Trends in the LW dark current behaviour of ISOCAM

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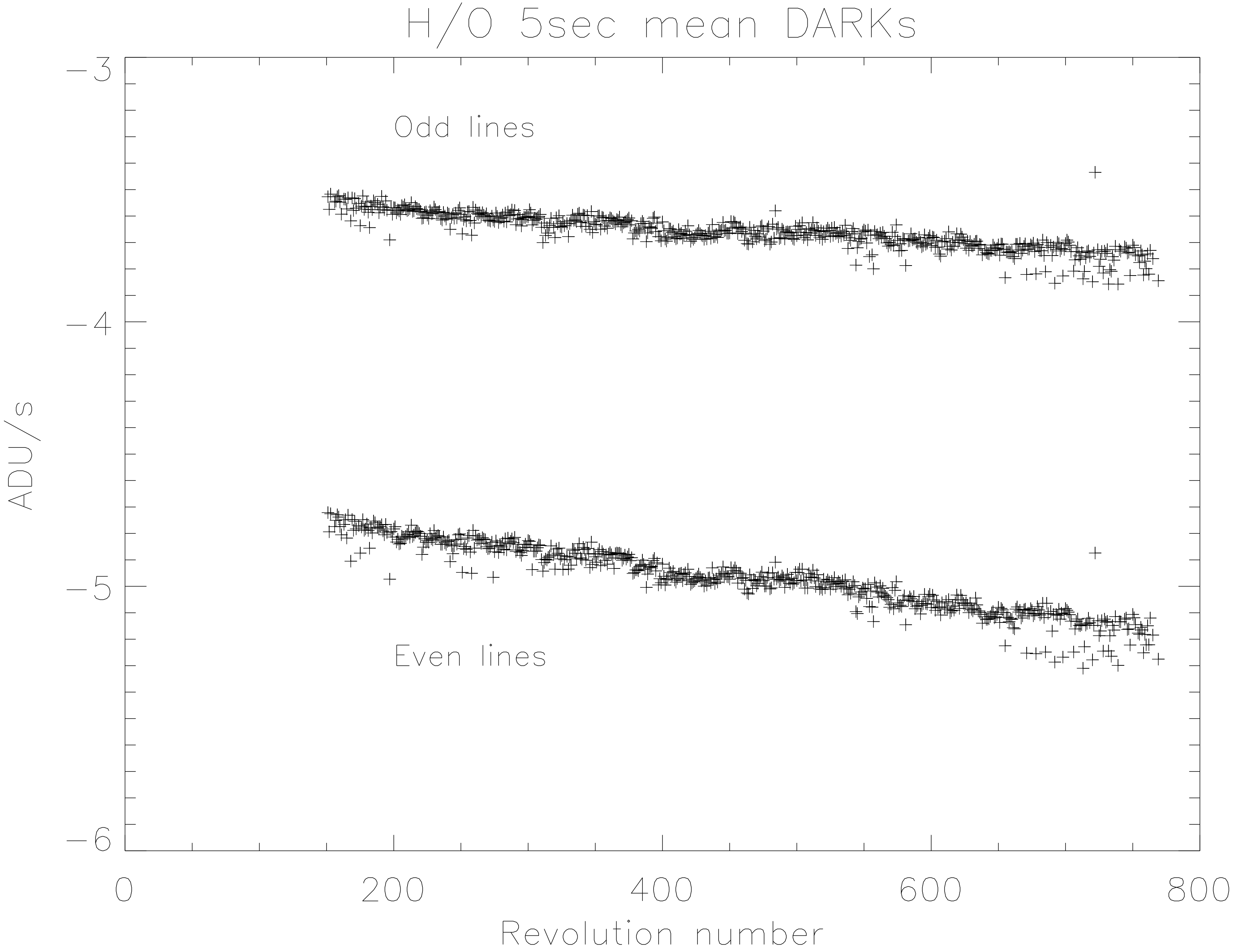
(building upon the work by A. Biviano and M. Sauvage)

Trends identified so far:

* Long-term drift (-0.2 ADU/s per 100 revolutions)
* Short-term drift (-0.2 ADU/s during a revolution)
* Temperature dependence (0.7 ADU)

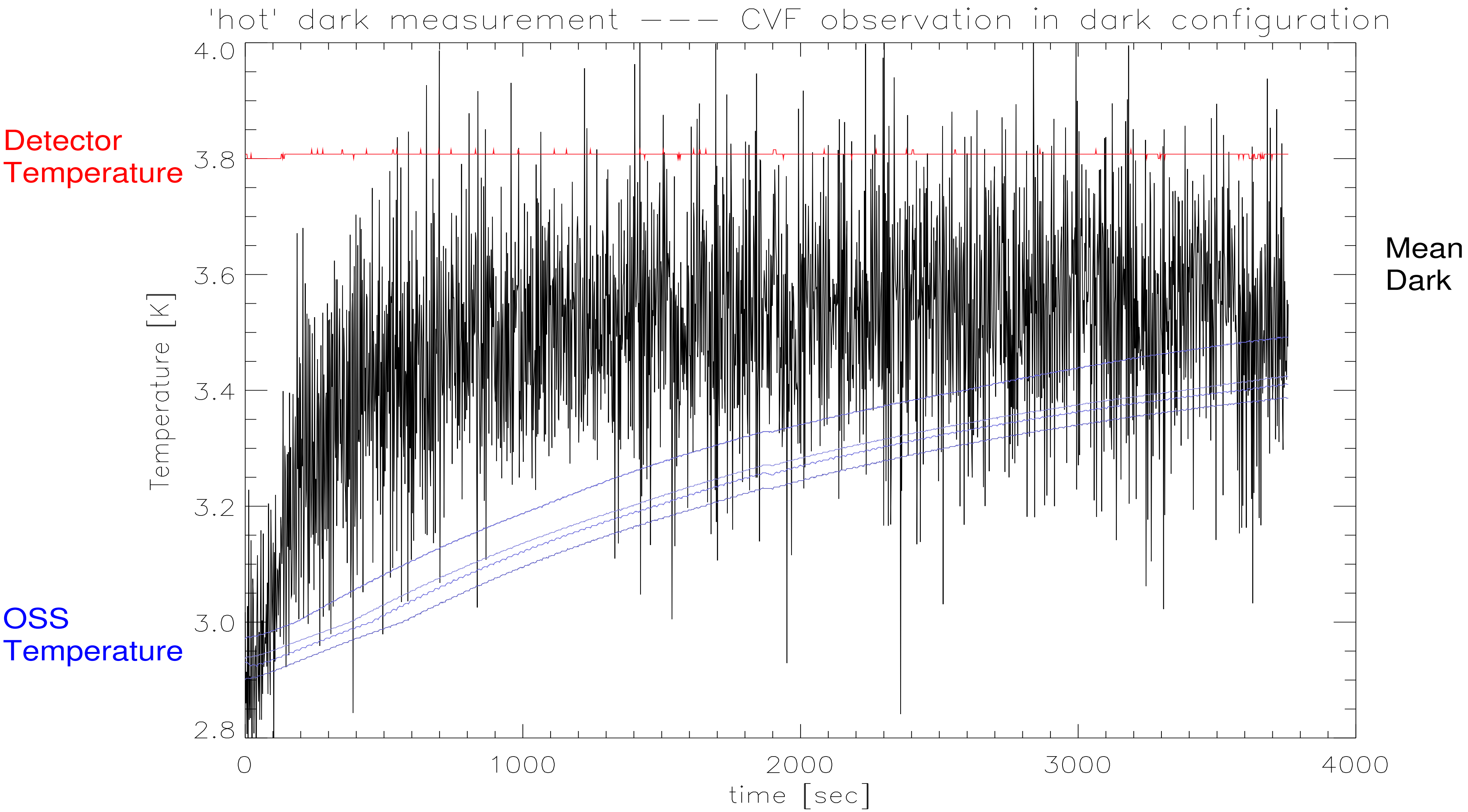
Data used:

* Darks measured during handover
* revolutions with CAM in dark configuration


H/O 5sec mean DARKs
Odd lines
Even lines
ADU/s
Revolution number
−3
−4
−5
−6
0
200
400
600
800

Improved deglitching permitted a better Characterisation of the Dark Trends:

* MM deglitching (nscale=6, nsigma = 4) eliminates strong glitches
* Second run with 2 sigma clipping eliminates glitches undetected by MM
* Around 50% of the pixels are masked as affected by glitches


'hot' dark measurement --- CVF observation in dark configuration
Detector Temperature
OSS Temperature
Mean Dark
Temperature [K]
4.0
3.8
3.6
3.4
3.2
3.0
2.8
0
1000
2000
3000
4000
time [sec]

Summary of the latest Results:

- * Temperature of the Optical Substructure has no effect on the dark
- * Residual in short-term drift identified
- * Improved Temperature dependence for tint = 5 sec
  - corrections with master-dark reduces the over-corrections by 50%
  - dark is only weakly correlated to temperature any more

Planned future Work:

* iterative improvement on short-term drift and temperature dependency for 5 sec integration time
* use of further improved deglitching methods
* expansion for other integration times
* investigation whether temperature dependence is independent of integration time
* improvement of long-term drift
* investigation of additional features (deepers, space weather, consistent excursions)