Trigger Offline Monitoring Report

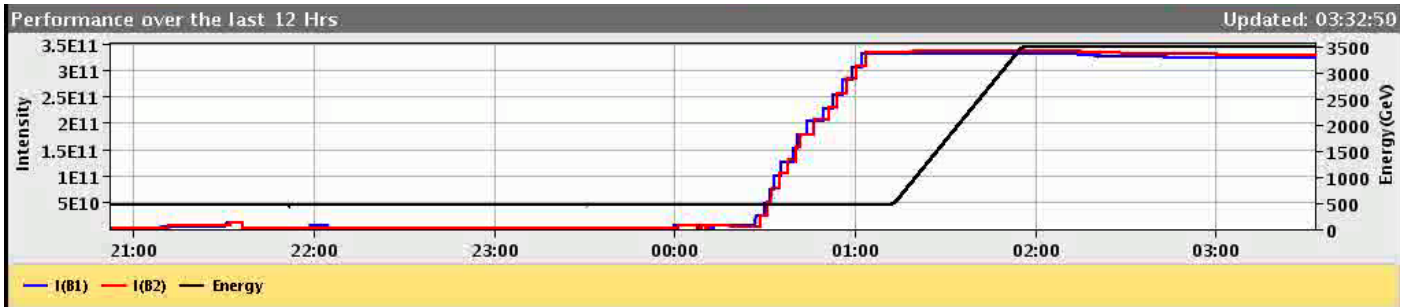
Valeria Bartsch (Sussex), Ricardo Gonçalo (RHUL)
Trigger General Meeting – 26th May 2010

- Report from 19th May to 25th May

- On shift: Valeria Bartsch, Ricardo Goncalo, Li Yuan, Romeo Gaston, Martin Tripiana, Takanori Kono
- And as usual… thanks to Alessandro Di Mattia for keeping the machine running!

- News:
  - From 1st of June only one offline shifter per day
  - Shortage of experts being solved – new additions to the team: Xin Wu and Fernando Monticelli
  - Most LHC experts in Japan for a conference – things seemed to move a bit slower than usual
  - Starting with run 155519, the HLT is using AtlasP1HLT 15.6.9.4. Release notes:
    - http://atlas-project-trigger-release-validation.web.cern.ch/atlas-project-trigger-release-validation/www/ReleaseNotes/ReleaseNotesAtlasP1HLT-15.6.9.4.html

- Long weekend followed in Sharepoint:
  - https://espace.cern.ch/atlas-perf-triggerdaq-sharepoint/Lists/Trigger%20Operations/AllItems.aspx
- Saturday:
  - Not a very exciting fill: most lumi in run 155569
  - 6b_3_3_3 filling scheme: 6 bunches, 3 colliding in ATLAS
  - Peak lumi 4.3×10^{28} (previous record ~6×10^{28}) – due to bad emittance
  - About 40 events in debug stream (timeout) – recovered into Minbias, MuonswBeam and CosmicCalo
- Sunday:
  - Run 155634 during the night
  - Still 6b_3_3_3
  - Still depressing luminosities and LHC problems
  - 5.5x10^28 peak lumi – still bad emittance (B1 4.5 µm (H), 7.1 (V) B2 4.5 µm (H), 6.4 (V))
- Monday:
  - run 155669
    - 6b_3_3_3, β*=2m, few10^{10}p/bunch; 472.8 μb^{-1}; peak lumi 6.7×10^{28}
    - Large emittance possibly understood: kicker magnet field distorted after ramp up, so that pilot bunch sees wrong field and orbit parameters become wrongly adjusted
  - run 155678: first 13_8_8_8 successful injection: β*=2m, ~2×10^{10}p/bunch; peak Luminosity 1.4×10^{29}
  - run 155697: second successful 13_8_8_8 injection; peak Luminosity 2.1×10^{29}
    - L1_EM2 rates went from 200 Hz to 300 Hz
    - Running without HLT but got backpressure from event builder
    - 4:03 Enabled HLT rejection on run 155697, LB 262
    - Cured remaining back pressure by reducing ID FullScan rate
    - 6:20 rate low enough to run without HLT rejection (from LB 336)



Data Quality

- Most runs were green whenever the HLT was on – black otherwise
- Some LB intervals red for B-jets because Pixel was off – Fabrizio P.
- Several issues found/observations made but no major problems:
  - Warm spot in calorimeter (run 155678 phi=-0.5 eta=1.5 etc) from taus
  - Updated LAr calibration and noise (Savannah #93431)
  - Upsilon peak seen in B-physics monitoring!
  - etc
- Some mechanical problems setting flags for sets of LBs (seemed impossible for select right LBs) – will follow up with DQ

Run	TRCAL (SHIFTOFL)	TRBJT (SHIFTOFL)	TRBPH (SHIFTOFL)	TRCOS (SHIFTOFL)	TRELE (SHIFTOFL)	TRGAM (SHIFTOFL)	TRJET (SHIFTOFL)	TRMET (SHIFTOFL)	TRMBI (SHIFTOFL)	TRMUO (SHIFTOFL)	TRTAU (SHIFTOFL)	TRIDT (SHIFTOFL)
155678	B LB 231–310: G	B LB 231–233: R LB 240–240: R LB 241–308: G LB 309–310: R	B LB 231–233: G LB 240–310: G	n.a.	B LB 231–310: G	B LB 231–310: G	B LB 231–233: G LB 240–310: G	B LB 231–310: G	n.a.	B LB 231–233: G LB 240–310: G	B LB 231–233: G LB 240–310: G	B LB 231–232: G LB 241–310: G
155669	B LB 258–312: G	B LB 258–312: G	B LB 258–314: G	n.a.	B LB 258–312: G	B LB 258–312: G	G	B LB 258–311: G LB 312–312: G	n.a.	B LB 258–312: G	B LB 258–312: G	B LB 258–312: G
155634	G LB 1–141: B LB 334–341: B	G LB 1–141: B LB 334–341: B	G LB 1–141: B LB 334–341: B	n.a.	G	G	G	G LB 1–141: B LB 334–341: B	n.a.	G	G LB 1–141: B LB 334–341: B	G LB 1–141: B LB 334–341: B
155569	B LB 228–469: G	B LB 228–469: G	B LB 228–469: G	n.a.	B LB 228–469: G	B LB 228–469: G	B LB 228–469: G	G	n.a.	G LB 1–223: B LB 471–489: B	G LB 1–223: B LB 471–489: B	B LB 228–469: G
155280	B LB 334–379: G	B LB 334–379: G	B LB 334–379: G	B LB 334–379: n.a.	B LB 334–379: G	B LB 334–379: G	B LB 334–379: G	B LB 334–379: G	B LB 334–379: G	B LB 334–379: G	B LB 334–379: G	B LB 334–379: G
155228	B LB 133–150: G	B LB 133–150: G	B LB 133–150: G	B LB 133–150: n.a.	B LB 133–150: G	B LB 133–150: G	B LB 133–150: G	B LB 133–150: G	B LB 133–148: G LB 149–150: G	B LB 133–150: G	B LB 133–150: G	B LB 133–150: G

Reprocessings

- Several reprocessing requests:

- run 155116, c200: reprocessed with AMI tagc201
  - AtlasCAFHLT-15.6.X.Y.Z,rel_1 compared with AtlasProduction-15.6.9.8 (Reco_trf)
  - Egamma: IDSCAN not run, bad EF results

- run 155116, c200: RNDM stream reprocessed with AMI tags c202 (hlt) c203 (reco)
  - added beamHalo chain, smk= 340, lvl1ps=192, hltps=203
  - Minbias: 12 events in the beamHalo chain – not much but enough for the moment

- run 155116, c204: reprocessed with smk=341, lvl1ps=211, hltps=205, AtlasP1HLT,15.6.X.Y-VAL,rel_3
  - MET seems fine

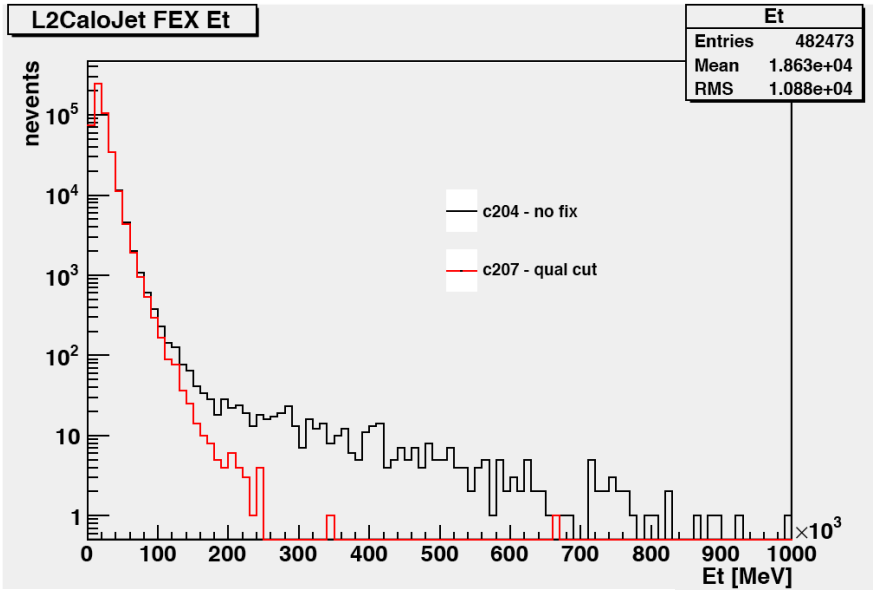
- run 155112:
  - test new offline monitoring egamma tag
  - c204/c206 (or c207): needed local patch from Alessandro

- run 155112:
  - HLT calo group request to test cell quality value
  - output files are here: /castor/cern.ch/grid/atlas/caf/atlcal/perm/trigger/data10_7TeV/express_express/0155112
  - Feedback from MET, taus, jets
    - See Sharepoint: https://espace.cern.ch/atlas-perf-triggerdaq-sharepoint/Lists/Trigger%20Operations/Flat.aspx?RootFolder=%2Fatlas%2Dperf%2Dtriggerdaq%2Dsharepoint%2FLists%2FTrigger%20Operations%2FLAr%20Cell%20Quality%20analysis%20of%20run%20155112

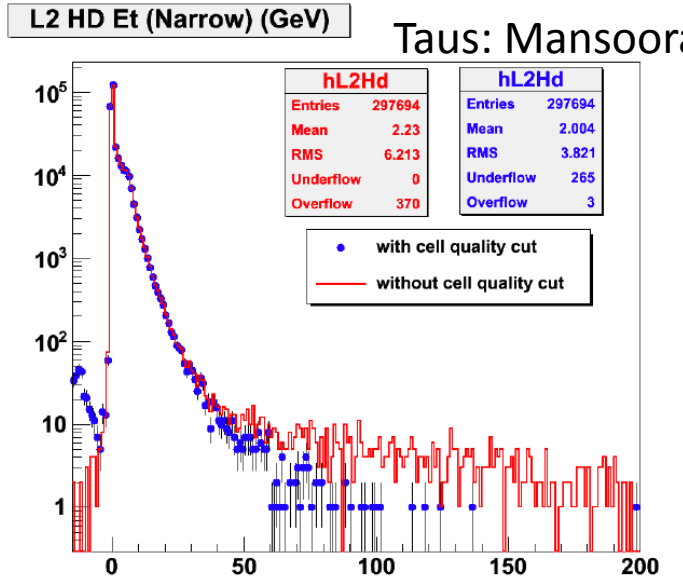
LAr Cell Quality

Denis Damazio

- Reprocessing was first step to use cell quality in trigger – very loose cut 0xffff
- Cell quality: like a χ^2 for fit to calorimeter pulse
- Preliminary results show good promise in MET, Jets, Taus
- More studies will follow…



Taus: Mansoora Shamim



Progress in Online HLT DQMF Tests

- Observations by Pierre-Simon from a given run (155697)
  - **BJET** : Red. Histograms look OK. Bad reference file (update in June 09). Need to check threshold applied.
  - **BPH** : Green. Need References.
  - **CALO** : Red. Some discrepancy between ref and online for few histogram (etq/phi distributions). Need to update reference because online histo looks good.
  - **ELE**: Green. FEX flags are red but histo look good. Kolmogorov test are not probably not a suitable choice.
  - **GAM** : Red. same remarks as ELE
  - **IDT** : Green. All Green. Need reference
  - **JET**: Green. All kolmogorov tests are red but weight ==0. Need to update ref.
  - **MET**: Green. All kolmogorov tests are red but weight ==0. Need to update ref.
  - **MUO** : Green. Many histograms (too many???). Some have weight ==0.
  - **TAU** : Red. Almost all flags are red. Kolmogorov test is not a good choice. Significant differences between online and ref .Problems with "CutCounter" DQParamaters checks. Need to update reference
  - **BSP** : Green. Some histograms (Zoom) are not available or DQflags undefined .
  - **HLT** : Red. EF_PtHisto DQregion is Red

- Some progress has been done but more is needed
- All signature groups please follow up with Pierre-Simon and others!