

# Latest News & Other Issues



Ricardo Goncalo (LIP), David Miller (Chicago)

Jet Trigger Signature Group Meeting 9/2/2015

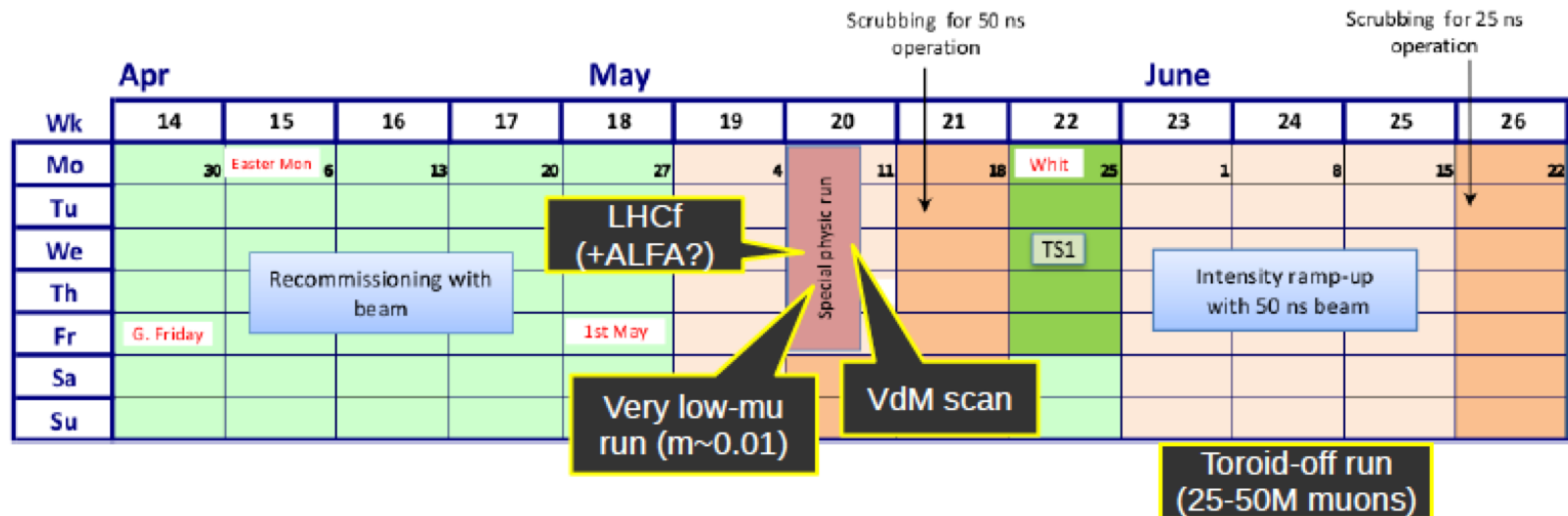
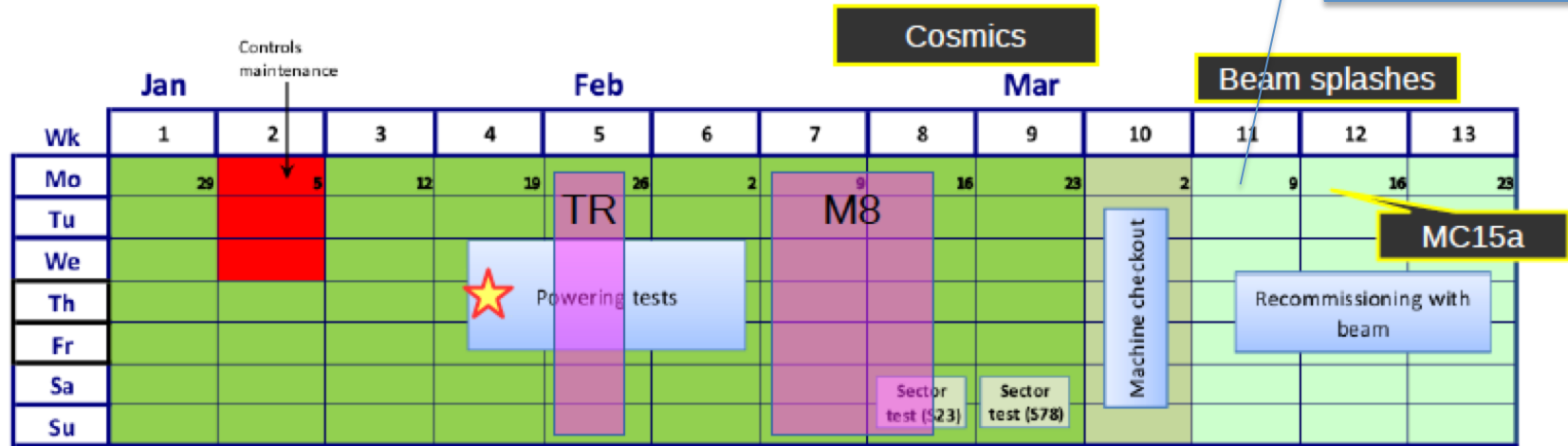
# News

- M8 started!
- First beam on 23 March – email today from Dave Charlton
- Jet EDM configuration:
  - AODSLIM – bulk MC production; only default a4tcemsubjesFS and a10tcemnojcalibFS collections
  - AODFULL – all trigger jet collections + clusters; for data and specific MC trigger samples
  - Starting with tonights rel\_2: default trigger EDM in MC jobs changes from AODFULL to AODSLIM – same as bulk MC production (data AODs remain AODFULL)
  - ATN/RTT test joboptions adapted to overwrite this
- Sample T
  - See: <https://its.cern.ch/jira/browse/ATLPHYSVAL-279>
  - MC15 w/ trigger submitted using r6070:
    - `dq2-ls valid1.*_r6070* | grep RDO | sort`
    - `dq2-ls valid1.*_r6070* | grep AOD | sort`
  - DC14 w/ pileup w/ trigger: r6067
    - `dq2-ls valid1.*_r6067* | grep RDO | sort`
    - `dq2-ls valid1.*_r6067* | grep AOD | sort`

# Starting with M8 we are in continuous running mode

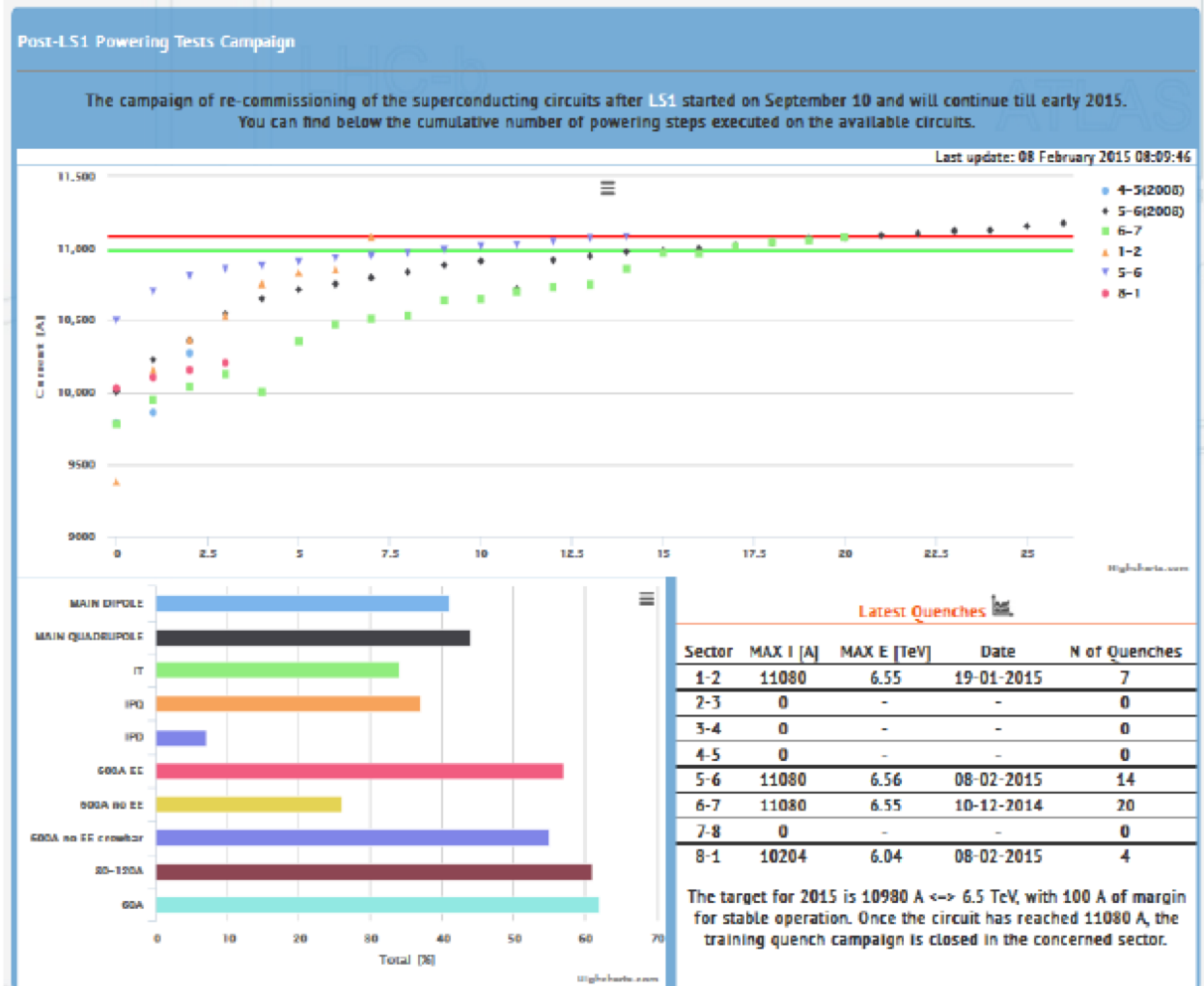
- Also many special runs up-coming that will require dedicated menus

1<sup>st</sup> Run 2 Beams!



# LHC

- Sector 5-6 training reached nominal.
- 3 sectors done
- Sector 8-1 started



# M8 Goals

- 3 M ID cosmics
- Solenoid ON Friday 13th
- Have all sub-systems included and run 100 kHz
- Validate full Run-2 menu, new CTP, L1topo etc.
- Full test of LHC handshake:
  - Warm start, scan variables etc. (Feb 18th)
- Latencies
  - Measure and test latencies with L1topo and alfa
- Tests of Muon alignment run.
  
- For us:
  - Focus on testing new jet functionality in M8 menu

# Menu for M8

- Keep existing chains:
  - j0\_perf\_L1RDO\_EMPTY
  - j0\_perf\_L1MU10
  - j0\_perf\_L1J12
  - ht0\_perf\_L1J12
- Add chains to test :
  - em vs lcw clusters
  - Jes vs nocalib
  - area subtraction
  - PS vs FS
  - fat-jet chains, including reclustering
- starting from L1\_J12:
  - j0\_L1J12 default calibration etc (a4 tc em subjes) but with a hypo cutting looser than L1
  - j0\_PS\_L1J12 default calibration etc with a hypo and calorimeter **Partial Scan** readout
  - j0\_jes\_L1J12 variation on calibration: jet calibration but no subtraction calibration
  - j0\_lcw\_jes\_L1J12 variation on cluster calibration: lcw instead of em, with JES
  - j0\_sub\_L1J12 variation on calibration: no JES but with area subtraction
  - j0\_nojcalib\_L1J12 variation on calibration: no jet calibration
- fat jets
  - j0\_a10\_nojcalib\_L1J12 fat jet (no reclustering) without calibration
  - j0\_a10\_lcw\_sub\_L1J12 fat jet (no reclustering) lcw clusters and area subtraction
  - j0\_a10r\_lcw\_sub\_L1J12 fat jet from reclustering, lcw clusters and area subtraction
- fat-jet chains starting from random
  - j0\_a10\_nojcalib\_L1RDO fat jet (no reclustering) without calibration
  - j0\_a10r\_lcw\_sub\_L1RDO fat jet from reclustering, lcw clusters and area subtraction
- chain designed to actually cut on events triggered by L1, to improve monitoring
  - j15\_L1J12
  - ht0\_L1J12

# Trigger Shifts

- Expert Training:
  - Online Expert, Offline Expert (Reprocessing) and online Release coordinator
  - 5th of Feb, 14.00 – 17.00 – <https://indico.cern.ch/event/363334/>
  - Online Release Coordinator shift needs urgently more support!
  - Some on-call expert shifts still free
- Schedule
  - Shift hand over of all shifts TUESDAY after weekly meeting
    - Sign in OTP from Tuesday to Monday but hand over on Tuesday
  - Daily Trigger Operation meeting at 09.00 in SCR – 3196-R-021
  - Including the DQ issues from signature groups





# Express Stream Update

Jet			
j25	0.8 (?)	from L1_RD0; calo, jet monitoring & calibration	R. Goncalo
j60_L1RD0	0.2	jet/MET monitoring, calibration; bootstrapping	R. Goncalo
j60	0.2	jet/MET monitoring, eta inter-calibration	R. Goncalo
j60_280eta320	0.2	jet/MET monitoring, eta inter-calibration	R. Goncalo
j60_320eta490	0.2	jet/MET monitoring, eta inter-calibration	R. Goncalo
j360	0.2	from L1_J100; jet monitoring for high-pT chains	R. Goncalo
j80_xe80	0.2	jet/MET monitoring for combined chain	R. Goncalo
j460_a10_sub_L1J100	0.2	fat jet monitoring	R. Goncalo

- Requested 1 fat-jet chain: j460\_a10\_sub\_L1J100
- See wiki: [https://twiki.cern.ch/twiki/bin/view/Atlas/ExpressStream#E34\\_menu\\_Physics\\_pp\\_v4\\_menu\\_coll](https://twiki.cern.ch/twiki/bin/view/Atlas/ExpressStream#E34_menu_Physics_pp_v4_menu_coll)
- The express stream has the following features:
  - Contain a subset of the physics data corresponding to ~10Hz total.
  - Full events (unlike the calibration stream) but not for physics analysis.
  - Every event in the express stream will also be in the physics streams.
  - Will be reconstructed quasi-real time and looked at promptly (before the main reconstruction starts) for calibration and monitoring.
  - Used to check data quality, monitor the status of the detector, alignment and calibration, etc.
- Jet menu in express stream (looking for voluntary for contact person):

# Menu Requests for Special Runs

- By 6/Feb
  - Beam-splashes <https://its.cern.ch/jira/browse/ATR-9141>
- By 20/Feb
  - LHCf run <https://its.cern.ch/jira/browse/ATR-9922>
  - ALFA run <https://its.cern.ch/jira/browse/ATR-9924>
  - VdM scan <https://its.cern.ch/jira/browse/ATR-9879>
  - Low-mu ( $\sim 0.01$ ) run <https://its.cern.ch/jira/browse/ATR-9921>
  - Toroid-off run <https://its.cern.ch/jira/browse/ATR-9923>
  - Moderate mu ( $\mu \sim 0.5$ ) run <https://its.cern.ch/jira/browse/ATR-9999>
- All default calibration and detector monitoring streams running during physics data-taking will be available also during those special runs. No need to re-request them.
- Will be followed up by the discussion at the Menu Coordination Meeting in early March (to be announced later)
- For beam-splashes, there are already very good discussion ongoing.

# Jet Cleaning Discussion

- Run 2 jet moments:

<https://twiki.cern.ch/twiki/bin/viewauth/AtlasProtected/Run2JetMoments>

jet attribute	cluster based formula	cell based formula	comments (cell based attribute name)
N90Constituents	num cluster holding >90% energy	num cell holding >90% energy	different (N90Cells)
Timing	$\text{Sum}(e\_cl^2 \times \text{time\_cl}) / \text{Sum}(e\_cl^2)$	$\text{Sum}(e\_cell^2 \times \text{time\_cell}) / \text{Sum}(e\_cell^2)$	different (TimingFromCells)
OotFracClusterX	$\text{Sum}(e\_cl \text{ if } \text{fabs}(\text{time\_cl}) > \text{cut}) / \text{Sum}(e\_cl)$	$\text{Sum}(e\_cell \text{ if } \text{fabs}(\text{time\_cell}) > \text{cut}) / \text{Sum}(e\_cell)$	different (OotFracCellX)
AverageLArQF	$\text{Sum}(e\_cl^2 \times \text{AVG\_LAR\_Q}) / \text{Sum}(e\_cl^2)$	$\text{Sum}(e\_cell^2 \times \text{quality\_cell}) / \text{Sum}(e\_cell^2)$	different (AverageLArQFFromCells)
LArQuality	$\text{Sum}(e\_cl \times \text{BADLARQ\_FRAC}) / \text{Sum}(e\_cl)$	$\text{Sum}(e\_cell \text{ if } \text{quality\_cell} > \text{cut} \ \&\& \ \text{cell in LAr}) / \text{Sum}(e\_cell \text{ if cell in LAr})$	identical if using the same cut (LArQualityFromCells)
TileQuality	none	$\text{Sum}(e\_cell \text{ if } \text{quality\_cell} > \text{cut} \ \&\& \ \text{cell in Tile}) / \text{Sum}(e\_cell \text{ if cell in Tile})$	(TileQualityFromCells)
HECQuality	$\text{Sum}(e\_in\text{HEC\_cl} \times \text{BADLARQ\_FRAC}) / \text{Sum}(e\_in\text{HEC\_cl})$	$\text{Sum}(e\_cell \text{ if } \text{quality\_cell} > \text{cut} \ \&\& \ \text{cell in LArHEC}) / \text{Sum}(e\_cell \text{ if cell in LArHEC})$	different ( <a href="#">HECQualityFromCells</a> )
NegativeE	$\text{Sum}(e\_neg\_cl \times \text{SIGNIFICANCE}) / \text{Sum}(\text{SIGNIFICANCE})$	$\text{Sum}(e\_cell \text{ if } e\_cell < 2500)$	Differs (NegativeEFromCells)
Centroid	barrycenter (e weighted) from CENTER_X/Y/X	none	
BchCorrCell	$\text{Sum}(\text{ENG\_BAD\_CELLS}) / \text{Sum}(e\_cl)$	none (or entirely different ATLJETMET-72)	
FracSamplingMax	From jet attribute EnergyPerSampling	idem	identical
HECFrac	From jet attribute EnergyPerSampling	idem	identical
EMFrac	From jet attribute EnergyPerSampling	idem	identical

# Jet Trigger Deliverables

- <https://docs.google.com/spreadsheet/ccc?key=0AokQEYCc3bjpdEIWR1I2MC1nR2U0Q0pzTFM3U1RleWc&usp=sharing#gid=14>

Trigger Tower full-scan (L1.5) chains	E	90 %	Peter Sherwood/Nuno/Craig/Sasha Mazurov	missing simple algorithm to unpack TTs (Craig) and debugging TT collection (Sasha); needed for data taking
Monitoring software for Run II	E	80 %	Lee Sawyer/Dilip Jana	needed for data taking
Validation software for Run II	E	80 %	Lee Sawyer/Sebastien Prince/Valentinos Chr.	independent of data taking
Add diagnostics algos to RTT validation tests	E	80 %	Valentinos Christodolou	independent of data taking
Testing pileup tools and stability vs pileup	E	80 %	Annabelle Chuinard/Erich Varnes	missing new MC to test PU subtraction; study independent of data taking
Jet cleaning selections in HLT	E	50 %	Peter Sherwood/Nuno Anjos/Caterina	debugging jet attributes; no major difficulties expected but takes time; independent of MC; needed for data
Implementation of simplified (Calo only) GSC in	E	50 %	Nuno Anjos	debugging jet attributes; other ingredients already in place; independent of MC; nice to have for data taking
Single jet menu optimization and	E	50 %	tba	Analysis framework written and in use; need to adapt to xAOD; offline analysis
Add trigger vs offline histos to monitoring and	E	20 %	Caterina Doglioni/Guy Koren	nice to have for data taking
Use of tracks and vertices from FTK tracking	E	10 %	Erich Varnes/Ruchika Nayyar	longer term
TLA-specific monitoring	E	0 %	Caterina Doglioni	needed for data taking
E/p trigger development for Run II	E	0 %	David Miller/Joakim Olsson	nice to have for data taking but alternative exists
Determine trigger-specific jet energy scale	E	0 %	M.Wobisch/Merlin Davies/Maria Roberta	Markus: central a4/Merlin: forward a4/Maria: fat jets; medium term; for analysis, not for data taking

Bonus slides

# Author Qualification Procedure

- See <https://indico.cern.ch/event/363542/contribution/0/material/slides/0.pdf>

## Change to Qualification Procedure

- Each qualification project now requires a Technical Supervisor
  - This is in addition to the already existing “Local Institution Supervisor”
  - **After 4 months**, the Technical Supervisor receives an automatic email and needs to confirm in Glance that the qualification task is progressing as planned.
    - The qualification is put ON HOLD until this is confirmed!
  - **At the end** of the qualification period, the Technical Supervisor needs to provide a short description of the outcome of the qualification task (max 1000 chars)
    - Already now, we ask for this via email. It is just more formal now.
- Who is the Technical Supervisor?
  - *“person within the project/activity where the qualification task takes place who will supervise the work of the qualifier”*
  - In most cases, this should be one of the signature coordinators
    - But you could delegate it to someone working closely with the qualifier
    - Ideally local (institute) supervisor should not be the technical supervisor at the same time, but exceptions are possible of course