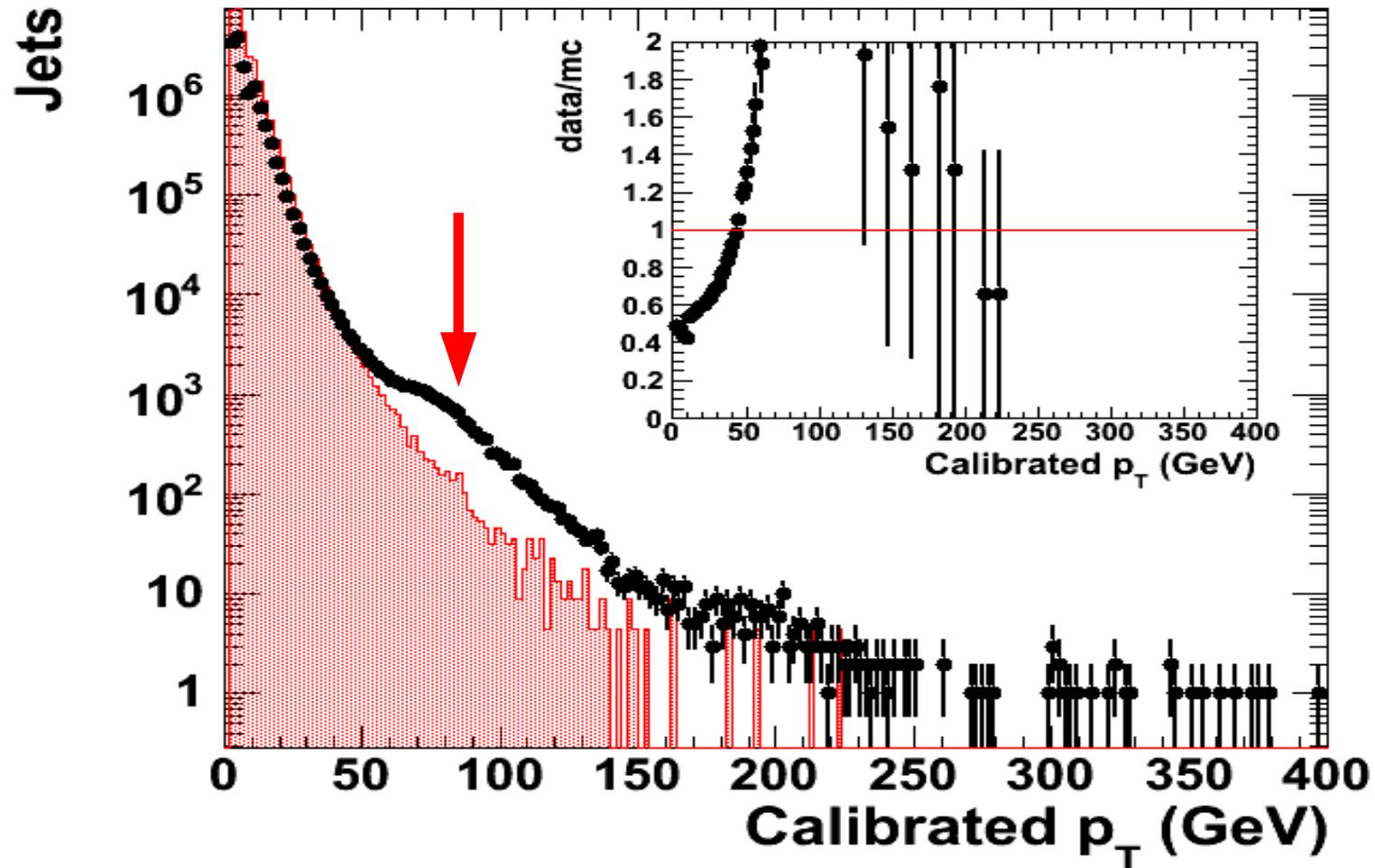


OK – so we're trying to understand this:



- From run 133321 jet triggers were unmasked that brought in this bump

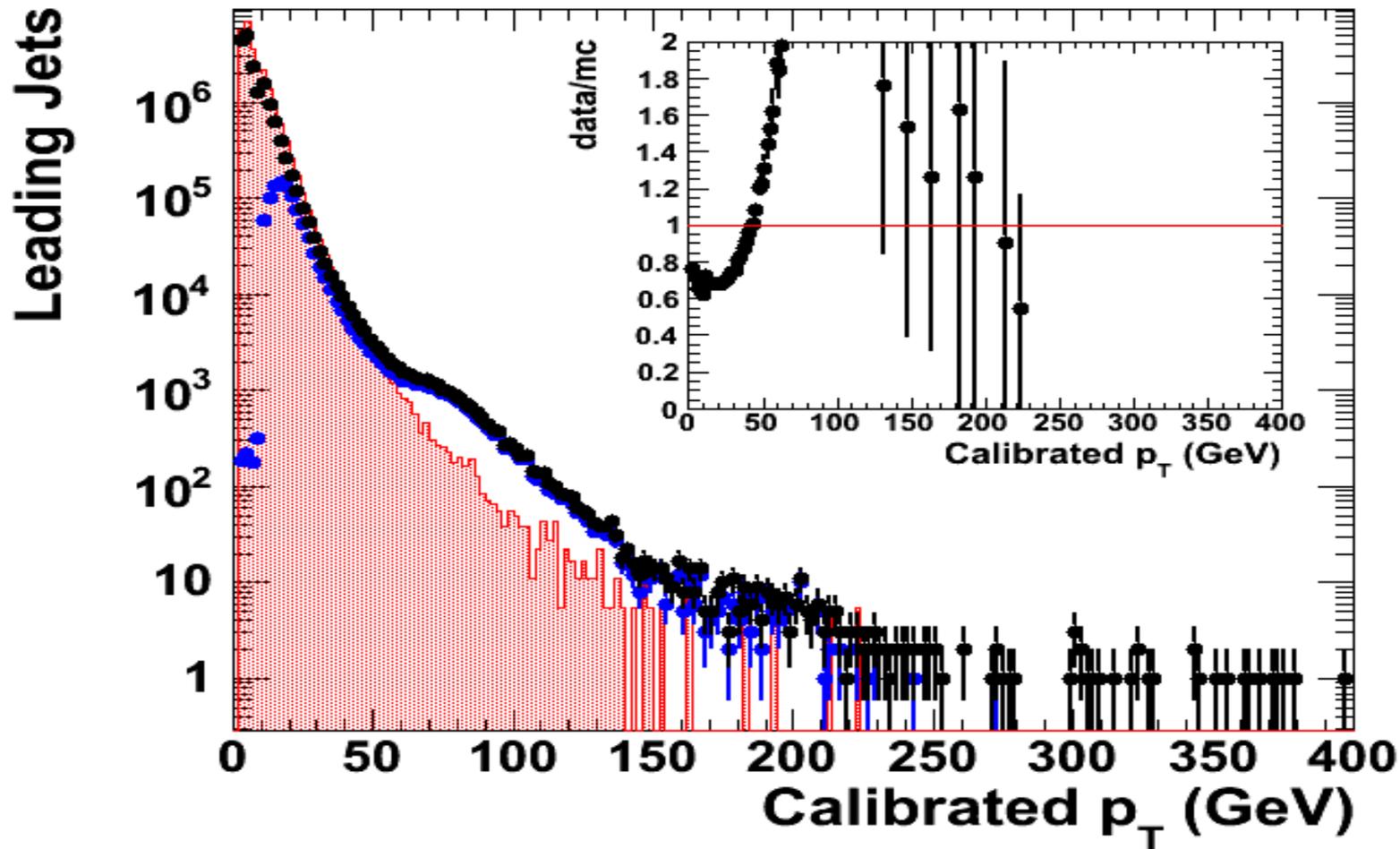


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Slide 1



# Laying L1J6 triggered jets on top:



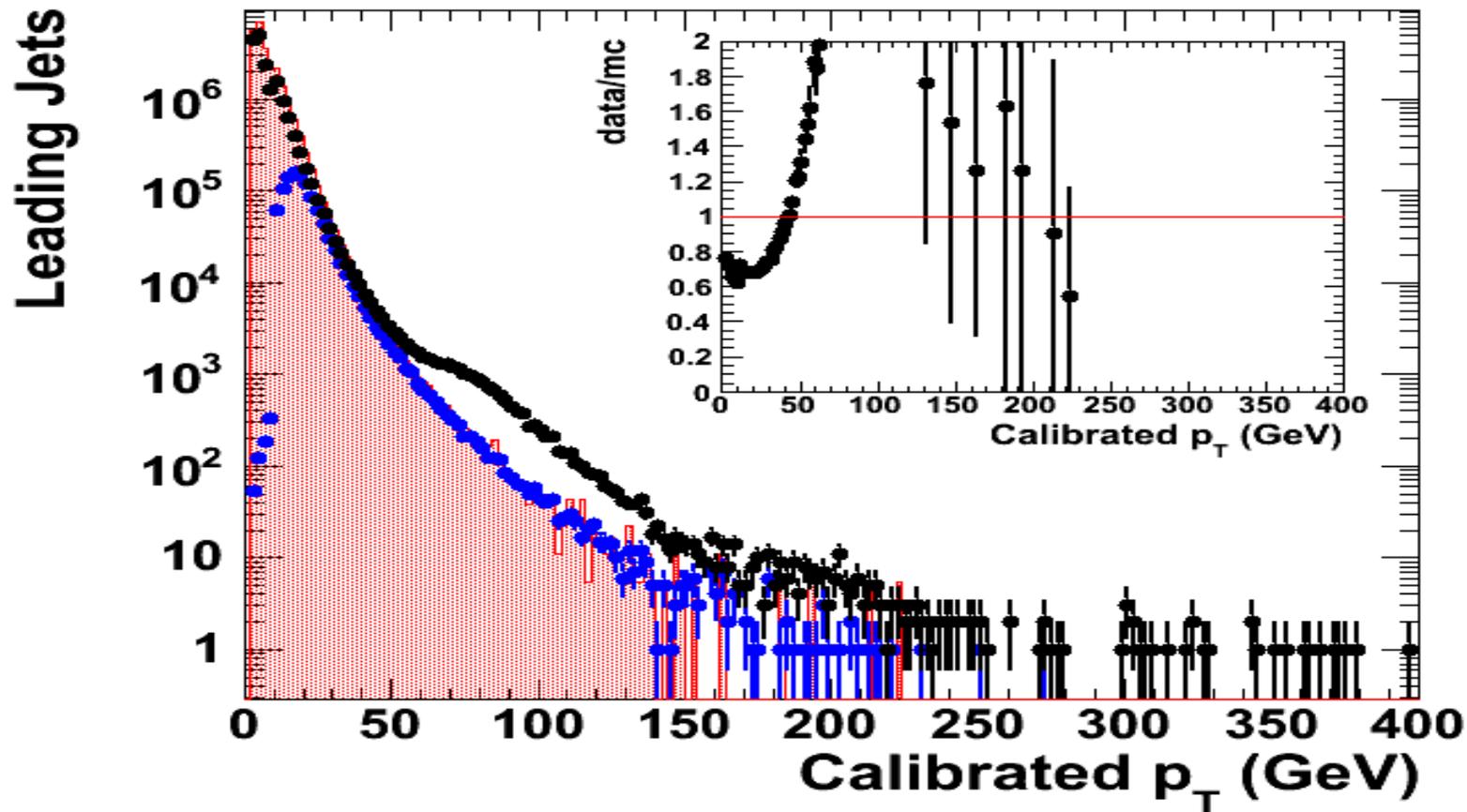
- So for the most part the bump events were coming from the L1 Jet 6 trigger – or at least in it. The bump didn't seem to be the L1J6 turn on – looked at the HLT “pass through” version....



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# Jets that triggered HLT\_L1Jet6U (Blue)



- The HLT version of the trigger strips off all the “extra” jets that just the Jet ID cuts did not get.
- The HLT\_L1Jet6U is not strictly a passthrough – its BPTX coincidence with (prescale, currently 1) \* L1SingleJet6.

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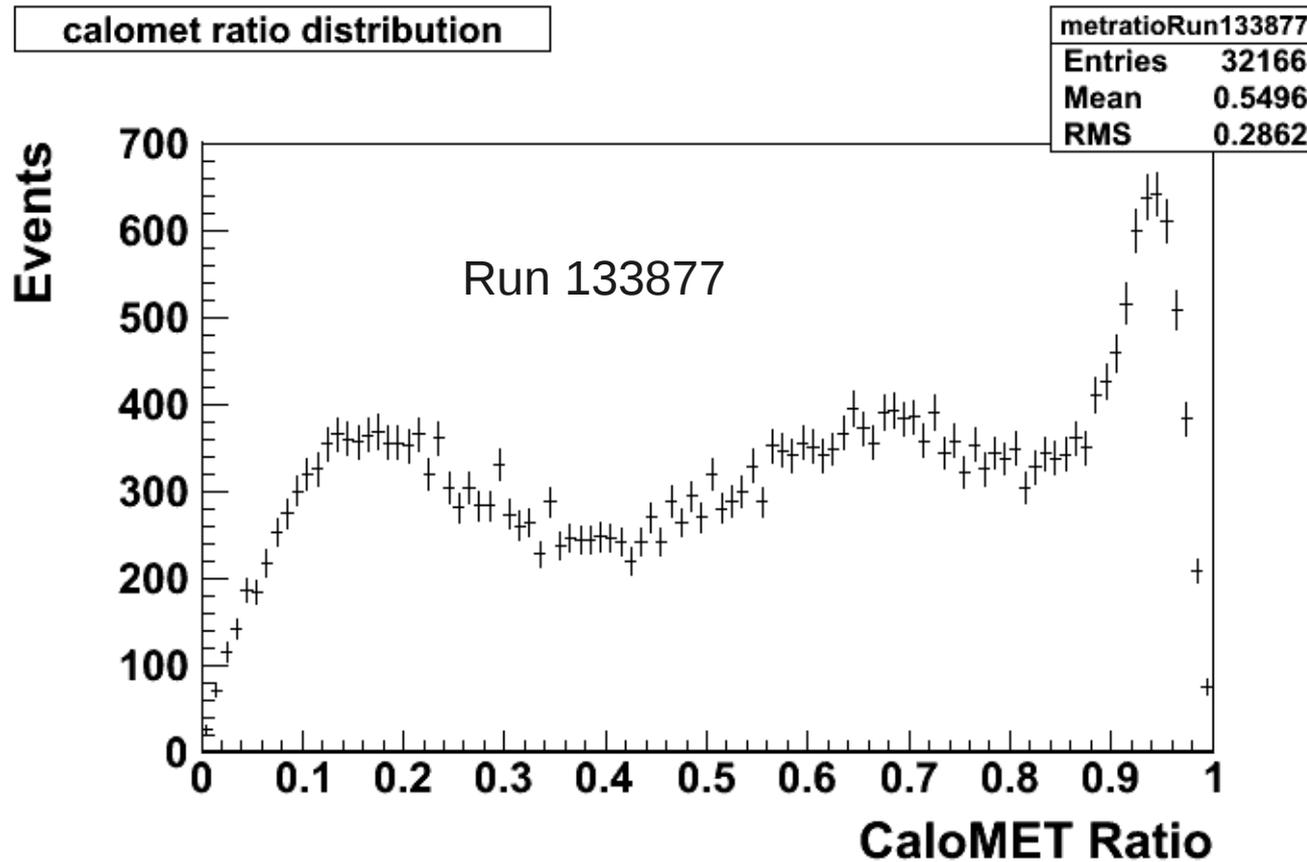
# OK – so here's what was going on...

- Prior to run 133321 the MinimumBias dataset was constructed from mainly only BSC related triggers. Jet triggers were masked – did not select events. In that case missing a beam activity related trigger got us reasonably close to MC with just the Jet ID triggers.
- But after the Jet L1 triggers were unmasked these pulled in a large number of “jets” not passing beam coincidence triggers, but still passing Jet ID cuts (that part is confusing though – don't remember this from CRAFT)  
=> Need to apply BPTX coincidence to cut these guys out.
- Most HLT triggers do this as step 0, and skims selecting on HLT bits (i.e. GOODCOLL, etc.) already internally do this for you
- Looking directly at RECO however one has to be more careful...
- I had bugs in my code which screwed up my beam requirements (i.e. not realizing some of the BSC triggers were still masked & selecting on the masked quantity, etc.)



# OK – before cutting... what are those “jets”?

- MET/SumET distribution for events passing Jet ID cuts but failing BPTX coincidence (Rob's suggestion):



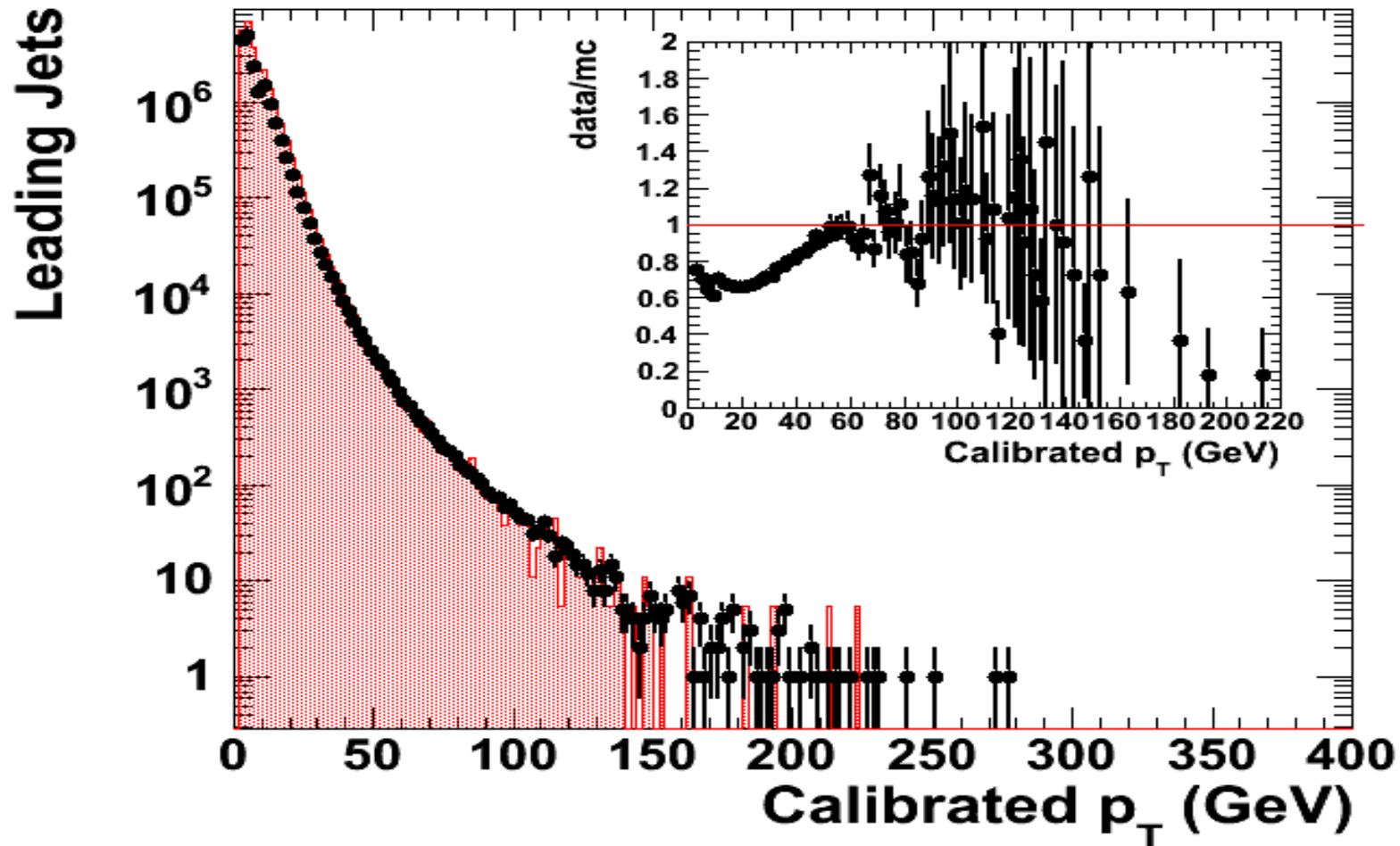
Yeah – OK – that just ain't right! So BPTX coincidence requirement is a good thing!



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# Data/MC with BPTX (bit 0) required:



- Now including all data up to run 133785 (0.853 inv nb)
- Much better, but still wiggles there to chase down.



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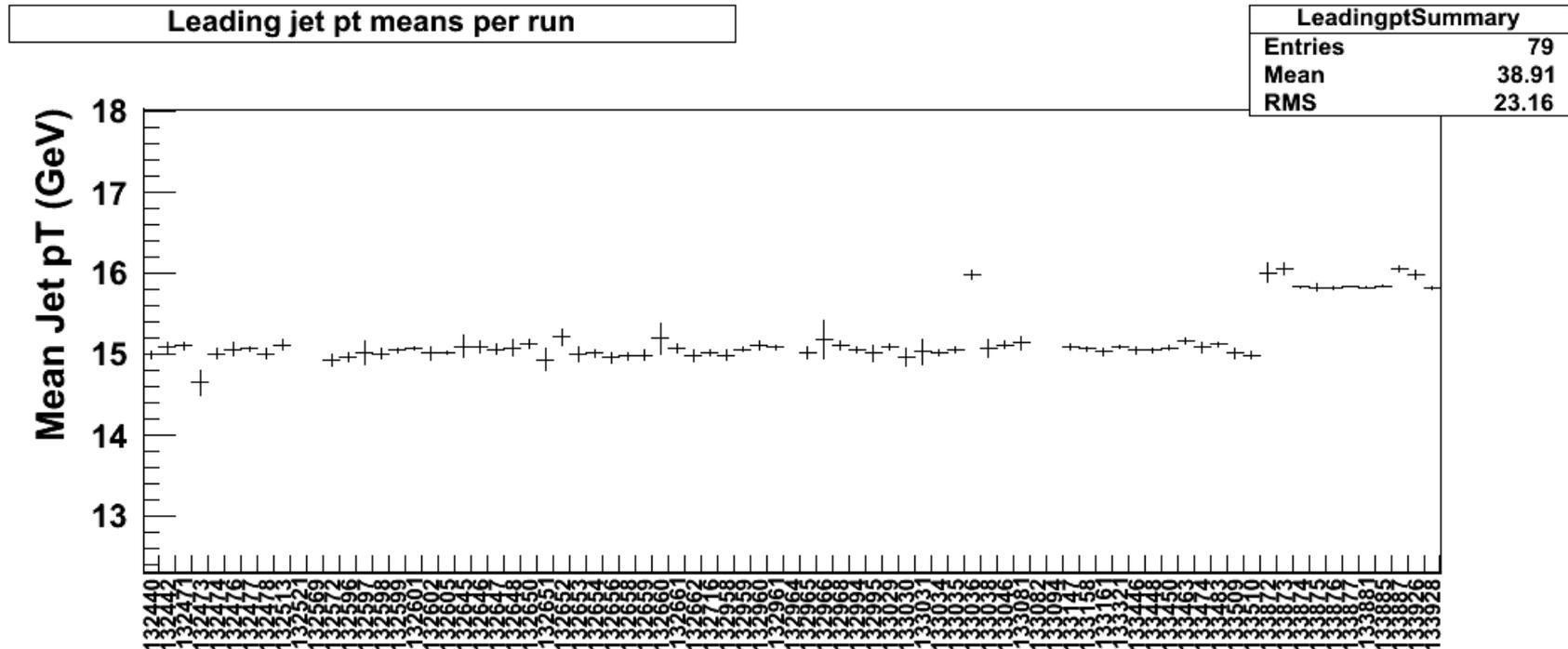


# OK – so what we know from this

- Unmasking the jet triggers around run 133321 introduces noise that a BPTX coincidence cut can get rid of.
- That noise passed Jet ID cuts, but had a horrible CaloMET ratio distribution (but had some events in there that even would have passed a hard cut on that).
- A lot of analyses were probably safe from this by either looking at skims that required or otherwise requiring HLT trigger bits which internally include this.
- MC normalization was using lumi group's numbers – so looks to be in the right ballpark (again I think those numbers are based on MC, so you'd expect them to make MC match up with data)
- OK – now back to what I was originally trying to do here – look at some quantities as a function of run to make sure they were “OK”... Back to mean jet pt vs run number, this time with the BPTX coincidence...



# Hah!



- Now see a different shift – this time at the transition from the Apr20 rereco to Prompt Reco (I think run 133537).
- Meaning something is likely different in the conditions between the two datasets (used same CMSSW version)...
- Maybe we get lucky with the 360 rereco someday...

