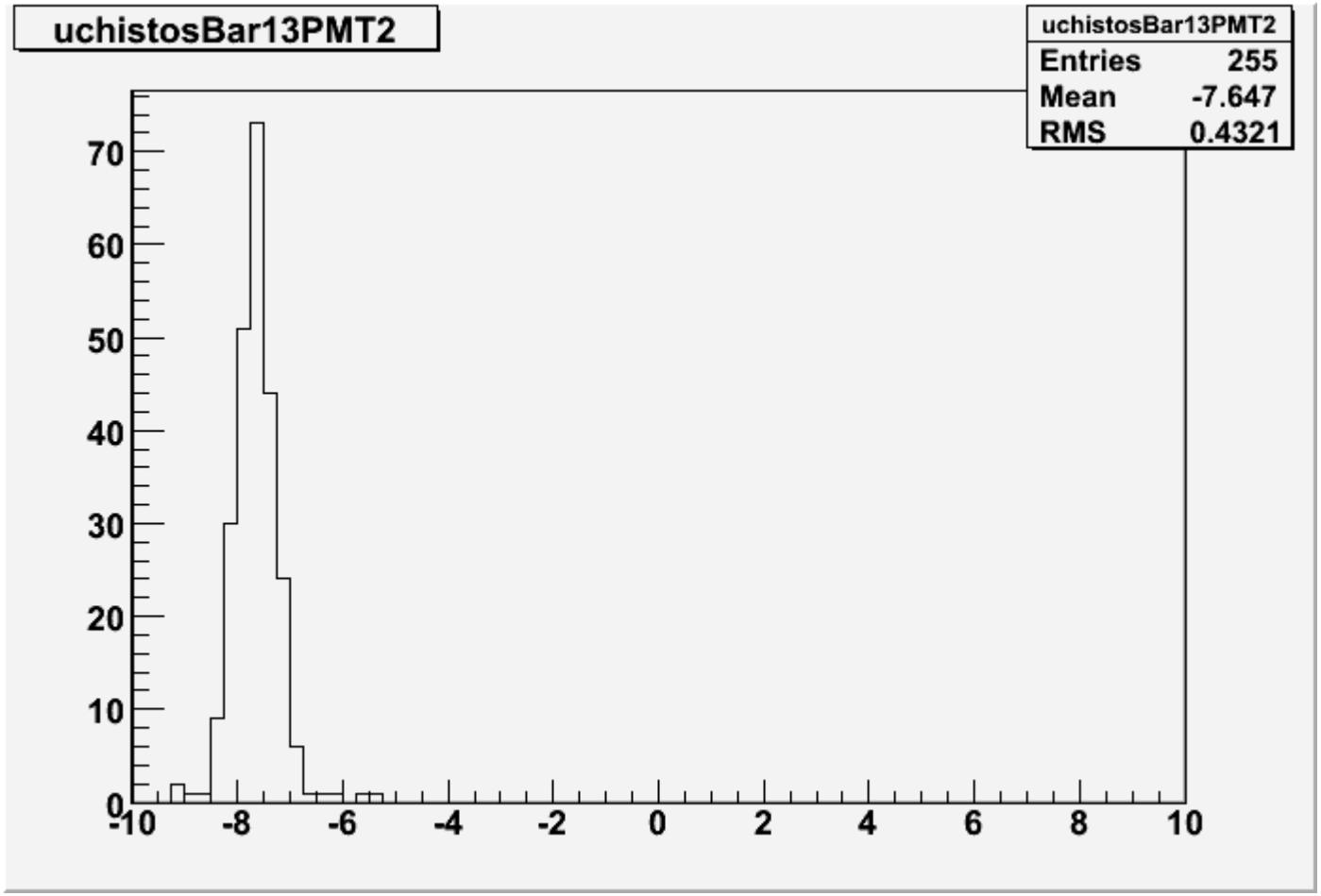
USC TOF Update
09 Aug 07

- I have improved the TC has somewhat.
- I am applying it to all of the bars in my code.
- The biggest problem that presents itself now is lower resolution in the wings (due to the larger bars?).
- These bars are numbered <10 and >40.

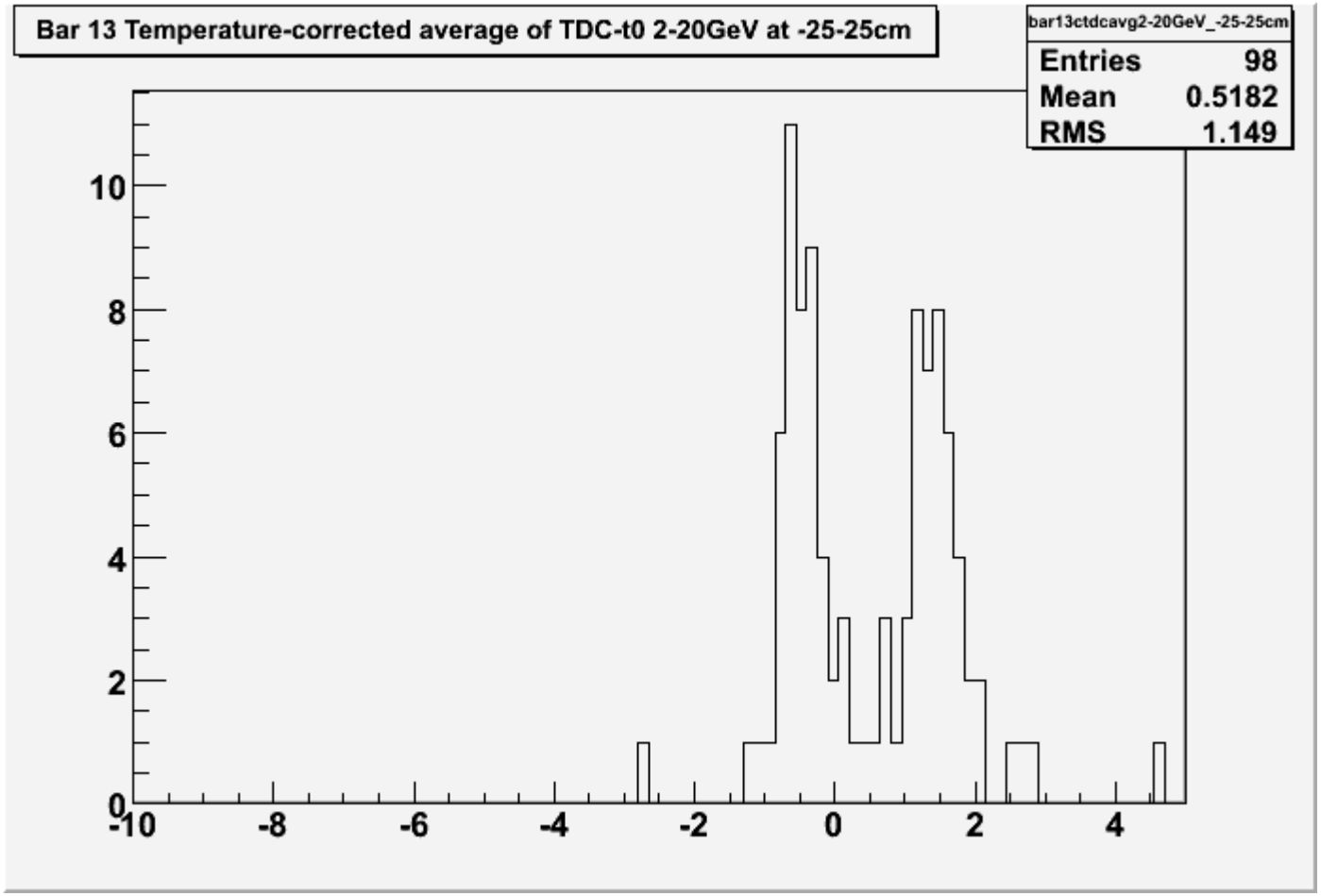
Bar 13's Recovery

- There used to be a double peak structure after corrections were applied.
- I have linked it to bimodality in the pathlength stored in the current dst.
- After replacing the pathlength correction with a constant, bar 13 cleaned up.
- Other bars lost their superluminal humps after the change.
- This problem affects one side of the wall much less than the other.

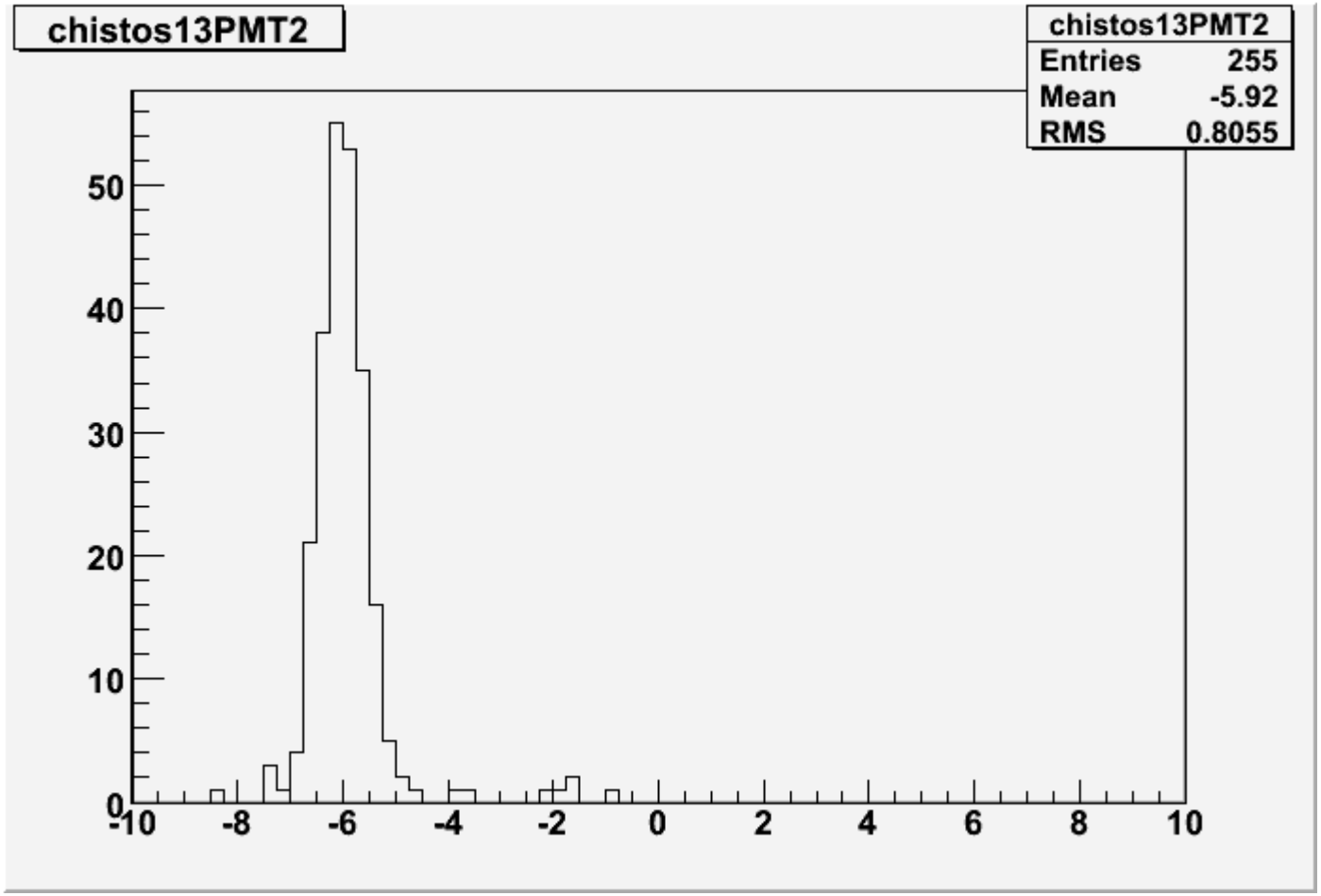
Bar 13, Uncorrected



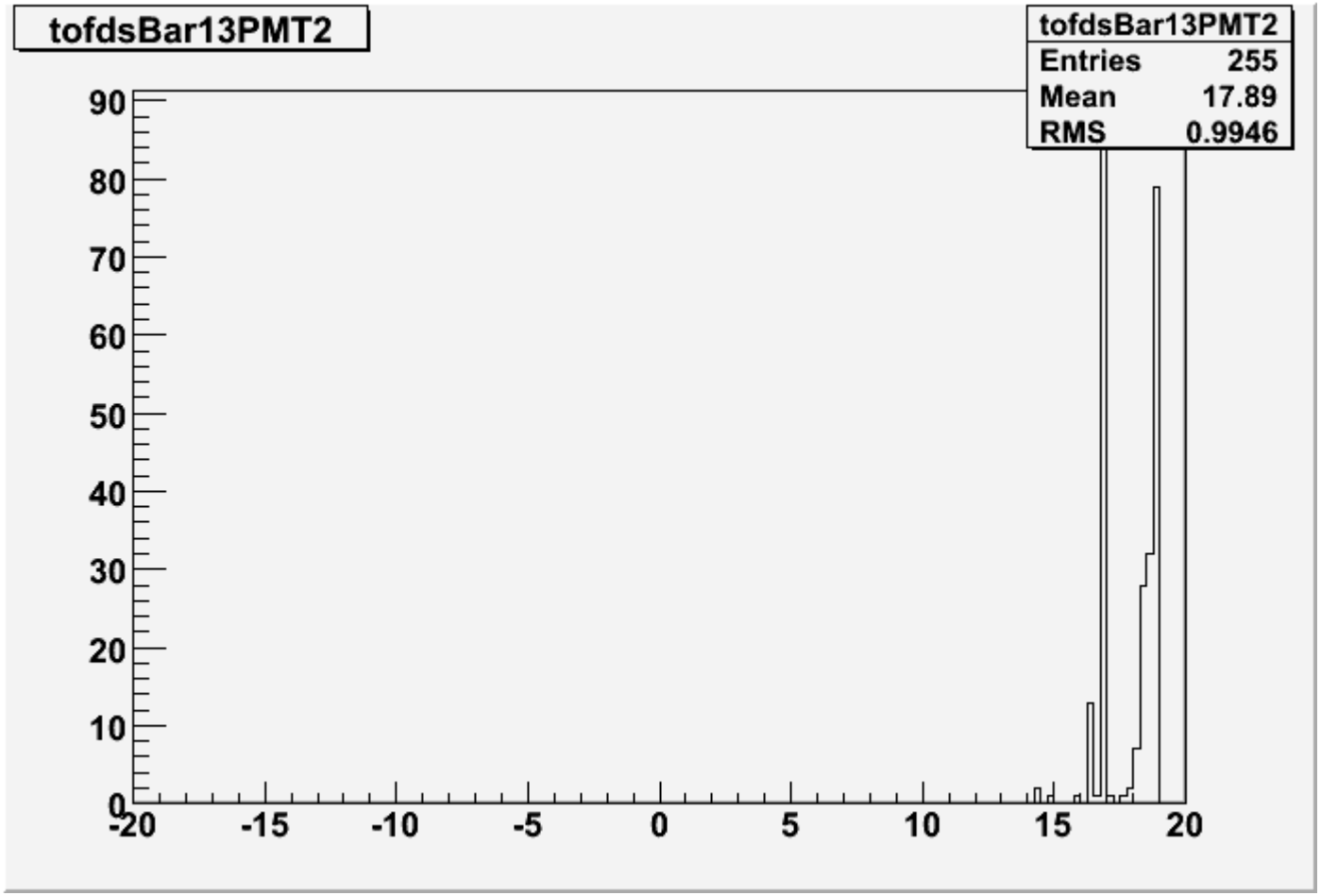
Bar 13, ds and TC Applied



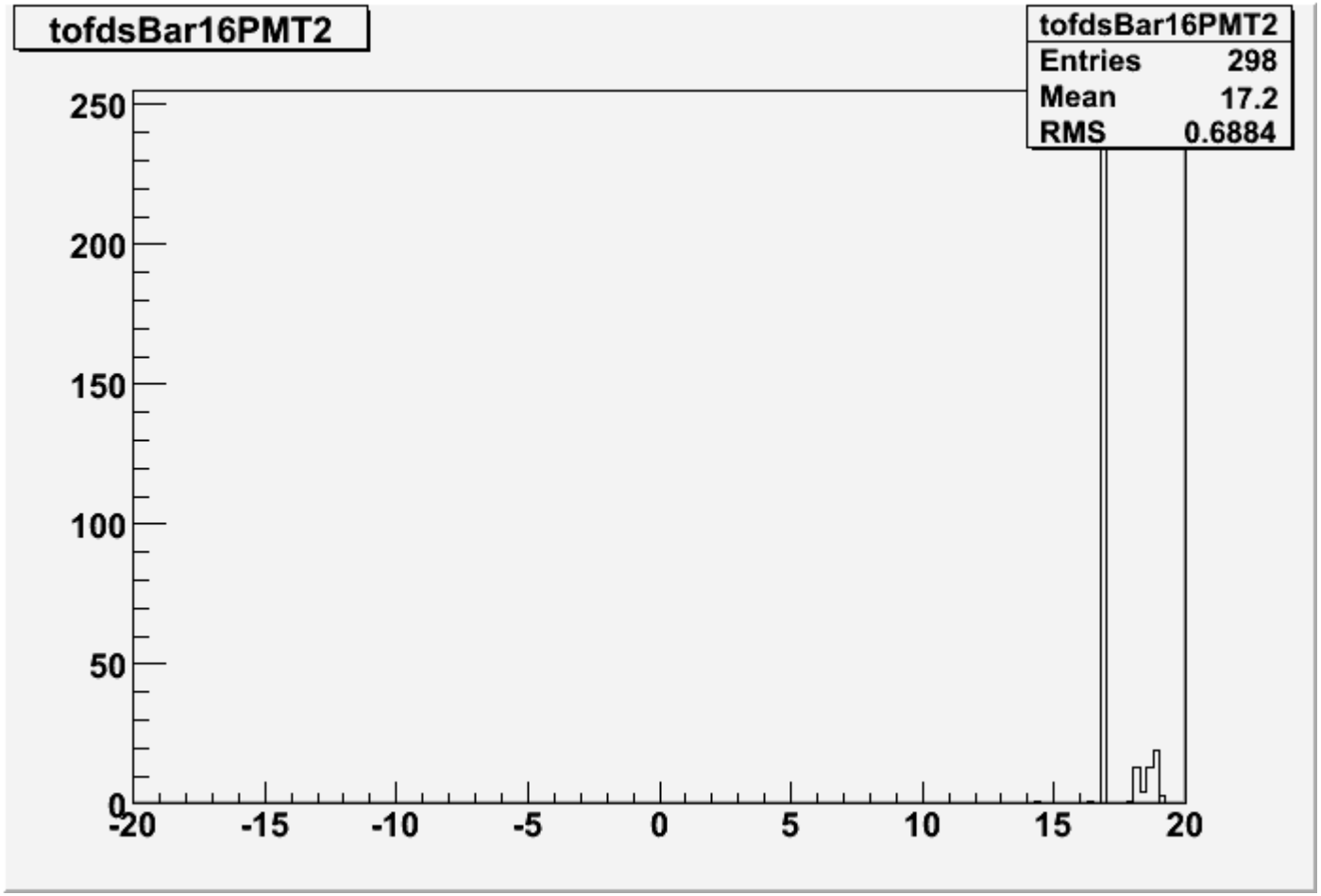
Bar 13, TC Applied but no ds



Bar 13 ds from DST



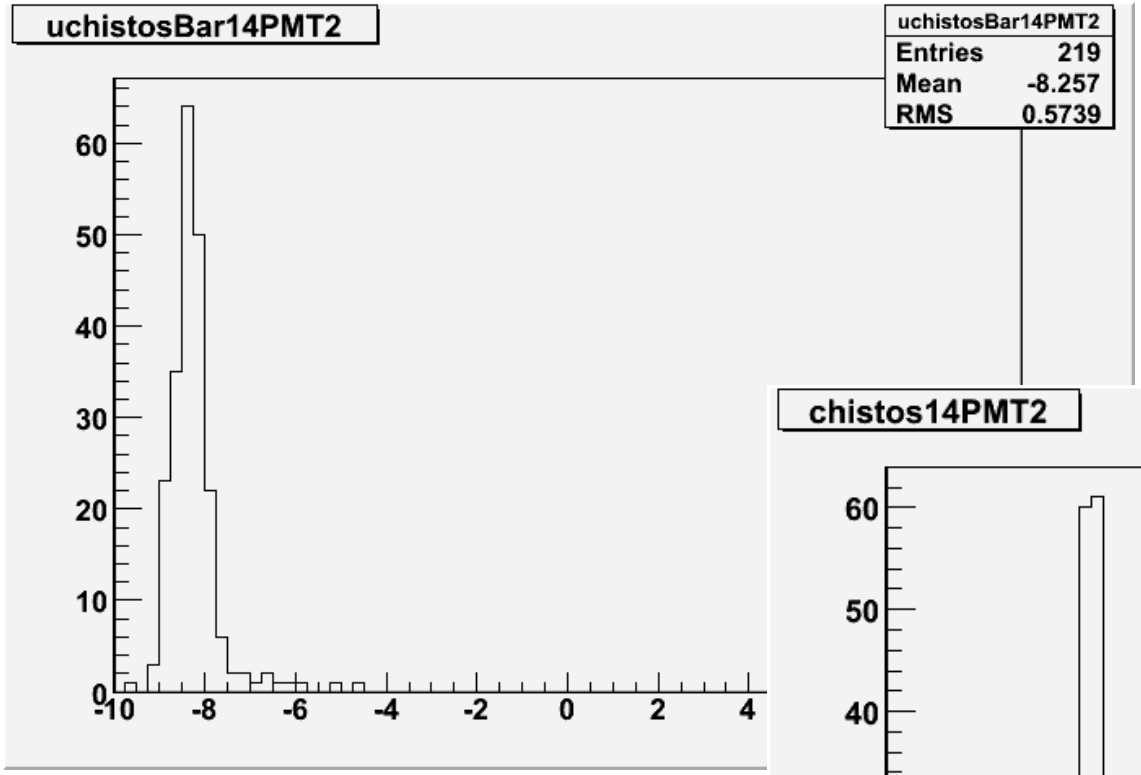
Bar 16 ds from DST (most look like this)

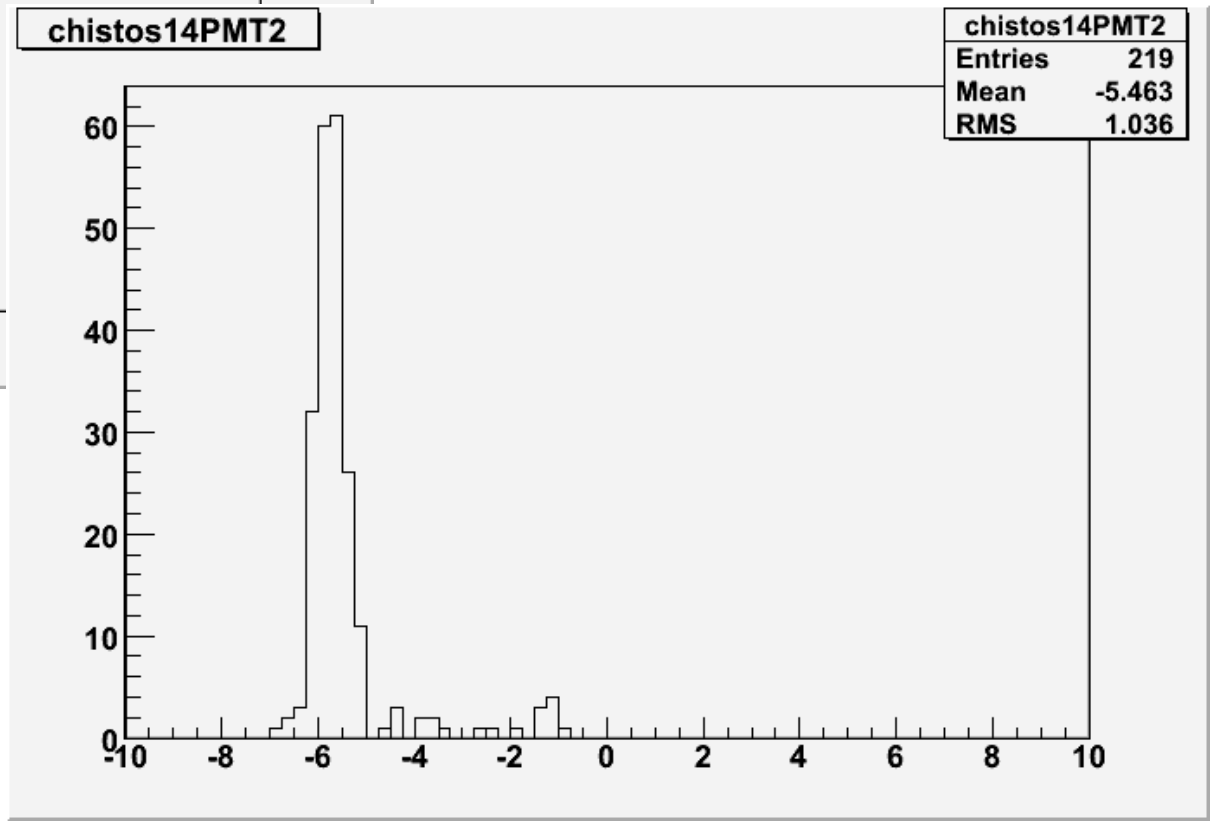


Cuts for TC

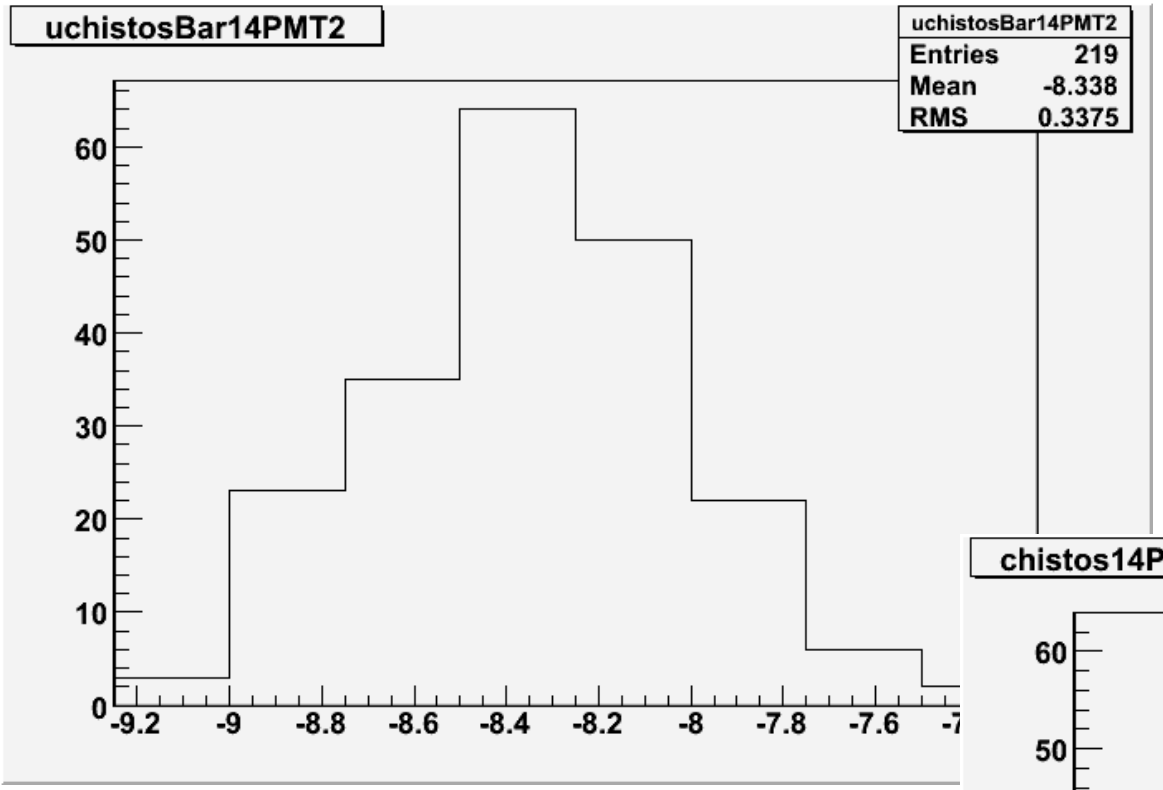
- Both pmts in a bar fired
- One track per bar
- Each pmt knows about the same track
- No hits in adjacent bars
- Track gof at least 0.01
- Hits in TPC: 20-100 (pilfered from Jon's code)
- 3+ tracks associated with this track's vertex
- Center 50cm of bar
- 1-20GeV track momentum

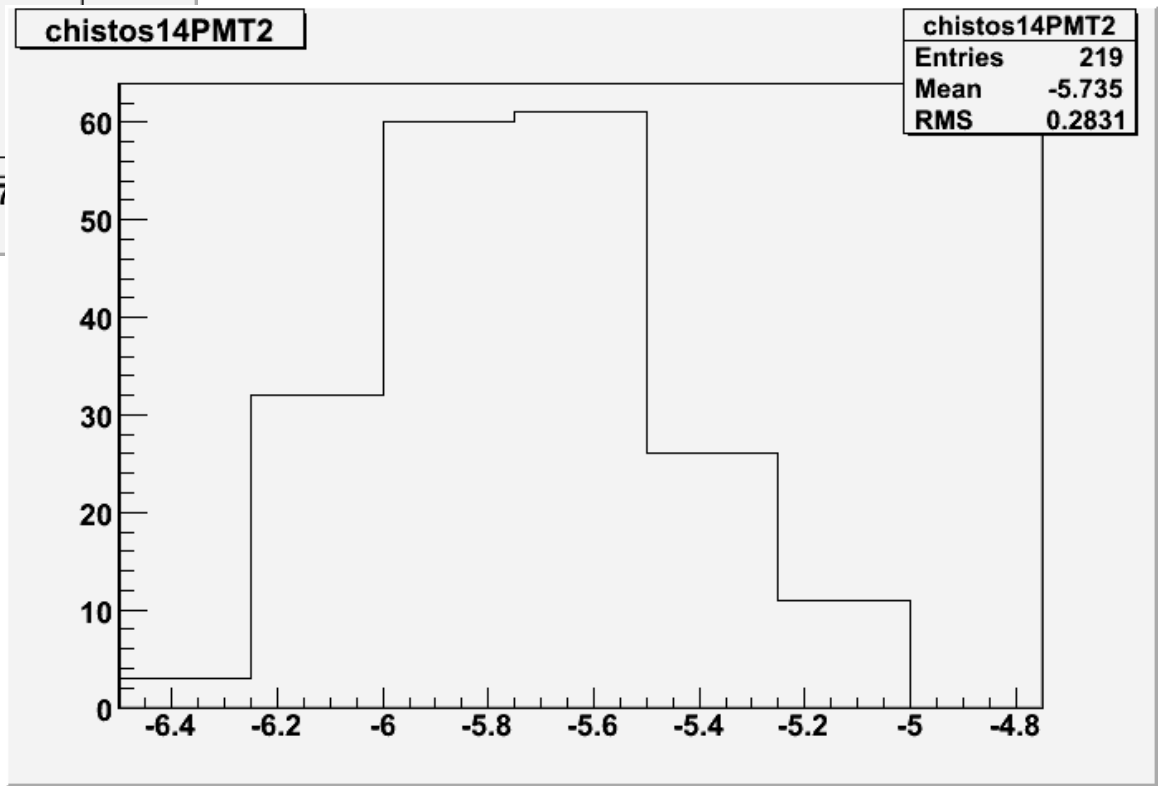
Good TC for Bar 14



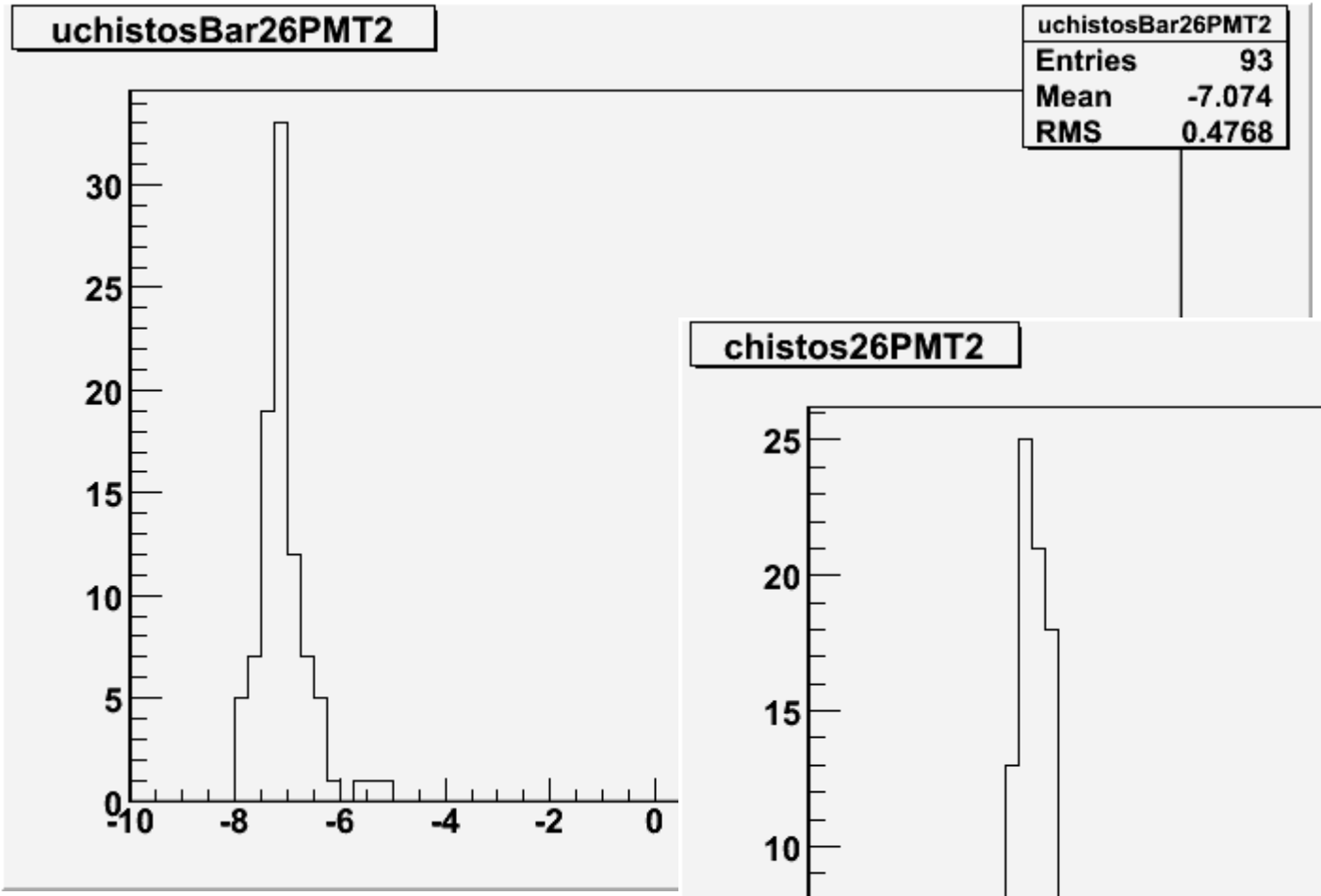


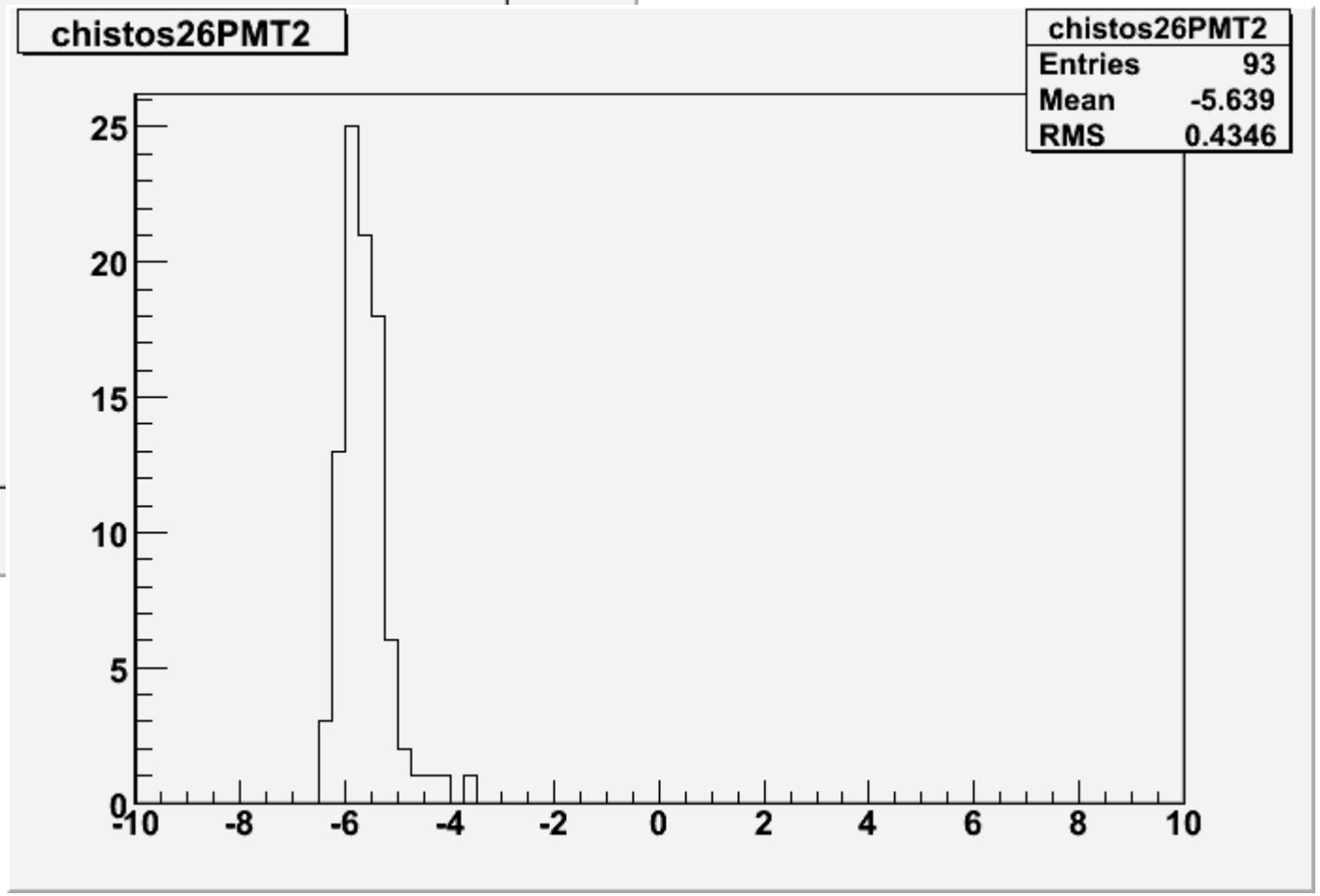
Closeup on Peak in Bar 14



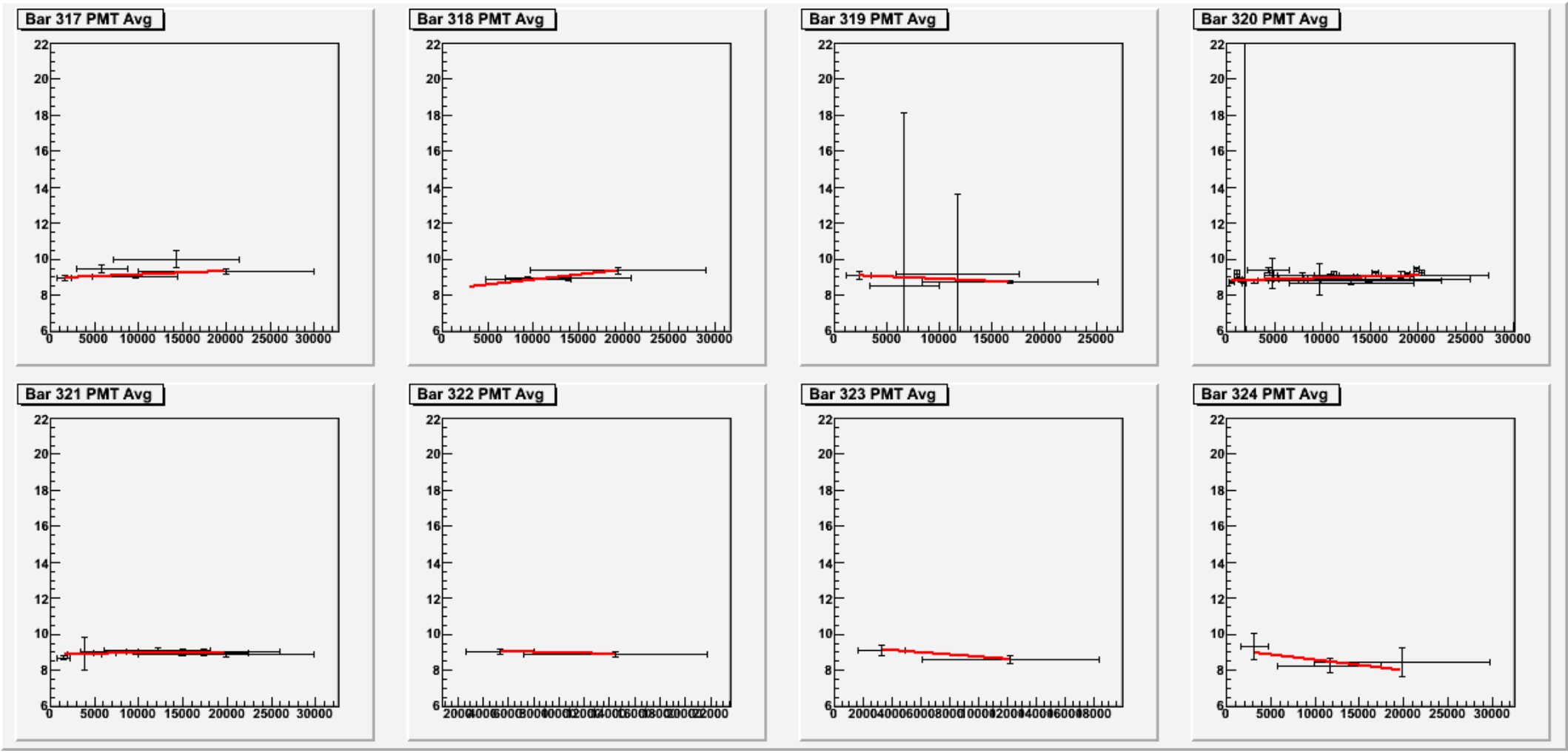


Good TC for Bar yy





TC Averages, Fit to Polynomials (15786, 5 subruns, Be-120)



Calibration Overview

- Most bars have <350ps resolution after applying the TC.
- Maybe now the TC is ready for the database.
- In all but a few cases, the resolution further improves after my “alpha” (timewalk/light propagation) correction.
- “Good” bars can get to ~220ps with 2-20GeV data.
- I still have some work to do with the alpha correction before I'm satisfied with it.