Summary table of generated signal and background events for 100 000 generated t-tbar-jet background events

	inclusive	**boosted**	**t-tbar-2muons background**				**t-tbar-j bkg**
			Bkg_1	Bkg_2	Bkg_3	Bkg_4	
MadGraph generation	lhapdf id 303400 (NNPDF NLO) pT > 20 for alp MT=172 top mass	lhapdf id 303400 (NNPDF NLO) pT > 20 for alp pT > 40 for top MT=172 top mass	lhapdf id 303400 (NNFDF NLO) MT=172 top mass pT > **10** GeV for charged leptons eta < 2.5 for charged leptons DeltaR > 0.4 between leptons	pT > **5.0** for charged leptons eta < 2.5 for charged leptons DeltaR > 0.4 between leptons	pT > 5.0 for charged leptons eta < **3.5** for charged leptons DeltaR > **0.2** between leptons	pT > 5.0 for charged leptons eta < 3.5 for charged leptons DeltaR > 0.2 between leptons	pT > 40 GeV for jet eta < 3 for jet lhapdf id 303400 (NNPDF NLO) MT=172 top mass
# events	100 000	100 000	100 000	100 000	100 000	100 000	10 000 000
Pythia	-	-	-	-	-	-	Gives the .hepmc file
MadAnalysis	-	-	-	-	-	-	Looking for top ancestors and counts muons and muon pairs Adds event if (top and antitop found) and number of muons>=2
#events	-	-	-	-	-	-	245 525 events saved to in muon_data.txt
Data_Exploration script reading from file	Reading from .lhe file	Reading from .lhe file	Reading from .lhe file	Reading from .lhe file	Reading from .lhe file	Reading from .lhe file	Reading from muon_data.txt file Checks again if we have 1 t, 1 t~, 1 mu, 1 mu~ Reduced number of events due to some events with 2 antimuons but 0 muons and opposite.
# events	100 000	100 000	100 000	100 000	100 000	100 000	193 886
After mass check for ttj: excluding the muon if E^2 - |p|^2 < 0	-	-	-	-	-	-	192 479
# expected events	for ma=1GeV: 1.3845e+4	for ma=1GeV: 1.2353e+2	2.5681e+3	2.8248e+3	3.013e+3	3.3144e+3	675 381
Cross-sections [pb]	for ma=1GeV: 0.0923017	for ma=1GeV: 0.0008235391	0.017120891	0.01883237	0.02008674	0.022096	233.923699
integrated luminosity	150 fb-1						
#events after |eta|<2.5	for ma=1GeV: 96401	for ma=1GeV: 97059	100000	100000	100000	94829	87671
#expected events after |eta|<2.5	for ma=1GeV: 1.3346e+4	for ma=1GeV: 1.1990e+2	2.568e+3	2.8248e+3	3.013e+3	3.1431e+3	307 625

* The mass check was included because I had an math error when calculating the invariant mass of the muons M = sqrt(E^2 - |p|^2) and for a few events |p|^2 > E^2 s.t. M = sqrt(negative number).
However, all these events have muon |eta| > 2.5 so they would still be removed with the eta cut.