

# L1Calo News

*Activity Summary, Run coordination and  
Operation Planning*

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# Overview

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- Overview
- 2010: It was a Very Good Year (2)
- A Busy Shutdown
- A Good Start to the “Year of the Higgs”
- With a Few Optimisations
- And Some On-going Problems
- Water Cooling is a Pain (2)
- A Technical Stop
  - 28 – 31 March
  - L1Calo Plans
- LHC Schedule: A Moving Target
- And Today’s Status ...

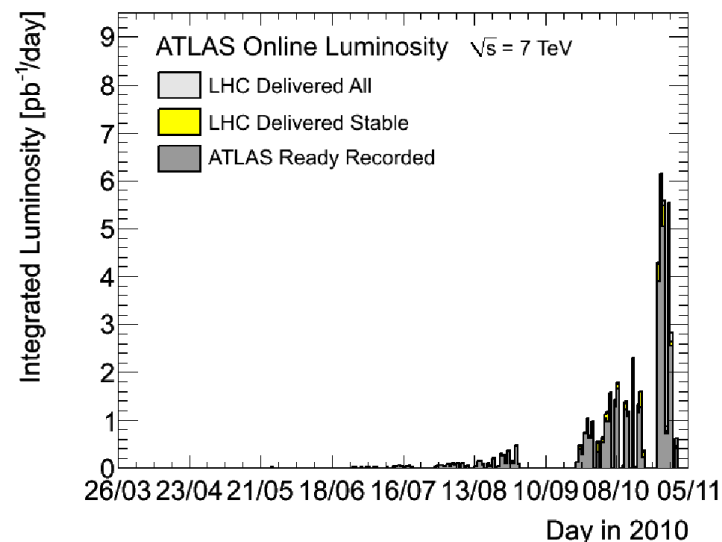
# 2010: It Was a Very Good Year (1/2)

- Ramping Up Protons



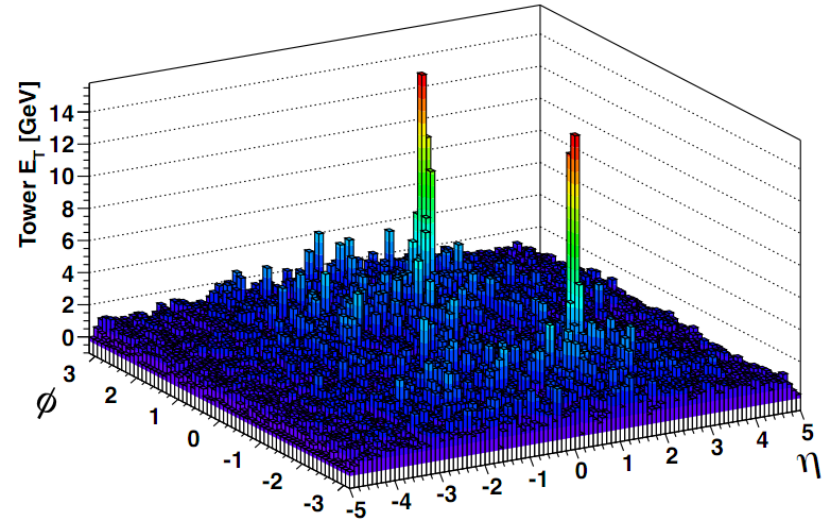
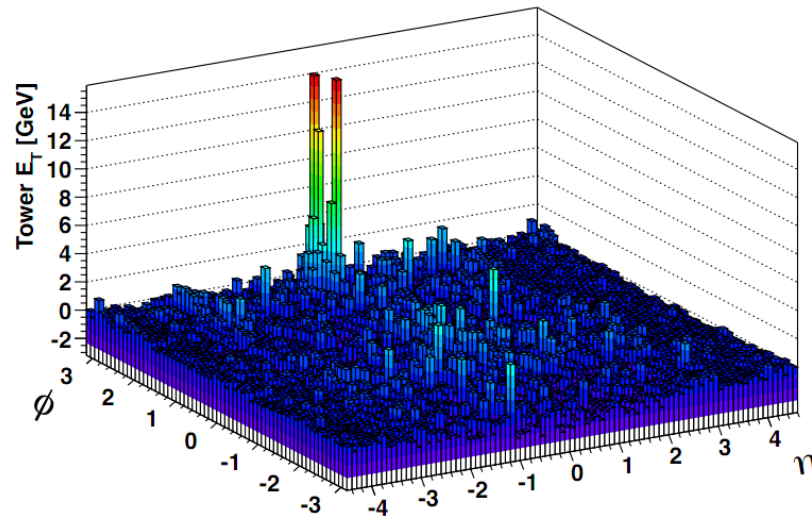
Date	#	Nb	Fill length	pb-1	Peak lumi	Lost to
Sun 24	1439	312	10h42	4.2	1.51e32	OP request
Mon 25	1440	368	11h20	6.0	2e32	EOF studies
Tue 26	1443	368	2h17	.15	2e32	UFO Q8.L5
Tue 26	1444	368	7h12	4.0	1.95e32	OP request
Thu 28	1450	368	14h32	6.3	1.8e32	OP request
Fri 29	1453	368	6h20	2.6	1.6e32	OP request
Sun 31	1459	108 (50 ns)	6h01	0.45	2.6e31	OP request
Total				<b>23.7</b>		

plus one attempt with **424 bunches**: beam dump just after arriving to 3.5 TeV. TCTH.4R8.B2 BLM in IR8 triggered on 0.6s running sum - strange loss patterns.



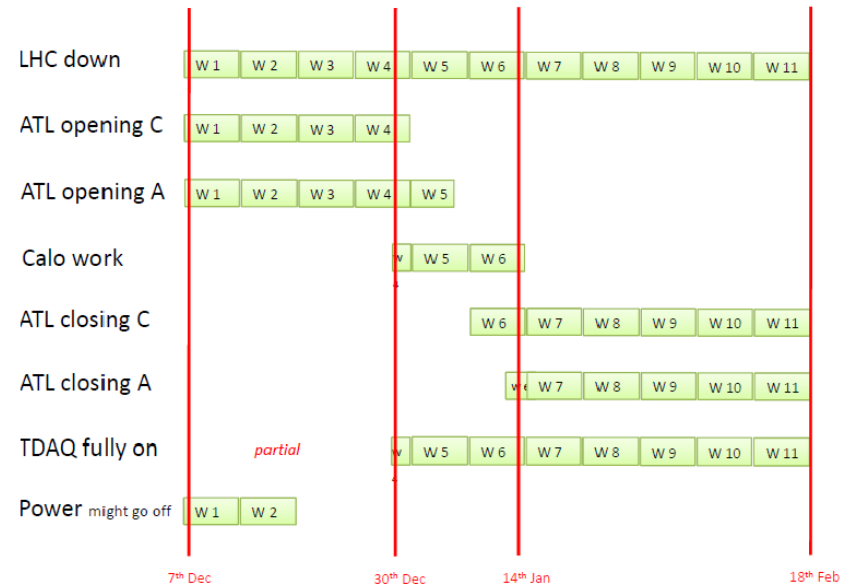
# 2010: It Was a Very Good Year (2/2)

- With a little Heavy Metal



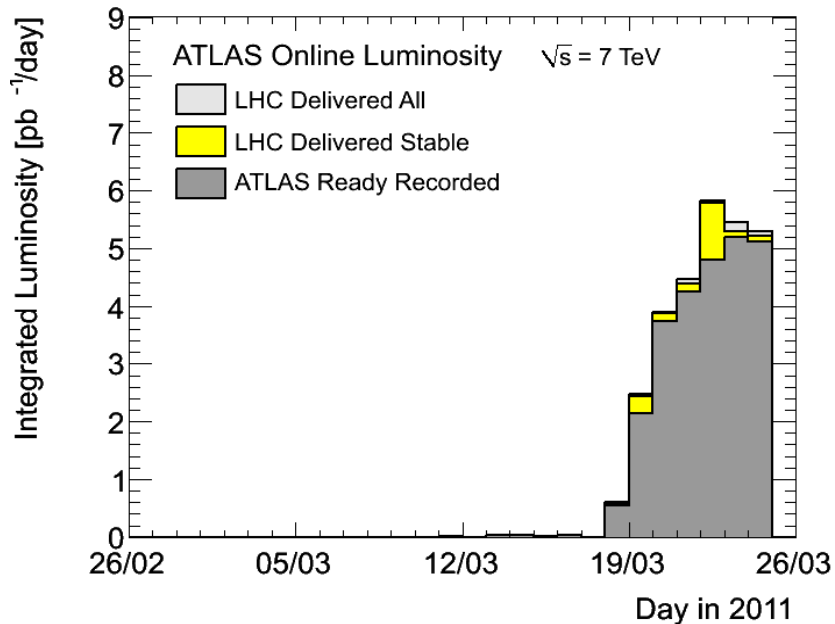
# A Busy Shutdown

- Calorimeter Testing
  - Following OTX fixes and recovered drawers
- Firmware Enhancements
  - CMM XS triggers
- Software Upgrades
  - Calibration, CMMs and lost state transitions
- System Tests
- Cooling Problems

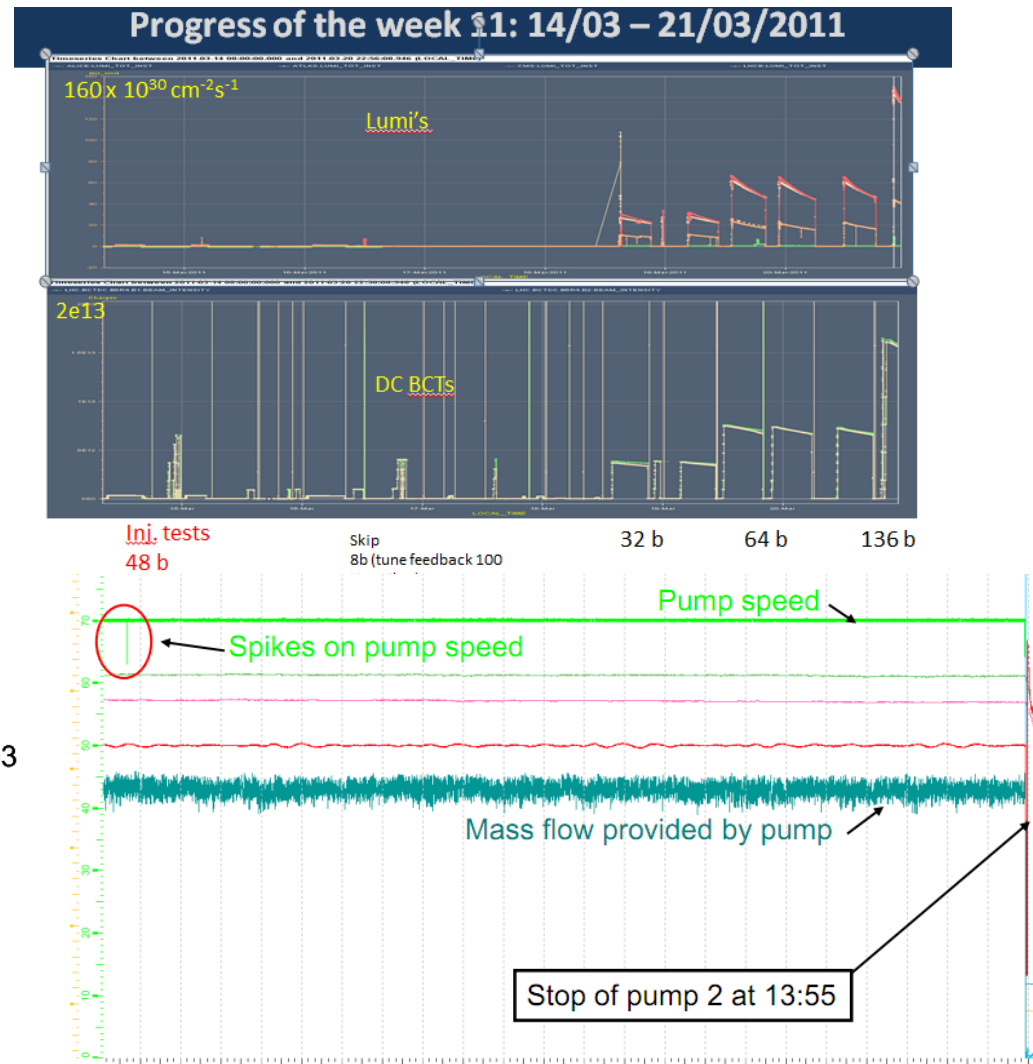


# A Good Start to the “Year of the Higgs”

- More Bunches ...  
200 and counting



- Magnet Problems  
– But interesting timing runs ....



# With a Few Optimisations

- **New Calibrations**
  - In particular picking up recovered channels (Thanks to the calorimeter guys)
- **Overlap Towers**
  - Commissioned, but timing optimisation underway
- **Improved Monitoring**

Runs	Period	Luminosity	Timing	Energy Calibration	EM Overlap Region	Comments
177531, 177539, 177540	A1	0.06 pb-1	Final 2010	Final 2010	Both	Mostly similar to end of 2010 conditions, timing problems for sick TBB and recovered Tile drawers
177593, 177682	A1	0.05 pb-1	Hand-made fixes	Tile Update	Both	Global shifts for timing problems, recent Tile calibration update
<b>Magnets Off</b>						
177904	A2	0.6 pb-1	Hand-made fixes	Tile+LArg Update	Both	Further small update to Tile, full LArg update: Special TBB masking - LB 166-323 just LArg front layer, LB 323+ just LArg back layer
177912	A2	0.6 pb-1	Hand-made fixes	Tile+LArg Update	Both	Special TBB masking - just LArg middle layer
177924	A2	1.3 pb-1	Hand-made fixes	Tile+LArg Update	Barrel	Overlap masking via receivers
177929	A2	1.4 pb-1	Hand-made fixes	Tile+LArg Update	Barrel	
177960	A2	1.3 pb-1	Hand-made fixes	Tile+LArg Update	Endcap	Overlap masking via receivers
177965	A2	3.7 pb-1	Hand-made fixes	Tile+LArg Update	Endcap	CTP timing shifts: LB 192-259 +1 ns, LB 259-317 -1 ns

<https://twiki.cern.ch/twiki/bin/view/Atlas/L1CaloCommissioningChanges>

# And Some On-going Problems

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- Little DCS glitches
  - No bogus shutdowns
    - But CMM FPGA temperature monitoring not yet understood and monitoring disabled
  - But now Bogus hardware signals:
    - One ROD to be replaced during Technical Stop
- But
  - No magically lost CMM configurations
    - f/w fix successful?
    - Wait and see ...
  - No problematic new XS firmware
    - Knock on wood



# Water Cooling is a Pain (1/2)

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- **Problem**
  - Water stagnated in iron pipes which provide cooling to racks: resulted in oxidation
  - Main reservoir is filtered, but particulate matter remains in pipes
- **Definitive Solution**
  - Probably redesign of system and replacement of pipes during long shutdown
- **Transitional Solution**
  - Install draining valves in all “bras-mort” to allow complete purging (requires weeks.)
- **Budget Solution:**
  - Drain critical (low-flow, problematic) bras-mort
  - But can’t reach ends of dead-ends.

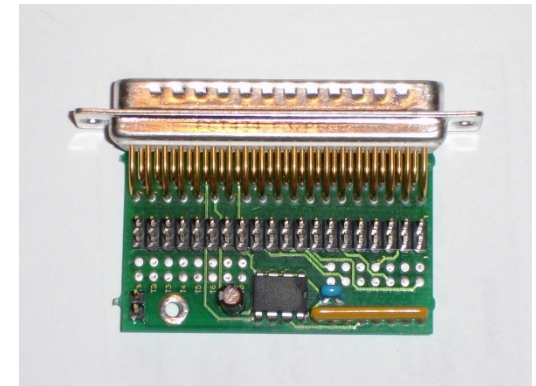


**And there are now traces of Aluminium in the water! (P/W heat sink degradation?)**

# Water Cooling is a Pain (2/2)

Better monitoring of temperatures will help

- **Problem**
  - Narrow Flexible hoses block with particulate matter finding its home
  - Wiener supplies provide P/S trip, but no temperature readout
- **Solution**
  - Use optional temperature sensor input
    - Available at P/S output, on “personality card”
  - Equip DCS FSM with trending, warning feedback for identification of temperature rises



# A Technical Stop (28-31 March)

atlas.run.coordination@gmail.com

Today ◀ ▶ **Monday, March 28** ▼

Showing events after 2/15. [Look for earlier events](#)

**Monday, March 28**

- 7:00am Ramp Down ATLAS Magnets
- 8:00am Switch OFF ATLAS Detector (USA15 Racks + Equipment)
- 10:00am Rack Cooling Intervention
- 10:00am UPS fix (OPM)
- 10:00am TDAQ Hardware Replacements
- 5:00pm Power Back ON ACR Machines + TDAQ Infrastructure On Surface

**Tuesday, March 29**

- 8:00am V.I.P. Visit
- 9:00am CTP Firmware Upgrade for ALFA Logic
- 11:00am Switch Back ON ATLAS Detector (USA15 Racks + Equipment)
- 1:00pm TDAQ Patches Installation & Tests (Including CTP Patches)

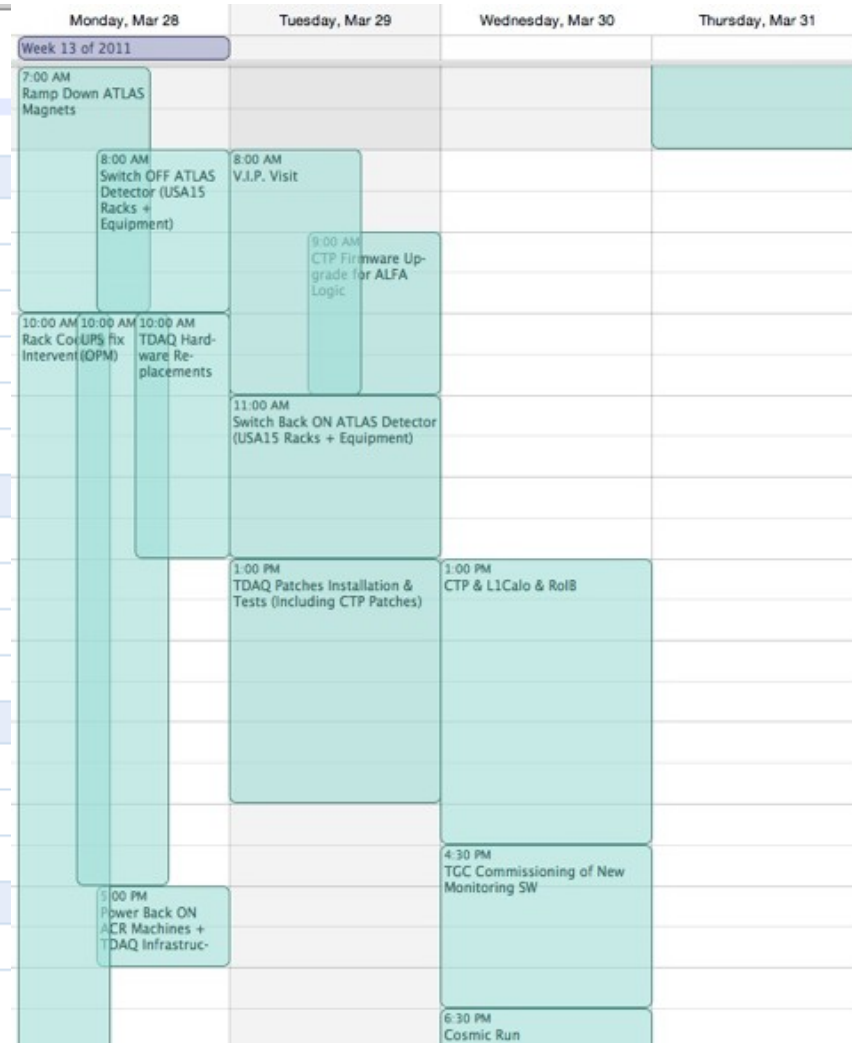
**Wednesday, March 30**

- 1:00pm CTP & L1Calo & RoIB
- 4:30pm TGC Commissioning of New Monitoring SW
- 6:30pm Cosmic Run

**Thursday, March 31**

- » 8:00am Cosmic Run

Showing events until 5/31. [Look for more](#)

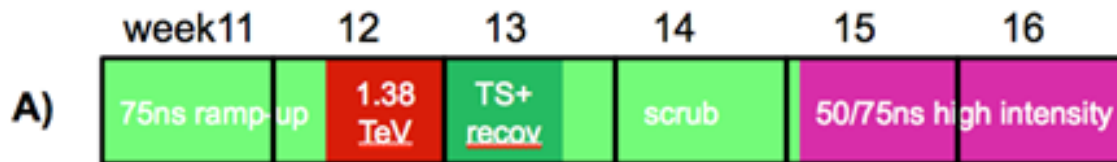
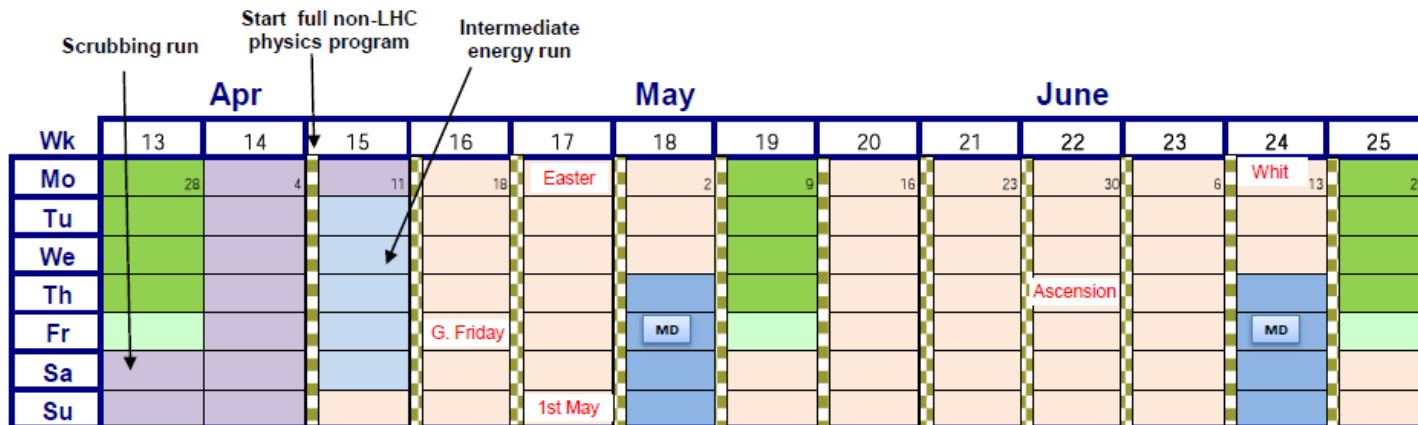
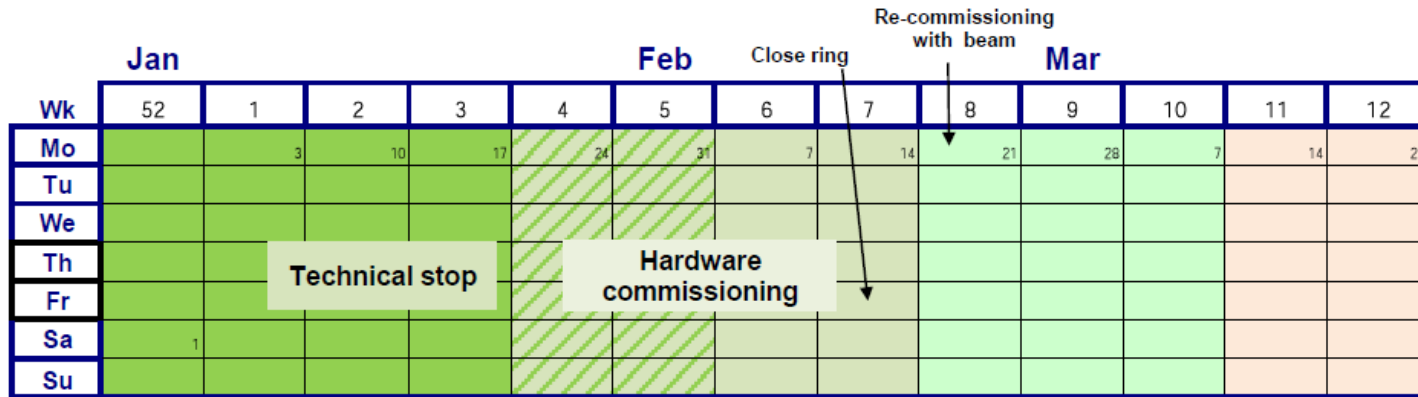


# A Technical Stop (L1Calo Plans)

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- **Monday**
  - 7:00 Power Down L1Calo before Racks switched off
  - 11:00 DCS PC off for UPS intervention
  - ROD Replacement (DCS sensing)
  - Temperature probe test installation (CP3)
- **Tuesday**
  - AM: No activity Point 1. Access restricted.
  - PM: Tile signal tests (no ROS, SFI)
- **Wednesday**
  - AM: L1Calo Standalone Tests
    - DAQ, ROD
  - PM: CTP Related
    - RoIB tests.
    - CTP timing tests (CMM maintenance release)
    - Event-building tests
- **Thursday**
  - AM: LArg FCAL mapping tests
  - PM: Signal Tests

# LHC Schedule: A Moving Target

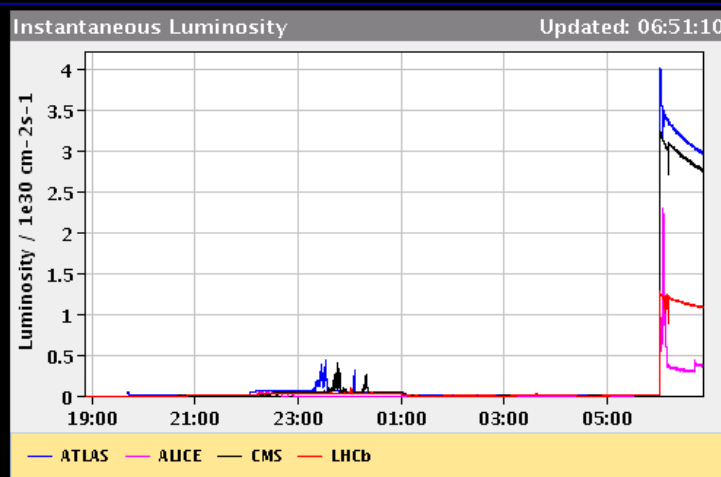
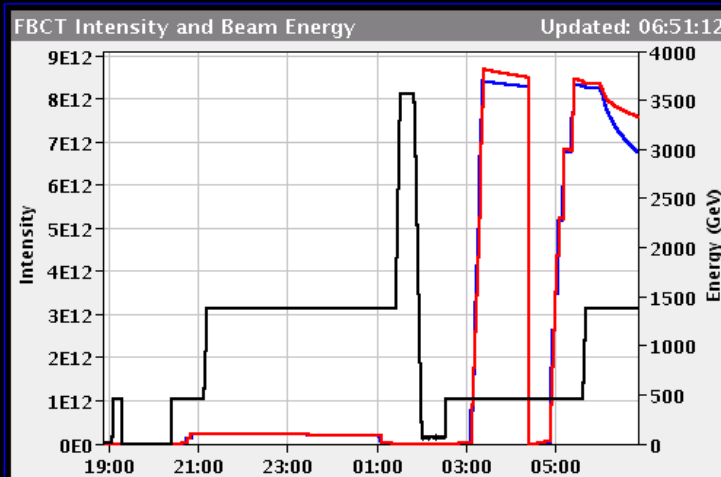


(Going by steps towards 900b, 75ns)

# And Today's Status ...

## PROTON PHYSICS: STABLE BEAMS

Energy: 1380 GeV I(B1): 6.69e+12 I(B2): 7.50e+12



Comments 25-03-2011 06:31:31 :

STABLE BEAMS

BIS status and SMP flags

- Link Status of Beam Pipe
- Global Beam Permitted
- Setup Beam
- Beam Presence
- Moveable Devices Allowed
- Stable Beams

B1 B2

AFS: 525ns\_80b+4small\_68\_64\_32\_8bpi14inj

PM Status B1 **ENABLED**

