Trigger Study

- I have looked at a cross-section of the total sample. (~829 nb^{-1}).
- Runs: 141956 – 143336.
- DataSample: /JetMET/Run2010A-PromptReco-v4/RECO
- For these runs the prescales were different for different HLT Triggers.

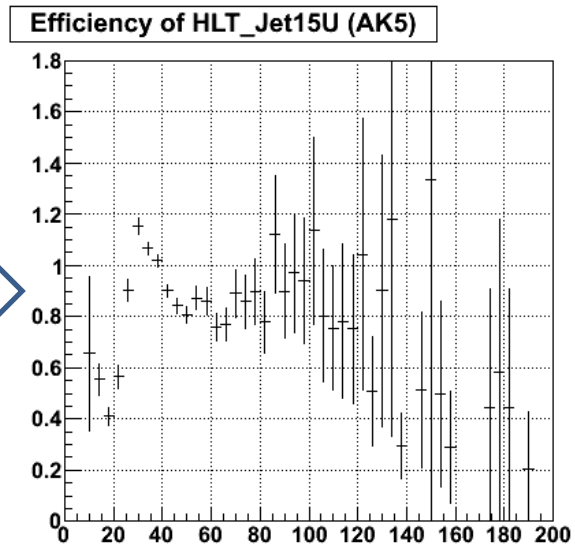
Trigger path	Luminosity (nb^{-1})
HLT_L1Jet6U	0.2
HLT_Jet15U	5
HLT_Jet30U	97
HLT_Jet50U	829
HLT_Jet70U	829

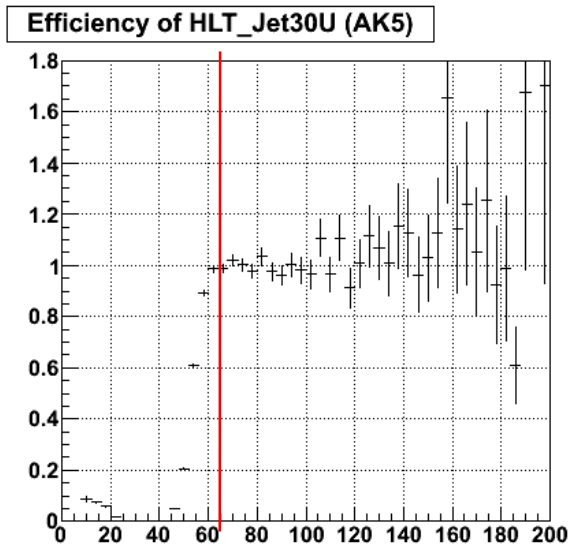
- The denominators of the following figures are, therefore, prescaled.

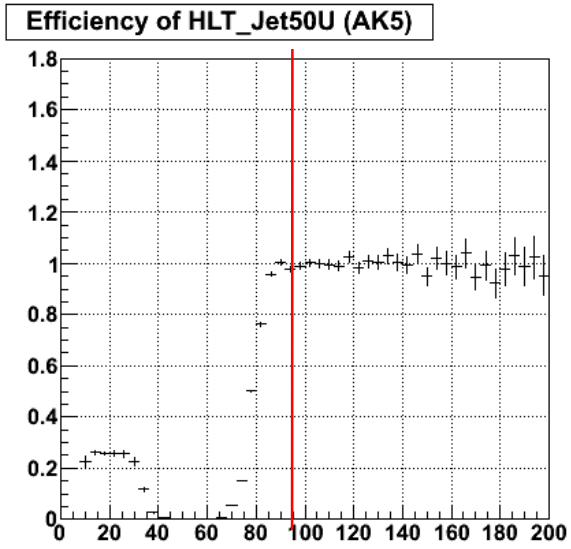
- Event selection:
  - Acceptance: y_boost <1.1, chi<16
  - p_T > 10 GeV. (for all); pT threshold has not been changed for different triggers paths.

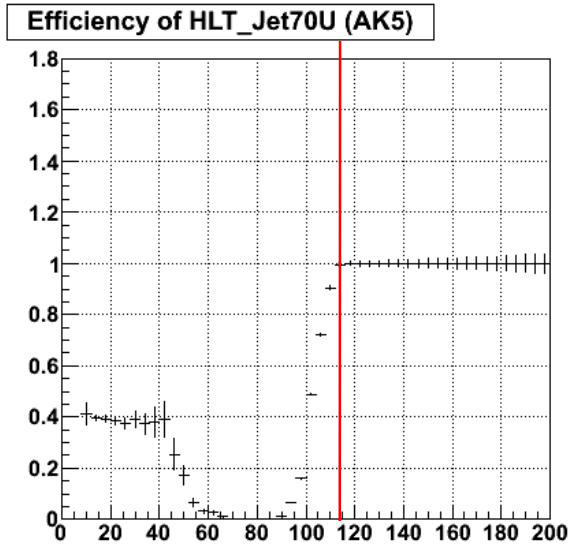
Efficiency as a function of Leading jet p_T (JEC-ed)

Difficult to find 15 efficiency based on these later (prescaled runs). We have to use the earlier runs and the old values of threshold (i.e. 210 GeV) for Jet15U.

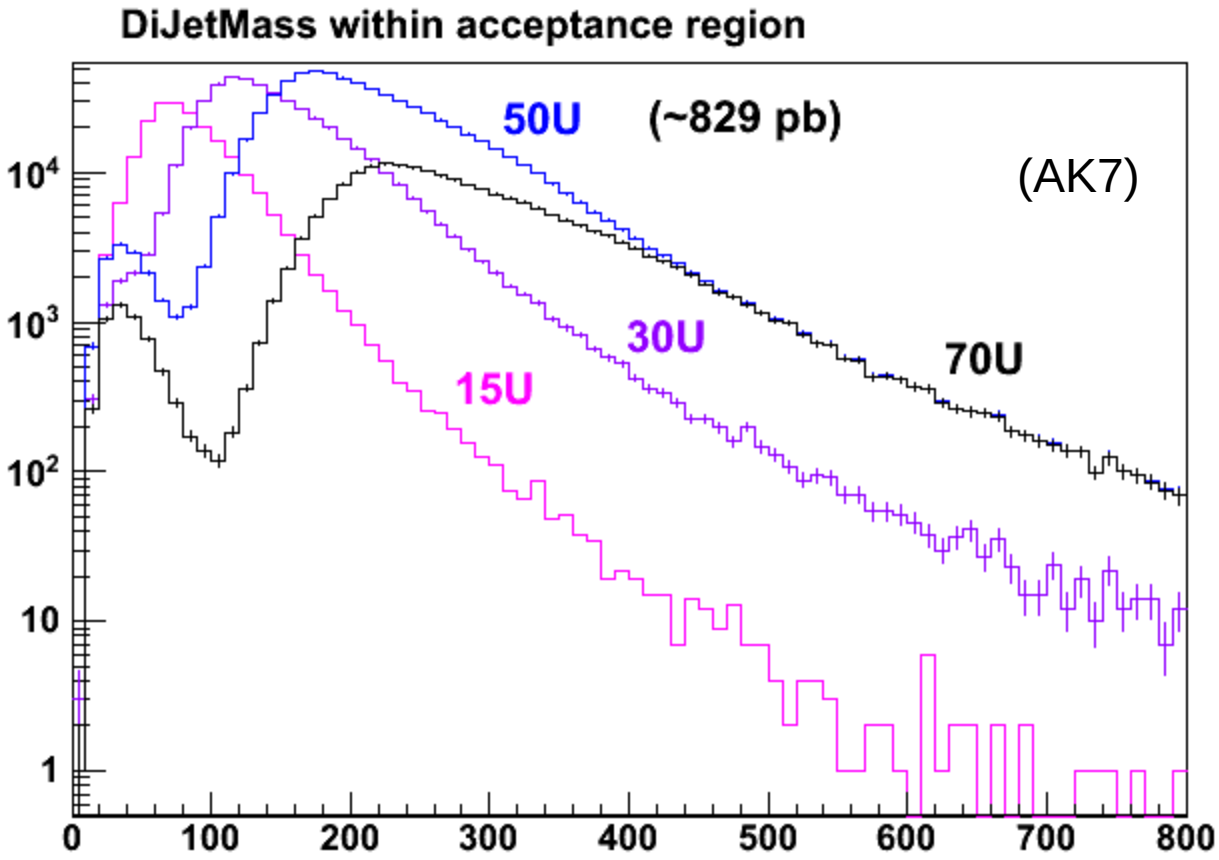




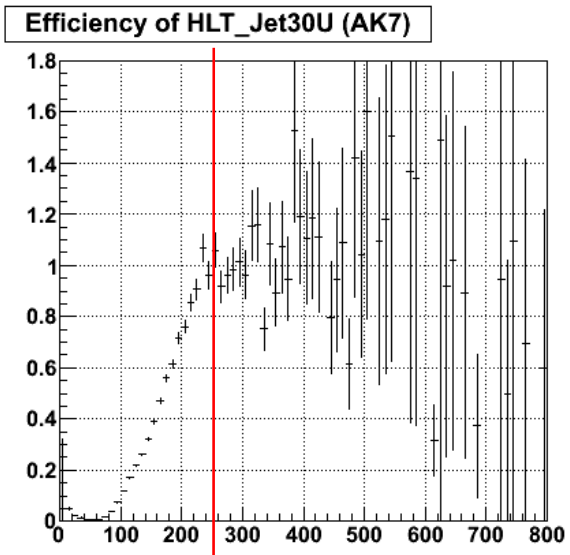


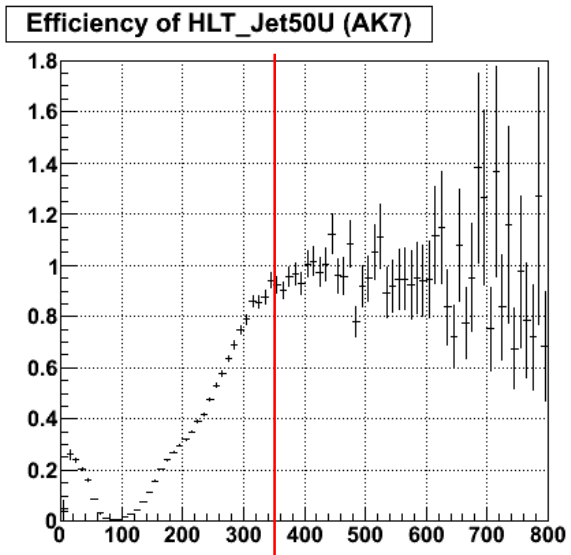


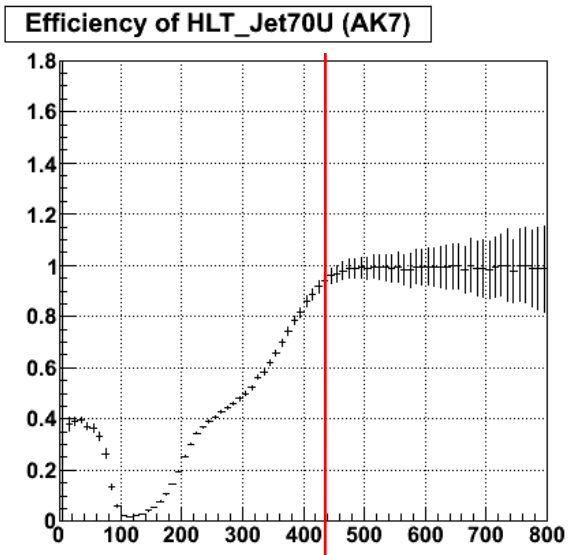
Dijet Invariant Mass Distributions

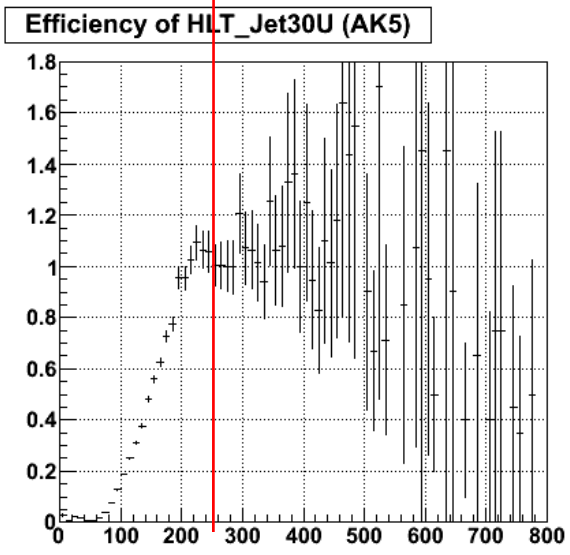


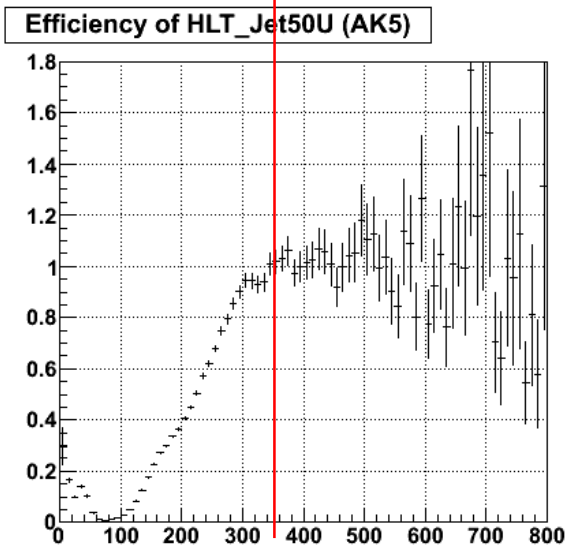
Efficiency as a function of Dijet Mass

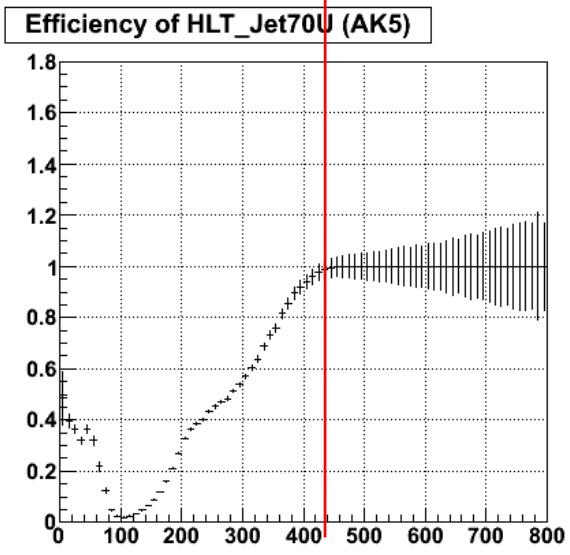




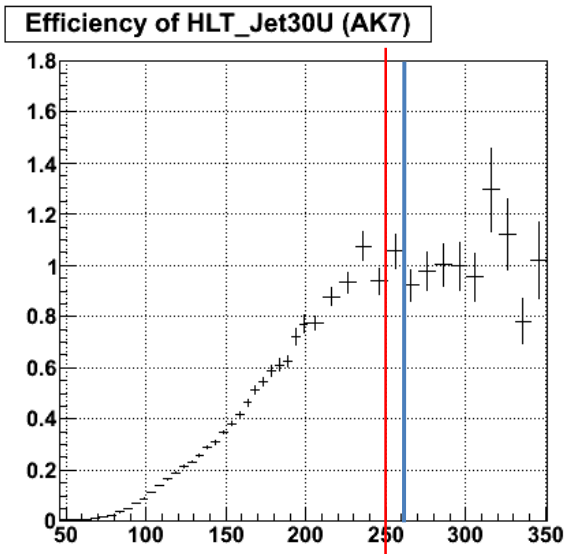


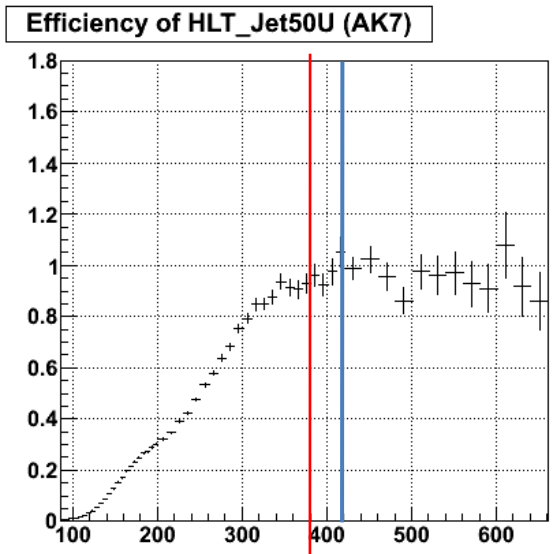


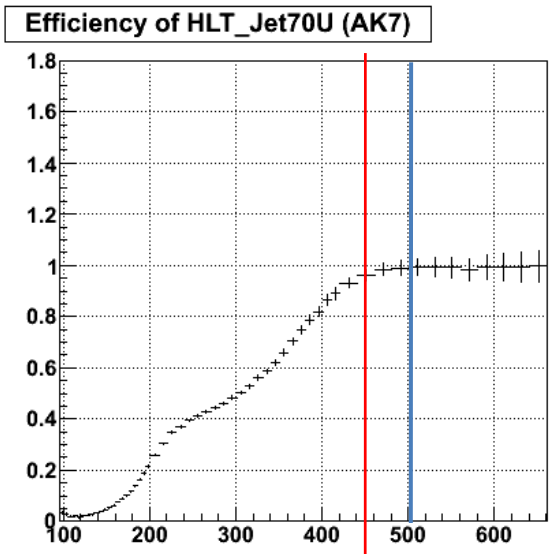


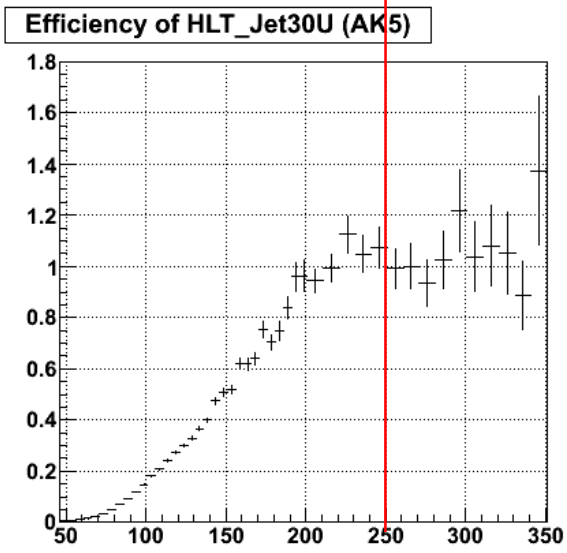


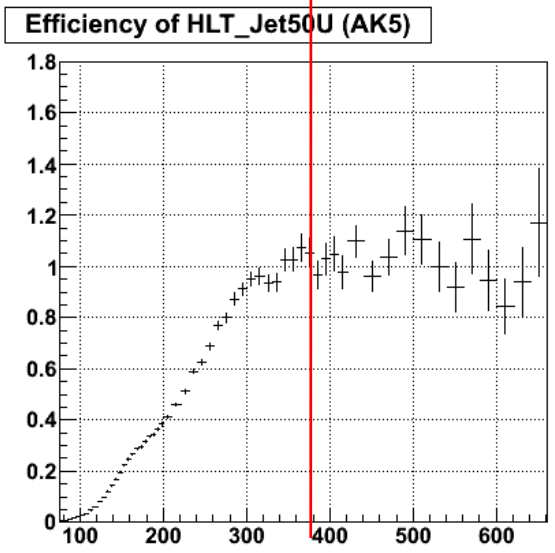
Efficiency as a function of Dijet Mass

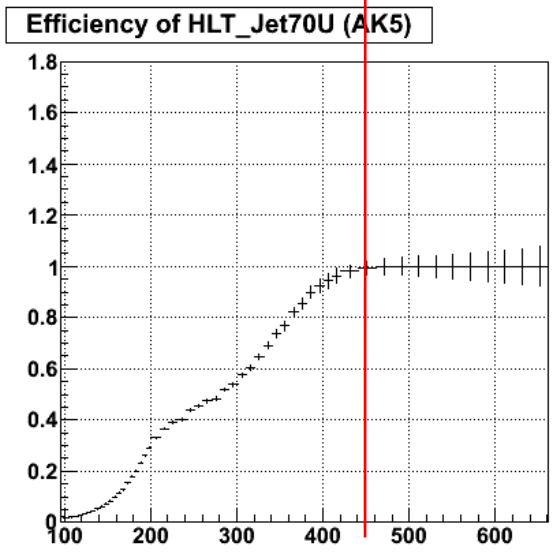












My Inferences

- As we can see – the turn on points for AK5 and AK7 are not the same.
- For AK7 the turn-ons are a bit higher.
- A rough mass bin suggested is as follows:

Mjj > xxx GeV	AK5	AK7
HLT_Jet15U	OLD	OLD *
HLT_Jet30U	**250**	**300**
HLT_Jet50U	**360**	**400**
HLT_Jet70U	**440**	**480**

Question: Should we even use Jet15U any more, and for that matter remove the first mass bin?

Question: Even for the Jet30U – should we use the unprescaled turn ons which existed in the AN, as with new data this is quite difficult to make a decision.

- I have to run on more runs which are currently going on ..

Updated turn-on's after rebinning

In slide 5 red lines show the AK5 turn-ons and where it would have been in AK7. The blue lines show the turn ons for AK7.

Mjj > xxx GeV	AK5	AK7
HLT_Jet15U	OLD	OLD *
HLT_Jet30U	**250**	**260**
HLT_Jet50U	**380**	**420**
HLT_Jet70U	**445**	**500**