CMS Report

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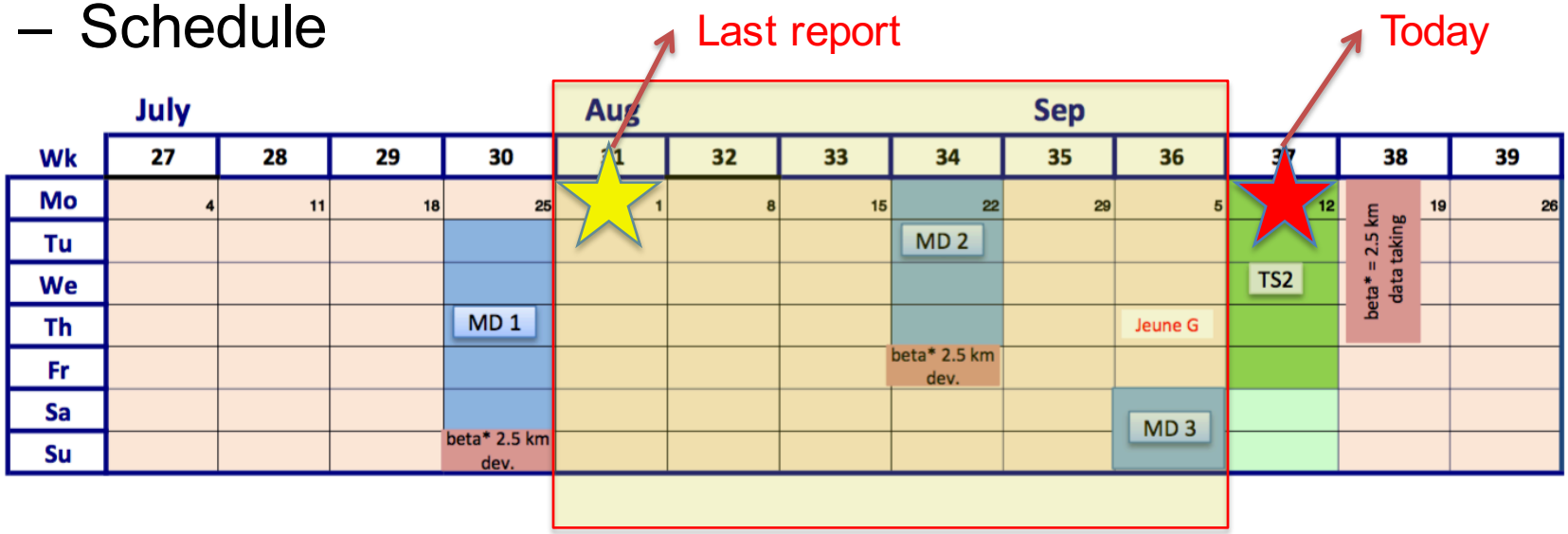
All Experimenters' Meeting

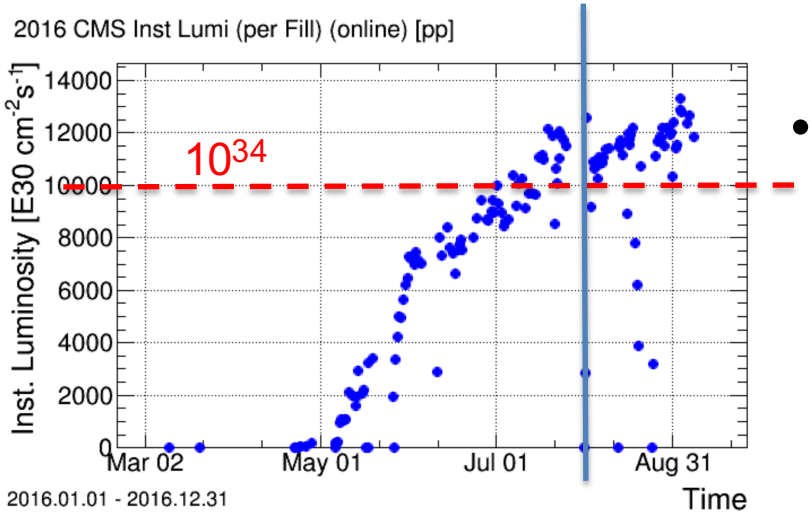
Sep 12, 2016

Reminder and Outline

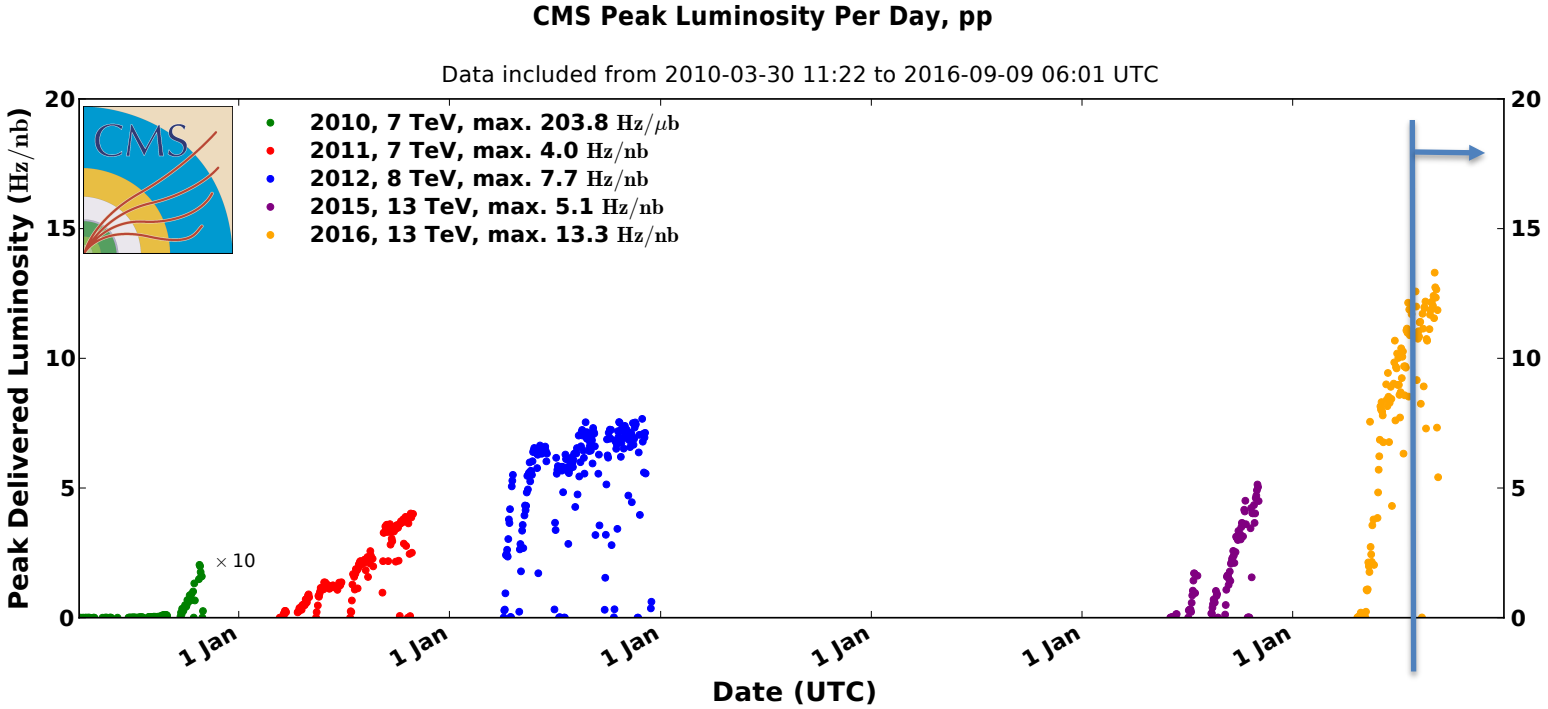
- Last report by Aron Soha on 08/01/2016
  - LHC had delivered 19.6fb^{-1} and CMS had recorded 18.1fb^{-1} as of July 25 (93% efficiency for 3 weeks)
- Today
  - LHC performance and developments
  - CMS data collection and data quality
  - CMS activities
  - Schedule



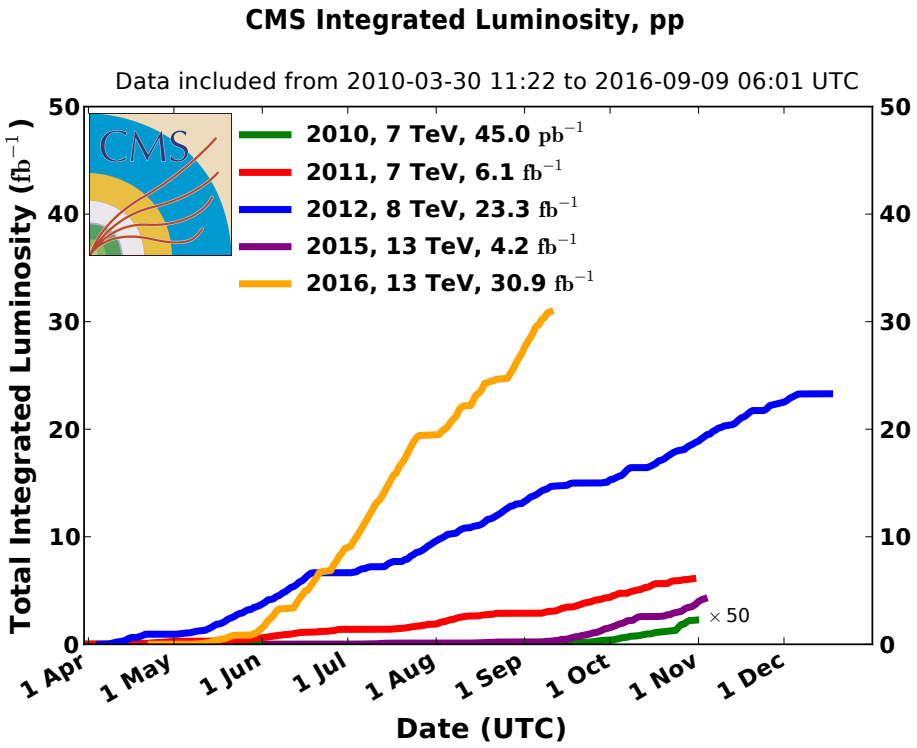
LHC: Inst. & Peak Lumi



- Peak luminosity is (1.25-1.5)e^{34}/cm^2/s
  - > 10^{34} most of the time during the last 6 weeks
  - Corresponding Peak pileup is 45-54
  - CMS is OK for 2016 Run

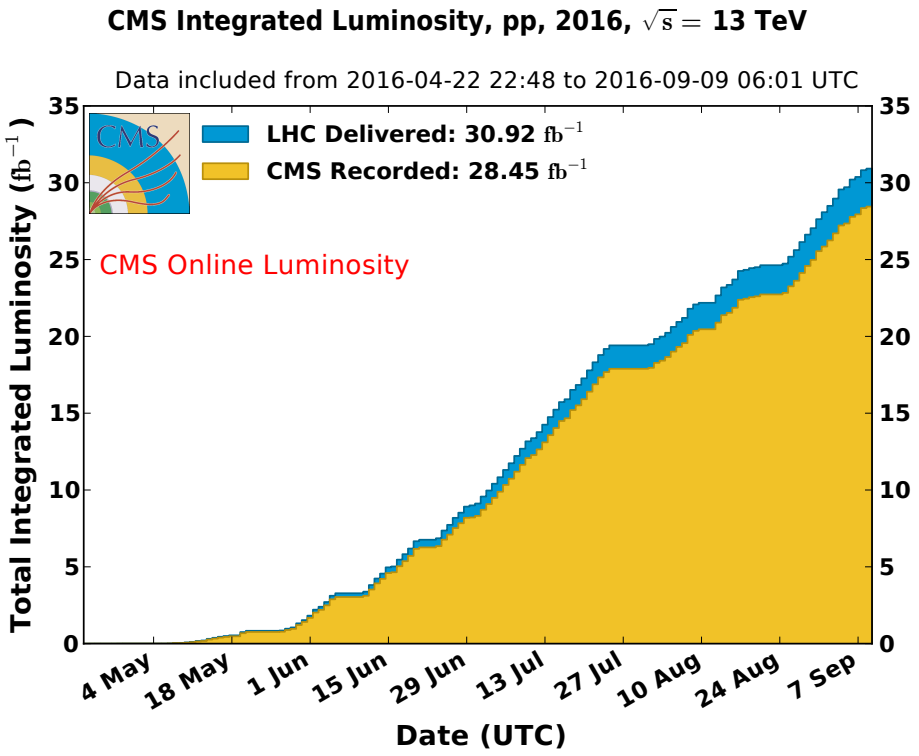


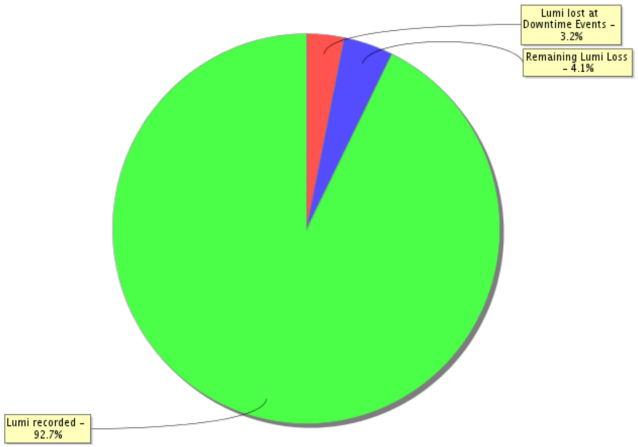
LHC: Integrated Lumi



- New phase-space scheme has led to lower emittance, and higher luminosities
- Integrated lumi 30.9 fb^{-1} delivered up to last Friday (09/09/16)

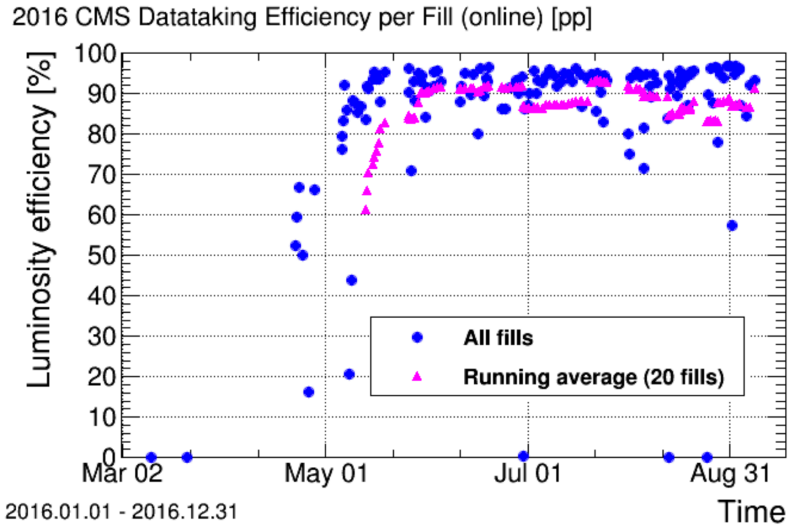
CMS: Recorded Data





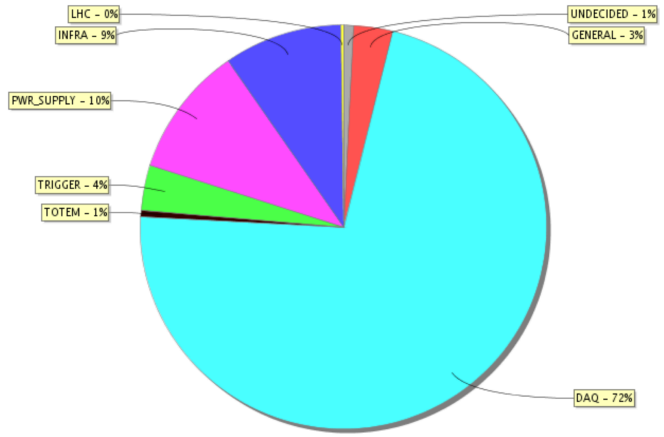
- For the year:
  - Recorded 28.5 fb^{-1}
  - 92.7% efficiency for recording data
- Past 6 weeks:
  - Recorded 10.4 fb^{-1}
  - 92.7% efficiency for recording data

CMS: Data-taking Efficiency

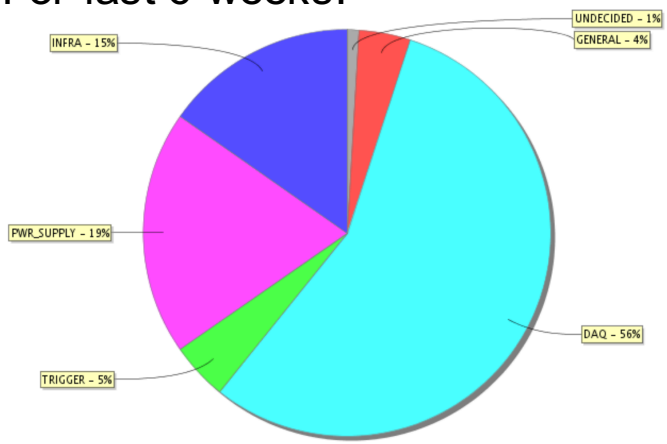


- Lost Lumi due to downtimes (last 6 weeks)
  - DAQ: 1.5% distributed fairly evenly across subsystem DAQs
  - Infrastructure: 0.4% (solenoid, cooling)
  - Power supply: 0.5% (pixel)
  - All others: 0.3%

For the year:

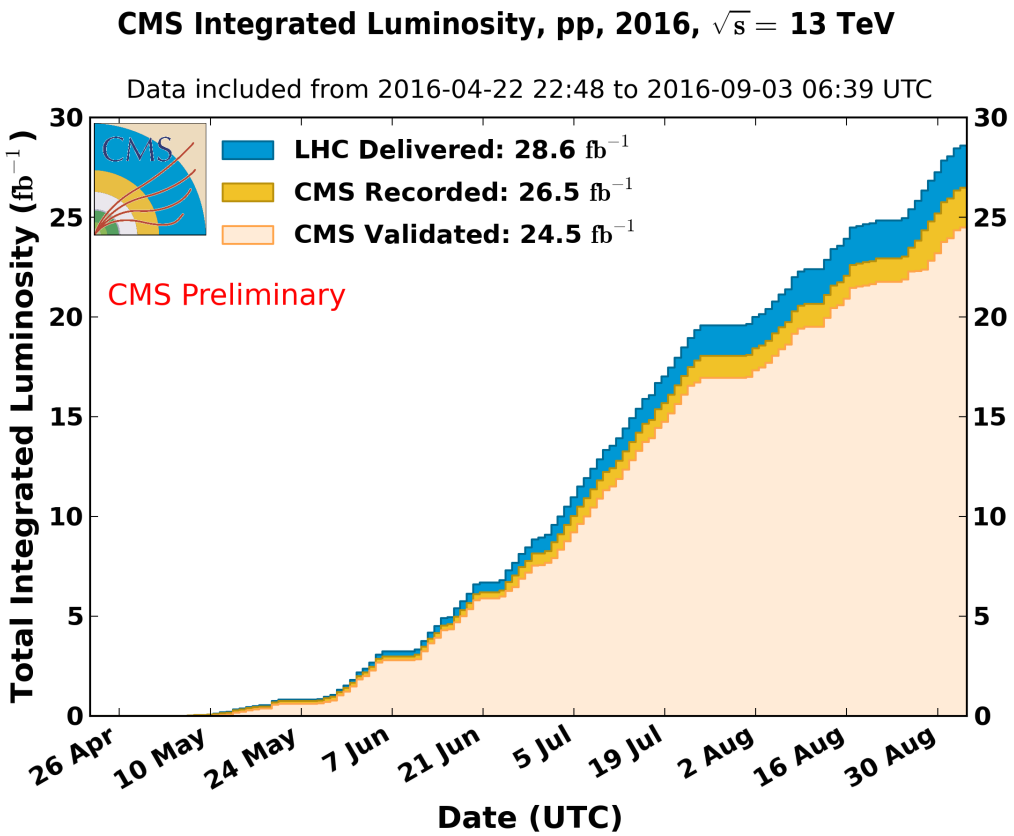


For last 6 weeks:



CMS: Certified Data

- For this year: (as of Sep 3)
  - Certified golden data 24.5 fb^{-1}
    - 92.5% of recorded data is good for all analyses
  - Certified muon physics data 25.5 fb^{-1} (96.2%)



CMS: Activities

- Joel Butler (Fermilab) begins his term as CMS spokesperson on Sep 2, 2016.
  - Congratulations to Joel!
  - New management team formed
- The LHC has decided to try to reduce the crossing angle in CMS and ATLAS.
  - This could increase the luminosity by 10-17%, requiring us to develop new strategies to take advantage of the improvement
  - This will probably happen towards the end of September, after the next Machine Development and Technical Stop period

Current LHC Schedule

- Schedule change
  - LHC Proton run 2016 is reduced by ONE week, 5 weeks pp running left
  - LHC EYETS (start) is advanced by ONE week
  - TS3 and MD5 are advanced by ONE week
    "The end date of the EYETS is unchanged"