

# Calibration in CERN2004 combined beamtest

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# Outlook

- Online-Offline comparison
- Pedestal evolution
- Failed calibrations
- Noise correlations
- Conclusions

# Online-Offline comparison

this comparison is based on a few runs when raw data was also taken (table)

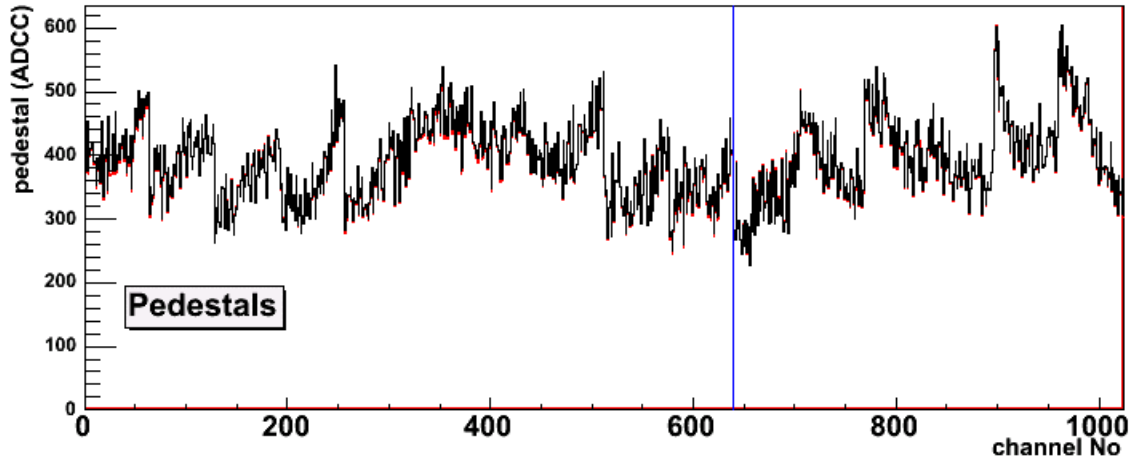
the events used in the Online calibration are not in the data stream, so we cannot use exactly the same events in Offline calibration!  
but these events are **close in time**

TDR	0	1	2	3	4	5	6	7	8	9	10	12	16	17	20	21
run (1000+)	41	40	38	39	44	42	37	53	47	45	36	46	52	49	50	48

only the runs where **the latest** version of the Online algorithm were tested

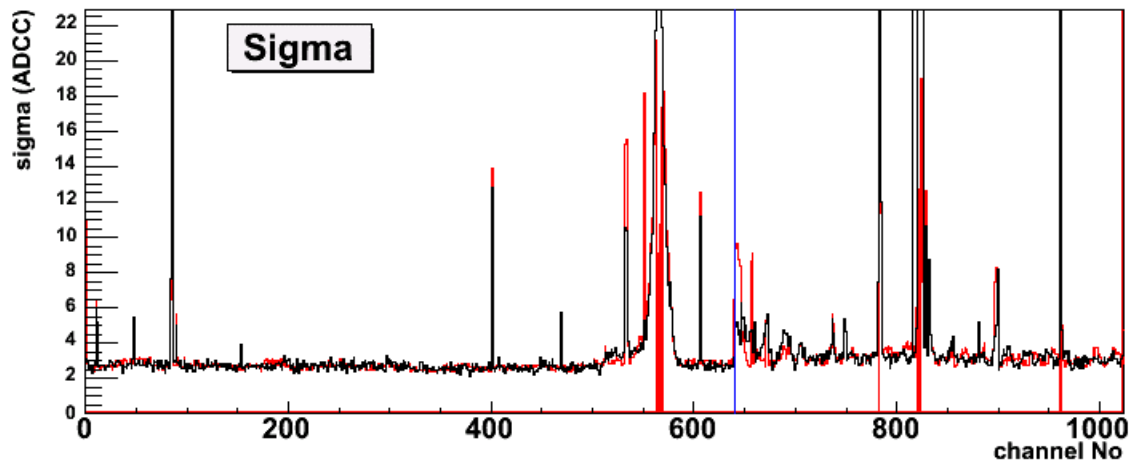
# Online-Offline comparison

(example of a good agreement)



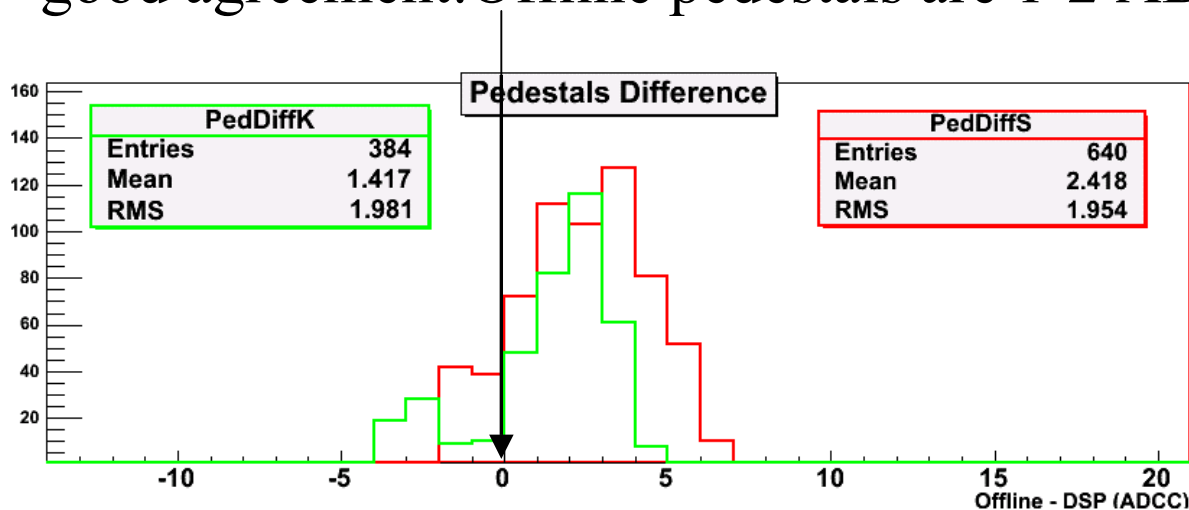
— Online  
— Offline

**TDR 0**  
**run 1041**



# Online-Offline comparison

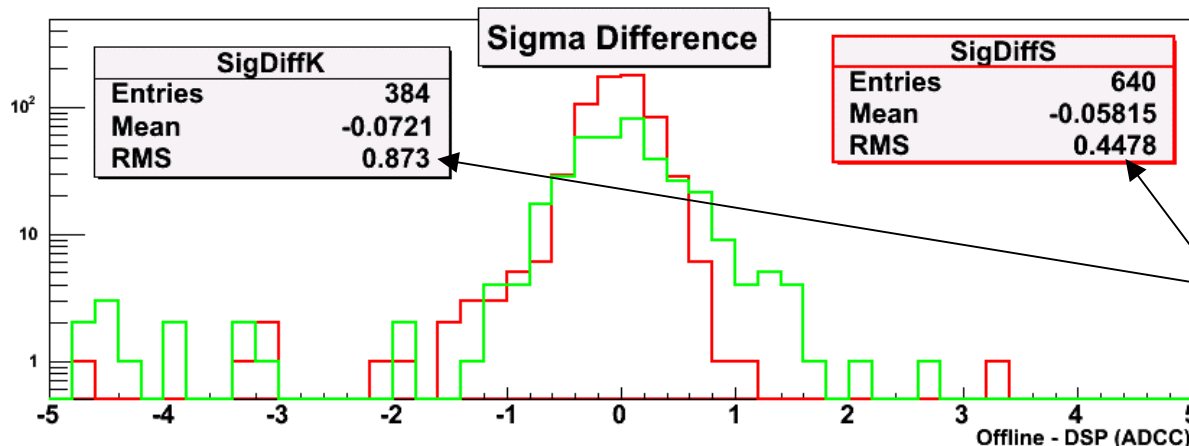
good agreement: Offline pedestals are 1-2 ADCC higher than Online



— S-side  
— K-side

**TDR 0**

**run 1041**

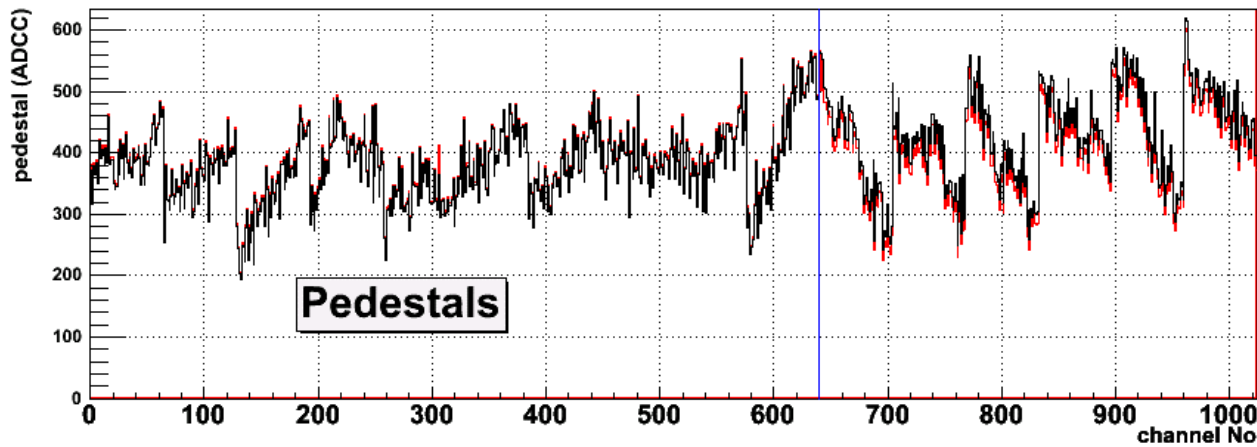


sigma on S-side  
agree better than  
on K-side

but for other  
TDRs and runs...

# Online-Offline comparison

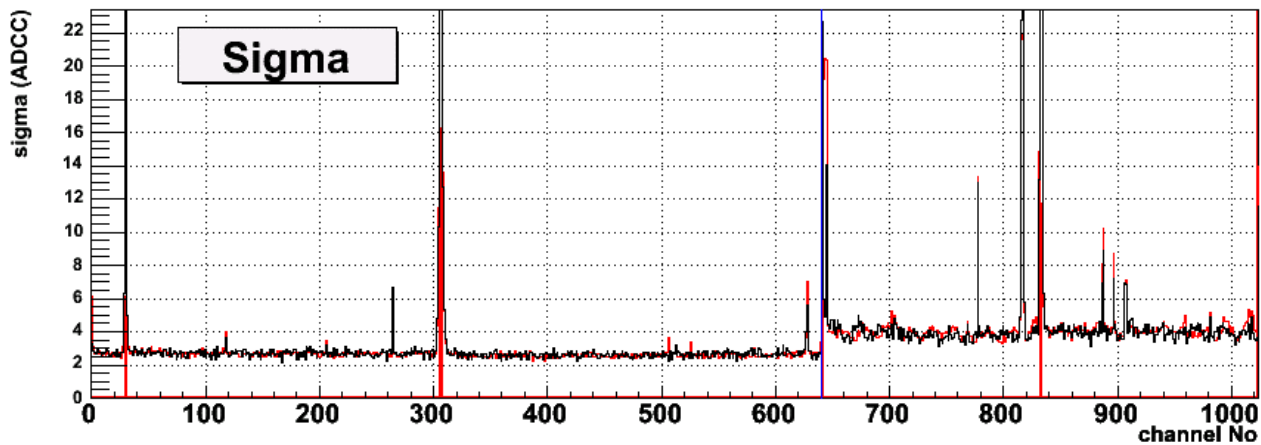
another example



— Online  
— Offline

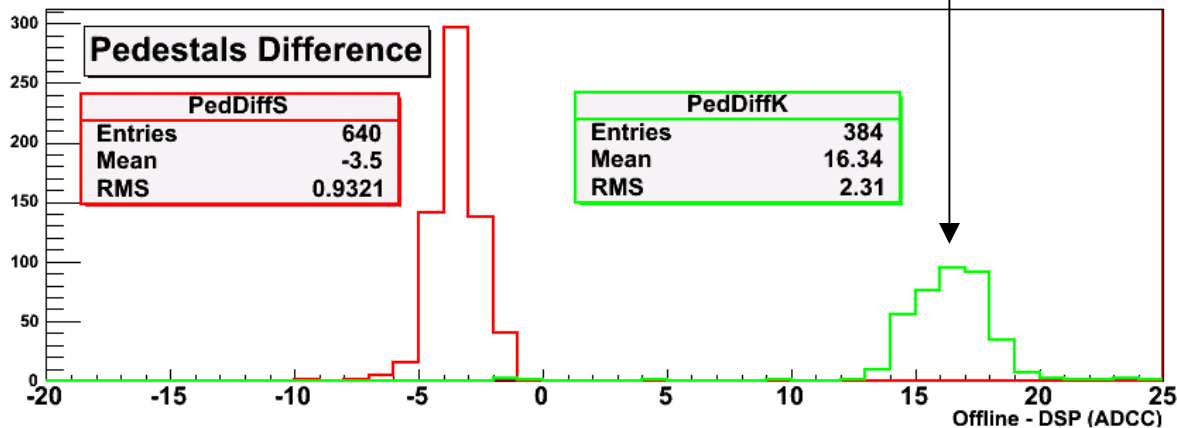
**TDR 7**

**run 1053**



# Online-Offline comparison

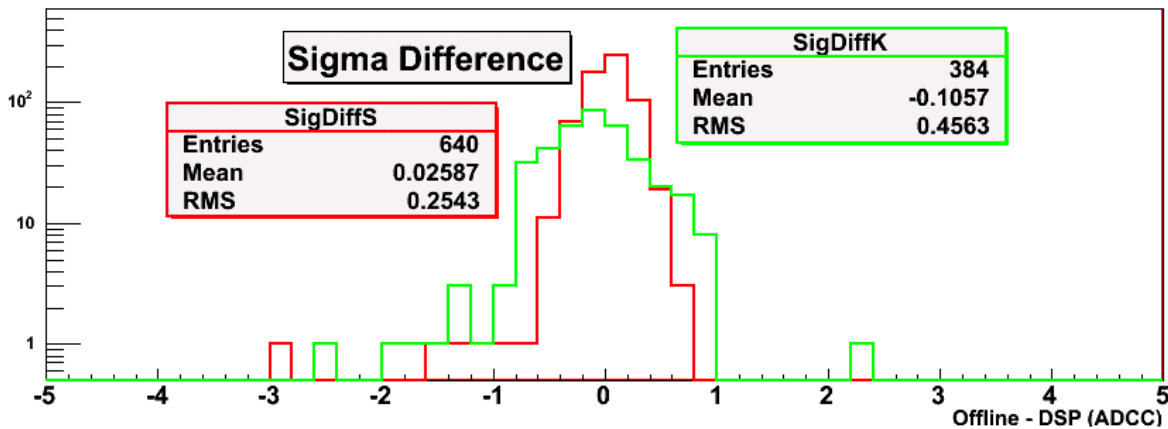
Offline gives pedestals  
by 16 ADCC higher!



— S-side  
— K-side

**TDR 7**

**run 1053**



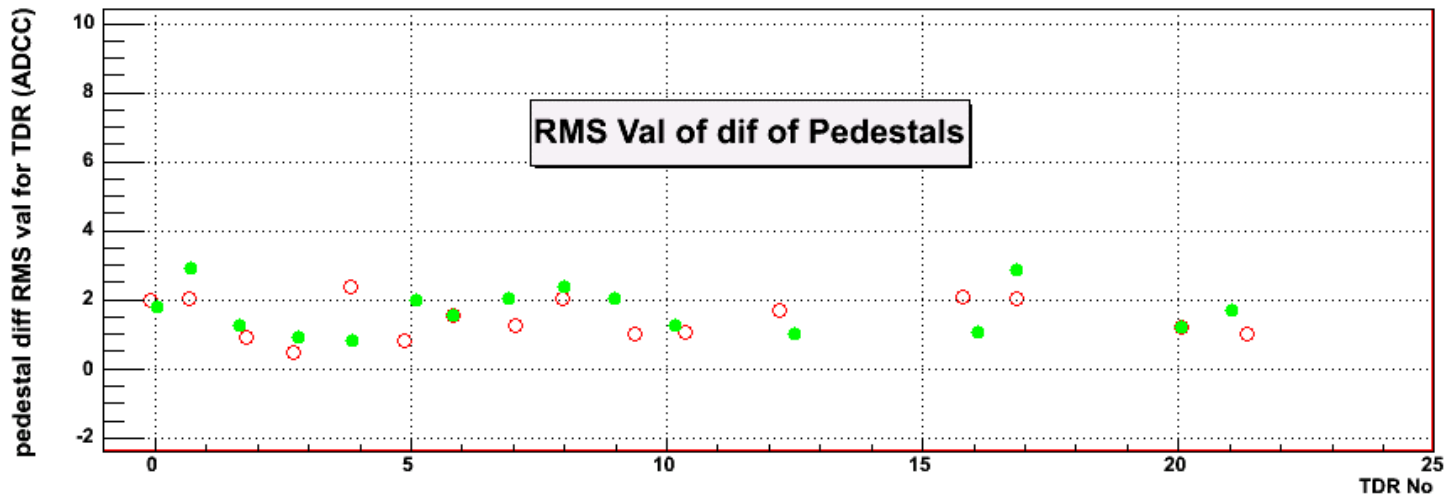
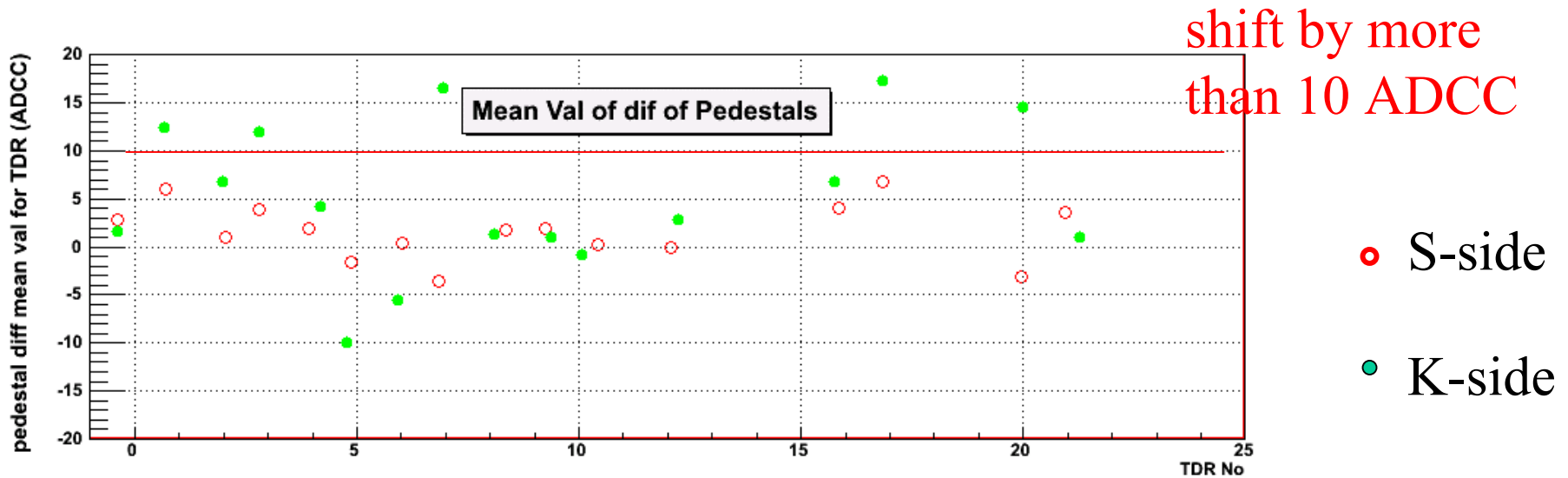
S-side pedestals

shifted coherently

K-side pedestals

- also coherent shift

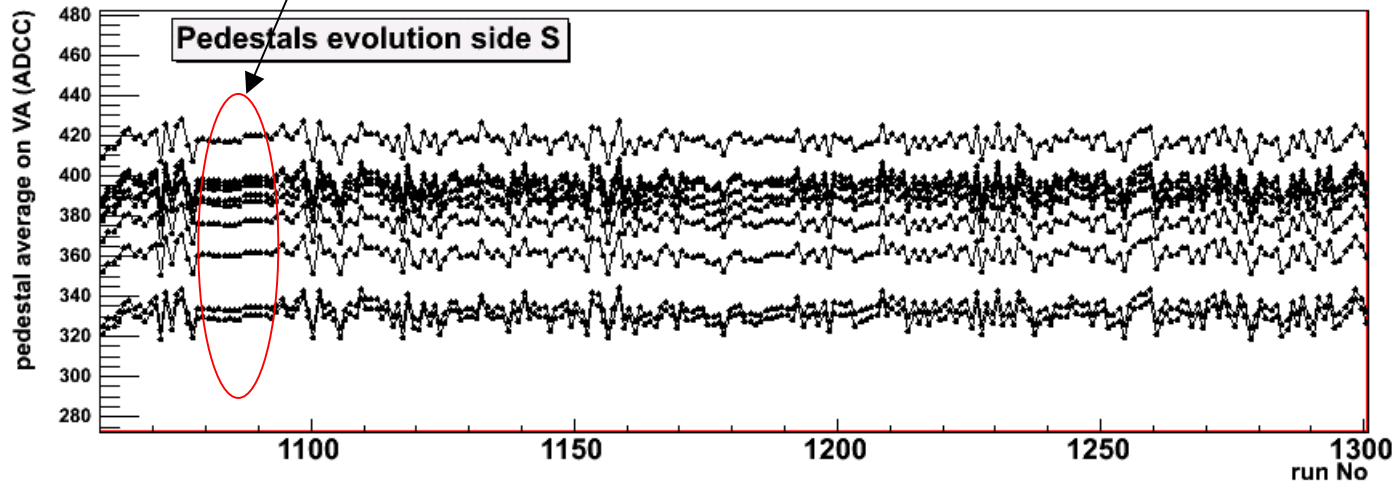
# Online-Offline comparison



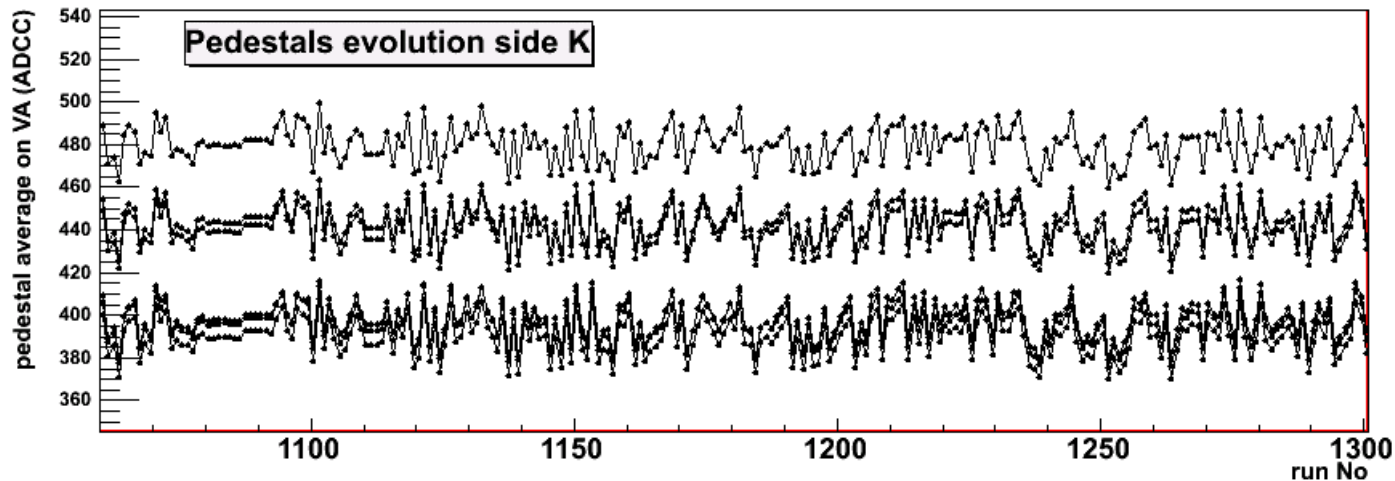


# Pedestal evolution

stable period



*the same pattern  
of changes*



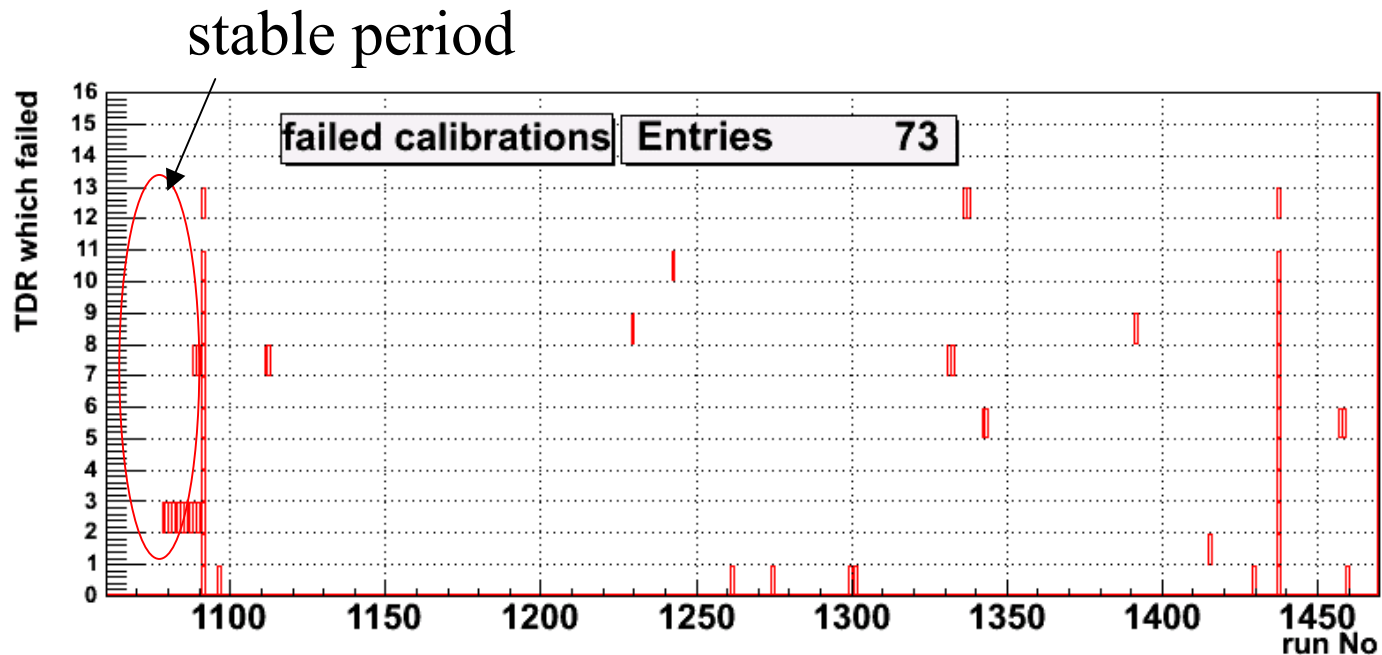
*the same pattern  
of changes*

Offline  
calibrations  
– pedestals  
averaged  
over VA

**TDR 7  
runs:  
1020-1300**

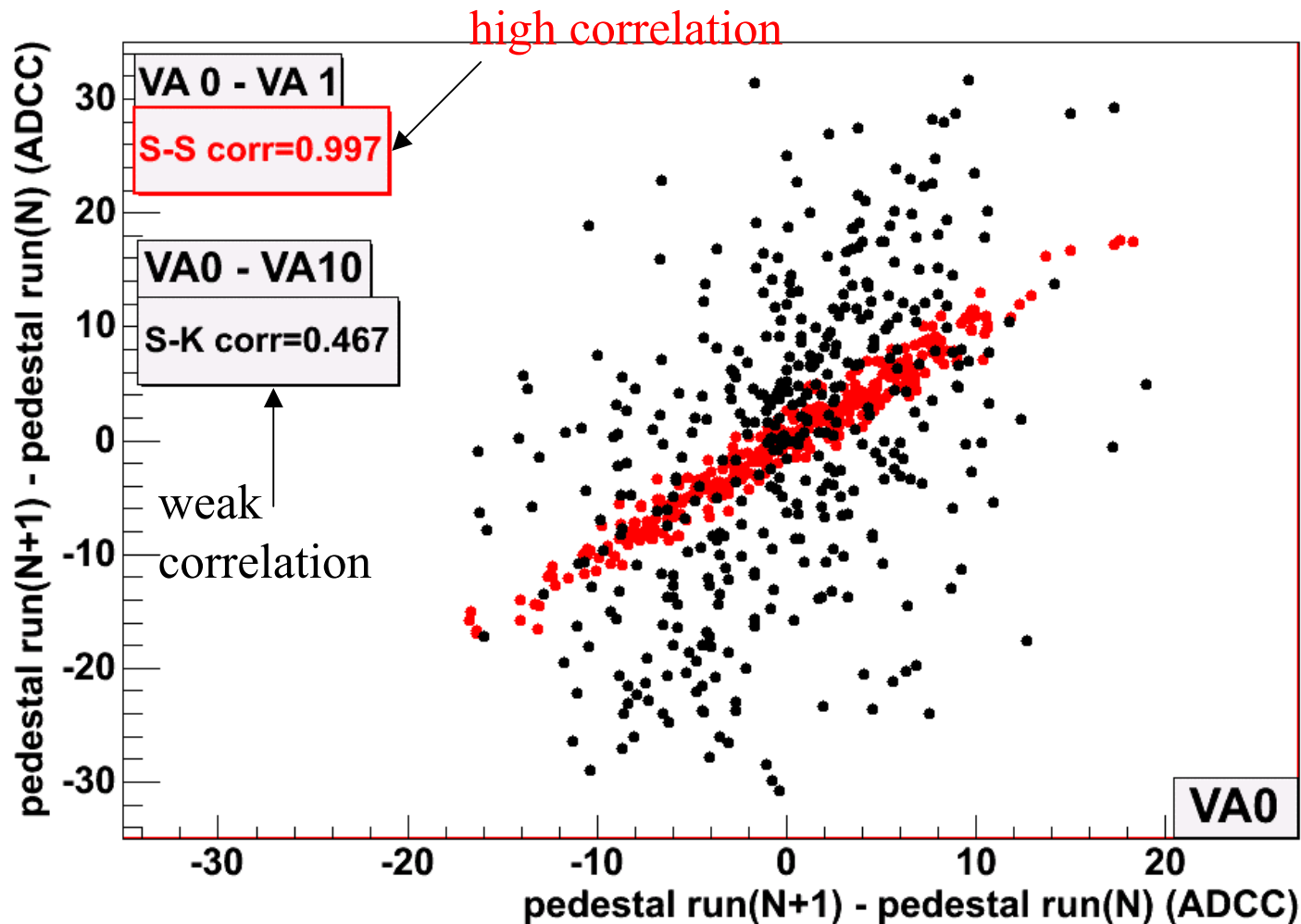
# Failed calibrations

In the Online calibration files sometimes there are NO values for pedestals and sigmas. This is a symptom of TDR failure. Below a plot summarising which TDR failed during the calibration as a function of run number



# Noise correlations (S/K)

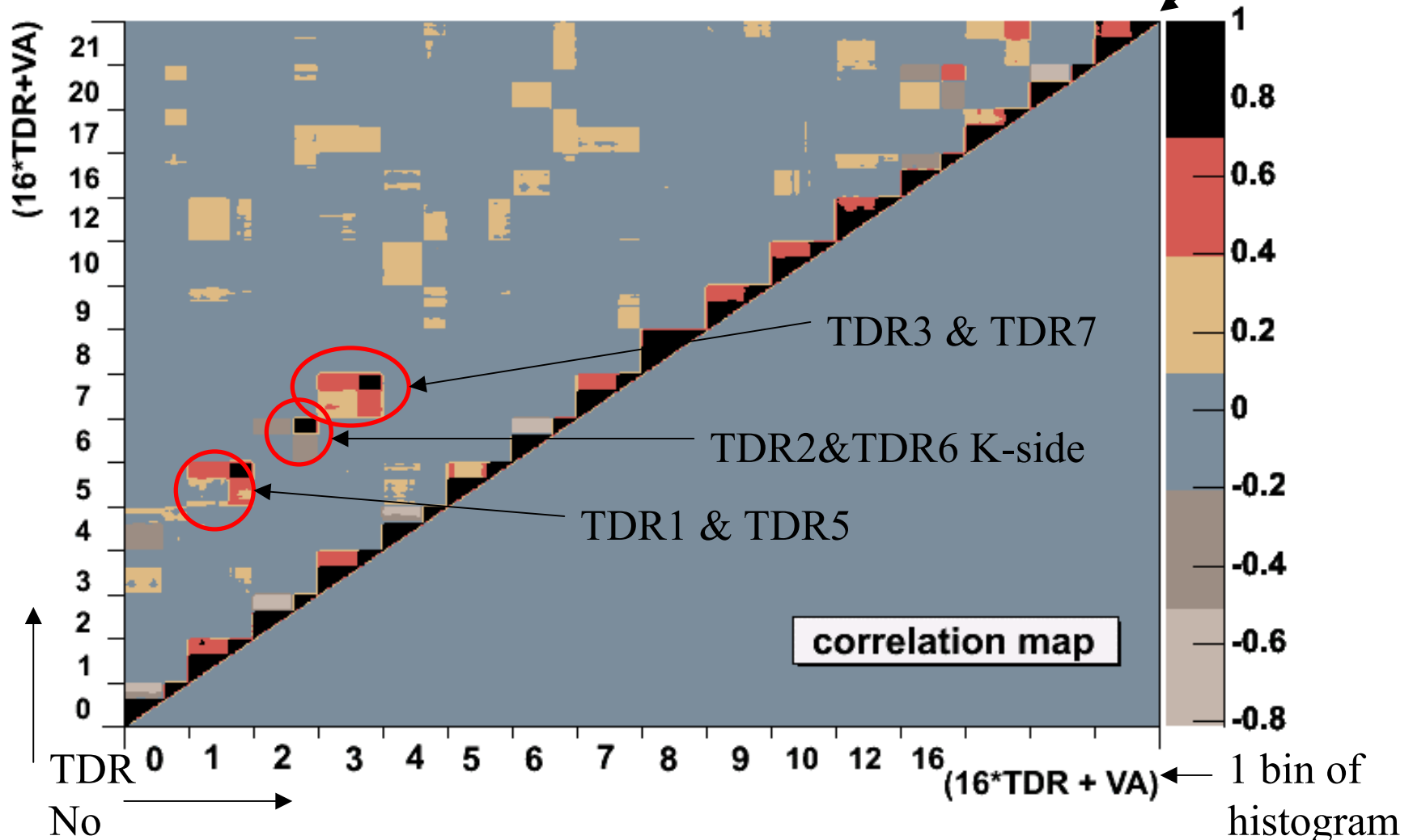
example for TDR 7 runs 1060-1460



# Noise correlations

correlation table for the whole setup

S-S and K-K  
for every  
TDR



# Conclusions

- Pedestals are not stable, noise in channel is stable  
→ so Online-Offline comparison is limited  
(not the same events)
- Correlated noise between S-S and K-K  
and correlated noise between TDRs
- Unstability of pedestals will limit gamma  
reconstruction efficiency → no match between  
calibration files and beam data