



TRD Offline Operation

TRD Offline Operation Setup
TRD Gas Tightness
TRD Offline Data Analysis

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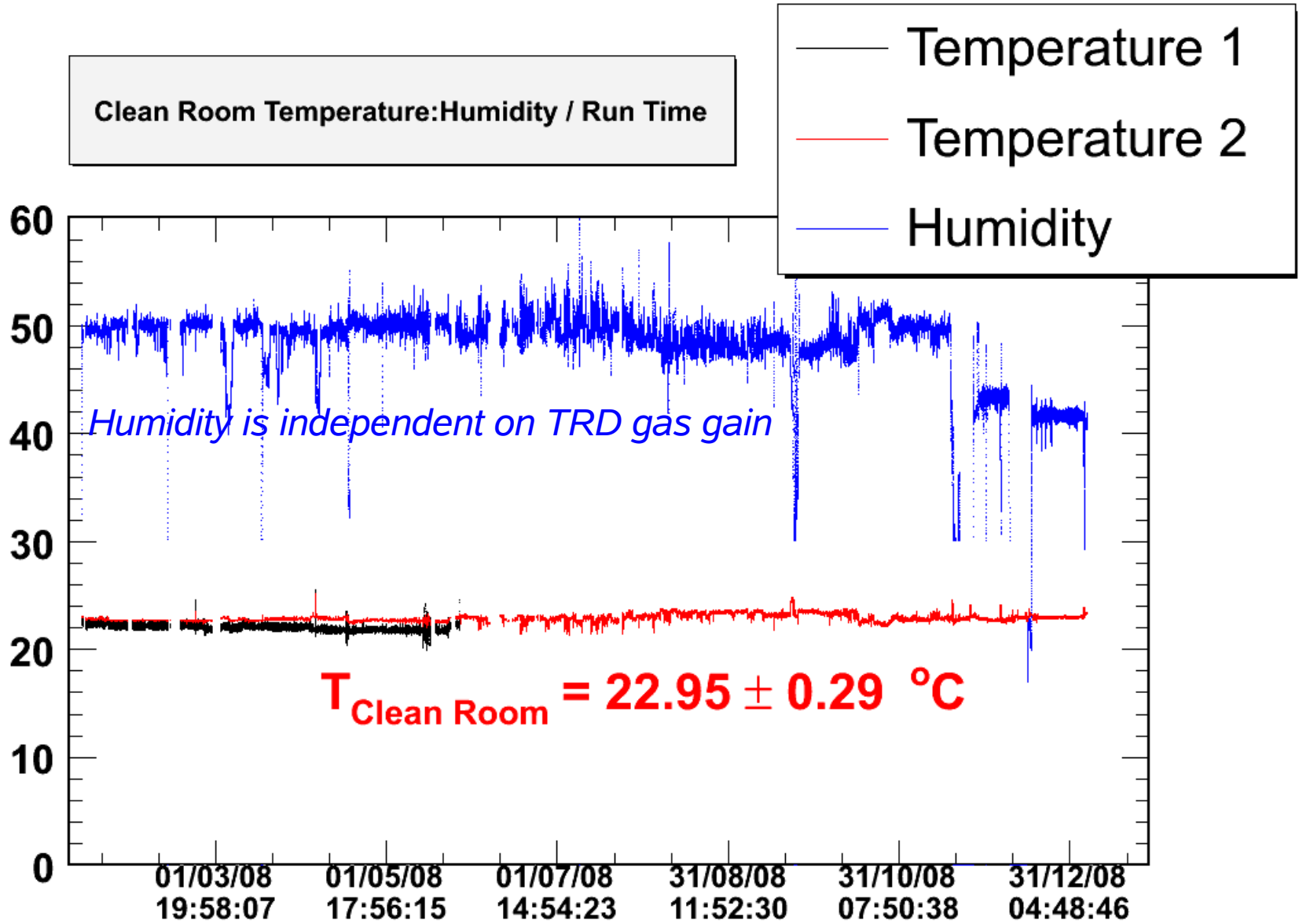
on behalf of TRD team

Feb. 3rd 2009 AMS TIM



AMS CleanRoom Condition

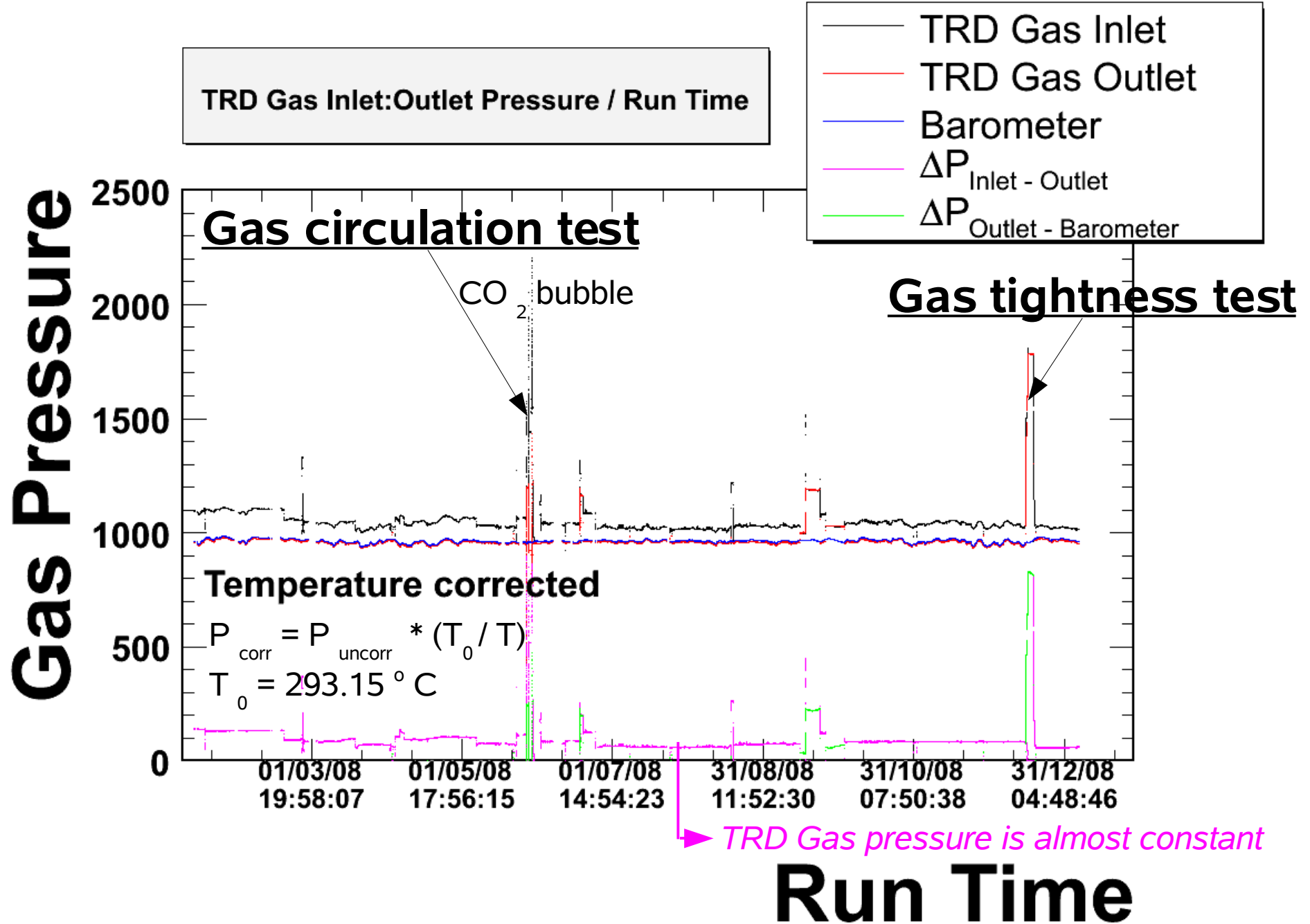
Temp. & Humidity



Run Time



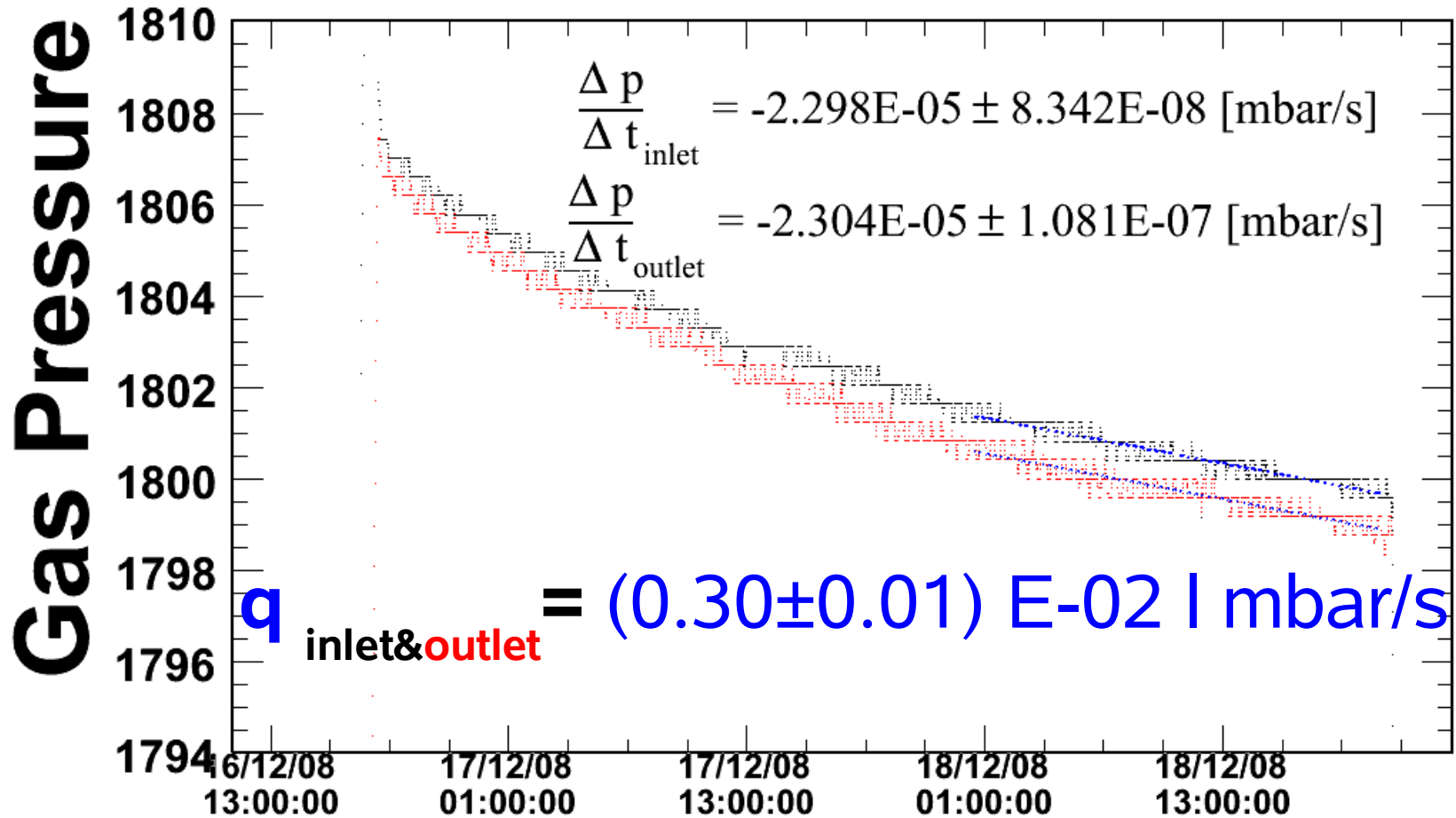
TRD Pressure History(2008)





Gas Tightness (Dec. 2008)

TRD Gas Pressure / Run Time



→ Consistent with pressure drop measurement (Dec. 2007)

Run Time

TRD Gas

Premixed ArCO₂ (80/20)

TRD Crate Electronics

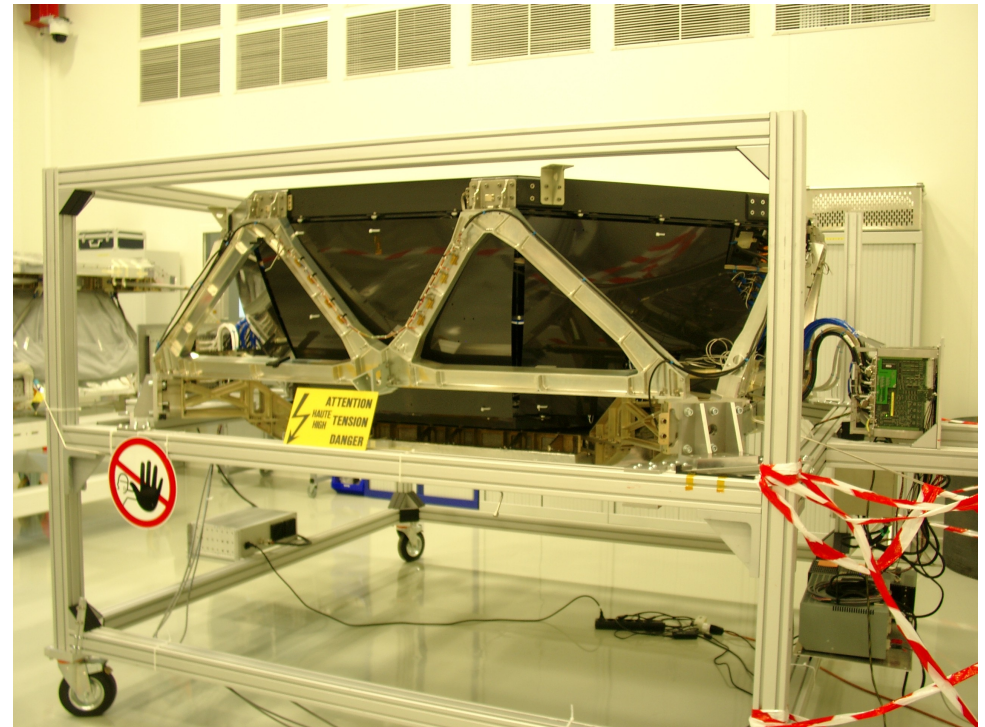
- U0(QM2) + U1(QM1,2 + FS)
 - UDR2: QM1,2
 - UPSFE: QM2 + FS
 - UHVG: QM2
- Custom Power Supply

TRD DAQ

- UDR2 s/w == Preintegration phase
- Trigger/Busy: from EPP/CAN to both U-crates
- SlowControl: LV & HV via JINF

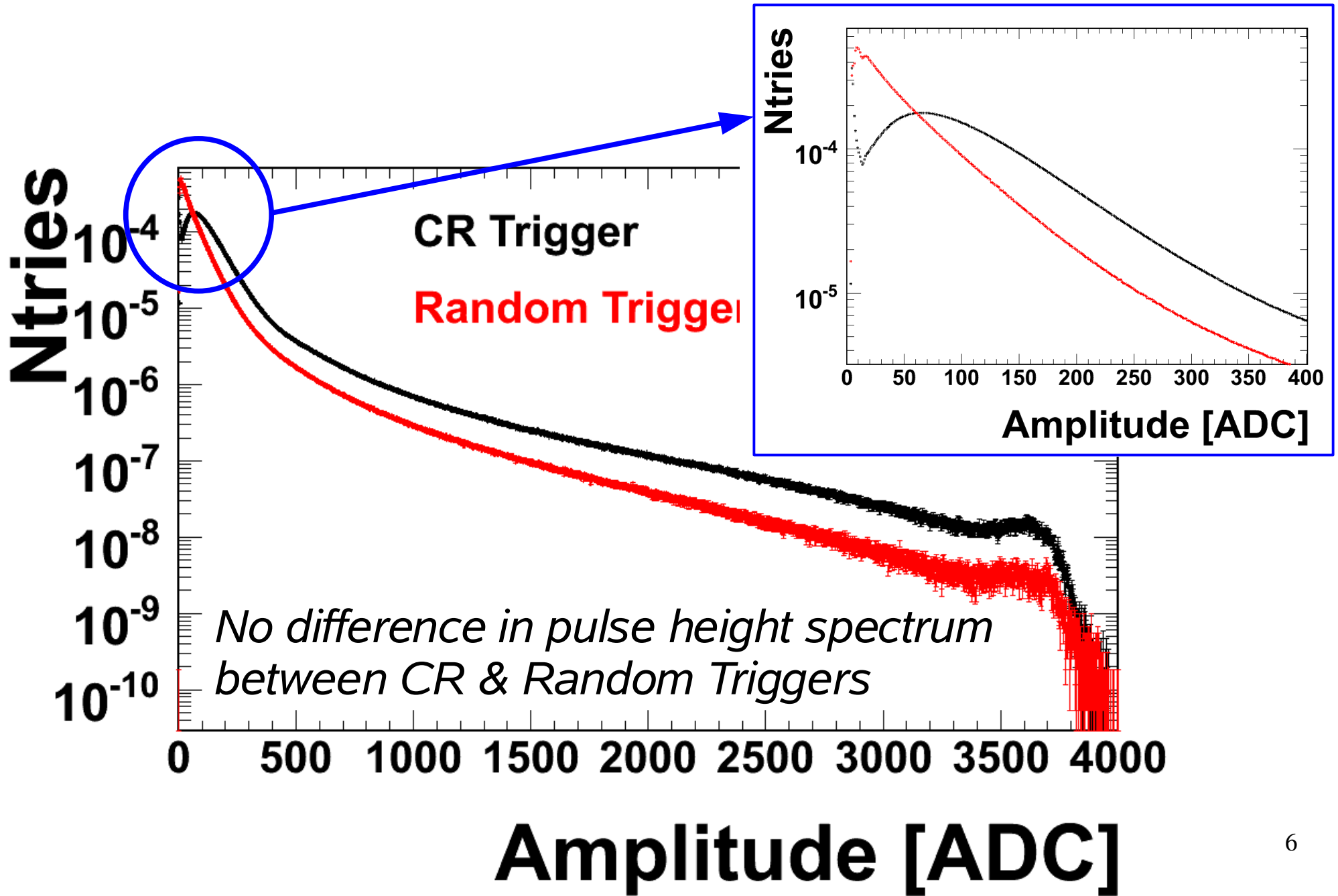
Event Record

- Nhits > Min. 6 in both U-crates with same event number
- TRD Data Block File (~200 evts/sec) → AMS-02 Root File





TRD Cosmic Muon Signals





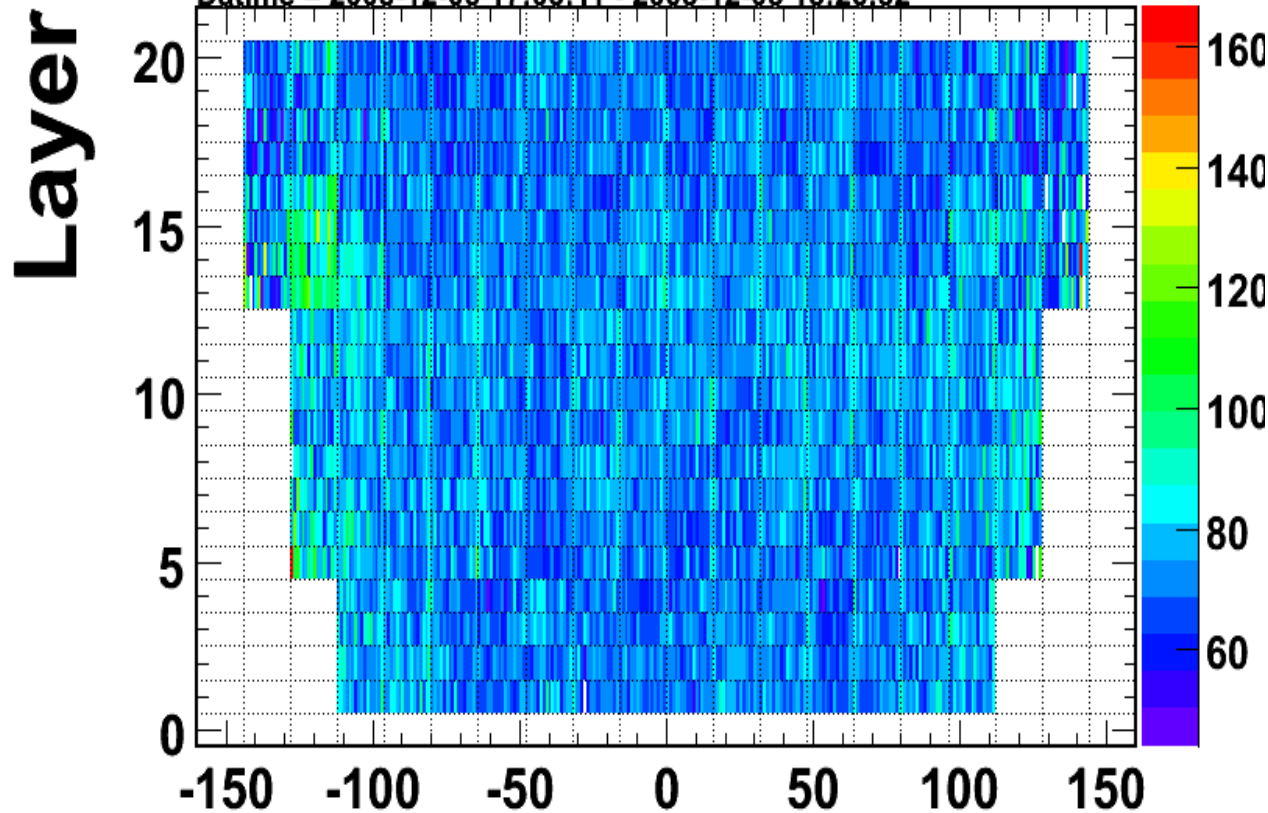
Signal Map / Single Block

Signal Mean/StrawTube

DATA = 0002/606

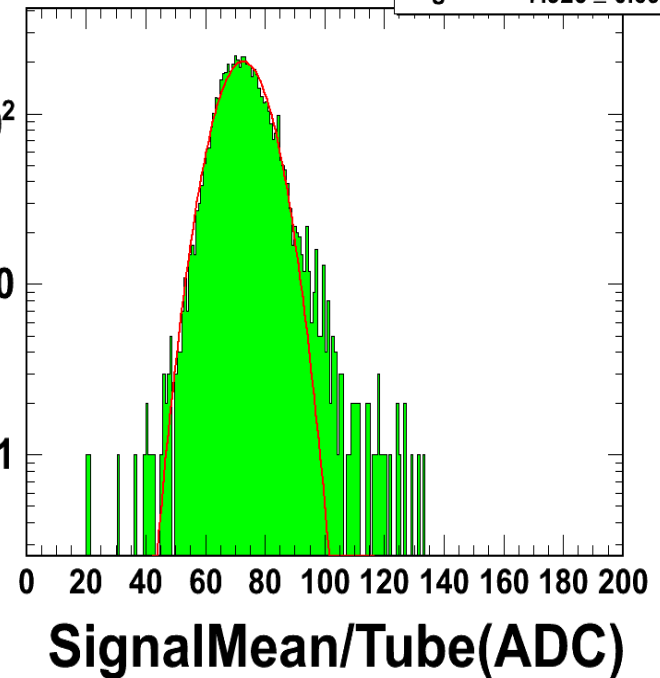
Mean = 73.2 ± 9.4 (ADC)

Datetime = 2008-12-05 17:03:11 - 2008-12-05 18:26:32



Signal Mean/Straw Tube

Nr. Tubes



χ^2 / ndf	194.3 / 84
Constant	202.6 ± 3.7
Mean	72.6 ± 0.1
Sigma	7.926 ± 0.094

Straw

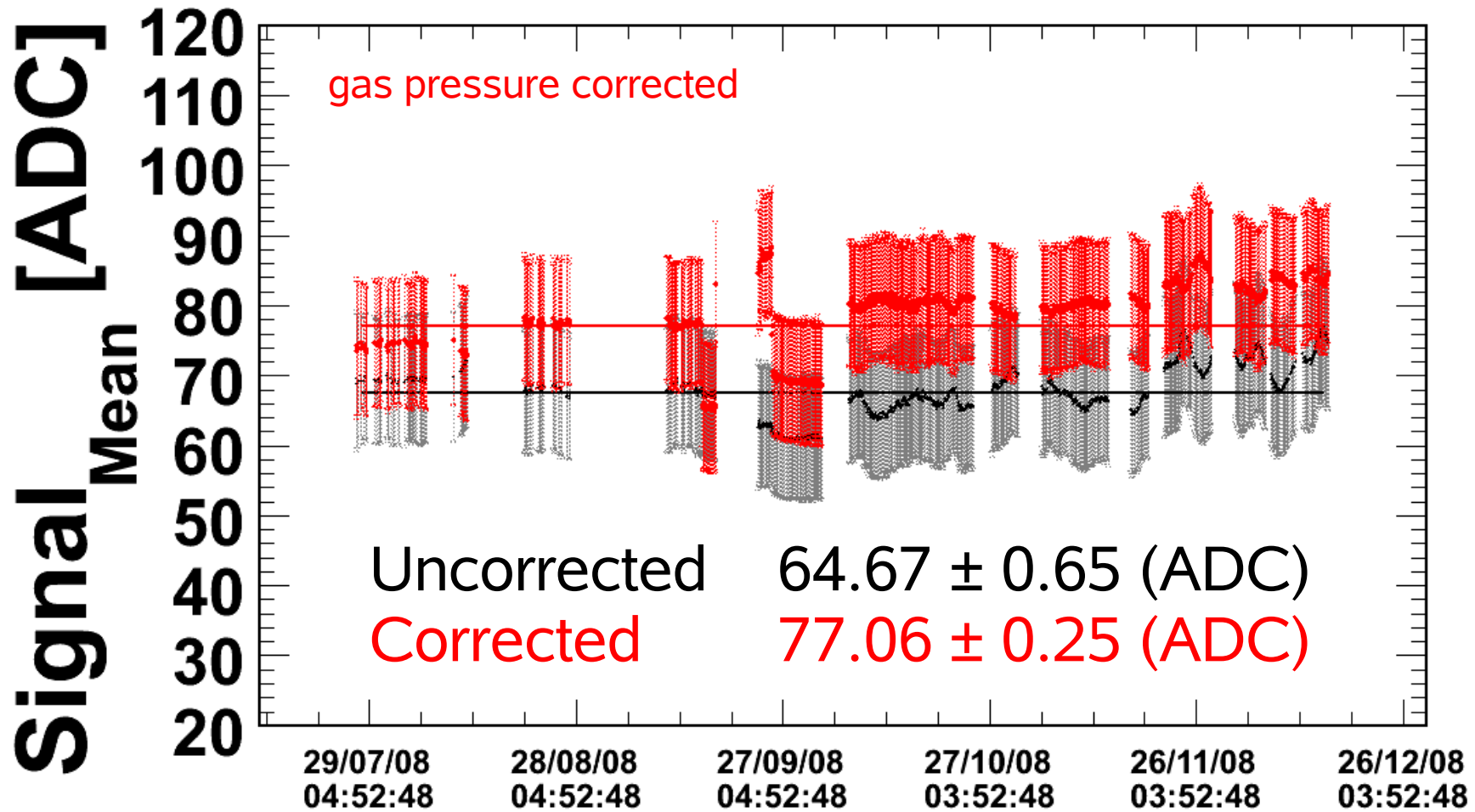
TRD Single Block File:

t = 5000 sec, Nevt = 1M, Single Track Nevt = 4%



TRD Signal Mean vs. Time

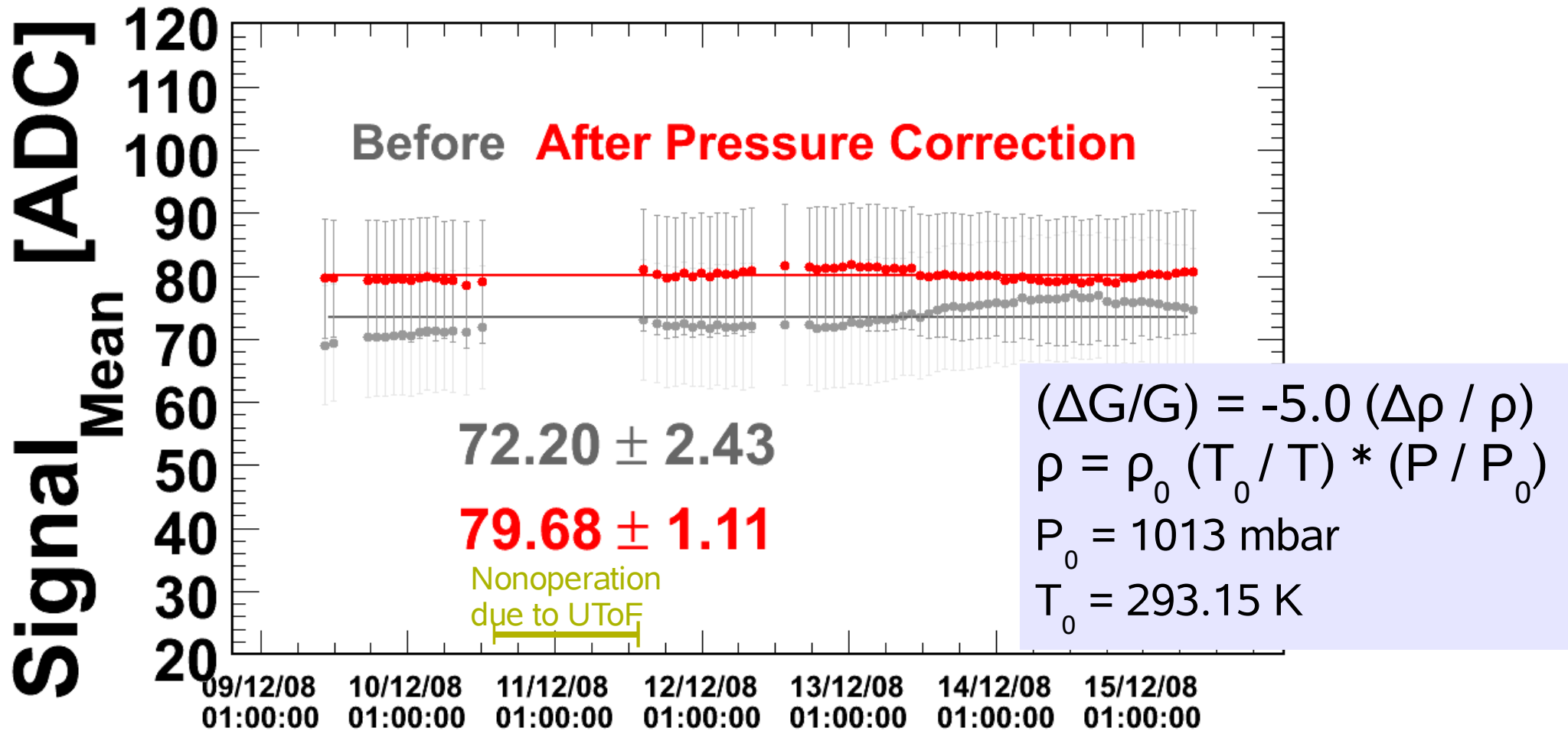
Signal Mean / Run Time





TRD Signal Mean in a Week

Signal corrected at $P_0 = 1013$ mbar





Track Hits Map / Single Block

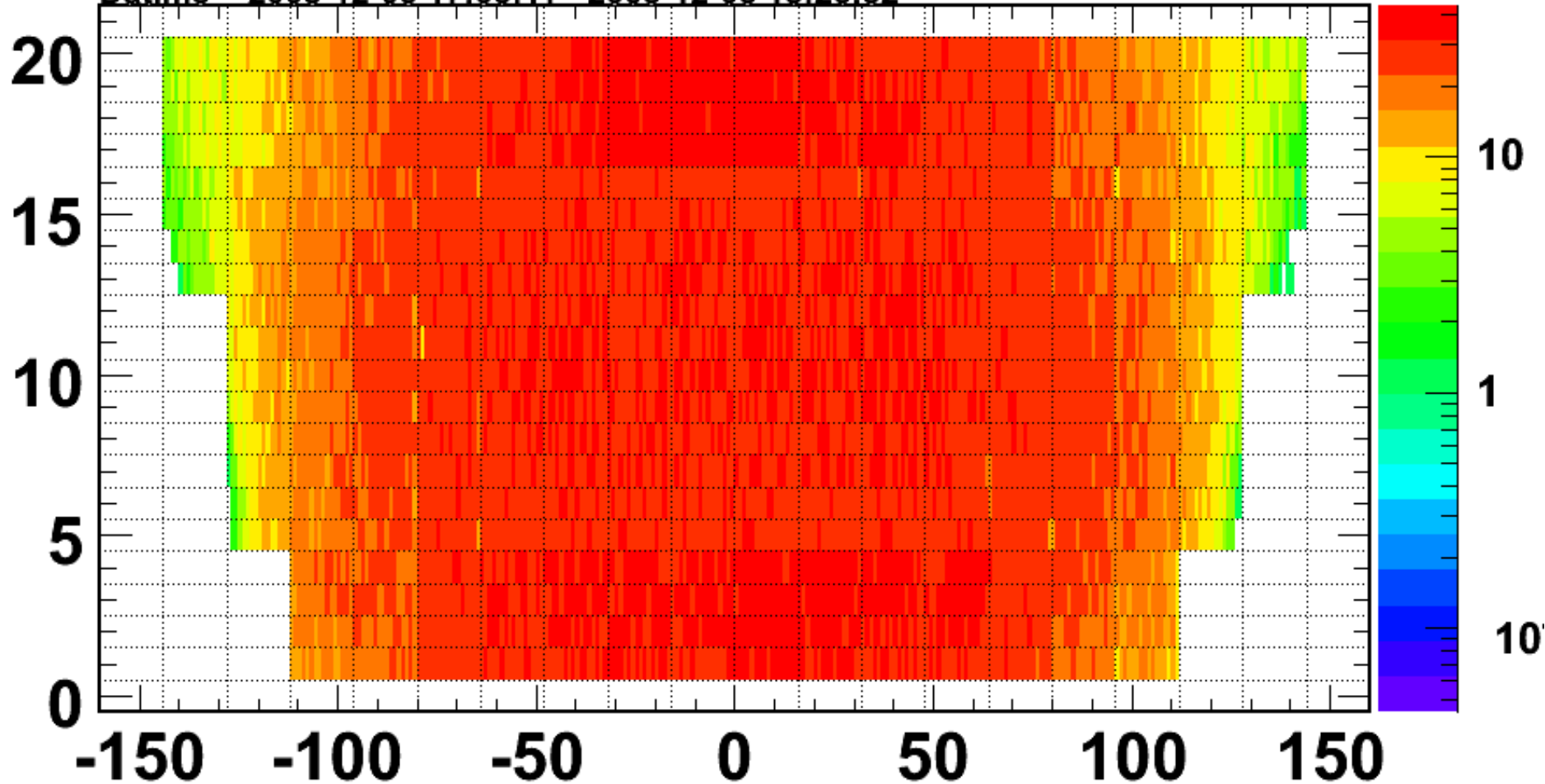
Frequency of TrackHits/StrawTube

DATA = 0002/606

Mean = 24.8 ± 8.7 mHz

Datetime = 2008-12-05 17:03:11 - 2008-12-05 18:26:32

Layer



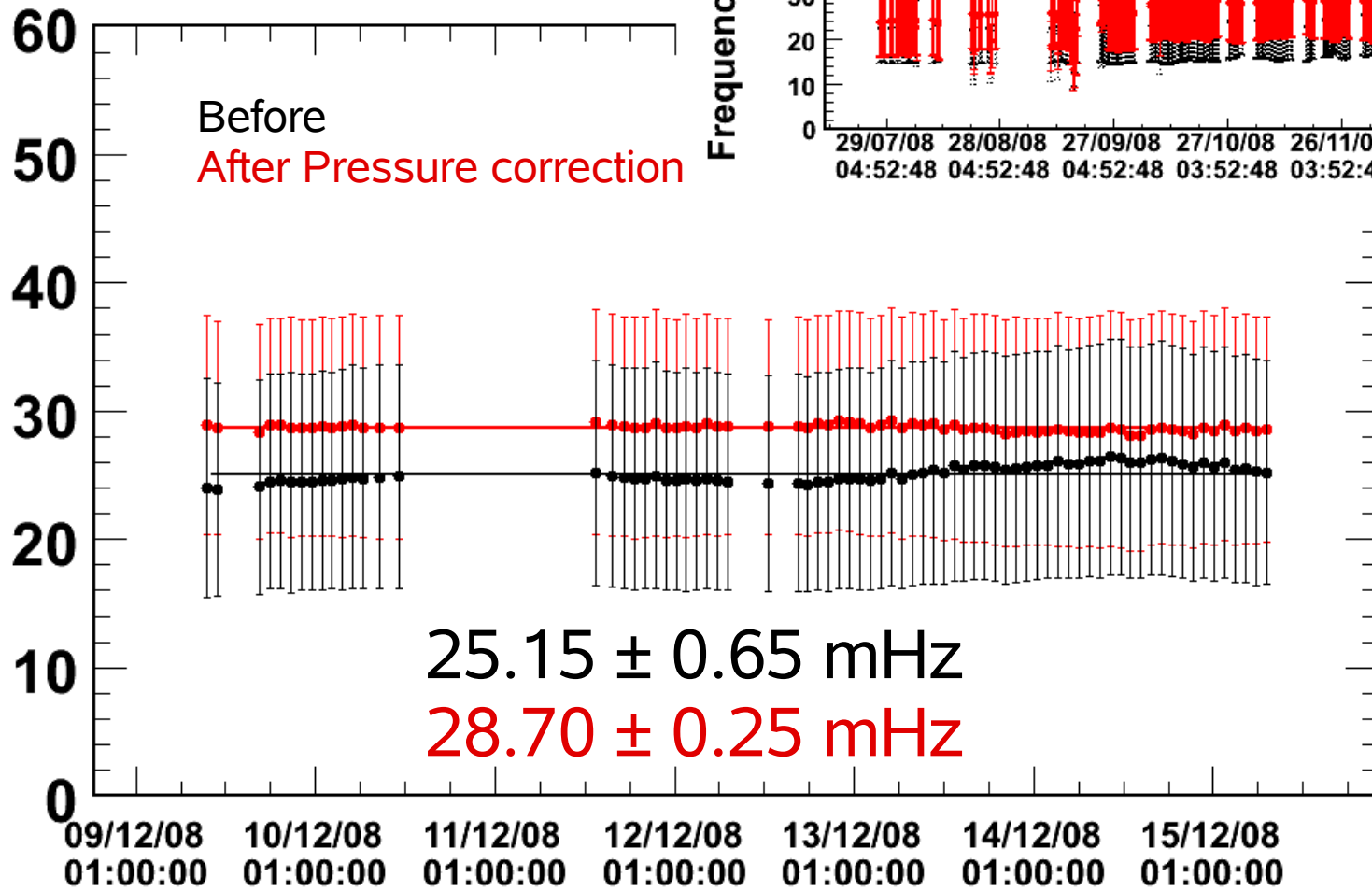
Selection of single track:
($6 \leq N_{hit_{YZ}} \leq 11$) & ($11 \leq N_{hit_{XZ}} \leq 16$)

Straw

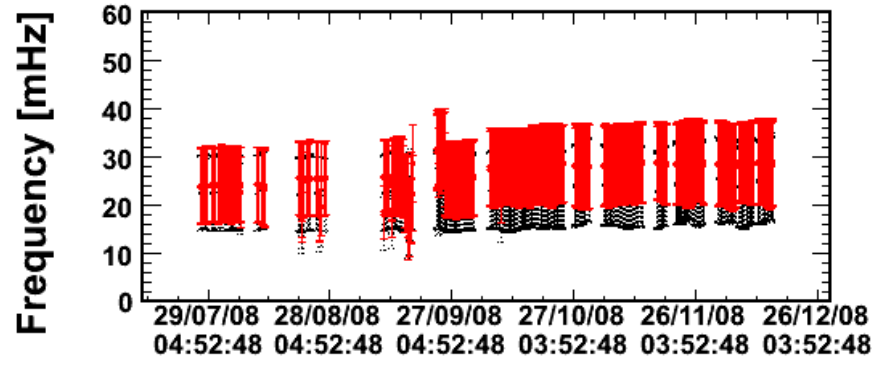


Track Hits / Straw Tube

Frequency [mHz]



Frequency of TrackHits vs Run Time

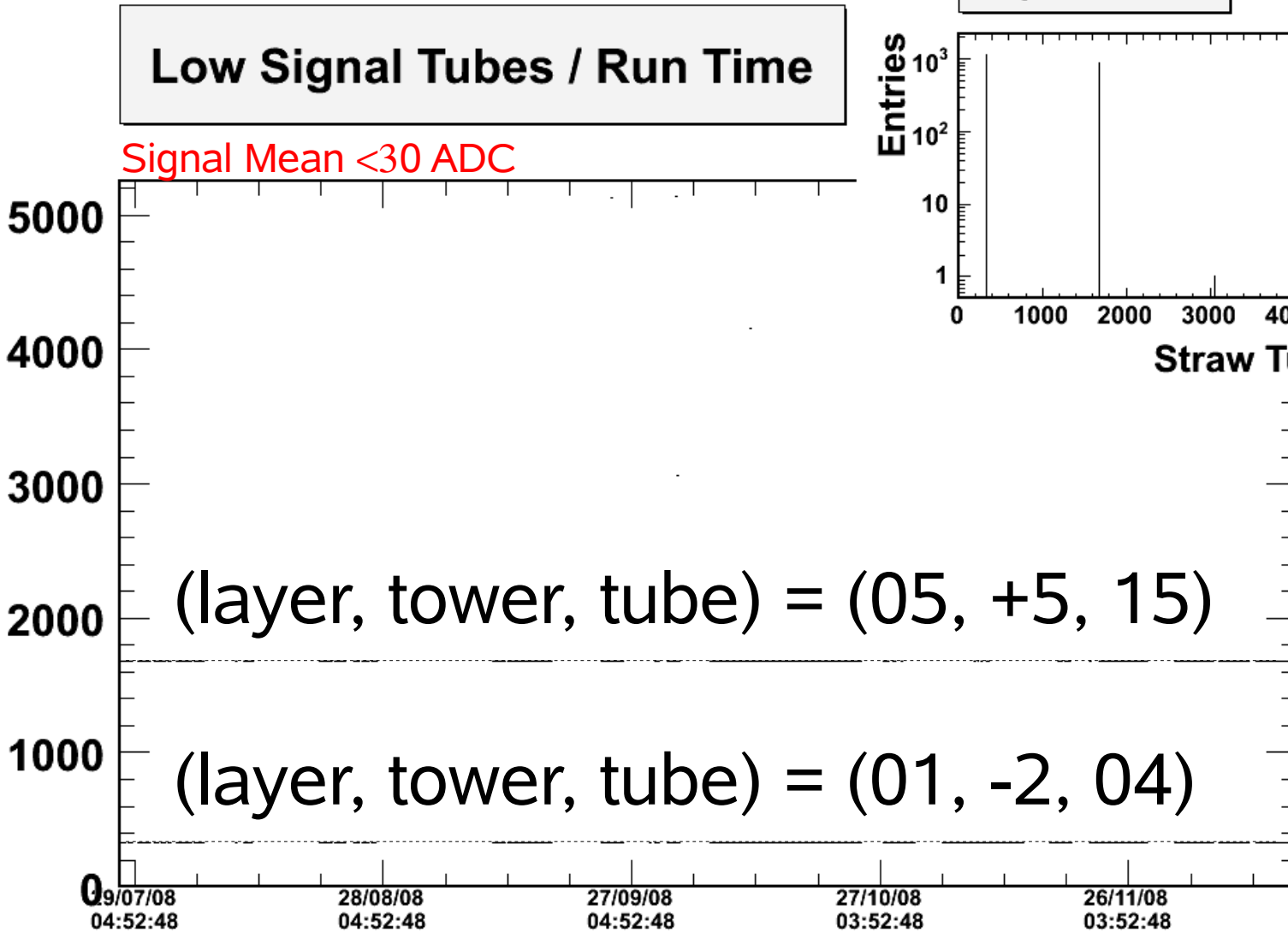




Low Signal Tubes vs. Time

5248 Straw Tubes

Straw Tube ID





Summary of TRD Status

- After pre-integration, TRD
 - confirms gas tightness since production
 - continues CR data taking with random trigger
- TRD random trigger data shows
 - stable operation of TRD
 - stable signal response of all straw modules
 - only two low signal channels
 - consistent with AMS CR trigger data