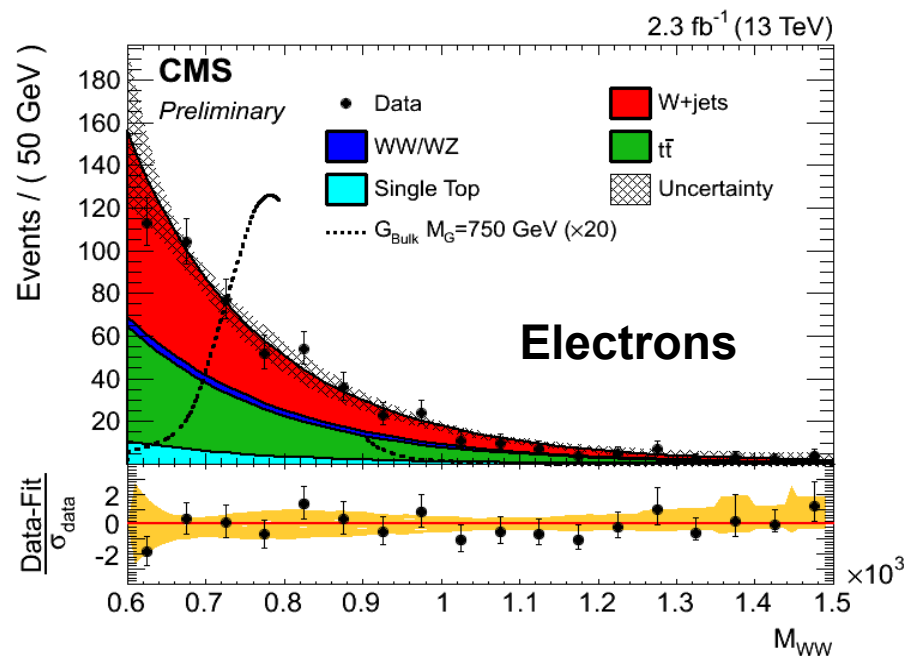
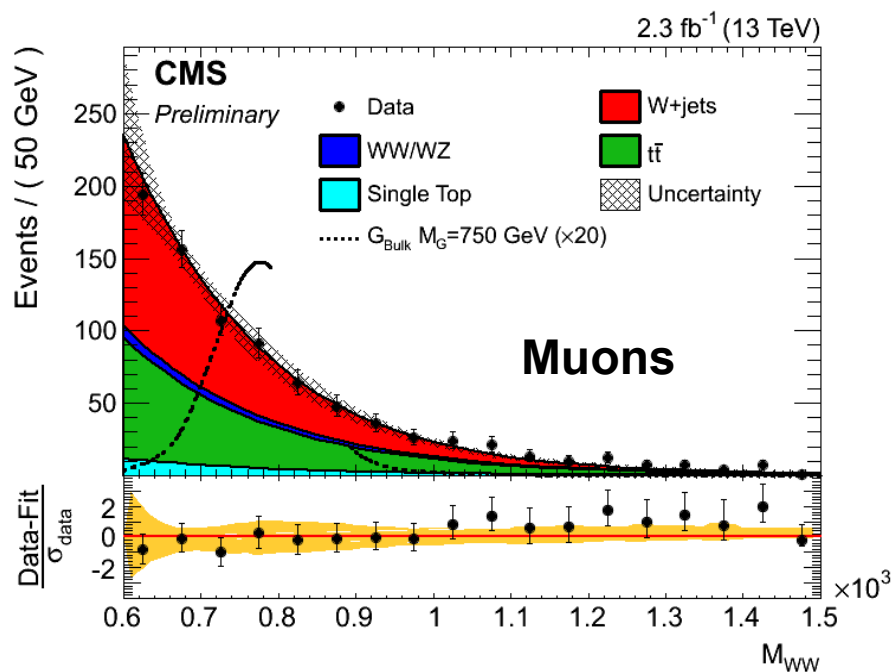
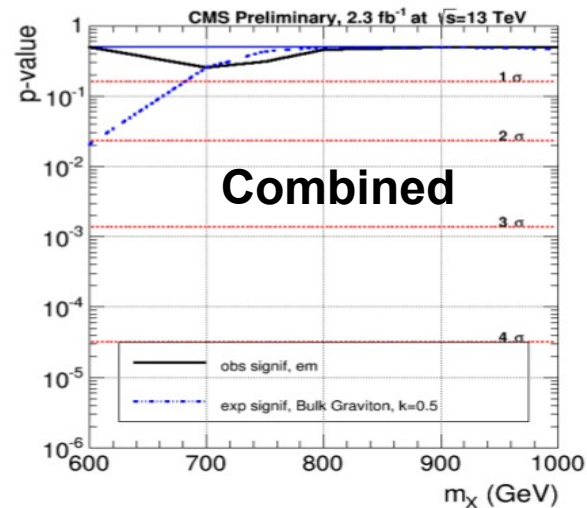
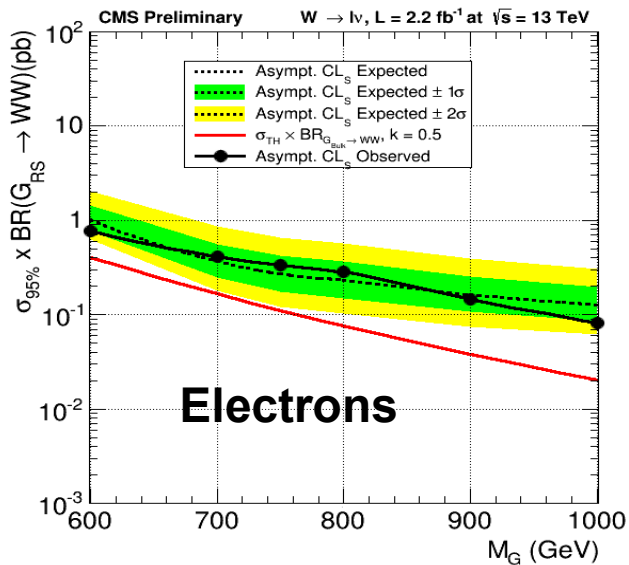
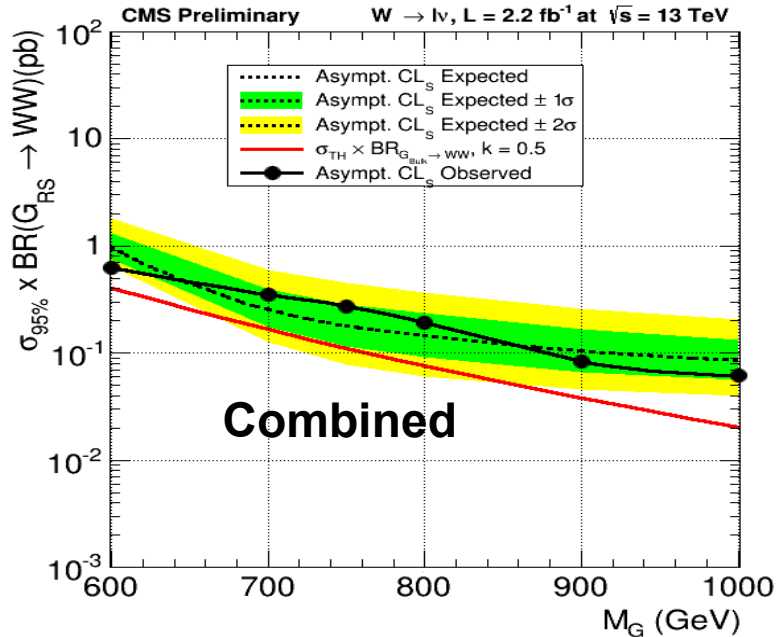
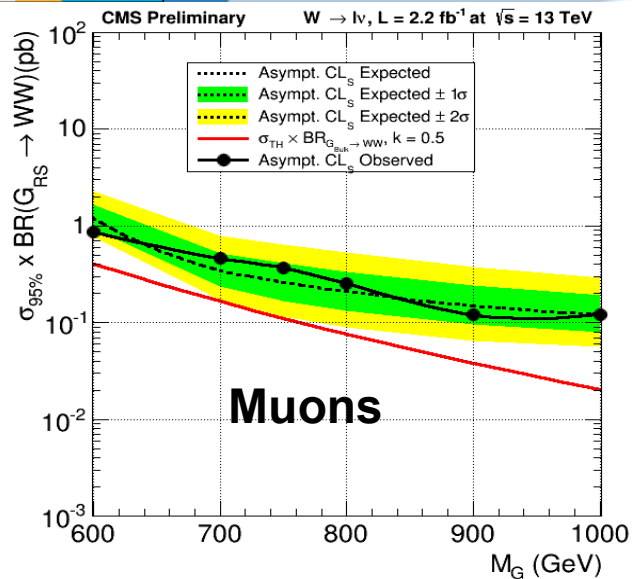


Update: JEC V6 → JECV7



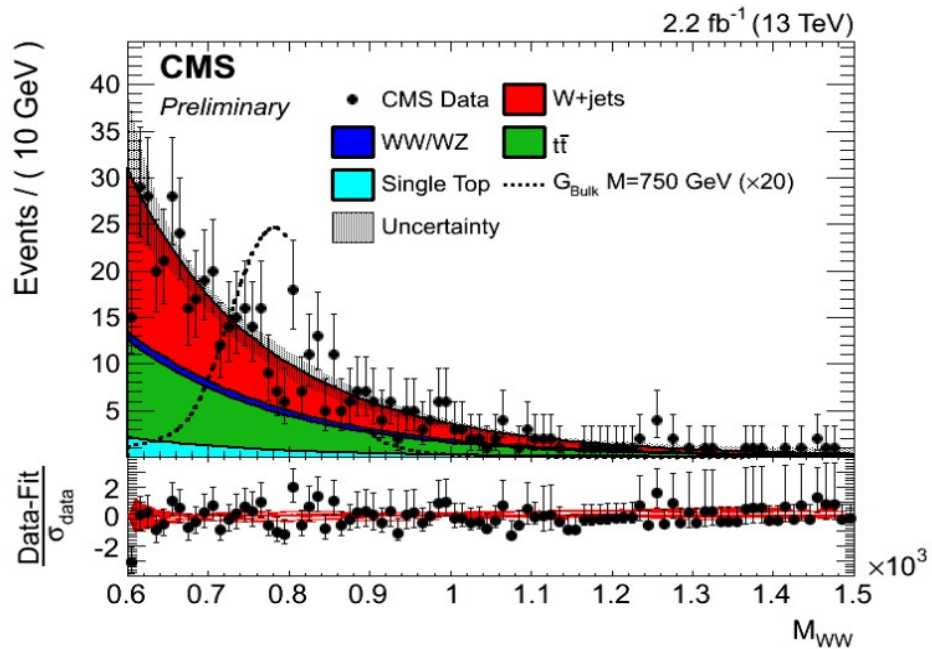
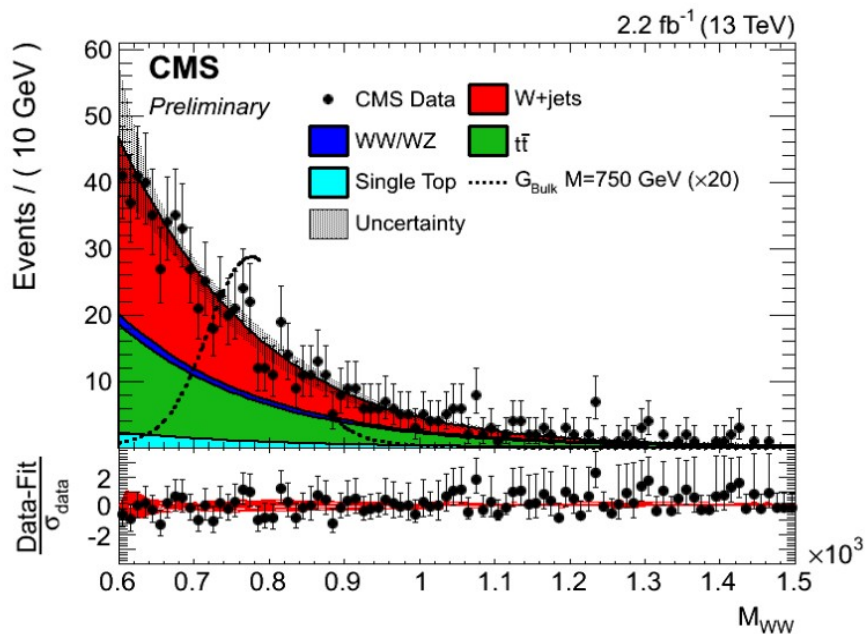
Update: JEC V7 → Limits



On the 1-sigma excess (1)

Situation similar to before: we still observe a ~ 1 -sigma excess (a bit less actually) not really “visible by eye” in the $M_{W\bar{W}}$ spectra.

Check #1: $M_{W\bar{W}}$ plot with thicker binning



These plots do not prove anything, however:

- in the muon channel, 2 bins out of ~ 2 sigma exactly at the peak of the signal (the region which “counts” more)
- in the electron channel, less clear (but 1 bin really out at ~ 800 GeV)



On the 1-sigma excess (2)

Check #2: Cut-and-count

Take a very narrow window around the peak \rightarrow [730-830 GeV]
(remember: for the 750GeV signal, peak \sim 780 GeV, width \sim 50 GeV)

Muon channel:

- expected 166 (+-12)
- observed 173

Electron channel:

- expected 114 (+-11)
- observed 121

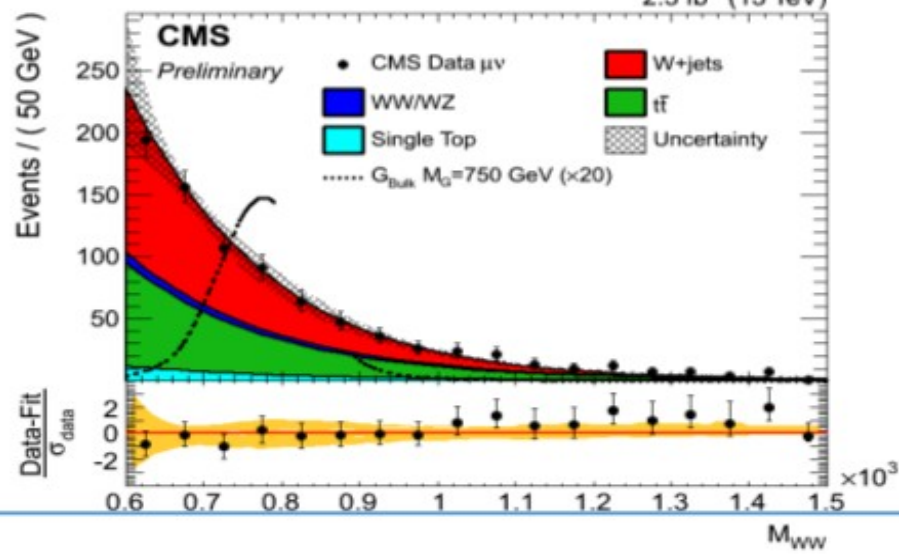
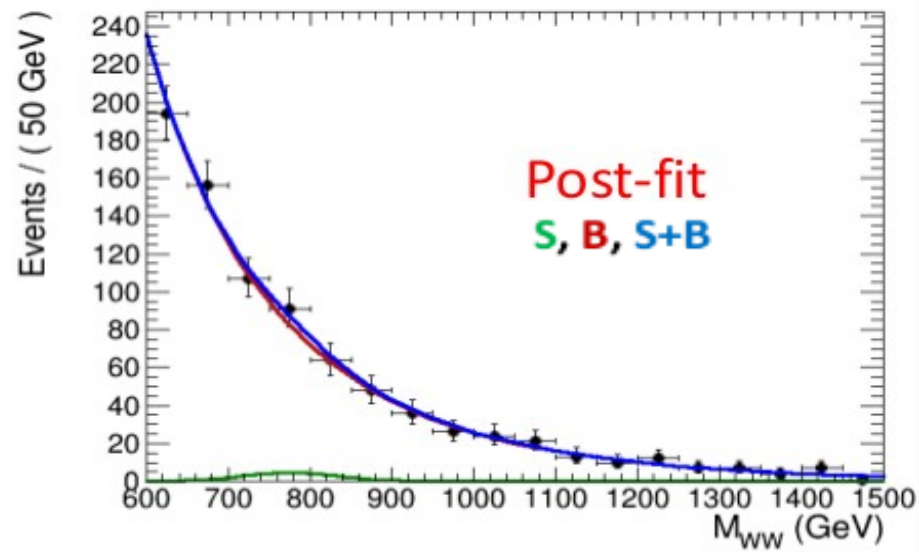
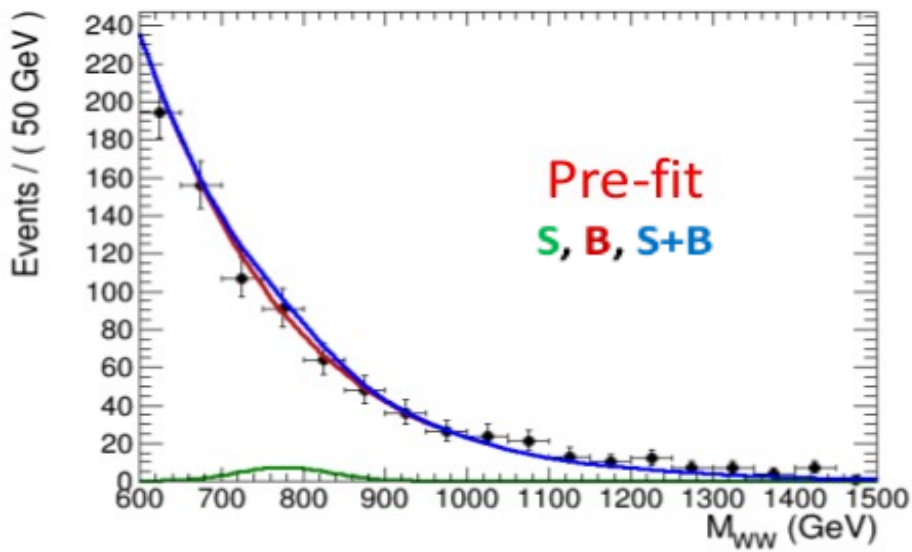
\rightarrow Combined mu+ele:

- expected 280 (+-16)
- observed 294

\rightarrow observed very close to the 1 sigma boundary of the expected. These numbers seem to reflect what is observed in the limits in slide 2.

Pre- & Post-fit m_{WW} : Muons

Check #3: Pre-fit and post-fit plots
 Same plots for jec v6 in backup

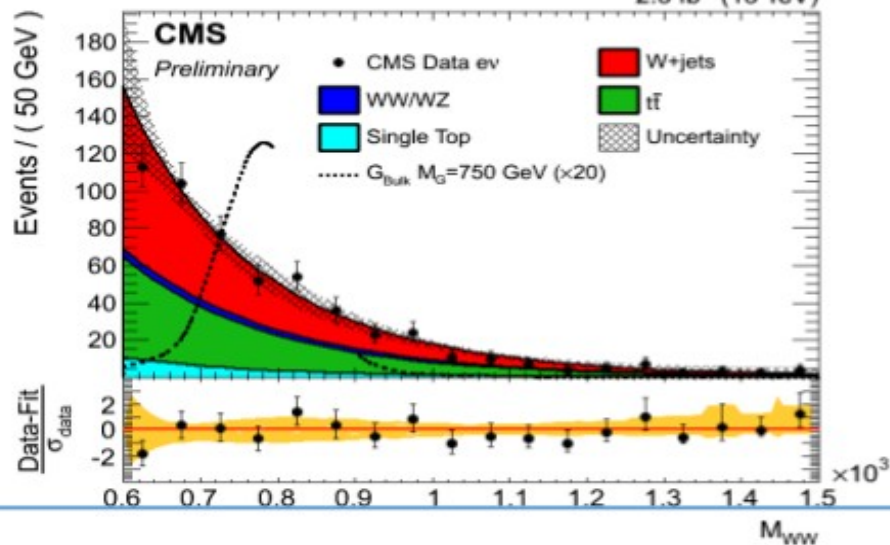
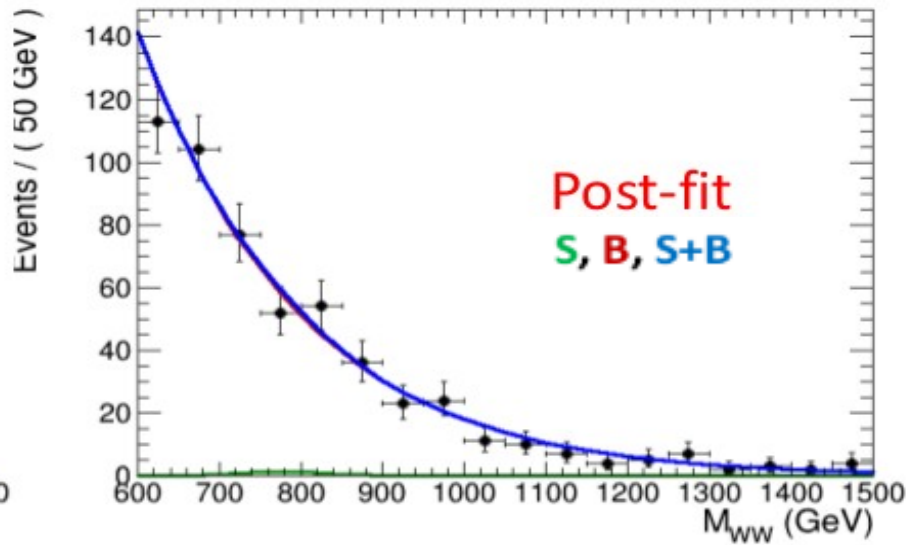
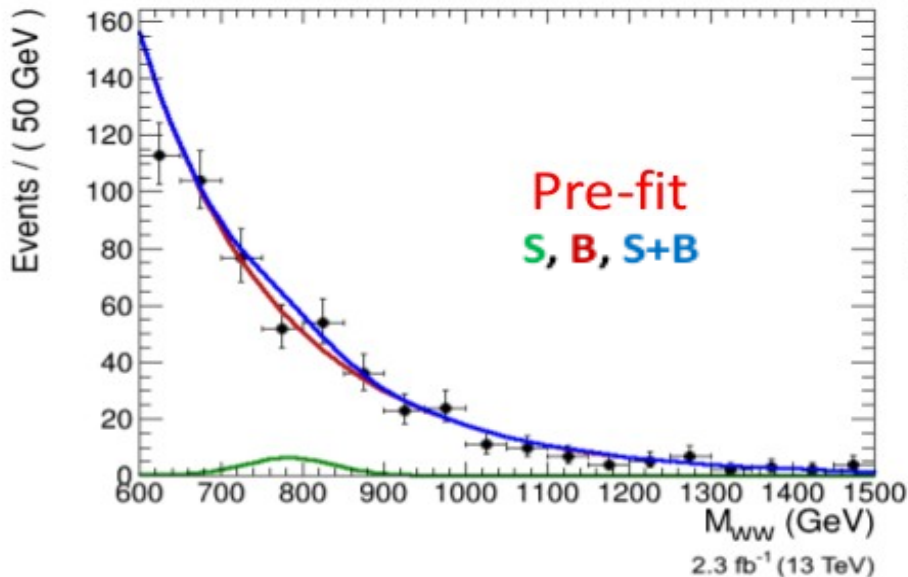


Max likelihood fit to m_{WW} distribution for the muons channel

Clearly the background estimate from the post-fit is lower in the 700-800 GeV region

For the signal 750 GeV BulkG is shown

Pre- & Post-fit m_{WW} : Electrons



Max likelihood fit to m_{WW} distribution for the muons channel

There is not much difference between pre- and post-fit estimates for the background ...

For the signal 750 GeV BulkG is shown



Conclusions

We made some qualitative and qualitative checks to better understand the ~ 1 sigma fluctuation on the expected limit.

We think that it can be explained as the sum of different factors:

1- in the region very close to the peak, the count for the observed is a bit larger than the expected.

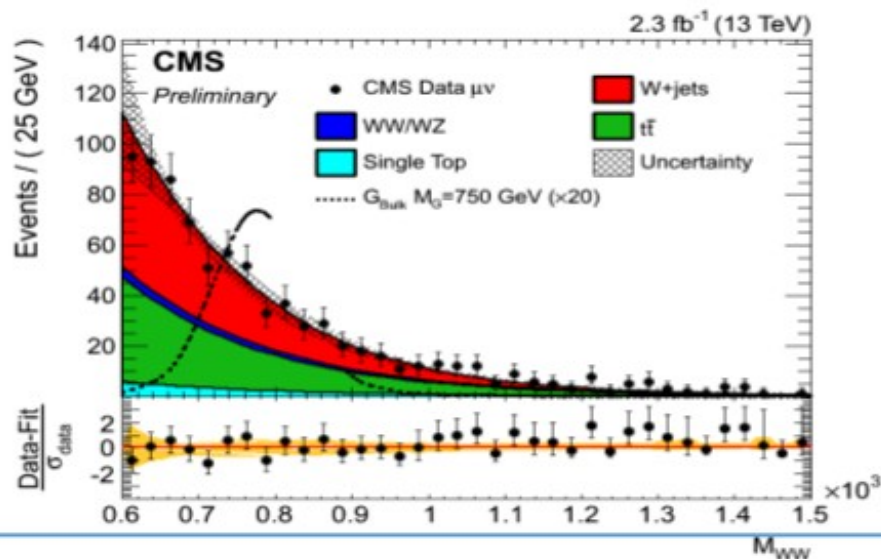
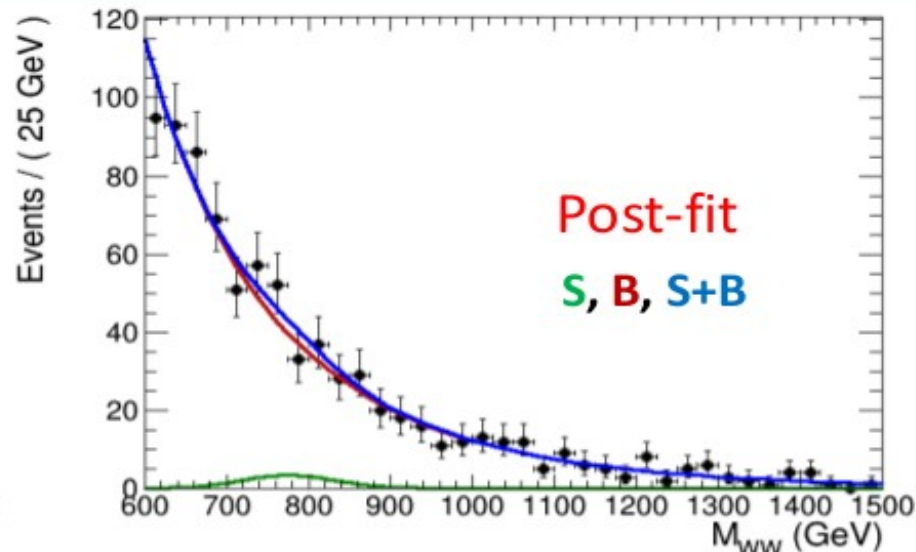
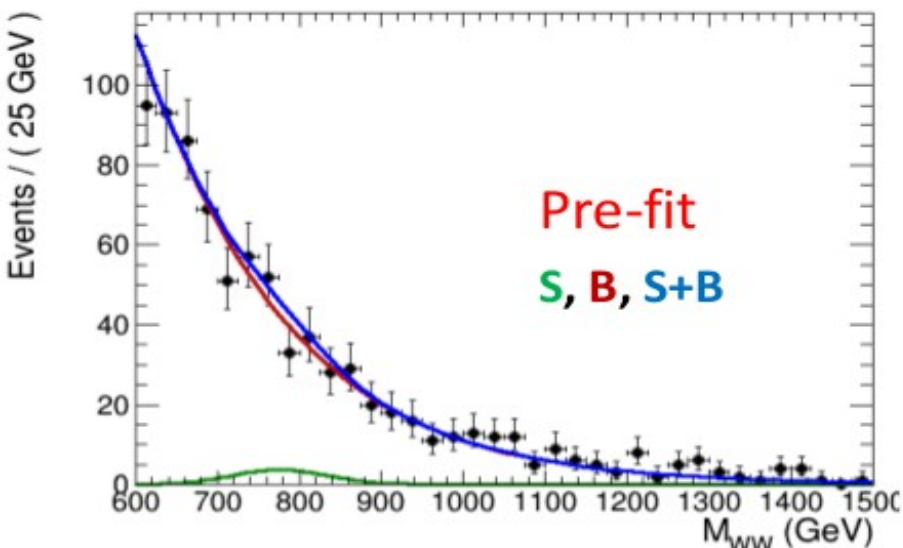
2- The post-fit background prediction (especially in the muon channel) is a bit lower than the pre-fit, and this can explain an upward fluctuation in the limit.

In any case, the final fluctuation in the observed limit is not very large (now less than 1 sigma)



Backup (same plots with jec v6)

Pre- & Post-fit m_{WW} : Muons

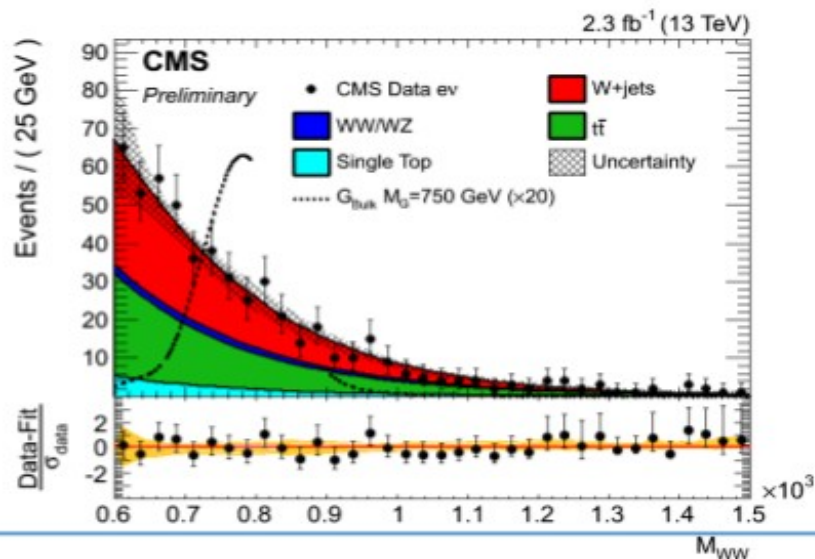
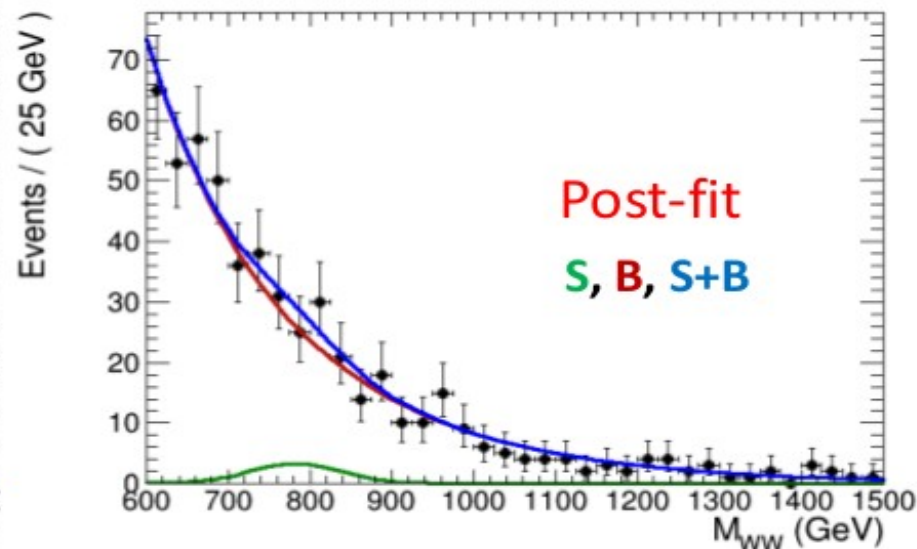
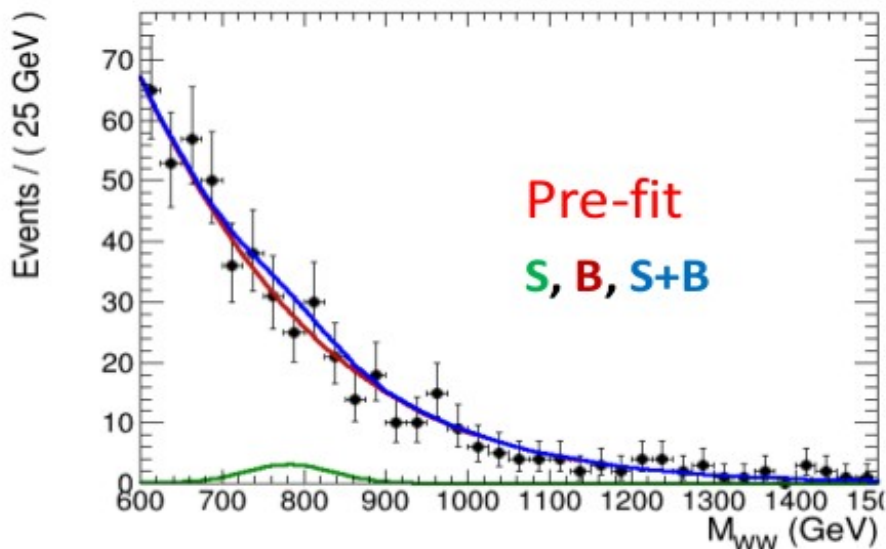


Max likelihood fit to m_{WW} distribution for the muons channel

Clearly the background estimate from the post-fit is lower in the 700-800 GeV region

For the signal 750 GeV BulkG is shown

Pre- & Post-fit m_{WW} : Electrons



Max likelihood fit to m_{WW} distribution for the muons channel

Similar behavior here - the background estimate from the post-fit is somewhat lower in the 700-800 GeV region

For the signal 750 GeV BulkG is shown