CMS and LHC Update

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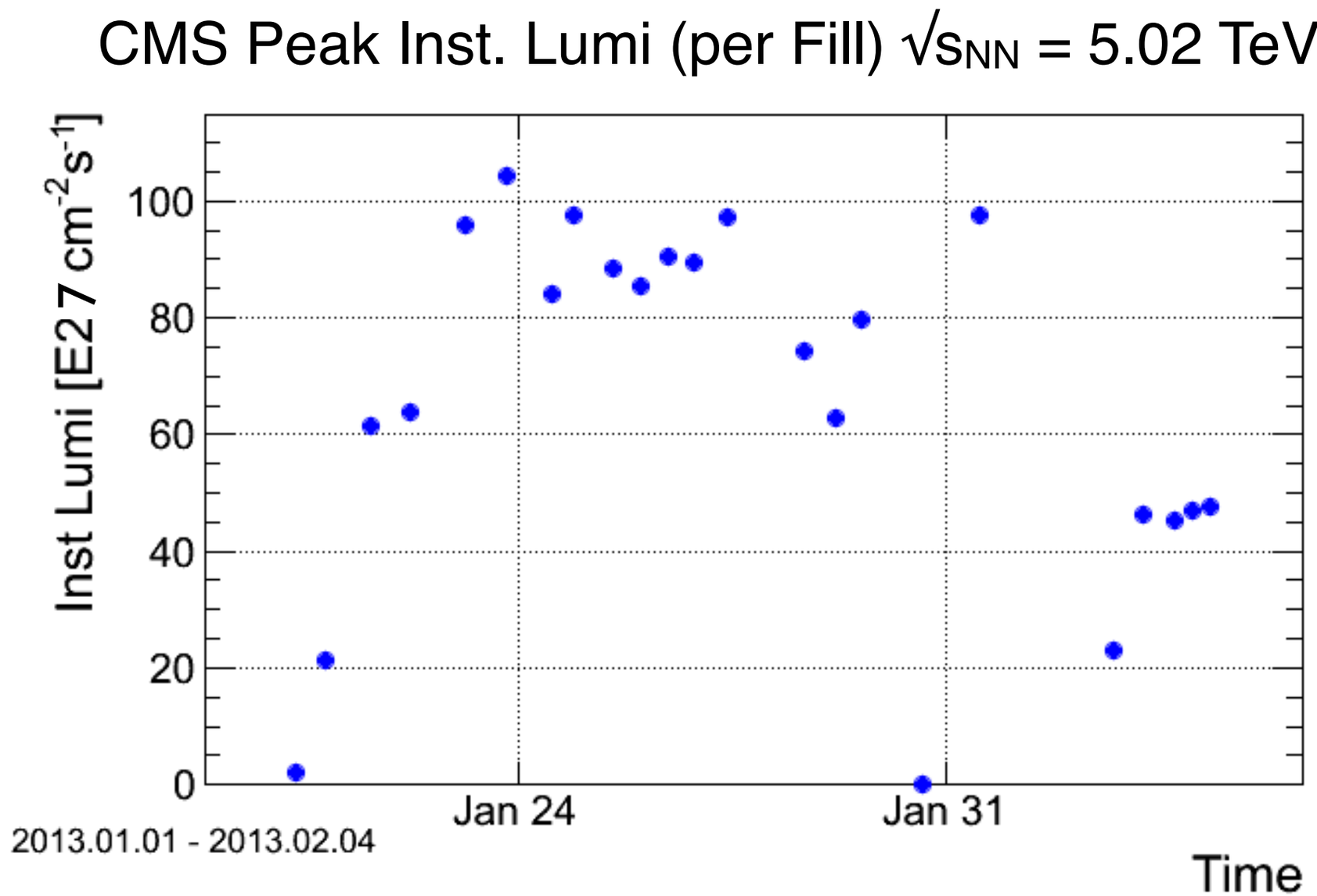
For the CMS Collaboration

All Experimenters' Meeting
4th February 2013

LHC Status (past month)

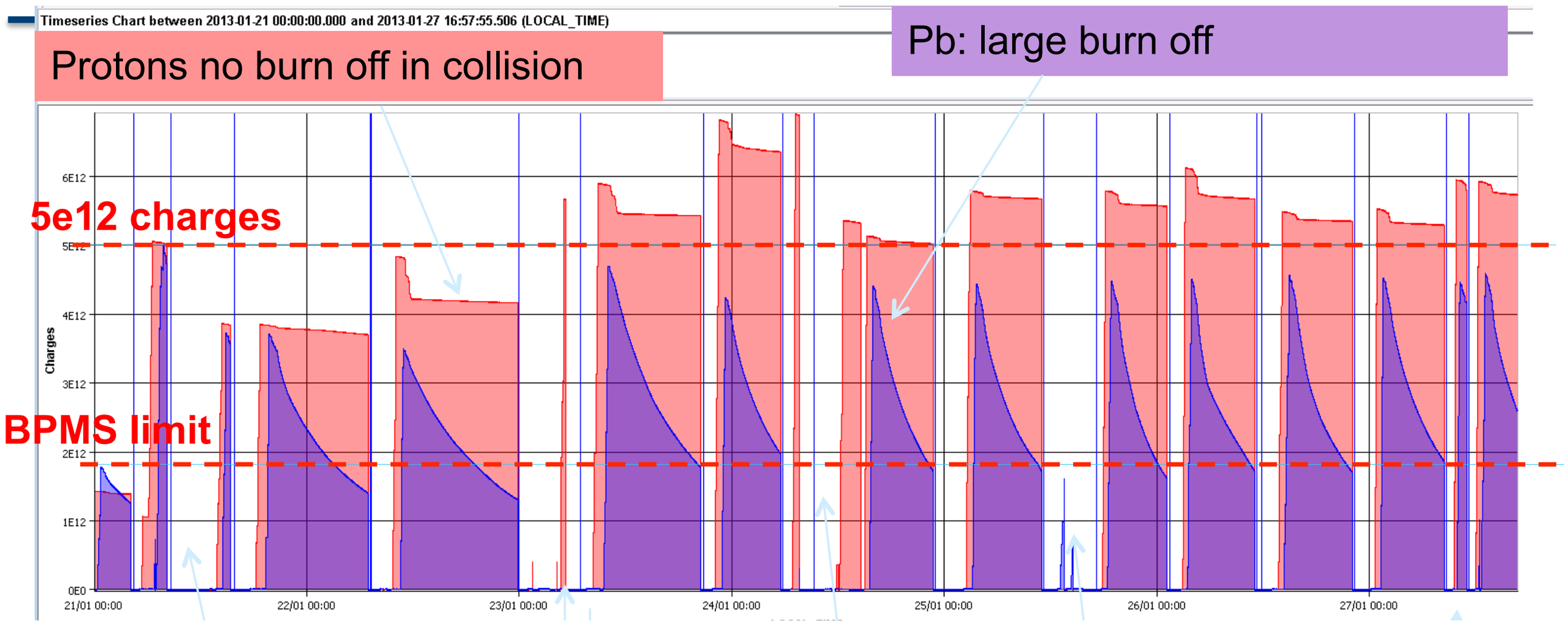
- First 2 weeks: standby over holidays, then recommissioning
- First p-Pb beams on 11th Jan
- First stable p-Pb beams on 20th Jan.

- Last 2 weeks: p-Pb data taking
  - VdM scan Jan 28
  - Reversed beams to Pb-p on Friday



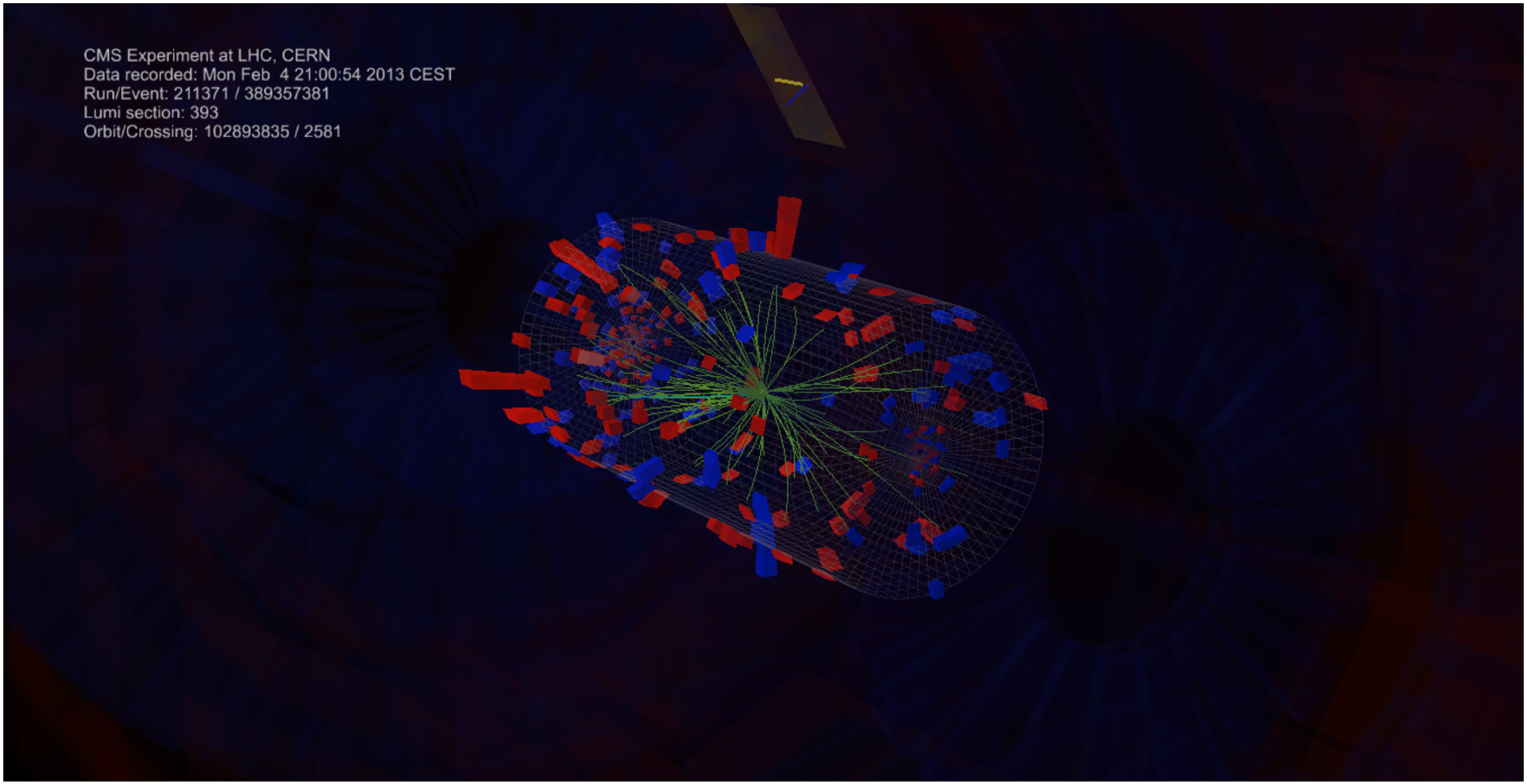
Beam currents

- The Lead beam burns off due to collisions. Proton beam is OK.
- When the Lead intensity is below ~2E12 beams are dumped
- At present this occurs after 6 hours
- Lifetime of the beams is ~6hours



CMS Activities

- Many updates to L1 trigger configurations, including prescales and firmware upgrade
- planning and commissioning for few days of pp collisions @ 2.76TeV

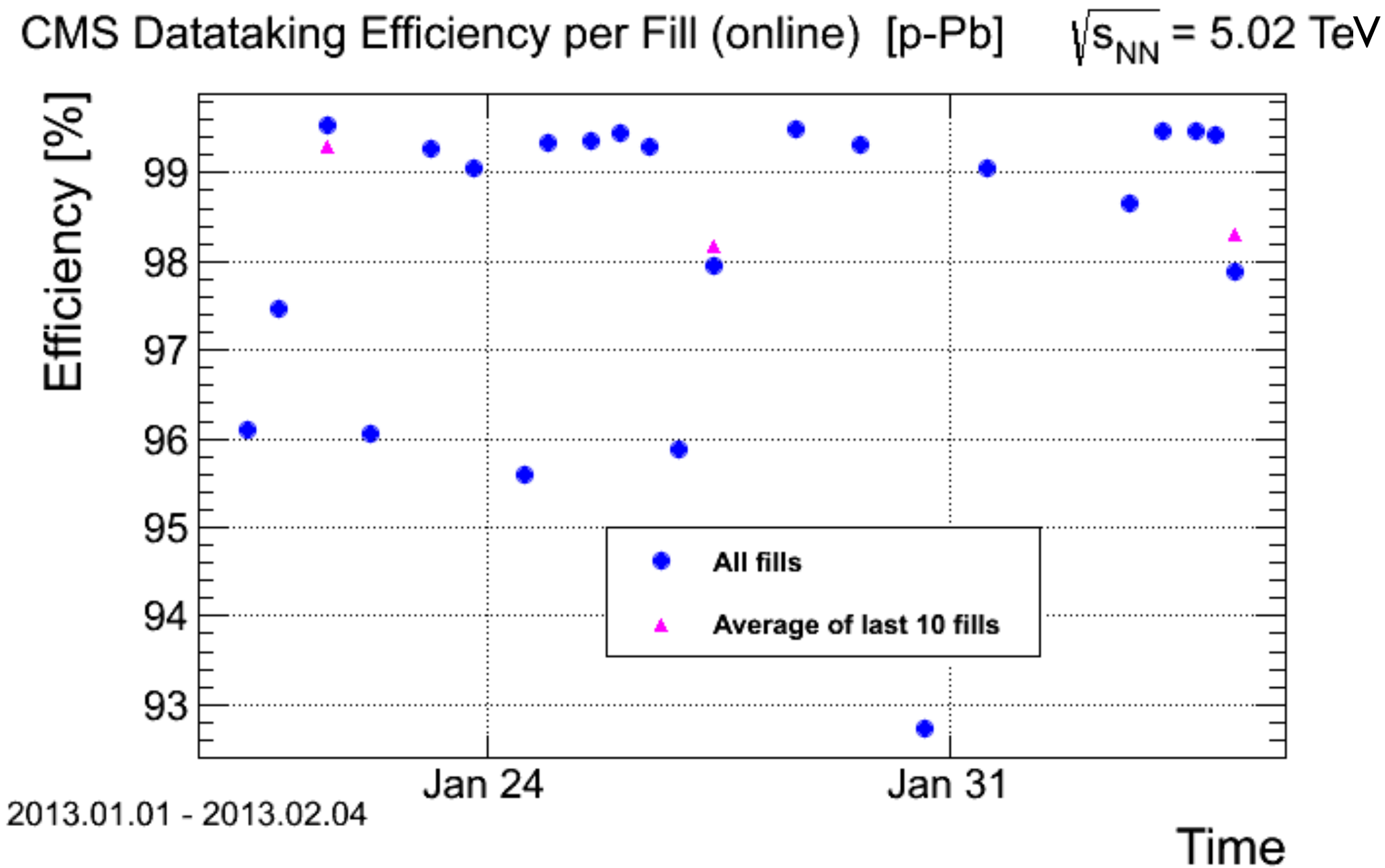


Summary of Fills

Fill	Begin Time YYYY.MM.DD HH:MM	Duration HH:MM	PeakInstLumi $\times 10^{30} cm^{-2} s^{-1}$ pp $\times 10^{24} cm^{-2} s^{-1}$ Ions	DeliveredLumi pb^{-1} pp μb^{-1} PbPb	RecordedLumi pb^{-1} pp μb^{-1} PbPb	EffByLumi %
3474	2013.01.20 14:08	01:59	1962	9.3	9.0	96.1
3478	2013.01.21 00:47	02:21	21219	152.0	148.2	97.5
3481	2013.01.21 19:47	10:11	61353	1221.4	1215.8	99.5
3482	2013.01.22 10:53	11:55	63744	1511.6	1452.0	96.1
3485	2013.01.23 10:07	09:23	95927	1867.3	1853.8	99.3
3486	2013.01.23 23:06	05:28	104257	1332.3	1319.8	99.1
3489	2013.01.24 15:53	05:49	84059	1115.0	1065.8	95.6
3490	2013.01.25 03:28	06:30	97599	1417.6	1408.1	99.3
3493	2013.01.25 18:49	05:17	88413	1005.3	998.8	99.4
3494	2013.01.26 03:46	06:20	85333	1182.8	1176.3	99.5
3495	2013.01.26 14:54	06:12	90419	1187.5	1179.2	99.3
3496	2013.01.27 01:24	06:01	89468	1188.8	1139.9	95.9
3498	2013.01.27 12:59	06:12	97101	1284.8	1258.4	97.9
3503	2013.01.28 19:37	06:45	74245	962.1	957.3	99.5
3505	2013.01.29 07:43	07:07	62775	1048.4	985.6	94.0
3506	2013.01.29 19:40	07:09	79517	1191.6	1183.4	99.3
3509	2013.01.31 02:06	10:60	86	2.2	2.1	92.7
3510	2013.02.01 04:00	04:27	97548	1039.6	1029.7	99.1
3516	2013.02.02 19:43	01:23	23127	91.5	90.2	98.6
3520	2013.02.03 06:35	04:26	46354	471.1	468.6	99.5
3522	2013.02.03 19:52	04:14	45412	410.7	408.5	99.5
3523	2013.02.04 02:51	04:23	46956	438.3	435.9	99.4
3524	2013.02.04 10:14	03:48	47738	350.2	342.8	97.9
3525	2013.02.04 17:52	01:31	93022	419.0	414.7	99.0
Summary		139:50	104257	**20900.5**	**20543.8**	**98.3**

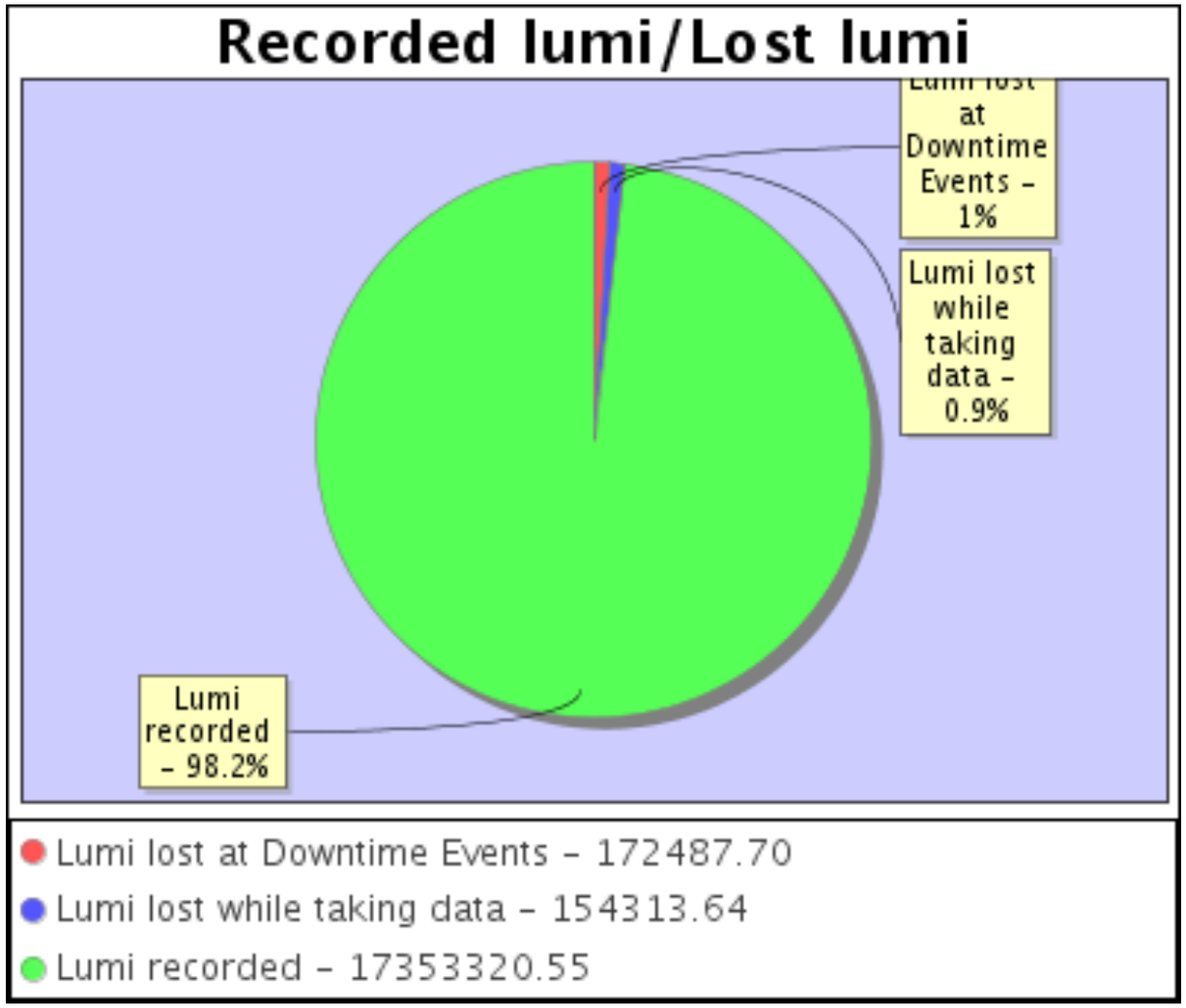
- Last few fills ~4h because of instabilities in the orbit feedback system

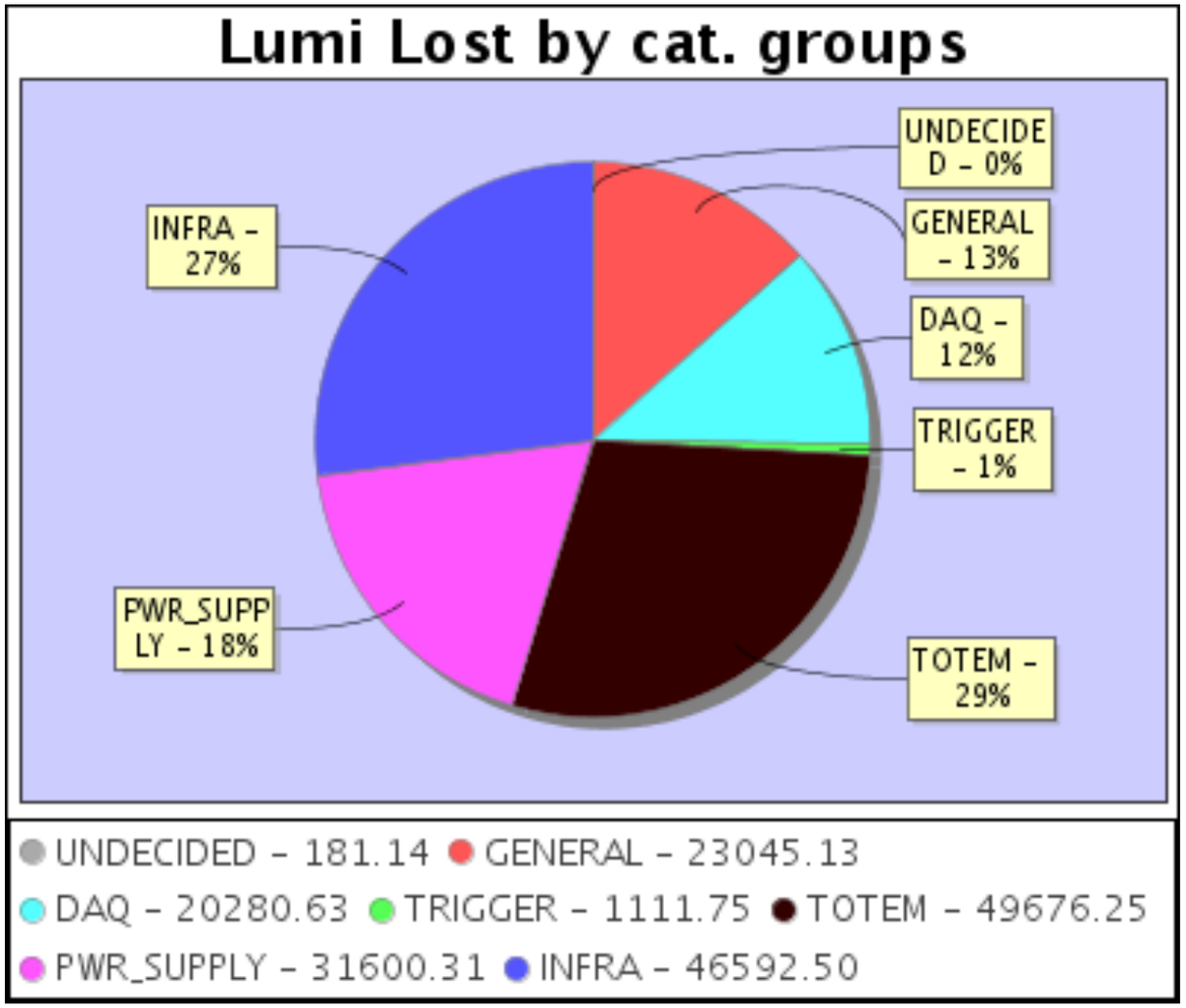
Efficiency



- Luminosity weighted average efficiency is 98%

Downtimes (past month)

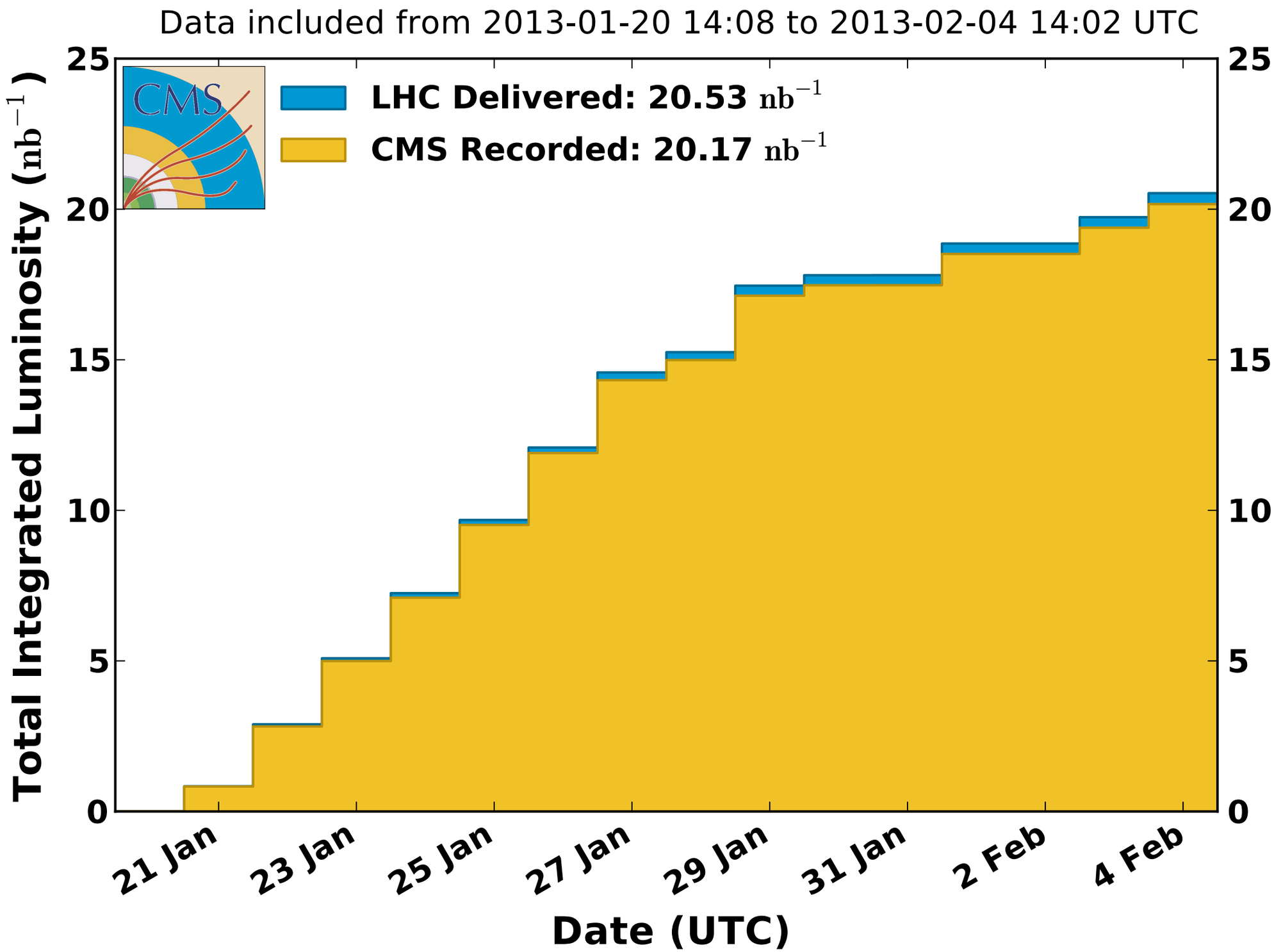


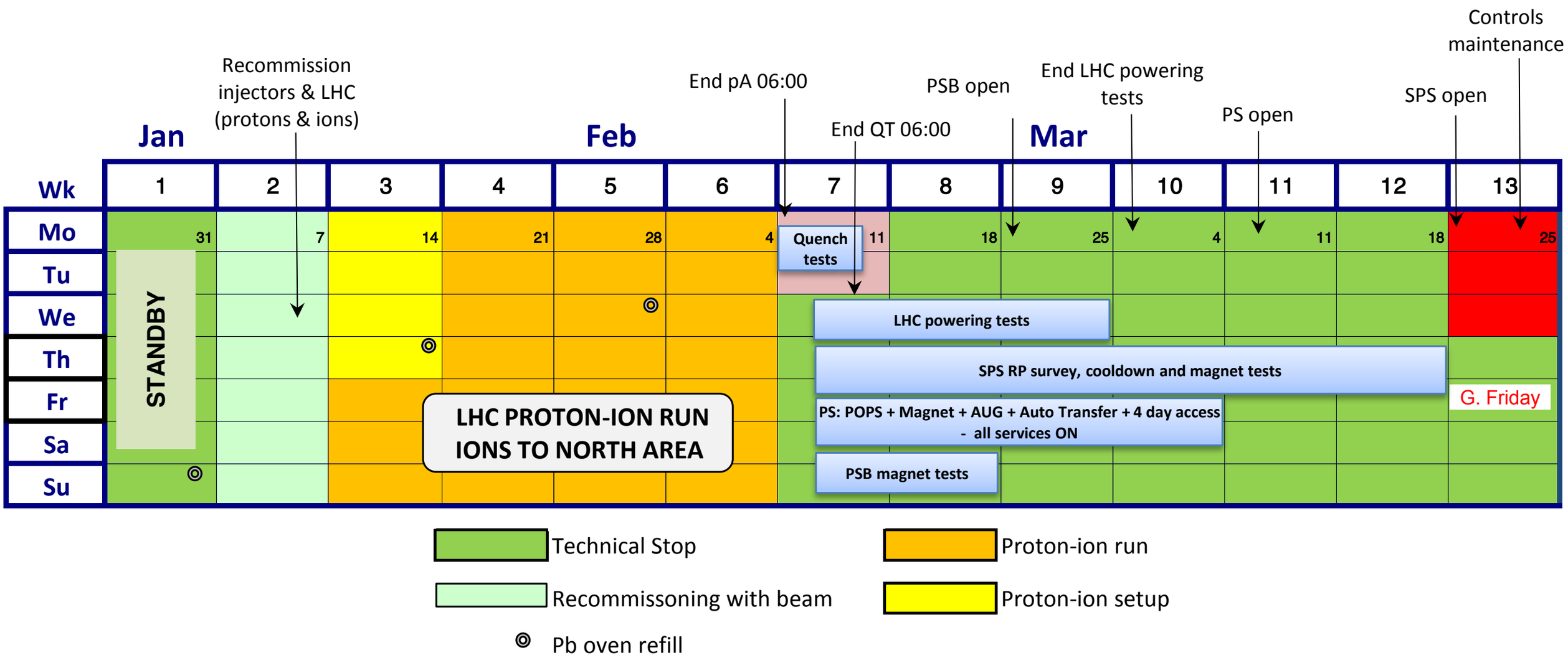


- 98% lumi recorded, 1% down time, 1% DAQ/Trigger dead time
- Largest sources of lost luminosity:
  - 29% : TOTEM (high rate in trigger commissioning crashed run)
  - 27%: Infrastructure (network issue prevented ECAL from reconfiguring)

Integrated luminosity

CMS Integrated Luminosity, pPb, 2013, $\sqrt{s} =$ 5.02 TeV/nucleon



Plan

- End of the run on 11 February 2013 at 6am
- Then Long Shutdown 1 (LS1) through 2014
- Before shutdown, ~3 day p-p run planned at $\sqrt{s}$=2.76TeV to collect 6/pb
  - Still to be decided when to switch from Pb-p to p-p to try to achieve this