Jets in Data II

Jet/MET ID meeting : November 21, 2001

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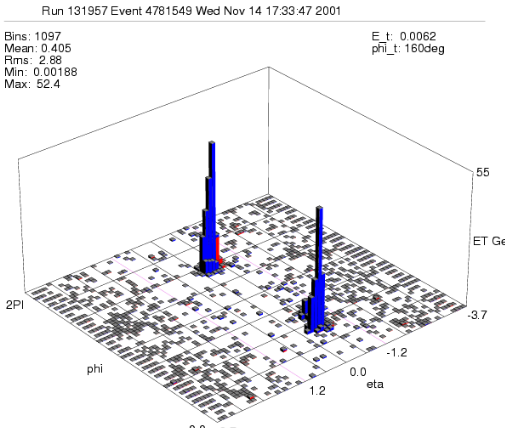
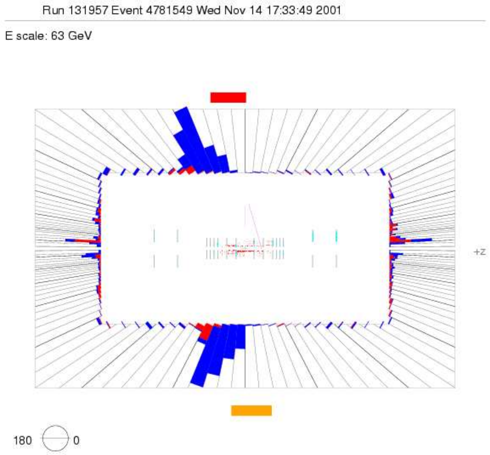
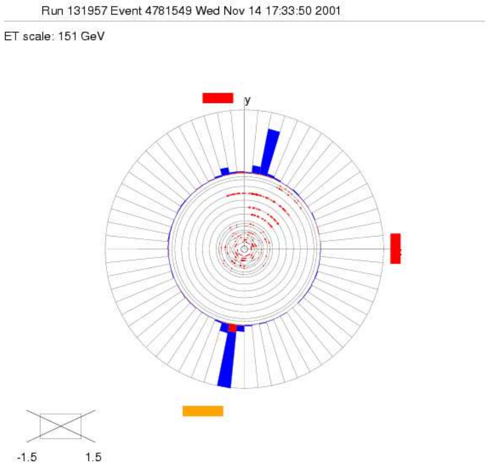
Run 131957, event 4781549

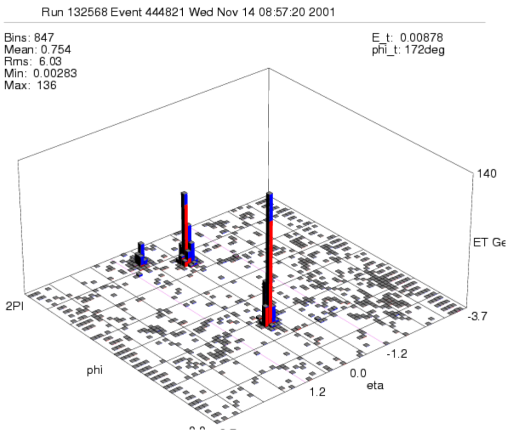


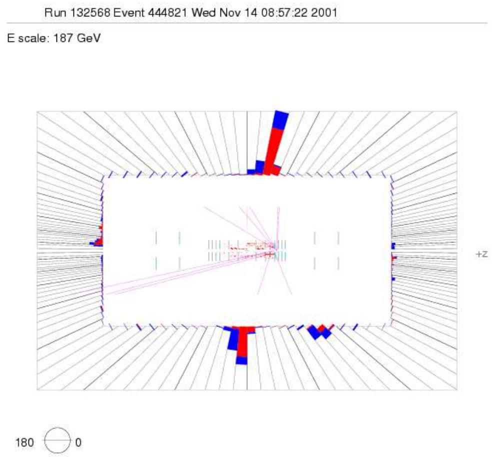


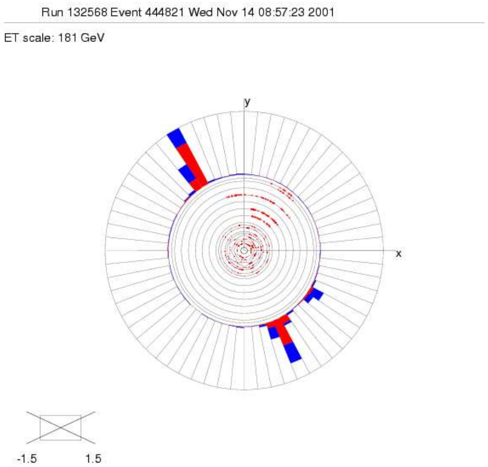


- ▷ $MET = 23\,\mathrm{GeV}$
- ▷ two jet event
  - $p_T^{1jet} = 226\,\mathrm{GeV}$
  - $p_T^{2jet} = 192\,\mathrm{GeV}$

Run 132568, event 444821

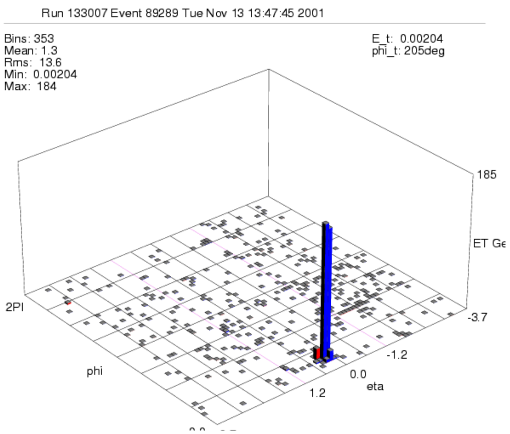


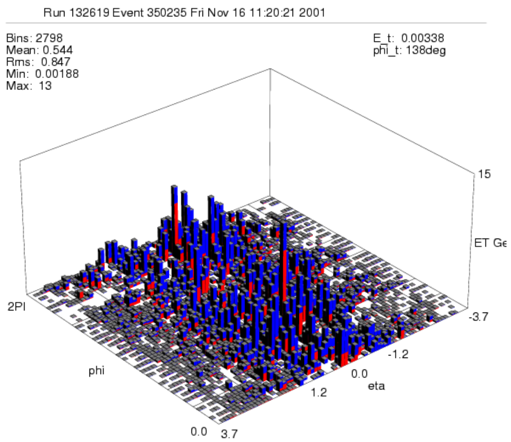


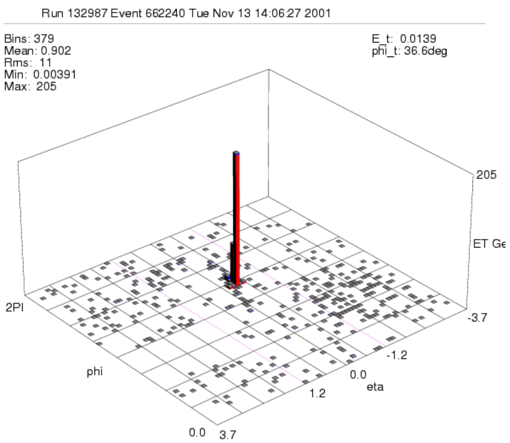


- ▷ $MET = 8\,\mathrm{GeV}$
- ▷ four jet event
  - $p_T^{1jet} = 308\,\mathrm{GeV}$
  - $p_T^{2jet} = 224\,\mathrm{GeV}$
  - $p_T^{3jet} = 107\,\mathrm{GeV}$
  - $p_T^{4jet} = 12\,\mathrm{GeV}$

Not that nice events







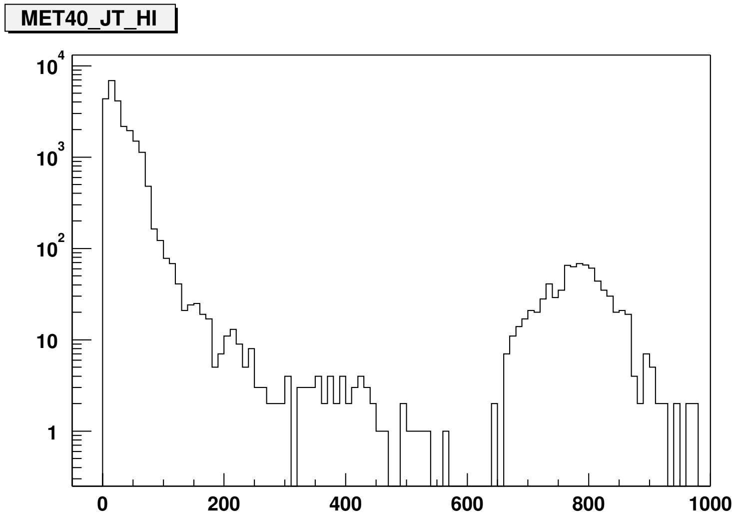
- ▷ *all jets passed jet quality cuts*
- ▷ *event quality criteria are needed*

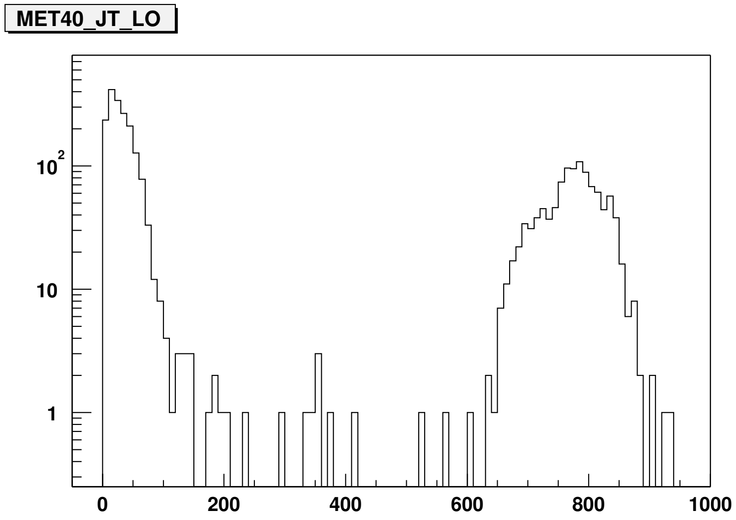
$$MET < 0.7\, p_T^{leading\ jet}$$

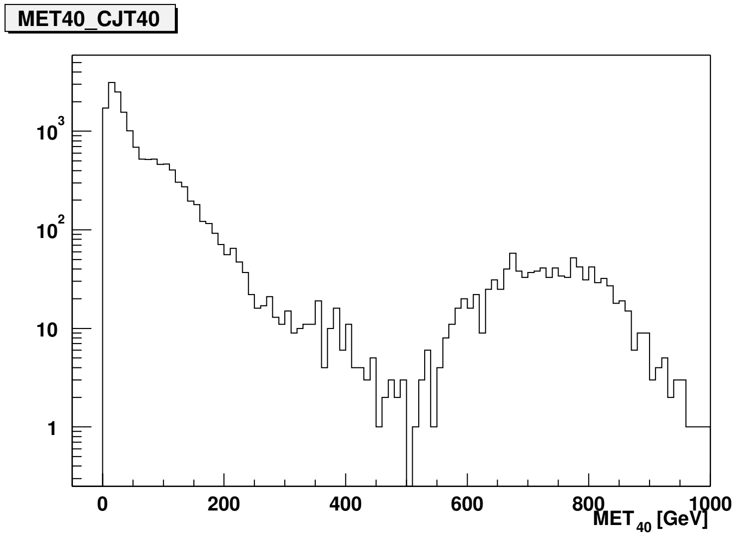
$$E_{100} \equiv \sum_{E_{cell} > 0.1\, GeV} E_{cell} < 2\,\mathrm{TeV}$$

MET distributions

- only runs with all three triggers
- runs before 131263 not used
- only events with p_T of the leading jet grater then 40 GeV
- possible sources
  - missing crates
  - hot regions
- harder to normalize the data

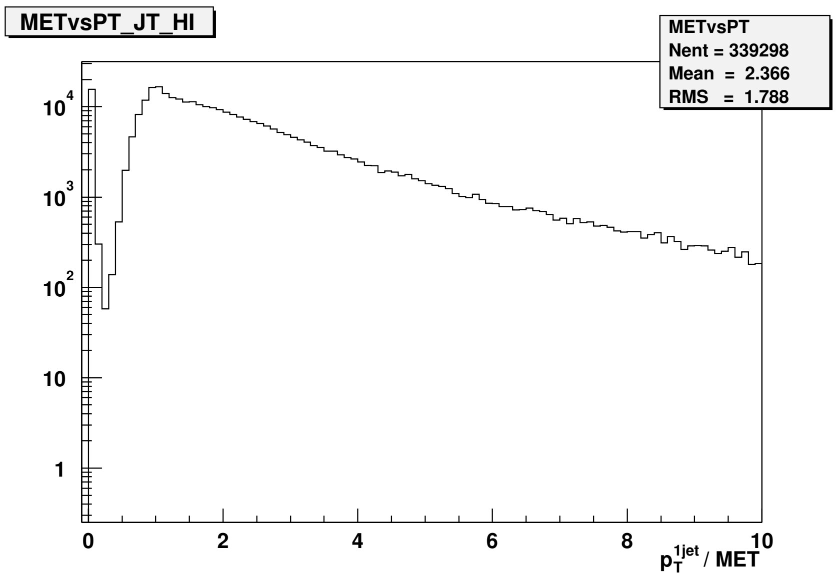


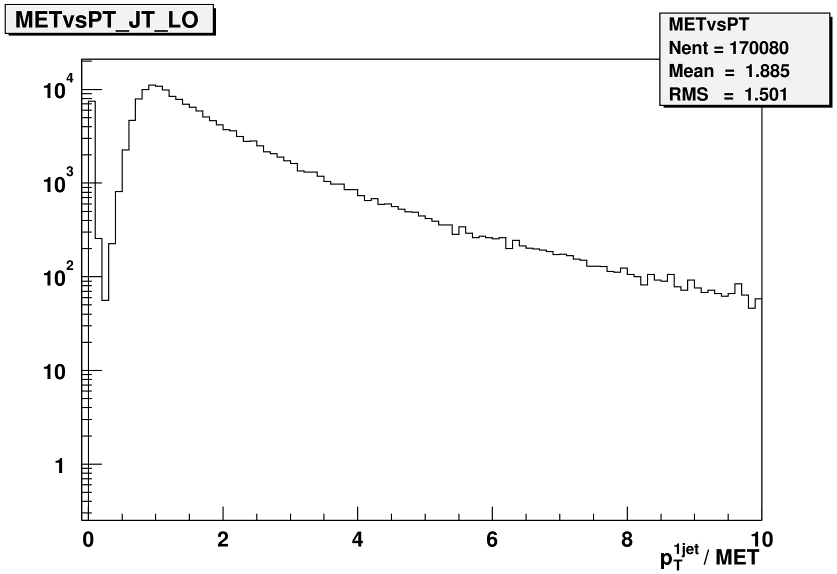


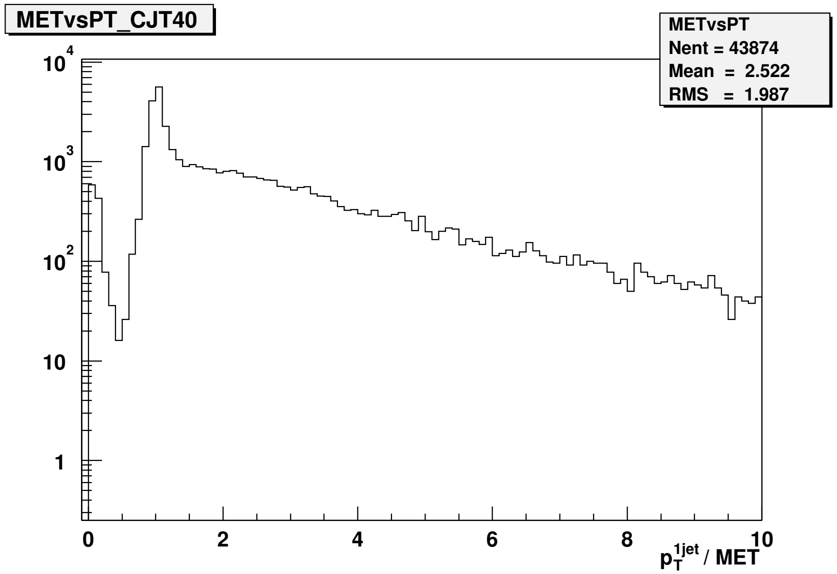


MET cut

$$MET < 0.7\, p_T^{leading\ jet}$$

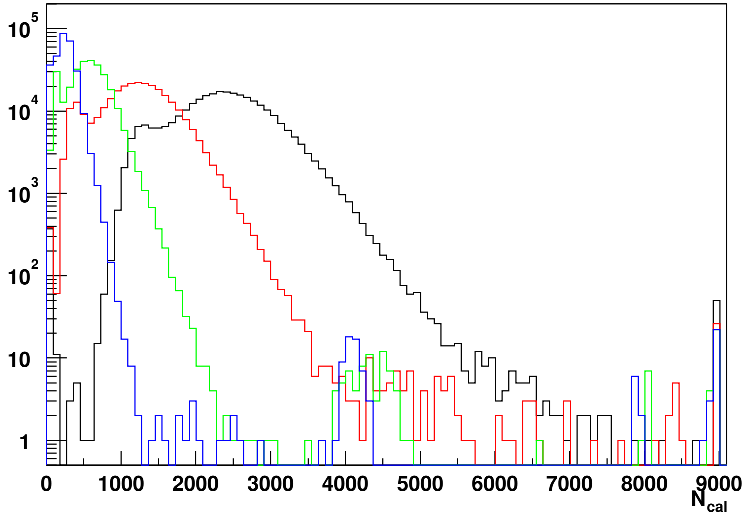


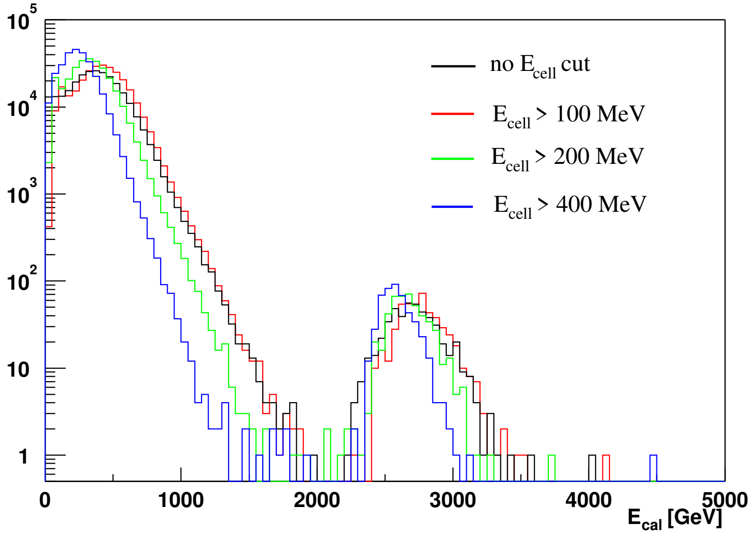


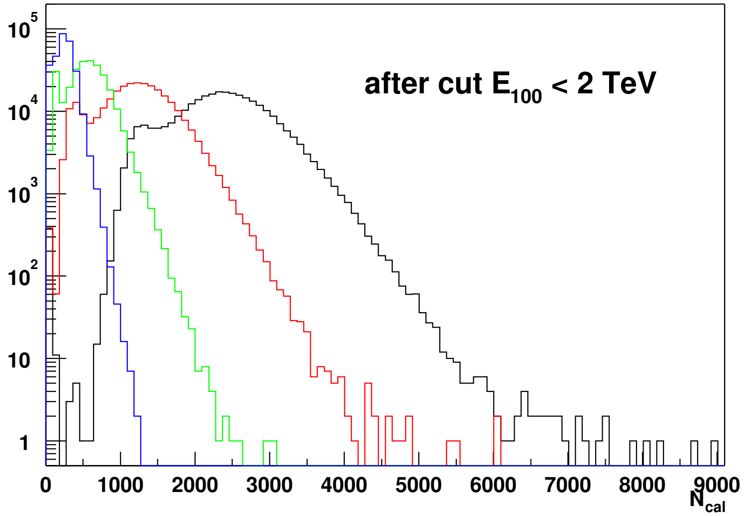


Calorimeter occupancy

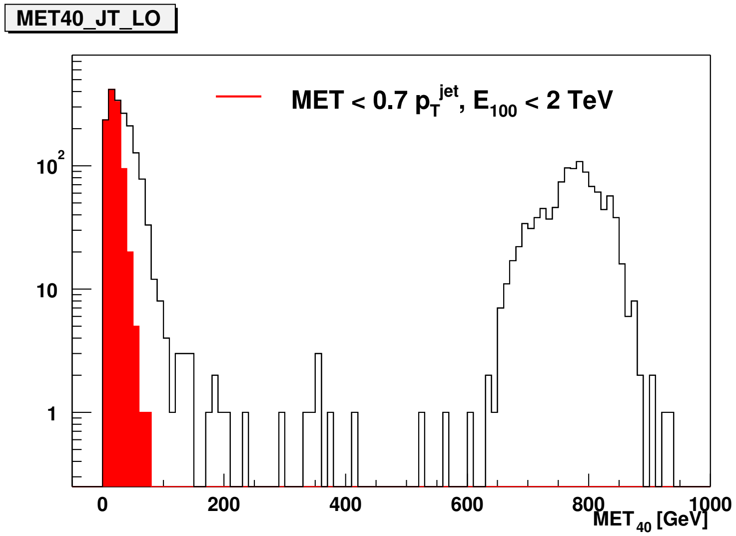
$$E_{100} \equiv \sum_{E_{cell} > 0.1\,GeV} E_{cell} < 2\,\mathrm{TeV}$$

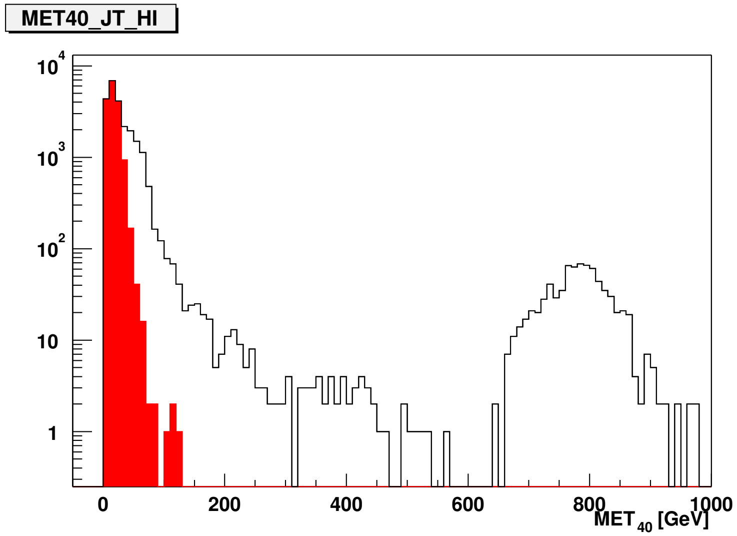


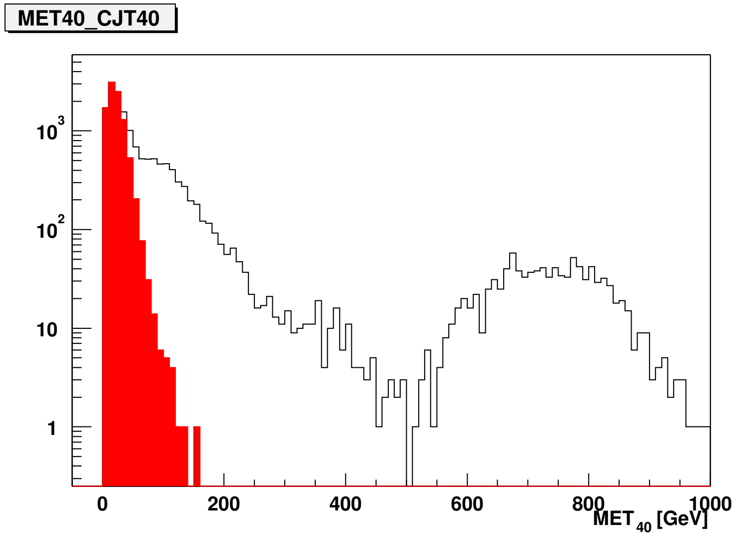




MET after cuts

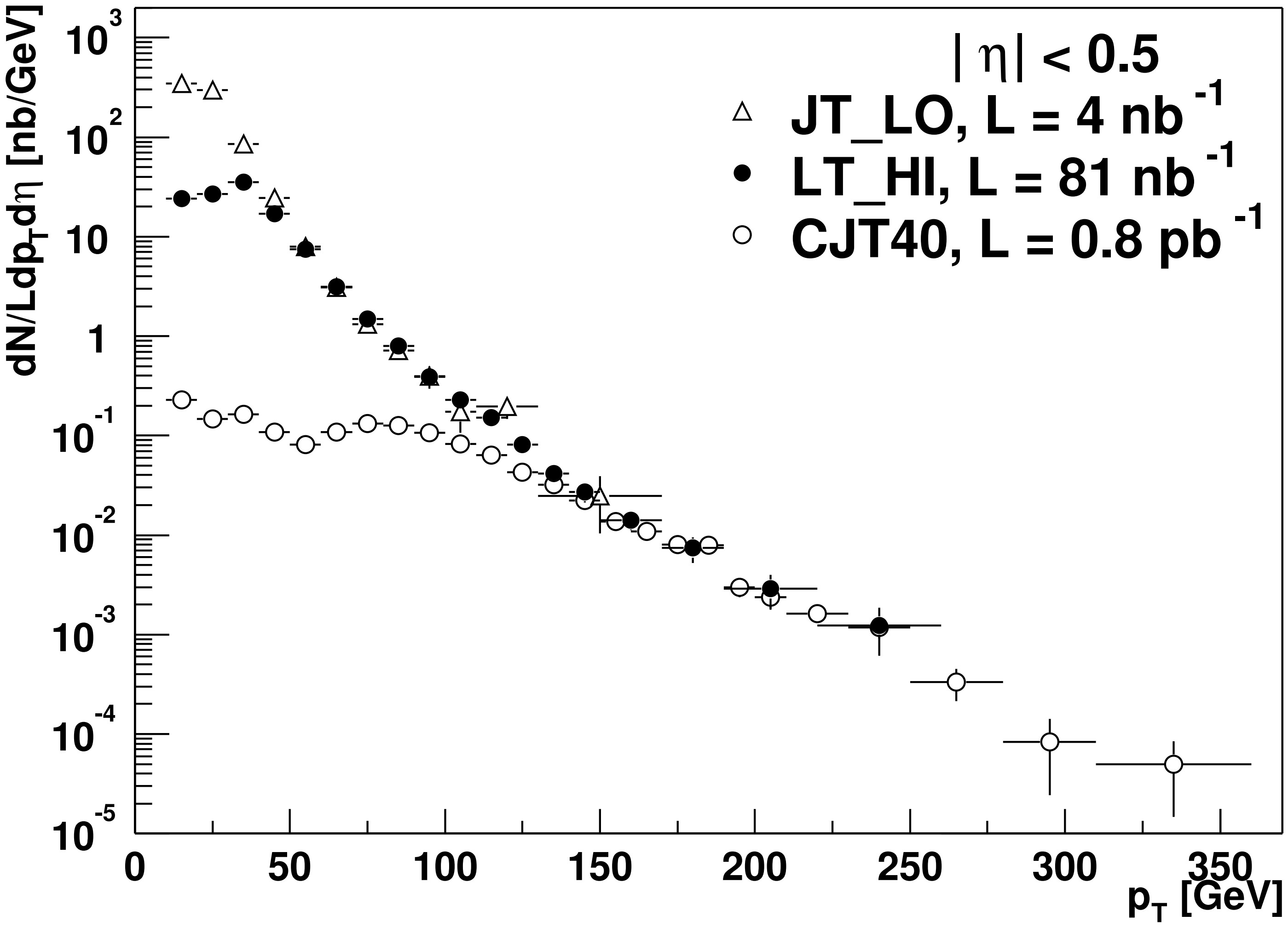






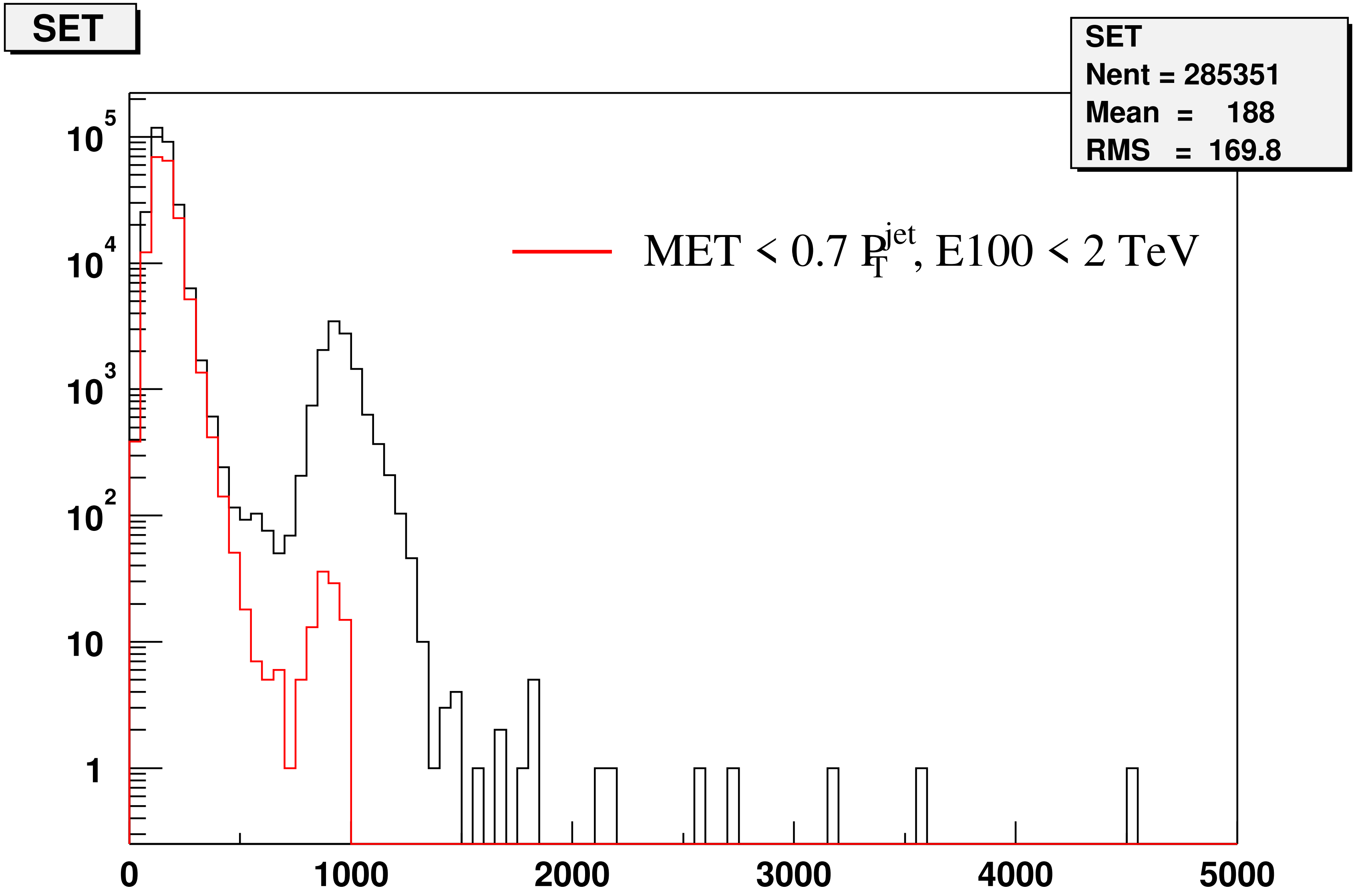
Trigger	$\langle MET_{40} \rangle$	RMS
JT_LO	18 GeV	9 GeV
JT_HI	16 GeV	9 GeV
CJT40	22 GeV	14 GeV

Jet Rates



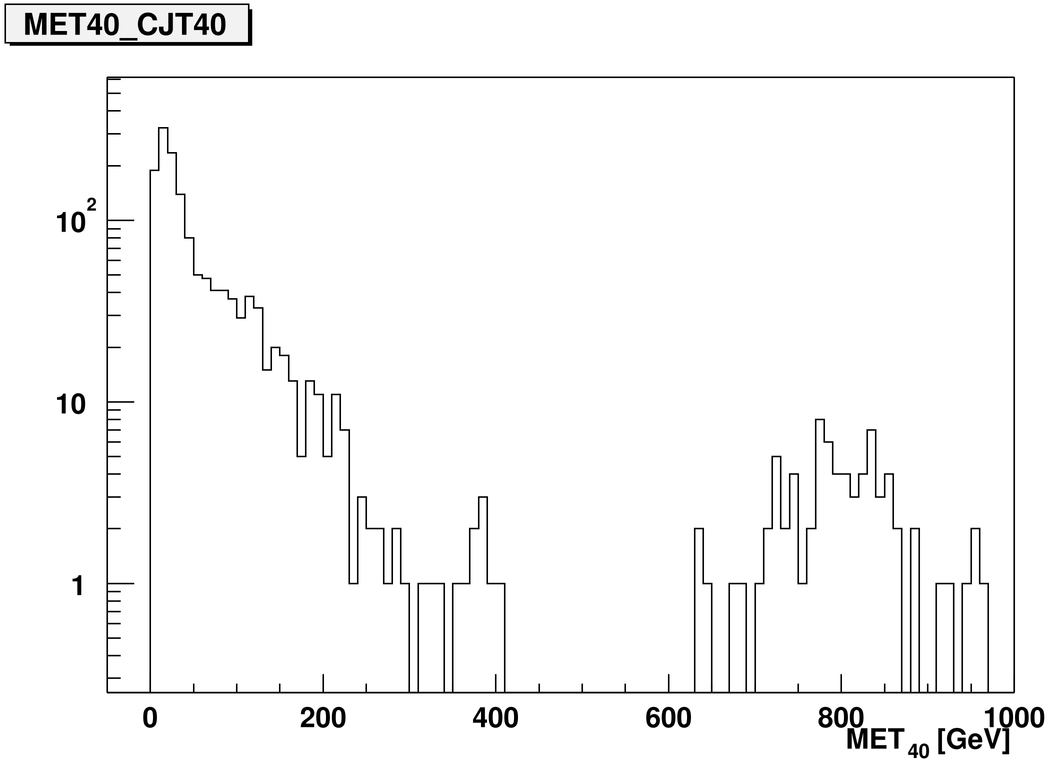
$|\eta| < 0.5$
JT_LO, L = 4 nb^{-1}
LT_HI, L = 81 nb^{-1}
CJT40, L = 0.8 pb^{-1}
$dN/Ldp_T d\eta$ [nb/GeV]
10^3
10^2
10
1
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
0
50
100
150
200
250
300
350
p_T [GeV]

SET after cuts



October Data

- much better quality
- bulk in MET distribution still present around 800 GeV



Proposal for MET branch

- add variable

$$E_{100} \equiv \sum_{E_{cell} > 0.1\,GeV} E_{cell}$$

- might be also useful to keep n_{cal} (and n_{cal}^{100}) copy in MET branch
- these variables are useful for removing 'busy' events
- SET is not well understood (peak around 800 GeV)
- cut on SET can affect high pT physics