CASTOR performance and development status

→ minimum bias analysis for $\sqrt{s}$ = 0.9, 2.36 and 7 TeV

→ inter- and absolute calibration, effects of magnetic field:
- halo muon castor calibration runs during injection+rump (part of castor acceptance)
- minimum bias analysis
- physics based (...)

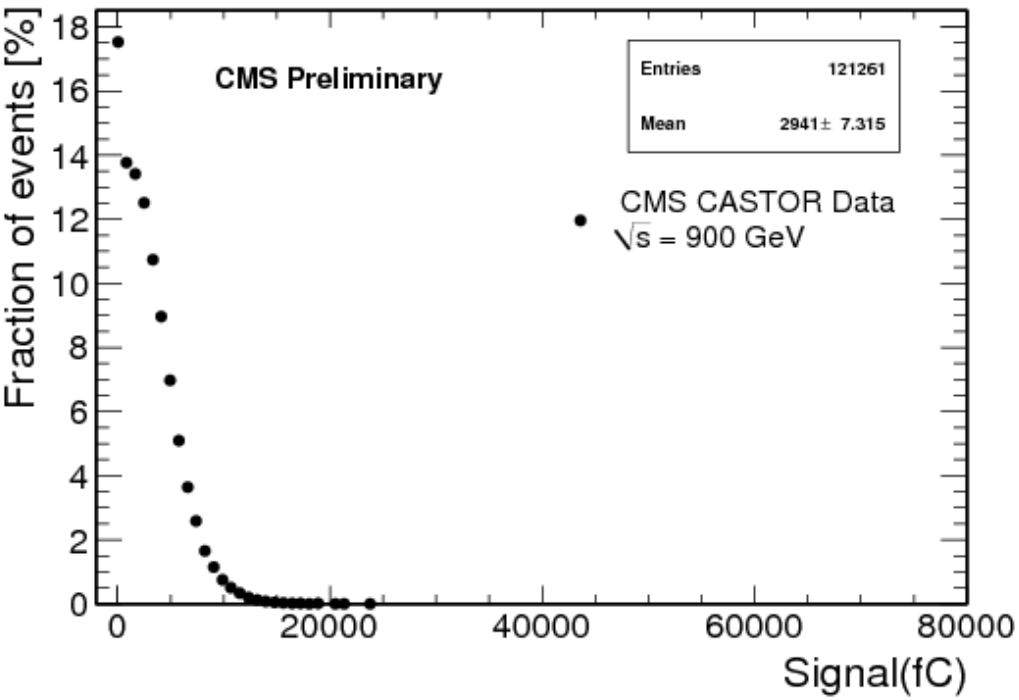
→ castor technical trigger L1Tech_CASTOR_HaloMuon
- ~5 times higher muon statistics compared to BSC2 trigger for the castor calibration runs
- adaptation for physics runs is ongoing

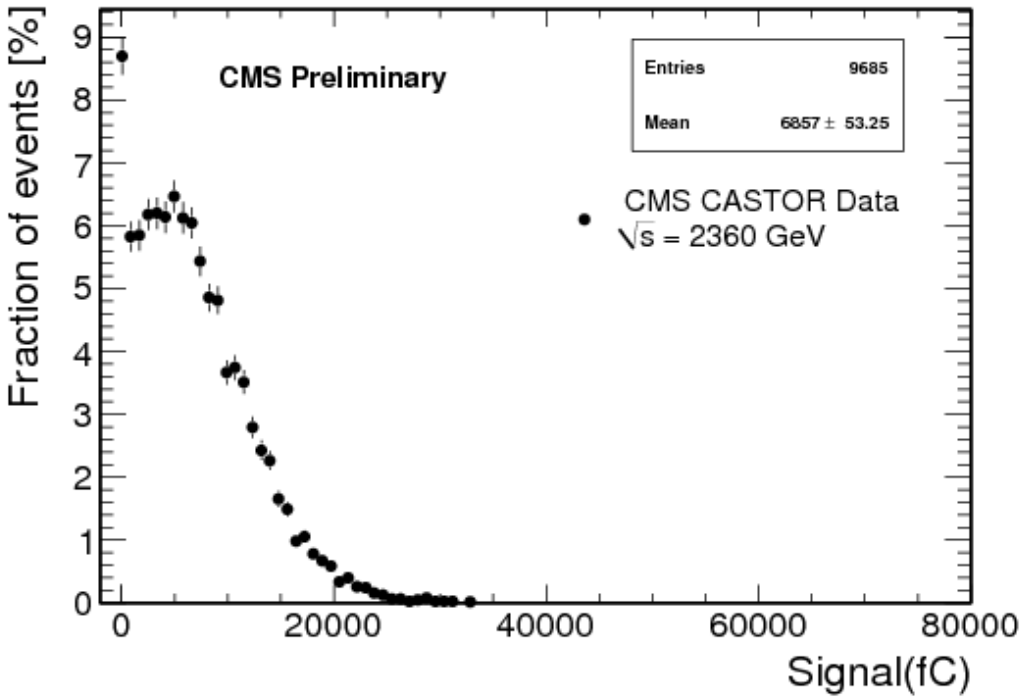
→ work on DCS/DAQ resulted in
- castor unattended operation
- deeper integration in HCAL

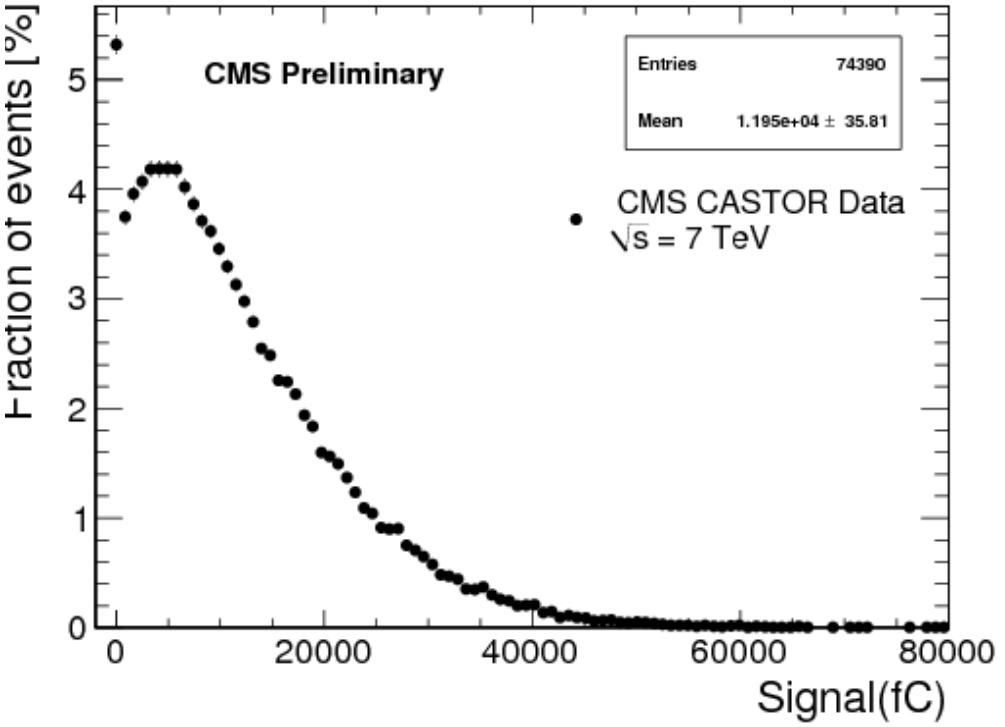
→ minimum bias analysis

for √s = 0.9, 2.36 and 7 TeV

Total charge (modules 1-5) without corrections



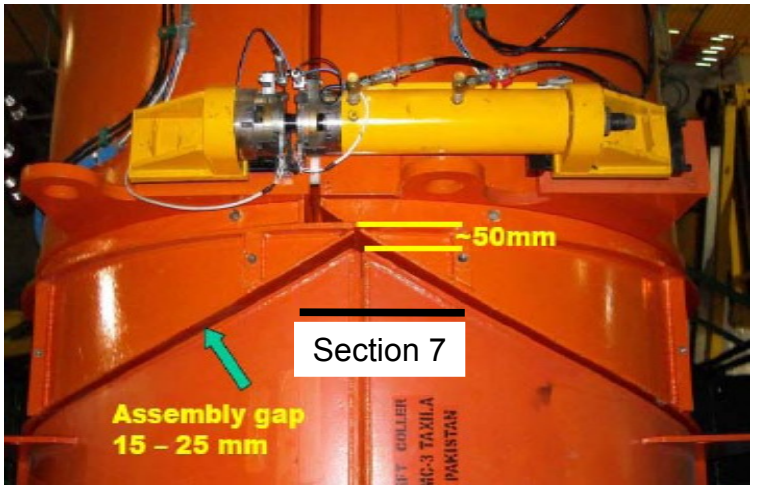




→ minimum bias analysis 7TeV
magnetic field influence

ratio of the average signals under 3.8T and 0T

Top view

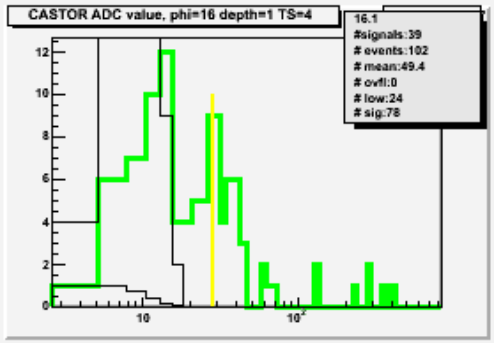


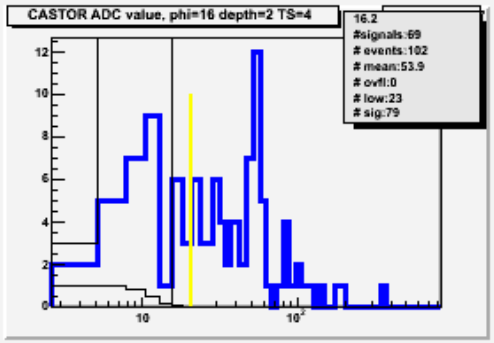
CMS preliminary

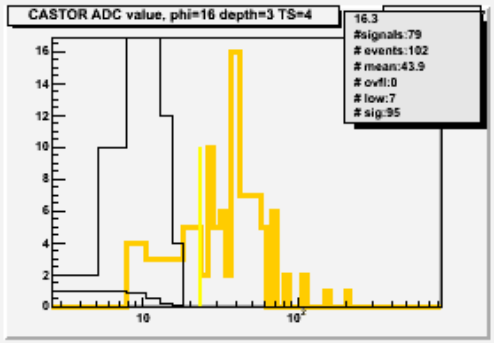
φ \ Z	1	2	3	4	5	6	7	8	9	10	11	12	13	14
16	0.96	1.03	1.06	1.10	1.44	0.71	0.03		0.79	0.92	1.00	1.09	1.12	1.06
15	1.06	1.00	1.0	1.11	1.32	1.44	0.02		0.89	1.01	0.98	1.03	1.09	1.10
14	0.93	1.02	1.07	1.06	1.35	0.60	0.04		0.82	0.94	1.13	1.12	1.21	1.3
13	1.01	1.05	1.05	1.15	1.48	0.21	0.03			0.87	1.03	1.13		1.21
12	0.99	1.10	1.12	1.10	1.10	0.17	0.00	0.00	0.67	0.86	1.07	1.05	1.16	1.21
11	0.99	1.00	1.10	1.14	1.31	0.28	0.01	0.02	0.81	0.99	1.06	1.01	1.08	1.10
10	1.10	1.06	0.99	1.06	1.08	0.34	0.01	0.69	0.98	0.98	1.01	0.95	0.99	1.19
9	0.99	1.00	1.03	1.09	1.01	0.33	0.02	0.76	0.83	0.95	0.95	0.98	1.03	0.96
8	1.03	0.85	0.94	1.00	0.91	1.14	0.02	0.77	0.78	0.88	0.95	0.93	1.03	0.95
7	1.01	0.90	1.00	1.01	1.03	0.20	0.01	0.60	0.84	0.78	0.88		0.90	0.95
6		1.14	0.95	0.90	1.23	0.32	0.02	0.02	0.75	0.76	0.89	0.76	0.80	0.94
5		1.00	0.95	0.95	1.2	0.49	0.07	0.01	0.04		0.82	0.68	1.06	1.03
4	0.93	1.01	0.94	1.01	0.90	0.58	0.03	0.00	0.02	0.78	0.85	0.94	0.96	1.06
3	0.98	1.00	0.97	0.94	1.08	0.60	0.03	0.03	0.42	0.78	0.93	0.96	1.08	0.89
2	0.94	0.88	0.98	0.96	1.02	1.48	0.07	0.25	0.79	0.85	0.83	0.96	0.99	1.00
1	1.11	0.95	1.01	1.11	1.06	1.91	0.04	0.72	0.83	0.96	0.92	0.98	0.99	1.06

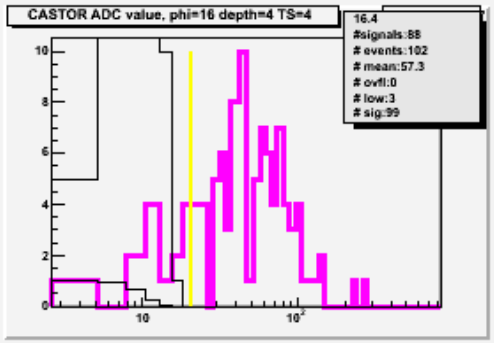
Minimum bias data: Run 133874 (Nominal B-field) / Run 133239 (No B-field)

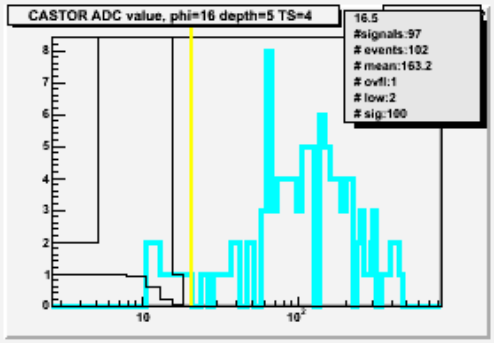
→ halo muon castor calibration runs during injection+rump

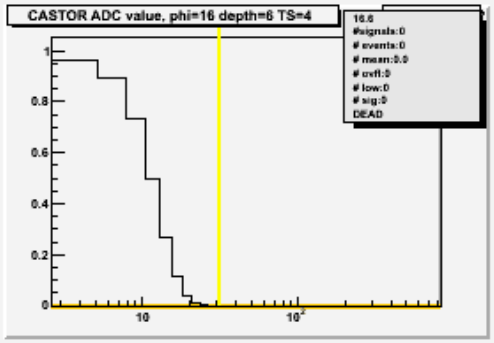


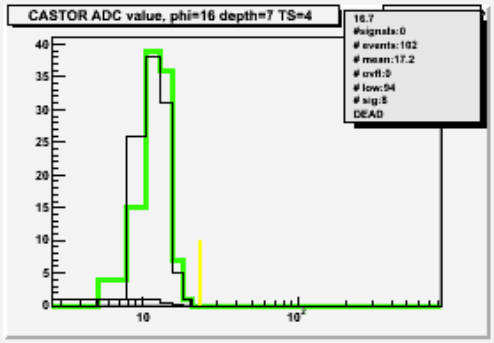


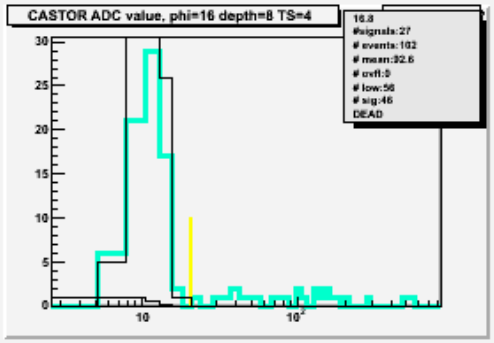


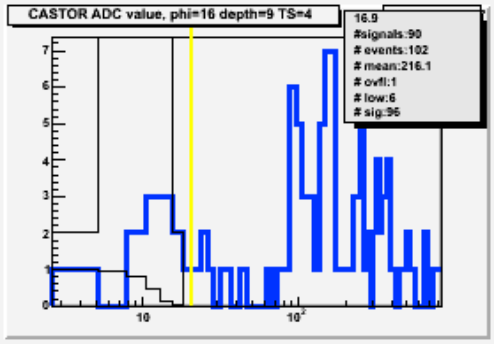


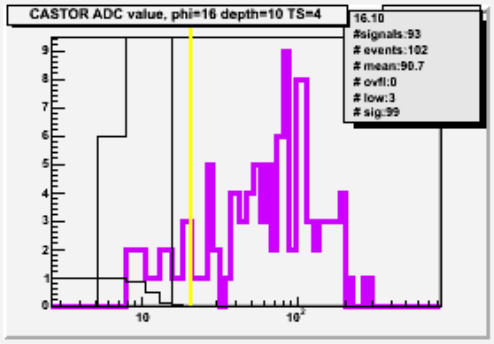


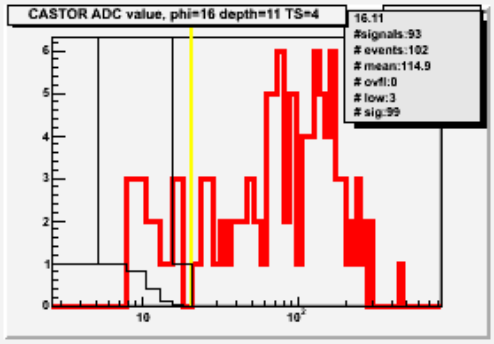


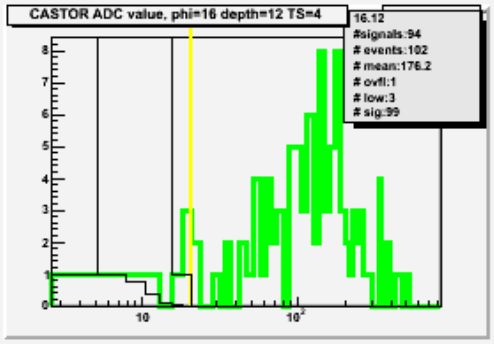


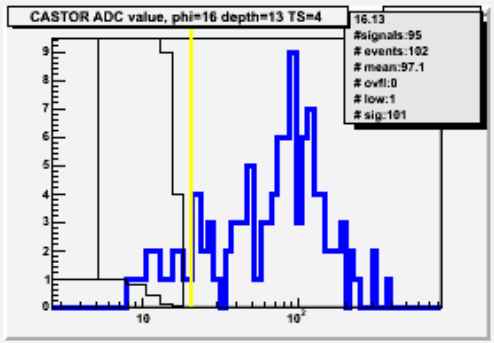


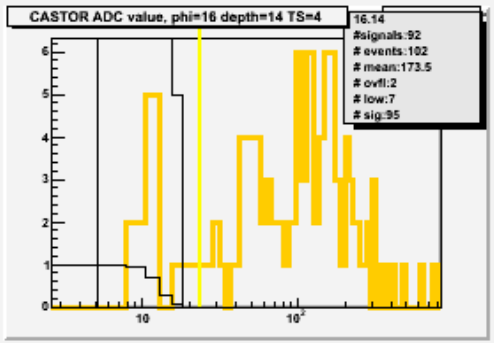








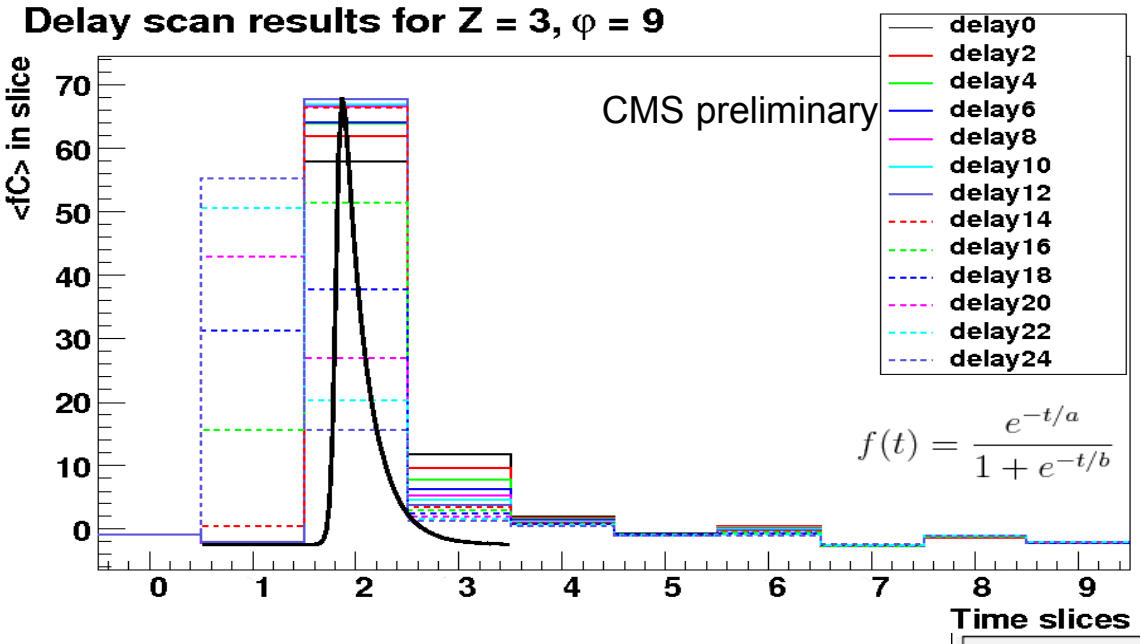
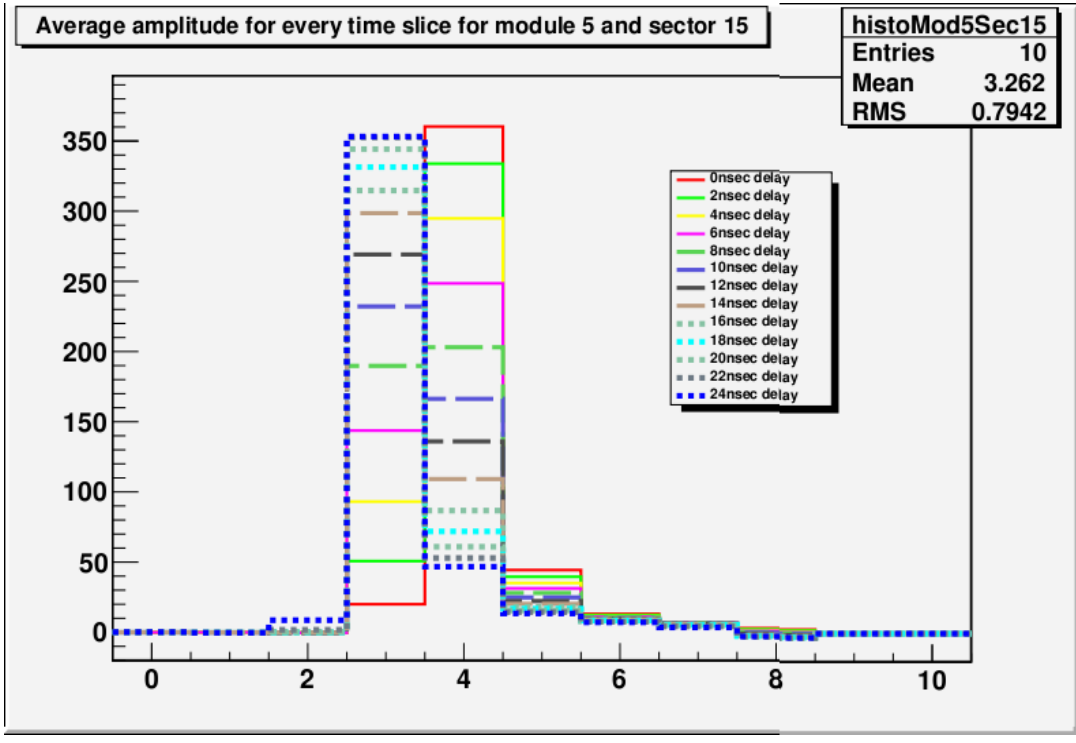




Signal in modules of an isolated sector: allowing two missing channels (except blind) in the sector

→ castor technical trigger L1Tech_CASTOR_HaloMuon:

- castor calibration runs results as input for the trigger development
- min 3 module through castor depth in an isolated sector
- full castor acceptance
- more strong selection (more pure events)
- in total ~5 times higher muon rates compared to BSC2 trigger
- regullar castor calibration runs also during MD: GT=*CastorZdcBsc2
- adaptation for physics runs is ongoing

→ recent update on the performance studies:

castor timing: delay scan results