Guarding performance and data quality of OmegaCAM/VST at ESO

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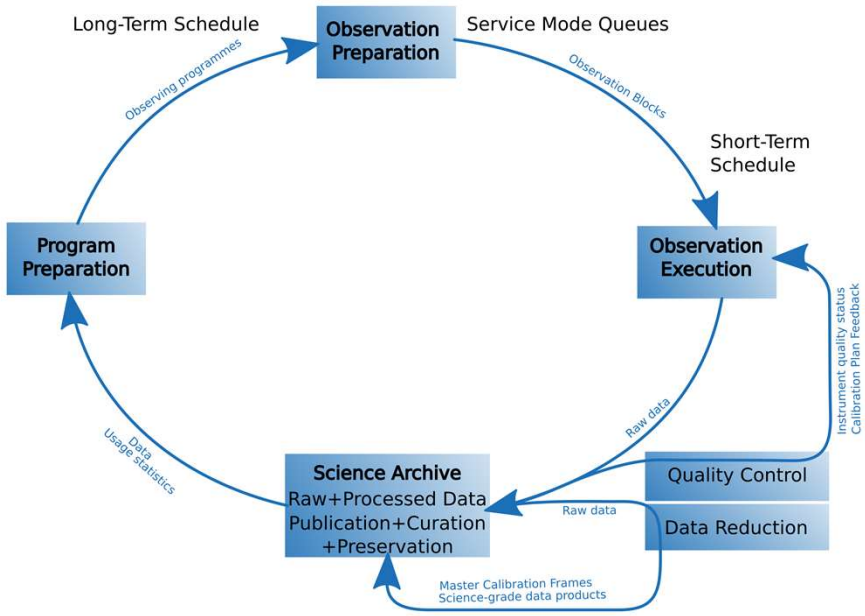
and ESO QC Group

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

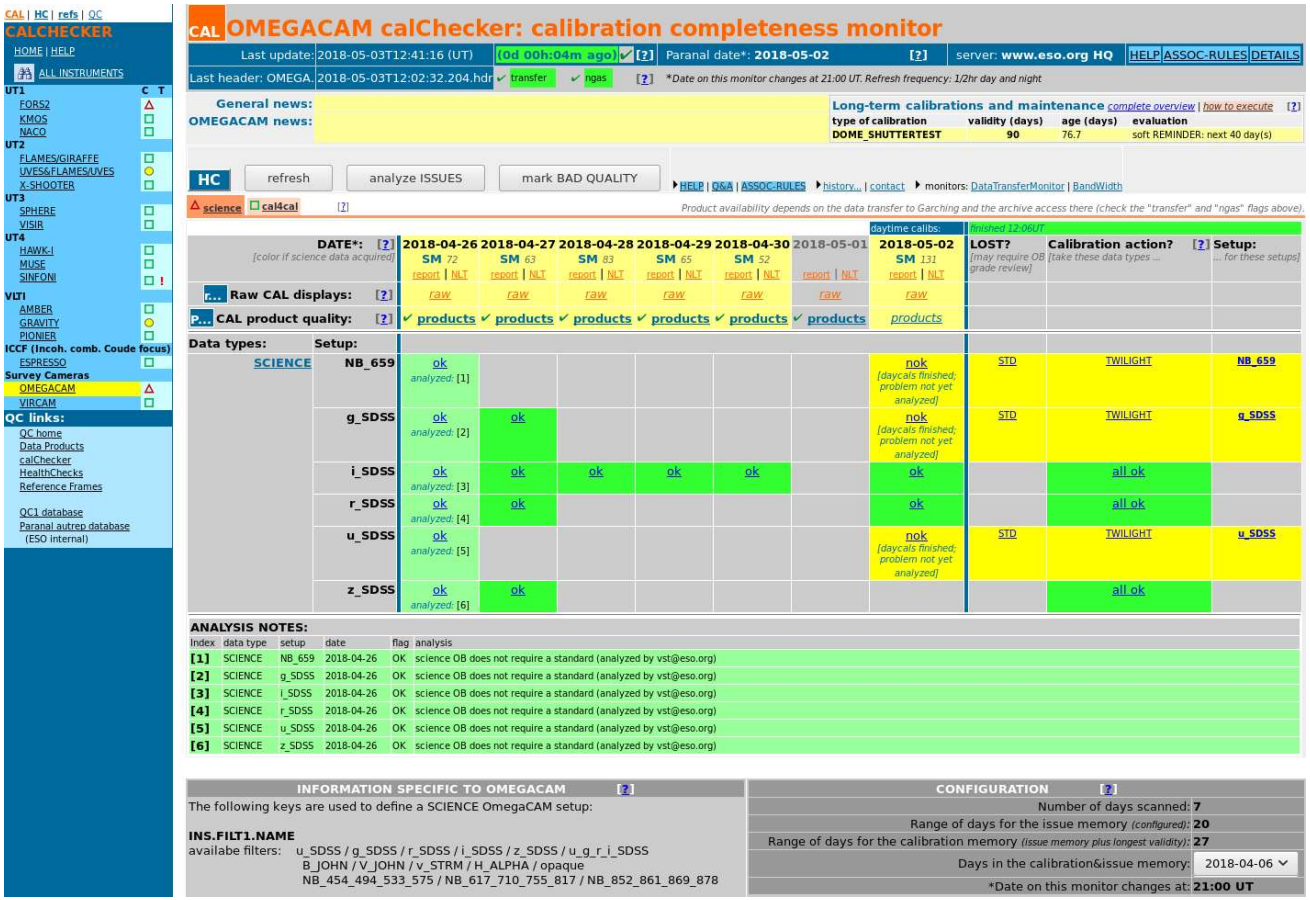


QC Group at ESO

- 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

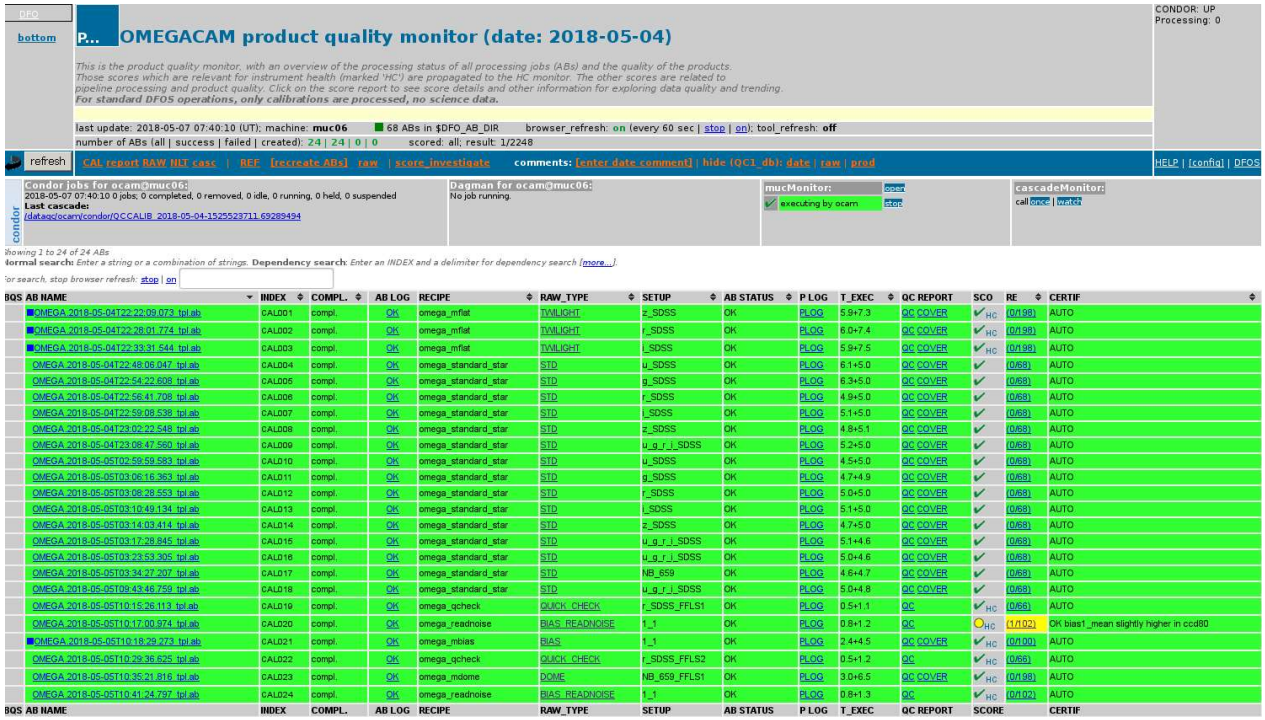
Completeness of calibrations

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



Quality of calibrations

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



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.

CONDOR: UP
Processing: 0

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 NLT casc | REF [recreate ABs] raw | score_investigate comments: [enter date comment] | hide (QC1_db): date | raw | prod | HELP | [config] | DFOS

Condor jobs for ocam@muc06:
2018-05-07 07:40:10 0 jobs; 0 completed, 0 removed, 0 idle, 0 running, 0 held, 0 suspended
Last cascade:
/dataqc/ocam/condor/QCCALIB_2018-05-04-1525523711.69289494

Dagman for ocam@muc06:
No job running.

mucMonitor: oper
executing by ocam stop

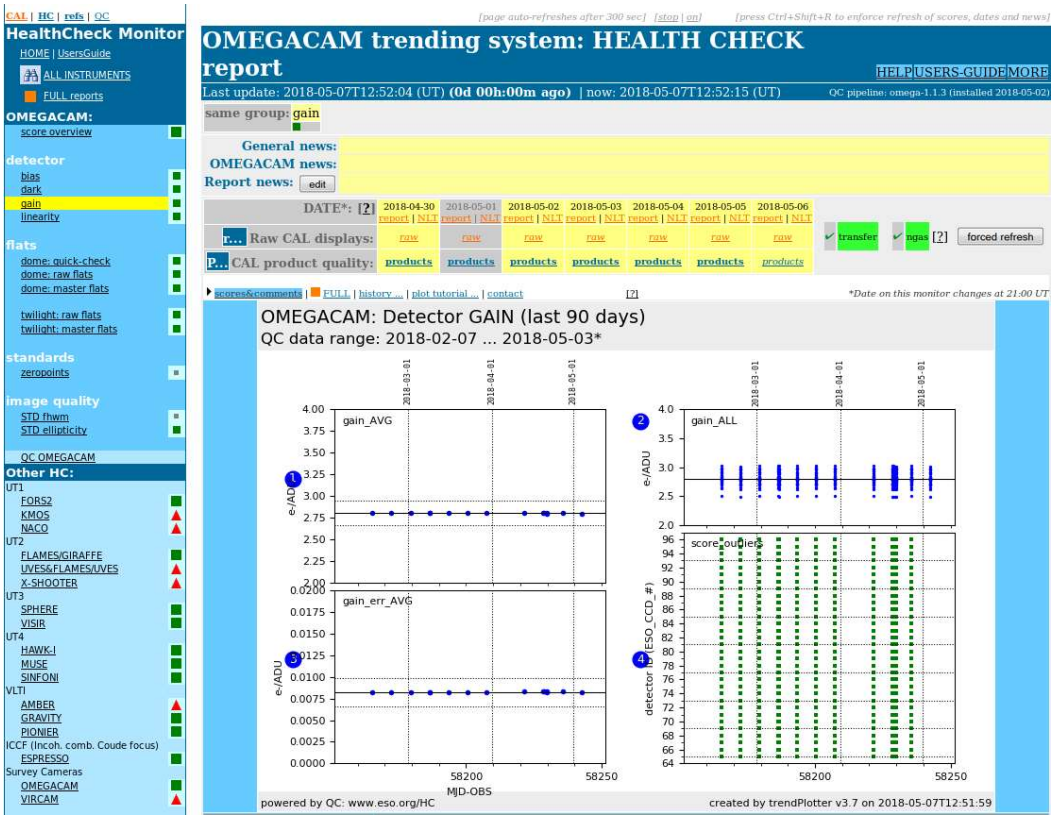
cascadeMonitor:
call once | watch

showing 1 to 24 of 24 ABs
formal 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

BQS	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	CAL001	compl.	OK	omega_mflat	TWILIGHT	z_SDSS	OK	PLOG	5.9+7.3	QC COVER	HC	(0/198)	AUTO
	OMEGA.2018-05-04T22:28:01.774_tpl.ab	CAL002	compl.	OK	omega_mflat	TWILIGHT	r_SDSS	OK	PLOG	6.0+7.4	QC COVER	HC	(0/198)	AUTO
	OMEGA.2018-05-04T22:33:31.544_tpl.ab	CAL003	compl.	OK	omega_mflat	TWILIGHT	i_SDSS	OK	PLOG	5.9+7.5	QC COVER	HC	(0/198)	AUTO
	OMEGA.2018-05-04T22:48:06.047_tpl.ab	CAL004	compl.	OK	omega_standard_star	STD	u_SDSS	OK	PLOG	6.1+5.0	QC COVER		(0/68)	AUTO
	OMEGA.2018-05-04T22:54:22.608_tpl.ab	CAL005	compl.	OK	omega_standard_star	STD	g_SDSS	OK	PLOG	6.3+5.0	QC COVER		(0/68)	AUTO
	OMEGA.2018-05-04T22:56:41.708_tpl.ab	CAL006	compl.	OK	omega_standard_star	STD	r_SDSS	OK	PLOG	4.9+5.0	QC COVER		(0/68)	AUTO
	OMEGA.2018-05-04T22:59:08.538_tpl.ab	CAL007	compl.	OK	omega_standard_star	STD	i_SDSS	OK	PLOG	5.1+5.0	QC COVER		(0/68)	AUTO
	OMEGA.2018-05-04T23:02:22.548_tpl.ab	CAL008	compl.	OK	omega_standard_star	STD	z_SDSS	OK	PLOG	4.8+5.1	QC COVER		(0/68)	AUTO
	OMEGA.2018-05-04T23:08:47.560_tpl.ab	CAL009	compl.	OK	omega_standard_star	STD	u_g_r_i_SDSS	OK	PLOG	5.2+5.0	QC COVER		(0/68)	AUTO
	OMEGA.2018-05-05T02:59:59.583_tpl.ab	CAL010	compl.	OK	omega_standard_star	STD	u_SDSS	OK	PLOG	4.5+5.0	QC COVER		(0/68)	AUTO
	OMEGA.2018-05-05T03:06:16.363_tpl.ab	CAL011	compl.	OK	omega_standard_star	STD	g_SDSS	OK	PLOG	4.7+4.9	QC COVER		(0/68)	AUTO
	OMEGA.2018-05-05T03:08:28.553_tpl.ab	CAL012	compl.	OK	omega_standard_star	STD	r_SDSS	OK	PLOG	5.0+5.0	QC COVER		(0/68)	AUTO
	OMEGA.2018-05-05T03:10:49.134_tpl.ab	CAL013	compl.	OK	omega_standard_star	STD	i_SDSS	OK	PLOG	5.1+5.0	QC COVER		(0/68)	AUTO
	OMEGA.2018-05-05T03:14:03.414_tpl.ab	CAL014	compl.	OK	omega_standard_star	STD	z_SDSS	OK	PLOG	4.7+5.0	QC COVER		(0/68)	AUTO
	OMEGA.2018-05-05T03:17:28.845_tpl.ab	CAL015	compl.	OK	omega_standard_star	STD	u_g_r_i_SDSS	OK	PLOG	5.1+4.6	QC COVER		(0/68)	AUTO
	OMEGA.2018-05-05T03:23:53.305_tpl.ab	CAL016	compl.	OK	omega_standard_star	STD	u_g_r_i_SDSS	OK	PLOG	5.0+4.6	QC COVER		(0/68)	AUTO
	OMEGA.2018-05-05T03:34:27.207_tpl.ab	CAL017	compl.	OK	omega_standard_star	STD	NB_659	OK	PLOG	4.6+4.7	QC COVER		(0/68)	AUTO
	OMEGA.2018-05-05T09:43:46.759_tpl.ab	CAL018	compl.	OK	omega_standard_star	STD	u_g_r_i_SDSS	OK	PLOG	5.0+4.8	QC COVER		(0/68)	AUTO
	OMEGA.2018-05-05T10:15:26.113_tpl.ab	CAL019	compl.	OK	omega_qcheck	QUICK_CHECK	r_SDSS_FFLS1	OK	PLOG	0.5+1.1	QC	HC	(0/66)	AUTO
	OMEGA.2018-05-05T10:17:00.974_tpl.ab	CAL020	compl.	OK	omega_readnoise	BIAS_READNOISE	1_1	OK	PLOG	0.8+1.2	QC	HC	(1/102)	OK bias1_mean slightly higher in ccd80
	OMEGA.2018-05-05T10:18:29.273_tpl.ab	CAL021	compl.	OK	omega_mbias	BIAS	1_1	OK	PLOG	2.4+4.5	QC COVER	HC	(0/100)	AUTO
	OMEGA.2018-05-05T10:29:36.625_tpl.ab	CAL022	compl.	OK	omega_qcheck	QUICK_CHECK	r_SDSS_FFLS2	OK	PLOG	0.5+1.2	QC	HC	(0/66)	AUTO
	OMEGA.2018-05-05T10:35:21.816_tpl.ab	CAL023	compl.	OK	omega_mdome	DOME	NB_659_FFLS1	OK	PLOG	3.0+6.5	QC COVER	HC	(0/198)	AUTO
	OMEGA.2018-05-05T10:41:24.797_tpl.ab	CAL024	compl.	OK	omega_readnoise	BIAS_READNOISE	1_1	OK	PLOG	0.8+1.3	QC	HC	(0/102)	AUTO
BQS	AB NAME	INDEX	COMPL.	AB LOG	RECIPE	RAW_TYPE	SETUP	AB STATUS	P LOG	T_EXEC	QC REPORT	SCORE		CERTIF

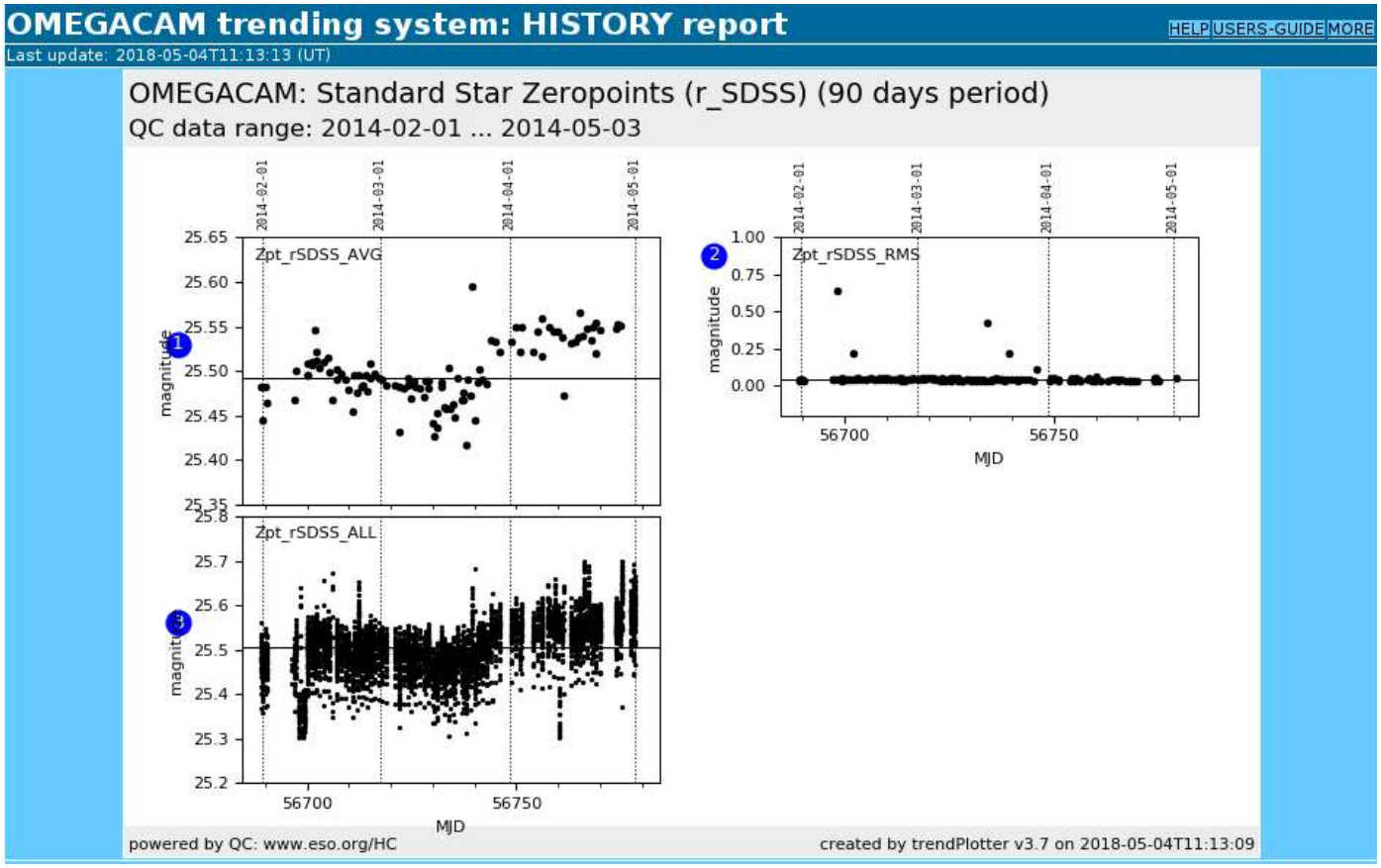
Instrument status

- 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

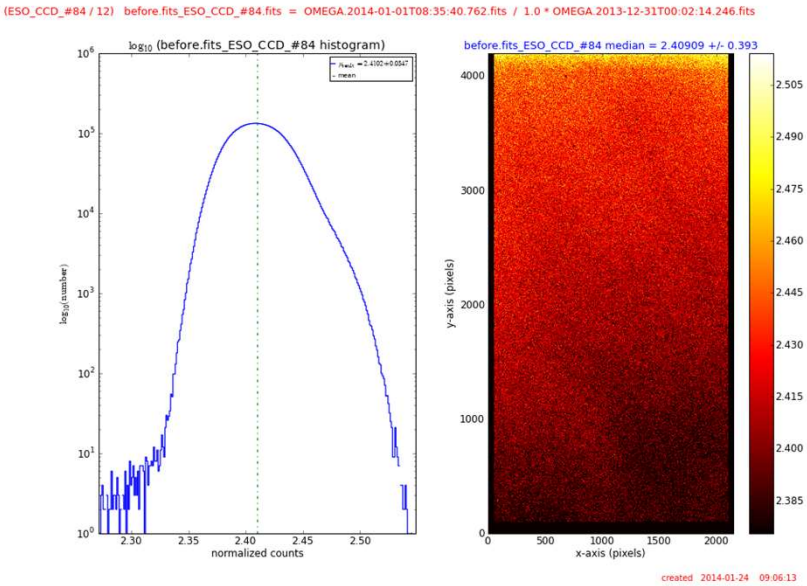


Events from the history of OmegaCAM/VST

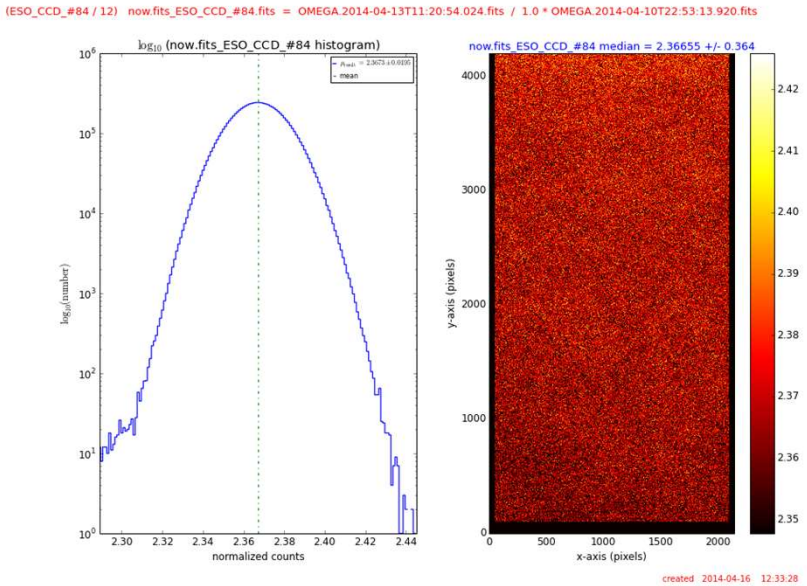
- 2014-04-06: baffle installation to reduce reflections and scattered light

Corrected illumination on example of CCD_84

before

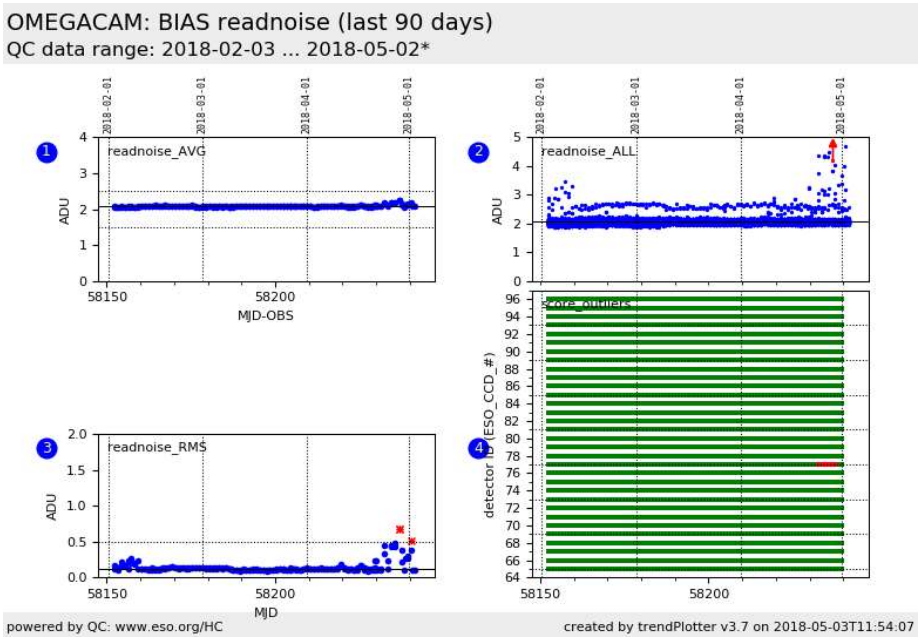


after

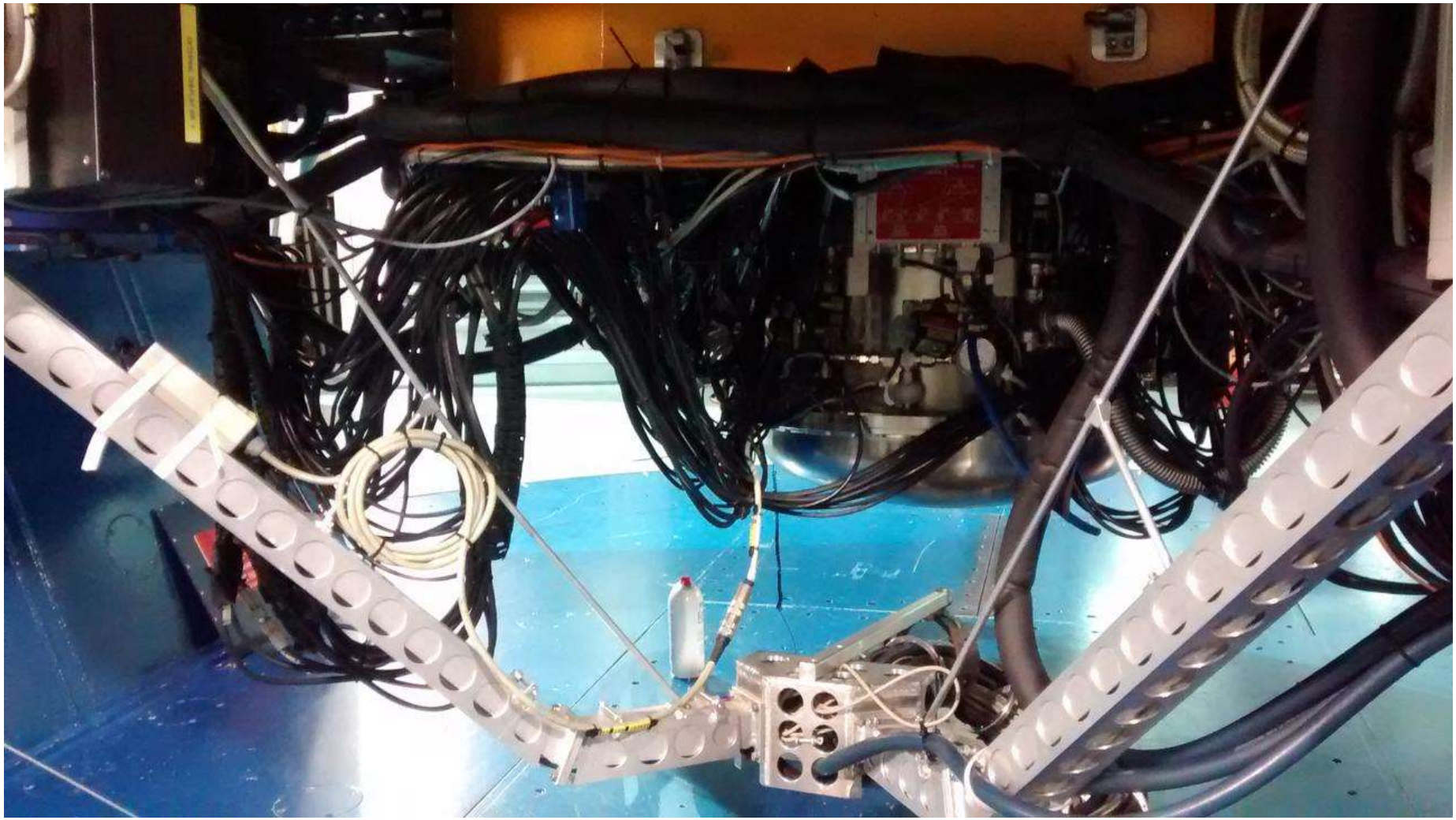


Events from the history of OmegaCAM/VST

- 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



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/