The Week in Review

Arnd Meyer
(Fermilab)
Mar 25, 2002

Store		Initial Lum	Duration	$L_{delivered}$/nb	L_{live}/nb	Eff/%
1091	Sun 3/17	8.9E30	11.9	225.9	195.2	86.4
1093	Mon 3/18	10.5E30	8.3	217.3	137.9	63.5
1095	Tue 3/19	11.1E30	6.7	191.5	139.3	72.7
1113	Thu 3/21	8.4E30	14.7	179.2	109.3	70.0
1116	Fri 3/22	8.8E30	11.6	172.0	132.3	76.9
1120	Sat 3/23	9.6E30	14.3	266.6	197.6	74.1
1122	Sat 3/23	9.4E30	12.1	254.2	193.7	76.2
1124	Sun 3/24	9.5E30	12.5	287.9	260.9	90.6
				1794.6	1366.2	76.2

- Some special runs Monday/Tuesday during stores (trigger table tests). Also lost some data due to
  - Stuck bit in L2 system causing high jet trigger rates
  - Silicon trips
- Four hours into store 1116 (Friday afternoon) lost a COT power supply (minor spike in LOSTP, but rack is on east side). Replaced Friday night during 3hrs controlled access

The Week in Review

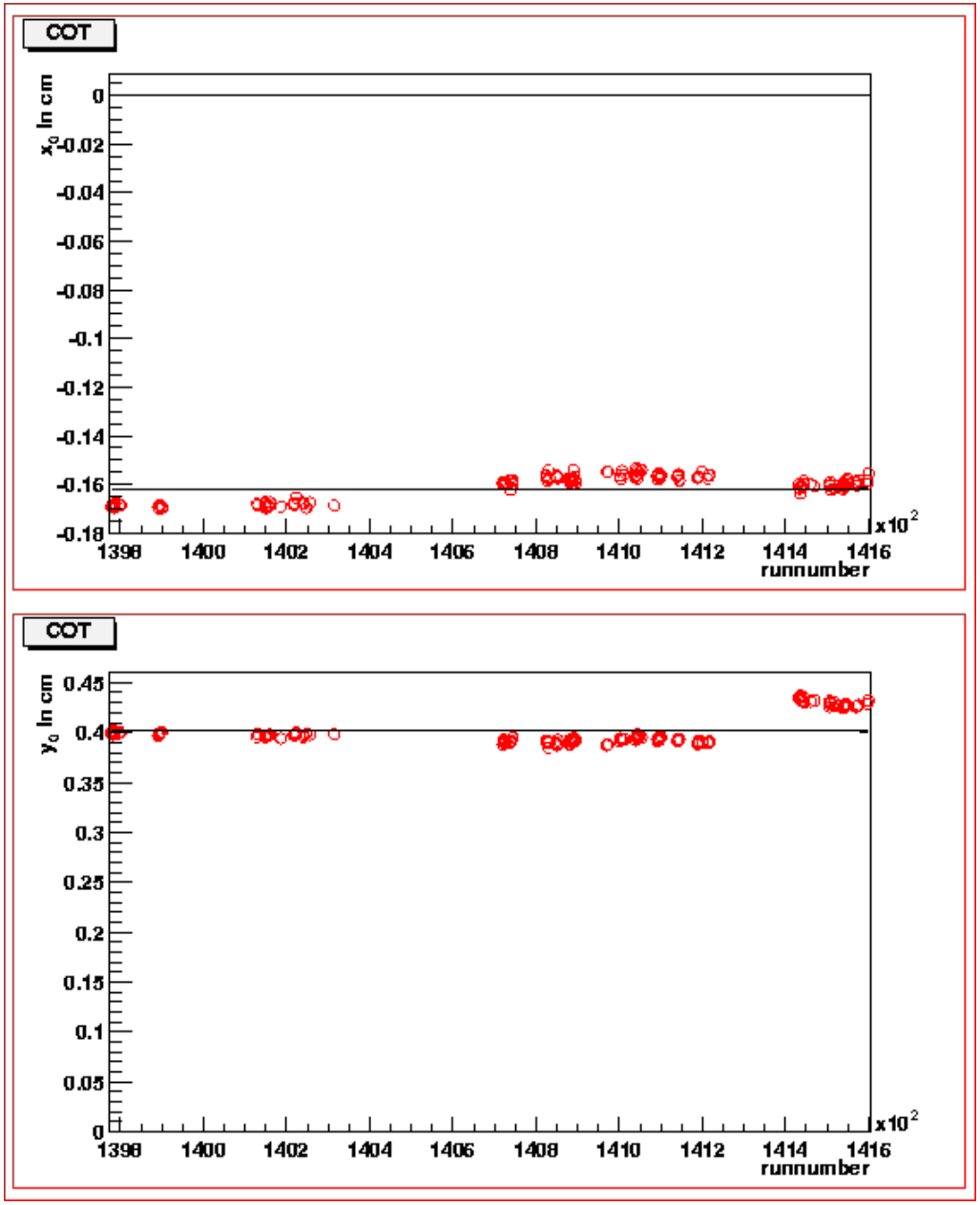
Arnd Meyer
(Fermilab)
Mar 25, 2002

- During Tueday/Wednesday beam studies
  - Addressed clock sensitivity to dancing shift crews (tightened some RF connections); had lost 3hrs previously due to clock synch problems
  - System upgrades and reconfiguration of two central DAQ servers, to increase reliability
  - Calorimeter, XFT (track trigger), TDC electronics checks
  - Initial commissioning of intermediate ($1<|\eta|<1.5$) and scintillator muon triggers
  - Code development for Muon system calibrations and full-chain "cabletester" for trigger
  - Various L2 developments (commission new MagicBus which is essential for luminosities > $3\text{-}5\times10^{31}\text{cm}^{-2}\text{s}^{-1}$, new L2 algorithms and control code, ...)
  - L3 maintenance and development
  - Infrastructure repairs (drip sensors, fans)
  - Trigger Supervisors: we have 8 for partitioning the detector/DAQ, and they used to be identical. Found timing problems in some of them, such that only three could be used reliably for physics data taking. Fix is underway - have been taking a lot of short runs during some of last week's stores for tests, reducing data taking efficiency
- 2hrs controlled access Wednesday evening
  - Replaced two TDC's (central drift chamber) with intermittent timing problems, and a Silicon FIB

Beam Spot

Arnd Meyer
(Fermilab)
Mar 25, 2002

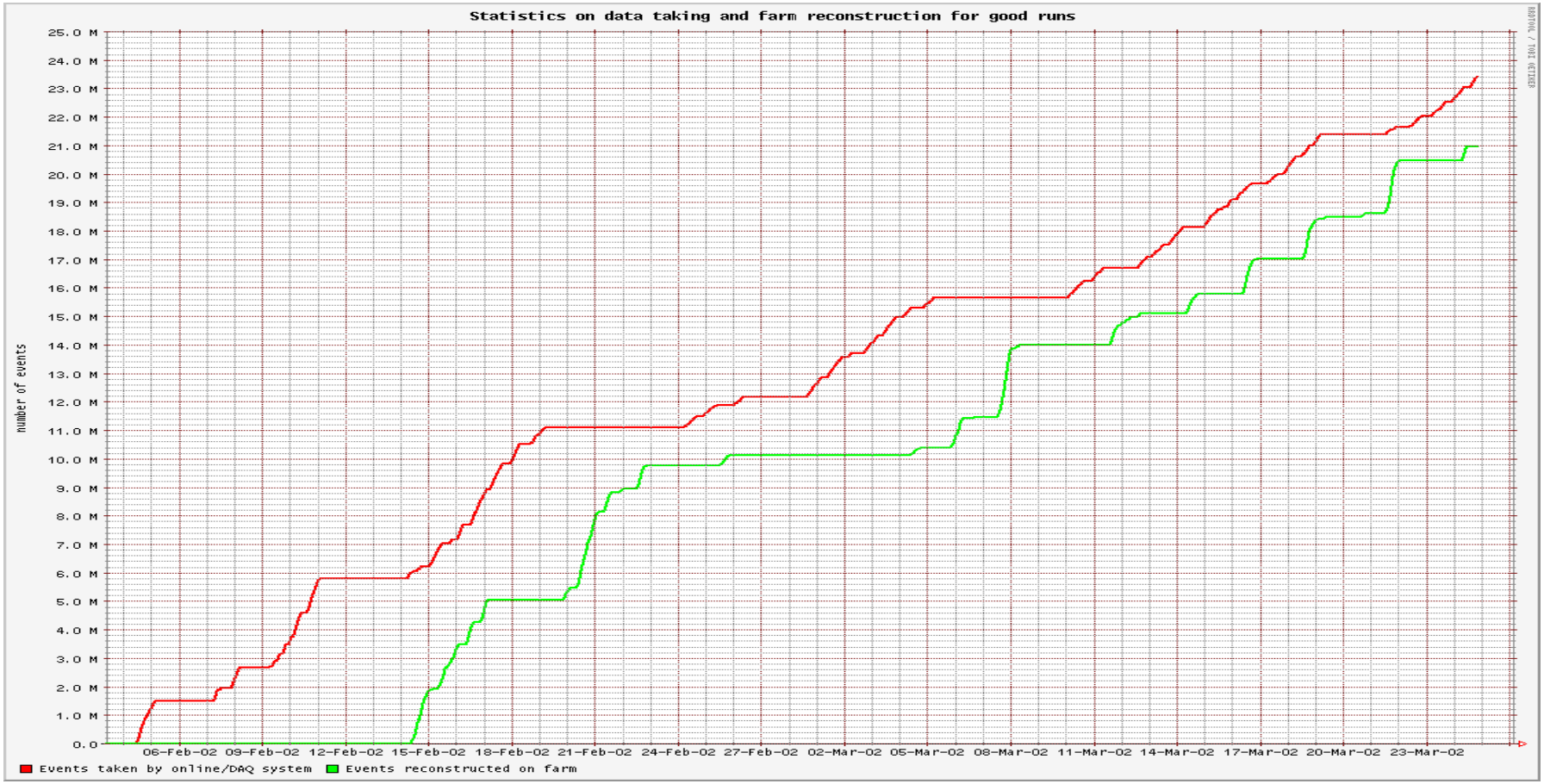
- Beam spot moved up by ~400μm effective Thursday (Store 1113)
- Reason was orbit smoothing
- Requires new SVT maps



Status of Production Farms

Arnd Meyer
(Fermilab)
Mar 25, 2002

- In general keeping up with data taking
- Certain offset between logging and production expected due to
  - Insufficient data to fill a tape
  - Incomplete calibrations



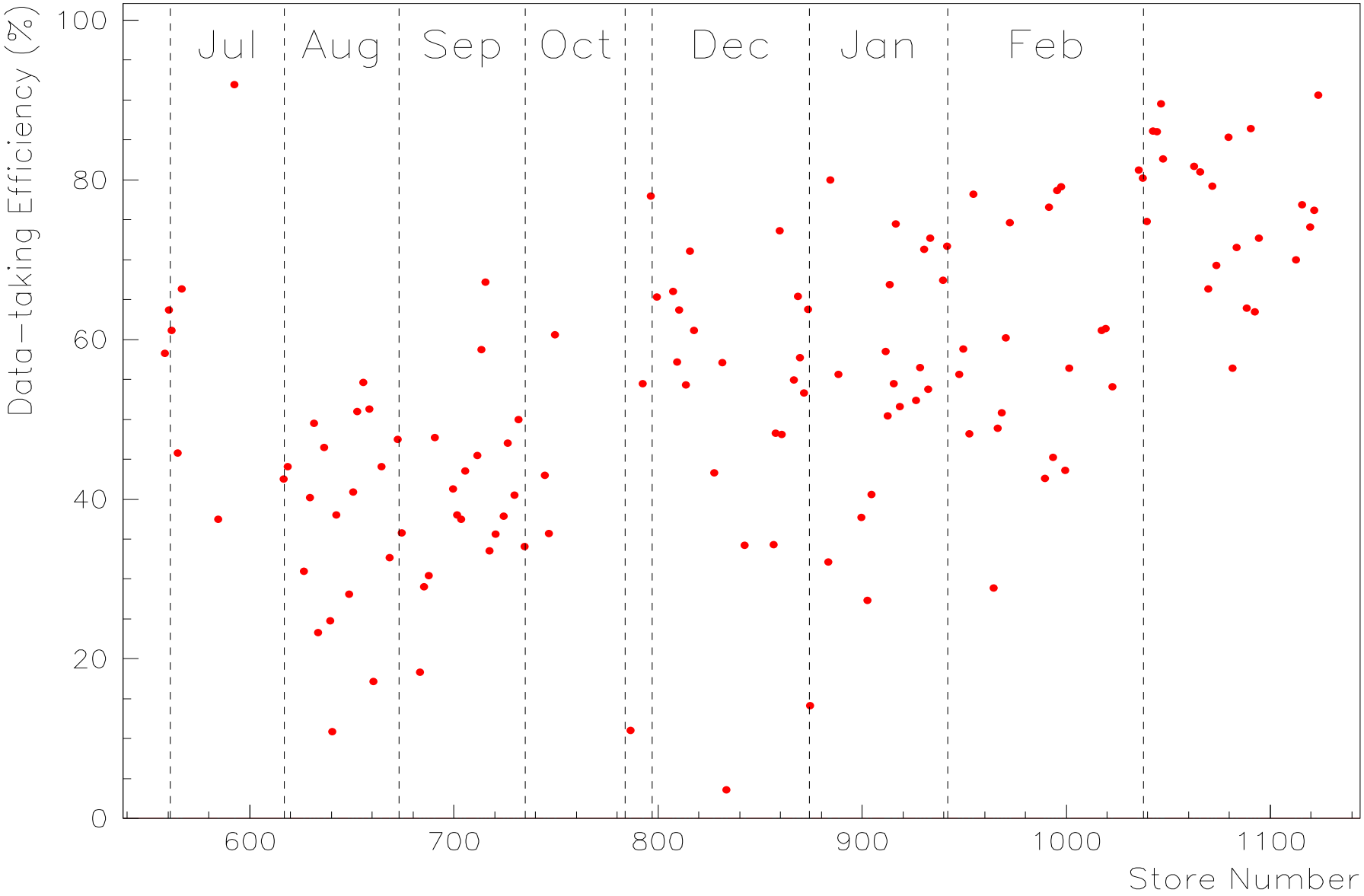
Data Integrity

Arnd Meyer
(Fermilab)
Mar 25, 2002

- Data corruption
  - "Reformatter errors": corrupted data (predominantly from Silicon) cause events to be rejected. Many improvements to get this under control
    - Procedures for shift crew how to react if error rates change
    - Automatic monitoring and warning
    - Improve monitoring for faster identification of offending detector parts
    - Logging of instantaneous error rates into database
    - Logging of error events
  - Incomplete events (very rare): a certain failure in VME readout boards causes events to miss data from parts of the detector. These events should have never made it to tape - failure is understood and will be fixed
- Level 3 Filter failures
  - Discovered bugs (features) in filter framework that caused events to fail e.g. high E_t electron filters, at % level
  - Improving L3 filter (and production) validation in order to faster catch such failures
  - Improvements to immediate-access data path

Data Taking Efficiency

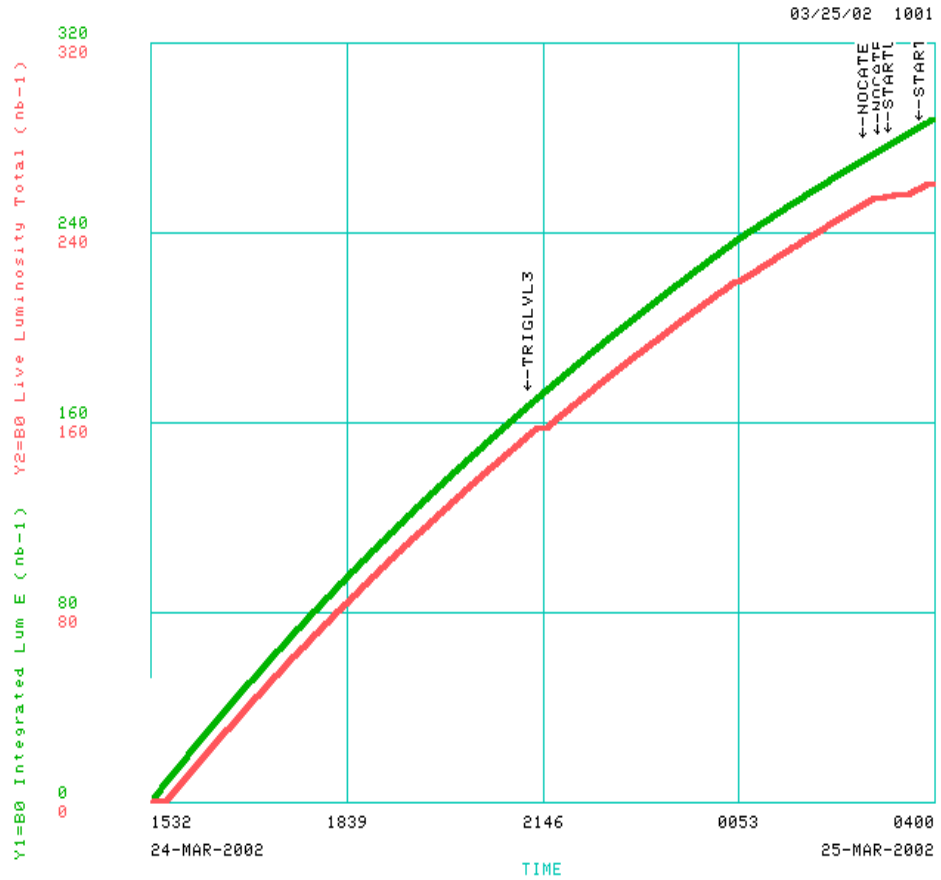
Arnd Meyer
(Fermilab)
Mar 25, 2002



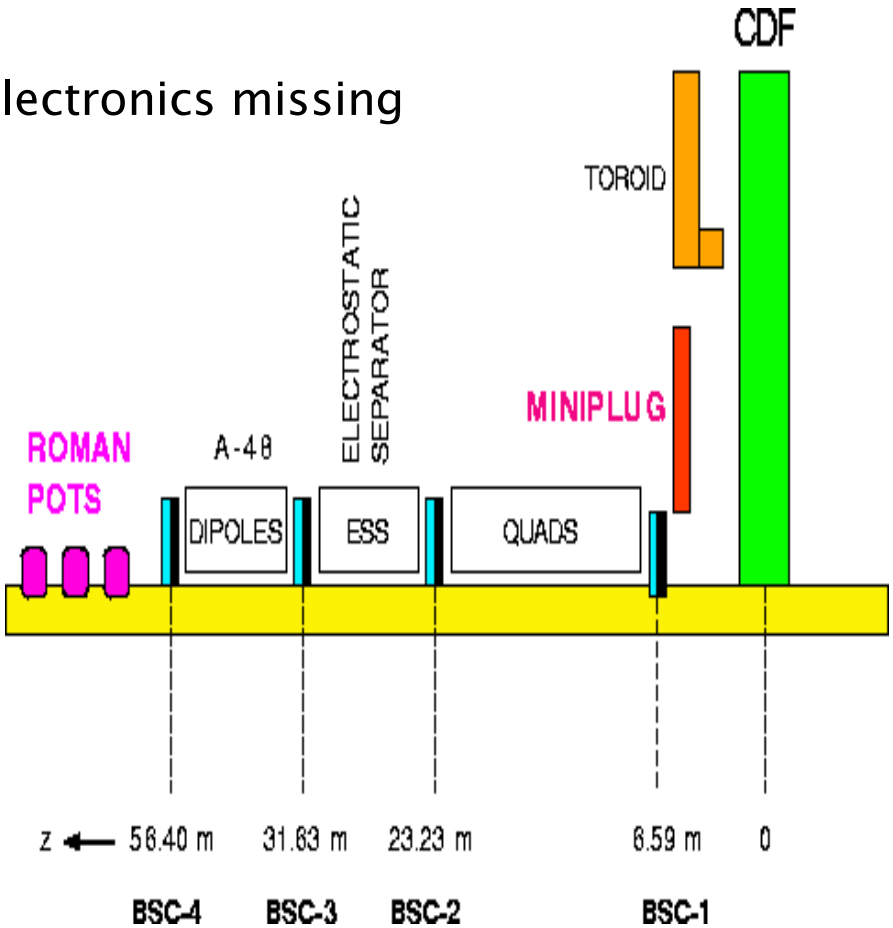
Sources of Downtime

Arnd Meyer
(Fermilab)
Mar 25, 2002

- Largest single source of downtime are Silicon calibrations taken during stores
- This will go away once we can leave the Solenoid up 100% of the time
- Lost several hours to Silicon operations problems: power supply controls, trips, data corruption, ...
- Slow startup: typically need 15min to start physics data taking at beginning of store
- Despite all this, can take >90% of delivered luminosity (a first, excluding commissioning data)



Forward Detectors

Arnd Meyer
(Fermilab)
Mar 25, 2002

- Commissioning of the forward detector systems is well under way
- Beam Shower Counters ($5.5<|\eta|<7.5$) for monitoring beam losses in operation since the commissioning run
- Miniplugs (lead/scint calorimeters) cover $3.5<|\eta|<5.5$, extending the coverage of the Plug calorimeters
  - Installed in November, some readout electronics missing
  - Commissioning under way
- Roman Pots (Run 1C), outgoing pbar side
  - 2/3 fully instrumented, trigger counters operational
  - Since last Thursday routinely operated by MCR
  - Timing scan last Thursday at end of store 1113
- Triggers (gap using BSC and MP, roman pots) being developed, soon in default trigger table