

Manchester christmas meeting

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MANCHESTER
1824

December 17, 2018

Trigger Operations

Wk	Apr				May				June				
	14	15	16	17	18	19	20	21	22	23	24	25	26
Mo	Easter 2	9	16	scrubbing	1500b (1)	7	14	Whitsun 21	28	4	AW 11	18	25
Tu		access	3b (1,2)	300b (3)	1800b (1,2)	[9] low-E							[27] mu=2
We		Toroid	12b (1)	600b (1,3)	1800b (3)							TSP	
Th	Floormat with b	1st coll.	75b (1)	600b (4)	2319b (1)	Ascension							
inject	splash	RP align	75b (2,3)	900b (1,2,3)	2460b (1,2,3)							[12] AFP / HI	$\beta^* = 90 \text{ m}$ [26]
Sa				1200b (1)	2556b (1,3)						MD 1		
Su		collisions	300b (1,2)	1200b (2,3)	2556b (3,4)							WJM program	[27] mu=2

Wk	July				Aug				Sep				
	27	28	29	30	31	32	33	34	35	36	37	38	39
Mo	$\beta^* = 90 \text{ m}$ 2	9	16	23	30	6	13	20	27	3	10	17	24
Tu													
We				MD 2							Today	TSP	
Th										Jeune G.			
Fr											MD 3		
Sa													
Su													

Wk	Oct				Nov				Dec				
	40	41	42	43	44	45	46	47	48	49	50	51	52
Mo	1	8	15	22	MD 4 29	5	12	19	26	3	10	17	Xmas 24
Tu						ion setting up		MD 5					
We		Special physics run											
Th					TSP		LHC Pb-Pb ion run			Powering Tests		Long Shutdown 2	
Fr										Mayday Training			
Sa													
Su				MD 4									

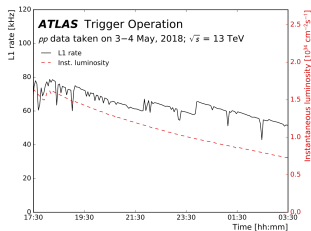
Online operations - Special runs

- Rather intense program of special runs at start of year and after TS1 in July
- Intensity ramp up with high and low mu running, VdM program, high beta* program, $\mu=2$ running, then back to standard high mu physics

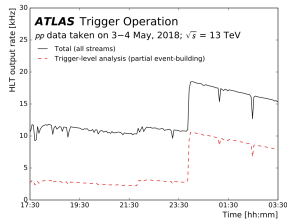
- **Beam-based alignment (expected Friday, June 22 / Sunday, June 24)**
 - AFP request: [ATN-12782](#) - Run 355776
 - ALFA request: [ATN-18848](#) - Run 354012
- **VdM loss maps**
 - Enable MBTS_1_BORP9 and LUCID_BORP9 on top of standby for lumi group to check overlap of triggers used in vdm scan. BORP9 to be set by CTP directly
- **3b (Monday, June 23 evening): run 354137**
 - Detectors in low-mu settings
 - 30 minutes of head-on collisions. No physics, all run with standby beams.
- **140b calibration transfer fill (Tuesday, June 26, morning): run 354214**
 - Lumi request: [ATN-18120](#)
- **600b (Tuesday, June 26, evening): runs 354174,3,6**
 - New SMK 2724 (g) dated per BCD reordering for L1_Topo; see [ATR-18357](#)
 - 1 hour head-on collisions: run [354214](#)
 - 1 hour of muon3, run [354179](#) (suspended due to failure to switch on MBTS, IBS, problems), [354178](#)
 - AFP request: [ATN-18187](#)
 - HE request: [ATN-18186](#)
 - Total lumi request: [ATN-18182](#)
- **1204b Wednesday, June 27 evening, after 90m loss maps (delayed due to problems with ATLAS & ALICE cooling)**
 - 2h mu scan (separation to $\mu=0$ first), Run [354206](#).
 - 2h head-on collisions
 - 2 hours muon3 \rightarrow beams lost early. Run [354211](#). Several beam dumps overnight.
 - 2h head-on with beta* leveling. Run [354215](#) started June 28 morning with head-on collisions; planned to separate to $\mu=0.3$ but beams lost after ~30 minutes of stable beams.
 - AFP request (low mu): [ATN-18187](#)
 - HE request (low mu): [ATR-18186](#)
 - Total lumi request (mu scan, high mu, low mu): [ATN-18142](#)
- **1404b HE (Thursday, June 28, evening)**
 - 2h head-on collisions (including entrance scan), then separation to $\mu=0$, 2h mu scan (run [354206](#))
 - 4h $\mu=2$ (run [354206](#))
 - Surprise high-mu part of end of fill.
 - Total lumi request (mu scan, high mu, low mu): [ATN-18142](#)
 - Requests for muon2 (HI, AFP, SM, TLA): [ATN-18188](#)
- **beta* = 90m loss maps (Thursday, June 28 night - Friday, June 29 afternoon)**
- **ALICE/LHC3 VdM programme (Friday, June 29 afternoon / evening): Run 354476.**
 - Lumi request: [ATN-18118](#)
- **beta* = 90m loss maps (Friday, June 29 overnight)**
 - Length scale calibration in ATLAS
- **beta* = 90m loss maps (Friday, June 29 overnight)**
- **ATLAS/CMS VdM programme (Saturday, June 30 morning - evening): Run 354994**
 - Lumi request: [ATN-18118](#)

- **beta* = 90m loss maps (Friday, June 29 overnight)**
- **ATLAS/CMS VdM programme (Saturday, June 30 morning - evening): Run 354994**
 - Lumi request: [ATR-18118](#)
- **beta* = 90m loss maps (Sunday, July 1)**
- **beta* = 90m runs (starting Monday, July 2, early morning)**
 - Detectors in low-mu settings
 - ALFA request: [ATR-17575](#)
 - Lumi request: [ATR-18122](#)
 - At least 2h stable beams required for each ramp-up step
 - Elastic runs (100ns scheme; $\mu=0.15$). Aim to collect $>0.5/\text{pb}$.
 - 2h 86b. Run [354826](#)
 - 2h 302b. Run [354863](#)
 - 10-12h 734b. Run [354893, 354944](#)
 - Diffractive runs (50 ns; $\mu=0.3$). Aim to collect 4-10/pb.
 - 2h 302b Run [355008](#)
 - New SMK 2725 which includes per-bcd monitoring of L1_TES
 - 2h 734b Run [355053](#)
 - 1452b Run [355109](#) (lumi was $\sim 1/3$ of expected so prescales were adjusted accordingly)
- **Sandwich fill? (first run after high beta* runs)**
 - Detectors in high-mu settings, L1_Topo chains enabled for physics
 - Separate to $\mu=0$, then 1h mu scan
 - 2h high-mu with lumi request (calibration transfer)
 - Run [355273](#) (8 July)
- **BSRT fill (July 12): run 355446**
 - Lumi request: [ATR-181304](#)
- **$\mu = 2$ runs**
 - 4x20h fills: Run [355331, 355389, 355416, 355468](#)
 - Physics requests (HI, AFP, SM, TLA): [ATR-17813](#)
- **Return to high-mu running anticipated Saturday, July 14**
 - Will deploy AthenaP1.21.1.33 ([ATR-18404](#)) for high-mu runs: <https://atlasop.cern.ch/eisa/display/386774>

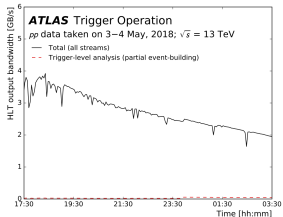
Typical Rates - pp



(a) L1 Rate

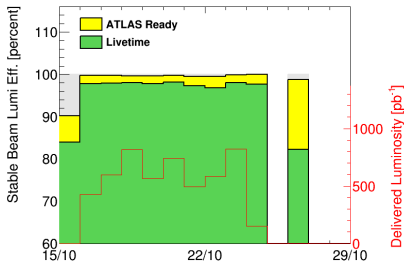
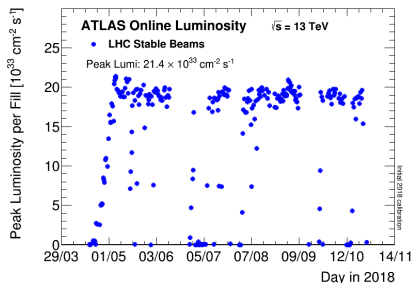
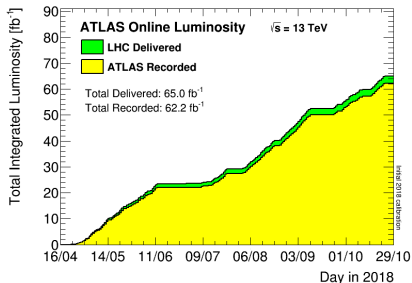


(b) HLT Rate



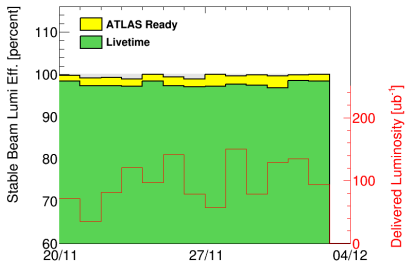
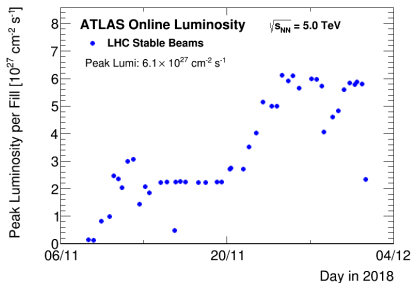
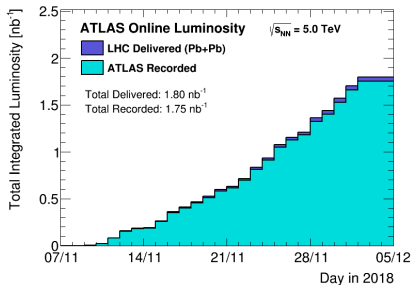
(c) HLT Bandwidth

pp data summary



- Intense few weeks of data taking
- HI group very eager to collect data and run at limitations of the detector
- Was a good stress test of data flow (managed to write about 4.5-5 GB/s throughout all fills)

HL running



Plans for next year

- 1 Not worry about what the LHC is going to do at the last minute :)
- 2 Get back to muon trigger and $VZ \rightarrow llqq$ analysis
- 3 Trigger contact for DBL group

LHC Page1

Fill: 7494

E: 0 Z GeV

03-12-18 09:28:08

SHUTDOWN: NO BEAM



Comments (03-Dec-2018 09:26:17)

Powering test campaign
Energy upgrade needed: expected 2 years

BIS status and SMP flags

B1 B2

Link Status of Beam Permits	false	false
Global Beam Permit	false	false
Setup Beam	true	true
Beam Presence	false	false
Moveable Devices Allowed In	false	false
Stable Beams	false	false

AES: 75 150ns 733Ph 733 702 468 42bnl 20nl

PM Status B1 **ENABLED** PM Status B2 **ENABLED**

Backup