Jet & MET triggers in 8E29/1E31 menus

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CMS Week: Jet & MET Trigger Review
Thursday, 11 December 2008

Outline

- Introduction
- Jet Energy Corrections in Trigger
- Single Jet Triggers
- DiJetAve Triggers
- MET Triggers
- More complicated Triggers
- Primary Datasets

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Alexander Proskuryakov
JetMET POG
QCD PAG
TOP PAG
FWD PAG
SUSY PAG

Introduction (I)

Baseline: proposed core lean 8E29 menu

HLT Name	L1 Condition	Prescale L1 x HLT	Rate (Hz)
HLT_L1Jet15	L1_SingleJet15	25 x 10	18.3
HLT_Jet30	L1_SingleJet15	25 x 1	15.3
HLT_Jet50	L1_SingleJet30	1 x 5	6.5
HLT_Jet80	L1_SingleJet50	1 x 1	3.7
HLT_DiJetAve30	L1_SingleJet30	1 x 1	15.9
HLT_FwdJet20	L1_IsoEG10_Jet15 _ForJet10	1 x 1	1.4
HLT_L1MET20	L1_ETM20	50 x 1	7.2
HLT_MET35	L1_ETM30	1 x 1	2.6

Blue = Corrected Jets

Red = Uncorrected Jets

Introduction (II)

Baseline: proposed core lean 1E31 menu

HLT Name	L1 Condition	Prescale L1 x HLT	Rate (Hz)
HLT_L1Jet15	L1_SingleJet15	500 x 20	5.8
HLT_Jet30	L1_SingleJet15	500 x 5	2.1
HLT_Jet80	L1_SingleJet50	5 x 2	4.5
HLT_Jet110	L1_SingleJet70	1 x 1	10.5
HLT_Jet180	L1_SingleJet70	1 x 1	0.7
HLT_DiJetAve15	L1_SingleJet15	500 x 1	5.6
HLT_DiJetAve50	L1_SingleJet50	5 x 1	5.7
HLT_DiJetAve70	L1_SingleJet70	1 x 1	6.4
HLT_DiJetAve130	L1_SingleJet70	1 x 1	0.7
HLT_FwdJet20	L1_IsoEG10_Jet15_ForJet10	10 x 1	1.9
HLT_QuadJet30	L1_QuadJet15	20 x 1	1.2
HLT_SumET120	L1_ETT60	5000 x 1	1.1
HLT_L1MET20	L1_ETM20	200 x 5	4.5
HLT_MET25	L1_ETM20	200 x 1	1.9
HLT_MET50	L1_ETM40	1 x 1	2.6
HLT_MET65	L1_ETM50	1 x 1	0.2

Triggers removed

Blue = Corrected Jets

Red = Uncorrected Jets

Jet Corrections in HLT

Jet Energy Corrections in the Trigger

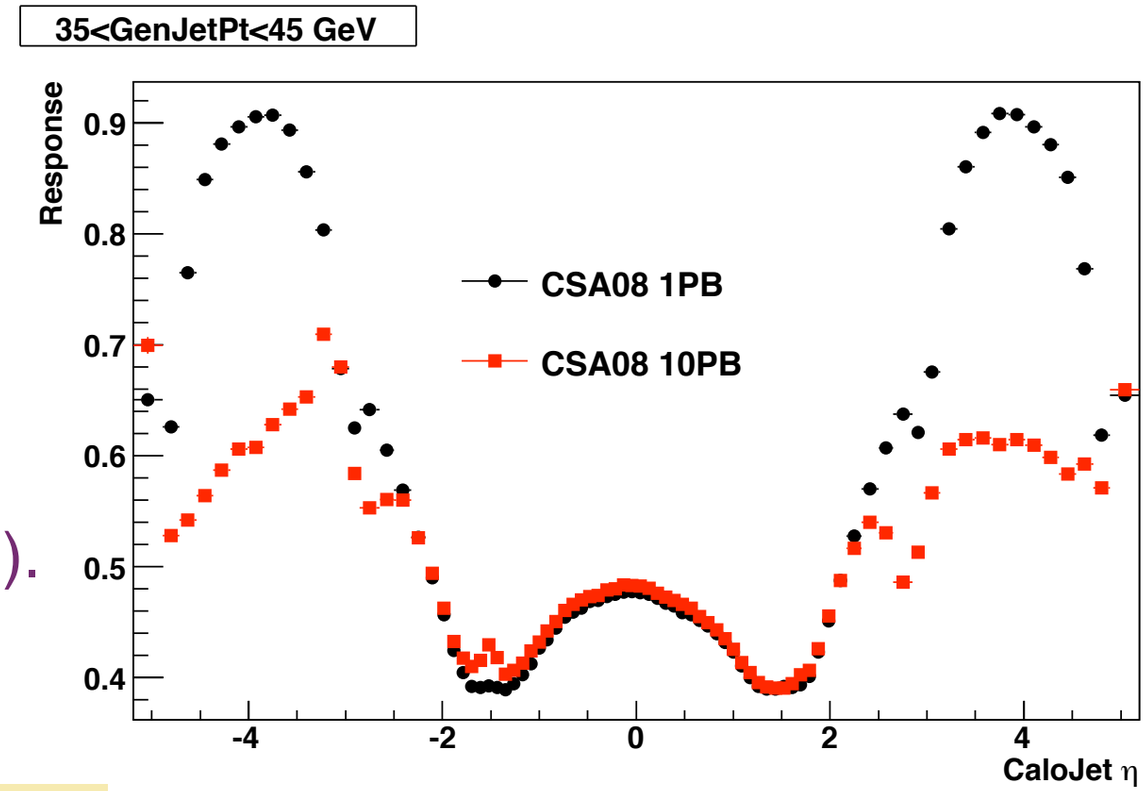
The JetMET group does not object to put the jet energy corrections in the trigger WHEN they are available with reasonable uncertainty.

Requirements

1. Stable detector conditions.
2. Stable RECO conditions.
3. Accessibility of the accumulated data.
4. Enough data to derive the data driven techniques (for example, the relative jet correction from dijet balance needs ~0.5 pb^{-1}).

Always keep in mind: the jet corrections are not harmless!!! If the wrong corrections are used, the rate vs eta can be seriously distorted.

CSA08: absolute jet response



Different RECO conditions or detector calibration can produce LARGE variation of jet response.

Jet Calibration Scheme

1) Detector and software stability are very correlated to the process of calorimeter calibration.

2) Under stable conditions HCAL calibration will consist of:
   a) HB calibration with isolated tracks,
   b) HE & HF calibration with dijet events,

3) Through startup (non-stable period) we should have no JEC in the Trigger. We will start with no HCAL calibration, as defined in (2), and probably iterate many times on detector conditions, calibration and reconstruction software. The issue of the high Trigger rate in HF through startup could be handled either by a constant calibration factor applied to the HF region or by having a separate Forward jet Trigger.

Photon Triggers for Jet Calibration

- The photon triggers are crucial for the determination of the absolute jet energy scale.
- At least two thresholds of a given type are needed: one high threshold (25-30 GeV) and one lower threshold for efficiency monitoring.
- The low efficiency due to tight isolation requirements is worrying. Isolation definitions need to be reviewed.
- 8E29:
  HLT_Photon15_L1R (L1_SingleEG10)
  HLT_Photon10_L1R (L1SingleEG5)
- 1E31:
  HLT_Photon25_L1R (L1_SingleEG15)
  HLT_Photon15_L1R (L1_SingleEG10)

Full review will be presented during the EGamma Trigger review next week

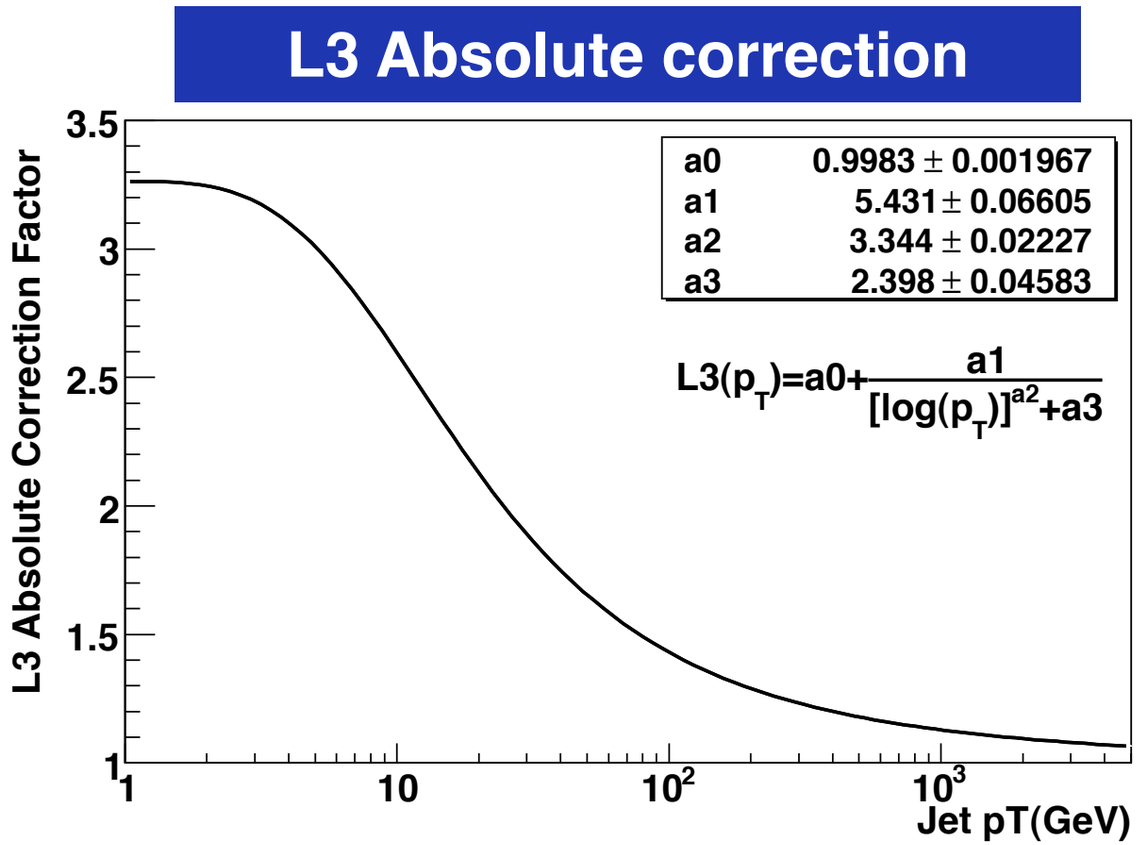
Unsuppressed Triggers for Jet Calibration

- For unbiased estimation of Offset correction (first subcorrection in factorized jet correction chain)
  - Energy offset underneath a jet due to noise and pile-up will be measured in ZB and MB data events.
  - Impact of Zero Suppression inside e.g. a jet can be substantially different than in ZB or MB events. Unbiased estimation of offset demands un-ZSed runs.
- For overlay of data on MC using Data Mixer
  - To realistically model effect of pile-up and noise one needs to overlay data ZB events over MC.
  - Requires un-ZSed ZB runs: operations of overlay and Zero Suppression do not commute.
- Need unsuppressed ZB and MB events at total rate of ~ 0.5 Hz run at all luminosities. Correct luminosity profile is important for both offset and overlay.

Full review will be presented during the MB/Commisioning Triggers review (Feb 4)

Corrected-Uncorrected jet pT mapping

pT Corrected (GeV)	pT Uncorrected (GeV)
15	6
30	15
50	30
70	40
80	50
110	80
180	130



The mapping is approximate, based on the absolute jet energy correction derived from the Summer08 QCD DiJet samples and the η effect is not removed by a mere threshold “translation”.

Single Jet Triggers

Remarks

1) The single jet Triggers serve to collect QCD events.

2) They will dominate the rate of the early menus.

3) The single jet Triggers require the leading jet pT to be above some threshold.

4) In order to measure jet spectra, multiple thresholds are required. The “Past”-”Present”-”Future” scheme is partially applied (however the “Past” Trigger is always needed and as luminosity increases it is prescaled more).

5) There must be substantial overlap between the single jet Triggers, in order to study their efficiency.

8E29 Menu

Uncorrected Jet Thresholds

L1 Condition	HLT Name	Prescale L1 x HLT	Rate (Hz)
L1_SingleJet6U	HLT_L1Jet6U	25 x 10	18
L1_SingleJet6U	HLT_Jet15U	25 x 1	10
L1_SingleJet15U	HLT_Jet30U	1 x 5	4.3
L1_SingleJet30U	HLT_Jet50U	1 x 1	3.3

All rates were calculated using the OpenHLT framework.
In the current L1 emulation, thresholds are corrected.

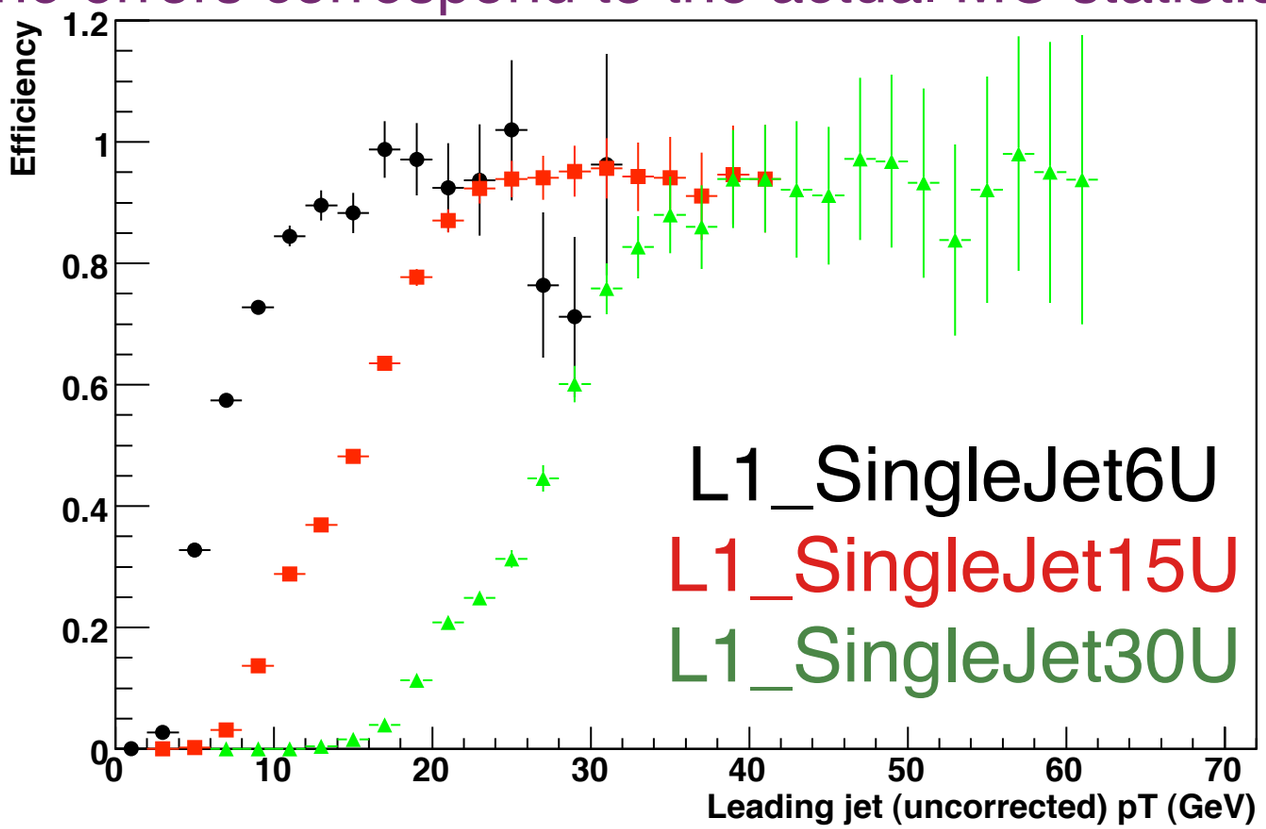
Express Stream

Unorrected jet triggers must be explicitly identified by their name!!!

No addition to the core menu is proposed but uncorrected thresholds should be used.

L1 Efficiency

(the errors correspond to the actual MC statistics)



1E31 Menu

Uncorrected thresholds

L1 Condition	HLT Name	Prescale L1 x HLT	Rate (Hz)
L1_SingleJet6U	HLT_L1Jet6U	500 x 20	5.7
L1_SingleJet6U	HLT_Jet15U	500 x 5	1.5
L1_SingleJet15U	HLT_Jet30U	50 x 1	2.0
L1_SingleJet30U	HLT_Jet50U	5 x 2	4.6
L1_SingleJet40U	HLT_Jet80U	1 x 1	10
L1_SingleJet40U	HLT_Jet130U	1 x 1	1.0

All rates were calculated using the OpenHLT framework.
In the current L1 emulation, thresholds are corrected.

Added!!!

→ Express Stream

Unorrected jet triggers must be explicitly identified by their name!!!

Corrected thresholds

L1 Condition	HLT Name	Prescale L1 x HLT	Rate (Hz)
L1_SingleJet15	HLT_L1Jet15	500 x 20	5.7
L1_SingleJet15	HLT_Jet30	500 x 5	2.0
L1_SingleJet30	HLT_Jet50	50 x 1	8.5
L1_SingleJet50	HLT_Jet80	5 x 2	4.6
L1_SingleJet70	HLT_Jet110	1 x 1	11
L1_SingleJet70	HLT_Jet180	1 x 1	1.1

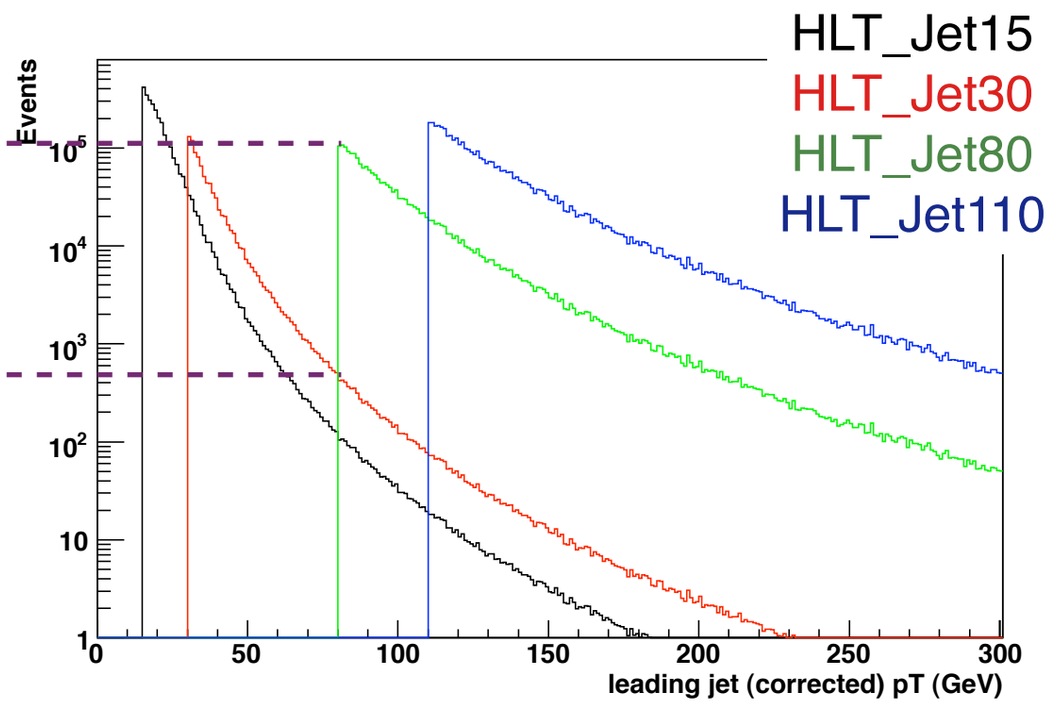
Added!!!

Express Stream

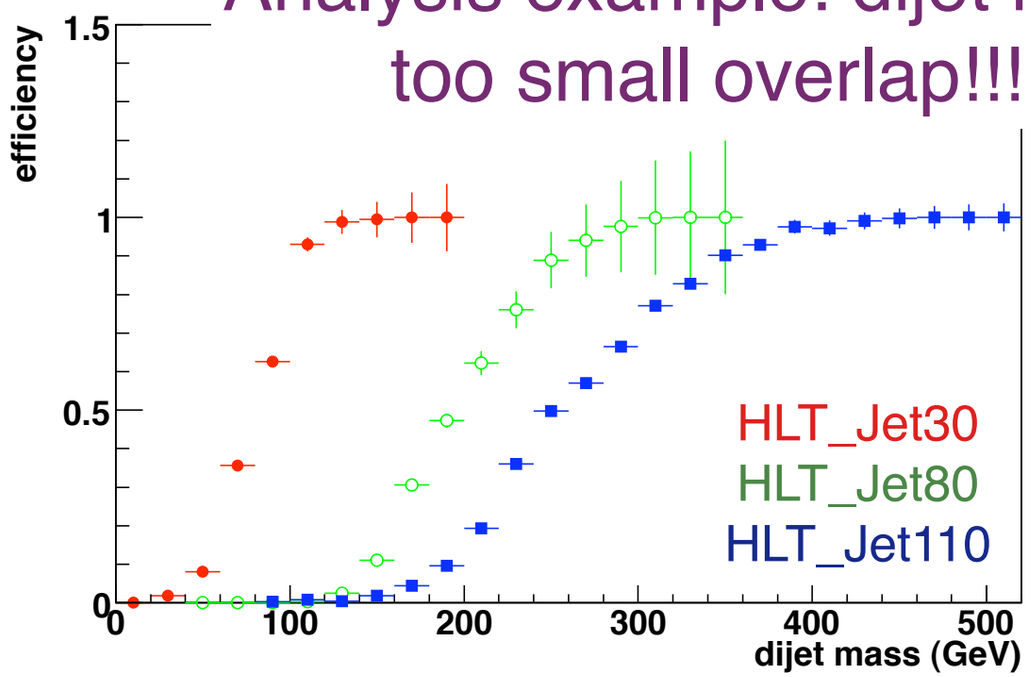
1E31 Menu

(Why do we need to add a threshold?)

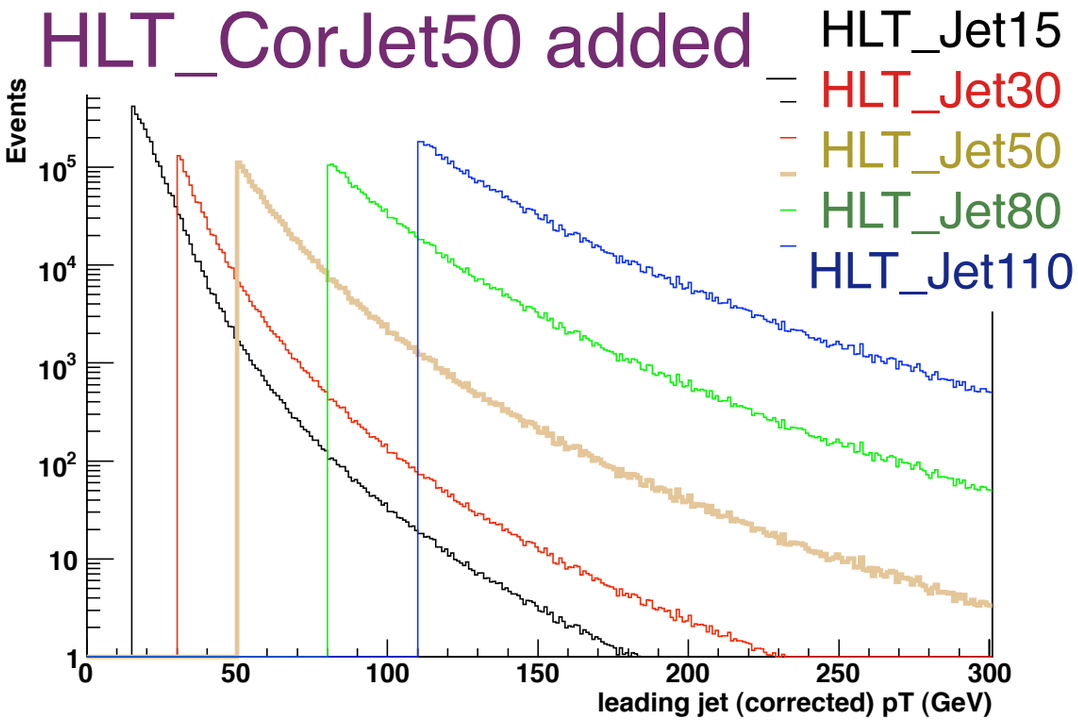
gap > 100



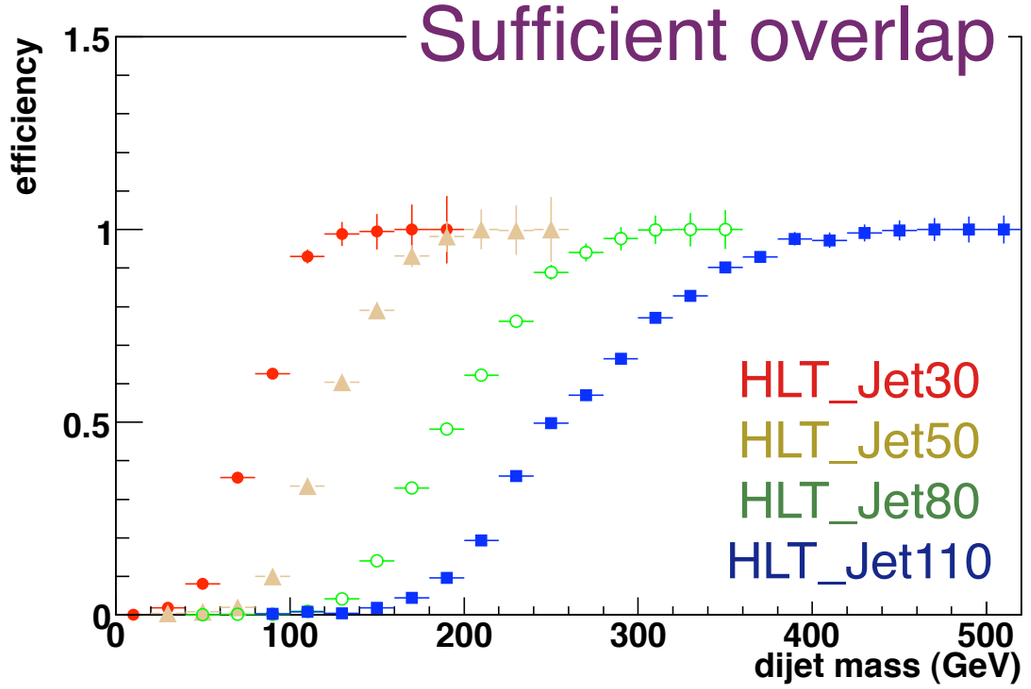
Analysis example: dijet mass too small overlap!!!



HLT_CorJet50 added

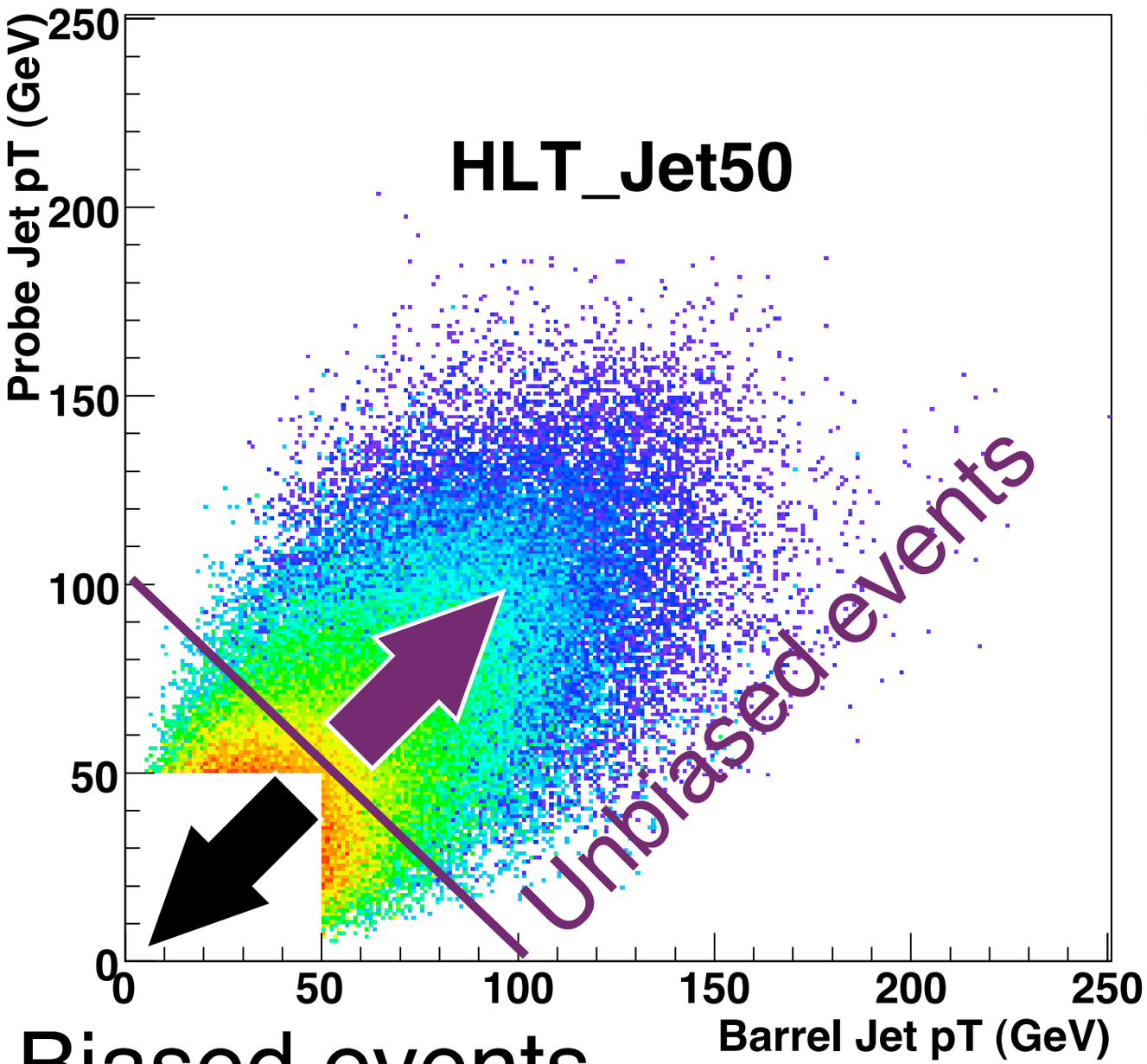


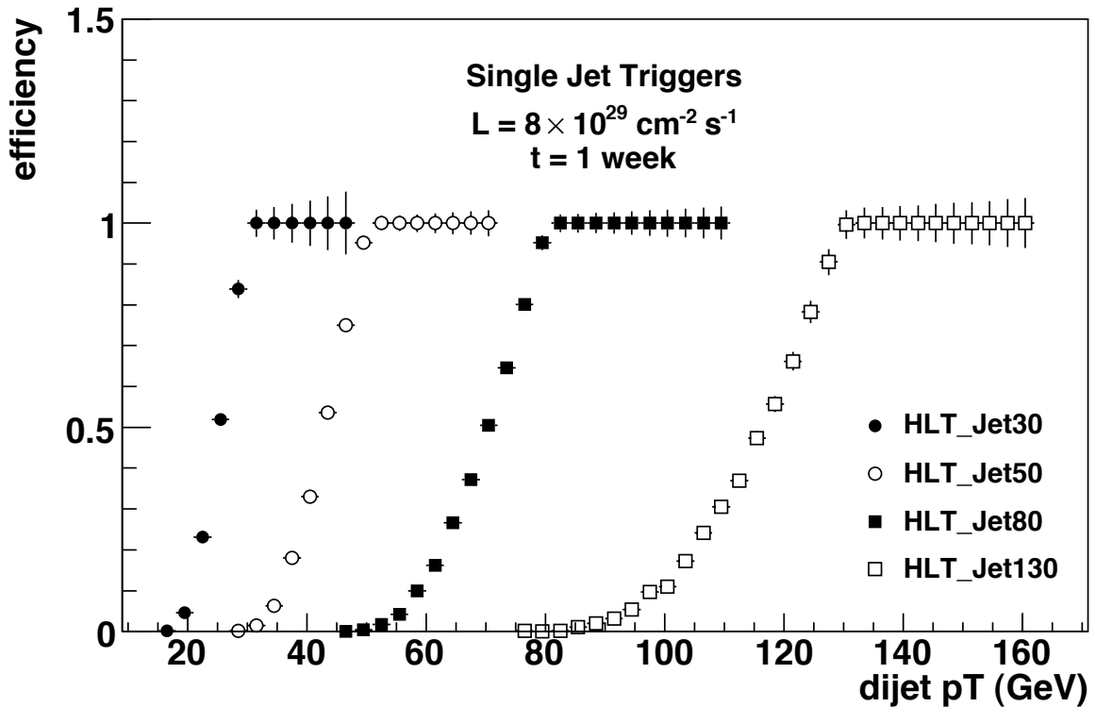
Sufficient overlap



DiJetAve Triggers

Why are the Single Jet Triggers unsuitable for Dijet Balance?

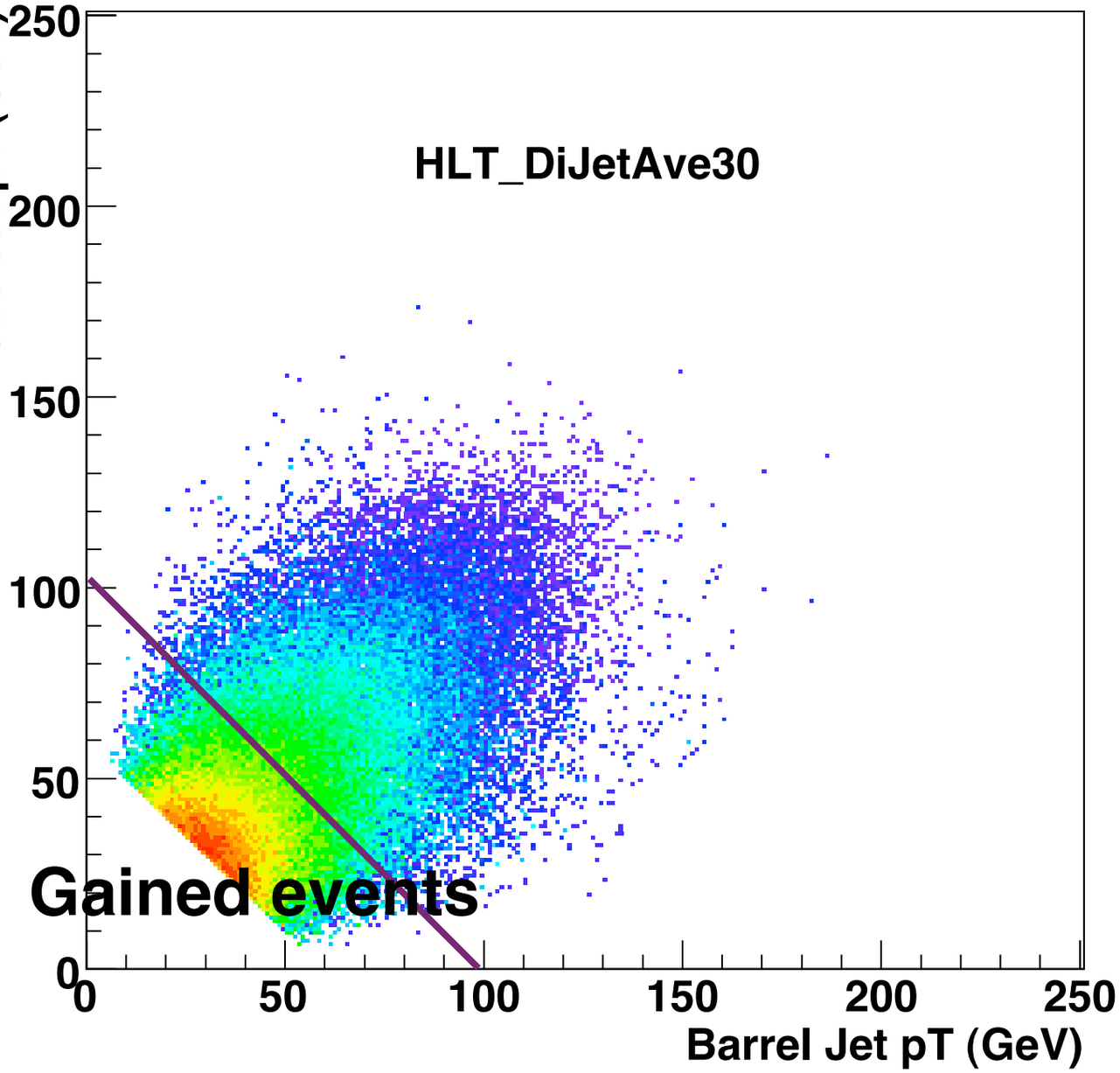




The single jet triggers (corrected or uncorrected jet pT) have a slow turn on as a function dijet pT because they favour the high fluctuations of the leading jet's response.

They are unsuitable for early data taking.

DiJetAve Triggers

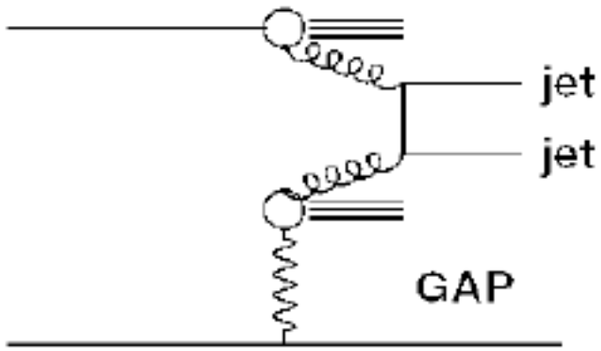


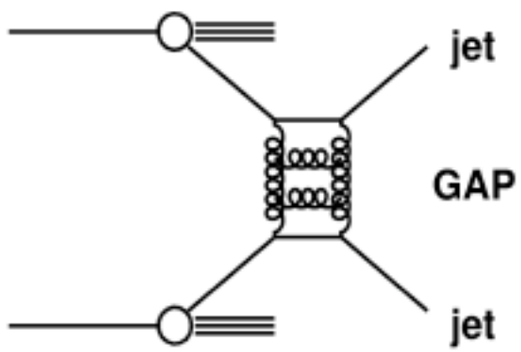
1) The DiJetAve Triggers require the average pT of the two leading jets to be above some threshold.
2) The DiJetAve Triggers (always uncorrected jet pT) share the same L1 bits with the single jet triggers.
3) They are designed to maximize the number of unbiased events for dijet balance.
4) They are ideal for early data taking.
5) The FWD PAG will use the DiJetAve30 Trigger for specific physics analyses (jet-gap-jet and diffractive dijets).
6) The QCD PAG is studying the possibility of using the DiJetAve Triggers for dijet analyses.

DiJetAve Trigger for FWD

Jet triggers in FWD PAG for L=8*10^{29} and 10^{31}

JETMET triggers are used in diffractive dijet and jet-gap-jet analyses





Low luminosity data are important for diffractive analyses because of small pile-up (pile-up can destroy rapidity gap).

For diffractive dijet analysis low E_T jet triggers are very important (at high E_T the extraction of diffraction becomes problematic, FWD-08-002).

- We are happy with 8*10^{29} menu.
- Would like to add HLT_DiJetAve30 in 10^{31} menu (would get ~10^3 diffractive dijet events per 1 pb^{-1}, increasing statistics by factor 10).

8E29 & 1E31 Menus

Uncorrected DiJetAve Thresholds

L1 Condition	HLT Name	Prescale L1 x HLT	Rate (Hz)
L1_SingleJet6U	HLT_DiJetAve15	25 x 1	8.8
L1_SingleJet15U	HLT_DiJetAve30	1 x 1	15

8E29

Added!!!

L1 Condition	HLT Name	Prescale L1 x HLT	Rate (Hz)
L1_SingleJet6U	HLT_DiJetAve15	500 x 1	5.3
L1_SingleJet15U	HLT_DiJetAve30	50 x 1	3.5
L1_SingleJet30U	HLT_DiJetAve50	5 x 1	5.7
L1_SingleJet40U	HLT_DiJetAve70	1 x 1	7.5
L1_SingleJet40U	HLT_DiJetAve130	1 x 1	0.5

1E31

Added!!!

All rates were calculated using the OpenHLT framework.
In the current L1 emulation, thresholds are corrected.

L1 Condition	HLT Name	Prescale L1 x HLT	Rate (Hz)
L1_SingleJet15	HLT_DiJetAve15	500 x 1	5.3
L1_SingleJet30	HLT_DiJetAve30	50 x 1	3.5
L1_SingleJet50	HLT_DiJetAve50	5 x 1	5.7
L1_SingleJet70	HLT_DiJetAve70	1 x 1	7.5
L1_SingleJet70	HLT_DiJetAve130	1 x 1	0.5

Added!!!

Trigger Overlaps

8E29

Rates in Hz

HLT_DiJetAve30	0.04	0.64	2.4	3.3	0.64	15
HLT_DiJetAve15	0.8	6.8	0.16	0.14	8.8	0.6
HLT_Jet50U	0.01	0.14	0.61	3.3	0.14	3.3
HLT_Jet30U		0.16	4.3	0.6	0.16	2.4
HLT_Jet15U	1.0	10	0.16	0.14	6.8	0.6
HLT_L1Jet6U	18	1.0		0.01	0.8	0.04
	HLT_L1Jet6U	**HLT_Jet15U**	**HLT_Jet30U**	**HLT_Jet50U**	**HLT_DiJetAve15**	**HLT_DiJetAve30**

The overlap observed between single jet and DiJetAve Triggers occurs mainly for events unusable for dijet balance analysis (see slide 18 on biased events).

Trigger Overlaps

1E31 (Uncorrected jets)

Rates in Hz

HLT_DiJetAve130					0.54	0.54				0.54	0.54
HLT_DiJetAve70			0.08	0.62	6.6	1.0		0.15	1.5	7.5	0.54
HLT_DiJetAve50				2.9	2.2	0.15		0.08	5.7	1.5	
HLT_DiJetAve30			1.0	0.15	0.15			3.5	0.08	0.15	
HLT_DiJetAve15	0.08	1.1					5.3				
HLT_Jet130U					1.0	1.0			0.15	1.0	0.54
HLT_Jet80U			0.08	1.1	10.0	1.0		0.15	2.2	6.6	0.54
HLT_Jet50U				4.6	1.1			0.15	2.9	0.62	
HLT_Jet30U			2.0		0.08			1.0		0.08	
HLT_Jet15U		1.5					1.1				
HLT_L1Jet6U	5.7						0.08				
	HLT_L1 Jet6U	**HLT_Jet 15U**	**HLT_Jet30 U**	**HLT_Jet50 U**	**HLT_Jet80 U**	**HLT_Jet130U**	**HLT_ DiJet Ave15**	**HLT_Di JetAve 30**	**HLT_DiJet Ave50**	**HLT_DiJet Ave70**	**HLT_DiJet Ave130**

The overlap observed between single jet and DiJetAve Triggers occurs mainly for events unusable for dijet balance analysis (see slide 18 on biased events).

Trigger Overlaps

1E31 (Corrected jets)

Rates in Hz

HLT_DiJetAve130					0.54	0.54				0.54	0.54
HLT_DiJetAve70			0.15	0.62	6.6	1.1		0.15	1.5	7.5	0.54
HLT_DiJetAve50			0.08	2.6	1.9	0.15		0.08	5.7	1.5	
HLT_DiJetAve30			3.0		0.15			3.5	0.08	0.15	
HLT_DiJetAve15	0.08	1.2					5.3				
HLT_Jet180					1.1	1.1			0.15	1.1	0.54
HLT_Jet110			0.15	1.1	11	1.1		0.15	1.9	6.6	0.54
HLT_Jet80				4.6	1.1				2.6	0.62	
HLT_Jet50			8.5		0.15			3.0	0.08	0.15	
HLT_Jet30		2.0					1.2				
HLT_L1Jet15	5.7						0.08				
	HLT_L1 Jet15	**HLT_Jet 30**	**HLT_Jet50**	**HLT_Jet80**	**HLT_Jet110**	**HLT_Jet180**	**HLT_ DiJet Ave15**	**HLT_ DiJet Ave30**	**HLT_DiJet Ave50**	**HLT_DiJet Ave70**	**HLT_DiJet Ave130**

The overlap observed between single jet and DiJetAve Triggers occurs mainly for events unusable for dijet balance analysis (see slide 18 on biased events).

MET Triggers

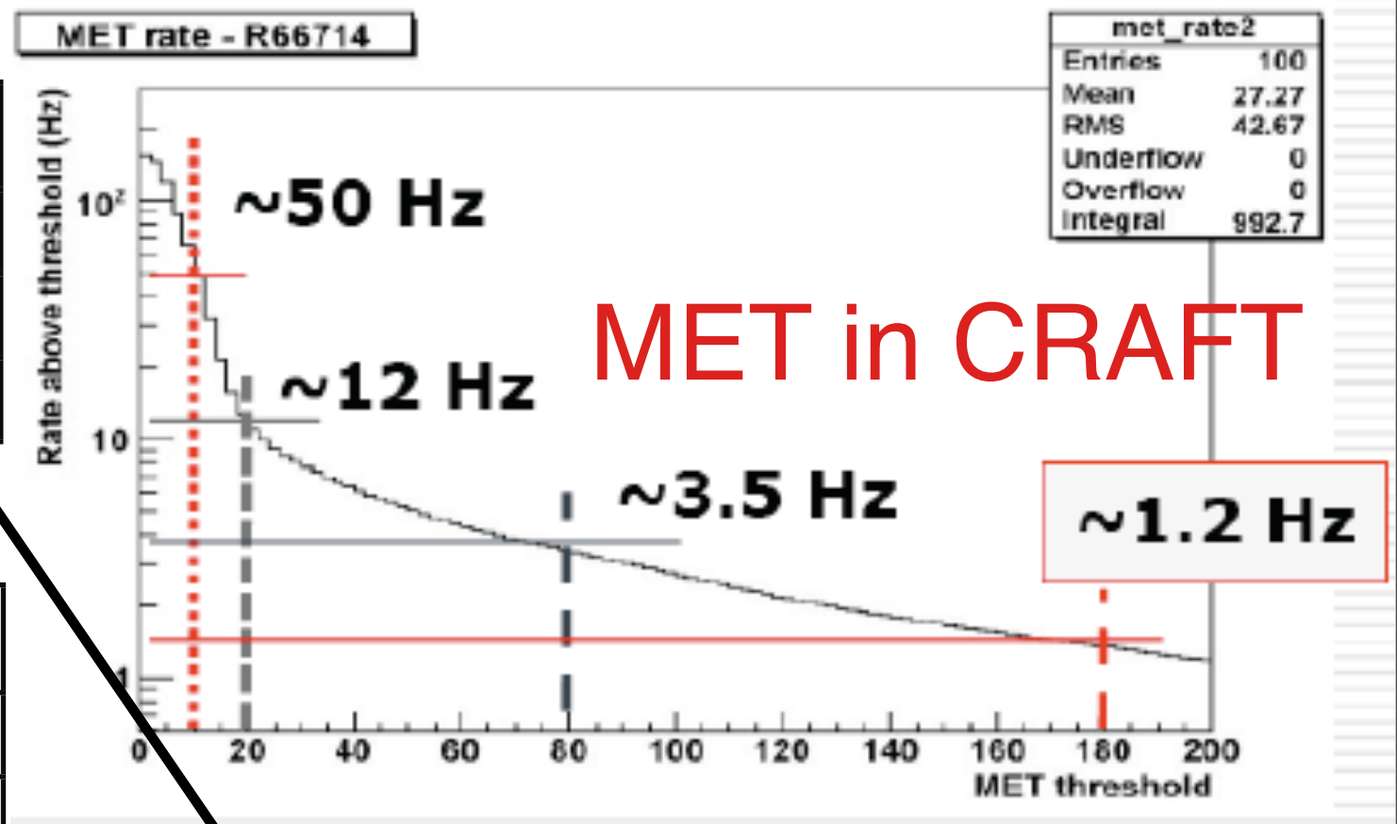
MET Trigger Proposal

8E29

HLT Name	L1 Condition	Prescale L1 x HLT	Rate (Hz)
HLT_L1MET20	L1_ETM20	50 x 1	7.2
HLT_MET35	L1_ETM30	1 x 1	2.6
HLT_MET100	L1_ETM80	1 x 1	-

1E31

HLT Name	L1 Condition	Prescale L1 x HLT	Rate (Hz)
HLT_L1MET20	L1_ETM20	200 x 5	4.5
HLT_MET25	L1_ETM20	200 x 1	1.9
HLT_MET50	L1_ETM40	1 x 1	2.6
HLT_MET65	L1_ETM50	1 x 1	0.2
HLT_MET100	L1_ETM80	1 x 1	-



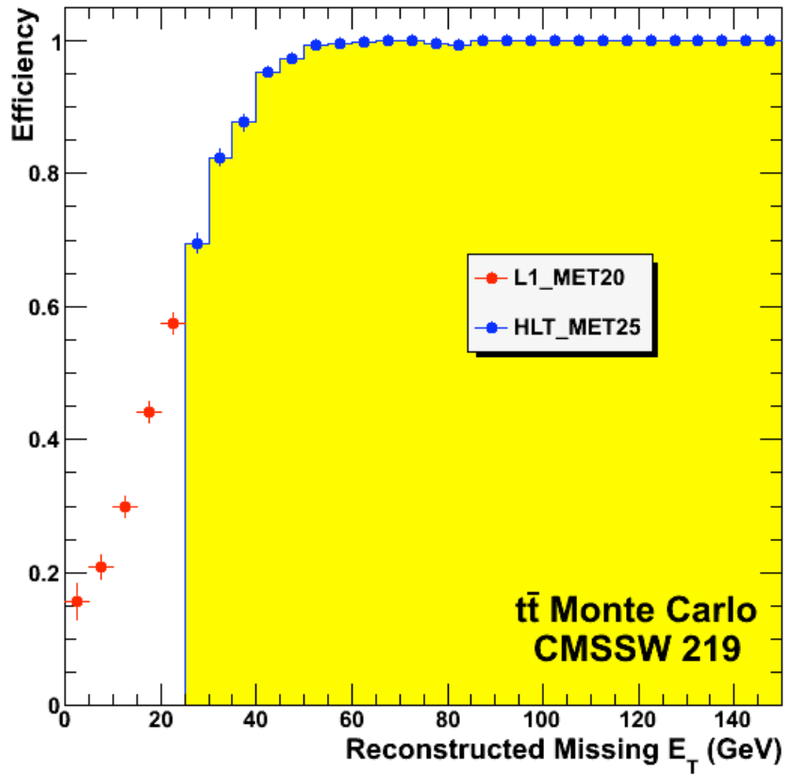
Express Stream

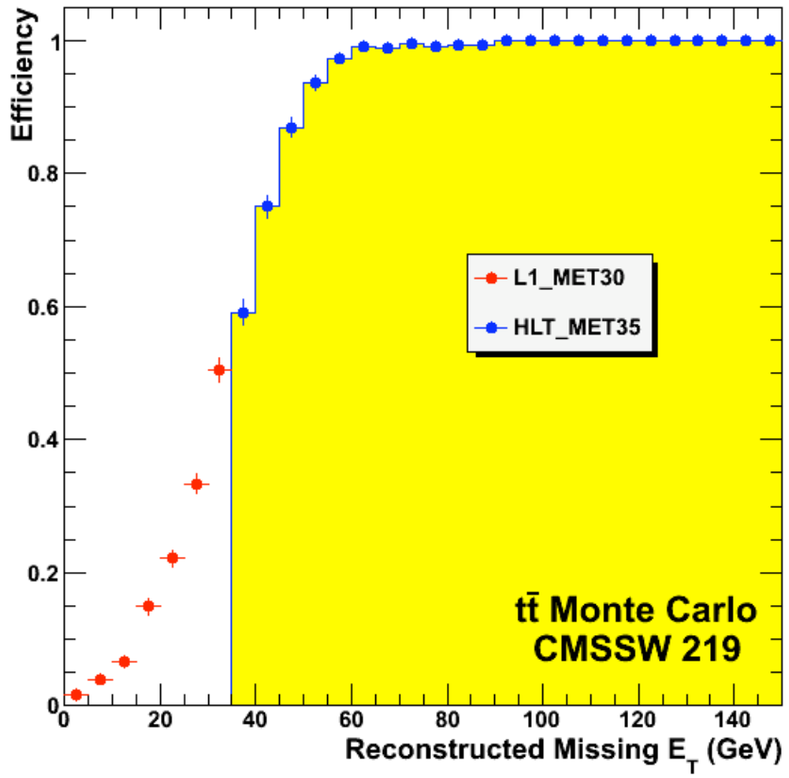
Added!!!

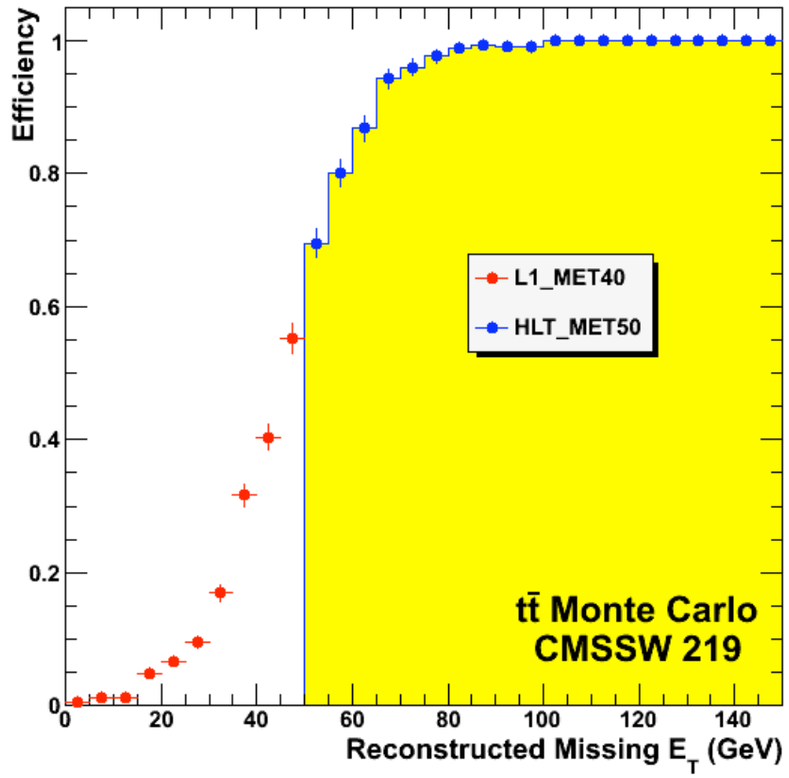
1) The core menus are adequate but a (much) higher, unprescaled threshold is required for safety, in case of ill-behaving detector (e.g hot channel) leading in large MET.
2) No need to include muon corrections in MET.
3) A similar suite of MHT Triggers is desirable.

MET Trigger Proposal

(HLT vs L1 efficiency in sample with real MET)







A first look at the MET turn-on curves may suggest that the HLT thresholds may need to be moved relative to L1 ones. This requires further investigation by the TSG and Jet/MET groups.

Status of JetMET HLT DQM & Trigger responsibilities

1) The software for monitoring basic distributions (pT, η, ϕ) online/offline is in place
   DQM/HLTEvF/plugins/
   HLTriggerOffline/JetMET
2) More quantities of interest for monitoring (e.g. efficiency plots) will be available shortly.
3) HLTDebug products: currently using L1 seed and final HLT objects.
4) The efficiency of the lowest threshold Jet/MET Trigger is measured with respect to the L1 “pass-through” trigger. For higher threshold Triggers, the efficiency is measured utilizing the next lowest threshold.
5) Due to the limited bandwidth, online monitoring includes only the lowest “full” HLT paths.

Task	Responsible
Single Jet Triggers	UIC
DiJetAve Triggers	FNAL
MET Triggers	Gheorghe Lungu
HLT DQM	Uli Heinz , Shabnam Jabeen

Four jet Trigger

Four-jet trigger motivation

The four-jet trigger is needed to collect efficiently a four-jet sample used to
a)monitor, validate and measure lepton trigger efficiencies in top-like (lepton+jets) topologies (see figure below)
b) collect a control sample for QCD background estimate (eg top semi-lept. x-sect. analysis)

Online

Four-jet (Et-jet >30 GeV) Trigger

Collect four-jet sample

Offline
Data driven prompt validation and measurement of Lepton Trigger efficiency on top-like events

Apply offline requirements to select topology of interest

Select a top-like (Lepton+ ≥4 Jets) event sample

Apply lepton trigger requirements

Select top-like (lepton+ ≥4 Jets) events.AND.single lepton trigger fired to evaluate lepton trigger efficiency for the selected top-like sample

Make "current" distributions and compare to "reference" distributions

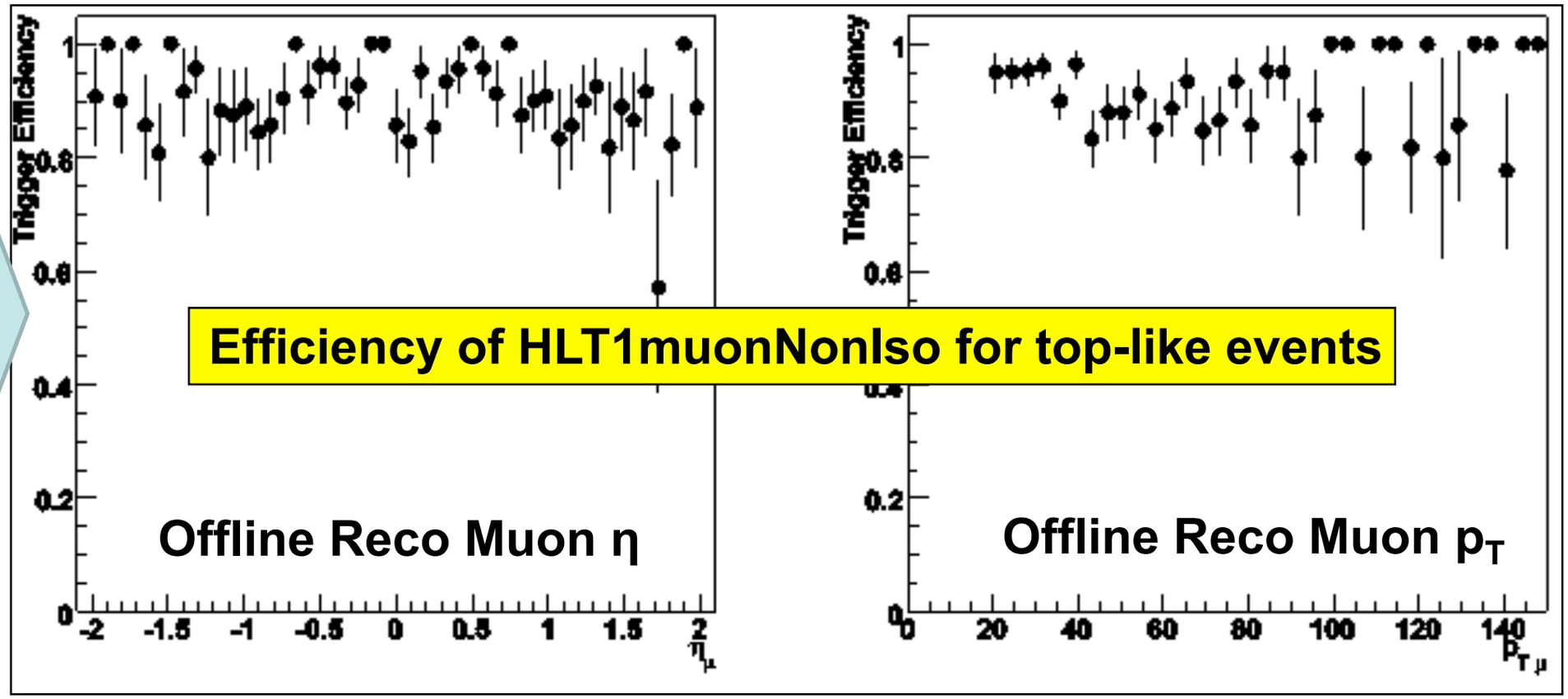
p_T, η, φ distributions of offline reconstructed lepton matching the triggering lepton; single lepton efficiency distribution as function of offline reconstructed lepton p_T, η, φ

Data-driven measurement of single-lepton trigger efficiency for top-like (e.g muon+4 jets) events

top-like events =offline selected muon+≥4 jets events out of 4jet triggered events

$$\text{Measured single-muon trigger efficiency} = \frac{\text{top-like events passing single-muon trigger requirement}}{\text{top-like events}}$$

single-muon trigger efficiency distributions as a function of offline reconstructed muon p_T, η



Efficiency of HLT1muonNonIso for top-like events

Work by J. Cuevas, M.Felcini, S. Goy and P. Lobelle (Note in preparation)

Four-jet trigger: responsible people and monitoring

Responsible institution/people: UCD/Ghent Univ. (M. Felcini, M. Gruenewald)

DQM: the four-jet trigger efficiency is monitored with respect to the single jet trigger having the same jet energy threshold.

4-jet Trigger proposal:

Menu	HLT Name	L1 Condition	Prescale L1 x HLT	Rate (Hz)
8E29	HLT_QuadJet15U	L1_QuadJet6U	1 x 1	0.7
1E31 (Uncorrected)	HLT_QuadJet15U	L1_QuadJet6U	20 x 1	0.6
1E31 (Corrected)	HLT_QuadJet30	L1_QuadJet15	20 x 1	1.2

Other Jet & MET Trigger Proposals

(To be reviewed by interested parties)

Specific Trigger proposals requested by PAGs, which are important for their analyses.

HLT Name	L1 Condition	PAG
HLT_SumETx	L1_ETTx	EXO
HLT_HTx	L1_HTTy	SUSY/EXO
HLT_MHTx_HTy	L1_HTTz	SUSY/EXO
HLT_DoubleJetX	L1_SingleJetY OR L1_DoubleJetZ	SUSY
HLT_FwdJet20	L1_IsoEG10_Jet15_ForJet10	FWD

Presentations on these triggers will follow !!!

Experience using OpenHLT

1) Greatly improved since I last tried to use it 6 months ago. Congratulations to the authors.
2) Excellent responsive behaviour from the experts. Zero latency in answering questions effectively.
3) Excellent structure for calculating Primary Datasets' rates and overlaps.
4) Good documentation.

BUT

1) The code should be further factorized (the main program is O(1000) lines long).
2) More efficient way needed to determine the sample files to be analysed (currently they are hardcoded).
3) The MinBias sample, currently used for QCD rates' calculation, is not very efficient for higher pT thresholds.
4) Generally, somebody needs to become partially an expert to run OpenHLT.
5) Multiple discrepancies and inconsistencies of the OpenHLT code and the samples produced by TSG for rate/efficiency calculations, make the rate estimates unsafe.

PRIMARY DATASETS

Ideally we would like to have one PD per Single Jet Trigger
but
if this cannot happen, we request
one secondary dataset per Single Jet Trigger created centrally
immediately afterwards.

8E29 Menu

Uncorrected Jet Thresholds

Jets15 (32.3 Hz)	Jets30_Bjets (19.7 Hz)	Met (11.1 Hz)
HLT_L1Jet15	HLT_Jet50	HLT_L1MET20
HLT_Jet30	HLT_Jet80	HLT_MET35
	HLT_DiJetAve30	HLT_FwdJet20

Core Lean Menu

JetsLow (18.2 Hz)	JetsMedium (12.2 Hz)	JetsHigh (16.6 Hz)	Met (11.1 Hz)
HLT_L1Jet6U	HLT_Jet15U	HLT_Jet30U	HLT_L1MET20
	HLT_DiJetAve15	HLT_Jet50U	HLT_MET35
	HLT_QuadJet15U	HLT_DiJetAve30	HLT_MET100
			HLT_FwdJet20

The proposed HT Triggers should have their own PD or be part of a SMALL PD

Proposal

	JetsLow	JetsMedium	JetsHigh
JetsLow	18.2	1.15	0.04
JetsMedium	1.15	12.2	0.69
JetsHigh	0.04	0.69	16.6

1E31 Menu

Uncorrected Jet Thresholds

Core Lean Menu

Jets15_DiJet15 (12.0 Hz)	Jets80_DiJet50_MultiJet (17.5 Hz)	Met (14.2 Hz)
HLT_L1Jet15	HLT_Jet80	HLT_L1MET20
HLT_Jet30	HLT_Jet110	HLT_MET25
HLT_DiJetAve15	HLT_Jet180	HLT_MET50
	HLT_DiJetAve50	HLT_MET65
	HLT_DiJetAve70	HLT_FwdJet20
	HLT_DiJetAve130	HLT_SumET120
	HLT_QuadJet30	HLT_BTagMu_Jet20_Calib

The proposed HT Triggers should have their own PD or be part of a SMALL PD

Proposal

	JetsLow	JetsMedium	JetsHigh
JetsLow		3.0	11.5
JetsMedium		12.2	3.0
JetsHigh	11.3		

JetsLow (11 Hz)	JetsMedium (12 Hz)	JetsHigh (12 Hz)	Met (14.2 Hz)
HLT_L1Jet6U	HLT_Jet30U	HLT_Jet80U	HLT_L1MET20
HLT_Jet15U	HLT_Jet50U	HLT_Jet130U	HLT_MET25
HLT_DiJetAve15	HLT_DiJetAve30	HLT_DiJetAve70	HLT_MET50
HLT_QuadJet15U	HLT_DiJetAve50	HLT_DiJetAve130	HLT_MET65
			HLT_MET100
			HLT_FwdJet20
			HLT_SumET120
			HLT_BTagMu_Jet20_Calib

1E31 Menu

Corrected Jet Thresholds

Core Lean Menu

Jets15_DiJet15 (12.0 Hz)	Jets80_DiJet50_MultiJet (17.5 Hz)	Met (14.2 Hz)
HLT_L1Jet15	HLT_Jet80	HLT_L1MET20
HLT_Jet30	HLT_Jet110	HLT_MET25
HLT_DiJetAve15	HLT_Jet180	HLT_MET50
	HLT_DiJetAve50	HLT_MET65
	HLT_DiJetAve70	HLT_FwdJet20
	HLT_DiJetAve130	HLT_SumET120
	HLT_QuadJet30	HLT_BTagMu_Jet20_Calib

The proposed HT Triggers should have their own PD or be part of a SMALL PD

Proposal

	JetsLow	JetsMedium	JetsHigh
JetsLow		2.4	11.5
JetsMedium		16.9	2.5
JetsHigh	11.7		

JetsLow (12 Hz)	JetsMedium (17 Hz)	JetsHigh (12 Hz)	Met (14.2 Hz)
HLT_L1Jet15	HLT_Jet50	HLT_Jet110	HLT_L1MET20
HLT_Jet30	HLT_Jet80	HLT_Jet180	HLT_MET25
HLT_DiJetAve15	HLT_DiJetAve30	HLT_DiJetAve70	HLT_MET50
HLT_QuadJet30	HLT_DiJetAve50	HLT_DiJetAve130	HLT_MET65
			HLT_MET100
			HLT_FwdJet20
			HLT_SumET120
			HLT_BTagMu_Jet20_Calib

Summary & Conclusions

- Jet Energy Corrections should not be used in the Trigger before stable operation conditions have been achieved and the corrections are understood.

- The additions proposed to the core lean menus are limited but extremely important for understanding the Triggers and performing a wide range of Physics analyses.

- The performance of the proposed Triggers has been studied and understanding will improve as soon as consistent samples and official tools (OpenHLT) are available.

- The JetMET HLT DQM is making progress and soon it will be fully integrated. Additions are expected as early as beginning of January.

- Responsible persons/institutions for all Triggers have been identified.

- Although the JetMET & QCD has come up with a conventional Primary Dataset proposal, we believe that the single jet triggers should be separate datasets. This will create some redundancy but will speed up immensely the analysis of the data.

- Trigger bias should be taken into account when analyzing correlations between Triggers. Highly correlated Triggers are sometimes necessary.