sample	nEventsIn	weightIn
SingleMu.Run2012A-22Jan2013.jsonWeight	18959552	1.37e+07
SingleMu.Run2012B-22Jan2013.jsonWeight	59337822	5.33e+07
SingleMu.Run2012C-22Jan2013.jsonWeight	87217361	8.44e+07
SingleMu.Run2012D-22Jan2013.jsonWeight	94667890	8.98e+07
T_s_powheg.puWeight.bTagWeight	243961	2.52e+05
T_tW_powheg.puWeight.bTagWeight	497657	5.14e+05
T_t_powheg.puWeight.bTagWeight	3710226	3.83e+06
Tbar_s_powheg.puWeight.bTagWeight	139973	1.45e+05
Tbar_tW_powheg.puWeight.bTagWeight	493460	5.09e+05
Tbar_t_powheg.puWeight.bTagWeight	1935071	2.00e+06
WW_py6.puWeight.bTagWeight	9840431	1.01e+07
WZ_py6.puWeight.bTagWeight	9872283	1.02e+07
ZZ_py6.puWeight.bTagWeight	9783907	1.01e+07
dyll_HT_400ToInf_M-50.puWeight.bTagWeight	2695789	2.79e+06
dyll_HT_200To400_M-50.puWeight.bTagWeight	6892776	7.12e+06
dyll_HT_10To200_M-50.puWeight.bTagWeight	8111523	8.36e+06
ttbar_CT10_powheg.puWeight.bTagWeight.topPtWeight	26406723	2.73e+07
wj_lv_mg_ht_400ToInf_LO.puWeight.bTagWeight.xsWeight	4875846	5.72e+06
wj_lv_mg_ht_250To300_LO.puWeight.bTagWeight.xsWeight	4924990	6.02e+06
wj_lv_mg_ht_300To400_LO.puWeight.bTagWeight.xsWeight	5125022	6.49e+06
wj_lv_mg_ht_200To250_LO.puWeight.bTagWeight.xsWeight	9799771	1.30e+07
wj_lv_mg_ht_10To150_LO.puWeight.bTagWeight	13992013	1.44e+07
wj_lv_mg_ht_150To200_LO.puWeight.bTagWeight.xsWeight	21126208	2.42e+07

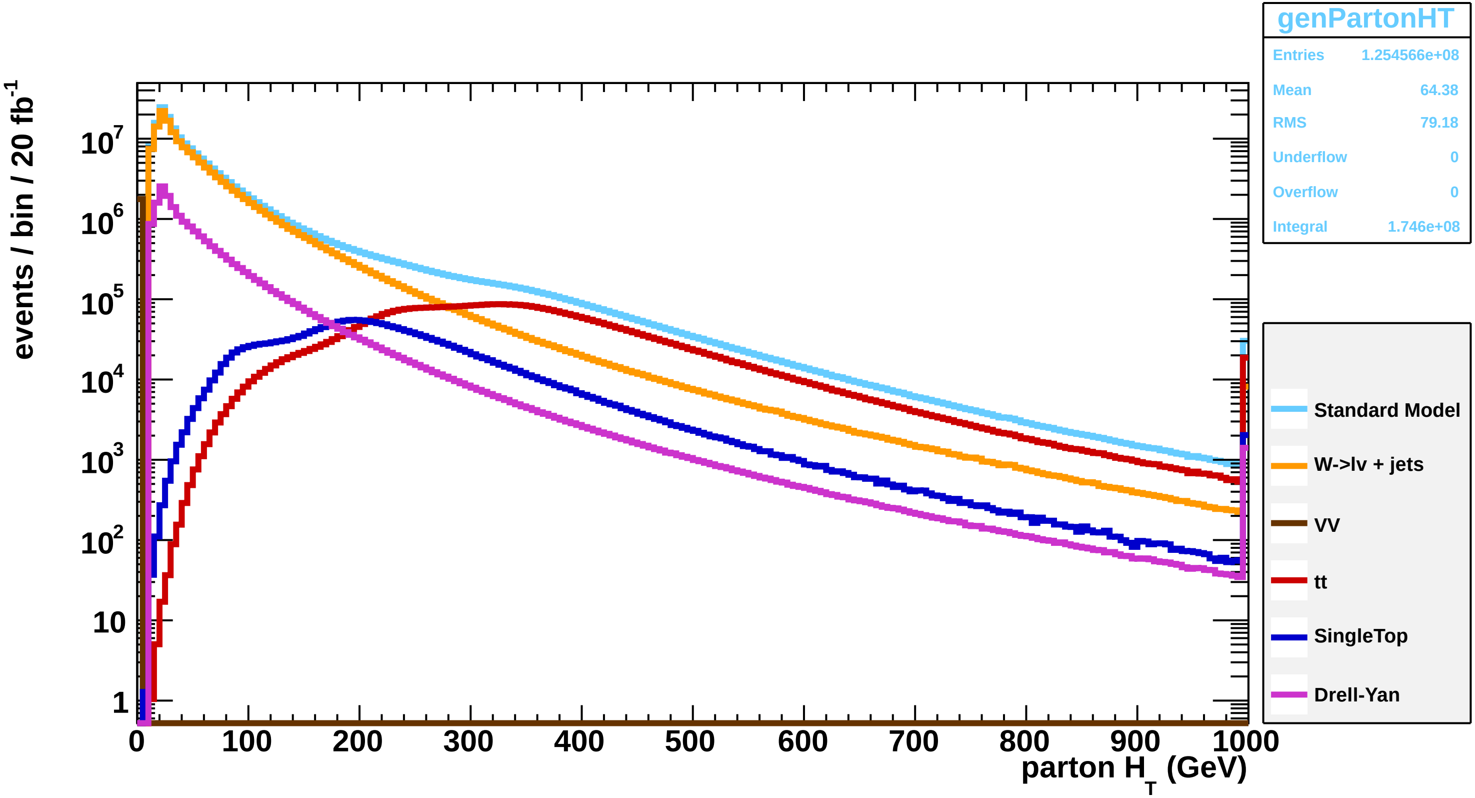
file created at Mon Sep 15 23:34:36 2014

```
                Calculables

   electronIndicesNonIsoPat   pass ptMin & id; fail iso
    electronIndicesOtherPat   pass ptMin; fail id
         electronIndicesPat   pt>10.0; (2012 Veto)
electronIndicesUnmatchedPat   electronIndicesOtherPat; no dR<0.5 match in ak5JetCorrectedP4Pat
         genIndicesStatus3t   pdgId in [-6, 6]; status in [3]
                 jsonWeight   run:ls in cert/Cert_190456-208686_8TeV_22Jan2013ReReco_Collisions12_JSON.txt
   lowestUnPrescaledTrigger   lowest unprescaled of HLT_IsoMu24_eta2p1_v1{1,2,3,4,5}
      muonIdPog2012LoosePat   https://twiki.cern.ch/twiki/bin/view/CMSPublic/SWGuideMuonId#Loose_Muon
      muonIdPog2012TightPat   https://twiki.cern.ch/twiki/bin/view/CMSPublic/SWGuideMuonId#Tight_Muon
       muonIndicesNonIsoPat   pass ptMin & id; fail iso
        muonIndicesOtherPat   pass ptMin; fail id
             muonIndicesPat   IdPog2012Tight; pt>10.0 GeV; PfIsolationR04DeltaBCorrected<0.12
      muonMtPatmetP4TypeIPF   muonPat, metP4TypeIPF, byHand=1
      photonIndicesOtherPat   pass ptMin; fail id/iso
           photonIndicesPat   pT>=25.0 GeV;  photonSimpleCutBased2012TightPat
  photonIndicesUnmatchedPat   photonIndicesOtherPat; no dR<0.5 match in ak5JetCorrectedP4Pat
                   vertexID   !fake; nd>=5.0; |z|<=24.0 cm; d0<=2.0 cm
              vertexIndices   ; pass ID
         vertexIndicesOther   pass sumPtMin; fail ID
                     weight   1.bTagWeight.puWeight
                     weight   1.bTagWeight.puWeight.topPtWeight
                     weight   1.bTagWeight.puWeight.xsWeight
                     weight   1.jsonWeight
     xcak5JetCorrectedP4Pat   muonPatDR<0.50; electronPatDR<0.50; photonPatDR<0.50
 xcak5JetDeadEcalDRlowPtPat   xcak5JetPat; nXtal>=10; cracks checked
 xcak5JetIndicesBtagged2Pat    (>0.679)
    xcak5JetIndicesOtherPat   pass ptMin; fail jetID or etaMax
         xcak5JetIndicesPat   pT>=50.0 GeV; |eta|<3.0; JetIDloose
   xcak5JetIndiceshighPtPat   pT>=50.0 GeV; |eta|<3.0; JetIDloose
    xcak5JetIndiceslowPtPat   pT>=30.0 GeV; |eta|<3.0; JetIDloose
```

```
Calculables   (imperfect)     absent  calc  leaf  sltr

              NONE
```

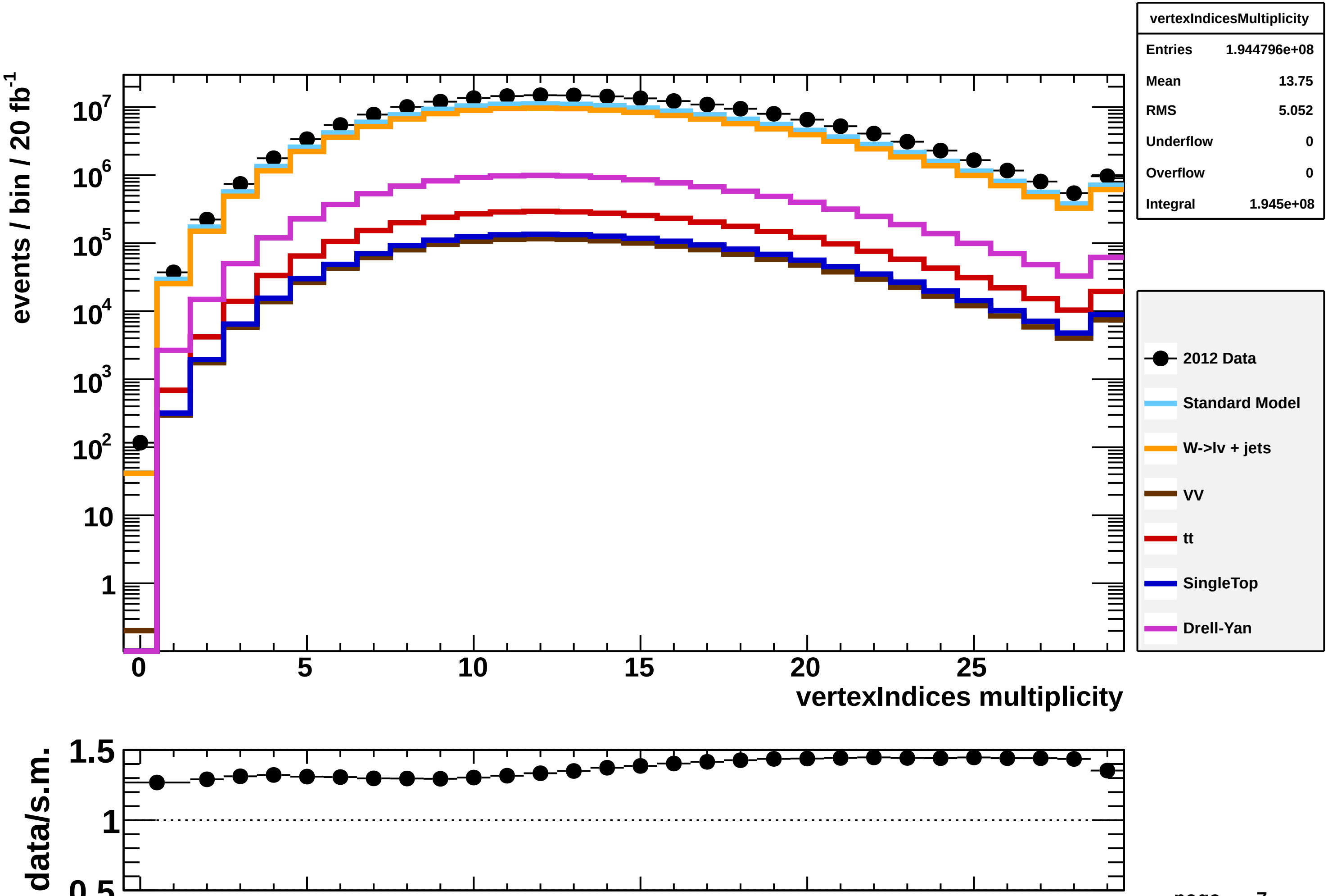
```
| a:  master      master
```

```
           2012 Data Standard Model   W->lv + jets              VV              tt      SingleTop      Drell-Yan      data/s.m.
| a:       241253707   1.7461(4)e+8   1.4834(4)e+8   1.7672(4)e+6    4.873(1)e+6   2.0802(8)e+6   1.7548(6)e+7      1.3817(3)
```


genPartonHT
Entries 1.254566e+08
Mean 64.38
RMS 79.18
Underflow 0
Overflow 0
Integral 1.746e+08
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
events / bin / 20 fb^{-1}
1
10
10^2
10^3
10^4
10^5
10^6
10^7
0
100
200
300
400
500
600
700
800
900
1000
parton H_T (GeV)

```
 a:  master            master
| b: monster           <=10 tracks or >0.25 good fraction
| c: hbheNoise         hbheNoise
| d: value             beamHaloCSCTightHaloId<=0.00
| e: value             1.00<=trackingFailureFilterFlag

| f: value             1.00<=hcalLaserEventFilterFlag
| g: value             1.00<=ecalDeadCellTPFilterFlag
| h: value             1.00<=eeBadScFilterFlag
| i: value             1.00<=inconsistentMuonPFCandidateFilterFlag
| j: value             1.00<=greedyMuonPFCandidateFilterFlag

| k: multiplicity      0 <= singleIsolatedTrack <= 0
```

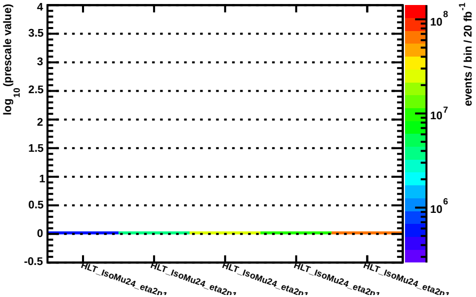
```
          2012 Data Standard Model   W->lv + jets             VV             tt      SingleTop      Drell-Yan      data/s.m.

 a:       241253707   1.7461(4)e+8   1.4834(4)e+8   1.7672(4)e+6    4.873(1)e+6   2.0802(8)e+6   1.7548(6)e+7      1.3817(3)
| b:      241253512   1.7461(4)e+8   1.4834(4)e+8   1.7672(4)e+6    4.873(1)e+6   2.0802(8)e+6   1.7548(6)e+7      1.3817(3)
| c:      241085057             -              -              -              -              -              -    
| d:      240076513   1.7458(4)e+8   1.4832(4)e+8   1.7669(4)e+6    4.872(1)e+6   2.0798(8)e+6   1.7546(6)e+7      1.3751(3)
| e:      235155912   1.7458(4)e+8   1.4832(4)e+8   1.7669(4)e+6    4.872(1)e+6   2.0798(8)e+6   1.7546(6)e+7      1.3470(3)

| f:      235155912             -              -              -              -              -              -    
| g:      235146940   1.7457(4)e+8   1.4831(4)e+8   1.7667(4)e+6    4.870(1)e+6   2.0794(8)e+6   1.7543(6)e+7      1.3470(3)
| h:      235146940   1.7457(4)e+8   1.4831(4)e+8   1.7667(4)e+6    4.870(1)e+6   2.0794(8)e+6   1.7543(6)e+7      1.3470(3)
| i:      235084914   1.7452(4)e+8   1.4828(4)e+8   1.7660(4)e+6    4.867(1)e+6   2.0789(8)e+6   1.7531(6)e+7      1.3470(3)
| j:      235047767   1.7450(4)e+8   1.4826(4)e+8   1.7658(4)e+6    4.866(1)e+6   2.0787(8)e+6   1.7527(6)e+7      1.3470(3)

| k:      194479630   1.4288(4)e+8   1.2331(4)e+8   1.4823(4)e+6   3.7511(9)e+6   1.7292(8)e+6   1.2613(5)e+7      1.3611(4)
```


vertexIndicesMultiplicity
Entries 1.944796e+08
Mean 13.75
RMS 5.052
Underflow 0
Overflow 0
Integral 1.945e+08
events / bin / 20 fb^{-1}
10^7
10^6
10^5
10^4
10^3
10^2
10
1
0
5
10
15
20
25
vertexIndices multiplicity
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
data/s.m.
1.5
1
0.5

```
  a:  master                              master
  b:  monster                             <=10 tracks or >0.25 good fraction
  c:  hbheNoise                           hbheNoise
  d:  value                               beamHaloCSCTightHaloId<=0.00
  e:  value                               1.00<=trackingFailureFilterFlag

  f:  value                               1.00<=hcalLaserEventFilterFlag
  g:  value                               1.00<=ecalDeadCellTPFilterFlag
  h:  value                               1.00<=eeBadScFilterFlag
  i:  value                               1.00<=inconsistentMuonPFCandidateFilterFlag
  j:  value                               1.00<=greedyMuonPFCandidateFilterFlag

  k:  multiplicity                        0 <= singleIsolatedTrack <= 0
| l:  multiplicity                        1 <= vertexIndices
| m:  lowestUnPrescaledTriggerFilter      lowest unprescaled of triggers in calculable
```

```
           2012 Data Standard Model   W->lv + jets             VV             tt      SingleTop      Drell-Yan       data/s.m.

  a:       241253707   1.7461(4)e+8   1.4834(4)e+8   1.7672(4)e+6    4.873(1)e+6   2.0802(8)e+6   1.7548(6)e+7      1.3817(3)
  b:       241253512   1.7461(4)e+8   1.4834(4)e+8   1.7672(4)e+6    4.873(1)e+6   2.0802(8)e+6   1.7548(6)e+7      1.3817(3)
  c:       241085057              -              -              -              -              -              -
  d:       240076513   1.7458(4)e+8   1.4832(4)e+8   1.7669(4)e+6    4.872(1)e+6   2.0798(8)e+6   1.7546(6)e+7      1.3751(3)
  e:       235155912   1.7458(4)e+8   1.4832(4)e+8   1.7669(4)e+6    4.872(1)e+6   2.0798(8)e+6   1.7546(6)e+7      1.3470(3)

  f:       235155912              -              -              -              -              -              -
  g:       235146940   1.7457(4)e+8   1.4831(4)e+8   1.7667(4)e+6    4.870(1)e+6   2.0794(8)e+6   1.7543(6)e+7      1.3470(3)
  h:       235146940   1.7457(4)e+8   1.4831(4)e+8   1.7667(4)e+6    4.870(1)e+6   2.0794(8)e+6   1.7543(6)e+7      1.3470(3)
  i:       235084914   1.7452(4)e+8   1.4828(4)e+8   1.7660(4)e+6    4.867(1)e+6   2.0789(8)e+6   1.7531(6)e+7      1.3470(3)
  j:       235047767   1.7450(4)e+8   1.4826(4)e+8   1.7658(4)e+6    4.866(1)e+6   2.0787(8)e+6   1.7527(6)e+7      1.3470(3)

  k:       194479630   1.4288(4)e+8   1.2331(4)e+8   1.4823(4)e+6   3.7511(9)e+6   1.7292(8)e+6   1.2613(5)e+7      1.3611(4)
| l:       194479513   1.4288(4)e+8   1.2331(4)e+8   1.4823(4)e+6   3.7511(9)e+6   1.7292(8)e+6   1.2613(5)e+7      1.3611(4)
| m:       110730724              -              -              -              -              -              -
```

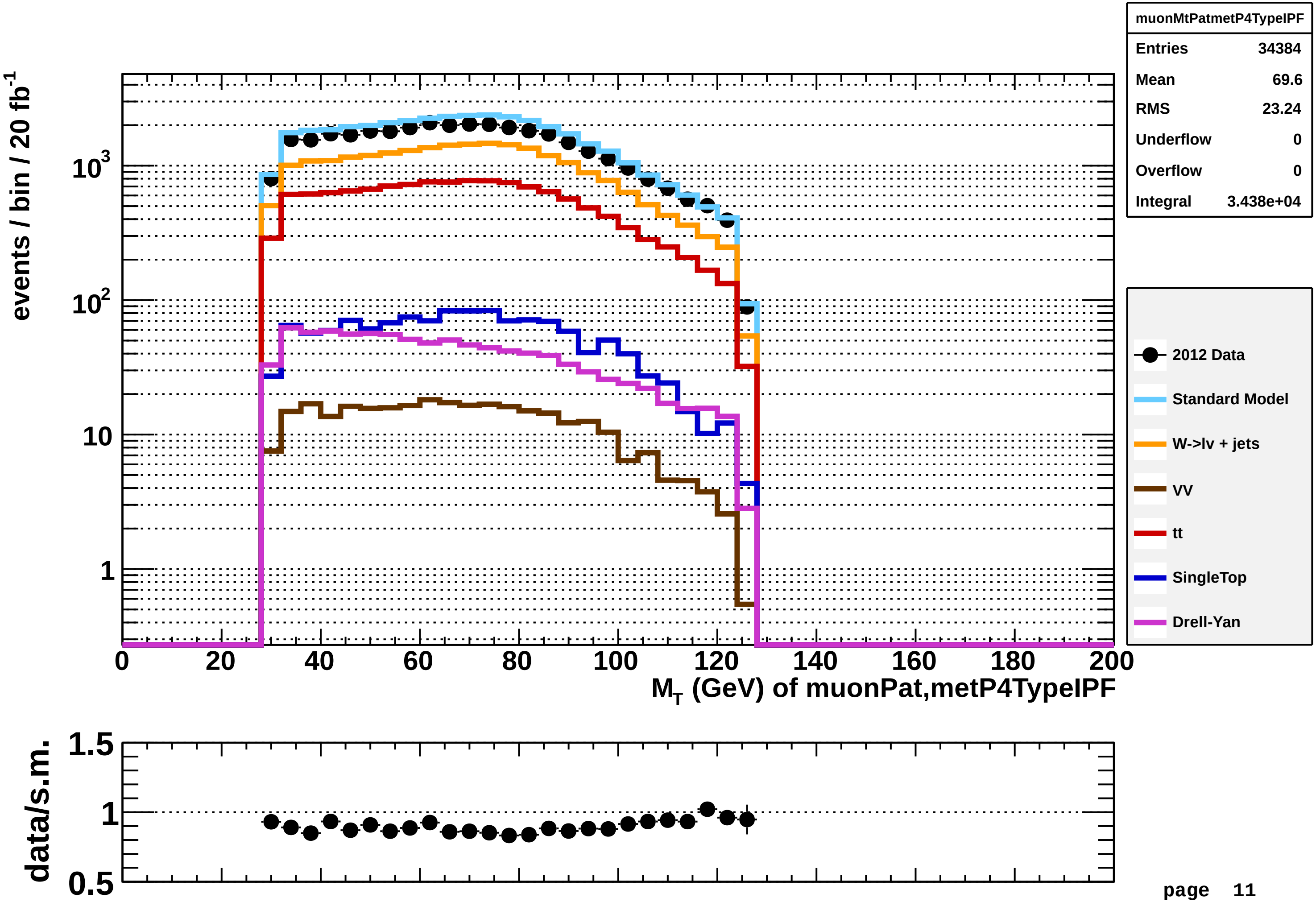
2012 Data_hltPrescaleHisto



```
| o: physicsDeclaredFilter               physicsDeclaredFilter

| p: jetEtaSelector                      xcak5JetPat; |eta[index[0]]|<=2.5
| q: jetPtSelector                       xcak5JetPat; pT[index[0]]>=100.0 GeV
| r: jetPtSelector                       xcak5JetPat; pT[index[1]]>=100.0 GeV
| s: value                               375.00<=xcak5JetSumEtPat
| t: multiplicity                        2 <= xcak5JetIndicesPat

| u: multiplicity                        0 <= xcak5JetIndicesOtherPat <= 0
| v: multiplicity                        0 <= xcak5JetIndicesWithOddMuonPat <= 0
| w: uniquelyMatchedNonisoMuons          xcak5JetPat
| x: multiplicity                        0 <= electronIndicesPat <= 0
| y: multiplicity                        0 <= photonIndicesPat <= 0

| z: multiplicity                        0 <= electronIndicesUnmatchedPat <= 0
| A: multiplicity                        0 <= photonIndicesUnmatchedPat <= 0
| B: deadEcalFilter                      xcak5JetPat; dR>0.300 when deltaPhiStar<0.500
| C: multiplicity                        1 <= muonIndicesPat <= 1
| D: pt                                  30.00<=muonP4Pat[i[0]].pt; muonIndicesPat

| E: eta                                 -2.10<=muonP4Pat[i[0]].eta<=2.10; muonIndicesPat
| F: value                               30.00<=muonMtPatmetP4TypeIPF<=125.00
```

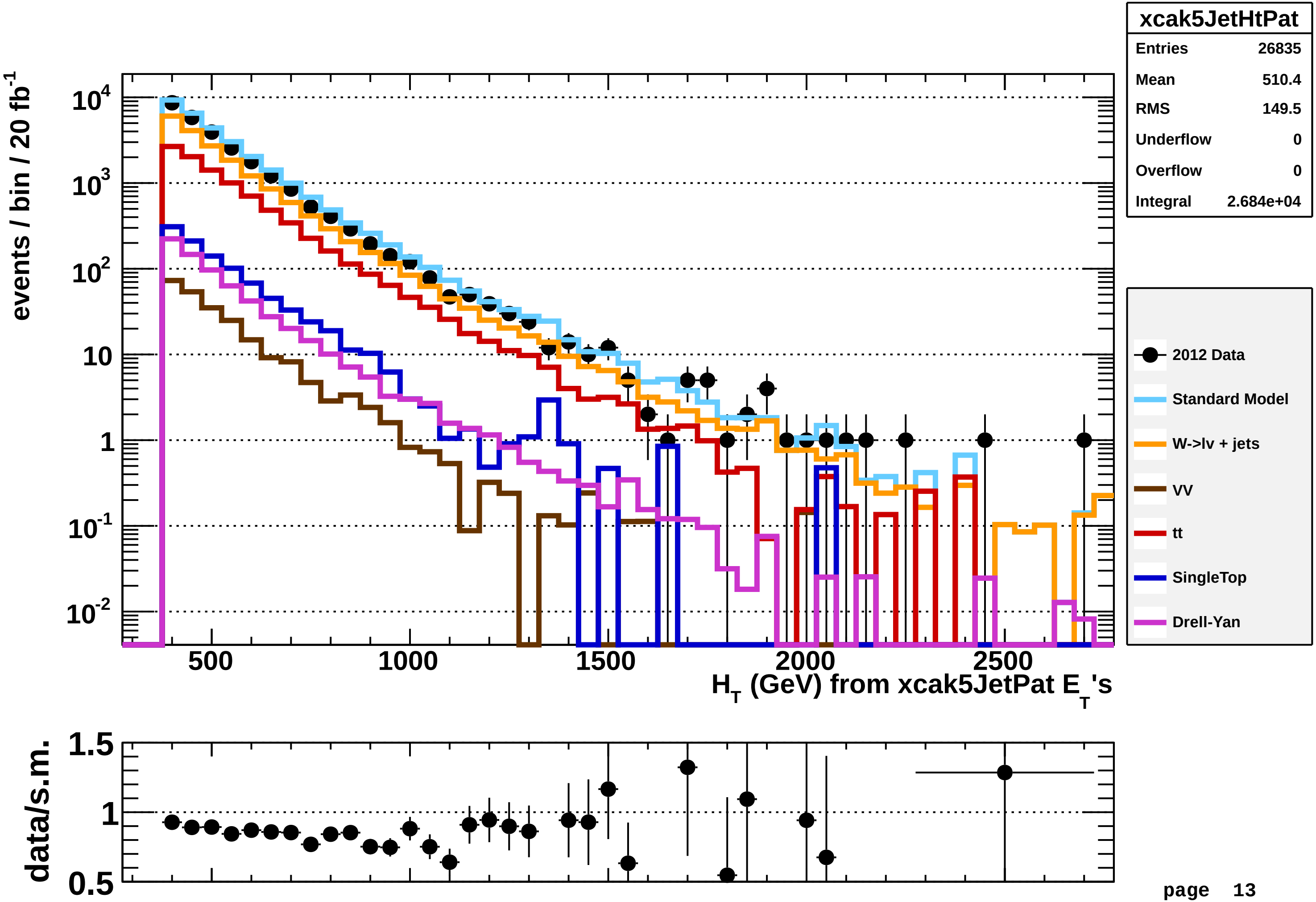
```
          2012 Data Standard Model   W->lv + jets             VV             tt      SingleTop      Drell-Yan      data/s.m.

| o:      110651699          -              -              -              -              -              -

| p:       10379569    3.913(2)e+7    2.991(2)e+7    8.496(3)e+5   3.5629(9)e+6   1.3929(7)e+6    3.410(3)e+6      0.2653(1)
| q:        2015314    8.879(5)e+6    5.657(5)e+6    1.847(1)e+5   1.9360(6)e+6    4.513(4)e+5   6.497(10)e+5      0.2270(2)
| r:         313853   2.0816(9)e+6    8.941(7)e+5    5.660(7)e+4    8.504(4)e+5    1.710(2)e+5    1.096(2)e+5      0.1508(3)
| s:         126351   1.0320(4)e+6    3.206(2)e+5    2.529(5)e+4    5.615(3)e+5     8.44(2)e+4    4.021(5)e+4      0.1224(3)
| t:         126351   1.0320(4)e+6    3.206(2)e+5    2.529(5)e+4    5.615(3)e+5     8.44(2)e+4    4.021(5)e+4      0.1224(3)

| u:         124310   1.0059(4)e+6    3.149(2)e+5    2.482(5)e+4    5.452(3)e+5     8.19(2)e+4    3.914(5)e+4      0.1236(4)
| v:         122470    9.968(4)e+5    3.136(2)e+5    2.477(5)e+4    5.386(3)e+5     8.11(2)e+4    3.884(5)e+4      0.1229(4)
| w:         120901    9.892(4)e+5    3.119(2)e+5    2.471(5)e+4    5.335(3)e+5     8.06(2)e+4    3.850(5)e+4      0.1222(4)
| x:         118771    8.335(4)e+5    2.292(2)e+5    2.365(5)e+4    4.808(3)e+5     7.57(2)e+4    2.415(5)e+4      0.1425(4)
| y:         118246    8.272(4)e+5    2.252(2)e+5    2.354(5)e+4    4.793(3)e+5     7.55(2)e+4    2.359(4)e+4      0.1430(4)

| z:         118142    8.254(4)e+5    2.248(2)e+5    2.350(5)e+4    4.782(3)e+5     7.54(2)e+4    2.353(4)e+4      0.1431(4)
| A:         118135    8.254(4)e+5    2.248(2)e+5    2.350(5)e+4    4.782(3)e+5     7.54(2)e+4    2.353(4)e+4      0.1431(4)
| B:          58474    2.723(2)e+5    1.009(1)e+5     6.61(2)e+3    1.335(2)e+5    2.147(9)e+4     9.78(3)e+3      0.2147(9)
| C:          52068     7.14(1)e+4    4.300(8)e+4         533(7)    2.312(7)e+4     2.36(3)e+3     2.42(1)e+3       0.729(3)
| D:          47847   5.650(10)e+4    3.416(7)e+4         443(7)    1.819(6)e+4     1.81(3)e+3        1889(9)       0.847(4)

| E:          47844    5.376(9)e+4    3.205(7)e+4         414(7)    1.783(6)e+4     1.77(3)e+3        1693(8)       0.890(4)
| F:          34384    3.893(8)e+4    2.348(6)e+4         296(6)    1.292(5)e+4     1.30(2)e+3         940(6)       0.883(5)
```

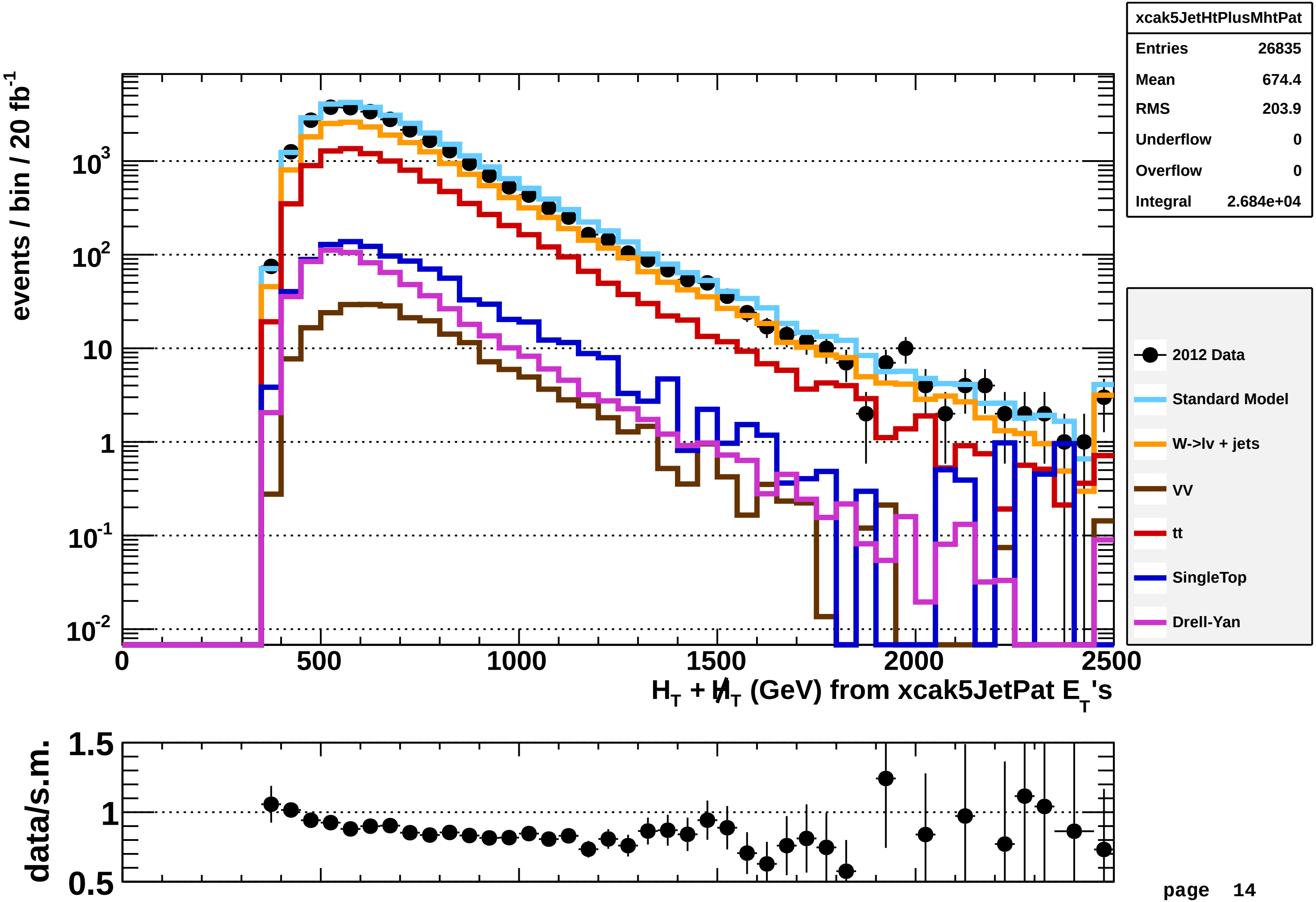
events / 20 fb^{-1}

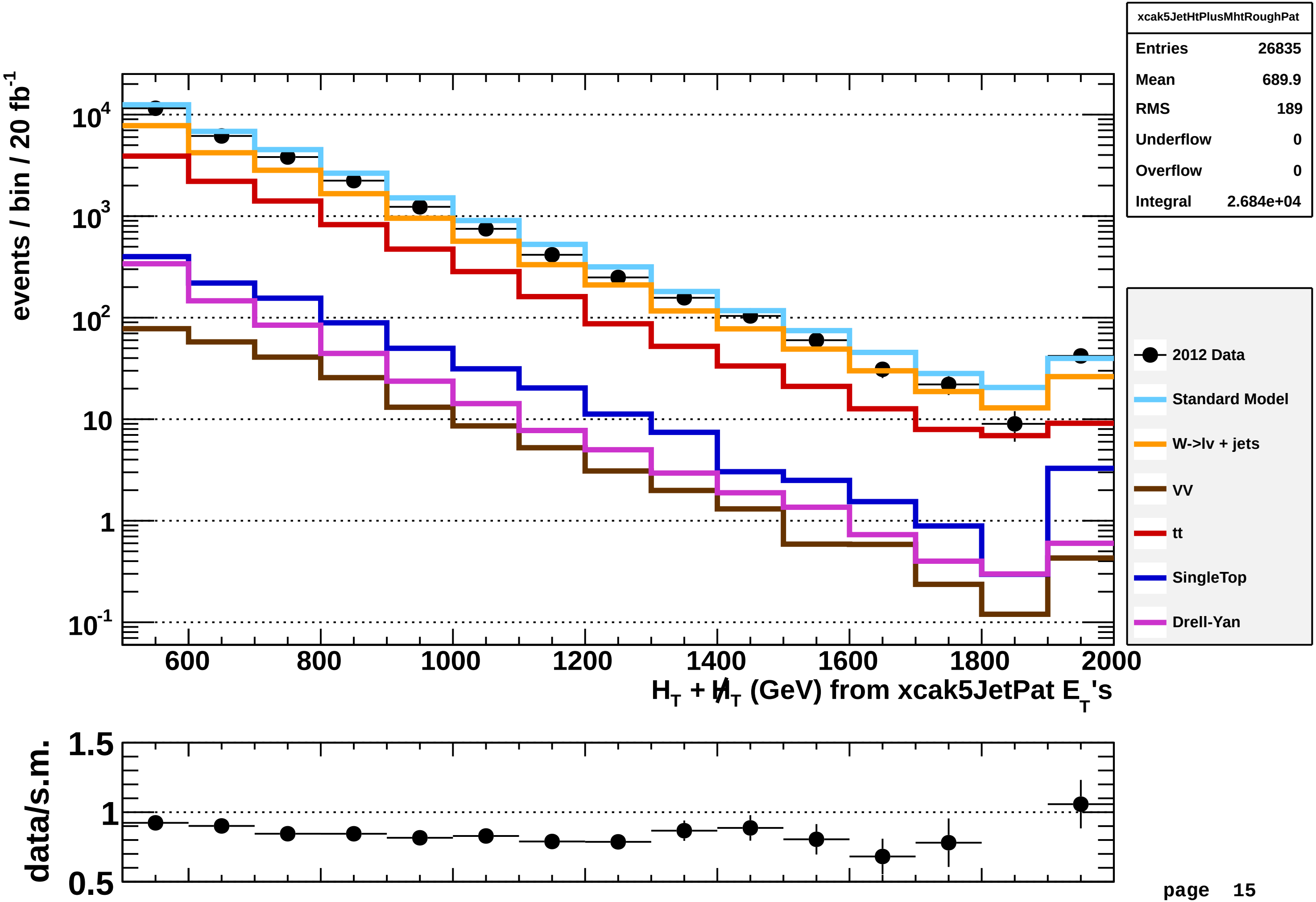

muonMtPatmetP4TypeIPF
Entries 34384
Mean 69.6
RMS 23.24
Underflow 0
Overflow 0
Integral 3.438e+04
events / bin / 20 fb^{-1}
10^3
10^2
10
1
0
20
40
60
80
100
120
140
160
180
200
M_T (GeV) of muonPat,metP4TypeIPF
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
data/s.m.
1.5
1
0.5

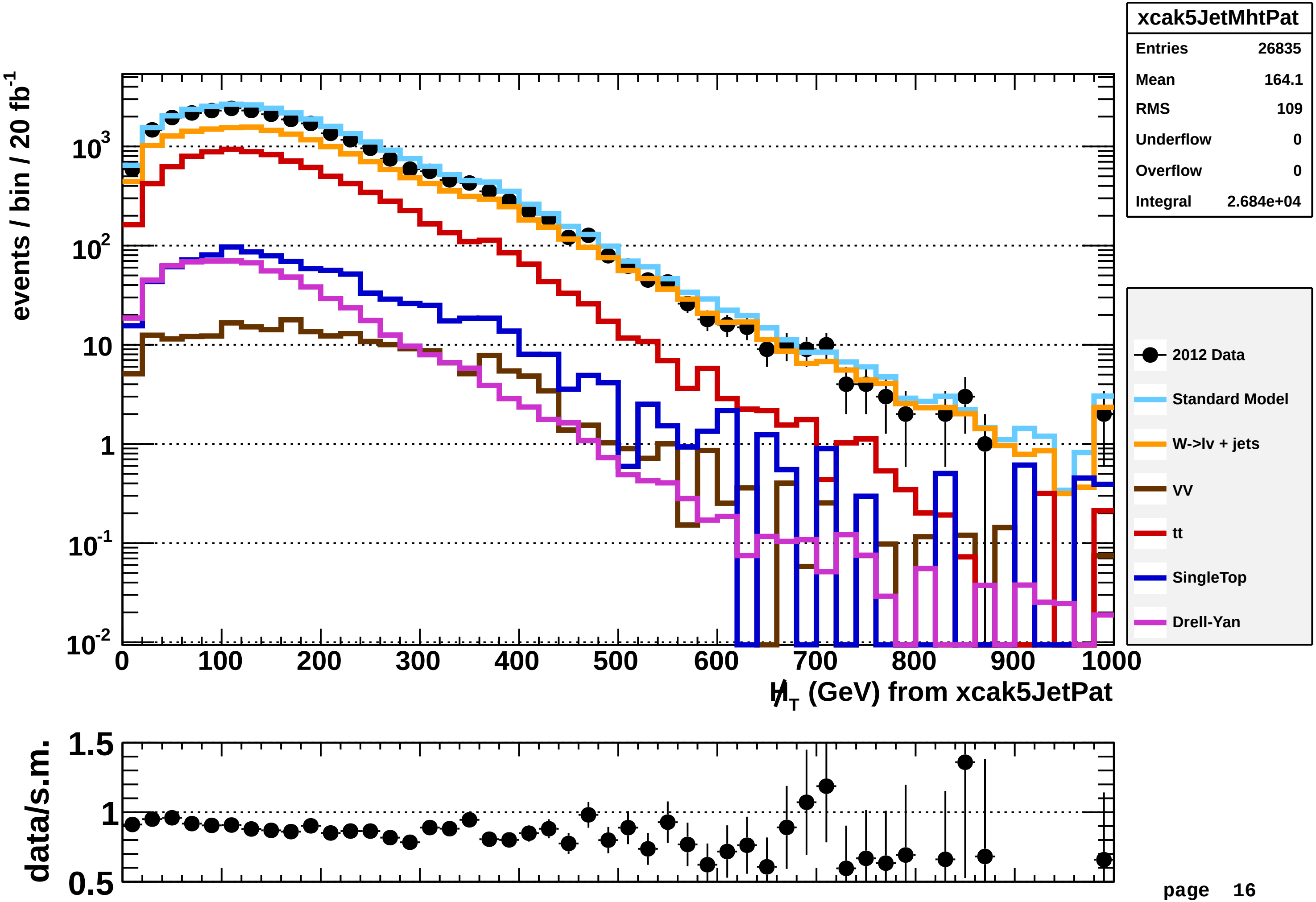
```
 p:  jetEtaSelector                    xcak5JetPat; |eta[index[0]]|<=2.5
 q:  jetPtSelector                     xcak5JetPat; pT[index[0]]>=100.0 GeV
 r:  jetPtSelector                     xcak5JetPat; pT[index[1]]>=100.0 GeV
 s:  value                             375.00<=xcak5JetSumEtPat
 t:  multiplicity                      2 <= xcak5JetIndicesPat

 u:  multiplicity                      0 <= xcak5JetIndicesOtherPat <= 0
 v:  multiplicity                      0 <= xcak5JetIndicesWithOddMuonPat <= 0
 w:  uniquelyMatchedNonisoMuons        xcak5JetPat
 x:  multiplicity                      0 <= electronIndicesPat <= 0
 y:  multiplicity                      0 <= photonIndicesPat <= 0

 z:  multiplicity                      0 <= electronIndicesUnmatchedPat <= 0
 A:  multiplicity                      0 <= photonIndicesUnmatchedPat <= 0
 B:  deadEcalFilter                    xcak5JetPat; dR>0.300 when deltaPhiStar<0.500
 C:  multiplicity                      1 <= muonIndicesPat <= 1
 D:  pt                                30.00<=muonP4Pat[i[0]].pt; muonIndicesPat

 E:  eta                               -2.10<=muonP4Pat[i[0]].eta<=2.10; muonIndicesPat
 F:  value                             30.00<=muonMtPatmetP4TypeIPF<=125.00
| G:  value                             xcak5JetMhthighPtPatOvermetP4TypeIPFPlusmuonIndicesPat<=1.25



         2012 Data Standard Model   W->lv + jets            VV            tt     SingleTop     Drell-Yan      data/s.m.

 p:        10379569    3.913(2)e+7    2.991(2)e+7   8.496(3)e+5  3.5629(9)e+6  1.3929(7)e+6    3.410(3)e+6      0.2653(1)
 q:         2015314    8.879(5)e+6    5.657(5)e+6   1.847(1)e+5  1.9360(6)e+6    4.513(4)e+5  6.497(10)e+5      0.2270(2)
 r:          313853  2.0816(9)e+6    8.941(7)e+5   5.660(7)e+4   8.504(4)e+5    1.710(2)e+5    1.096(2)e+5      0.1508(3)
 s:          126351  1.0320(4)e+6    3.206(2)e+5   2.529(5)e+4   5.615(3)e+5     8.44(2)e+4    4.021(5)e+4      0.1224(3)
 t:          126351  1.0320(4)e+6    3.206(2)e+5   2.529(5)e+4   5.615(3)e+5     8.44(2)e+4    4.021(5)e+4      0.1224(3)

 u:          124310  1.0059(4)e+6    3.149(2)e+5   2.482(5)e+4   5.452(3)e+5     8.19(2)e+4    3.914(5)e+4      0.1236(4)
 v:          122470    9.968(4)e+5    3.136(2)e+5   2.477(5)e+4   5.386(3)e+5     8.11(2)e+4    3.884(5)e+4      0.1229(4)
 w:          120901    9.892(4)e+5    3.119(2)e+5   2.471(5)e+4   5.335(3)e+5     8.06(2)e+4    3.850(5)e+4      0.1222(4)
 x:          118771    8.335(4)e+5    2.292(2)e+5   2.365(5)e+4   4.808(3)e+5     7.57(2)e+4    2.415(5)e+4      0.1425(4)
 y:          118246    8.272(4)e+5    2.252(2)e+5   2.354(5)e+4   4.793(3)e+5     7.55(2)e+4    2.359(4)e+4      0.1430(4)

 z:          118142    8.254(4)e+5    2.248(2)e+5   2.350(5)e+4   4.782(3)e+5     7.54(2)e+4    2.353(4)e+4      0.1431(4)
 A:          118135    8.254(4)e+5    2.248(2)e+5   2.350(5)e+4   4.782(3)e+5     7.54(2)e+4    2.353(4)e+4      0.1431(4)
 B:           58474    2.723(2)e+5    1.009(1)e+5    6.61(2)e+3   1.335(2)e+5   2.147(9)e+4     9.78(3)e+3      0.2147(9)
 C:           52068     7.14(1)e+4    4.300(8)e+4        533(7)   2.312(7)e+4     2.36(3)e+3     2.42(1)e+3       0.729(3)
 D:           47847   5.650(10)e+4    3.416(7)e+4        443(7)   1.819(6)e+4     1.81(3)e+3        1889(9)       0.847(4)

 E:           47844    5.376(9)e+4    3.205(7)e+4        414(7)   1.783(6)e+4     1.77(3)e+3        1693(8)       0.890(4)
 F:           34384    3.893(8)e+4    2.348(6)e+4        296(6)   1.292(5)e+4     1.30(2)e+3         940(6)       0.883(5)
| G:           26835    3.027(7)e+4    1.888(5)e+4        237(5)    9.49(4)e+3      9.9(2)e+2         674(5)       0.886(6)
```

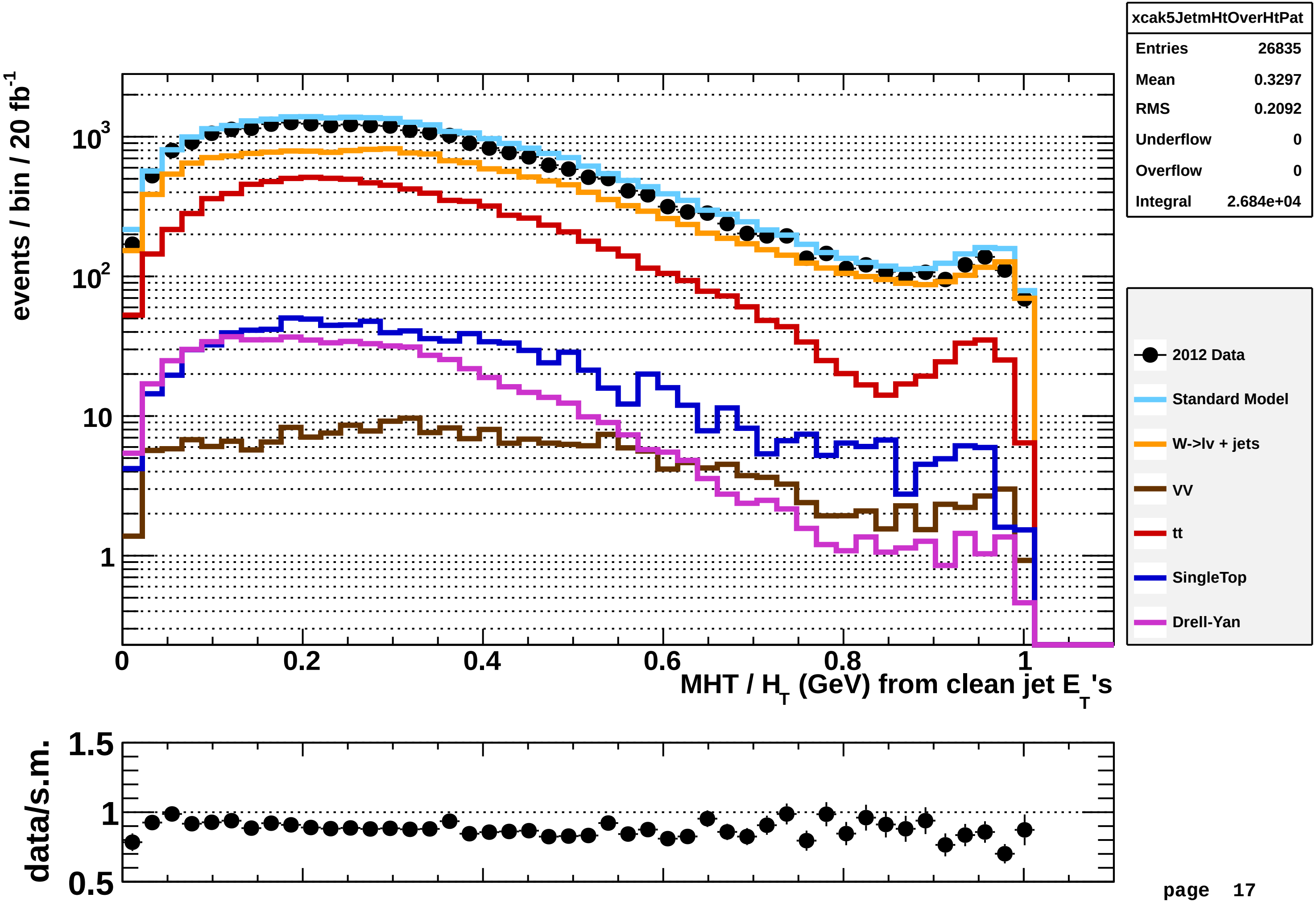
events / 20 fb^{-1}

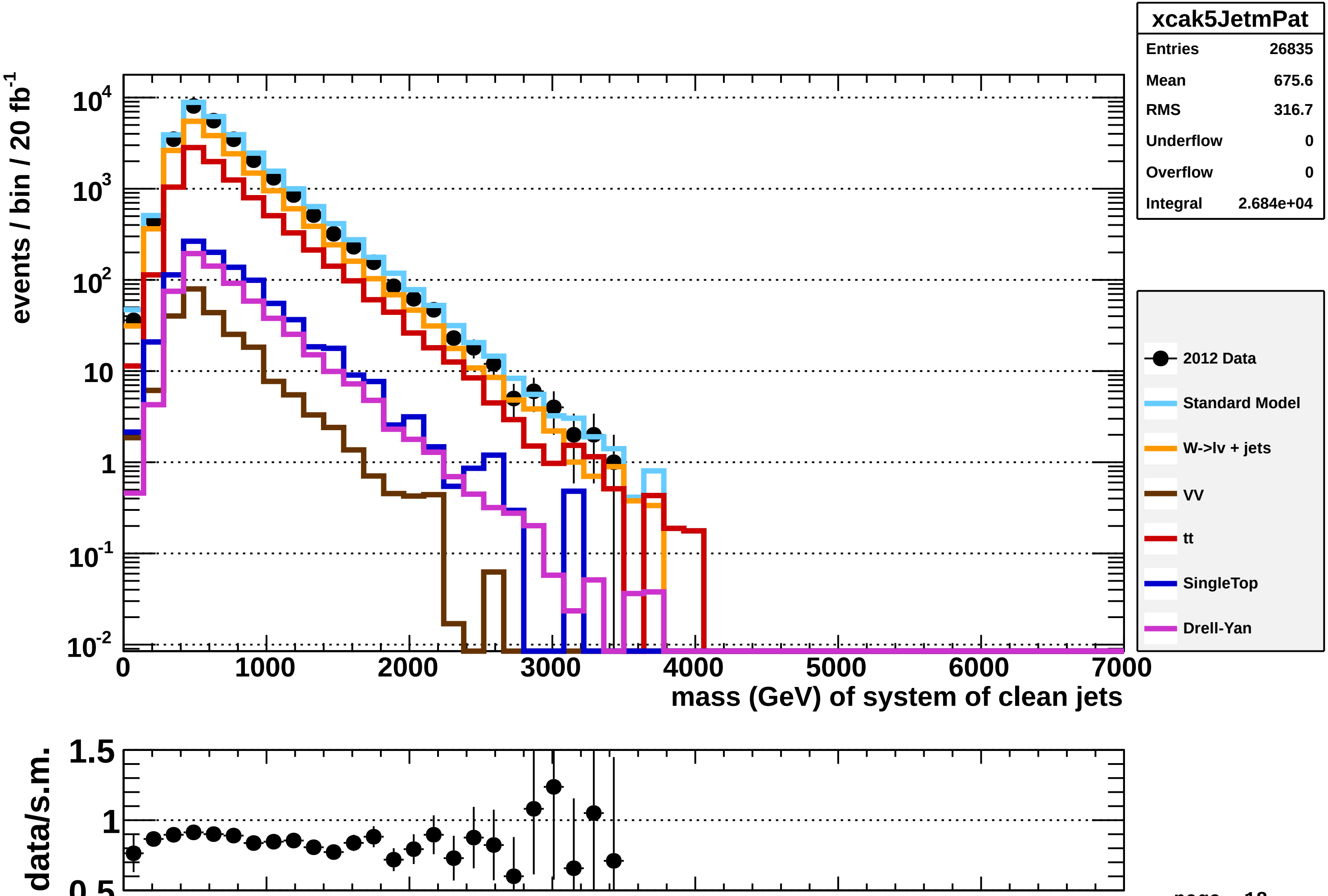

xcak5JetHtPat
Entries 26835
Mean 510.4
RMS 149.5
Underflow 0
Overflow 0
Integral 2.684e+04
events / bin / 20 fb^{-1}
10^4
10^3
10^2
10
1
10^{-1}
10^{-2}
500
1000
1500
2000
2500
H_T (GeV) from xcak5JetPat E_T's
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
data/s.m.
1.5
1
0.5


xcak5JetHtPlusMhtPat
Entries 26835
Mean 674.4
RMS 203.9
Underflow 0
Overflow 0
Integral 2.684e+04
events / bin / 20 fb^{-1}
10^{3}
10^{2}
10
1
10^{-1}
10^{-2}
0
500
1000
1500
2000
2500
$H_T + \not{H}_T$ (GeV) from xcak5JetPat E_T's
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
data/s.m.
1.5
1
0.5

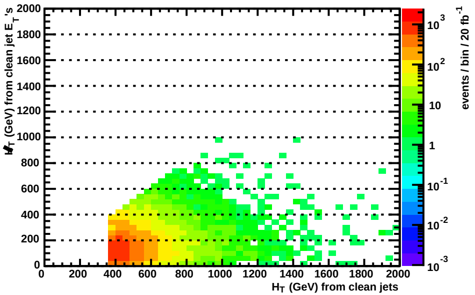

xcak5JetHtPlusMhtRoughPat
Entries 26835
Mean 689.9
RMS 189
Underflow 0
Overflow 0
Integral 2.684e+04
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
events / bin / 20 fb^{-1}
10^4
10^3
10^2
10
1
10^{-1}
600
800
1000
1200
1400
1600
1800
2000
$H_T + \not{H}_T$ (GeV) from xcak5JetPat E_T's
data/s.m.
1.5
1
0.5


xcak5JetMhtPat
Entries 26835
Mean 164.1
RMS 109
Underflow 0
Overflow 0
Integral 2.684e+04
events / bin / 20 fb^{-1}
10^3
10^2
10
1
10^{-1}
10^{-2}
0
100
200
300
400
500
600
700
800
900
1000
$\not{H}_T$ (GeV) from xcak5JetPat
● 2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
data/s.m.
1.5
1
0.5

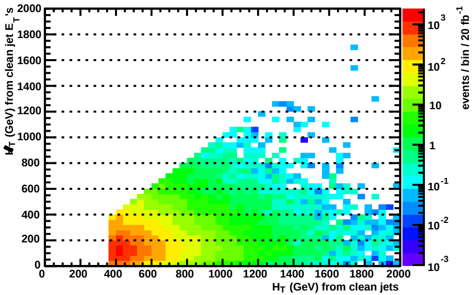

xcak5JetmHtOverHtPat
Entries 26835
Mean 0.3297
RMS 0.2092
Underflow 0
Overflow 0
Integral 2.684e+04
events / bin / 20 fb^{-1}
10^3
10^2
10
1
0
0.2
0.4
0.6
0.8
1
MHT / H_T (GeV) from clean jet E_T's
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
data/s.m.
1.5
1
0.5


xcak5JetmPat
Entries 26835
Mean 675.6
RMS 316.7
Underflow 0
Overflow 0
Integral 2.684e+04
events / bin / 20 fb^{-1}
10^4
10^3
10^2
10
1
10^{-1}
10^{-2}
0
1000
2000
3000
4000
5000
6000
7000
mass (GeV) of system of clean jets
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
data/s.m.
1.5
1
0.5

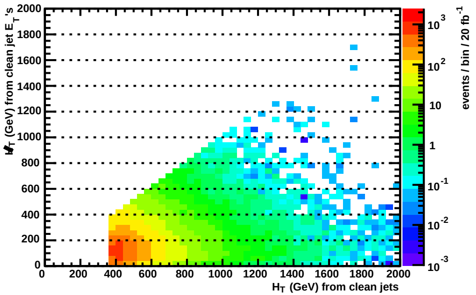
2012 Data



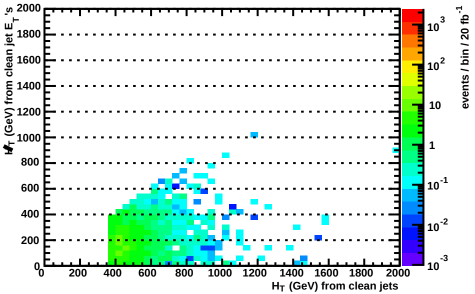
Standard Model



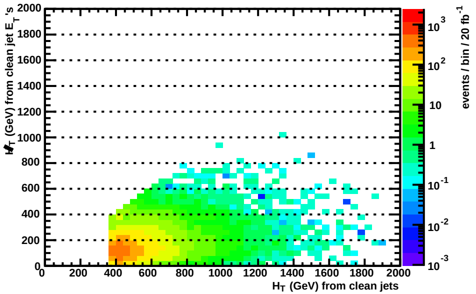
W->lν + jets



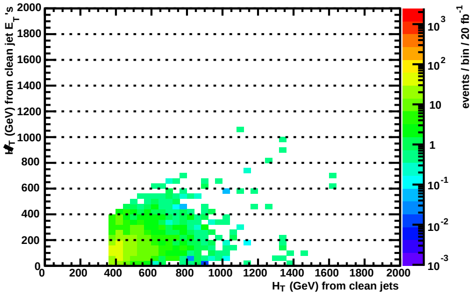
VV



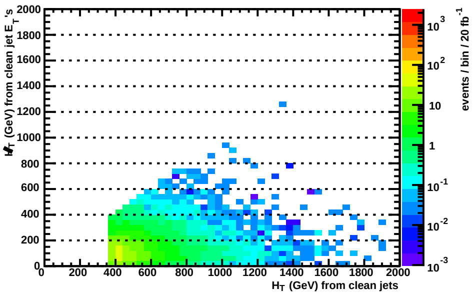
tt

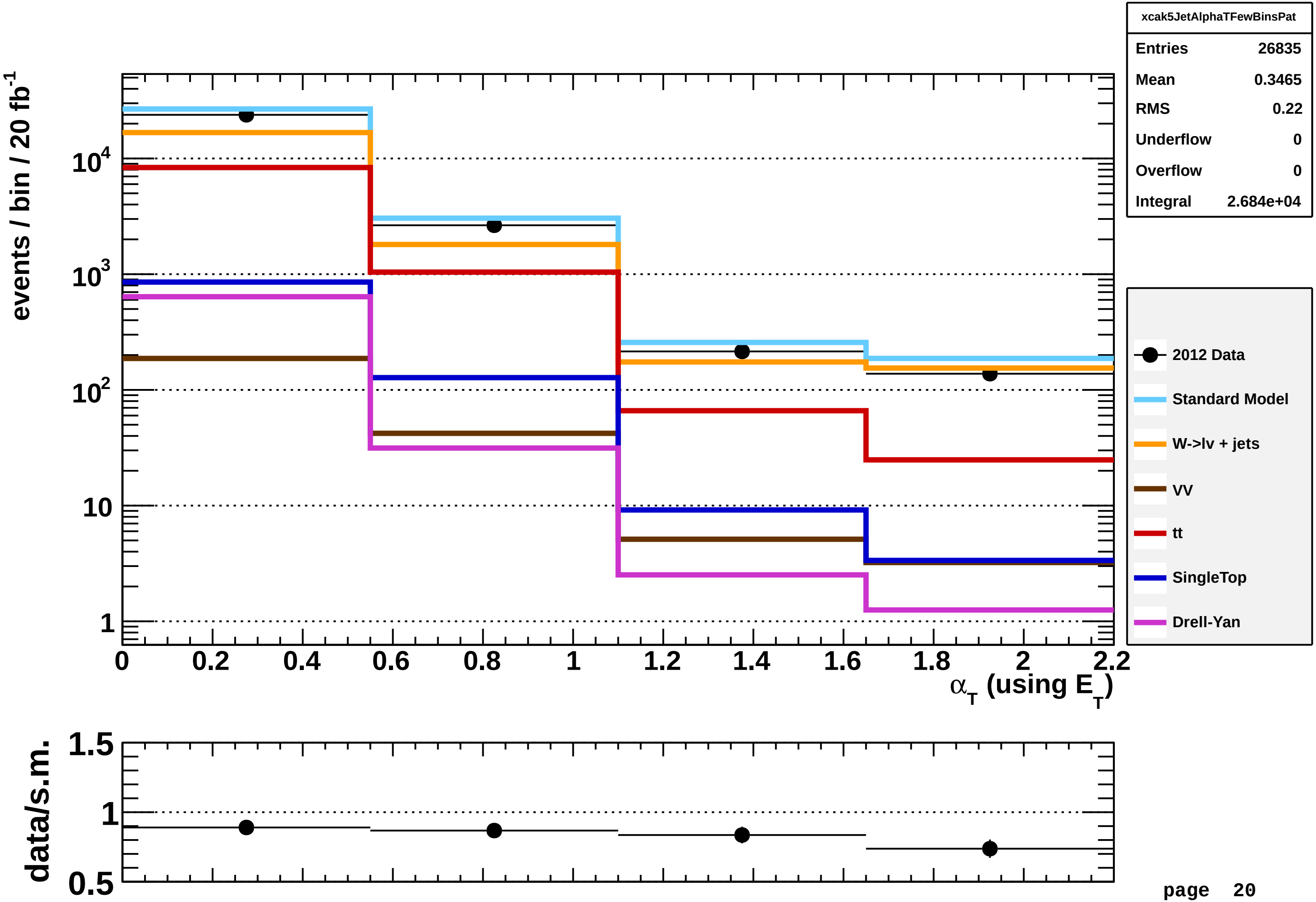


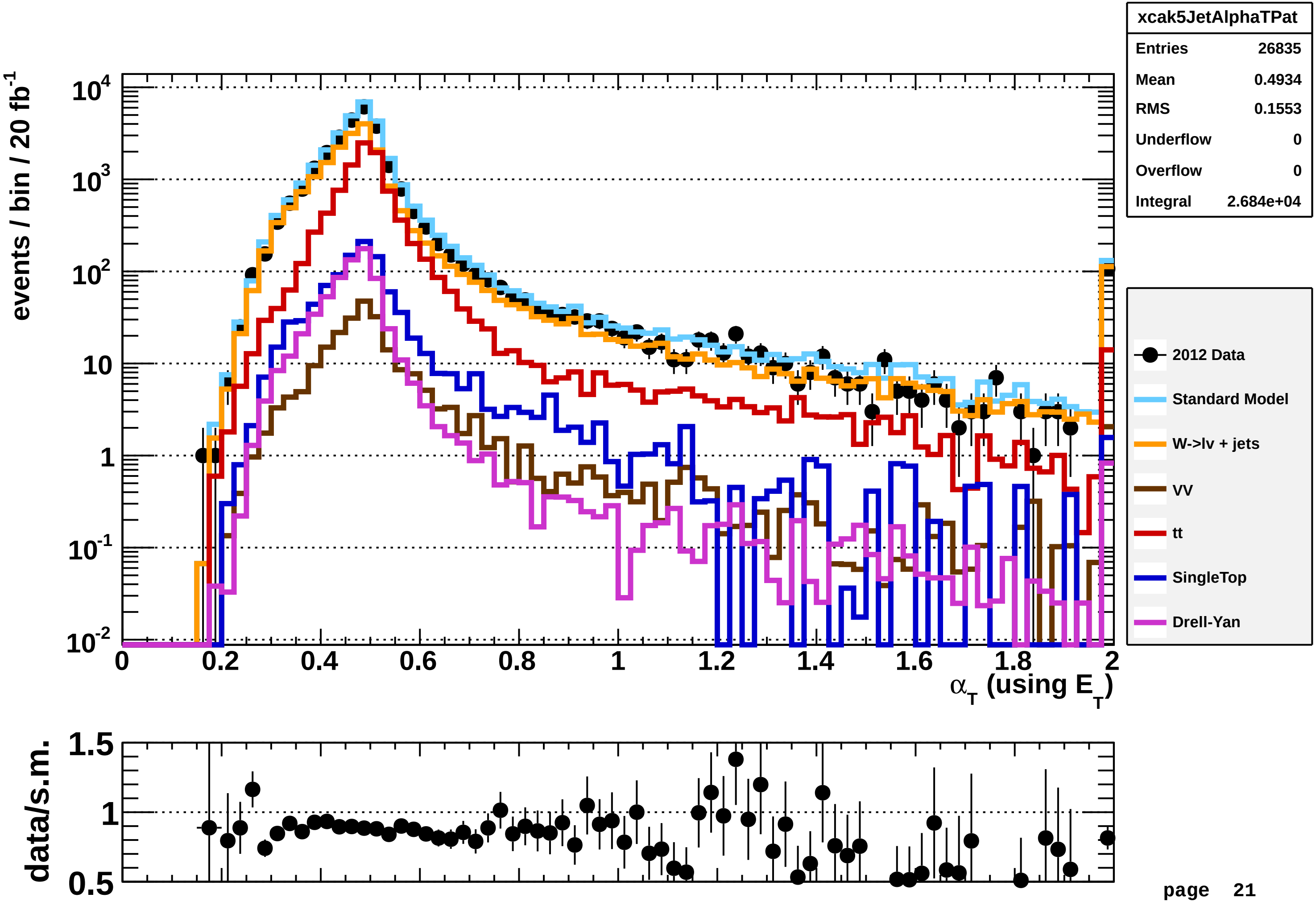
SingleTop

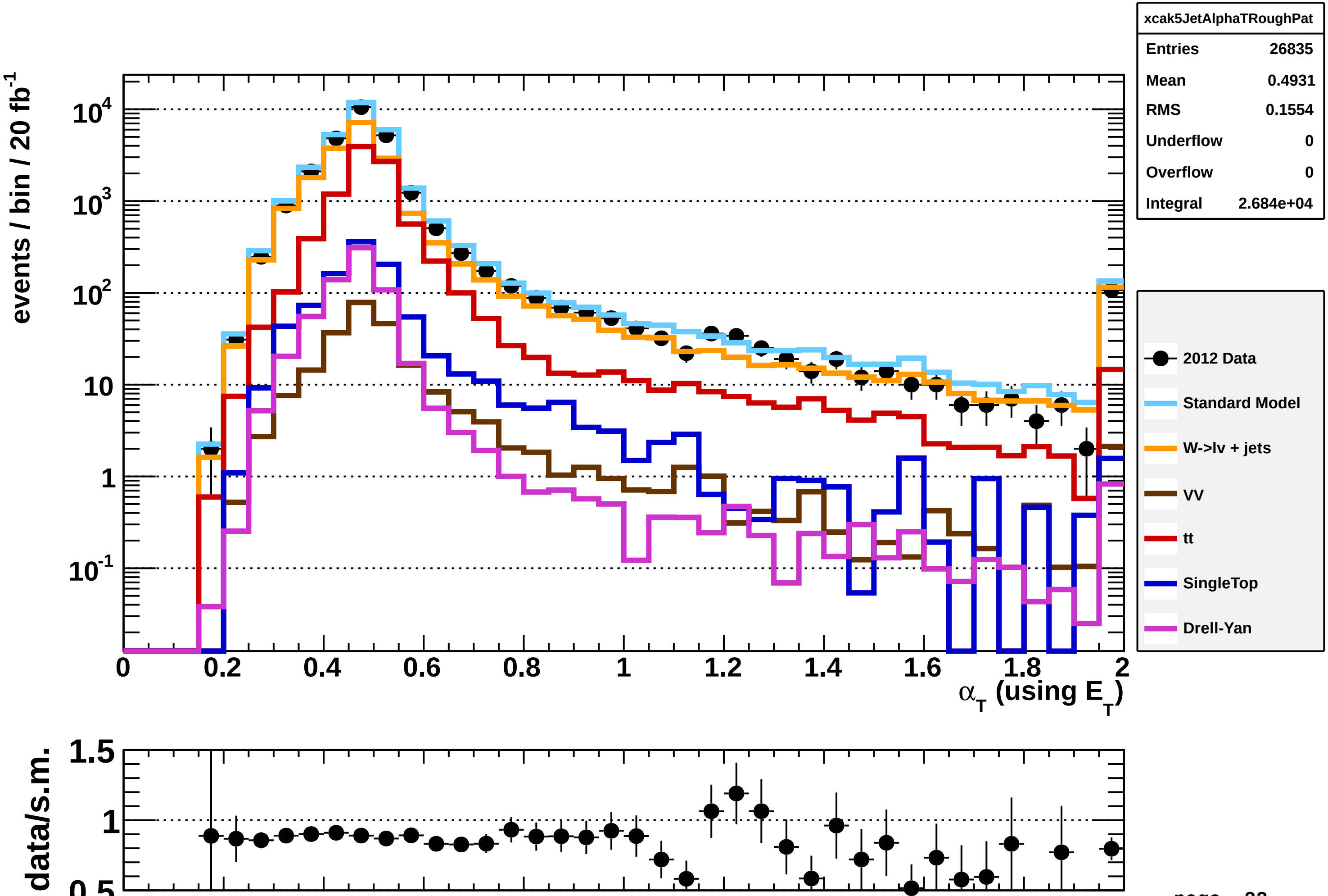


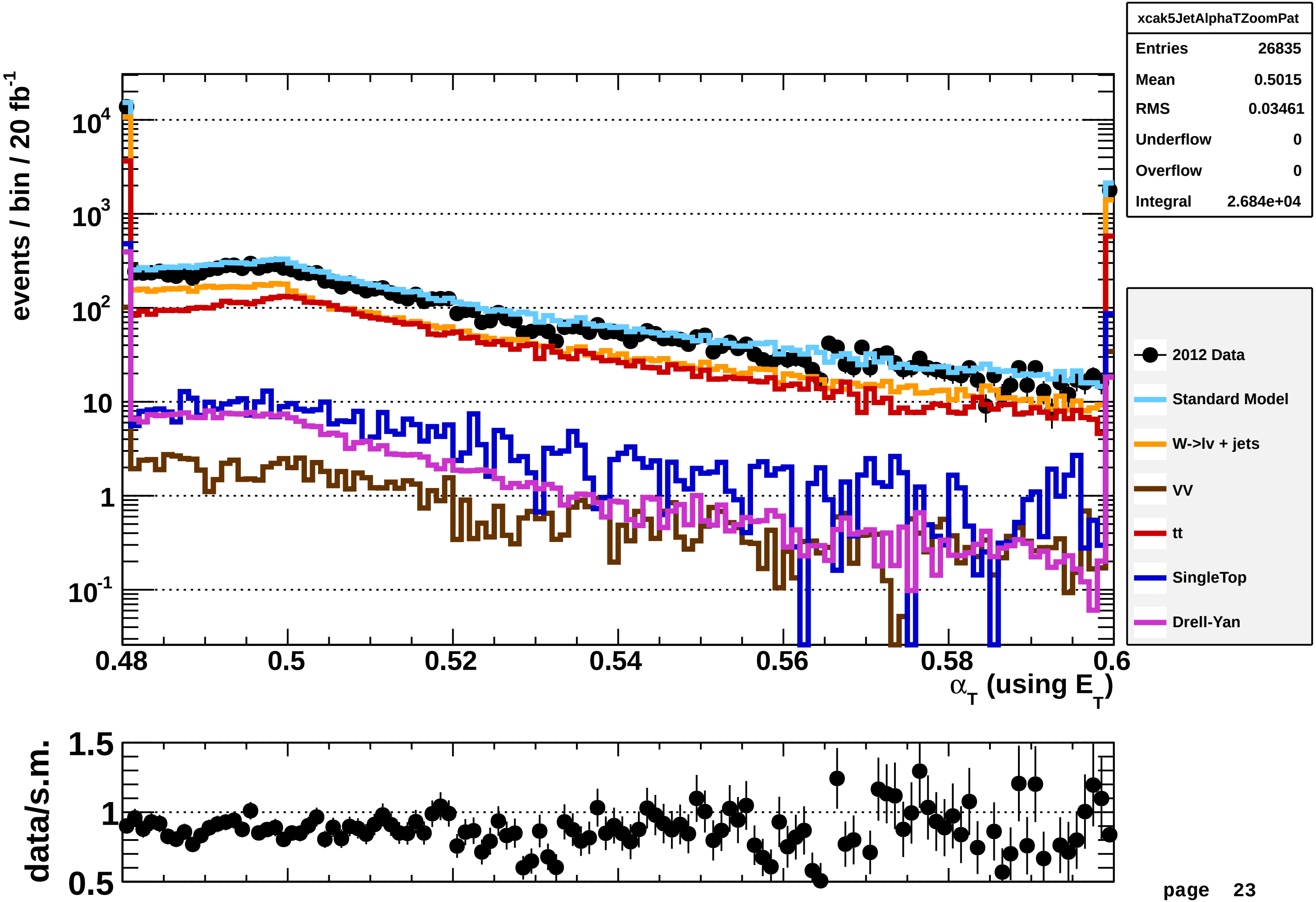
Drell-Yan

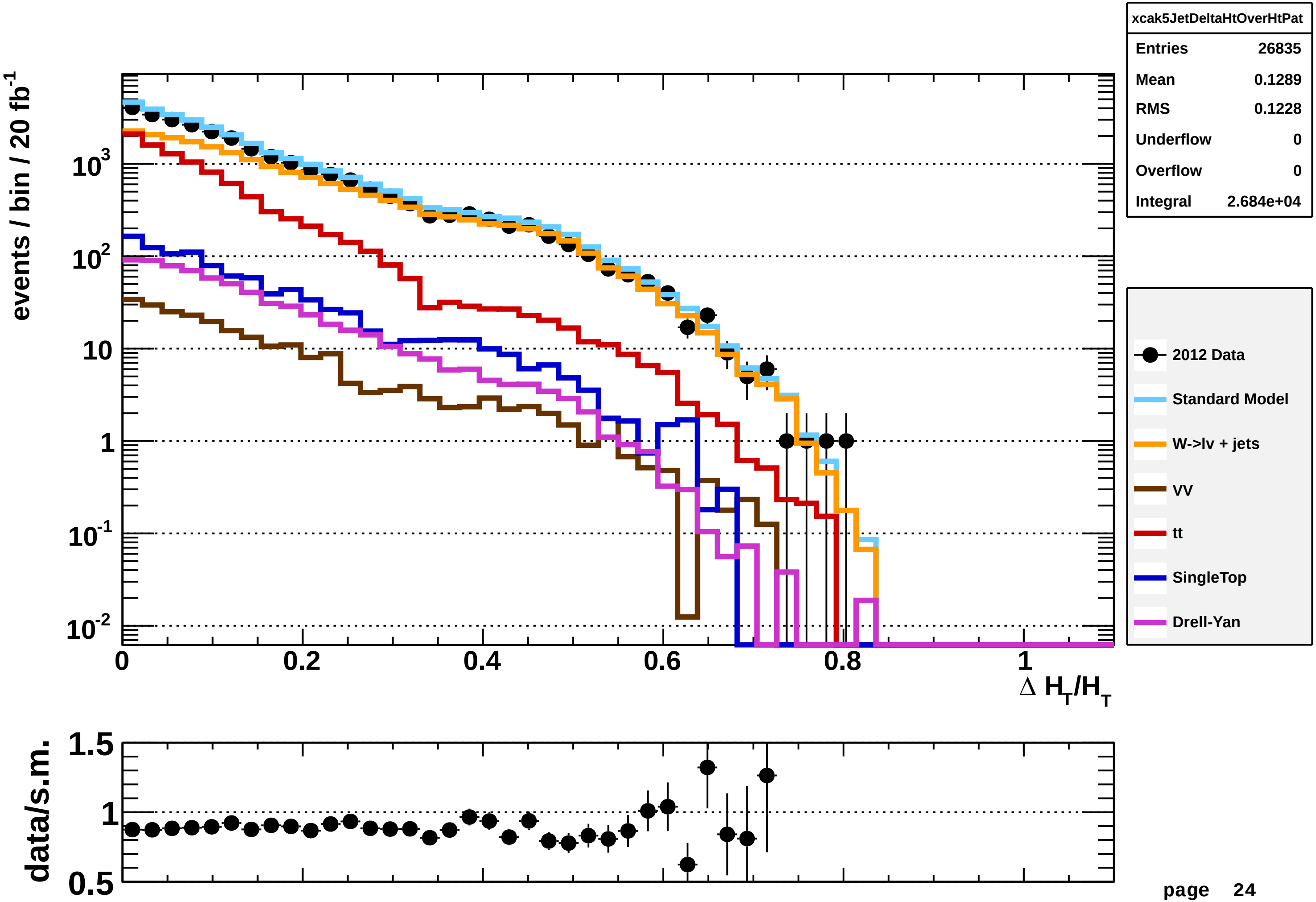


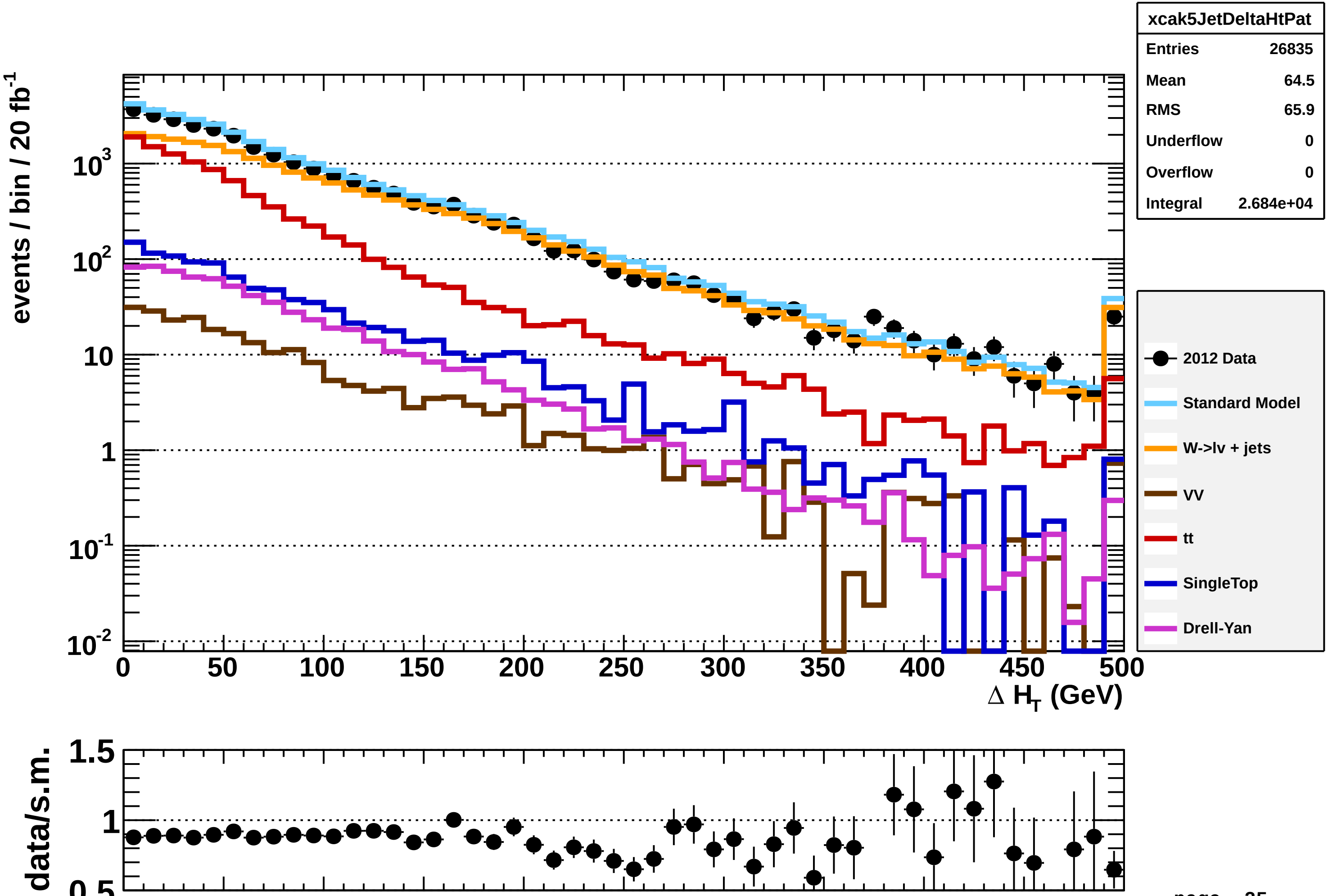

xcak5JetAlphaTFewBinsPat
Entries 26835
Mean 0.3465
RMS 0.22
Underflow 0
Overflow 0
Integral 2.684e+04
events / bin / 20 fb^{-1}
10^4
10^3
10^2
10
1
0
0.2
0.4
0.6
0.8
1
1.2
1.4
1.6
1.8
2
2.2
α_T (using E_T)
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
data/s.m.
1.5
1
0.5


xcak5JetAlphaTPat
Entries 26835
Mean 0.4934
RMS 0.1553
Underflow 0
Overflow 0
Integral 2.684e+04
events / bin / 20 fb^{-1}
10^{4}
10^{3}
10^{2}
10
1
10^{-1}
10^{-2}
0
0.2
0.4
0.6
0.8
1
1.2
1.4
1.6
1.8
2
α_T (using E_T)
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
data/s.m.
1.5
1
0.5

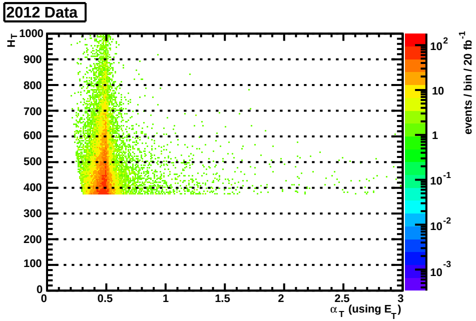

xcak5JetAlphaTRoughPat
Entries 26835
Mean 0.4931
RMS 0.1554
Underflow 0
Overflow 0
Integral 2.684e+04
events / bin / 20 fb^{-1}
10^4
10^3
10^2
10
1
10^{-1}
0
0.2
0.4
0.6
0.8
1
1.2
1.4
1.6
1.8
2
α_T (using E_T)
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
data/s.m.
1.5
1
0.5

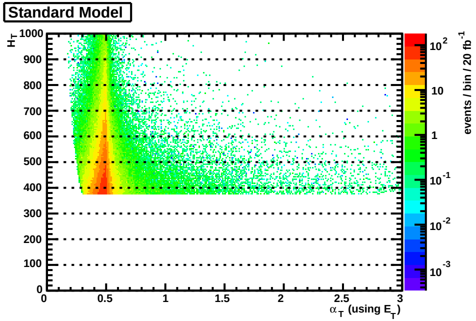

xcak5JetAlphaTZoomPat
Entries 26835
Mean 0.5015
RMS 0.03461
Underflow 0
Overflow 0
Integral 2.684e+04
events / bin / 20 fb^{-1}
10^4
10^3
10^2
10
1
10^{-1}
0.48
0.5
0.52
0.54
0.56
0.58
0.6
α_T (using E_T)
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
data/s.m.
1.5
1
0.5

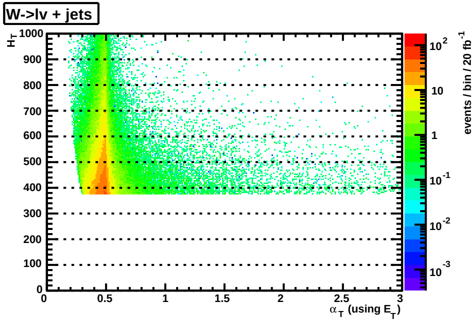

xcak5JetDeltaHtOverHtPat
Entries 26835
Mean 0.1289
RMS 0.1228
Underflow 0
Overflow 0
Integral 2.684e+04
events / bin / 20 fb^{-1}
10^3
10^2
10
1
10^{-1}
10^{-2}
0
0.2
0.4
0.6
0.8
1
Δ H_T/H_T
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
data/s.m.
1.5
1
0.5

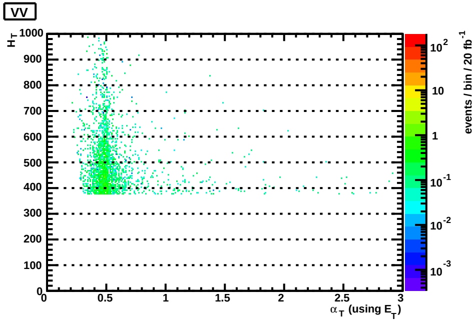


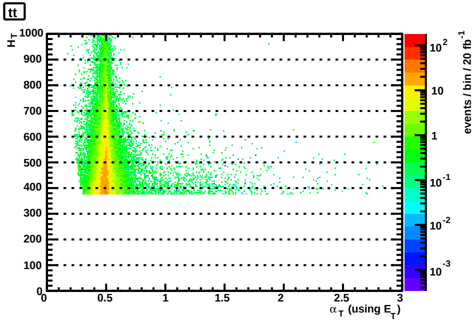
xcak5JetDeltaHtPat
Entries 26835
Mean 64.5
RMS 65.9
Underflow 0
Overflow 0
Integral 2.684e+04
events / bin / 20 fb^{-1}
10^3
10^2
10
1
10^{-1}
10^{-2}
0
50
100
150
200
250
300
350
400
450
500
Δ H_T (GeV)
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
data/s.m.
1.5
1
0.5

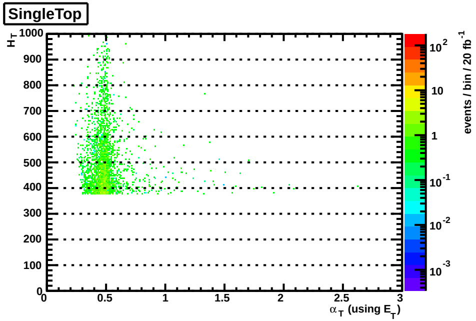

2012 Data
H_T
1000
900
800
700
600
500
400
300
200
100
0
0.5
1
1.5
2
2.5
3
α_T (using E_T)
10^2
10
1
10^{-1}
10^{-2}
10^{-3}
events / bin / 20 fb^{-1}

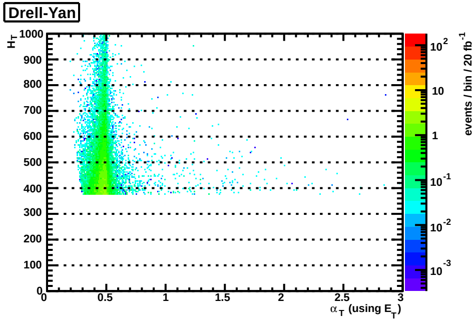

Standard Model
H_T
1000
900
800
700
600
500
400
300
200
100
0
0.5
1
1.5
2
2.5
3
α_T (using E_T)
10^2
10
1
10^{-1}
10^{-2}
10^{-3}
events / bin / 20 fb^{-1}

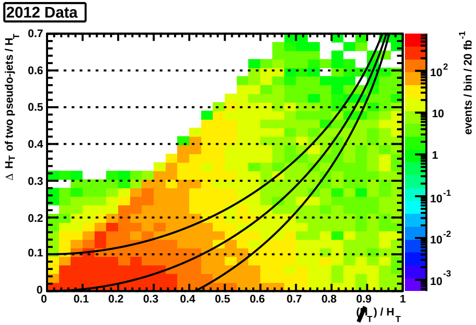

W->lv + jets
H_T
1000
900
800
700
600
500
400
300
200
100
0
0.5
1
1.5
2
2.5
3
α_T (using E_T)
10^2
10
1
10^{-1}
10^{-2}
10^{-3}
events / bin / 20 fb^{-1}

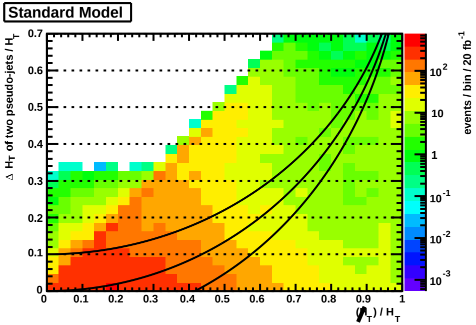

VV
H_T
1000
900
800
700
600
500
400
300
200
100
0
0.5
1
1.5
2
2.5
3
α_T (using E_T)
10^2
10
1
10^{-1}
10^{-2}
10^{-3}
events / bin / 20 fb^{-1}

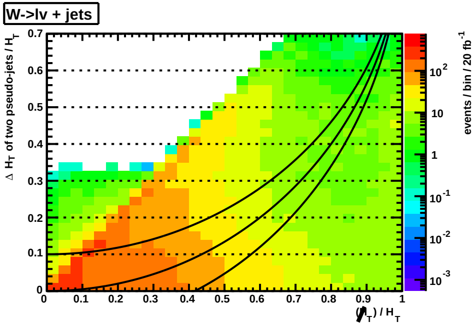

tt
H_T
1000
900
800
700
600
500
400
300
200
100
0
0.5
1
1.5
2
2.5
3
α_T (using E_T)
10^2
10
1
10^{-1}
10^{-2}
10^{-3}
events / bin / 20 fb^{-1}

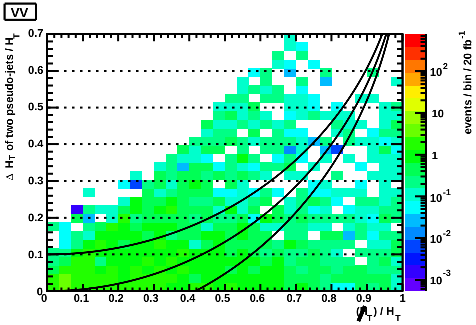

SingleTop
H_T
1000
900
800
700
600
500
400
300
200
100
0
0.5
1
1.5
2
2.5
3
α_T (using E_T)
10^2
10
1
10^{-1}
10^{-2}
10^{-3}
events / bin / 20 fb^{-1}

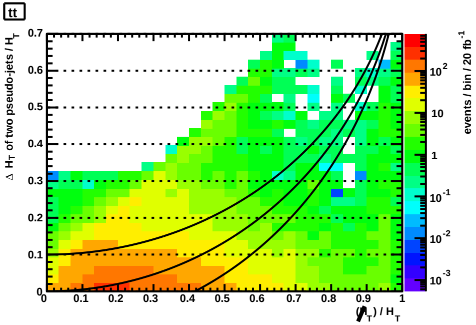

Drell-Yan
H_T
1000
900
800
700
600
500
400
300
200
100
0
0.5
1
1.5
2
2.5
3
α_T (using E_T)
10^2
10
1
10^{-1}
10^{-2}
10^{-3}
events / bin / 20 fb^{-1}

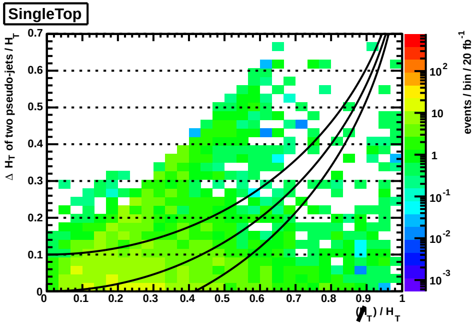

2012 Data

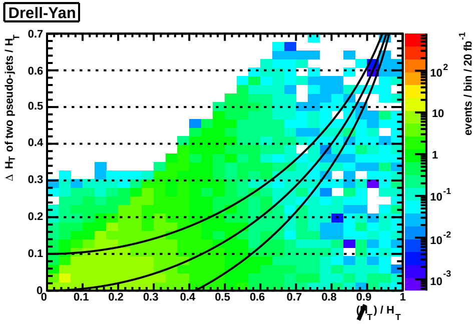

Standard Model


W->lv + jets

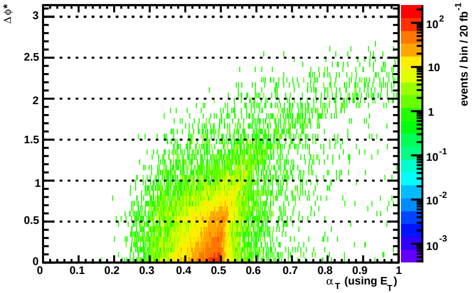

VV


tt

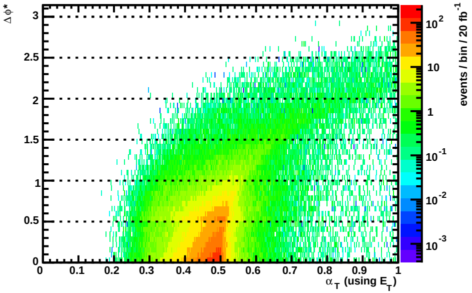

SingleTop


Drell-Yan

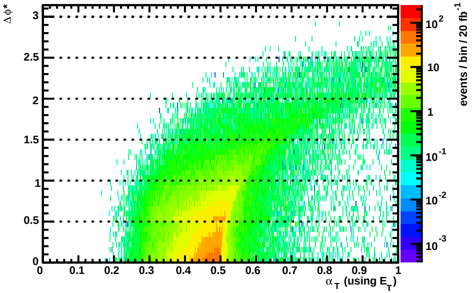
2012 Data



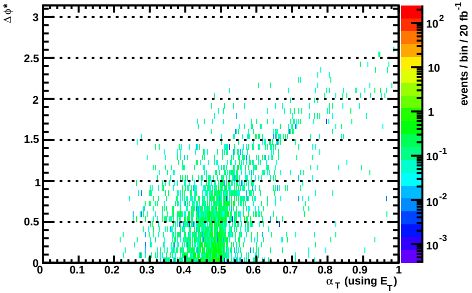
Standard Model



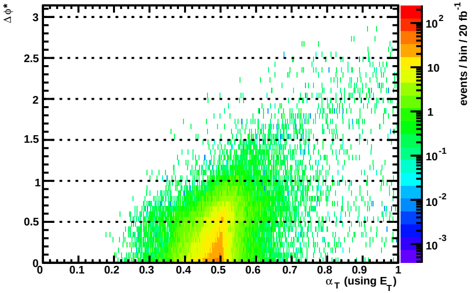
W->lv + jets



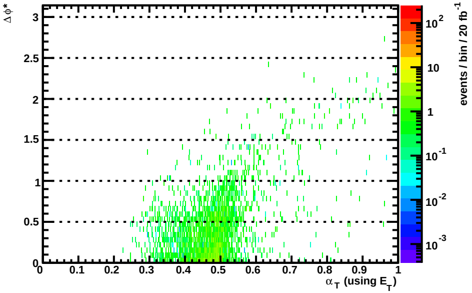
VV



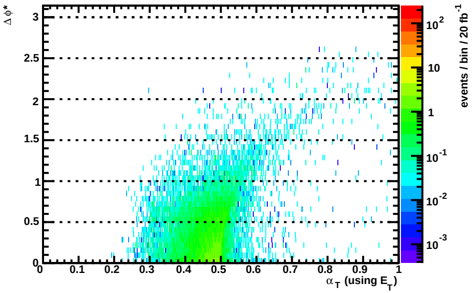
tt

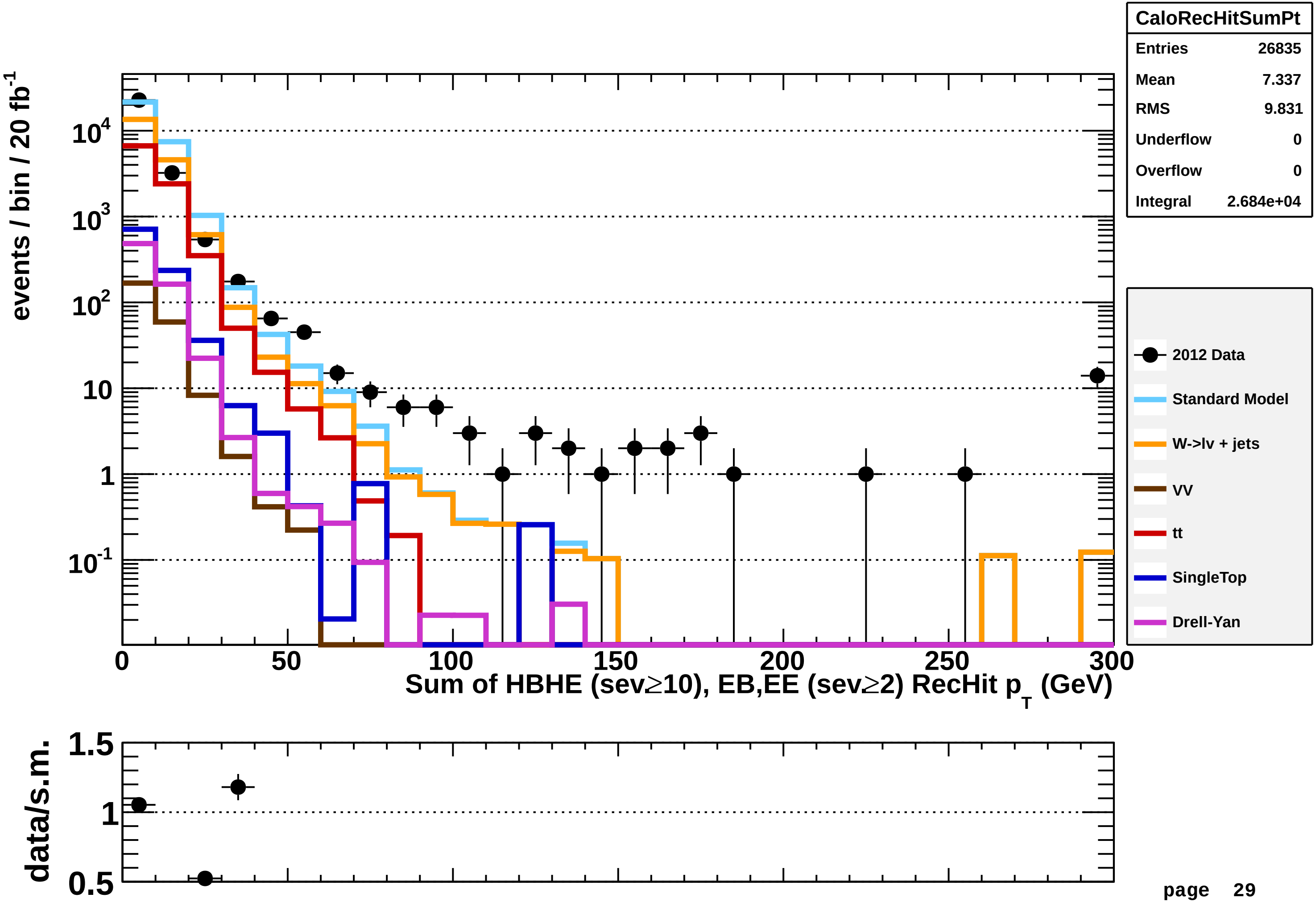


SingleTop



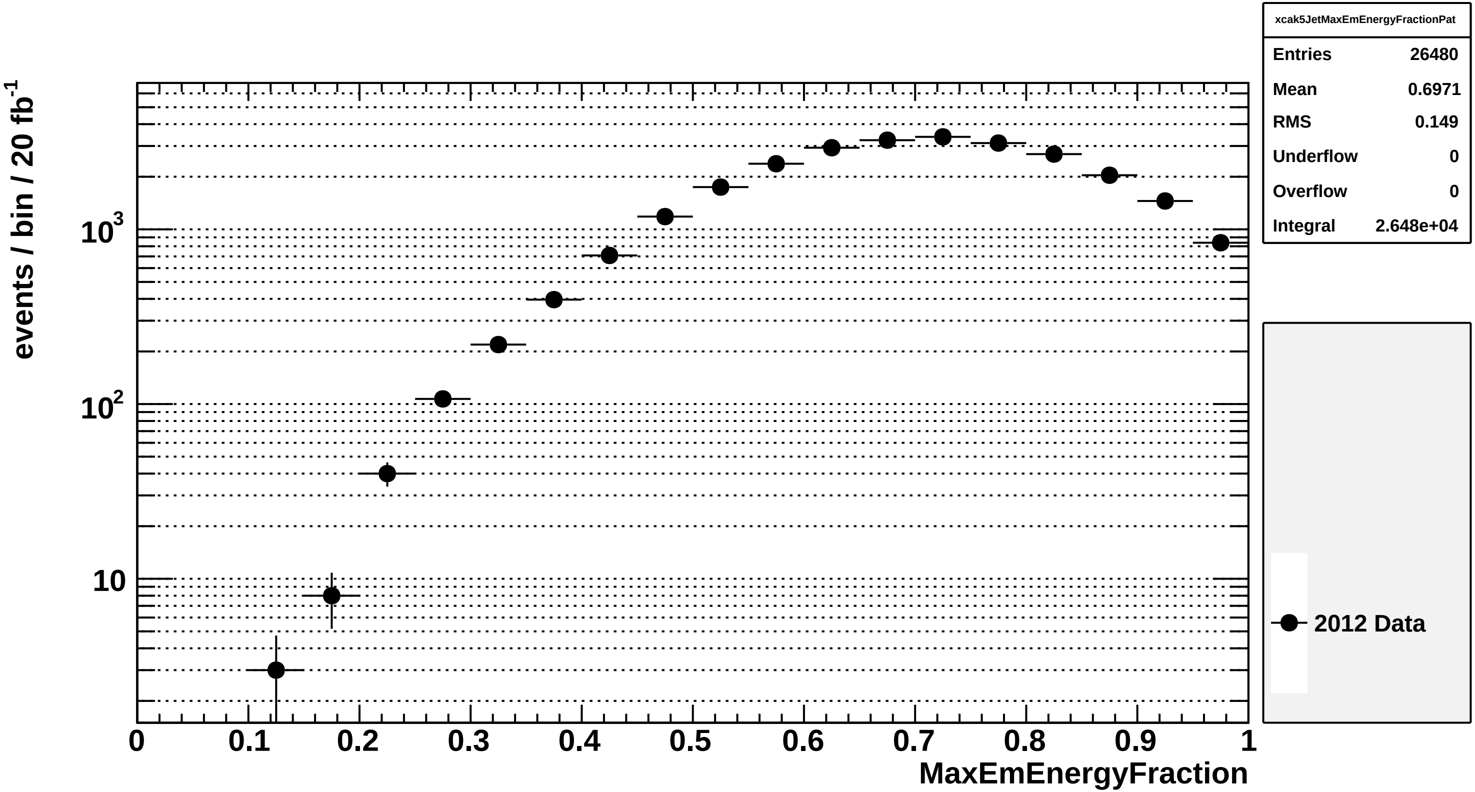
Drell-Yan



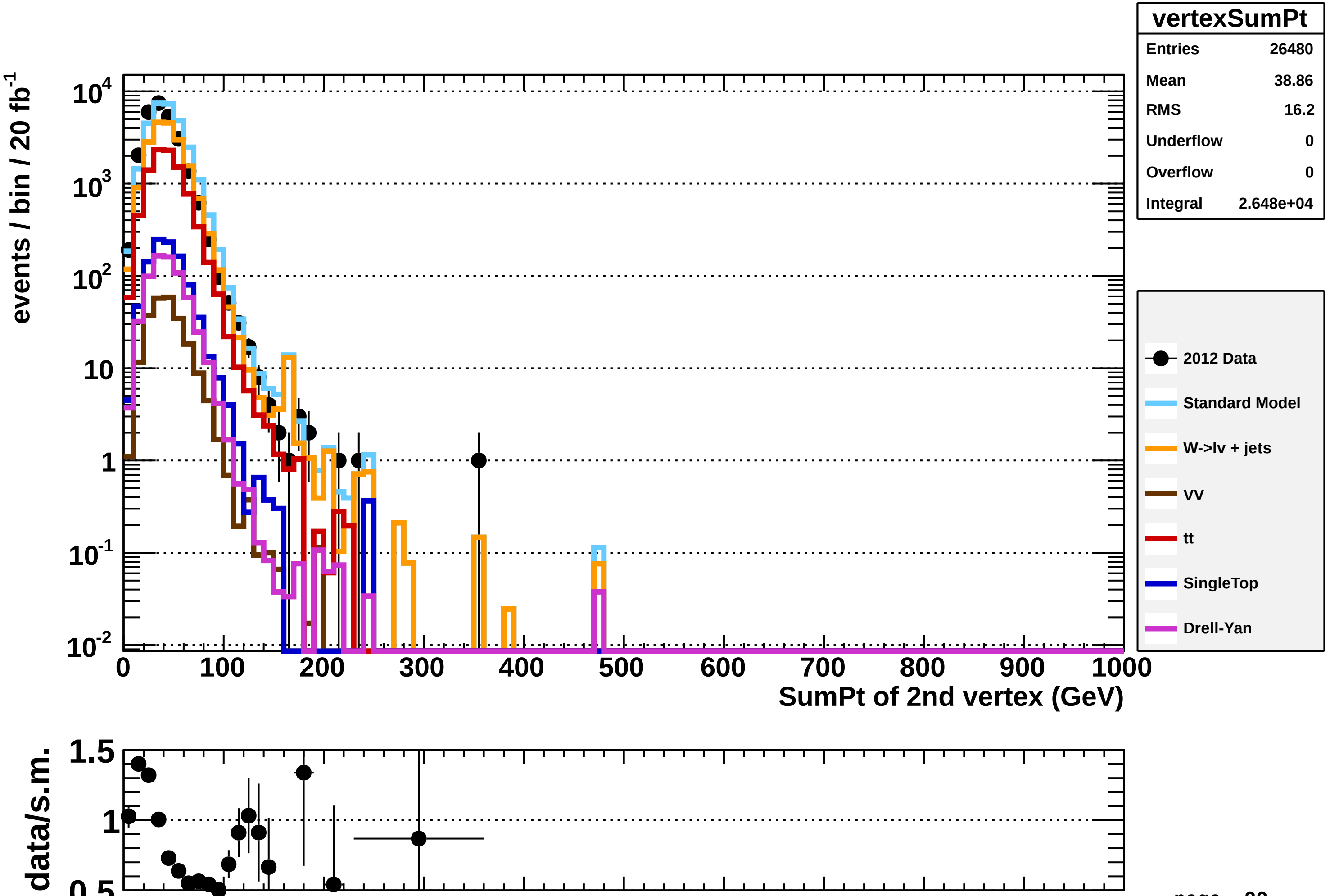

CaloRecHitSumPt
Entries 26835
Mean 7.337
RMS 9.831
Underflow 0
Overflow 0
Integral 2.684e+04
events / bin / 20 fb^{-1}
10^4
10^3
10^2
10
1
10^{-1}
0
50
100
150
200
250
300
Sum of HBHE (sev≥10), EB,EE (sev≥2) RecHit p_T (GeV)
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
data/s.m.
1.5
1
0.5

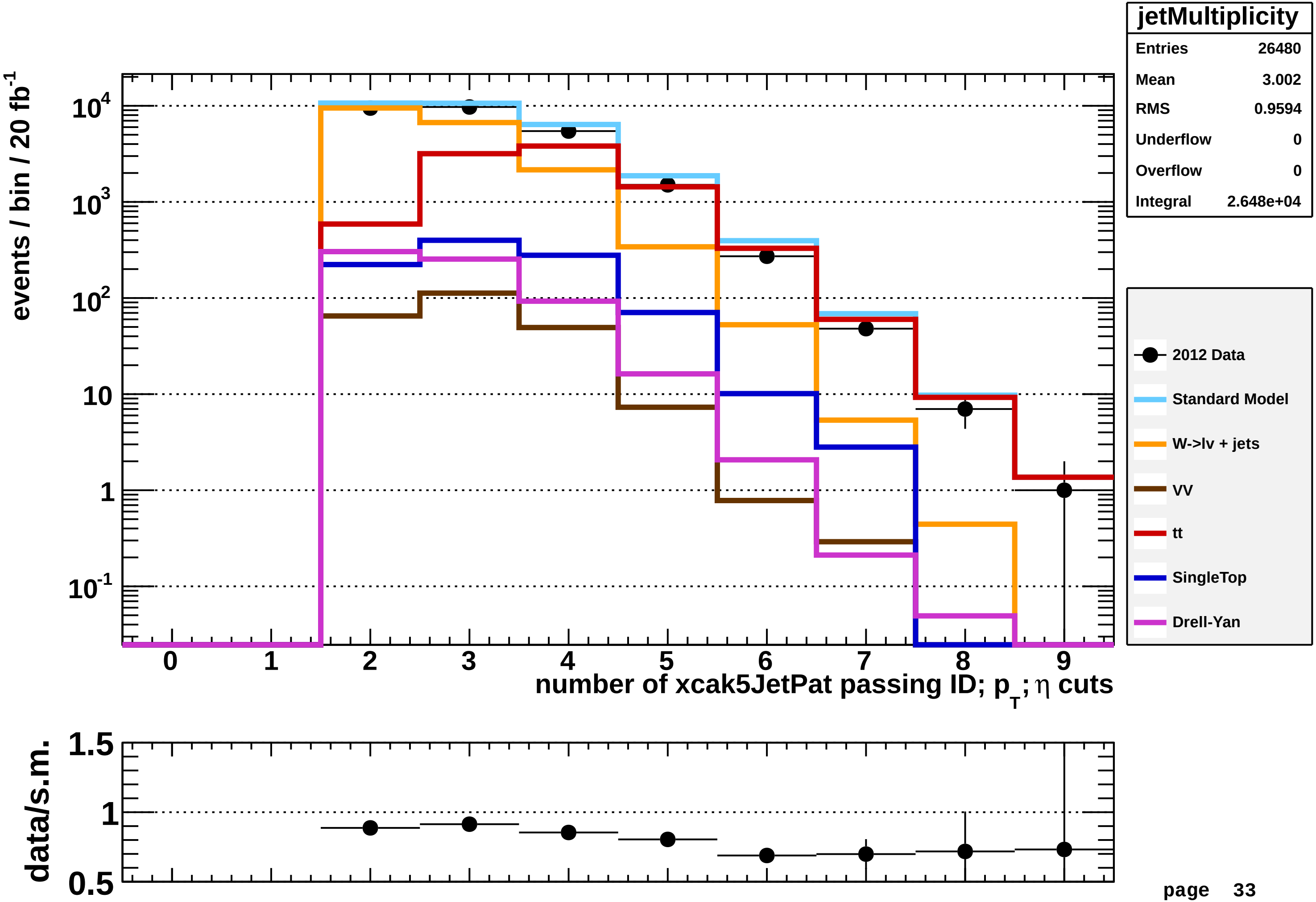
```
 r:  jetPtSelector                      xcak5JetPat; pT[index[1]]>=100.0 GeV
 s:  value                              375.00<=xcak5JetSumEtPat
 t:  multiplicity                       2 <= xcak5JetIndicesPat

 u:  multiplicity                       0 <= xcak5JetIndicesOtherPat <= 0
 v:  multiplicity                       0 <= xcak5JetIndicesWithOddMuonPat <= 0
 w:  uniquelyMatchedNonisoMuons         xcak5JetPat
 x:  multiplicity                       0 <= electronIndicesPat <= 0
 y:  multiplicity                       0 <= photonIndicesPat <= 0

 z:  multiplicity                       0 <= electronIndicesUnmatchedPat <= 0
 A:  multiplicity                       0 <= photonIndicesUnmatchedPat <= 0
 B:  deadEcalFilter                     xcak5JetPat; dR>0.300 when deltaPhiStar<0.500
 C:  multiplicity                       1 <= muonIndicesPat <= 1
 D:  pt                                 30.00<=muonP4Pat[i[0]].pt; muonIndicesPat

 E:  eta                                -2.10<=muonP4Pat[i[0]].eta<=2.10; muonIndicesPat
 F:  value                              30.00<=muonMtPatmetP4TypeIPF<=125.00
 G:  value                              xcak5JetMhthighPtPatOvermetP4TypeIPFPlusmuonIndicesPat<=1.25
|H:  value                              CaloRecHitSumPt<=30.00
|I:  value                              0.10<=xcak5JetMaxEmEnergyFractionPat



          2012 Data Standard Model   W->lv + jets            VV            tt     SingleTop     Drell-Yan      data/s.m.

 r:          313853   2.0816(9)e+6   8.941(7)e+5   5.660(7)e+4   8.504(4)e+5   1.710(2)e+5   1.096(2)e+5     0.1508(3)
 s:          126351   1.0320(4)e+6   3.206(2)e+5   2.529(5)e+4   5.615(3)e+5    8.44(2)e+4   4.021(5)e+4     0.1224(3)
 t:          126351   1.0320(4)e+6   3.206(2)e+5   2.529(5)e+4   5.615(3)e+5    8.44(2)e+4   4.021(5)e+4     0.1224(3)

 u:          124310   1.0059(4)e+6   3.149(2)e+5   2.482(5)e+4   5.452(3)e+5    8.19(2)e+4   3.914(5)e+4     0.1236(4)
 v:          122470    9.968(4)e+5   3.136(2)e+5   2.477(5)e+4   5.386(3)e+5    8.11(2)e+4   3.884(5)e+4     0.1229(4)
 w:          120901    9.892(4)e+5   3.119(2)e+5   2.471(5)e+4   5.335(3)e+5    8.06(2)e+4   3.850(5)e+4     0.1222(4)
 x:          118771    8.335(4)e+5   2.292(2)e+5   2.365(5)e+4   4.808(3)e+5    7.57(2)e+4   2.415(5)e+4     0.1425(4)
 y:          118246    8.272(4)e+5   2.252(2)e+5   2.354(5)e+4   4.793(3)e+5    7.55(2)e+4   2.359(4)e+4     0.1430(4)

 z:          118142    8.254(4)e+5   2.248(2)e+5   2.350(5)e+4   4.782(3)e+5    7.54(2)e+4   2.353(4)e+4     0.1431(4)
 A:          118135    8.254(4)e+5   2.248(2)e+5   2.350(5)e+4   4.782(3)e+5    7.54(2)e+4   2.353(4)e+4     0.1431(4)
 B:           58474    2.723(2)e+5   1.009(1)e+5    6.61(2)e+3   1.335(2)e+5   2.147(9)e+4    9.78(3)e+3     0.2147(9)
 C:           52068     7.14(1)e+4   4.300(8)e+4        533(7)   2.312(7)e+4    2.36(3)e+3    2.42(1)e+3      0.729(3)
 D:           47847   5.650(10)e+4   3.416(7)e+4        443(7)   1.819(6)e+4    1.81(3)e+3       1889(9)      0.847(4)

 E:           47844    5.376(9)e+4   3.205(7)e+4        414(7)   1.783(6)e+4    1.77(3)e+3       1693(8)      0.890(4)
 F:           34384    3.893(8)e+4   2.348(6)e+4        296(6)   1.292(5)e+4    1.30(2)e+3        940(6)      0.883(5)
 G:           26835    3.027(7)e+4   1.888(5)e+4        237(5)    9.49(4)e+3     9.9(2)e+2        674(5)      0.886(6)
|H:           26480    3.005(7)e+4   1.875(5)e+4        235(5)    9.41(4)e+3     9.8(2)e+2        670(5)      0.881(6)
|I:           26480              -             -             -             -             -             -
```

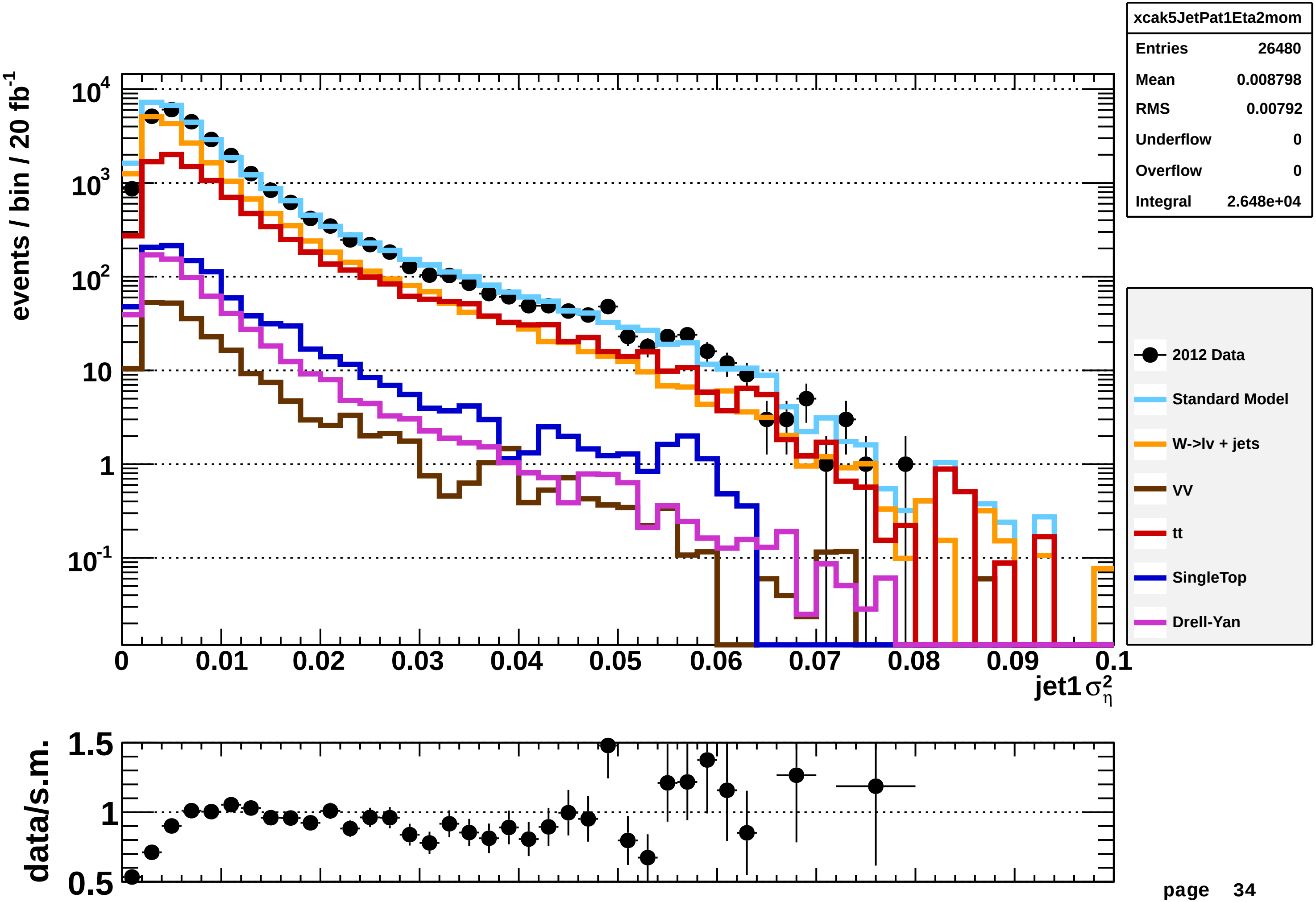
events / 20 fb^{-1}

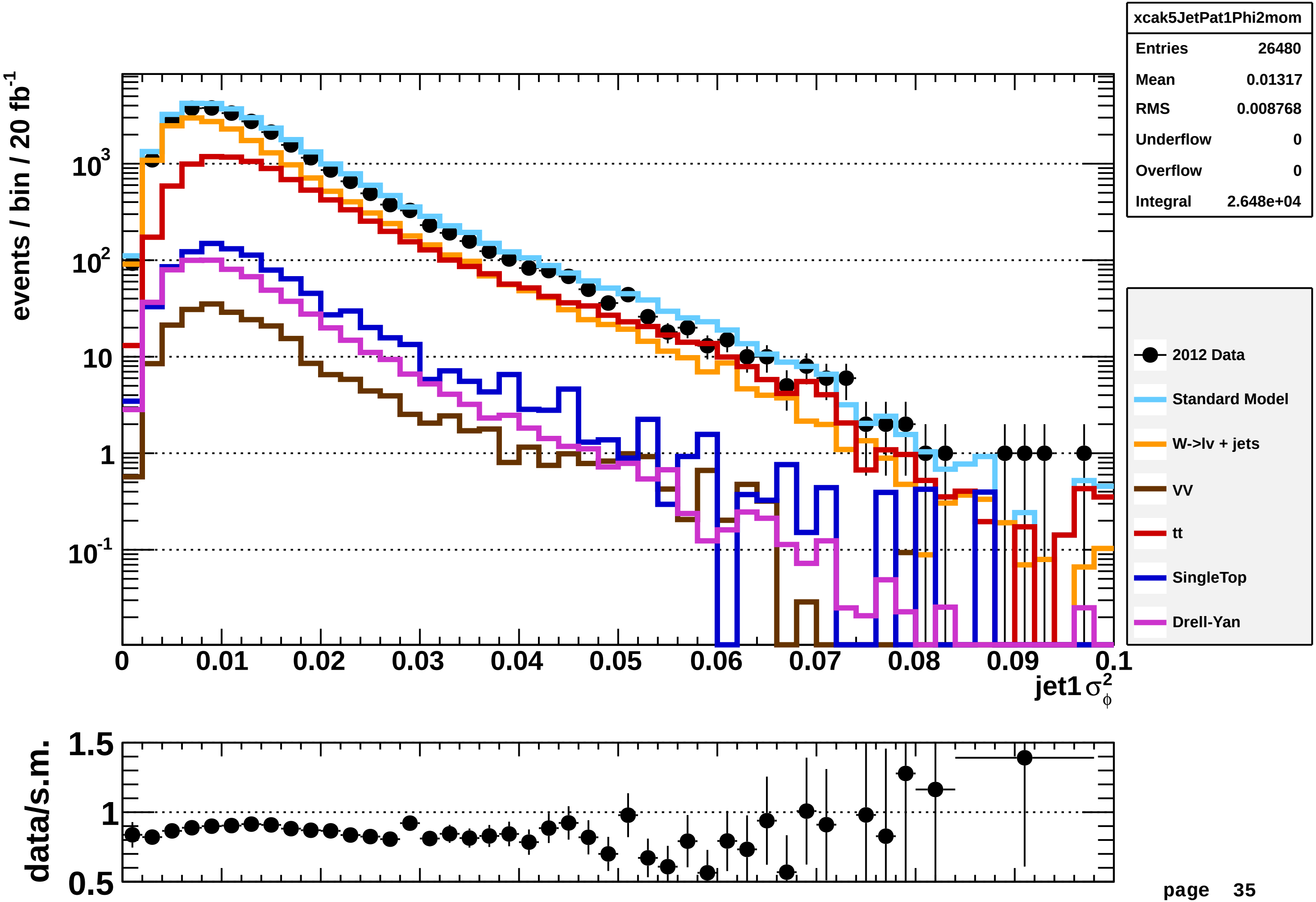


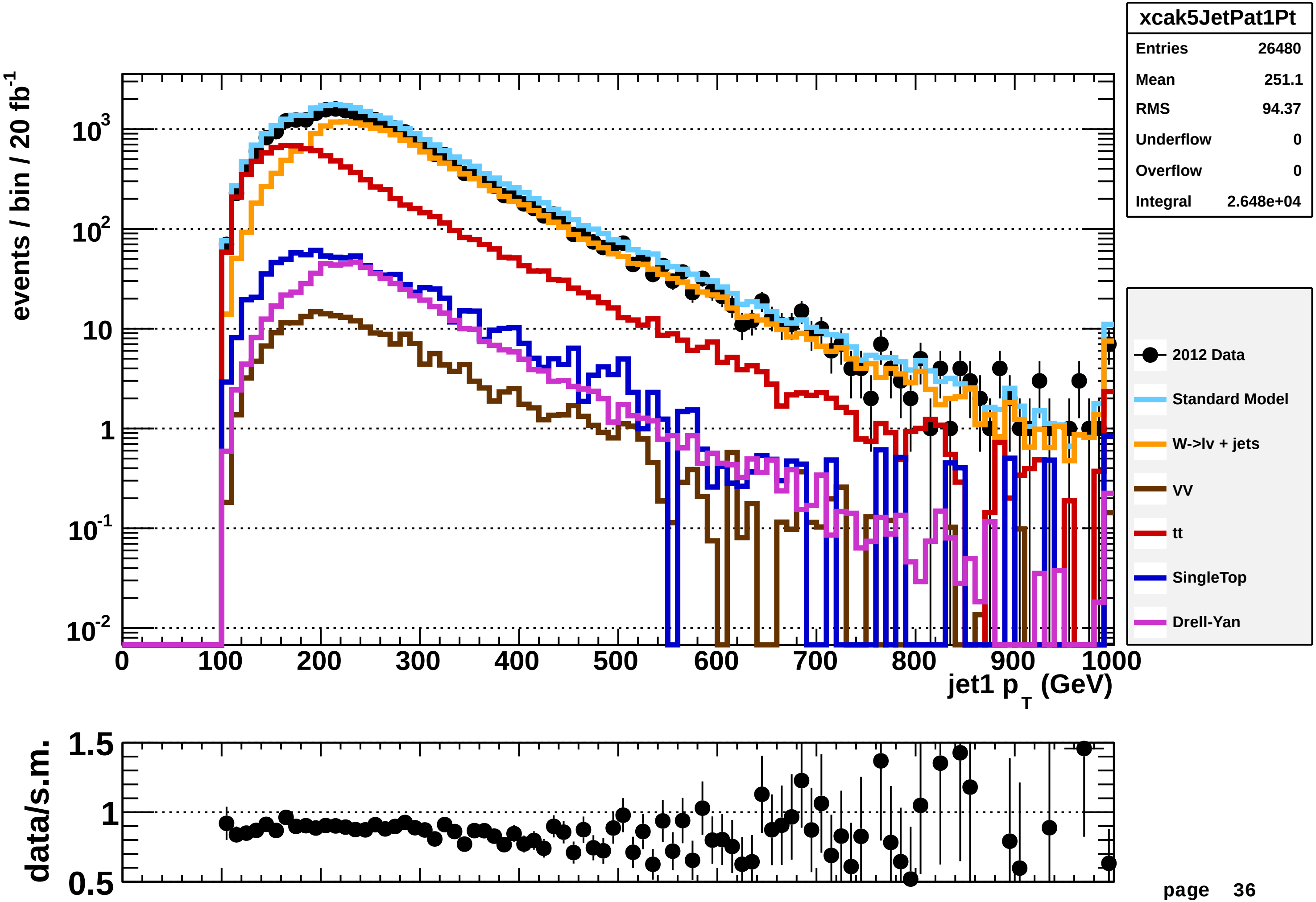
xcak5JetMaxEmEnergyFractionPat
Entries 26480
Mean 0.6971
RMS 0.149
Underflow 0
Overflow 0
Integral 2.648e+04
events / bin / 20 fb^{-1}
10^3
10^2
10
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1
MaxEmEnergyFraction
2012 Data

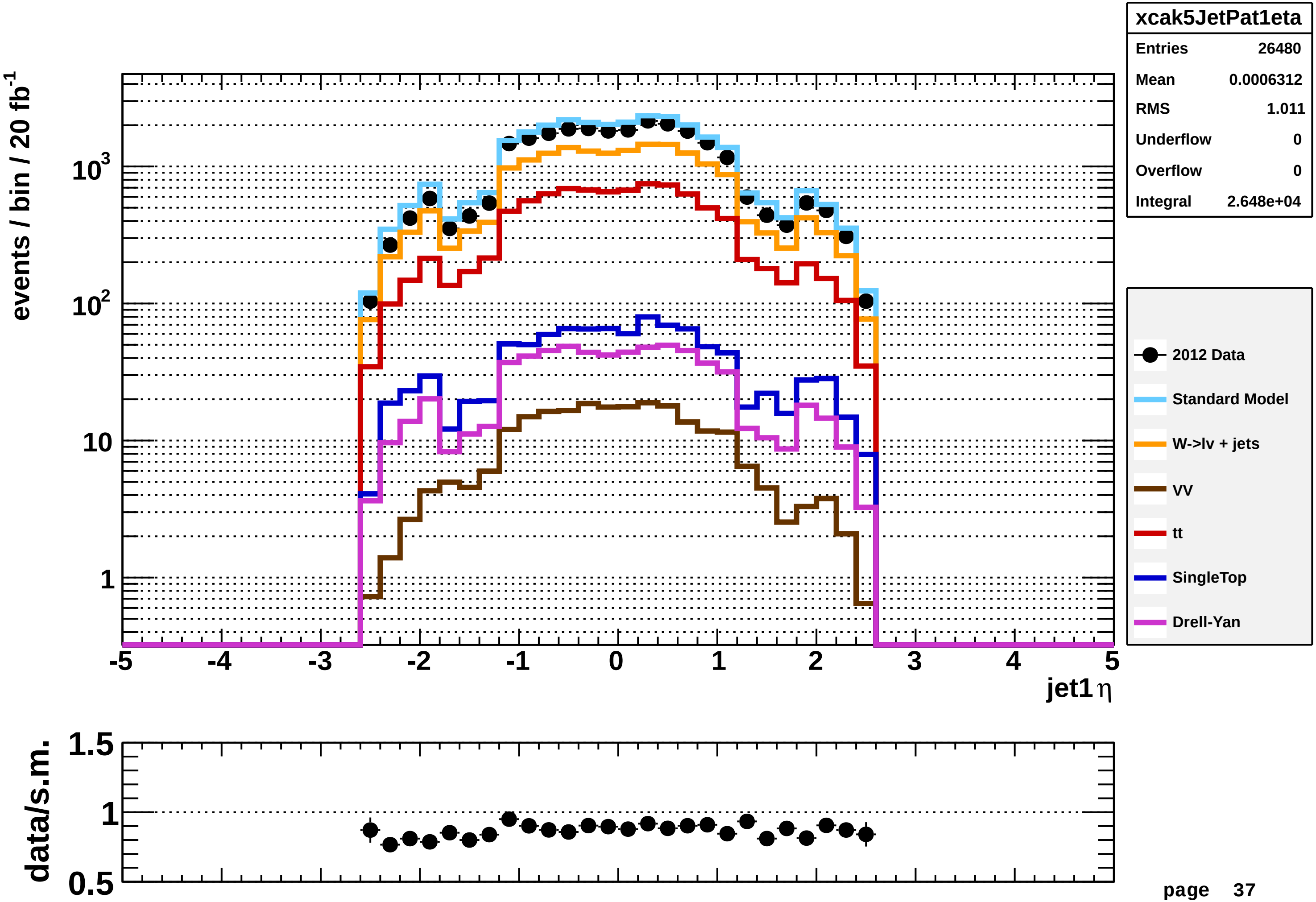

vertexSumPt
Entries 26480
Mean 38.86
RMS 16.2
Underflow 0
Overflow 0
Integral 2.648e+04
events / bin / 20 fb^{-1}
10^4
10^3
10^2
10
1
10^{-1}
10^{-2}
0
100
200
300
400
500
600
700
800
900
1000
SumPt of 2nd vertex (GeV)
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
data/s.m.
1.5
1
0.5

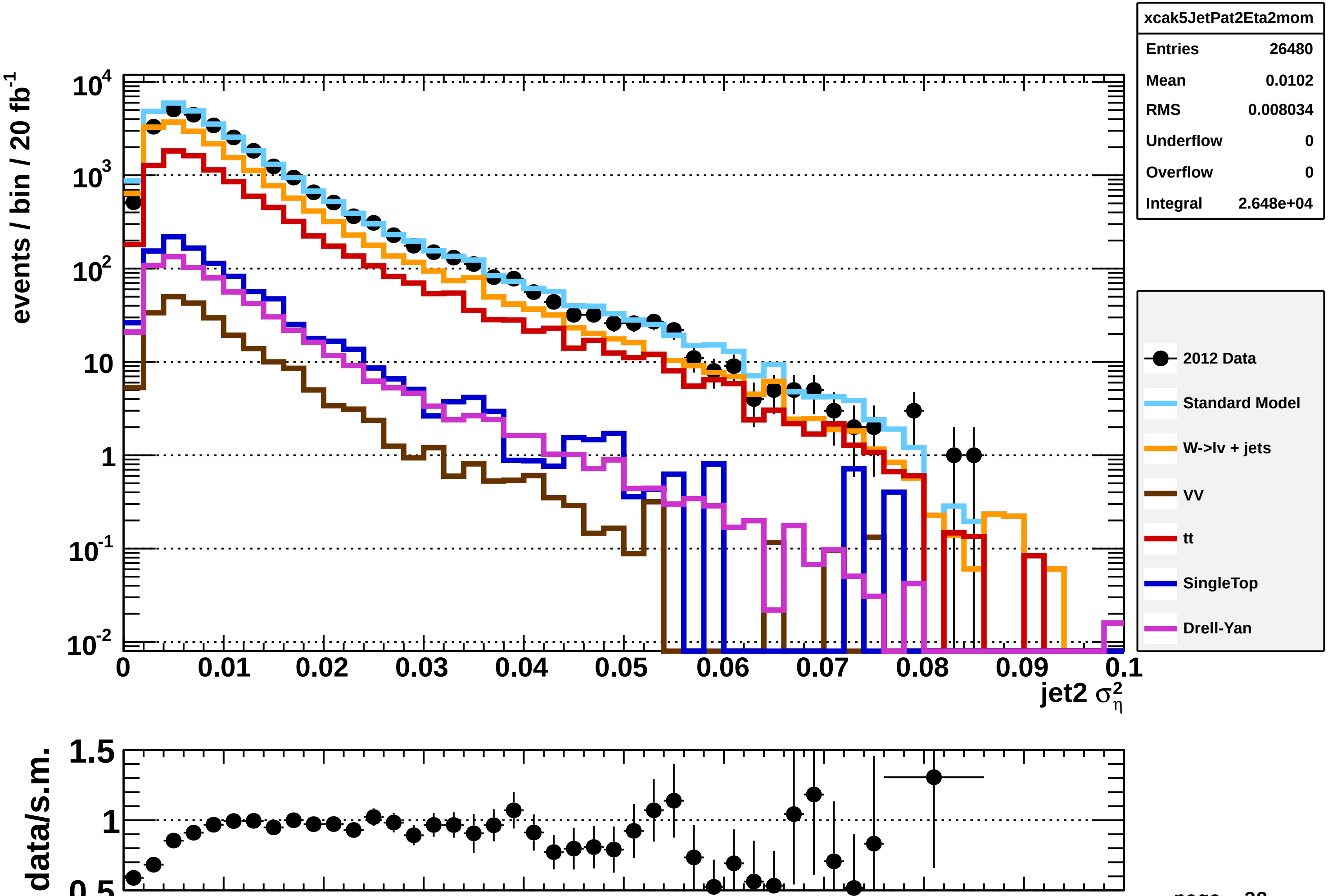

jetMultiplicity
Entries 26480
Mean 3.002
RMS 0.9594
Underflow 0
Overflow 0
Integral 2.648e+04
events / bin / 20 fb^{-1}
10^4
10^3
10^2
10
1
10^{-1}
0
1
2
3
4
5
6
7
8
9
number of xcak5JetPat passing ID; p_T; η cuts
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
data/s.m.
1.5
1
0.5

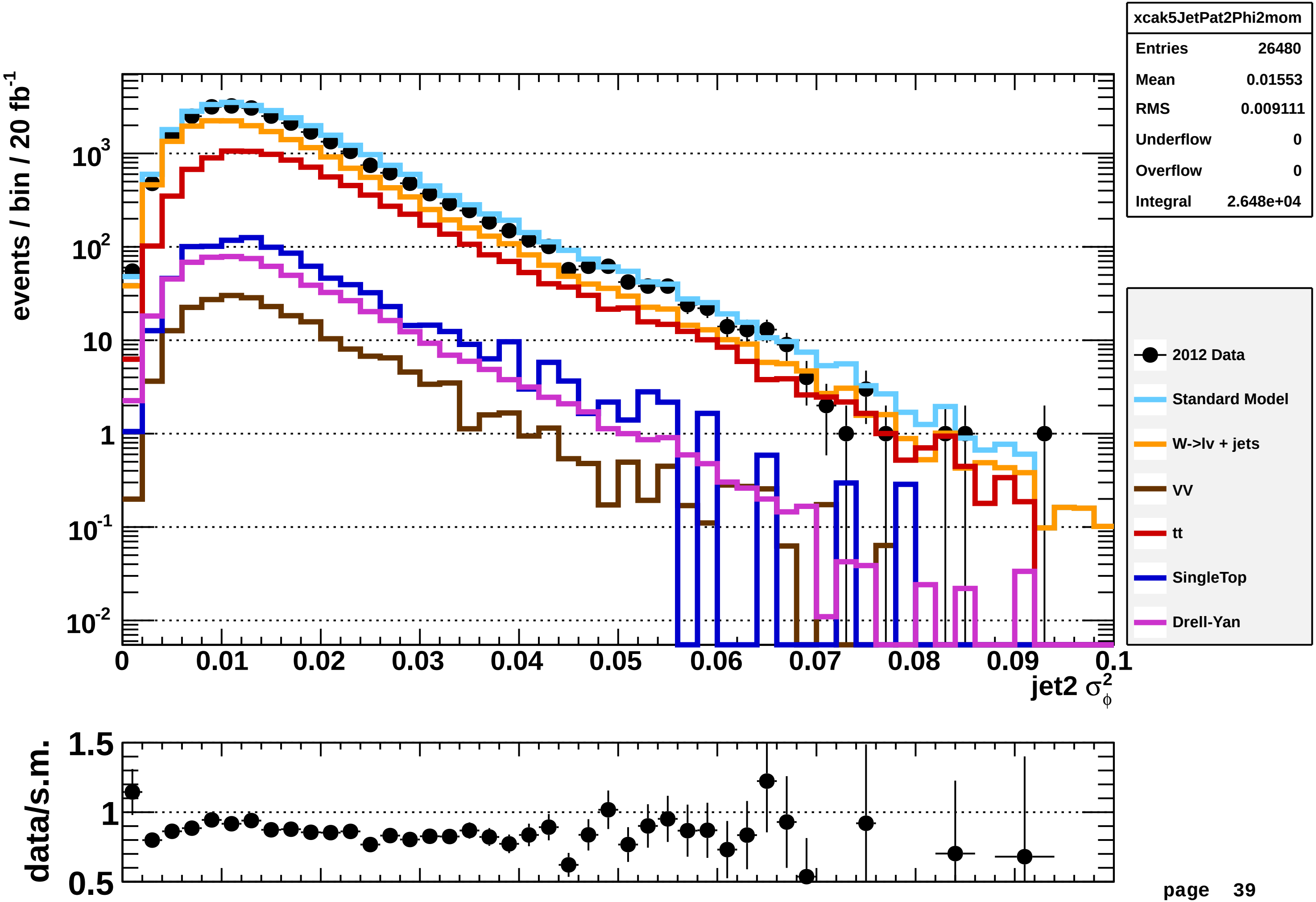

xcak5JetPat1Eta2mom
Entries 26480
Mean 0.008798
RMS 0.00792
Underflow 0
Overflow 0
Integral 2.648e+04
events / bin / 20 fb^{-1}
10^4
10^3
10^2
10
1
10^{-1}
0
0.01
0.02
0.03
0.04
0.05
0.06
0.07
0.08
0.09
0.1
jet1 σ_η^2
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
data/s.m.
1.5
1
0.5

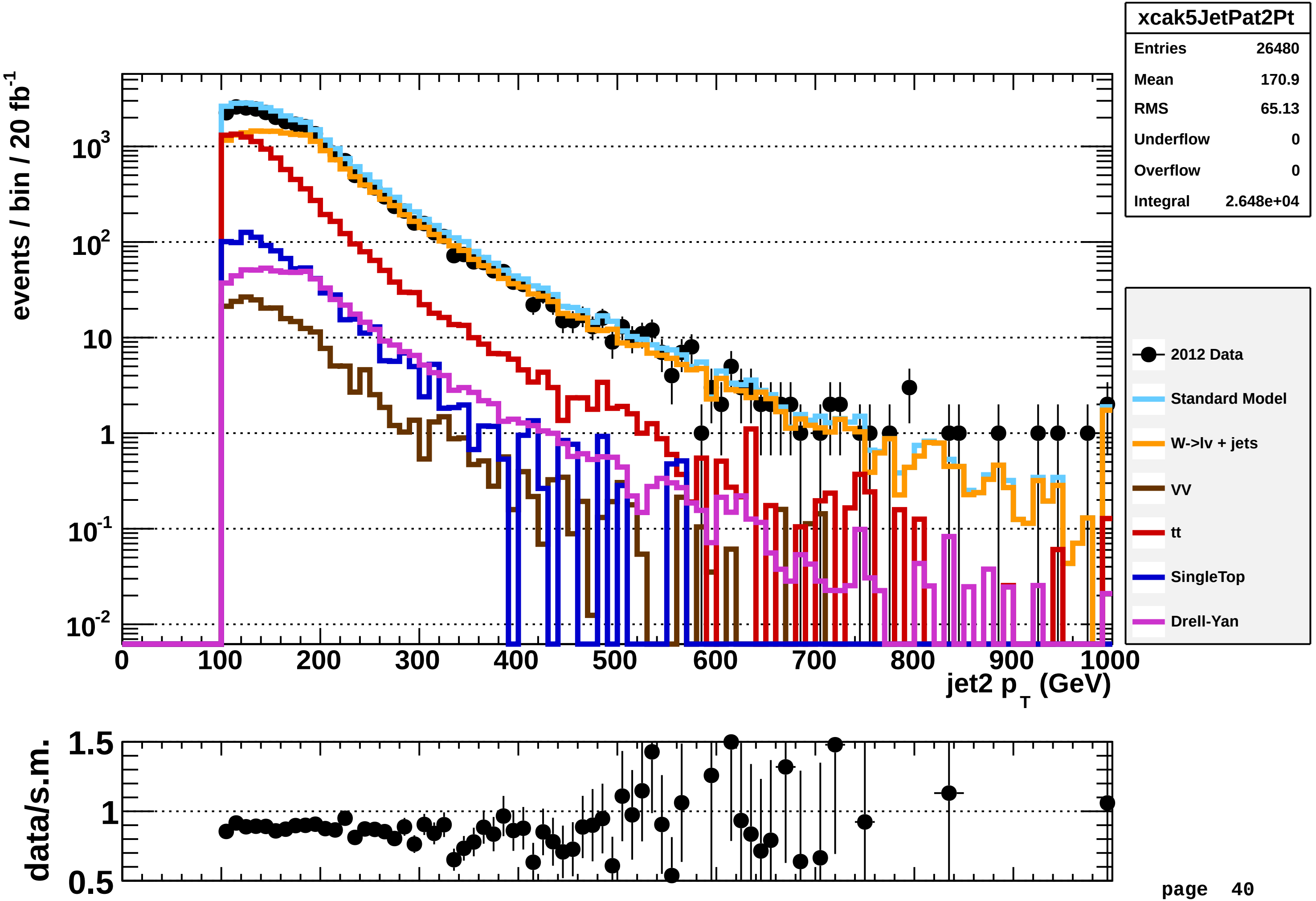

xcak5JetPat1Phi2mom
Entries 26480
Mean 0.01317
RMS 0.008768
Underflow 0
Overflow 0
Integral 2.648e+04
events / bin / 20 fb^{-1}
10^{3}
10^{2}
10
1
10^{-1}
0
0.01
0.02
0.03
0.04
0.05
0.06
0.07
0.08
0.09
0.1
jet1 σ_{ϕ}^{2}
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
data/s.m.
1.5
1
0.5

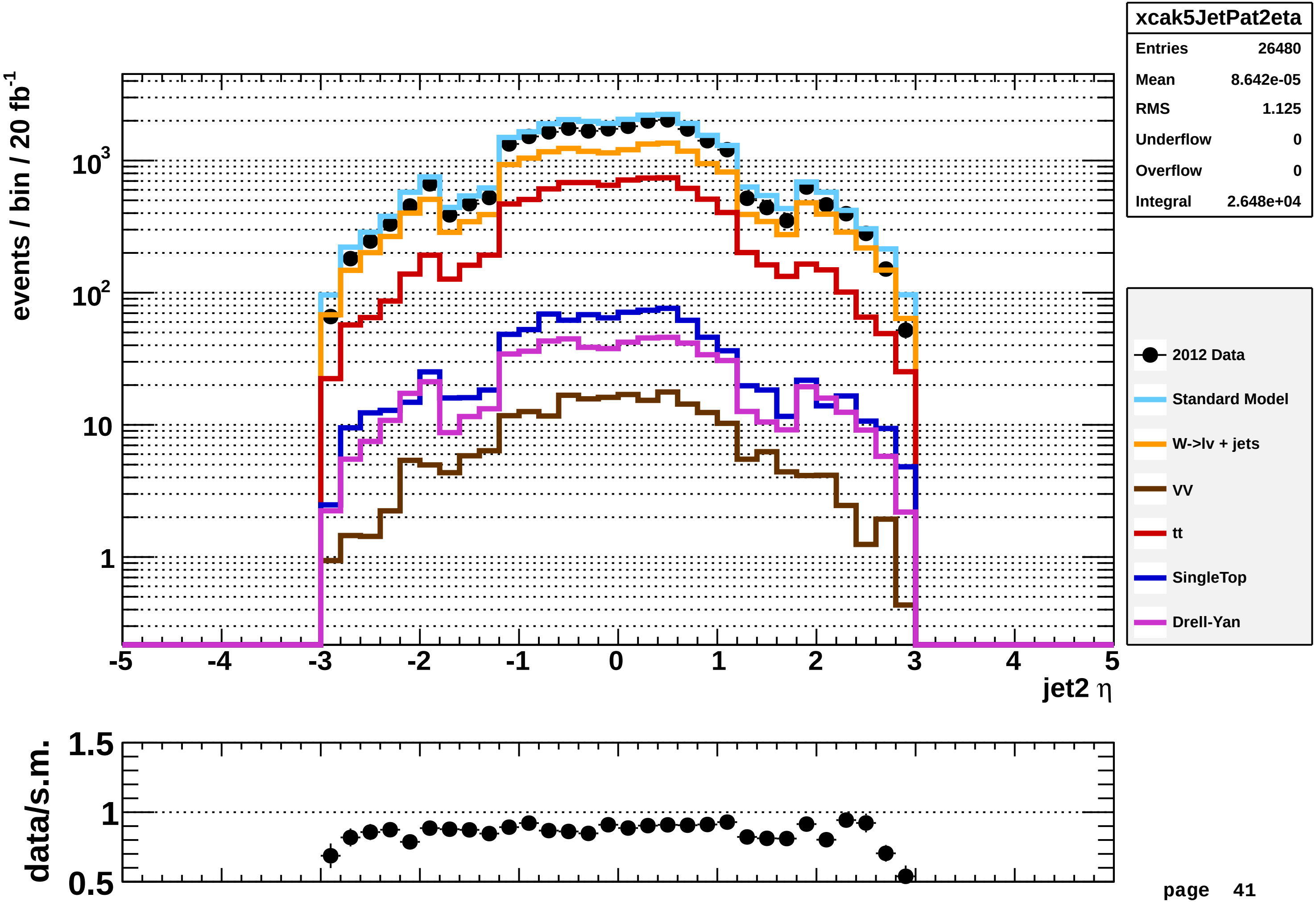

xcak5JetPat1Pt
Entries 26480
Mean 251.1
RMS 94.37
Underflow 0
Overflow 0
Integral 2.648e+04
events / bin / 20 fb^{-1}
10^{3}
10^{2}
10
1
10^{-1}
10^{-2}
0
100
200
300
400
500
600
700
800
900
1000
jet1 p_T (GeV)
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
data/s.m.
1.5
1
0.5

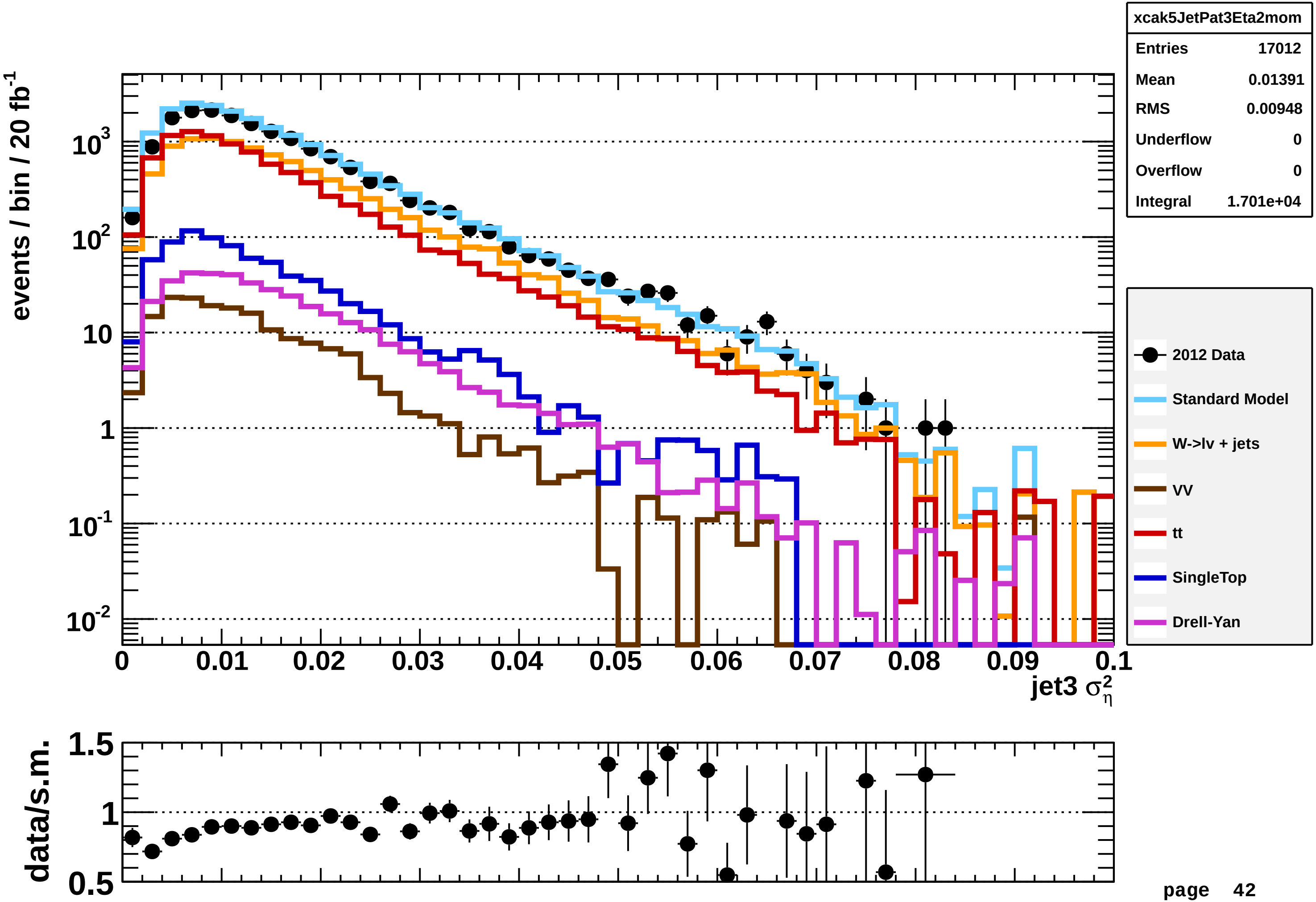

xcak5JetPat1eta
Entries 26480
Mean 0.0006312
RMS 1.011
Underflow 0
Overflow 0
Integral 2.648e+04
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
events / bin / 20 fb^{-1}
10^3
10^2
10
1
-5
-4
-3
-2
-1
0
1
2
3
4
5
jet1 η
data/s.m.
1.5
1
0.5

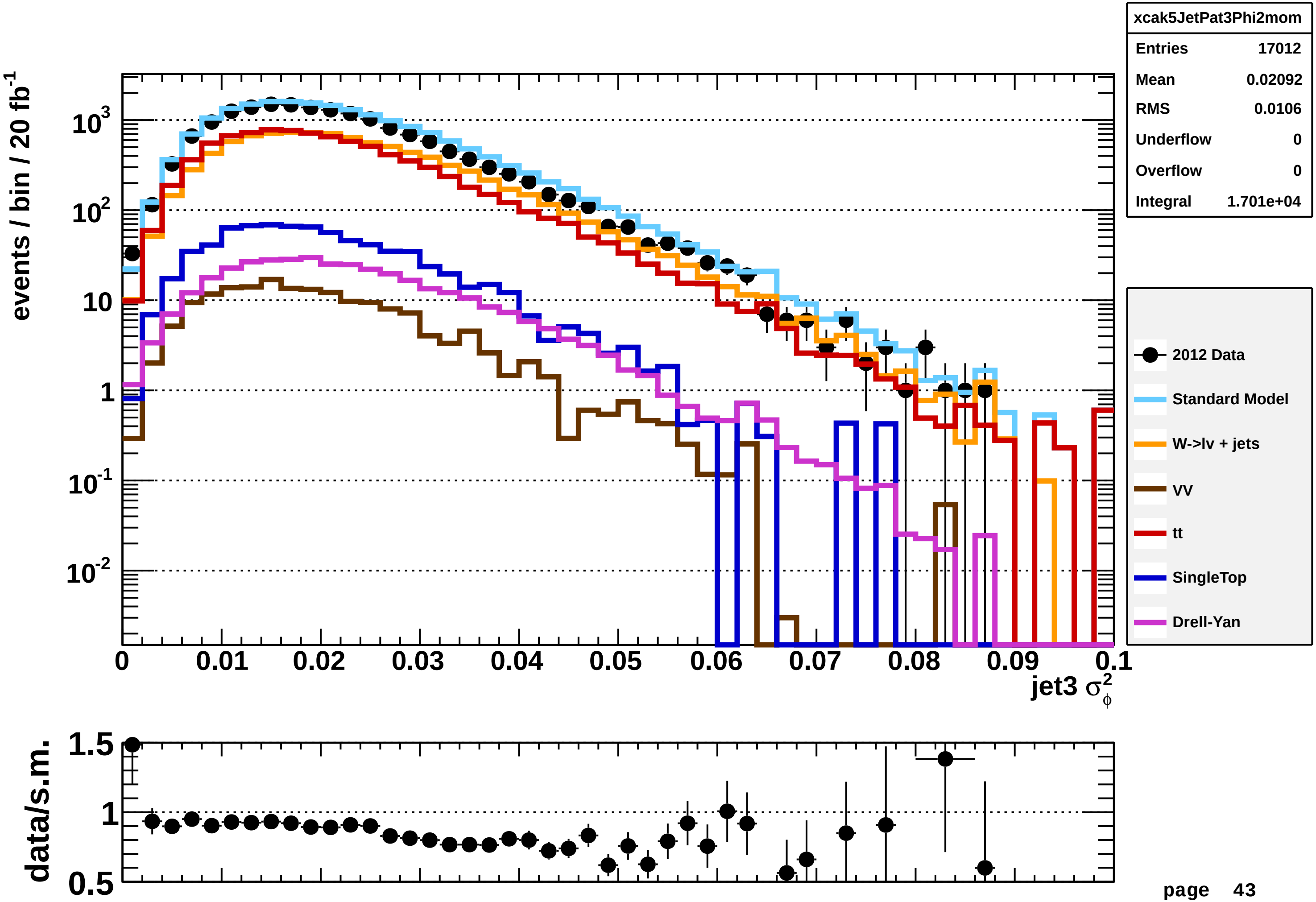

xcak5JetPat2Eta2mom
Entries 26480
Mean 0.0102
RMS 0.008034
Underflow 0
Overflow 0
Integral 2.648e+04
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
events / bin / 20 fb^{-1}
10^4
10^3
10^2
10
1
10^{-1}
10^{-2}
0
0.01
0.02
0.03
0.04
0.05
0.06
0.07
0.08
0.09
0.1
jet2 σ_{η}^{2}
data/s.m.
1.5
1
0.5

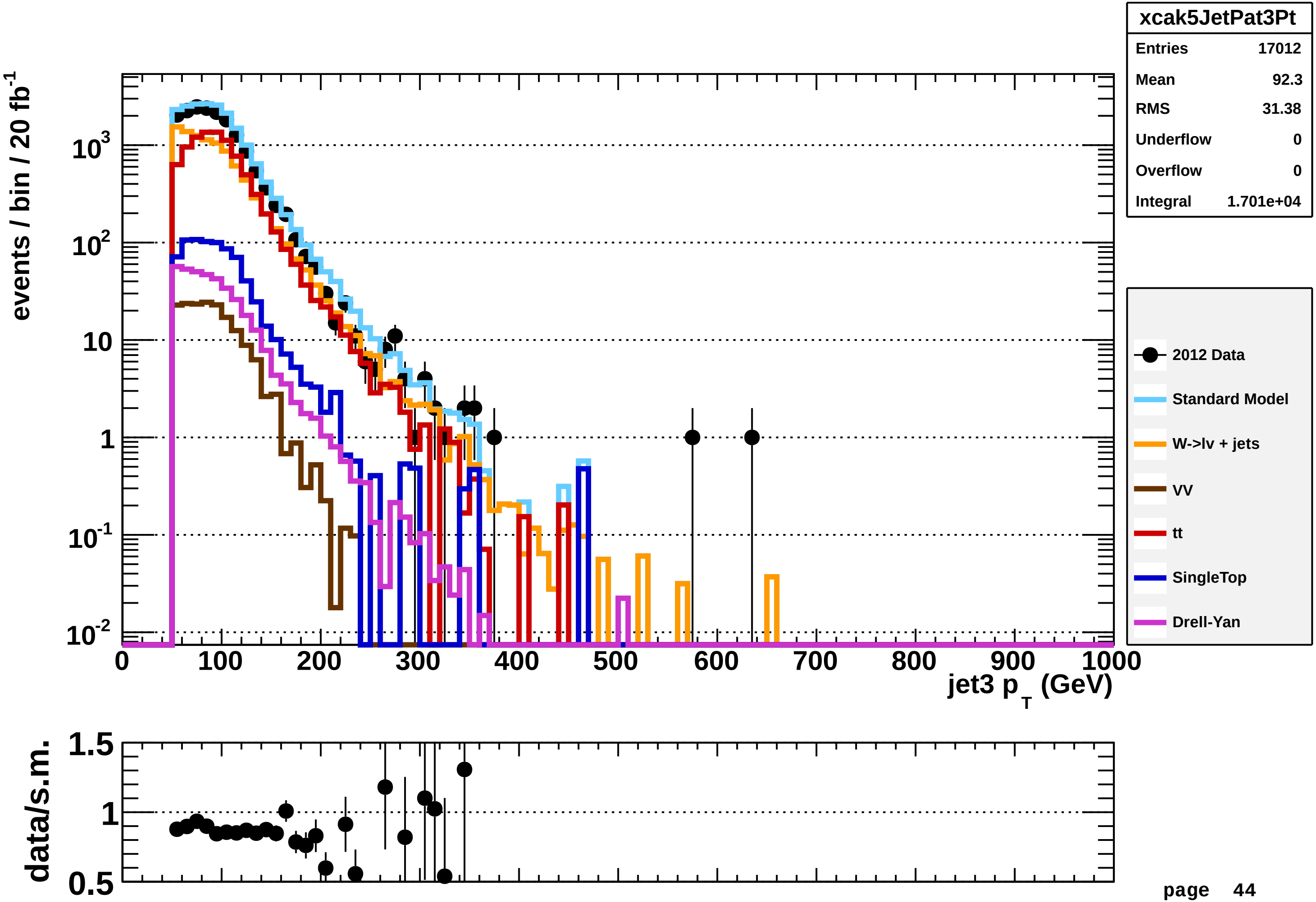

xcak5JetPat2Phi2mom
Entries 26480
Mean 0.01553
RMS 0.009111
Underflow 0
Overflow 0
Integral 2.648e+04
events / bin / 20 fb^{-1}
10^{3}
10^{2}
10
1
10^{-1}
10^{-2}
0
0.01
0.02
0.03
0.04
0.05
0.06
0.07
0.08
0.09
0.1
jet2 σ_{ϕ}^{2}
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
data/s.m.
1.5
1
0.5


xcak5JetPat2Pt
Entries 26480
Mean 170.9
RMS 65.13
Underflow 0
Overflow 0
Integral 2.648e+04
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
events / bin / 20 fb^{-1}
10^{3}
10^{2}
10
1
10^{-1}
10^{-2}
0
100
200
300
400
500
600
700
800
900
1000
jet2 p_T (GeV)
data/s.m.
1.5
1
0.5

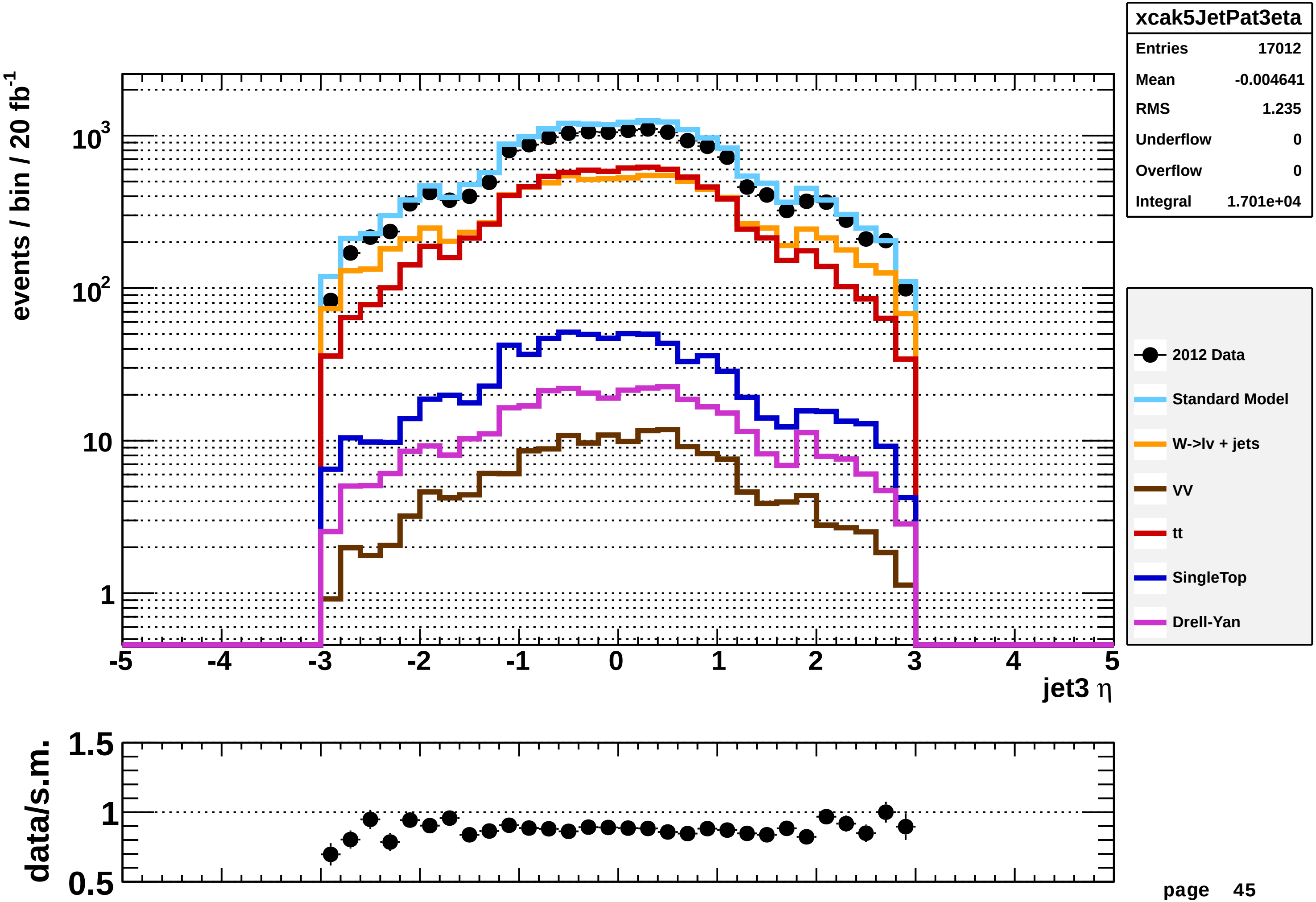

xcak5JetPat2eta
Entries 26480
Mean 8.642e-05
RMS 1.125
Underflow 0
Overflow 0
Integral 2.648e+04
events / bin / 20 fb^{-1}
10^3
10^2
10
1
-5
-4
-3
-2
-1
0
1
2
3
4
5
jet2 η
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
data/s.m.
1.5
1
0.5

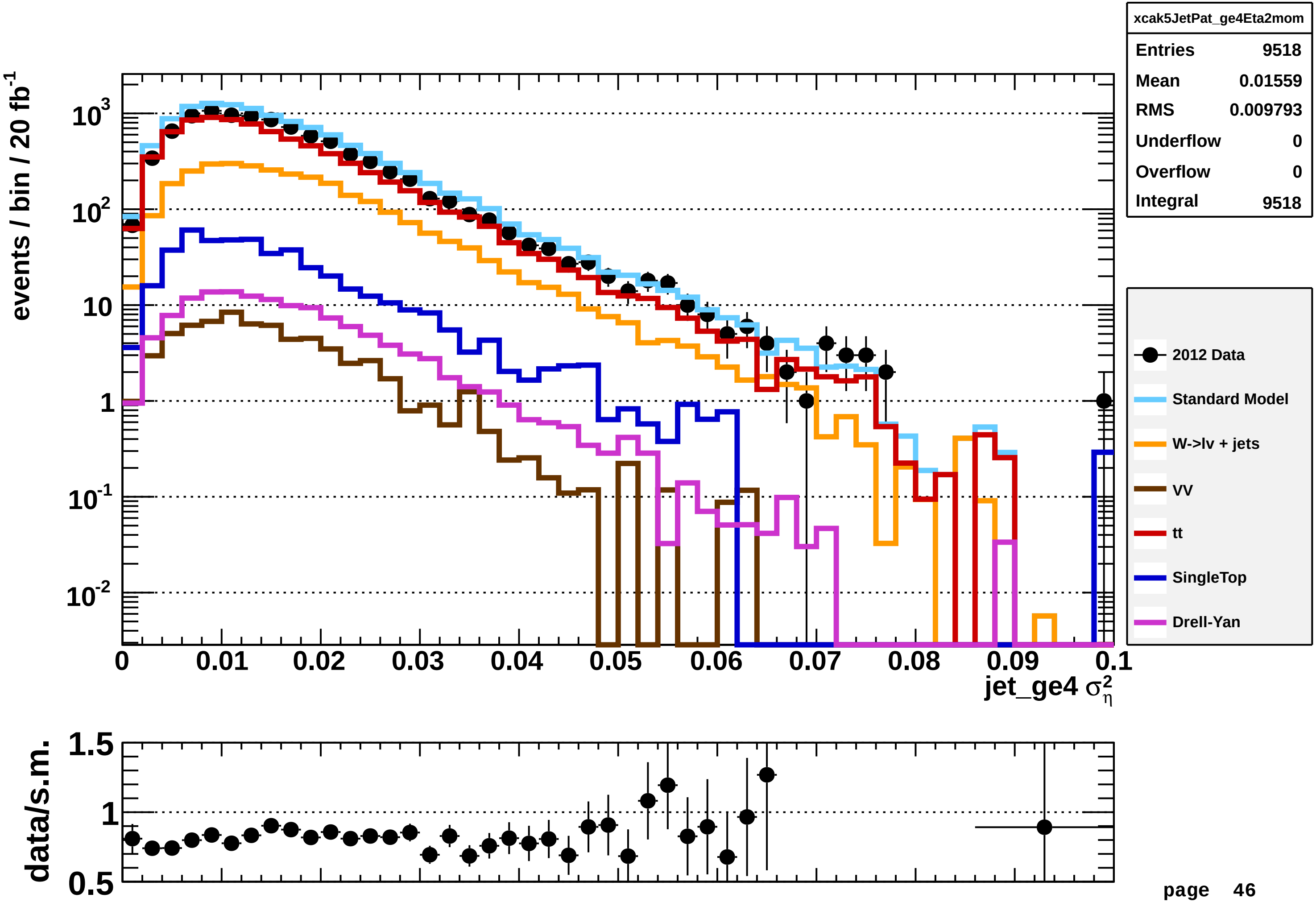

xcak5JetPat3Eta2mom
Entries 17012
Mean 0.01391
RMS 0.00948
Underflow 0
Overflow 0
Integral 1.701e+04
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
events / bin / 20 fb^{-1}
10^3
10^2
10
1
10^{-1}
10^{-2}
0
0.01
0.02
0.03
0.04
0.05
0.06
0.07
0.08
0.09
0.1
jet3 σ^2_η
data/s.m.
1.5
1
0.5

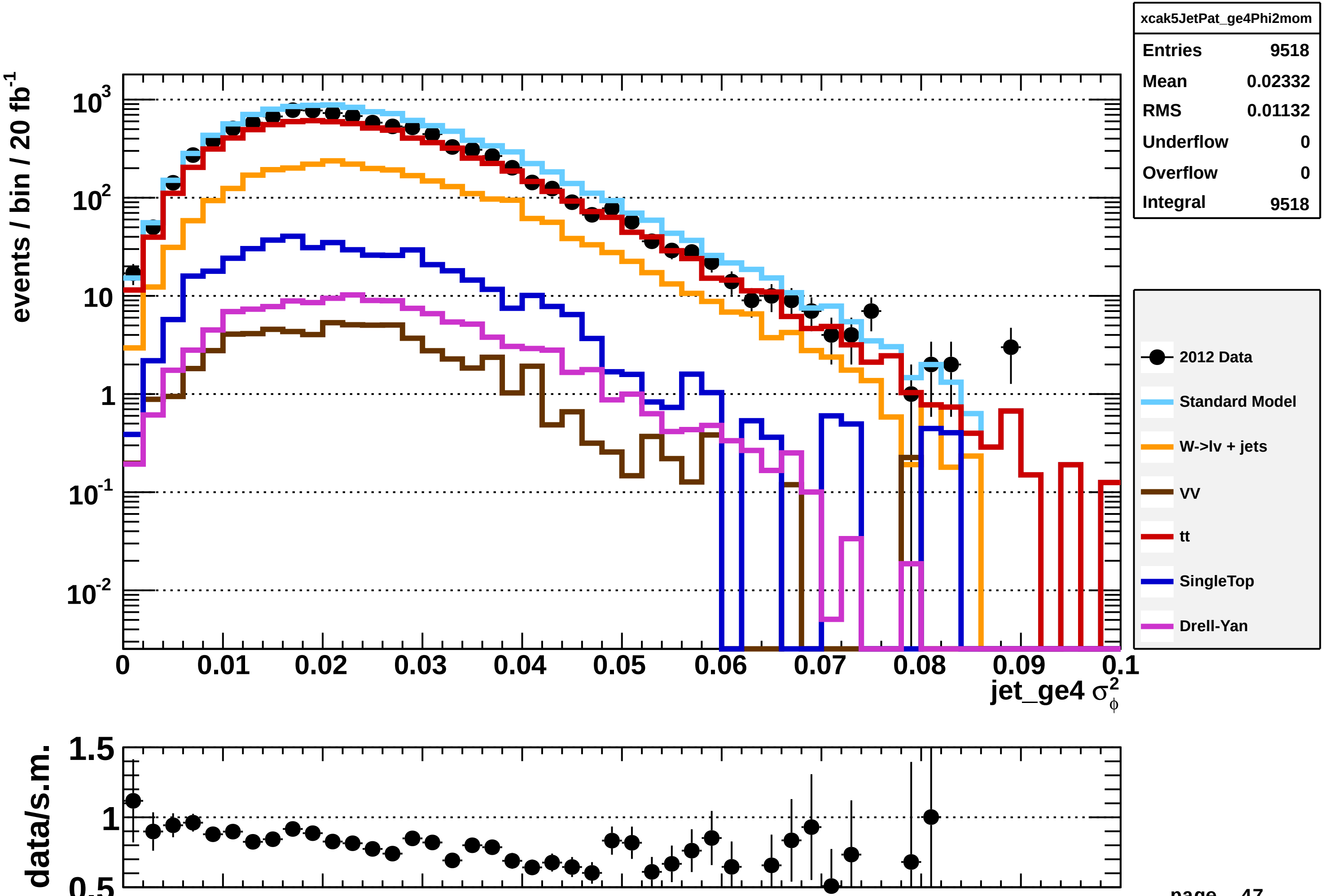

xcak5JetPat3Phi2mom
Entries 17012
Mean 0.02092
RMS 0.0106
Underflow 0
Overflow 0
Integral 1.701e+04
events / bin / 20 fb^{-1}
10^3
10^2
10
1
10^{-1}
10^{-2}
0
0.01
0.02
0.03
0.04
0.05
0.06
0.07
0.08
0.09
0.1
jet3 σ_{ϕ}^{2}
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
data/s.m.
1.5
1
0.5

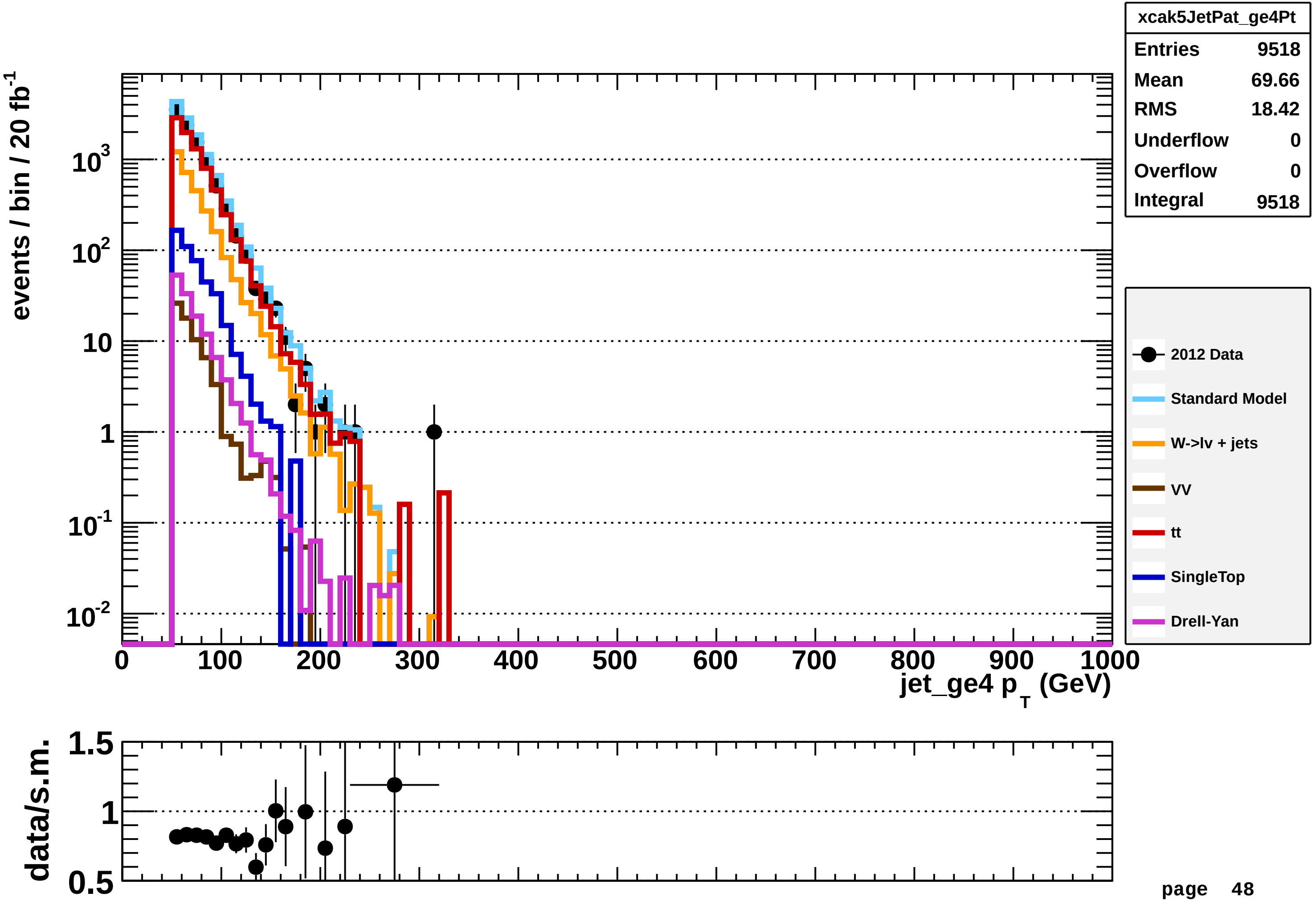


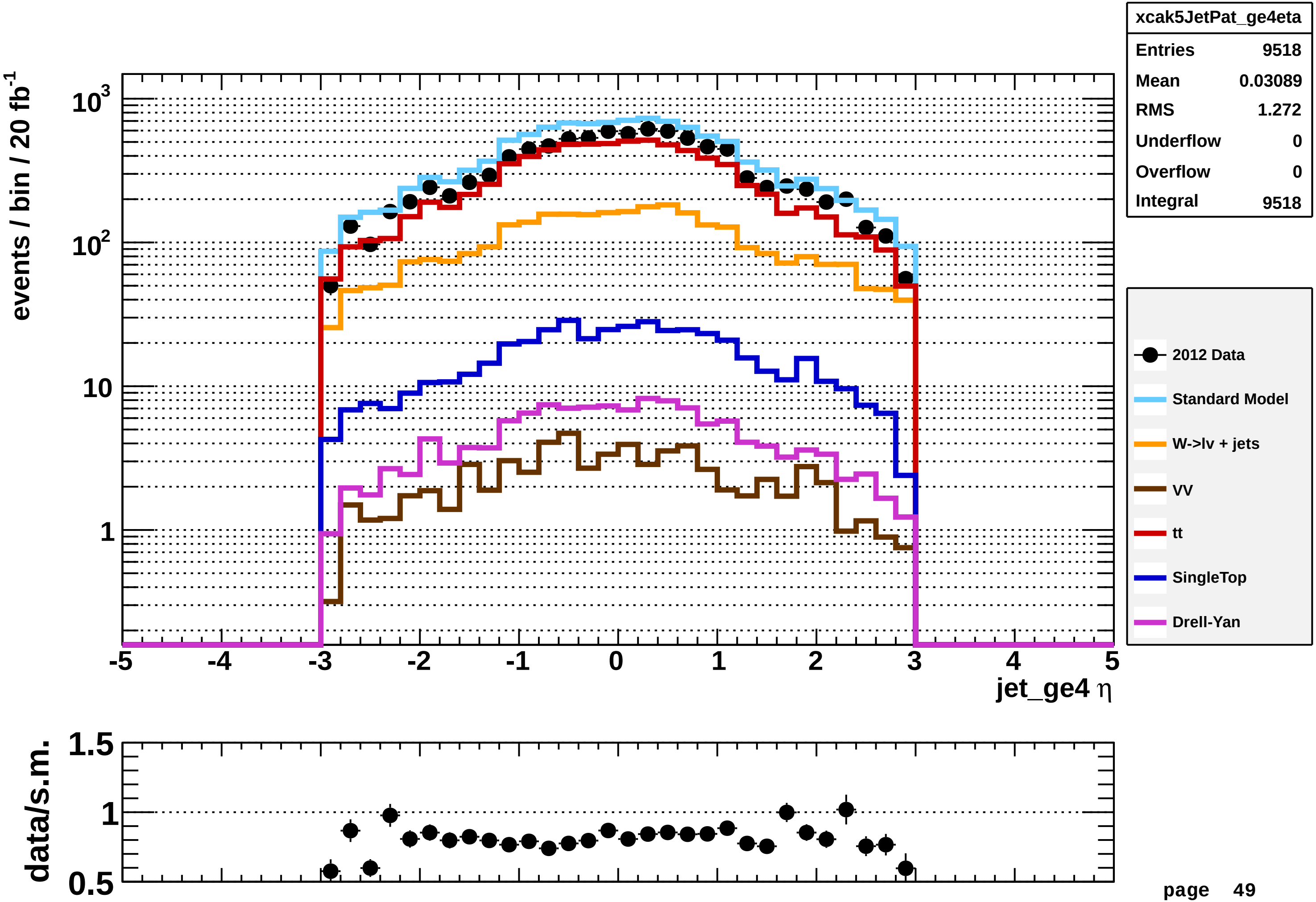
xcak5JetPat3Pt
Entries 17012
Mean 92.3
RMS 31.38
Underflow 0
Overflow 0
Integral 1.701e+04
events / bin / 20 fb^{-1}
10^3
10^2
10
1
10^{-1}
10^{-2}
0
100
200
300
400
500
600
700
800
900
1000
jet3 p_T (GeV)
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
data/s.m.
1.5
1
0.5

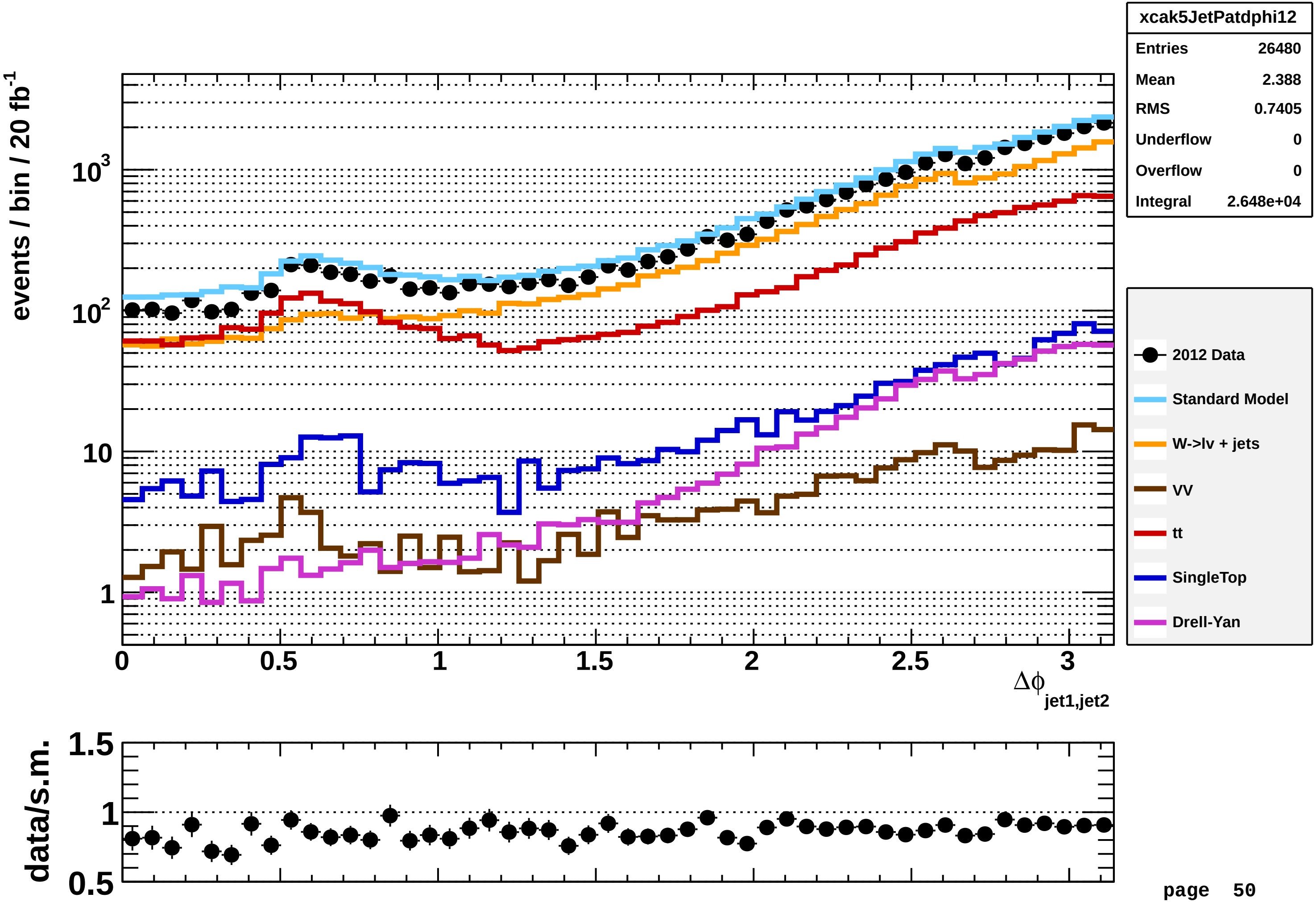

xcak5JetPat3eta
Entries 17012
Mean -0.004641
RMS 1.235
Underflow 0
Overflow 0
Integral 1.701e+04
events / bin / 20 fb^{-1}
10^3
10^2
10
1
-5
-4
-3
-2
-1
0
1
2
3
4
5
jet3 η
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
data/s.m.
1.5
1
0.5

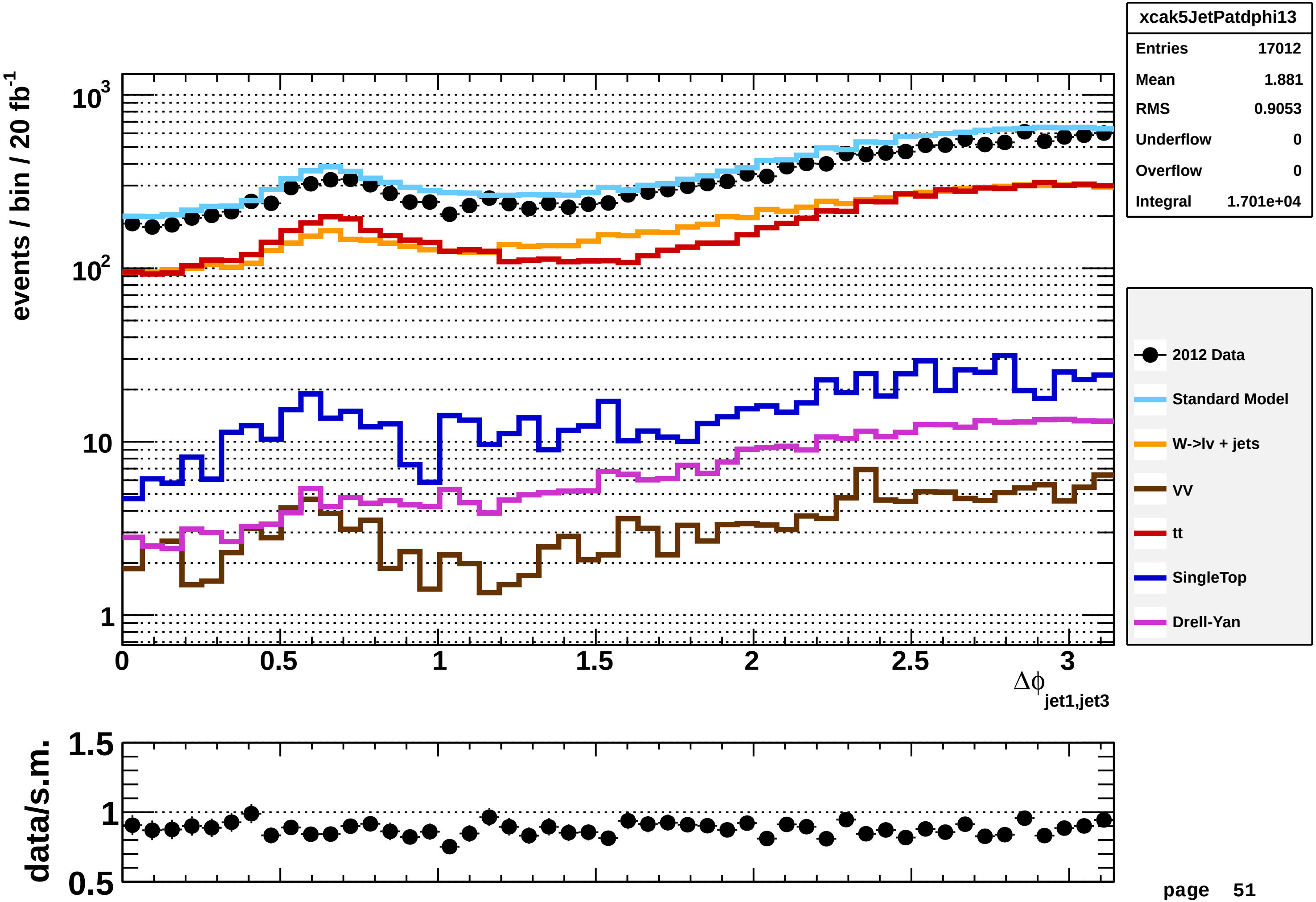

xcak5JetPat_ge4Eta2mom
Entries 9518
Mean 0.01559
RMS 0.009793
Underflow 0
Overflow 0
Integral 9518
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
events / bin / 20 fb^{-1}
10^3
10^2
10
1
10^{-1}
10^{-2}
0
0.01
0.02
0.03
0.04
0.05
0.06
0.07
0.08
0.09
0.1
jet_ge4 σ_η^2
data/s.m.
1.5
1
0.5

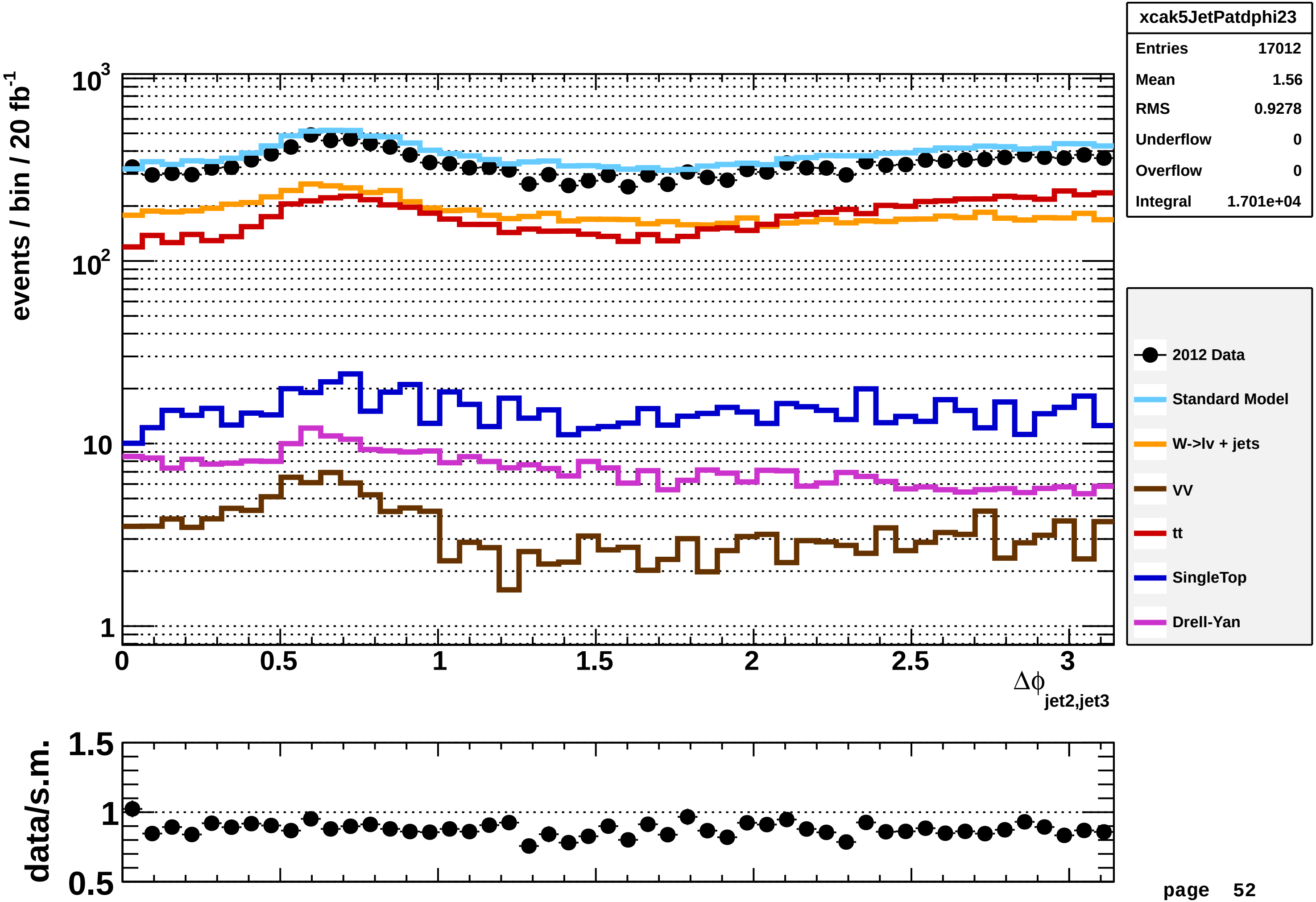

xcak5JetPat_ge4Phi2mom
Entries 9518
Mean 0.02332
RMS 0.01132
Underflow 0
Overflow 0
Integral 9518
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
events / bin / 20 fb^{-1}
10^3
10^2
10
1
10^{-1}
10^{-2}
0
0.01
0.02
0.03
0.04
0.05
0.06
0.07
0.08
0.09
0.1
jet_ge4 σ_{ϕ}^{2}
data/s.m.
1.5
1
0.5


xcak5JetPat_ge4Pt
Entries 9518
Mean 69.66
RMS 18.42
Underflow 0
Overflow 0
Integral 9518
events / bin / 20 fb-1
10^3
10^2
10
1
10^-1
10^-2
0
100
200
300
400
500
600
700
800
900
1000
jet_ge4 p_T (GeV)
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
data/s.m.
1.5
1
0.5


xcak5JetPat_ge4eta
Entries 9518
Mean 0.03089
RMS 1.272
Underflow 0
Overflow 0
Integral 9518
events / bin / 20 fb^{-1}
10^3
10^2
10
1
-5
-4
-3
-2
-1
0
1
2
3
4
5
jet_ge4 η
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
data/s.m.
1.5
1
0.5


xcak5JetPatdphi12
Entries 26480
Mean 2.388
RMS 0.7405
Underflow 0
Overflow 0
Integral 2.648e+04
events / bin / 20 fb^{-1}
10^3
10^2
10
1
0
0.5
1
1.5
2
2.5
3
$\Delta\phi_{jet1,jet2}$
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
data/s.m.
1.5
1
0.5


xcak5JetPatdphi13
Entries 17012
Mean 1.881
RMS 0.9053
Underflow 0
Overflow 0
Integral 1.701e+04
events / bin / 20 fb^{-1}
10^3
10^2
10
1
0
0.5
1
1.5
2
2.5
3
$\Delta\phi_{\mathrm{jet1,jet3}}$
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
data/s.m.
1.5
1
0.5


xcak5JetPatdphi23
Entries 17012
Mean 1.56
RMS 0.9278
Underflow 0
Overflow 0
Integral 1.701e+04
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
events / bin / 20 fb^{-1}
10^3
10^2
10
1
0
0.5
1
1.5
2
2.5
3
$\Delta\phi_{jet2,jet3}$
data/s.m.
1.5
1
0.5

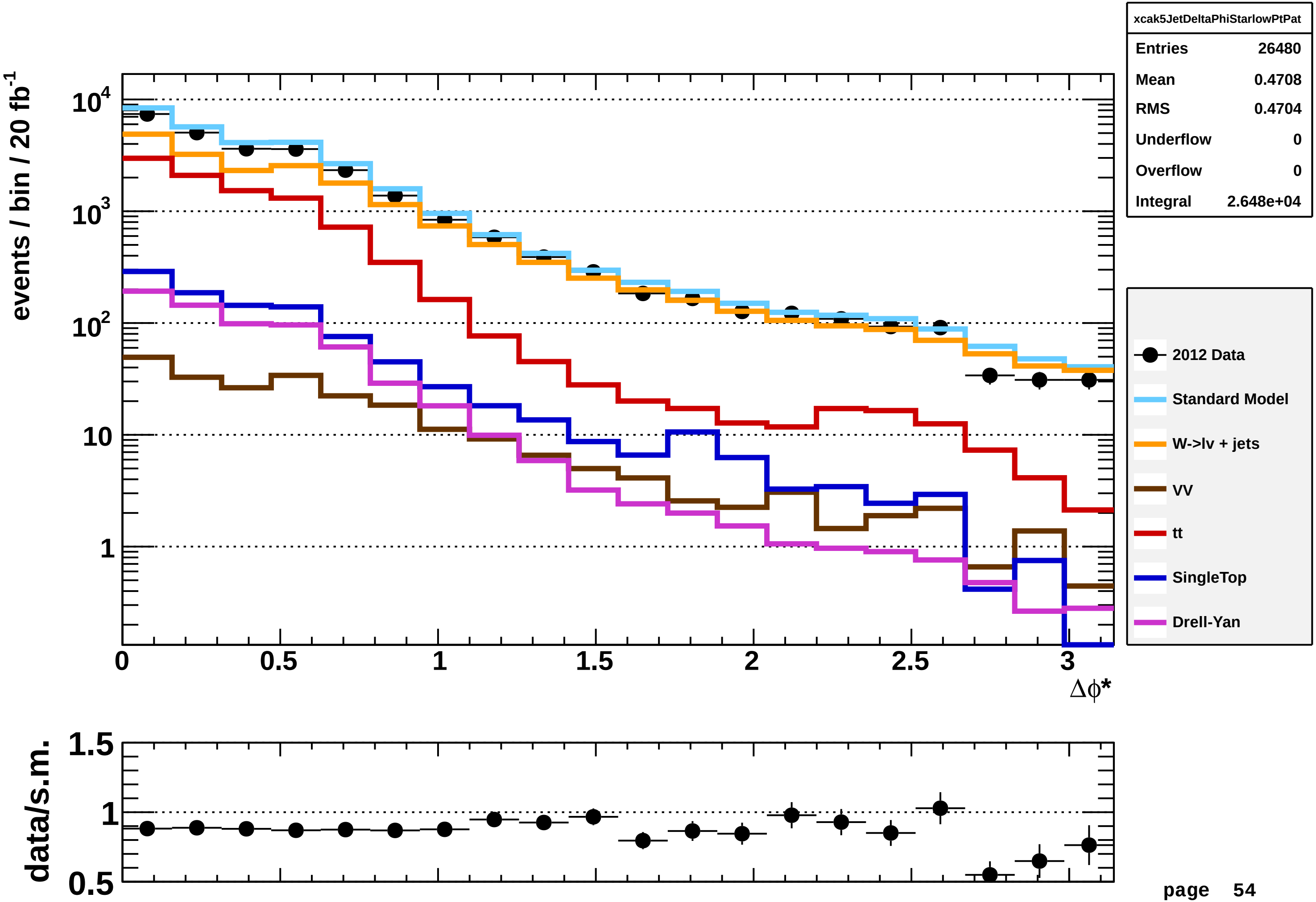
```
s:  value                                375.00<=xcak5JetSumEtPat
t:  multiplicity                         2 <= xcak5JetIndicesPat

u:  multiplicity                         0 <= xcak5JetIndicesOtherPat <= 0
v:  multiplicity                         0 <= xcak5JetIndicesWithOddMuonPat <= 0
w:  uniquelyMatchedNonisoMuons           xcak5JetPat
x:  multiplicity                         0 <= electronIndicesPat <= 0
y:  multiplicity                         0 <= photonIndicesPat <= 0

z:  multiplicity                         0 <= electronIndicesUnmatchedPat <= 0
A:  multiplicity                         0 <= photonIndicesUnmatchedPat <= 0
B:  deadEcalFilter                       xcak5JetPat; dR>0.300 when deltaPhiStar<0.500
C:  multiplicity                         1 <= muonIndicesPat <= 1
D:  pt                                   30.00<=muonP4Pat[i[0]].pt; muonIndicesPat

E:  eta                                  -2.10<=muonP4Pat[i[0]].eta<=2.10; muonIndicesPat
F:  value                                30.00<=muonMtPatmetP4TypeIPF<=125.00
G:  value                                xcak5JetMhthighPtPatOvermetP4TypeIPFPlusmuonIndicesPat<=1.25
H:  value                                CaloRecHitSumPt<=30.00
I:  value                                0.10<=xcak5JetMaxEmEnergyFractionPat
```

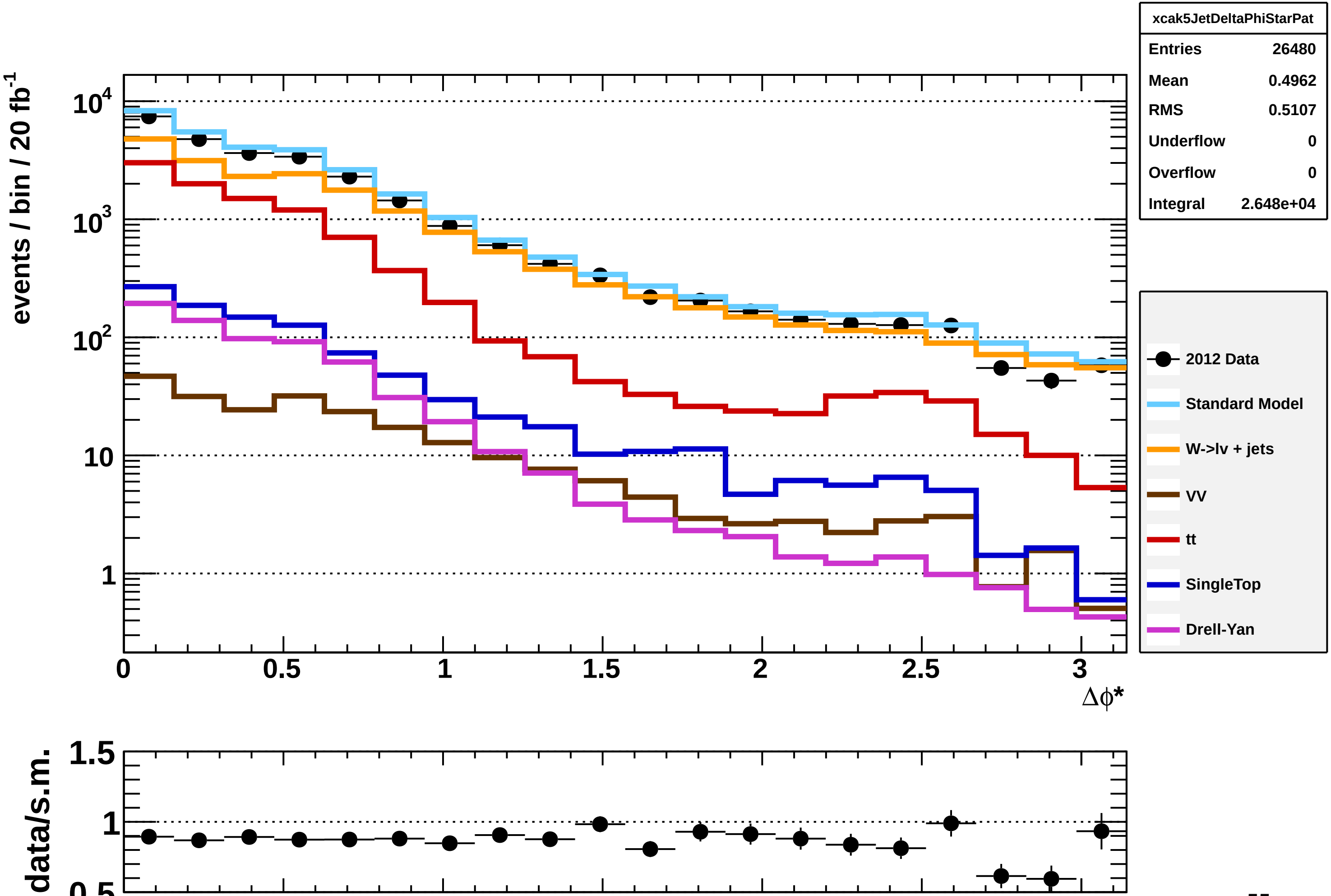
[jetSumPlots1]

```
         2012 Data Standard Model   W->lv + jets            VV            tt     SingleTop     Drell-Yan      data/s.m.

s:          126351   1.0320(4)e+6    3.206(2)e+5    2.529(5)e+4    5.615(3)e+5     8.44(2)e+4    4.021(5)e+4     0.1224(3)
t:          126351   1.0320(4)e+6    3.206(2)e+5    2.529(5)e+4    5.615(3)e+5     8.44(2)e+4    4.021(5)e+4     0.1224(3)

u:          124310   1.0059(4)e+6    3.149(2)e+5    2.482(5)e+4    5.452(3)e+5     8.19(2)e+4    3.914(5)e+4     0.1236(4)
v:          122470     9.968(4)e+5   3.136(2)e+5    2.477(5)e+4    5.386(3)e+5     8.11(2)e+4    3.884(5)e+4     0.1229(4)
w:          120901     9.892(4)e+5   3.119(2)e+5    2.471(5)e+4    5.335(3)e+5     8.06(2)e+4    3.850(5)e+4     0.1222(4)
x:          118771     8.335(4)e+5   2.292(2)e+5    2.365(5)e+4    4.808(3)e+5     7.57(2)e+4    2.415(5)e+4     0.1425(4)
y:          118246     8.272(4)e+5   2.252(2)e+5    2.354(5)e+4    4.793(3)e+5     7.55(2)e+4    2.359(4)e+4     0.1430(4)

z:          118142     8.254(4)e+5   2.248(2)e+5    2.350(5)e+4    4.782(3)e+5     7.54(2)e+4    2.353(4)e+4     0.1431(4)
A:          118135     8.254(4)e+5   2.248(2)e+5    2.350(5)e+4    4.782(3)e+5     7.54(2)e+4    2.353(4)e+4     0.1431(4)
B:           58474     2.723(2)e+5   1.009(1)e+5     6.61(2)e+3    1.335(2)e+5    2.147(9)e+4     9.78(3)e+3     0.2147(9)
C:           52068      7.14(1)e+4   4.300(8)e+4         533(7)    2.312(7)e+4     2.36(3)e+3     2.42(1)e+3      0.729(3)
D:           47847   5.650(10)e+4    3.416(7)e+4         443(7)    1.819(6)e+4     1.81(3)e+3        1889(9)      0.847(4)

E:           47844     5.376(9)e+4   3.205(7)e+4         414(7)    1.783(6)e+4     1.77(3)e+3        1693(8)      0.890(4)
F:           34384     3.893(8)e+4   2.348(6)e+4         296(6)    1.292(5)e+4     1.30(2)e+3         940(6)      0.883(5)
G:           26835     3.027(7)e+4   1.888(5)e+4         237(5)      9.49(4)e+3     9.9(2)e+2         674(5)      0.886(6)
H:           26480     3.005(7)e+4   1.875(5)e+4         235(5)      9.41(4)e+3     9.8(2)e+2         670(5)      0.881(6)
I:           26480           -              -              -              -              -              -
```

[jetSumPlots1]

events / 20 fb^{-1}


xcak5JetDeltaPhiStarlowPtPat
Entries 26480
Mean 0.4708
RMS 0.4704
Underflow 0
Overflow 0
Integral 2.648e+04
events / bin / 20 fb^{-1}
10^4
10^3
10^2
10
1
0
0.5
1
1.5
2
2.5
3
Δφ*
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
data/s.m.
1.5
1
0.5

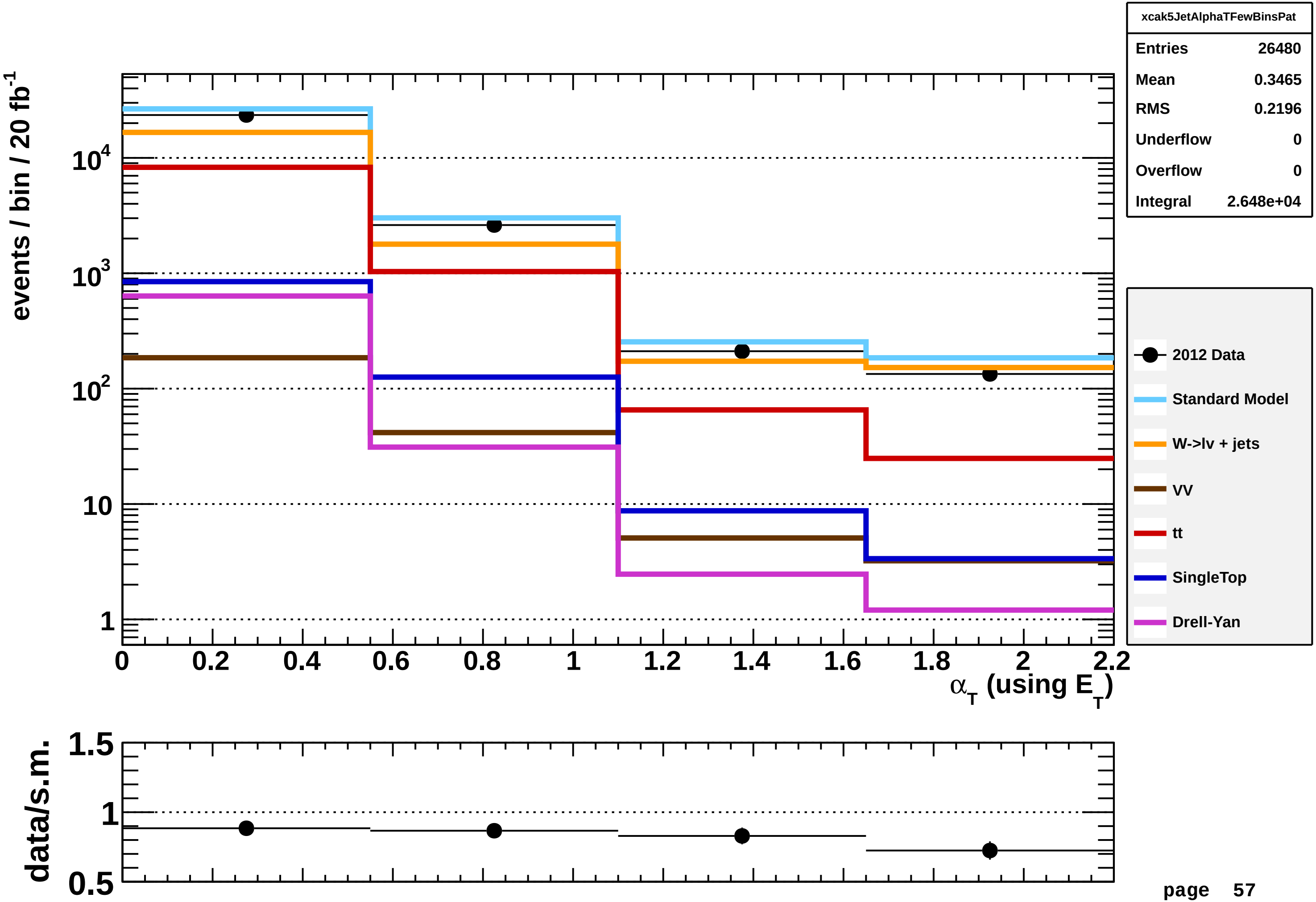

xcak5JetDeltaPhiStarPat
Entries 26480
Mean 0.4962
RMS 0.5107
Underflow 0
Overflow 0
Integral 2.648e+04
events / bin / 20 fb^{-1}
10^4
10^3
10^2
10
1
0
0.5
1
1.5
2
2.5
3
Δϕ*
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
data/s.m.
1.5
1
0.5

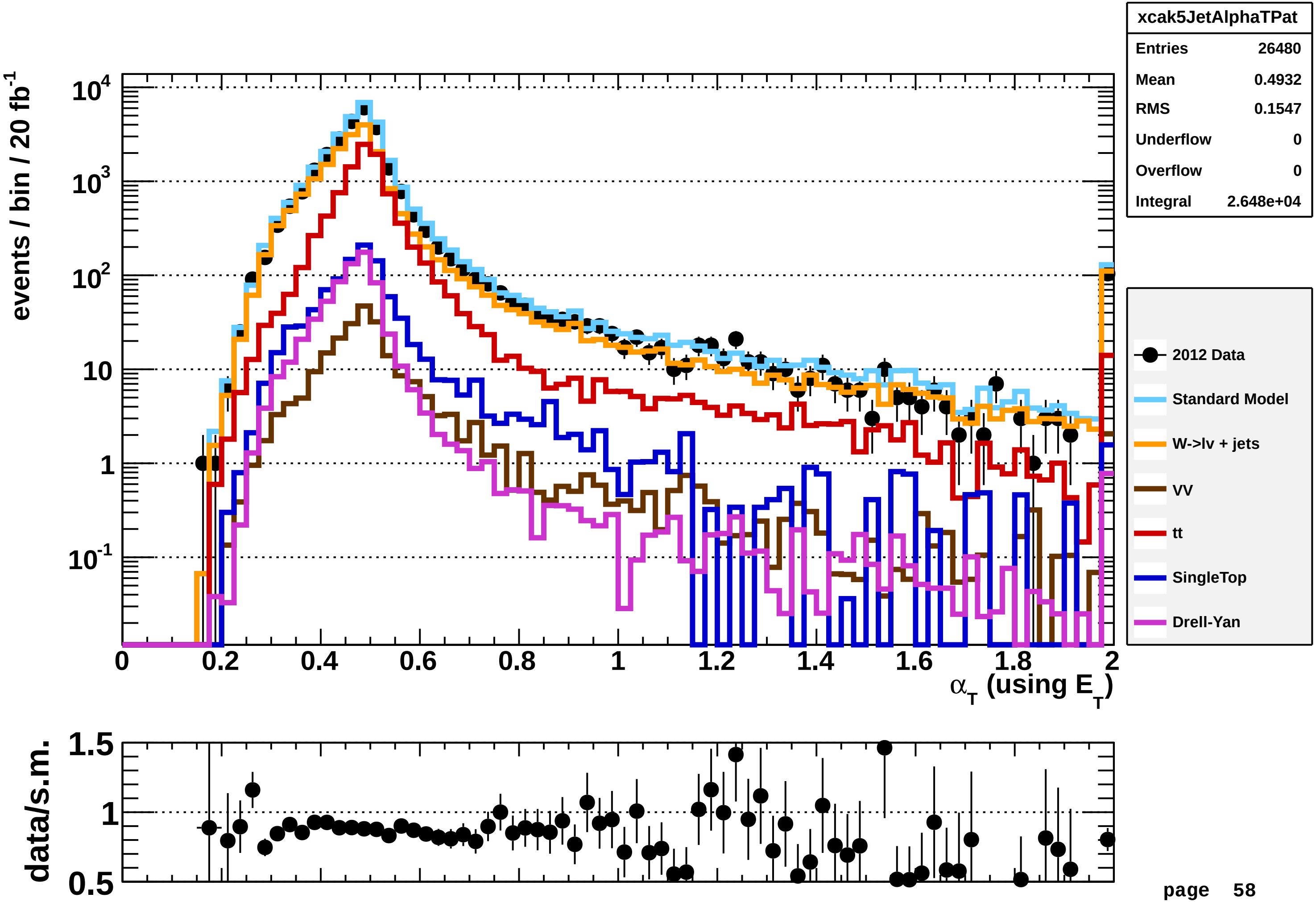
t:	multiplicity	2 <= xcak5JetIndicesPat
u:	multiplicity	0 <= xcak5JetIndicesOtherPat <= 0
v:	multiplicity	0 <= xcak5JetIndicesWithOddMuonPat <= 0
w:	uniquelyMatchedNonisoMuons	xcak5JetPat
x:	multiplicity	0 <= electronIndicesPat <= 0
y:	multiplicity	0 <= photonIndicesPat <= 0
z:	multiplicity	0 <= electronIndicesUnmatchedPat <= 0
A:	multiplicity	0 <= photonIndicesUnmatchedPat <= 0
B:	deadEcalFilter	xcak5JetPat; dR>0.300 when deltaPhiStar<0.500
C:	multiplicity	1 <= muonIndicesPat <= 1
D:	pt	30.00<=muonP4Pat[i[0]].pt; muonIndicesPat
E:	eta	-2.10<=muonP4Pat[i[0]].eta<=2.10; muonIndicesPat
F:	value	30.00<=muonMtPatmetP4TypeIPF<=125.00
G:	value	xcak5JetMhthighPtPatOvermetP4TypeIPFPlusmuonIndicesPat<=1.25
H:	value	CaloRecHitSumPt<=30.00
I:	value	0.10<=xcak5JetMaxEmEnergyFractionPat

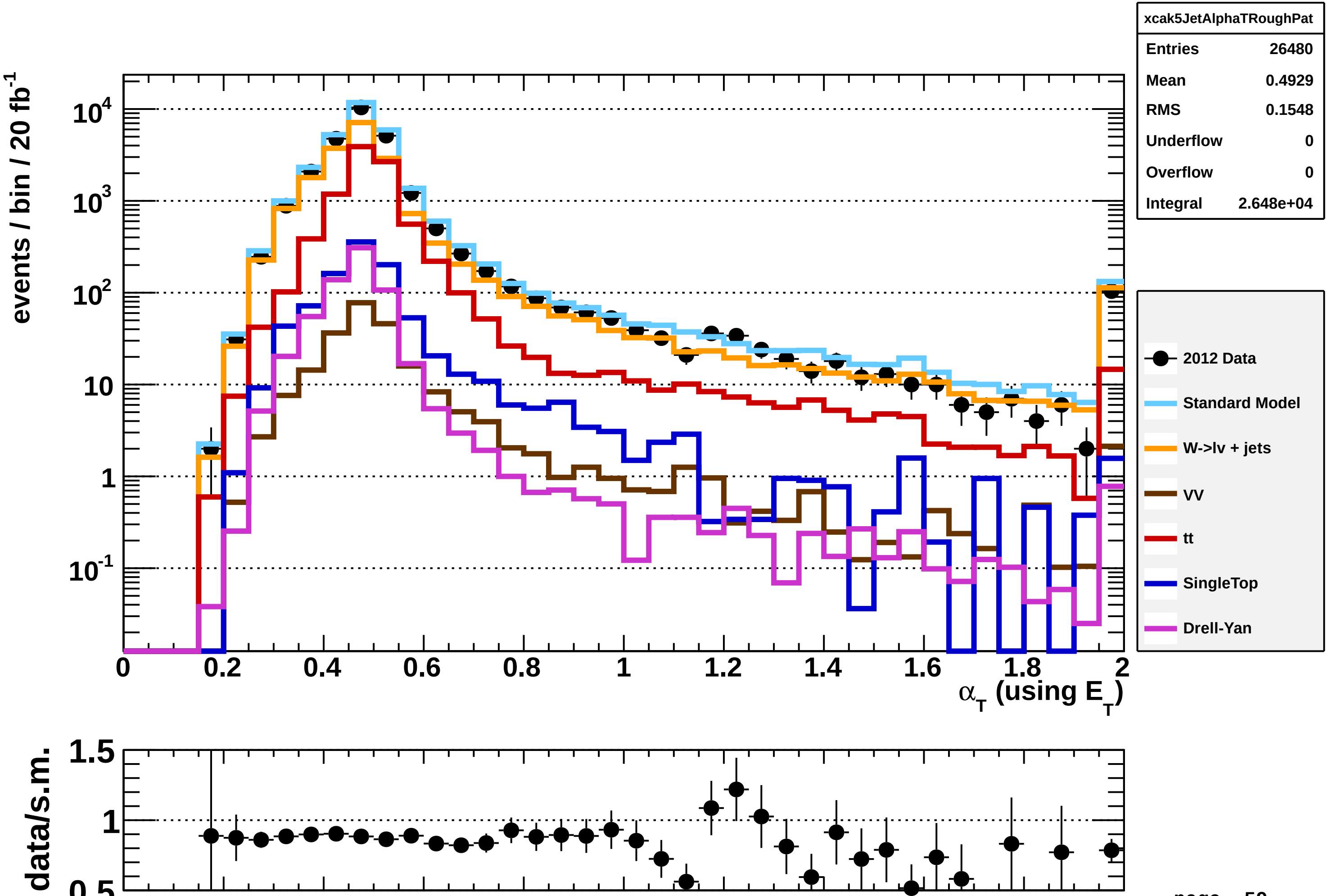
[jetSumPlots1]
[kinematicPlots1]

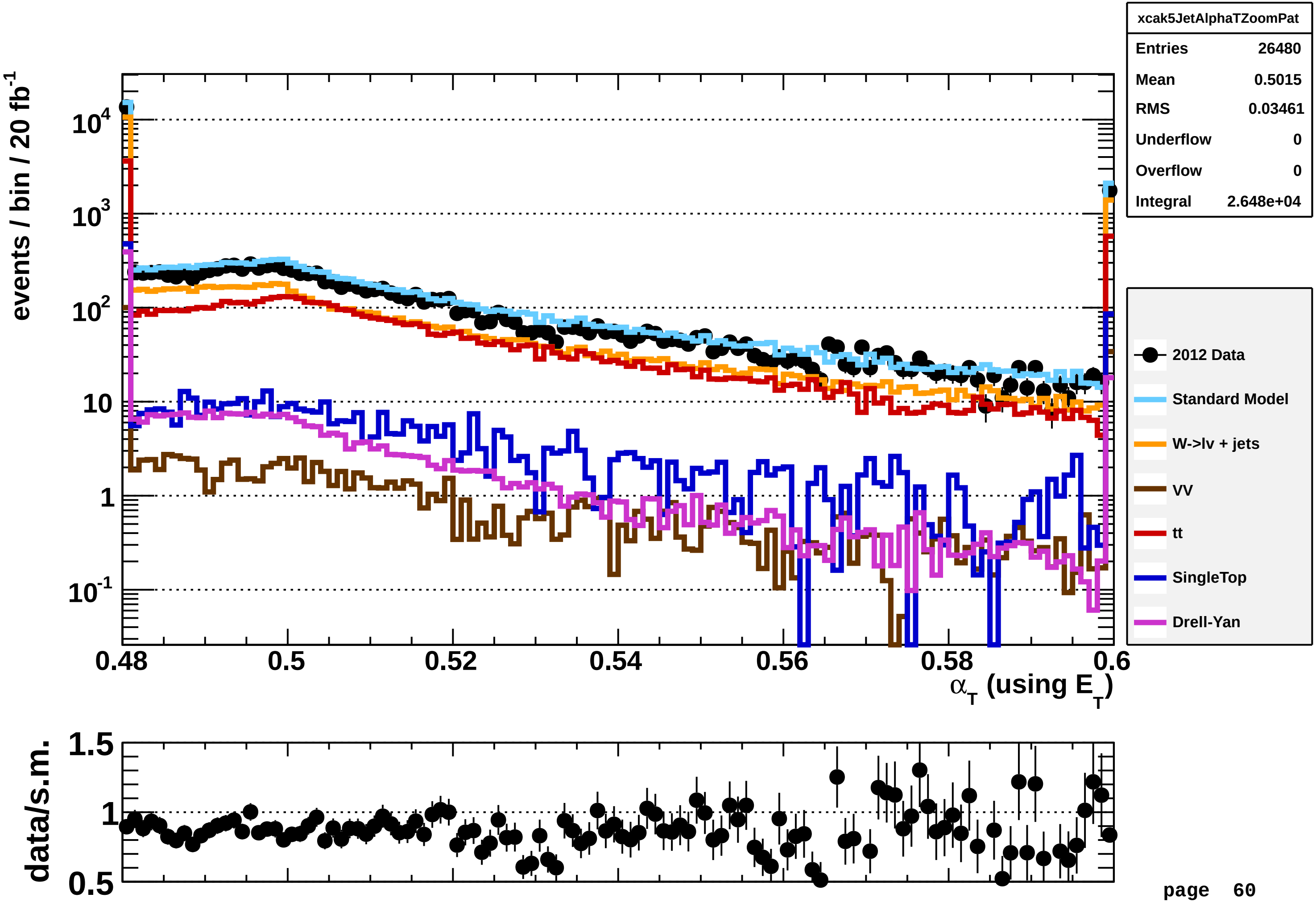
	2012 Data	Standard Model	W->lv + jets	VV	tt	SingleTop	Drell-Yan	data/s.m.
t:	126351	1.0320(4)e+6	3.206(2)e+5	2.529(5)e+4	5.615(3)e+5	8.44(2)e+4	4.021(5)e+4	0.1224(3)
u:	124310	1.0059(4)e+6	3.149(2)e+5	2.482(5)e+4	5.452(3)e+5	8.19(2)e+4	3.914(5)e+4	0.1236(4)
v:	122470	9.968(4)e+5	3.136(2)e+5	2.477(5)e+4	5.386(3)e+5	8.11(2)e+4	3.884(5)e+4	0.1229(4)
w:	120901	9.892(4)e+5	3.119(2)e+5	2.471(5)e+4	5.335(3)e+5	8.06(2)e+4	3.850(5)e+4	0.1222(4)
x:	118771	8.335(4)e+5	2.292(2)e+5	2.365(5)e+4	4.808(3)e+5	7.57(2)e+4	2.415(5)e+4	0.1425(4)
y:	118246	8.272(4)e+5	2.252(2)e+5	2.354(5)e+4	4.793(3)e+5	7.55(2)e+4	2.359(4)e+4	0.1430(4)
z:	118142	8.254(4)e+5	2.248(2)e+5	2.350(5)e+4	4.782(3)e+5	7.54(2)e+4	2.353(4)e+4	0.1431(4)
A:	118135	8.254(4)e+5	2.248(2)e+5	2.350(5)e+4	4.782(3)e+5	7.54(2)e+4	2.353(4)e+4	0.1431(4)
B:	58474	2.723(2)e+5	1.009(1)e+5	6.61(2)e+3	1.335(2)e+5	2.147(9)e+4	9.78(3)e+3	0.2147(9)
C:	52068	7.14(1)e+4	4.300(8)e+4	533(7)	2.312(7)e+4	2.36(3)e+3	2.42(1)e+3	0.729(3)
D:	47847	5.650(10)e+4	3.416(7)e+4	443(7)	1.819(6)e+4	1.81(3)e+3	1889(9)	0.847(4)
E:	47844	5.376(9)e+4	3.205(7)e+4	414(7)	1.783(6)e+4	1.77(3)e+3	1693(8)	0.890(4)
F:	34384	3.893(8)e+4	2.348(6)e+4	296(6)	1.292(5)e+4	1.30(2)e+3	940(6)	0.883(5)
G:	26835	3.027(7)e+4	1.888(5)e+4	237(5)	9.49(4)e+3	9.9(2)e+2	674(5)	0.886(6)
H:	26480	3.005(7)e+4	1.875(5)e+4	235(5)	9.41(4)e+3	9.8(2)e+2	670(5)	0.881(6)
I:	26480	-	-	-	-	-	-	

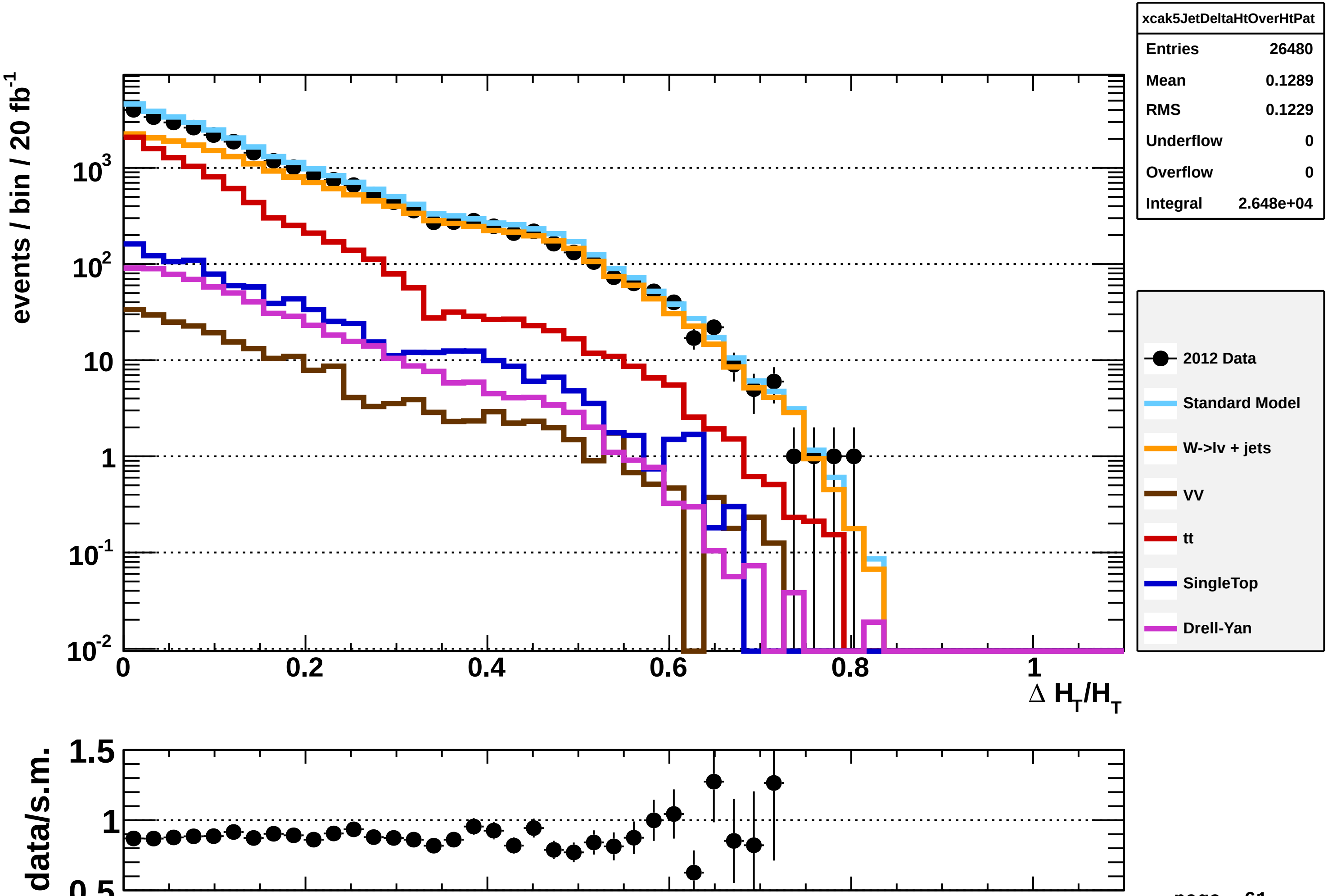
[jetSumPlots1]
[kinematicPlots1]

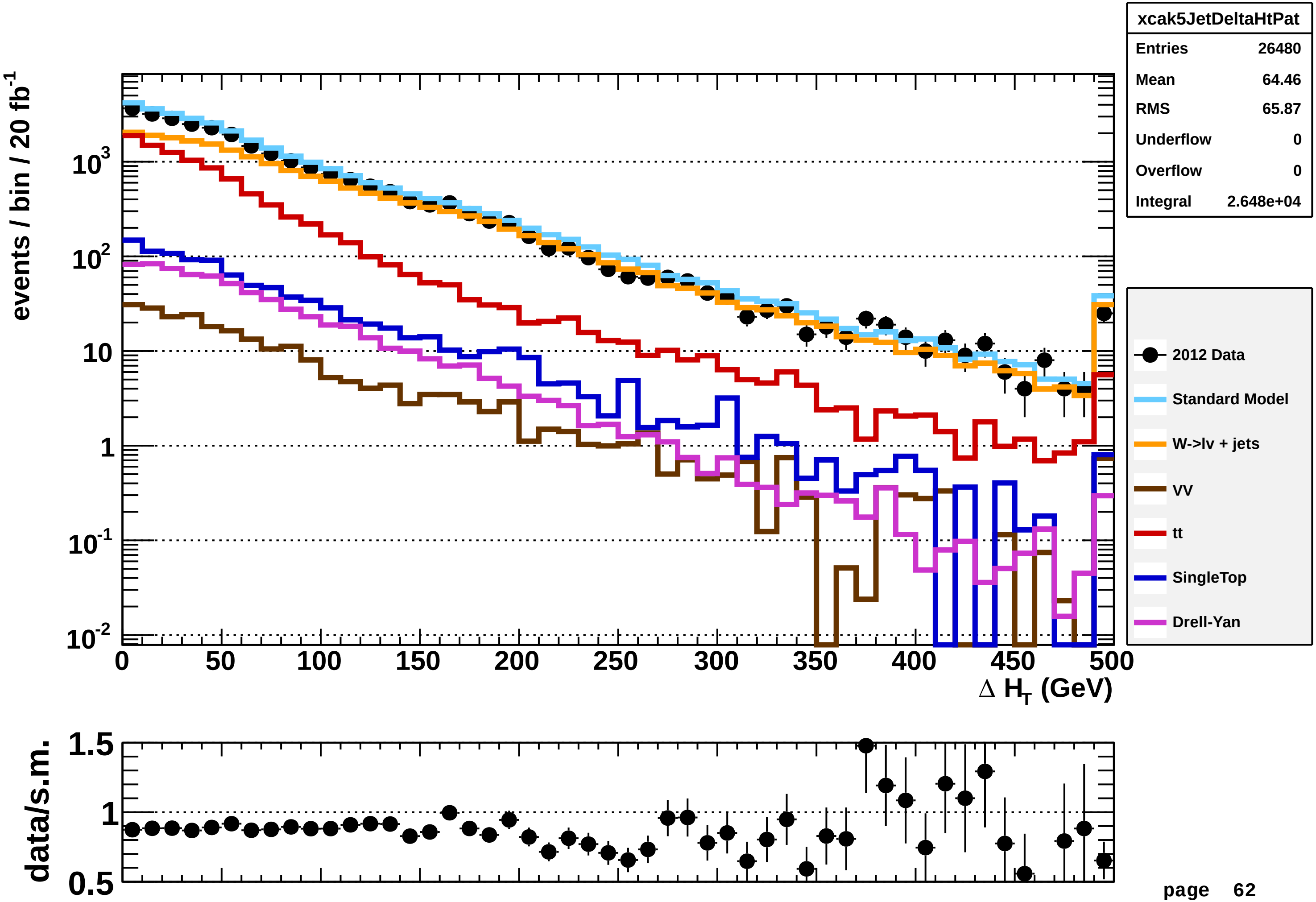

xcak5JetAlphaTFewBinsPat
Entries 26480
Mean 0.3465
RMS 0.2196
Underflow 0
Overflow 0
Integral 2.648e+04
events / bin / 20 fb^{-1}
10^4
10^3
10^2
10
1
0
0.2
0.4
0.6
0.8
1
1.2
1.4
1.6
1.8
2
2.2
α_T (using E_T)
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
data/s.m.
1.5
1
0.5


xcak5JetAlphaTPat
Entries 26480
Mean 0.4932
RMS 0.1547
Underflow 0
Overflow 0
Integral 2.648e+04
events / bin / 20 fb^{-1}
10^4
10^3
10^2
10
1
10^{-1}
0
0.2
0.4
0.6
0.8
1
1.2
1.4
1.6
1.8
2
α_T (using E_T)
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
data/s.m.
1.5
1
0.5

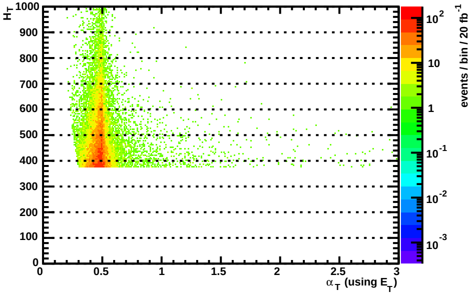

xcak5JetAlphaTRoughPat
Entries 26480
Mean 0.4929
RMS 0.1548
Underflow 0
Overflow 0
Integral 2.648e+04
events / bin / 20 fb^{-1}
10^4
10^3
10^2
10
1
10^{-1}
0
0.2
0.4
0.6
0.8
1
1.2
1.4
1.6
1.8
2
α_T (using E_T)
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
data/s.m.
1.5
1
0.5


xcak5JetAlphaTZoomPat
Entries 26480
Mean 0.5015
RMS 0.03461
Underflow 0
Overflow 0
Integral 2.648e+04
events / bin / 20 fb^{-1}
10^4
10^3
10^2
10
1
10^{-1}
0.48
0.5
0.52
0.54
0.56
0.58
0.6
α_T (using E_T)
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
data/s.m.
1.5
1
0.5

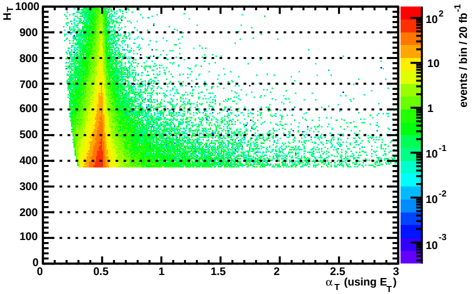

xcak5JetDeltaHtOverHtPat
Entries 26480
Mean 0.1289
RMS 0.1229
Underflow 0
Overflow 0
Integral 2.648e+04
events / bin / 20 fb^{-1}
10^3
10^2
10
1
10^{-1}
10^{-2}
0
0.2
0.4
0.6
0.8
1
Δ H_T/H_T
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
data/s.m.
1.5
1
0.5


xcak5JetDeltaHtPat
Entries 26480
Mean 64.46
RMS 65.87
Underflow 0
Overflow 0
Integral 2.648e+04
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
events / bin / 20 fb^{-1}
10^3
10^2
10
1
10^{-1}
10^{-2}
0
50
100
150
200
250
300
350
400
450
500
Δ H_T (GeV)
data/s.m.
1.5
1
0.5

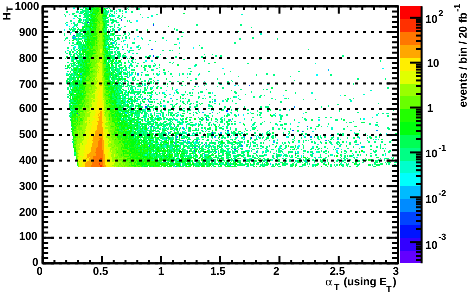
2012 Data



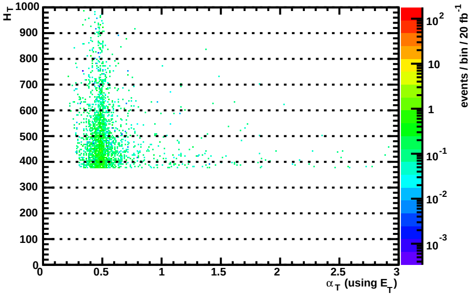
Standard Model



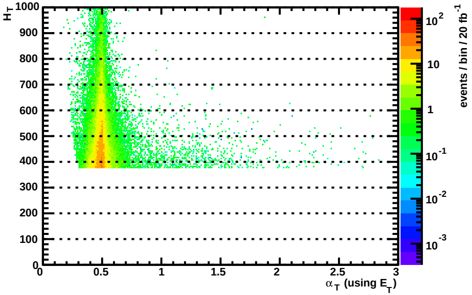
W->lv + jets



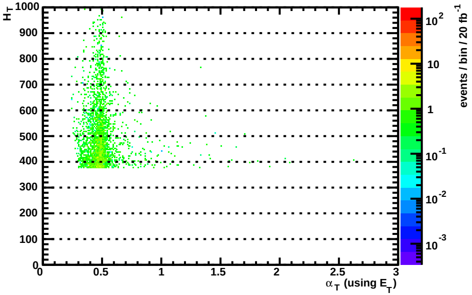
VV



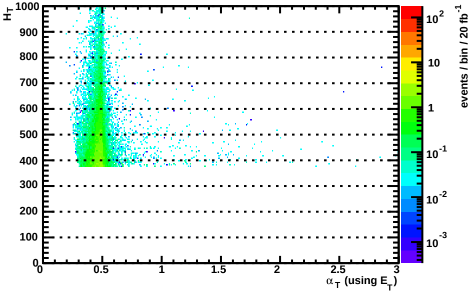
tt



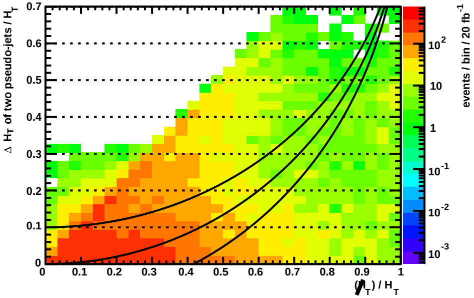
SingleTop



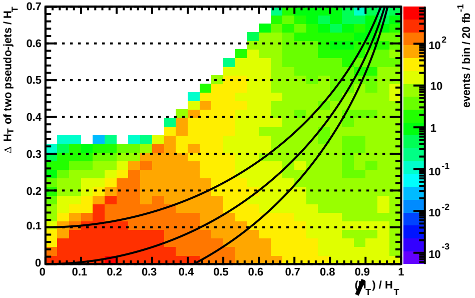
Drell-Yan



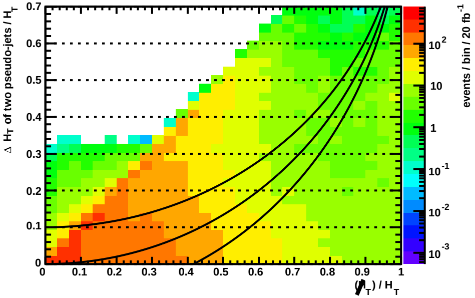
2012 Data



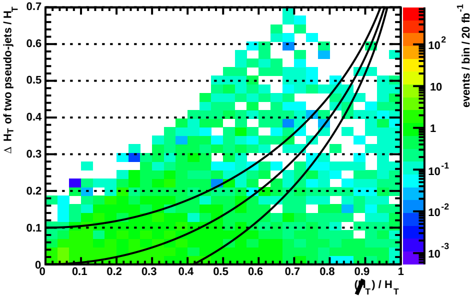
Standard Model



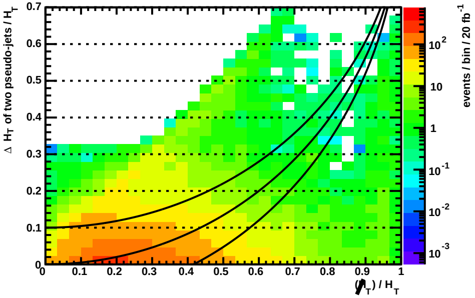
W->lν + jets



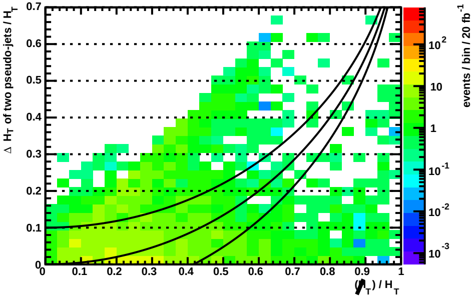
VV



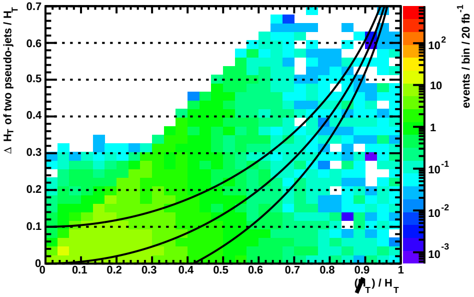
tt

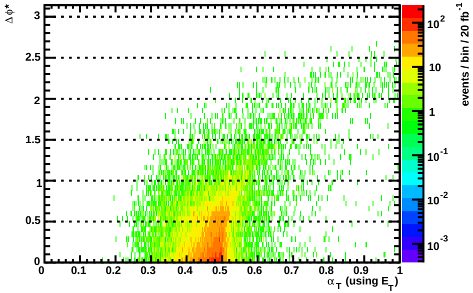


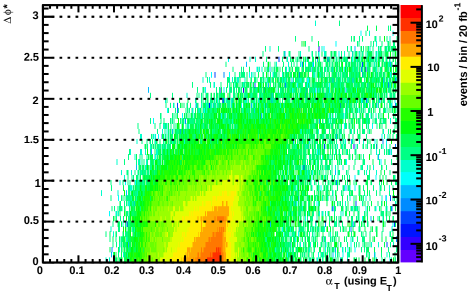
SingleTop

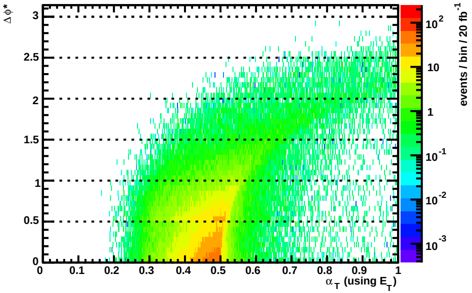


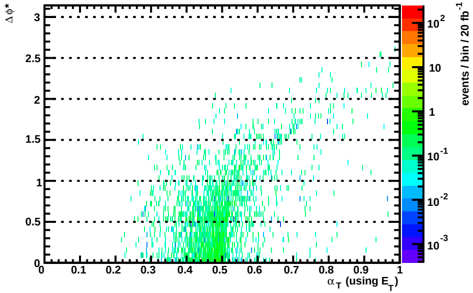
Drell-Yan

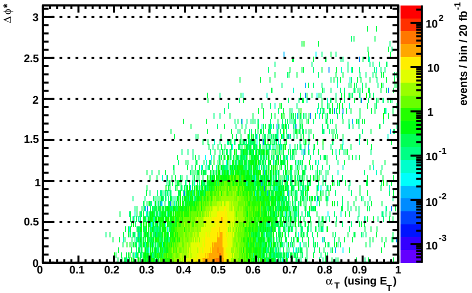


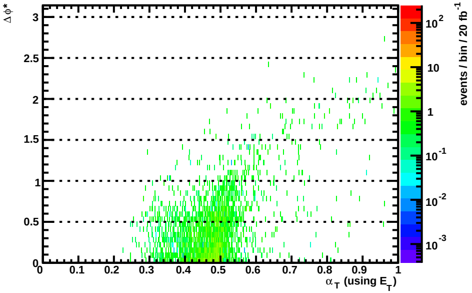

2012 Data

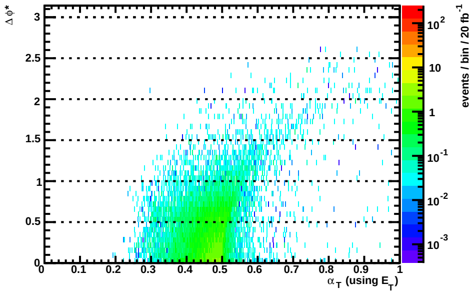

Standard Model

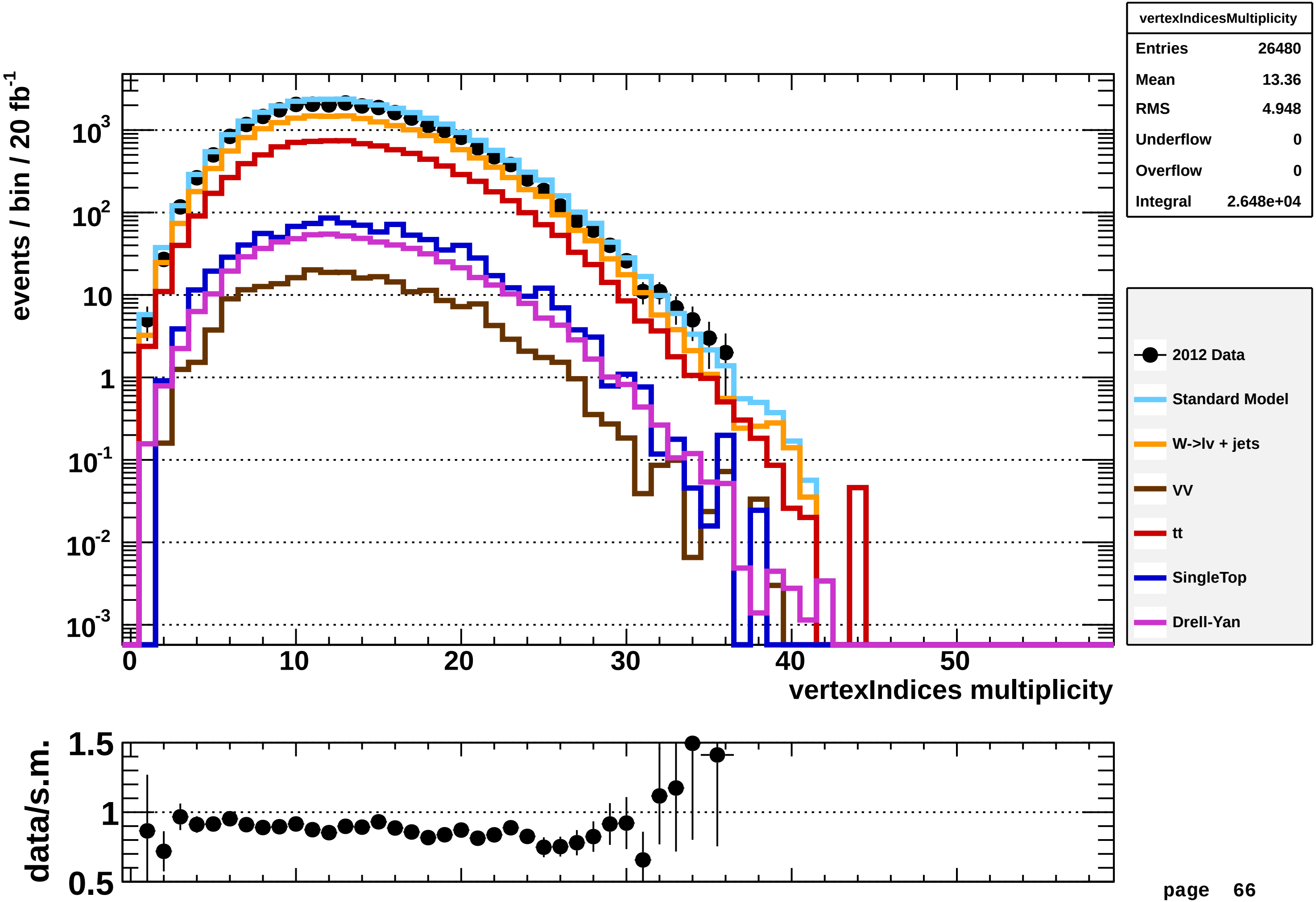

W->lv + jets

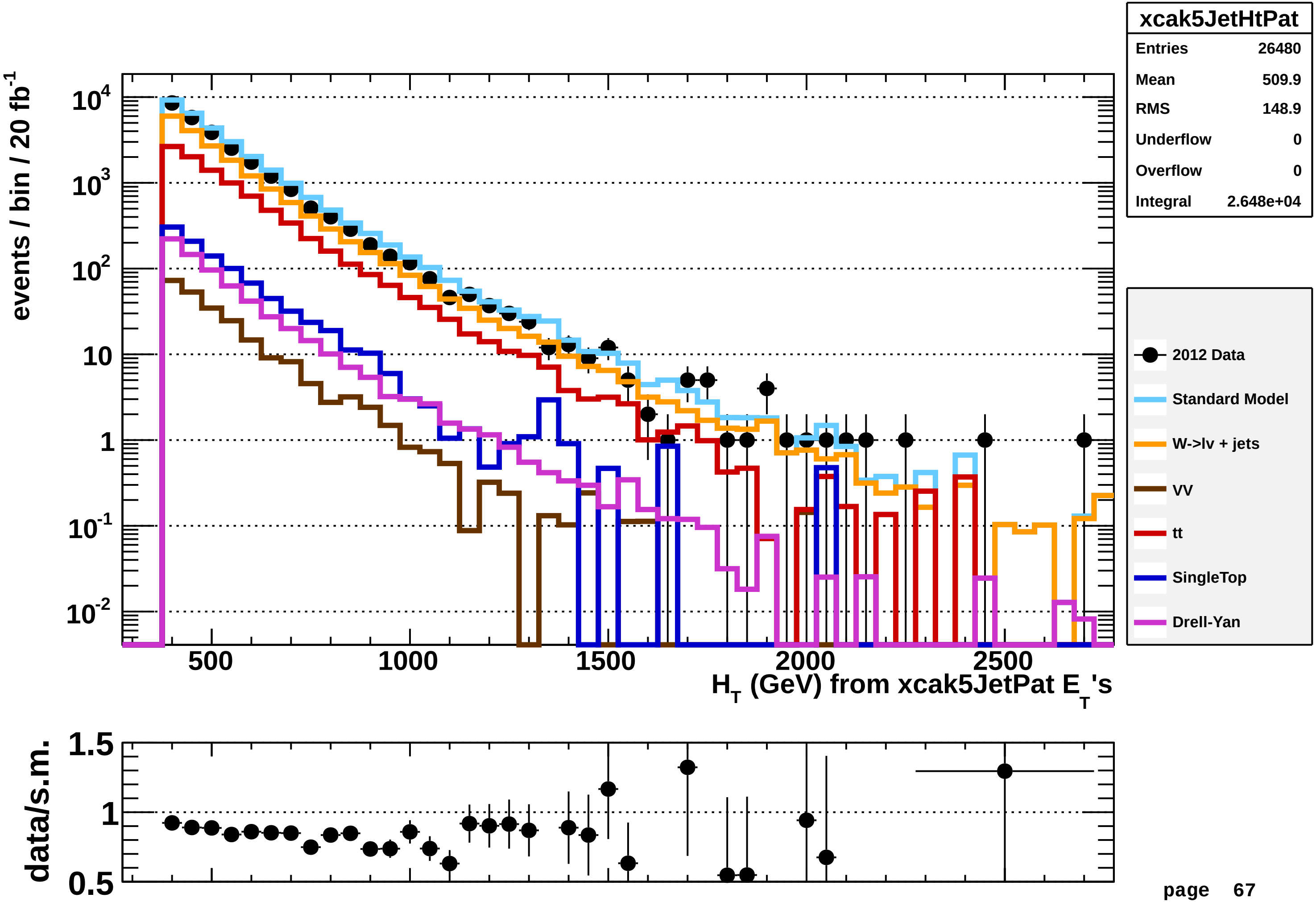

VV

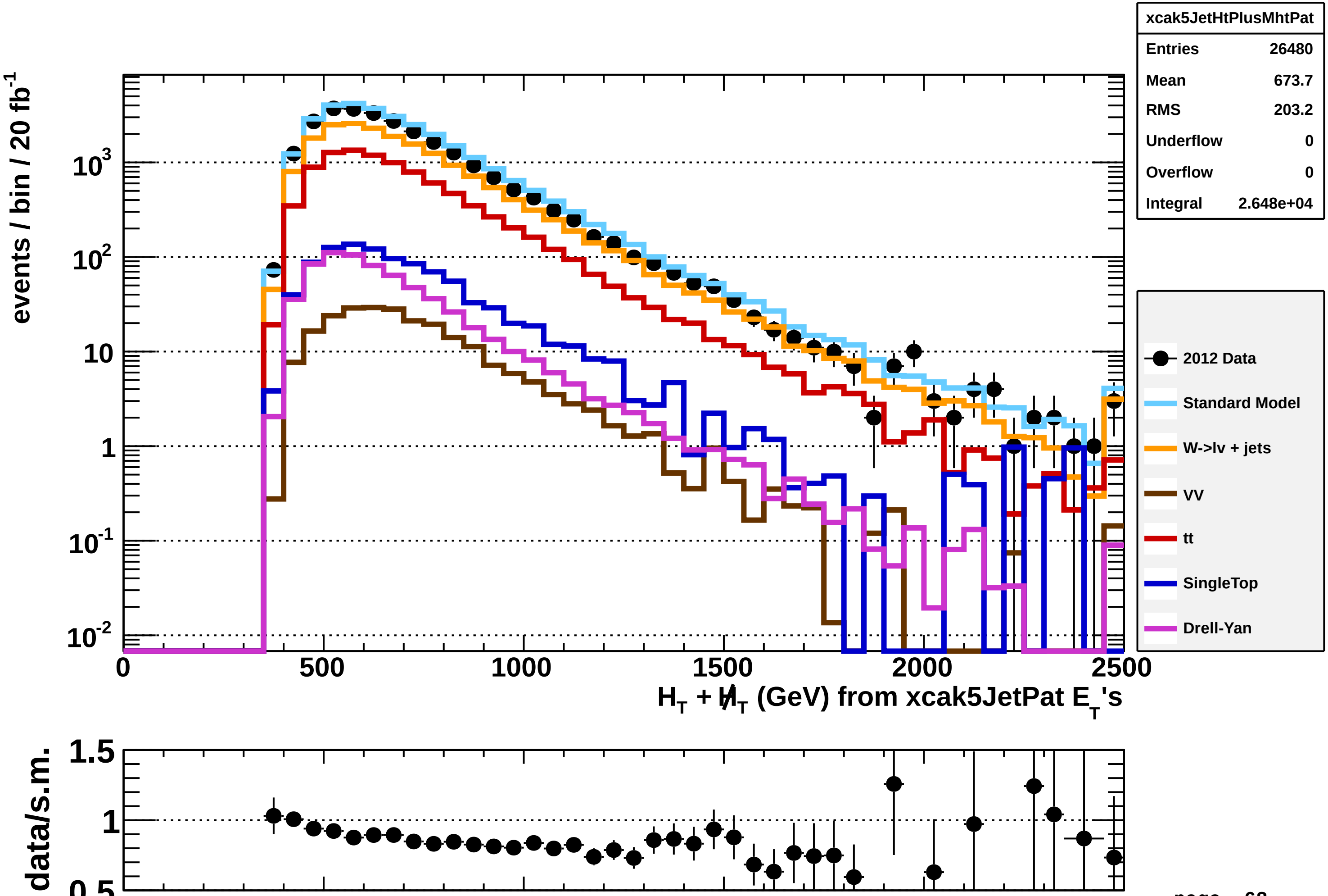

tt

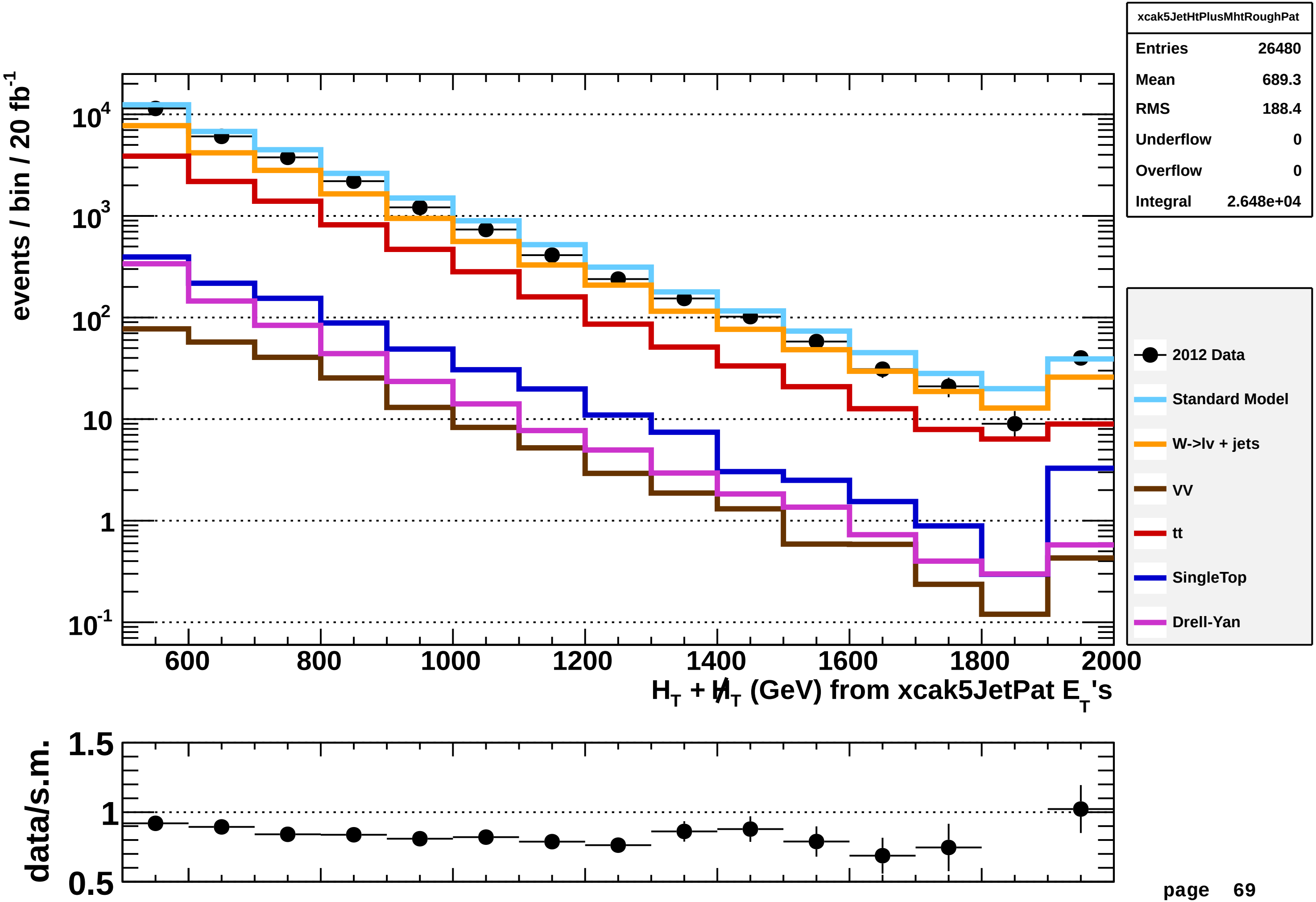

SingleTop

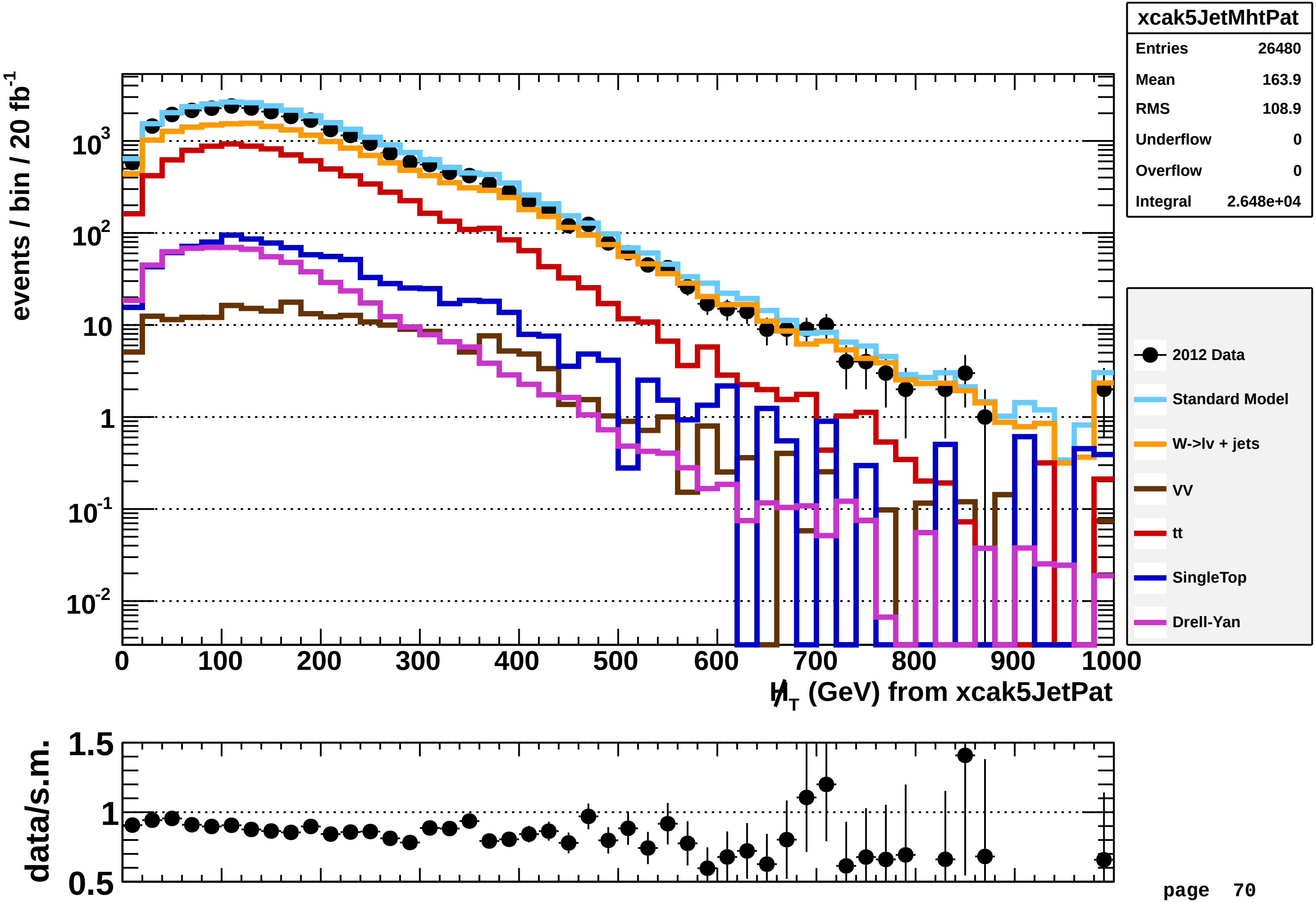

Drell-Yan

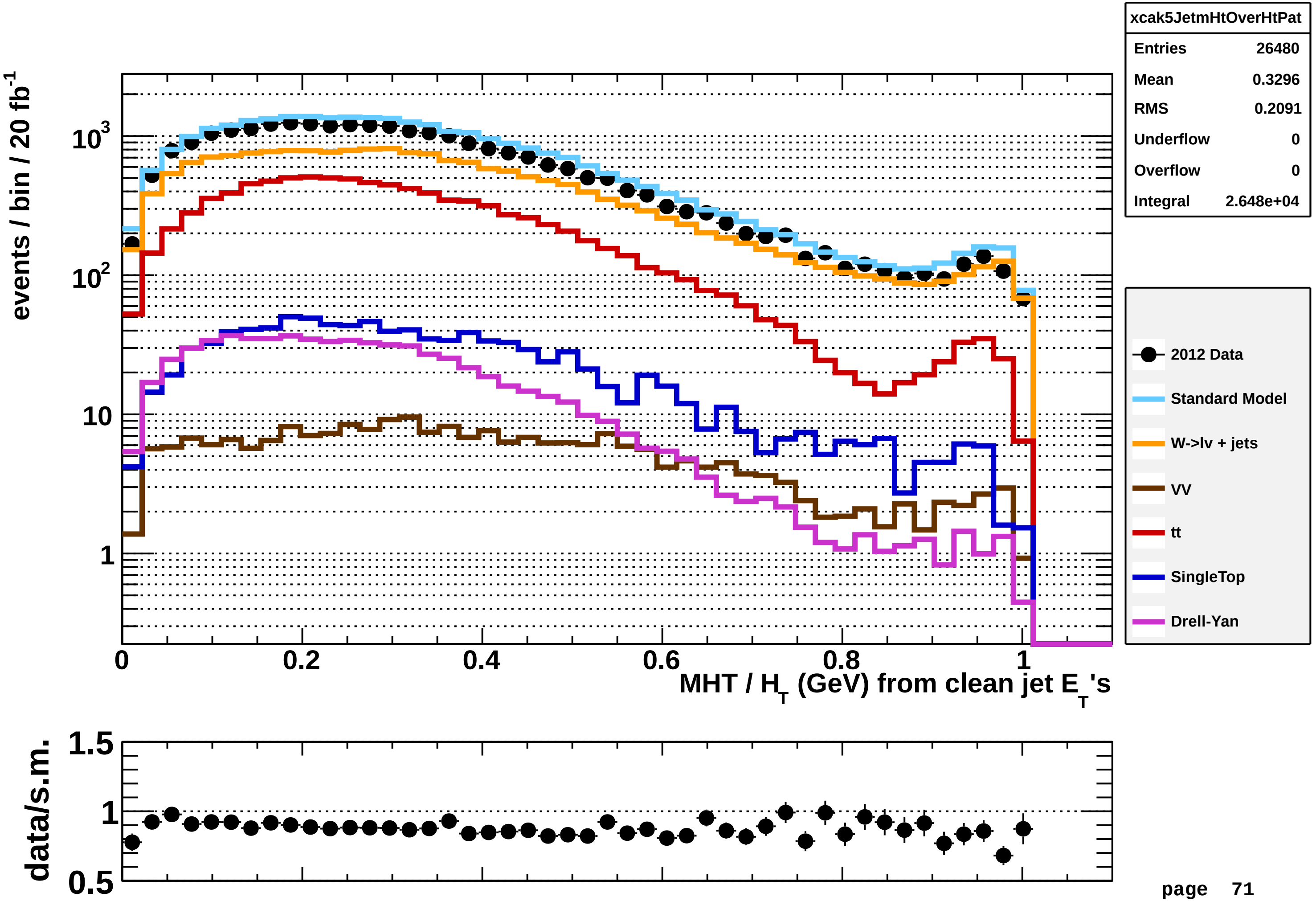

vertexIndicesMultiplicity
Entries 26480
Mean 13.36
RMS 4.948
Underflow 0
Overflow 0
Integral 2.648e+04
events / bin / 20 fb^{-1}
10^3
10^2
10
1
10^{-1}
10^{-2}
10^{-3}
0
10
20
30
40
50
vertexIndices multiplicity
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
data/s.m.
1.5
1
0.5

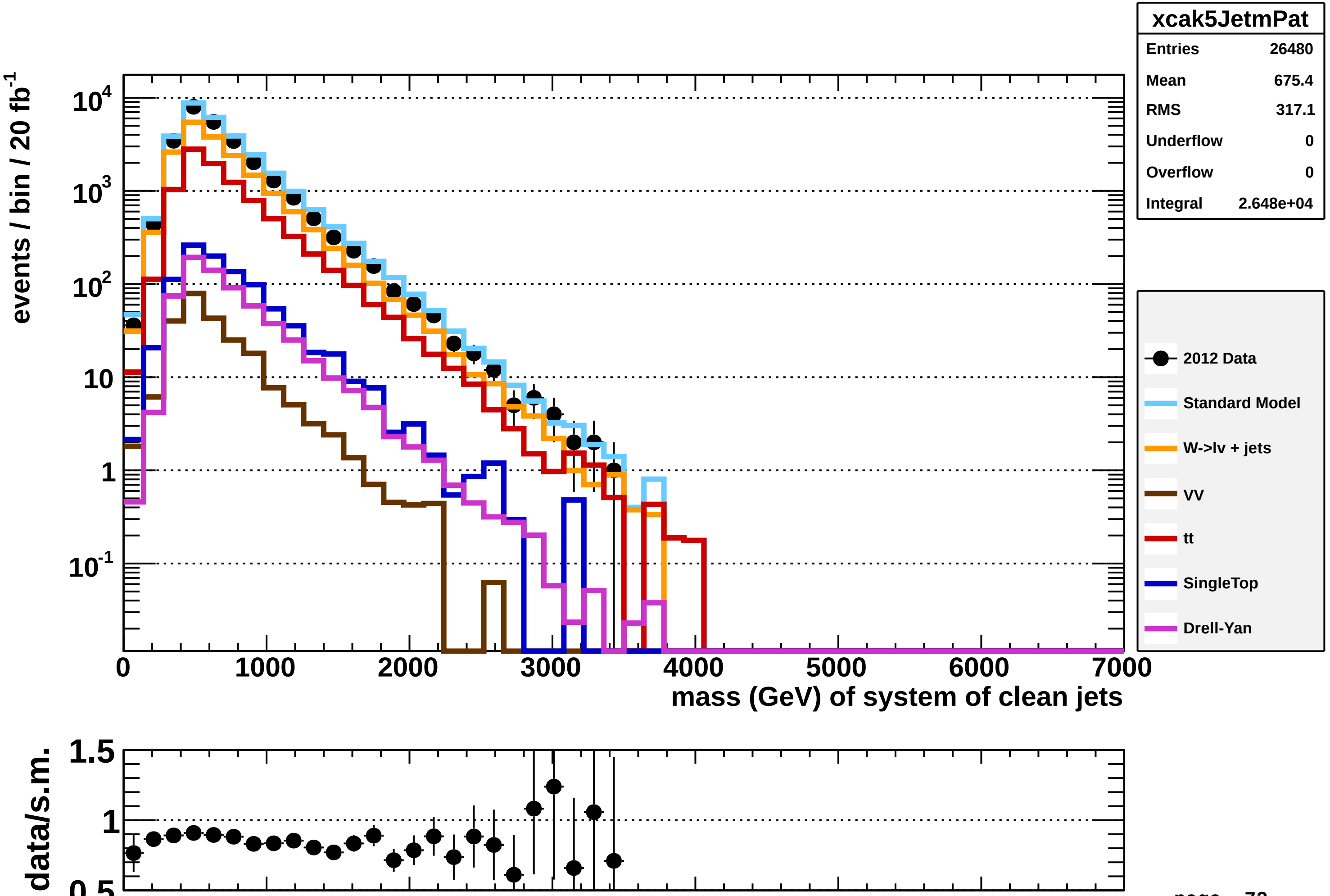

xcak5JetHtPat
Entries 26480
Mean 509.9
RMS 148.9
Underflow 0
Overflow 0
Integral 2.648e+04
events / bin / 20 fb^{-1}
10^4
10^3
10^2
10
1
10^{-1}
10^{-2}
500
1000
1500
2000
2500
H_T (GeV) from xcak5JetPat E_T's
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
data/s.m.
1.5
1
0.5


xcak5JetHtPlusMhtPat
Entries 26480
Mean 673.7
RMS 203.2
Underflow 0
Overflow 0
Integral 2.648e+04
events / bin / 20 fb^{-1}
10^3
10^2
10
1
10^{-1}
10^{-2}
0
500
1000
1500
2000
2500
$H_T + \not{H}_T$ (GeV) from xcak5JetPat E_T's
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
data/s.m.
1.5
1
0.5

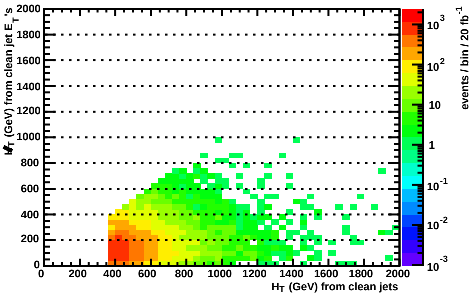

xcak5JetHtPlusMhtRoughPat
Entries 26480
Mean 689.3
RMS 188.4
Underflow 0
Overflow 0
Integral 2.648e+04
events / bin / 20 fb^{-1}
10^4
10^3
10^2
10
1
10^{-1}
600
800
1000
1200
1400
1600
1800
2000
H_T + $\not{H}_T$ (GeV) from xcak5JetPat E_T's
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
data/s.m.
1.5
1
0.5


xcak5JetMhtPat
Entries 26480
Mean 163.9
RMS 108.9
Underflow 0
Overflow 0
Integral 2.648e+04
events / bin / 20 fb^{-1}
10^3
10^2
10
1
10^{-1}
10^{-2}
0
100
200
300
400
500
600
700
800
900
1000
$\not{H}_T$ (GeV) from xcak5JetPat
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
data/s.m.
1.5
1
0.5

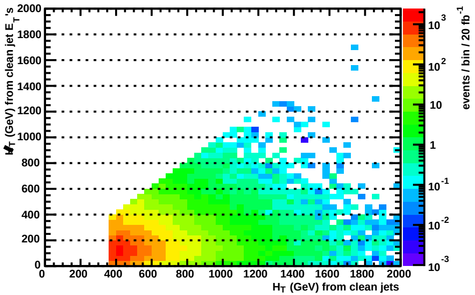

xcak5JetmHtOverHtPat
Entries 26480
Mean 0.3296
RMS 0.2091
Underflow 0
Overflow 0
Integral 2.648e+04
events / bin / 20 fb^{-1}
10^3
10^2
10
1
0
0.2
0.4
0.6
0.8
1
MHT / H_T (GeV) from clean jet E_T's
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
data/s.m.
1.5
1
0.5


xcak5JetmPat
Entries 26480
Mean 675.4
RMS 317.1
Underflow 0
Overflow 0
Integral 2.648e+04
events / bin / 20 fb^{-1}
10^4
10^3
10^2
10
1
10^{-1}
0
1000
2000
3000
4000
5000
6000
7000
mass (GeV) of system of clean jets
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
data/s.m.
1.5
1
0.5

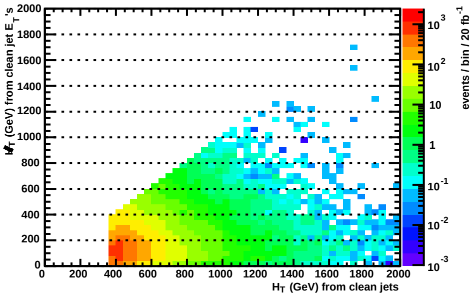
2012 Data



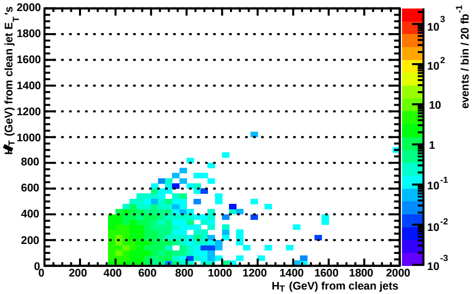
Standard Model



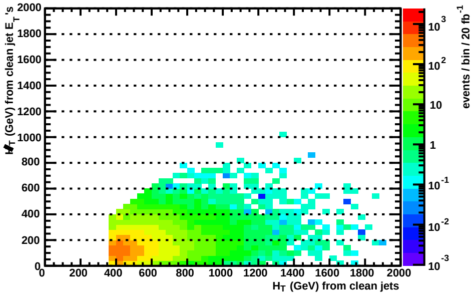
W->lv + jets



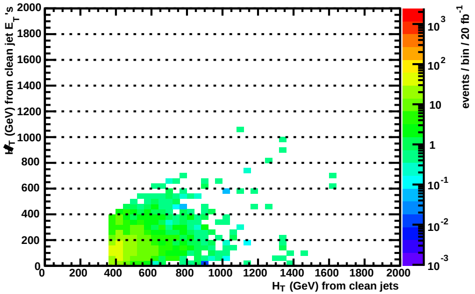
VV



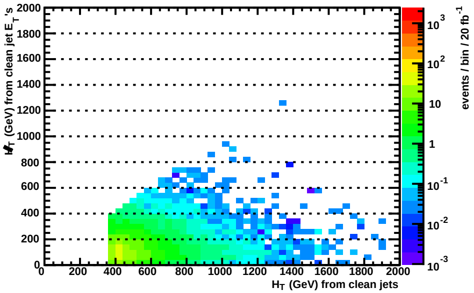
tt

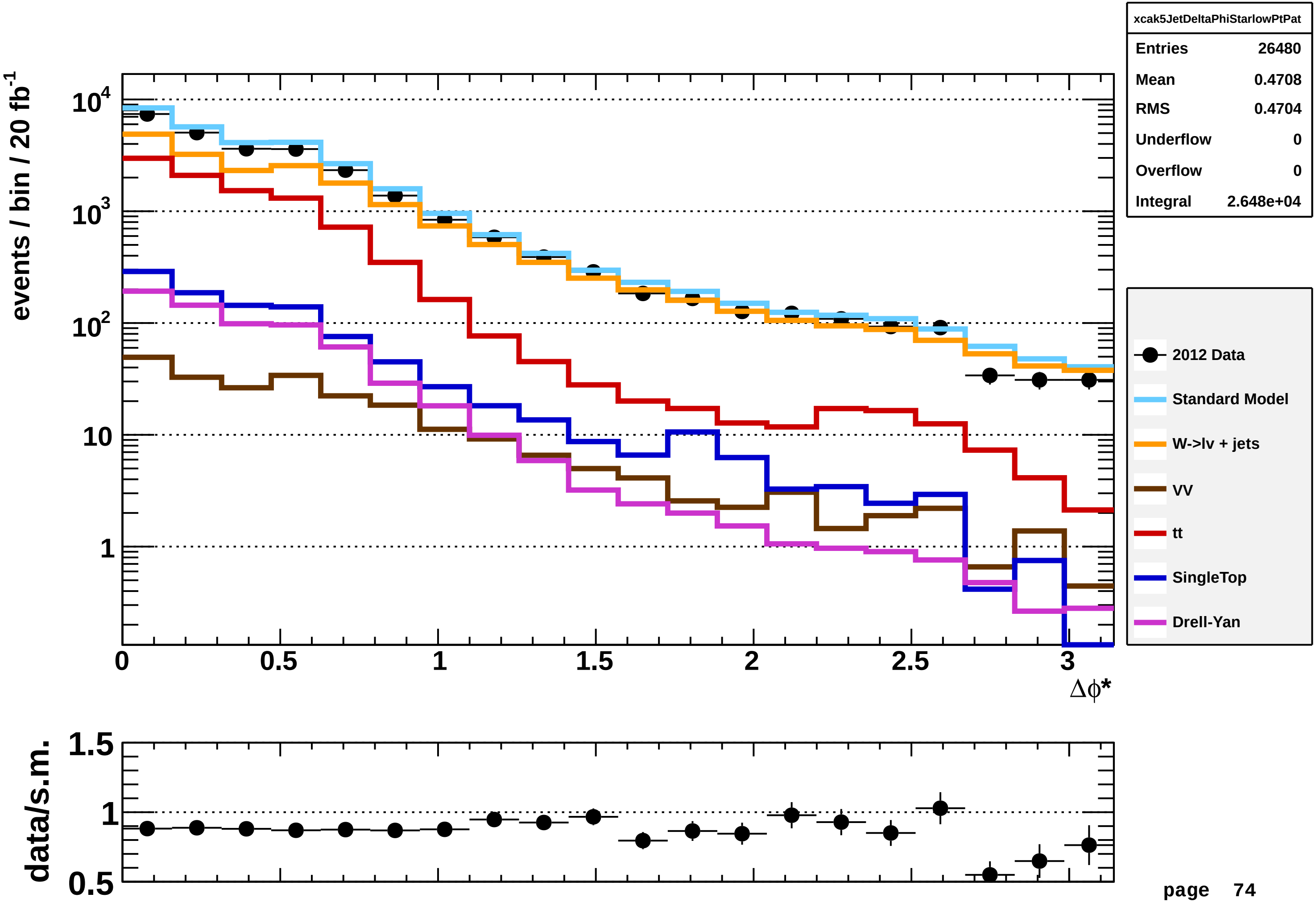


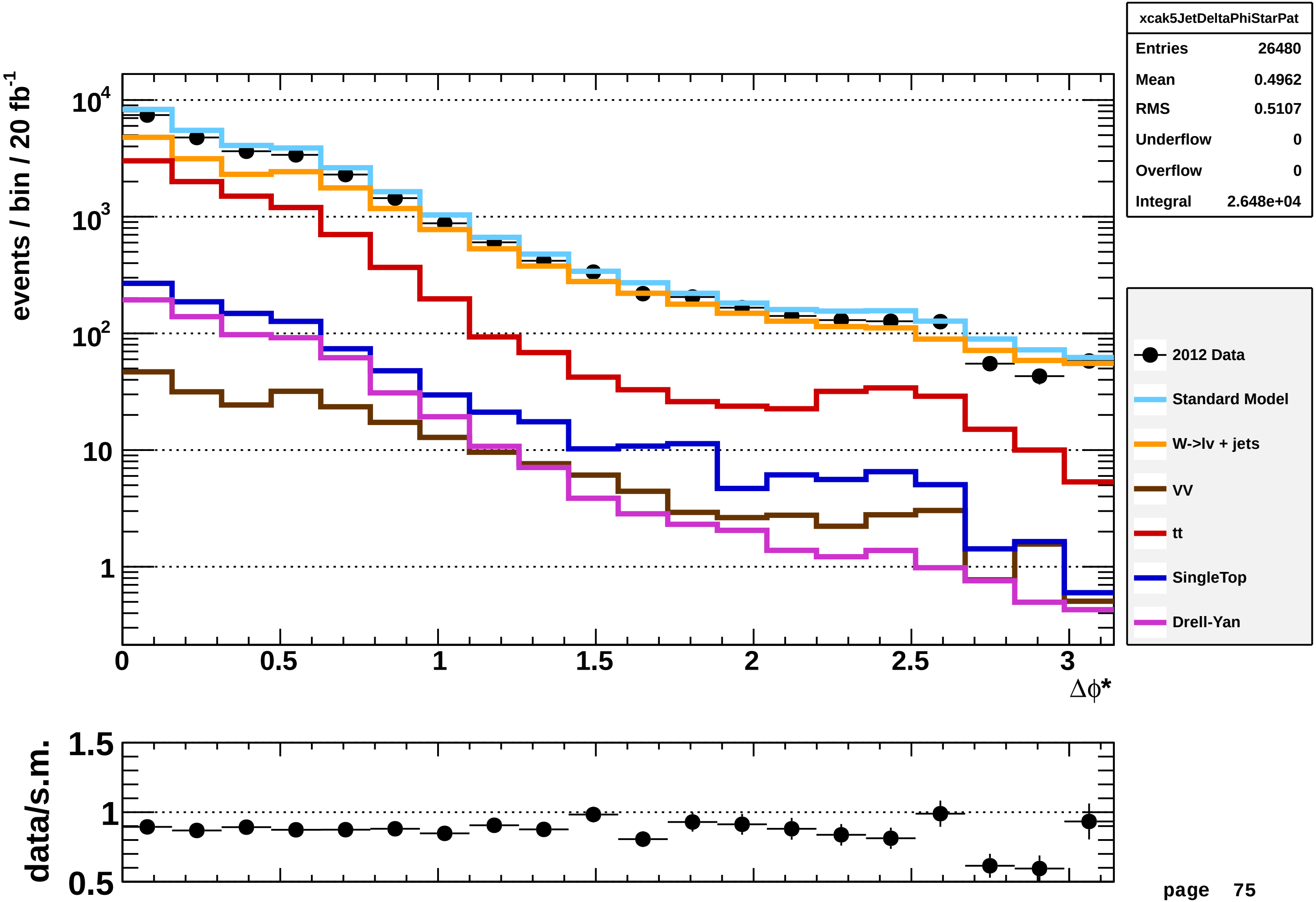
SingleTop

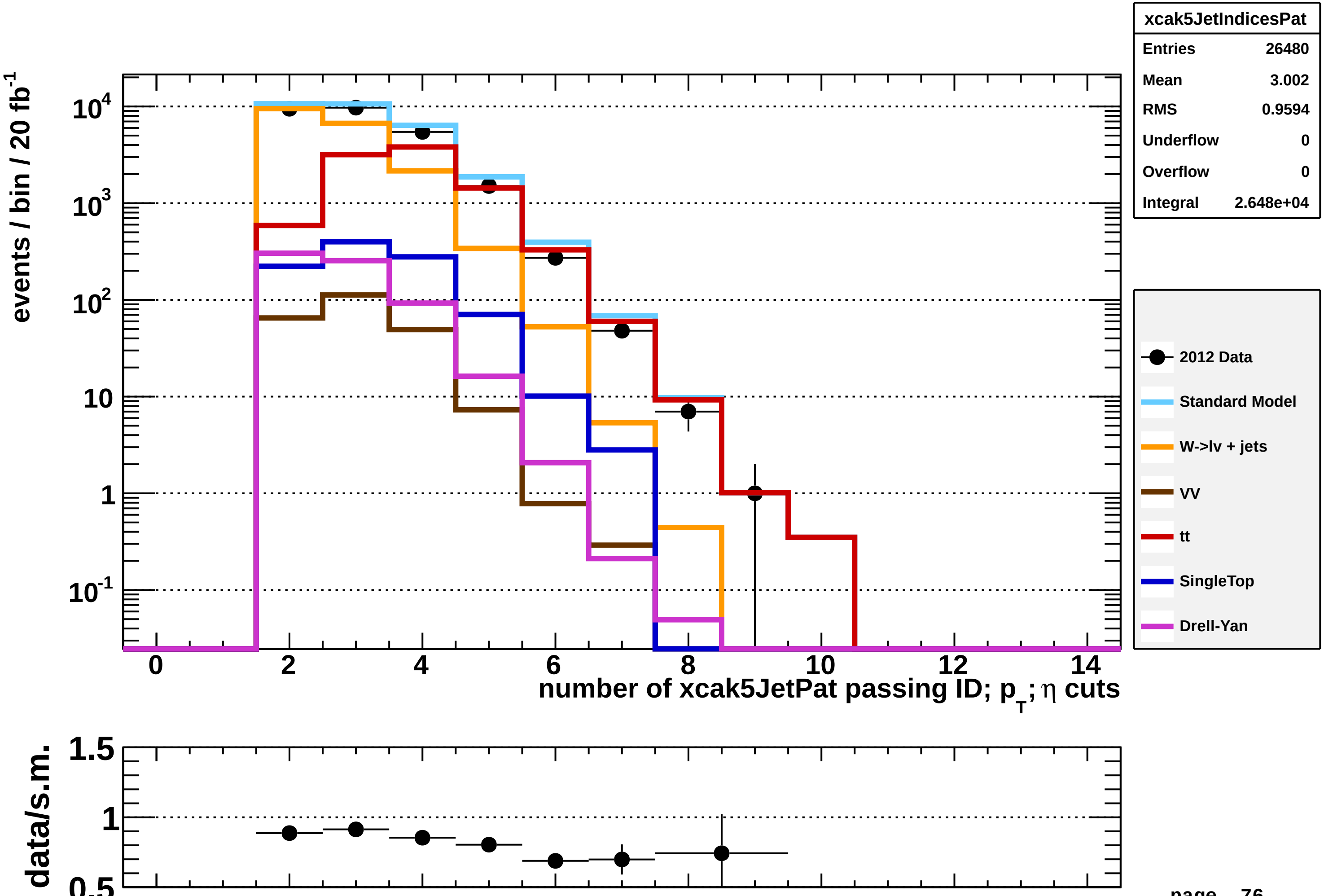


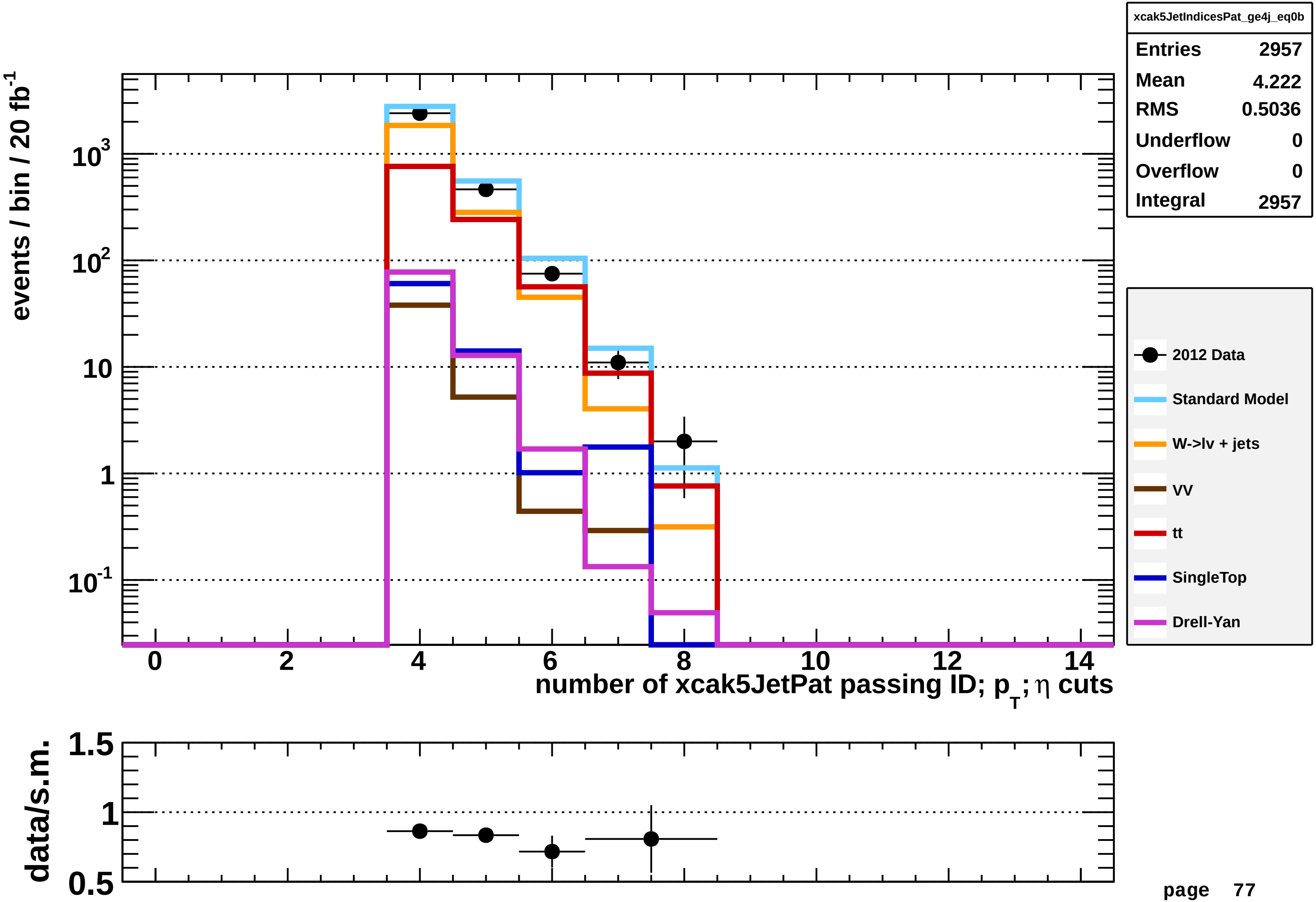
Drell-Yan

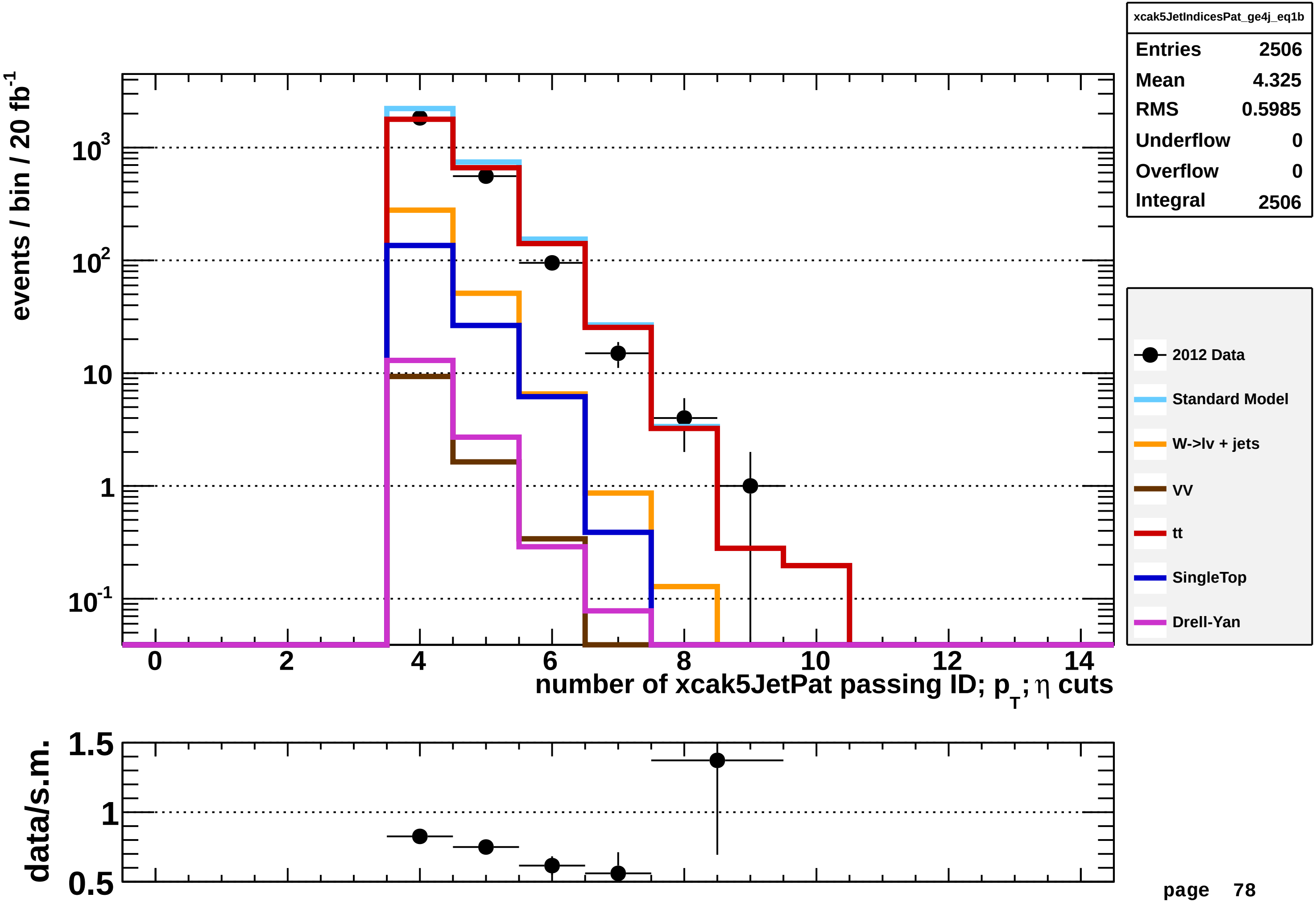


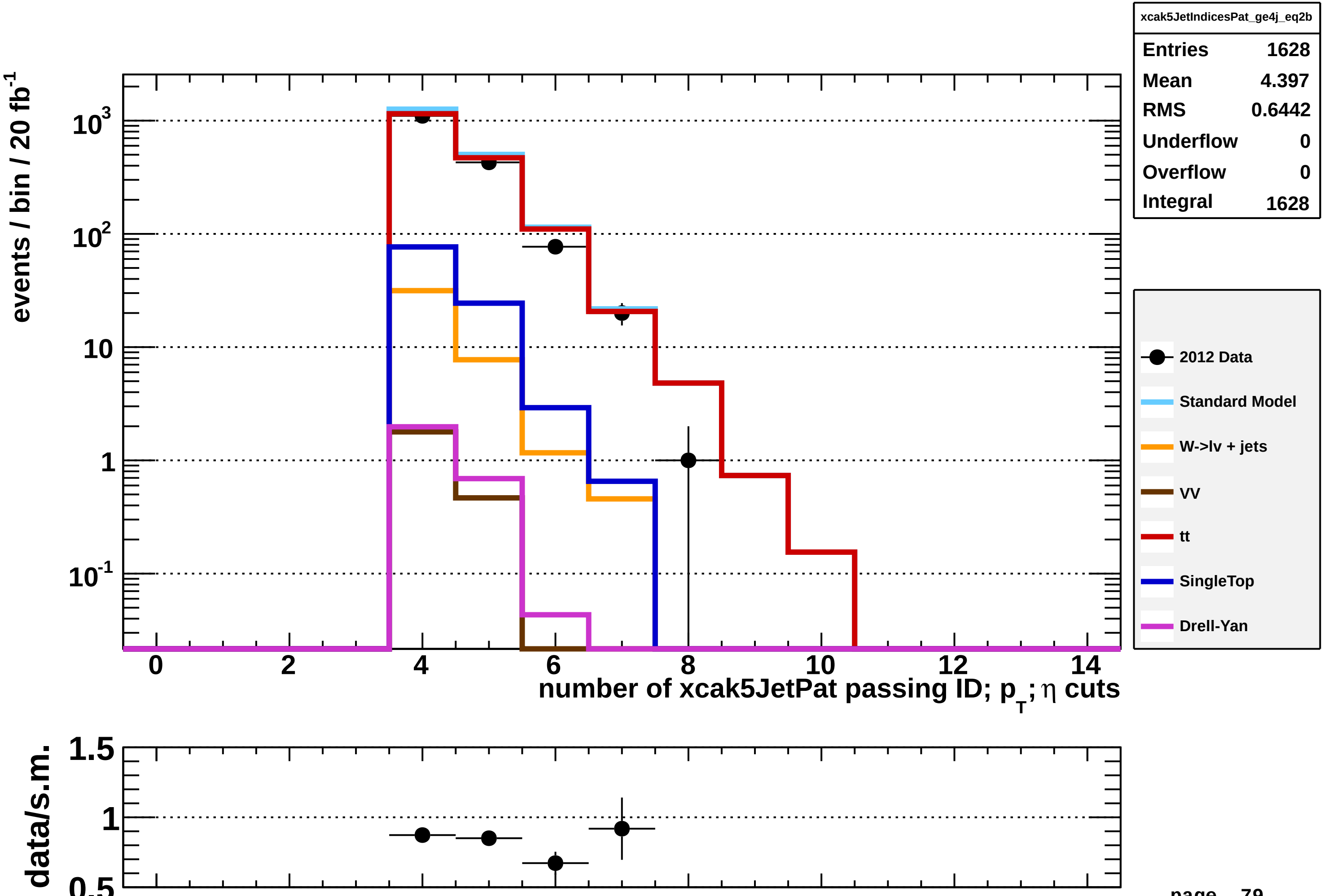

xcak5JetDeltaPhiStarlowPtPat
Entries 26480
Mean 0.4708
RMS 0.4704
Underflow 0
Overflow 0
Integral 2.648e+04
events / bin / 20 fb^{-1}
10^4
10^3
10^2
10
1
0
0.5
1
1.5
2
2.5
3
$\Delta\phi^*$
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
data/s.m.
1.5
1
0.5

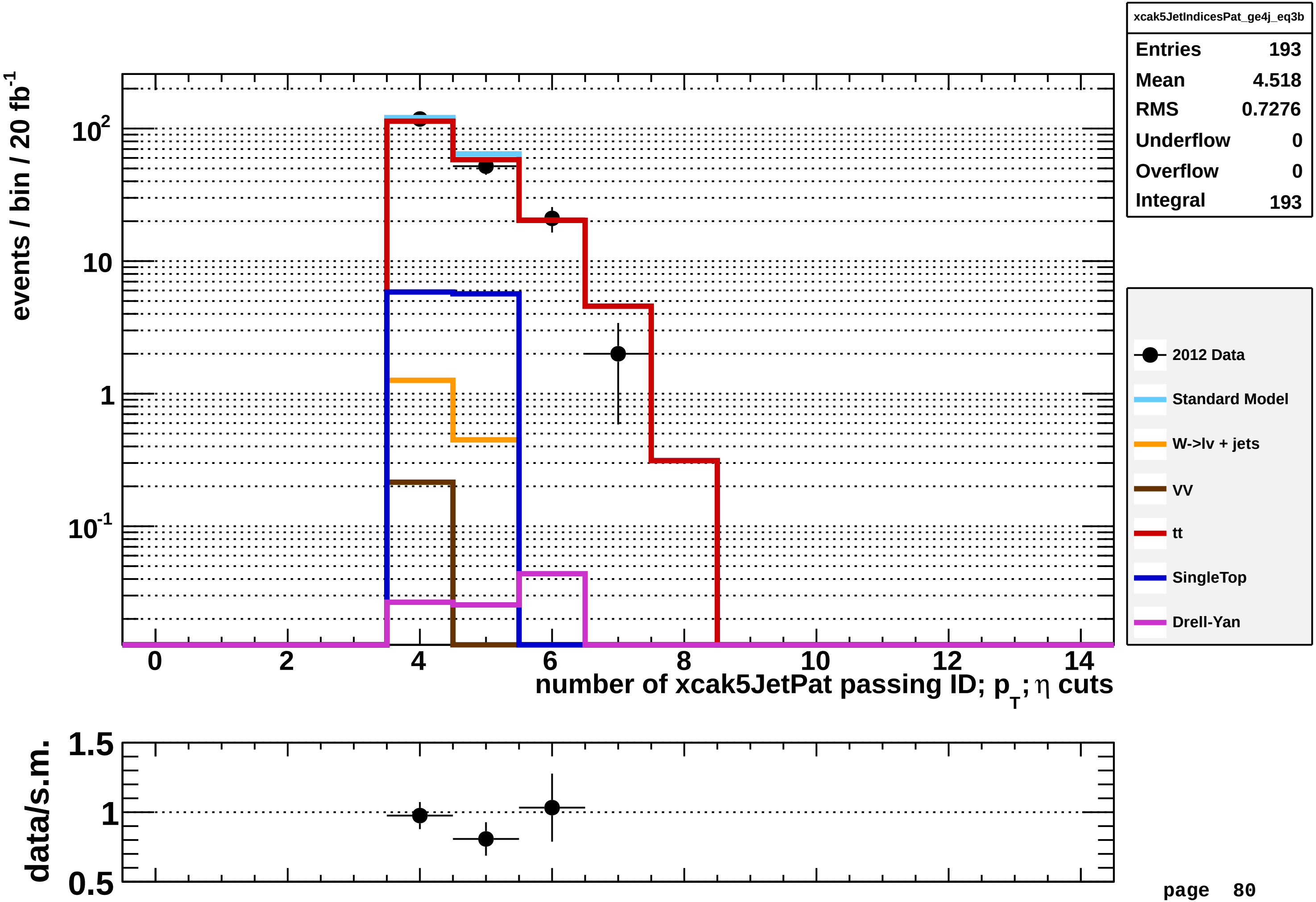

xcak5JetDeltaPhiStarPat
Entries 26480
Mean 0.4962
RMS 0.5107
Underflow 0
Overflow 0
Integral 2.648e+04
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
events / bin / 20 fb^{-1}
10^4
10^3
10^2
10
1
0
0.5
1
1.5
2
2.5
3
Δϕ*
data/s.m.
1.5
1
0.5

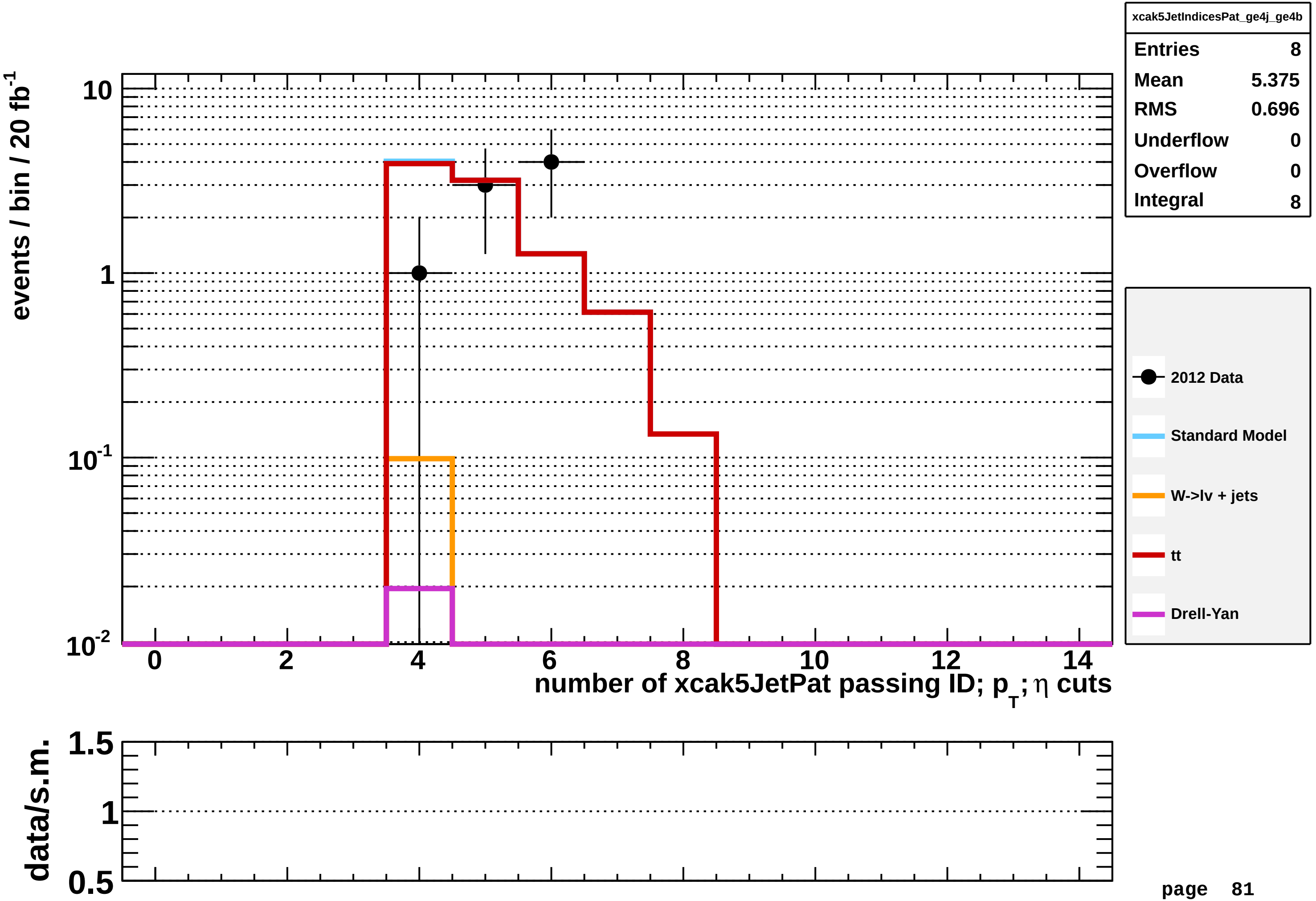

xcak5JetIndicesPat
Entries 26480
Mean 3.002
RMS 0.9594
Underflow 0
Overflow 0
Integral 2.648e+04
events / bin / 20 fb^{-1}
10^4
10^3
10^2
10
1
10^{-1}
0
2
4
6
8
10
12
14
number of xcak5JetPat passing ID; p_T; η cuts
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
data/s.m.
1.5
1
0.5


xcak5JetIndicesPat_ge4j_eq0b
Entries 2957
Mean 4.222
RMS 0.5036
Underflow 0
Overflow 0
Integral 2957
events / bin / 20 fb^{-1}
10^3
10^2
10
1
10^{-1}
0
2
4
6
8
10
12
14
number of xcak5JetPat passing ID; p_T; η cuts
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
data/s.m.
1.5
1
0.5

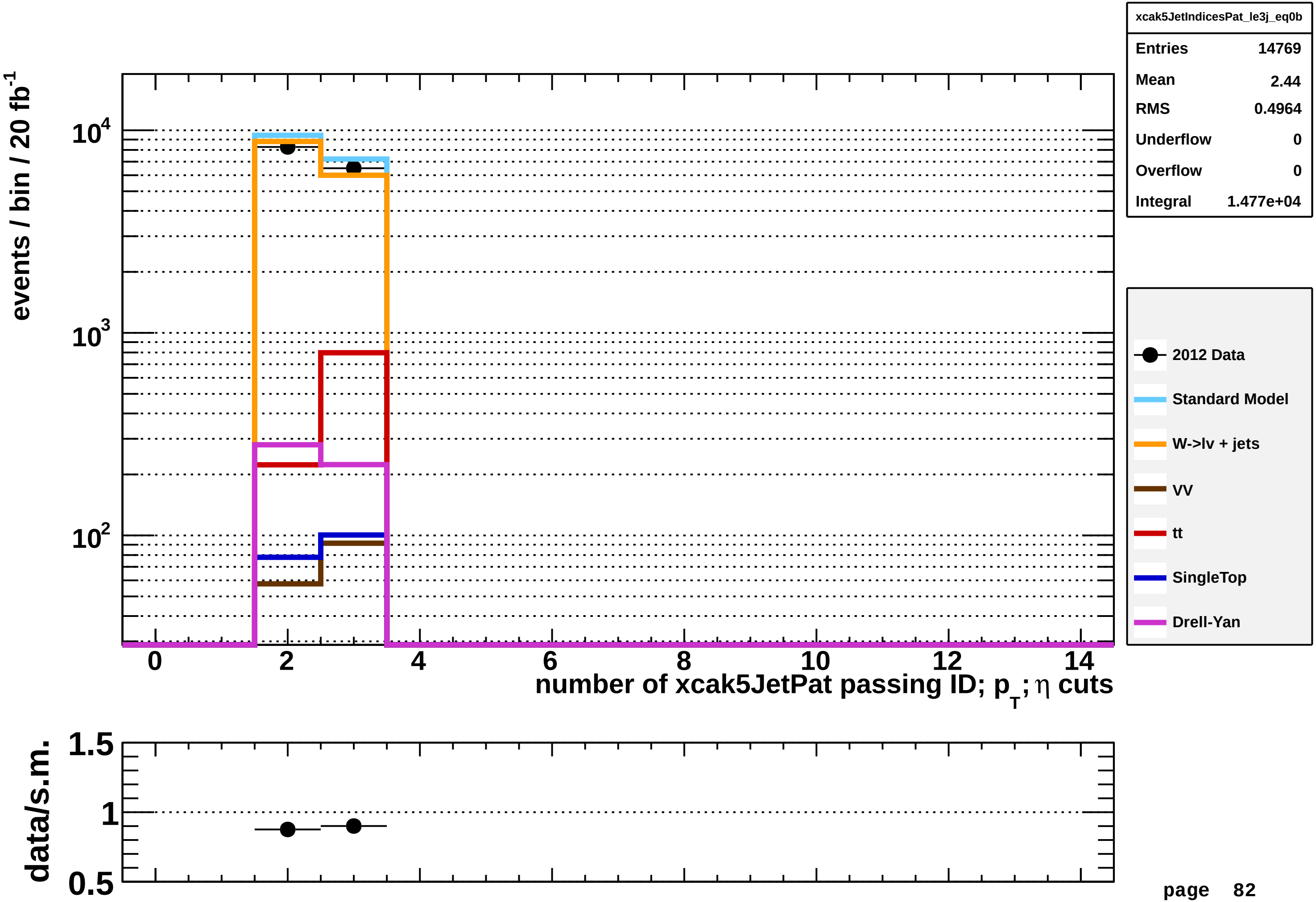

xcak5JetIndicesPat_ge4j_eq1b
Entries 2506
Mean 4.325
RMS 0.5985
Underflow 0
Overflow 0
Integral 2506
events / bin / 20 fb^{-1}
10^3
10^2
10
1
10^{-1}
0
2
4
6
8
10
12
14
number of xcak5JetPat passing ID; p_T; η cuts
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
data/s.m.
1.5
1
0.5

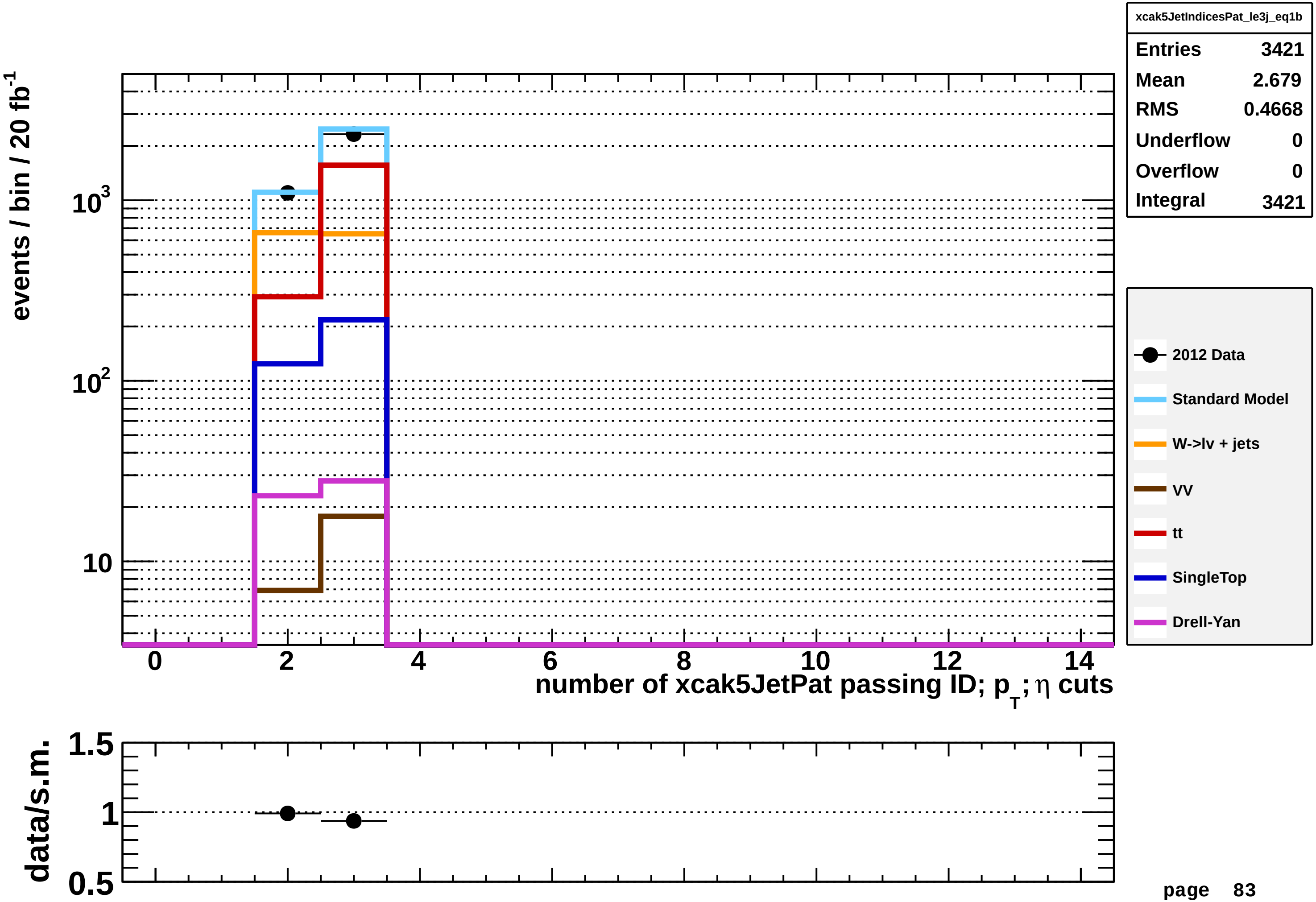

xcak5JetIndicesPat_ge4j_eq2b
Entries 1628
Mean 4.397
RMS 0.6442
Underflow 0
Overflow 0
Integral 1628
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
events / bin / 20 fb^{-1}
10^3
10^2
10
1
10^{-1}
0
2
4
6
8
10
12
14
number of xcak5JetPat passing ID; p_T; η cuts
data/s.m.
1.5
1
0.5

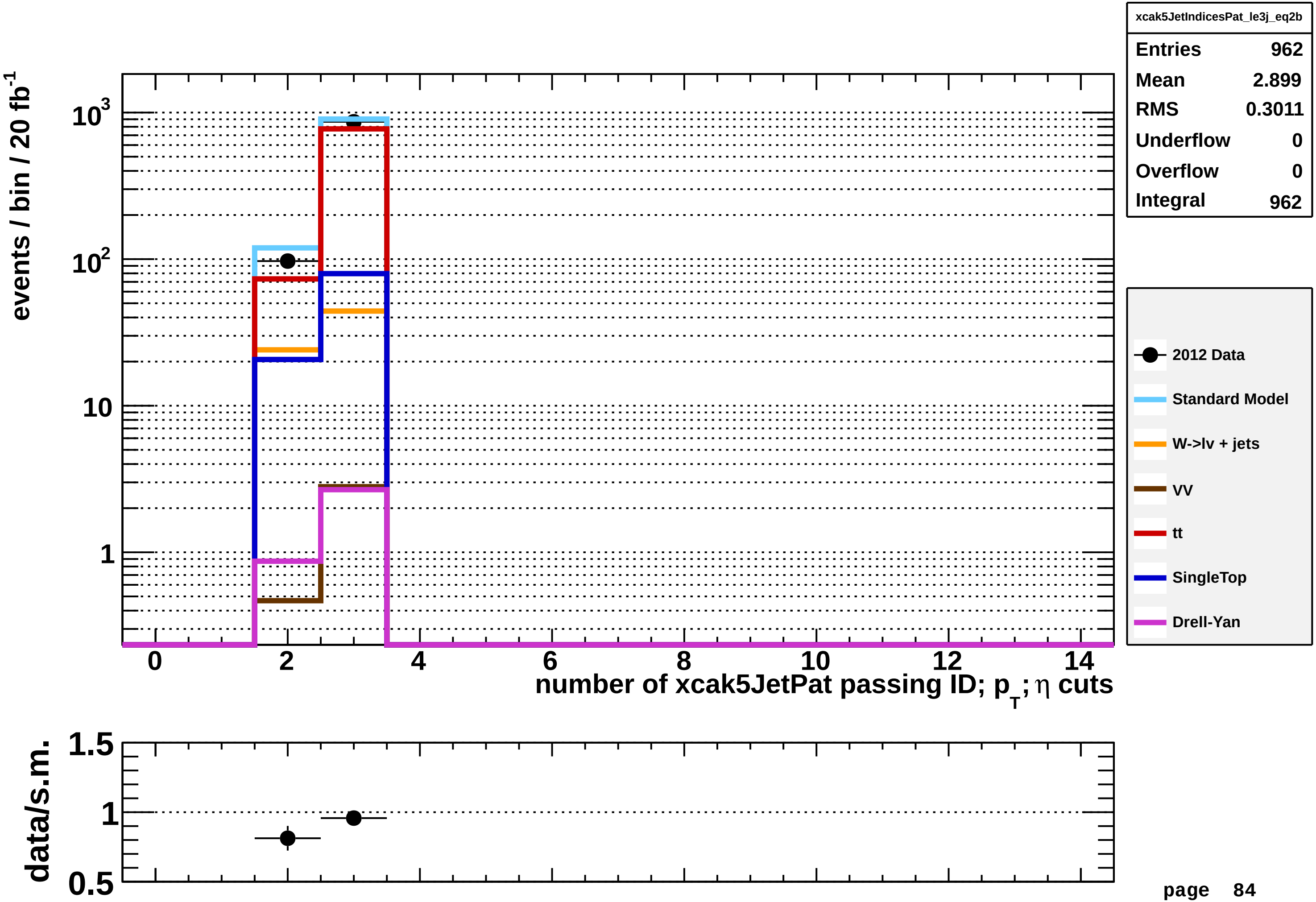

xcak5JetIndicesPat_ge4j_eq3b
Entries 193
Mean 4.518
RMS 0.7276
Underflow 0
Overflow 0
Integral 193
events / bin / 20 fb^{-1}
10^2
10
1
10^{-1}
0
2
4
6
8
10
12
14
number of xcak5JetPat passing ID; p_T; η cuts
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
data/s.m.
1.5
1
0.5

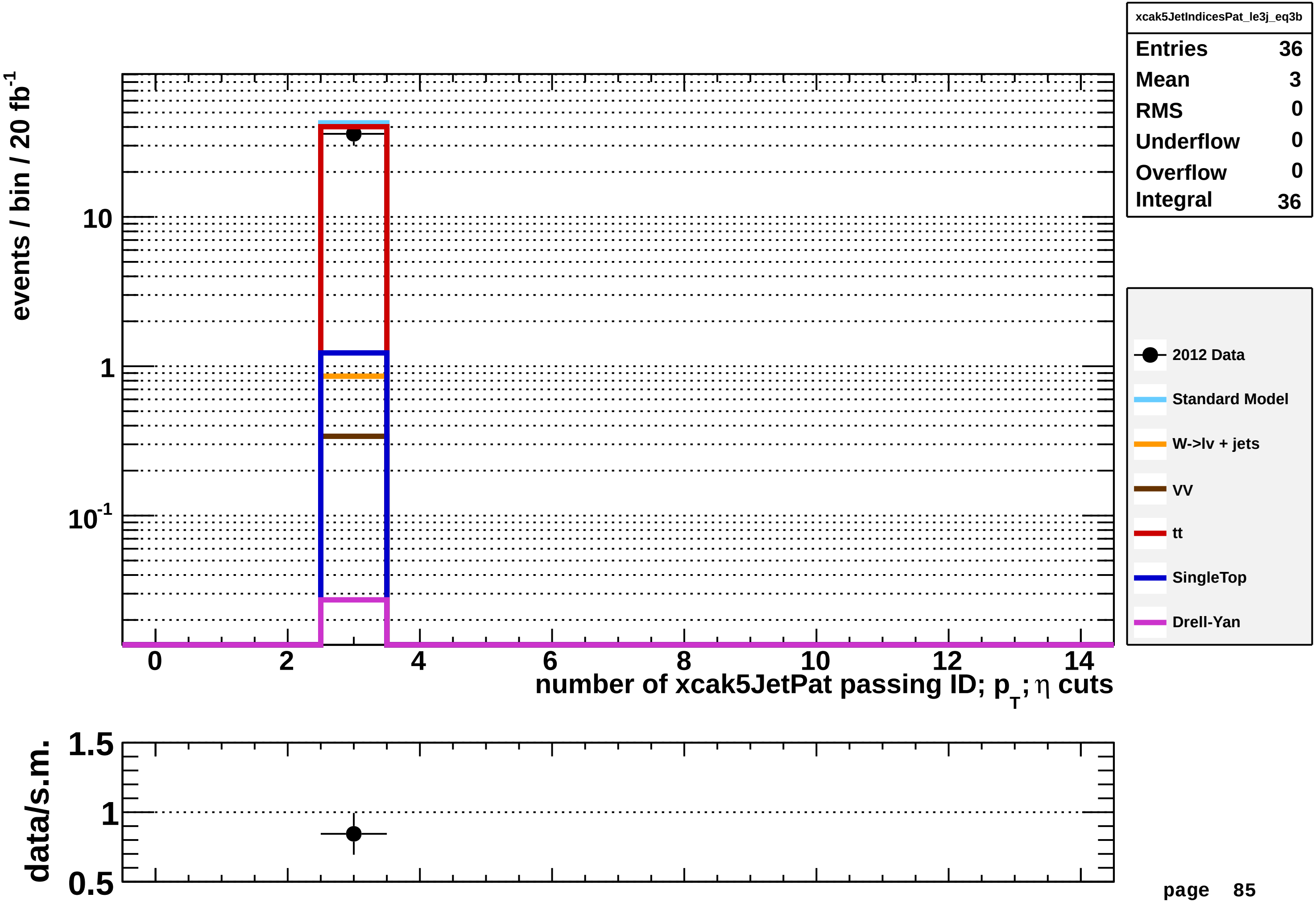


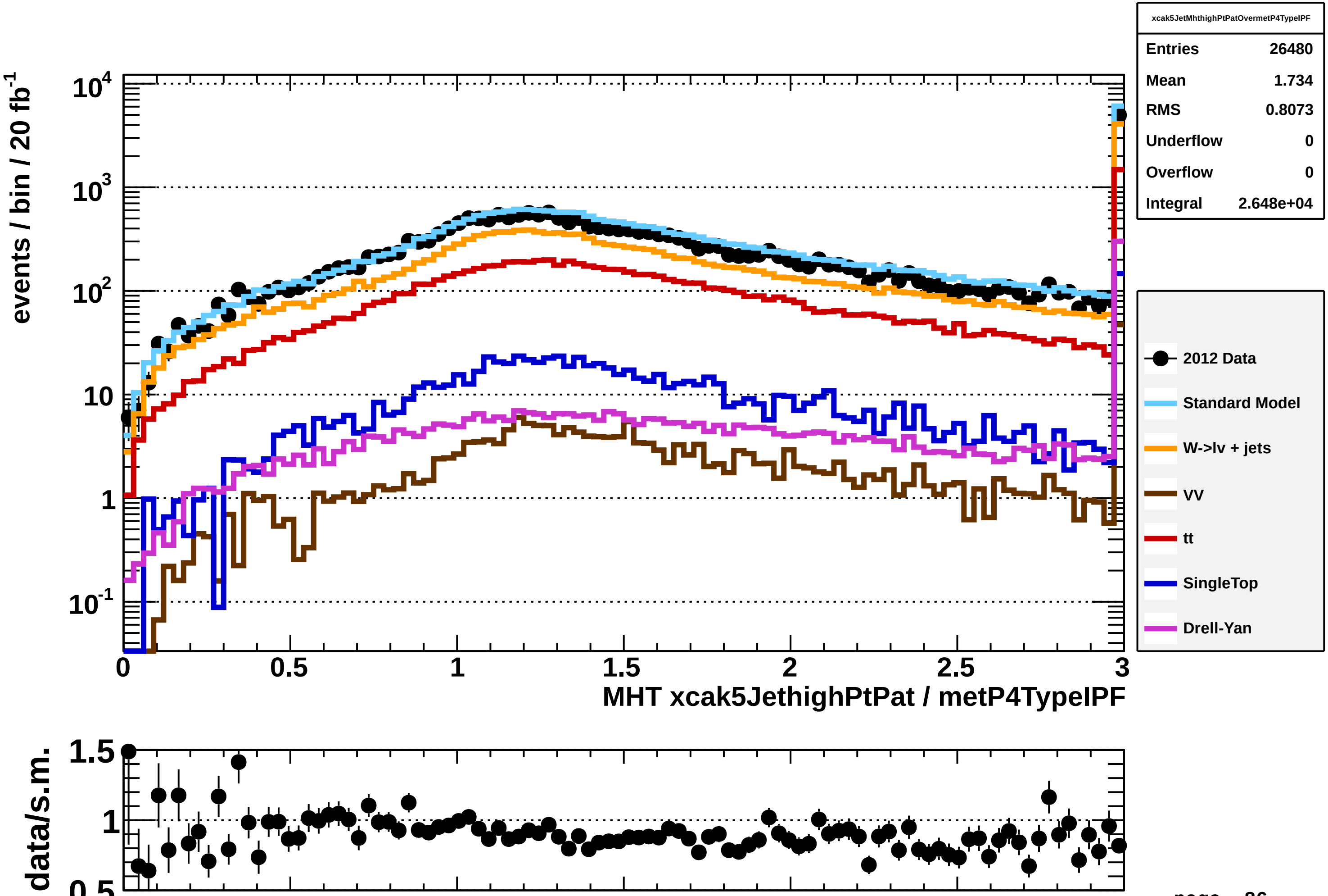
xcak5JetIndicesPat_ge4j_ge4b
Entries 8
Mean 5.375
RMS 0.696
Underflow 0
Overflow 0
Integral 8
events / bin / 20 fb^{-1}
10
1
10^{-1}
10^{-2}
0
2
4
6
8
10
12
14
number of xcak5JetPat passing ID; p_T; η cuts
2012 Data
Standard Model
W->lv + jets
tt
Drell-Yan
data/s.m.
1.5
1
0.5

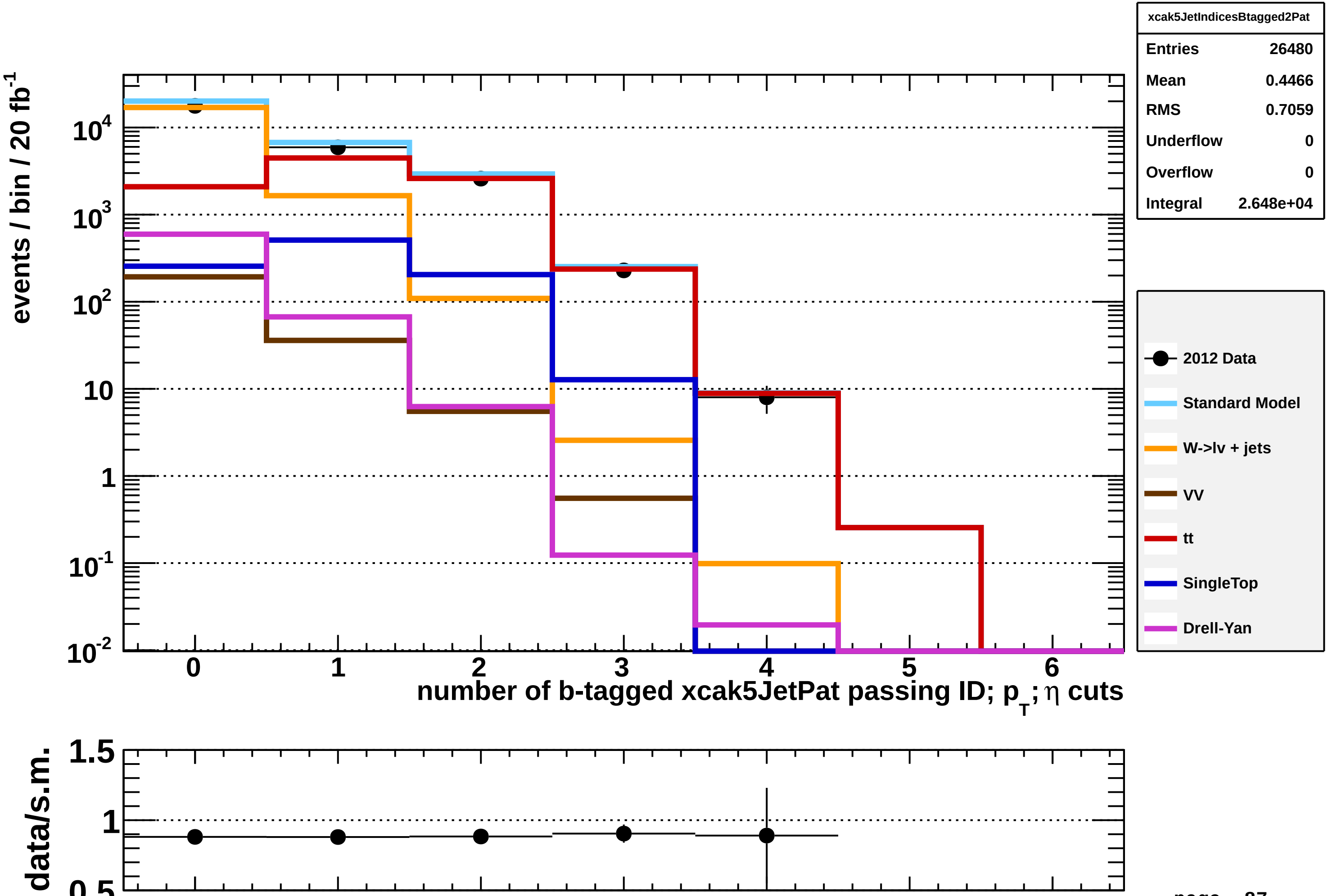

xcak5JetIndicesPat_le3j_eq0b
Entries 14769
Mean 2.44
RMS 0.4964
Underflow 0
Overflow 0
Integral 1.477e+04
events / bin / 20 fb^{-1}
10^4
10^3
10^2
0
2
4
6
8
10
12
14
number of xcak5JetPat passing ID; p_T; η cuts
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
data/s.m.
1.5
1
0.5

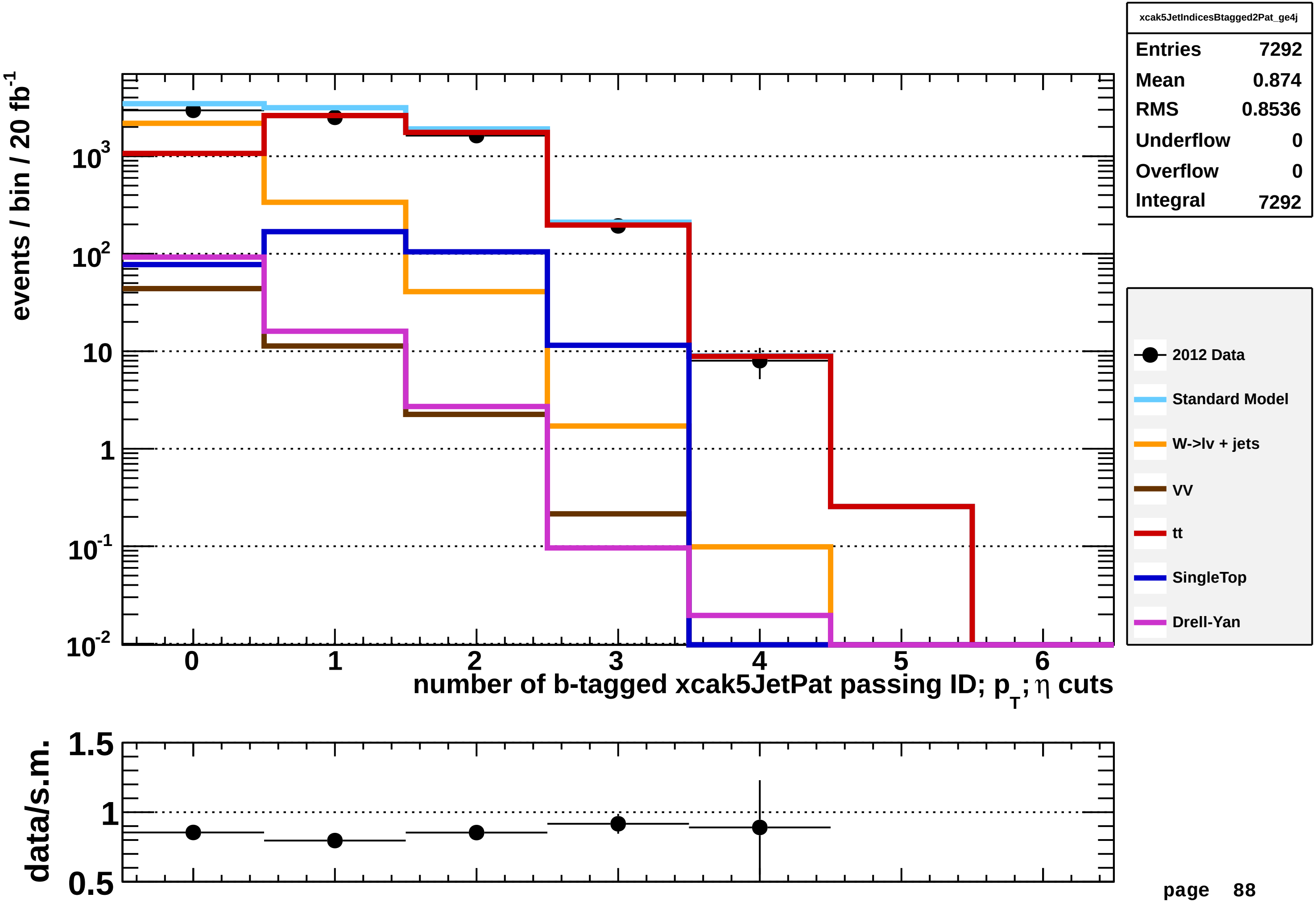

xcak5JetIndicesPat_le3j_eq1b
Entries 3421
Mean 2.679
RMS 0.4668
Underflow 0
Overflow 0
Integral 3421
events / bin / 20 fb^{-1}
10^3
10^2
10
0
2
4
6
8
10
12
14
number of xcak5JetPat passing ID; p_T; η cuts
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
data/s.m.
1.5
1
0.5

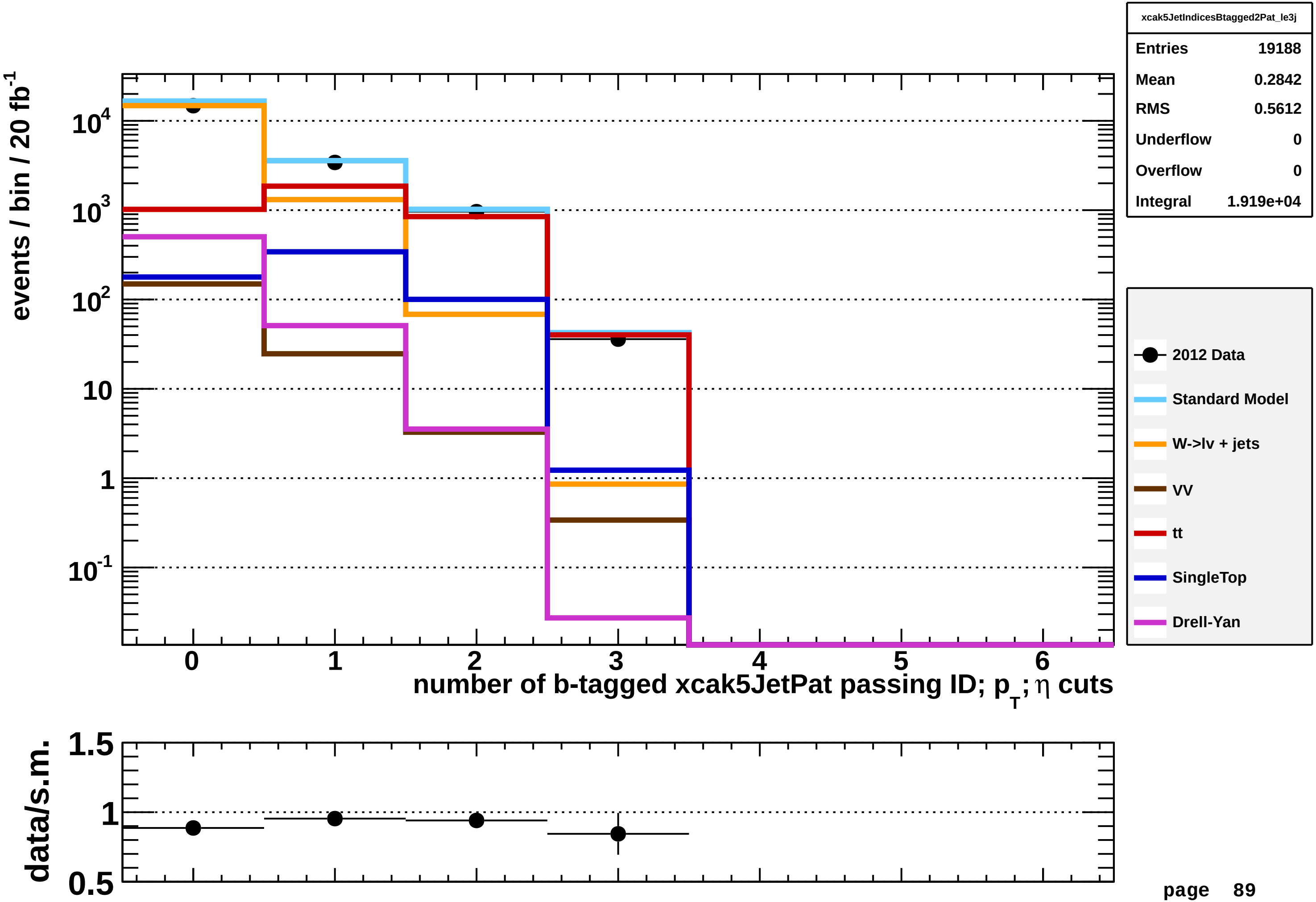

xcak5JetIndicesPat_le3j_eq2b
Entries 962
Mean 2.899
RMS 0.3011
Underflow 0
Overflow 0
Integral 962
events / bin / 20 fb^{-1}
10^3
10^2
10
1
0
2
4
6
8
10
12
14
number of xcak5JetPat passing ID; p_T; η cuts
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
data/s.m.
1.5
1
0.5


xcak5JetIndicesPat_le3j_eq3b
Entries 36
Mean 3
RMS 0
Underflow 0
Overflow 0
Integral 36
events / bin / 20 fb^{-1}
10
1
10^{-1}
0
2
4
6
8
10
12
14
number of xcak5JetPat passing ID; p_T; η cuts
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
data/s.m.
1.5
1
0.5

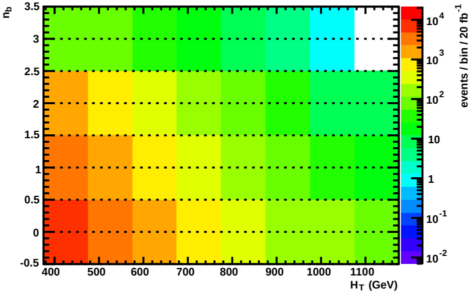

xcak5JetMhthighPtPatOvermetP4TypeIPF
Entries 26480
Mean 1.734
RMS 0.8073
Underflow 0
Overflow 0
Integral 2.648e+04
events / bin / 20 fb^{-1}
10^4
10^3
10^2
10
1
10^{-1}
0
0.5
1
1.5
2
2.5
3
MHT xcak5JethighPtPat / metP4TypeIPF
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
data/s.m.
1.5
1
0.5


xcak5JetIndicesBtagged2Pat
Entries 26480
Mean 0.4466
RMS 0.7059
Underflow 0
Overflow 0
Integral 2.648e+04
events / bin / 20 fb^{-1}
10^4
10^3
10^2
10
1
10^{-1}
10^{-2}
0
1
2
3
4
5
6
number of b-tagged xcak5JetPat passing ID; p_T; η cuts
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
data/s.m.
1.5
1
0.5

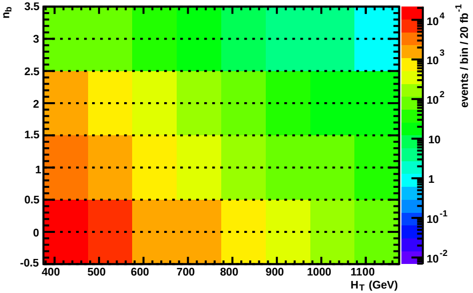

xcak5JetIndicesBtagged2Pat_ge4j
Entries 7292
Mean 0.874
RMS 0.8536
Underflow 0
Overflow 0
Integral 7292
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
events / bin / 20 fb^{-1}
10^{3}
10^{2}
10
1
10^{-1}
10^{-2}
0
1
2
3
4
5
6
number of b-tagged xcak5JetPat passing ID; p_T; η cuts
data/s.m.
1.5
1
0.5


xcak5JetIndicesBtagged2Pat_le3j
Entries 19188
Mean 0.2842
RMS 0.5612
Underflow 0
Overflow 0
Integral 1.919e+04
events / bin / 20 fb^{-1}
10^4
10^3
10^2
10
1
10^{-1}
0
1
2
3
4
5
6
number of b-tagged xcak5JetPat passing ID; p_T; η cuts
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
data/s.m.
1.5
1
0.5

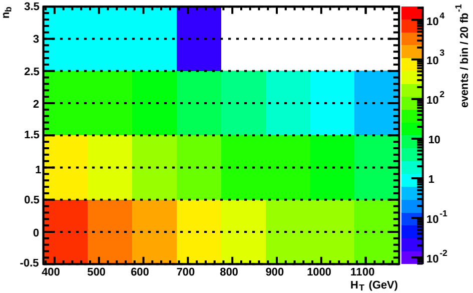
2012 Data



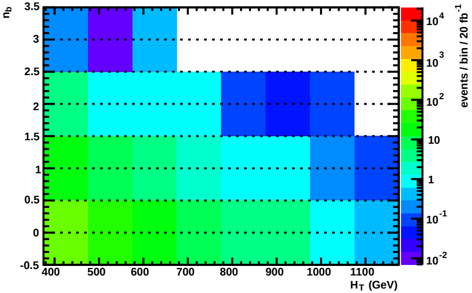
Standard Model



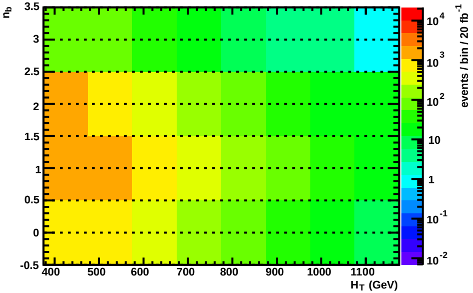
W->lν + jets



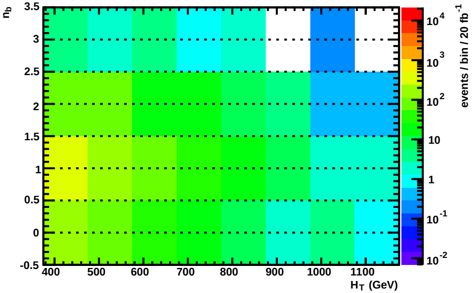
VV



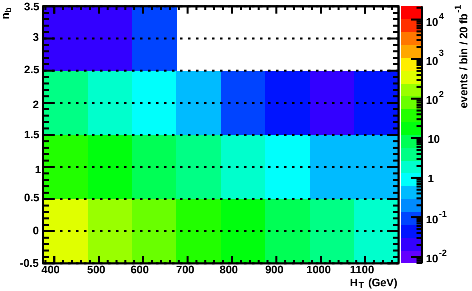
tt



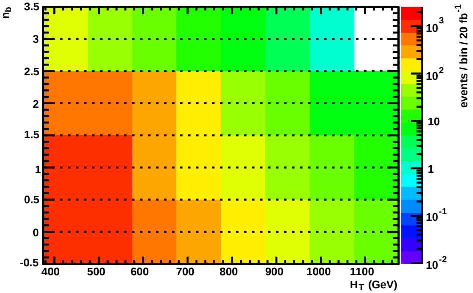
SingleTop



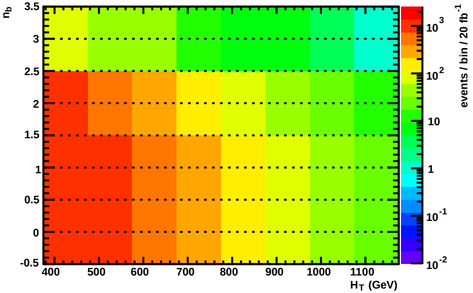
Drell-Yan



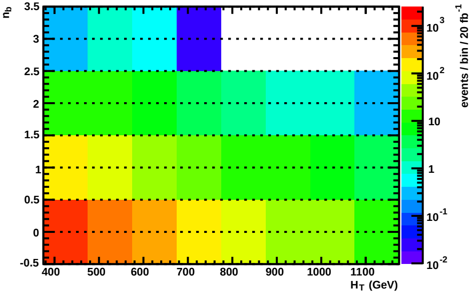
2012 Data



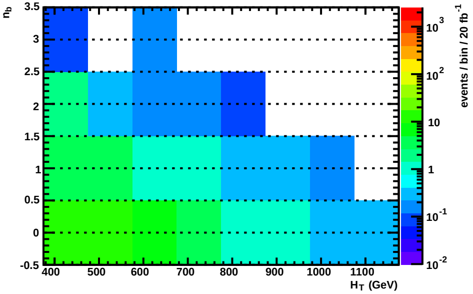
Standard Model



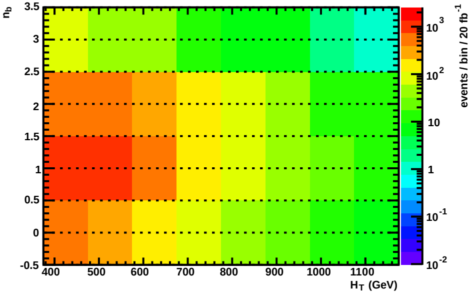
W->lv + jets



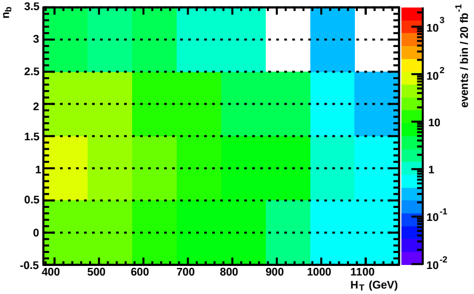
VV



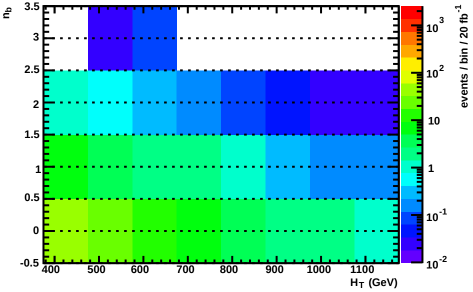
tt



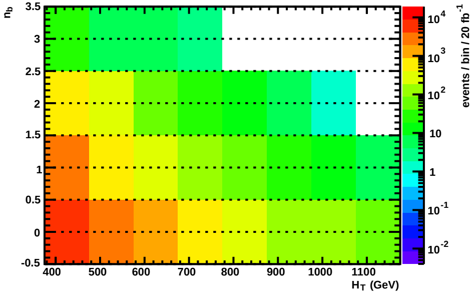
SingleTop



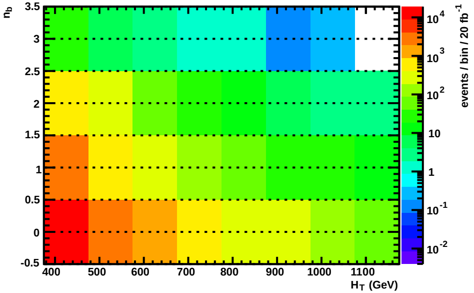
Drell-Yan



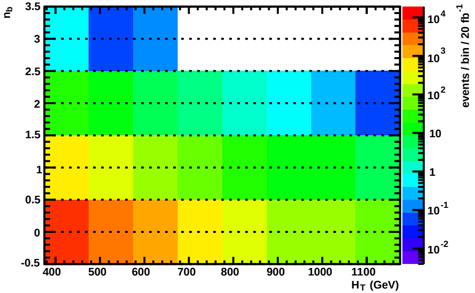
2012 Data



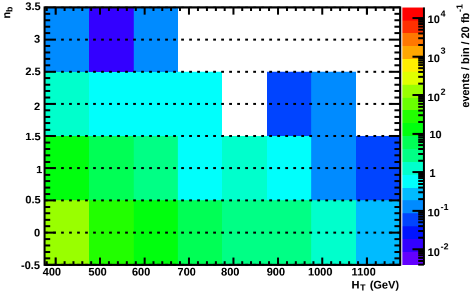
Standard Model



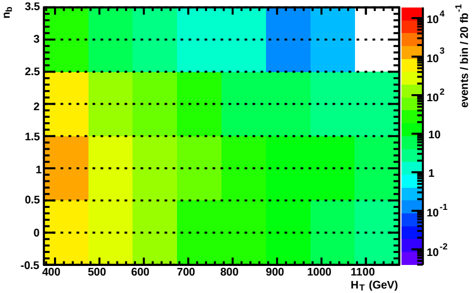
W->lv + jets



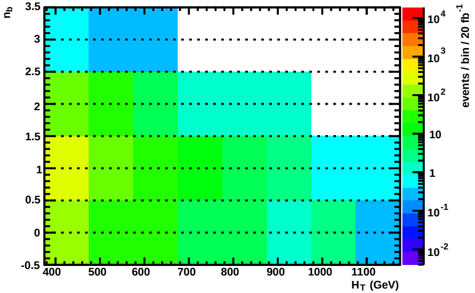
VV



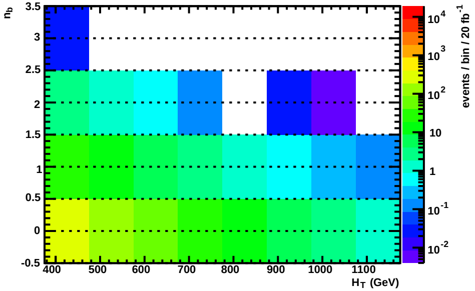
tt

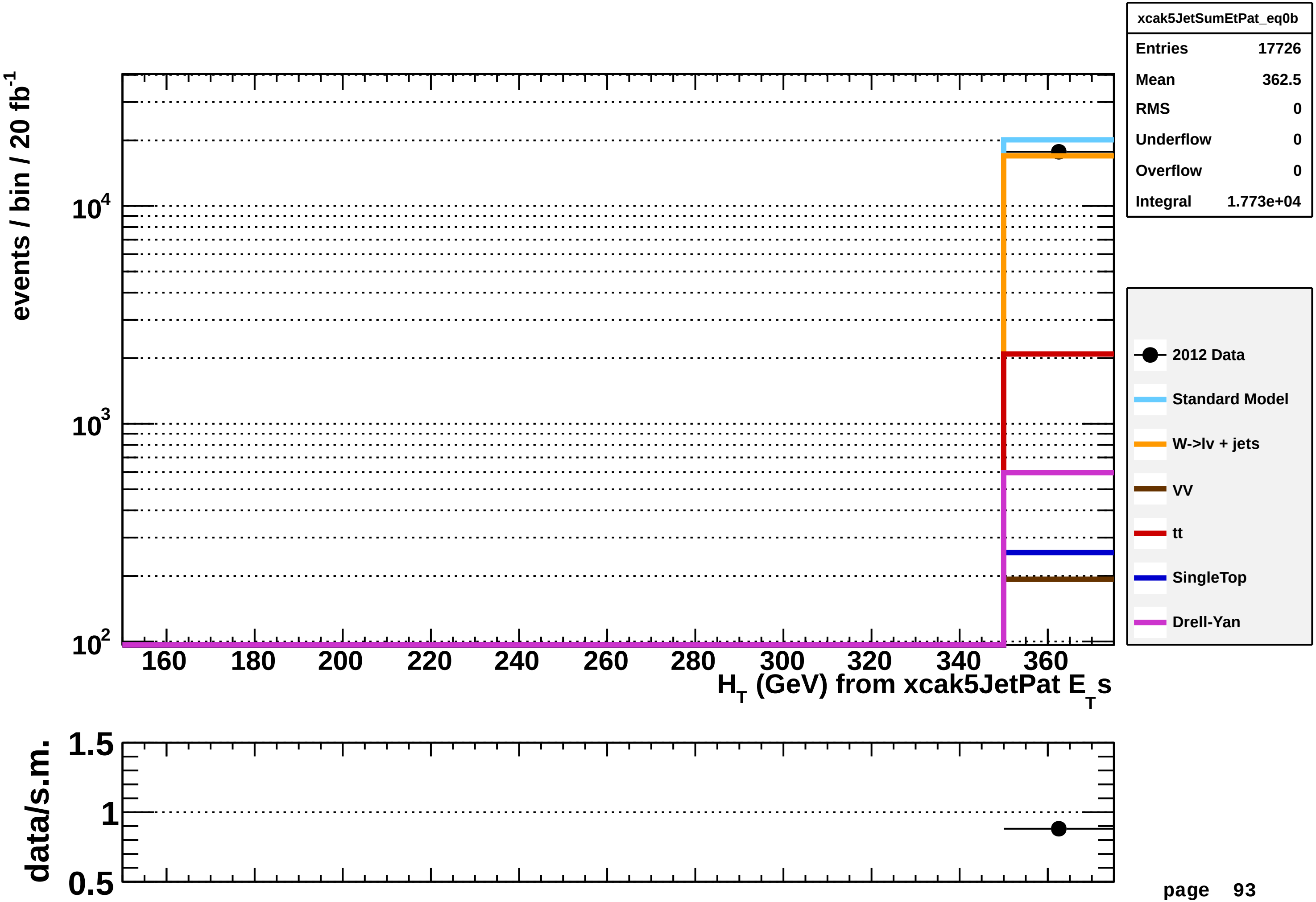


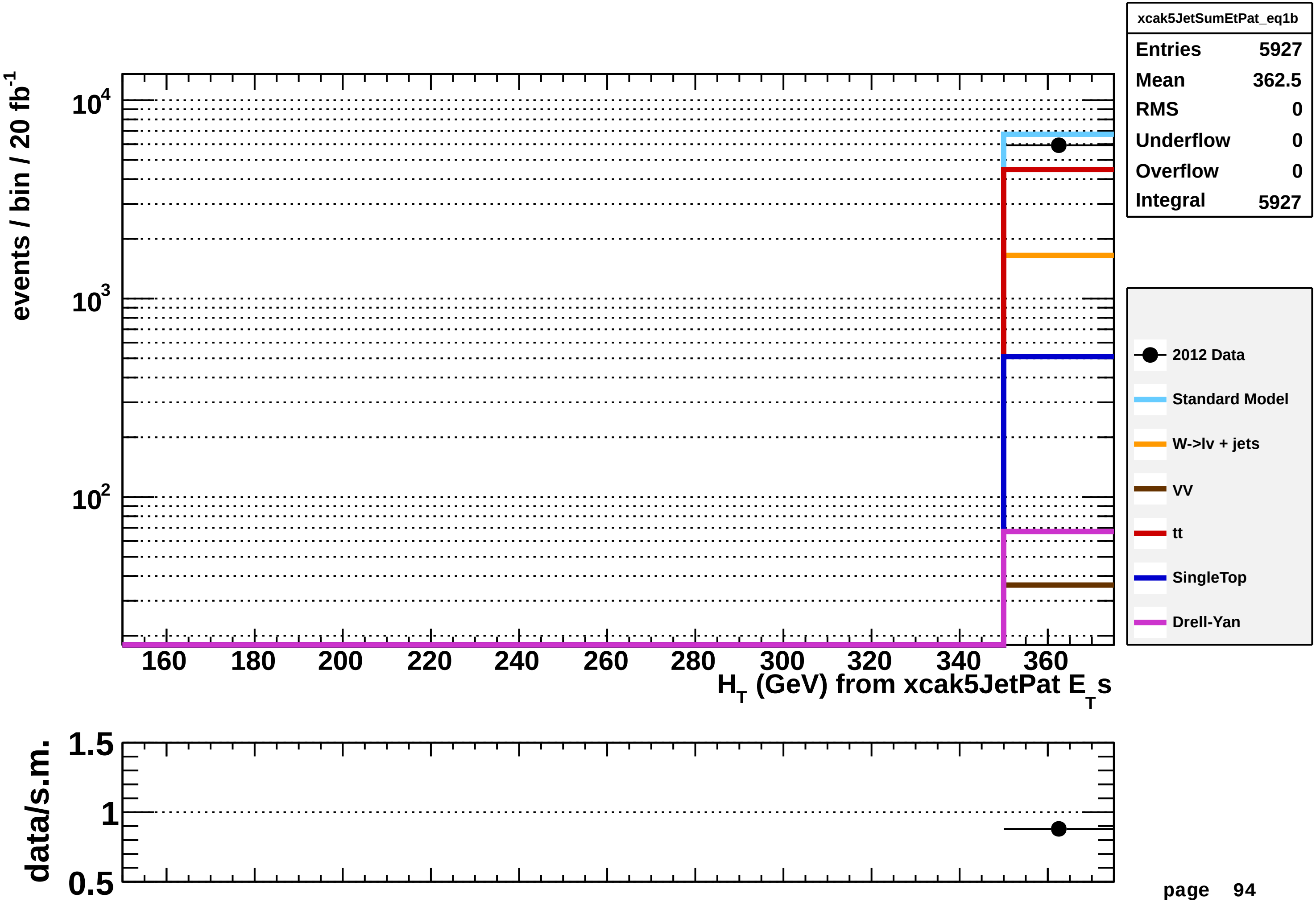
SingleTop

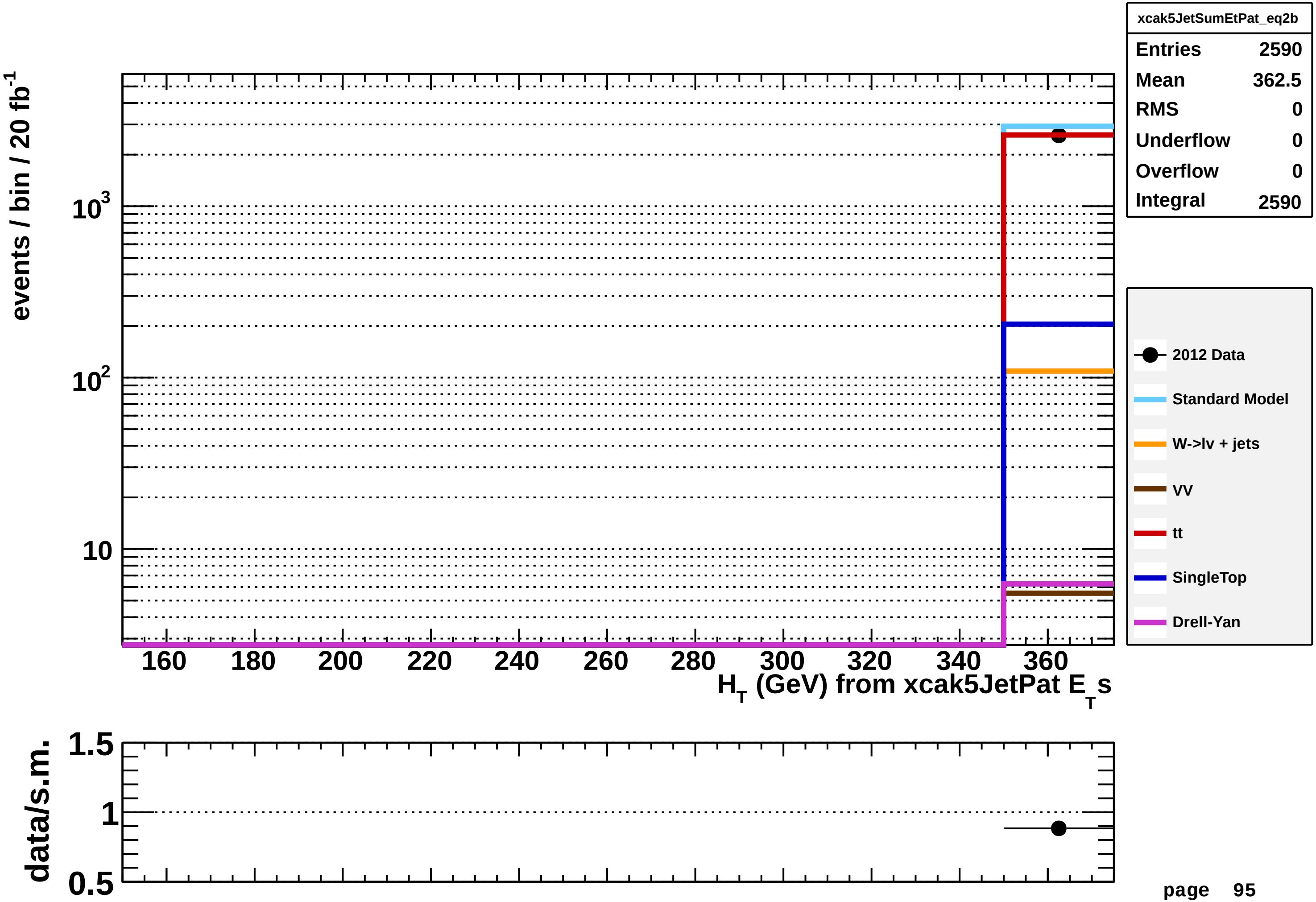


Drell-Yan




xcak5JetSumEtPat_eq0b
Entries 17726
Mean 362.5
RMS 0
Underflow 0
Overflow 0
Integral 1.773e+04
events / bin / 20 fb^{-1}
10^4
10^3
10^2
160
180
200
220
240
260
280
300
320
340
360
H_T (GeV) from xcak5JetPat E_Ts
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
data/s.m.
1.5
1
0.5


xcak5JetSumEtPat_eq1b
Entries 5927
Mean 362.5
RMS 0
Underflow 0
Overflow 0
Integral 5927
events / bin / 20 fb^{-1}
10^4
10^3
10^2
160
180
200
220
240
260
280
300
320
340
360
H_T (GeV) from xcak5JetPat E_Ts
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
data/s.m.
1.5
1
0.5


xcak5JetSumEtPat_eq2b
Entries 2590
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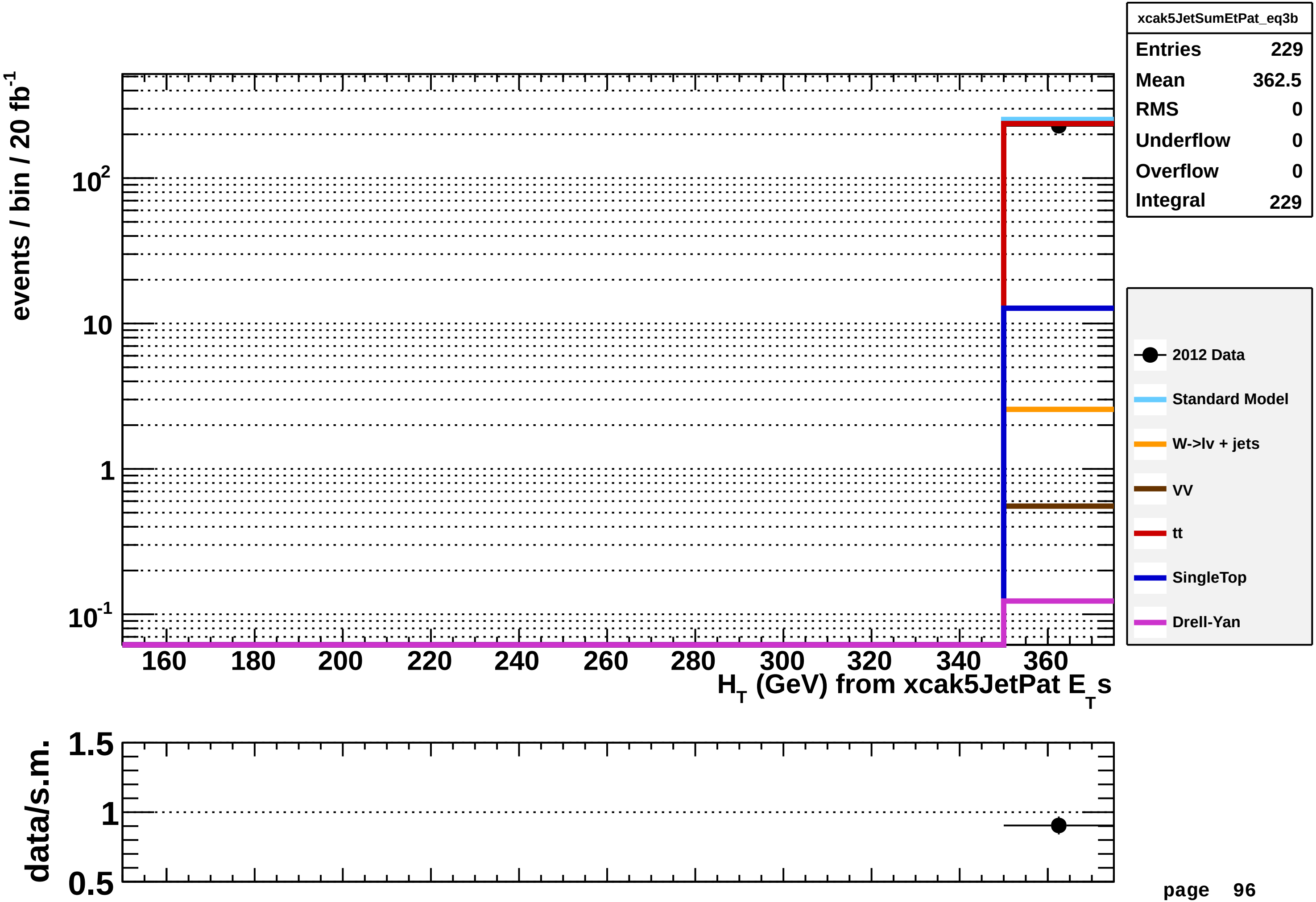
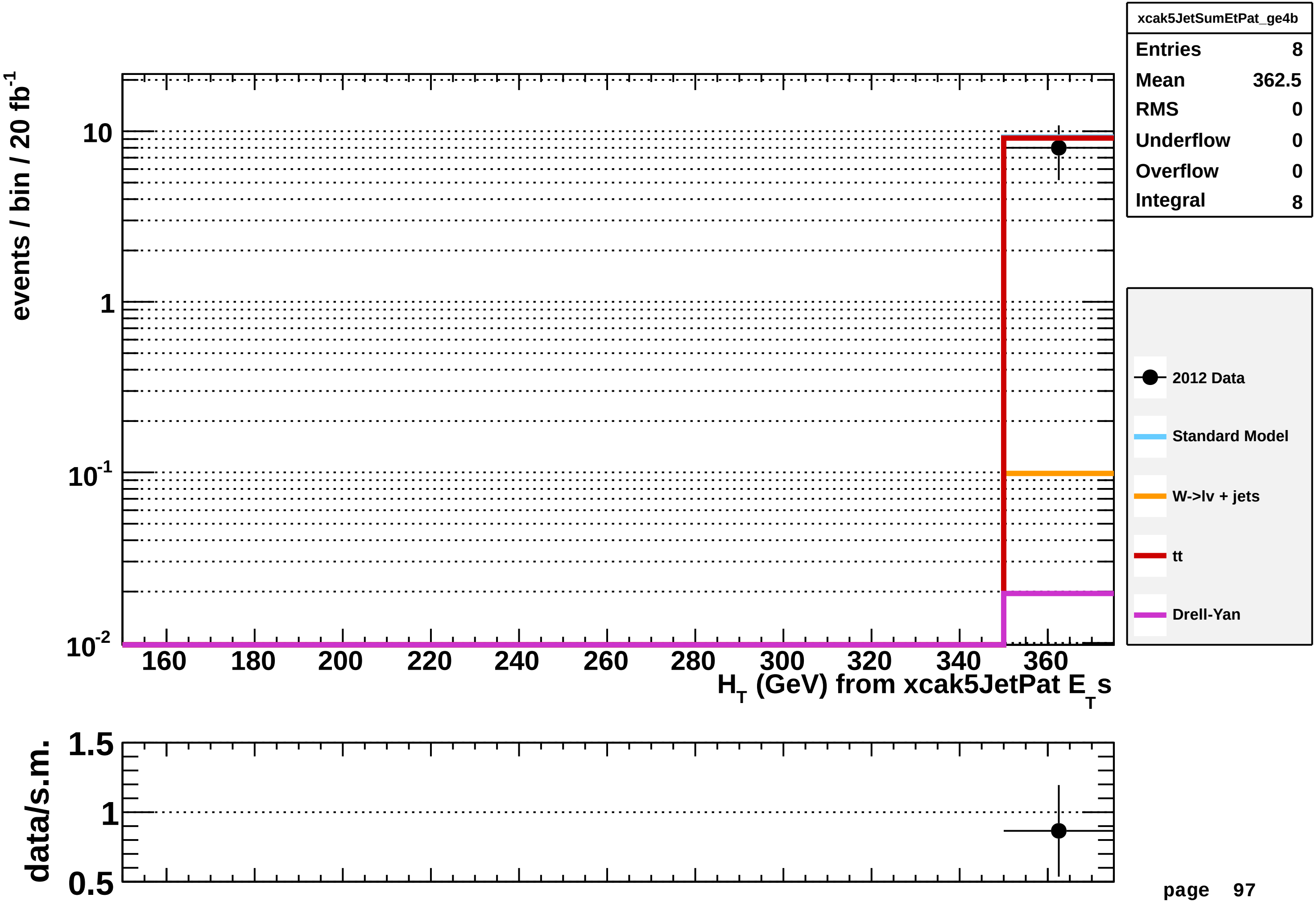
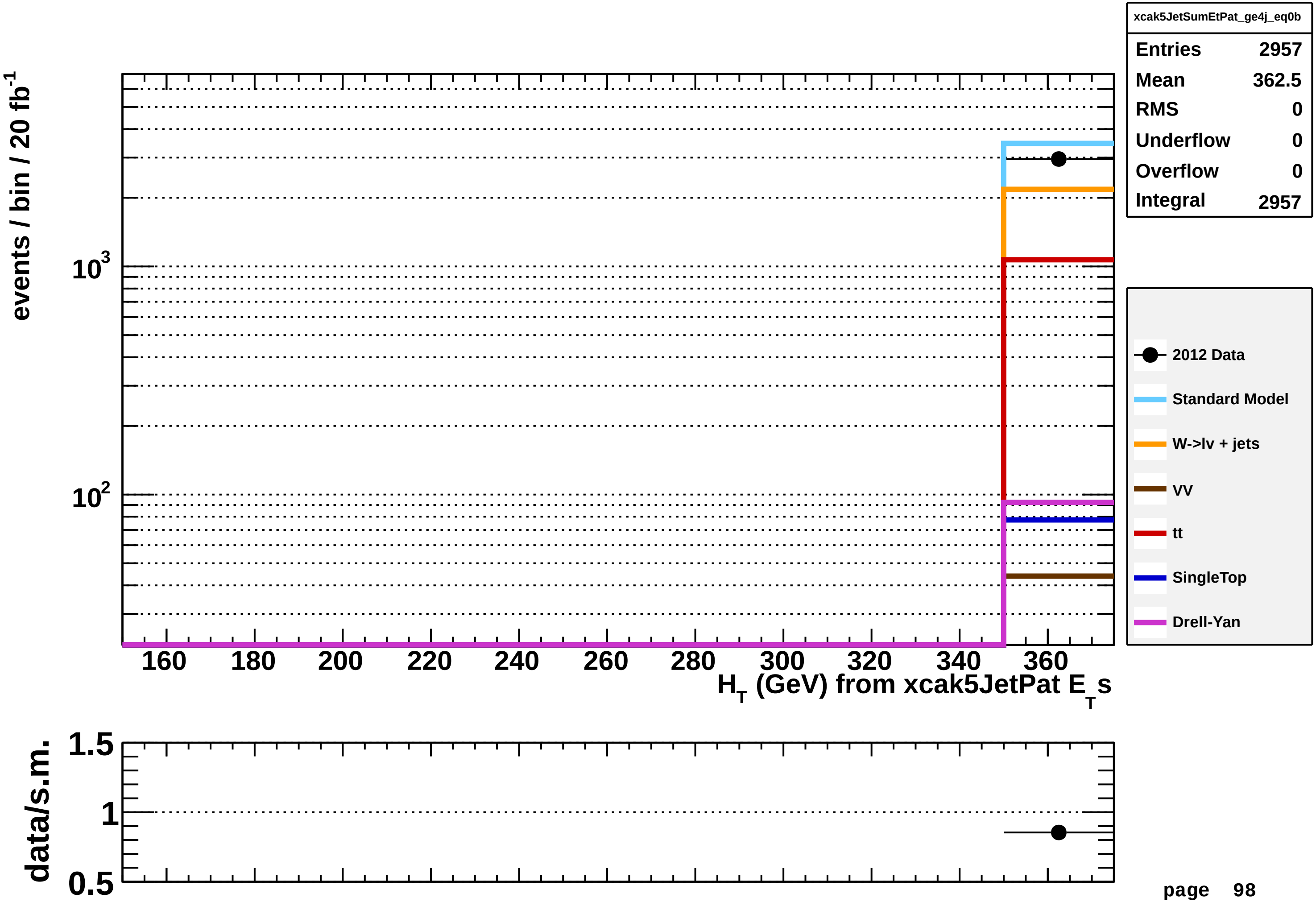
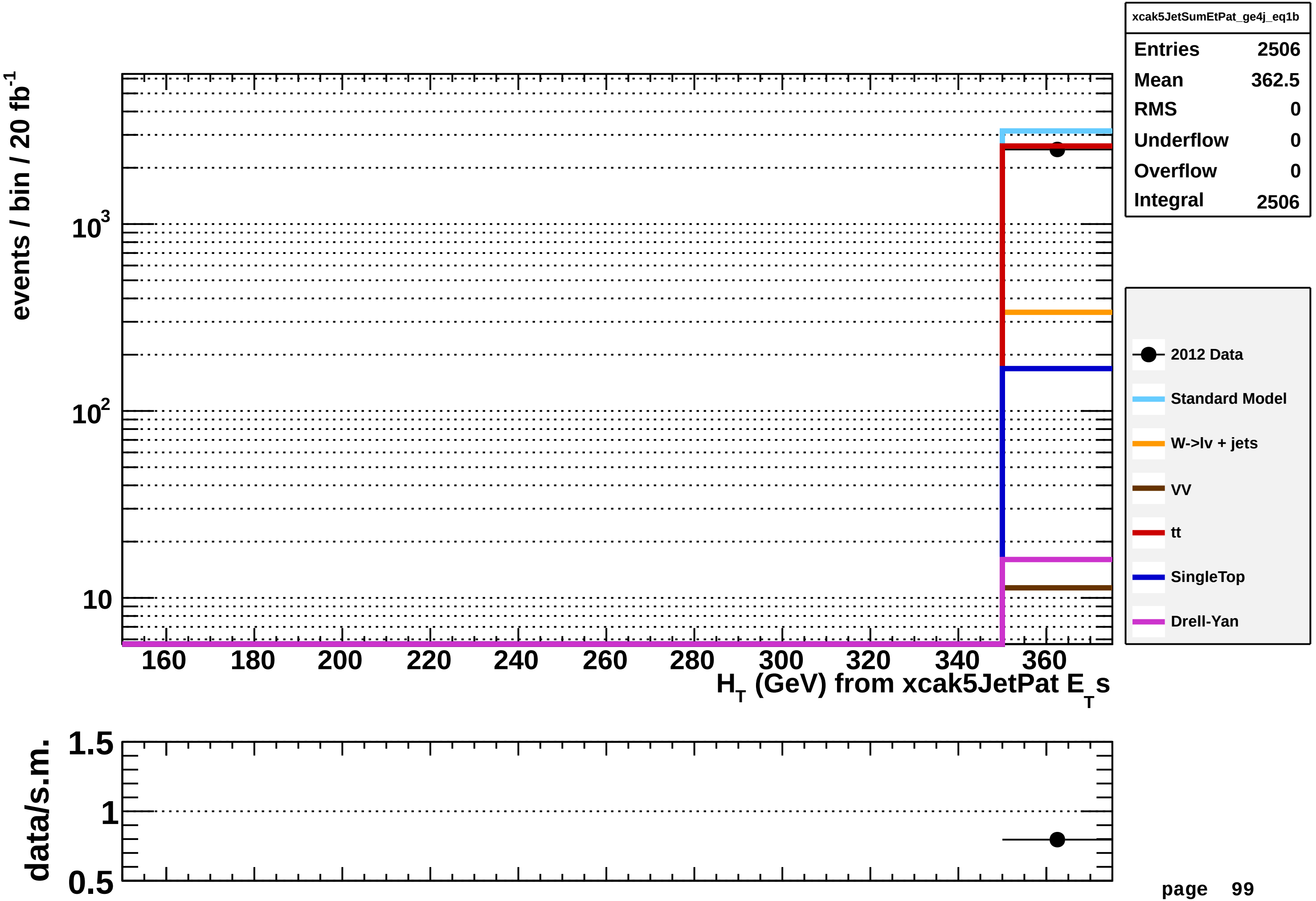
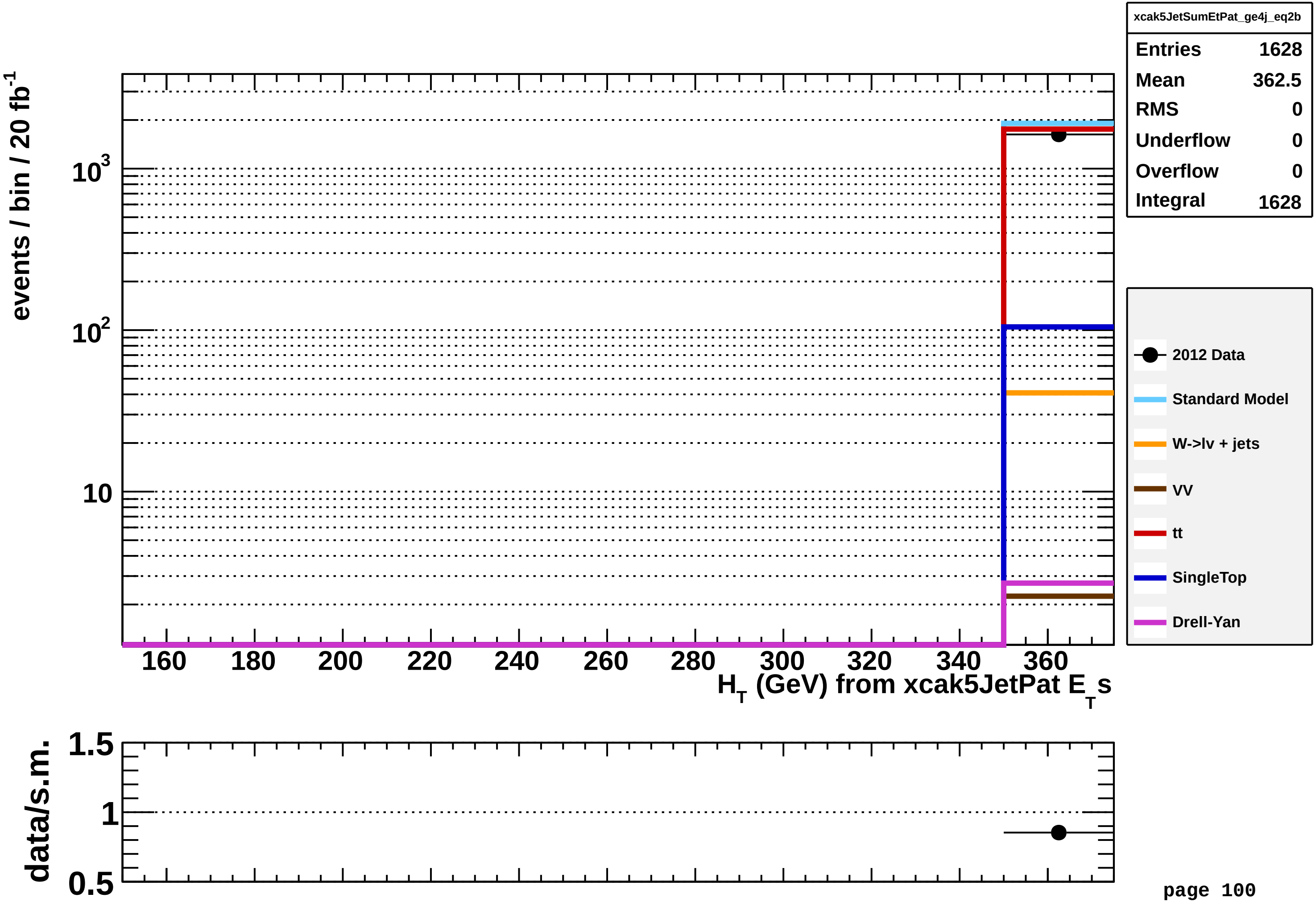
RMS 0
Underflow 0
Overflow 0
Integral 2590
events / bin / 20 fb^{-1}
10^3
10^2
10
160
180
200
220
240
260
280
300
320
340
360
H_T (GeV) from xcak5JetPat E_Ts
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
data/s.m.
1.5
1
0.5

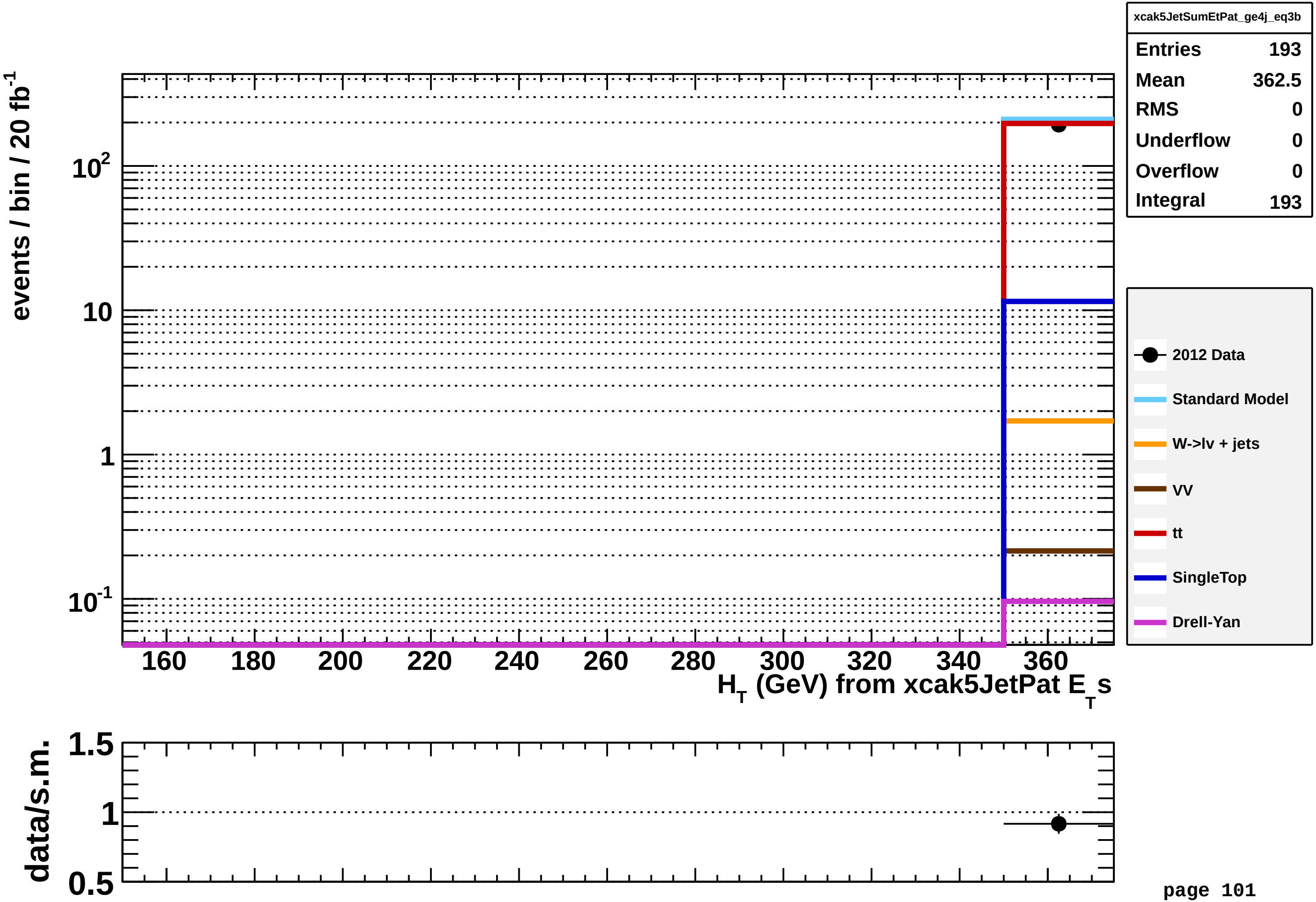

xcak5JetSumEtPat_eq3b
Entries 229
Mean 362.5
RMS 0
Underflow 0
Overflow 0
Integral 229
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
events / bin / 20 fb^{-1}
10^2
10
1
10^{-1}
160
180
200
220
240
260
280
300
320
340
360
H_T (GeV) from xcak5JetPat E_Ts
data/s.m.
1.5
1
0.5


xcak5JetSumEtPat_ge4b
Entries 8
Mean 362.5
RMS 0
Underflow 0
Overflow 0
Integral 8
events / bin / 20 fb^{-1}
10
1
10^{-1}
10^{-2}
160
180
200
220
240
260
280
300
320
340
360
H$_T$ (GeV) from xcak5JetPat E$_T$s
2012 Data
Standard Model
W->lv + jets
tt
Drell-Yan
data/s.m.
1.5
1
0.5

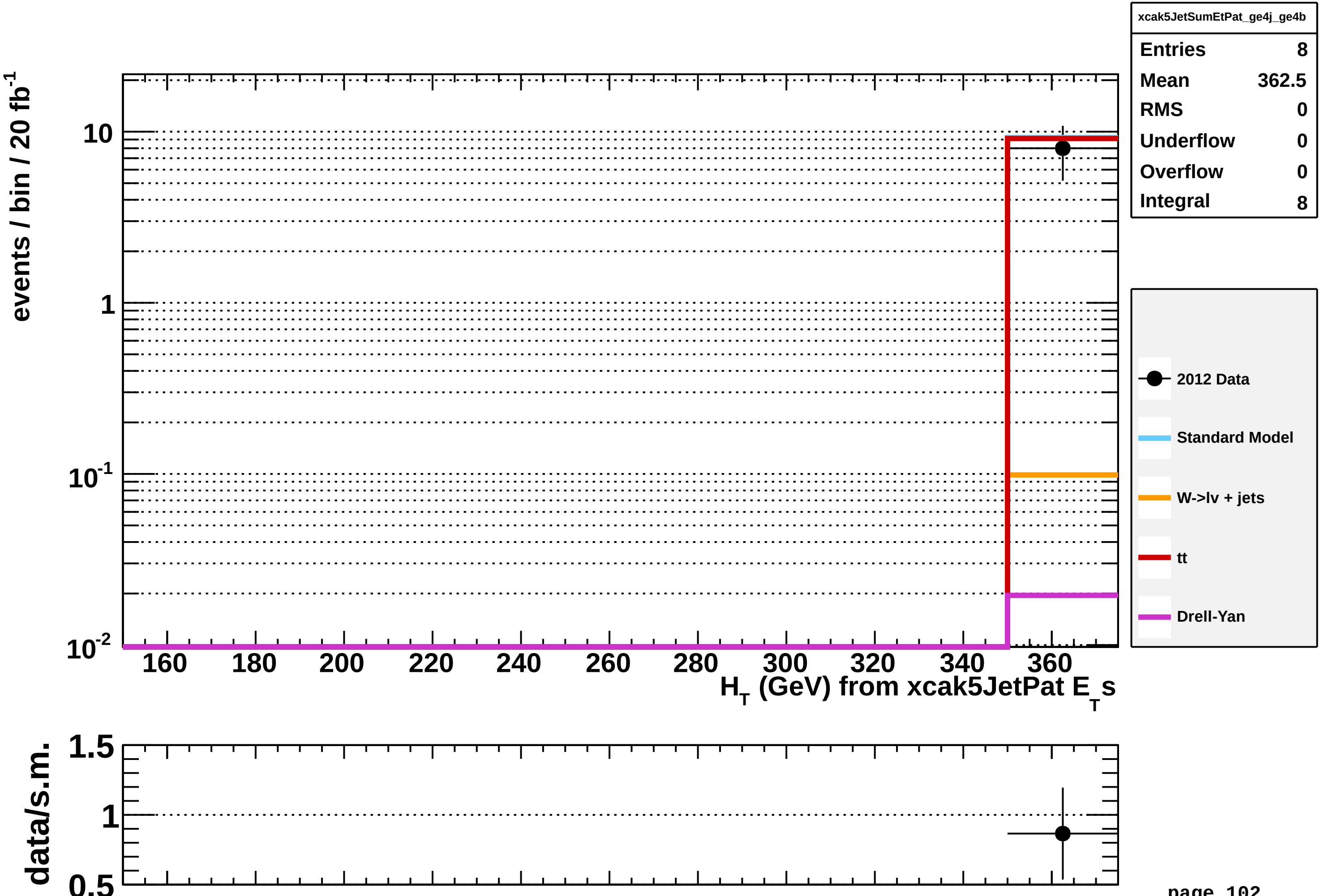

xcak5JetSumEtPat_ge4j_eq0b
Entries 2957
Mean 362.5
RMS 0
Underflow 0
Overflow 0
Integral 2957
events / bin / 20 fb^{-1}
10^3
10^2
160
180
200
220
240
260
280
300
320
340
360
H_T (GeV) from xcak5JetPat E_Ts
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
data/s.m.
1.5
1
0.5

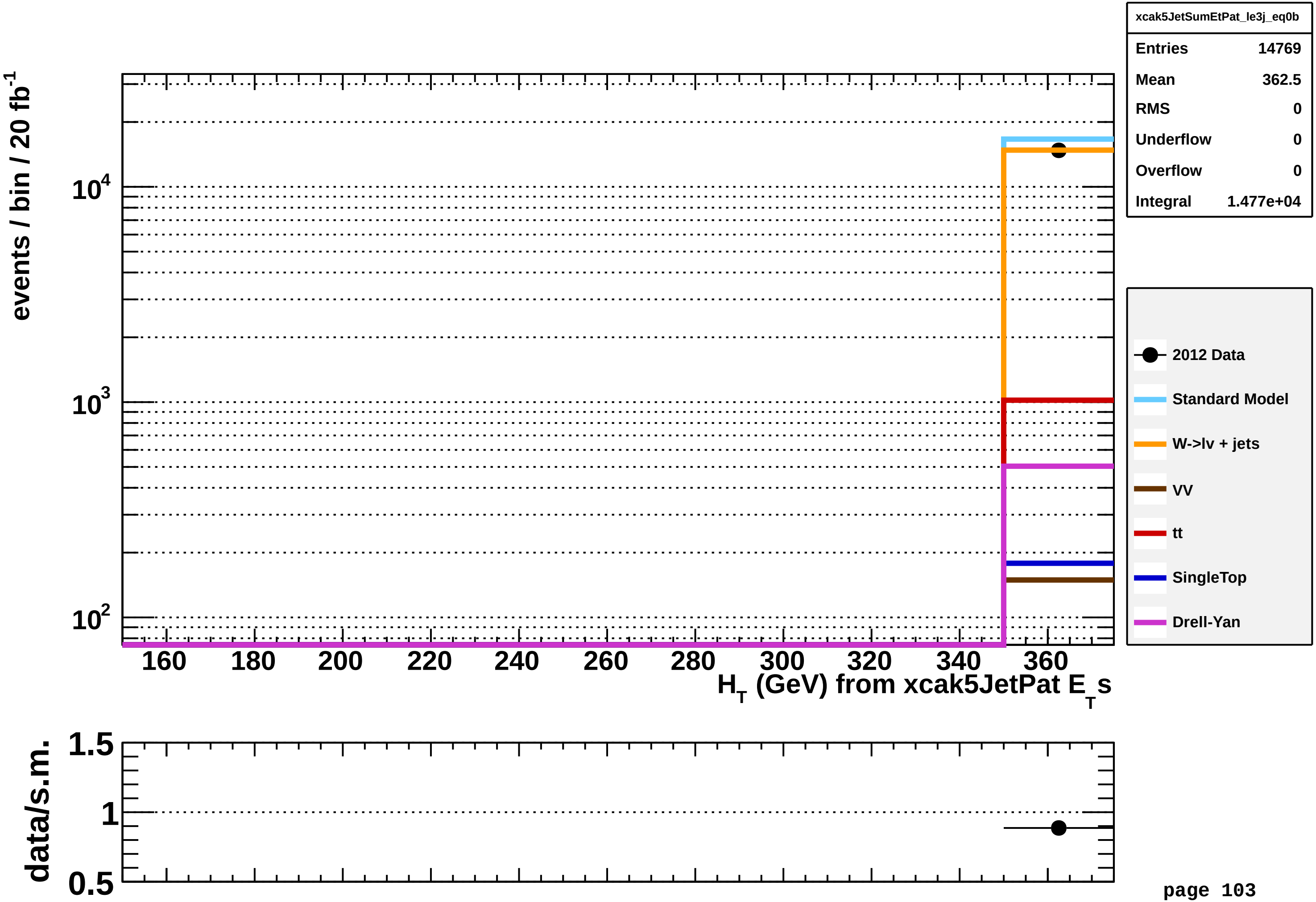

xcak5JetSumEtPat_ge4j_eq1b
Entries 2506
Mean 362.5
RMS 0
Underflow 0
Overflow 0
Integral 2506
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
events / bin / 20 fb^{-1}
10^3
10^2
10
160
180
200
220
240
260
280
300
320
340
360
H_T (GeV) from xcak5JetPat E_Ts
data/s.m.
1.5
1
0.5

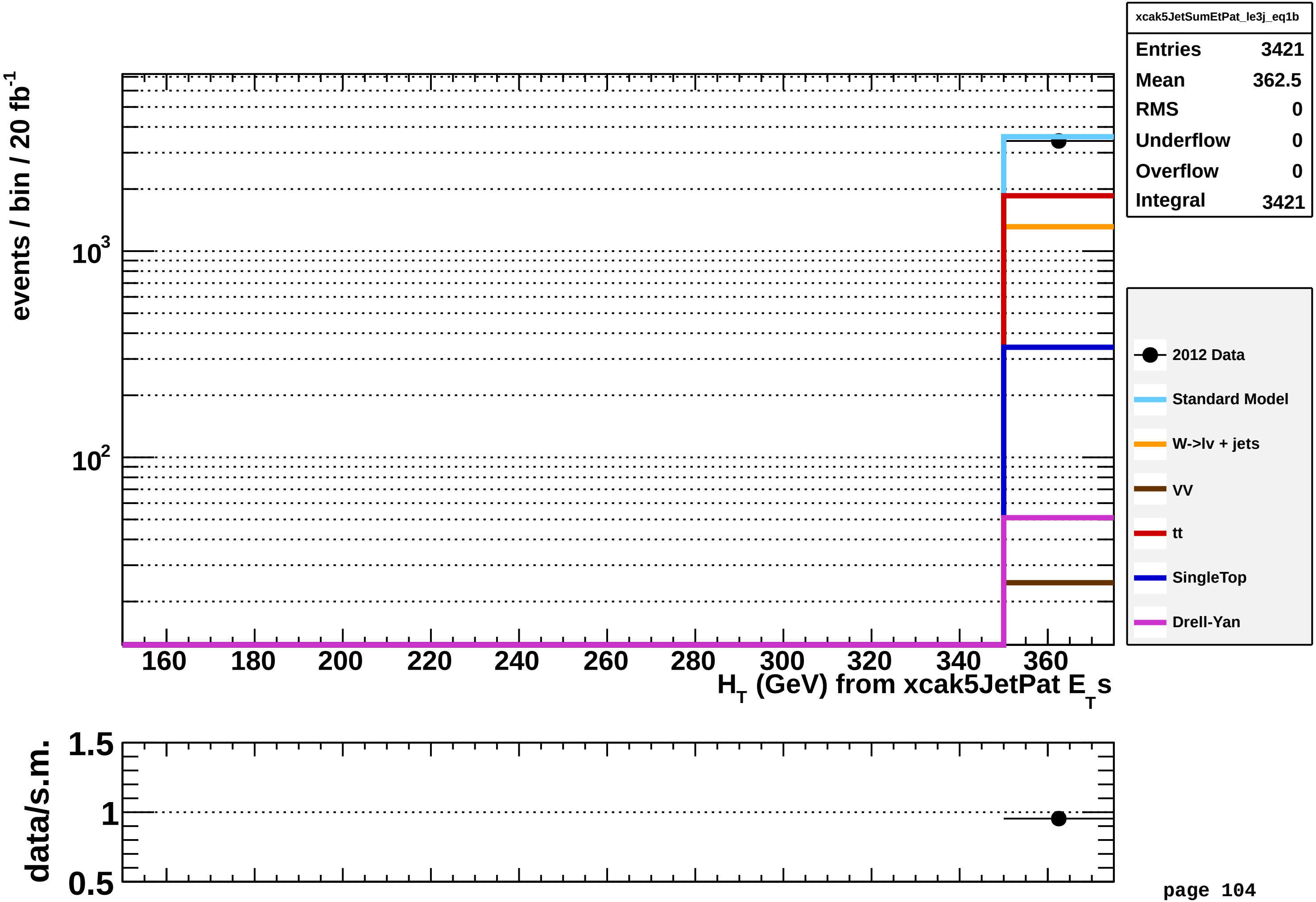

xcak5JetSumEtPat_ge4j_eq2b
Entries 1628
Mean 362.5
RMS 0
Underflow 0
Overflow 0
Integral 1628
events / bin / 20 fb^{-1}
10^3
10^2
10
160
180
200
220
240
260
280
300
320
340
360
H_T (GeV) from xcak5JetPat E_Ts
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
data/s.m.
1.5
1
0.5



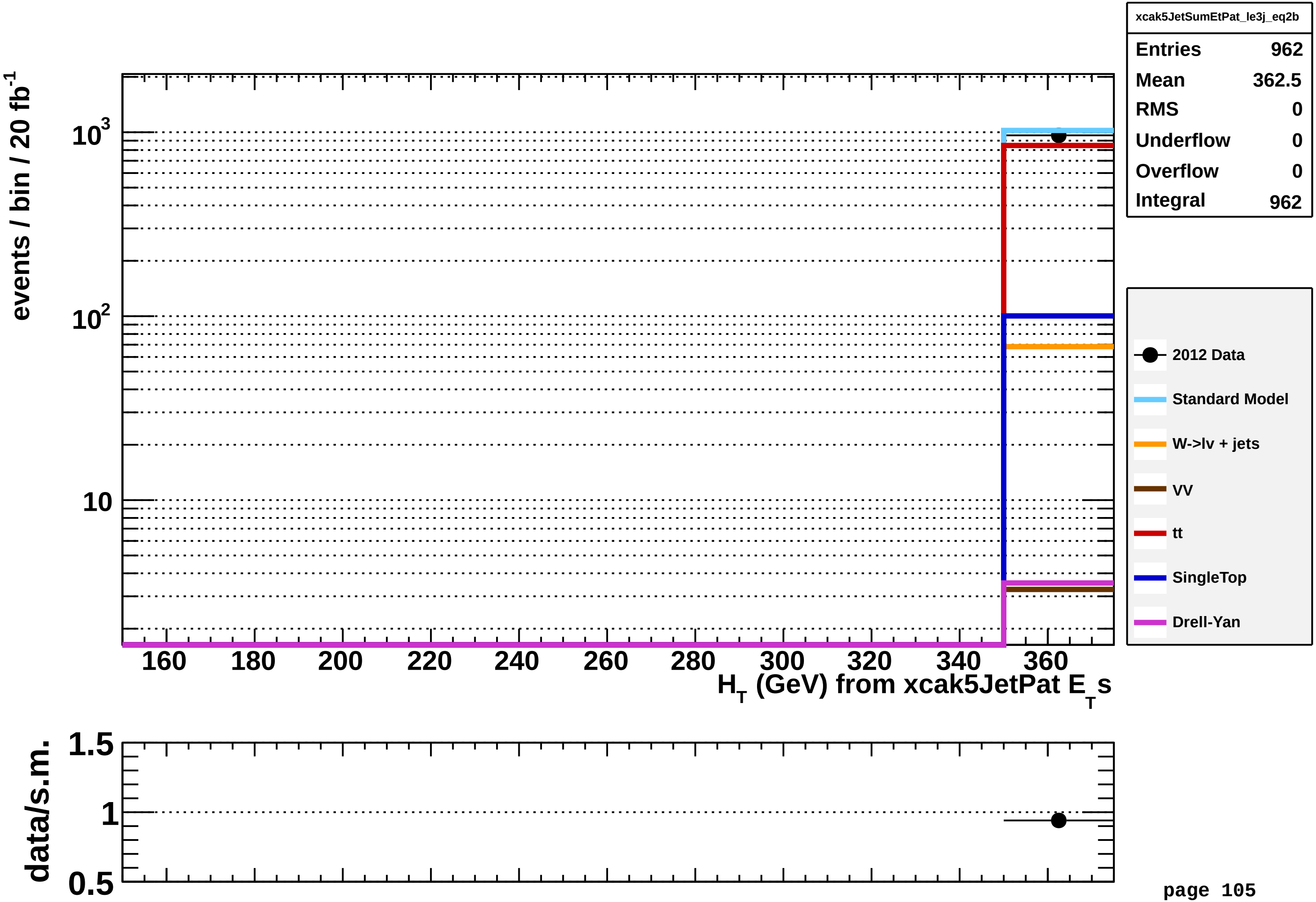
xcak5JetSumEtPat_ge4j_eq3b
Entries 193
Mean 362.5
RMS 0
Underflow 0
Overflow 0
Integral 193
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
events / bin / 20 fb^{-1}
10^2
10
1
10^{-1}
160
180
200
220
240
260
280
300
320
340
360
H_T (GeV) from xcak5JetPat E_Ts
data/s.m.
1.5
1
0.5

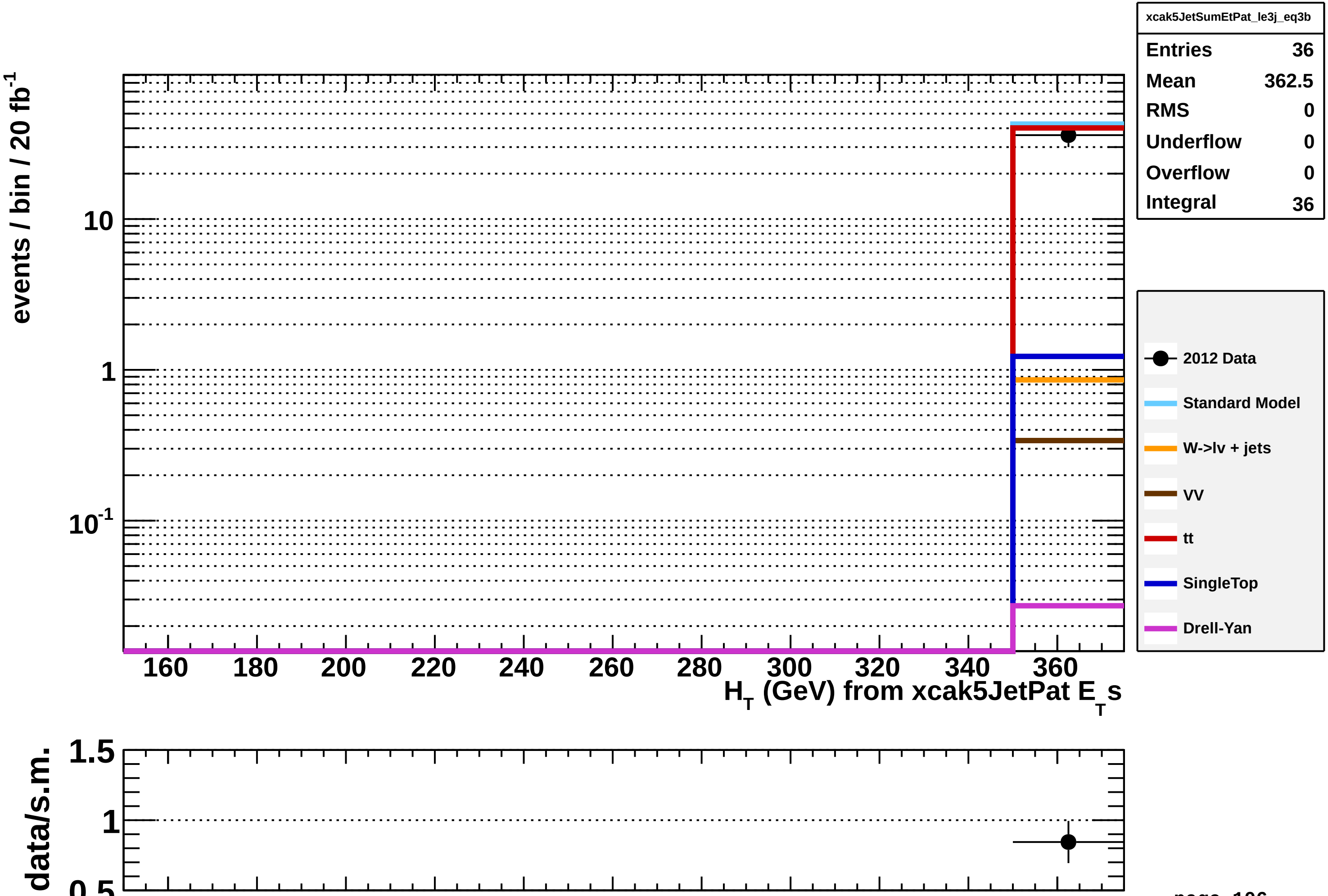

xcak5JetSumEtPat_ge4j_ge4b
Entries 8
Mean 362.5
RMS 0
Underflow 0
Overflow 0
Integral 8
events / bin / 20 fb^{-1}
10
1
10^{-1}
10^{-2}
160
180
200
220
240
260
280
300
320
340
360
H$_T$ (GeV) from xcak5JetPat E$_T$s
2012 Data
Standard Model
W->lv + jets
tt
Drell-Yan
data/s.m.
1.5
1
0.5

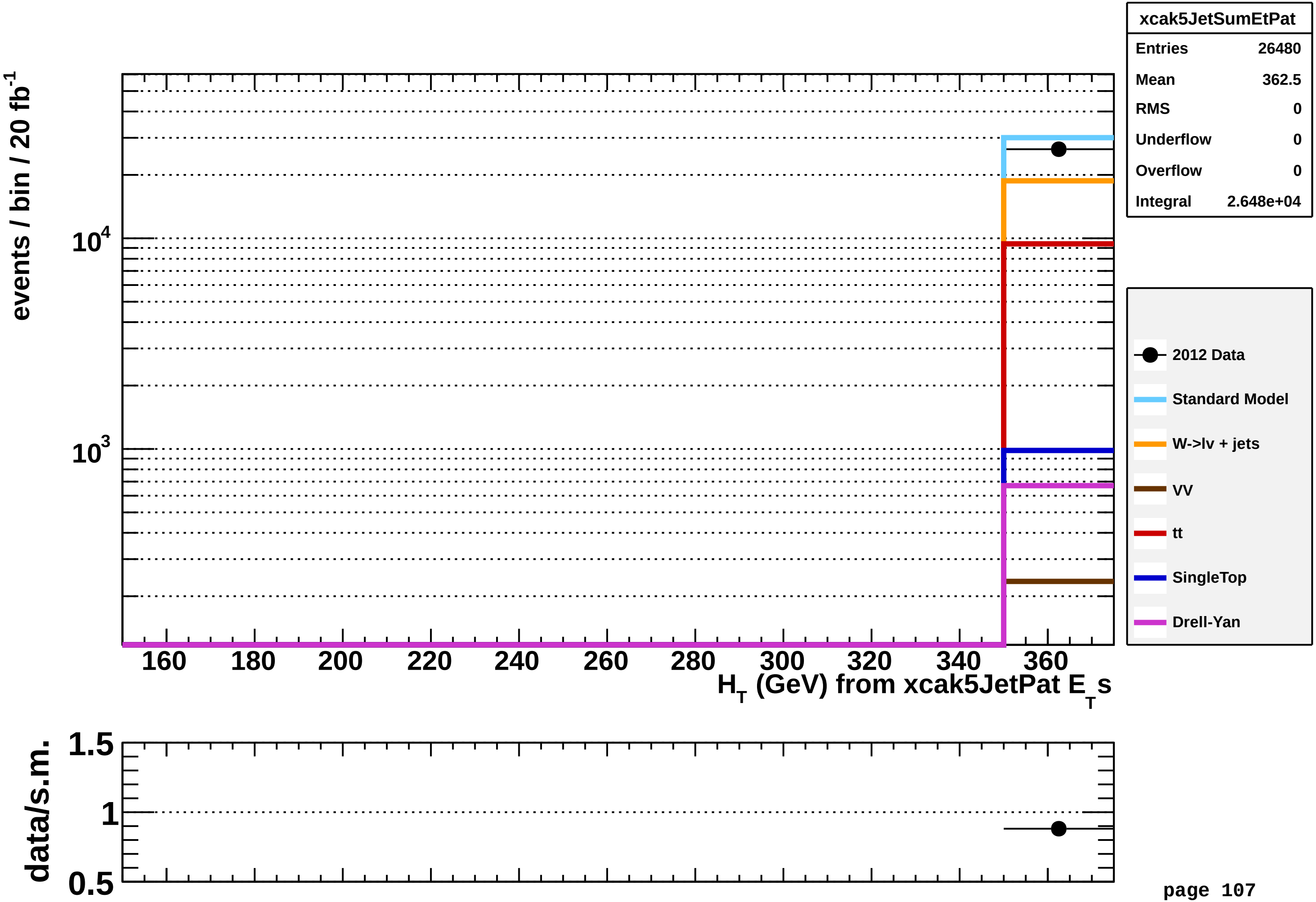

xcak5JetSumEtPat_le3j_eq0b
Entries 14769
Mean 362.5
RMS 0
Underflow 0
Overflow 0
Integral 1.477e+04
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
events / bin / 20 fb^{-1}
10^4
10^3
10^2
160
180
200
220
240
260
280
300
320
340
360
H_T (GeV) from xcak5JetPat E_Ts
data/s.m.
1.5
1
0.5

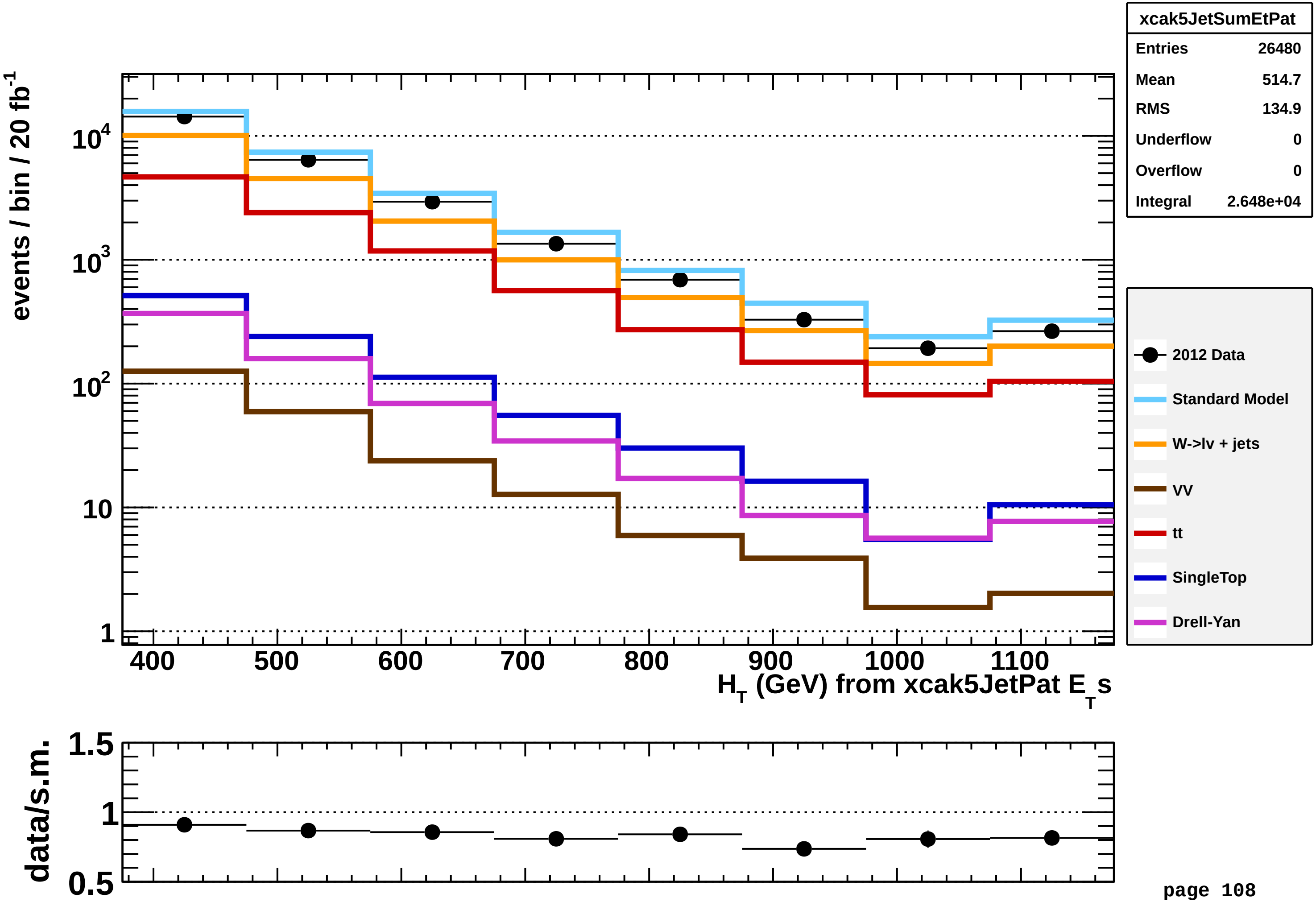


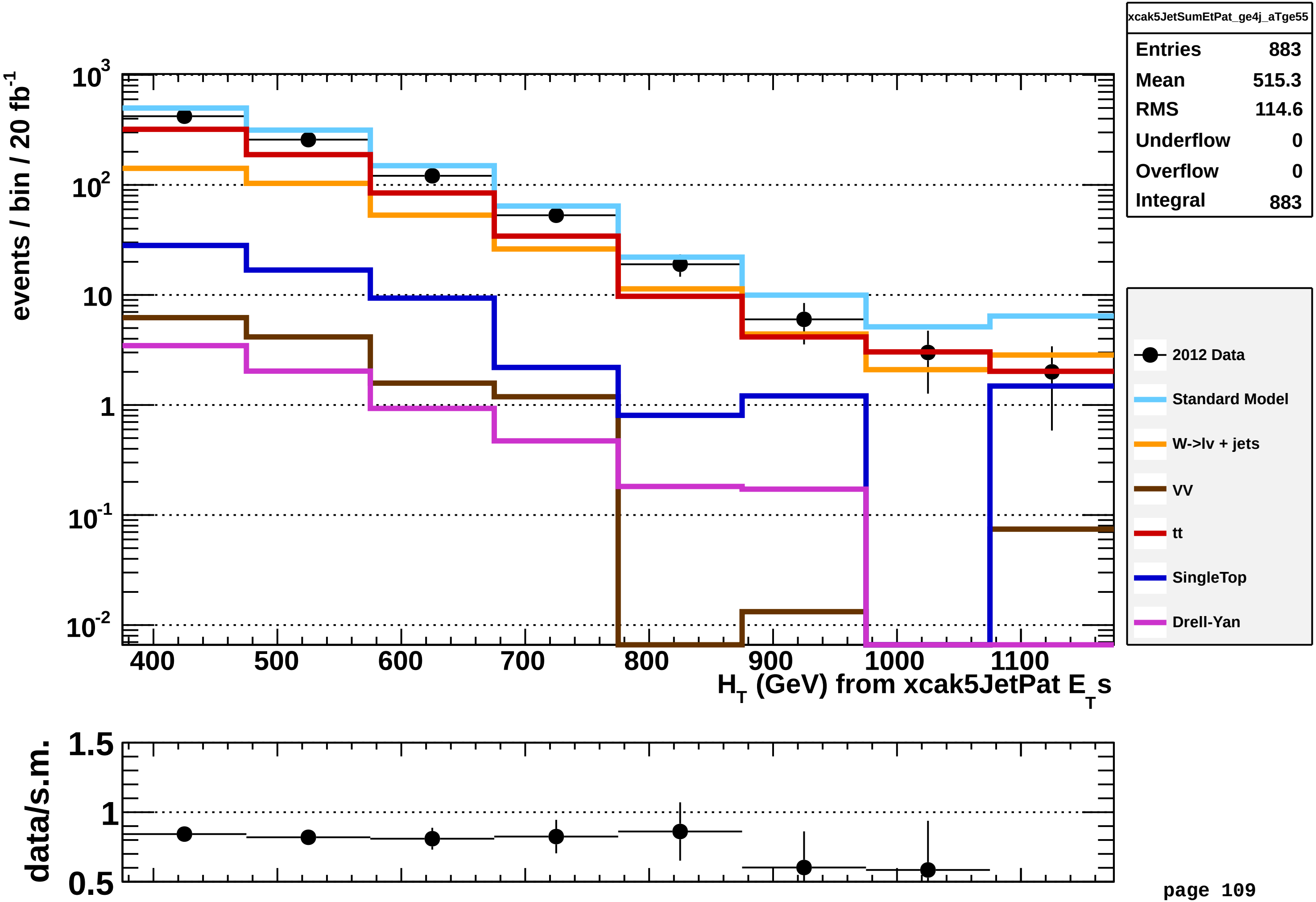
xcak5JetSumEtPat_le3j_eq1b
Entries 3421
Mean 362.5
RMS 0
Underflow 0
Overflow 0
Integral 3421
events / bin / 20 fb^{-1}
10^3
10^2
160
180
200
220
240
260
280
300
320
340
360
H_T (GeV) from xcak5JetPat E_Ts
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
data/s.m.
1.5
1
0.5

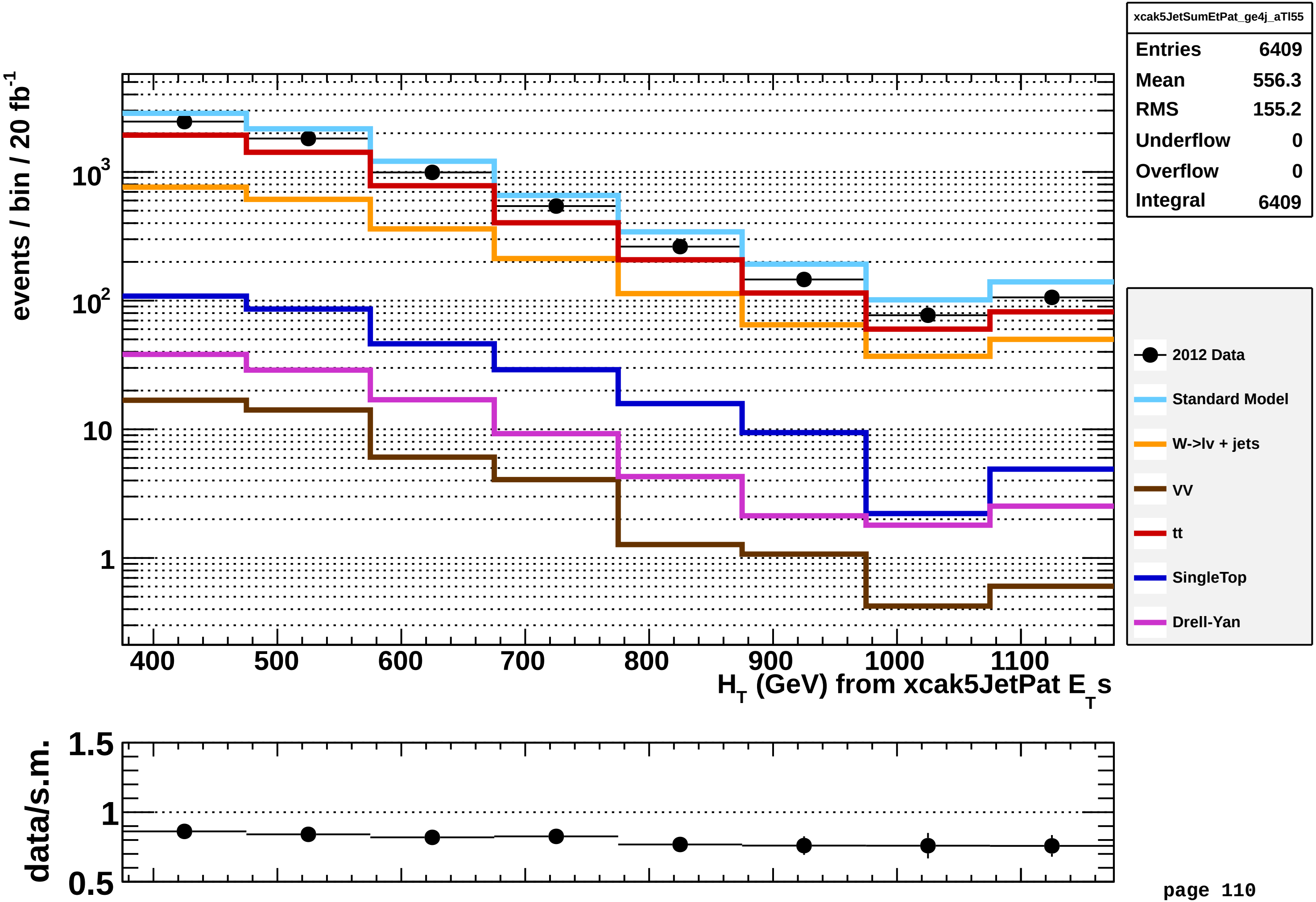

xcak5JetSumEtPat_le3j_eq2b
Entries 962
Mean 362.5
RMS 0
Underflow 0
Overflow 0
Integral 962
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
events / bin / 20 fb^{-1}
10^3
10^2
10
160
180
200
220
240
260
280
300
320
340
360
H_T (GeV) from xcak5JetPat E_Ts
data/s.m.
1.5
1
0.5


xcak5JetSumEtPat_le3j_eq3b
Entries 36
Mean 362.5
RMS 0
Underflow 0
Overflow 0
Integral 36
events / bin / 20 fb^{-1}
10
1
10^{-1}
160
180
200
220
240
260
280
300
320
340
360
H_T (GeV) from xcak5JetPat E_Ts
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
data/s.m.
1.5
1
0.5


xcak5JetSumEtPat
Entries 26480
Mean 362.5
RMS 0
Underflow 0
Overflow 0
Integral 2.648e+04
events / bin / 20 fb^{-1}
10^4
10^3
160
180
200
220
240
260
280
300
320
340
360
H_T (GeV) from xcak5JetPat E_Ts
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
data/s.m.
1.5
1
0.5


xcak5JetSumEtPat
Entries 26480
Mean 514.7
RMS 134.9
Underflow 0
Overflow 0
Integral 2.648e+04
events / bin / 20 fb^{-1}
10^4
10^3
10^2
10
1
400
500
600
700
800
900
1000
1100
H_T (GeV) from xcak5JetPat E_Ts
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
data/s.m.
1.5
1
0.5


xcak5JetSumEtPat_ge4j_aTge55
Entries 883
Mean 515.3
RMS 114.6
Underflow 0
Overflow 0
Integral 883
events / bin / 20 fb^{-1}
10^3
10^2
10
1
10^{-1}
10^{-2}
400
500
600
700
800
900
1000
1100
H_T (GeV) from xcak5JetPat E_Ts
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
data/s.m.
1.5
1
0.5


xcak5JetSumEtPat_ge4j_aTl55
Entries 6409
Mean 556.3
RMS 155.2
Underflow 0
Overflow 0
Integral 6409
events / bin / 20 fb^{-1}
10^3
10^2
10
1
400
500
600
700
800
900
1000
1100
H_T (GeV) from xcak5JetPat E_Ts
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
data/s.m.
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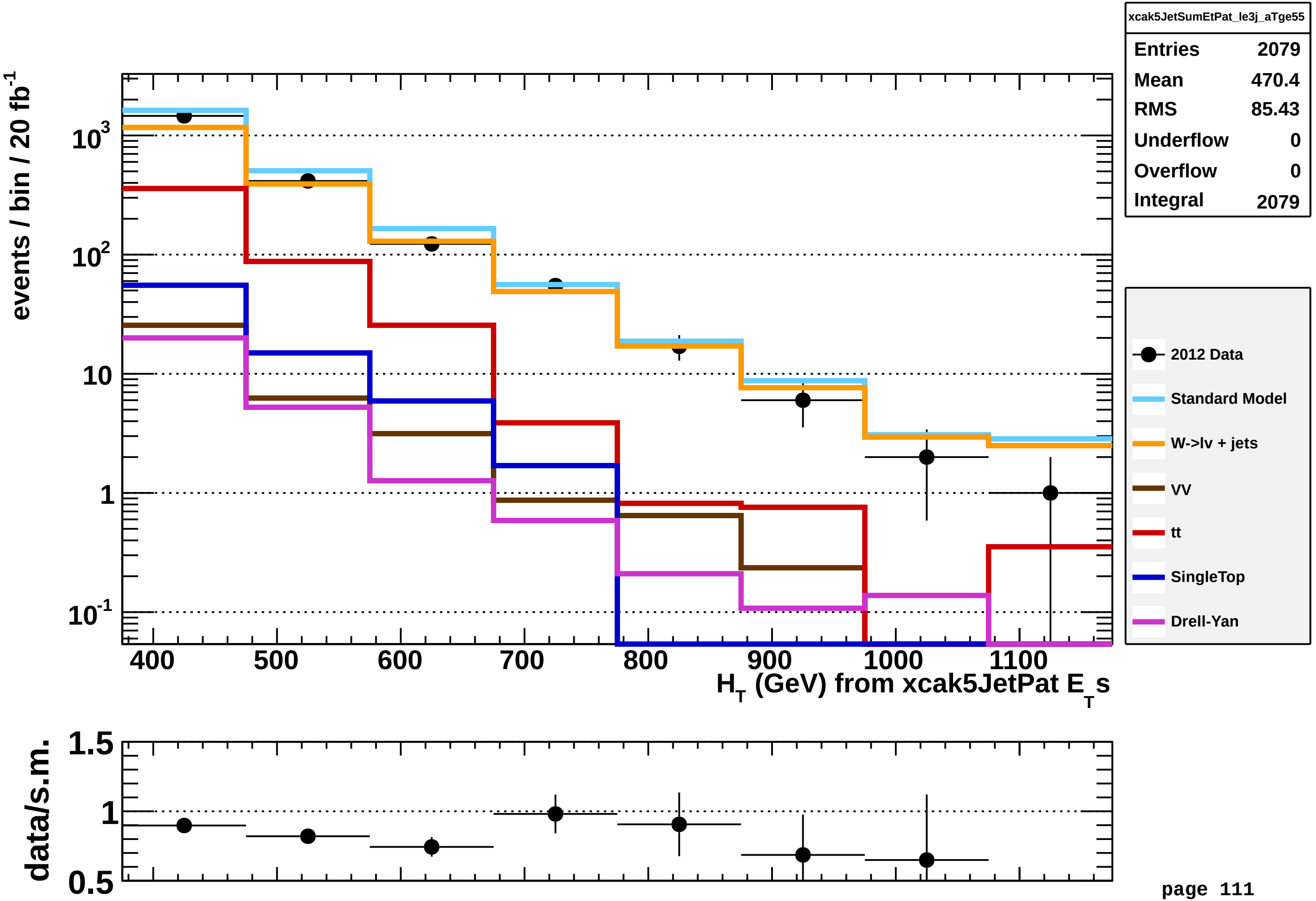
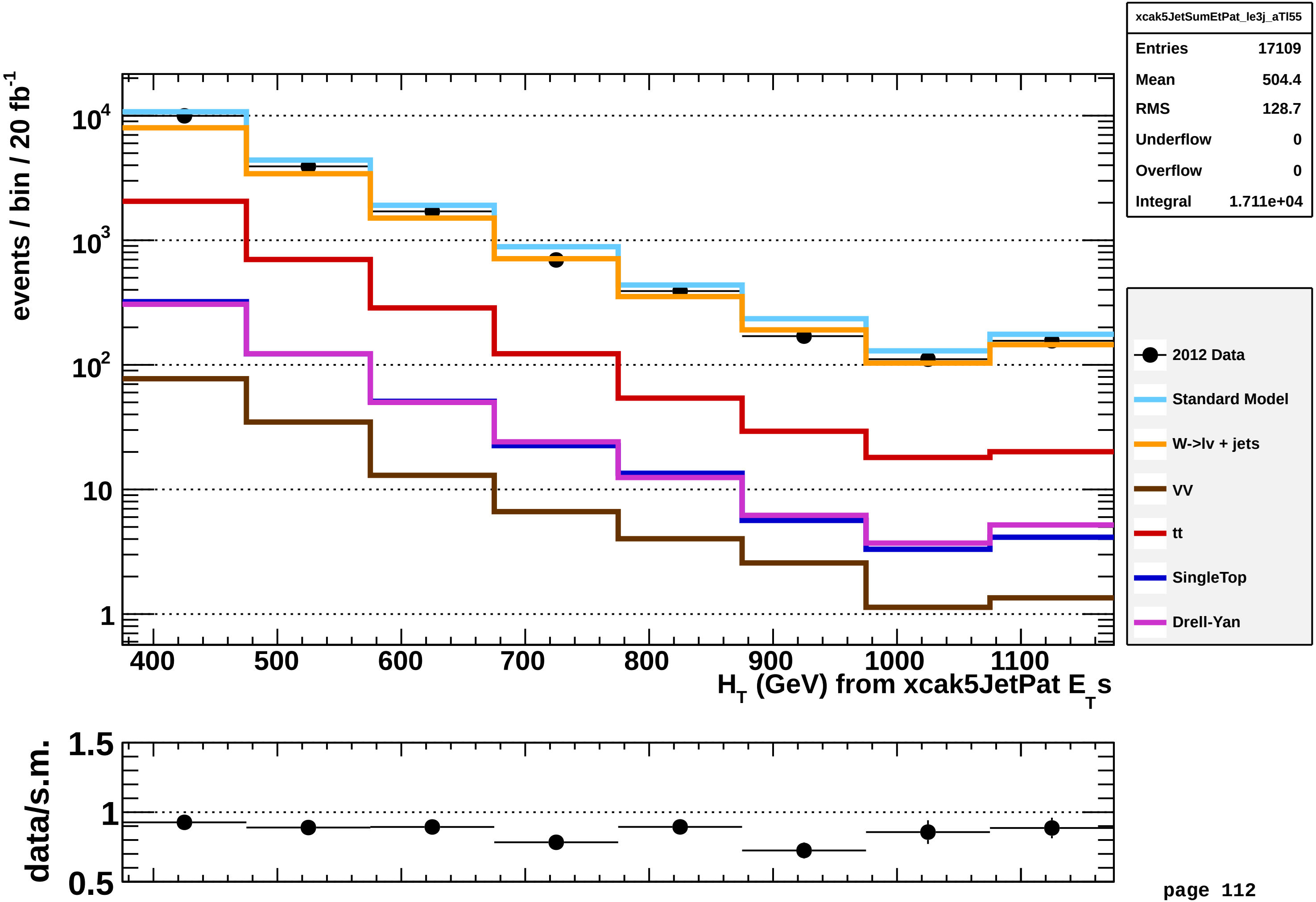
1
0.5


xcak5JetSumEtPat_le3j_aTge55
Entries 2079
Mean 470.4
RMS 85.43
Underflow 0
Overflow 0
Integral 2079
events / bin / 20 fb^{-1}
10^3
10^2
10
1
10^{-1}
400
500
600
700
800
900
1000
1100
H_T (GeV) from xcak5JetPat E_Ts
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
data/s.m.
1.5
1
0.5


xcak5JetSumEtPat_le3j_aTl55
Entries 17109
Mean 504.4
RMS 128.7
Underflow 0
Overflow 0
Integral 1.711e+04
events / bin / 20 fb^{-1}
10^4
10^3
10^2
10
1
400
500
600
700
800
900
1000
1100
H_T (GeV) from xcak5JetPat E_Ts
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
data/s.m.
1.5
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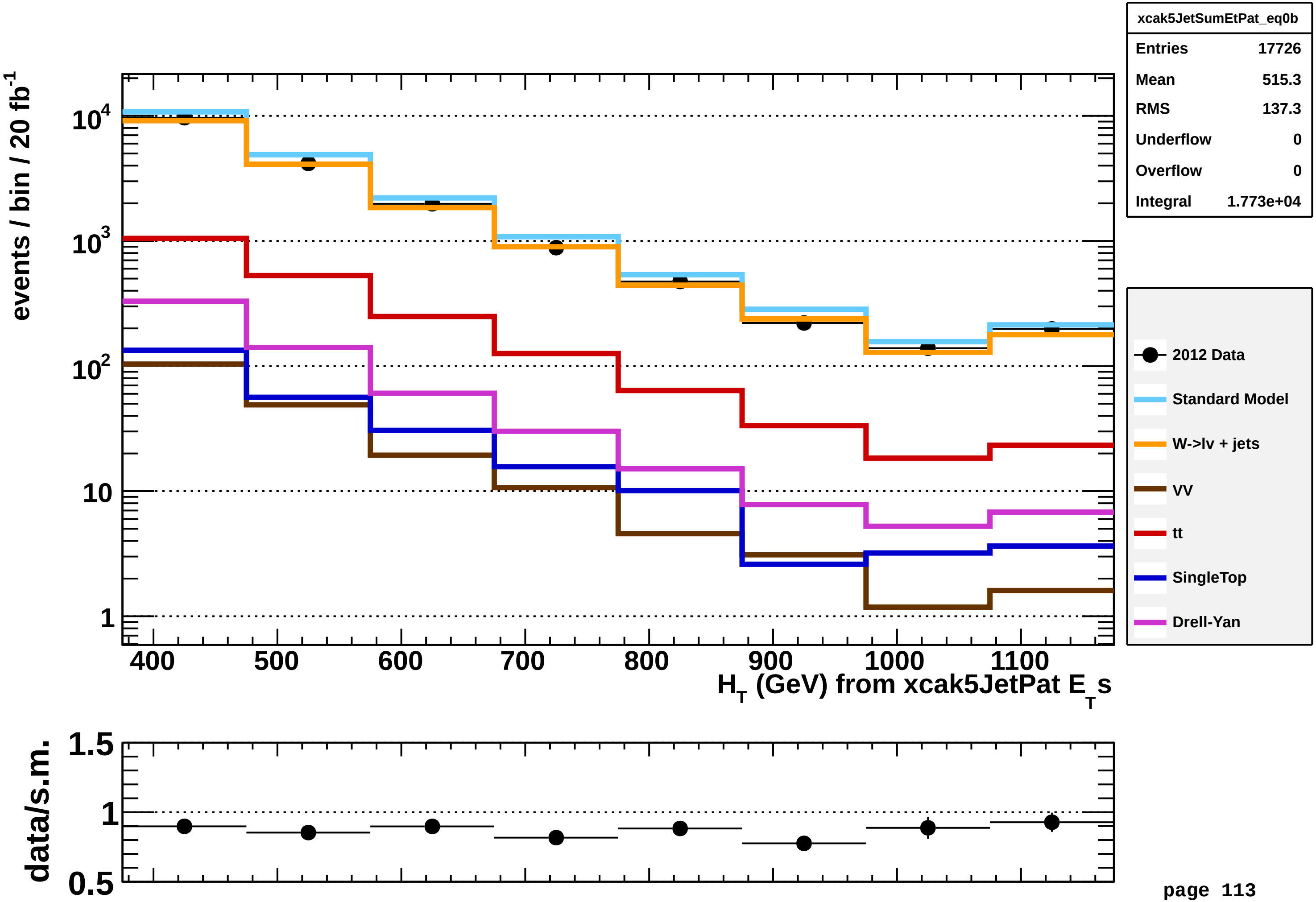
xcak5JetSumEtPat_eq0b
Entries 17726
Mean 515.3
RMS 137.3
Underflow 0
Overflow 0
Integral 1.773e+04
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
events / bin / 20 fb^{-1}
10^4
10^3
10^2
10
1
400
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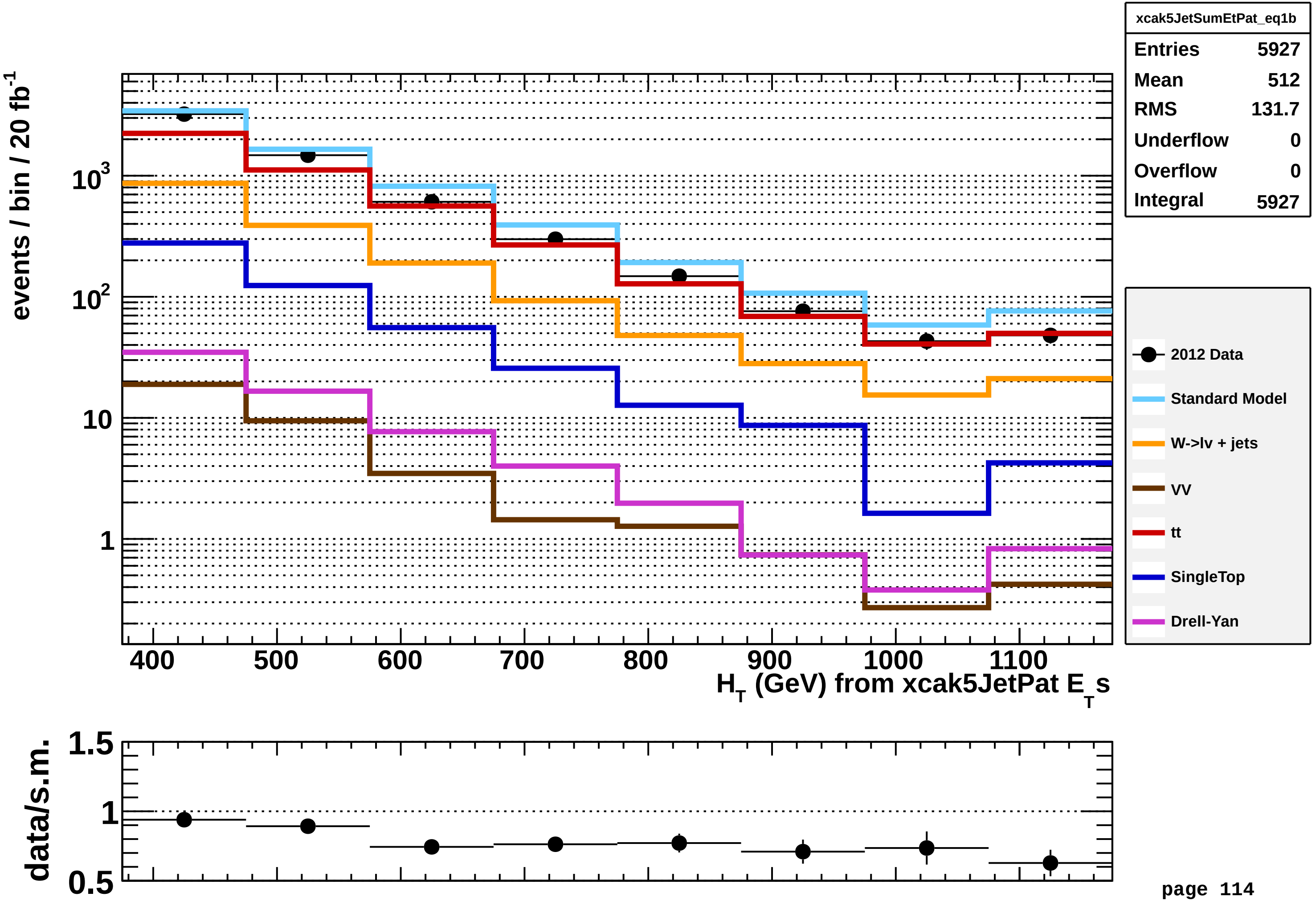
1000
1100
H_T (GeV) from xcak5JetPat E_Ts
data/s.m.
1.5
1
0.5


xcak5JetSumEtPat_eq1b
Entries 5927
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RMS 131.7
Underflow 0
Overflow 0
Integral 5927
events / bin / 20 fb^{-1}
10^3
10^2
10
1
400
500
600
700
800
900
1000
1100
H_T (GeV) from xcak5JetPat E_Ts
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
data/s.m.
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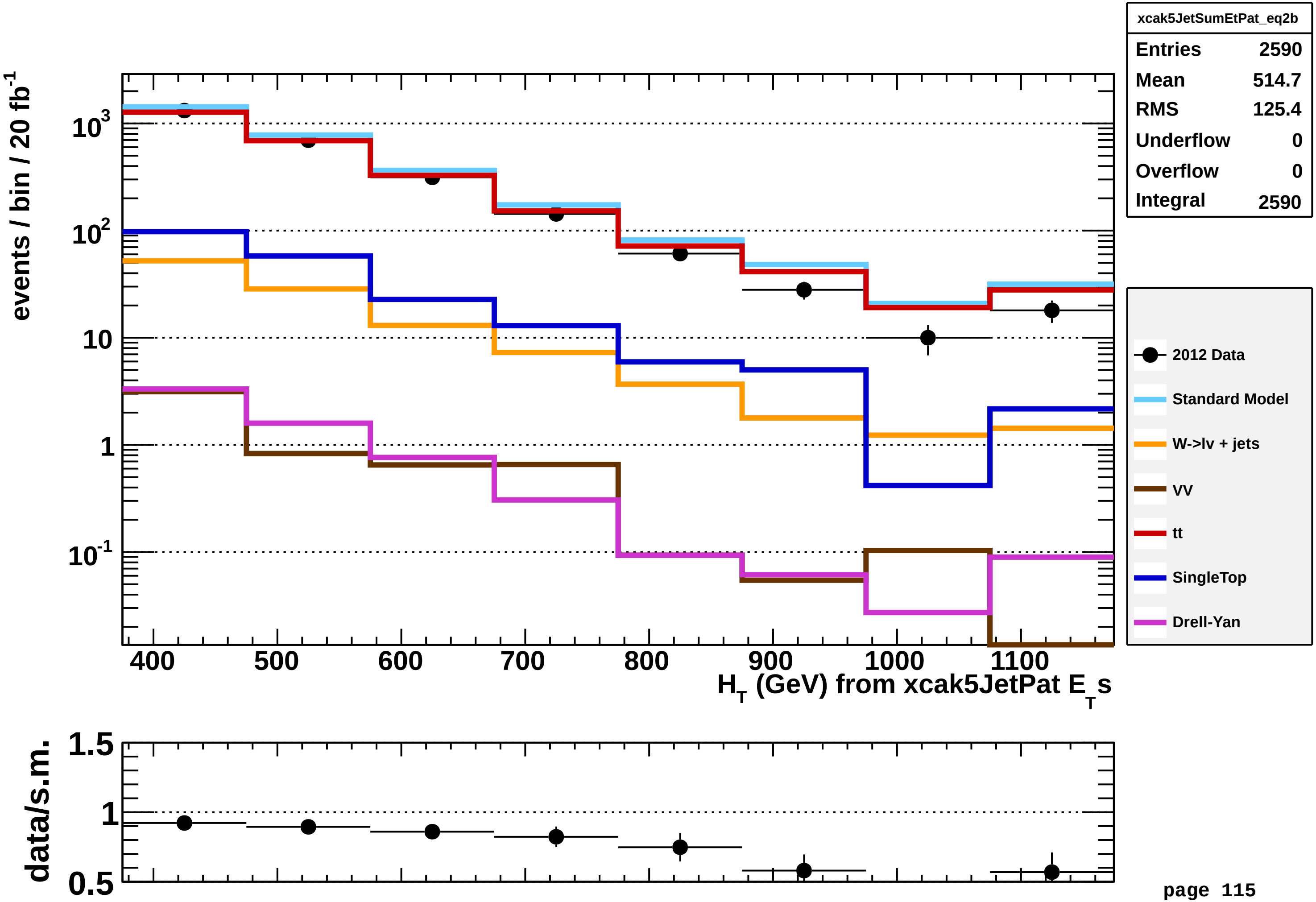
1
0.5


xcak5JetSumEtPat_eq2b
Entries 2590
Mean 514.7
RMS 125.4
Underflow 0
Overflow 0
Integral 2590
events / bin / 20 fb^{-1}
10^3
10^2
10
1
10^{-1}
400
500
600
700
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900
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1100
H_T (GeV) from xcak5JetPat E_Ts
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
data/s.m.
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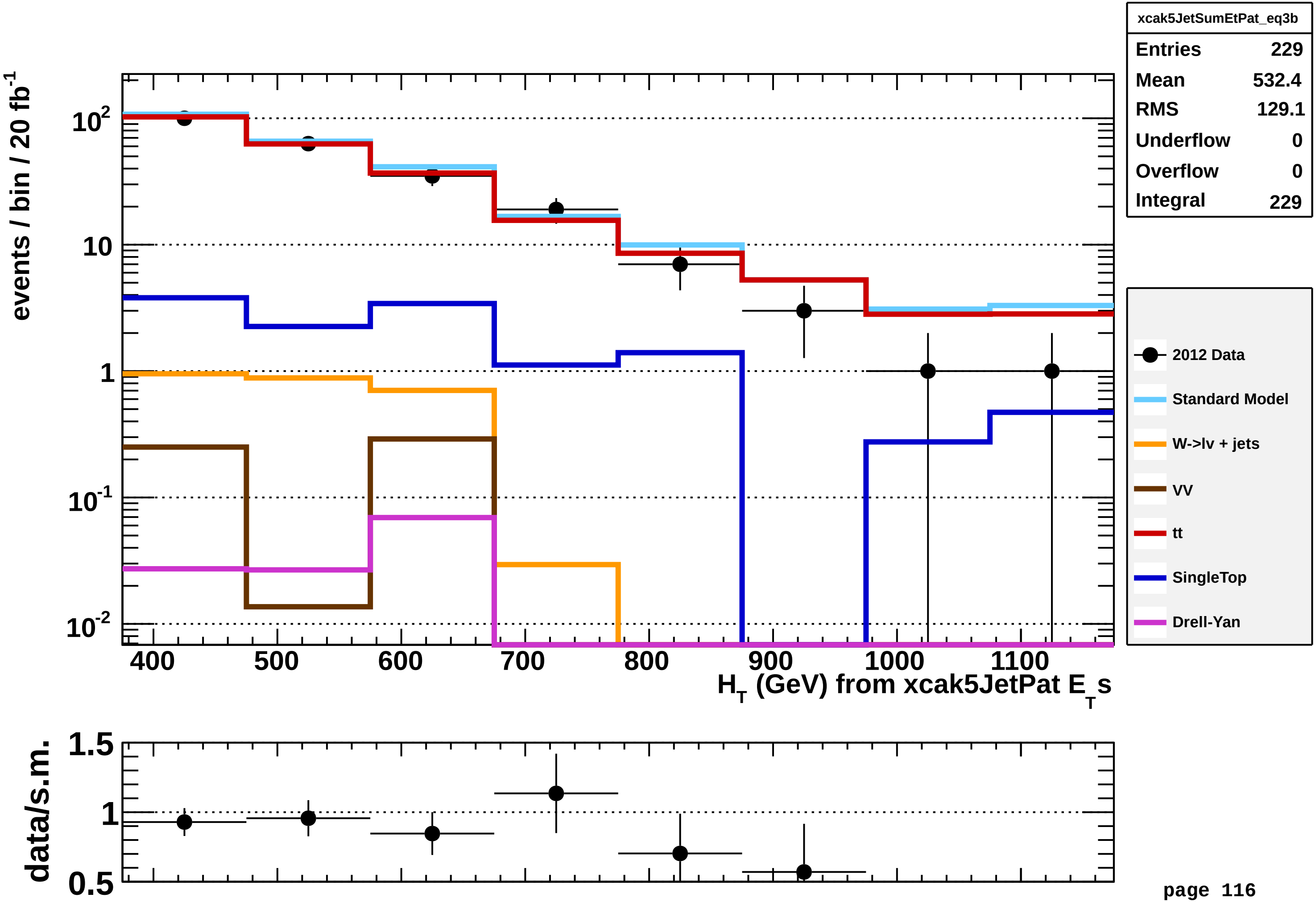
1
0.5


xcak5JetSumEtPat_eq3b
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RMS 129.1
Underflow 0
Overflow 0
Integral 229
events / bin / 20 fb^{-1}
10^2
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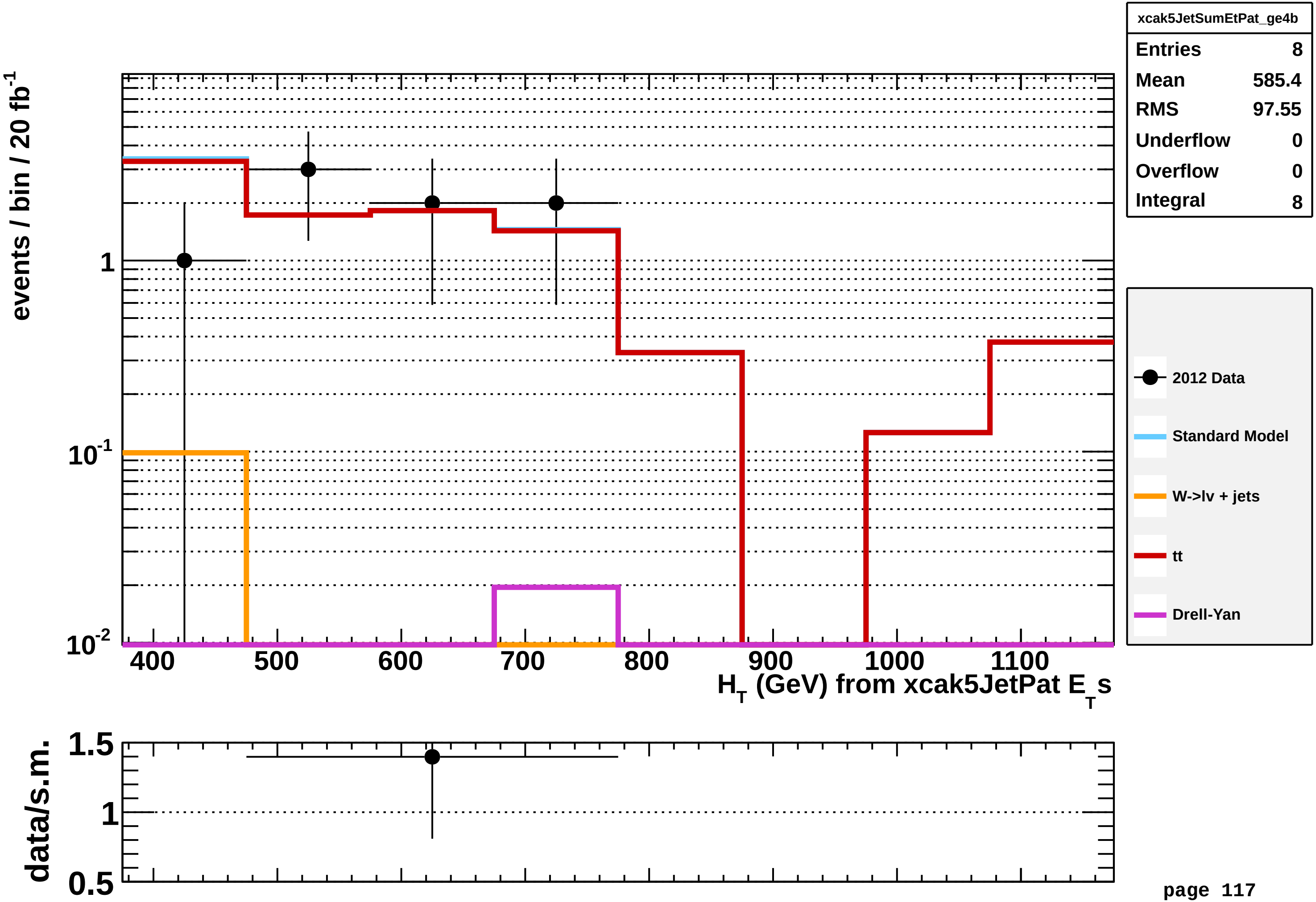
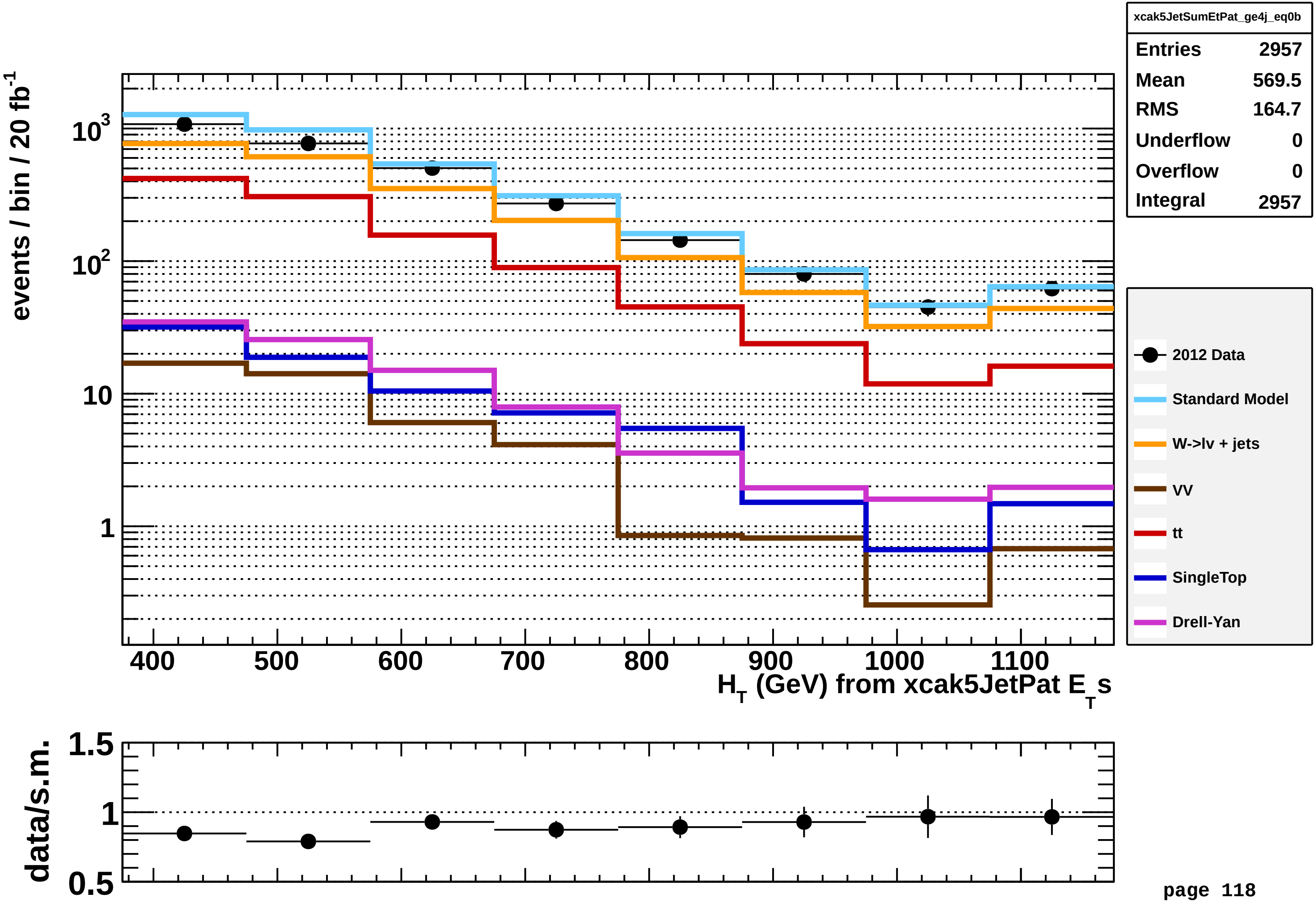
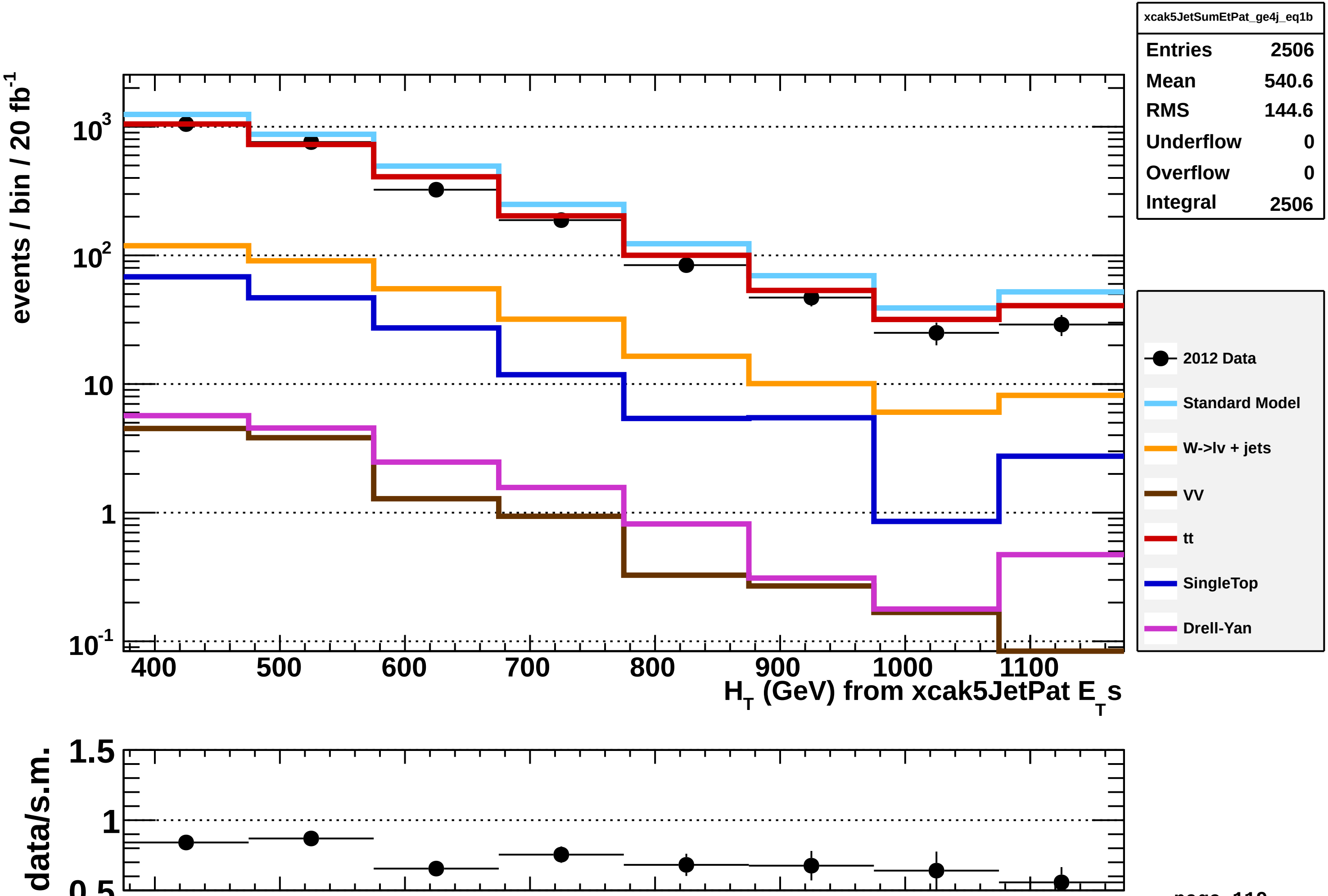
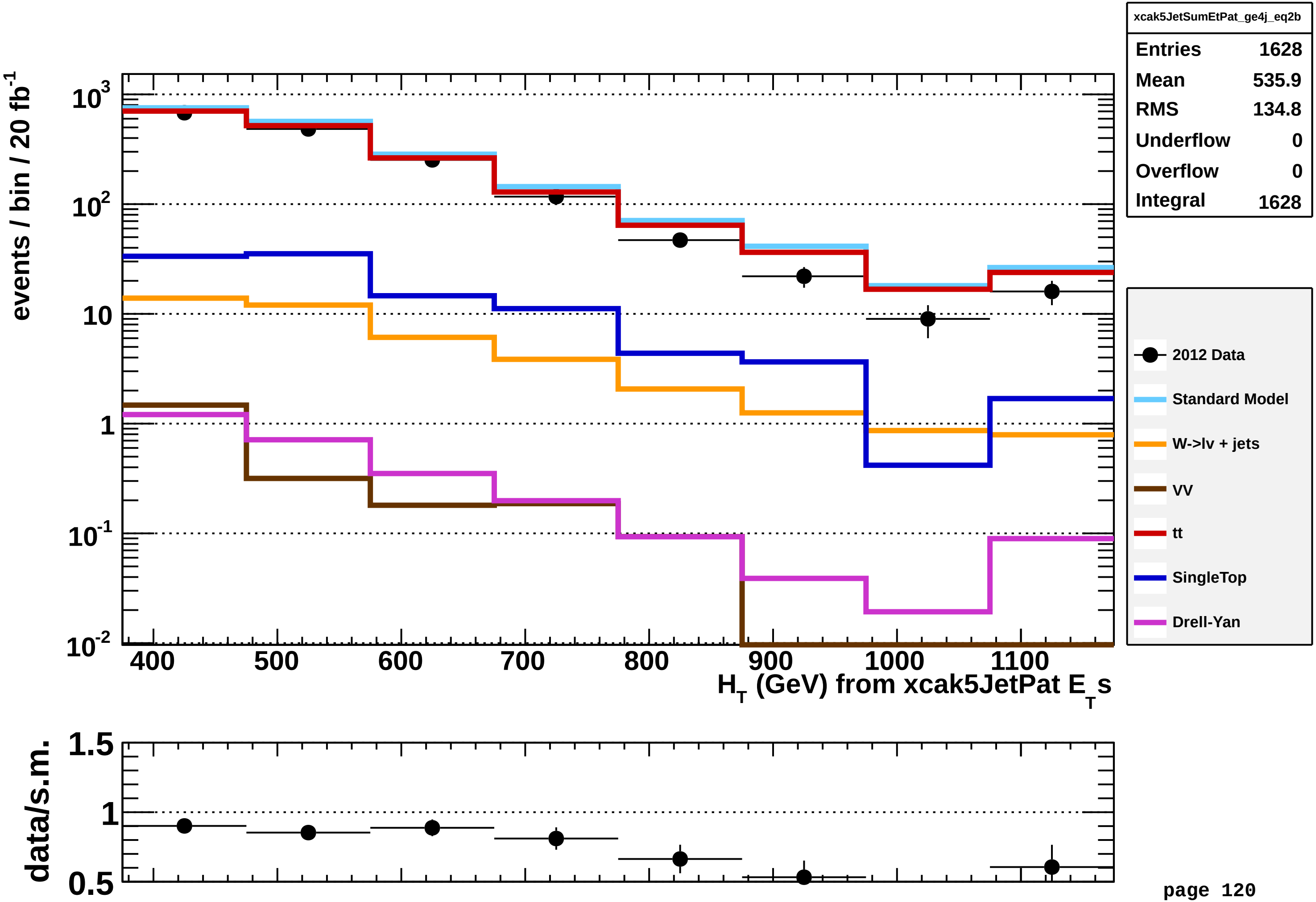
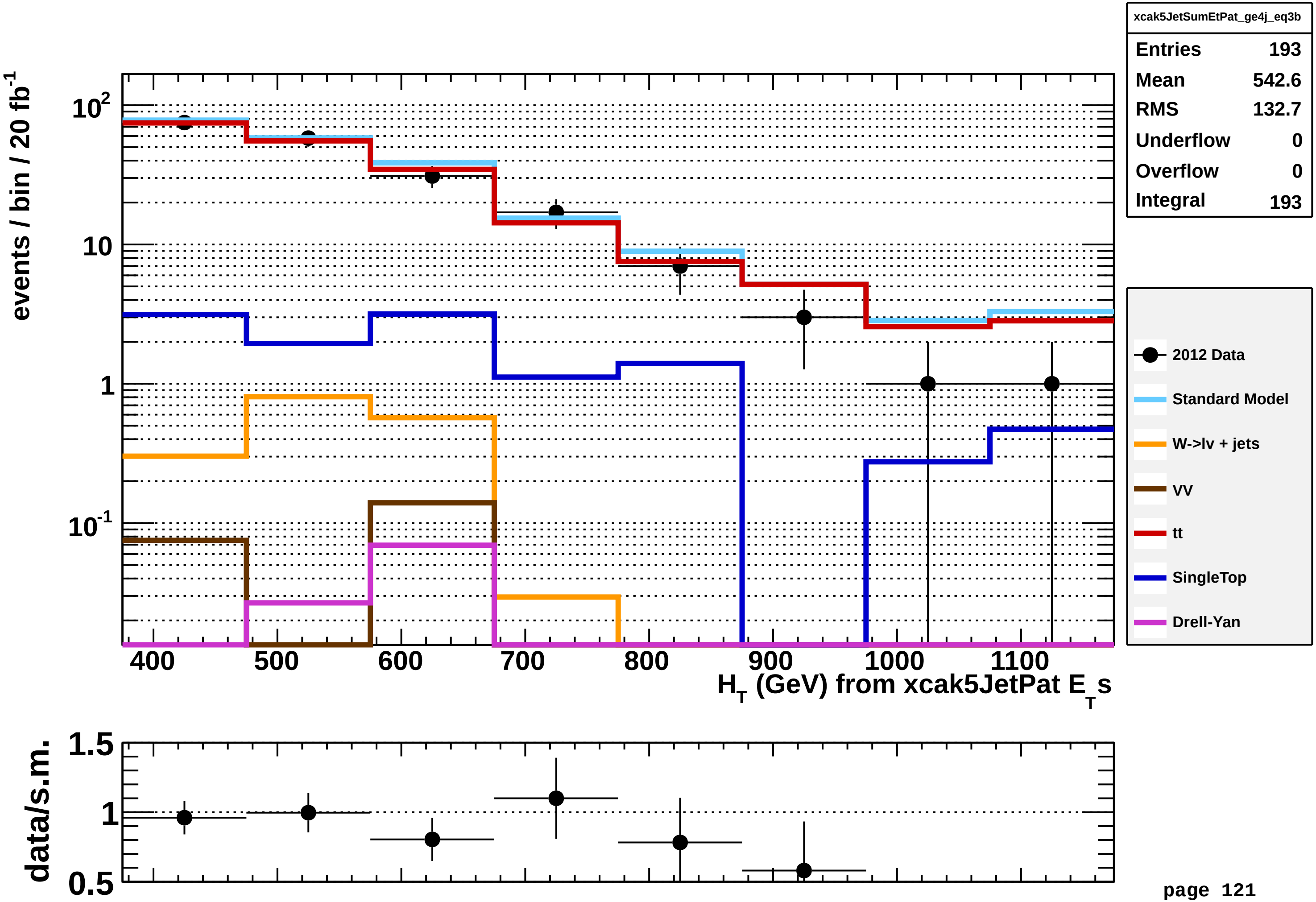
1
10^{-1}
10^{-2}
400
500
600
700
800
900
1000
1100
H_T (GeV) from xcak5JetPat E_Ts
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
data/s.m.
1.5
1
0.5

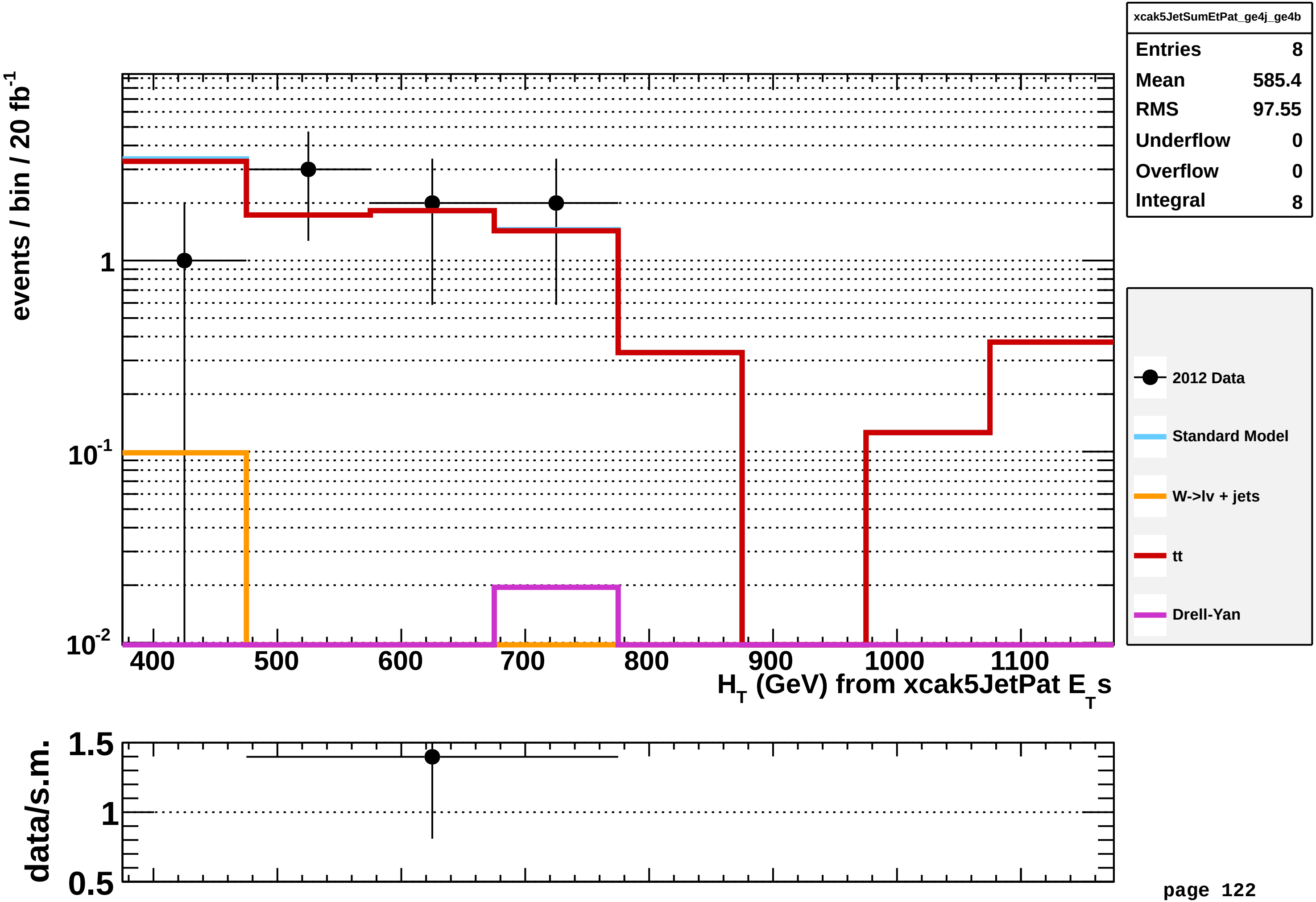

xcak5JetSumEtPat_ge4b
Entries 8
Mean 585.4
RMS 97.55
Underflow 0
Overflow 0
Integral 8
events / bin / 20 fb^{-1}
1
10^{-1}
10^{-2}
400
500
600
700
800
900
1000
1100
H_T (GeV) from xcak5JetPat E_Ts
2012 Data
Standard Model
W->lv + jets
tt
Drell-Yan
data/s.m.
1.5
1
0.5

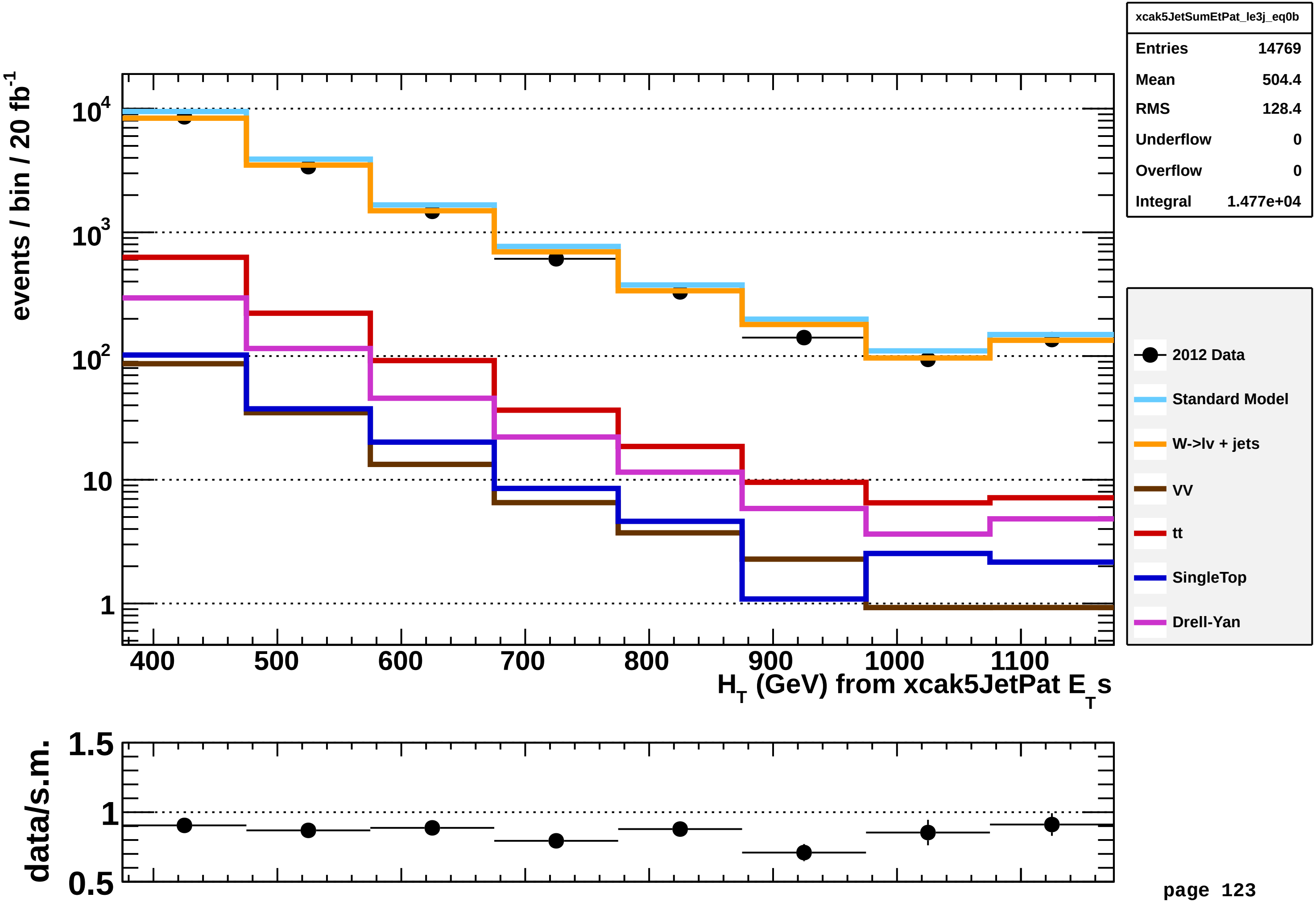

xcak5JetSumEtPat_ge4j_eq0b
Entries 2957
Mean 569.5
RMS 164.7
Underflow 0
Overflow 0
Integral 2957
events / bin / 20 fb^{-1}
10^3
10^2
10
1
400
500
600
700
800
900
1000
1100
H_T (GeV) from xcak5JetPat E_Ts
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
data/s.m.
1.5
1
0.5

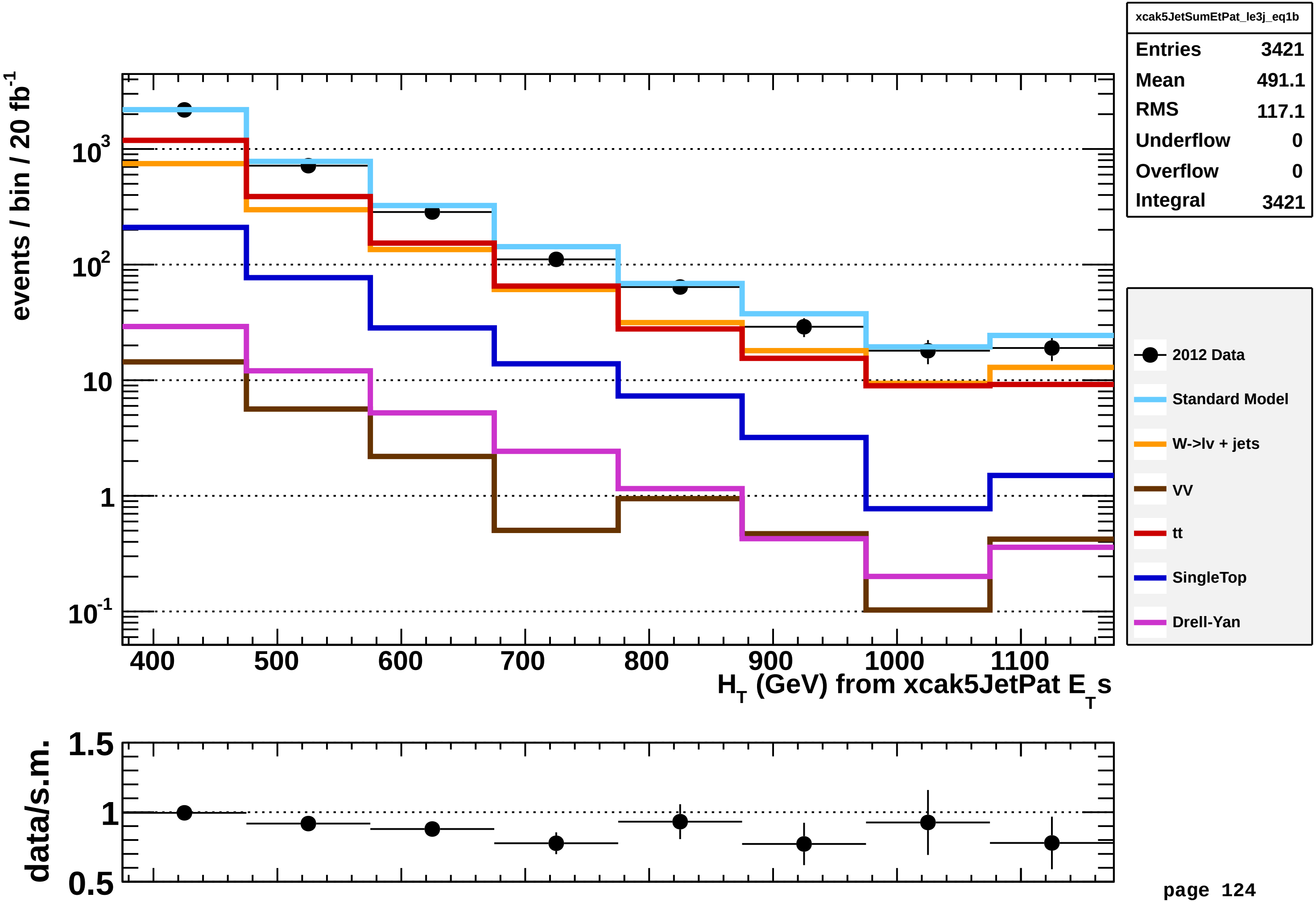

xcak5JetSumEtPat_ge4j_eq1b
Entries 2506
Mean 540.6
RMS 144.6
Underflow 0
Overflow 0
Integral 2506
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
events / bin / 20 fb^{-1}
10^{3}
10^{2}
10
1
10^{-1}
400
500
600
700
800
900
1000
1100
H_T (GeV) from xcak5JetPat E_Ts
data/s.m.
1.5
1
0.5

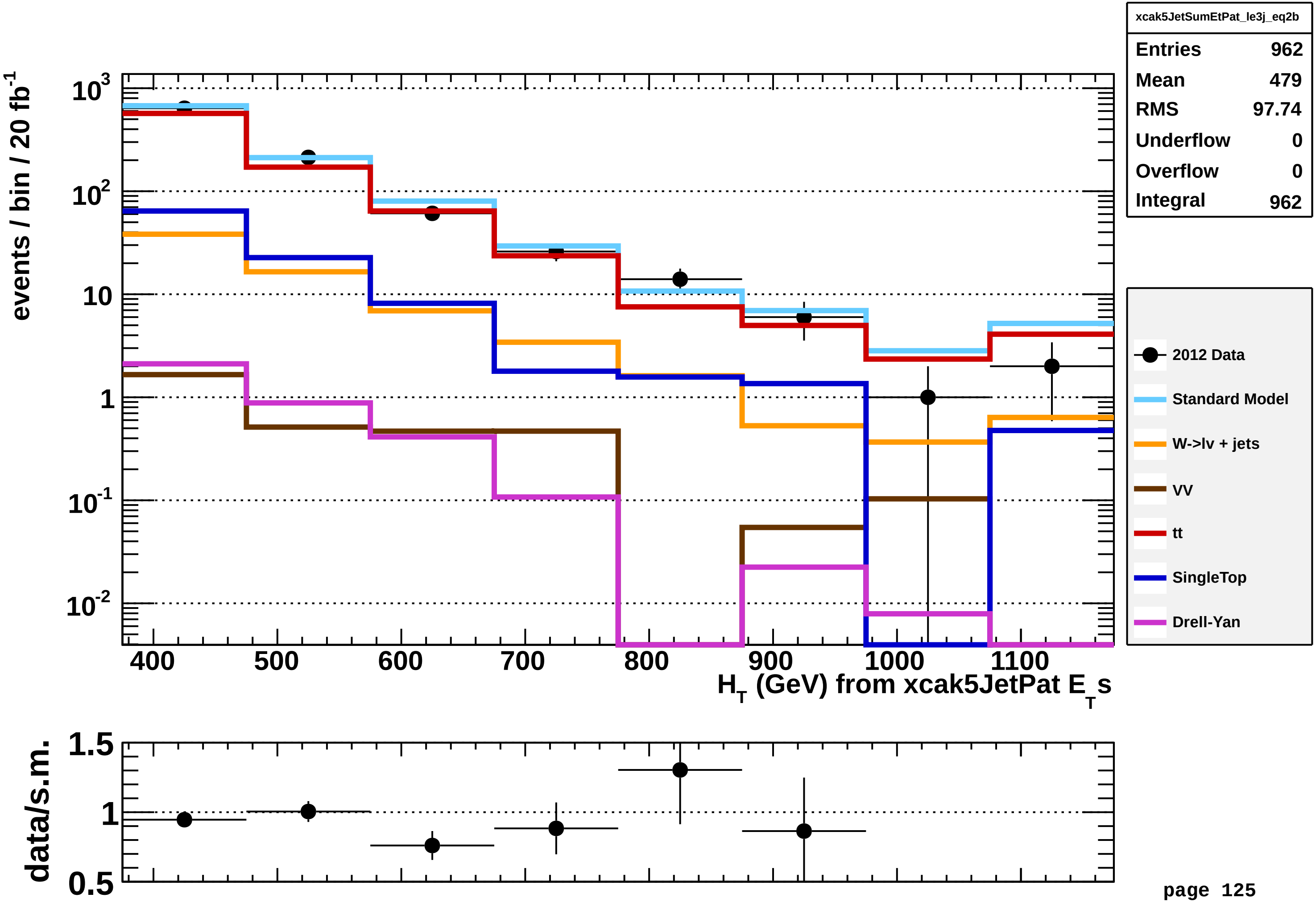

xcak5JetSumEtPat_ge4j_eq2b
Entries 1628
Mean 535.9
RMS 134.8
Underflow 0
Overflow 0
Integral 1628
events / bin / 20 fb^{-1}
10^3
10^2
10
1
10^{-1}
10^{-2}
400
500
600
700
800
900
1000
1100
H_T (GeV) from xcak5JetPat E_Ts
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
data/s.m.
1.5
1
0.5


xcak5JetSumEtPat_ge4j_eq3b
Entries 193
Mean 542.6
RMS 132.7
Underflow 0
Overflow 0
Integral 193
events / bin / 20 fb^{-1}
10^2
10
1
10^{-1}
400
500
600
700
800
900
1000
1100
H_T (GeV) from xcak5JetPat E_Ts
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
data/s.m.
1.5
1
0.5


xcak5JetSumEtPat_ge4j_ge4b
Entries 8
Mean 585.4
RMS 97.55
Underflow 0
Overflow 0
Integral 8
events / bin / 20 fb^{-1}
1
10^{-1}
10^{-2}
400
500
600
700
800
900
1000
1100
H_T (GeV) from xcak5JetPat E_Ts
2012 Data
Standard Model
W->lv + jets
tt
Drell-Yan
data/s.m.
1.5
1
0.5


xcak5JetSumEtPat_le3j_eq0b
Entries 14769
Mean 504.4
RMS 128.4
Underflow 0
Overflow 0
Integral 1.477e+04
events / bin / 20 fb^{-1}
10^4
10^3
10^2
10
1
400
500
600
700
800
900
1000
1100
H_T (GeV) from xcak5JetPat E_Ts
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
data/s.m.
1.5
1
0.5


xcak5JetSumEtPat_le3j_eq1b
Entries 3421
Mean 491.1
RMS 117.1
Underflow 0
Overflow 0
Integral 3421
events / bin / 20 fb^{-1}
10^3
10^2
10
1
10^{-1}
400
500
600
700
800
900
1000
1100
H_T (GeV) from xcak5JetPat E_Ts
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
data/s.m.
1.5
1
0.5


xcak5JetSumEtPat_le3j_eq2b
Entries 962
Mean 479
RMS 97.74
Underflow 0
Overflow 0
Integral 962
events / bin / 20 fb^{-1}
10^{3}
10^{2}
10
1
10^{-1}
10^{-2}
400
500
600
700
800
900
1000
1100
H_T (GeV) from xcak5JetPat E_Ts
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
data/s.m.
1.5
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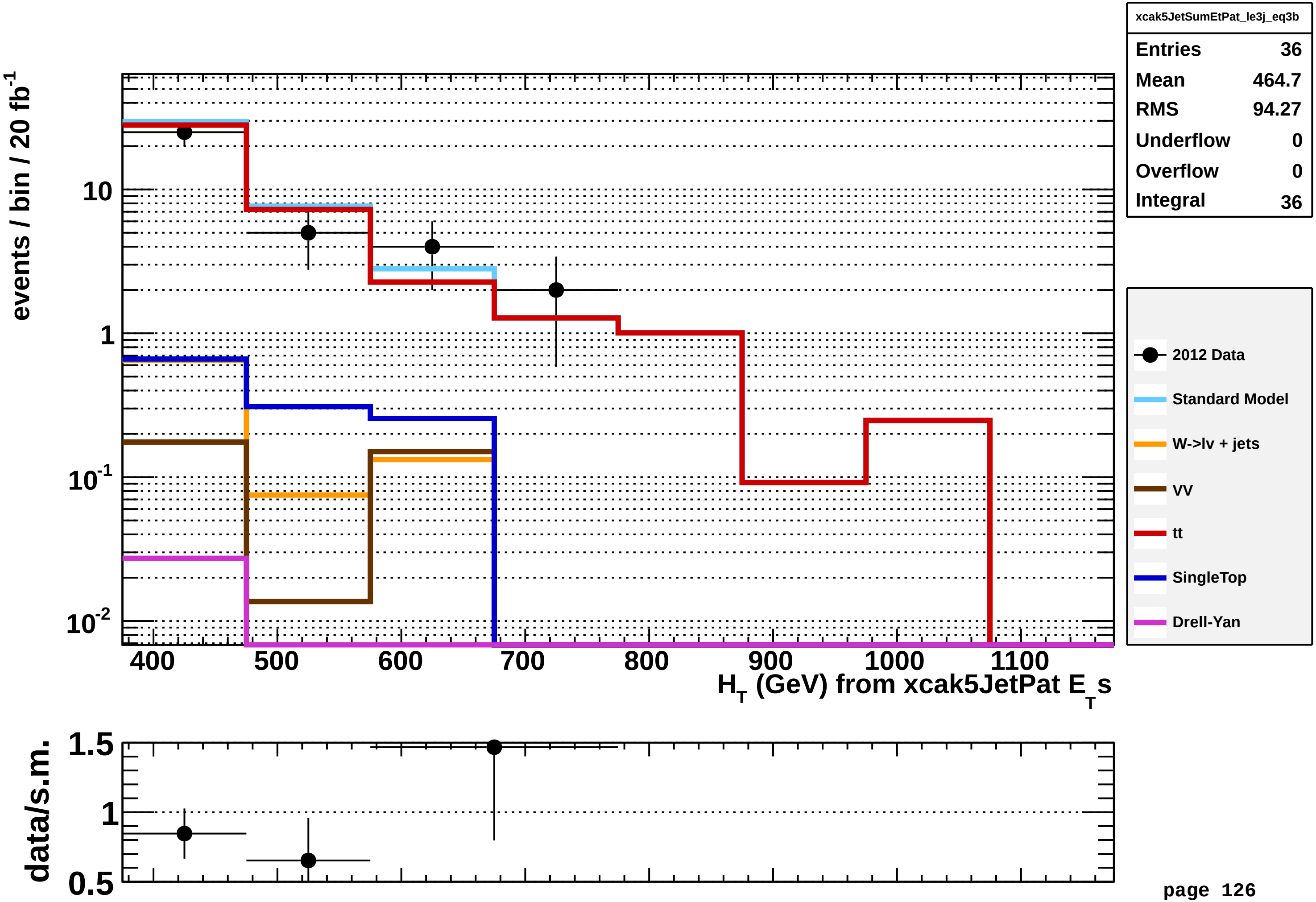
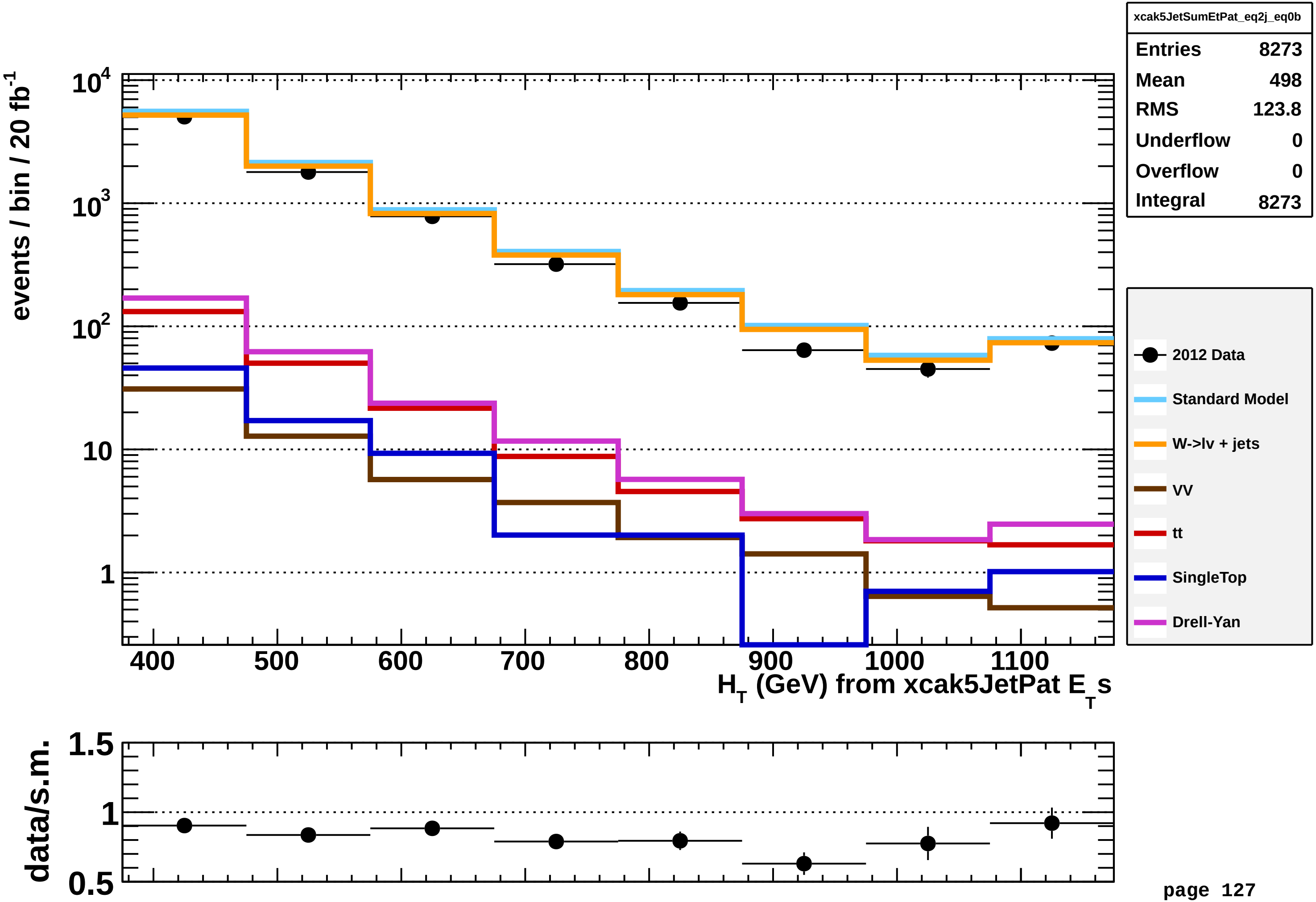
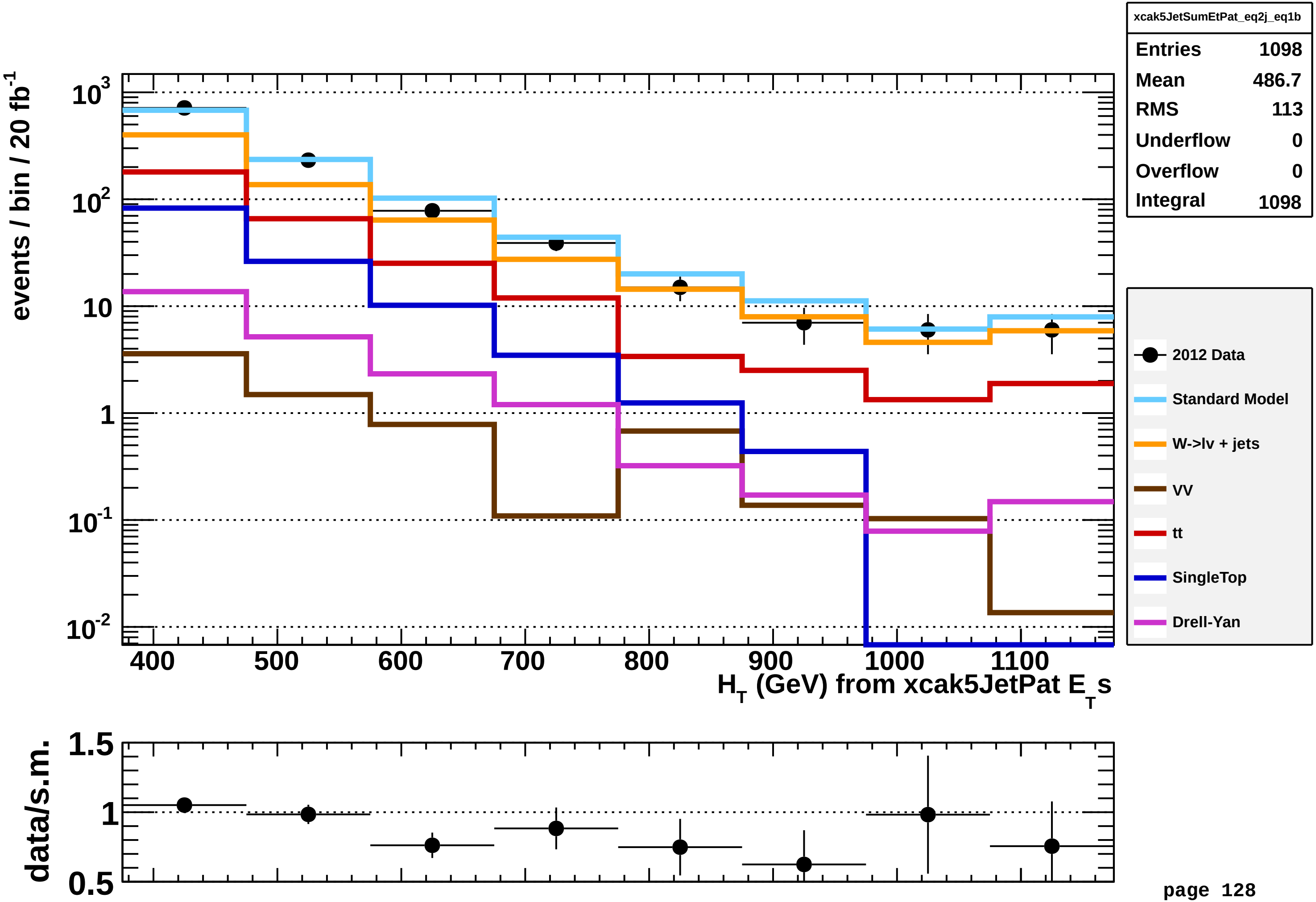
0.5


xcak5JetSumEtPat_le3j_eq3b
Entries 36
Mean 464.7
RMS 94.27
Underflow 0
Overflow 0
Integral 36
events / bin / 20 fb^{-1}
10
1
10^{-1}
10^{-2}
400
500
600
700
800
900
1000
1100
H_T (GeV) from xcak5JetPat E_Ts
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
data/s.m.
1.5
1
0.5


xcak5JetSumEtPat_eq2j_eq0b
Entries 8273
Mean 498
RMS 123.8
Underflow 0
Overflow 0
Integral 8273
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
events / bin / 20 fb^{-1}
10^4
10^3
10^2
10
1
400
500
600
700
800
900
1000
1100
H_T (GeV) from xcak5JetPat E_Ts
data/s.m.
1.5
1
0.5


xcak5JetSumEtPat_eq2j_eq1b
Entries 1098
Mean 486.7
RMS 113
Underflow 0
Overflow 0
Integral 1098
events / bin / 20 fb^{-1}
10^3
10^2
10
1
10^{-1}
10^{-2}
400
500
600
700
800
900
1000
1100
H_T (GeV) from xcak5JetPat E_Ts
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
data/s.m.
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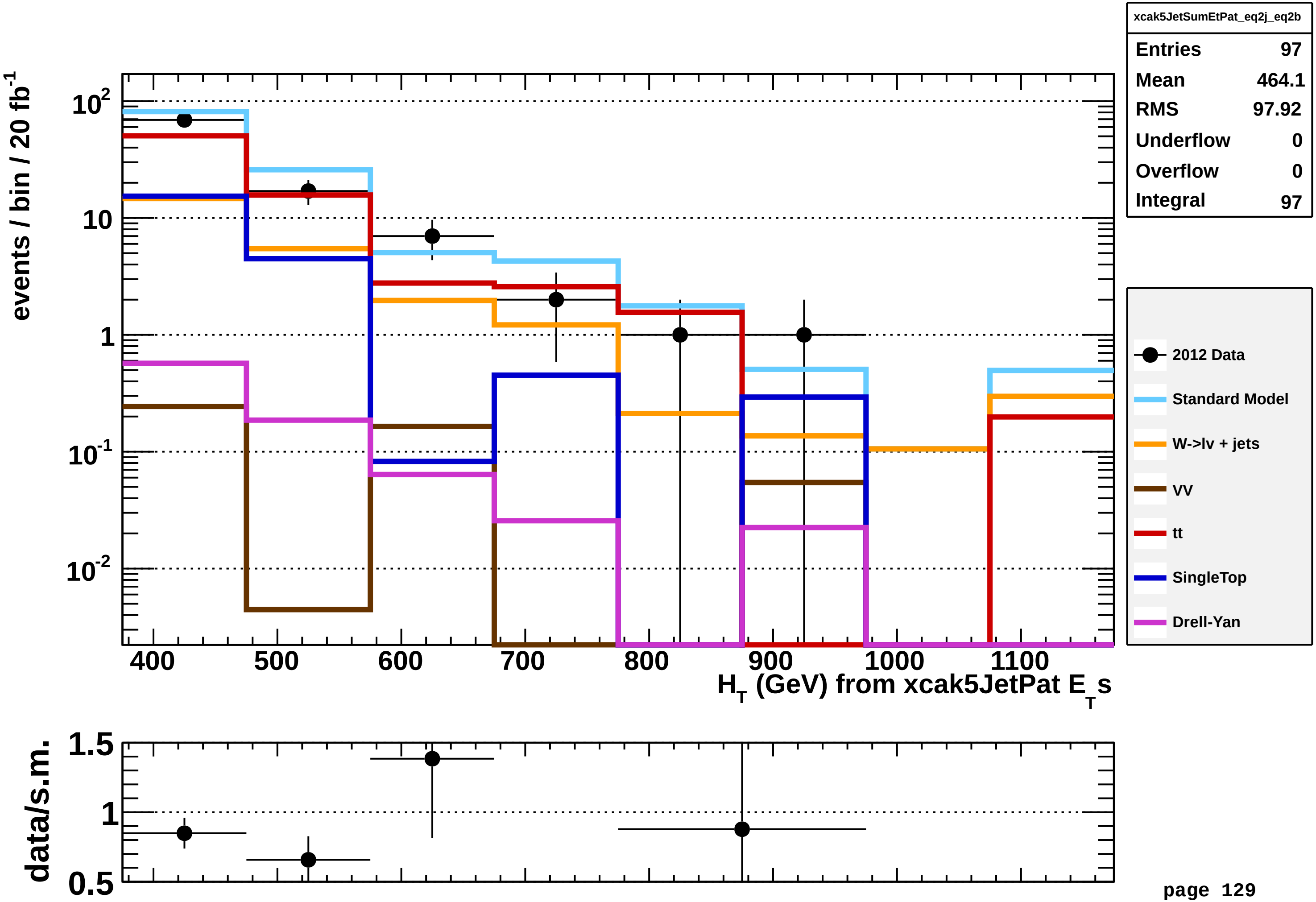
1
0.5


xcak5JetSumEtPat_eq2j_eq2b
Entries 97
Mean 464.1
RMS 97.92
Underflow 0
Overflow 0
Integral 97
events / bin / 20 fb^{-1}
10^2
10
1
10^{-1}
10^{-2}
400
500
600
700
800
900
1000
1100
H_T (GeV) from xcak5JetPat E_Ts
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
data/s.m.
1.5
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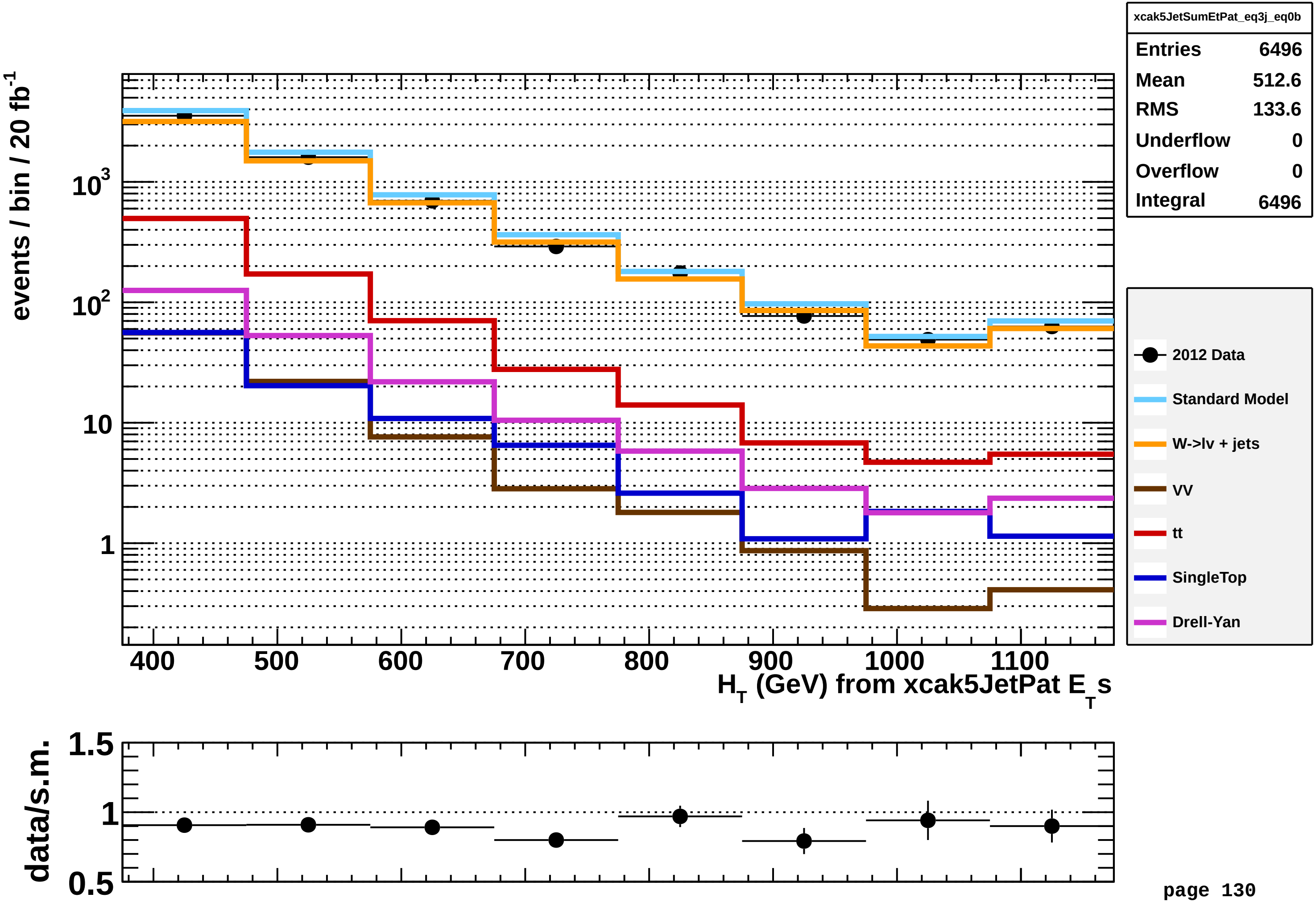
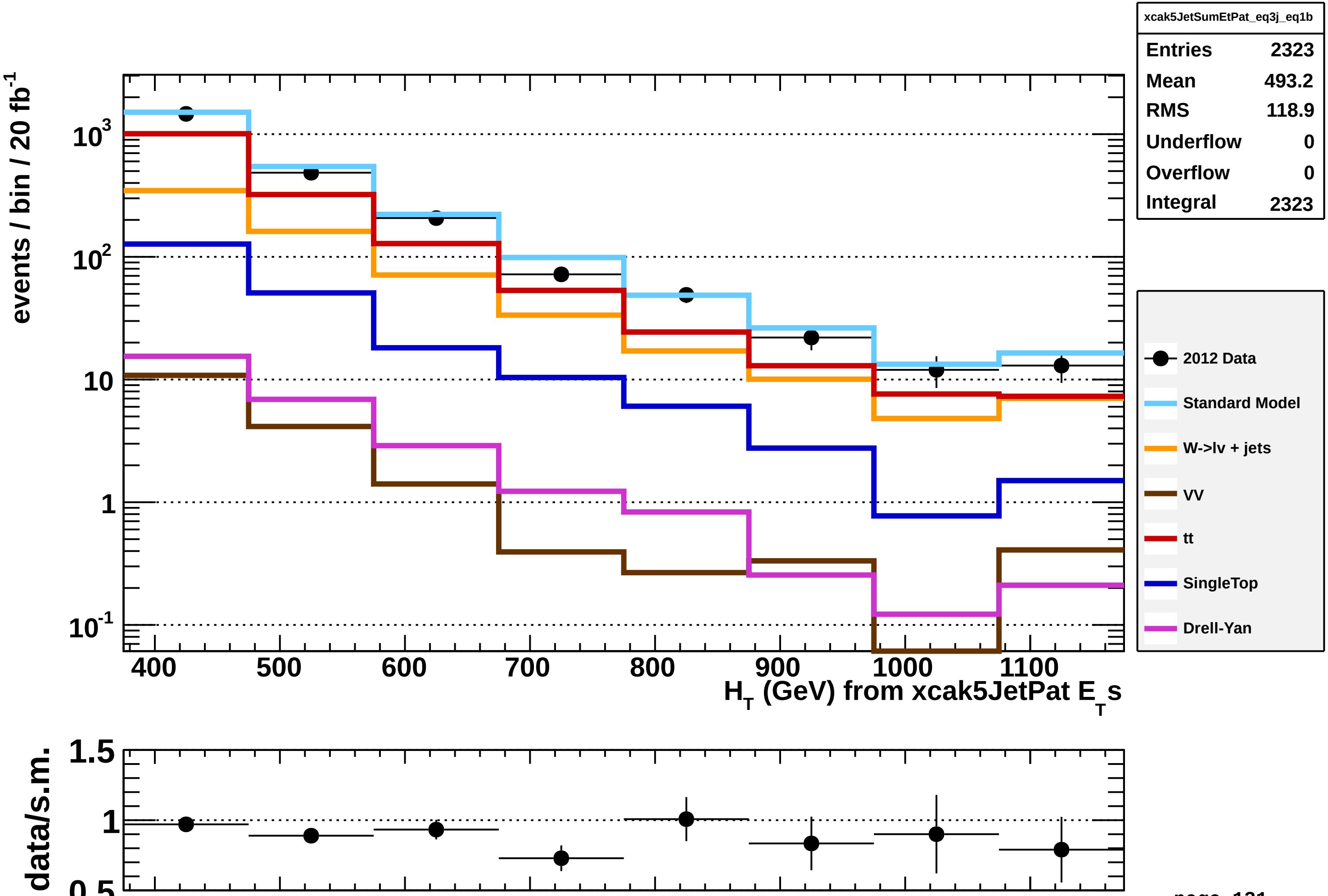
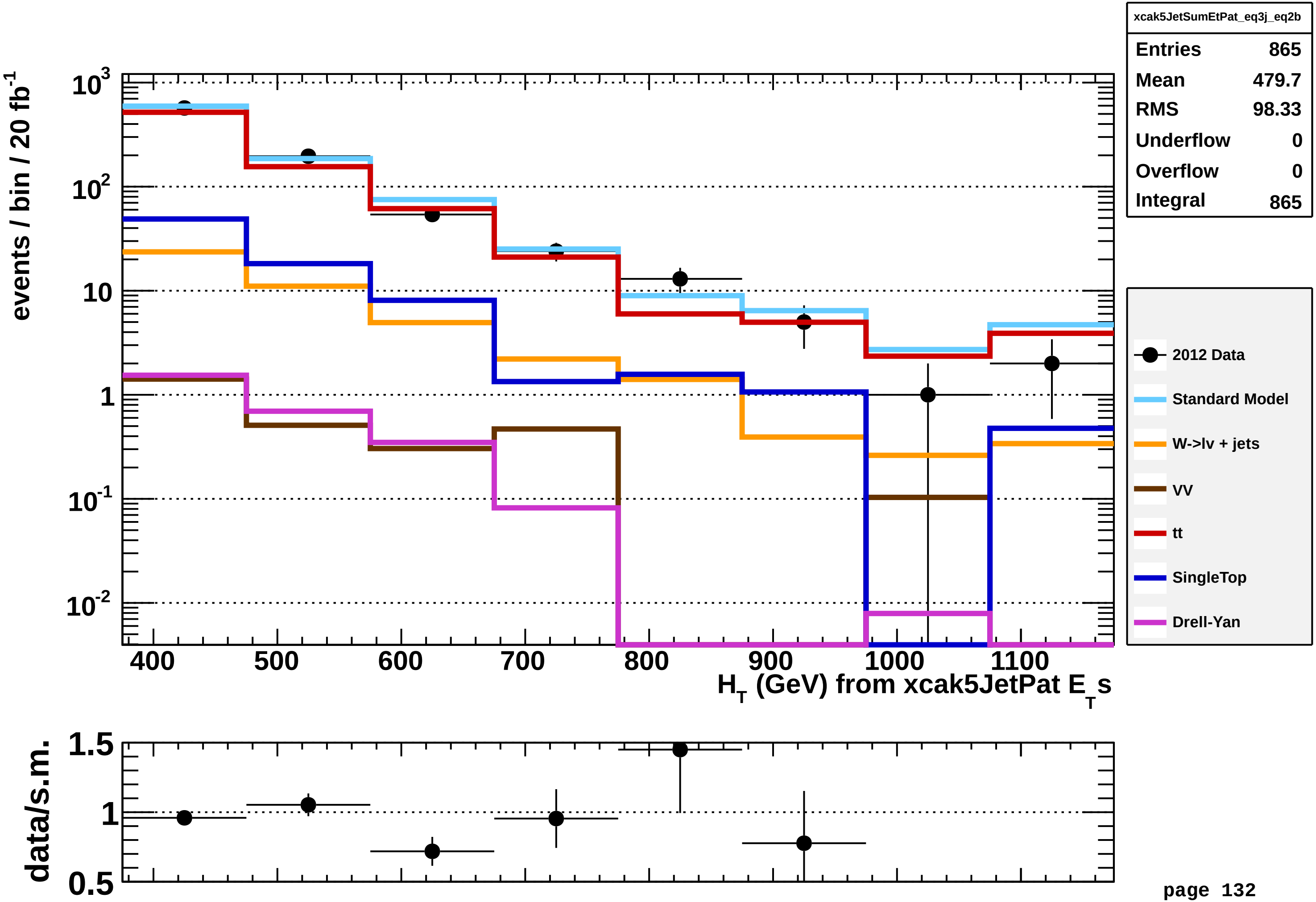
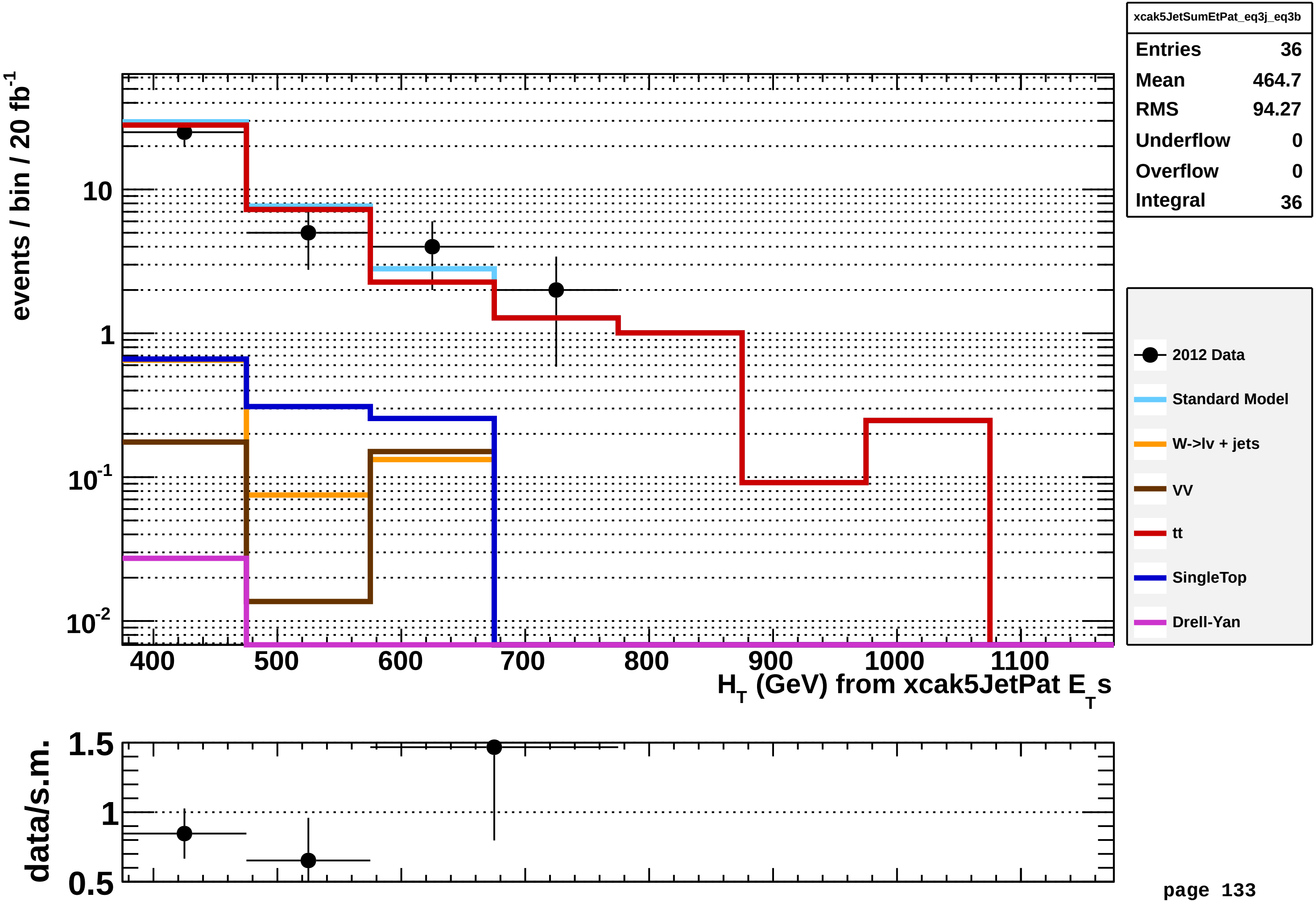
0.5


xcak5JetSumEtPat_eq3j_eq0b
Entries 6496
Mean 512.6
RMS 133.6
Underflow 0
Overflow 0
Integral 6496
events / bin / 20 fb^{-1}
10^3
10^2
10
1
400
500
600
700
800
900
1000
1100
H_T (GeV) from xcak5JetPat E_Ts
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
data/s.m.
1.5
1
0.5


xcak5JetSumEtPat_eq3j_eq1b
Entries 2323
Mean 493.2
RMS 118.9
Underflow 0
Overflow 0
Integral 2323
events / bin / 20 fb^{-1}
10^3
10^2
10
1
10^{-1}
400
500
600
700
800
900
1000
1100
H_T (GeV) from xcak5JetPat E_Ts
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
data/s.m.
1.5
1
0.5



xcak5JetSumEtPat_eq3j_eq2b
Entries 865
Mean 479.7
RMS 98.33
Underflow 0
Overflow 0
Integral 865
events / bin / 20 fb^{-1}
10^3
10^2
10
1
10^{-1}
10^{-2}
400
500
600
700
800
900
1000
1100
H_T (GeV) from xcak5JetPat E_Ts
data/s.m.
1.5
1
0.5
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan


xcak5JetSumEtPat_eq3j_eq3b
Entries 36
Mean 464.7
RMS 94.27
Underflow 0
Overflow 0
Integral 36
events / bin / 20 fb^{-1}
10
1
10^{-1}
10^{-2}
400
500
600
700
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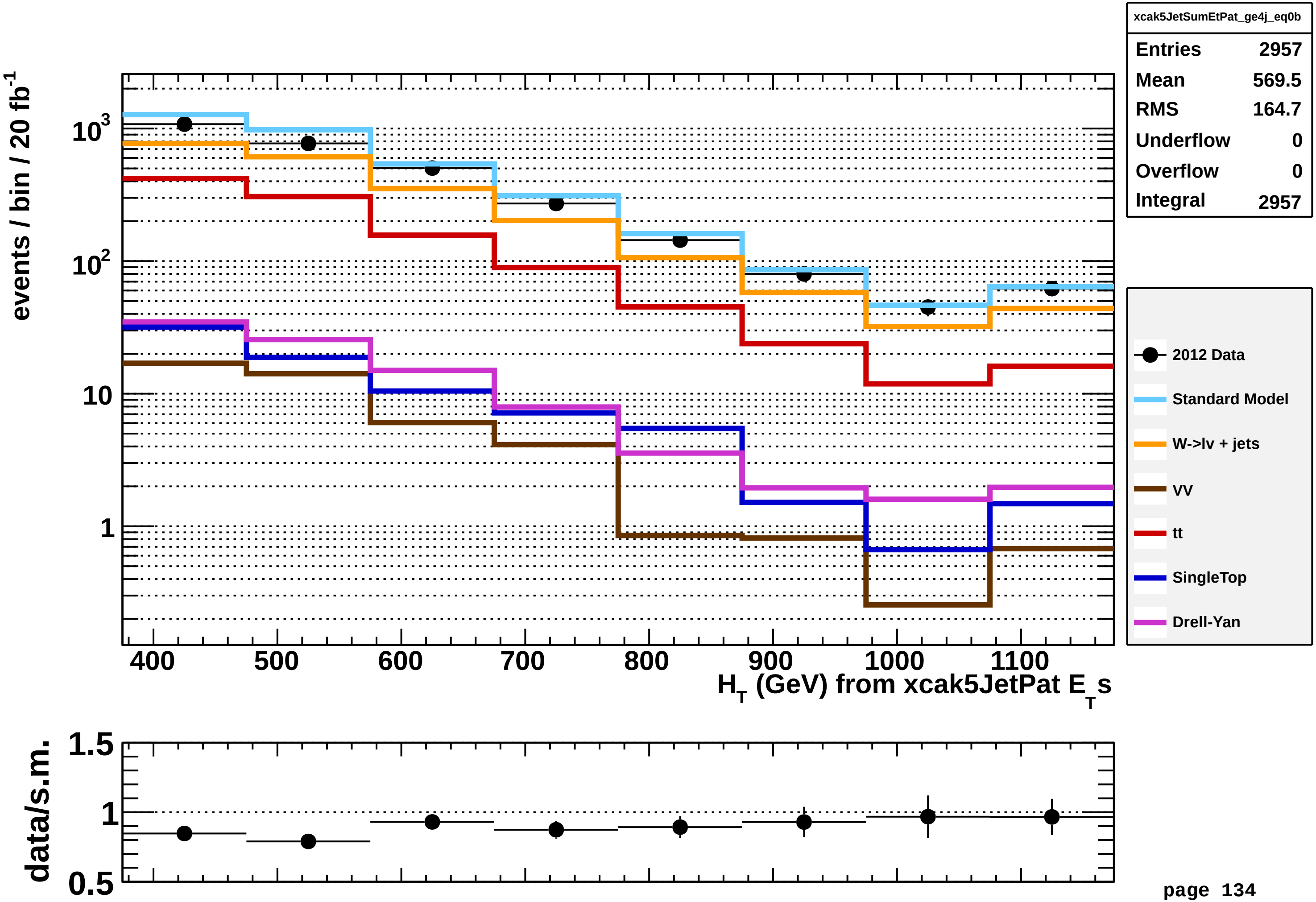
900
1000
1100
H_T (GeV) from xcak5JetPat E_Ts
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
data/s.m.
1.5
1
0.5


xcak5JetSumEtPat_ge4j_eq0b
Entries 2957
Mean 569.5
RMS 164.7
Underflow 0
Overflow 0
Integral 2957
events / bin / 20 fb^{-1}
10^3
10^2
10
1
400
500
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700
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900
1000
1100
H_T (GeV) from xcak5JetPat E_Ts
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
data/s.m.
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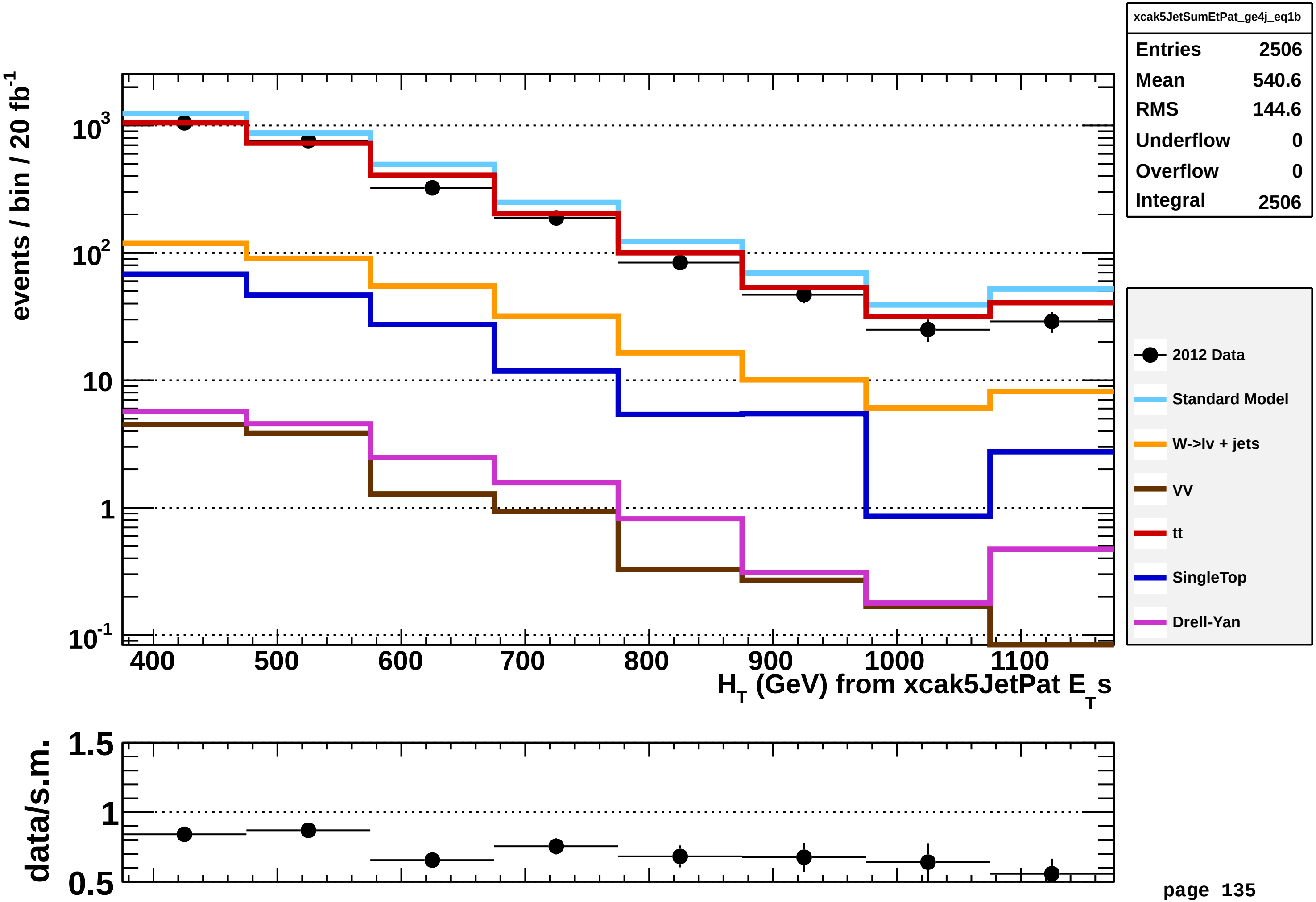
0.5


xcak5JetSumEtPat_ge4j_eq1b
Entries 2506
Mean 540.6
RMS 144.6
Underflow 0
Overflow 0
Integral 2506
events / bin / 20 fb^{-1}
10^{3}
10^{2}
10
1
10^{-1}
400
500
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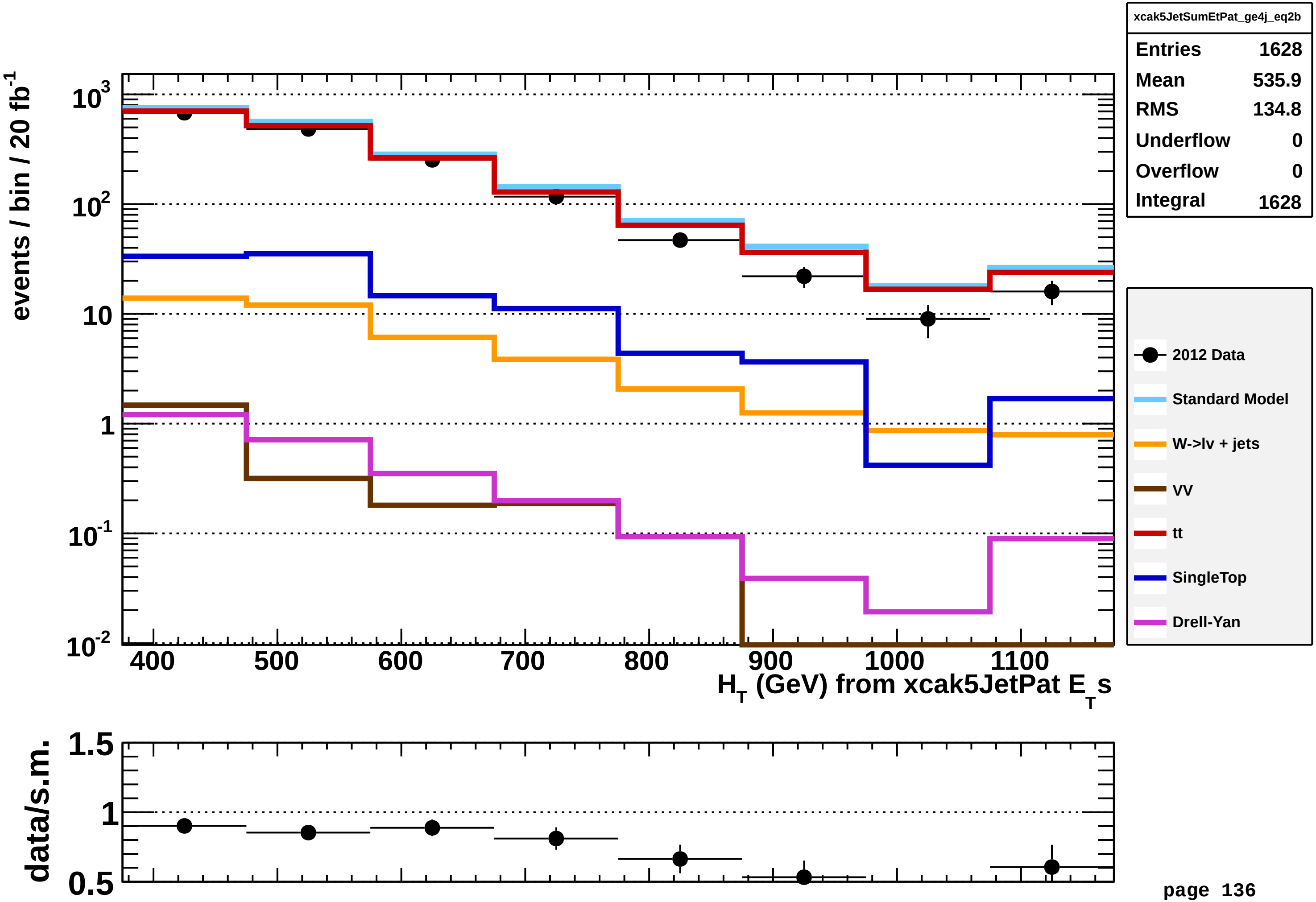
1100
H_T (GeV) from xcak5JetPat E_Ts
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
data/s.m.
1.5
1
0.5


xcak5JetSumEtPat_ge4j_eq2b
Entries 1628
Mean 535.9
RMS 134.8
Underflow 0
Overflow 0
Integral 1628
events / bin / 20 fb^{-1}
10^3
10^2
10
1
10^{-1}
10^{-2}
400
500
600
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1000
1100
H$_T$ (GeV) from xcak5JetPat E$_T$s
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
data/s.m.
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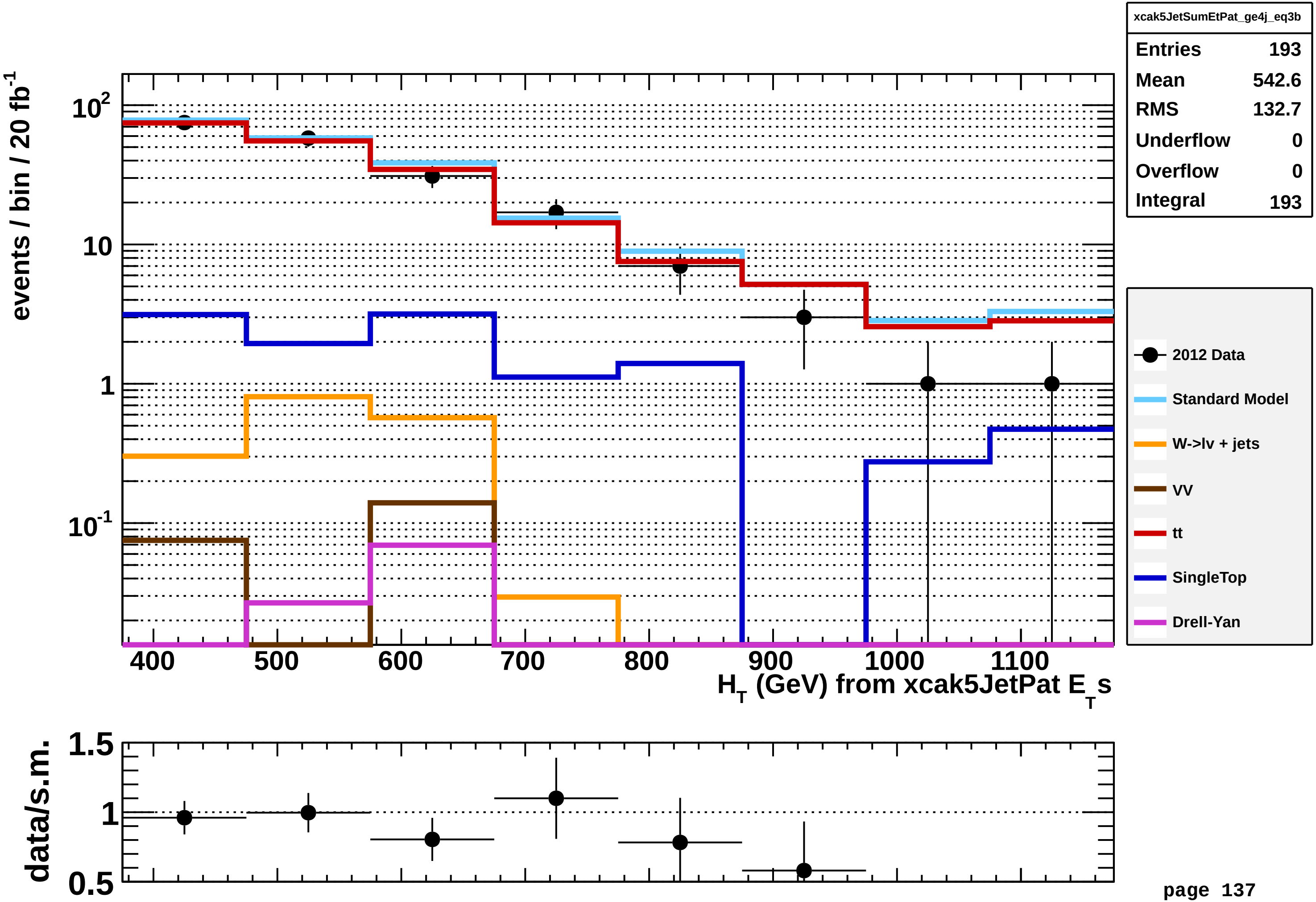
0.5


xcak5JetSumEtPat_ge4j_eq3b
Entries 193
Mean 542.6
RMS 132.7
Underflow 0
Overflow 0
Integral 193
events / bin / 20 fb^{-1}
10^2
10
1
10^{-1}
400
500
600
700
800
900
1000
1100
H_T (GeV) from xcak5JetPat E_Ts
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
data/s.m.
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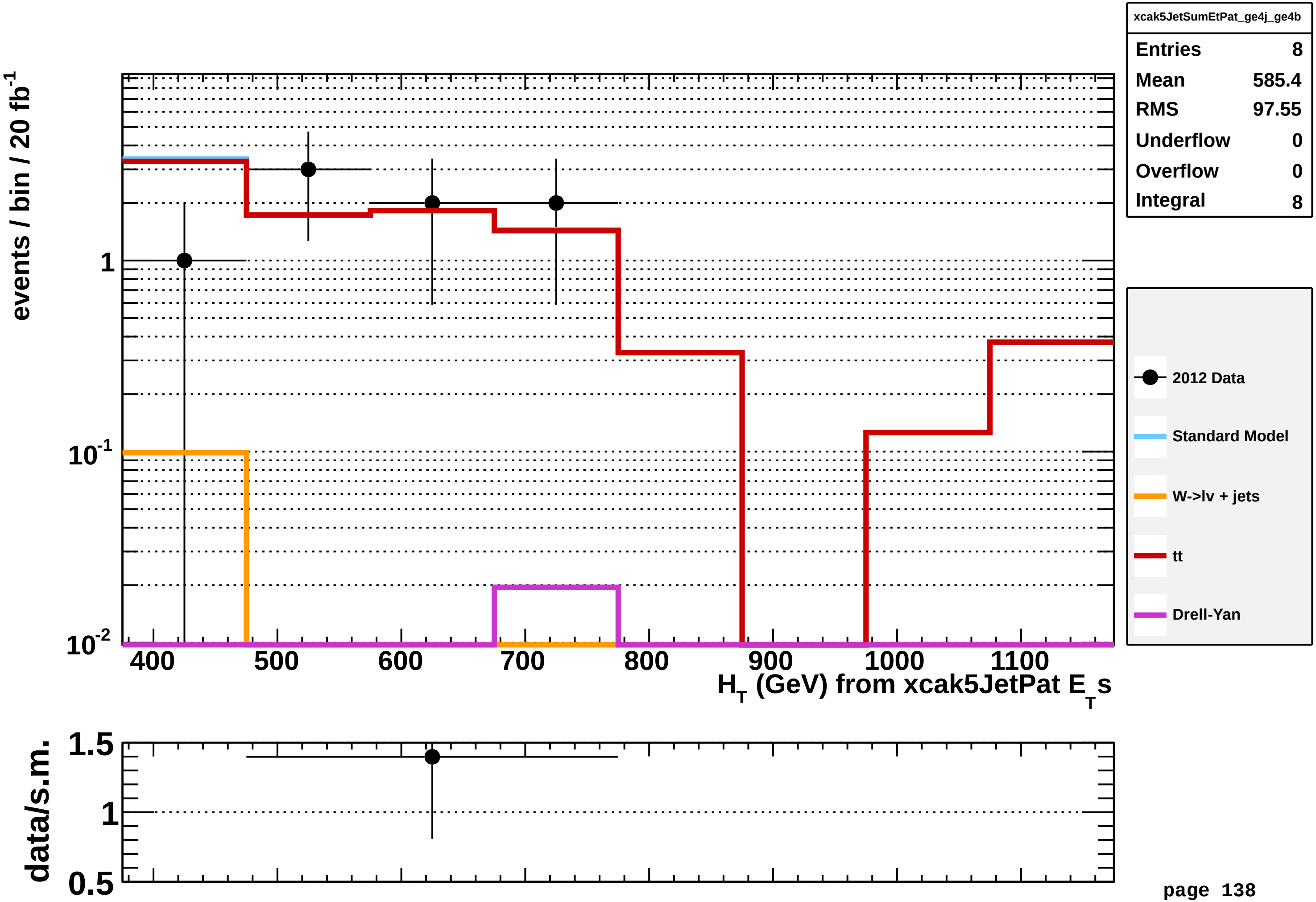
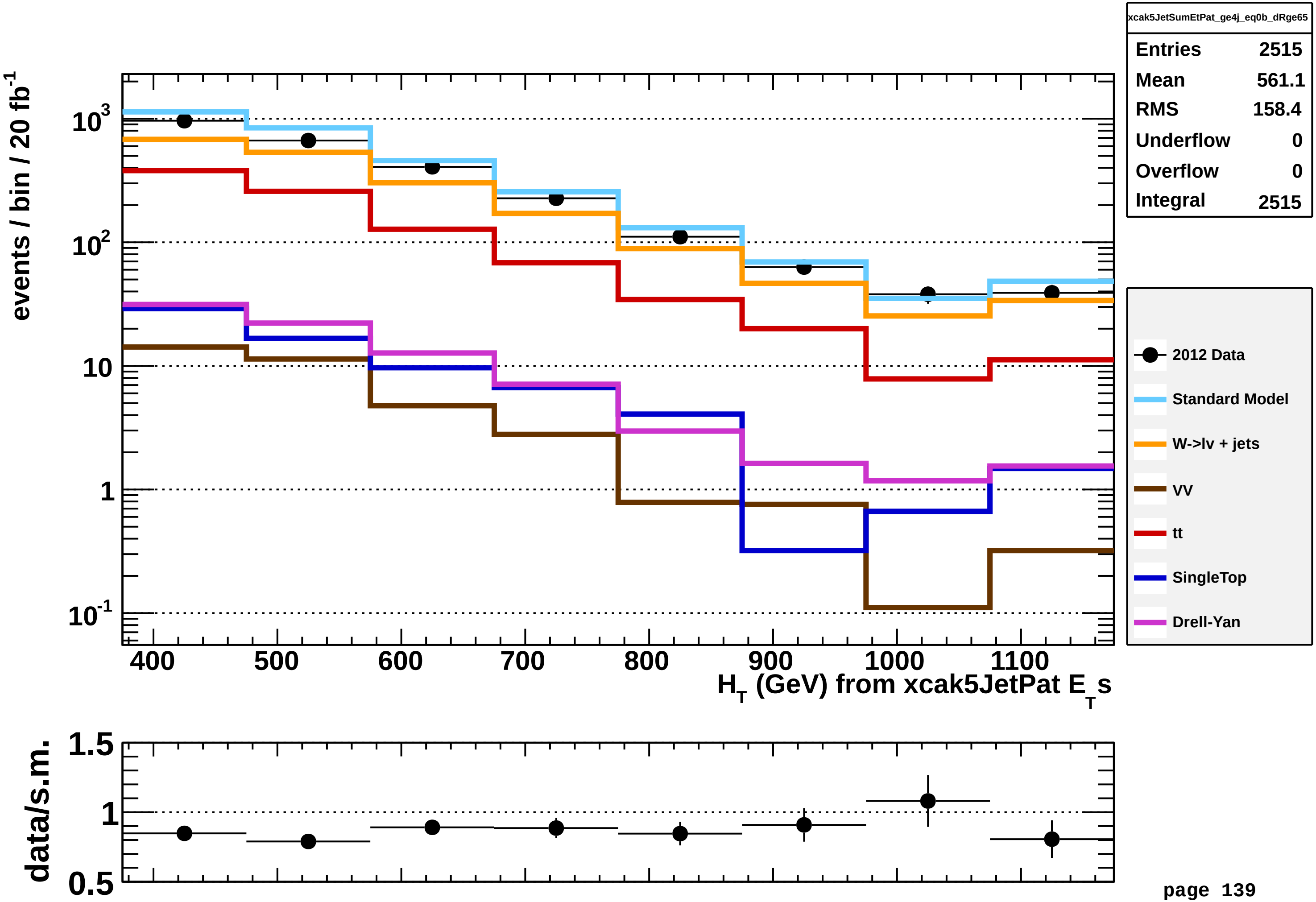
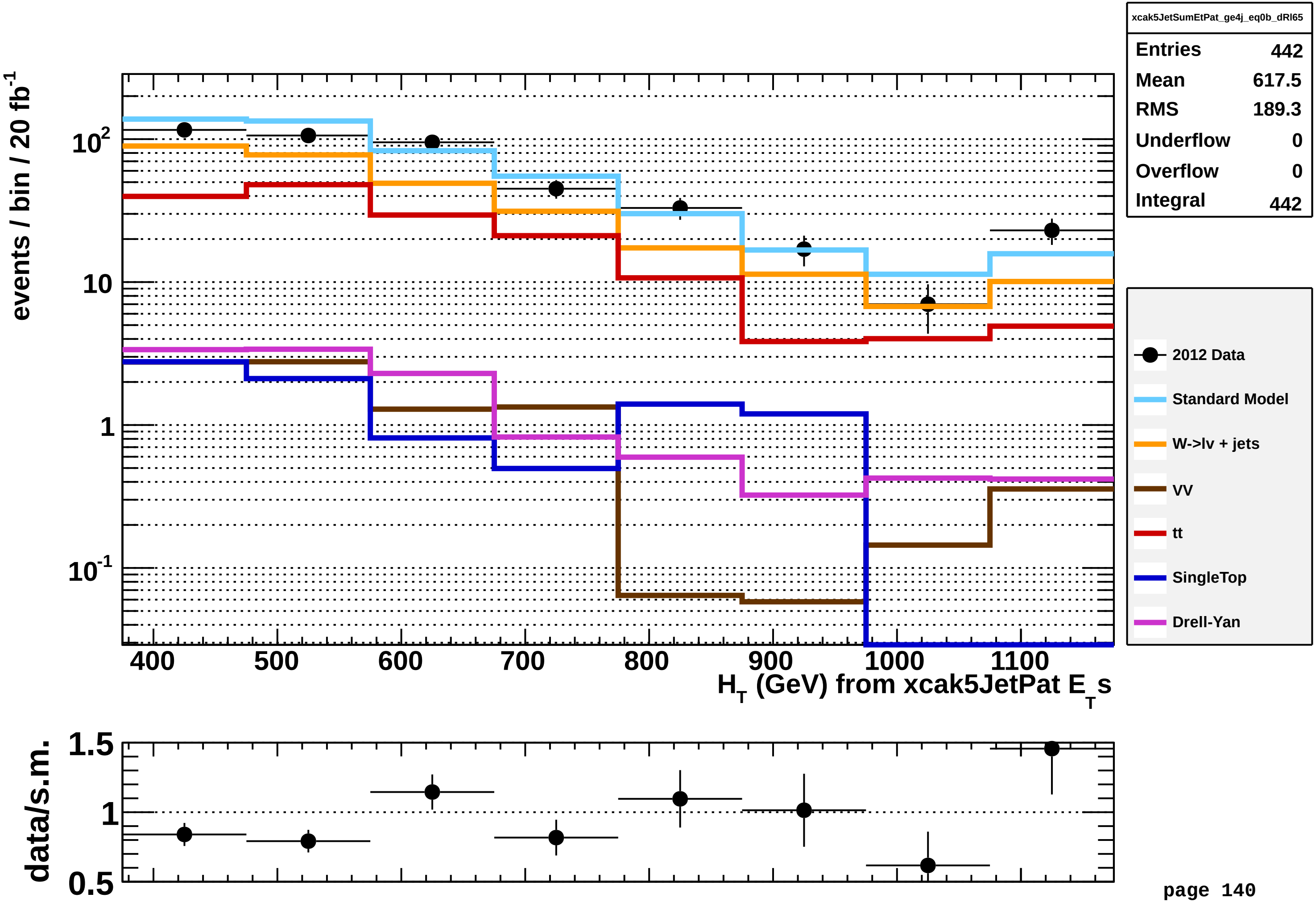
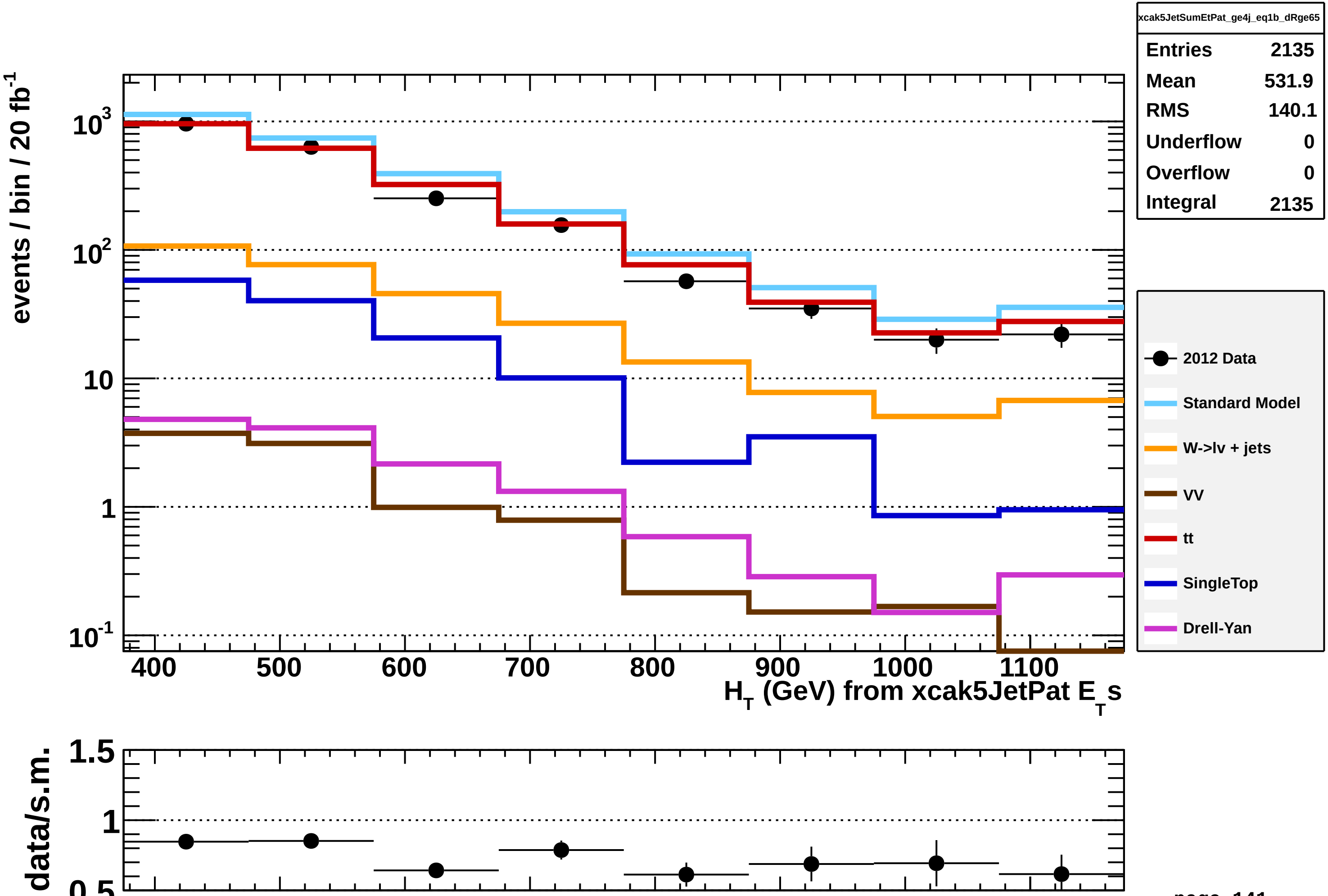
0.5


xcak5JetSumEtPat_ge4j_ge4b
Entries 8
Mean 585.4
RMS 97.55
Underflow 0
Overflow 0
Integral 8
events / bin / 20 fb^{-1}
1
10^{-1}
10^{-2}
400
500
600
700
800
900
1000
1100
H_T (GeV) from xcak5JetPat E_Ts
2012 Data
Standard Model
W->lv + jets
tt
Drell-Yan
data/s.m.
1.5
1
0.5


xcak5JetSumEtPat_ge4j_eq0b_dRge65
Entries 2515
Mean 561.1
RMS 158.4
Underflow 0
Overflow 0
Integral 2515
events / bin / 20 fb^{-1}
10^{3}
10^{2}
10
1
10^{-1}
400
500
600
700
800
900
1000
1100
H_T (GeV) from xcak5JetPat E_Ts
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
data/s.m.
1.5
1
0.5


xcak5JetSumEtPat_ge4j_eq0b_dRl65
Entries 442
Mean 617.5
RMS 189.3
Underflow 0
Overflow 0
Integral 442
events / bin / 20 fb^{-1}
10^2
10
1
10^{-1}
400
500
600
700
800
900
1000
1100
H_T (GeV) from xcak5JetPat E_Ts
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
data/s.m.
1.5
1
0.5


xcak5JetSumEtPat_ge4j_eq1b_dRge65
Entries 2135
Mean 531.9
RMS 140.1
Underflow 0
Overflow 0
Integral 2135
events / bin / 20 fb^{-1}
10^3
10^2
10
1
10^{-1}
400
500
600
700
800
900
1000
1100
H_T (GeV) from xcak5JetPat E_Ts
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
data/s.m.
1.5
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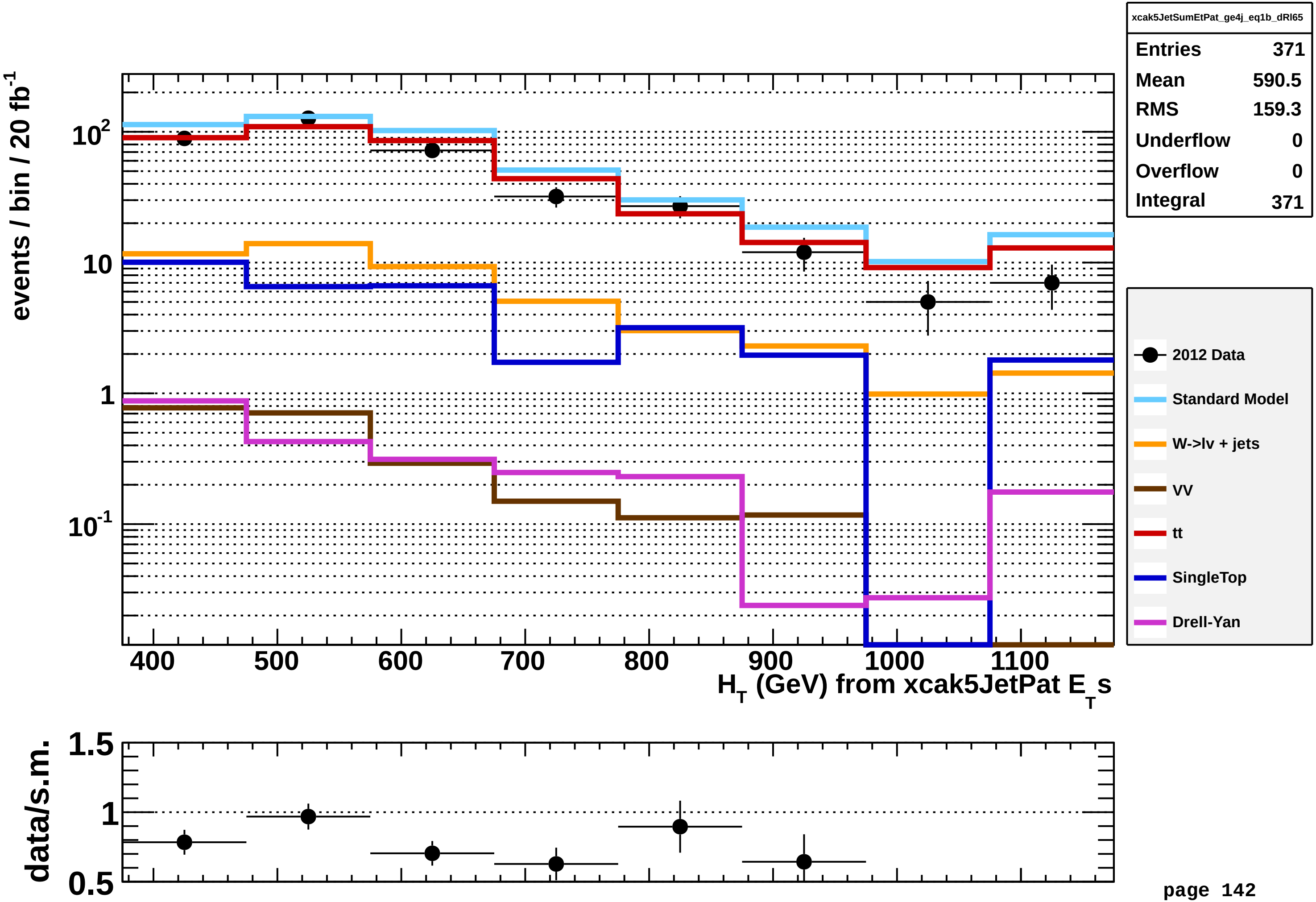
0.5


xcak5JetSumEtPat_ge4j_eq1b_dRl65
Entries 371
Mean 590.5
RMS 159.3
Underflow 0
Overflow 0
Integral 371
events / bin / 20 fb^{-1}
10^{2}
10
1
10^{-1}
400
500
600
700
800
900
1000
1100
H_T (GeV) from xcak5JetPat E_Ts
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
data/s.m.
1.5
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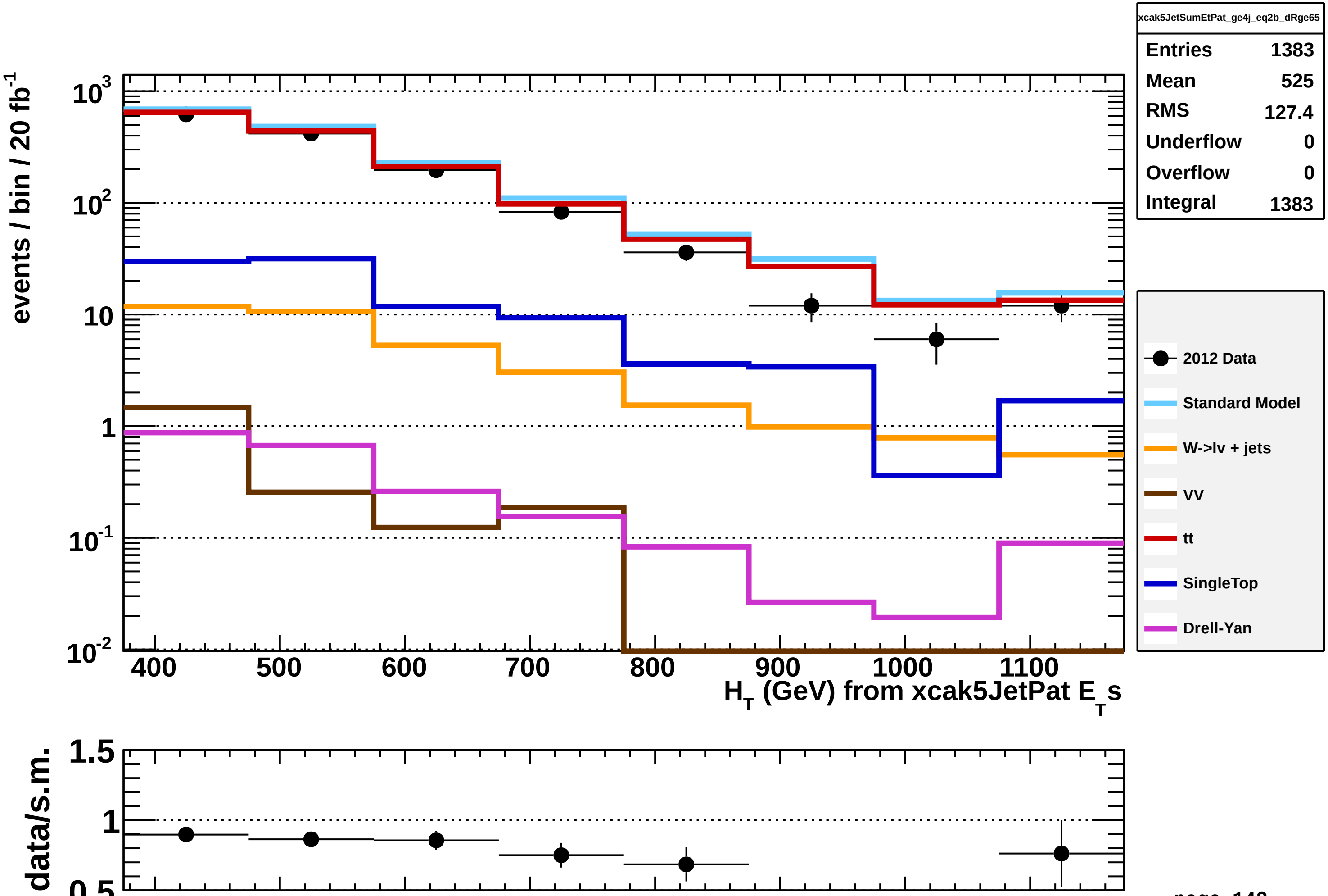
0.5


xcak5JetSumEtPat_ge4j_eq2b_dRge65
Entries 1383
Mean 525
RMS 127.4
Underflow 0
Overflow 0
Integral 1383
events / bin / 20 fb^{-1}
10^{3}
10^{2}
10
1
10^{-1}
10^{-2}
400
500
600
700
800
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1000
1100
H_T (GeV) from xcak5JetPat E_Ts
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
data/s.m.
1.5
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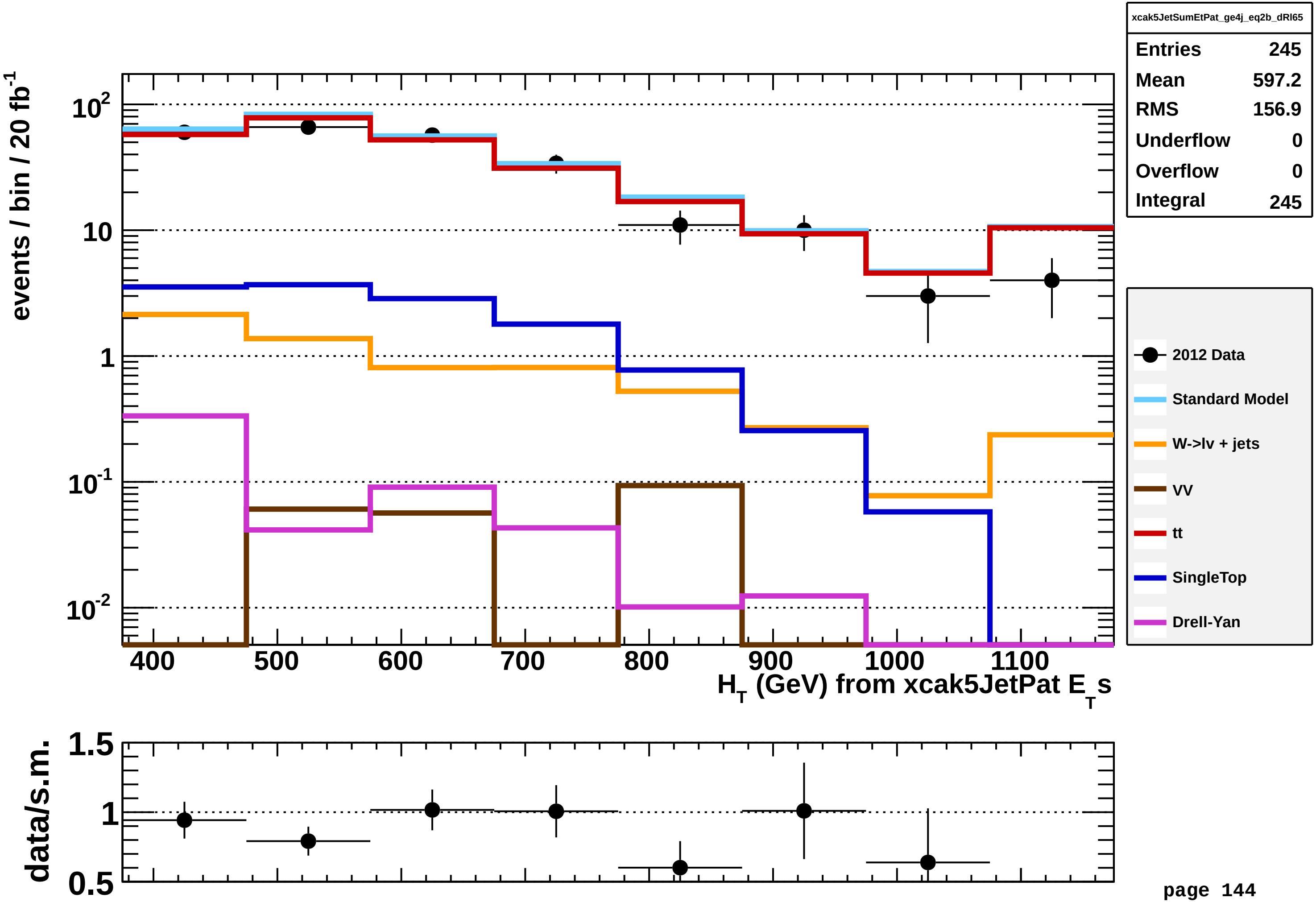
0.5


xcak5JetSumEtPat_ge4j_eq2b_dRl65
Entries 245
Mean 597.2
RMS 156.9
Underflow 0
Overflow 0
Integral 245
events / bin / 20 fb^{-1}
10^2
10
1
10^{-1}
10^{-2}
400
500
600
700
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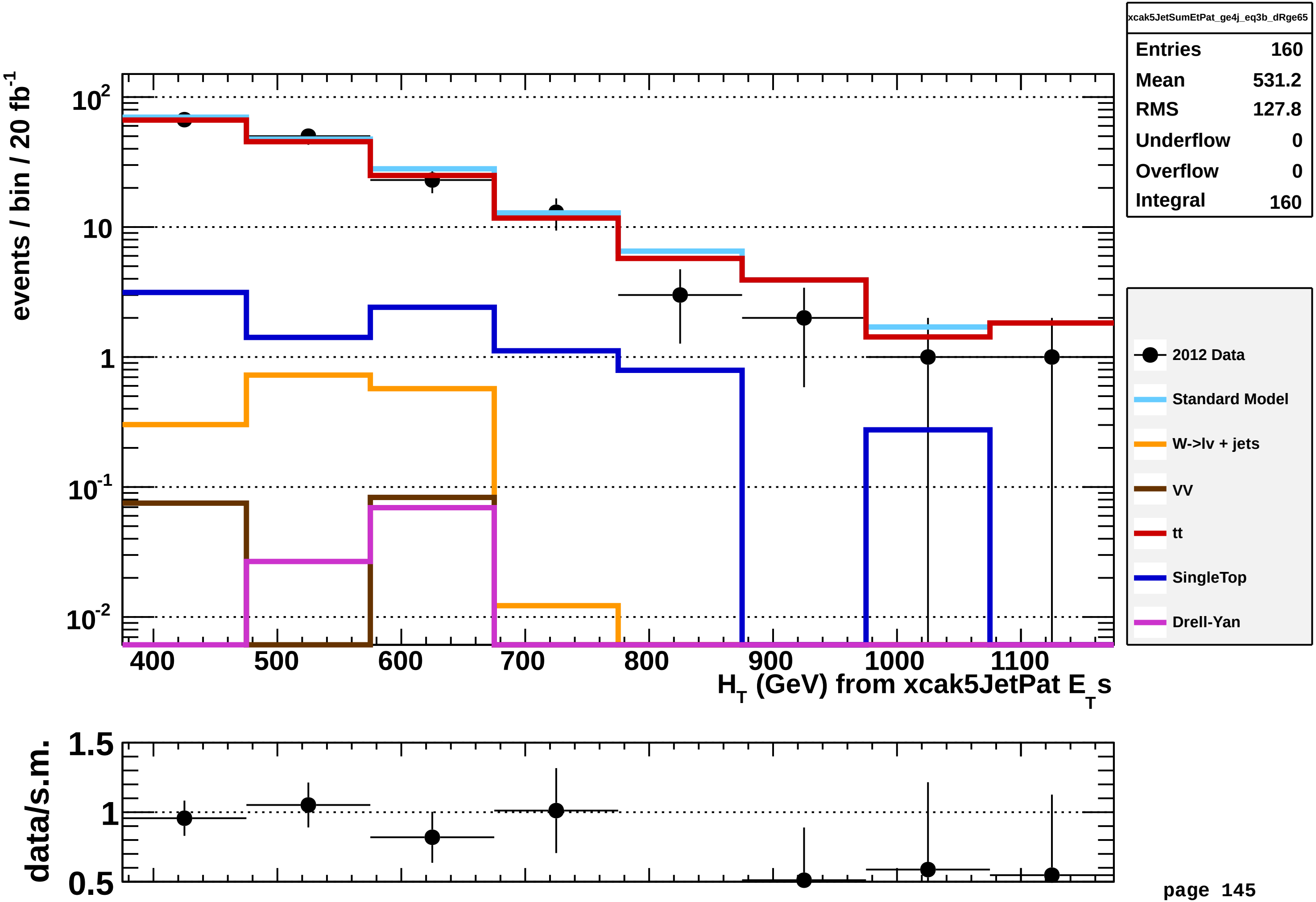
900
1000
1100
H$_T$ (GeV) from xcak5JetPat E$_T$s
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
data/s.m.
1.5
1
0.5


xcak5JetSumEtPat_ge4j_eq3b_dRge65
Entries 160
Mean 531.2
RMS 127.8
Underflow 0
Overflow 0
Integral 160
events / bin / 20 fb^{-1}
10^2
10
1
10^{-1}
10^{-2}
400
500
600
700
800
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1000
1100
H_T (GeV) from xcak5JetPat E_Ts
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
data/s.m.
1.5
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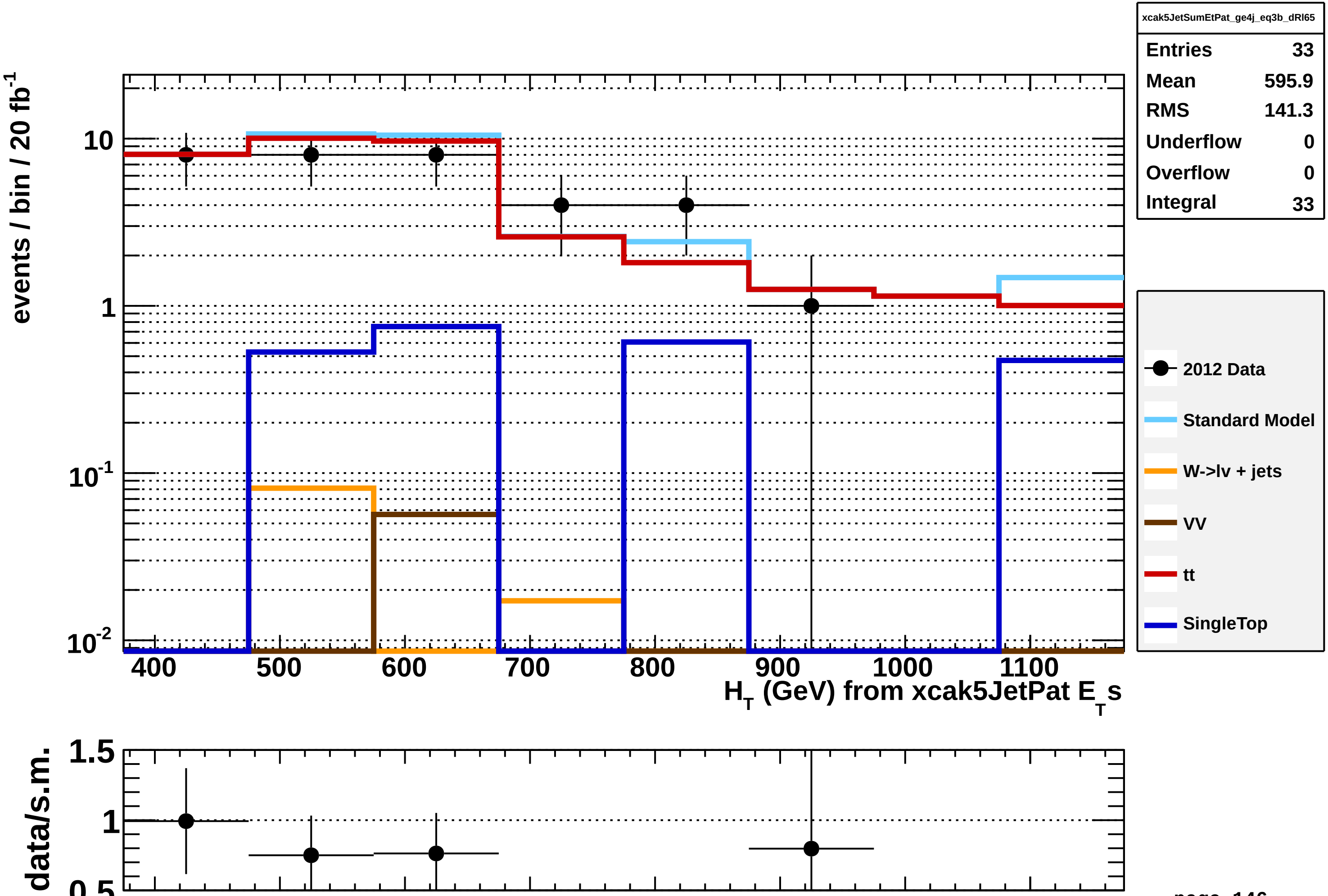
0.5


xcak5JetSumEtPat_ge4j_eq3b_dRl65
Entries 33
Mean 595.9
RMS 141.3
Underflow 0
Overflow 0
Integral 33
events / bin / 20 fb^{-1}
10
1
10^{-1}
10^{-2}
400
500
600
700
800
900
1000
1100
H_T (GeV) from xcak5JetPat E_Ts
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
data/s.m.
1.5
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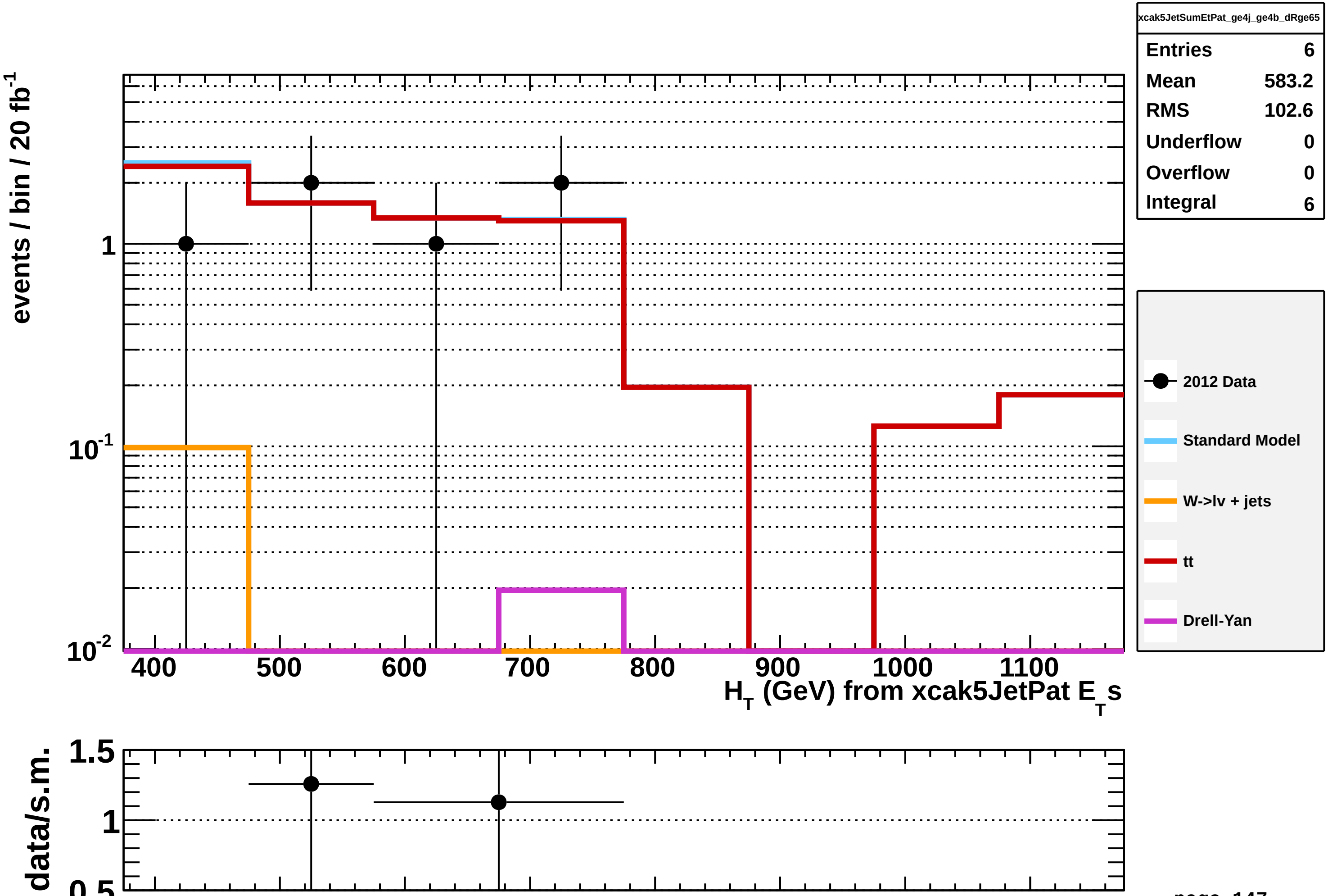
0.5


xcak5JetSumEtPat_ge4j_ge4b_dRge65
Entries 6
Mean 583.2
RMS 102.6
Underflow 0
Overflow 0
Integral 6
events / bin / 20 fb^{-1}
1
10^{-1}
10^{-2}
400
500
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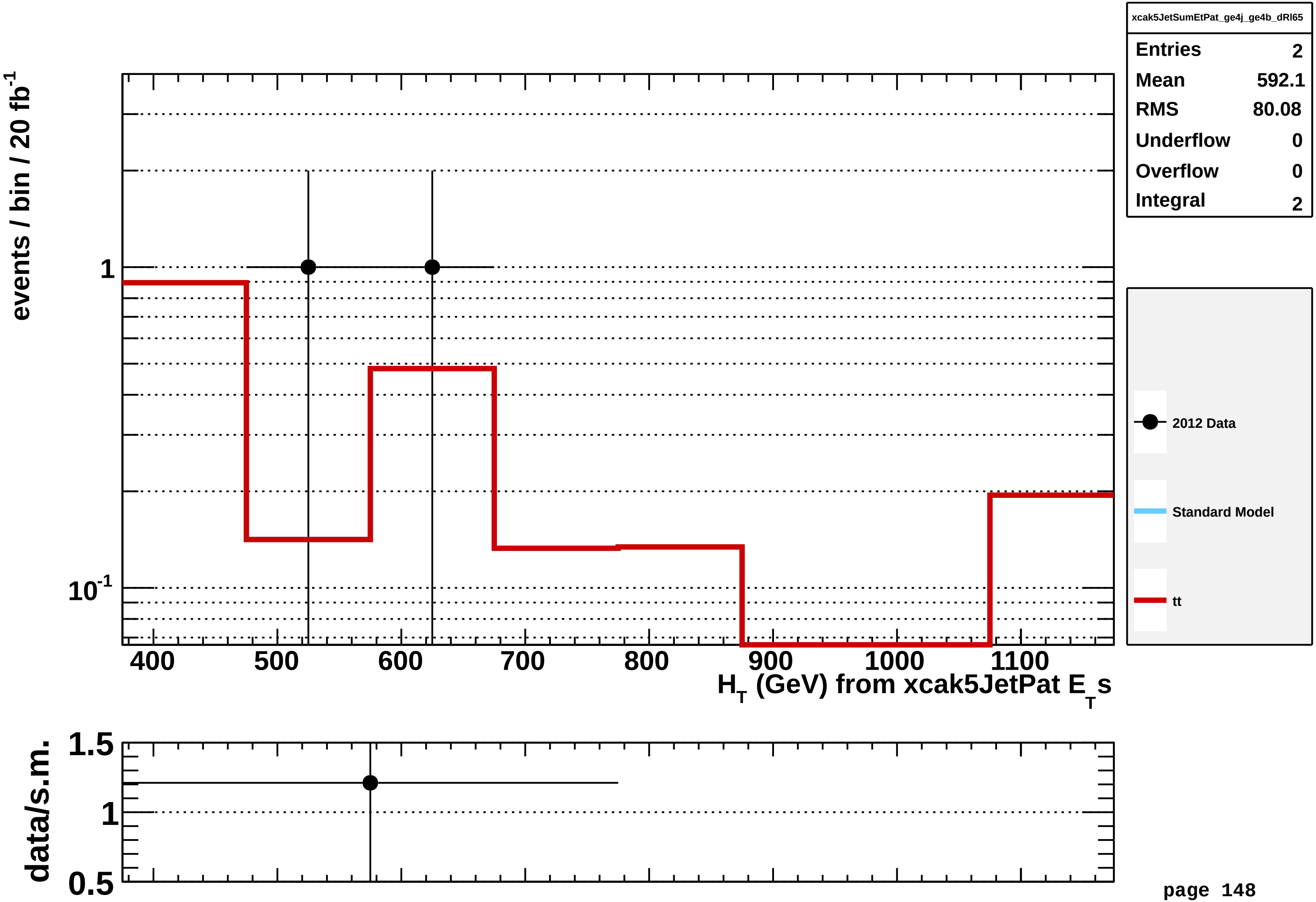
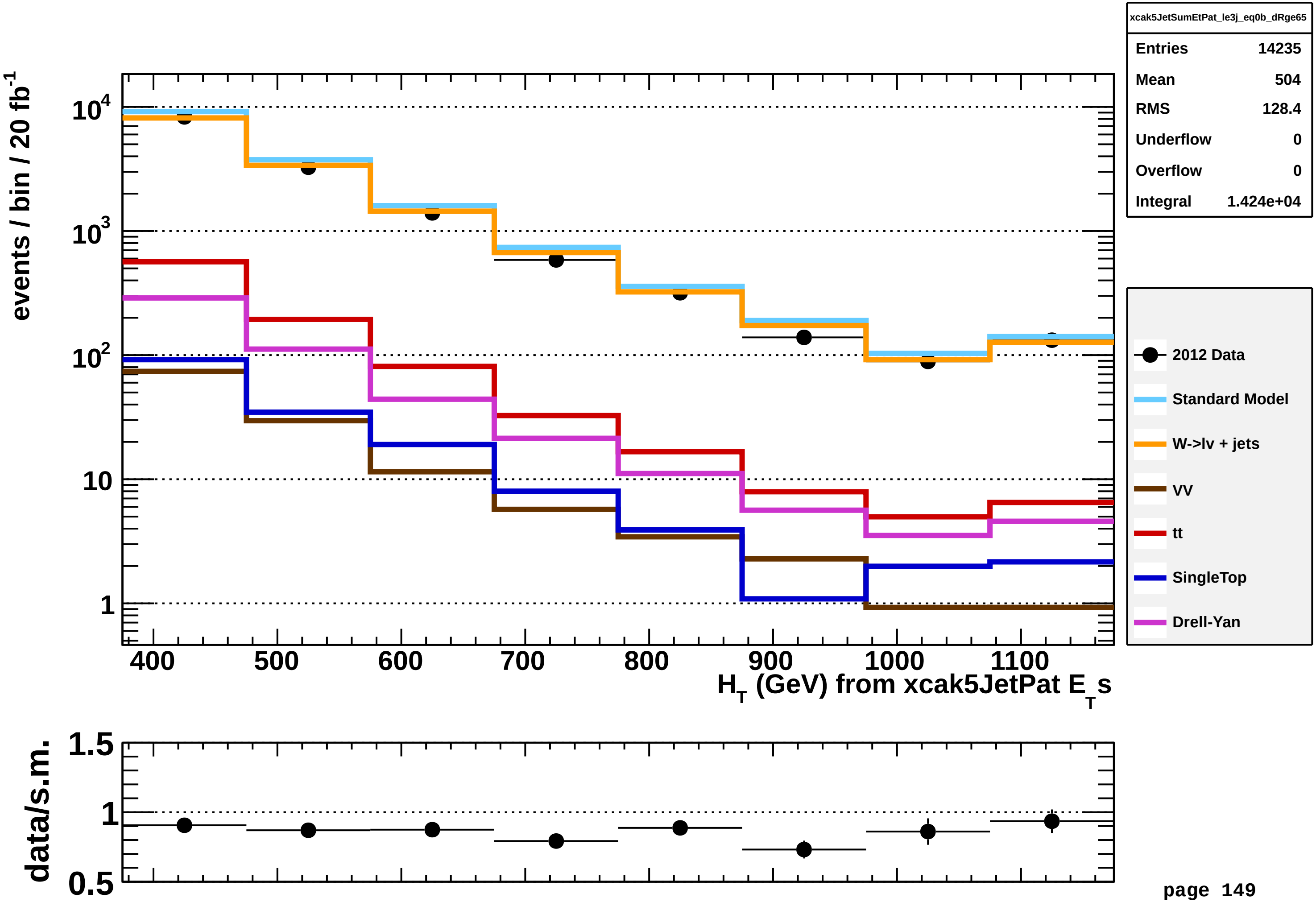
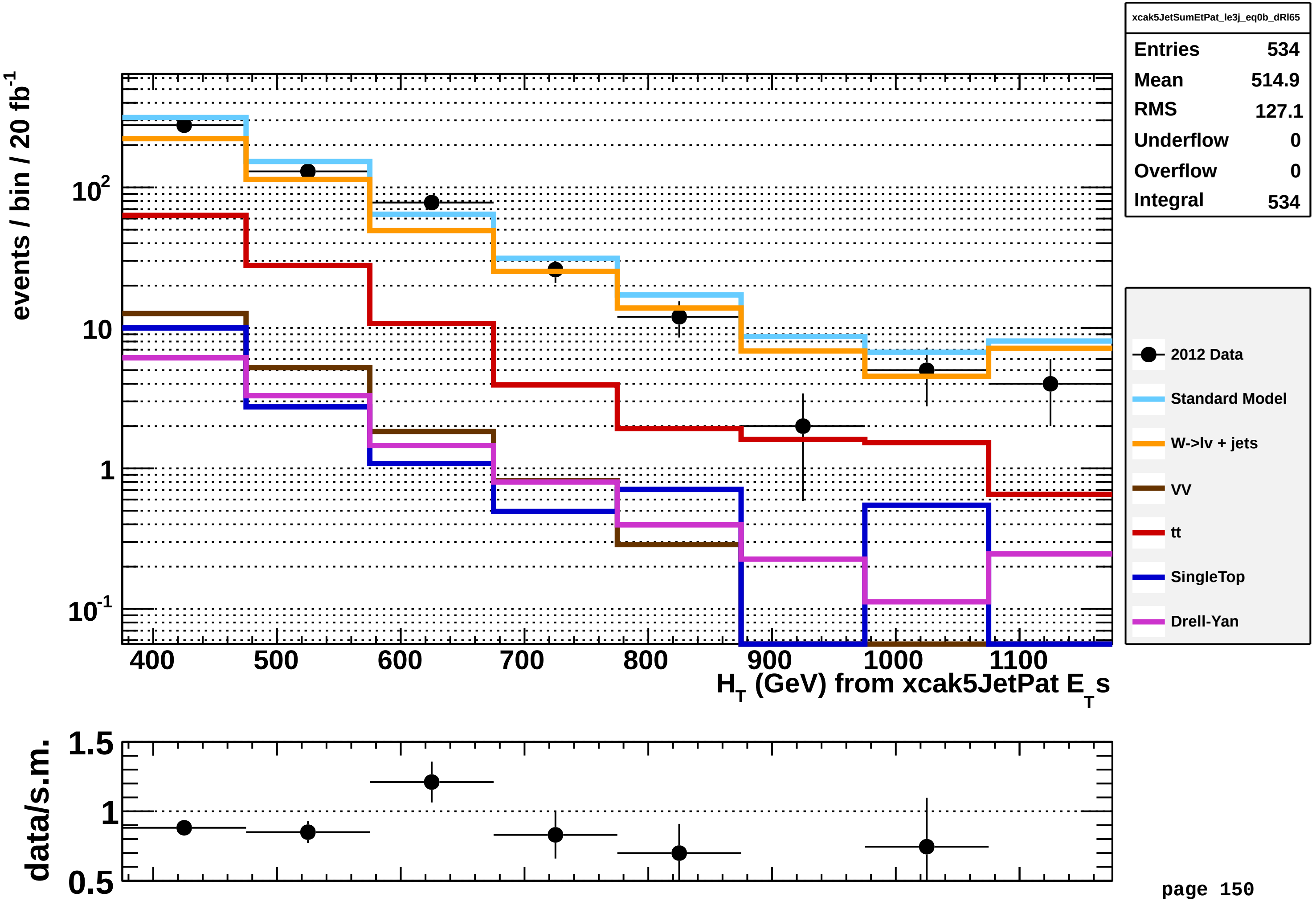
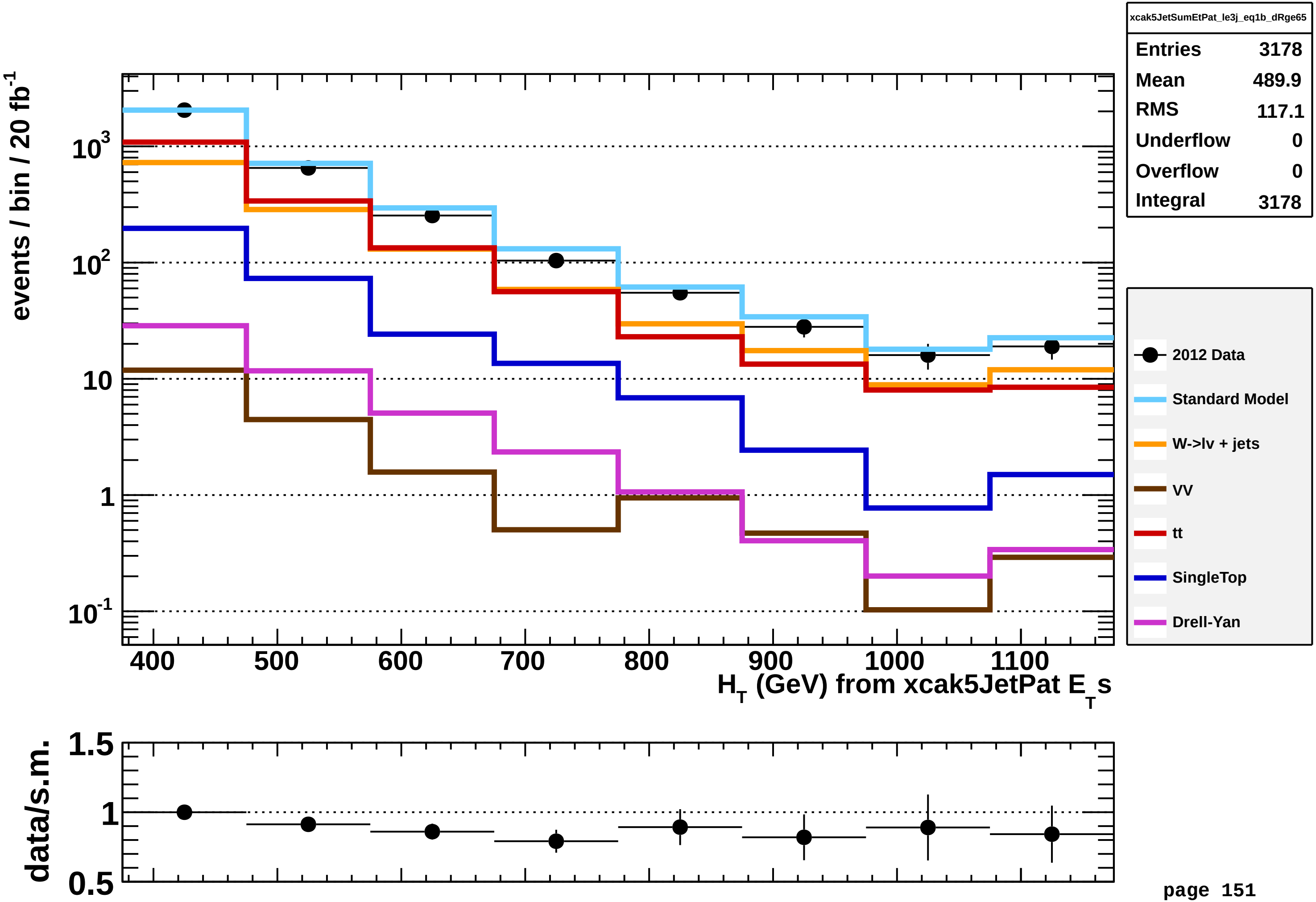
700
800
900
1000
1100
H_T (GeV) from xcak5JetPat E_Ts
2012 Data
Standard Model
W->lv + jets
tt
Drell-Yan
data/s.m.
1.5
1
0.5

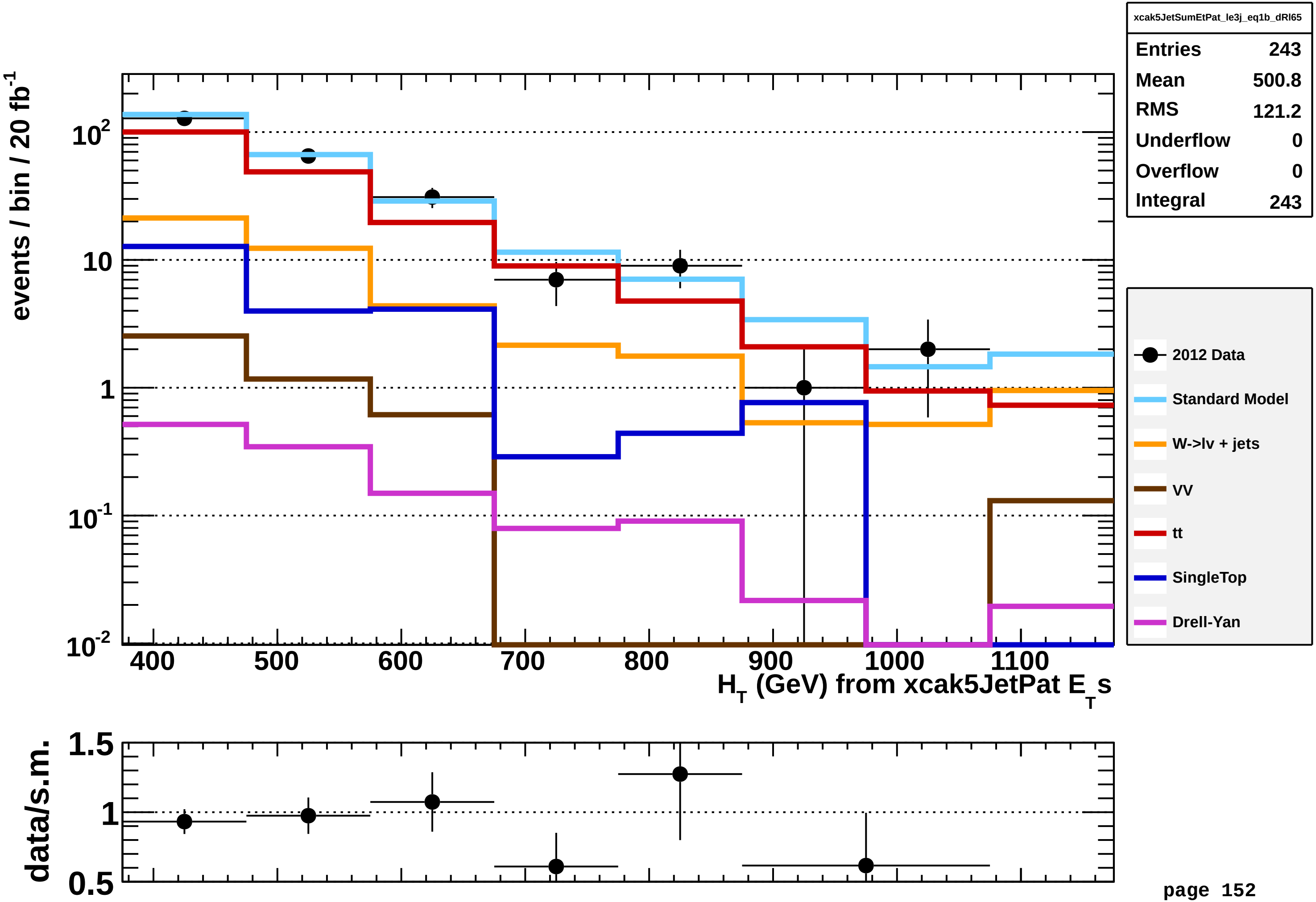

xcak5JetSumEtPat_ge4j_ge4b_dRl65
Entries 2
Mean 592.1
RMS 80.08
Underflow 0
Overflow 0
Integral 2
events / bin / 20 fb^{-1}
1
10^{-1}
400
500
600
700
800
900
1000
1100
H_T (GeV) from xcak5JetPat E_Ts
2012 Data
Standard Model
tt
data/s.m.
1.5
1
0.5

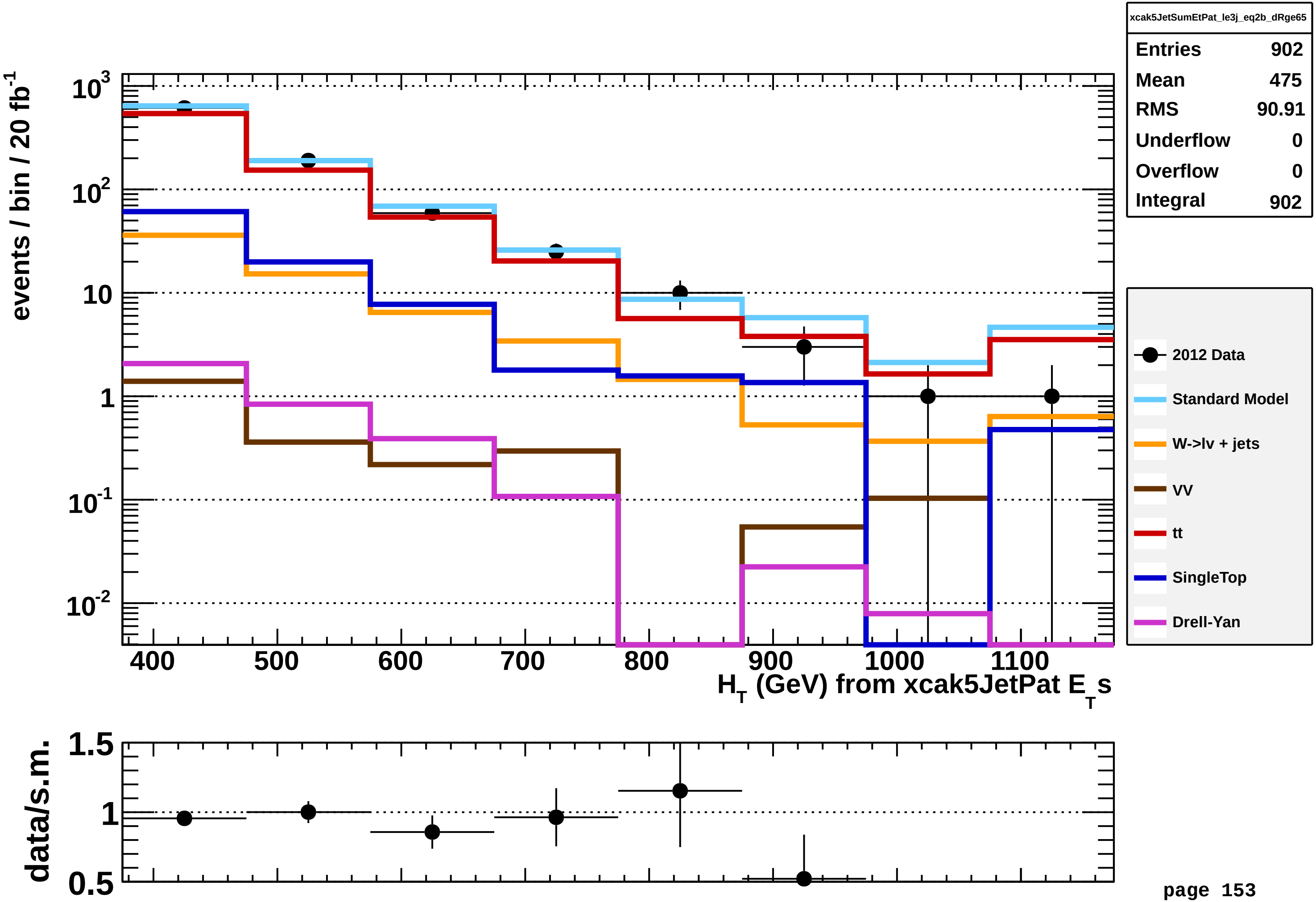


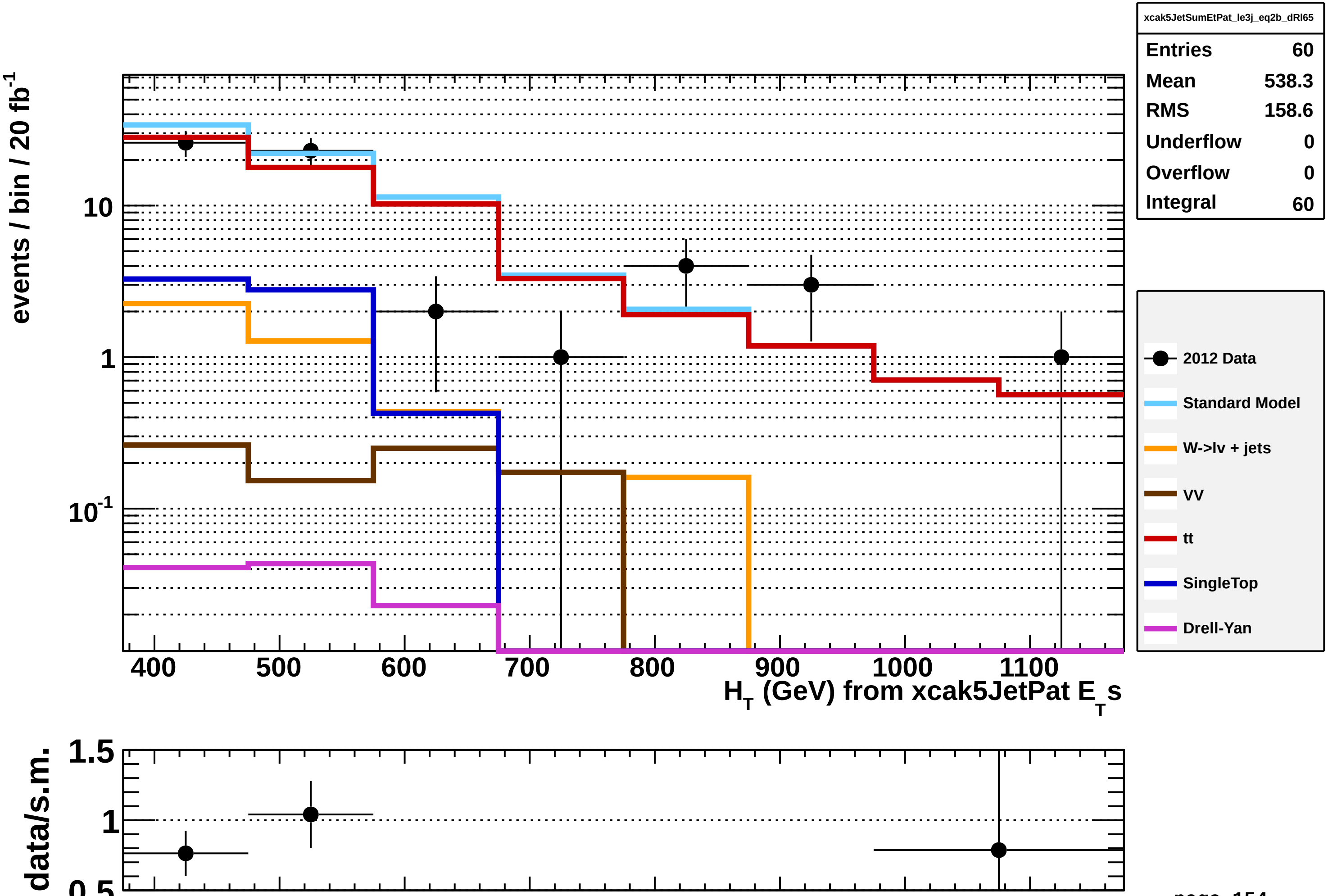
xcak5JetSumEtPat_le3j_eq0b_dRge65
Entries 14235
Mean 504
RMS 128.4
Underflow 0
Overflow 0
Integral 1.424e+04
events / bin / 20 fb^{-1}
10^4
10^3
10^2
10
1
400
500
600
700
800
900
1000
1100
H_T (GeV) from xcak5JetPat E_Ts
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
data/s.m.
1.5
1
0.5

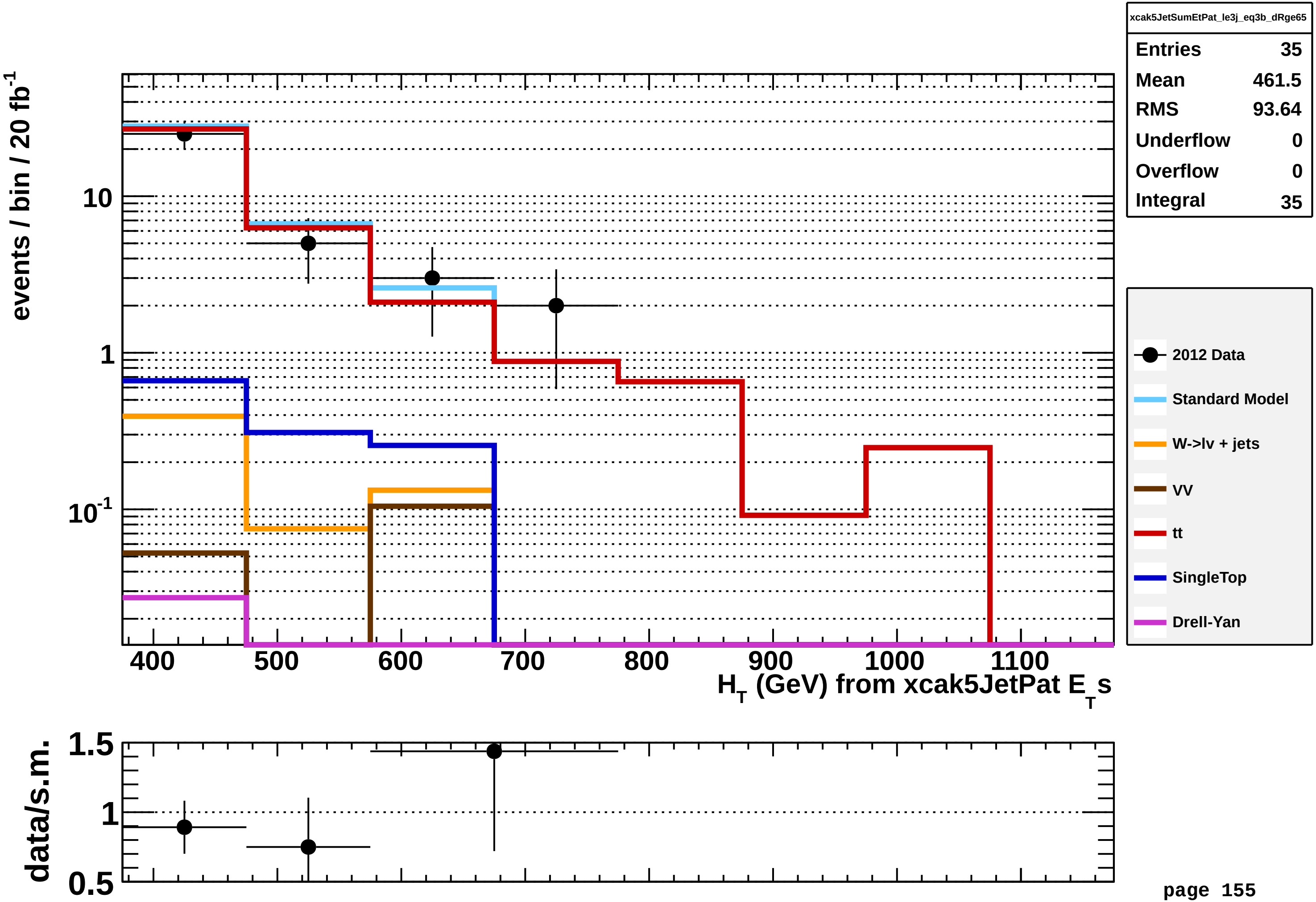

xcak5JetSumEtPat_le3j_eq0b_dRl65
Entries 534
Mean 514.9
RMS 127.1
Underflow 0
Overflow 0
Integral 534
events / bin / 20 fb^{-1}
10^2
10
1
10^{-1}
400
500
600
700
800
900
1000
1100
H_T (GeV) from xcak5JetPat E_Ts
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
data/s.m.
1.5
1
0.5

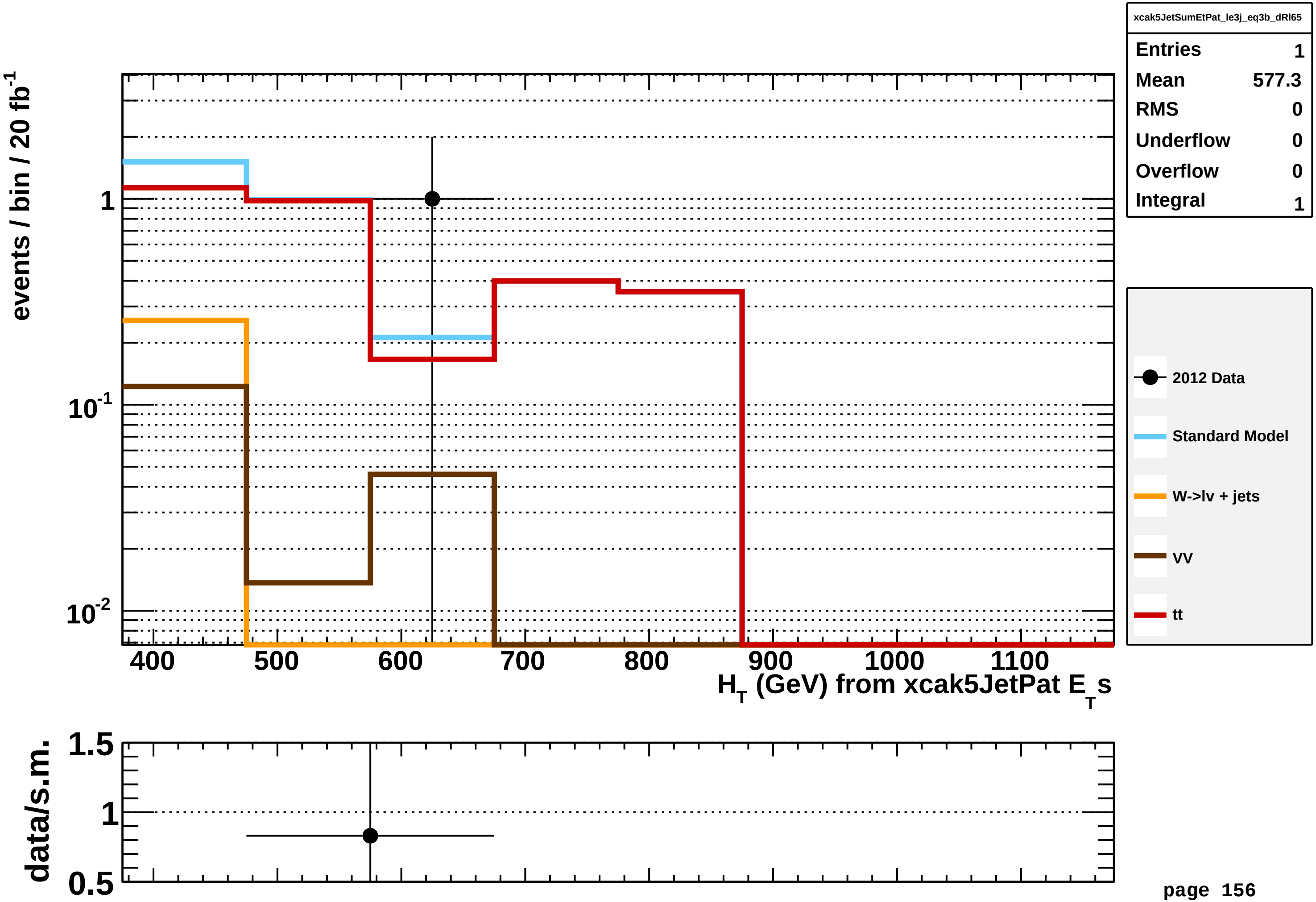

xcak5JetSumEtPat_le3j_eq1b_dRge65
Entries 3178
Mean 489.9
RMS 117.1
Underflow 0
Overflow 0
Integral 3178
events / bin / 20 fb^{-1}
10^3
10^2
10
1
10^{-1}
400
500
600
700
800
900
1000
1100
H_T (GeV) from xcak5JetPat E_Ts
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
data/s.m.
1.5
1
0.5


xcak5JetSumEtPat_le3j_eq1b_dRl65
Entries 243
Mean 500.8
RMS 121.2
Underflow 0
Overflow 0
Integral 243
events / bin / 20 fb^{-1}
10^2
10
1
10^{-1}
10^{-2}
400
500
600
700
800
900
1000
1100
H_T (GeV) from xcak5JetPat E_Ts
● 2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
data/s.m.
1.5
1
0.5

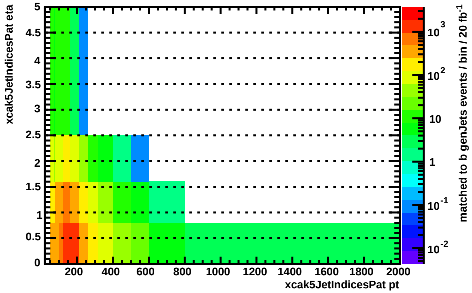

xcak5JetSumEtPat_le3j_eq2b_dRge65
Entries 902
Mean 475
RMS 90.91
Underflow 0
Overflow 0
Integral 902
events / bin / 20 fb^{-1}
10^3
10^2
10
1
10^{-1}
10^{-2}
400
500
600
700
800
900
1000
1100
H_T (GeV) from xcak5JetPat E_Ts
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
data/s.m.
1.5
1
0.5


xcak5JetSumEtPat_le3j_eq2b_dRl65
Entries 60
Mean 538.3
RMS 158.6
Underflow 0
Overflow 0
Integral 60
events / bin / 20 fb^{-1}
10
1
10^{-1}
400
500
600
700
800
900
1000
1100
H_T (GeV) from xcak5JetPat E_Ts
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
data/s.m.
1.5
1
0.5

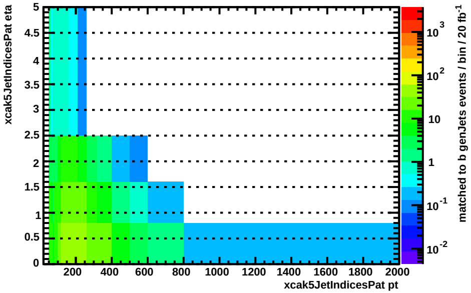

xcak5JetSumEtPat_le3j_eq3b_dRge65
Entries 35
Mean 461.5
RMS 93.64
Underflow 0
Overflow 0
Integral 35
events / bin / 20 fb^{-1}
10
1
10^{-1}
400
500
600
700
800
900
1000
1100
H_T (GeV) from xcak5JetPat E_Ts
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
data/s.m.
1.5
1
0.5


xcak5JetSumEtPat_le3j_eq3b_dRl65
Entries 1
Mean 577.3
RMS 0
Underflow 0
Overflow 0
Integral 1
events / bin / 20 fb^{-1}
1
10^{-1}
10^{-2}
400
500
600
700
800
900
1000
1100
H_T (GeV) from xcak5JetPat E_Ts
2012 Data
Standard Model
W->lv + jets
VV
tt
data/s.m.
1.5
1
0.5

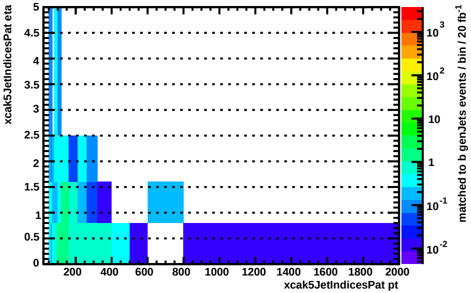
Standard Model



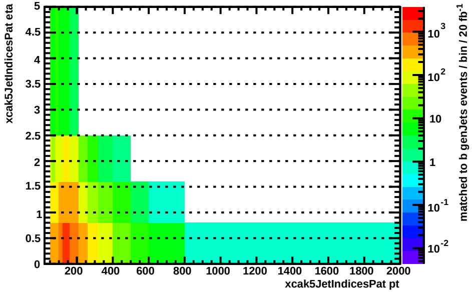
W->lv + jets



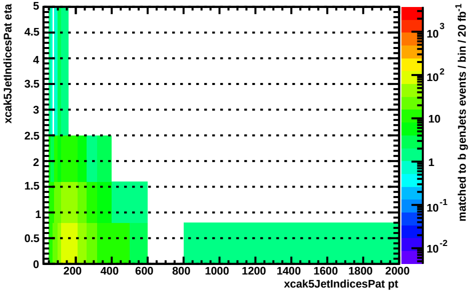
VV



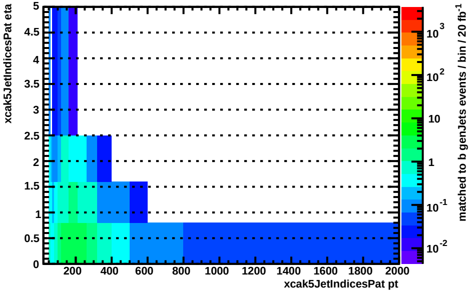
tt

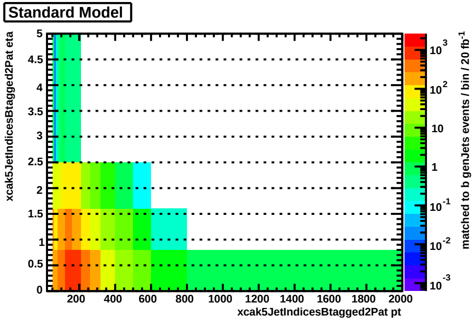


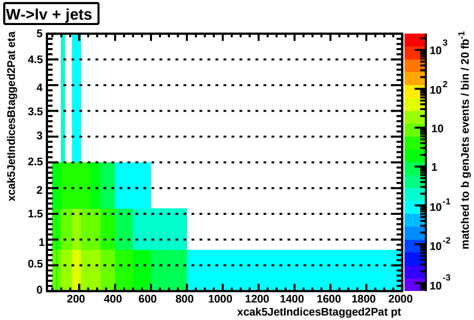
SingleTop

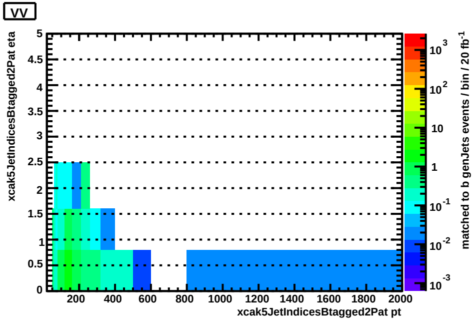


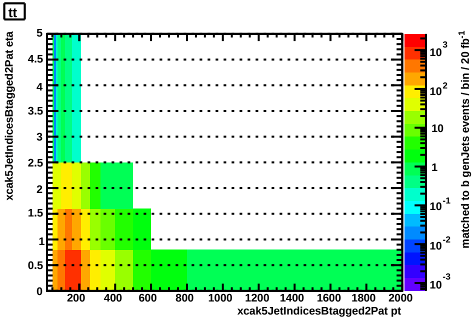
Drell-Yan

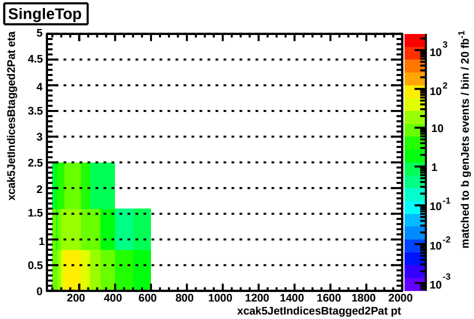


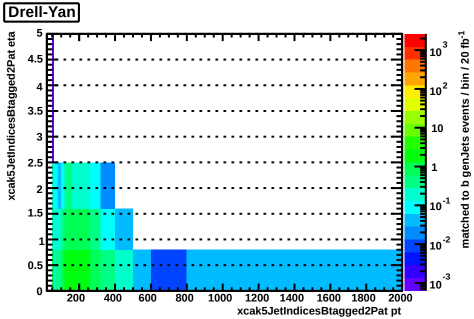

Standard Model
xcak5JetIndicesBtagged2Pat eta
xcak5JetIndicesBtagged2Pat pt
matched to b genJets events / bin / 20 fb^{-1}
0
0.5
1
1.5
2
2.5
3
3.5
4
4.5
5
200
400
600
800
1000
1200
1400
1600
1800
2000
10^{3}
10^{2}
10
1
10^{-1}
10^{-2}
10^{-3}


W->lv + jets
xcak5JetIndicesBtagged2Pat eta
xcak5JetIndicesBtagged2Pat pt
matched to b genJets events / bin / 20 fb^{-1}
0
0.5
1
1.5
2
2.5
3
3.5
4
4.5
5
200
400
600
800
1000
1200
1400
1600
1800
2000
10^{3}
10^{2}
10
1
10^{-1}
10^{-2}
10^{-3}

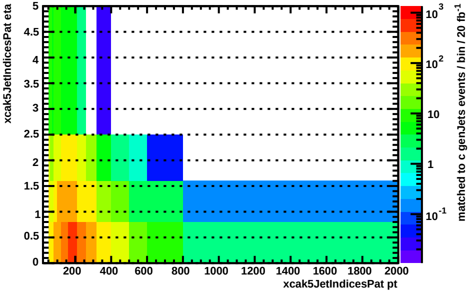

VV
xcak5JetIndicesBtagged2Pat eta
xcak5JetIndicesBtagged2Pat pt
matched to b genJets events / bin / 20 fb^{-1}
0
0.5
1
1.5
2
2.5
3
3.5
4
4.5
5
200
400
600
800
1000
1200
1400
1600
1800
2000
10^{3}
10^{2}
10
1
10^{-1}
10^{-2}
10^{-3}


tt
xcak5JetIndicesBtagged2Pat eta
xcak5JetIndicesBtagged2Pat pt
matched to b genJets events / bin / 20 fb^{-1}
0
0.5
1
1.5
2
2.5
3
3.5
4
4.5
5
200
400
600
800
1000
1200
1400
1600
1800
2000
10^{3}
10^{2}
10
1
10^{-1}
10^{-2}
10^{-3}

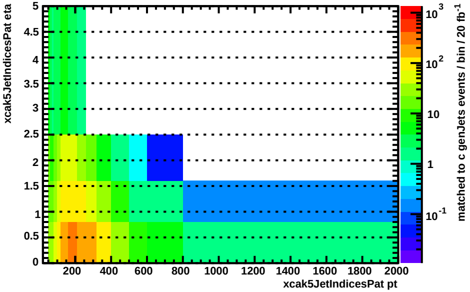

SingleTop
xcak5JetIndicesBtagged2Pat eta
xcak5JetIndicesBtagged2Pat pt
matched to b genJets events / bin / 20 fb^{-1}
0
0.5
1
1.5
2
2.5
3
3.5
4
4.5
5
200
400
600
800
1000
1200
1400
1600
1800
2000
10^{3}
10^{2}
10
1
10^{-1}
10^{-2}
10^{-3}


Drell-Yan
xcak5JetIndicesBtagged2Pat eta
xcak5JetIndicesBtagged2Pat pt
matched to b genJets events / bin / 20 fb^{-1}
0
0.5
1
1.5
2
2.5
3
3.5
4
4.5
5
200
400
600
800
1000
1200
1400
1600
1800
2000
10^{3}
10^{2}
10
1
10^{-1}
10^{-2}
10^{-3}

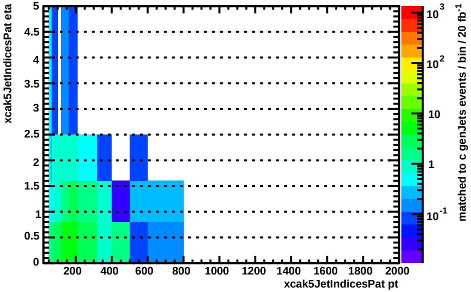
Standard Model



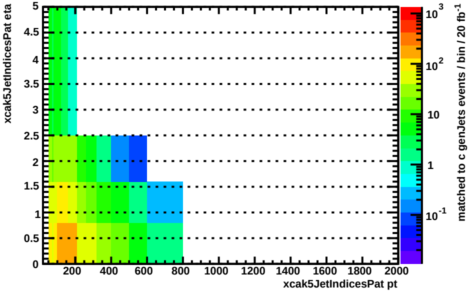
W->lv + jets



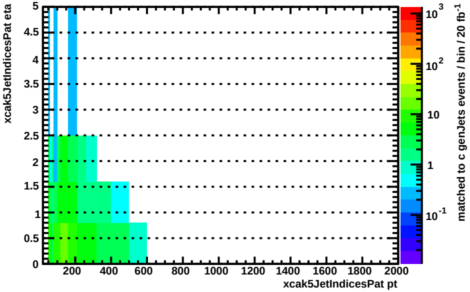
VV



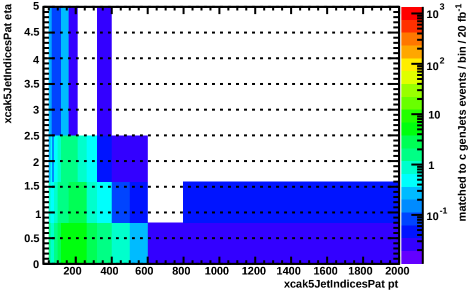
tt

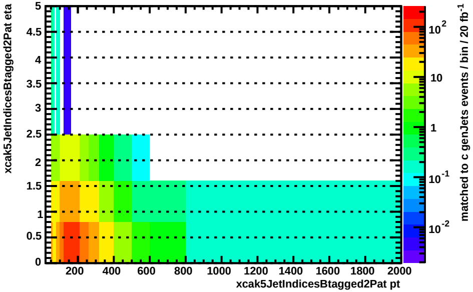


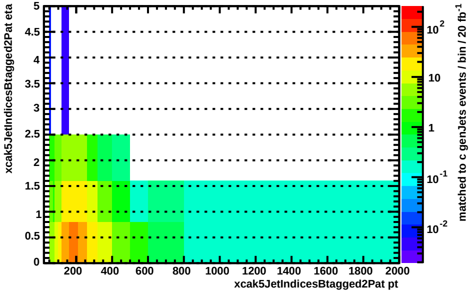
SingleTop

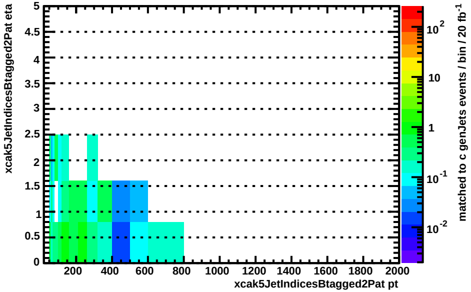


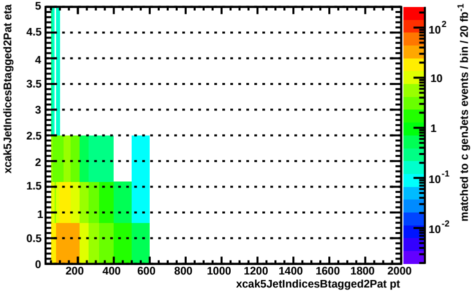
Drell-Yan

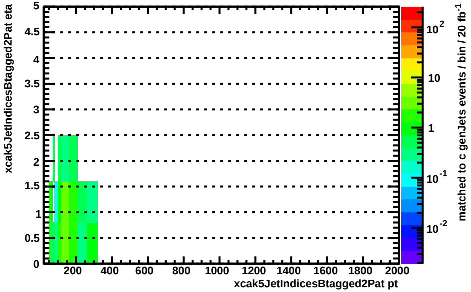


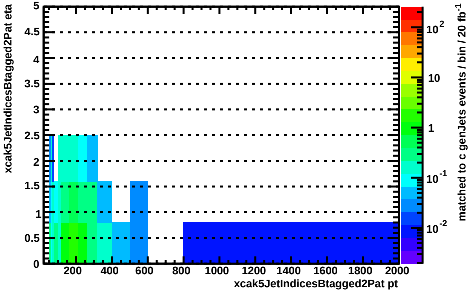

Standard Model

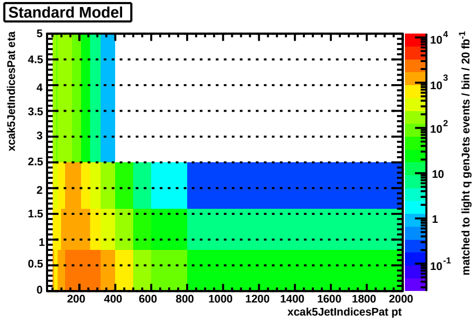

W->lv + jets

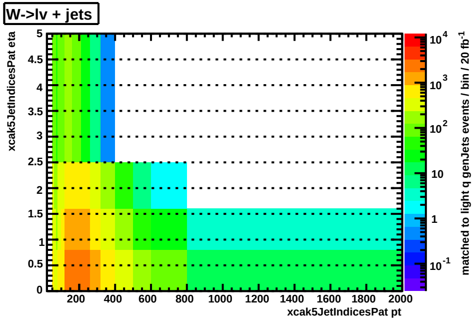

VV

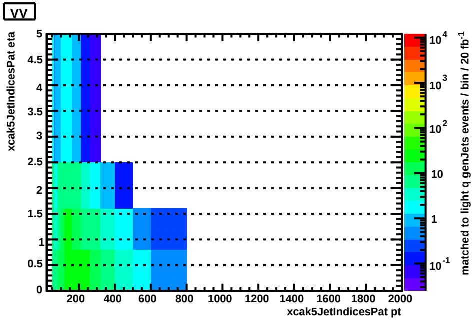

tt

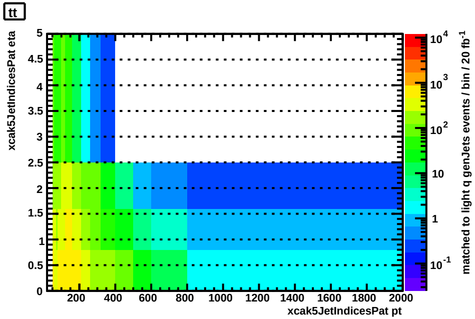

SingleTop

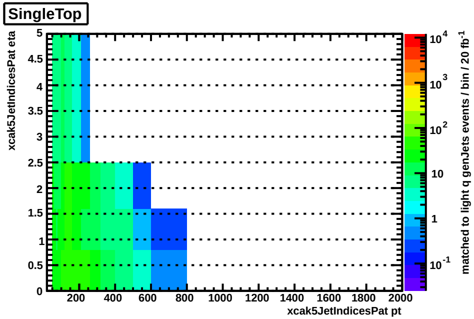

Drell-Yan

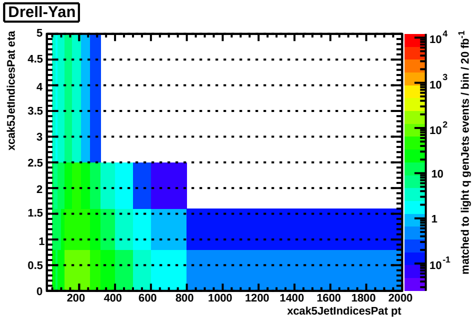

Standard Model
xcak5JetIndicesPat eta
xcak5JetIndicesPat pt
matched to light q genJets events / bin / 20 fb^{-1}
0 0.5 1 1.5 2 2.5 3 3.5 4 4.5 5
200 400 600 800 1000 1200 1400 1600 1800 2000
10^{-1} 1 10 10^2 10^3 10^4


W->lv + jets
xcak5JetIndicesPat eta
xcak5JetIndicesPat pt
matched to light q genJets events / bin / 20 fb^{-1}
0 0.5 1 1.5 2 2.5 3 3.5 4 4.5 5
200 400 600 800 1000 1200 1400 1600 1800 2000
10^{-1} 1 10 10^2 10^3 10^4

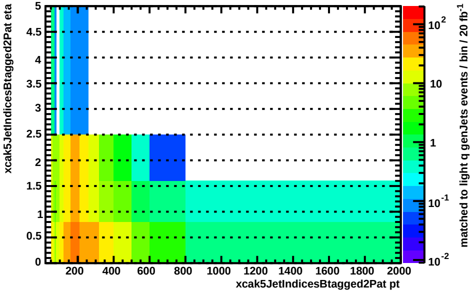

VV
xcak5JetIndicesPat eta
xcak5JetIndicesPat pt
matched to light q genJets events / bin / 20 fb^{-1}
0 0.5 1 1.5 2 2.5 3 3.5 4 4.5 5
200 400 600 800 1000 1200 1400 1600 1800 2000
10^{-1} 1 10 10^2 10^3 10^4


tt
xcak5JetIndicesPat eta
xcak5JetIndicesPat pt
matched to light q genJets events / bin / 20 fb^{-1}
0 0.5 1 1.5 2 2.5 3 3.5 4 4.5 5
200 400 600 800 1000 1200 1400 1600 1800 2000
10^{-1} 1 10 10^2 10^3 10^4

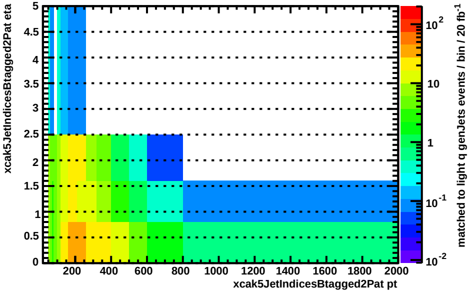

SingleTop
xcak5JetIndicesPat eta
xcak5JetIndicesPat pt
matched to light q genJets events / bin / 20 fb^{-1}
0 0.5 1 1.5 2 2.5 3 3.5 4 4.5 5
200 400 600 800 1000 1200 1400 1600 1800 2000
10^{-1} 1 10 10^2 10^3 10^4


Drell-Yan
xcak5JetIndicesPat eta
xcak5JetIndicesPat pt
matched to light q genJets events / bin / 20 fb^{-1}
0 0.5 1 1.5 2 2.5 3 3.5 4 4.5 5
200 400 600 800 1000 1200 1400 1600 1800 2000
10^{-1} 1 10 10^2 10^3 10^4

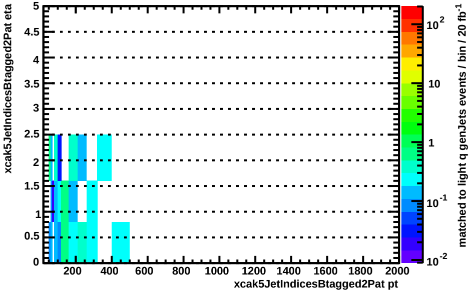
Standard Model



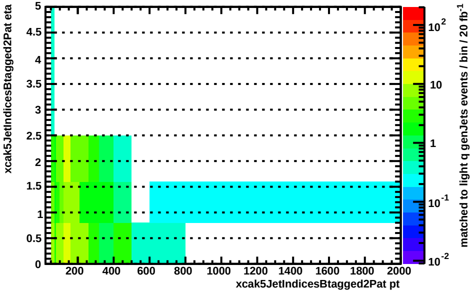
W->lv + jets



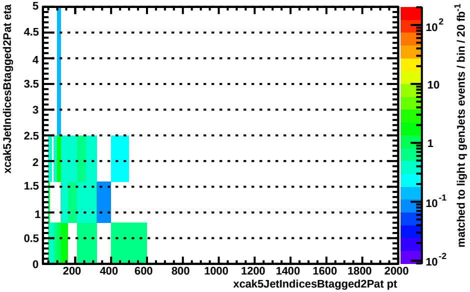
VV



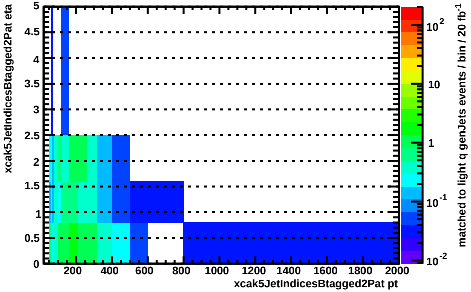
tt

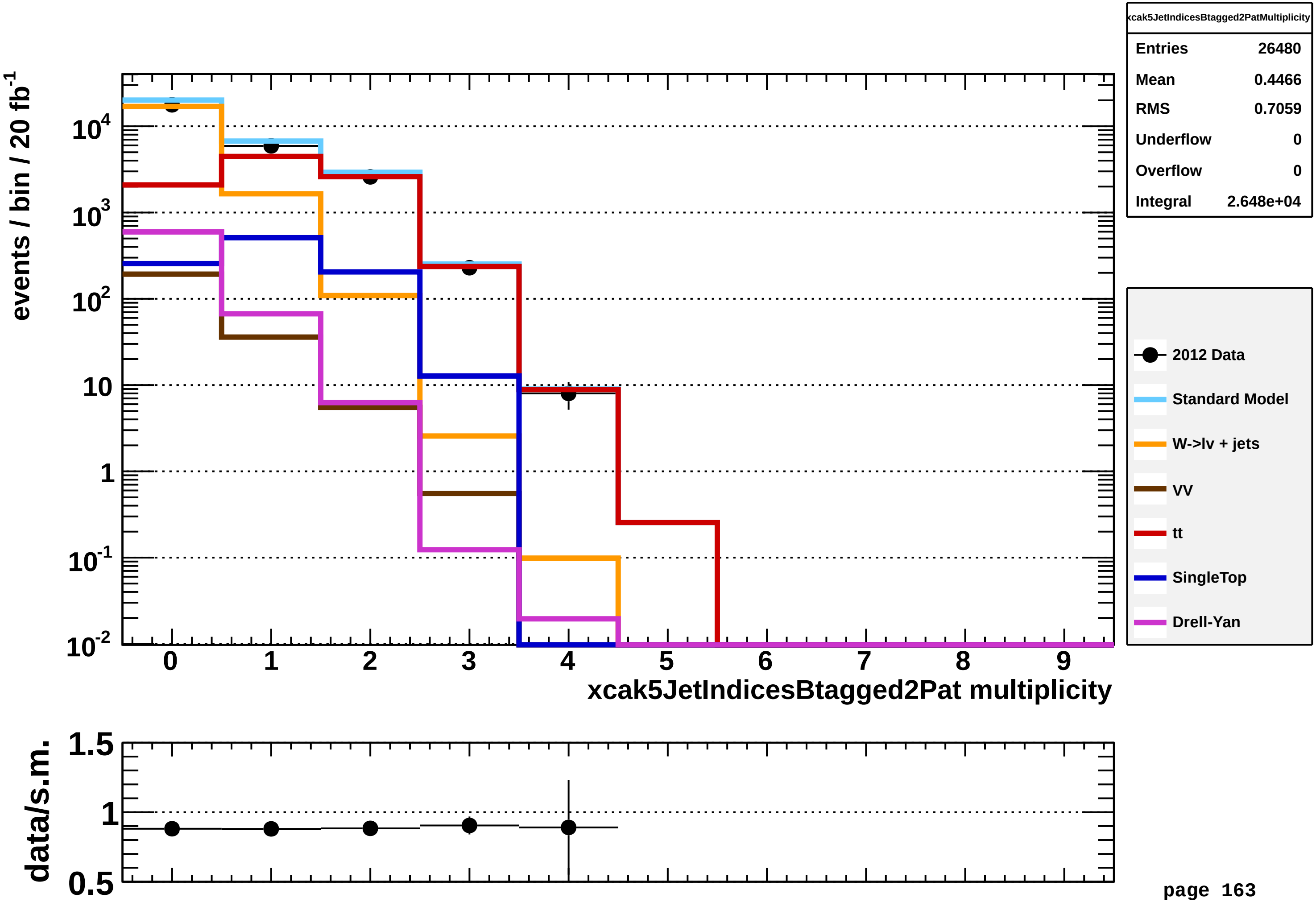


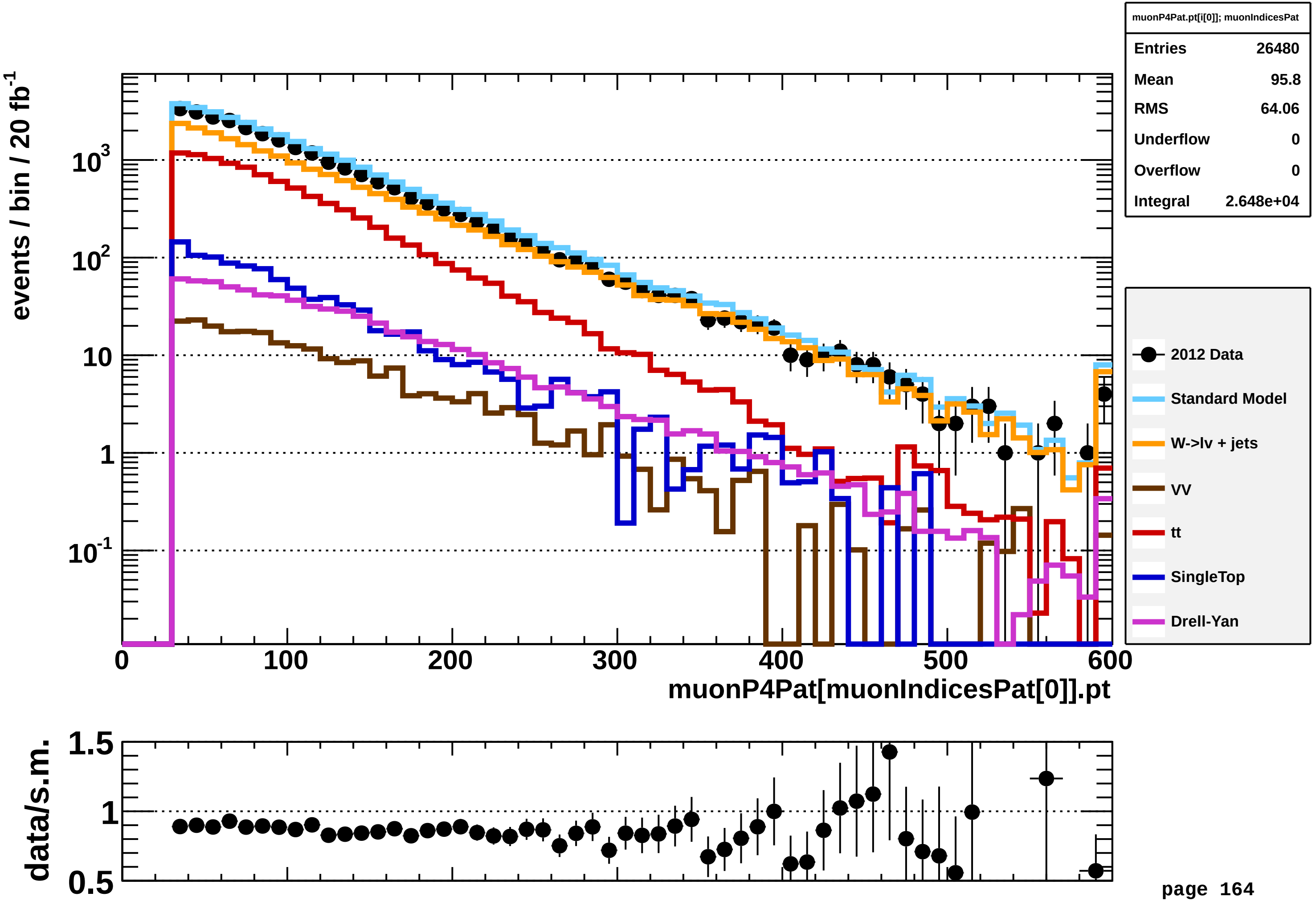
SingleTop

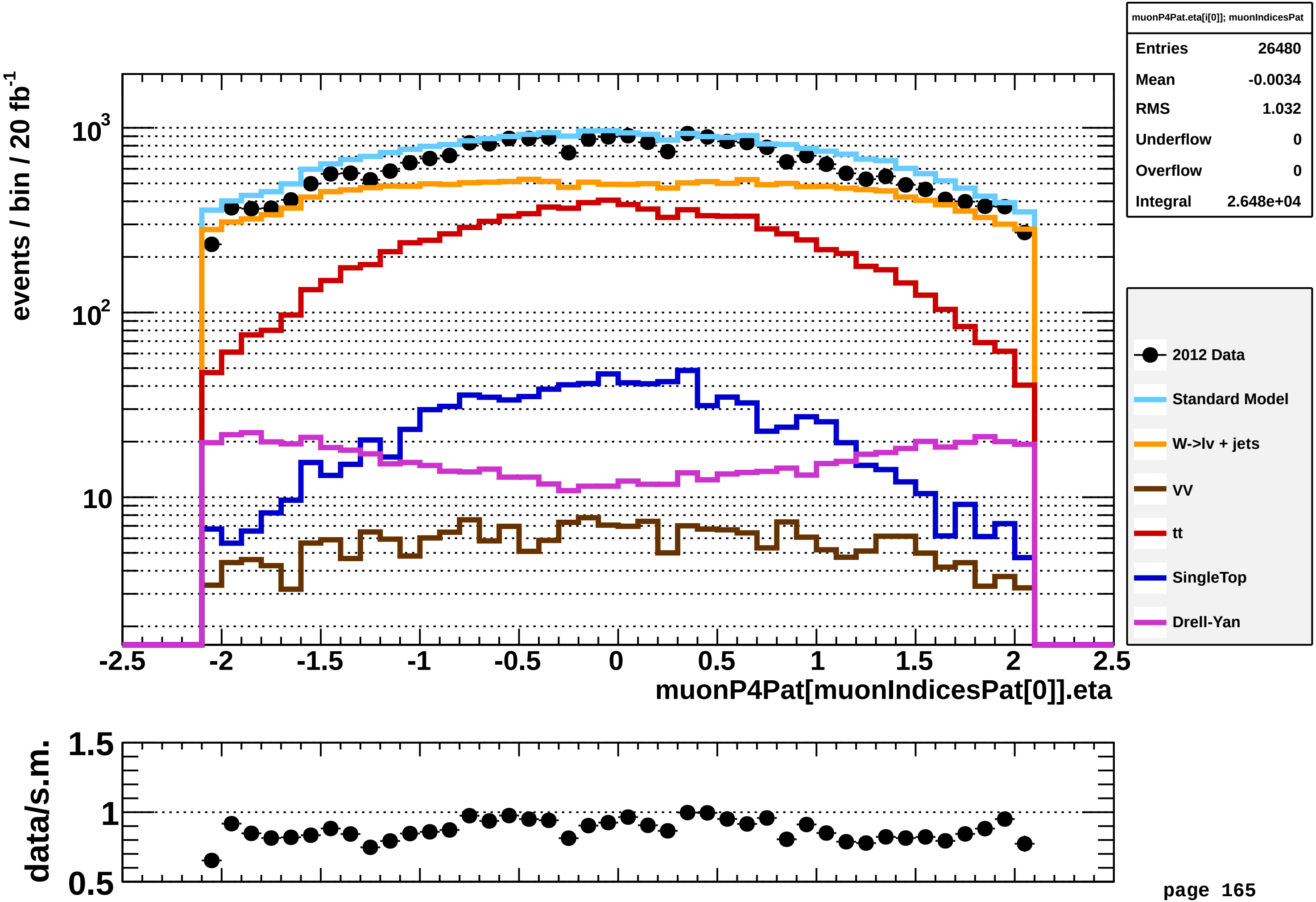


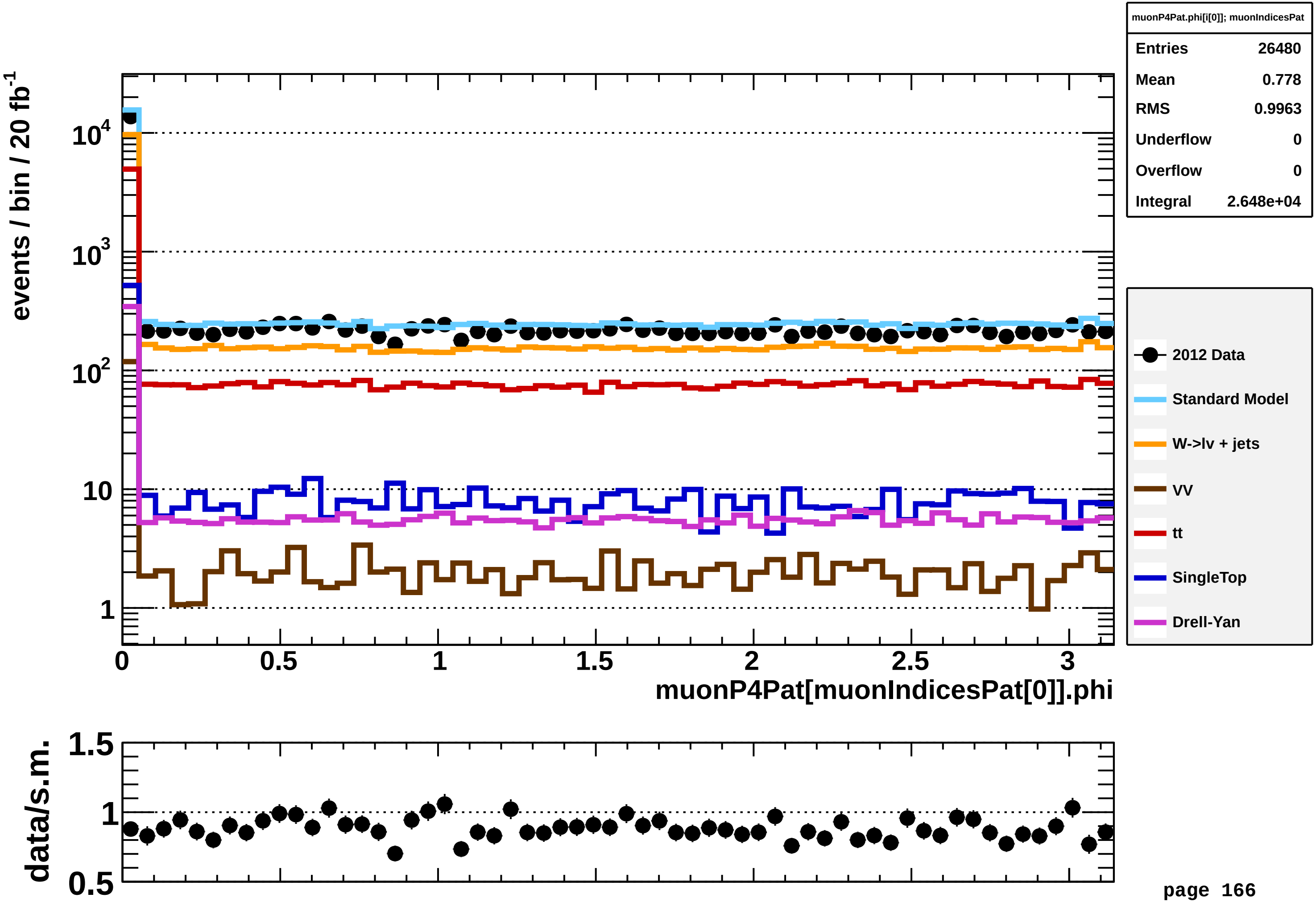
Drell-Yan

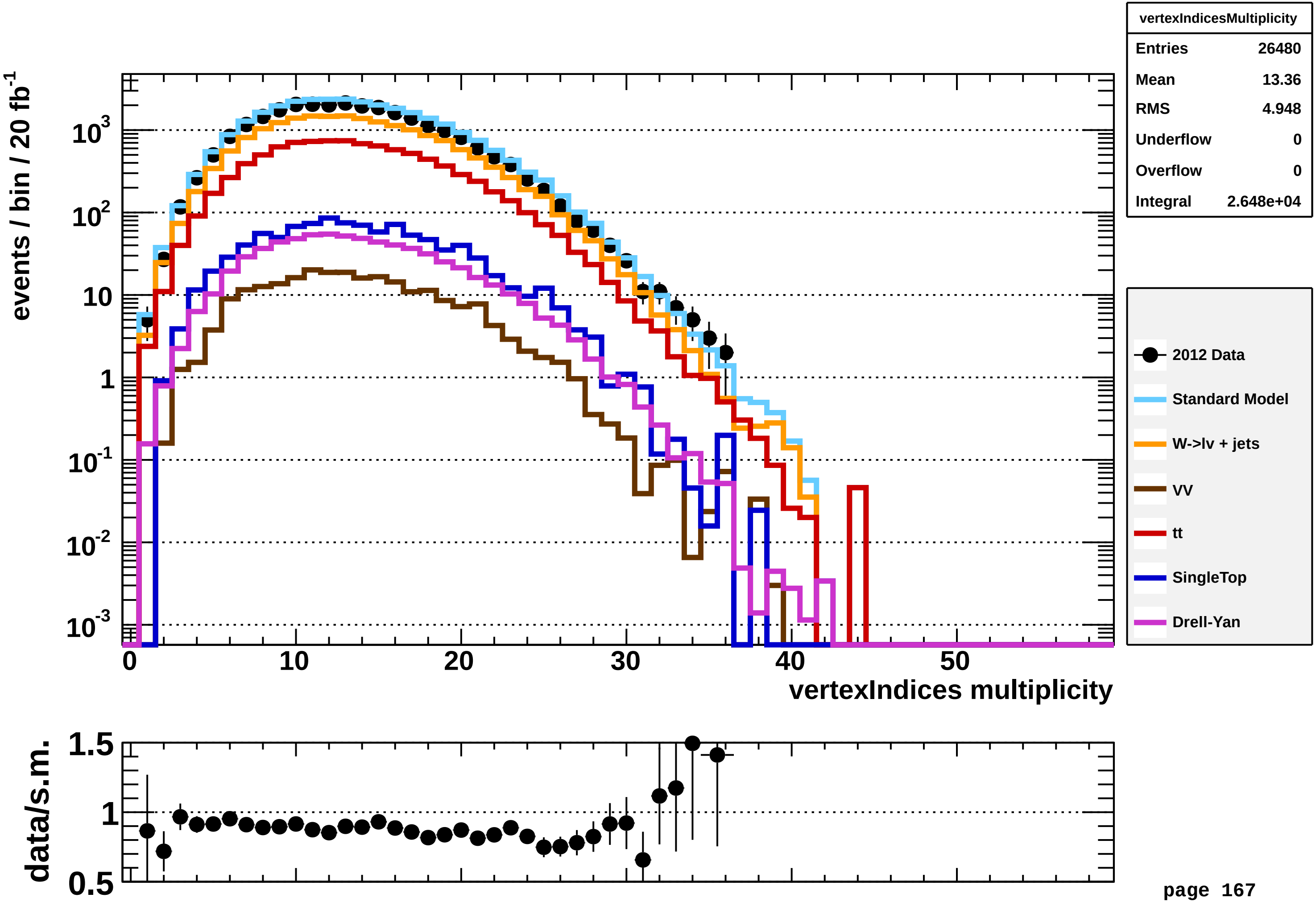



xcak5JetIndicesBtagged2PatMultiplicity
Entries 26480
Mean 0.4466
RMS 0.7059
Underflow 0
Overflow 0
Integral 2.648e+04
events / bin / 20 fb^{-1}
10^4
10^3
10^2
10
1
10^{-1}
10^{-2}
0
1
2
3
4
5
6
7
8
9
xcak5JetIndicesBtagged2Pat multiplicity
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
data/s.m.
1.5
1
0.5

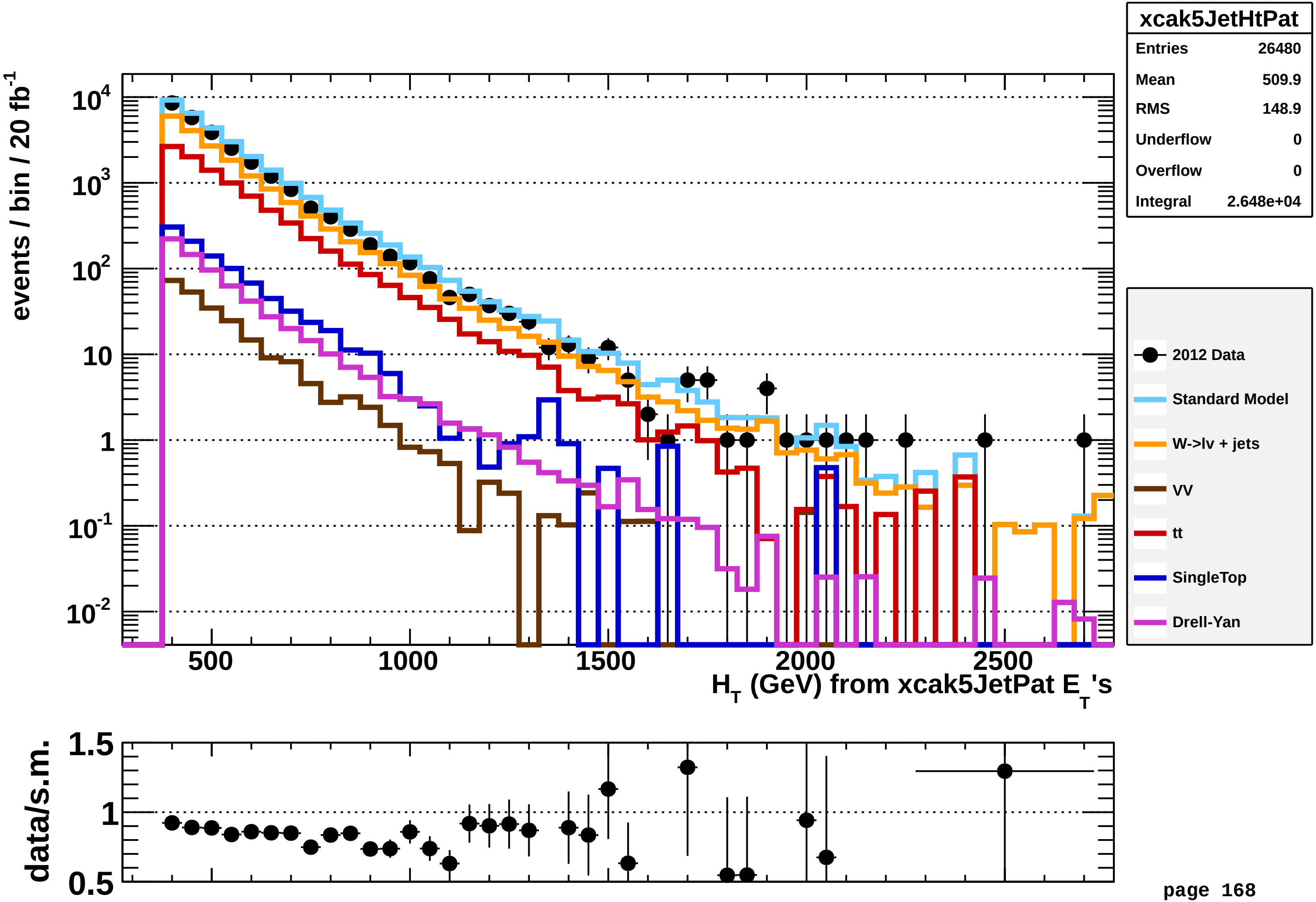

muonP4Pat.pt[i[0]]; muonIndicesPat
Entries 26480
Mean 95.8
RMS 64.06
Underflow 0
Overflow 0
Integral 2.648e+04
events / bin / 20 fb^{-1}
10^3
10^2
10
1
10^{-1}
0
100
200
300
400
500
600
muonP4Pat[muonIndicesPat[0]].pt
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
data/s.m.
1.5
1
0.5

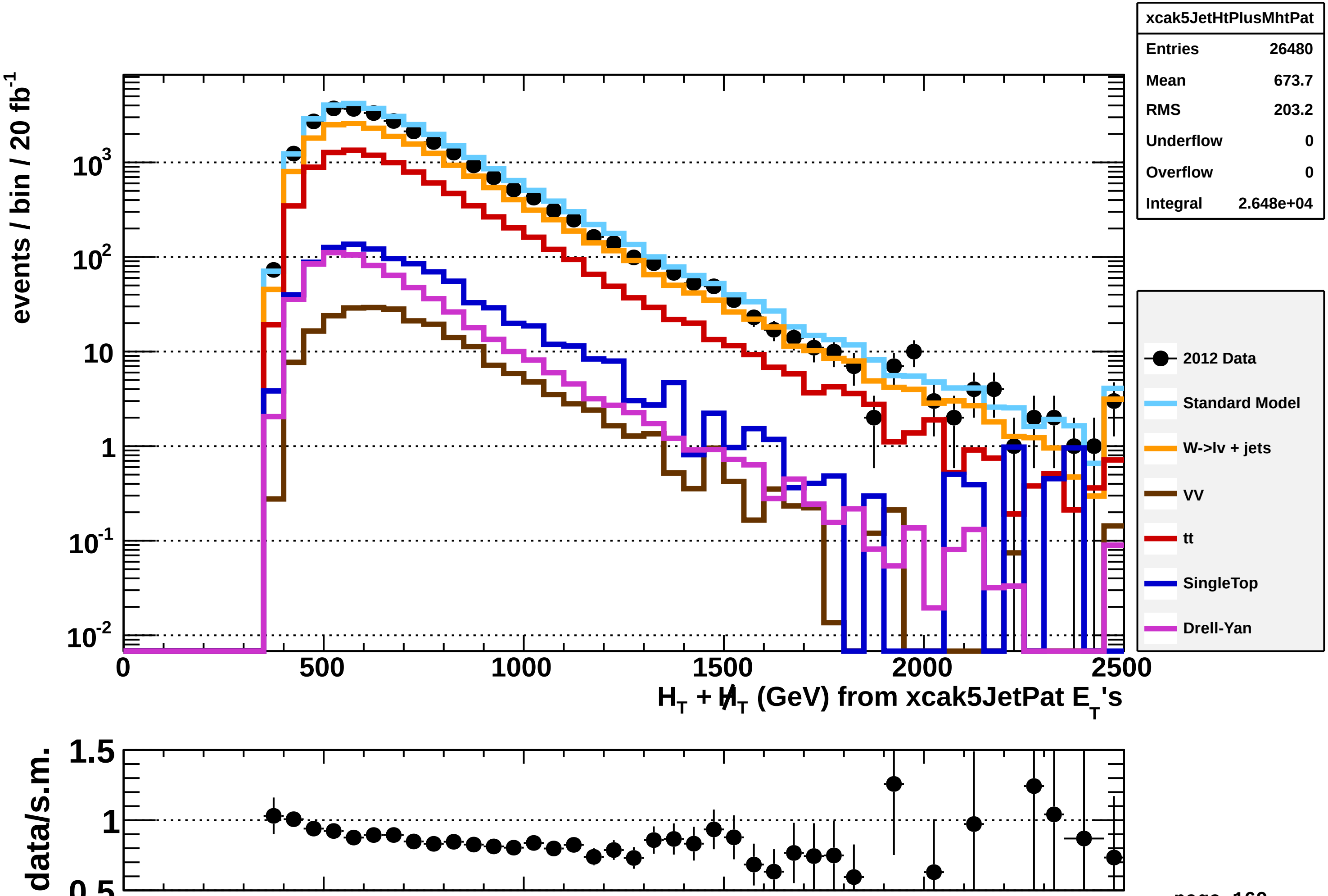

muonP4Pat.eta[i[0]]; muonIndicesPat
Entries 26480
Mean -0.0034
RMS 1.032
Underflow 0
Overflow 0
Integral 2.648e+04
events / bin / 20 fb^{-1}
10^3
10^2
10
-2.5
-2
-1.5
-1
-0.5
0
0.5
1
1.5
2
2.5
muonP4Pat[muonIndicesPat[0]].eta
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
data/s.m.
1.5
1
0.5


muonP4Pat.phi[i[0]]; muonIndicesPat
Entries 26480
Mean 0.778
RMS 0.9963
Underflow 0
Overflow 0
Integral 2.648e+04
events / bin / 20 fb^{-1}
10^4
10^3
10^2
10
1
0
0.5
1
1.5
2
2.5
3
muonP4Pat[muonIndicesPat[0]].phi
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
data/s.m.
1.5
1
0.5

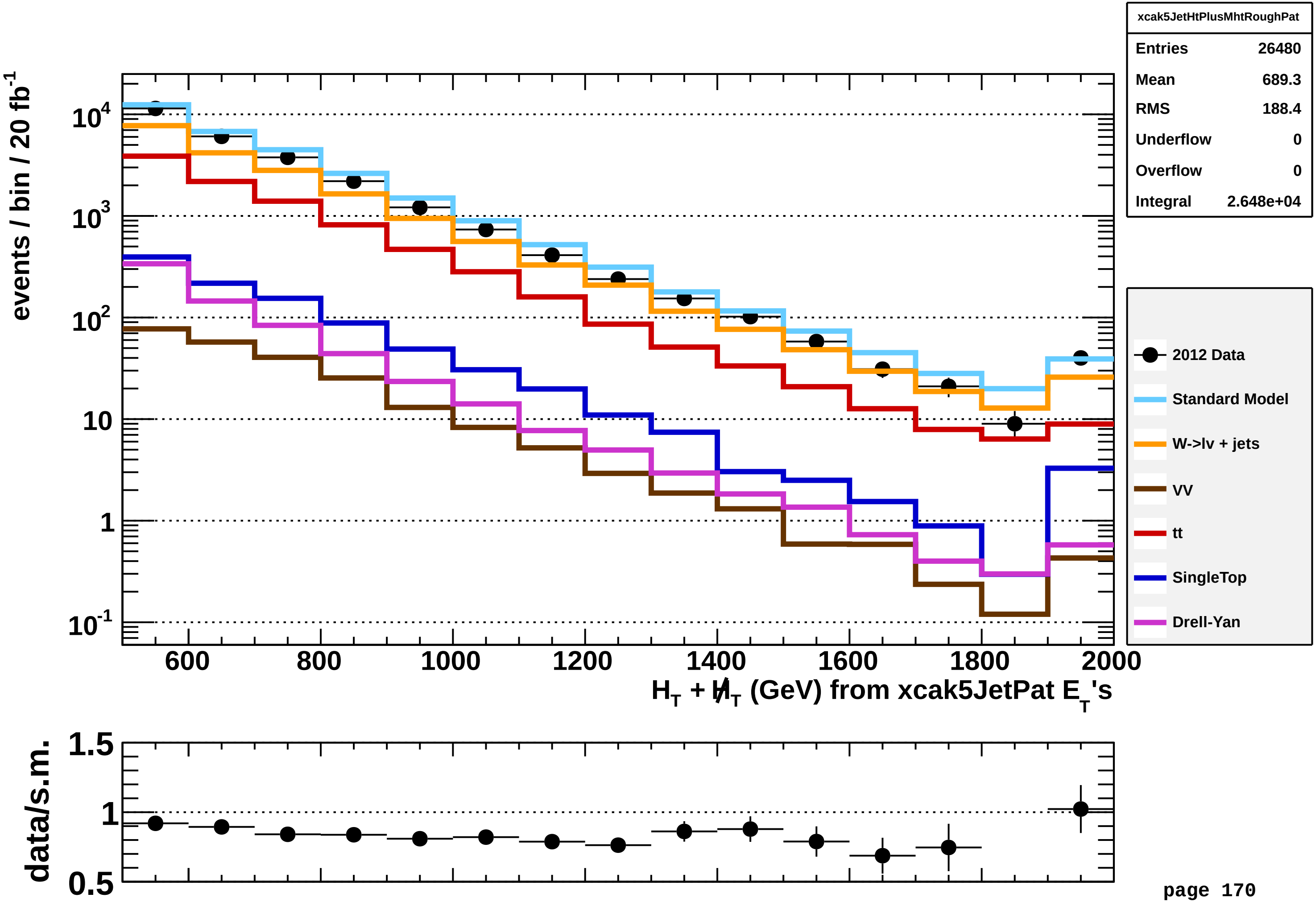


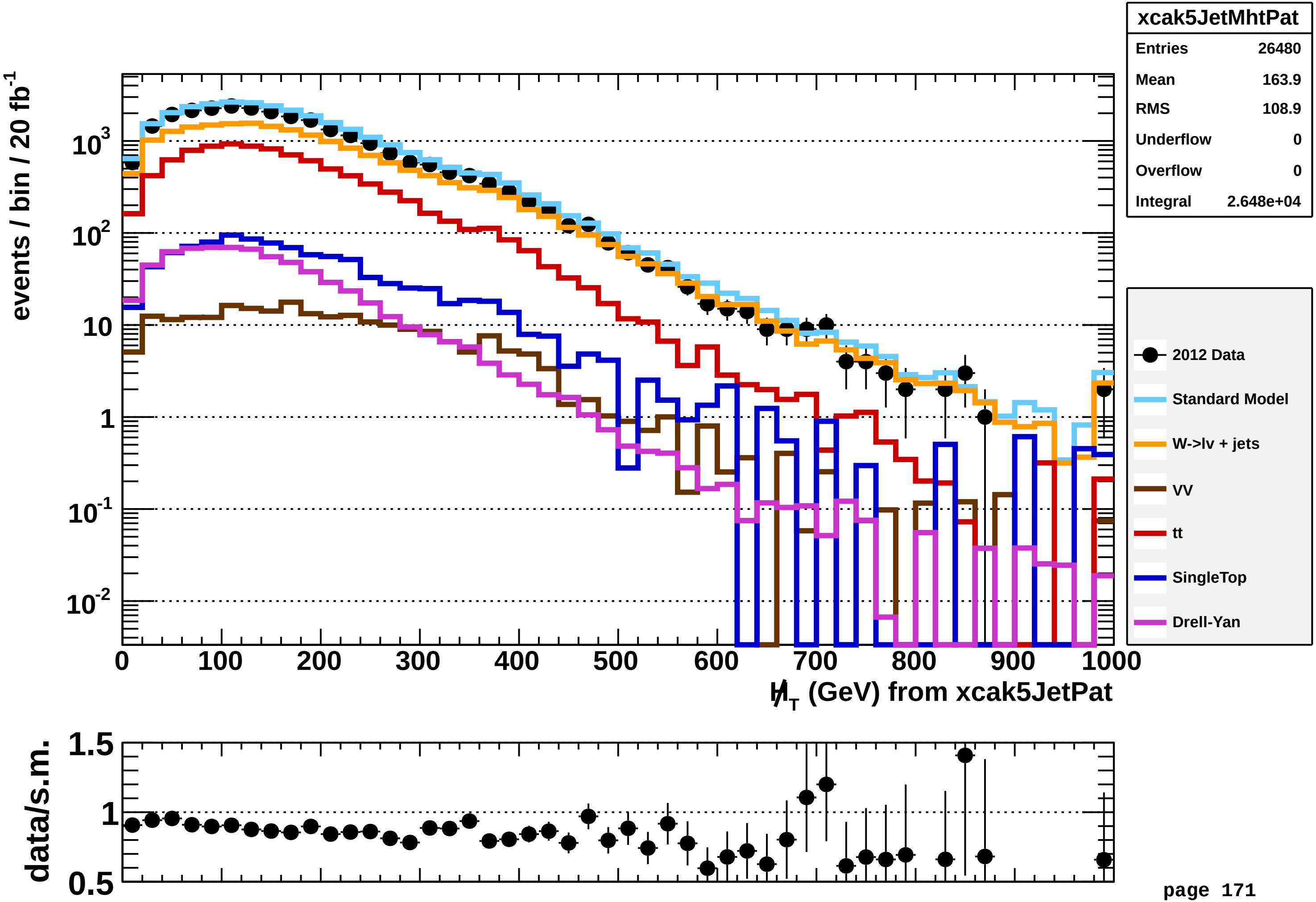
vertexIndicesMultiplicity
Entries 26480
Mean 13.36
RMS 4.948
Underflow 0
Overflow 0
Integral 2.648e+04
events / bin / 20 fb^{-1}
10^3
10^2
10
1
10^{-1}
10^{-2}
10^{-3}
0
10
20
30
40
50
vertexIndices multiplicity
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
data/s.m.
1.5
1
0.5


xcak5JetHtPat
Entries 26480
Mean 509.9
RMS 148.9
Underflow 0
Overflow 0
Integral 2.648e+04
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
events / bin / 20 fb^{-1}
10^4
10^3
10^2
10
1
10^{-1}
10^{-2}
500
1000
1500
2000
2500
H_T (GeV) from xcak5JetPat E_T's
data/s.m.
1.5
1
0.5

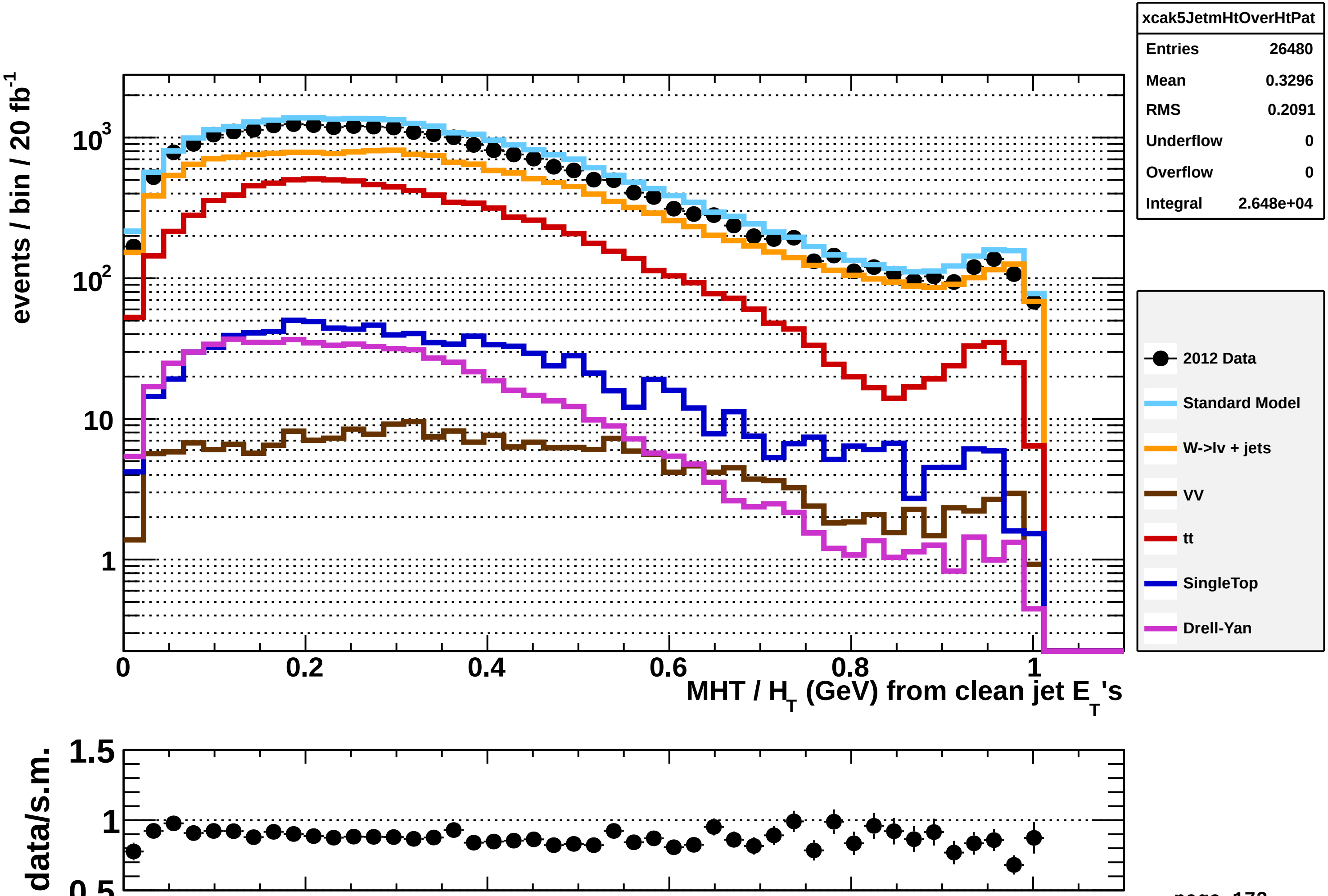


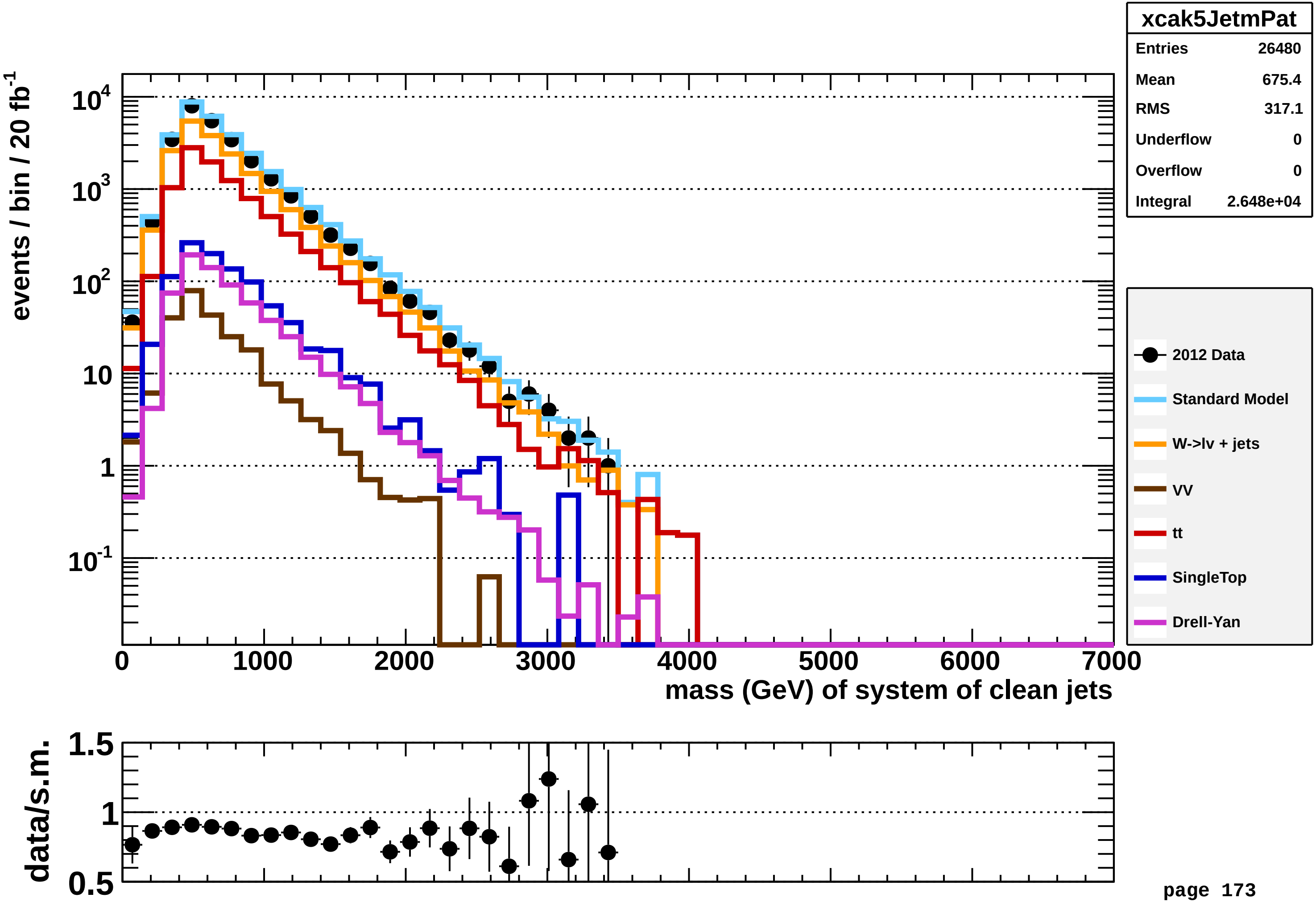
xcak5JetHtPlusMhtPat
Entries 26480
Mean 673.7
RMS 203.2
Underflow 0
Overflow 0
Integral 2.648e+04
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
events / bin / 20 fb^{-1}
10^{3}
10^{2}
10
1
10^{-1}
10^{-2}
0
500
1000
1500
2000
2500
$H_T + \not{H}_T$ (GeV) from xcak5JetPat E_T's
data/s.m.
1.5
1
0.5


xcak5JetHtPlusMhtRoughPat
Entries 26480
Mean 689.3
RMS 188.4
Underflow 0
Overflow 0
Integral 2.648e+04
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
events / bin / 20 fb^{-1}
10^4
10^3
10^2
10
1
10^{-1}
600
800
1000
1200
1400
1600
1800
2000
$H_T + \not{H}_T$ (GeV) from xcak5JetPat E_T's
data/s.m.
1.5
1
0.5



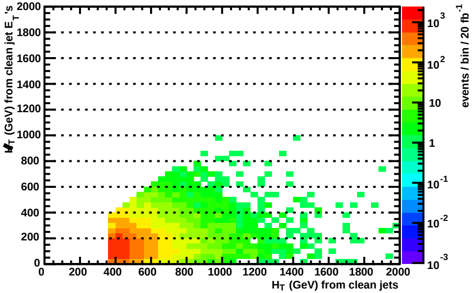
xcak5JetMhtPat
Entries 26480
Mean 163.9
RMS 108.9
Underflow 0
Overflow 0
Integral 2.648e+04
events / bin / 20 fb^{-1}
10^3
10^2
10
1
10^{-1}
10^{-2}
0
100
200
300
400
500
600
700
800
900
1000
$H\!\!\!/_T$ (GeV) from xcak5JetPat
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
data/s.m.
1.5
1
0.5


xcak5JetmHtOverHtPat
Entries 26480
Mean 0.3296
RMS 0.2091
Underflow 0
Overflow 0
Integral 2.648e+04
events / bin / 20 fb^{-1}
10^3
10^2
10
1
0
0.2
0.4
0.6
0.8
1
MHT / H_T (GeV) from clean jet E_T's
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
data/s.m.
1.5
1
0.5

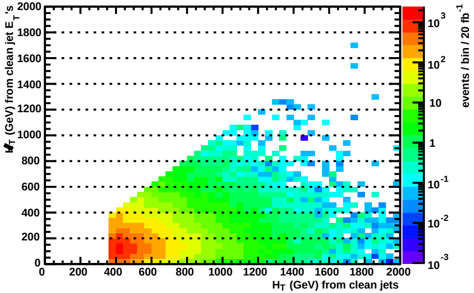


xcak5JetmPat
Entries 26480
Mean 675.4
RMS 317.1
Underflow 0
Overflow 0
Integral 2.648e+04
events / bin / 20 fb^{-1}
10^4
10^3
10^2
10
1
10^{-1}
0
1000
2000
3000
4000
5000
6000
7000
mass (GeV) of system of clean jets
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
data/s.m.
1.5
1
0.5

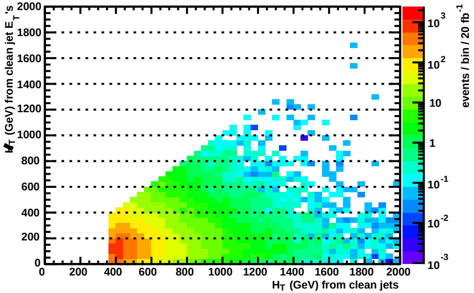
2012 Data



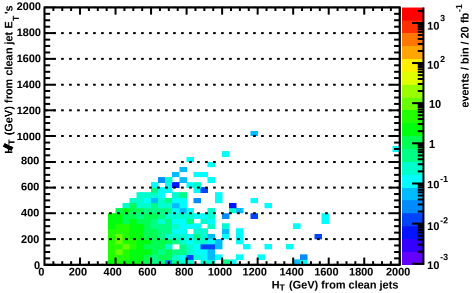
Standard Model



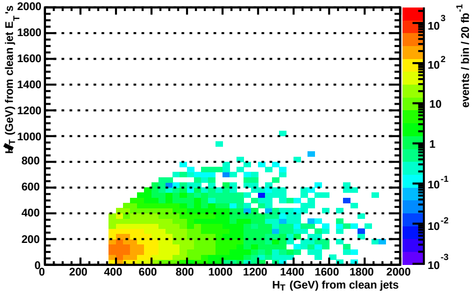
W->lv + jets



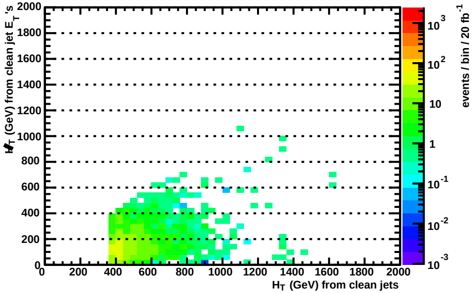
VV



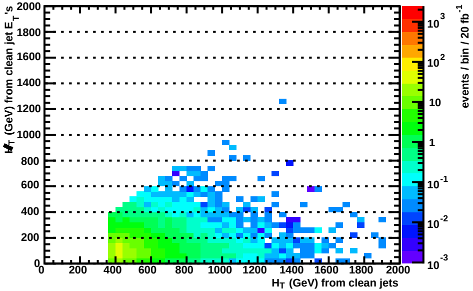
tt

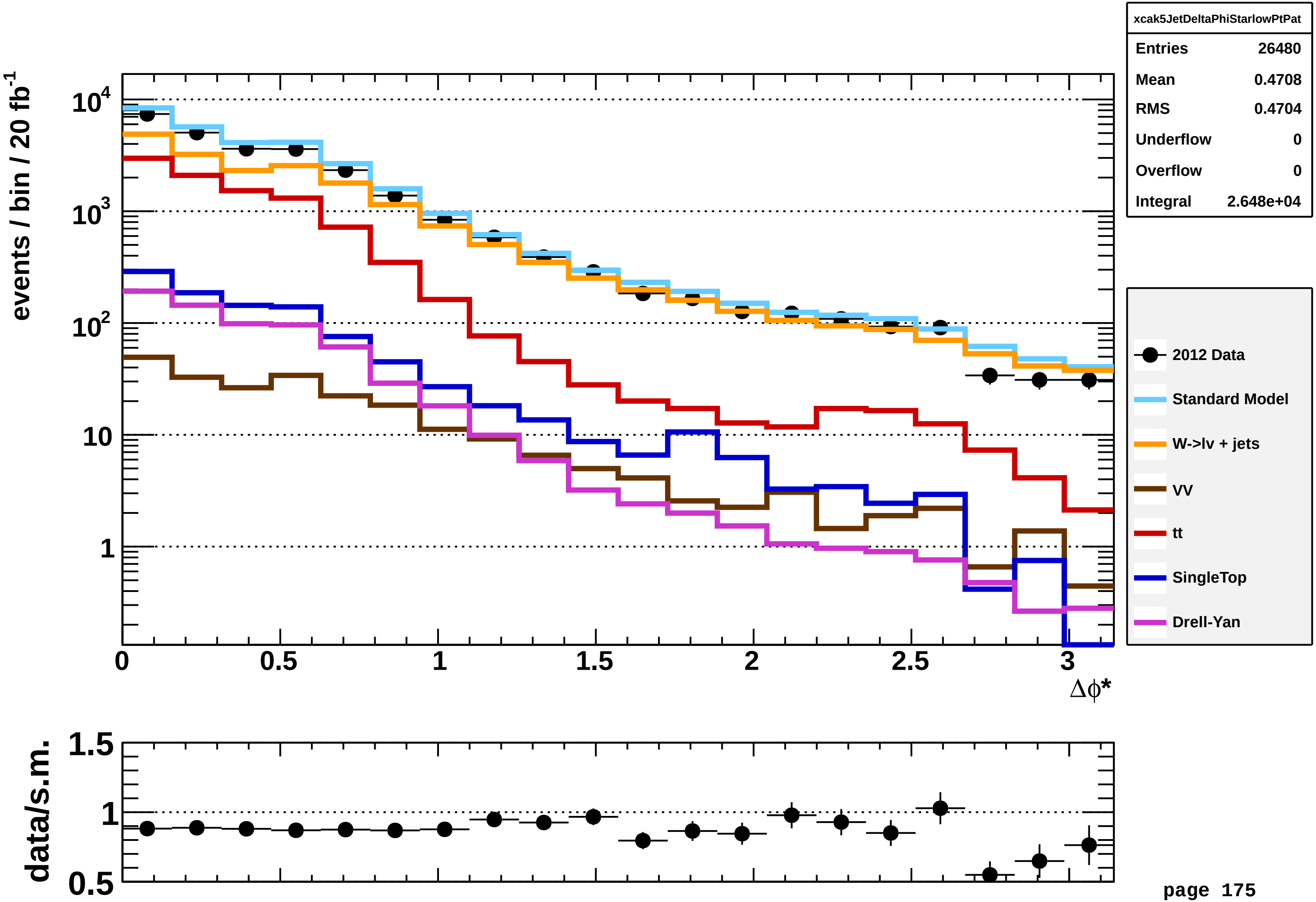


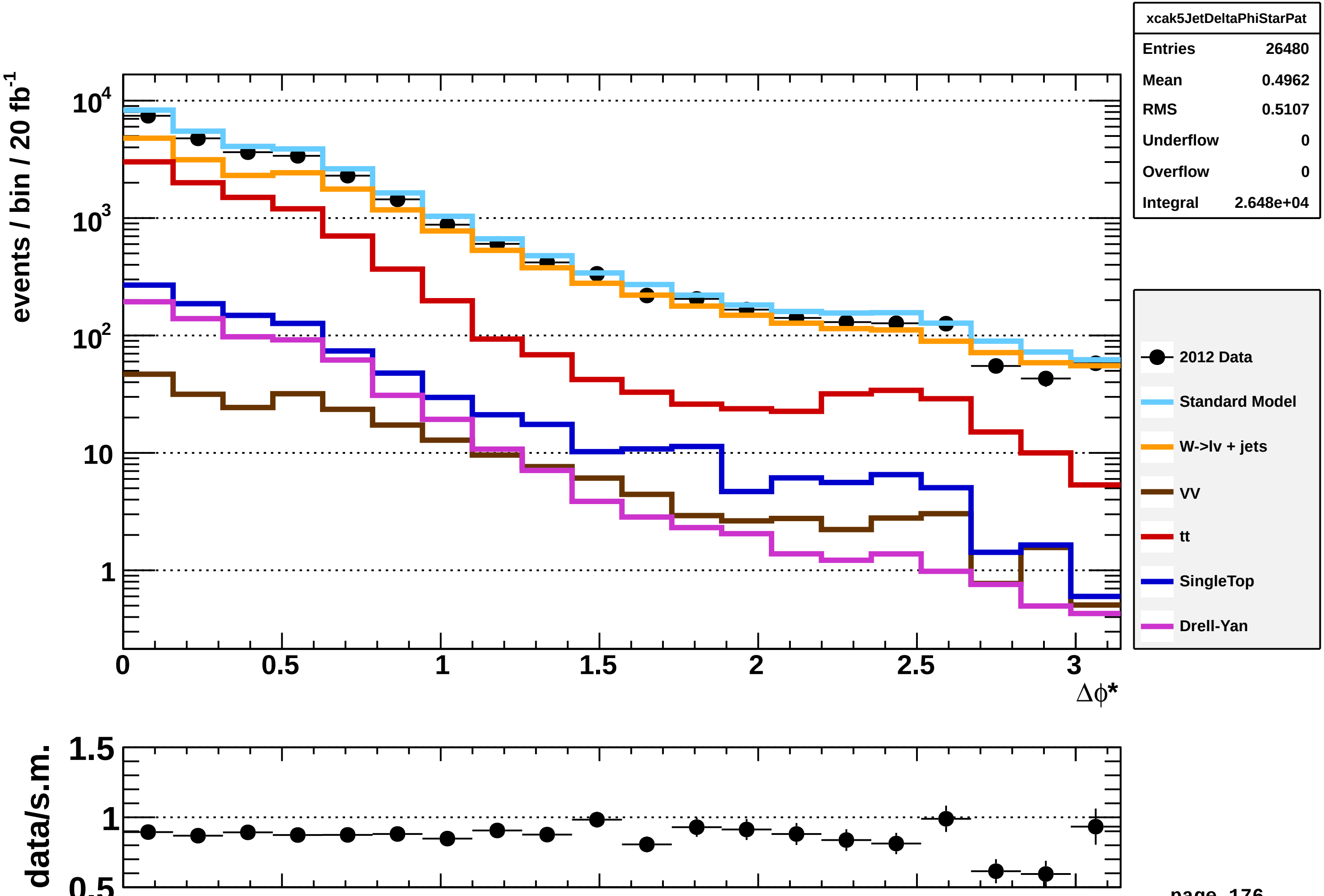
SingleTop

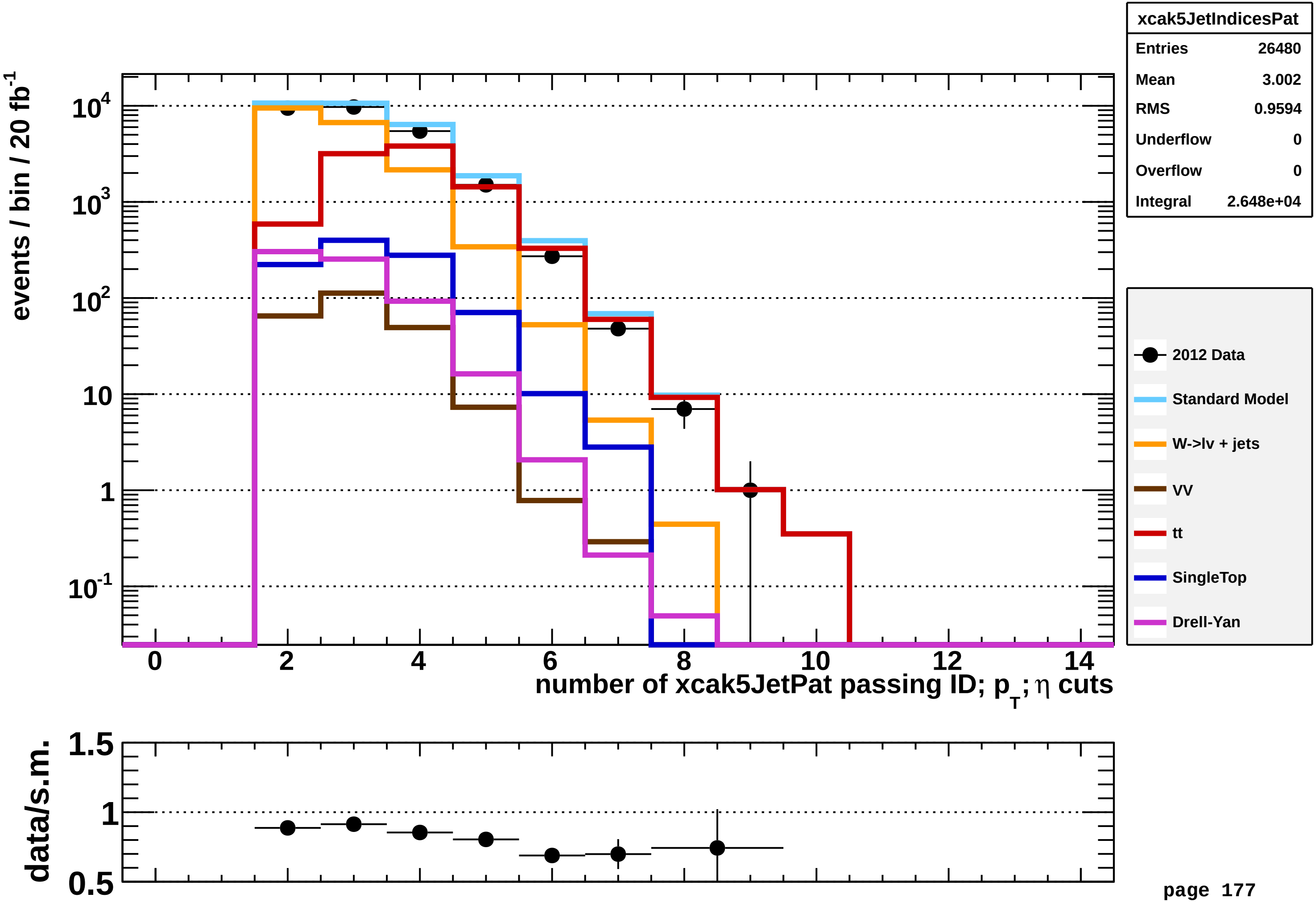


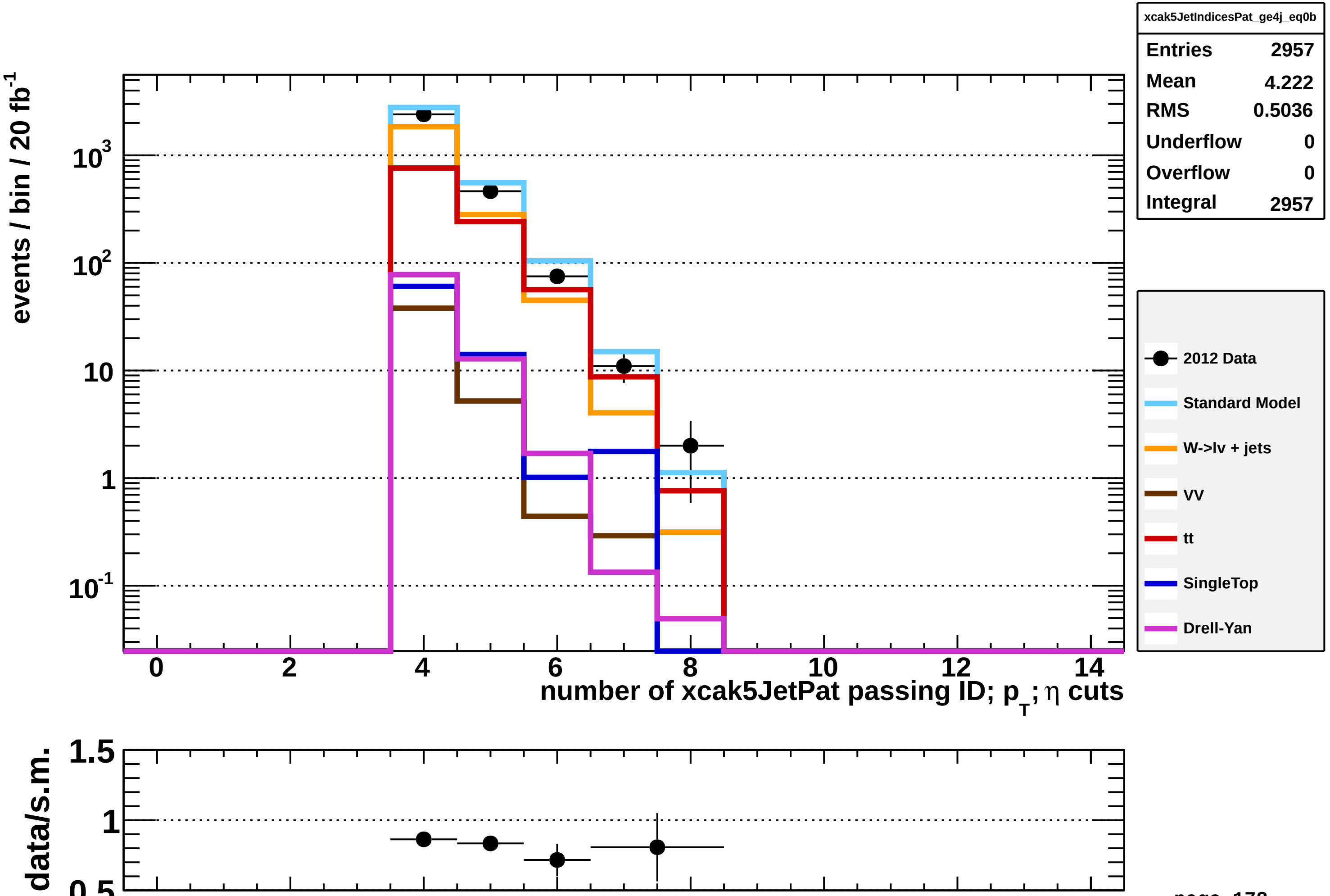
Drell-Yan

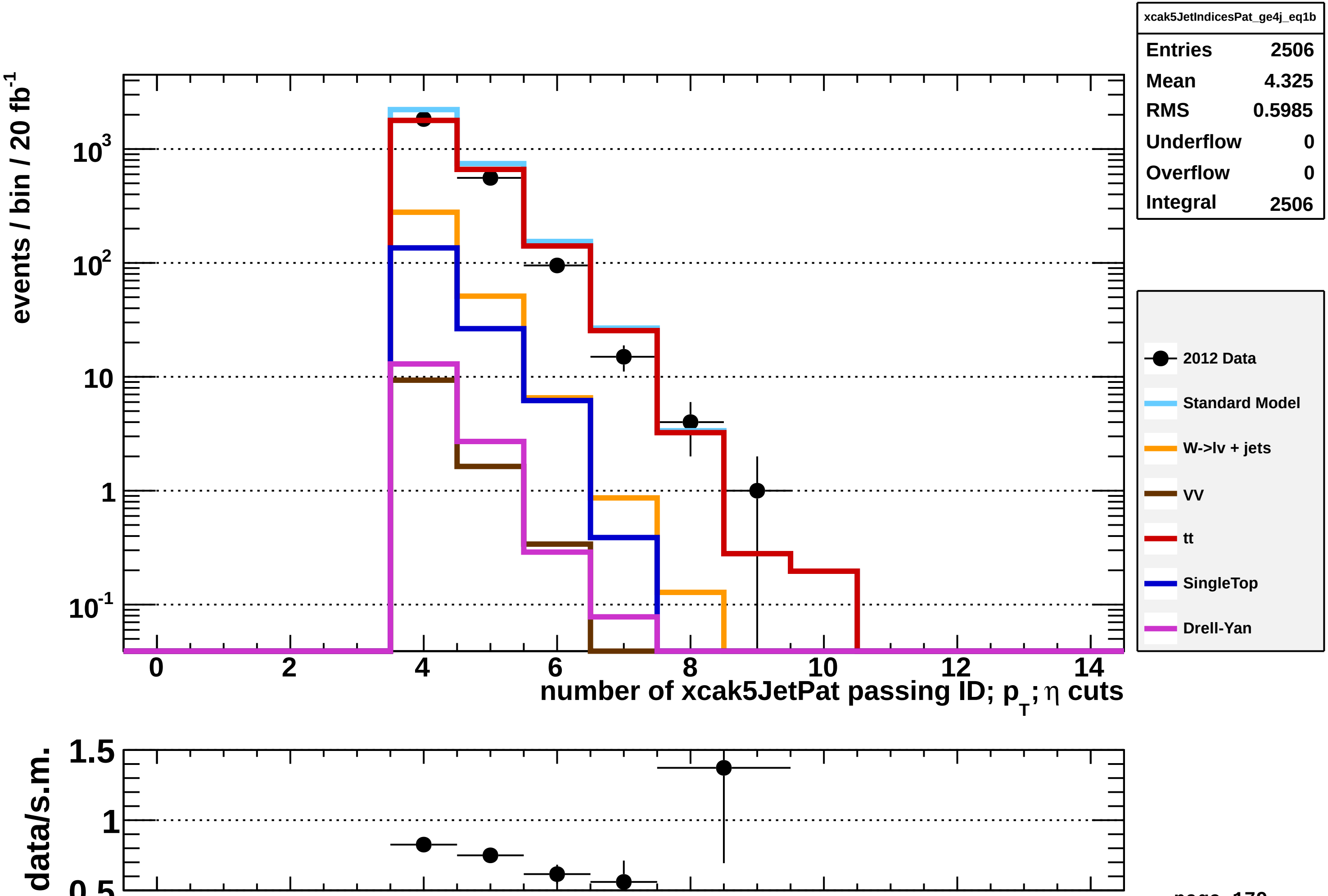



xcak5JetDeltaPhiStarlowPtPat
Entries 26480
Mean 0.4708
RMS 0.4704
Underflow 0
Overflow 0
Integral 2.648e+04
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
events / bin / 20 fb^{-1}
10^4
10^3
10^2
10
1
0
0.5
1
1.5
2
2.5
3
Δϕ*
data/s.m.
1.5
1
0.5

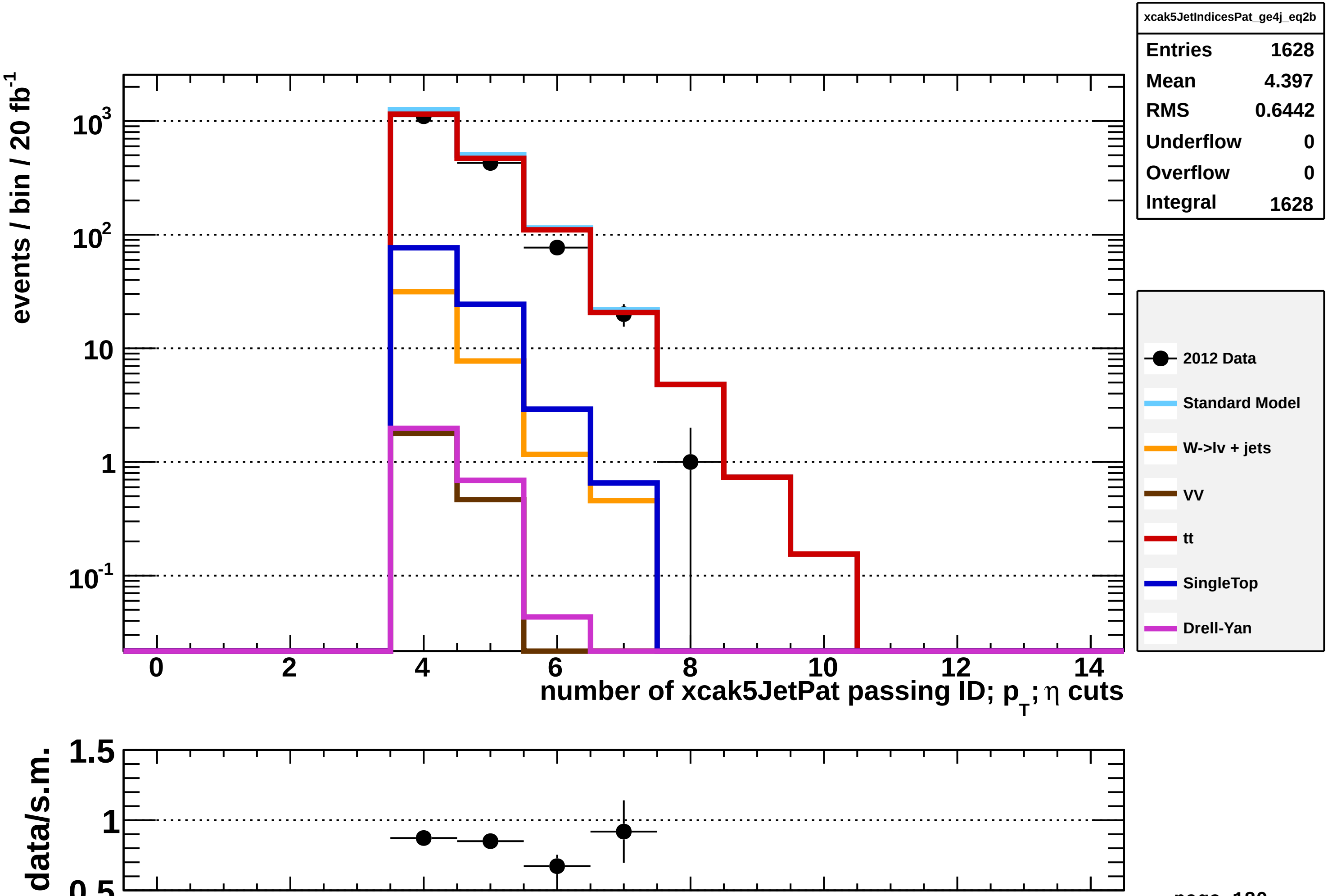

xcak5JetDeltaPhiStarPat
Entries 26480
Mean 0.4962
RMS 0.5107
Underflow 0
Overflow 0
Integral 2.648e+04
events / bin / 20 fb^{-1}
10^4
10^3
10^2
10
1
0
0.5
1
1.5
2
2.5
3
$\Delta\phi^*$
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
data/s.m.
1.5
1
0.5

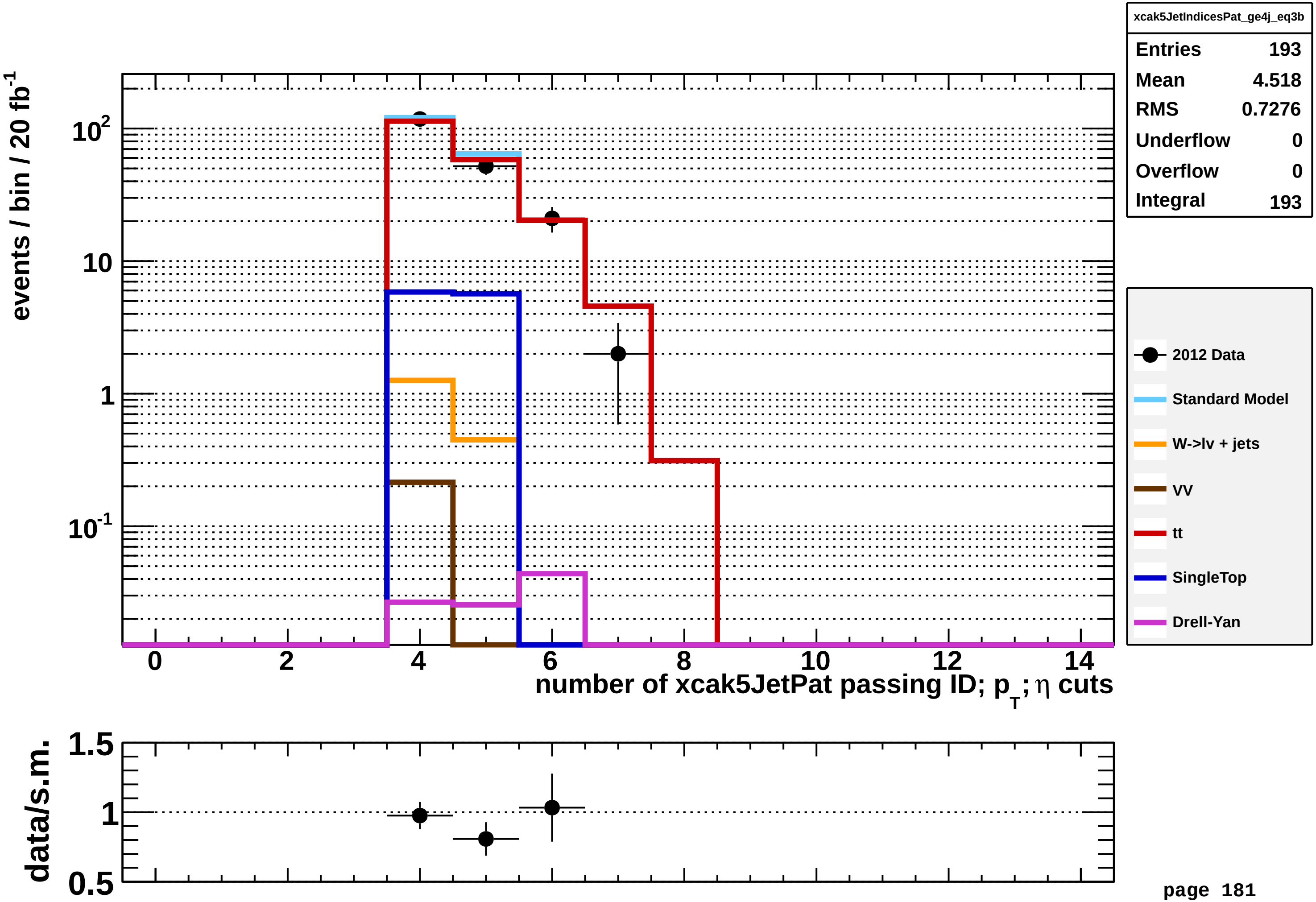

xcak5JetIndicesPat
Entries 26480
Mean 3.002
RMS 0.9594
Underflow 0
Overflow 0
Integral 2.648e+04
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
events / bin / 20 fb^{-1}
10^4
10^3
10^2
10
1
10^{-1}
0
2
4
6
8
10
12
14
number of xcak5JetPat passing ID; p_T; η cuts
data/s.m.
1.5
1
0.5

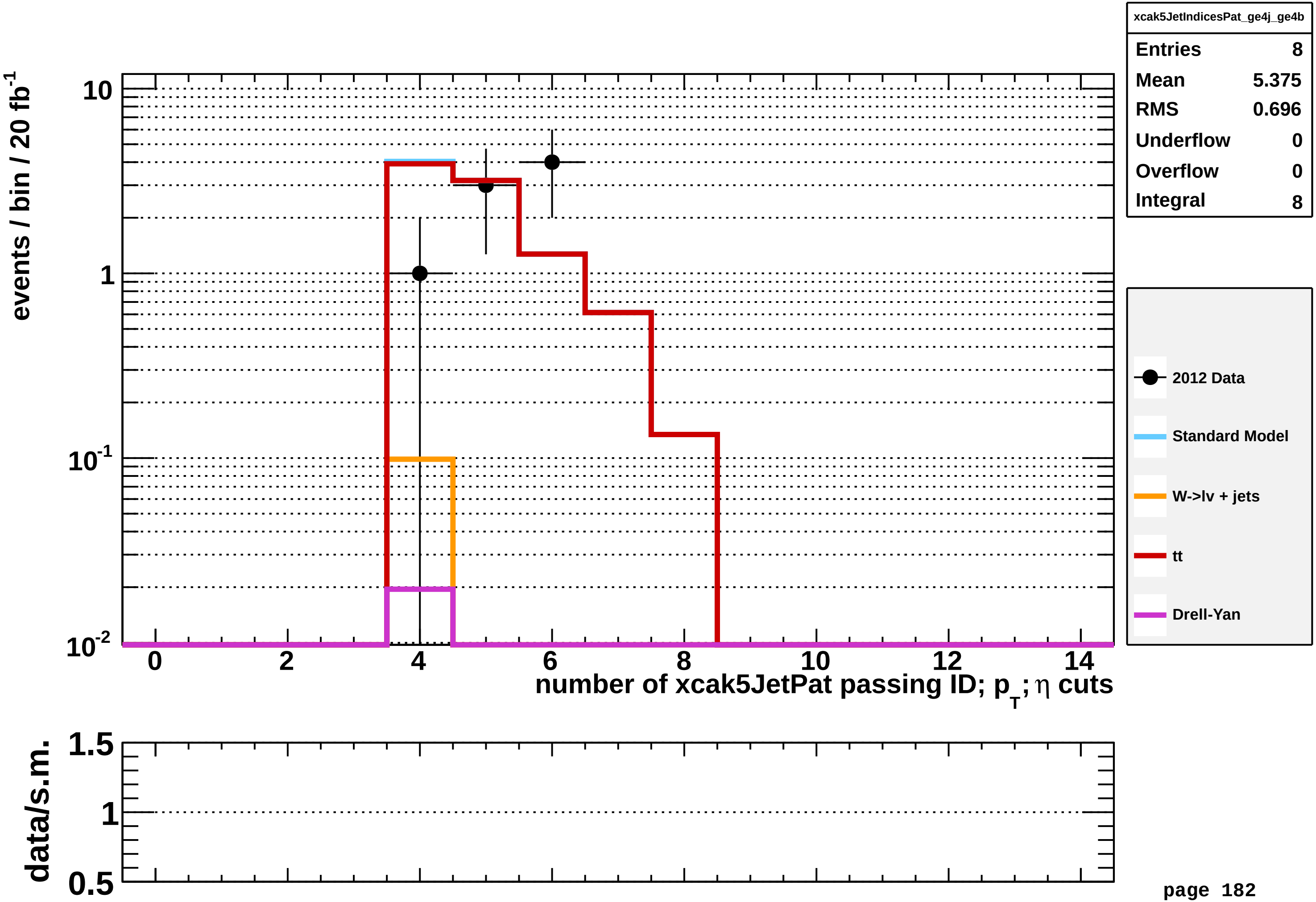

xcak5JetIndicesPat_ge4j_eq0b
Entries 2957
Mean 4.222
RMS 0.5036
Underflow 0
Overflow 0
Integral 2957
events / bin / 20 fb^{-1}
10^3
10^2
10
1
10^{-1}
0
2
4
6
8
10
12
14
number of xcak5JetPat passing ID; p_T; η cuts
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
data/s.m.
1.5
1
0.5

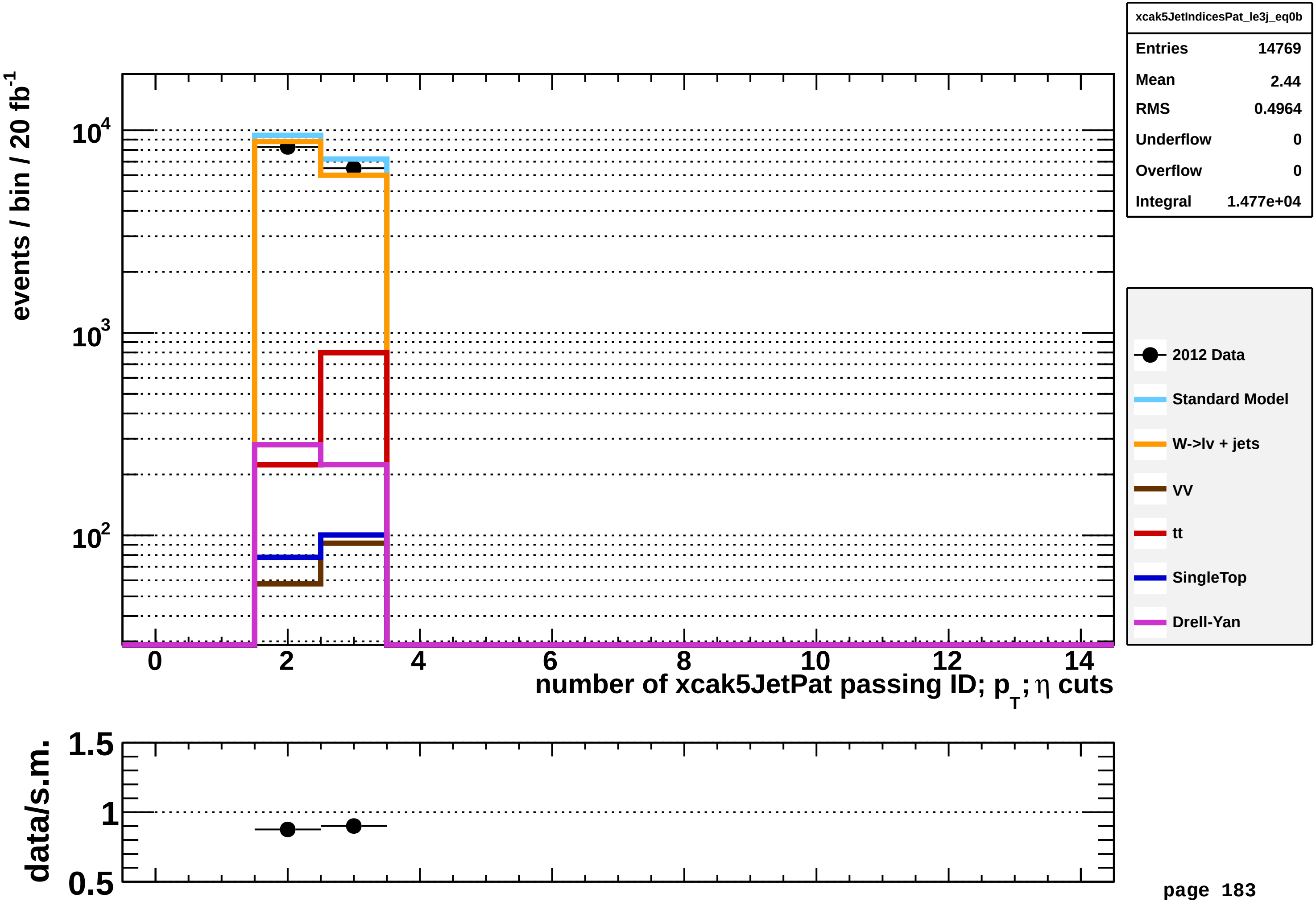


xcak5JetIndicesPat_ge4j_eq1b
Entries 2506
Mean 4.325
RMS 0.5985
Underflow 0
Overflow 0
Integral 2506
events / bin / 20 fb^{-1}
10^3
10^2
10
1
10^{-1}
0
2
4
6
8
10
12
14
number of xcak5JetPat passing ID; p_T; η cuts
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
data/s.m.
1.5
1
0.5

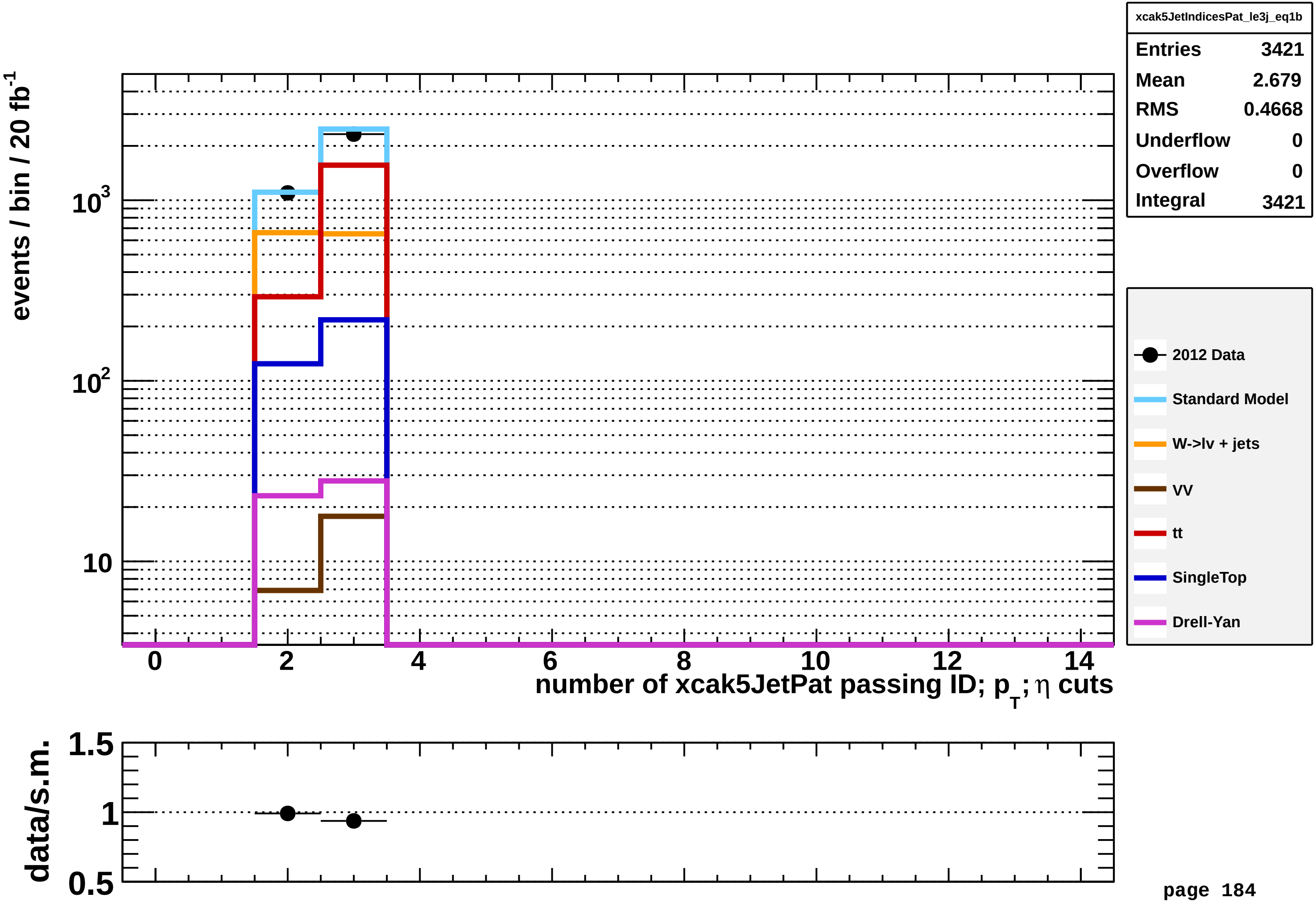

xcak5JetIndicesPat_ge4j_eq2b
Entries 1628
Mean 4.397
RMS 0.6442
Underflow 0
Overflow 0
Integral 1628
events / bin / 20 fb^{-1}
10^3
10^2
10
1
10^{-1}
0
2
4
6
8
10
12
14
number of xcak5JetPat passing ID; p_T; η cuts
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
data/s.m.
1.5
1
0.5

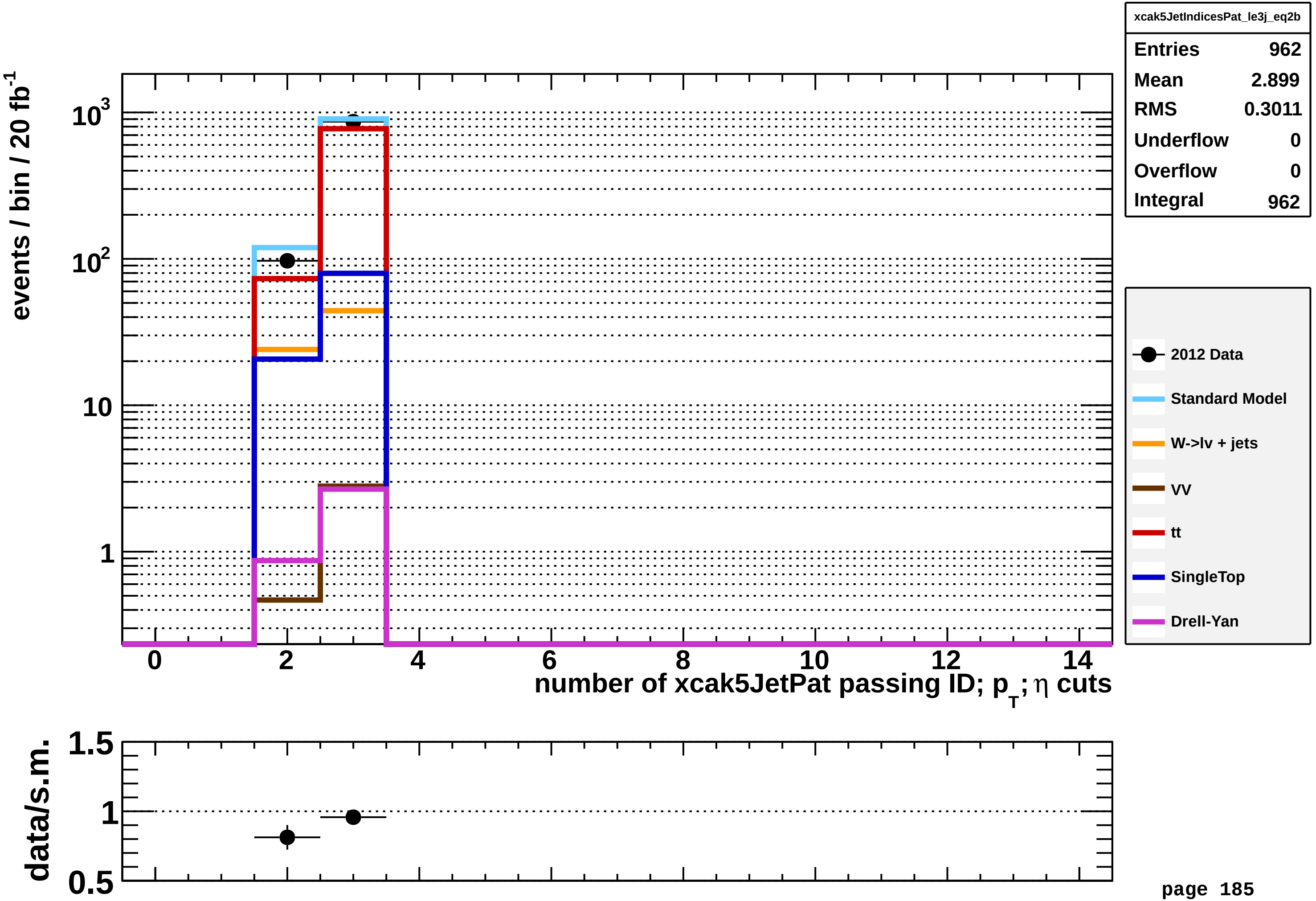

xcak5JetIndicesPat_ge4j_eq3b
Entries 193
Mean 4.518
RMS 0.7276
Underflow 0
Overflow 0
Integral 193
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
events / bin / 20 fb^{-1}
10^2
10
1
10^{-1}
0
2
4
6
8
10
12
14
number of xcak5JetPat passing ID; p_T; η cuts
data/s.m.
1.5
1
0.5

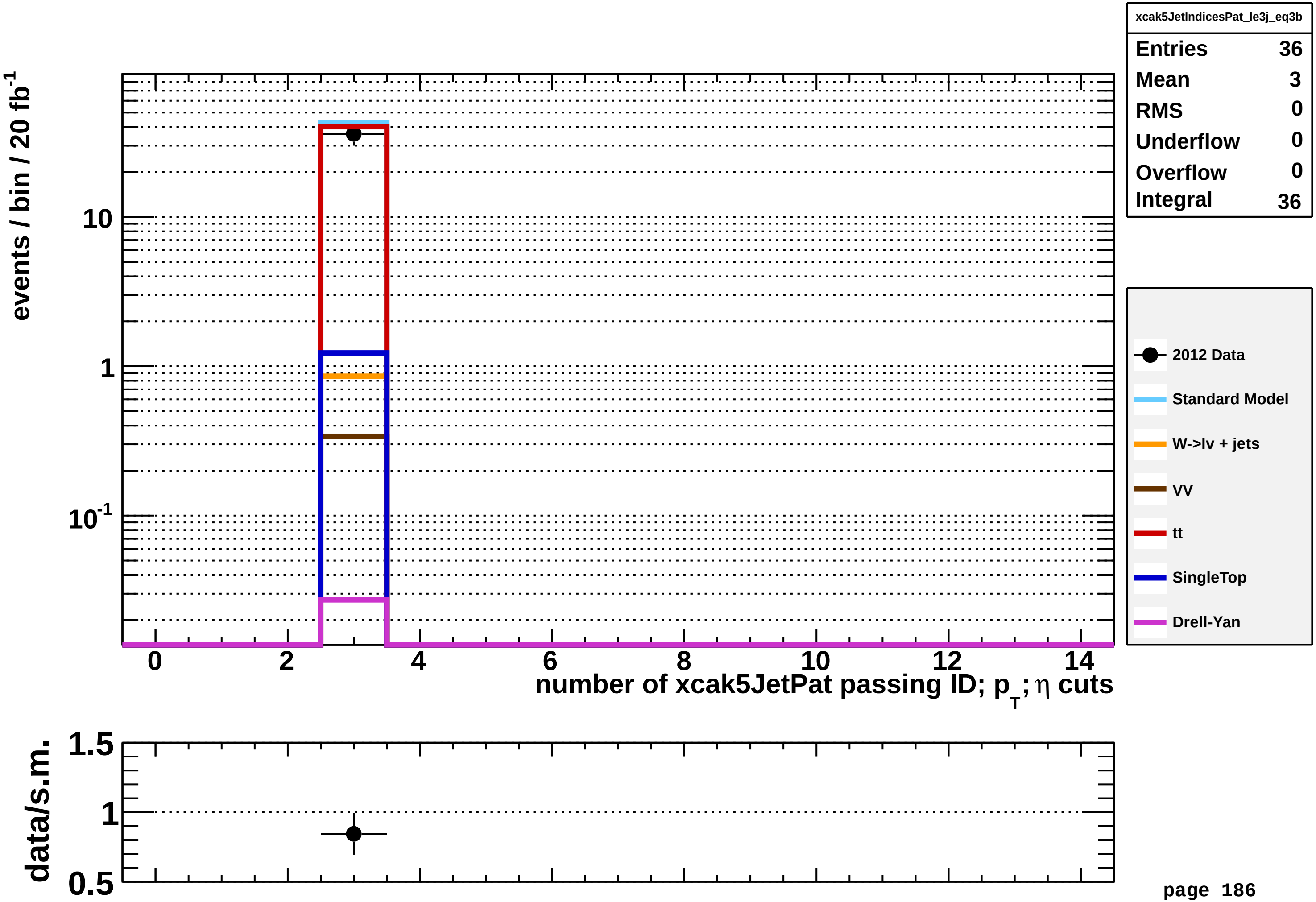

xcak5JetIndicesPat_ge4j_ge4b
Entries 8
Mean 5.375
RMS 0.696
Underflow 0
Overflow 0
Integral 8
events / bin / 20 fb^{-1}
10
1
10^{-1}
10^{-2}
0
2
4
6
8
10
12
14
number of xcak5JetPat passing ID; p$_T$; η cuts
2012 Data
Standard Model
W->lv + jets
tt
Drell-Yan
data/s.m.
1.5
1
0.5

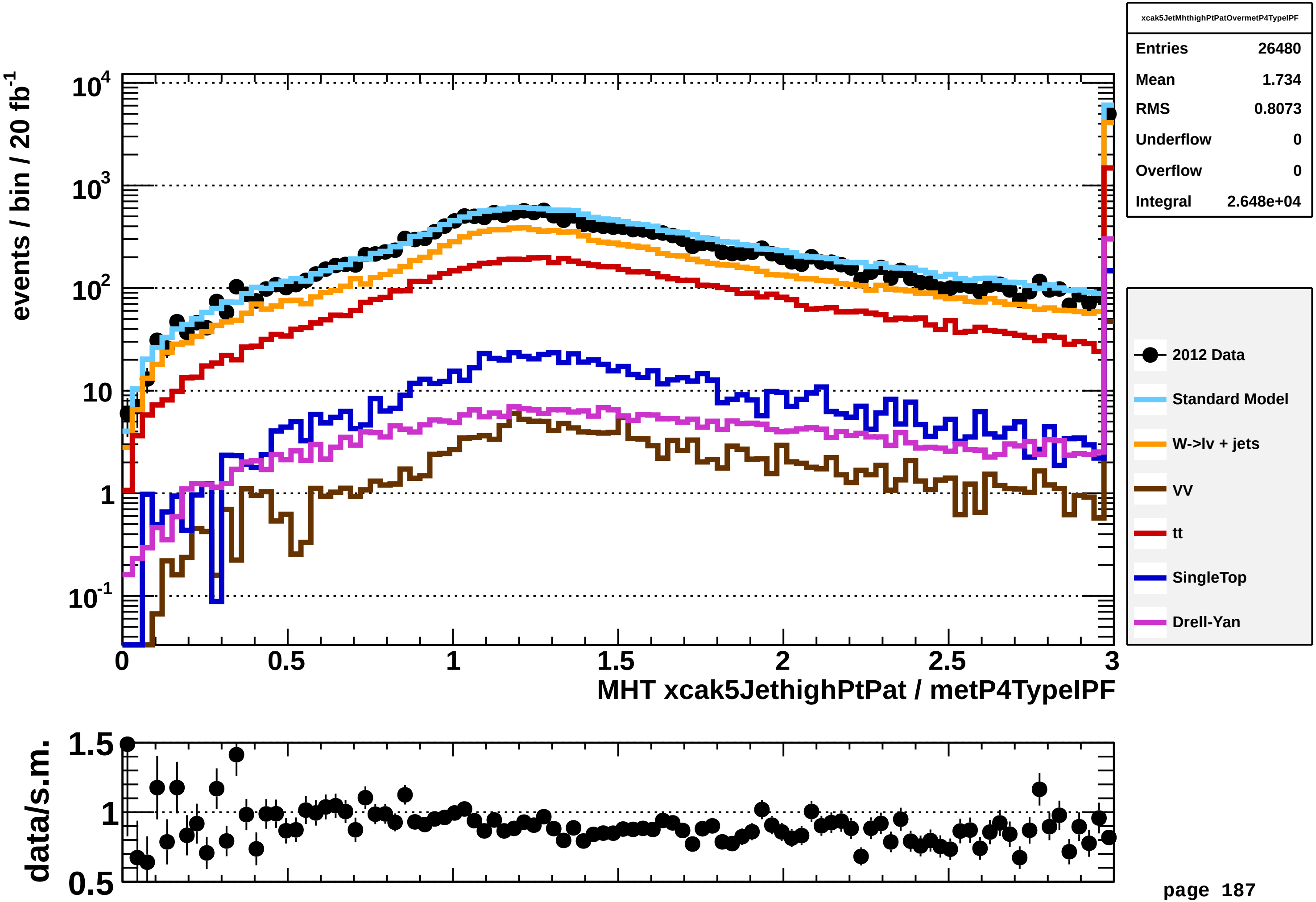


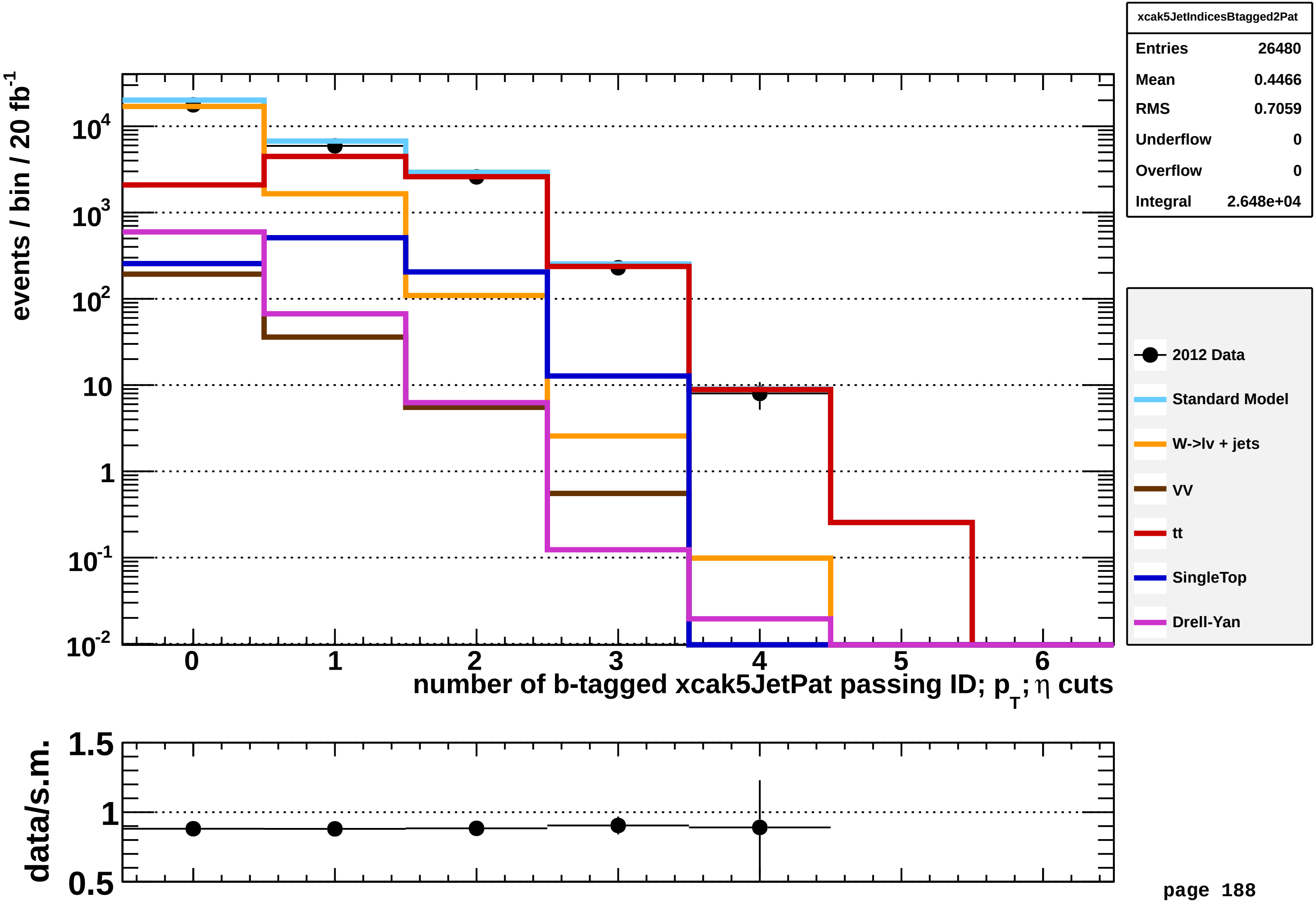
xcak5JetIndicesPat_le3j_eq0b
Entries 14769
Mean 2.44
RMS 0.4964
Underflow 0
Overflow 0
Integral 1.477e+04
events / bin / 20 fb^{-1}
10^4
10^3
10^2
0
2
4
6
8
10
12
14
number of xcak5JetPat passing ID; p_T; η cuts
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
data/s.m.
1.5
1
0.5

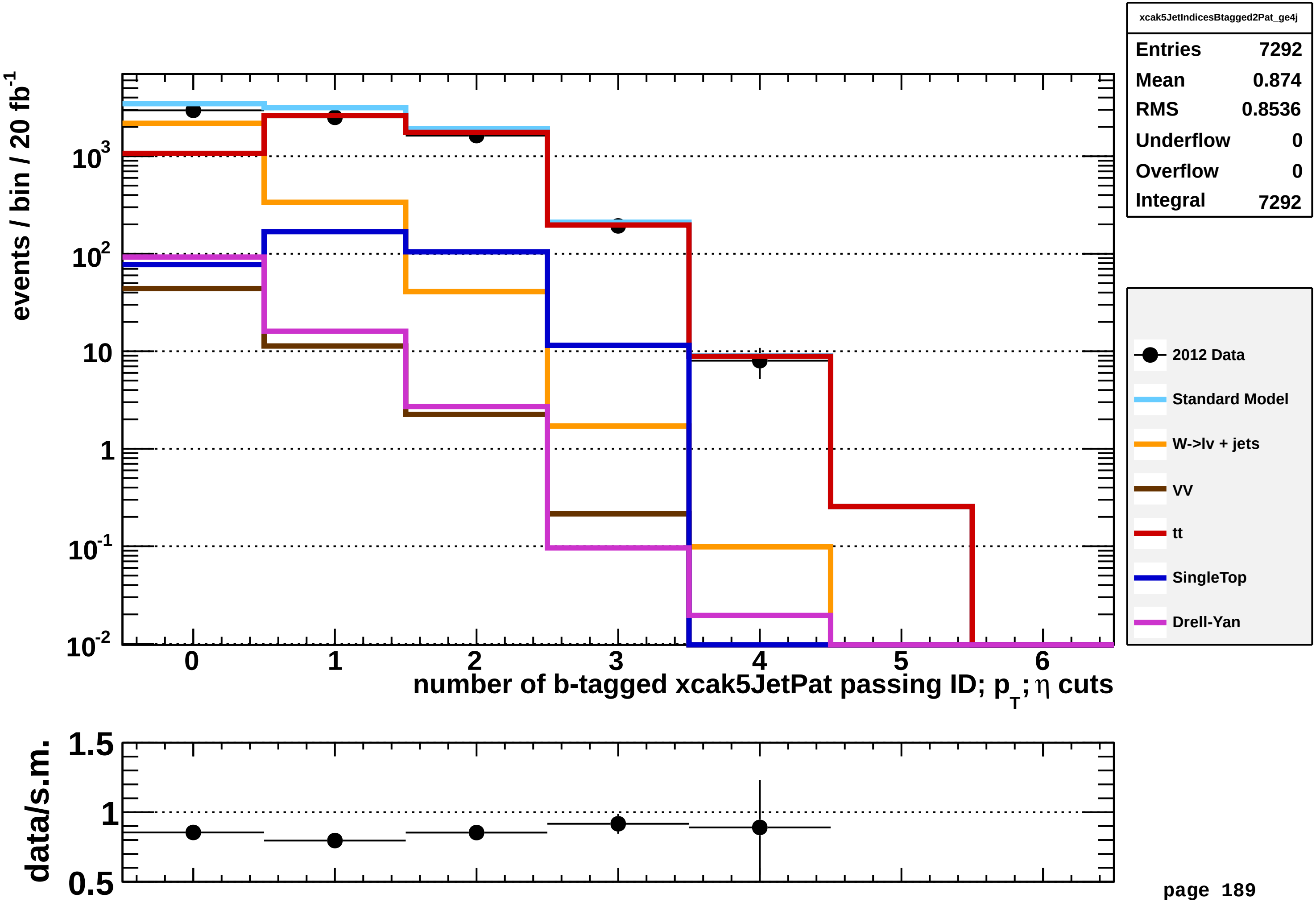

xcak5JetIndicesPat_le3j_eq1b
Entries 3421
Mean 2.679
RMS 0.4668
Underflow 0
Overflow 0
Integral 3421
events / bin / 20 fb^{-1}
10^3
10^2
10
0
2
4
6
8
10
12
14
number of xcak5JetPat passing ID; p_T; η cuts
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
data/s.m.
1.5
1
0.5

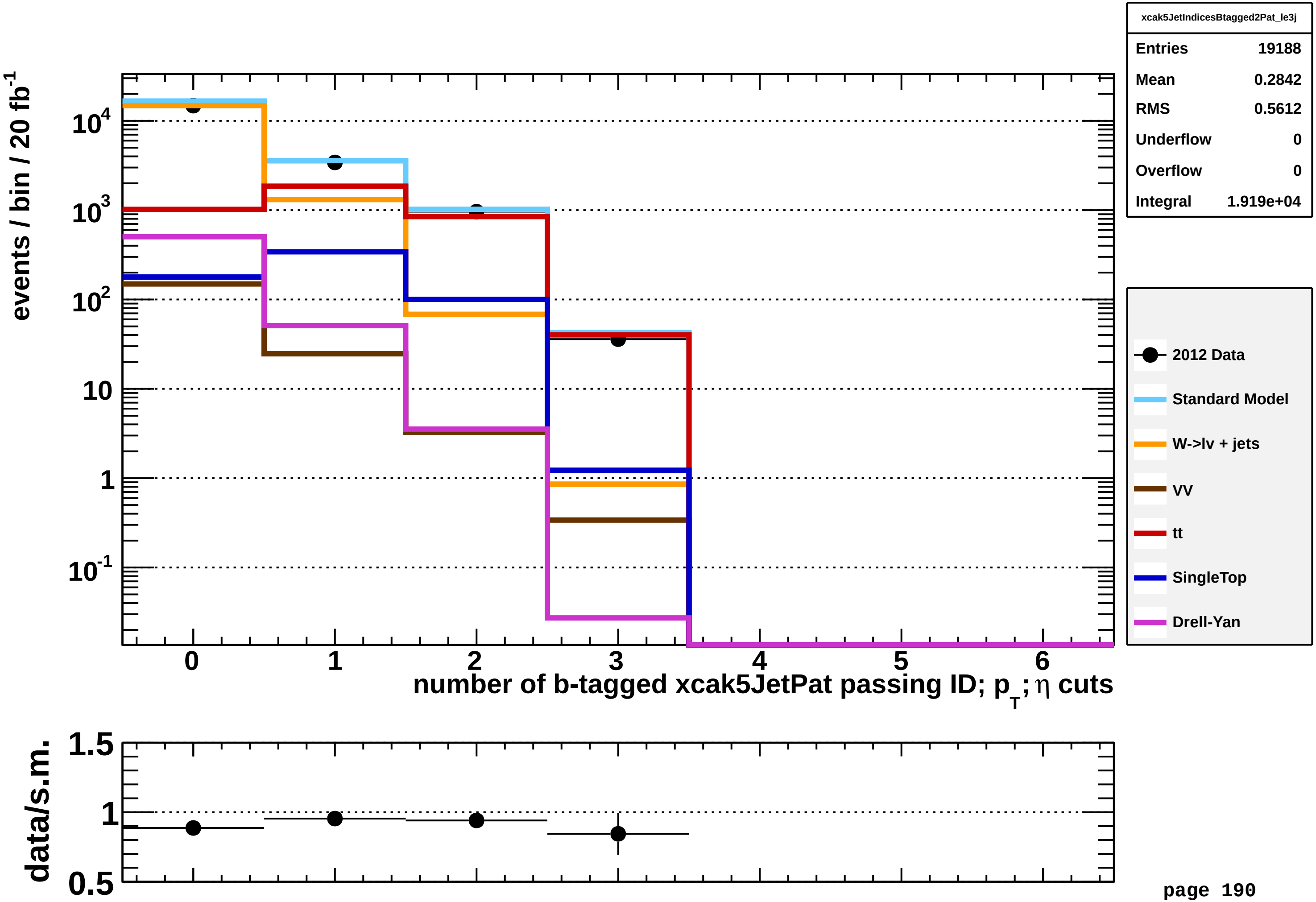

xcak5JetIndicesPat_le3j_eq2b
Entries 962
Mean 2.899
RMS 0.3011
Underflow 0
Overflow 0
Integral 962
events / bin / 20 fb^{-1}
10^3
10^2
10
1
0
2
4
6
8
10
12
14
number of xcak5JetPat passing ID; p_T; η cuts
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
data/s.m.
1.5
1
0.5

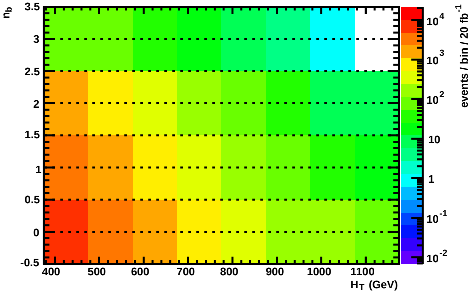

xcak5JetIndicesPat_le3j_eq3b
Entries 36
Mean 3
RMS 0
Underflow 0
Overflow 0
Integral 36
events / bin / 20 fb^{-1}
10
1
10^{-1}
0
2
4
6
8
10
12
14
number of xcak5JetPat passing ID; p_T; η cuts
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
data/s.m.
1.5
1
0.5

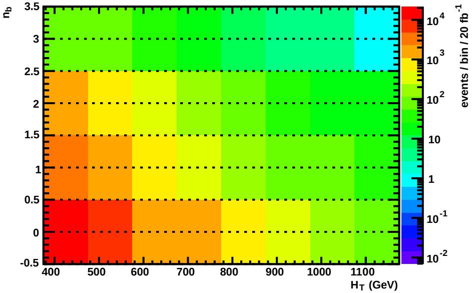

xcak5JetMhthighPtPatOvermetP4TypeIPF
Entries 26480
Mean 1.734
RMS 0.8073
Underflow 0
Overflow 0
Integral 2.648e+04
events / bin / 20 fb^{-1}
10^4
10^3
10^2
10
1
10^{-1}
0
0.5
1
1.5
2
2.5
3
MHT xcak5JethighPtPat / metP4TypeIPF
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
data/s.m.
1.5
1
0.5

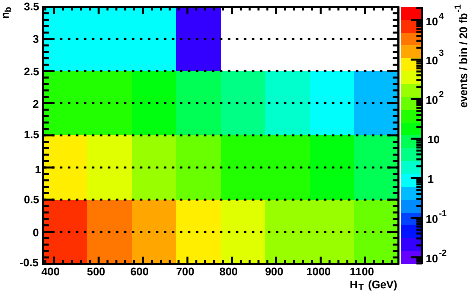

xcak5JetIndicesBtagged2Pat
Entries 26480
Mean 0.4466
RMS 0.7059
Underflow 0
Overflow 0
Integral 2.648e+04
events / bin / 20 fb^{-1}
10^4
10^3
10^2
10
1
10^{-1}
10^{-2}
0
1
2
3
4
5
6
number of b-tagged xcak5JetPat passing ID; p_T; η cuts
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
data/s.m.
1.5
1
0.5

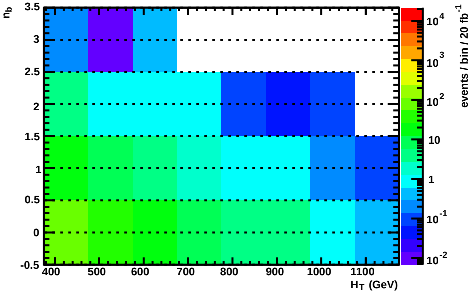

xcak5JetIndicesBtagged2Pat_ge4j
Entries 7292
Mean 0.874
RMS 0.8536
Underflow 0
Overflow 0
Integral 7292
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
events / bin / 20 fb^{-1}
10^{3}
10^{2}
10
1
10^{-1}
10^{-2}
0
1
2
3
4
5
6
number of b-tagged xcak5JetPat passing ID; p_T; η cuts
data/s.m.
1.5
1
0.5

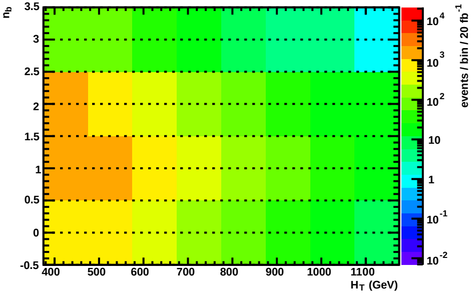

xcak5JetIndicesBtagged2Pat_le3j
Entries 19188
Mean 0.2842
RMS 0.5612
Underflow 0
Overflow 0
Integral 1.919e+04
events / bin / 20 fb^{-1}
10^4
10^3
10^2
10
1
10^{-1}
0
1
2
3
4
5
6
number of b-tagged xcak5JetPat passing ID; p_T; η cuts
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
data/s.m.
1.5
1
0.5

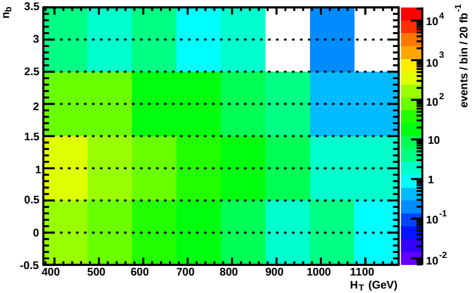

2012 Data

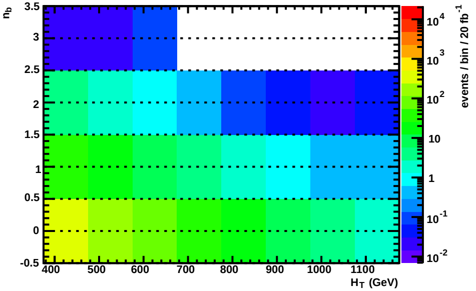

Standard Model


W->lv + jets

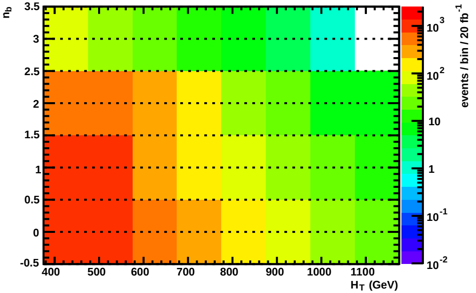

VV


tt

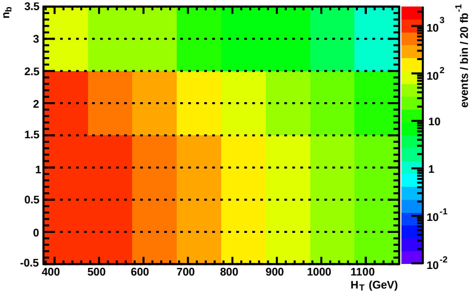

SingleTop


Drell-Yan

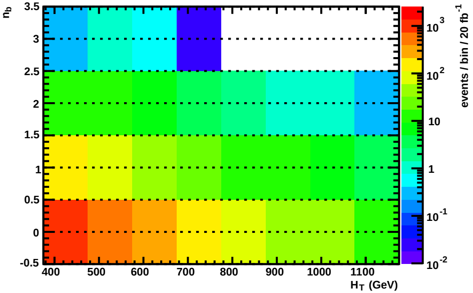
2012 Data



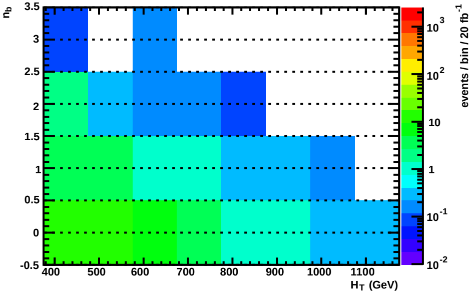
Standard Model



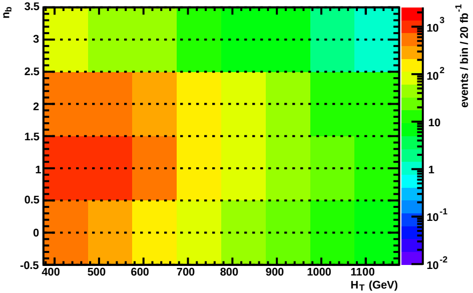
W->lv + jets



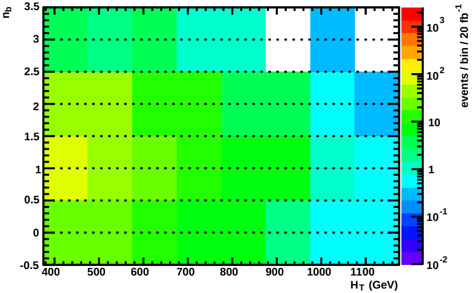
VV



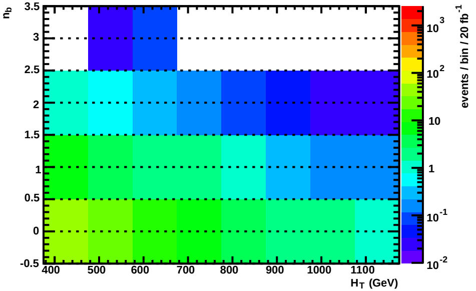
tt

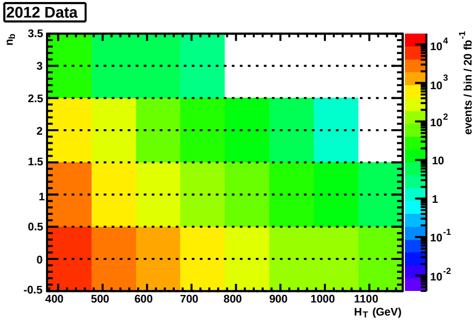


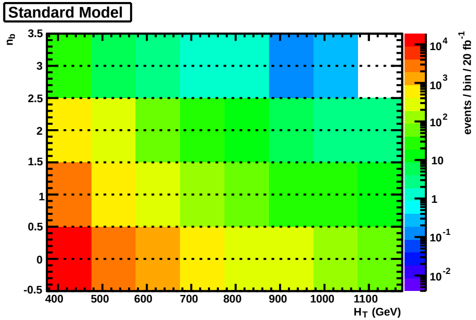
SingleTop

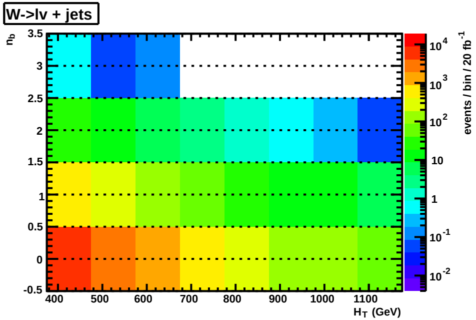


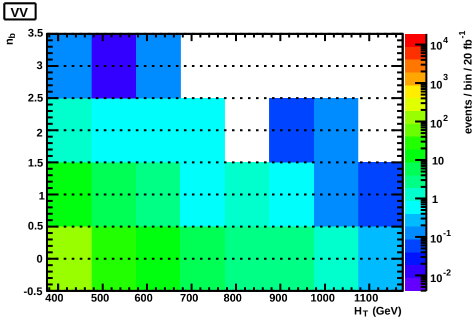
Drell-Yan

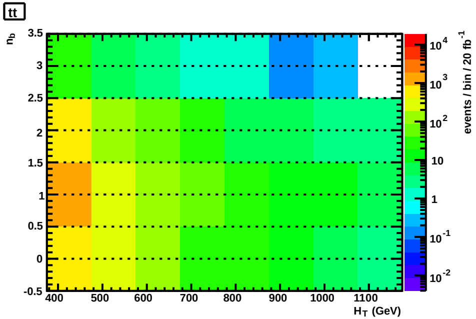


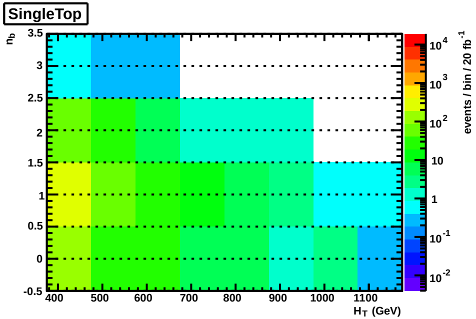

2012 Data
n_b
-0.5 0 0.5 1 1.5 2 2.5 3 3.5
400 500 600 700 800 900 1000 1100
H_T (GeV)
10^{-2} 10^{-1} 1 10 10^2 10^3 10^4
events / bin / 20 fb^{-1}

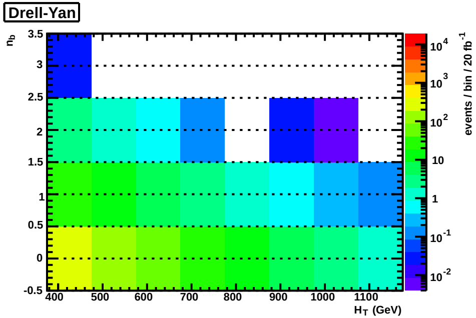

Standard Model
n_b
-0.5 0 0.5 1 1.5 2 2.5 3 3.5
400 500 600 700 800 900 1000 1100
H_T (GeV)
10^{-2} 10^{-1} 1 10 10^2 10^3 10^4
events / bin / 20 fb^{-1}

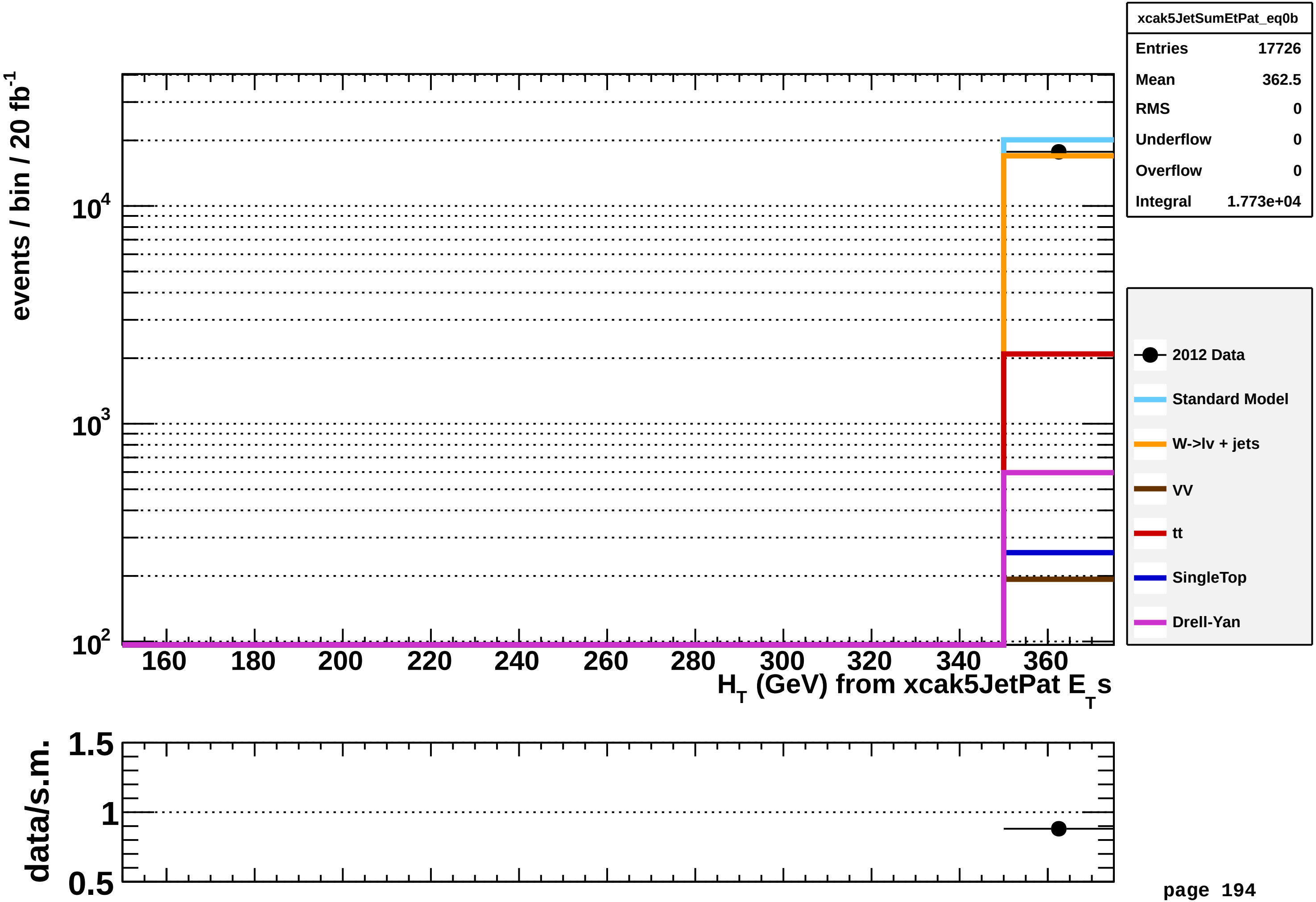

W->lv + jets
n_b
-0.5 0 0.5 1 1.5 2 2.5 3 3.5
400 500 600 700 800 900 1000 1100
H_T (GeV)
10^{-2} 10^{-1} 1 10 10^2 10^3 10^4
events / bin / 20 fb^{-1}

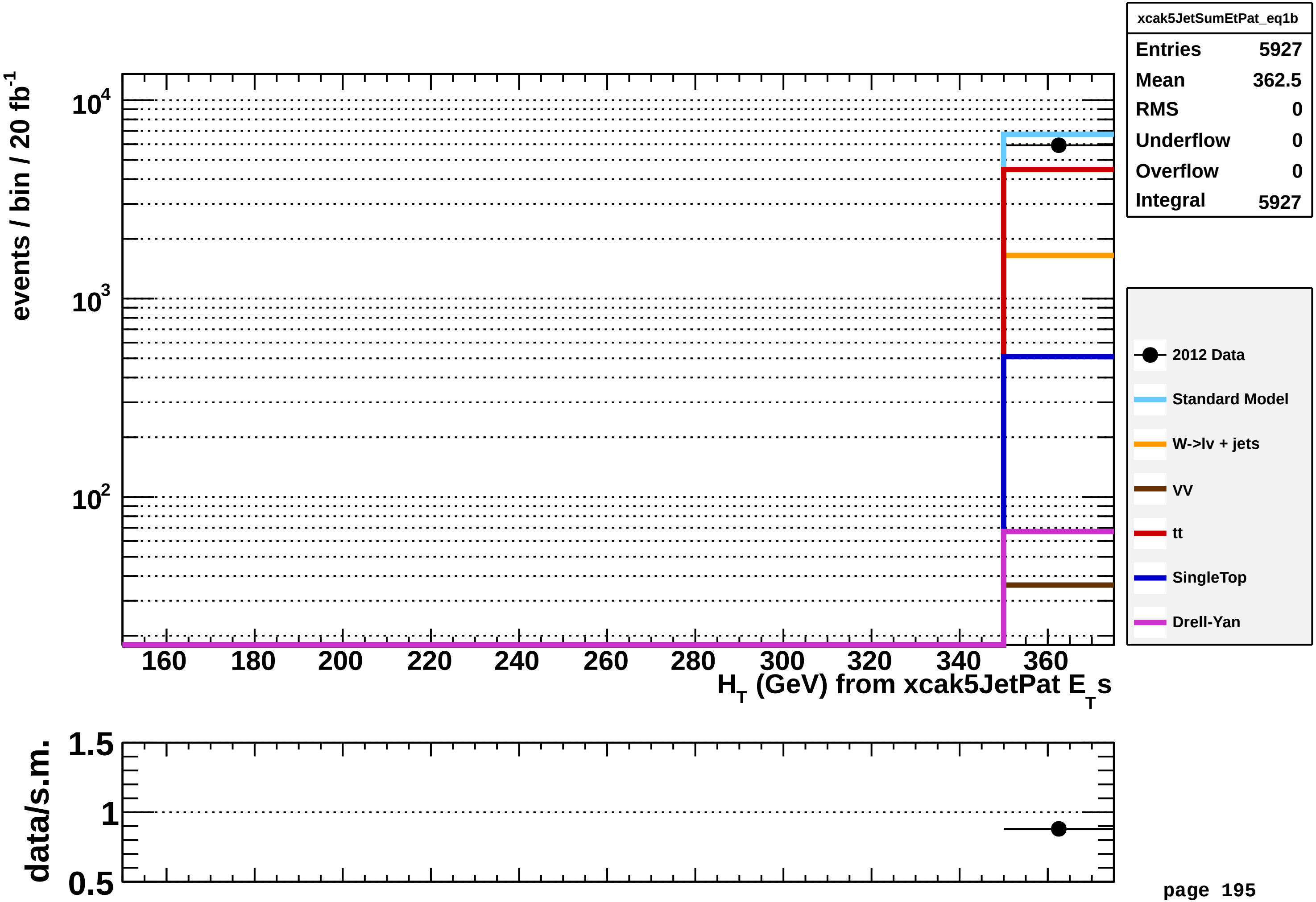

VV
n_b
-0.5 0 0.5 1 1.5 2 2.5 3 3.5
400 500 600 700 800 900 1000 1100
H_T (GeV)
10^{-2} 10^{-1} 1 10 10^2 10^3 10^4
events / bin / 20 fb^{-1}

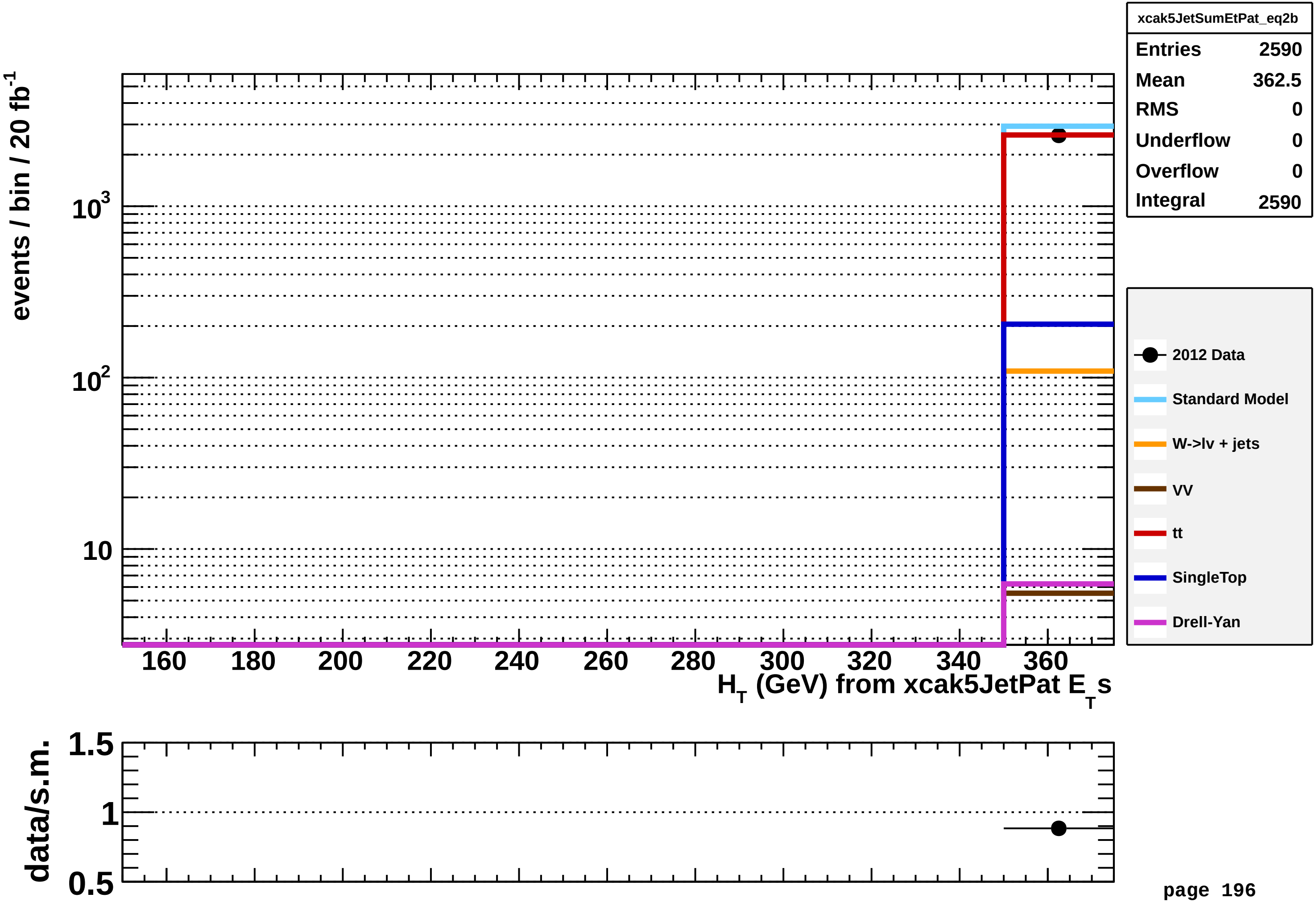

tt
n_b
-0.5 0 0.5 1 1.5 2 2.5 3 3.5
400 500 600 700 800 900 1000 1100
H_T (GeV)
10^{-2} 10^{-1} 1 10 10^2 10^3 10^4
events / bin / 20 fb^{-1}


SingleTop
n_b
-0.5 0 0.5 1 1.5 2 2.5 3 3.5
400 500 600 700 800 900 1000 1100
H_T (GeV)
10^{-2} 10^{-1} 1 10 10^2 10^3 10^4
events / bin / 20 fb^{-1}

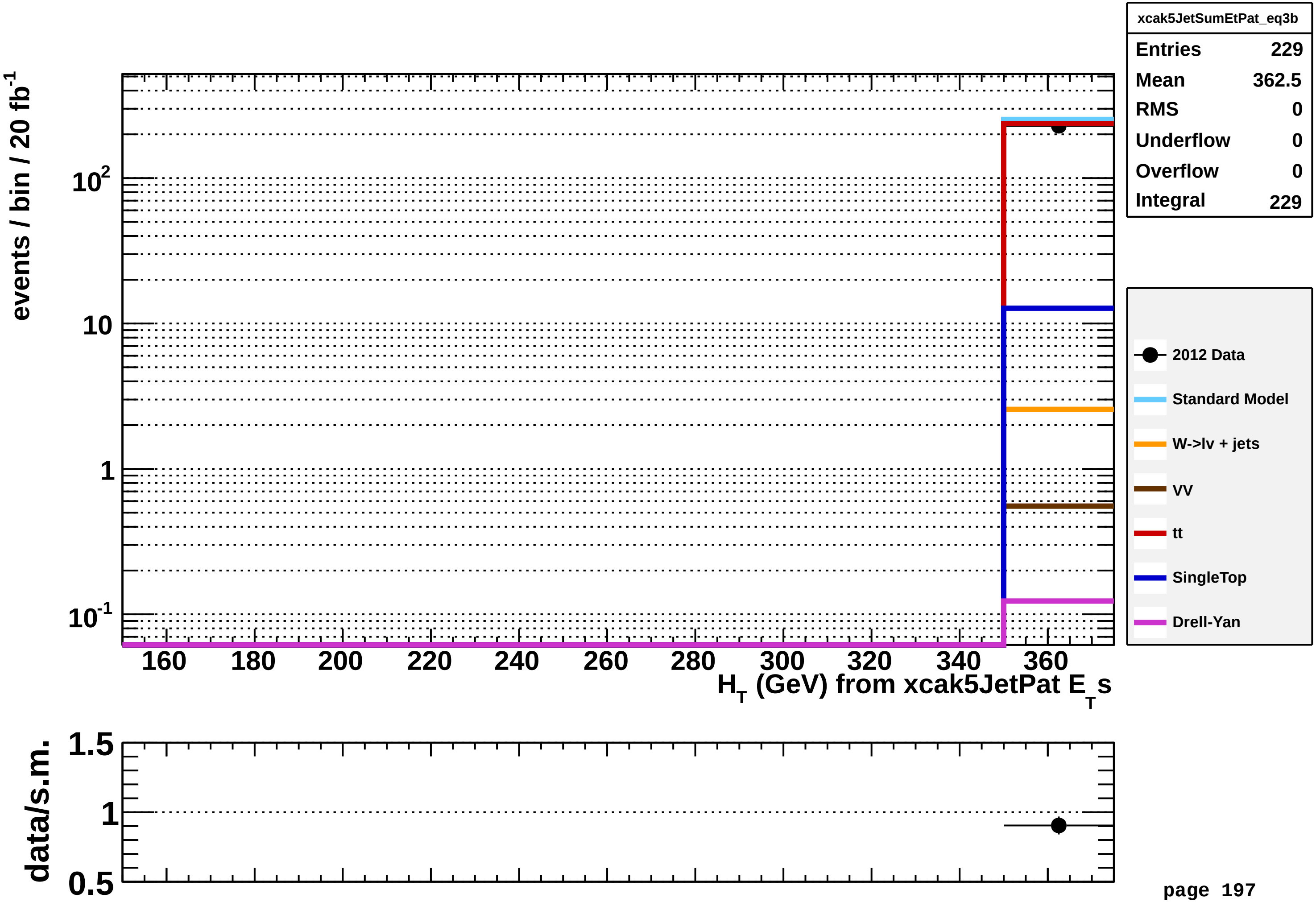

Drell-Yan
n_b
-0.5 0 0.5 1 1.5 2 2.5 3 3.5
400 500 600 700 800 900 1000 1100
H_T (GeV)
10^{-2} 10^{-1} 1 10 10^2 10^3 10^4
events / bin / 20 fb^{-1}

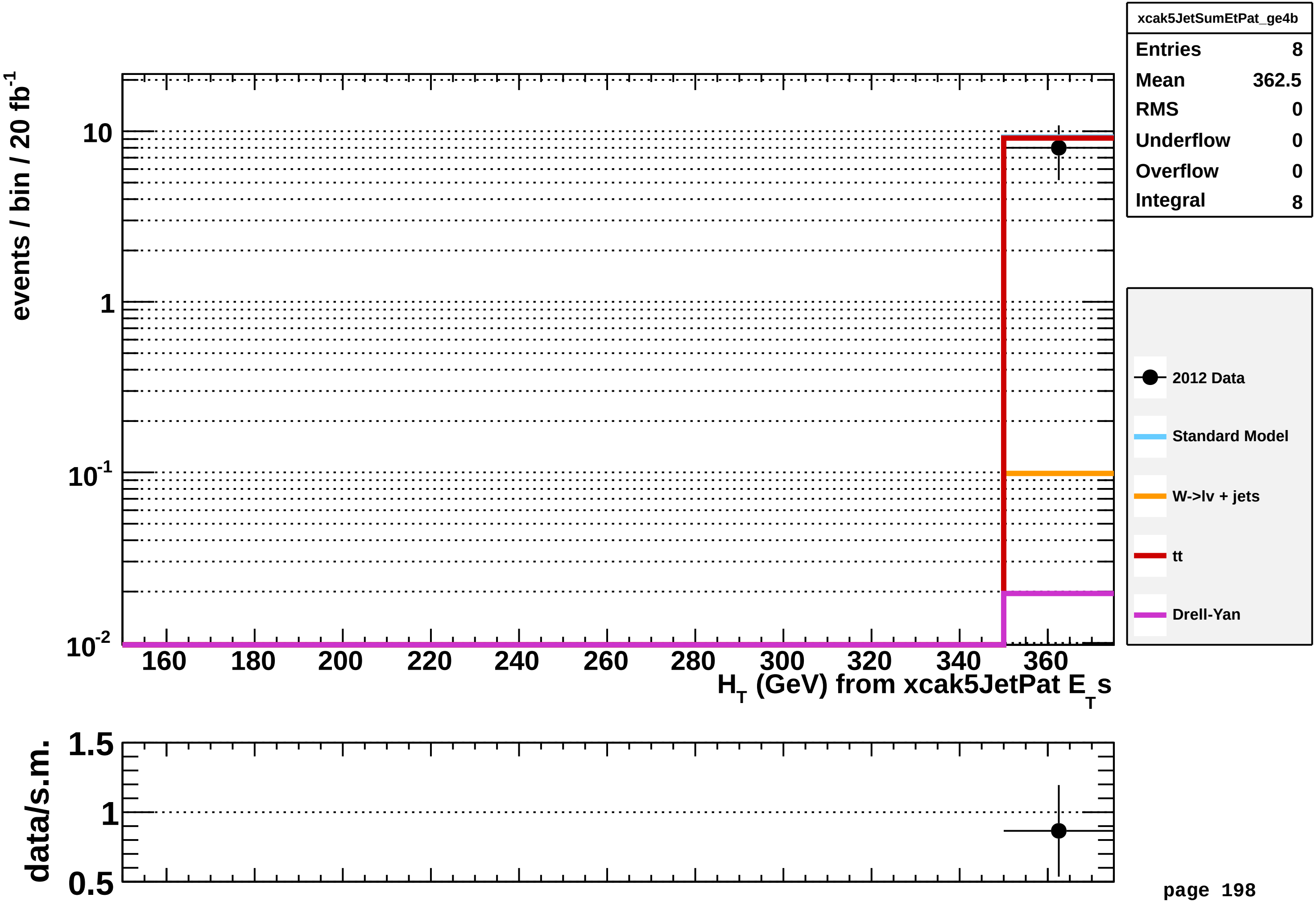

xcak5JetSumEtPat_eq0b
Entries 17726
Mean 362.5
RMS 0
Underflow 0
Overflow 0
Integral 1.773e+04
events / bin / 20 fb^{-1}
10^4
10^3
10^2
160
180
200
220
240
260
280
300
320
340
360
H_T (GeV) from xcak5JetPat E_Ts
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
data/s.m.
1.5
1
0.5

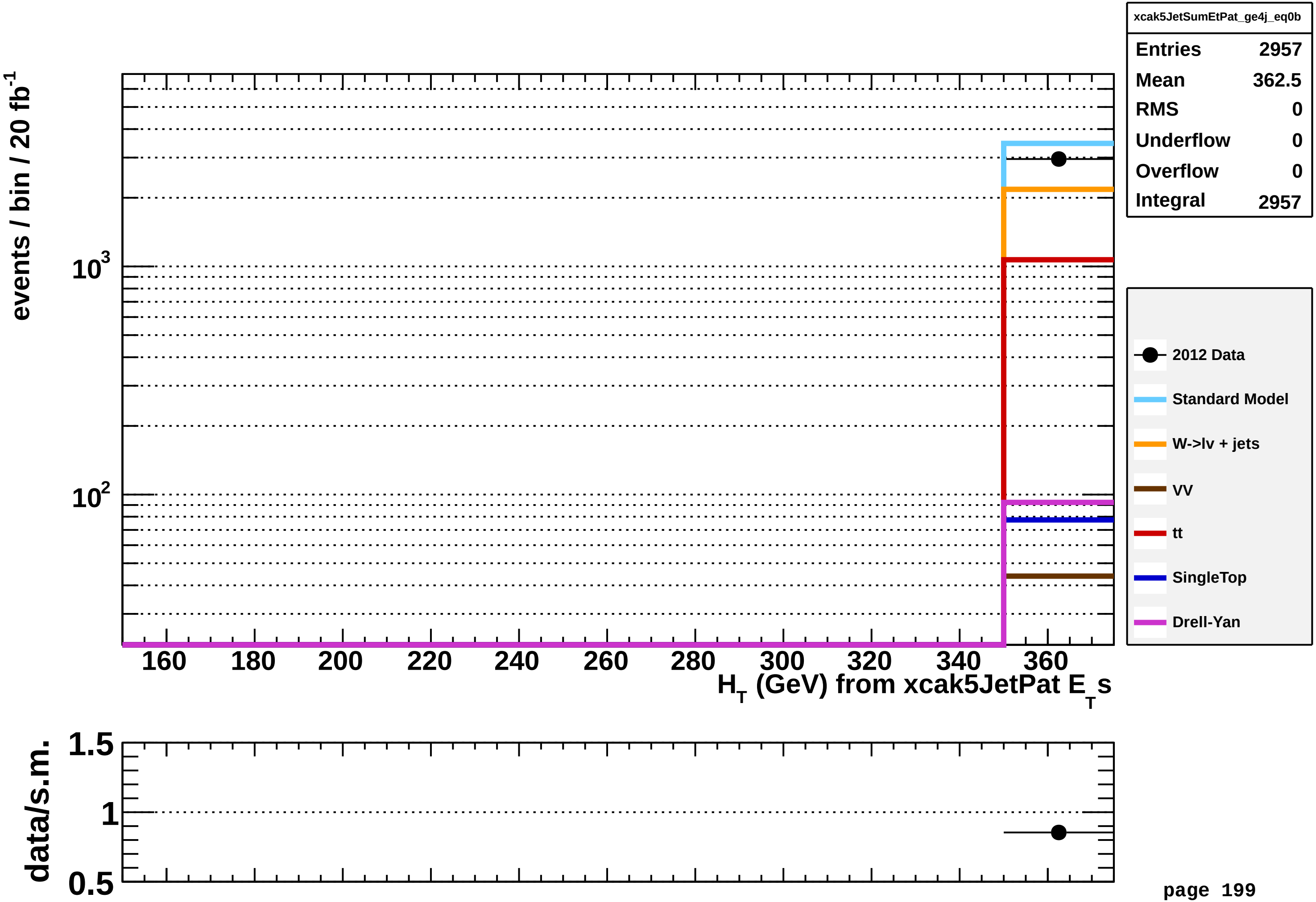

xcak5JetSumEtPat_eq1b
Entries 5927
Mean 362.5
RMS 0
Underflow 0
Overflow 0
Integral 5927
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
events / bin / 20 fb^{-1}
10^4
10^3
10^2
160
180
200
220
240
260
280
300
320
340
360
H_T (GeV) from xcak5JetPat E_Ts
data/s.m.
1.5
1
0.5

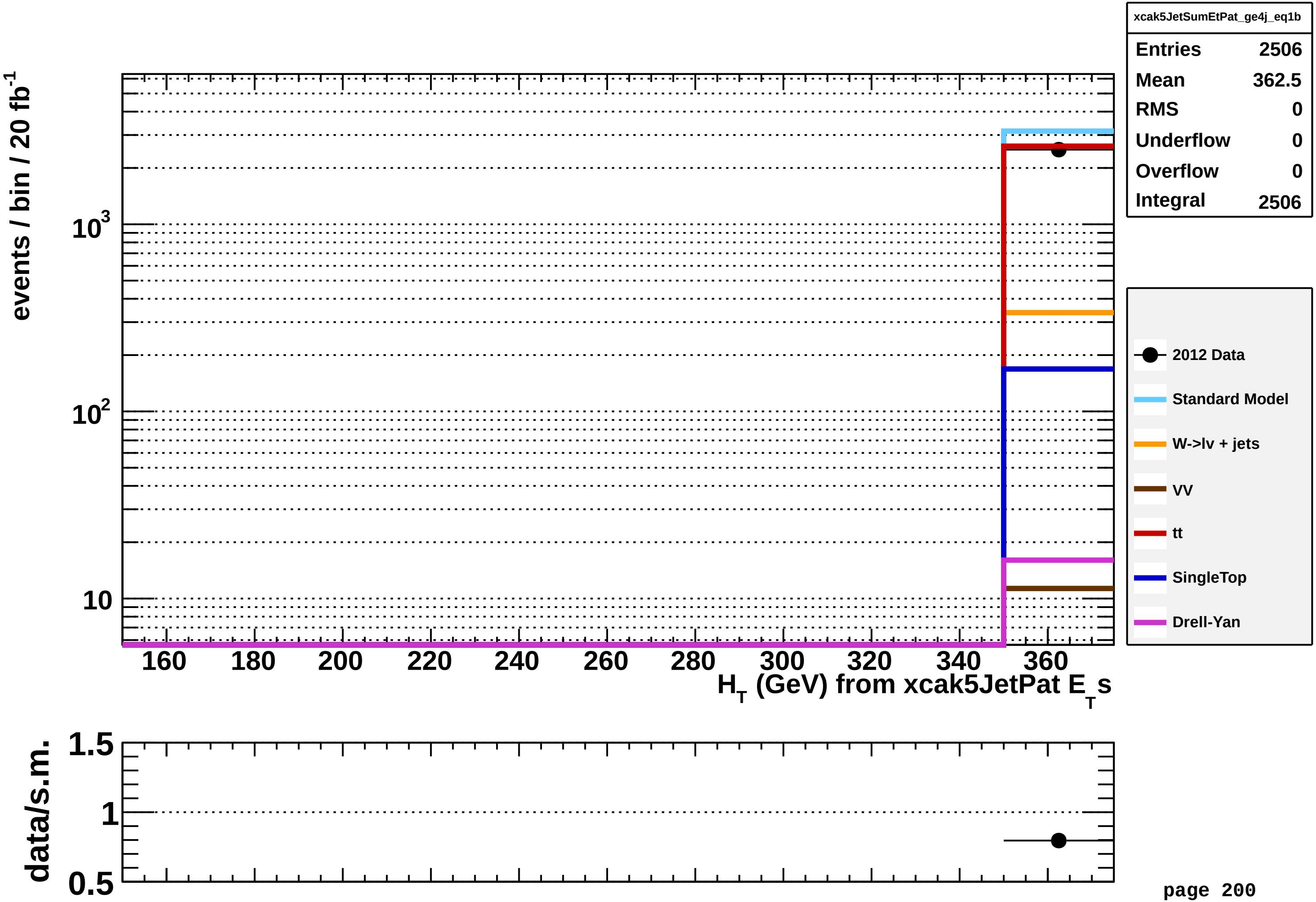


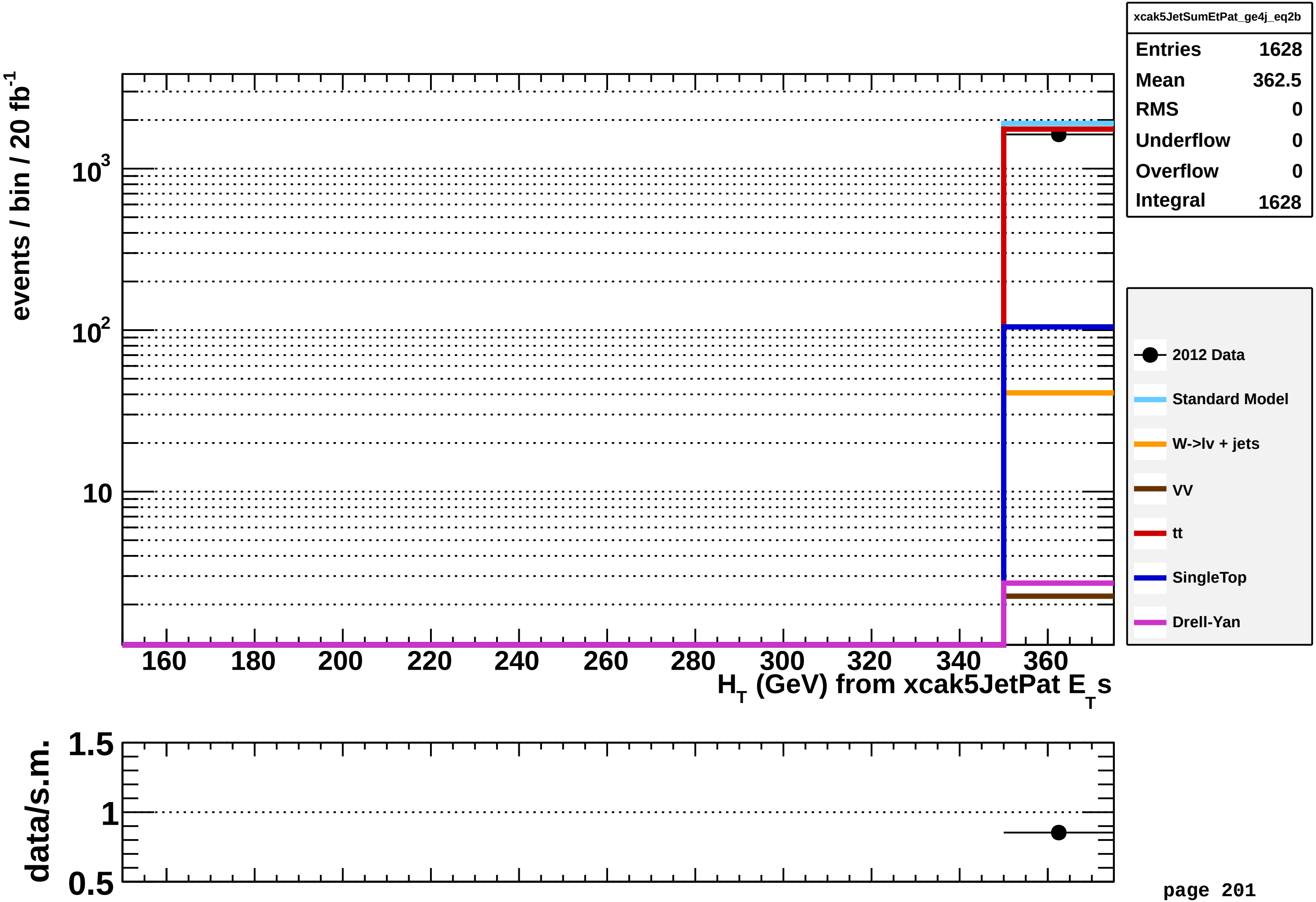
xcak5JetSumEtPat_eq2b
Entries 2590
Mean 362.5
RMS 0
Underflow 0
Overflow 0
Integral 2590
events / bin / 20 fb^{-1}
10^3
10^2
10
160
180
200
220
240
260
280
300
320
340
360
H_T (GeV) from xcak5JetPat E_Ts
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
data/s.m.
1.5
1
0.5

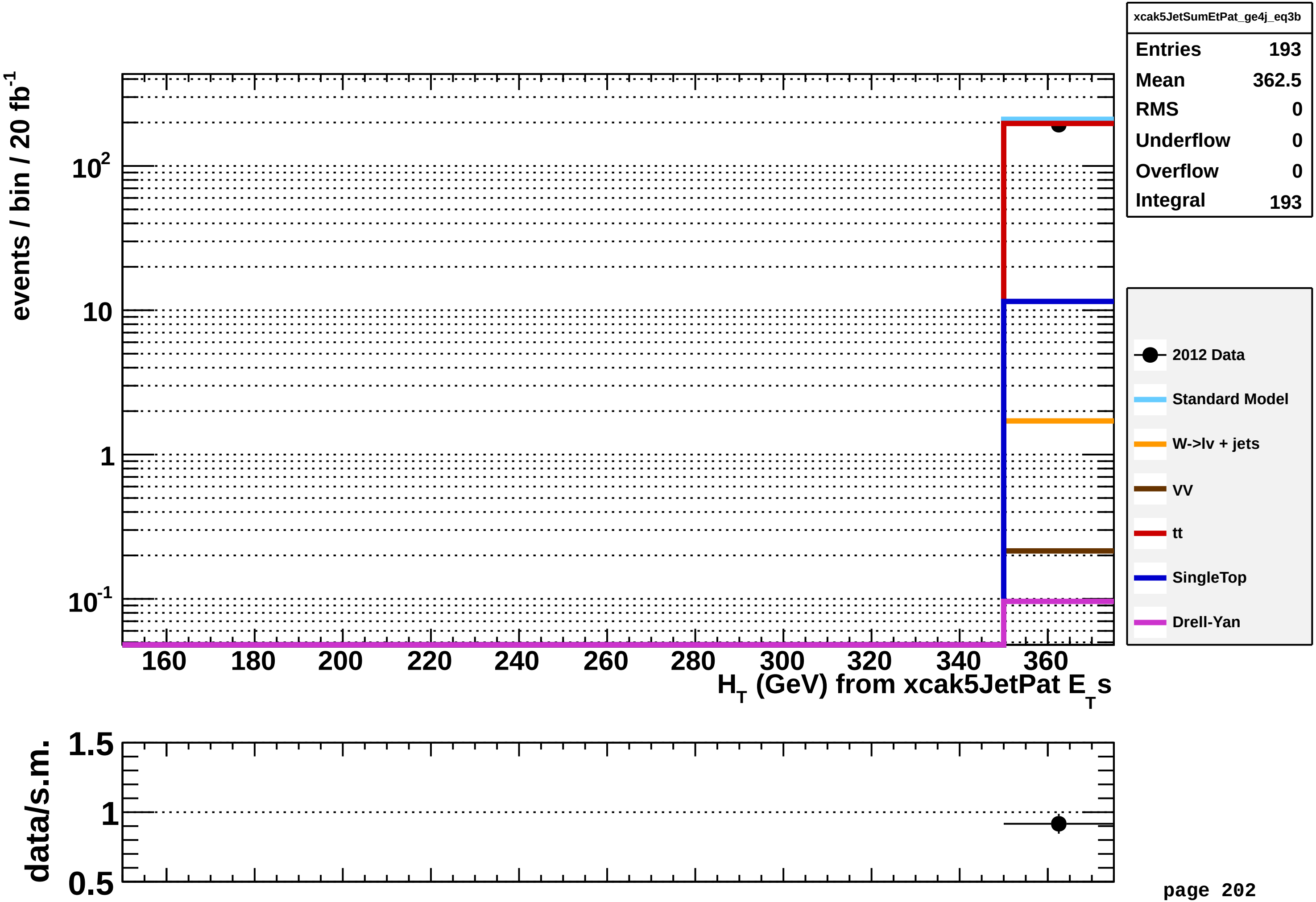

xcak5JetSumEtPat_eq3b
Entries 229
Mean 362.5
RMS 0
Underflow 0
Overflow 0
Integral 229
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
events / bin / 20 fb^{-1}
10^2
10
1
10^{-1}
160
180
200
220
240
260
280
300
320
340
360
H_T (GeV) from xcak5JetPat E_Ts
data/s.m.
1.5
1
0.5

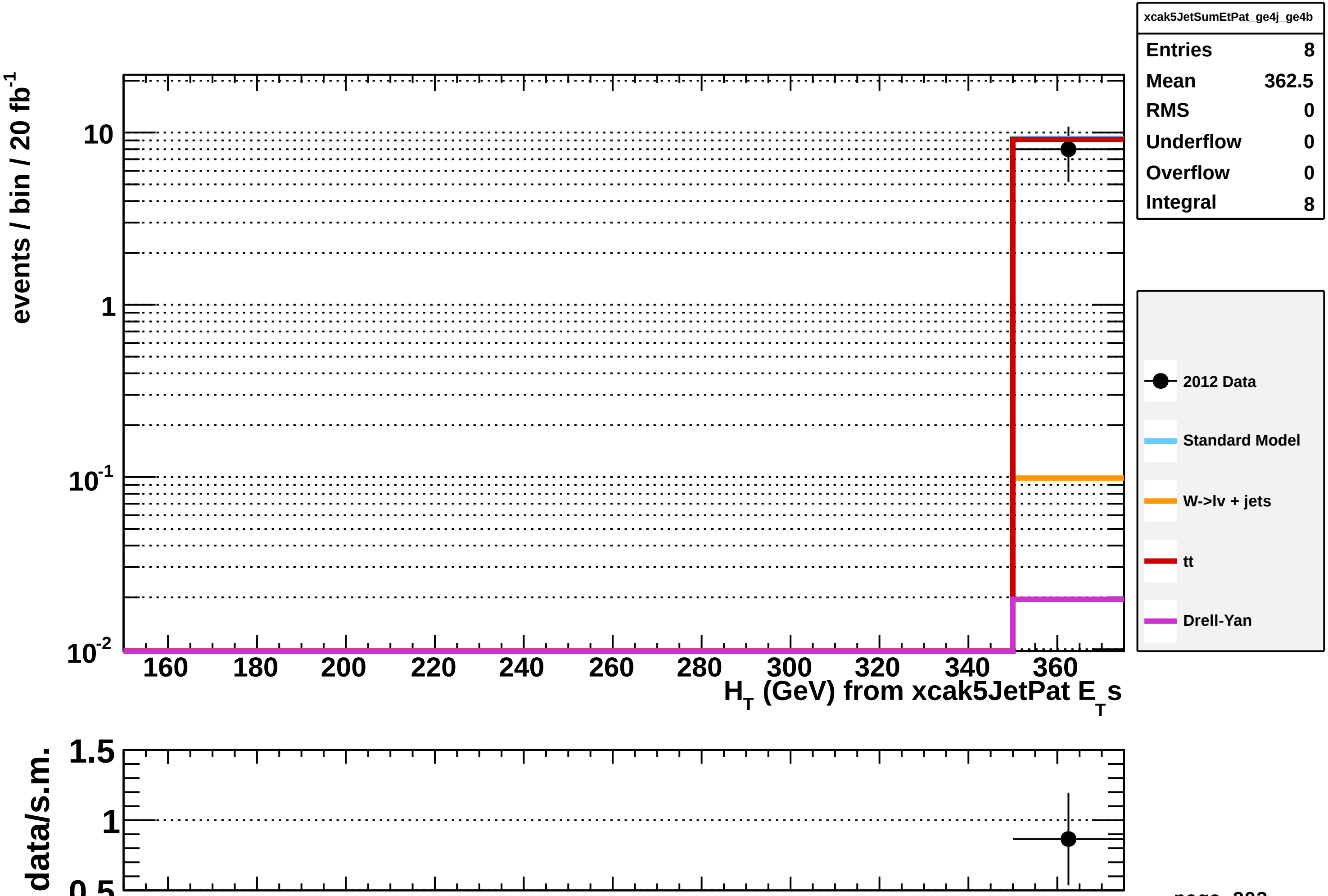

xcak5JetSumEtPat_ge4b
Entries 8
Mean 362.5
RMS 0
Underflow 0
Overflow 0
Integral 8
events / bin / 20 fb^{-1}
10
1
10^{-1}
10^{-2}
160
180
200
220
240
260
280
300
320
340
360
H_T (GeV) from xcak5JetPat E_Ts
2012 Data
Standard Model
W->lv + jets
tt
Drell-Yan
data/s.m.
1.5
1
0.5

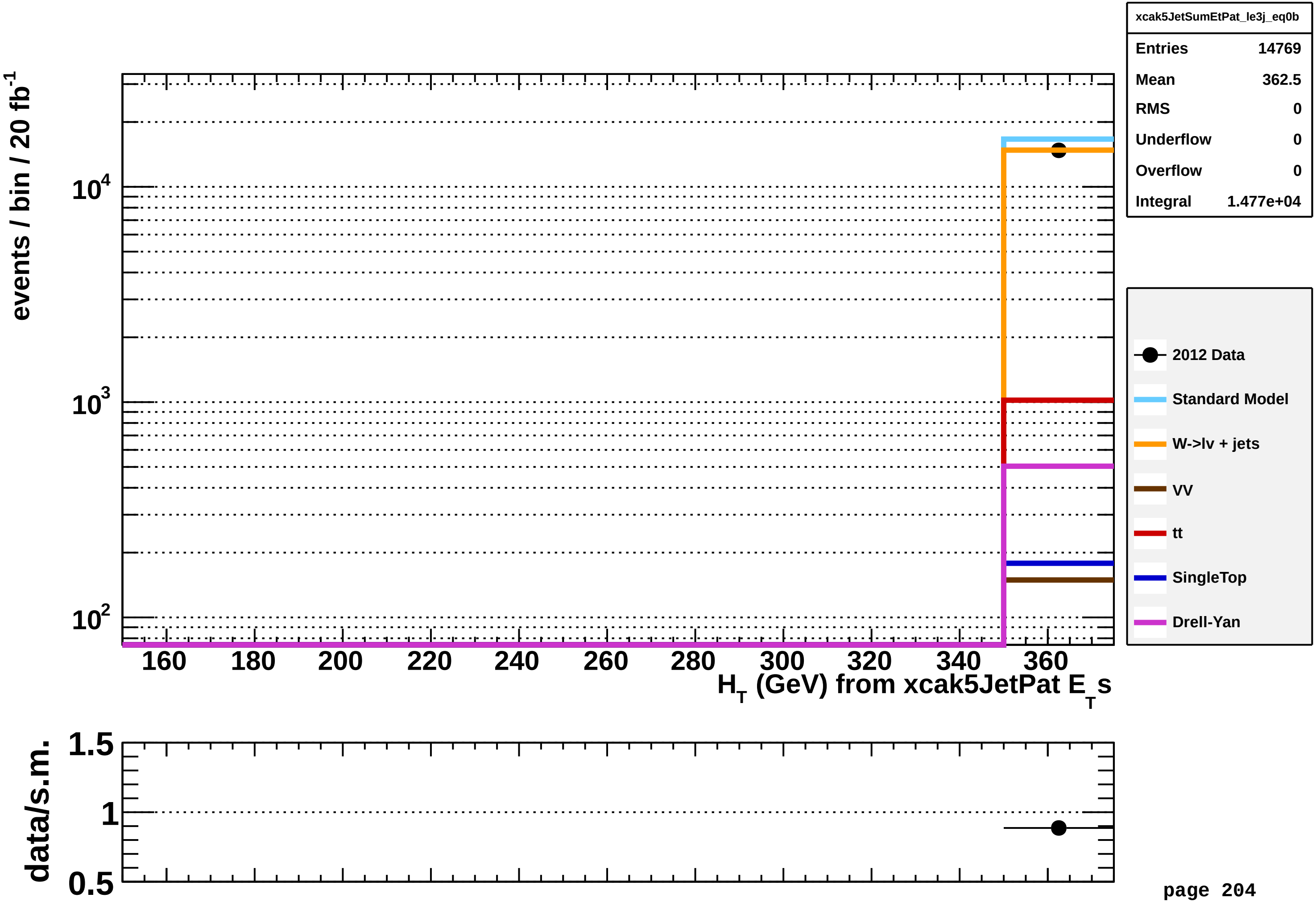

xcak5JetSumEtPat_ge4j_eq0b
Entries 2957
Mean 362.5
RMS 0
Underflow 0
Overflow 0
Integral 2957
events / bin / 20 fb^{-1}
10^3
10^2
160
180
200
220
240
260
280
300
320
340
360
H_T (GeV) from xcak5JetPat E_Ts
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
data/s.m.
1.5
1
0.5

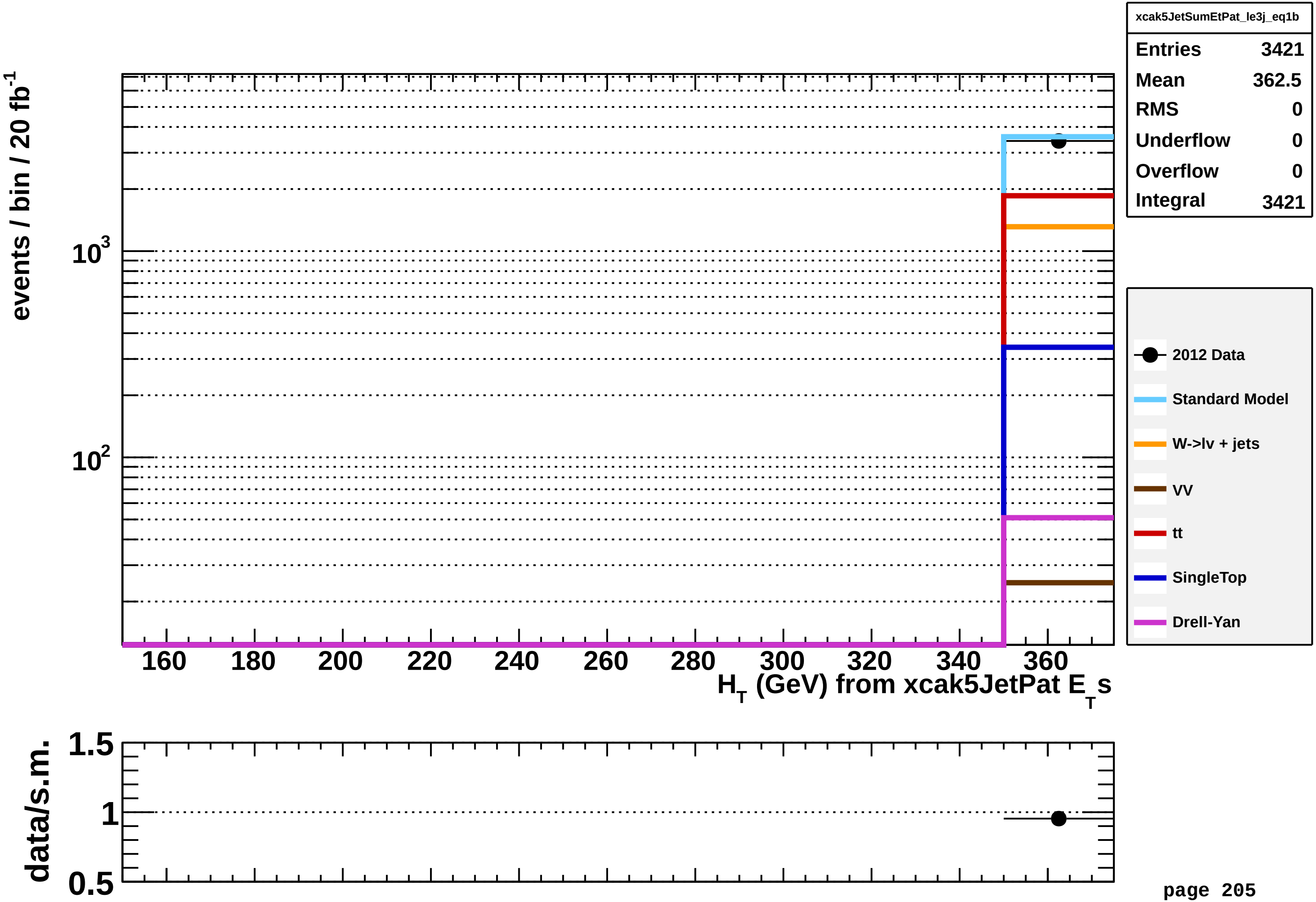

xcak5JetSumEtPat_ge4j_eq1b
Entries 2506
Mean 362.5
RMS 0
Underflow 0
Overflow 0
Integral 2506
events / bin / 20 fb^{-1}
10^3
10^2
10
160
180
200
220
240
260
280
300
320
340
360
H_T (GeV) from xcak5JetPat E_Ts
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
data/s.m.
1.5
1
0.5

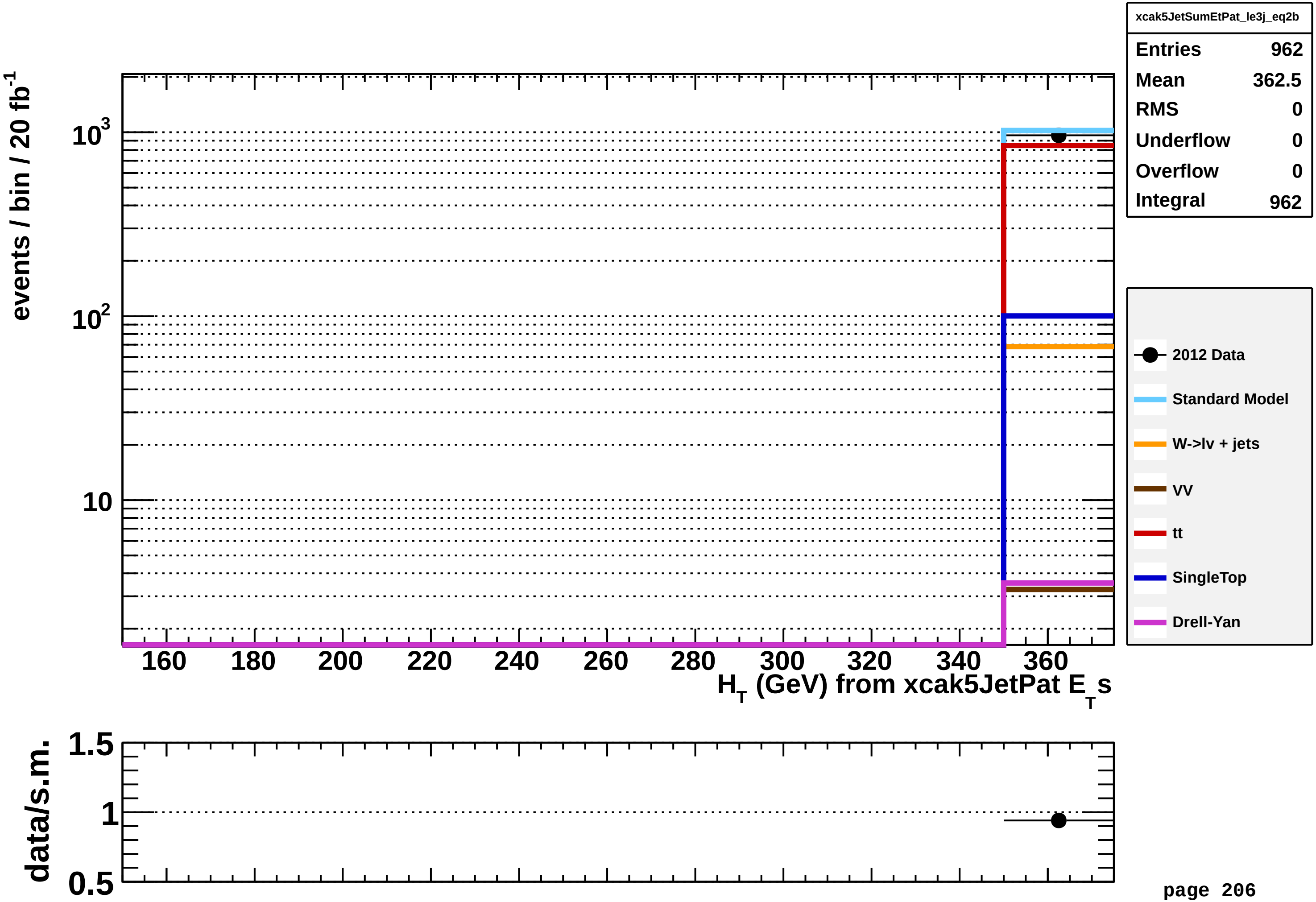

xcak5JetSumEtPat_ge4j_eq2b
Entries 1628
Mean 362.5
RMS 0
Underflow 0
Overflow 0
Integral 1628
events / bin / 20 fb^{-1}
10^3
10^2
10
160
180
200
220
240
260
280
300
320
340
360
H_T (GeV) from xcak5JetPat E_Ts
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
data/s.m.
1.5
1
0.5

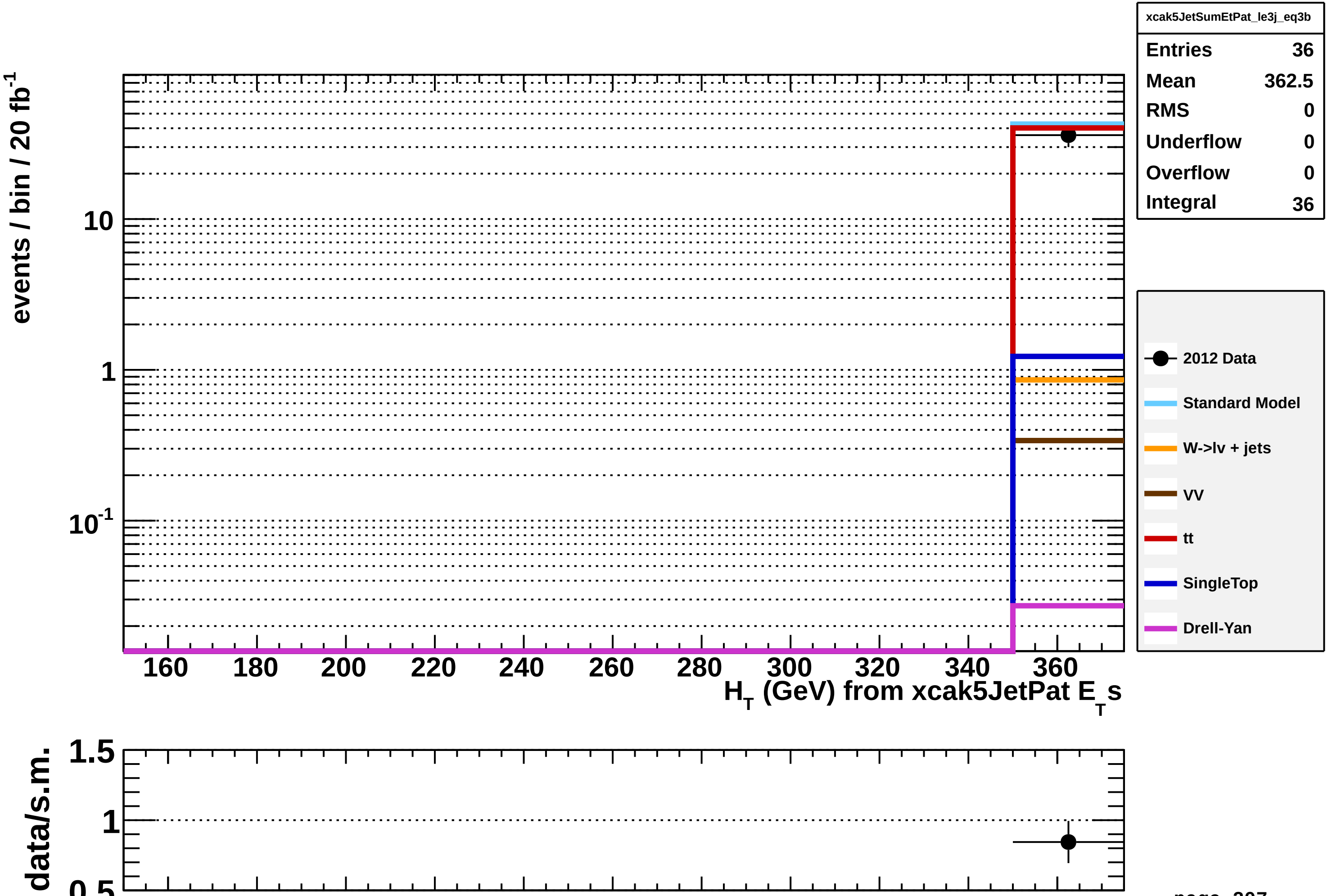

xcak5JetSumEtPat_ge4j_eq3b
Entries 193
Mean 362.5
RMS 0
Underflow 0
Overflow 0
Integral 193
events / bin / 20 fb^{-1}
10^2
10
1
10^{-1}
160
180
200
220
240
260
280
300
320
340
360
H_T (GeV) from xcak5JetPat E_Ts
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
data/s.m.
1.5
1
0.5

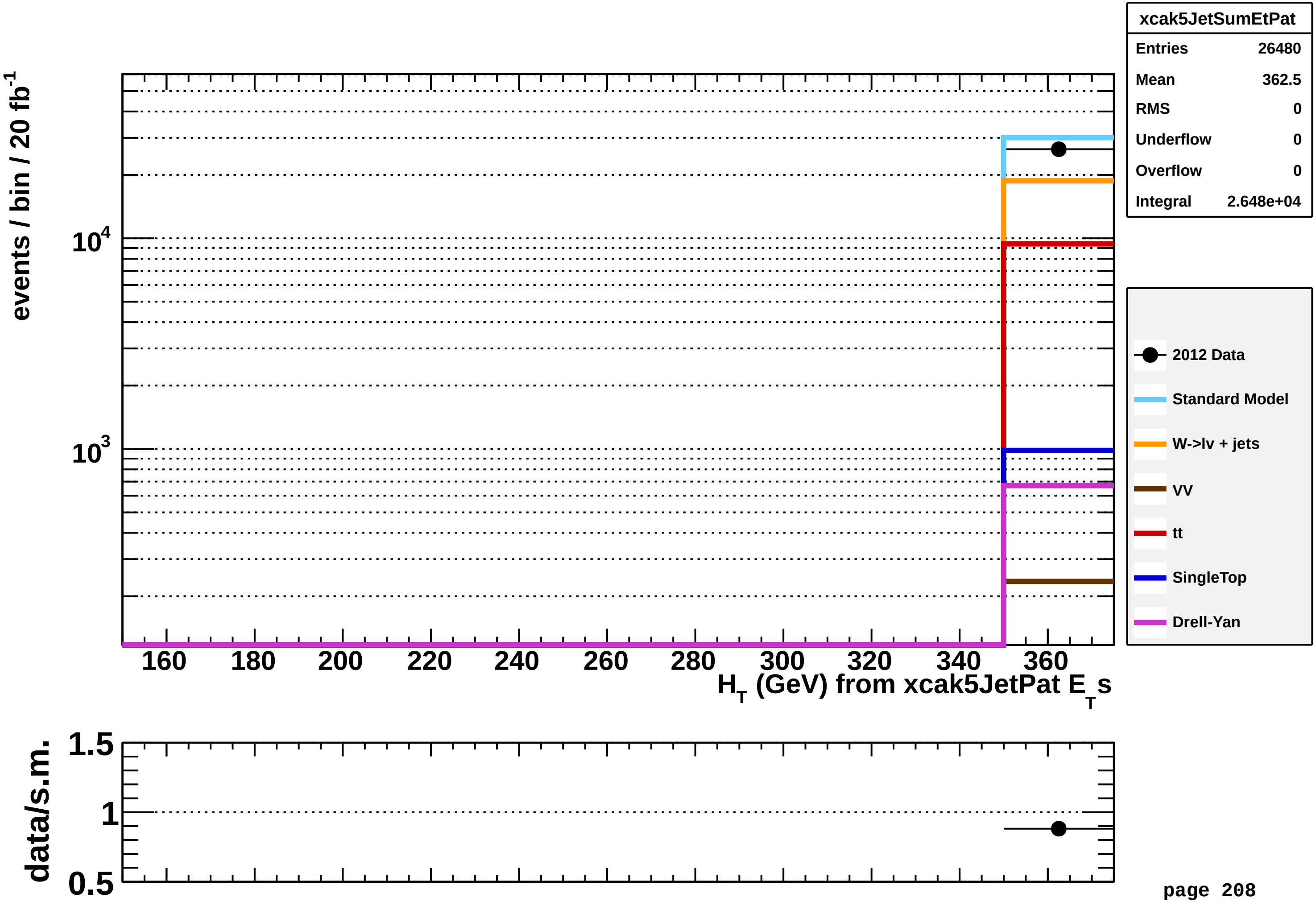

xcak5JetSumEtPat_ge4j_ge4b
Entries 8
Mean 362.5
RMS 0
Underflow 0
Overflow 0
Integral 8
events / bin / 20 fb^{-1}
10
1
10^{-1}
10^{-2}
160
180
200
220
240
260
280
300
320
340
360
H_T (GeV) from xcak5JetPat E_Ts
2012 Data
Standard Model
W->lv + jets
tt
Drell-Yan
data/s.m.
1.5
1
0.5

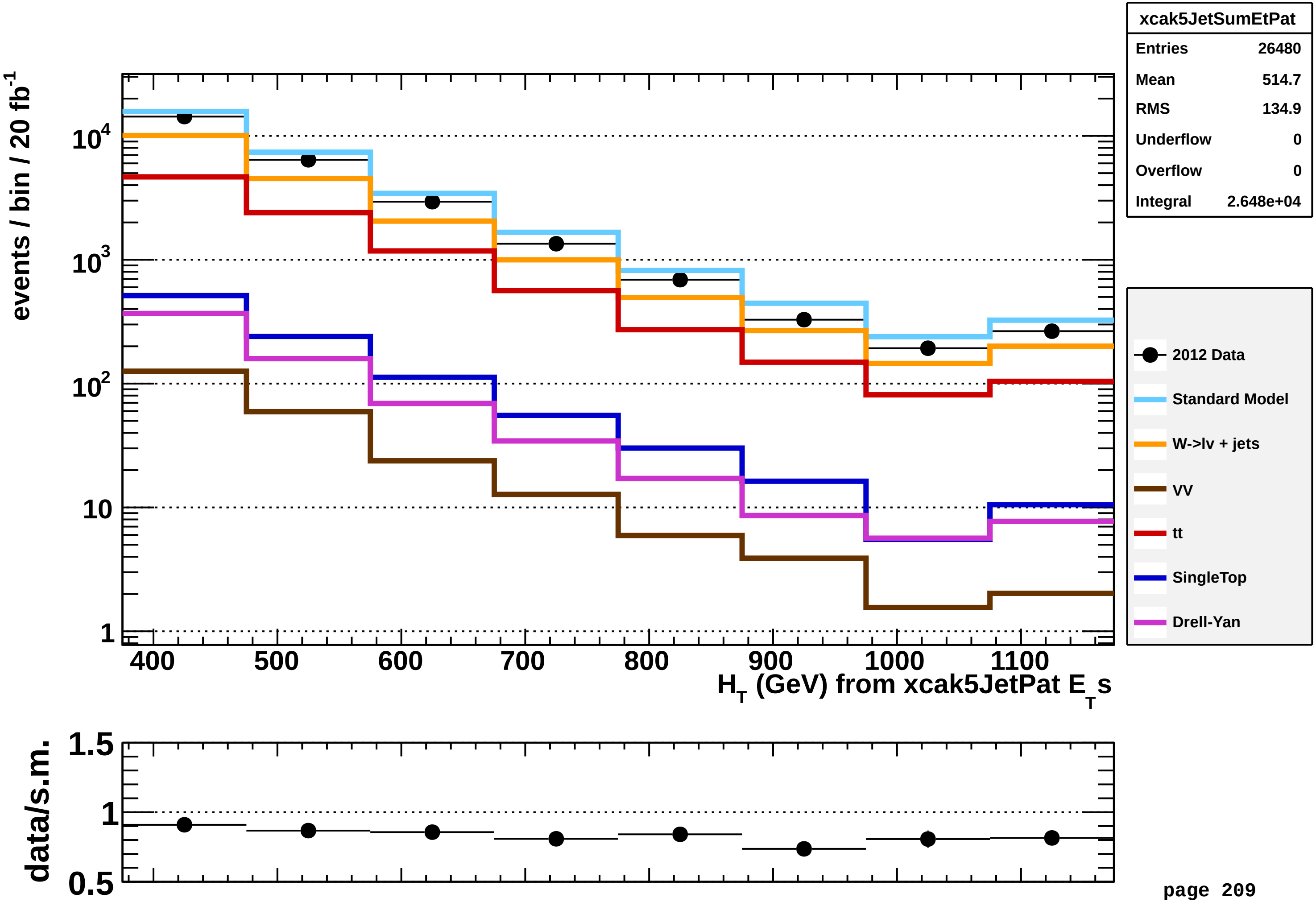

xcak5JetSumEtPat_le3j_eq0b
Entries 14769
Mean 362.5
RMS 0
Underflow 0
Overflow 0
Integral 1.477e+04
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
events / bin / 20 fb^{-1}
10^4
10^3
10^2
160
180
200
220
240
260
280
300
320
340
360
H_T (GeV) from xcak5JetPat E_Ts
data/s.m.
1.5
1
0.5

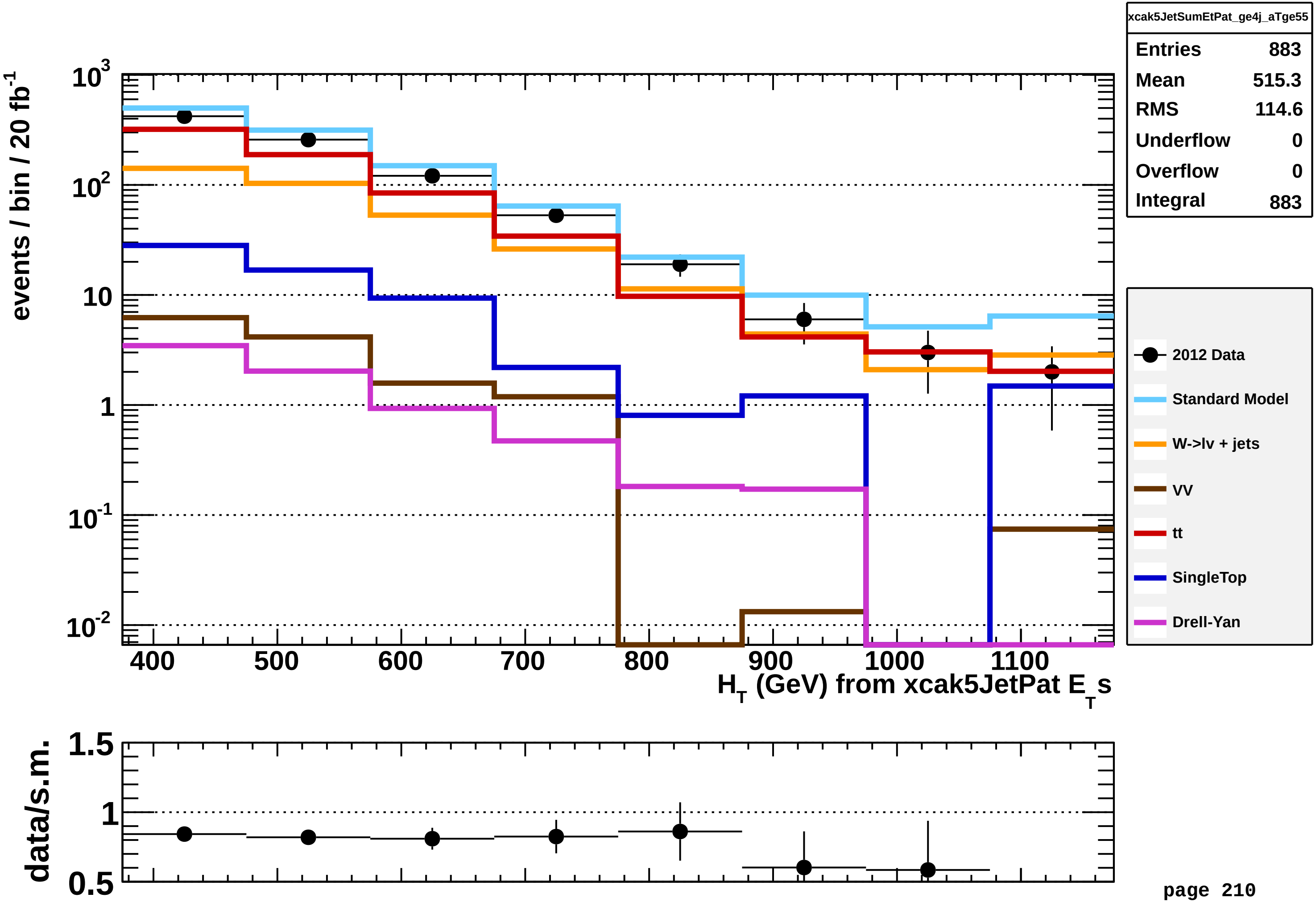

xcak5JetSumEtPat_le3j_eq1b
Entries 3421
Mean 362.5
RMS 0
Underflow 0
Overflow 0
Integral 3421
events / bin / 20 fb^{-1}
10^3
10^2
160
180
200
220
240
260
280
300
320
340
360
H_T (GeV) from xcak5JetPat E_Ts
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
data/s.m.
1.5
1
0.5

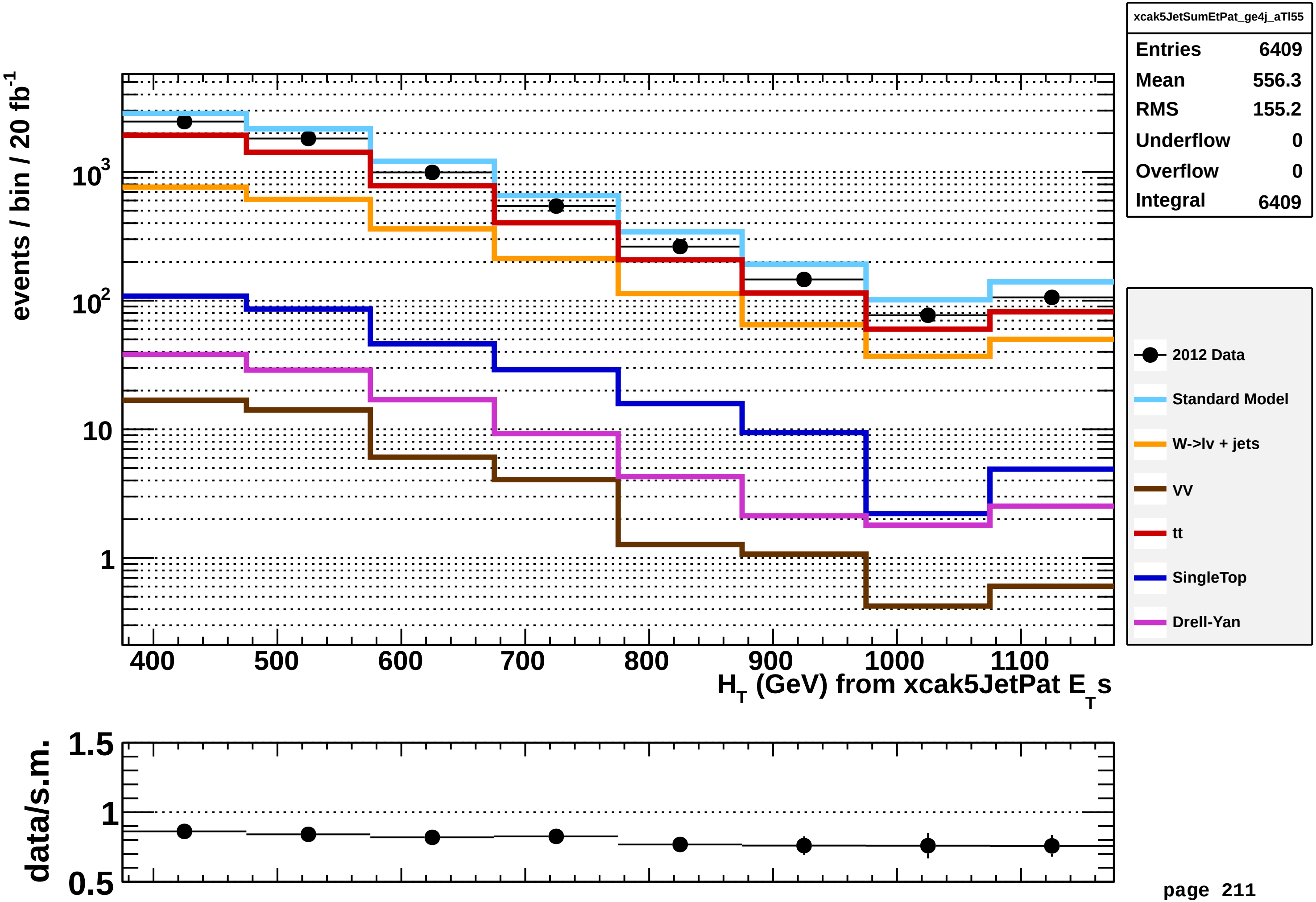

xcak5JetSumEtPat_le3j_eq2b
Entries 962
Mean 362.5
RMS 0
Underflow 0
Overflow 0
Integral 962
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
events / bin / 20 fb^{-1}
10^3
10^2
10
160
180
200
220
240
260
280
300
320
340
360
H_T (GeV) from xcak5JetPat E_Ts
data/s.m.
1.5
1
0.5

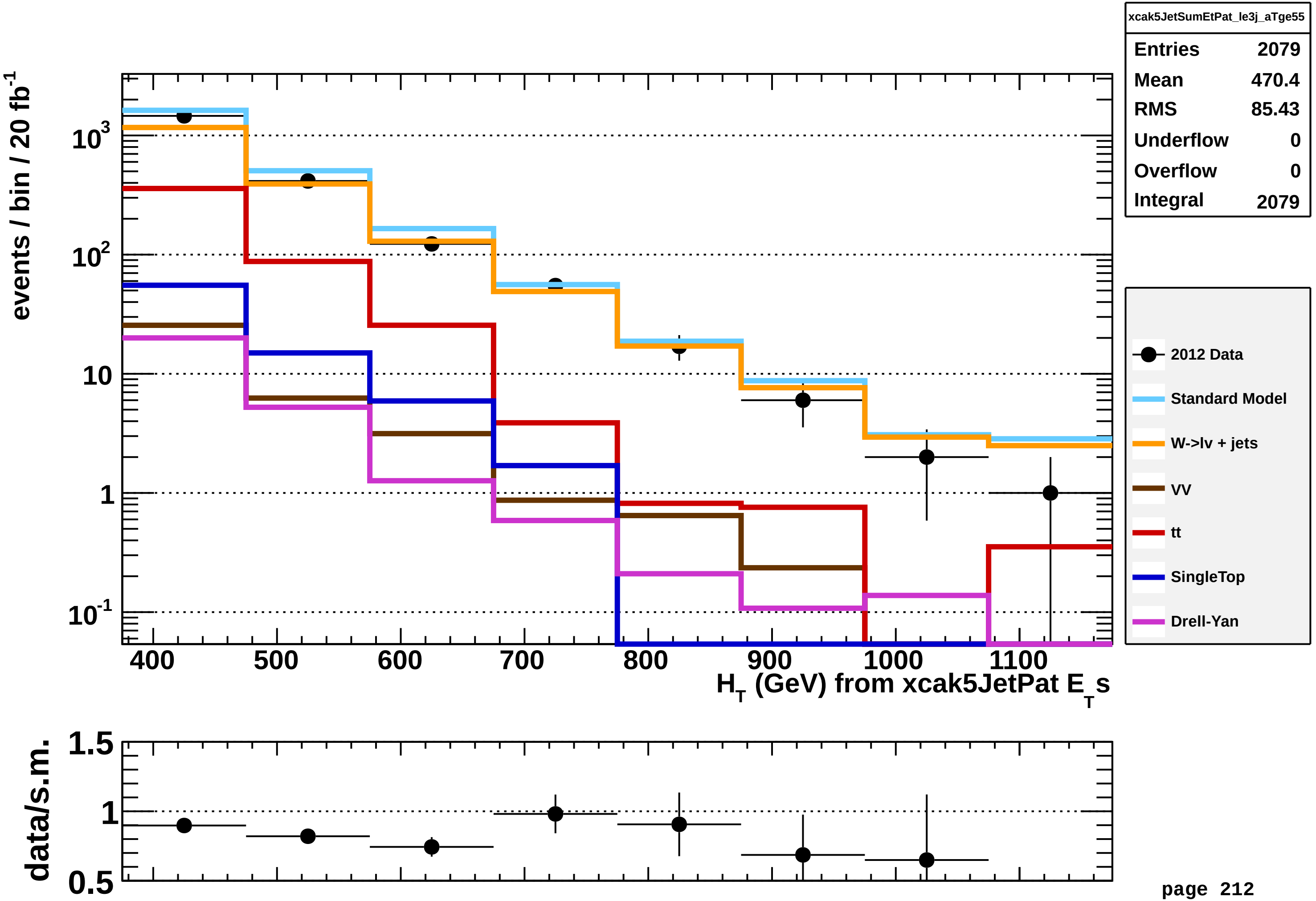

xcak5JetSumEtPat_le3j_eq3b
Entries 36
Mean 362.5
RMS 0
Underflow 0
Overflow 0
Integral 36
events / bin / 20 fb^{-1}
10
1
10^{-1}
160
180
200
220
240
260
280
300
320
340
360
H_T (GeV) from xcak5JetPat E_Ts
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
data/s.m.
1.5
1
0.5

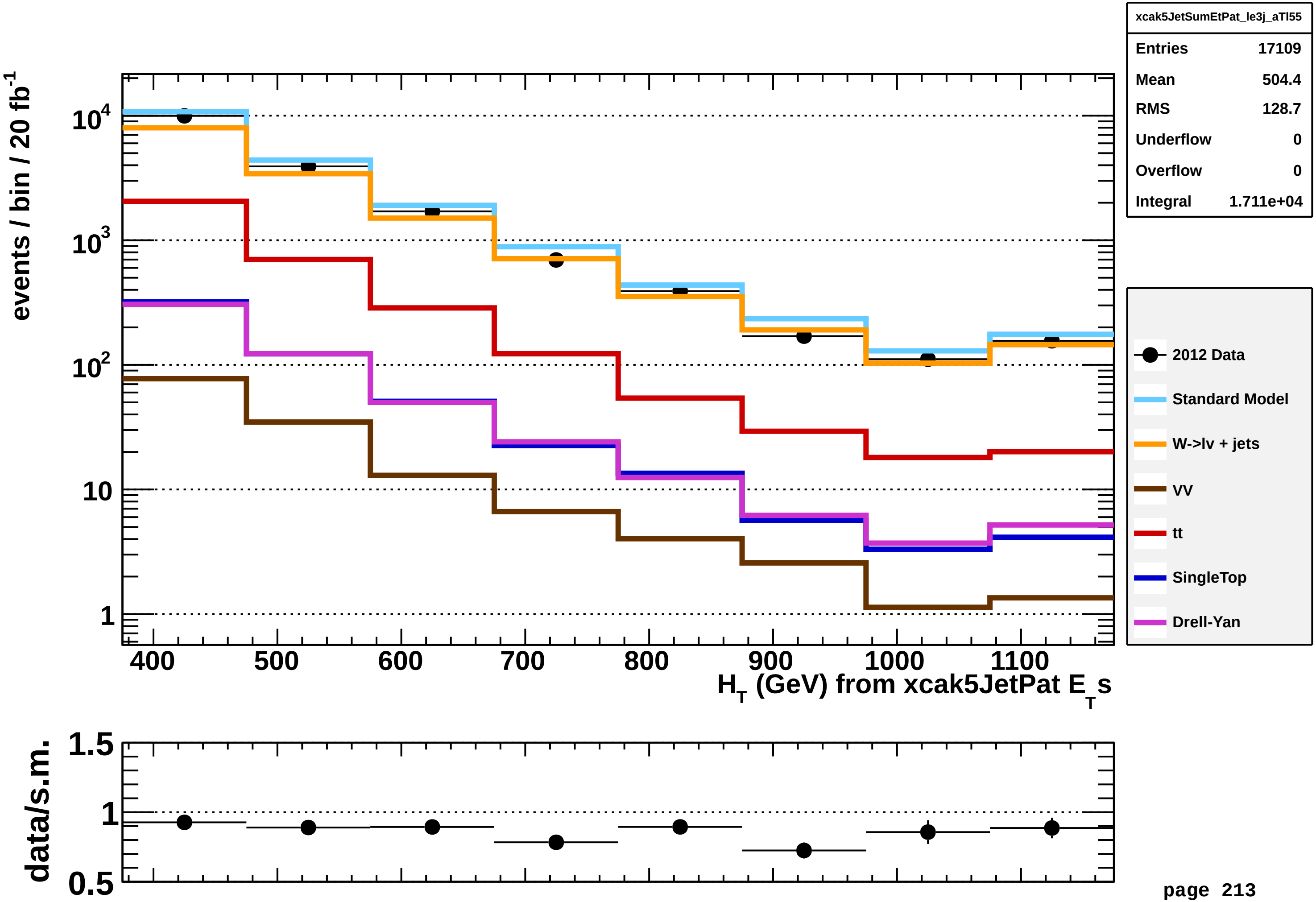

xcak5JetSumEtPat
Entries 26480
Mean 362.5
RMS 0
Underflow 0
Overflow 0
Integral 2.648e+04
events / bin / 20 fb^{-1}
10^4
10^3
160
180
200
220
240
260
280
300
320
340
360
H_T (GeV) from xcak5JetPat E_Ts
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
data/s.m.
1.5
1
0.5

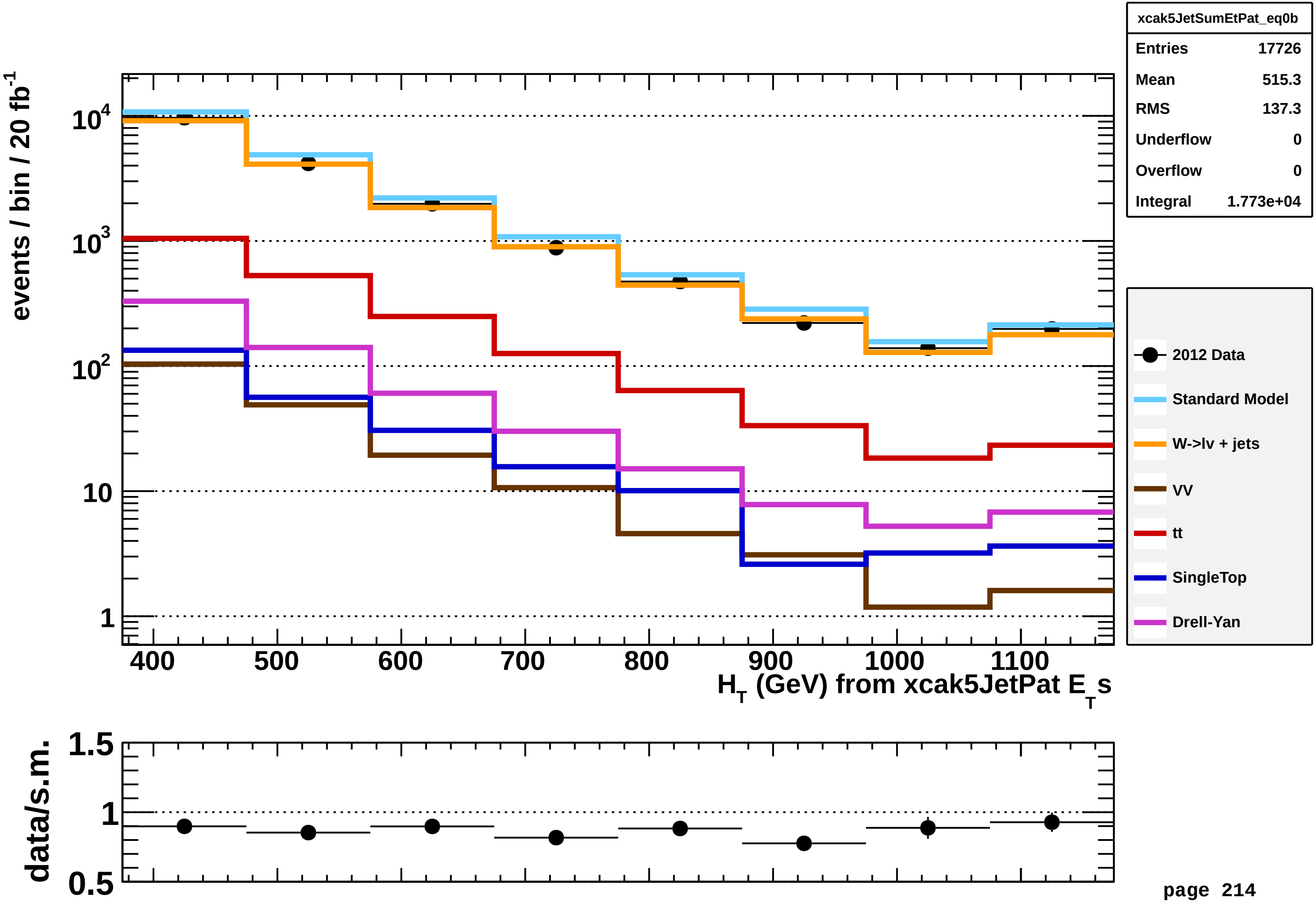

xcak5JetSumEtPat
Entries 26480
Mean 514.7
RMS 134.9
Underflow 0
Overflow 0
Integral 2.648e+04
events / bin / 20 fb^{-1}
10^4
10^3
10^2
10
1
400
500
600
700
800
900
1000
1100
H_T (GeV) from xcak5JetPat E_Ts
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
data/s.m.
1.5
1
0.5

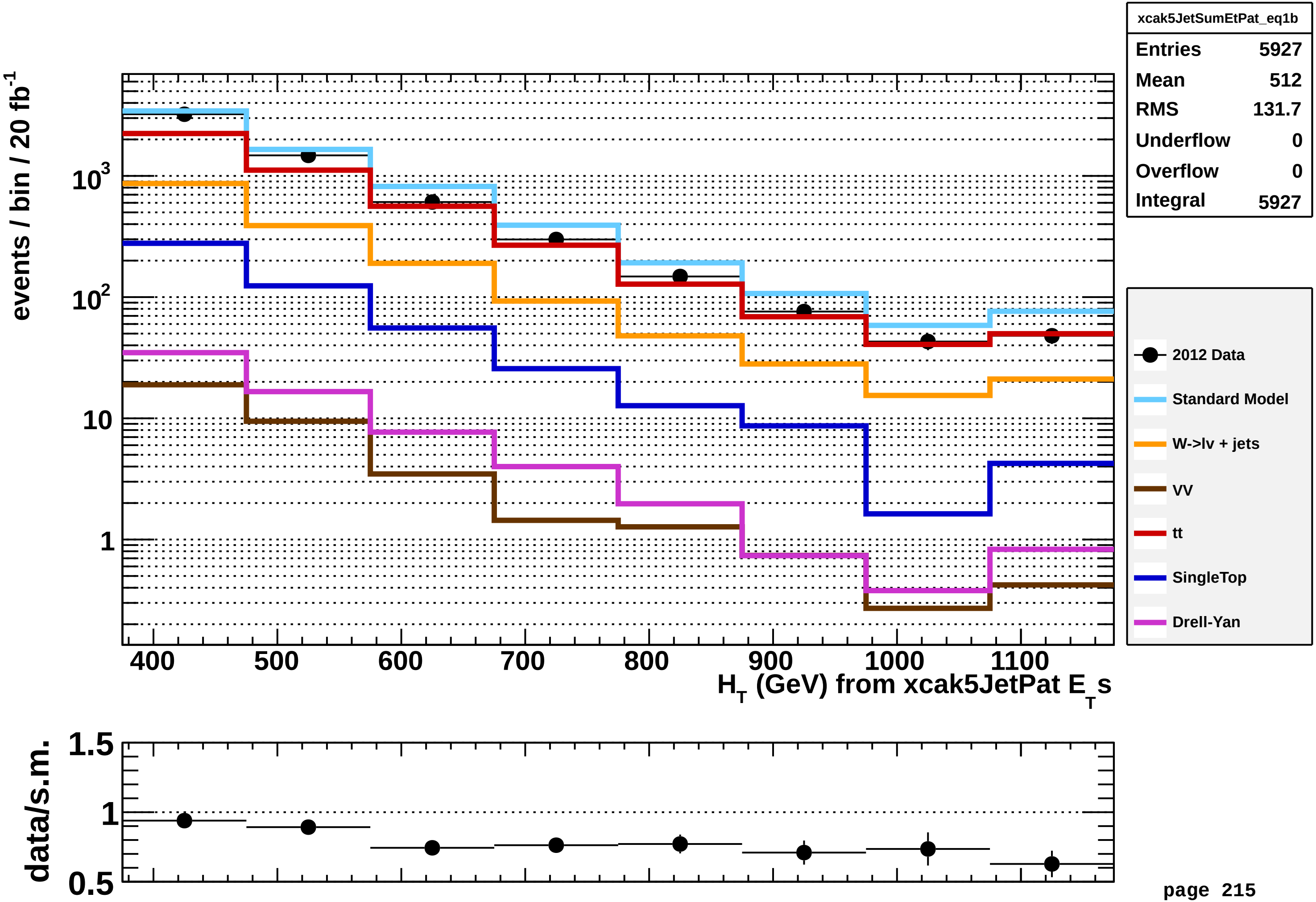

xcak5JetSumEtPat_ge4j_aTge55
Entries 883
Mean 515.3
RMS 114.6
Underflow 0
Overflow 0
Integral 883
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
events / bin / 20 fb^{-1}
10^3
10^2
10
1
10^{-1}
10^{-2}
400
500
600
700
800
900
1000
1100
H_T (GeV) from xcak5JetPat E_Ts
data/s.m.
1.5
1
0.5

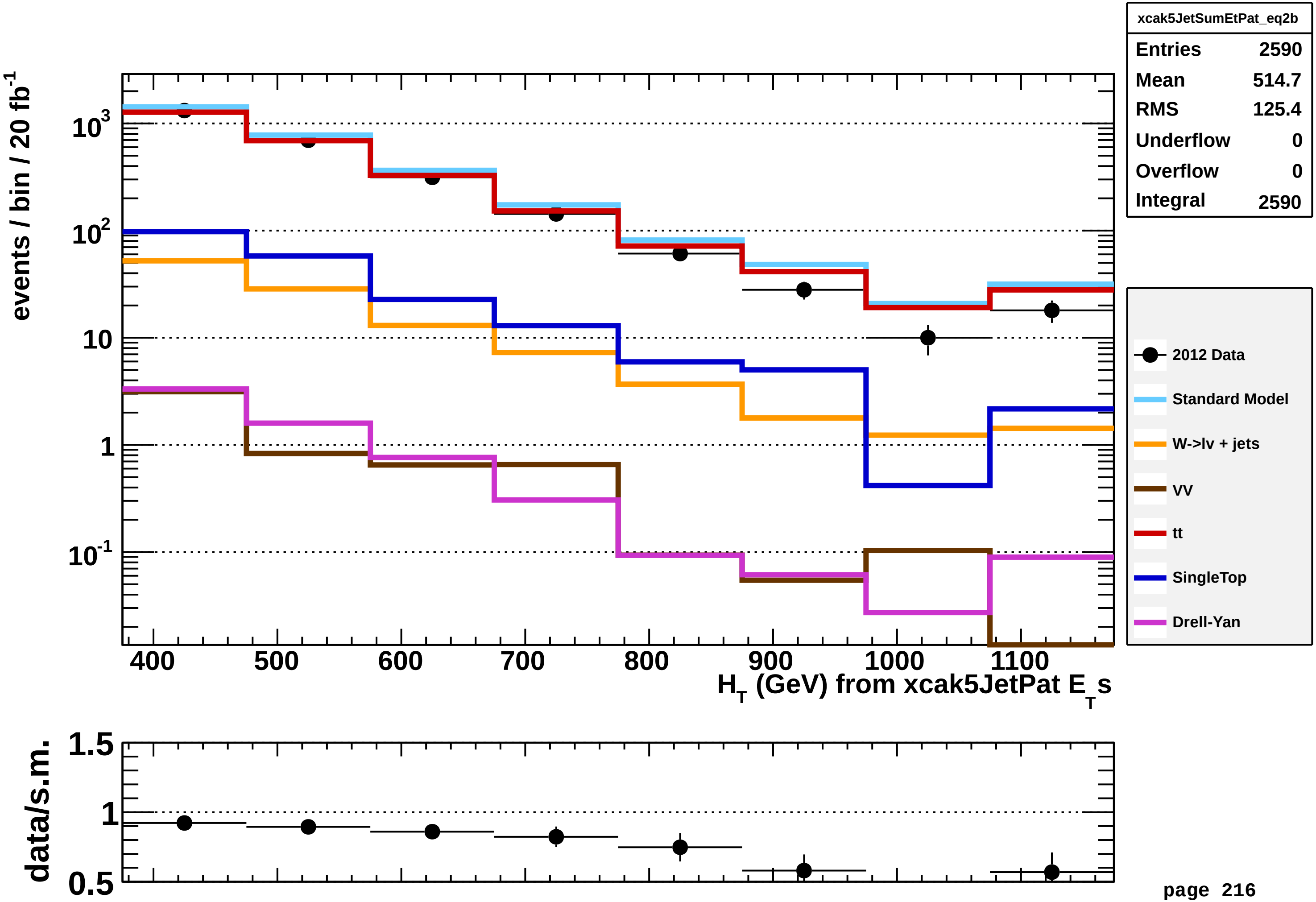

xcak5JetSumEtPat_ge4j_aTl55
Entries 6409
Mean 556.3
RMS 155.2
Underflow 0
Overflow 0
Integral 6409
events / bin / 20 fb^{-1}
10^3
10^2
10
1
400
500
600
700
800
900
1000
1100
H_T (GeV) from xcak5JetPat E_Ts
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
data/s.m.
1.5
1
0.5

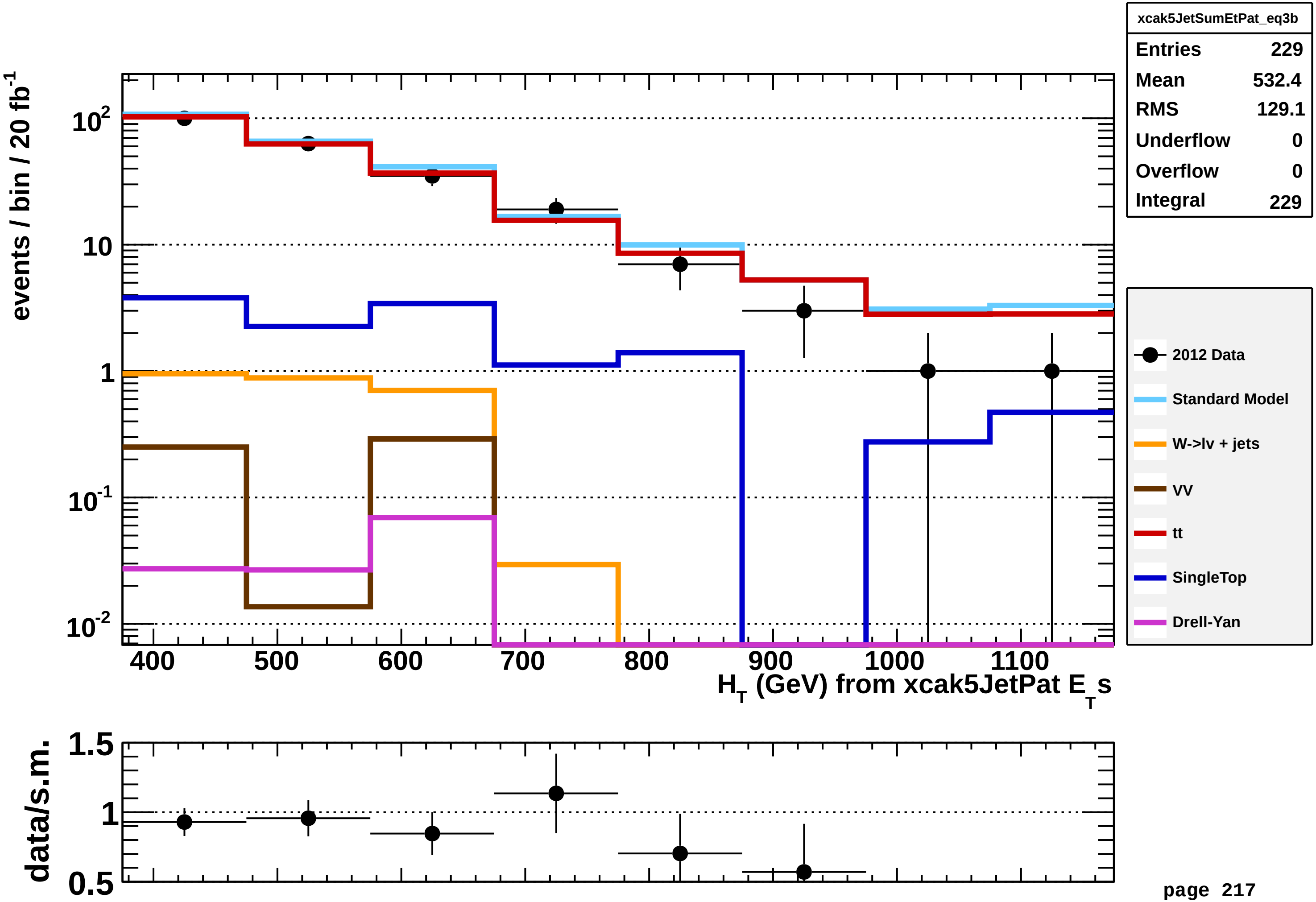

xcak5JetSumEtPat_le3j_aTge55
Entries 2079
Mean 470.4
RMS 85.43
Underflow 0
Overflow 0
Integral 2079
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
events / bin / 20 fb^{-1}
10^{3}
10^{2}
10
1
10^{-1}
400
500
600
700
800
900
1000
1100
H_T (GeV) from xcak5JetPat E_Ts
data/s.m.
1.5
1
0.5

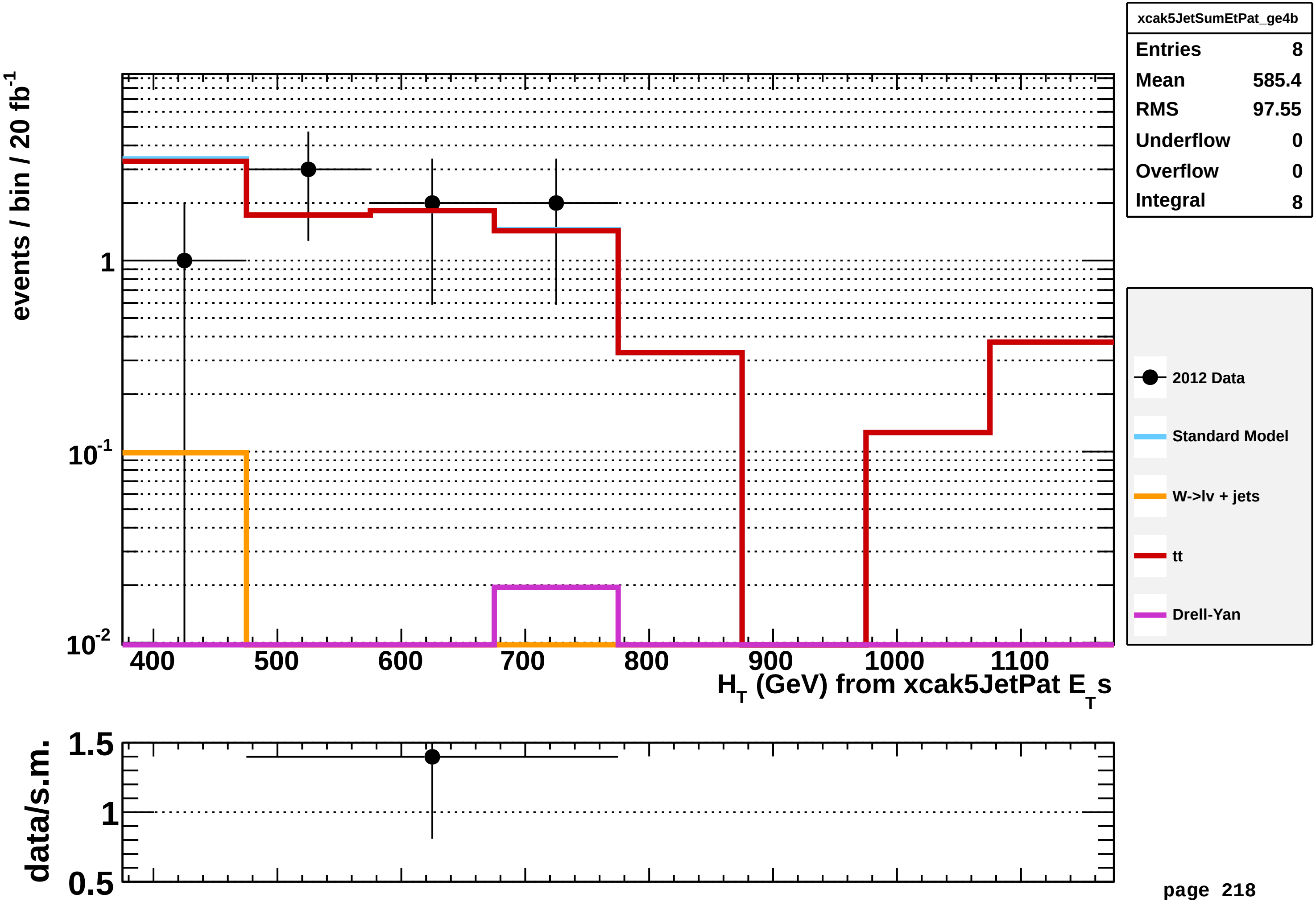

xcak5JetSumEtPat_le3j_aTl55
Entries 17109
Mean 504.4
RMS 128.7
Underflow 0
Overflow 0
Integral 1.711e+04
events / bin / 20 fb^{-1}
10^4
10^3
10^2
10
1
400
500
600
700
800
900
1000
1100
H_T (GeV) from xcak5JetPat E_Ts
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
data/s.m.
1.5
1
0.5

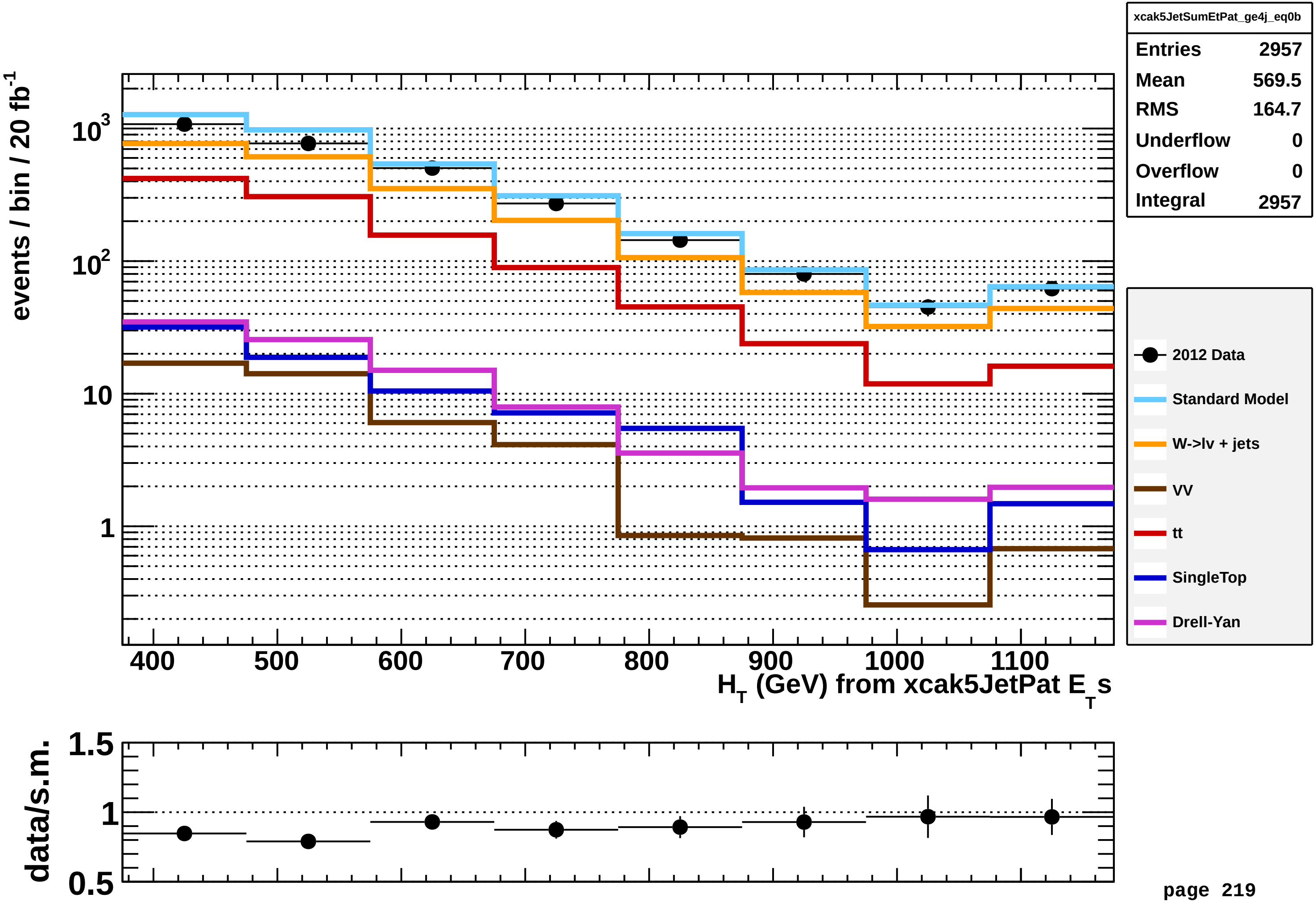

xcak5JetSumEtPat_eq0b
Entries 17726
Mean 515.3
RMS 137.3
Underflow 0
Overflow 0
Integral 1.773e+04
events / bin / 20 fb^{-1}
10^4
10^3
10^2
10
1
400
500
600
700
800
900
1000
1100
H_T (GeV) from xcak5JetPat E_Ts
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
data/s.m.
1.5
1
0.5

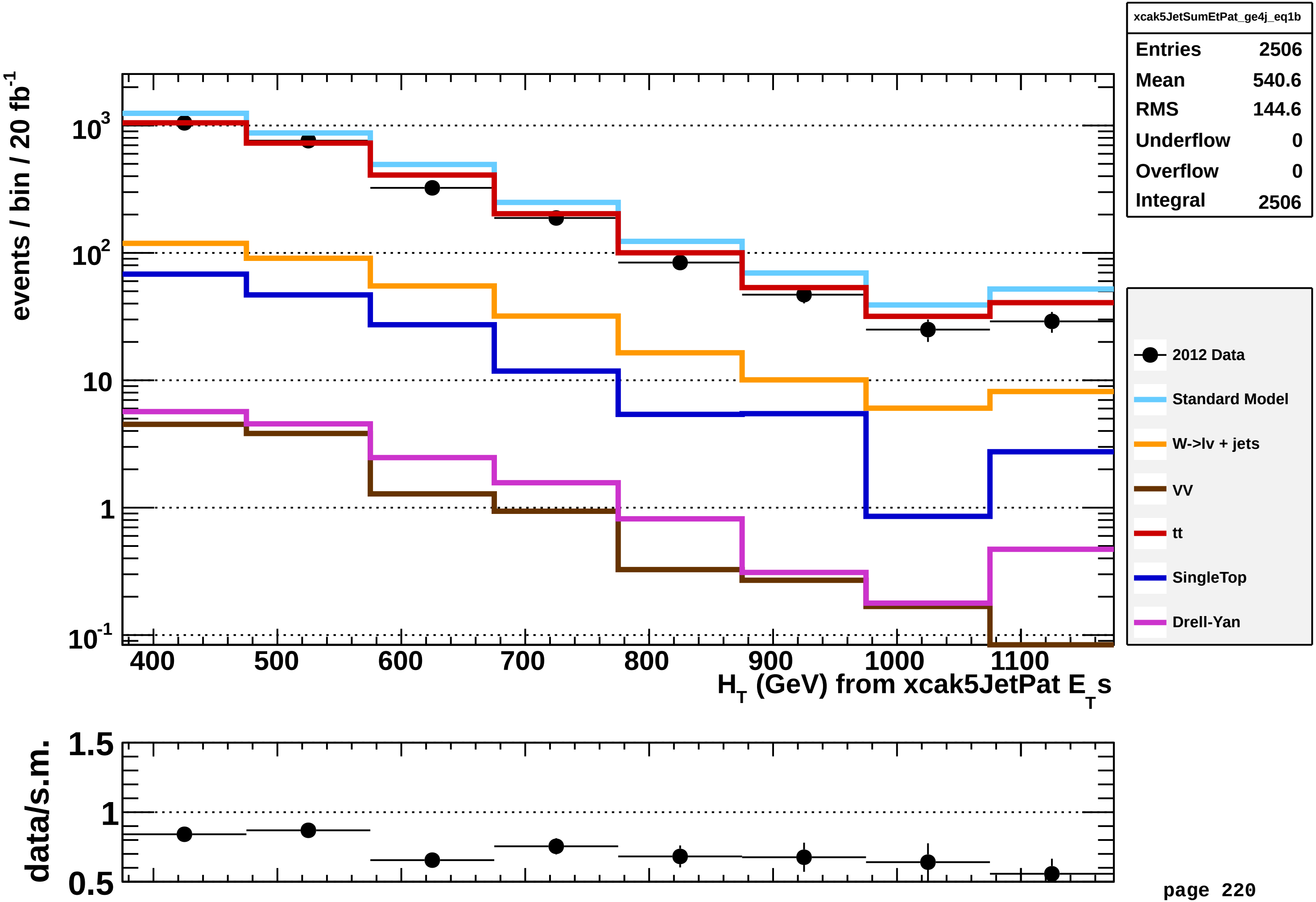

xcak5JetSumEtPat_eq1b
Entries 5927
Mean 512
RMS 131.7
Underflow 0
Overflow 0
Integral 5927
events / bin / 20 fb^{-1}
10^3
10^2
10
1
400
500
600
700
800
900
1000
1100
H_T (GeV) from xcak5JetPat E_Ts
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
data/s.m.
1.5
1
0.5

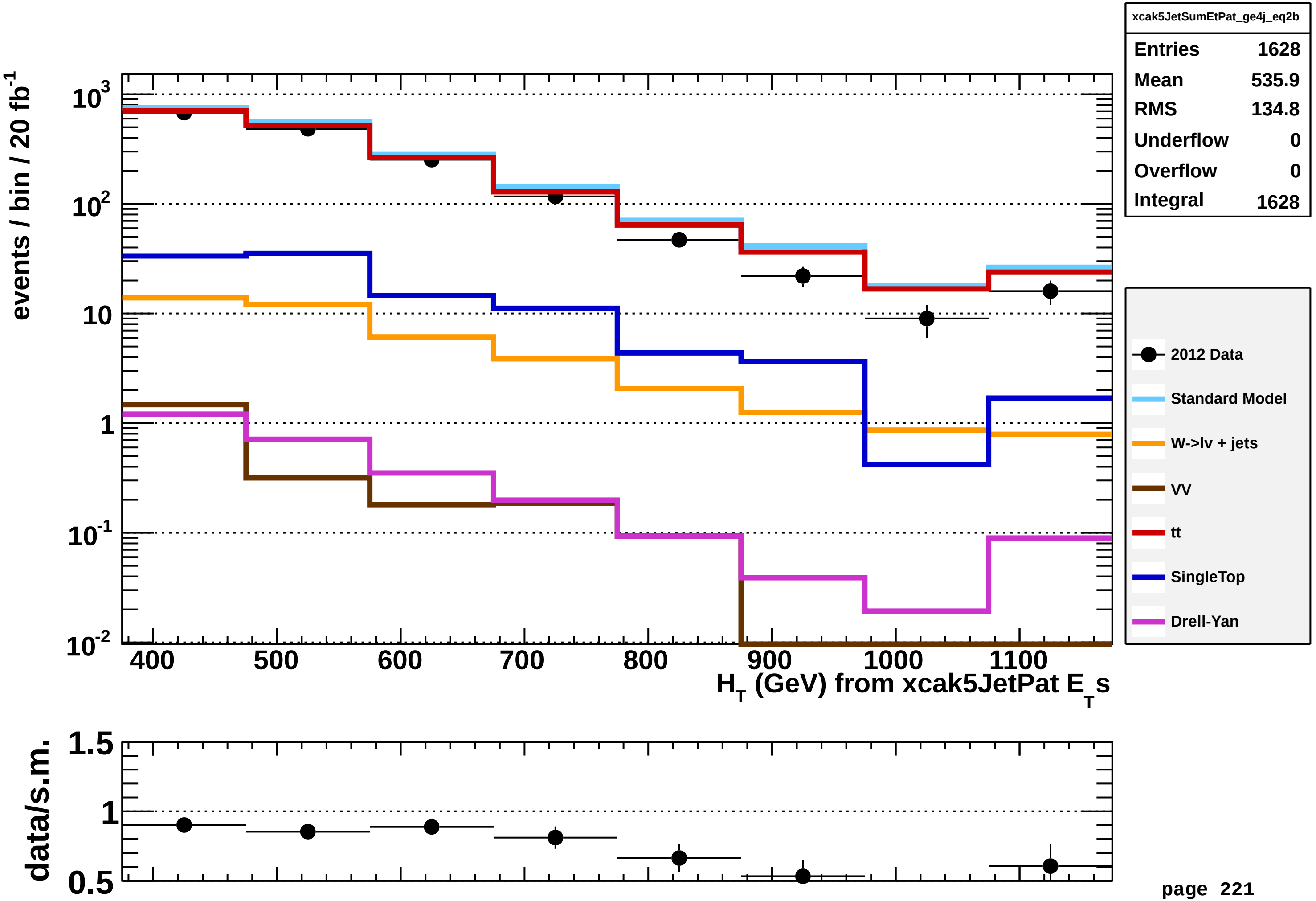

xcak5JetSumEtPat_eq2b
Entries 2590
Mean 514.7
RMS 125.4
Underflow 0
Overflow 0
Integral 2590
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
events / bin / 20 fb^{-1}
10^3
10^2
10
1
10^{-1}
400
500
600
700
800
900
1000
1100
H_T (GeV) from xcak5JetPat E_Ts
data/s.m.
1.5
1
0.5

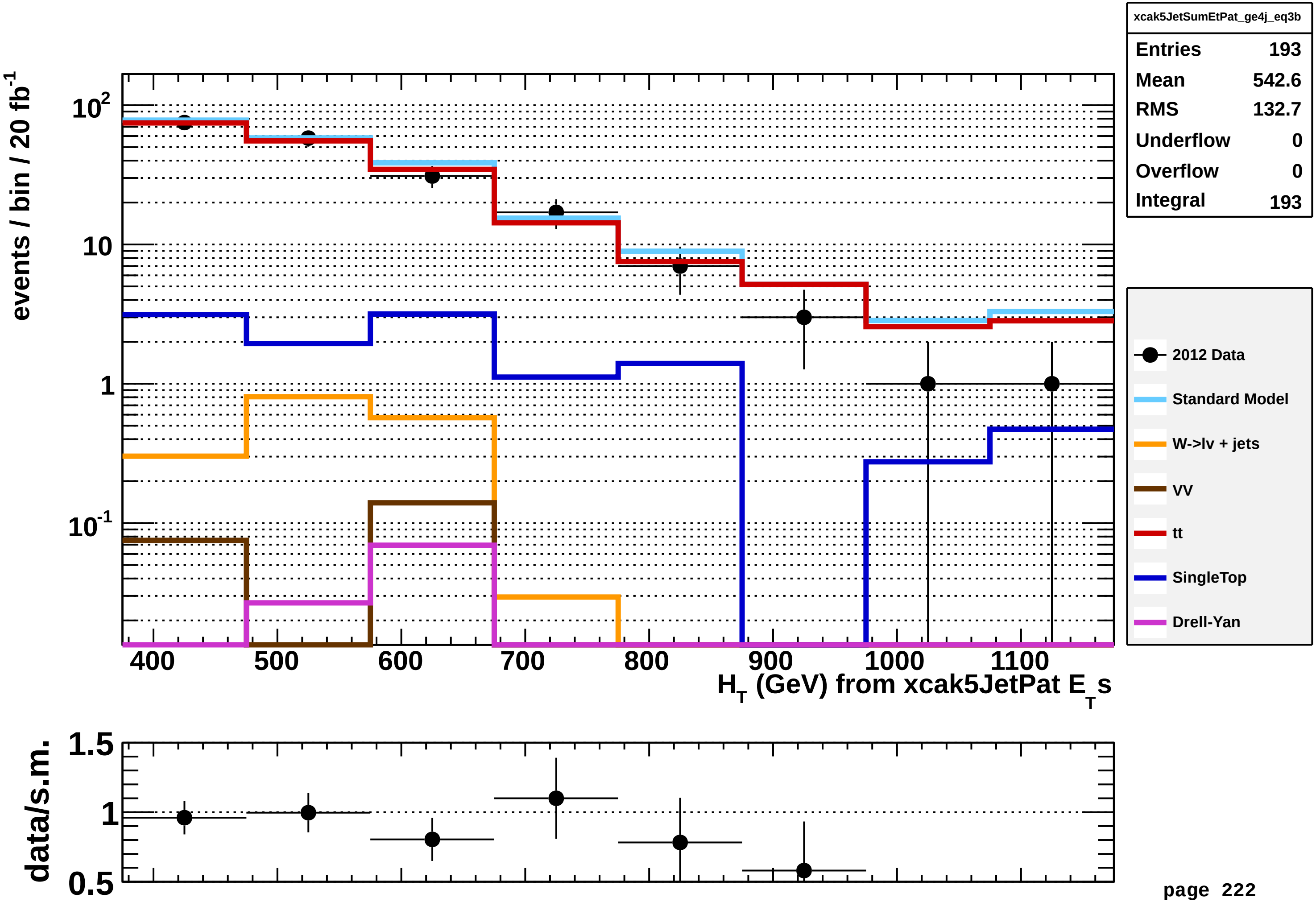

xcak5JetSumEtPat_eq3b
Entries 229
Mean 532.4
RMS 129.1
Underflow 0
Overflow 0
Integral 229
events / bin / 20 fb^{-1}
10^2
10
1
10^{-1}
10^{-2}
400
500
600
700
800
900
1000
1100
H_T (GeV) from xcak5JetPat E_Ts
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
data/s.m.
1.5
1
0.5

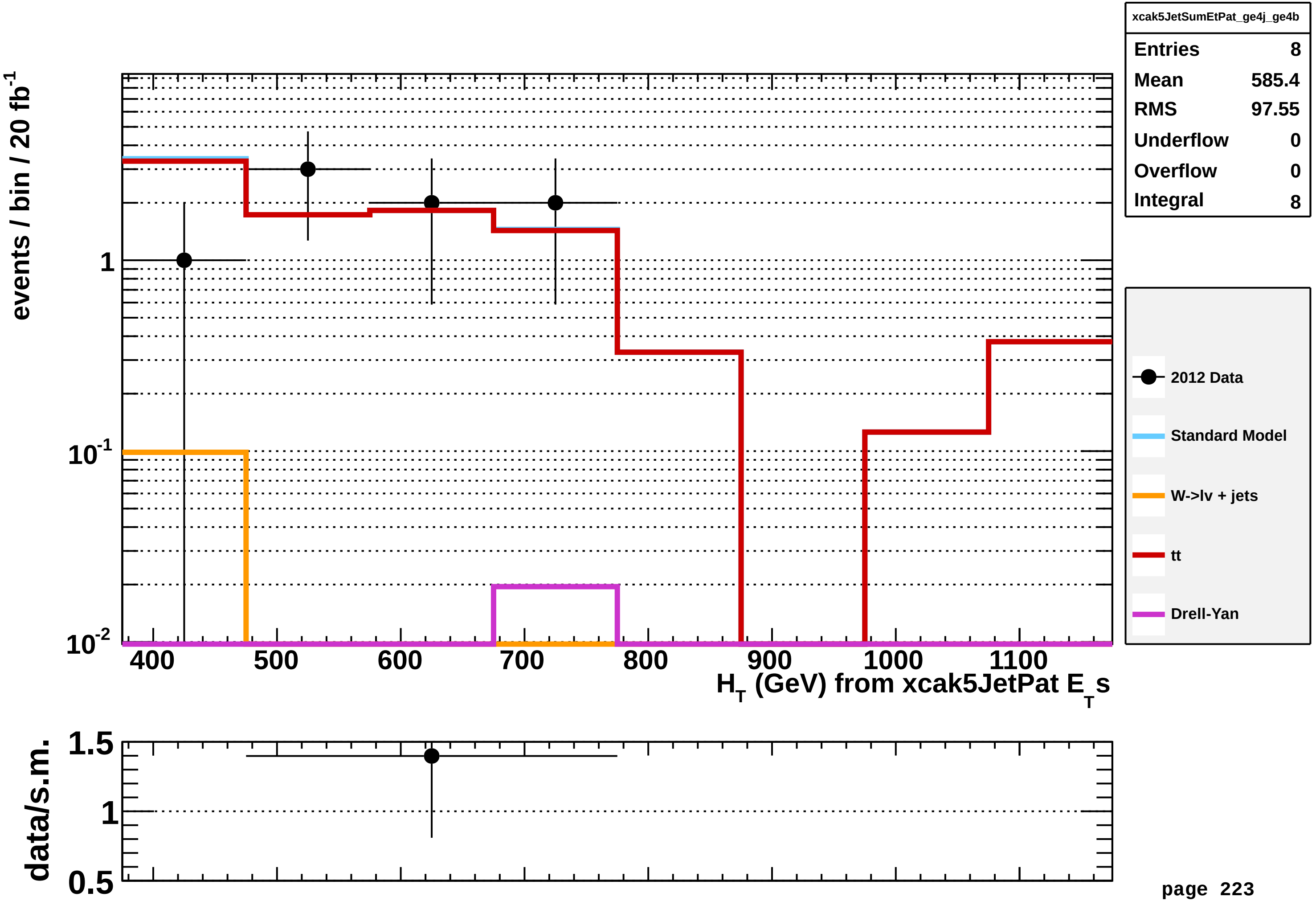

xcak5JetSumEtPat_ge4b
Entries 8
Mean 585.4
RMS 97.55
Underflow 0
Overflow 0
Integral 8
events / bin / 20 fb^{-1}
1
10^{-1}
10^{-2}
400
500
600
700
800
900
1000
1100
H_T (GeV) from xcak5JetPat E_Ts
2012 Data
Standard Model
W->lv + jets
tt
Drell-Yan
data/s.m.
1.5
1
0.5

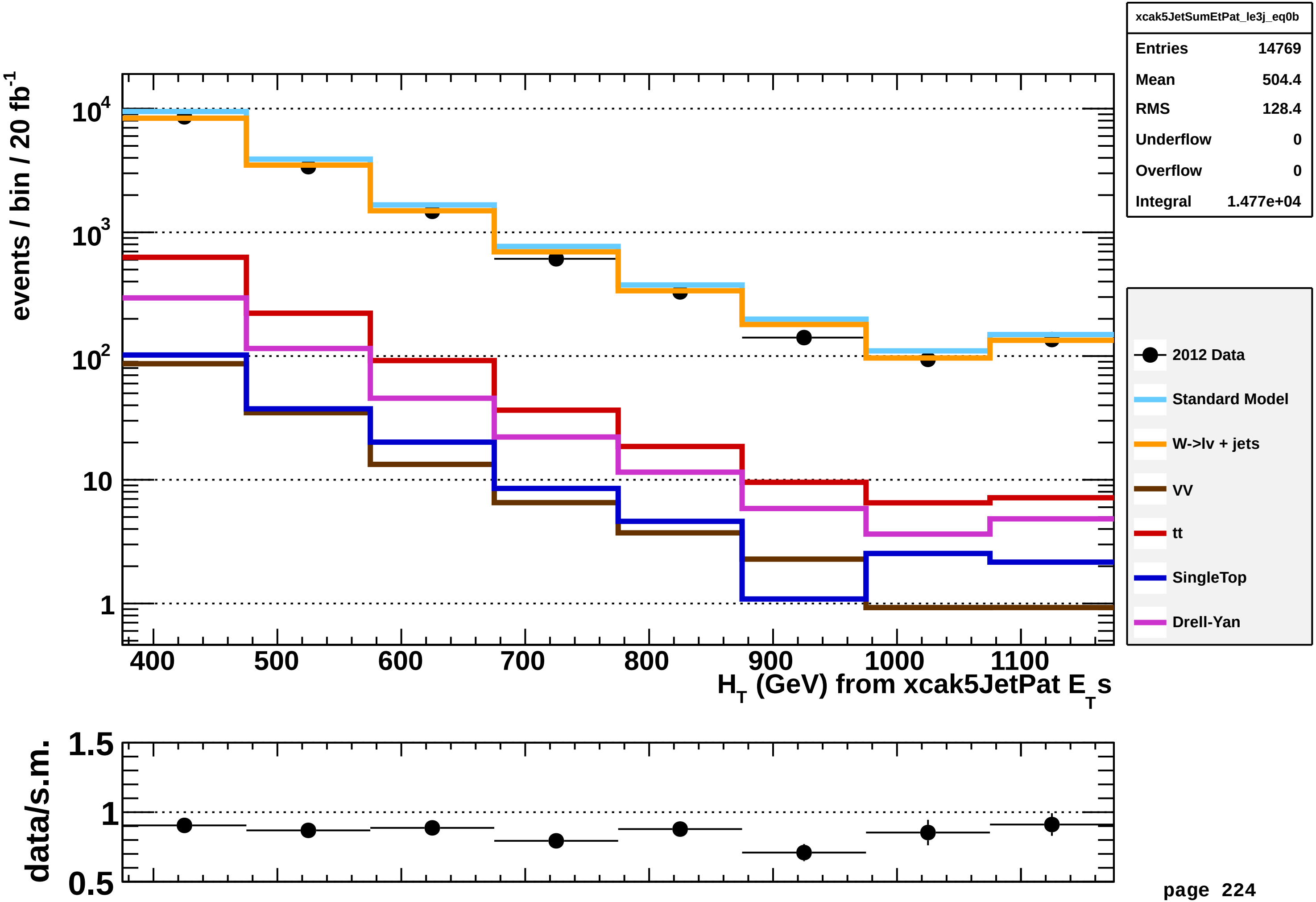

xcak5JetSumEtPat_ge4j_eq0b
Entries 2957
Mean 569.5
RMS 164.7
Underflow 0
Overflow 0
Integral 2957
events / bin / 20 fb^{-1}
10^3
10^2
10
1
400
500
600
700
800
900
1000
1100
H_T (GeV) from xcak5JetPat E_Ts
● 2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
data/s.m.
1.5
1
0.5


xcak5JetSumEtPat_ge4j_eq1b
Entries 2506
Mean 540.6
RMS 144.6
Underflow 0
Overflow 0
Integral 2506
events / bin / 20 fb^{-1}
10^3
10^2
10
1
10^{-1}
400
500
600
700
800
900
1000
1100
H_T (GeV) from xcak5JetPat E_Ts
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
data/s.m.
1.5
1
0.5

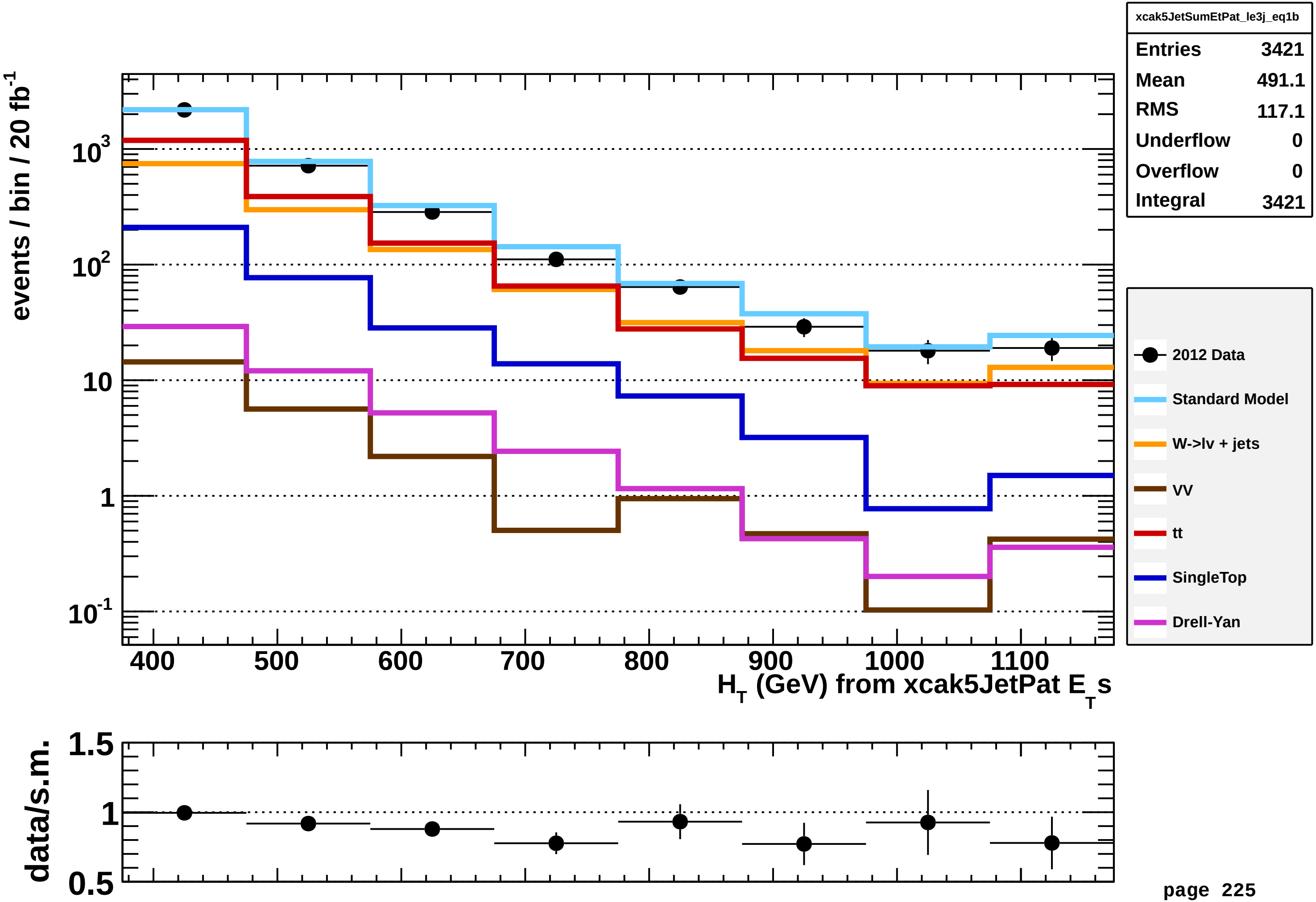

xcak5JetSumEtPat_ge4j_eq2b
Entries 1628
Mean 535.9
RMS 134.8
Underflow 0
Overflow 0
Integral 1628
events / bin / 20 fb^{-1}
10^{3}
10^{2}
10
1
10^{-1}
10^{-2}
400
500
600
700
800
900
1000
1100
H_T (GeV) from xcak5JetPat E_Ts
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
data/s.m.
1.5
1
0.5


xcak5JetSumEtPat_ge4j_eq3b
Entries 193
Mean 542.6
RMS 132.7
Underflow 0
Overflow 0
Integral 193
events / bin / 20 fb^{-1}
10^2
10
1
10^{-1}
400
500
600
700
800
900
1000
1100
H_T (GeV) from xcak5JetPat E_Ts
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
data/s.m.
1.5
1
0.5

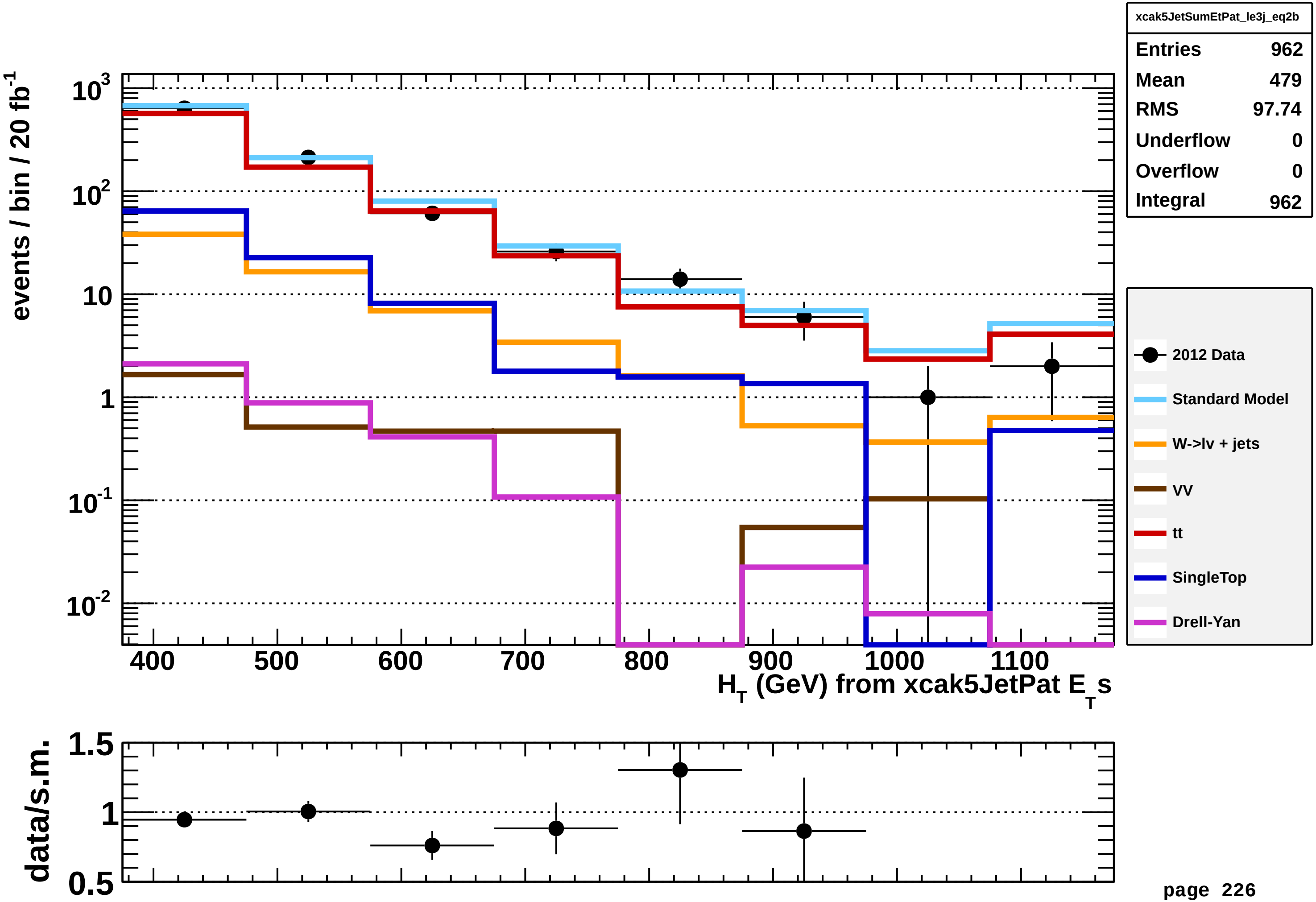

xcak5JetSumEtPat_ge4j_ge4b
Entries 8
Mean 585.4
RMS 97.55
Underflow 0
Overflow 0
Integral 8
events / bin / 20 fb^{-1}
1
10^{-1}
10^{-2}
400
500
600
700
800
900
1000
1100
H_T (GeV) from xcak5JetPat E_Ts
2012 Data
Standard Model
W->lv + jets
tt
Drell-Yan
data/s.m.
1.5
1
0.5

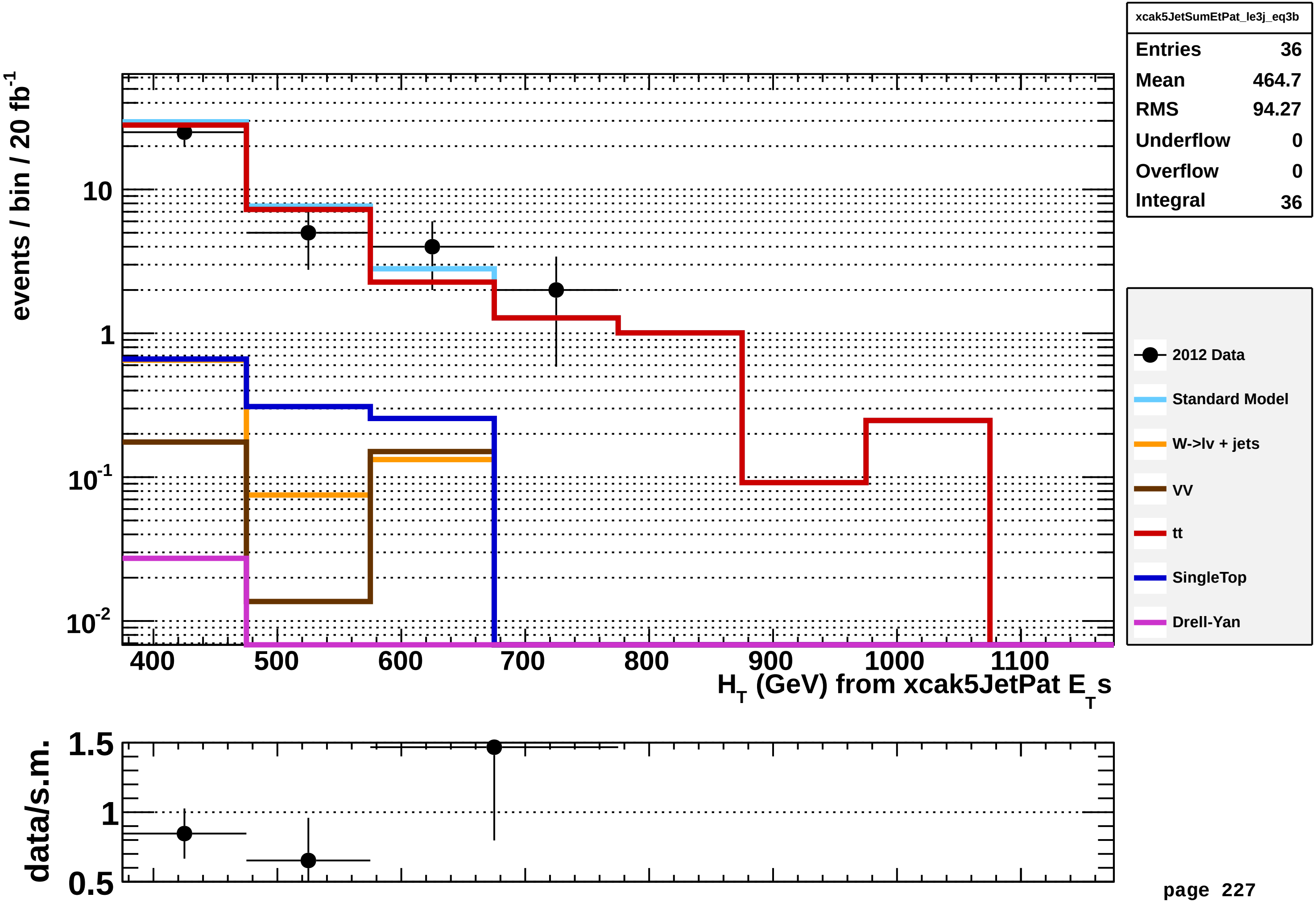


xcak5JetSumEtPat_le3j_eq0b
Entries 14769
Mean 504.4
RMS 128.4
Underflow 0
Overflow 0
Integral 1.477e+04
events / bin / 20 fb^{-1}
10^4
10^3
10^2
10
1
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
400
500
600
700
800
900
1000
1100
H_T (GeV) from xcak5JetPat E_Ts
data/s.m.
1.5
1
0.5

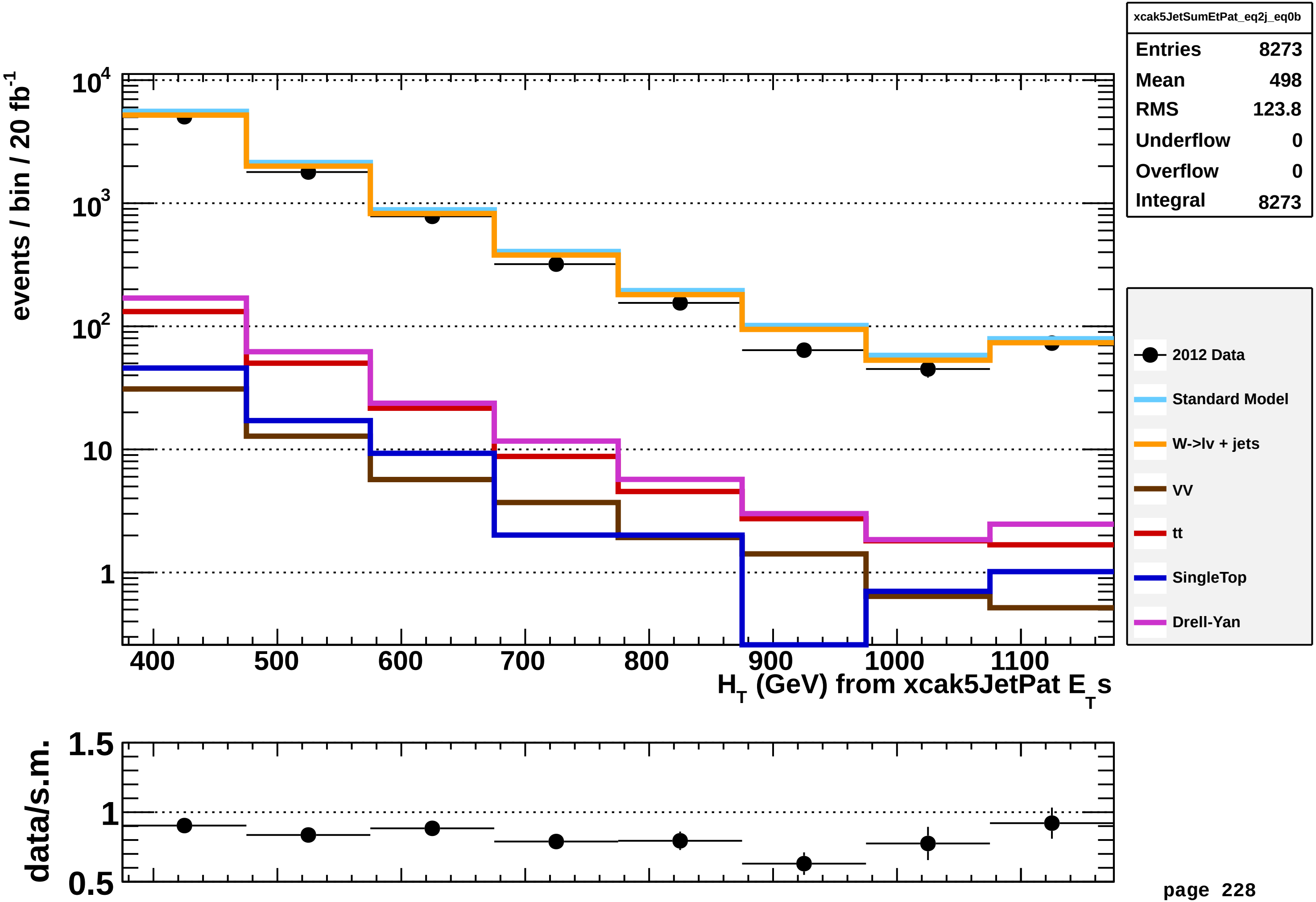


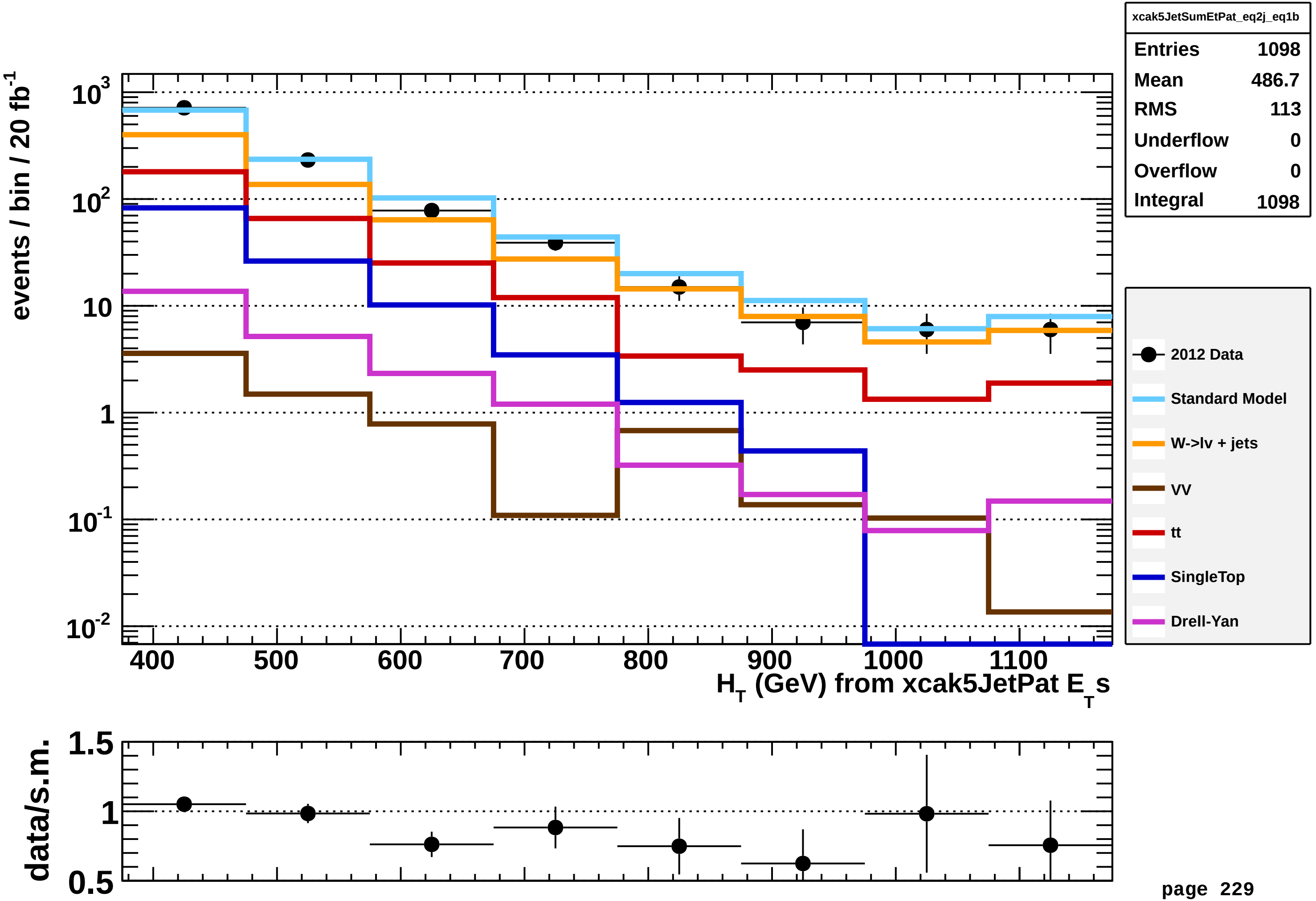
xcak5JetSumEtPat_le3j_eq1b
Entries 3421
Mean 491.1
RMS 117.1
Underflow 0
Overflow 0
Integral 3421
events / bin / 20 fb^{-1}
10^3
10^2
10
1
10^{-1}
400
500
600
700
800
900
1000
1100
H_T (GeV) from xcak5JetPat E_Ts
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
data/s.m.
1.5
1
0.5


xcak5JetSumEtPat_le3j_eq2b
Entries 962
Mean 479
RMS 97.74
Underflow 0
Overflow 0
Integral 962
events / bin / 20 fb^{-1}
10^3
10^2
10
1
10^{-1}
10^{-2}
400
500
600
700
800
900
1000
1100
H_T (GeV) from xcak5JetPat E_Ts
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
data/s.m.
1.5
1
0.5

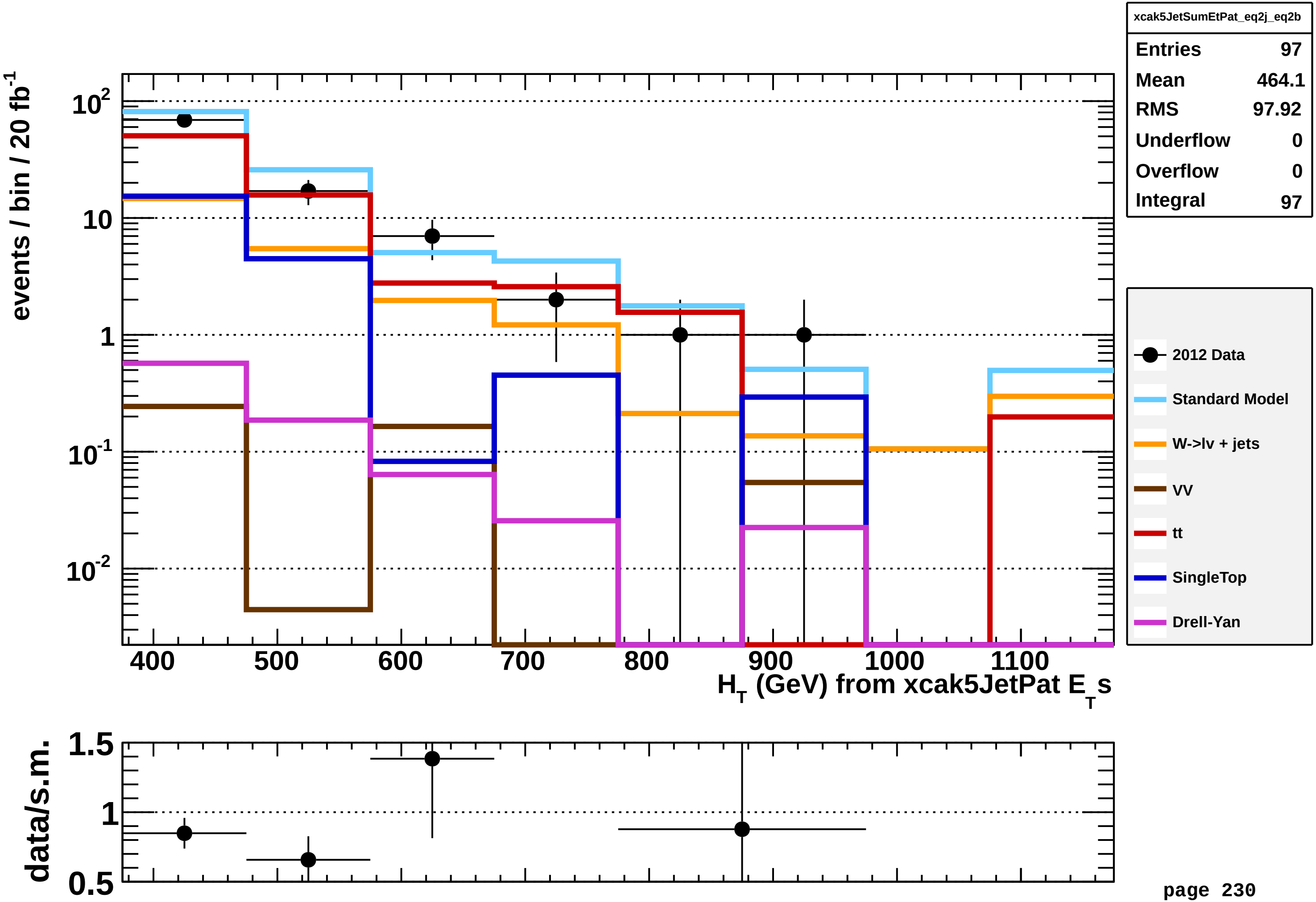


xcak5JetSumEtPat_le3j_eq3b
Entries 36
Mean 464.7
RMS 94.27
Underflow 0
Overflow 0
Integral 36
events / bin / 20 fb^{-1}
10
1
10^{-1}
10^{-2}
400
500
600
700
800
900
1000
1100
H_T (GeV) from xcak5JetPat E_Ts
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
data/s.m.
1.5
1
0.5

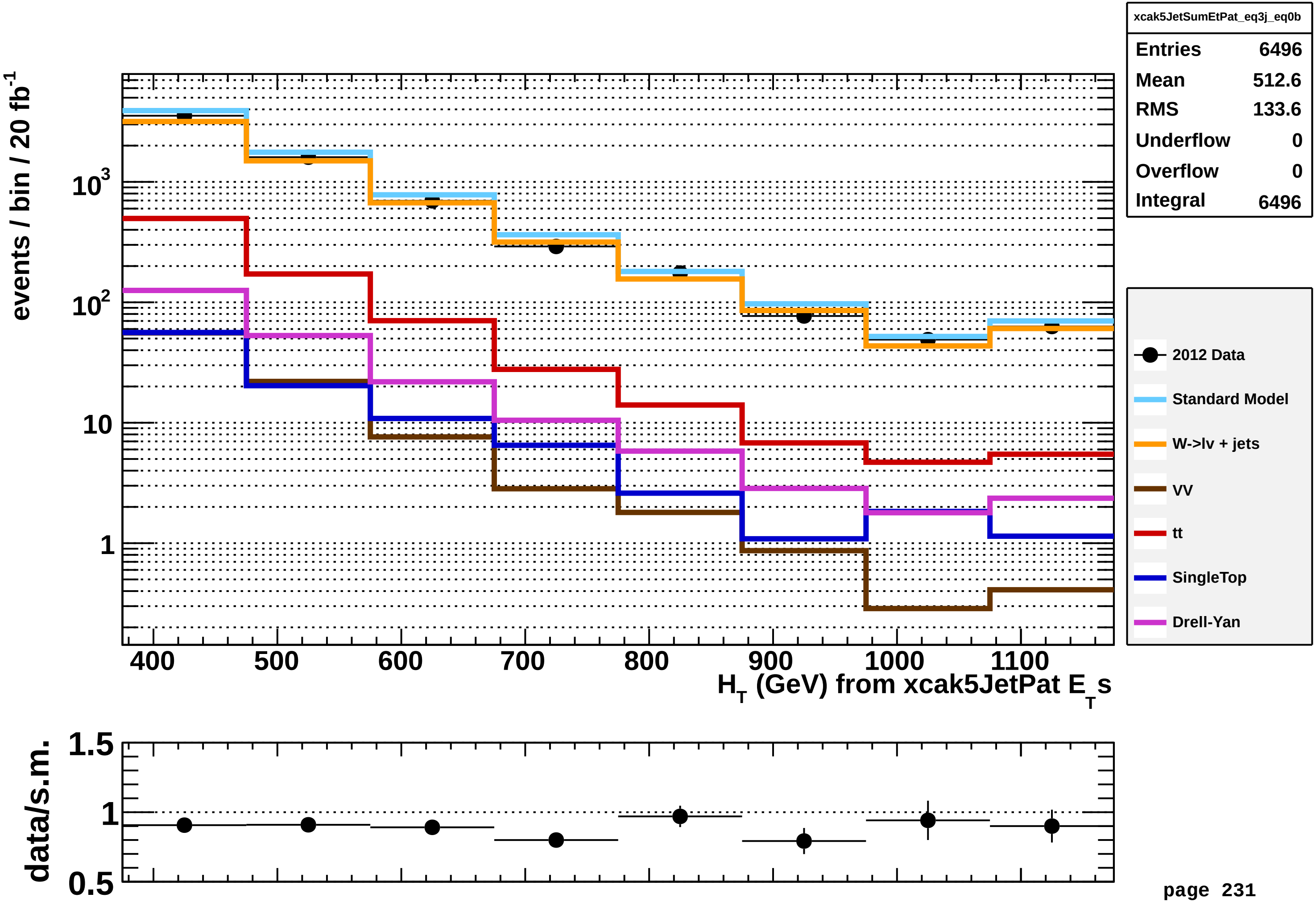

xcak5JetSumEtPat_eq2j_eq0b
Entries 8273
Mean 498
RMS 123.8
Underflow 0
Overflow 0
Integral 8273
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
events / bin / 20 fb^{-1}
10^4
10^3
10^2
10
1
400
500
600
700
800
900
1000
1100
H_T (GeV) from xcak5JetPat E_Ts
data/s.m.
1.5
1
0.5

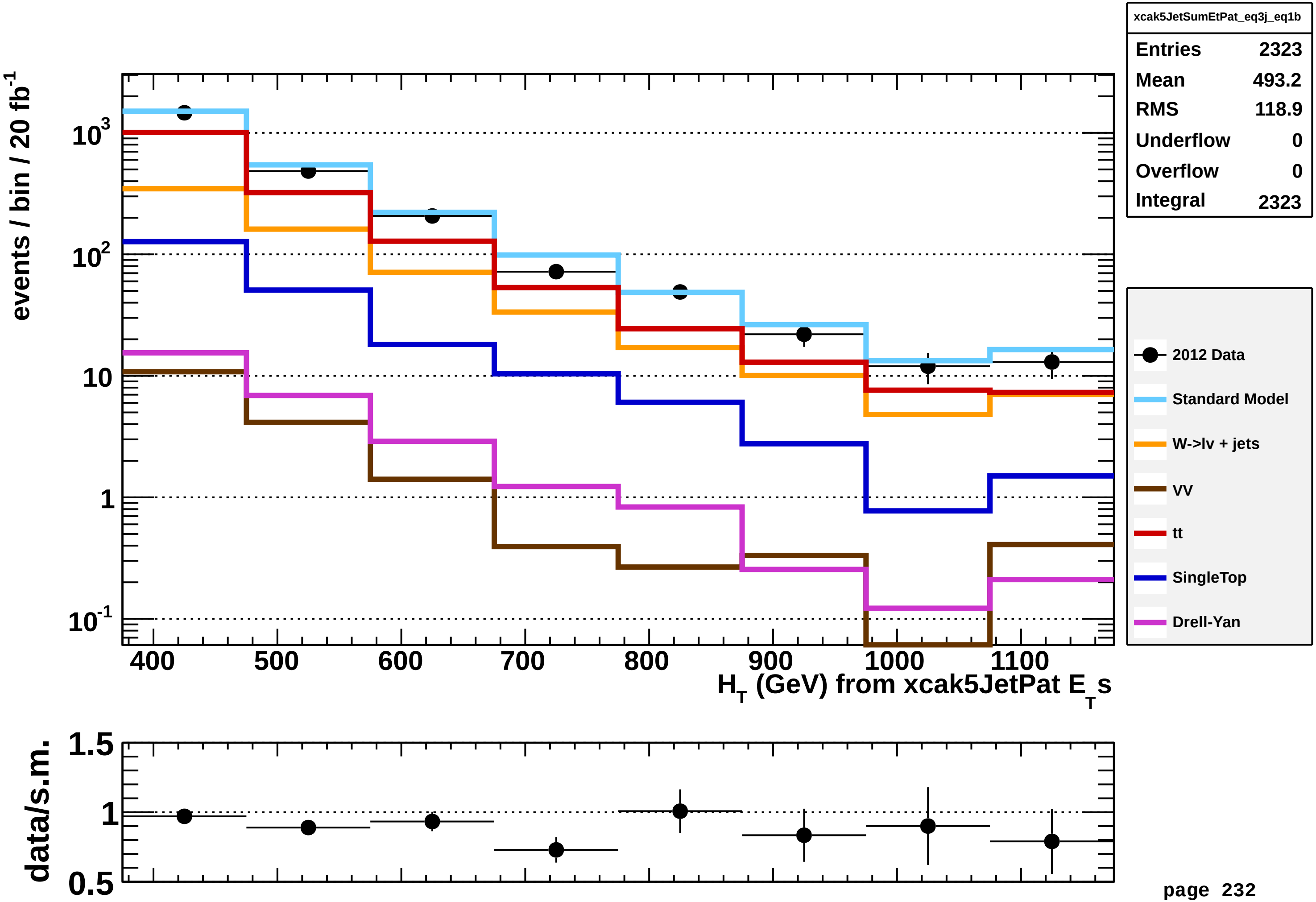


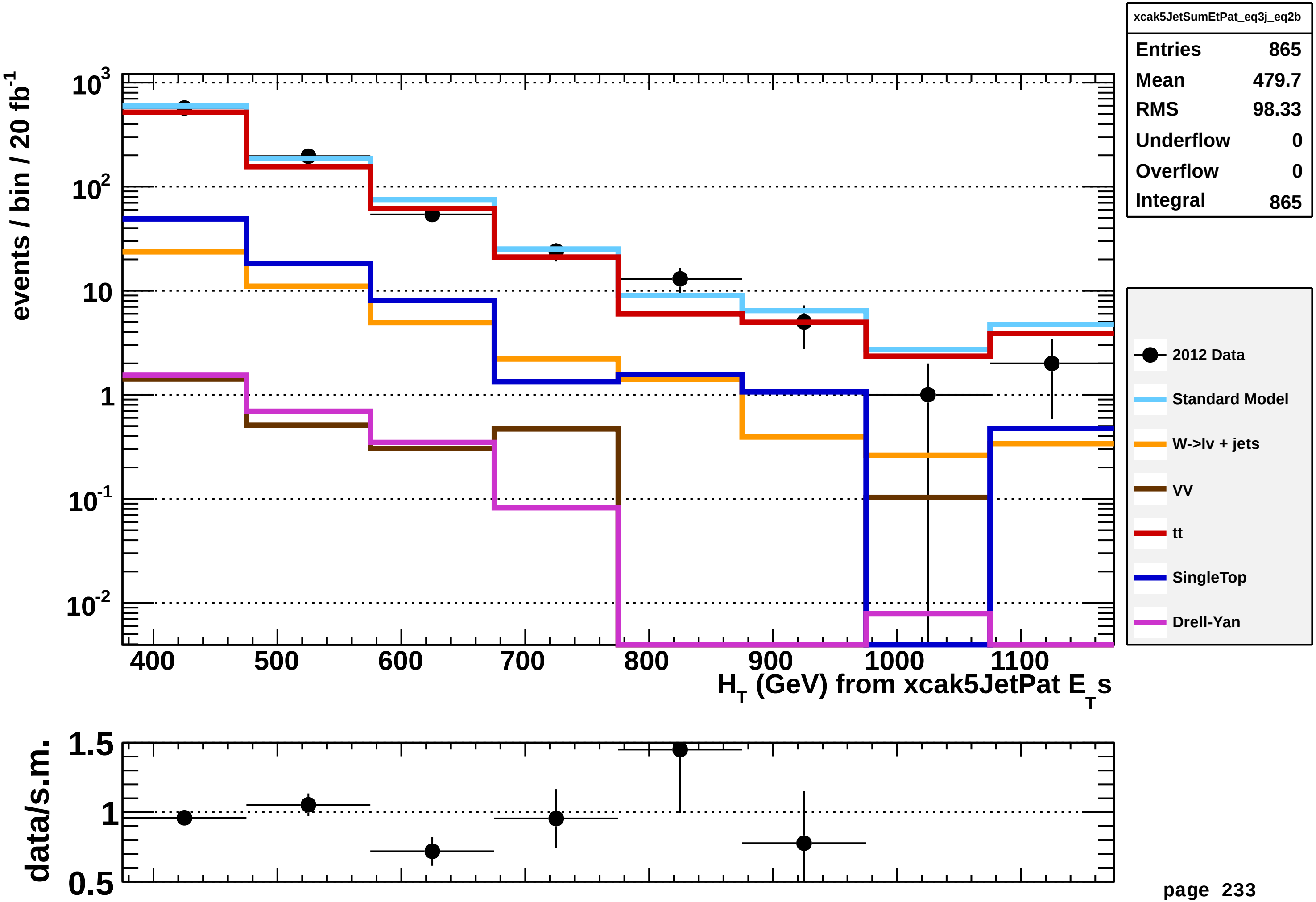
xcak5JetSumEtPat_eq2j_eq1b
Entries 1098
Mean 486.7
RMS 113
Underflow 0
Overflow 0
Integral 1098
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
events / bin / 20 fb^{-1}
10^3
10^2
10
1
10^{-1}
10^{-2}
400
500
600
700
800
900
1000
1100
H_T (GeV) from xcak5JetPat E_Ts
data/s.m.
1.5
1
0.5

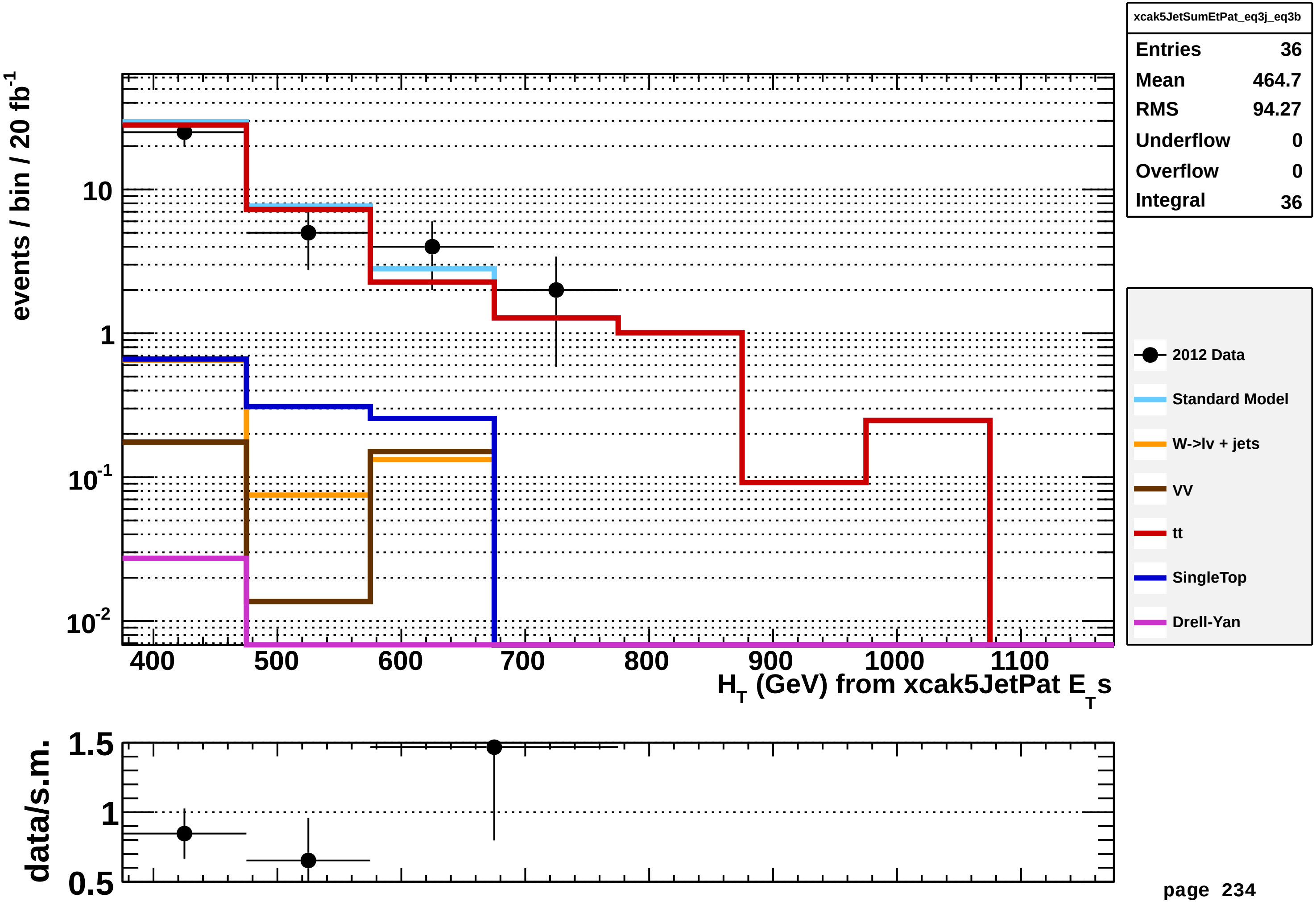


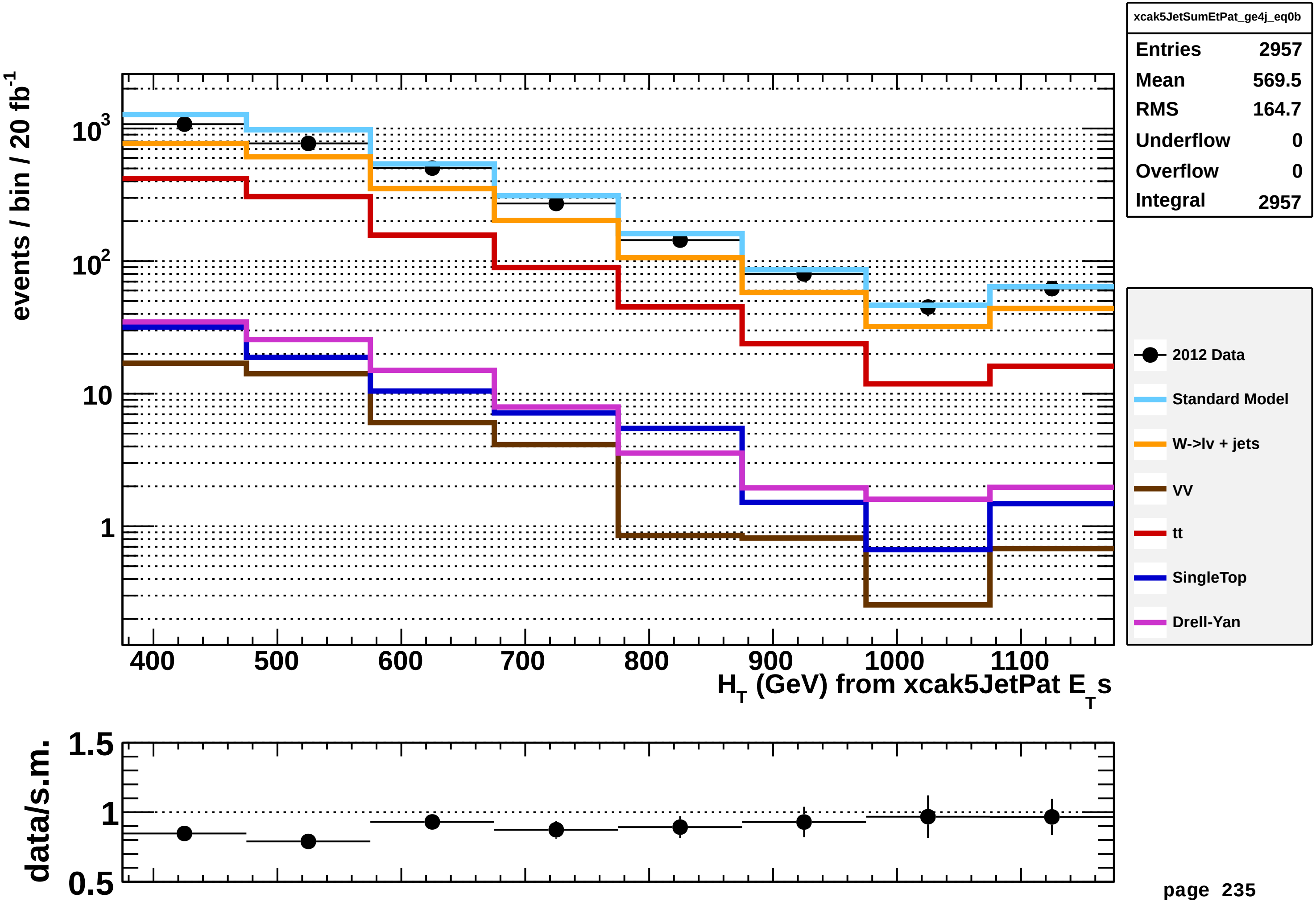
xcak5JetSumEtPat_eq2j_eq2b
Entries 97
Mean 464.1
RMS 97.92
Underflow 0
Overflow 0
Integral 97
events / bin / 20 fb^{-1}
10^2
10
1
10^{-1}
10^{-2}
400
500
600
700
800
900
1000
1100
H_T (GeV) from xcak5JetPat E_Ts
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
data/s.m.
1.5
1
0.5

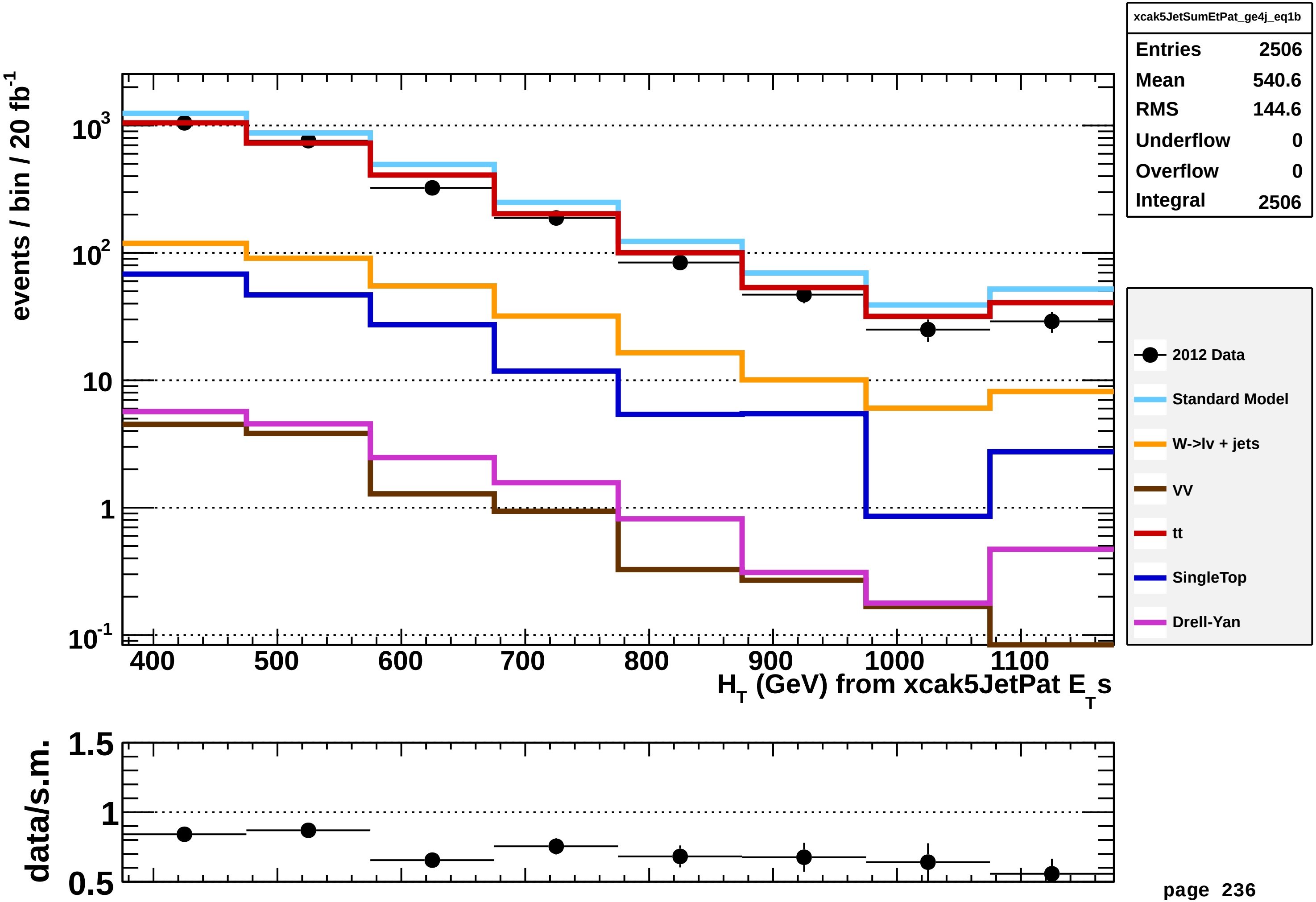

xcak5JetSumEtPat_eq3j_eq0b
Entries 6496
Mean 512.6
RMS 133.6
Underflow 0
Overflow 0
Integral 6496
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
events / bin / 20 fb^{-1}
10^3
10^2
10
1
400
500
600
700
800
900
1000
1100
H_T (GeV) from xcak5JetPat E_Ts
data/s.m.
1.5
1
0.5

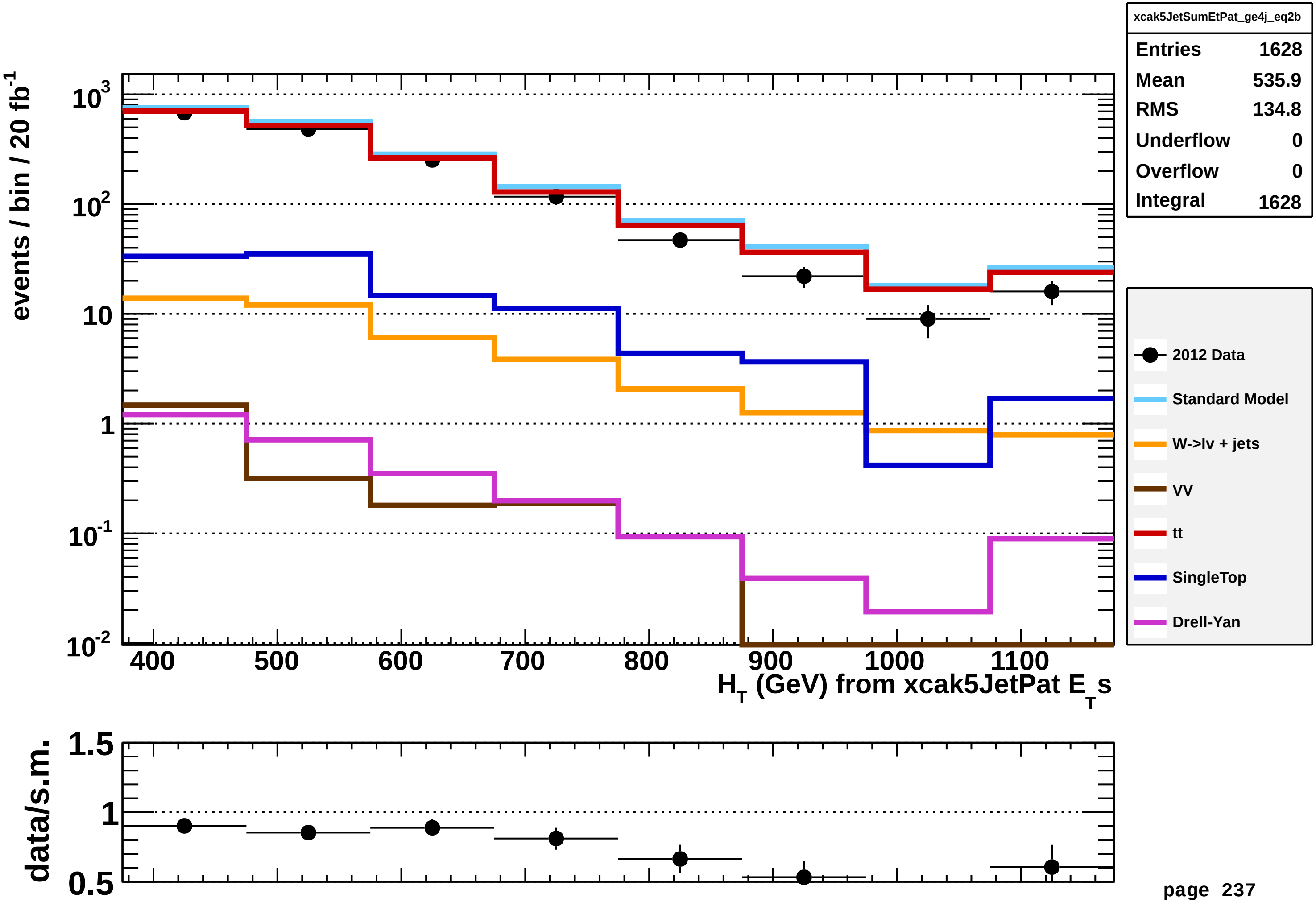

xcak5JetSumEtPat_eq3j_eq1b
Entries 2323
Mean 493.2
RMS 118.9
Underflow 0
Overflow 0
Integral 2323
events / bin / 20 fb^{-1}
10^3
10^2
10
1
10^{-1}
400
500
600
700
800
900
1000
1100
H_T (GeV) from xcak5JetPat E_Ts
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
data/s.m.
1.5
1
0.5


xcak5JetSumEtPat_eq3j_eq2b
Entries 865
Mean 479.7
RMS 98.33
Underflow 0
Overflow 0
Integral 865
events / bin / 20 fb^{-1}
10^3
10^2
10
1
10^{-1}
10^{-2}
400
500
600
700
800
900
1000
1100
H_T (GeV) from xcak5JetPat E_Ts
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
data/s.m.
1.5
1
0.5


xcak5JetSumEtPat_eq3j_eq3b
Entries 36
Mean 464.7
RMS 94.27
Underflow 0
Overflow 0
Integral 36
events / bin / 20 fb^{-1}
10
1
10^{-1}
10^{-2}
400
500
600
700
800
900
1000
1100
H_T (GeV) from xcak5JetPat E_Ts
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
data/s.m.
1.5
1
0.5


xcak5JetSumEtPat_ge4j_eq0b
Entries 2957
Mean 569.5
RMS 164.7
Underflow 0
Overflow 0
Integral 2957
events / bin / 20 fb^{-1}
10^3
10^2
10
1
400
500
600
700
800
900
1000
1100
H_T (GeV) from xcak5JetPat E_Ts
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
data/s.m.
1.5
1
0.5


xcak5JetSumEtPat_ge4j_eq1b
Entries 2506
Mean 540.6
RMS 144.6
Underflow 0
Overflow 0
Integral 2506
events / bin / 20 fb^{-1}
10^3
10^2
10
1
10^{-1}
400
500
600
700
800
900
1000
1100
H_T (GeV) from xcak5JetPat E_Ts
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
data/s.m.
1.5
1
0.5



xcak5JetSumEtPat_ge4j_eq2b
Entries 1628
Mean 535.9
RMS 134.8
Underflow 0
Overflow 0
Integral 1628
events / bin / 20 fb^{-1}
10^3
10^2
10
1
10^{-1}
10^{-2}
400
500
600
700
800
900
1000
1100
H_T (GeV) from xcak5JetPat E_Ts
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
data/s.m.
1.5
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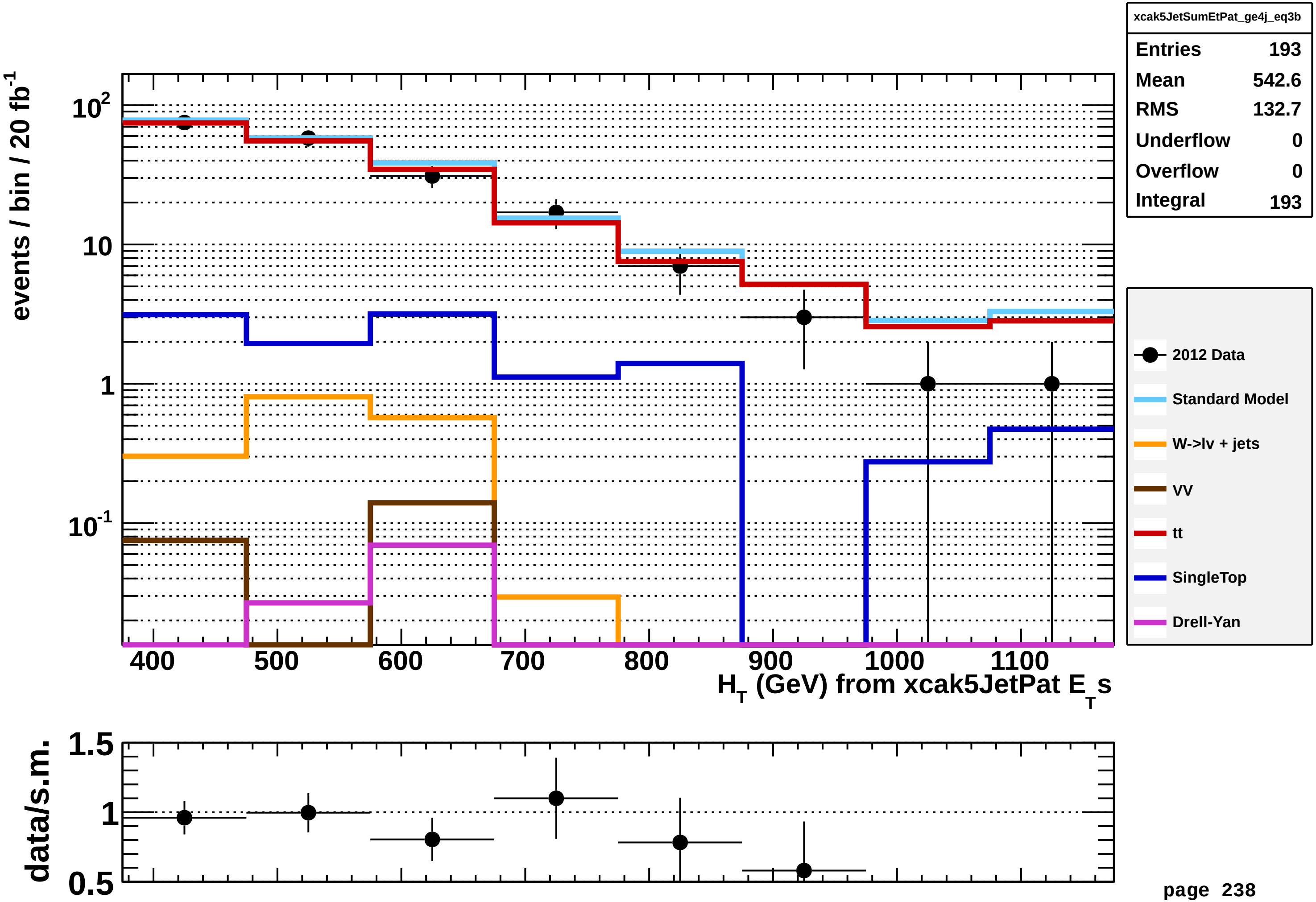
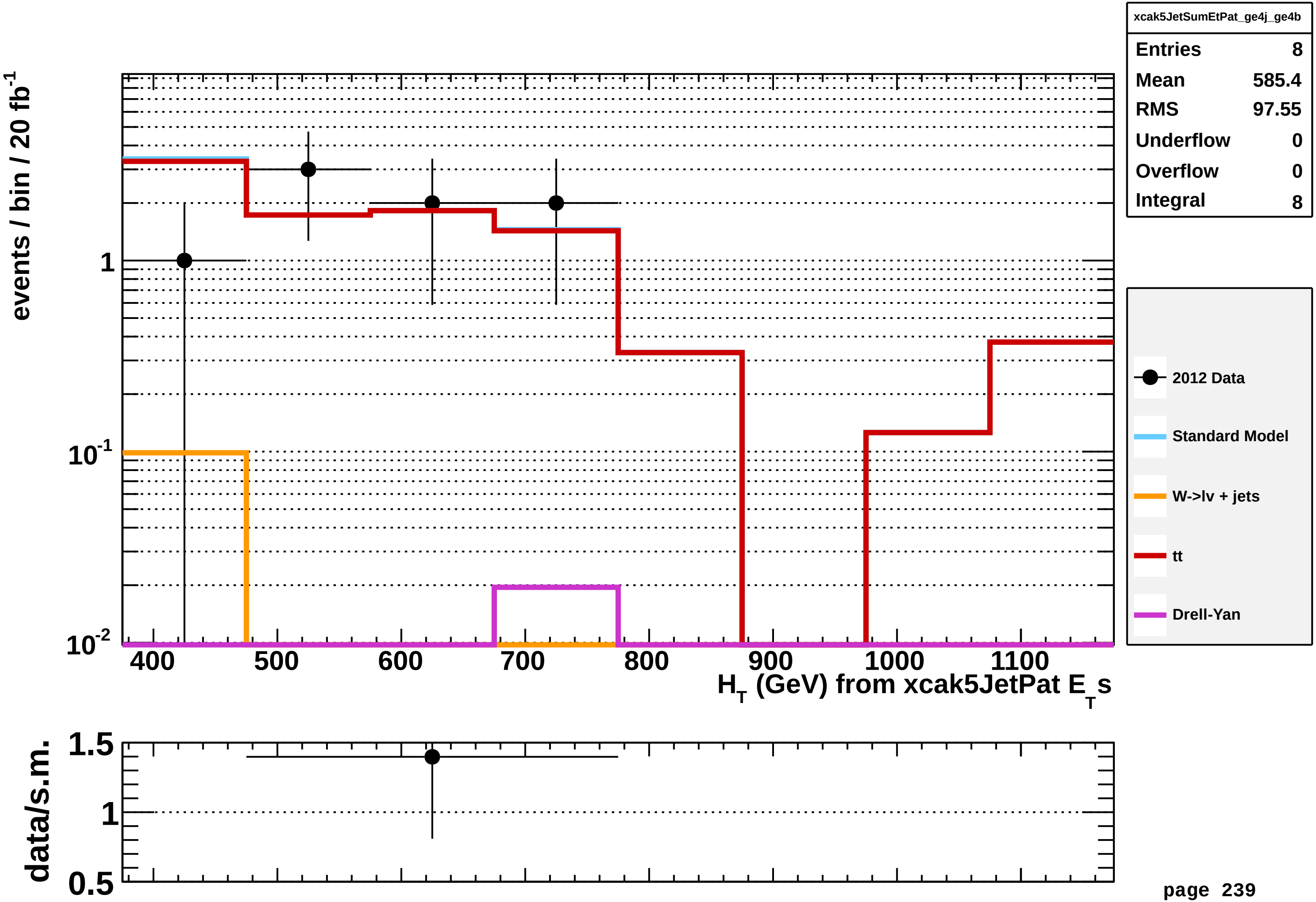
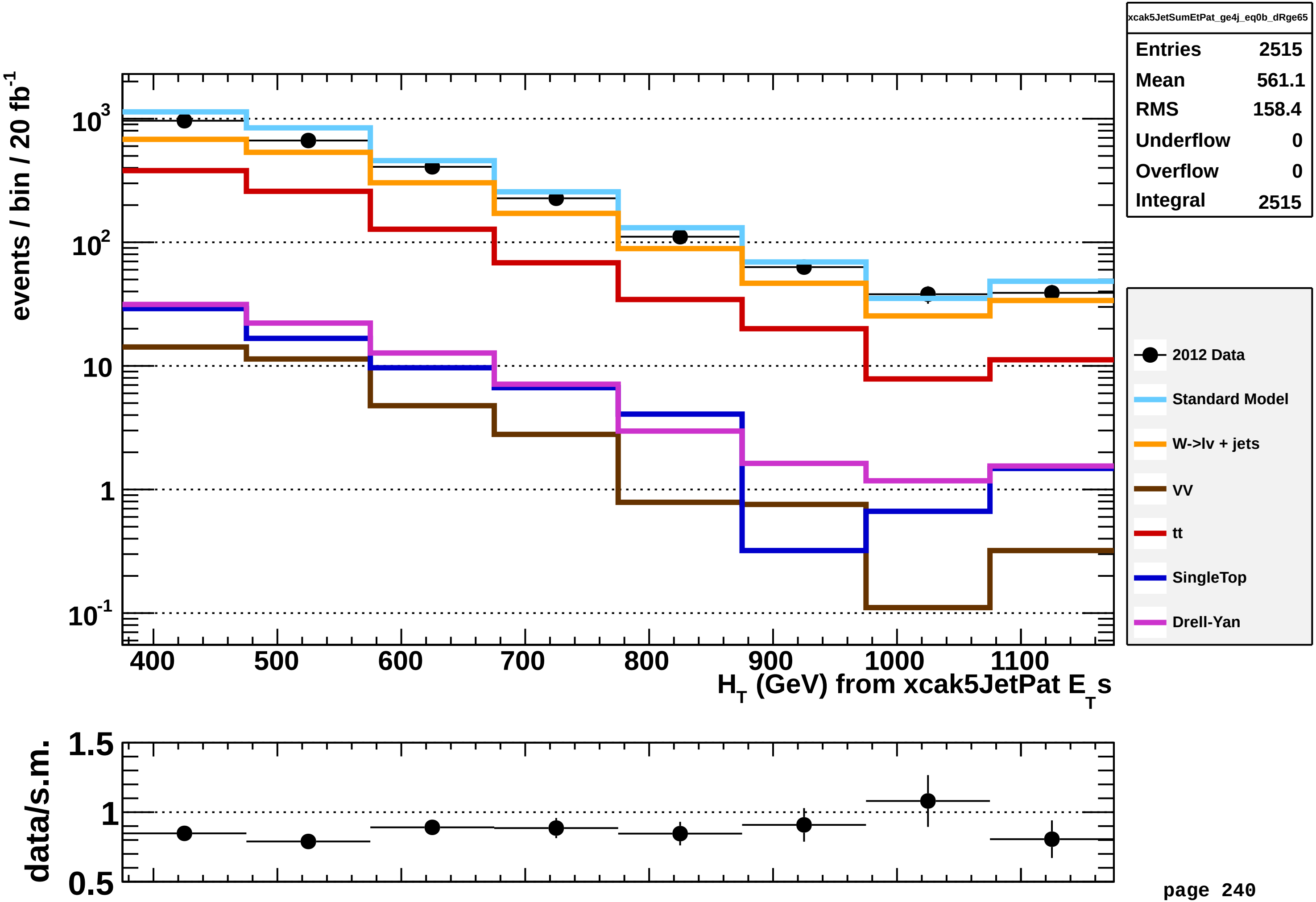
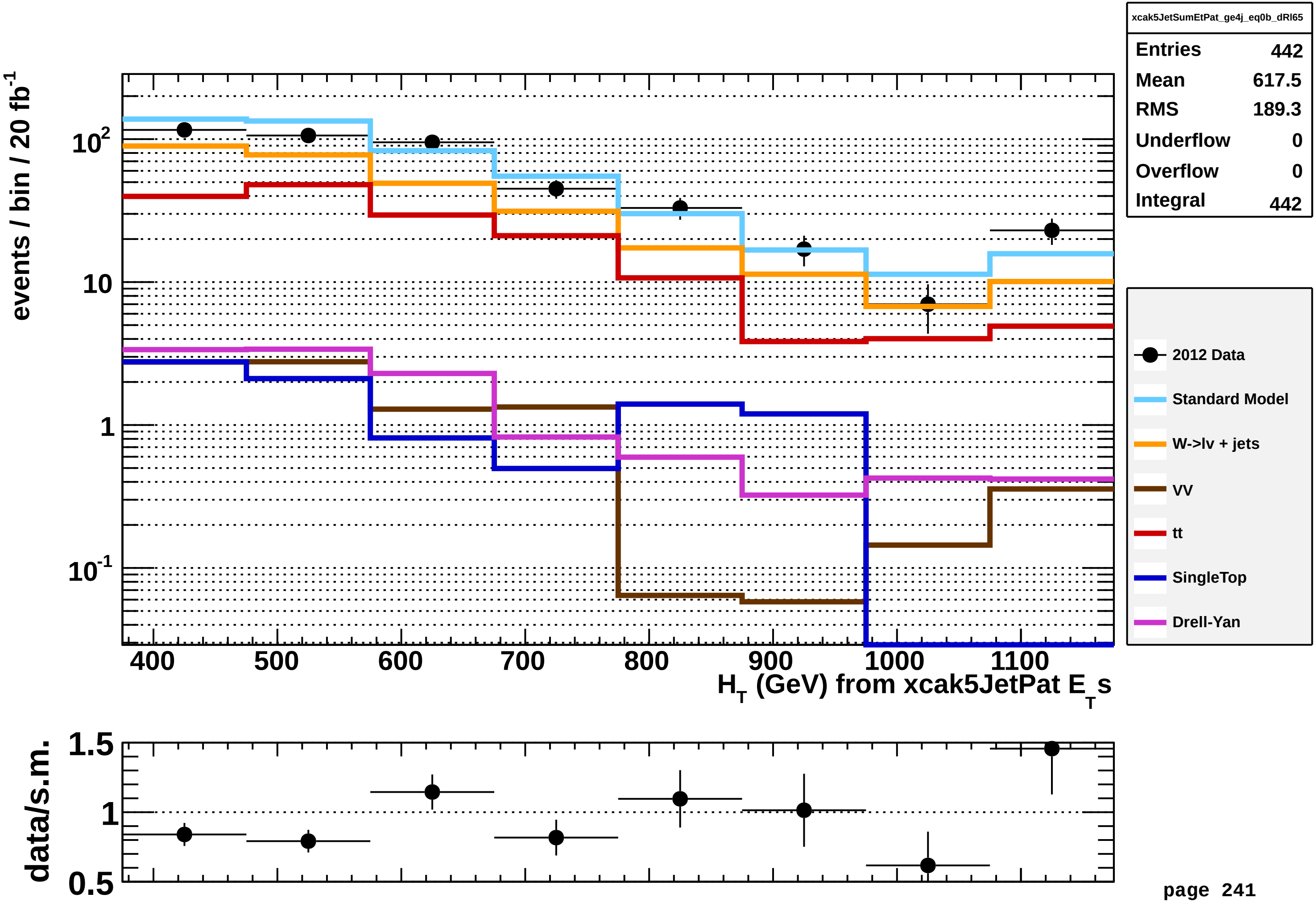
0.5

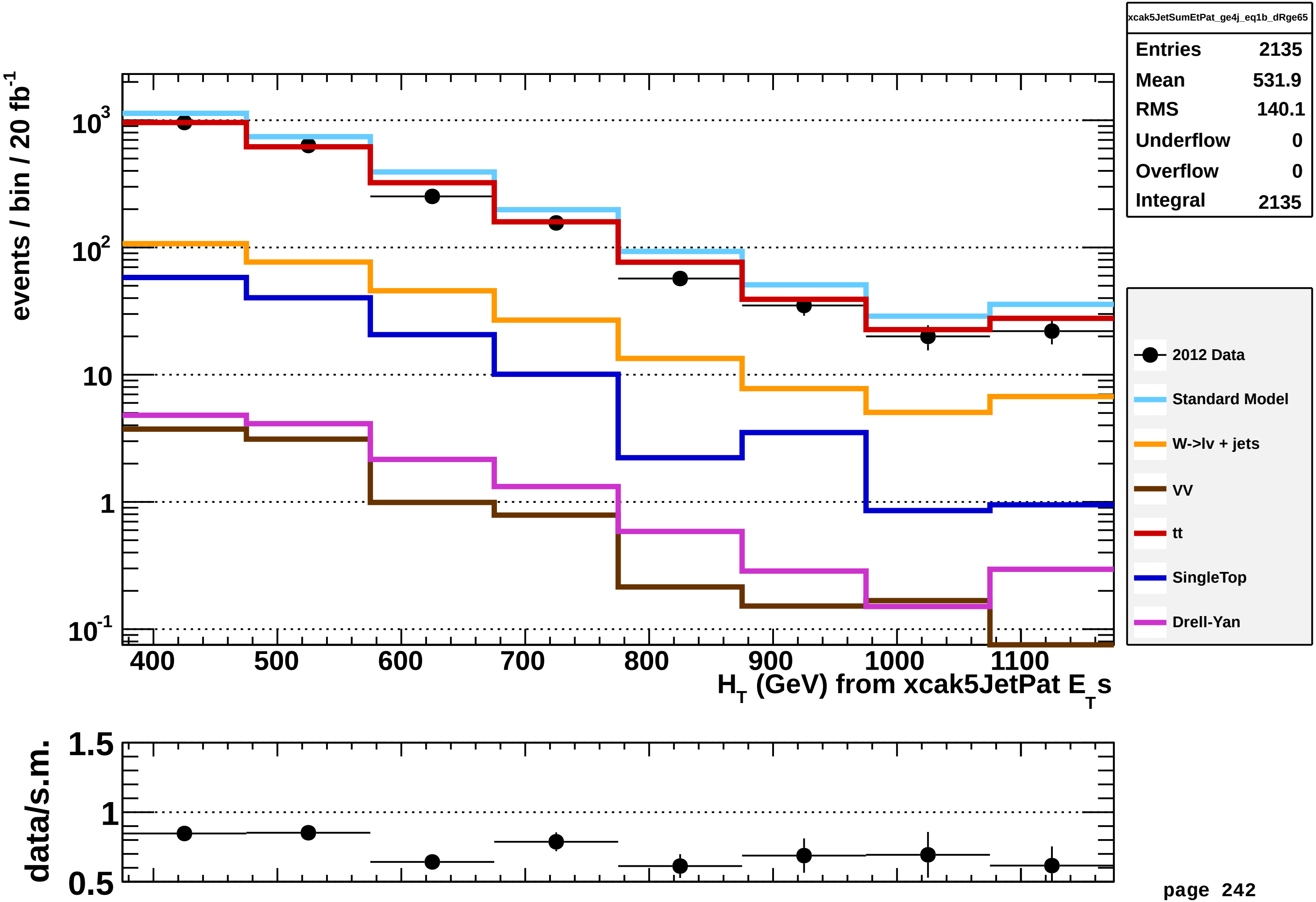

xcak5JetSumEtPat_ge4j_eq3b
Entries 193
Mean 542.6
RMS 132.7
Underflow 0
Overflow 0
Integral 193
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
events / bin / 20 fb^{-1}
10^2
10
1
10^{-1}
400
500
600
700
800
900
1000
1100
H_T (GeV) from xcak5JetPat E_Ts
data/s.m.
1.5
1
0.5

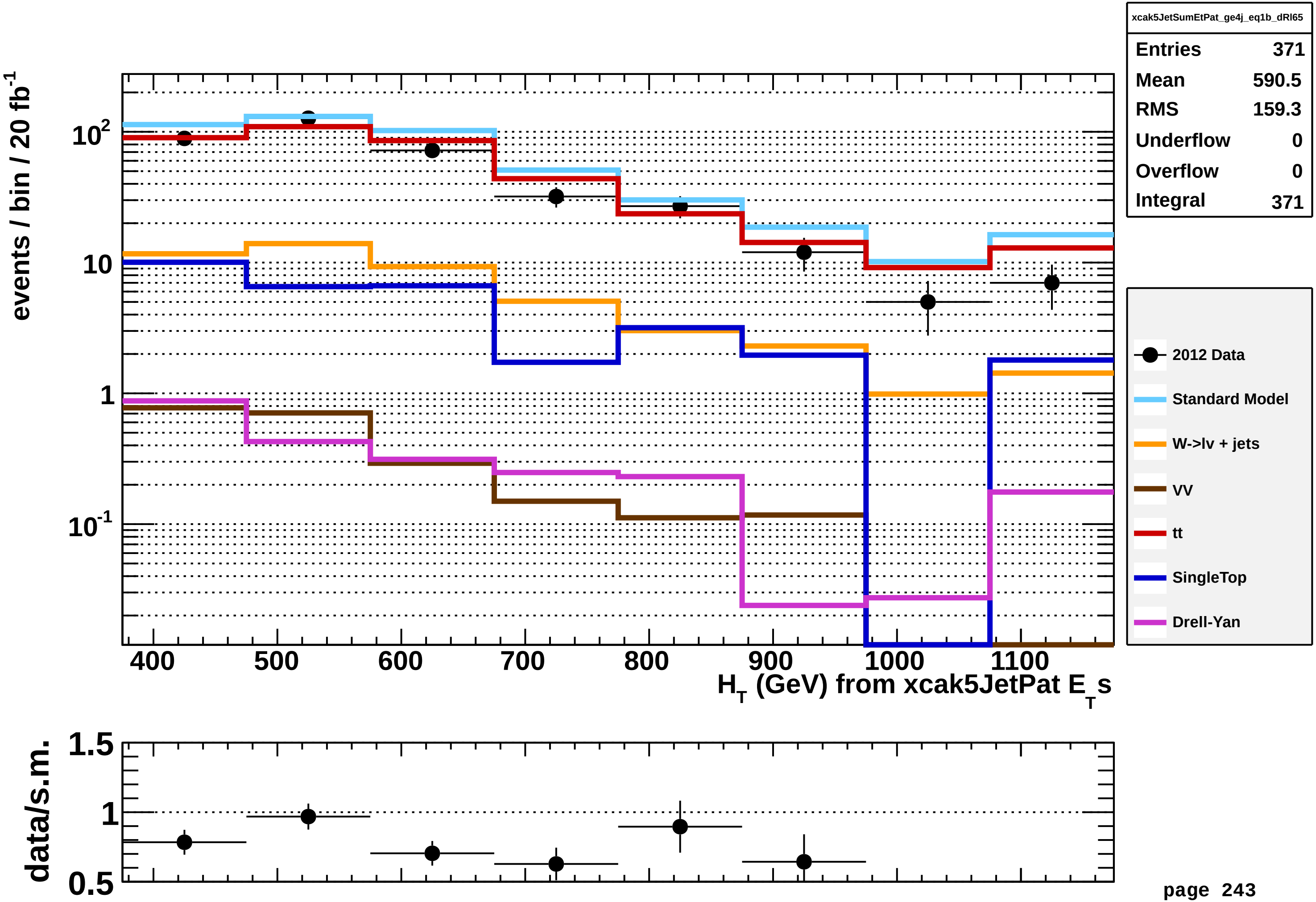

xcak5JetSumEtPat_ge4j_ge4b
Entries 8
Mean 585.4
RMS 97.55
Underflow 0
Overflow 0
Integral 8
events / bin / 20 fb^{-1}
1
10^{-1}
10^{-2}
400
500
600
700
800
900
1000
1100
H_T (GeV) from xcak5JetPat E_Ts
2012 Data
Standard Model
W->lv + jets
tt
Drell-Yan
data/s.m.
1.5
1
0.5

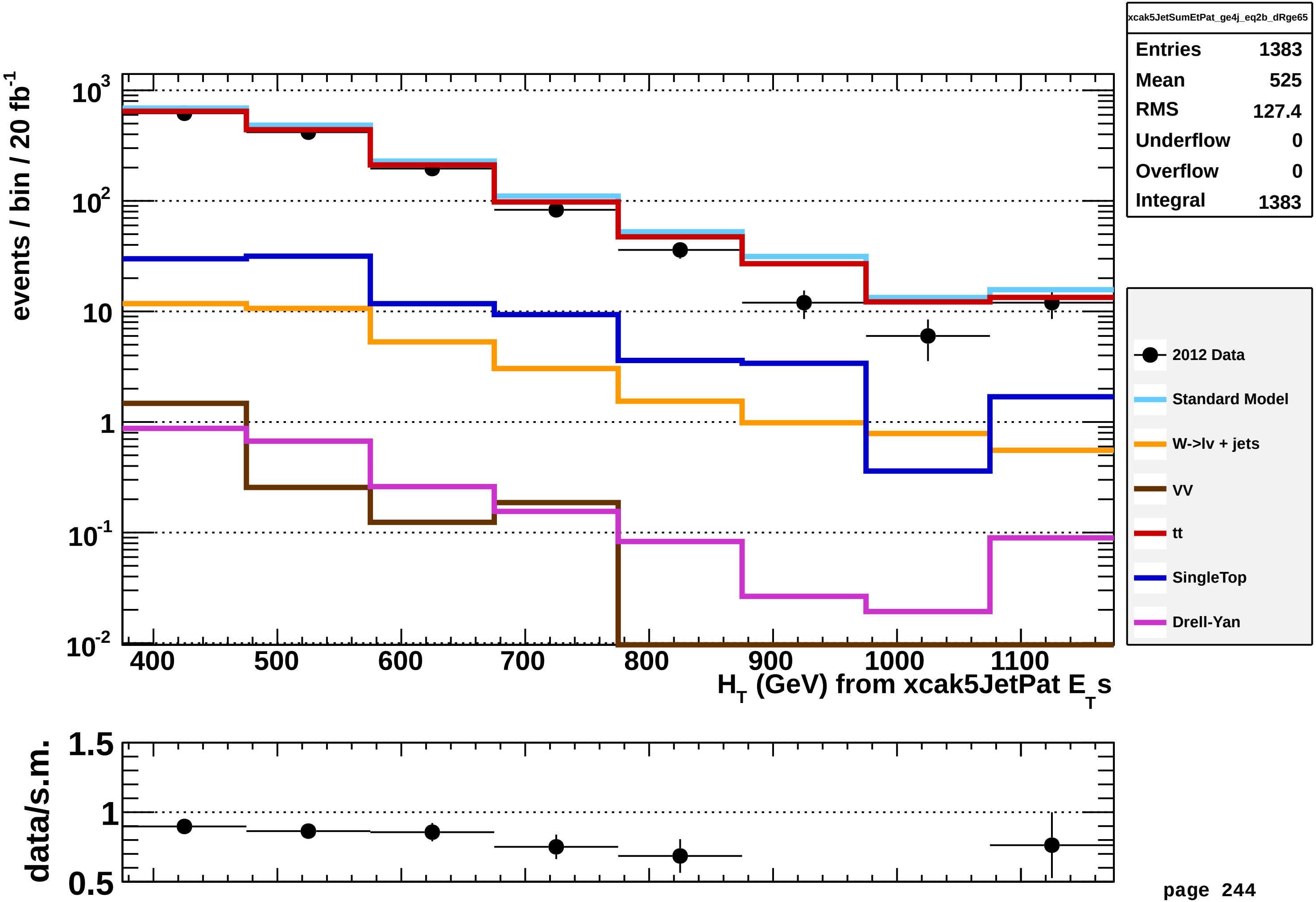


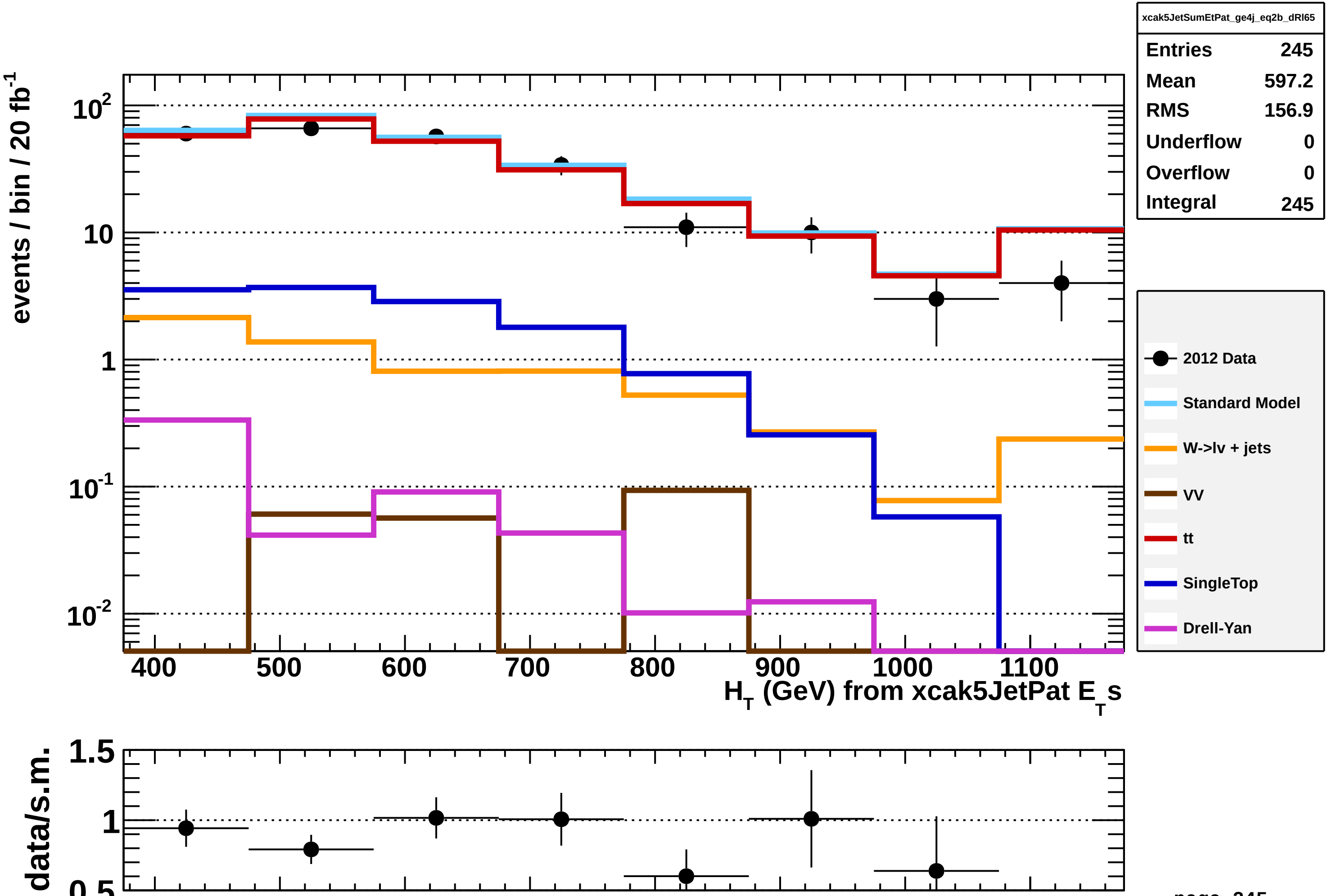
xcak5JetSumEtPat_ge4j_eq0b_dRge65
Entries 2515
Mean 561.1
RMS 158.4
Underflow 0
Overflow 0
Integral 2515
events / bin / 20 fb^{-1}
10^3
10^2
10
1
10^{-1}
400
500
600
700
800
900
1000
1100
H$_T$ (GeV) from xcak5JetPat E$_T$s
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
data/s.m.
1.5
1
0.5

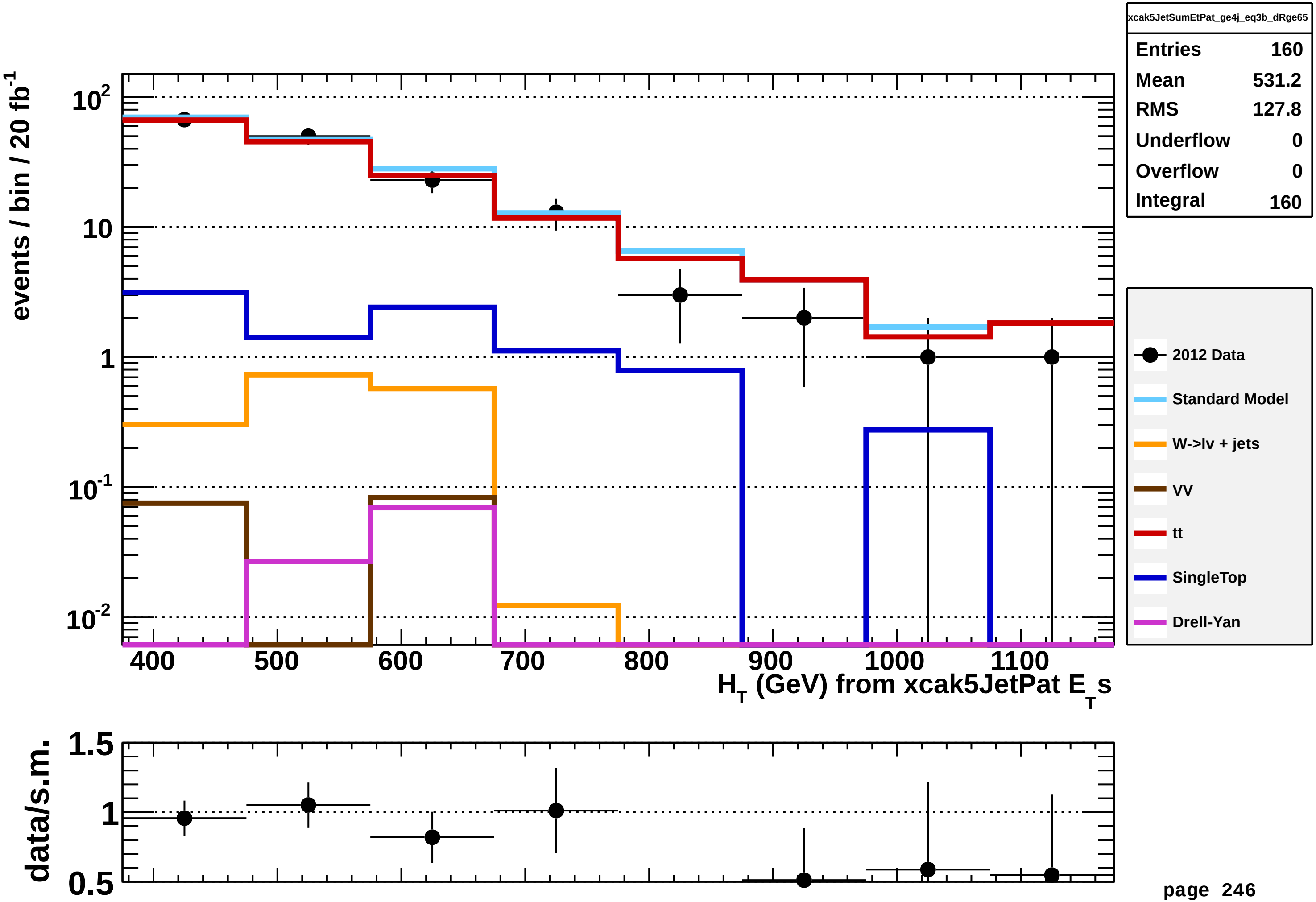

xcak5JetSumEtPat_ge4j_eq0b_dRl65
Entries 442
Mean 617.5
RMS 189.3
Underflow 0
Overflow 0
Integral 442
events / bin / 20 fb^{-1}
10^2
10
1
10^{-1}
400
500
600
700
800
900
1000
1100
H_T (GeV) from xcak5JetPat E_Ts
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
data/s.m.
1.5
1
0.5

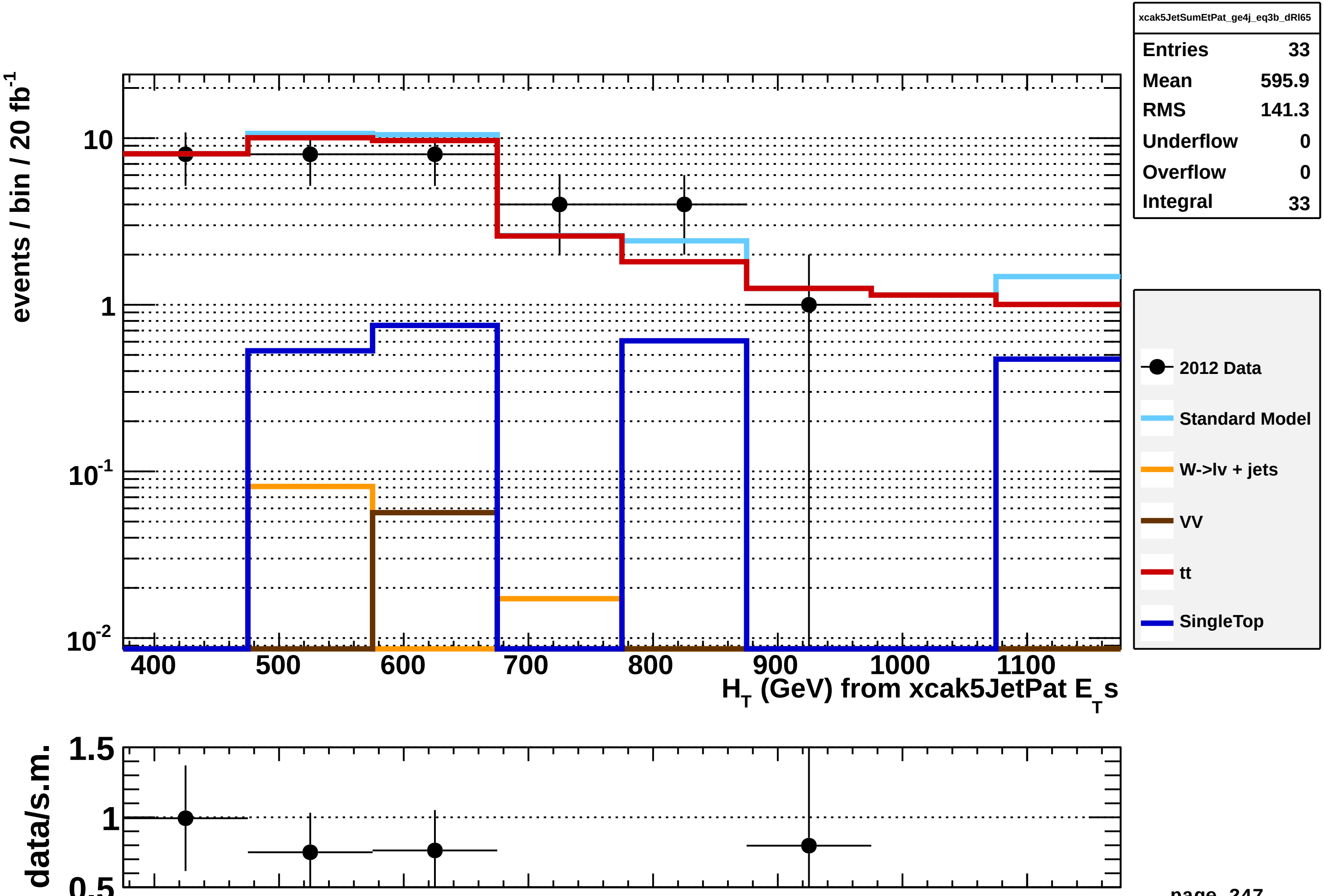

xcak5JetSumEtPat_ge4j_eq1b_dRge65
Entries 2135
Mean 531.9
RMS 140.1
Underflow 0
Overflow 0
Integral 2135
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
events / bin / 20 fb^{-1}
10^3
10^2
10
1
10^{-1}
400
500
600
700
800
900
1000
1100
H_T (GeV) from xcak5JetPat E_Ts
data/s.m.
1.5
1
0.5

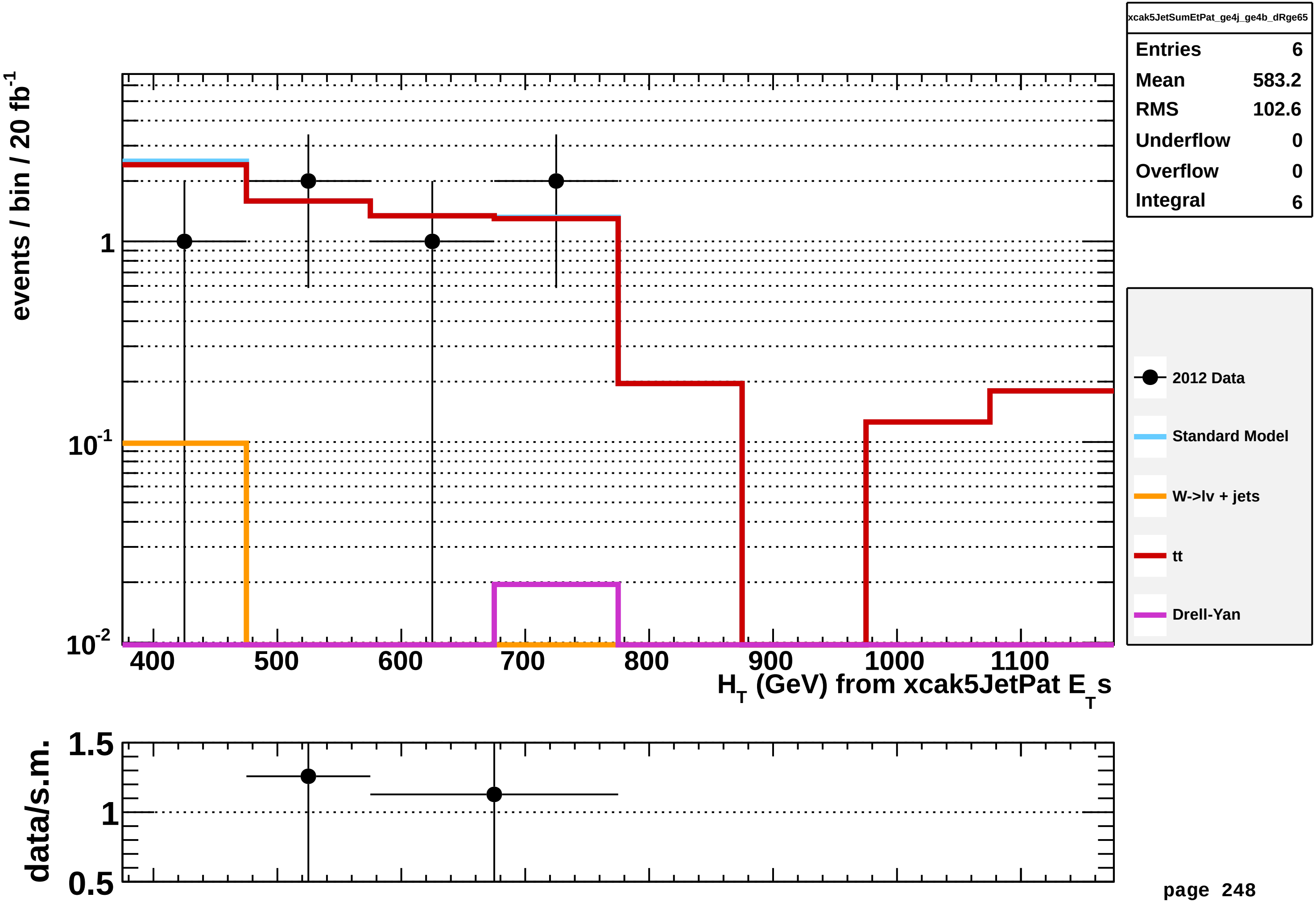

xcak5JetSumEtPat_ge4j_eq1b_dRl65
Entries 371
Mean 590.5
RMS 159.3
Underflow 0
Overflow 0
Integral 371
events / bin / 20 fb^{-1}
10^2
10
1
10^{-1}
400
500
600
700
800
900
1000
1100
H_T (GeV) from xcak5JetPat E_Ts
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
data/s.m.
1.5
1
0.5

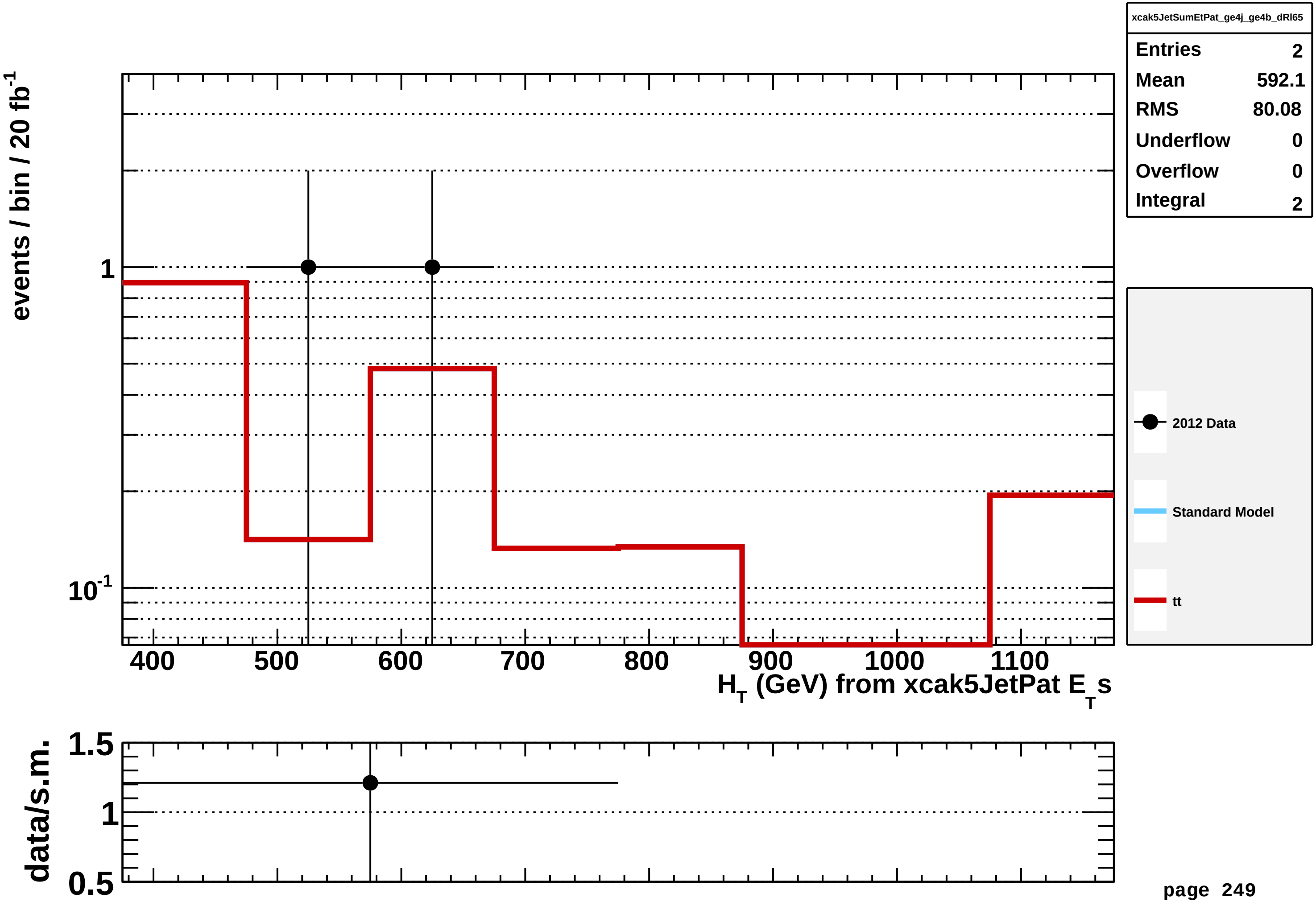

xcak5JetSumEtPat_ge4j_eq2b_dRge65
Entries 1383
Mean 525
RMS 127.4
Underflow 0
Overflow 0
Integral 1383
events / bin / 20 fb^{-1}
10^{3}
10^{2}
10
1
10^{-1}
10^{-2}
400
500
600
700
800
900
1000
1100
H_T (GeV) from xcak5JetPat E_Ts
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
data/s.m.
1.5
1
0.5

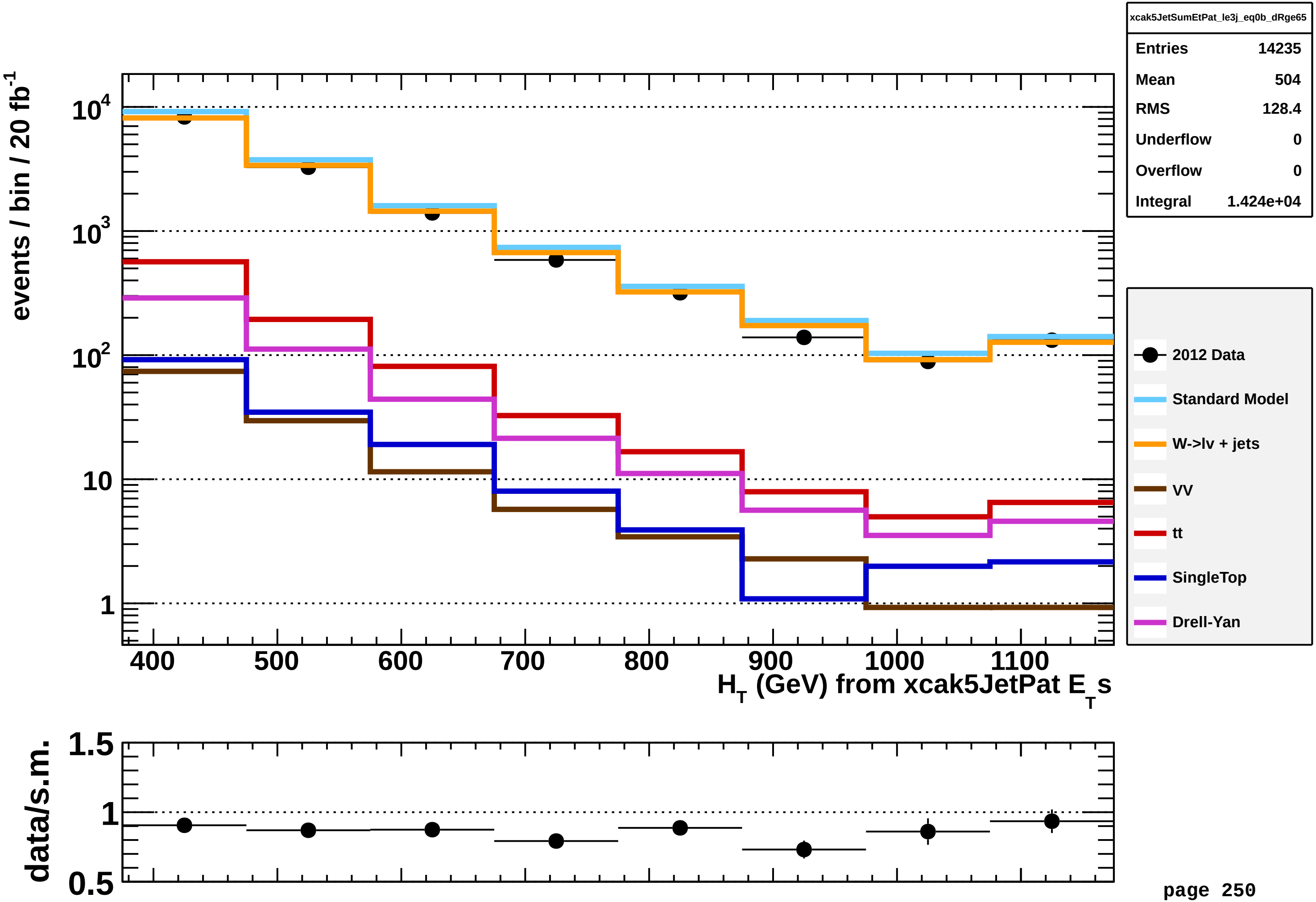

xcak5JetSumEtPat_ge4j_eq2b_dRl65
Entries 245
Mean 597.2
RMS 156.9
Underflow 0
Overflow 0
Integral 245
events / bin / 20 fb^{-1}
10^2
10
1
10^{-1}
10^{-2}
400
500
600
700
800
900
1000
1100
H_T (GeV) from xcak5JetPat E_Ts
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
data/s.m.
1.5
1
0.5

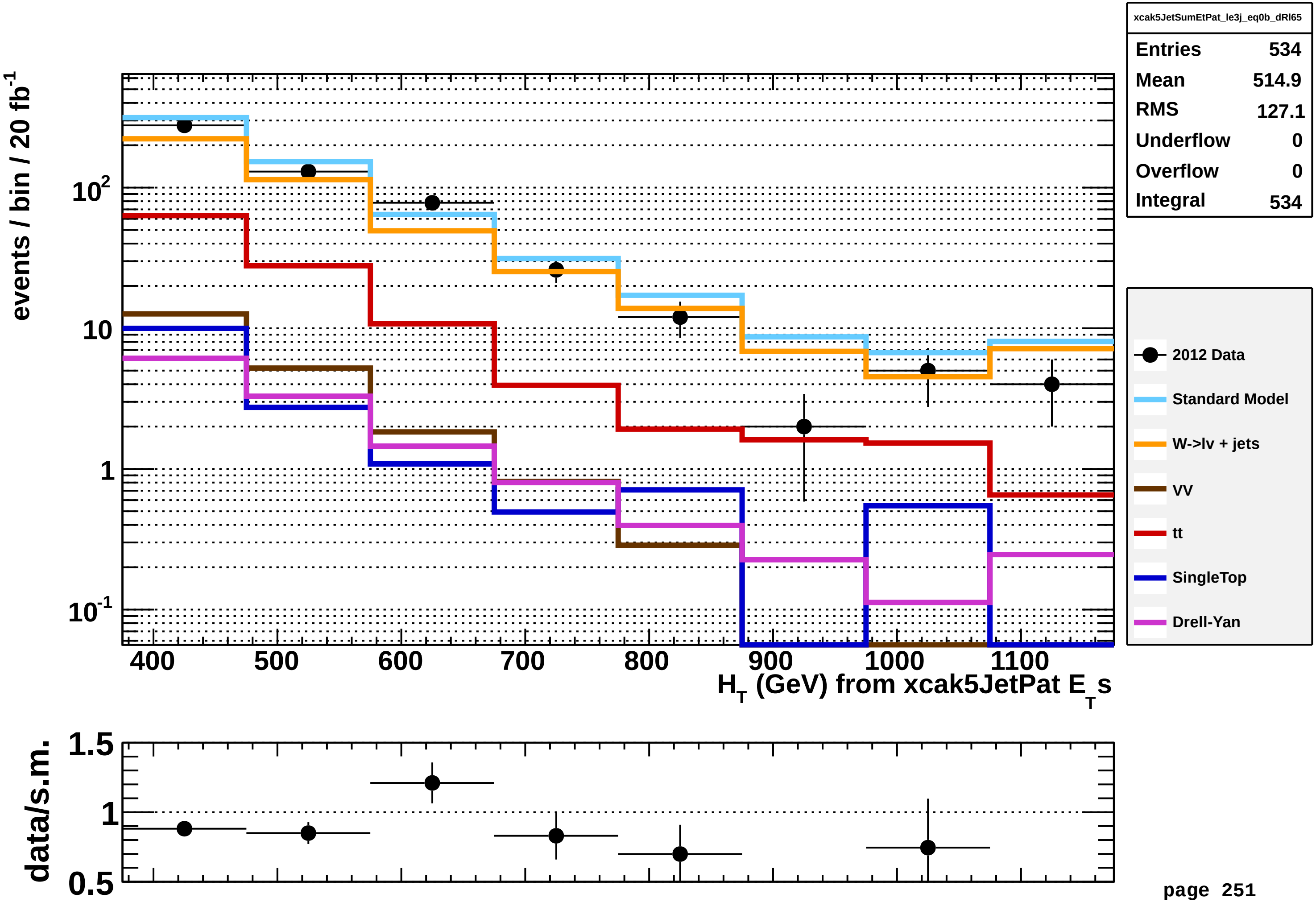

xcak5JetSumEtPat_ge4j_eq3b_dRge65
Entries 160
Mean 531.2
RMS 127.8
Underflow 0
Overflow 0
Integral 160
events / bin / 20 fb^{-1}
10^2
10
1
10^{-1}
10^{-2}
400
500
600
700
800
900
1000
1100
H_T (GeV) from xcak5JetPat E_Ts
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
data/s.m.
1.5
1
0.5

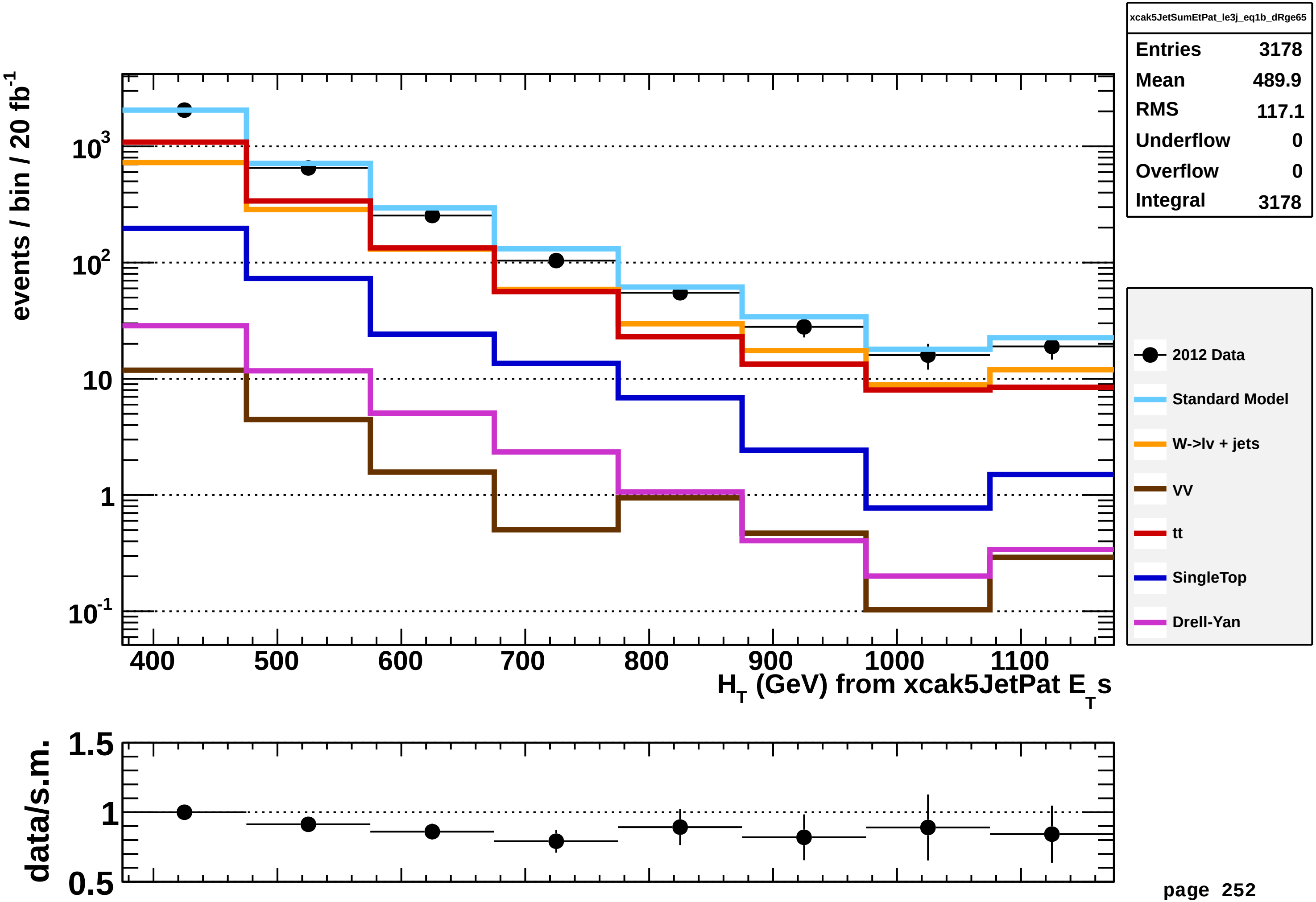

xcak5JetSumEtPat_ge4j_eq3b_dRl65
Entries 33
Mean 595.9
RMS 141.3
Underflow 0
Overflow 0
Integral 33
events / bin / 20 fb^{-1}
10
1
10^{-1}
10^{-2}
400
500
600
700
800
900
1000
1100
H_T (GeV) from xcak5JetPat E_Ts
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
data/s.m.
1.5
1
0.5

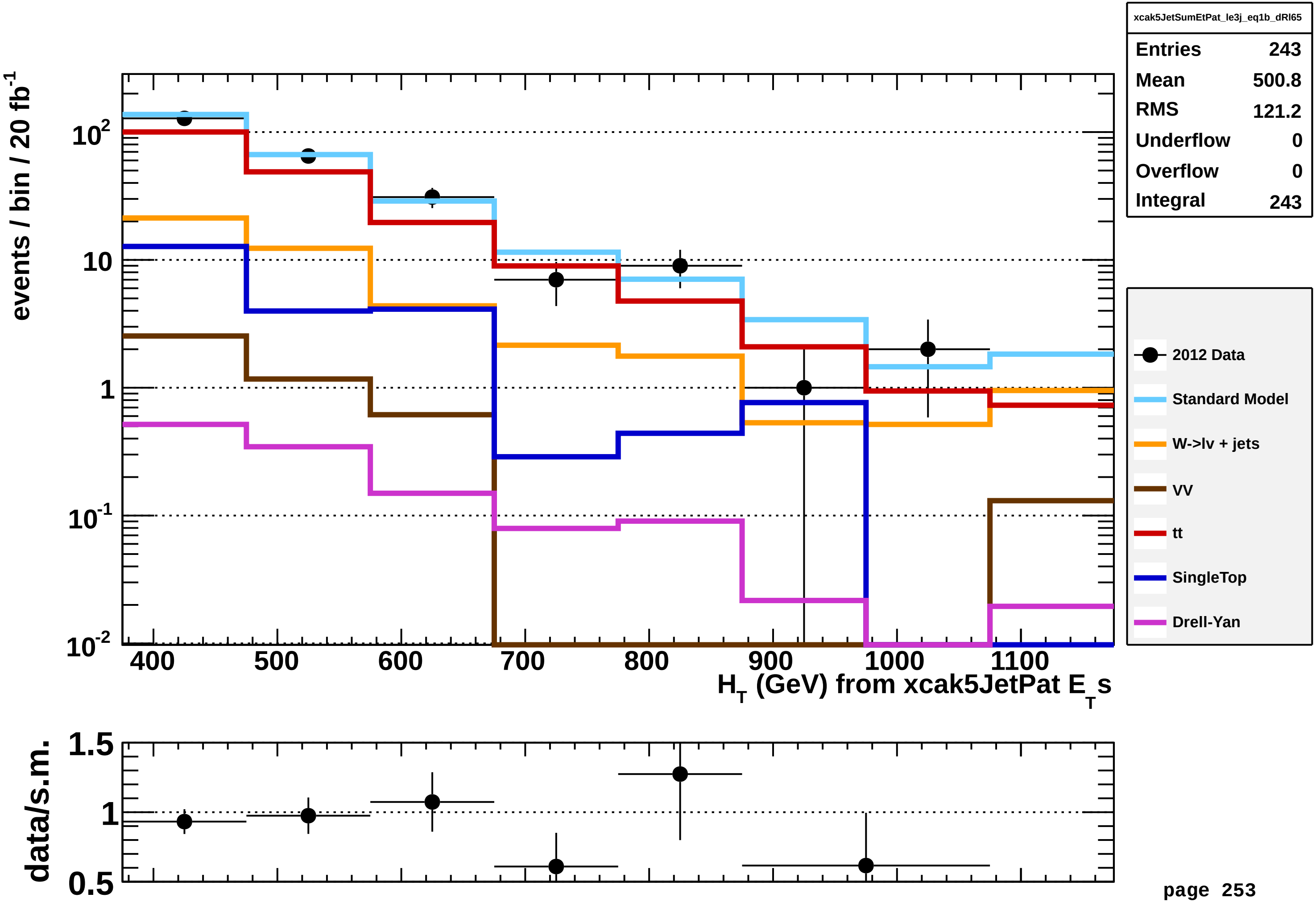

xcak5JetSumEtPat_ge4j_ge4b_dRge65
Entries 6
Mean 583.2
RMS 102.6
Underflow 0
Overflow 0
Integral 6
events / bin / 20 fb^{-1}
1
10^{-1}
10^{-2}
400
500
600
700
800
900
1000
1100
H_T (GeV) from xcak5JetPat E_Ts
2012 Data
Standard Model
W->lv + jets
tt
Drell-Yan
data/s.m.
1.5
1
0.5

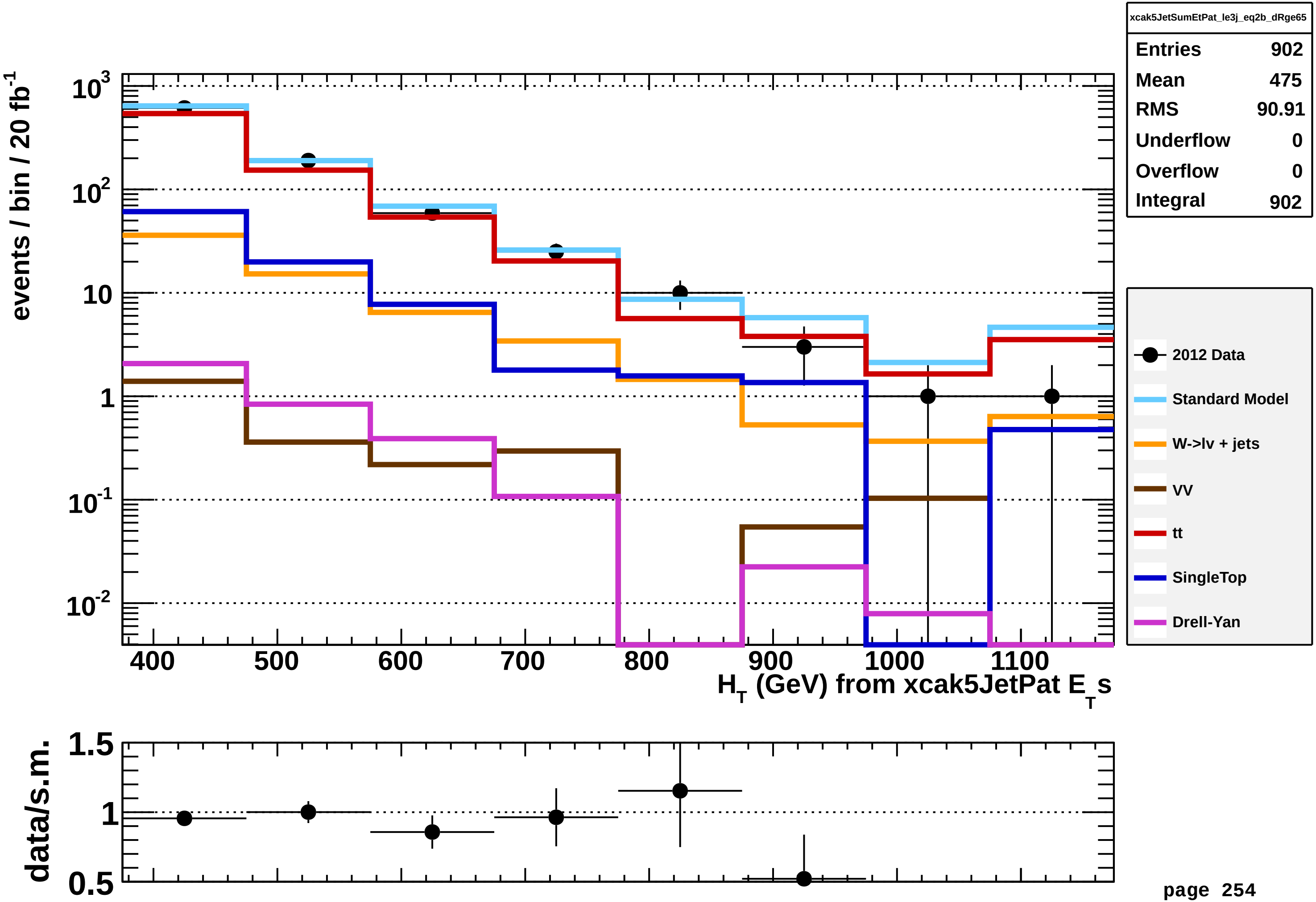

xcak5JetSumEtPat_ge4j_ge4b_dRl65
Entries 2
Mean 592.1
RMS 80.08
Underflow 0
Overflow 0
Integral 2
events / bin / 20 fb^{-1}
1
10^{-1}
400
500
600
700
800
900
1000
1100
H_T (GeV) from xcak5JetPat E_Ts
2012 Data
Standard Model
tt
data/s.m.
1.5
1
0.5

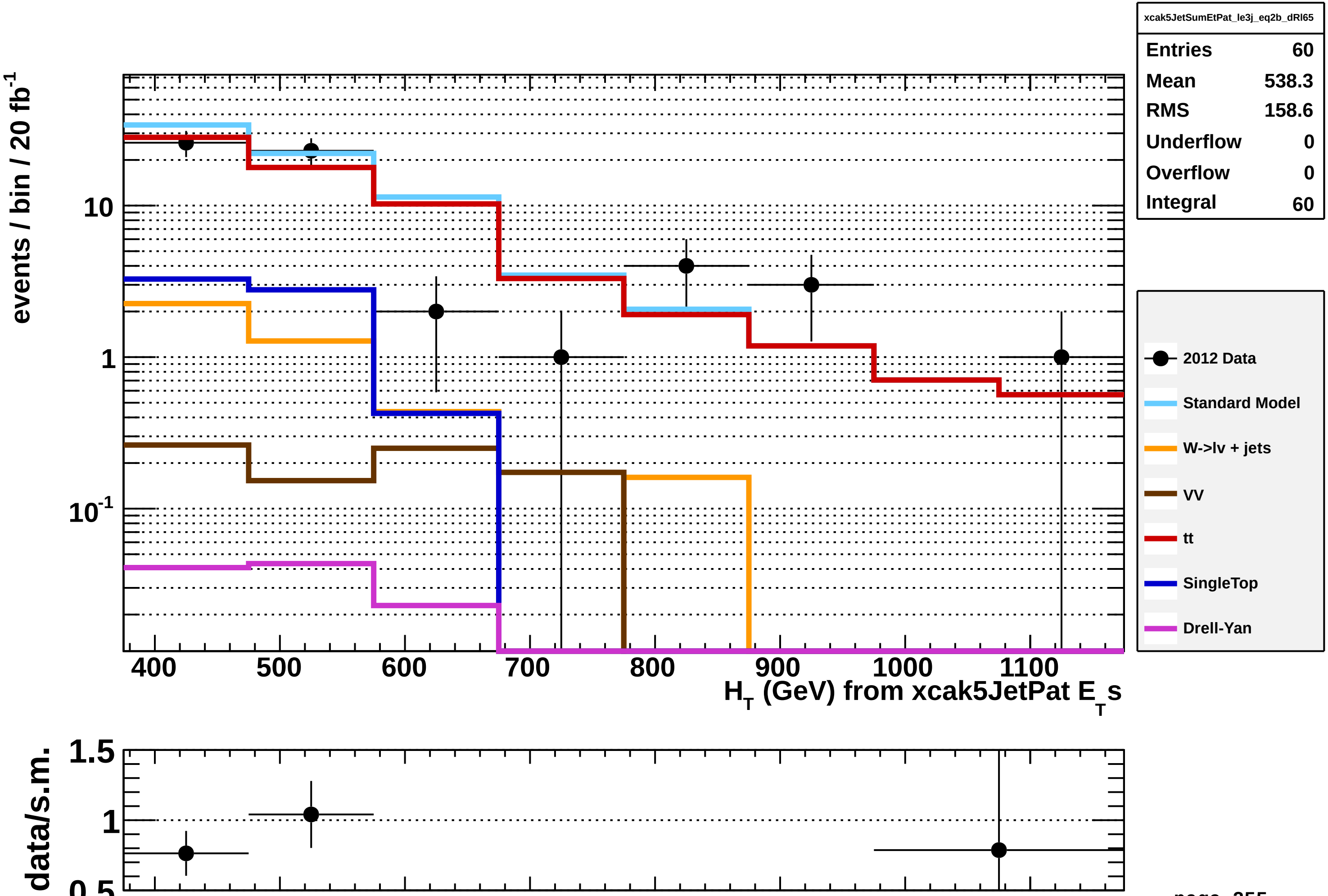

xcak5JetSumEtPat_le3j_eq0b_dRge65
Entries 14235
Mean 504
RMS 128.4
Underflow 0
Overflow 0
Integral 1.424e+04
events / bin / 20 fb^{-1}
10^4
10^3
10^2
10
1
400
500
600
700
800
900
1000
1100
H_T (GeV) from xcak5JetPat E_Ts
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
data/s.m.
1.5
1
0.5

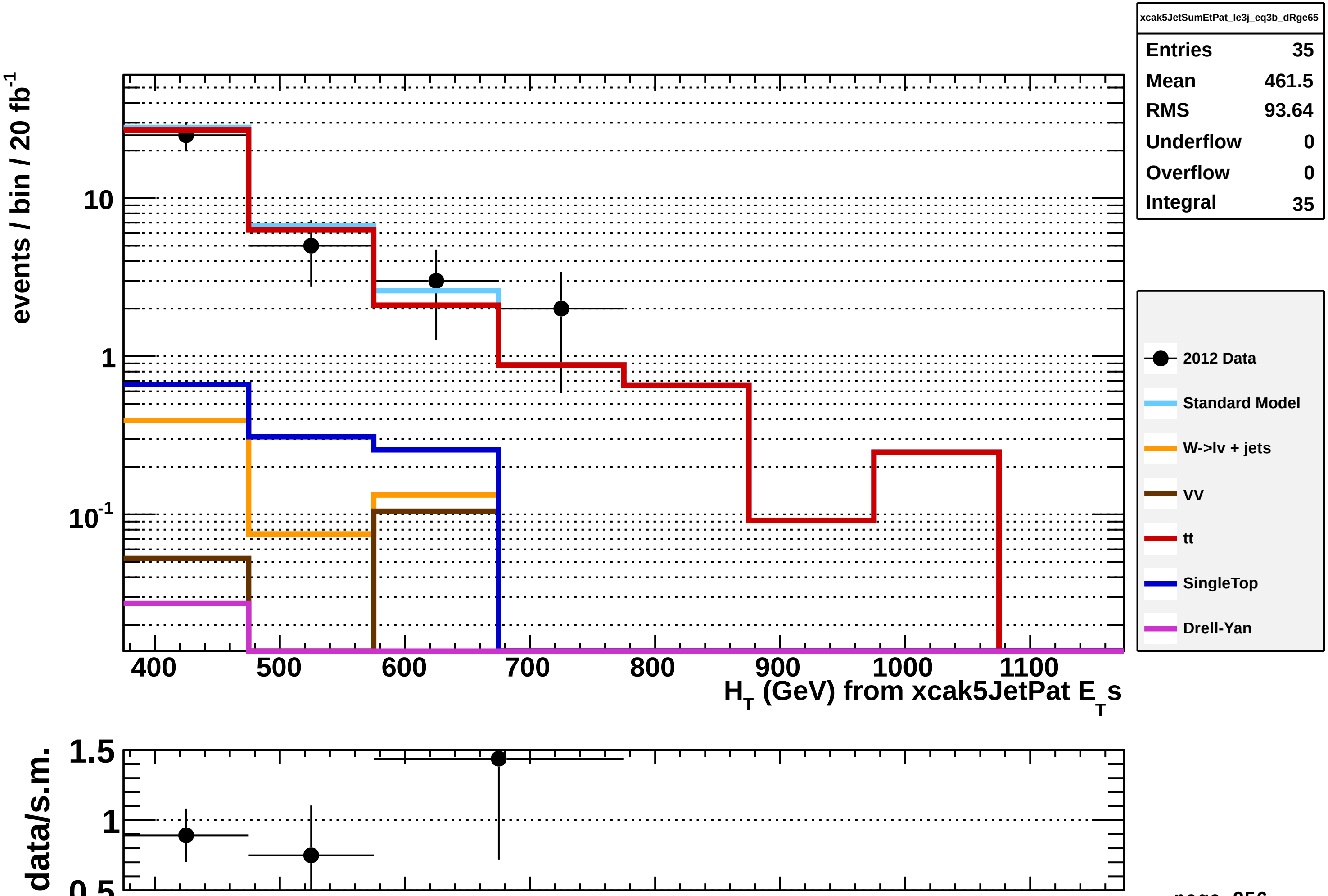

xcak5JetSumEtPat_le3j_eq0b_dRl65
Entries 534
Mean 514.9
RMS 127.1
Underflow 0
Overflow 0
Integral 534
events / bin / 20 fb^{-1}
10^2
10
1
10^{-1}
400
500
600
700
800
900
1000
1100
H_T (GeV) from xcak5JetPat E_Ts
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
data/s.m.
1.5
1
0.5

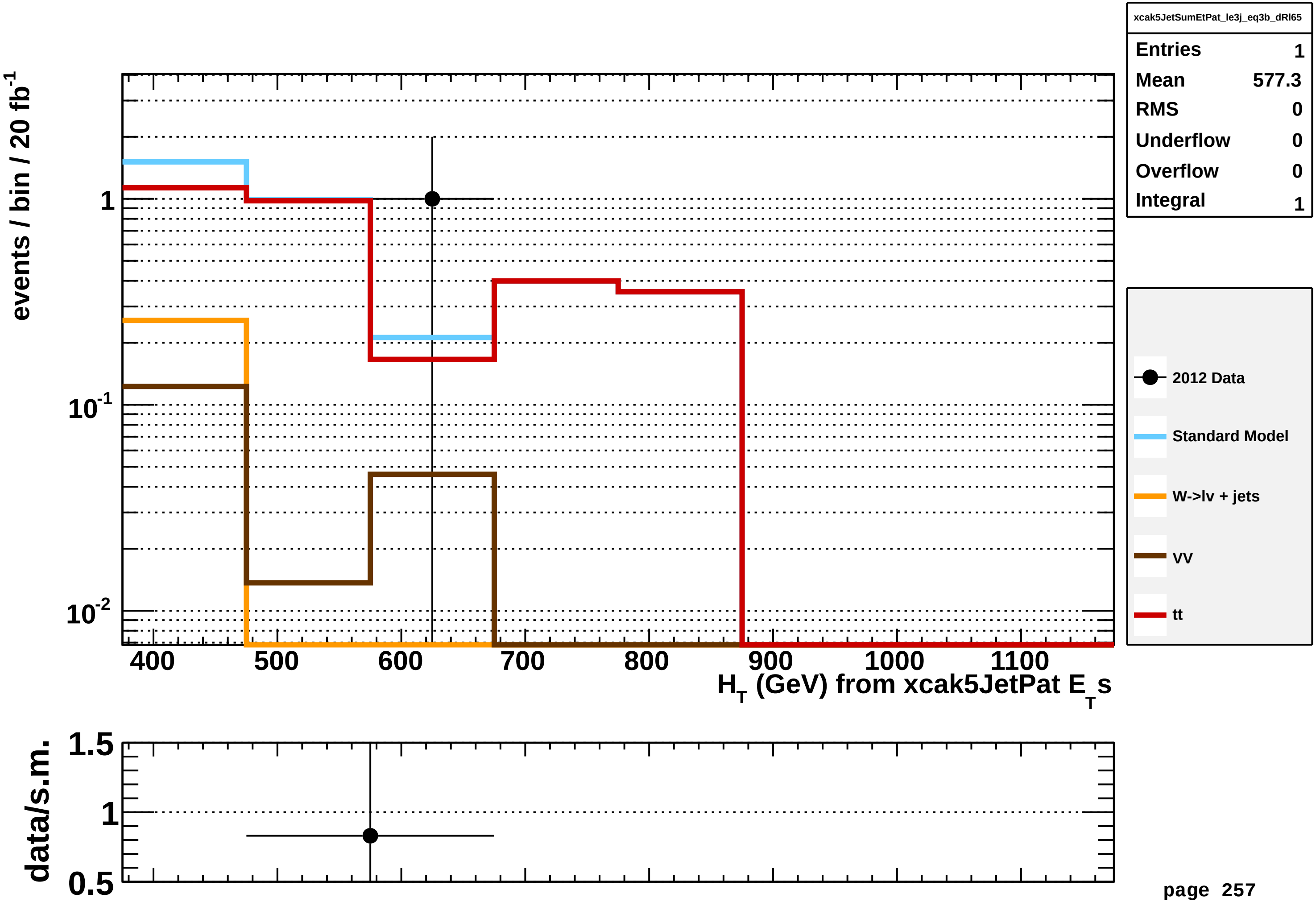

xcak5JetSumEtPat_le3j_eq1b_dRge65
Entries 3178
Mean 489.9
RMS 117.1
Underflow 0
Overflow 0
Integral 3178
events / bin / 20 fb^{-1}
10^{3}
10^{2}
10
1
10^{-1}
400
500
600
700
800
900
1000
1100
H_T (GeV) from xcak5JetPat E_Ts
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
data/s.m.
1.5
1
0.5


xcak5JetSumEtPat_le3j_eq1b_dRl65
Entries 243
Mean 500.8
RMS 121.2
Underflow 0
Overflow 0
Integral 243
events / bin / 20 fb^{-1}
10^2
10
1
10^{-1}
10^{-2}
400
500
600
700
800
900
1000
1100
H_T (GeV) from xcak5JetPat E_Ts
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
data/s.m.
1.5
1
0.5


xcak5JetSumEtPat_le3j_eq2b_dRge65
Entries 902
Mean 475
RMS 90.91
Underflow 0
Overflow 0
Integral 902
events / bin / 20 fb^{-1}
10^3
10^2
10
1
10^{-1}
10^{-2}
400
500
600
700
800
900
1000
1100
H_T (GeV) from xcak5JetPat E_Ts
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
data/s.m.
1.5
1
0.5


xcak5JetSumEtPat_le3j_eq2b_dRl65
Entries 60
Mean 538.3
RMS 158.6
Underflow 0
Overflow 0
Integral 60
events / bin / 20 fb^{-1}
10
1
10^{-1}
400
500
600
700
800
900
1000
1100
H_T (GeV) from xcak5JetPat E_Ts
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
data/s.m.
1.5
1
0.5


xcak5JetSumEtPat_le3j_eq3b_dRge65
Entries 35
Mean 461.5
RMS 93.64
Underflow 0
Overflow 0
Integral 35
events / bin / 20 fb^{-1}
10
1
10^{-1}
400
500
600
700
800
900
1000
1100
H_T (GeV) from xcak5JetPat E_Ts
2012 Data
Standard Model
W->lv + jets
VV
tt
SingleTop
Drell-Yan
data/s.m.
1.5
1
0.5


xcak5JetSumEtPat_le3j_eq3b_dRl65
Entries 1
Mean 577.3
RMS 0
Underflow 0
Overflow 0
Integral 1
events / bin / 20 fb^{-1}
1
10^{-1}
10^{-2}
400
500
600
700
800
900
1000
1100
H_T (GeV) from xcak5JetPat E_Ts
2012 Data
Standard Model
W->lv + jets
VV
tt
data/s.m.
1.5
1
0.5

```
 A:  multiplicity                          0 <= photonIndicesUnmatchedPat <= 0
 B:  deadEcalFilter                        xcak5JetPat; dR>0.300 when deltaPhiStar<0.500
 C:  multiplicity                          1 <= muonIndicesPat <= 1
 D:  pt                                    30.00<=muonP4Pat[i[0]].pt; muonIndicesPat

 E:  eta                                   -2.10<=muonP4Pat[i[0]].eta<=2.10; muonIndicesPat
 F:  value                                 30.00<=muonMtPatmetP4TypeIPF<=125.00
 G:  value                                 xcak5JetMhthighPtPatOvermetP4TypeIPFPlusmuonIndicesPat<=1.25
 H:  value                                 CaloRecHitSumPt<=30.00
 I:  value                                 0.10<=xcak5JetMaxEmEnergyFractionPat

[ jetSumPlots1 ]
[ kinematicPlots1 ]
| L:  value                                475.00<=xcak5JetSumEtPat
| M:  value                                575.00<=xcak5JetSumEtPat
| N:  value                                675.00<=xcak5JetSumEtPat

| O:  value                                775.00<=xcak5JetSumEtPat
| P:  value                                875.00<=xcak5JetSumEtPat
| Q:  value                                975.00<=xcak5JetSumEtPat
| R:  value                                1075.00<=xcak5JetSumEtPat



          2012 Data Standard Model   W->lv + jets             VV             tt      SingleTop      Drell-Yan      data/s.m.

 A:          118135     8.254(4)e+5     2.248(2)e+5     2.350(5)e+4     4.782(3)e+5      7.54(2)e+4     2.353(4)e+4      0.1431(4)
 B:           58474     2.723(2)e+5     1.009(1)e+5      6.61(2)e+3     1.335(2)e+5     2.147(9)e+4      9.78(3)e+3      0.2147(9)
 C:           52068      7.14(1)e+4     4.300(8)e+4          533(7)     2.312(7)e+4      2.36(3)e+3      2.42(1)e+3       0.729(3)
 D:           47847    5.650(10)e+4     3.416(7)e+4          443(7)     1.819(6)e+4      1.81(3)e+3         1889(9)       0.847(4)

 E:           47844     5.376(9)e+4     3.205(7)e+4          414(7)     1.783(6)e+4      1.77(3)e+3         1693(8)       0.890(4)
 F:           34384     3.893(8)e+4     2.348(6)e+4          296(6)     1.292(5)e+4      1.30(2)e+3          940(6)       0.883(5)
 G:           26835     3.027(7)e+4     1.888(5)e+4          237(5)      9.49(4)e+3       9.9(2)e+2          674(5)       0.886(6)
 H:           26480     3.005(7)e+4     1.875(5)e+4          235(5)      9.41(4)e+3       9.8(2)e+2          670(5)       0.881(6)
 I:           26480               -               -               -               -               -               -

[ jetSumPlots1 ]
[ kinematicPlots1 ]
| L:          12170     1.431(5)e+4      8.68(3)e+3          109(3)      4.75(3)e+3       4.7(1)e+2          302(3)       0.850(8)
| M:           5763      6.93(3)e+3      4.16(2)e+3           50(2)      2.35(2)e+3         230(10)          143(2)        0.83(1)
| N:           2822      3.50(2)e+3      2.11(2)e+3           26(2)      1.17(1)e+3          118(7)           74(1)        0.81(2)

| O:           1476      1.83(2)e+3        1109(10)           13(1)       6.1(1)e+2           62(5)        39.1(10)        0.81(2)
| P:            786      1.01(1)e+3          614(7)          7.5(9)          334(8)           32(4)         22.0(7)        0.78(3)
| Q:            458          564(9)          346(5)          3.6(6)          185(6)           16(3)         13.4(6)        0.81(4)
| R:            265          325(6)          201(4)          2.0(5)          104(4)           11(2)          7.7(4)        0.81(5)
```