

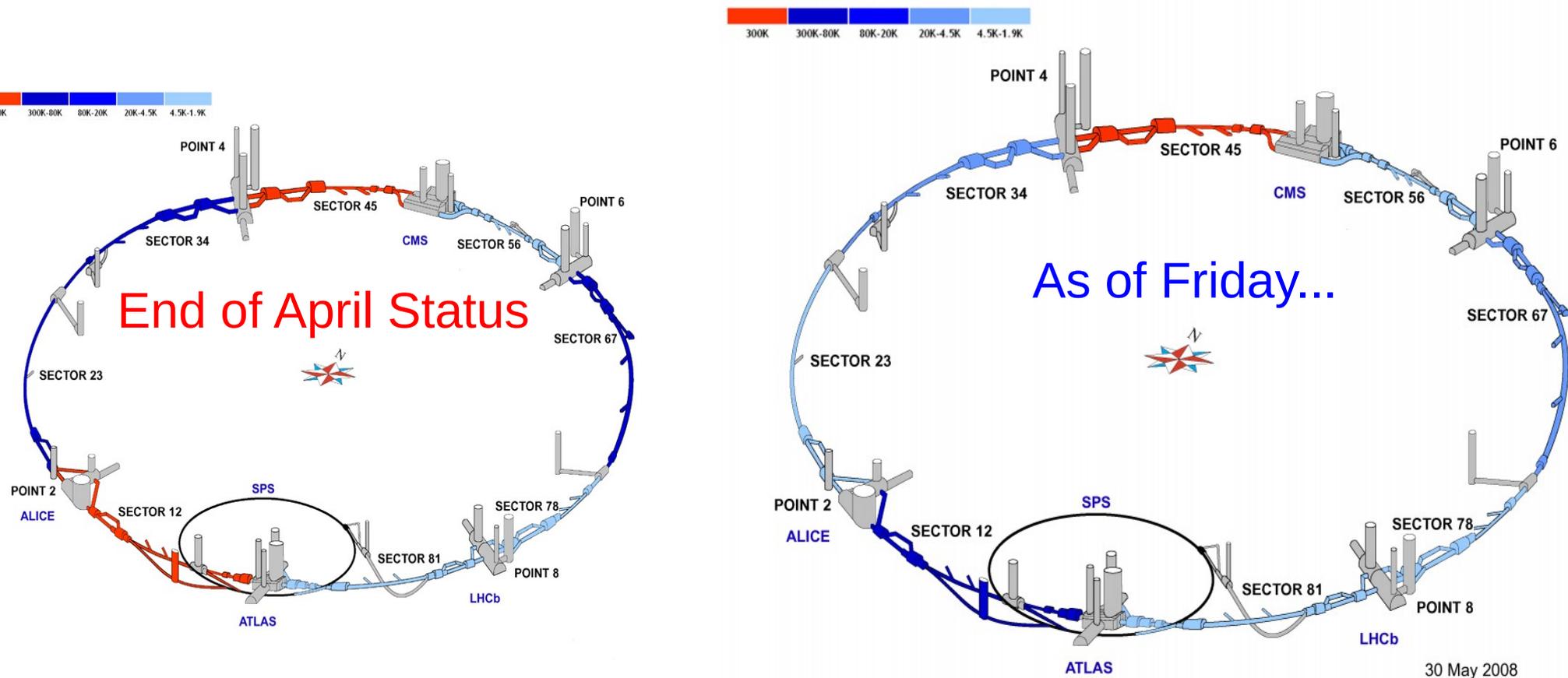
Status of LHC & CMS

David Mason

June 2 FNAL All Experimenters Meeting



LHC Status



Goal is for everything to be [this color](#) by end of June!



D. Mason, June 2 FNAL All Experimenter's Meeting

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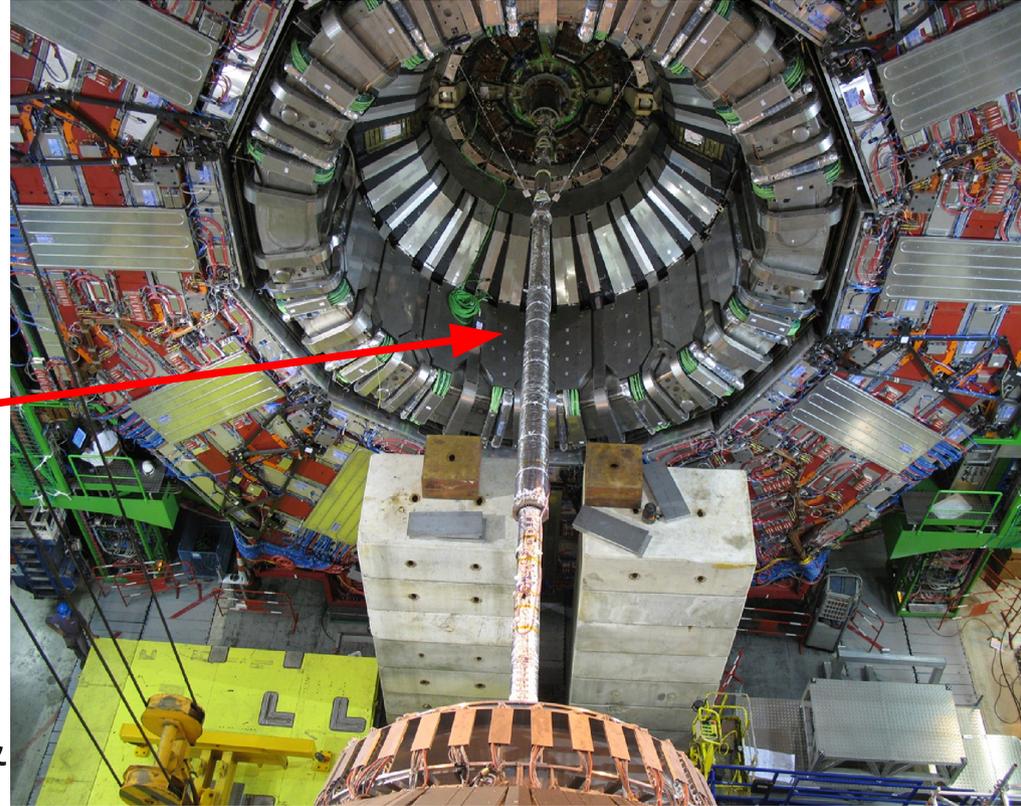
Overall LHC Schedule:

- Goal to have all sectors cold by end of June
- Then all sectors power tested at 5 TeV by end of July, followed by beam injection and circulation several weeks
- Then “hours” of collisions @ 900 GeV, moving to 10 TeV collisions by end of September
- Shutdown ~November '08 - Spring '09
- Then ~6 month “14 TeV” physics run through end of 2009
 - Expected to provide ~few fb⁻¹



CMS Commissioning News

- Tracker had 2nd heat exchanger failure on May 7.
 - For now, replacing heat exchangers, chiller compressors.
 - Recommissioning ~June 15
 - Joining global runs early July
 - Meanwhile final fix to be implemented during '08-9 shutdown
- **Beam pipe now installed**
 - Bake-out starts June 9
 - Goal to finish by June 16-20
- End of June/early July: Pixel installation & Ecal endcap (+) cabling
- **CMS to close near end of July**



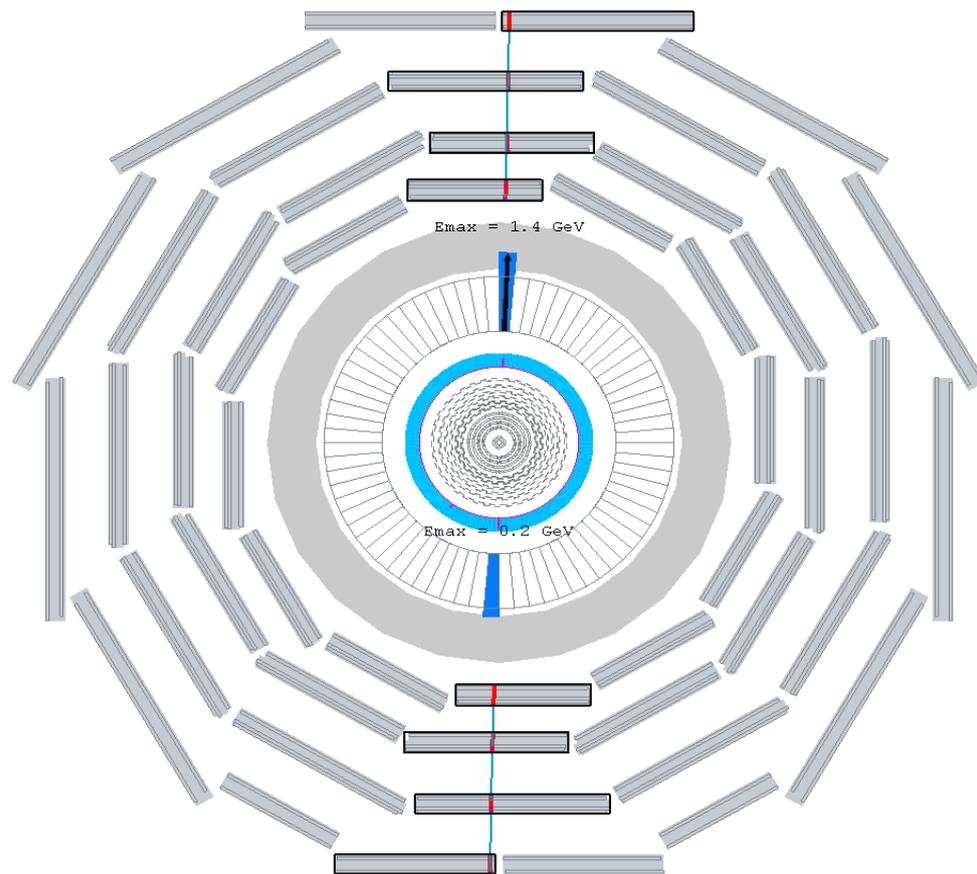
CMS General News

- 3 efforts completed in the past month:
 - Cosmic Run at Zero Tesla (I) Global run
 - May 5-9, 65% of detector, 24/7 continuous running!
 - Two Computing challenges run in concert throughout the month of May:
 - Combined Computing Readiness Challenge (CCRC): dress rehearsal of computing coincident with other experiments
 - Computing, Software & Analysis 08: dress rehearsal of T0+Calibration workflows
 - **Both finished today!**



CRUZET I Highlights

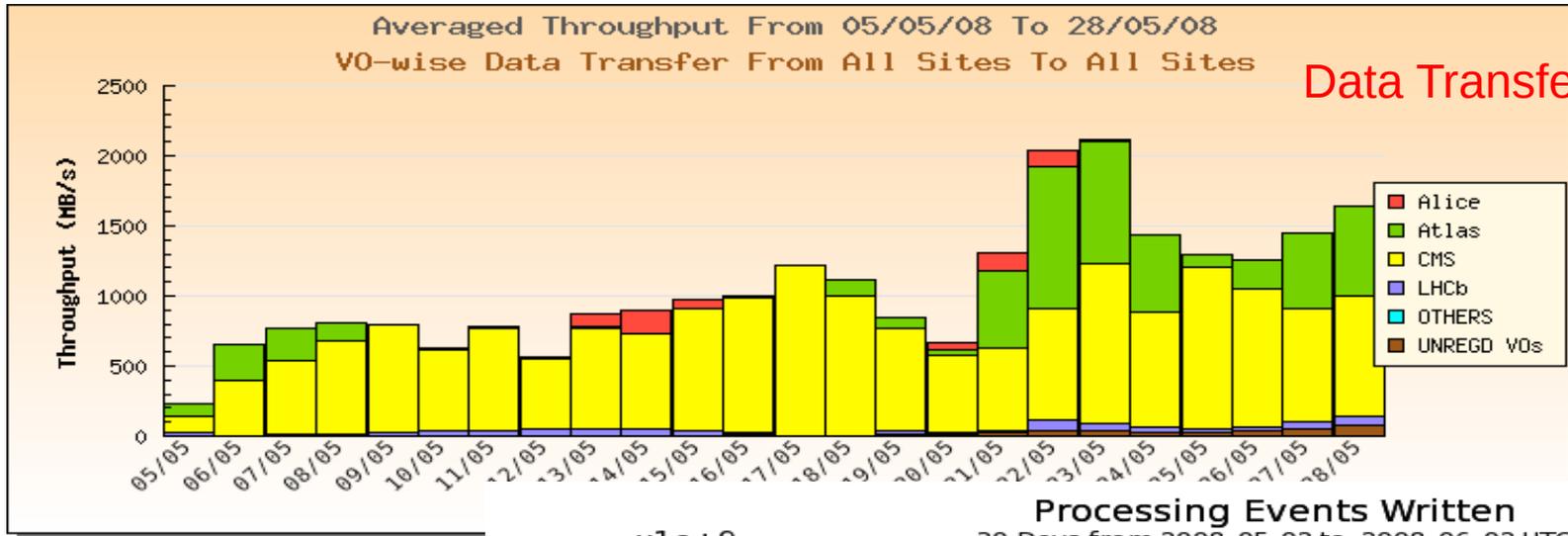
- Goal to establish continuous 24/7 running
 - Achieved! Including shifts at the FNAL ROC!
 - >30 million cosmic muon triggers taken
 - Prompt reco at T0 in ~hour
 - Data Quality Monitoring
 - >65% of CMS detector included in test (no tracker yet)
 - CMS event display showing cosmic muon coincidence in muon chambers, Hcal, & Ecal:



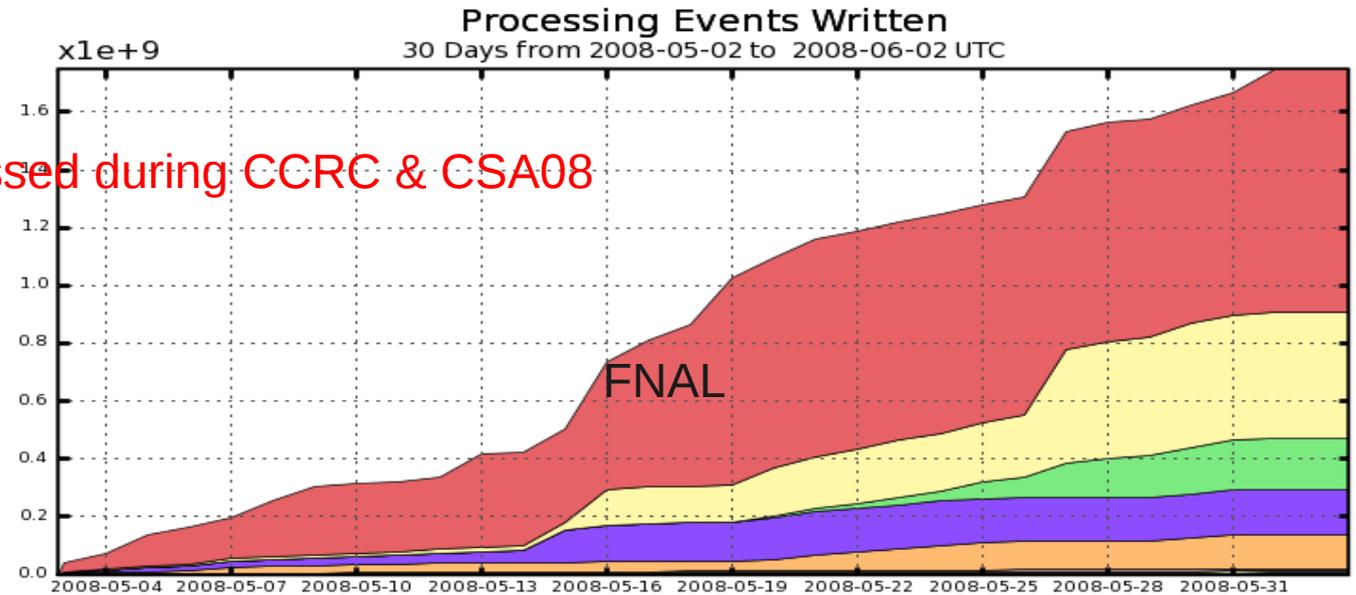
CSA08/CCRC

- Two computing challenges run in concert
- CSA08 simulated prompt reco + calibration workflows with startup – like MC samples
 - Prompt reco at CERN, followed by extraction of calibrations at the CERN “CAF”
 - MC samples then transferred to all 7 Tier 1's for custodial storage, then re-reconstructed.
- CCRC exercised system alongside load from other experiments
 - Extended CSA08 challenge to Tier 2 level





CMS MC Events Processed during CCRC & CSA08



Total: 84,556,074 , Average Rate: 31.67 /s



D. Mason, June 2 FNAL All Experimenter's Meeting

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What to expect next...

- Another global run: CRUZET II from June 11-14
 - Including 24/7 operations – see us in the ROC!
- CRUZET III, with tracker, planned for early July
- Then CMS close, magnet tests
- Cosmic Run at Four Tesla, end of July/August
 - Full rehearsal for running with collisions
- 900 GeV, then 10 TeV collisions in September!



Soon we may be able to see:

- Plotted at right --inclusive jet rate in 50 GeV bins for integrated luminosity of 10pb^{-1}
 - QCD measurement that is sensitive to new physics
- Shaded area is a 10% estimated jet energy scale uncertainty at startup
 - Expected to be dominant uncertainty
- **Contact interaction discovery potential above Tevatron limits**

