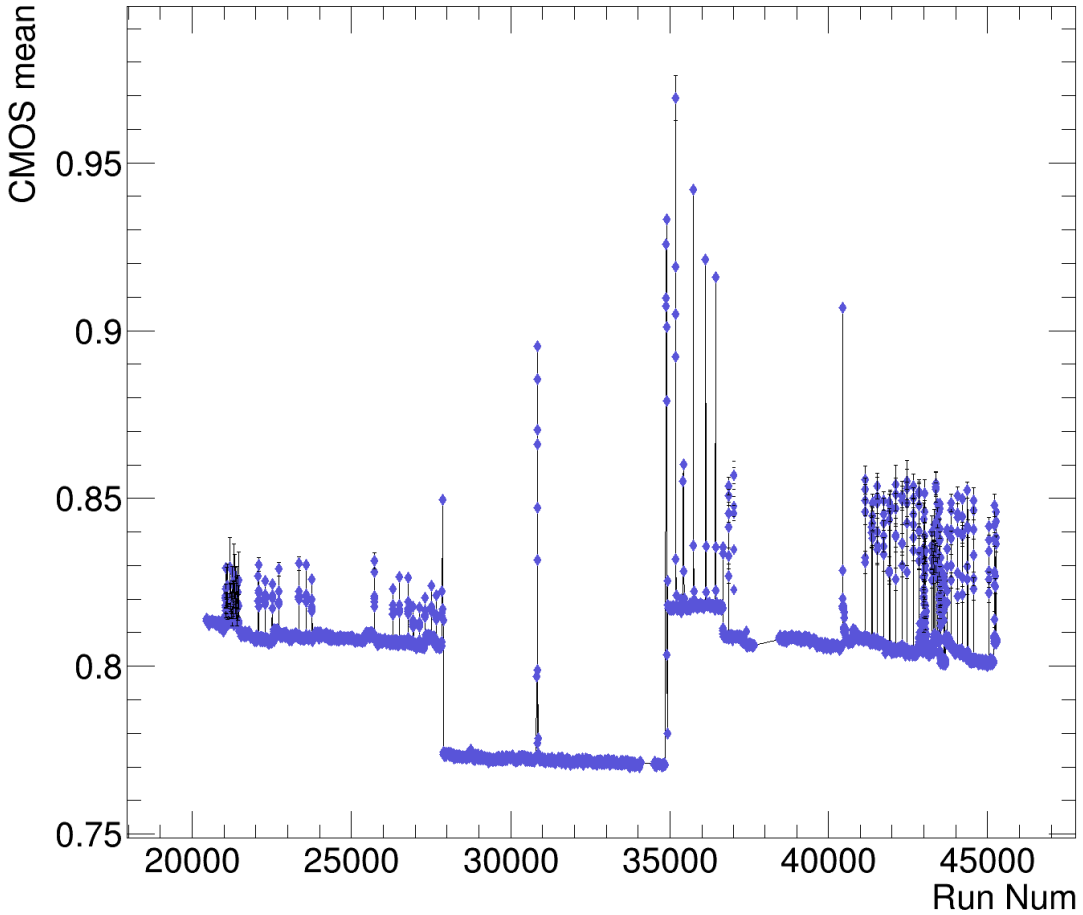
Preliminary on LIME Pedestals

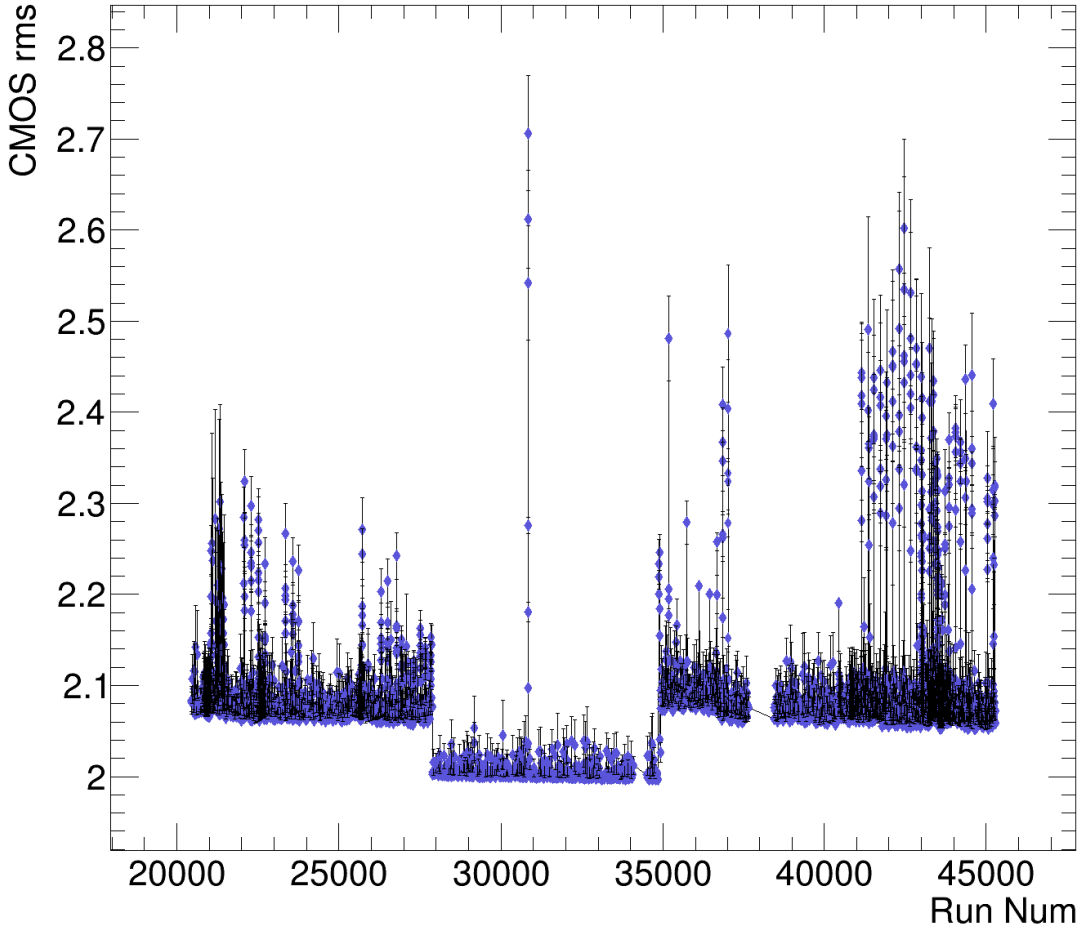
Davide Fiorina
GSSI & INFN

Reconstruct pedestals with one pedestal!

- Using a **single pedestal** pedmap_run20446_rebin1.root to reconstruct all LIME pedestals up to run45287.root
  - 'nsigma' : 1.4445,
  - 'min_neighbors_average' : 1.1,
- Check *cmos_mean* and *cmos_rms* for trends
- Now also with the Camera Temperature!!

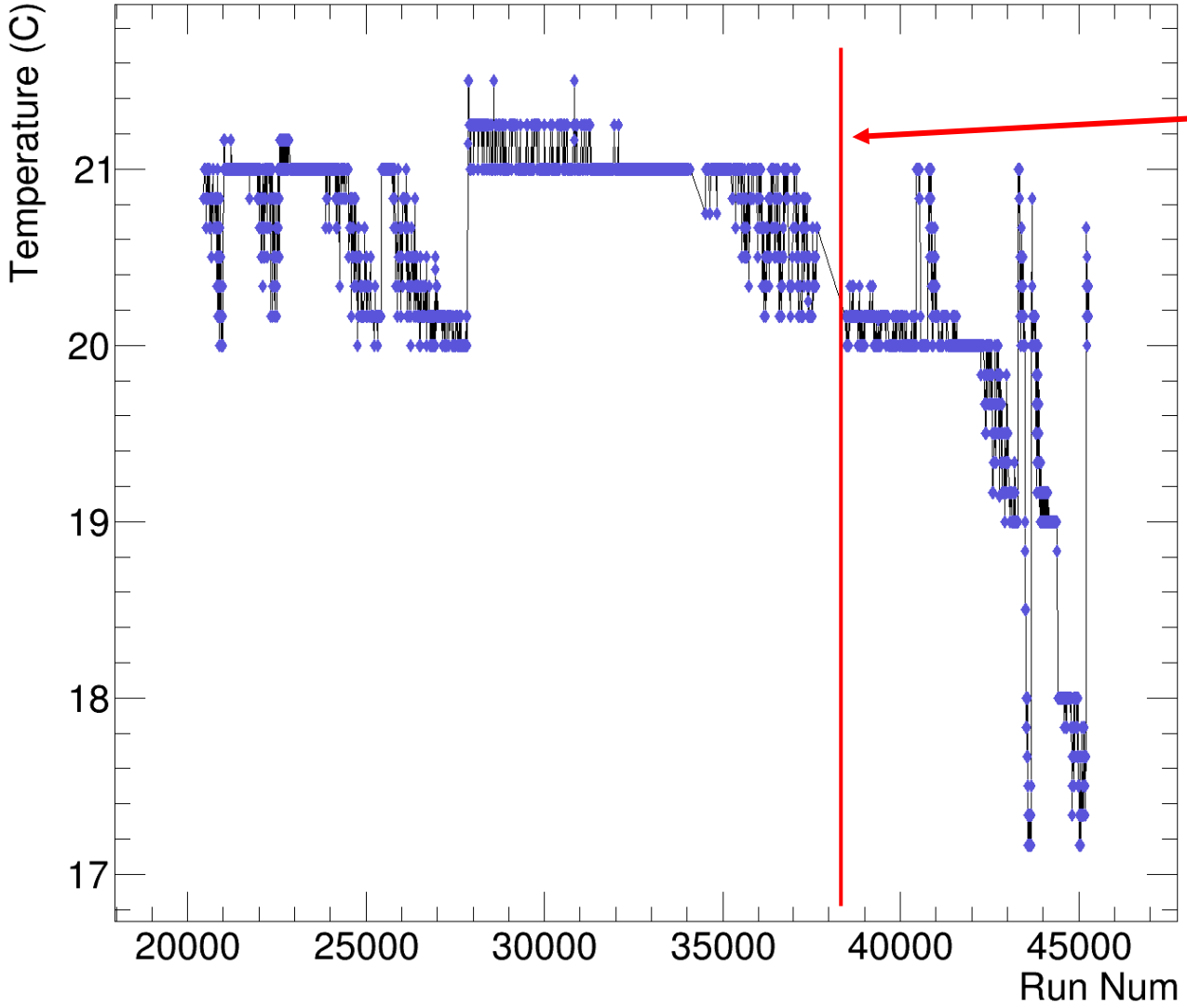
Mean and RMS





- Trends are similar to the one showed before O(1%) variation in the whole data taking period
- Lot of spikes in these variables that were not present in the pure pedestal (mmmmmmmm)

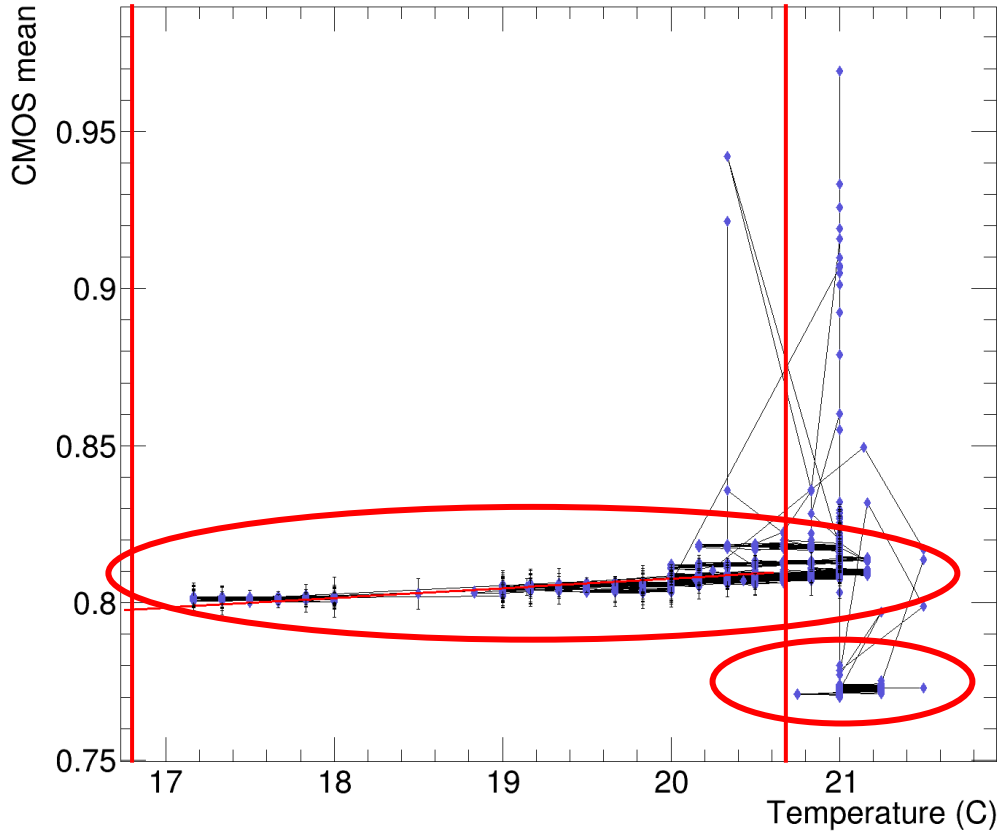
Camera Temperature!



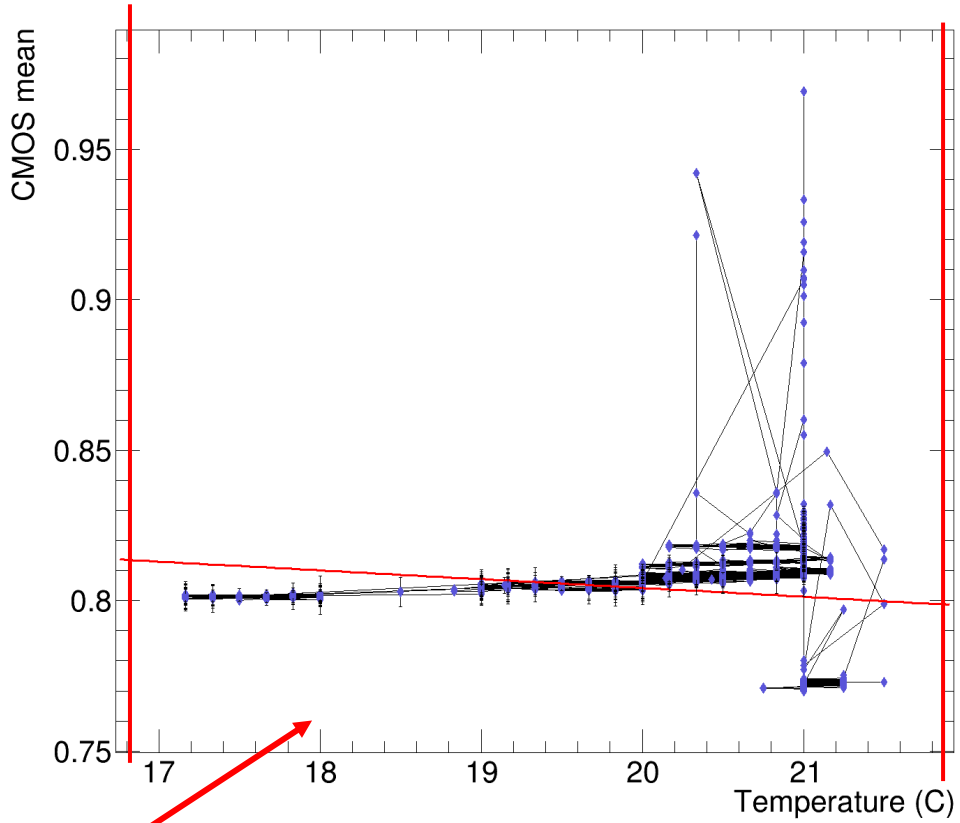
Eheheh winter arrived!

It's not that good beacuse the Hammamatsu API give back an INT for the camera temperature…

Mean vs temperature

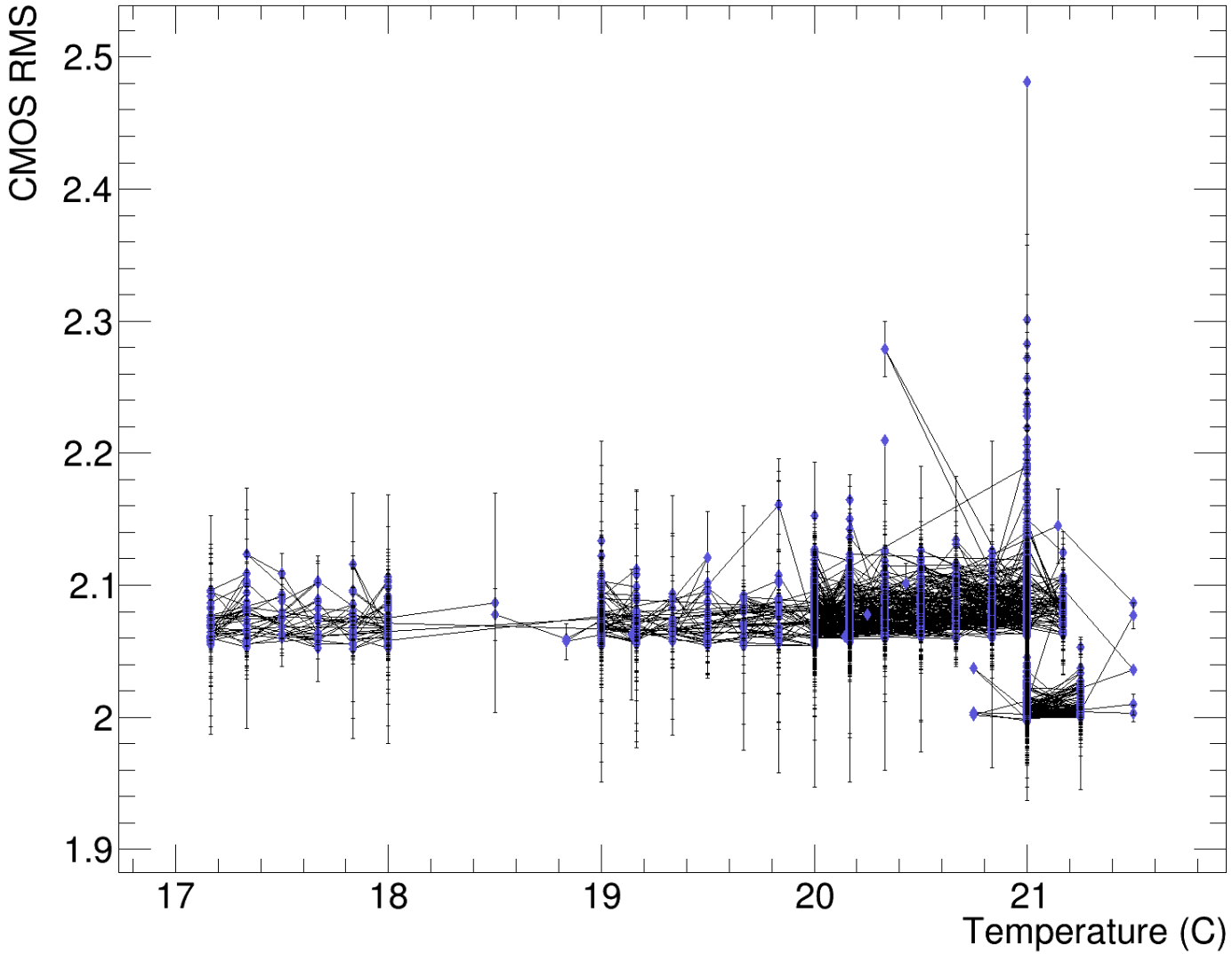


Lines indicate the Fit range



- There is a slight increase of the mean
  - **3.1e-03 mean/C**
  - **0.4%/C**
- We have two regions because of the different exposure periods
  - Excluding lower exposure region

RMS vs temperature



- Slight increase f RMS with temperature (excluding lower exposure)
  - **5.5e-03 rms/C**
  - **0.2%/C**
- We have two regions because of the different exposure periods

- From ORCA-Fusion/ORCA-FusionBT Technical note (hamamatsu.com)

Dark current *1,*4	cooling temperature: -5 ˚C	0.5 electrons/pixel/s
	cooling temperature: -15 ˚C	0.2 electrons/pixel/s

Conclusion

- **When using a single pedestal, we see many more spikes in mean and RMS wrt to the single pedestal files**
  - Any suggestion on how to interpret this?
- **Camera temperature is not so precise because of Hamamatsu API ☹**
- **Camera temperature is more or less the ambient one**
  - We can gain in noise with proper cooling
  - Should we investigate it?