

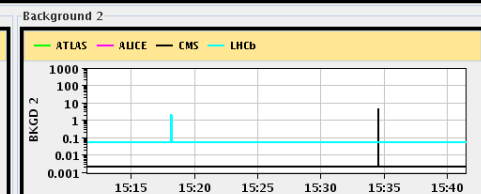
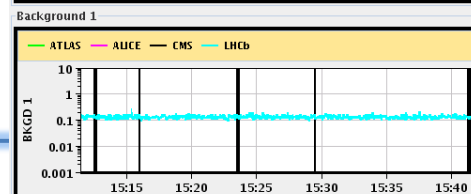
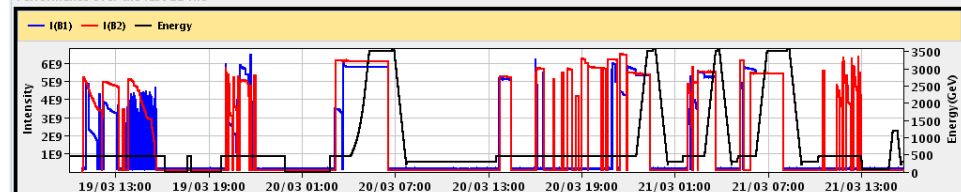
Week-end 19-22/3/2010

- Some ramps to 3.5 TeV. Unfortunately all coasts terminated prematurely, with the exception of last one (only with 1 beam):
 - Trip of the trim quadrupole circuits induced by the tune feedback → see later
 - Trip of power converters (RCBYHS4.R2B2)
 - Current lead temperature sensor on IT.L5
 - Spurious dump (no interlock) on B1 (LBDS control problem)
- Some commissioning steps at 450 GeV :
 - LBDS and TI2 collimators setting-up
 - Cogging of the 2 beams
 - Transverse feedback setting-up
- Accesses:
 - Power converter repair (RCBYHS4.R2B2, RSD2.A78B1)
 - LBDS control card replacements
 - Inspection of current lead of RQTL9.R3B1 (temperature control and ice)

	ATLAS	ALICE	CMS	LHCb
Experiment Status	STANDBY	STANDBY	STANDBY	OFF
Inst Lumi/CollRate Parameter	0.000e+00		0.000e+00	0.000e+00
BRAN Count Rate	0.000e+00	6.430e+01	5.790e+00	4.137e+01
BKGD 1	0.002	0.018	0.001	0.141
BKGD 2	0.000	0.000	0.002	0.050
BKGD 3	0.000	0.008	0.003	0.038

LHCf STANDBY Count(Hz): 0.000 LHCb VELO Position **Red** Gap: 58.0 mm TOTEM: STANDBY

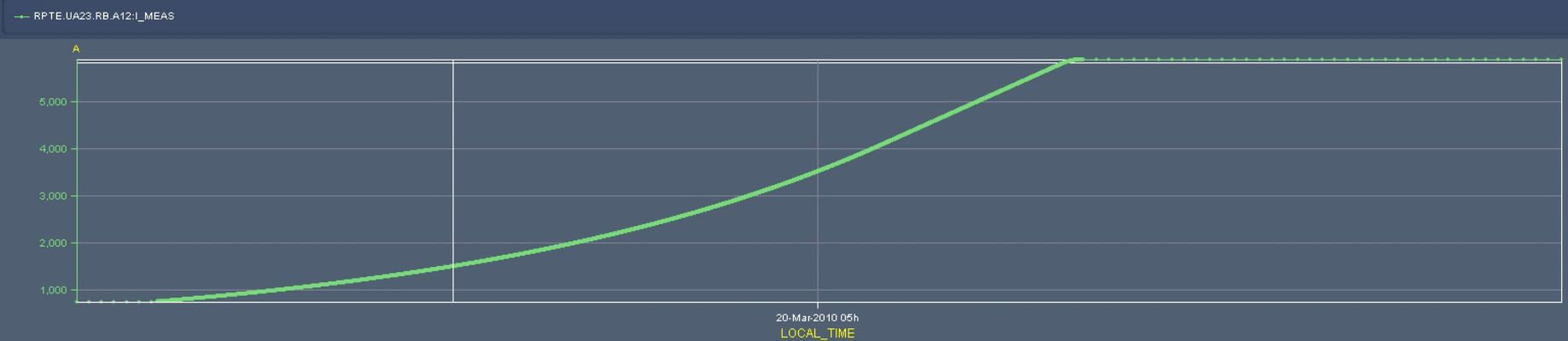
Performance over the last 12 Hrs



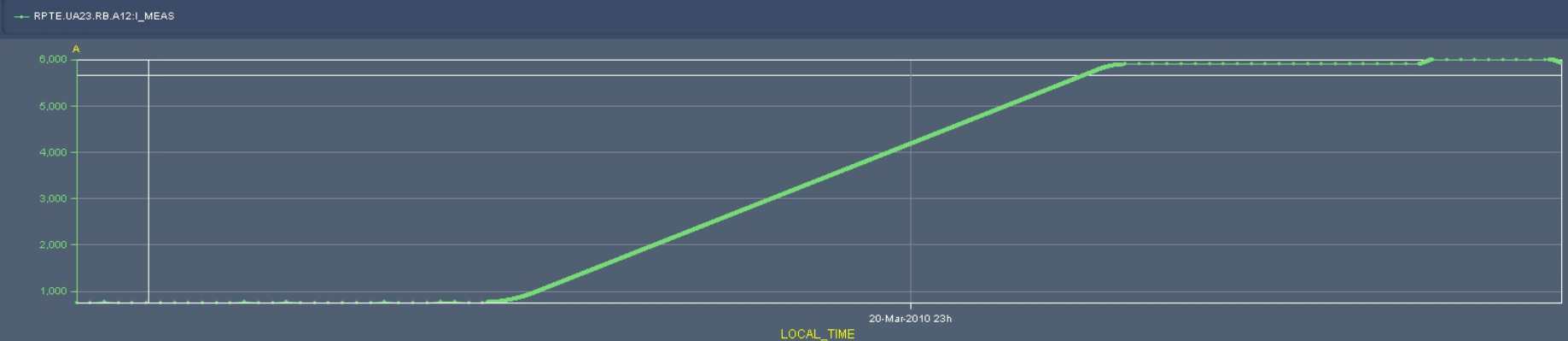
Week-end 19-22/3/2010

- Commissioned ramp to 3.5 TeV with reduced ramp time (parabolic-linear-parabolic instead of parabolic-exponential-linear-parabolic): **reduction by 27 min (Mike)**

Timeseries Chart between 2010-03-20 04:00:00 and 2010-03-20 06:00:00 (LOCAL_TIME)



Timeseries Chart between 2010-03-20 22:00:00 and 2010-03-20 23:59:00 (LOCAL_TIME)

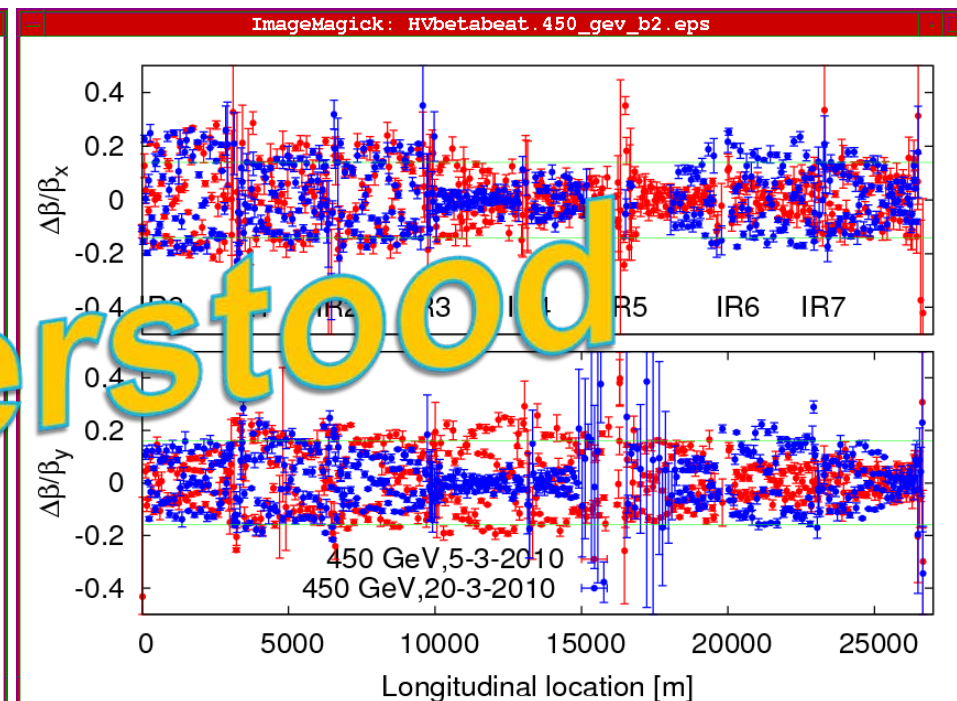
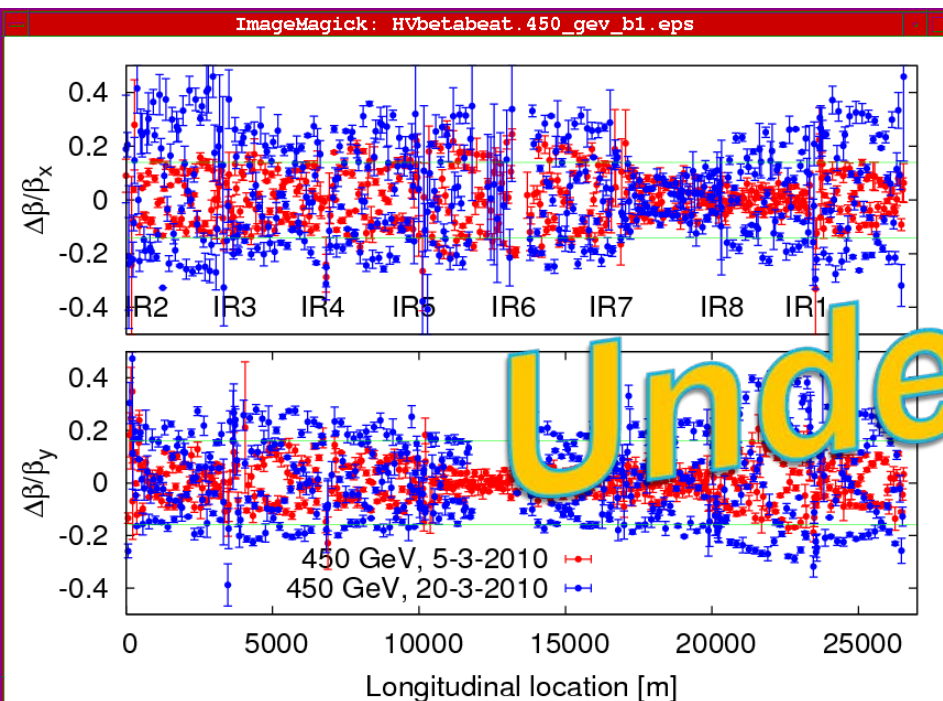


Week-end 19-22/3/2010

- β -beating measurement @ 450 GeV. Change observed on beam 1 as compared to 5/3

Beam 1

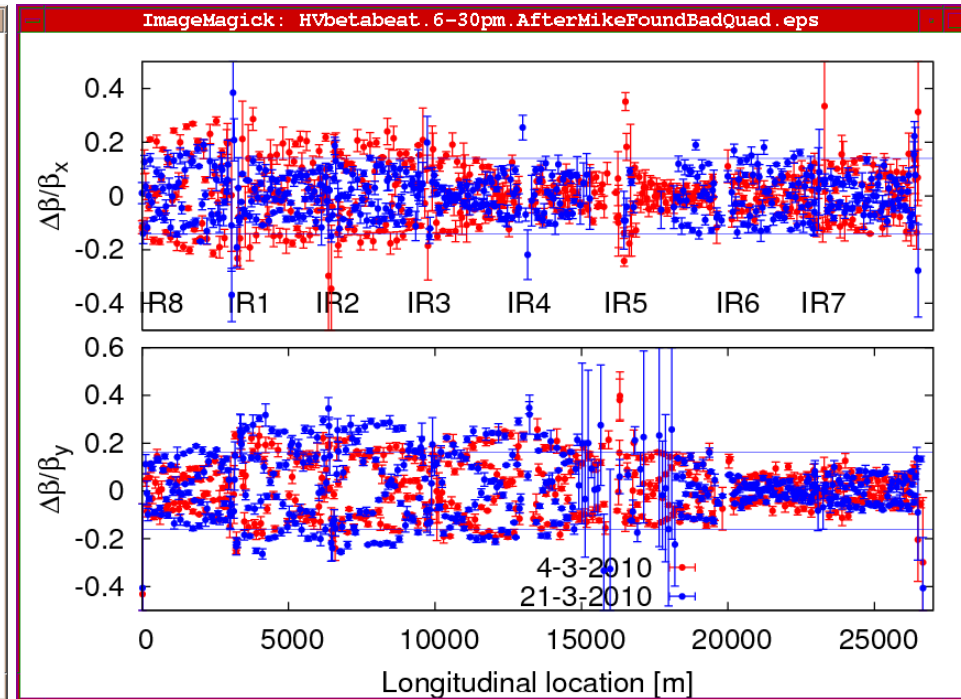
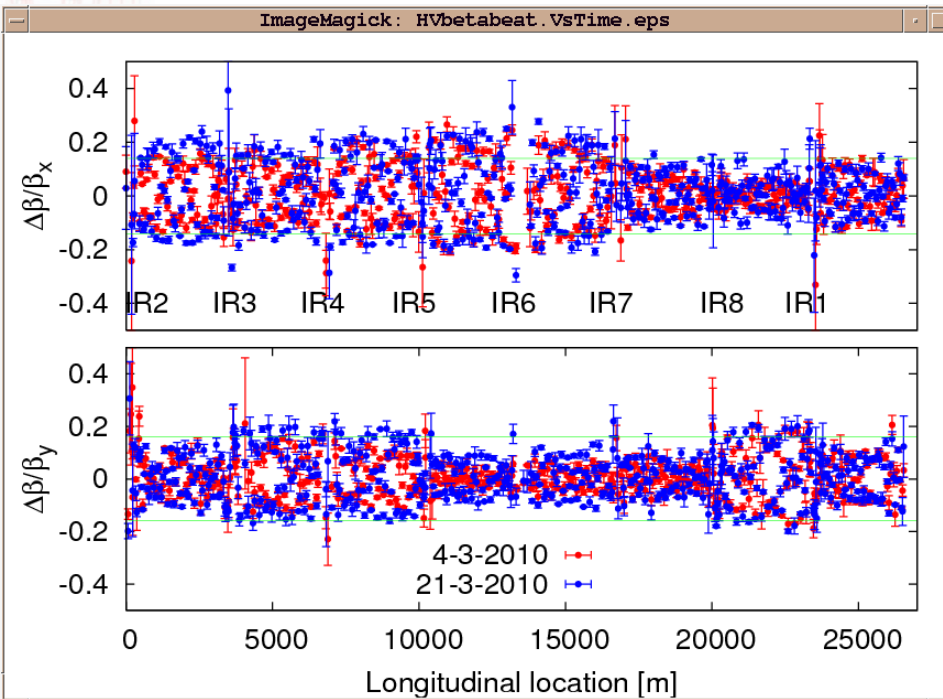
Beam 2



Understood

Week-end 19-22/3/2010

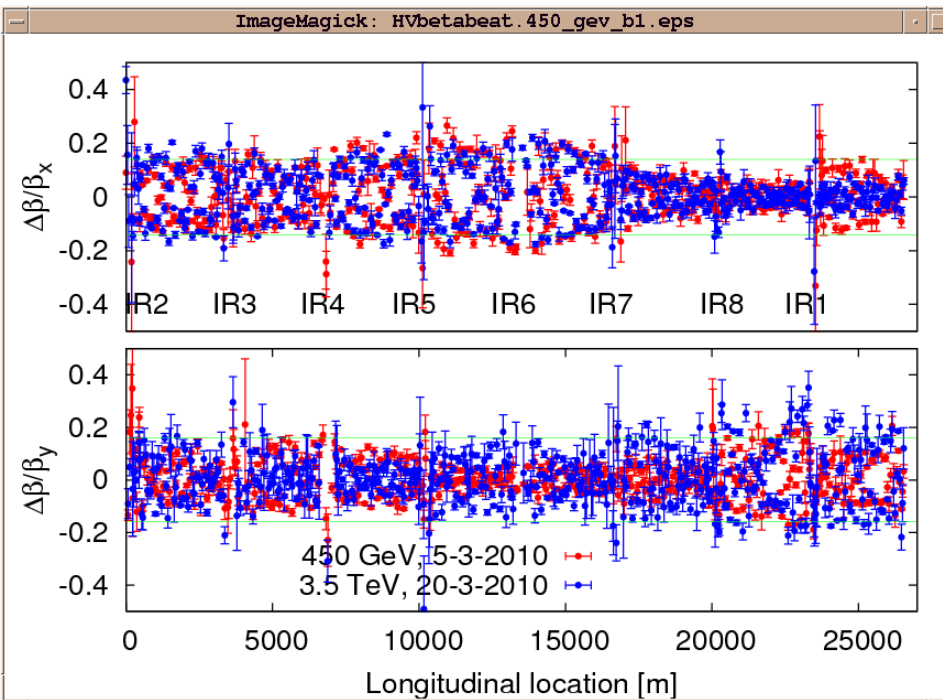
- After settings restore (Glenn, Mike)
- Beam 1
- Beam 2



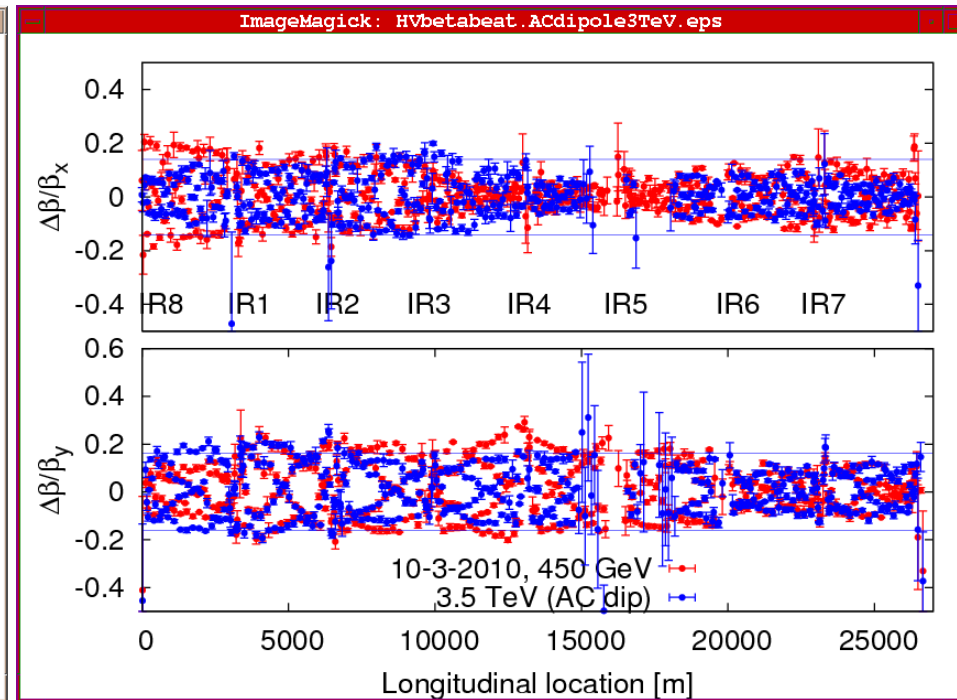
- Still some small difference (different b2 correction in the mean time and pre-cycles (triplets and main circuits))

Week-end 19-22/3/2010

- Preliminary β -beating measurements on B1 (AC dipole) after re-analysis (Glenn, Rama, Rogelio, Ryoichi et al.):
- Beam 1



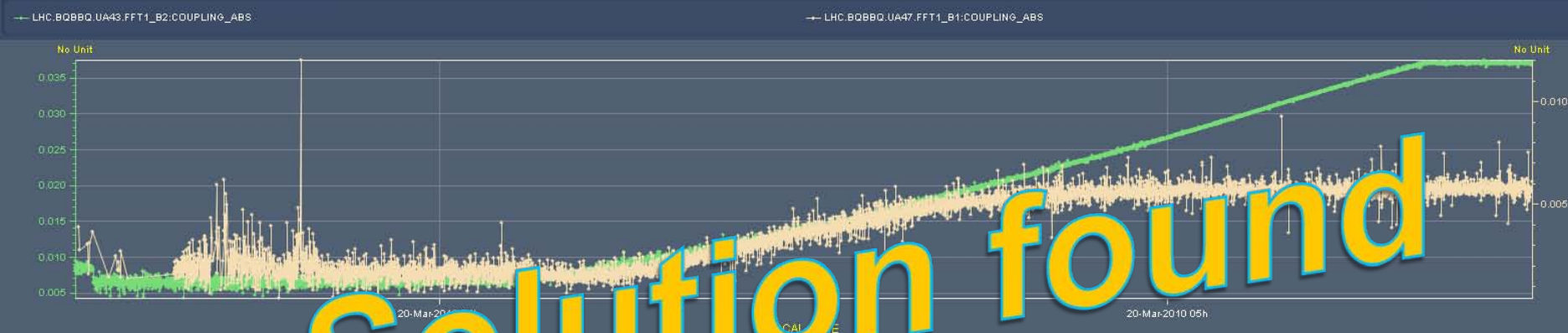
Beam 2



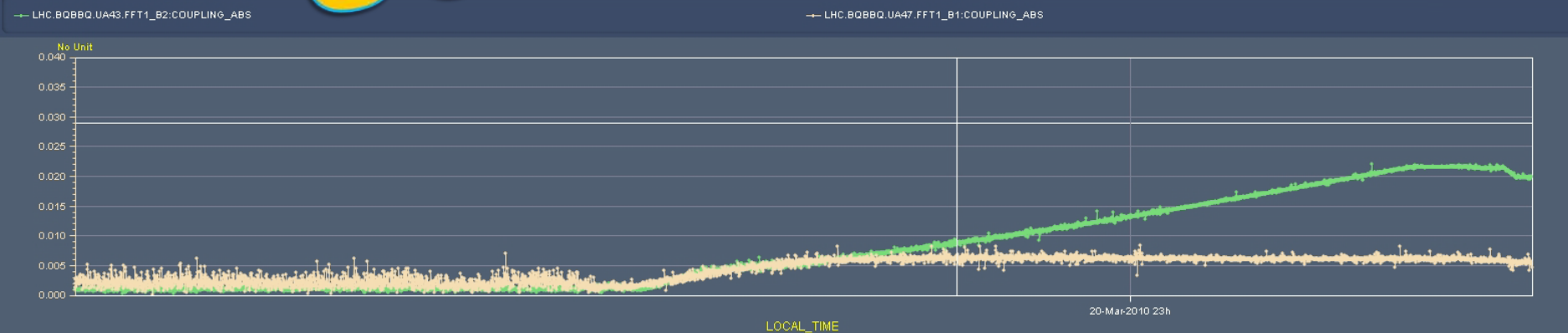
Week-end 19-22/3/2010

- Reduction of the coupling by a factor 2 obtained by feed-forward from previous ramps but not possible to correct completely → reaching maximum current on RQs (in some sectors, e.g. In Sector 78)

Timeseries Chart between 2010-03-20 03:30:00 and 2010-03-20 05:30:00 (LOCAL_TIME)

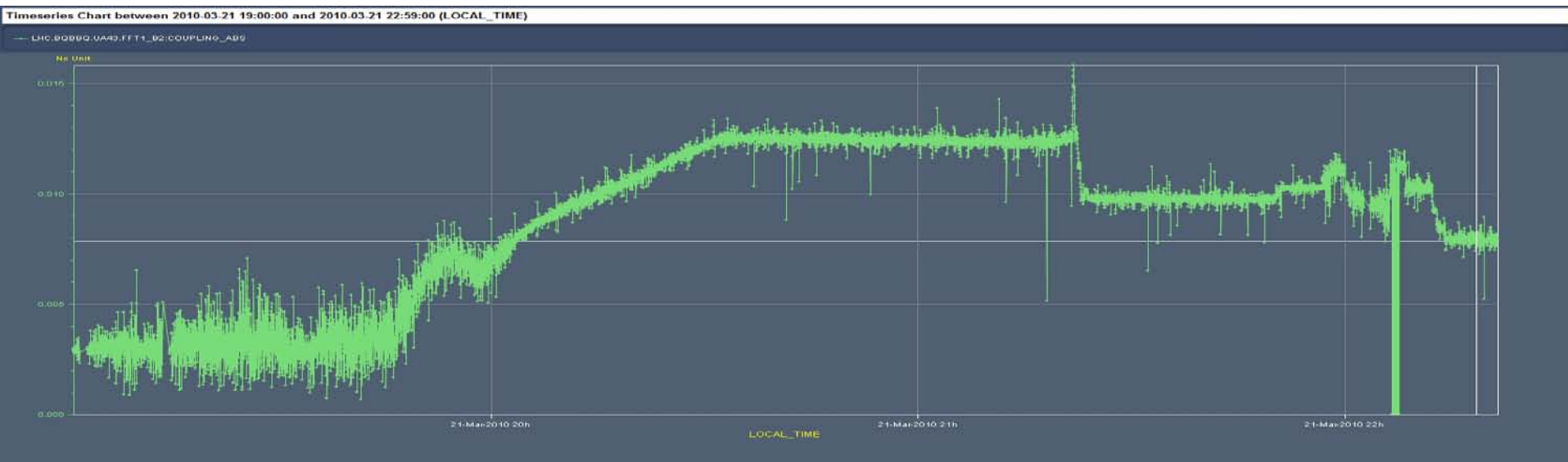


Timeseries Chart between 2010-03-20 22:00:00 and 2010-03-20 23:30:00 (LOCAL_TIME)



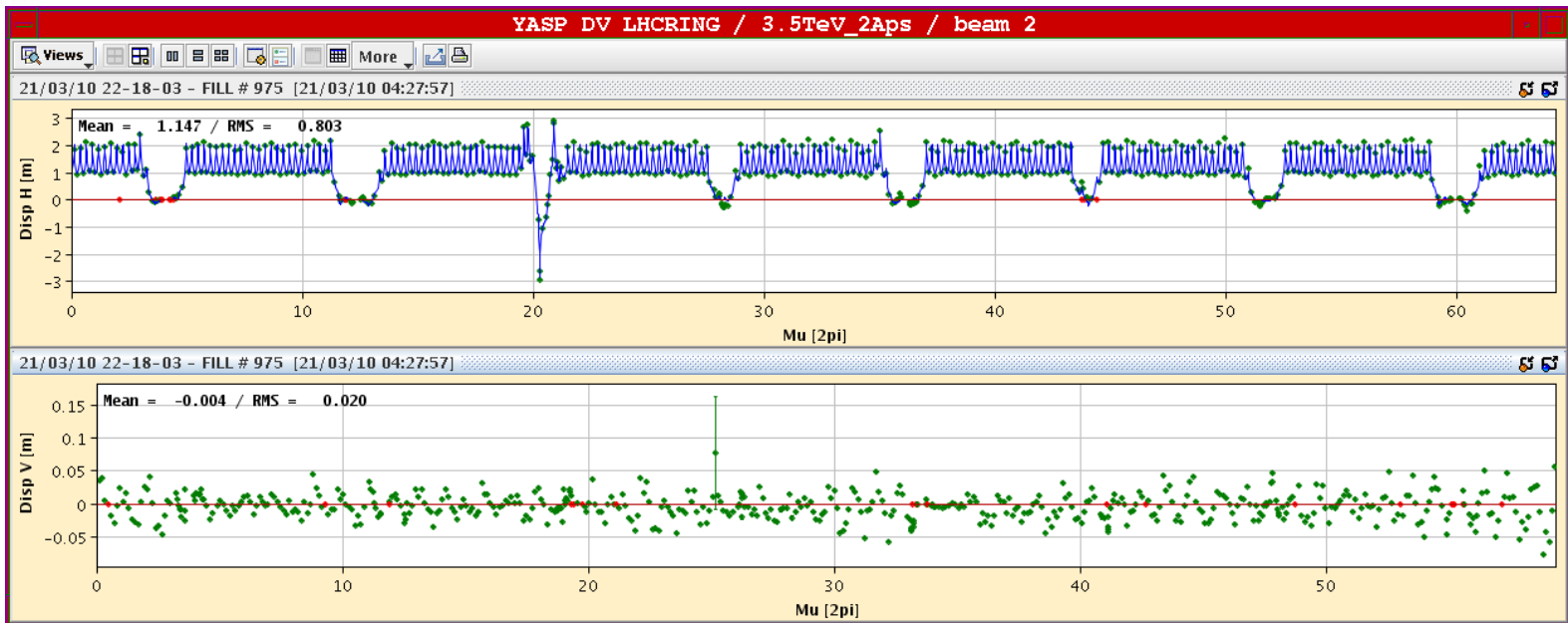
Week-end 19-22/3/2010

- Generation of a dedicated knob for the correction of a local source of coupling (**Rogelio**) → reduction of the required strength by ~factor 10 for some of the correctors. Managed to correct coupling down to ~0.008 with 1/10 of the maximum commissioning current strength.
- Coupling source localization and origin to be identified more precisely



Week-end 19-22/3/2010

- Profited of the first long-lived beam (unfortunately only one) to conduct optics measurements at 3.5 TeV
- Dispersion



- As well as tune, chromaticity, etc



Pending problems & statistics

- Instability of the QPS controllers for RQT12.L5B1, RQTL11.L5B1/B2 leading to trips during the pre-cycle → Suspended for the time being. QPS card or crate replacement is required → Access this morning
 - Intervention on current lead cryo-valve for RQTL9.R3B1 (pre-cycle suspended for the time being) → Access this morning
 - Need to intervene on tune feedback and or FGC to avoid too fast current changes leading to frequent trips of the RQTF/RQTDs
 - No temperature reading in the current leads of RSS.A56B2 -superlocked the circuit to get cryo conditons back → Access this morning

 - Machine availability: ~40%
 - Scheduled unavailability (mainly technical stop): ~50%
 - Un-scheduled unavailability: ~10%
-

Tune feedback - solutions

- Reduction of the correction by feed-forward (one iteration done)
 - RQT possible solutions (Quentin King)
 - Reduce the rate of change of voltage limit (VS.LIMITS.DVDT) for this type of converter (RPMBB);
 - Reduce the rate of change of current limits (LOAD.LIMITS.DIDT[0]) - **DONE**;
 - New version of FGC software: definition of a property to define the RT iteration period (1s in this case) and interpolate the RT value to reach the new value by the end of each period (already available for RF FGCs)
 - Limitation of the bandwidth at the source (BI - tbd)
-



Monday 23/3/2010

- 08:00 - 12:00 : Access in the LHC
 - 12:00 - 14:00: Recover and pre-cycle (possibility of access in the expt. Caverns until 13:00)
 - 14:00 - 20:00 : Injection setting-up and 3.5 TeV ramp + measurements at top energy with both beams
 - 20:00 - 02:00 : Collimators setting-up at 3.5 TeV
 - 02:00 - 07:00 : Orbit feedback - BPM interlock pt6 - TBC
-