H->bb Weekly Meeting

Ricardo Gonçalo (RHUL)

HSG5 H->bb Weekly Meeting, 15 February 2011

News! News! News!

- e/gamma recommendations released last week
  - See S.Heim's talk in Weekly meeting: http://indico.cern.ch/conferenceDisplay.py?confId=119624
  - Scale factors were determined from W and Z to correct MC efficiency
  - Note e.g. that the new recommendation is to smear the electron energy **to obtain the central value**
    - **Energy rescaler** tool – simple c++ class – can be used in both ROOT and Athena: https://twiki.cern.ch/twiki/bin/view/AtlasProtected/EnergyRescaler

- Other:
  - HSG5 Workshop in Dubna
    - Final dates: 17th – 19th May 2011
    - Visas have to be thought about soon! Expect email with instructions for registration etc
    - **Will be the last check point for Summer CONF notes before approval process – aim to have solid results**

- Proposal for Life without the ESD:
  - ESD stored on disk on the grid only for 2 months (and NOT on tape)
  - One copy of RAW will be made available on disk (i.e. with grid access) for 1 year
  - See J.Boyd's talk in the weekly: http://indico.cern.ch/conferenceDisplay.py?confId=119624

1. No long term storage of ESDs on disk for physics streams
   - Muon, JetTauEtmiss, Egamma, MinBias
2. Do not store any ESD on tape
   - This removes the possibility of reprocessing from ESD
3. Provide 2 replicas of ESD from all physics streams for ~10% of the data
   - Last 2 months 'rolling buffer' for Tier0 produced ESDs
   - Specific data period corresponding to ~10% of the data for ESDs from reprocessing
4. Provide 2 replicas of ESD for some small streams
   - CosmicCalo, ZeroBias, Standby & express
5. Reduce the ESD size by ~30% by dropping unused or redundant information
6. Provide 1 copy of RAW data on disk for the physics stream for data taken in the last year
   - In addition to copy of RAW on tape
   - Investigate possibility of compressing RAW data on disk (can achieve a factor of ~2)

- Good Run List (GRL):
  - Information meeting yesterday:http://indico.cern.ch/conferenceDisplay.py?confId=126036
  - Donny Quilty will give summary at the next HSG5 meeting
- GRLs will be centrally produced based on the Data Quality flags for each run
  - New way to classify problems: colour system replaced by defects database
- See e.g. Fabien Tarrade's talk – Fabien is the overall contact for GRLs
- Each analysis should have one contact person to:
  - Copy/post/send the GRLs to SVN/AFS/Wikipage/email
  - Compute the integrated luminosity for dedicated trigger
  - Investigate losses of integrated luminosity (CSC,Tile problems)

- There is only one way to produce official GRLs :
  - GRL generator **templates**
  - central **automatic production** of GRLs
  - central **automatic merging** of GRLs
- There is a first draft with DP/DQ recommendations :
- I will update all GRLs templates or create new GRLs templates very soon

SM WZ GRLs

WZjets_allchannels[WZjets_allchannels_beamspot] :

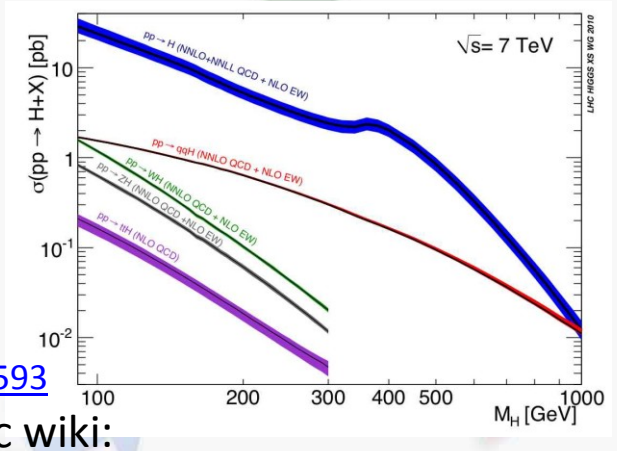
- 7 TeV collision samples : **'ptag' = "data10_7TeV"** and **'ATLGL g'**
- Data with LHC stable beam and after the ATLAS warm start : **'ready' = '1'**
- Data taken with all sub detector "ATLAS combined" and use the DB of Data
  'partition' = "ATLAS" and **'db' = 'DATA'**
- Solenoid 'on' and not ramping up/down and with nominal magnetic field
  'ATLSOL g' and 'mag' = 's > 6900' and **'ATLTOR g' and 'mag' = 't > 20000'**
- Trigger : L1 CAL, MUO, CTP working and HLT for electron/muon/jet/MET running
  'L1CTP g' and **'L1CAL g'** and **'L1MUE g'** and **'L1MUB g'**
  'TRELE g' and **'TRMUO g'** and **'TRJET g'** and **'TRMET g'**
- Electron/Muon/Jet/MET flags
  'cp_eg_electron_barrel g' , **'cp_eg_electron_endcap g'** and **'cp_eg_electron_forward g'**
  'cp_mu_mmuidcd g' and **'cp_mu_mstaco g'** and **'cp_met g'**
  'cp_jet_jetec g' , **'cp_jet_jetea g'** , **'cp_jet_jetb g'** , **'cp_jet_jetfc g'** and **'cp_jet_jetfa g'**
- Remove data when the luminosity cannot be calculated [like VdM scan ...] : **'lumi g'**
- Vertex requirement : **'idvx g'**
- Beam spot requirement : **'idbs g'** : GRLs are produced with/without beam spot requirement

Top GRLs

top_allchannels_7TeV :

- 7 TeV collision samples : **'ptag' = "data10_7TeV"** and **'ATLGL g'**
- Data with LHC stable beam and after the ATLAS warm start : **'ready' = '1'**
  'lhc' = 'stablebeam T' [Obsolete]
  'lhc' = 'beamenergy 3400+' [Obsolete]
- Trigger : L1 CTP working and HLT for electron/muon running
  'L1CTP g' and **'TRELE g'** and **'TRMUO g'**
- Electron/Muon/Jet/MET/Tracking flags
  'cp_eg_electron_barrel g' and **'cp_eg_electron_endcap g'**
  'cp_mu_mmuidcb g'
  'cp_jet_jetb g' and **'cp_jet_jetec g'** and **'cp_jet_jetea g'**
  'cp_met_metcalo g' and **'cp_met_metmuon g'**
  'cp_tracking g'
- Remove data when the luminosity cannot be calculated [like VdM scan ...] : **'lumi g'**
- There are 12 other Top GRLs that are analysis specific, see for example:
  https://atlas-top-grls.web.cern.ch/atlas-top-grls/xmlGRL/DetStatus-v03-repro05-00/
  are not recommended to use by the top group.

LHC Higgs Cross Section Working Group



- LHC Higgs Cross Section Group: https://twiki.cern.ch/twiki/bin/view/LHCPhysics/CrossSections
- **Yellow report** with inclusive cross sections:
  - **Yellow report recently** released: http://arxiv.org/abs/1101.0593
  - Higgs WG requested to use numbers from the LHC xsec wiki: https://twiki.cern.ch/twiki/bin/view/LHCPhysics/CERNYellowReportPageAt7TeV
- Second phase of work starting now: **exclusive Higgs observables**
  - Higgs Signal: cross sections with cuts, differential K-factors, effect of jet-veto or b-tag jet on differential K-factors, comparison between NLO MC and NNLO codes
  - SM Backgrounds: define control regions, estimate theoretical errors, use the most advanced NLO MC (POWHEG, MC@NLO, new Sherpa), signal/background interference
  - Theory Uncertainties: for exclusive observables, for both SM and MSSM Higgs, QCD scale and PDF error correlations among different Higgs production channels and among
- First results expected for BNL workshop in May; plan for 2 publications this year
- **H→bb meeting** on 17 February 2011:
  - Survey of the codes (for both VH→Vbb and ttH), loose (i.e. non-boosted) VH analysis
  - Will start with validation on Wbb calculations
  - **Volunteers welcome!**

Common code?

- Should we move to a common analysis code?
  - What? When?
  - No decision today – but discussion needs to start
- This is connected to other issues:
  - Common monitoring code:
    - Run analysis for all data after reconstruction
  - How far should we take the cut-flow comparison in rel.16?
  - Next steps: once we're happy with the rel.16 results
    - Evaluate systematics
    - Improve on main systematics
    - etc