



Guarding performance and data quality of OmegaCAM/VST at ESO

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and ESO QC Group

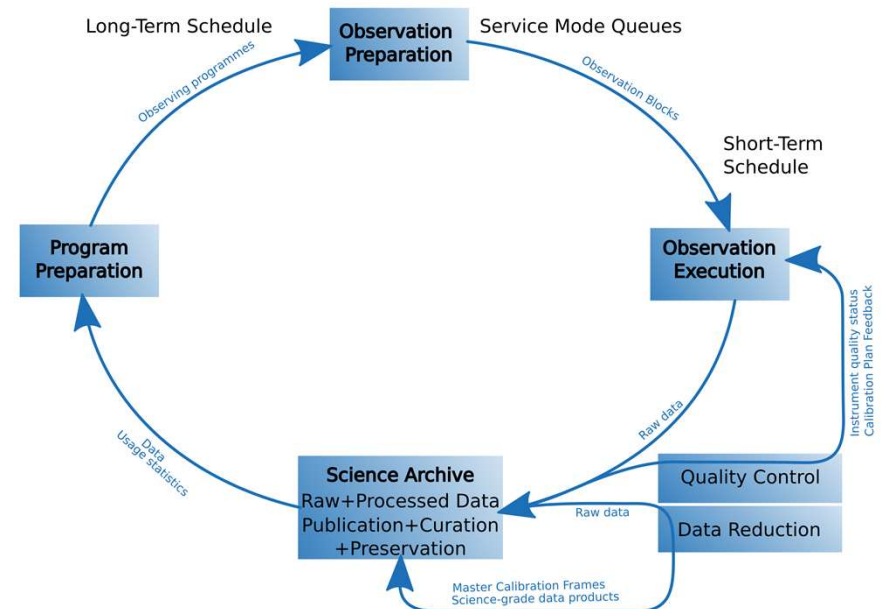


Operations at ESO

■ Quality Control loop:

- data acquired at Paranal
- transferred to Garching, processed, checked
- results fed back to Paranal
- certified calibrations saved in the Archive

■ OmegaCAM supported by the QC group since the beginning of operations in Oct.2011





QC Group at ESO

- Focus on calibrations – good data necessary to remove instrumental effects from the science data
- Main goals:
 - Check completeness of calibrations (calibration plan)
 - Verify quality of calibrations (valid measurement of instrumental effects)
 - Check instrument status



Completeness of calibrations

- calChecker – were all the required calibrations for the science taken?

CAL | HCL refs | QC

CALCHECKER

HOME | HELP

ALL INSTRUMENTS

UT1
FORS2
KMOS
NACO

UT2
FLAMES/GIRAFFE
UVES&FLAMES/UVES
X-SHOOTER

UT3
SPHERE
VISIR

UT4
HAWK-I
MUSE
SINFONI

UT5
AMBER
GRAVITY
PIONER

ICCF (Incoh. comb. Coude focus)
ESPRESSO

Survey Cameras
OMEGACAM
VIRCAM

QC links:
QC Home
Data Products
calChecker
HealthChecks
Reference Frames

QC database
Paranal auttrap database
(ESO internal)

CAL OMEGACAM calChecker: calibration completeness monitor

Last update: 2018-05-03T12:41:16 (UT) (0d 00h:04m ago) [?] Paranal date*: 2018-05-02 [?] server: www.eso.org HQ HELP ASSOC-RULES DETAILS

Last header: OMEGA: 2018-05-03T12:02:32.204.hdr ✓ transfer ✓ ngas [?] *Date on this monitor changes at 21:00 UT. Refresh frequency: 12hr day and night.

General news:
OMEGACAM news:

Long-term calibrations and maintenance complete overview | how to execute [?]
type of calibration validity (days) age (days) evaluation
DOME_SHUTTESTEST 90 76.7 soft.REMINDER: next 40 day(s)

refresh analyze ISSUES mark BAD QUALITY

HELP | QA | ASSOC-RULES | history... | contact | monitors: DataTransferMonitor | BandWidth

science calcal [?] Product availability depends on the data transfer to Garching and the archive access there (check the "transfer" and "ngas" flags above).

DATE*: [?] 2018-04-26 2018-04-27 2018-04-28 2018-04-29 2018-04-30 2018-05-01 2018-05-02 [?] Setup: [?]
[color if science data acquired] SM 72 SM 63 SM 83 SM 65 SM 52 SM 131 [only require OB grade review]

Raw CAL displays: [?] raw raw raw raw raw raw raw [Take these data types ... for these setups]

CAL product quality: [?] ✓ products ✓ products ✓ products ✓ products ✓ products ✓ products products

Data types:	Setup:	2018-04-26	2018-04-27	2018-04-28	2018-04-29	2018-04-30	2018-05-01	2018-05-02	LOST?	Calibration action?	Setup:
SCIENCE	NB_659	ok analyzed: [1]						nok [daycals finished; problem not yet analyzed]	STD	TWILIGHT	NB_659
	g_SDSS	ok analyzed: [2]	ok					nok [daycals finished; problem not yet analyzed]	STD	TWILIGHT	g_SDSS
	i_SDSS	ok analyzed: [3]	ok	ok	ok	ok		ok		all ok	
	r_SDSS	ok analyzed: [4]	ok					ok		all ok	
	u_SDSS	ok analyzed: [5]						nok [daycals finished; problem not yet analyzed]	STD	TWILIGHT	u_SDSS
	z_SDSS	ok analyzed: [6]	ok							all ok	

ANALYSIS NOTES:

Index	data type	setup	date	flag	analysis
[1]	SCIENCE	NB_659	2018-04-26	OK	science OB does not require a standard (analyzed by vst@eso.org)
[2]	SCIENCE	g_SDSS	2018-04-26	OK	science OB does not require a standard (analyzed by vst@eso.org)
[3]	SCIENCE	i_SDSS	2018-04-26	OK	science OB does not require a standard (analyzed by vst@eso.org)
[4]	SCIENCE	r_SDSS	2018-04-26	OK	science OB does not require a standard (analyzed by vst@eso.org)
[5]	SCIENCE	u_SDSS	2018-04-26	OK	science OB does not require a standard (analyzed by vst@eso.org)
[6]	SCIENCE	z_SDSS	2018-04-26	OK	science OB does not require a standard (analyzed by vst@eso.org)

INFORMATION SPECIFIC TO OMEGACAM [?]
The following keys are used to define a SCIENCE OmegaCAM setup:

INS.FILT1.NAME
available filters: u_SDSS / g_SDSS / r_SDSS / i_SDSS / z_SDSS / u_g_r_i_SDSS
B_JOHN / V_JOHN / v_STRM / H_ALPHA / opaque
NB_454_494_533_575 / NB_617_710_755_817 / NB_852_861_869_878

CONFIGURATION [?]
Number of days scanned: 7
Range of days for the issue memory (configured): 20
Range of days for the calibration memory (issue memory plus longest validity): 27
Days in the calibration&issue memory: 2018-04-06 v
*Date on this monitor changes at: 21:00 UT





Quality of calibrations

- Classification, organization, automatic processing and certification of daily calibration frames
- QC parameters from the master calibrations saved

CONDOR: UP Processing: 0

bottom P... OMEGACAM product quality monitor (date: 2018-05-04)

This is the product quality monitor, with an overview of the processing status of all processing jobs (ABs) and the quality of the products. Those scores which are relevant for instrument health (marked 'HC') are propagated to the HC monitor. The other scores are related to pipeline processing and product quality. Click on the score report to see score details and other information for exploring data quality and trending. For standard DFOS operations, only calibrations are processed, no science data.

last update: 2018-05-07 07:40:10 (UT); machine: muc06 68 ABs in \$DFO_AB_DIR browser_refresh: on (every 60 sec | stop | on); tool_refresh: off
 number of ABs (all | success | failed | created): 24 | 24 | 0 | 0 scored: all; result: 1/2248

refresh CAL report RAW MIT case | REF. [create ABs] raw | score_investigate comments: [enter data comment] | hide (QC1_4b) | data | raw | prod

condor: Condor jobs for ocam@muc06: 2018-05-07 07:40:10 jobs: 0 completed, 0 removed, 0 idle, 0 running, 0 held, 0 suspended
 Last cascade: [data:ocam/condor/QCCALIB_2018-05-04:152523711_69289494]
 Dagman for ocam@muc06: No job running
 micMonitor: [executing by ocam] error
 cascadeMonitor: cal score | [view]

Showing 1 to 24 of 24 ABs
 Normal search: Enter a string or a combination of strings. Dependency search: Enter an INDEX and a delimiter for dependency search (more...)
 For search, stop browser refresh: [stop] [on]

BOS AB NAME	INDEX	COMPL.	AB LOG	RECIPE	RAW_TYPE	SETUP	AB STATUS	P LOG	T_EXEC	QC REPORT	SCO	RE	CERTIF
OMEGA_2018-05-04T22:22:09.073_tpl.ab	CALD01	compl.	OK	omega_mflat	TWILIGHT	F_SDSS	OK	FLG	5.917.3	QC COVER	✓ HC (01.98)	AUTO	
OMEGA_2018-05-04T22:26:31.774_tpl.ab	CALD02	compl.	OK	omega_mflat	TWILIGHT	F_SDSS	OK	FLG	6.0+7.4	QC COVER	✓ HC (01.98)	AUTO	
OMEGA_2018-05-04T22:33:31.544_tpl.ab	CALD03	compl.	OK	omega_mflat	TWILIGHT	F_SDSS	OK	FLG	5.9+7.5	QC COVER	✓ HC (01.98)	AUTO	
OMEGA_2018-05-04T22:48:06.047_tpl.ab	CALD04	compl.	OK	omega_standard_star	STD	F_SDSS	OK	FLG	6.1+5.0	QC COVER	✓ (0.68)	AUTO	
OMEGA_2018-05-04T22:54:22.608_tpl.ab	CALD05	compl.	OK	omega_standard_star	STD	F_SDSS	OK	FLG	6.3+5.0	QC COVER	✓ (0.68)	AUTO	
OMEGA_2018-05-04T22:56:41.708_tpl.ab	CALD06	compl.	OK	omega_standard_star	STD	F_SDSS	OK	FLG	4.9+5.0	QC COVER	✓ (0.68)	AUTO	
OMEGA_2018-05-04T22:59:08.538_tpl.ab	CALD07	compl.	OK	omega_standard_star	STD	F_SDSS	OK	FLG	5.1+5.0	QC COVER	✓ (0.68)	AUTO	
OMEGA_2018-05-04T23:02:20.548_tpl.ab	CALD08	compl.	OK	omega_standard_star	STD	F_SDSS	OK	FLG	4.8+5.1	QC COVER	✓ (0.68)	AUTO	
OMEGA_2018-05-04T23:06:47.580_tpl.ab	CALD09	compl.	OK	omega_standard_star	STD	F_SDSS	OK	FLG	5.2+5.0	QC COVER	✓ (0.68)	AUTO	
OMEGA_2018-05-05T02:59:59.583_tpl.ab	CALD10	compl.	OK	omega_standard_star	STD	F_SDSS	OK	FLG	4.5+5.0	QC COVER	✓ (0.68)	AUTO	
OMEGA_2018-05-05T03:06:16.363_tpl.ab	CALD11	compl.	OK	omega_standard_star	STD	F_SDSS	OK	FLG	4.7+4.9	QC COVER	✓ (0.68)	AUTO	
OMEGA_2018-05-05T03:08:28.553_tpl.ab	CALD12	compl.	OK	omega_standard_star	STD	F_SDSS	OK	FLG	5.0+5.0	QC COVER	✓ (0.68)	AUTO	
OMEGA_2018-05-05T03:10:49.134_tpl.ab	CALD13	compl.	OK	omega_standard_star	STD	F_SDSS	OK	FLG	5.1+5.0	QC COVER	✓ (0.68)	AUTO	
OMEGA_2018-05-05T03:14:03.414_tpl.ab	CALD14	compl.	OK	omega_standard_star	STD	F_SDSS	OK	FLG	4.7+5.0	QC COVER	✓ (0.68)	AUTO	
OMEGA_2018-05-05T03:17:26.845_tpl.ab	CALD15	compl.	OK	omega_standard_star	STD	F_SDSS	OK	FLG	5.1+4.6	QC COVER	✓ (0.68)	AUTO	
OMEGA_2018-05-05T03:23:53.305_tpl.ab	CALD16	compl.	OK	omega_standard_star	STD	F_SDSS	OK	FLG	5.0+4.6	QC COVER	✓ (0.68)	AUTO	
OMEGA_2018-05-05T03:34:27.207_tpl.ab	CALD17	compl.	OK	omega_standard_star	STD	NI_659	OK	FLG	4.6+4.7	QC COVER	✓ (0.68)	AUTO	
OMEGA_2018-05-05T03:43:46.756_tpl.ab	CALD18	compl.	OK	omega_standard_star	STD	F_SDSS	OK	FLG	5.0+4.8	QC COVER	✓ (0.68)	AUTO	
OMEGA_2018-05-05T10:15:26.113_tpl.ab	CALD19	compl.	OK	omega_qcheck	QUICK_CHECK	F_SDSS_FFLS1	OK	FLG	0.5+1.1	QC	✓ HC (0.68)	AUTO	
OMEGA_2018-05-05T10:17:00.974_tpl.ab	CALD20	compl.	OK	omega_readnoise	BIAS_READNOISE	1_1	OK	FLG	0.8+1.2	QC	⚠ HC (17.02)	OK bias1_mean slightly higher in cc090	
OMEGA_2018-05-05T10:18:29.273_tpl.ab	CALD21	compl.	OK	omega_mbias	BIAS	1_1	OK	FLG	2.4+4.5	QC COVER	✓ HC (01.00)	AUTO	
OMEGA_2018-05-05T10:29:36.625_tpl.ab	CALD22	compl.	OK	omega_qcheck	QUICK_CHECK	F_SDSS_FFLS2	OK	FLG	0.5+1.2	QC	✓ HC (0.68)	AUTO	
OMEGA_2018-05-05T10:35:21.816_tpl.ab	CALD23	compl.	OK	omega_readnoise	DCME	NI_659_FFLS1	OK	FLG	3.0+6.5	QC COVER	✓ HC (01.98)	AUTO	
OMEGA_2018-05-05T10:41:24.797_tpl.ab	CALD24	compl.	OK	omega_readnoise	BIAS_READNOISE	1_1	OK	FLG	0.8+1.3	QC	✓ HC (01.21)	AUTO	

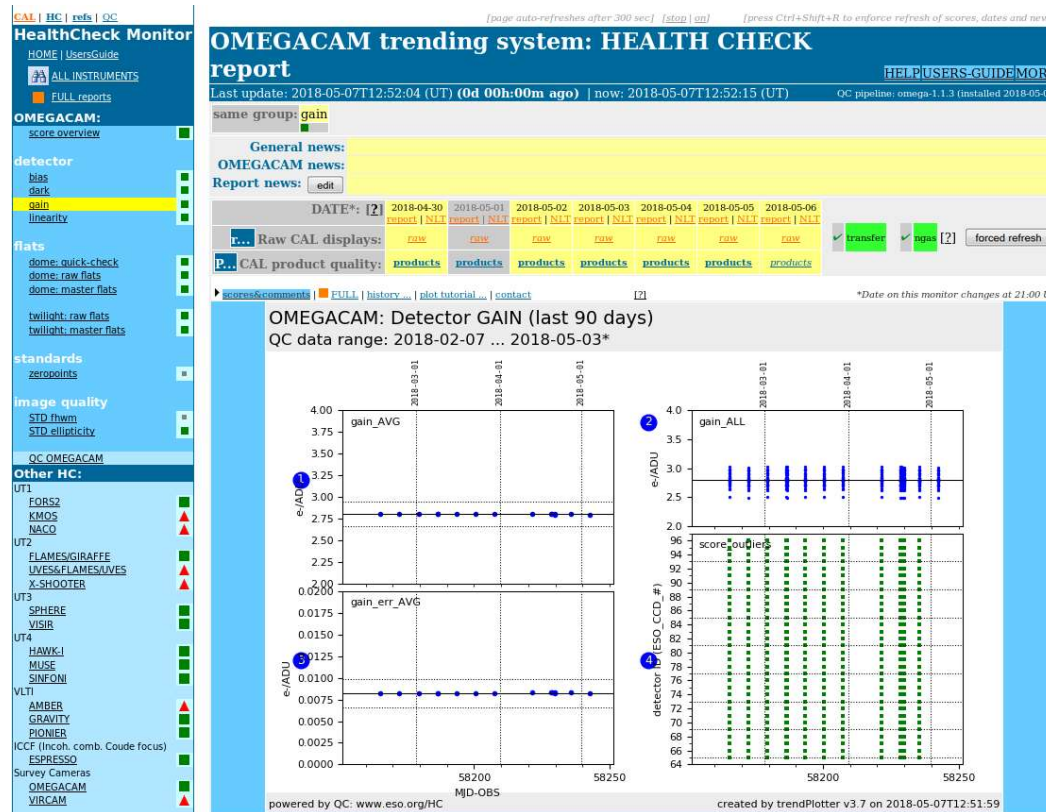




Instrument status

Health Check plots

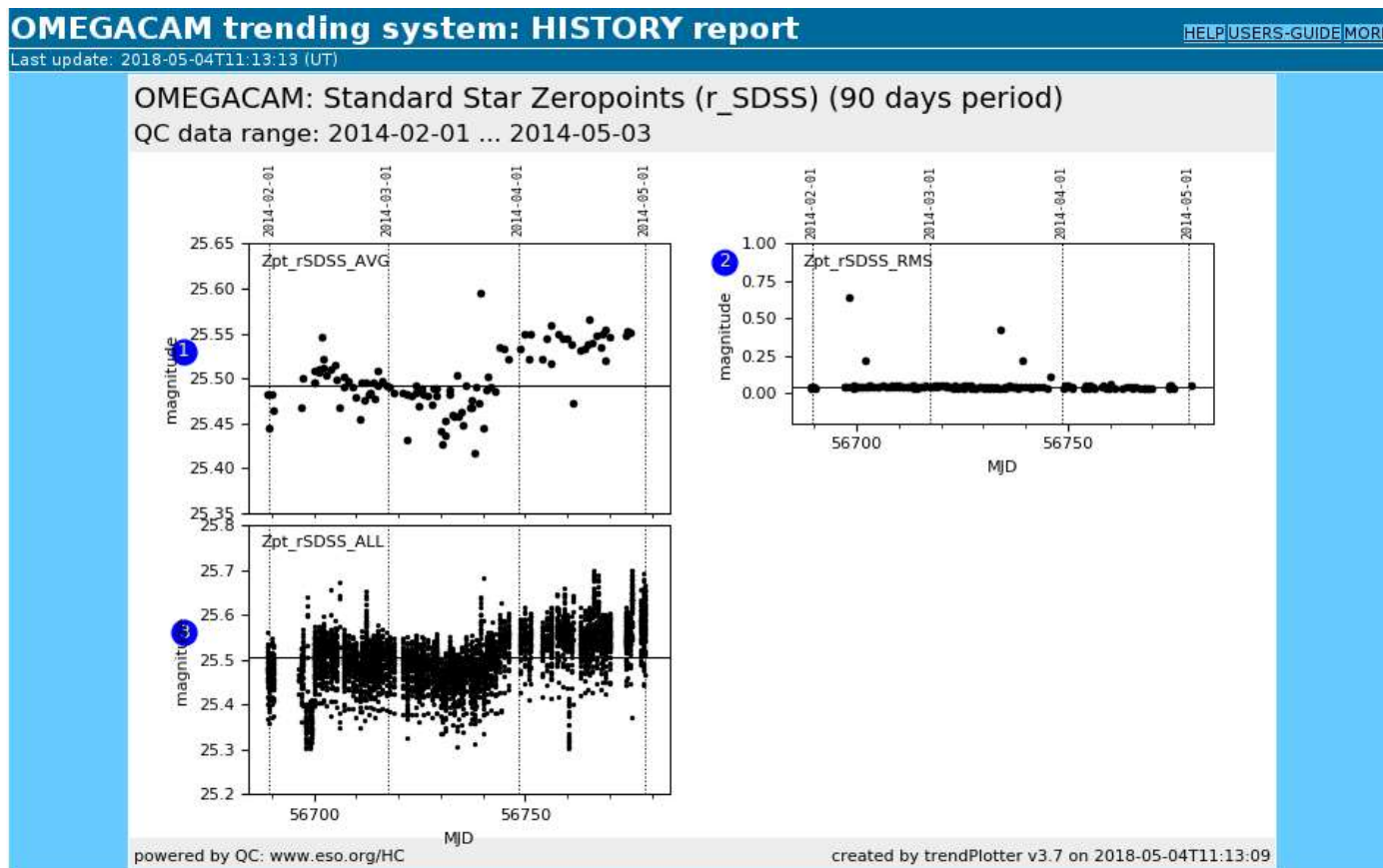
- Various QC parameters monitored
- They reflect status of the elements of the instrument





Events from the history of OmegaCAM/VST

- 2014-03-27: washing of M1; improved mirror reflectivity, i.e. instrument throughput





Events from the history of OmegaCAM/VST

- 2014-04-06: baffle installation to reduce reflections and scattered light

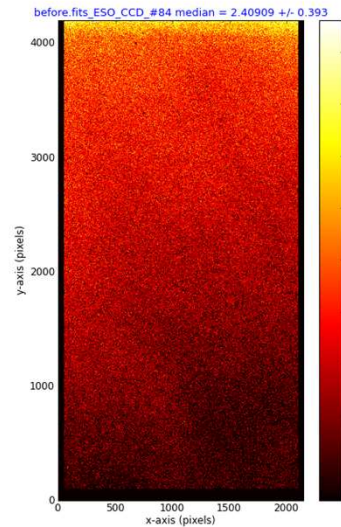
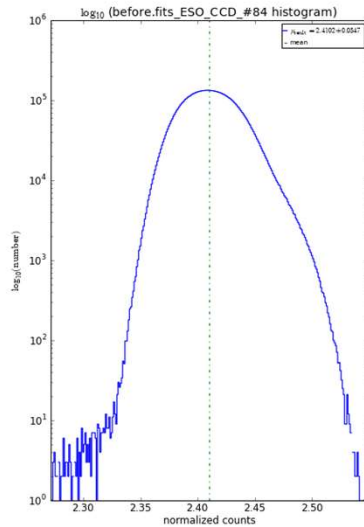
Corrected illumination on example of CCD_84

before

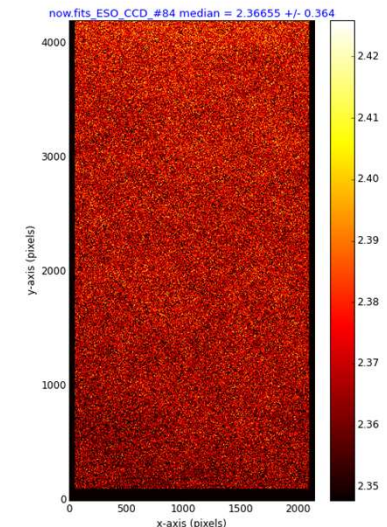
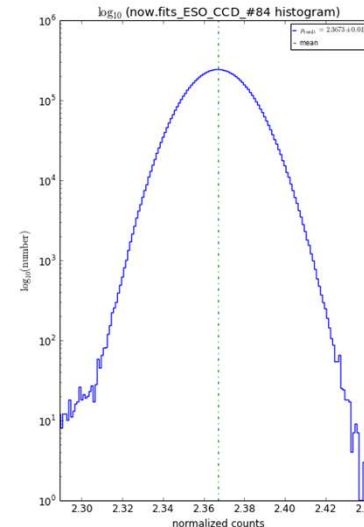
after

(ESO_CCD_#84 / 12) before.fits_ESO_CCD_#84.fits = OMEGA.2014-01-01T08:35:40.762.fits / 1.0 * OMEGA.2013-12-31T00:02:14.246.fits

(ESO_CCD_#84 / 12) now.fits_ESO_CCD_#84.fits = OMEGA.2014-04-13T11:20:54.024.fits / 1.0 * OMEGA.2014-04-10T22:53:13.920.fits



created 2014-01-24 09:06:13



created 2014-04-16 12:33:28

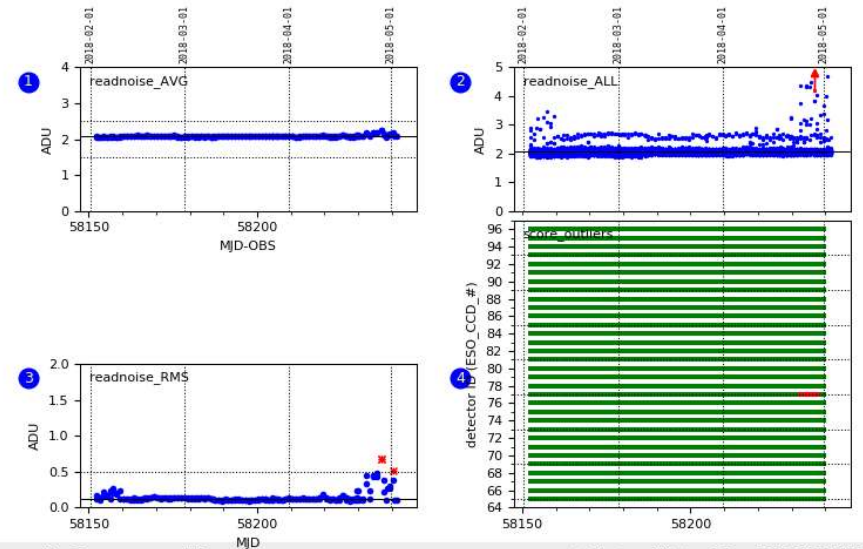




Events from the history of OmegaCAM/VST

- Episodes of increased bias level and read-out noise, especially in CCD_69 and CCD_77
- Known fix by power cycling FIERA 1,2 and reconnecting the cables

OMEGACAM: BIAS readnoise (last 90 days)
QC data range: 2018-02-03 ... 2018-05-02*

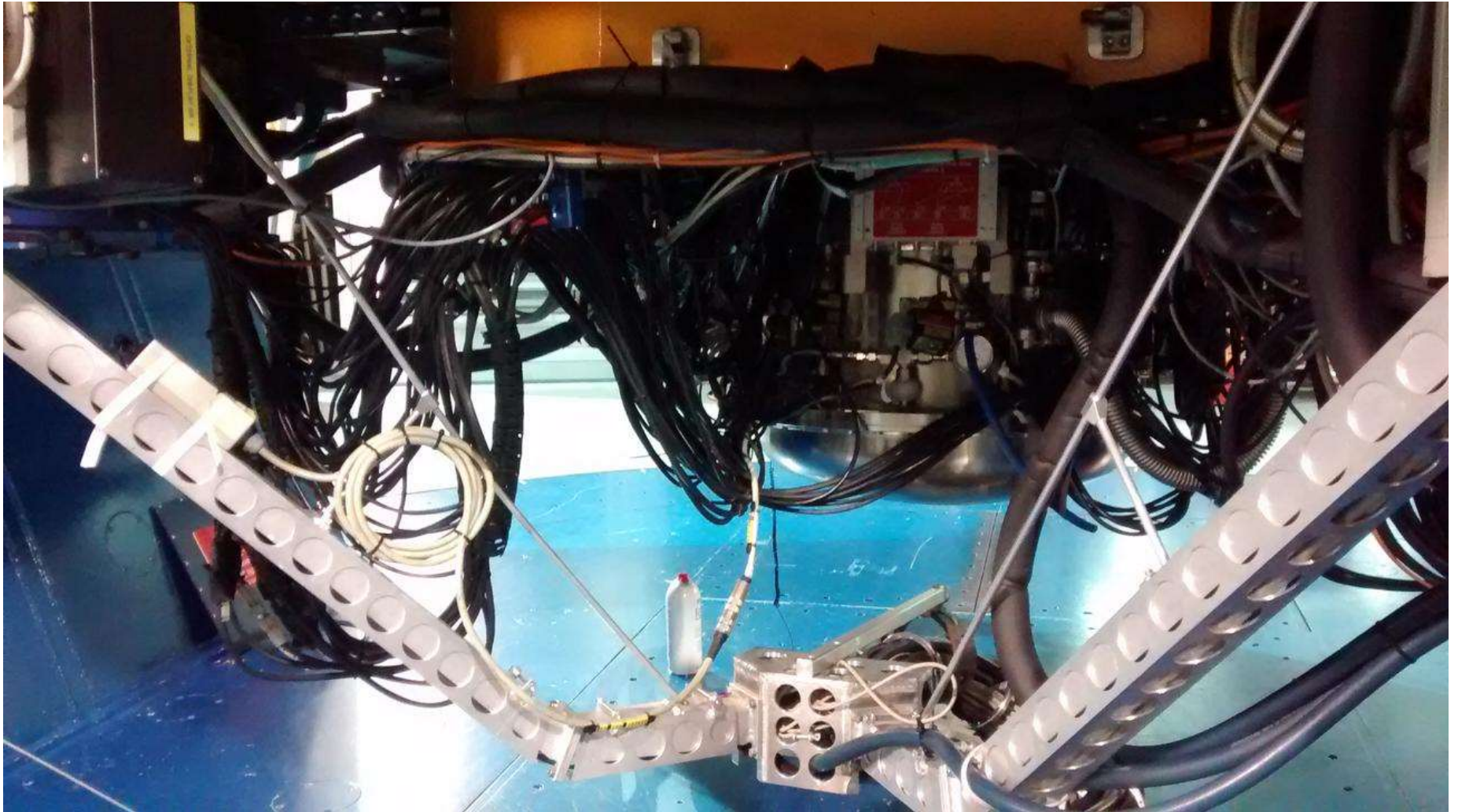


powered by QC: www.eso.org/HC

created by trendPlotter v3.7 on 2018-05-03T11:54:07



Events from the history of OmegaCAM/VST





Summary

- We ensure that complete set of good quality calibrations is available to calibrate science data
- We monitor performance of the instrument
- Continuous feedback is provided to the Observatory about status of the data and of the instrument
- Provide information to the community:
<http://www.eso.org/qc/>