)

0.9 < CalMIPRatio < 1.1 (Merit)  
Tk1ZDir < 0.95 (Merit)
Method

We select clusters not associated to any track and compute the distance from the track cluster in the same plane.
Simulated Uniform Noise Cluster Distance from Track Clusters

- **X View** (log Scale)
- **X View** (linear Scale)
- **Y View** (log Scale)
- **Y View** (linear Scale)
Cluster ToT

Average ToT for good clusters (belonging to the track) is smaller than for other clusters (noise)

WHY?

- Base
- Min
- Max
Track Cluster per Plane

- Base
- Min
- Max

Top Plane = 35
Bottom Plane = 0
Noisy Clusters/Good Cluster

Assuming that the large peak at a distance close to zero is due to delta rays, we define all no track clusters with distance $> 5$ mm as noisy clusters:

Top Plane = 35
Bottom Plane = 0
Differences among Layers

Particles coming from the CAL or the Converters could create off Track Clusters
Looking for other definitions of Noisy Clusters

Select isolated noisy clusters (no other off track clusters in the plane and in previous and next plane: Isolated Clusters)
Conclusions

• Up to now no clear noise dependence from the Spacecraft Source Voltage has been found

• The optimal definition of Noisy Clusters has still to be found since noise seems to contribute only to a small fraction of the off-track clusters

• WORK IN PROGRESS.........
(suggestions are welcome!)