My Tasks

- Get the Neutron Timing Offsets scripts from last May to work.

- Create new Neutron Timing Offsets scripts to get better results.

- Look into large difference in Cassette Measurement of one CMU (with Albert).

Old Neutron Arm Timing

- Algorithm

  - Interative. Relates all detectors to a reference detector N1-10.

  - Side independent. All right sides are related; all left sides are related. Right and left are related at N1-10.

  - Vertical iterations are done on neutron plane 1, then horizontal iterations are done to arrive at final detector.

  - Veto calibration was done similiarly, iterating between V1 and V2, with right and left related at the reference detector (V2-14).

Old Neutron Arm Timing 2

- Later planes have increasing unalignment.

- Large difference between Planes 4 and 5.

- Timewalk effects haven't been included.

- Corrections on distance haven't been included.

- Implementation for Glascow detectors clumsy and incomplete.

    - This is caused by the poor quality of the Glascow Detectors, and that many of them were changed out over the last part of the experiment.

- Example: (N1-10L - N1-9L) + (N1-9L - N1-8L) + (N1-8L - N2-8L) + (N2-8L - N3-8L) = N1-10L - N3-8L

Old Status 4009 - Current
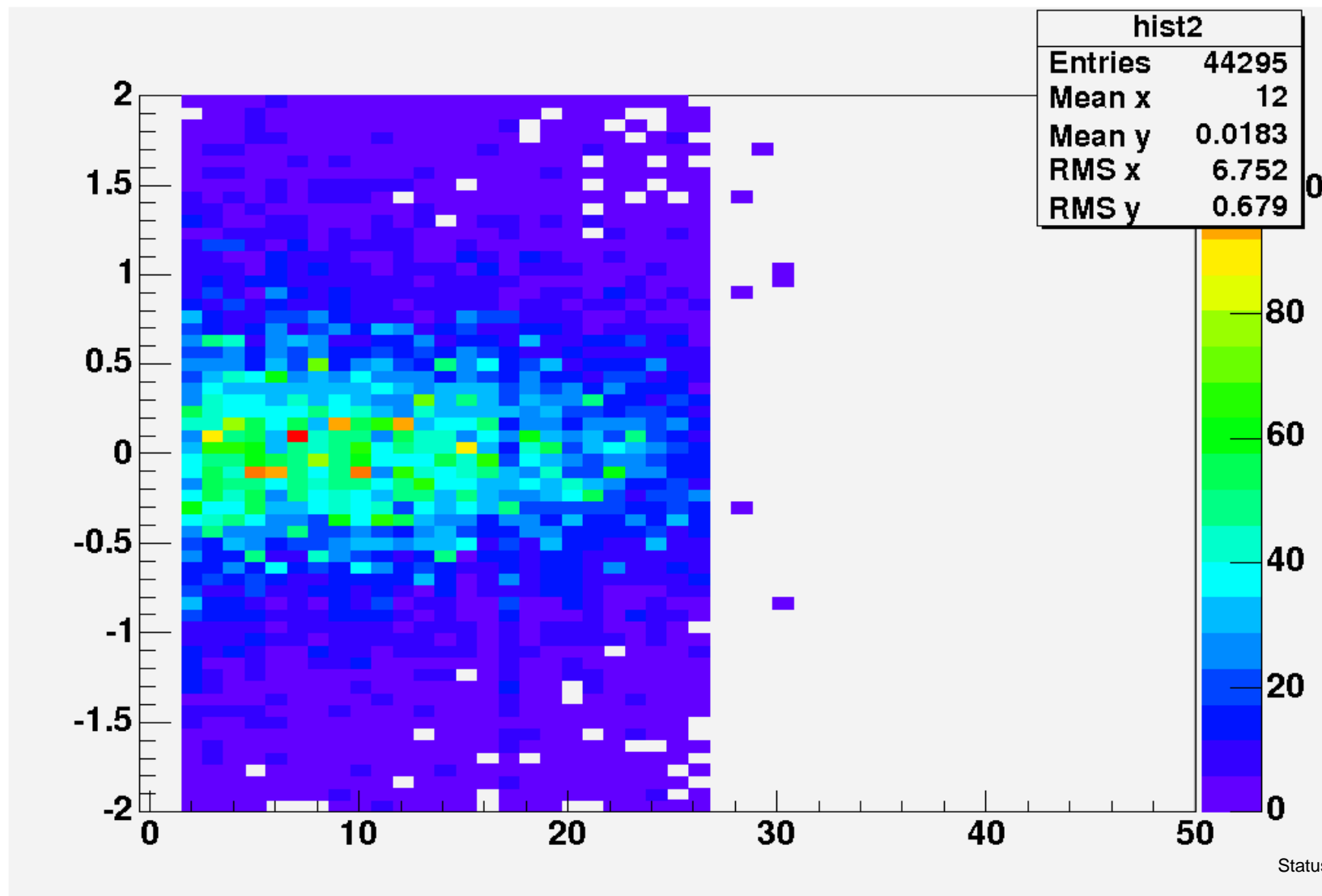
New Neutron Arm Timing

- Use beam data to do horizontal calibration and cosmic data for vertical calibration.

- Should miss the inherent problems with the old method. Is not clumsy.

- Looking into different methods to take care of some of the problems (width of peaks, etc).

- Currently looking at cosmic runs for vertical calibration test.

Raw Vertical Histogram - No Cuts

htemp	
Entries	1235
Mean	9.755
RMS	3.364
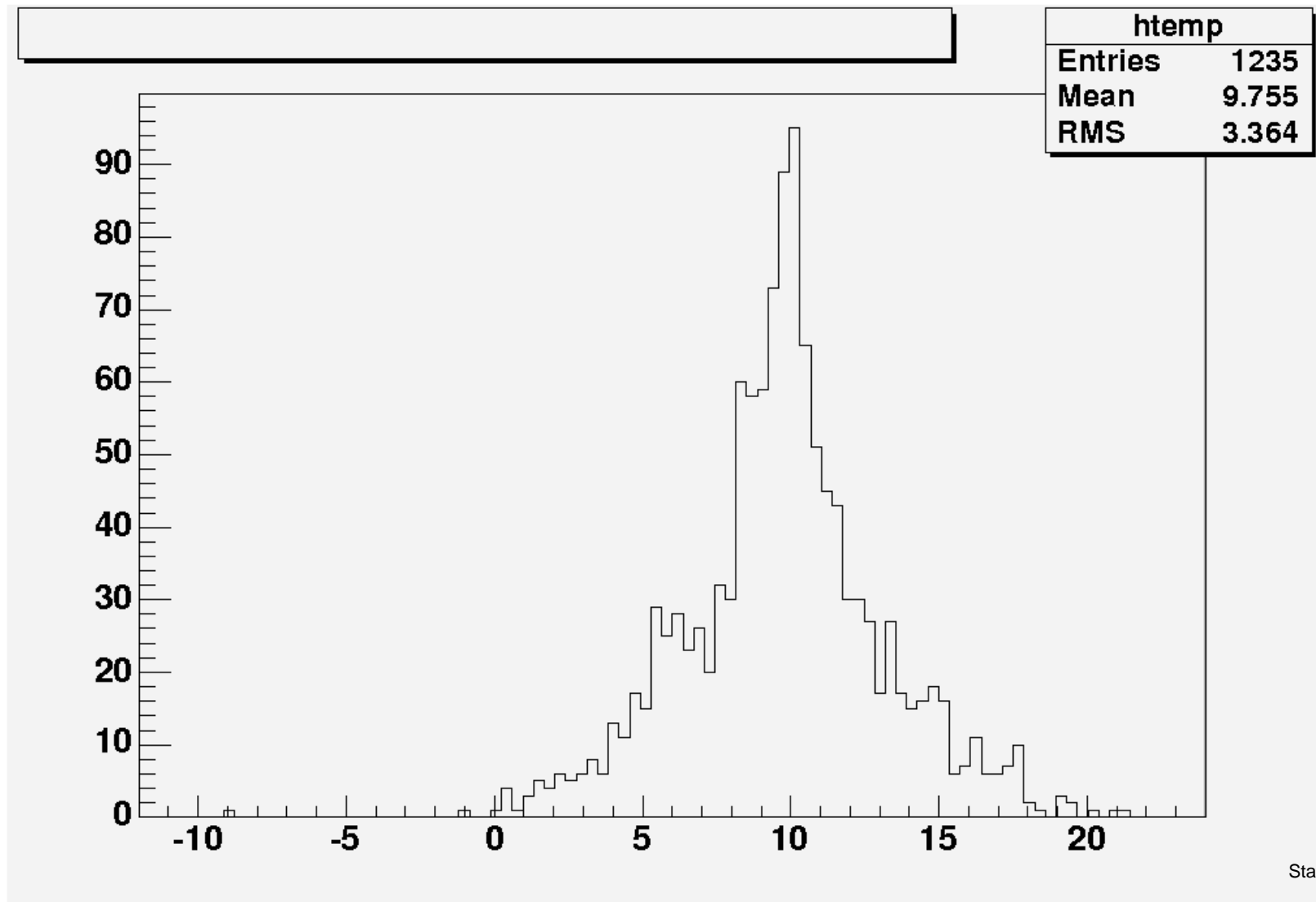
Final Status

- Old Neutron Timing Scripts are Working! The difficulty was surprising as there were some strange issues which are not fully understood. Took 1 week.

- With Albert determined that one CMU cassette was different than all the others.

- The New Neutron Arm Timing scripts run, however, they still need a lot of bugs fixed and there is much that is planned for implimentation.

    - Better automated interaction with DataBase.

    - More advanced cuts to make the peaks better defined.