



Quality Assurance at the VLT

Real-time assessment and closed loop

Steffen Mieske

(Head of Paranal Science Operations)

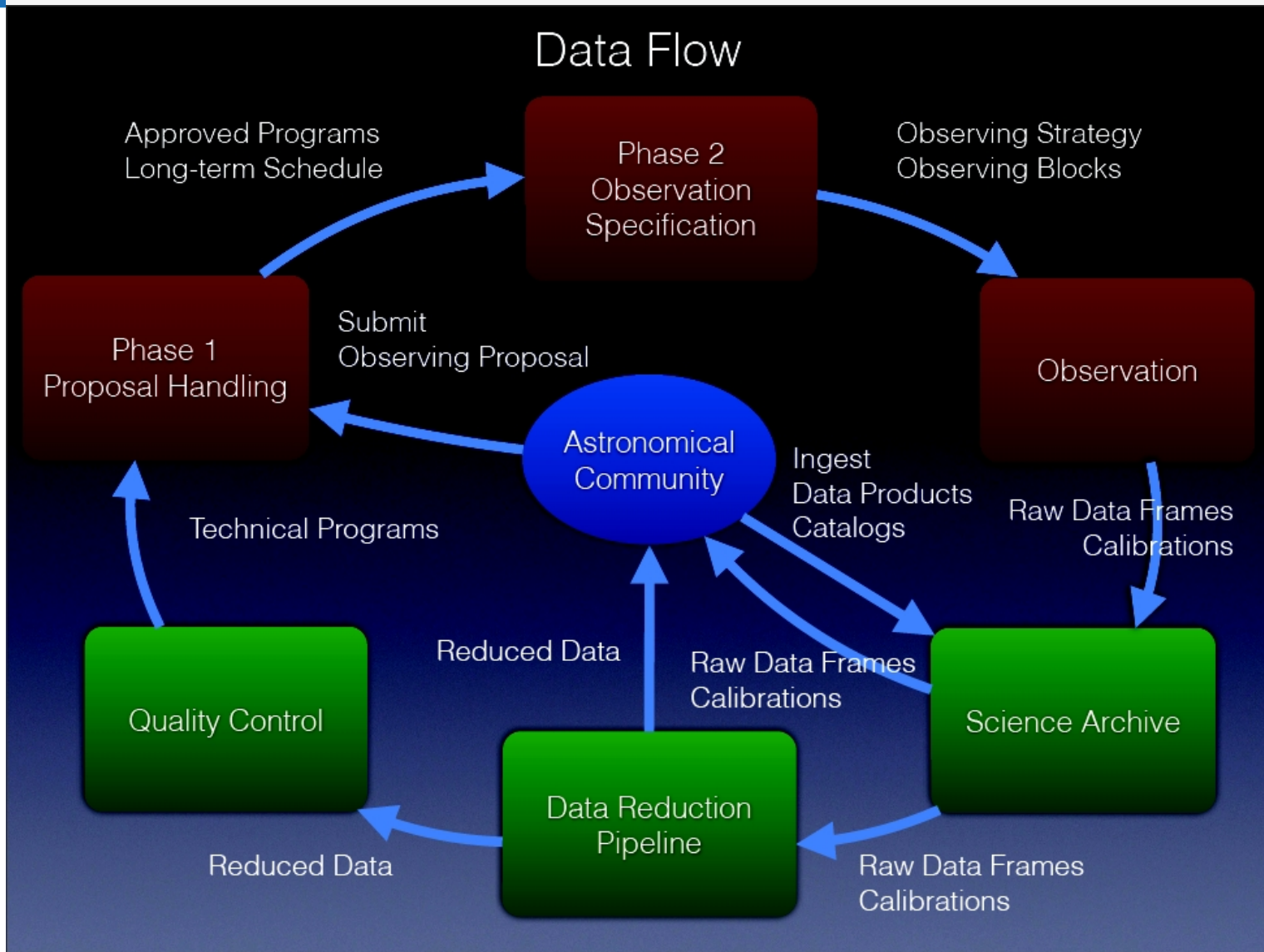
Real-time quality control of Scientific Data

Burkhard Wolff

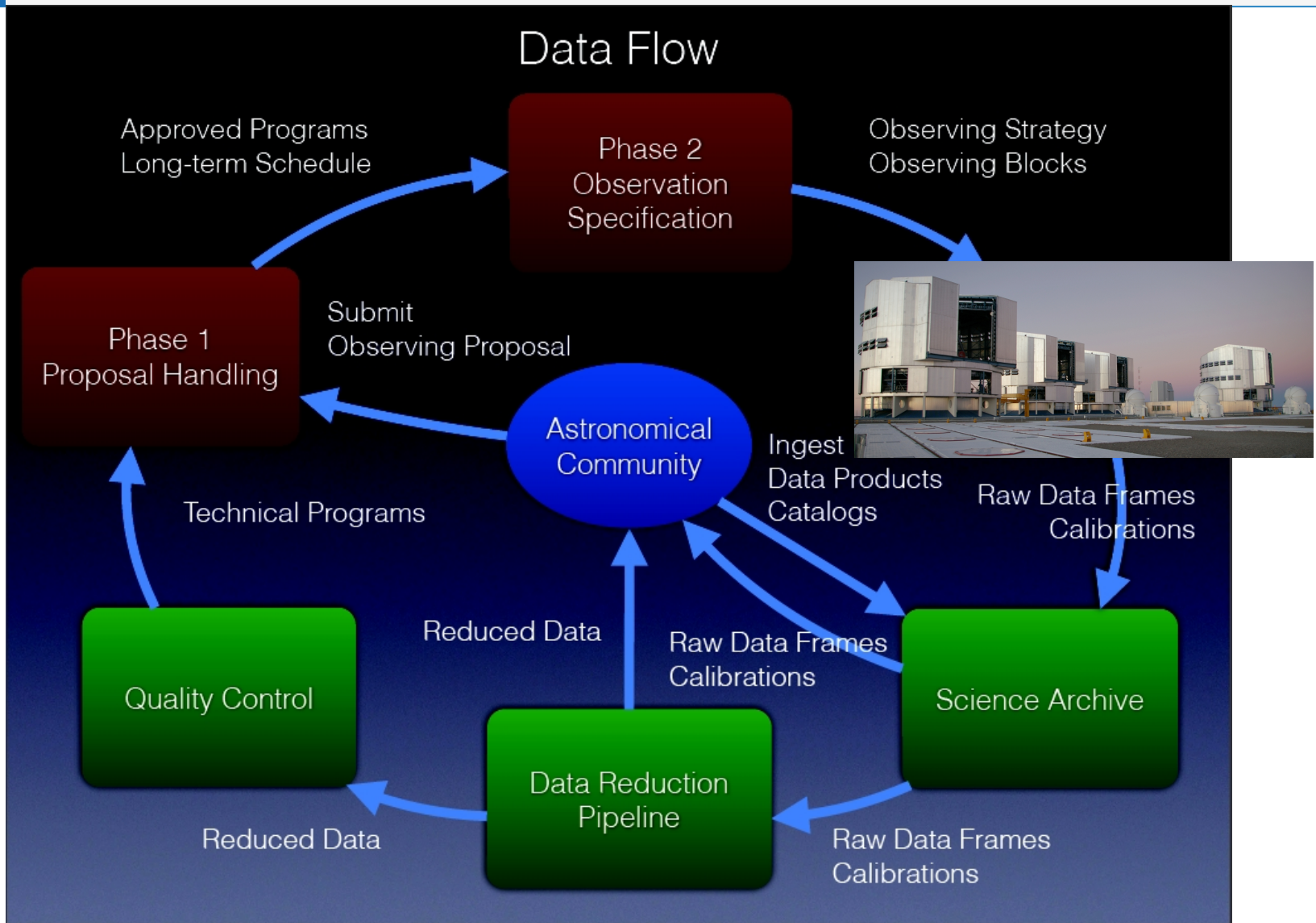
(Data Processing & Quality Control Group Garching)

Closed Loop Monitoring of Calibration Data

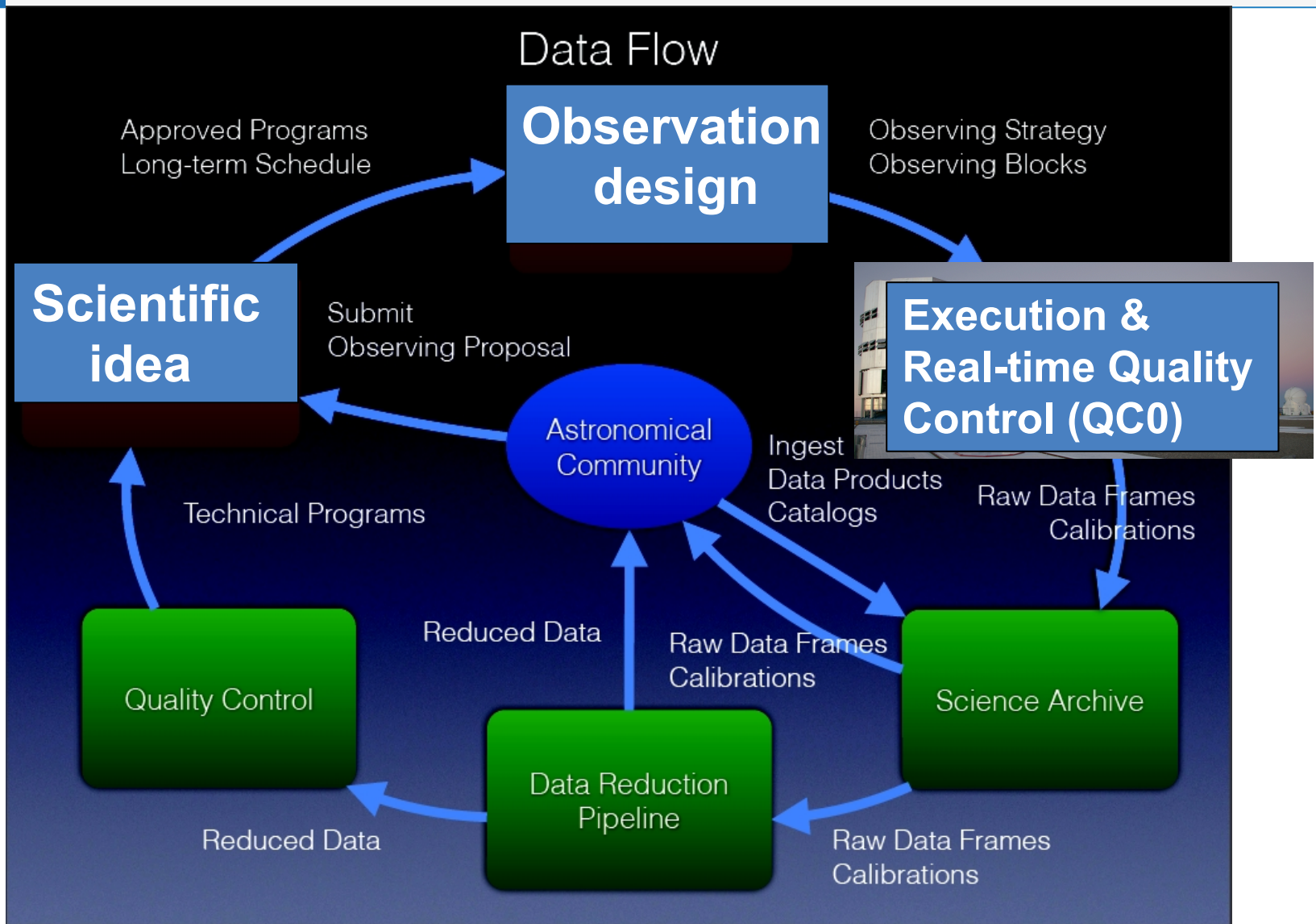
End-to-end data flow at ESO



End-to-end data flow at ESO



End-to-end data flow at ESO



Main goal of QC0 on Paranal

- Check whether the science data taken meet the observing condition constraints defined by the user
 - **Image quality** (usually FWHM of PSF or LSF)
 - Strehl ratio / Coherence time for AO instruments
 - Sky transparency (photometric / clear / thin cirrus), PWV
 - Determined with standards and all-sky cameras
 - Airmass, Moon illumination and distance
 - Fully deterministic – fulfillment ensured by short-term scheduling
 - N.B.: S/N in science data is not an official QC0 criterion
- Verify basic instrument performance
- Check that nighttime calibration data taken for the user comply with our guaranteed quality levels



QC grading panel

Report for (C)ompleted OB

OB property		Requested Constraints		Within Current Conditions			
Ob id:	1026312	Seeing:	0.8	<input checked="" type="radio"/> Yes	<input type="radio"/> Almost	<input type="radio"/> No	<input type="radio"/> N/A
Ob name:	sciMXU_ACTJ0336.9-0110B...	Airmass:	1.8	<input checked="" type="radio"/> Yes	<input type="radio"/> Almost	<input type="radio"/> No	<input type="radio"/> N/A
Run id:	092.A-0350(A)	Sky Transparency:	Clear	<input checked="" type="radio"/> Yes	<input type="radio"/> Almost	<input type="radio"/> No	<input type="radio"/> N/A
Ob status:	C	FLI:	0.3	<input checked="" type="radio"/> Yes	<input type="radio"/> Almost	<input type="radio"/> No	<input type="radio"/> N/A
Grade:	(A) fully within constraints... ▼	Moon Distance:	60	<input checked="" type="radio"/> Yes	<input type="radio"/> Almost	<input type="radio"/> No	<input type="radio"/> N/A
Propagate Grade(A)/(B)/(D) to all Concatenation OBs <input type="checkbox"/> Yes		Twilight:	0	<input type="button" value="Yes"/> <input type="button" value="Almost"/> <input type="button" value="No"/> <input type="button" value="N/A"/>			
		Apply To All Conditions:		<input type="radio"/> Yes	<input type="radio"/> Almost	<input type="radio"/> No	<input checked="" type="radio"/> N/A
		Fringe Quality:		<input type="radio"/> Yes	<input type="radio"/> Almost	<input type="radio"/> No	<input checked="" type="radio"/> N/A
		Ellipticity:		<input type="radio"/> Yes	<input type="radio"/> Almost	<input type="radio"/> No	<input checked="" type="radio"/> N/A
		IQ Variation:		<input type="radio"/> Yes	<input type="radio"/> Almost	<input type="radio"/> No	<input checked="" type="radio"/> N/A
Public comment:							
Internal comment:							
<input type="button" value="OK"/> <input type="button" value="Cancel"/>							



QC grading panel

Report for (C)ompleted OB

OB property

Ob id: 1026312

Ob name: sciMXU_ACTJ0336.9-0110B...

Run id: 092.A-0350(A)

Ob status: C

Grade: (A) fully within constraints... ▼

Propagate Grade(A)/(B)/(D) to all Concatenation OBs Yes

User constraints

Requested Constraints

Seeing:	0.8
Airmass:	1.8
Sky Transparency:	Clear
FLI:	0.3
Moon Distance:	60
Twilight:	0

Internal constraints (System performance)

Fringe Quality:

Ellipticity:

IQ Variation:

Apply To All Conditions:

Within Current Conditions

<input checked="" type="radio"/> Yes	<input type="radio"/> Almost	<input type="radio"/> No	<input type="radio"/> N/A
<input checked="" type="radio"/> Yes	<input type="radio"/> Almost	<input type="radio"/> No	<input type="radio"/> N/A
<input checked="" type="radio"/> Yes	<input type="radio"/> Almost	<input type="radio"/> No	<input type="radio"/> N/A
<input checked="" type="radio"/> Yes	<input type="radio"/> Almost	<input type="radio"/> No	<input type="radio"/> N/A
<input checked="" type="radio"/> Yes	<input type="radio"/> Almost	<input type="radio"/> No	<input type="radio"/> N/A
<input type="radio"/> Yes	<input type="radio"/> Almost	<input type="radio"/> No	<input checked="" type="radio"/> N/A
<input type="radio"/> Yes	<input type="radio"/> Almost	<input type="radio"/> No	<input checked="" type="radio"/> N/A
<input type="radio"/> Yes	<input type="radio"/> Almost	<input type="radio"/> No	<input checked="" type="radio"/> N/A

Yes Almost No N/A

Internal comment:

OK Cancel



QC grading panel

Report for (C)ompleted OB

OB property

Ob id: 1026312

Ob name: sciMXU_ACTJ0336.9-0110B...

Run id: 092.A-0350(A)

Ob status: C

Grade: (A) fully within constraints...

Propagate Grade(A)/(B)/(D) to all Concatenation OBs Yes

User constraints

Requested Constraints

Seeing:	0.8
Airmass:	1.8
Sky Transparency:	Clear
FLI:	0.3
Moon Distance:	60
Twilight:	0

Apply To All Conditions:

Fringe Quality:

Ellipticity:

IQ Variation:

Internal constraints (System performance)

Within Current Conditions

<input checked="" type="radio"/> Yes	<input type="radio"/> Almost	<input type="radio"/> No	<input type="radio"/> N/A
<input checked="" type="radio"/> Yes	<input type="radio"/> Almost	<input type="radio"/> No	<input type="radio"/> N/A
<input checked="" type="radio"/> Yes	<input type="radio"/> Almost	<input type="radio"/> No	<input type="radio"/> N/A
<input checked="" type="radio"/> Yes	<input type="radio"/> Almost	<input type="radio"/> No	<input type="radio"/> N/A
<input checked="" type="radio"/> Yes	<input type="radio"/> Almost	<input type="radio"/> No	<input type="radio"/> N/A
<input type="radio"/> Yes	<input type="radio"/> Almost	<input type="radio"/> No	<input checked="" type="radio"/> N/A
<input type="radio"/> Yes	<input type="radio"/> Almost	<input type="radio"/> No	<input checked="" type="radio"/> N/A
<input type="radio"/> Yes	<input type="radio"/> Almost	<input type="radio"/> No	<input checked="" type="radio"/> N/A

Buttons: Yes, Almost, No, N/A

Internal comment:

OK Cancel





QC grading panel

Report for (C)ompleted OB

OB property

Ob id: 1026312

Ob name: sciMXU_ACTJ0336.9-0110B...

Run id: 092.A-0350(A)

Ob status: C

Grade: (A) fully within constraints...

Propagate Grade(A)/(B)/(D) to all Concatenation OBs Yes

User constraints

Requested Constraints

Seeing:	0.8
Airmass:	1.8
Sky Transparency:	Clear
FLI:	0.3
Moon Distance:	60
Twilight:	0

Apply To All Conditions:

Internal constraints (System performance)

Fringe Quality:

Ellipticity:

IQ Variation:

Within Current Conditions

<input checked="" type="radio"/> Yes	<input type="radio"/> Almost	<input type="radio"/> No	<input type="radio"/> N/A
<input checked="" type="radio"/> Yes	<input type="radio"/> Almost	<input type="radio"/> No	<input type="radio"/> N/A
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<input checked="" type="radio"/> Yes	<input type="radio"/> Almost	<input type="radio"/> No	<input type="radio"/> N/A
<input checked="" type="radio"/> Yes	<input type="radio"/> Almost	<input type="radio"/> No	<input type="radio"/> N/A
<input type="radio"/> Yes	<input type="radio"/> Almost	<input type="radio"/> No	<input checked="" type="radio"/> N/A
<input type="radio"/> Yes	<input type="radio"/> Almost	<input type="radio"/> No	<input checked="" type="radio"/> N/A
<input type="radio"/> Yes	<input type="radio"/> Almost	<input type="radio"/> No	<input checked="" type="radio"/> N/A

Buttons: Yes, Almost, No, N/A

Internal comment:

OK Cancel

S/N in the data is monitored for some instruments (e.g. UVES), but it is not part of the user constraints. Physical modelling of our systems is assumed accurate enough to rely on ETC for exposure times that ensure required S/N.





Paranal and its instruments

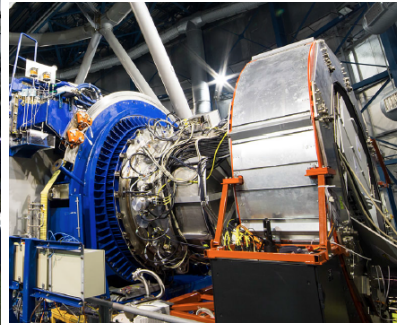
16 instruments in operations in P97



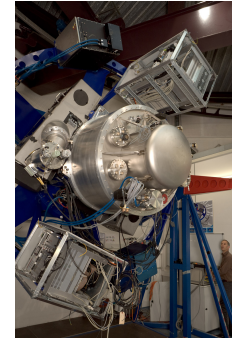
NACO



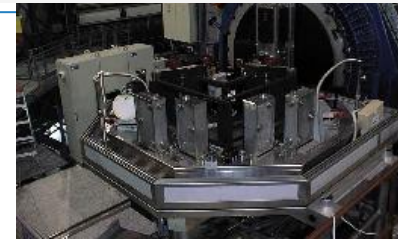
FORS



KMOS



XSHOOTER



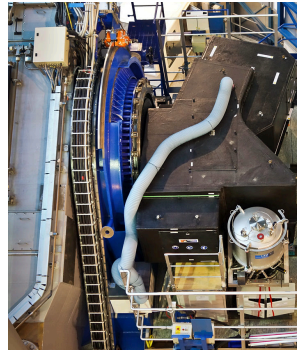
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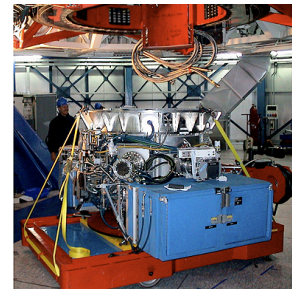
SINFONI



VIMOS



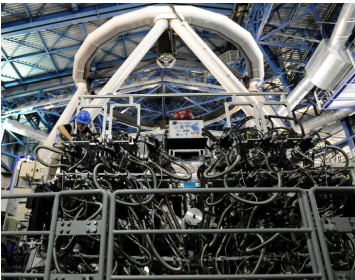
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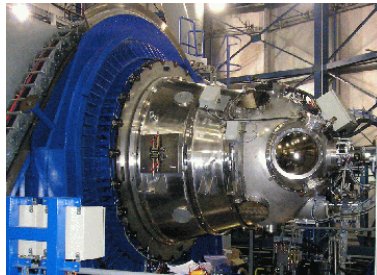
VISIR



FLAMES



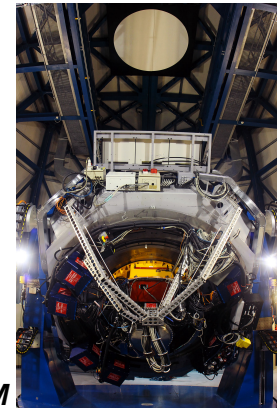
MUSE



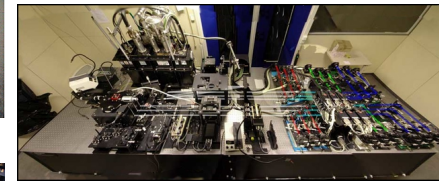
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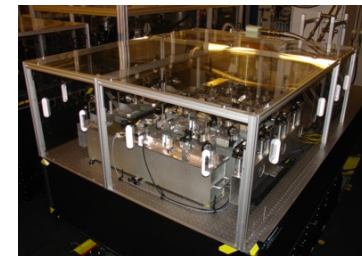
VIRCAM



OmegaCAM



AMBER



PIONIER



Paranal and its instruments

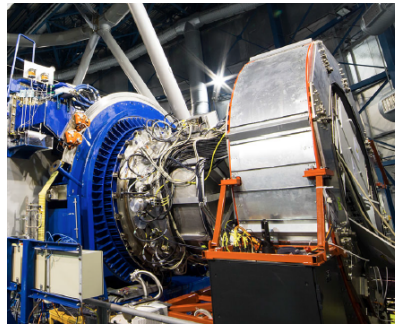
16 instruments in operations in P97



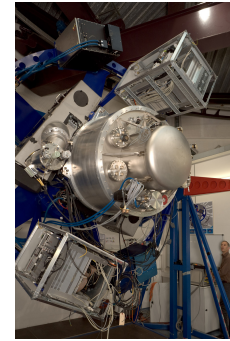
NACO



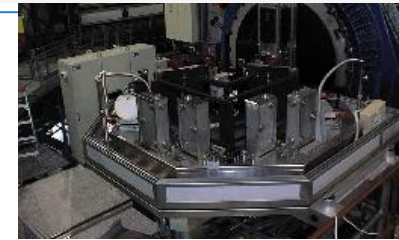
FORS



KMOS



XSHOOTER



UVES

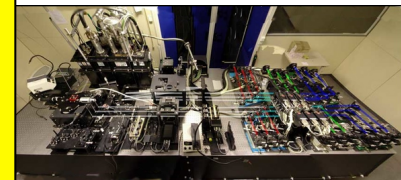


SINFONI

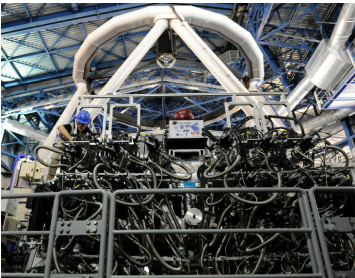


FLAMES

**All instruments are prototypes
(IMG/SPEC/VLT/AO/IR/VIS)
Large range of data types requires
individualised quality control procedures**



AMBER



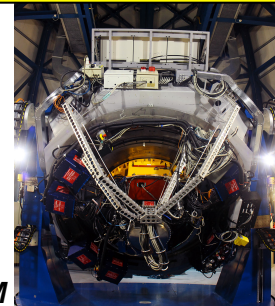
MUSE



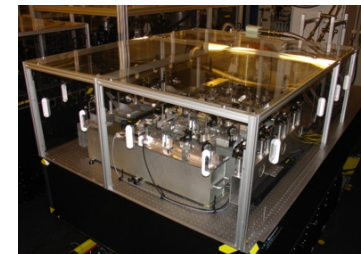
HAWKI



VIRCAM



OmegaCAM



PIONIER

Real-time QCO on Paranal

Example: Image quality measurement for VIMOS MOS spectra

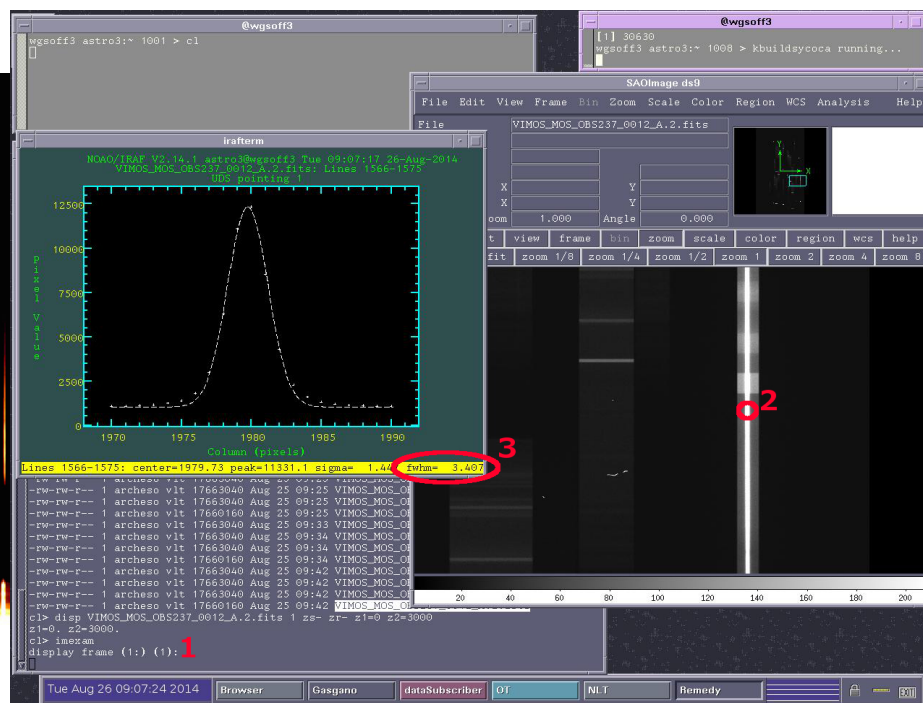
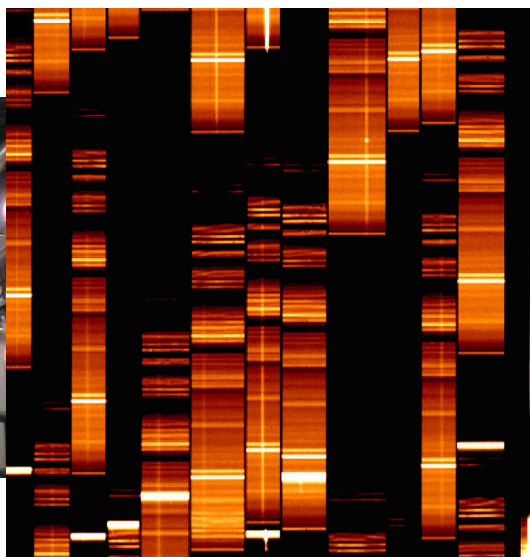
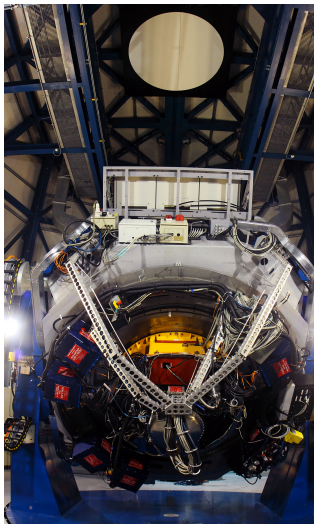


Image quality measurement is performed **interactively** by the operator



Real-time QC0 on Paranal

Example: Image quality measurement for OmegaCAM images



#89	#90	#91	#92	#93	Description CLASSIFICATION:
13	14	15	16	29	Se: Seeing ID: Image Quality Degradation ME: Mean Ellipticity AI: Airmass MD: Moon Distance FL: Moon FLI PM: Prost Mahlzeit
#81	#82	#83	#84	#85	Date
9	10	11	12	25	2015-11-17T01:00:24 20024403Z u_g_r_i_SDS5 0.98", 8 1.07",10 1.49",24 1.65",27 15 1.22" 1.22" 1.2 1.2 16.3 16.3 - - - - - - - - STD
#73	#74	#75	#76	#77	OMEGACAM_Polar_Master_segmented
5	6	7	8	21	2015-11-17T01:00:24 20024403Z u_g_r_i_SDS5 0.98", 8 1.07",10 1.49",24 1.65",27 15 1.22" 1.22" 1.2 1.2 16.3 16.3 - - - - - - - - STD
#65	#66	#67	#68	#69	*** Following OB is GTO. Give QC grade D if MeanIQ constraints are not met, BUT ONLY IF OB was started fulfilling the constraint. Classify C as usual for IQ variation or ellipticity ***
1	2	3	4	17	GTO_INAF_Sculptor_g_1 2015-11-17T01:09:50 1233967 g_SDSS 0.63", 2 0.62", 3 0.63", 2 0.61", 2 0 0.62" 0.62" 1.1 1.1 2.7 2.7 A A A A A A A GTO (1233966) 1.1 0.62 1.1 2.7 OT=0.57 2015-11-17T01:11:15 1233970 g_SDSS 0.70", 4 0.68", 5 0.66", 4 0.61", 3 0 0.66" 0.66" 2.1 2.1 3.7 3.7 A A A A A A A GTO (1233966) 1.1 0.64 1.6 3.2 OT=0.60 2015-11-17T01:12:34 1233973 g_SDSS 0.64", 1 0.63", 3 0.62", 3 0.59", 3 0 0.61" 0.61" 0.2 0.2 2.8 2.8 A A A A A A A GTO (1233966) 1.1 0.63 1.1 3.1 OT=0.56 2015-11-17T01:13:52 1233976 g_SDSS 0.70", 4 0.62", 2 0.64", 2 0.70", 2 0 0.66" 0.66" 11.0 11.0 2.4 2.4 A B A A A A A B GTO (1233966) 1.1 0.64 3.6 2.9 OT=0.60 2015-11-17T01:15:11 1233979 g_SDSS 0.71", 5 0.65", 3 0.68", 3 0.78", 2 0 0.70" 0.70" 11.7 11.7 2.8 2.8 A B A A A A A B GTO (1233966) 1.1 0.65 5.2 2.9 OT=0.63 2015-11-17T01:16:29 1233982 g_SDSS 0.77", 4 0.69", 2 0.71", 2 0.89", 5 0 0.76" 0.76" 15.7 15.7 3.5 3.5 A B A A A A A B GTO (1233966) 1.1 0.67 7.0 2.9 OT=0.68 2015-11-17T01:17:47 1233985 g_SDSS 0.81", 5 0.69", 4 0.72", 3 0.92", 4 0 0.77" 0.77" 17.5 17.5 3.5 3.5 A B A A A A A B GTO (1233966) 1.1 0.68 8.5 3.0 OT=0.69 2015-11-17T01:19:06 1233988 g_SDSS 0.93", 5 0.90", 4 0.91", 4 1.01", 7 0 0.92" 0.92" 5.5 5.5 5.2 5.2 A A A A A A A GTO (1233966) 1.1 0.71 8.1 3.3 OT=0.81 2015-11-17T01:20:24 1233991 g_SDSS 0.89", 4 0.81", 2 0.84", 2 1.01", 5 0 0.87" 0.87" 10.4 10.4 3.4 3.4 A B A A A A A B GTO (1233966) 1.1 0.73 8.4 3.3 OT=0.77 2015-11-17T01:21:42 1233994 g_SDSS 0.92", 6 0.81", 2 0.83", 3 1.08", 10 0 0.90" 0.90" 17.5 17.5 4.8 4.8 A B A A A A A B GTO (1233966) 1.1 0.75 9.3 3.5 OT=0.79 2015-11-17T01:23:00 1233997 g_SDSS 0.91", 7 0.77", 3 0.77", 3 1.01", 8 0 0.85" 0.85" 18.5 18.5 4.9 4.9 A B A A A A A B GTO (1233966) 1.1 0.76 10.1 3.6 OT=0.75 2015-11-17T01:24:19 1234000 g_SDSS 0.76", 6 0.65", 2 0.67", 3 0.84", 5 0 0.73" 0.73" 19.8 19.8 4.2 4.2 A B A A A A A B GTO (1233966) 1.1 0.75 10.9 3.6 OT=0.65 2015-11-17T01:25:37 1234003 g_SDSS 0.72", 5 0.64", 2 0.64", 3 0.77", 5 0 0.68" 0.68" 14.3 14.3 3.4 3.4 A B A A A A A B GTO (1233966) 1.1 0.75 11.2 3.6 OT=0.61 2015-11-17T01:26:56 1234006 g_SDSS 0.70", 2 0.68", 2 0.69", 2 0.72", 3 0 0.69" 0.69" 4.5 4.5 2.6 2.6 A A A A A A A GTO (1233966) 1.1 0.74 10.7 3.5 OT=0.62
					OMEGACAM_Landolt_SA92_Master_Key
					2015-11-17T01:35:37 200244020 u_SDSS 0.95",10 0.88", 5 0.90", 6 0.93", 6 0 0.92" 0.92" 5.8 5.8 6.9 6.9 - - - - - - - - STD 2015-11-17T01:41:47 200244020 g_SDSS 0.61", 4 0.63", 4 0.63", 4 0.59", 4 0 0.61" 0.61" 1.5 1.5 3.5 3.5 - - - - - - - - STD 2015-11-17T01:44:05 200244020 r_SDSS 0.57", 4 0.62", 5 0.61", 4 0.57", 3 0 0.58" 0.58" 5.7 5.7 3.6 3.6 - - - - - - - - STD 2015-11-17T01:46:33 200244020 l_SDSS 0.53", 2 0.62", 3 0.64", 4 0.56", 2 0 0.57" 0.57" 10.9 10.9 3.3 3.3 - - - - - - - - STD 2015-11-17T01:49:47 200244020 z_SDSS 0.57", 6 0.53", 2 0.52", 4 0.60", 4 0 0.53" 0.53" 14.3 14.3 3.3 3.3 - - - - - - - - STD

Image quality measurement is performed automatically by pipeline

Homogenizing QC0 on Paranal

- To train & homogenise QC0 practises, in early 2015 a QC0 workshop was held within SciOps
- List of action items was derived and mostly completed
 - Common rules & documentation, improved user features
- One outcome: e-learning quizzes with series of multiple choice questions for 11 instruments
 - used for re-training of existing staff and for training of newcomers
- Potential for further homogenisation
 - Ongoing projects, brainstorming for long-term evolution



Homogenizing QC0 on Paranal



Dimitri Gadotti

MUSE, TIO/ASTRO QC0

NAVIGATION

- Home
 - My home
 - Site pages
 - My profile
- Current course
 - MUSE, TIO/ASTRO QC0
 - Participants
 - Badges
 - General
 - Course summary
 - MUSE - Multi Unit Spectroscopic Explorer
 - Overall Paranal QC0 policies
 - MUSE operations, and QC0 summary**
 - MUSE troubleshooting
 - MUSE quizzes
 - My courses

MUSE operations and specific QC0 guide

Standard classification rules also apply for MUSE, which can be found here: Ser... These apply to Image Quality (IQ); transparency; airmass; FLI; moon distance; a...

Always provide comments in the night-log for QC0, but especially for B or C grades.

Where did the IQ value come from: data cube?, Slow Guiding System (SGS)?, telescope guide cam...

Also note, if during MUSE operations one has to put the DCS into standby: when the DCS is recov...

What to check on the science frames?

Are we in the correct field?

- check using finder chart (if you think that the pointing is in error then send a mail to usd-hel...

IQ monitoring:

- was this measured using reduced data cube/SGS/telescope guide probe?



Joe Anderson

In the best case scenario one should try to measure the IQ from the reduced data cube, after loading this in gasgano, as in the example... as one has to wait for the reductions to finish... Example of measuring IQ on reduced cube:


ADMINISTRATION

- Page module administration
 - Edit settings
 - Locally assigned roles
 - Permissions
 - Check permissions
 - Filters
 - Logs
 - Backup
 - Restore
- Course administration
- Switch role to...
- My profile settings

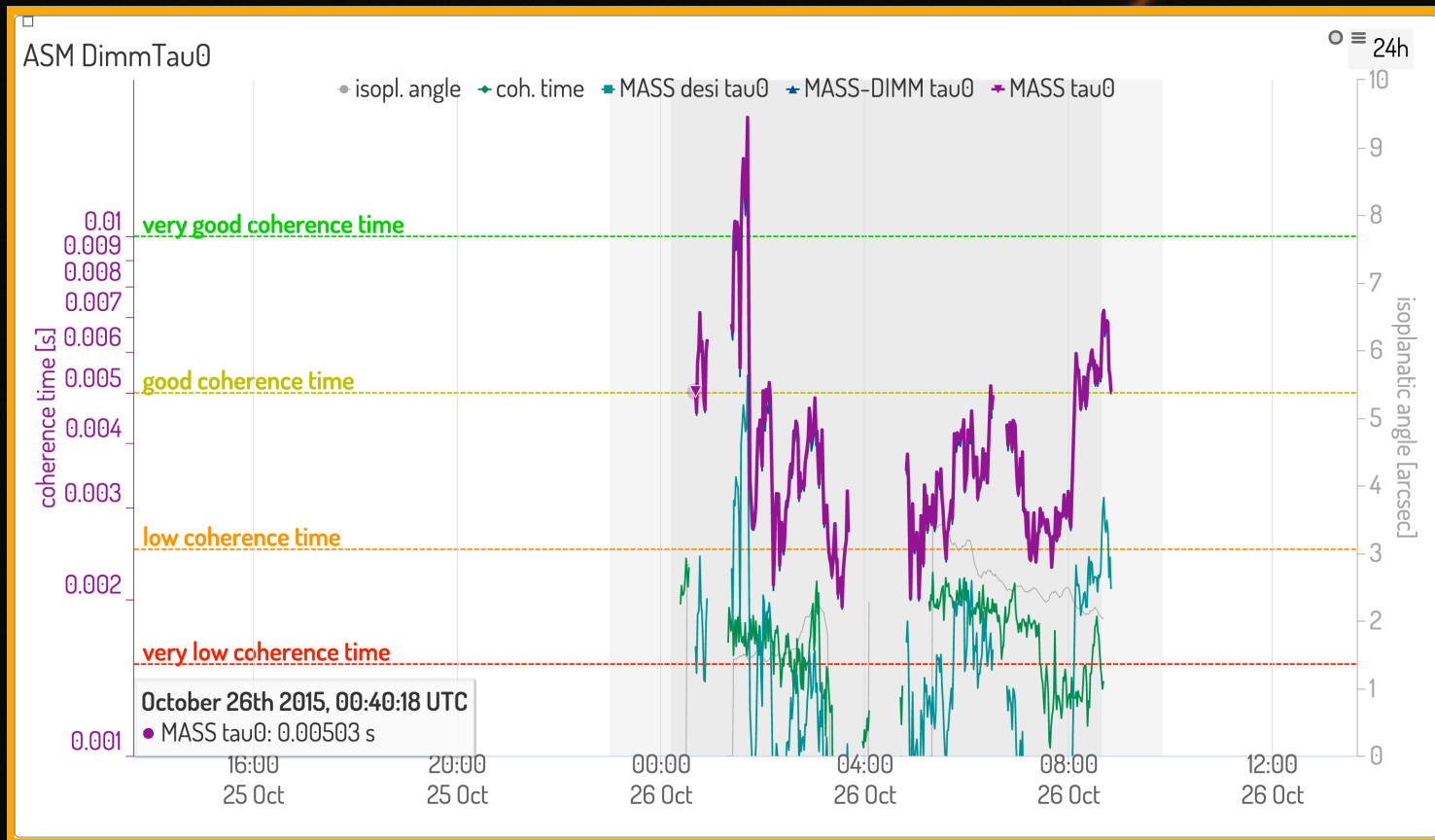
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r.MUSE.2015-02-OCT03:15:49:171-B01_00004.fits	WMN-QC0-EG	IMAGE.FOV					1	1	1
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r.MUSE.2015-02-OCT03:15:49:171-B01_00003.fits	WMN-QC0-EG	TEXTABLE.OBJECT					1	1	1
r.MUSE.2015-02-OCT03:15:49:171-A01_00009.fits	WMN-QC0-EG	TEXTABLE.OBJECT					1	1	1
r.MUSE.2015-02-OCT03:15:49:171-A01_00013.fits	WMN-QC0-EG	TEXTABLE.OBJECT					1	1	1
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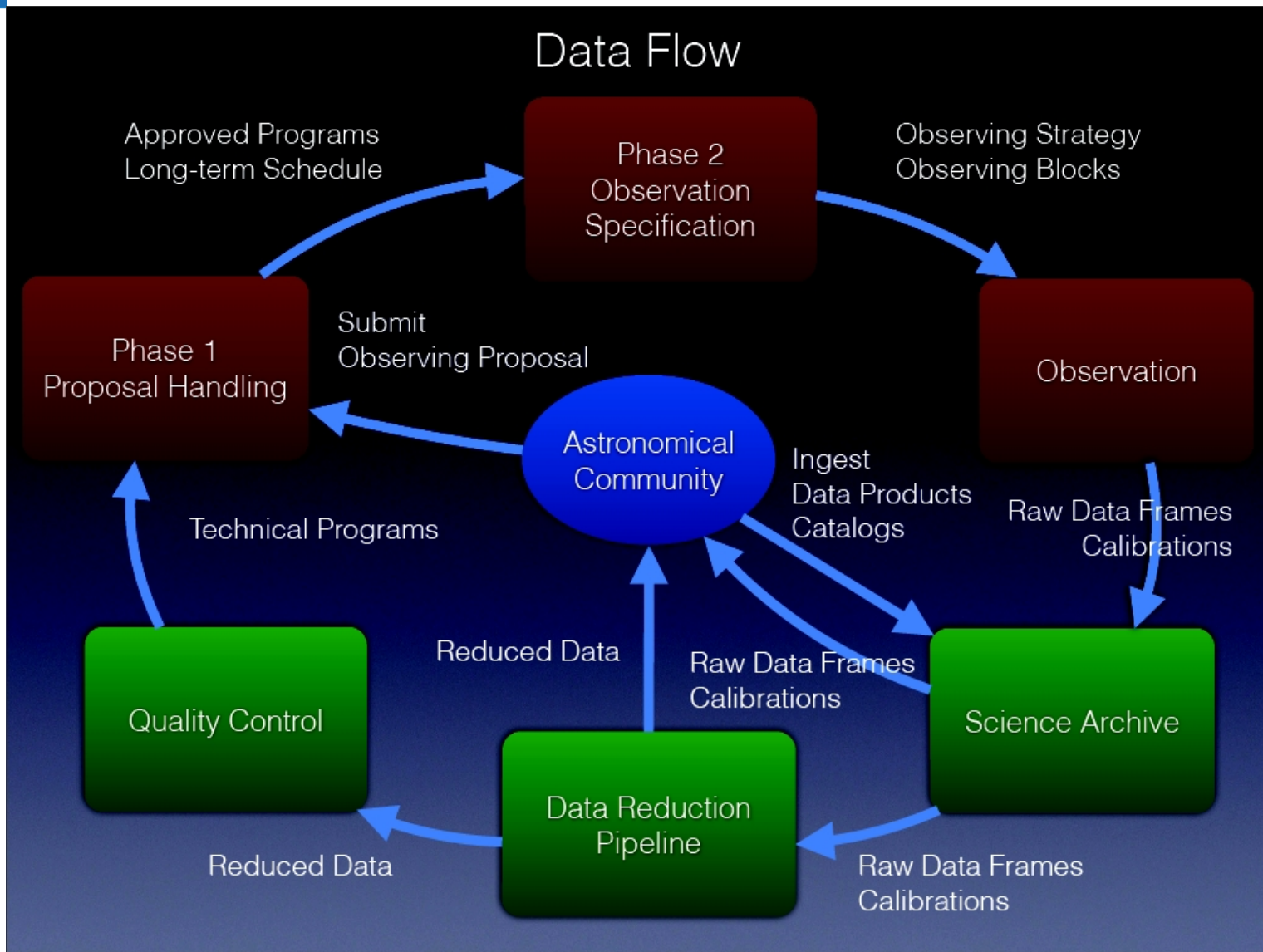
QC0 for adaptive optics systems

- QC0 procedures for our AO systems vary 
 - (Combinations of) Strehl Ratio, Coherence time, guide probe seeing, contrast
- With the advent of the Adaptive Optics Facility on UT4, increased need for homogenised QC0 procedures
 - Important department goal for next ~2 years
 - Take advantage of updated Atmospheric Site Monitoring

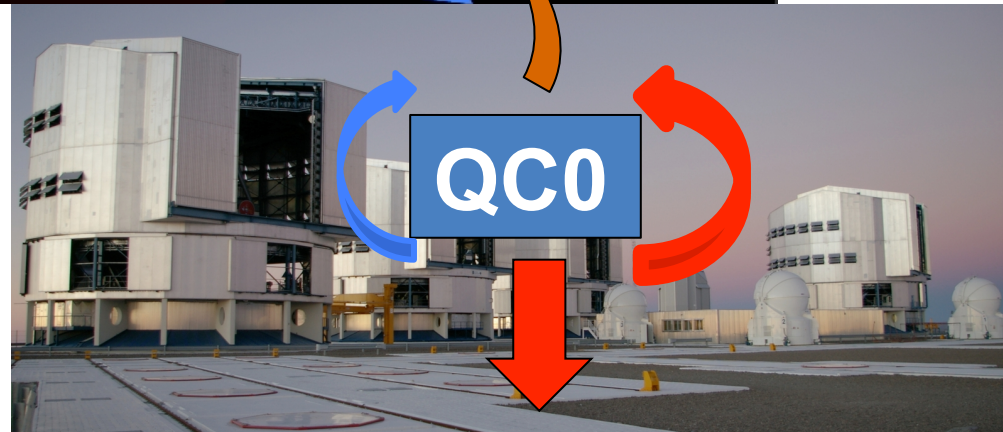
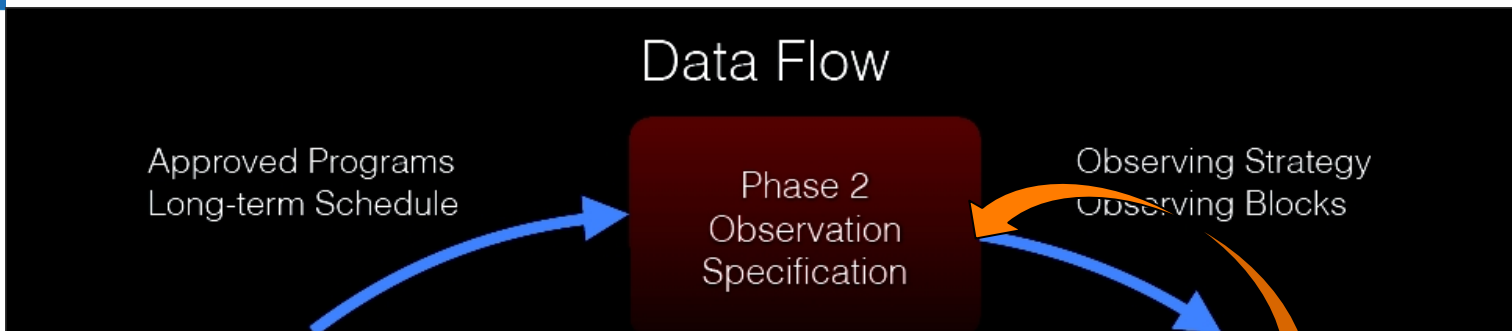
QC0 for adaptive optics systems



QC0 Paranal: summary



QC0 Paranal: summary



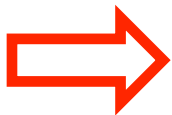
Data quality

Input for short-term scheduling
 Feedback on Observation Preparation

S/N is no formal QC criterion

Closed QC loop

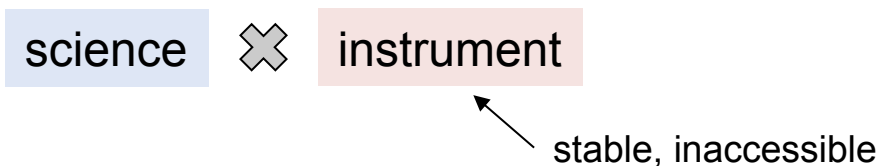
QC0: on (raw) science data



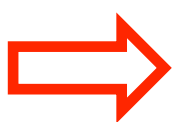
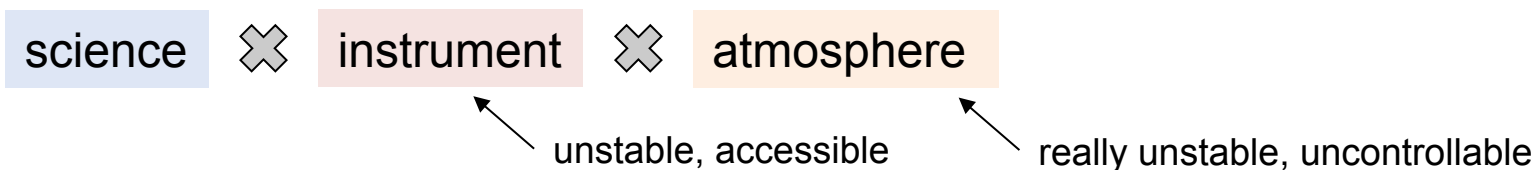
QC1: on (processed) calibration data

Why calibrations?

- Satellite-based:



- Ground-based:



Frequent (typically daily or even during night) and accurate calibrations required

- Calibration plan:
 - Defines nature and frequency of calibrations per instrument

Table 10: Summary of KMOS calibration plan

Calibration	Frequency	Purpose	Notes
Darks	Daily	Master dark; bad pixel map	DIT=60s
Flats*	Daily as needed	Pixel-to-pixel variation; location of the slits on the array	Taken at optimised rotator angles, based on night observations
Arcs* (Argon/Neon)	Daily as needed	Wavelength calibration	Taken at optimised rotator angles, based on night observations
Flats	Daily as needed	Pixel-to-pixel variation; location of the slits on the array.	Taken at 6 different rotator angles (every 60°) to correct for flexure
Arcs (Argon/Neon)	Daily as needed	Wavelength calibration	Taken at 6 different rotator angles (every 60°) to correct for flexure

QC aspects (1)

- Ensure calibration plan is fulfilled (*calChecker*)
 - Daily calibrations as triggered by science set ups
 - Plus additional long-term calibrations

→ Save the last night
- Ensure instrument is within specs:
 - Process calibrations by automated data reduction pipelines
 - Extract relevant information (e.g. detector bias, spectral resolution) as *QC parameters*
 - Trending of selected parameters (*Health Check*)
 - Score parameters for automated quality assessment

→ Calibrate instrument rather than calibrate science

QC aspects (2)

- Two sites, shared process:

- Paranal:

- Science observations and calibration measurements
 - Operated 24/7 with shift system (night-time and daytime shifts)

- Garching:

- Data archiving and data processing
 - Daytime (different time zone), Mon to Fri



- Operational requirements:

- Fast data transfer (~ minutes) and automated processing
 - Close the loop:
 - Feedback: automatically updated web pages
 - Focus on relevant information: scoring
 - Communication:
 - Comments on issues and on actions taken





calChecker (1)

instrument scores

set up info

last 7 days

CAL | HC | refs | QC
CALCHECKER
 HOME | HELP
 ALL INSTRUMENTS
UT1
 FORS2
 KMOS
 NACO
UT2
 FLAMES/GIRAFFE
 UVES&FLAMES/UVES
 X-SHOOTER
UT3
 SPHERE
 VIMOS
 VISIR
UT4
 HAWK-I
 MUSE
 SINFONI
VLT
 AMBER
 PIONIER
Survey Cameras
 OMEGACAM
 VIRCAM
QC links:
 QC home
 Data Products
 calChecker
 HealthChecks
 Reference Frames
 QC1 database
 Paranal_outrep database
 (ESO internal)

CAL FORS2 calChecker: calibration completeness monitor

Last update: 2015-11-11T14:56:52 (UT) (0d 00h:04m ago) ✓ [?] Paranal date*: 2015-11-10 [?] server: www.eso.org HQ [HELP] [ASSOC]

Last header: FORS2, 2015-11-10T23:45:44.758.hdr ✓ transfer ✓ ngas [?] *Date on this monitor changes at 21:00 UT. Refresh frequency: 1/2hr day and night

General news: Long-term calibrations and maintenance [complete overview](#) | [all long-term calibrations within validity range](#)

FORS2 news:

HC refresh analyze ISSUES mark BAD QUALITY [HELP] [O&A] [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 "daytime calibs" columns)

DATE*	2015-11-04	2015-11-05	2015-11-06	2015-11-07	2015-11-08	2015-11-09	2015-11-10	daytime calibs:	pending	Calibration action?
		SM 54	SM 184	SM 162	SM VM 384	SM 156				[?] [take these data types ...]
Raw CAL displays:	[?] raw	raw	raw	raw	raw	raw		no raw files		
Product quality:	[?] ✓ products	✓ products	✓ products	✓ products	products	products		no products		
Data types: Setup:										
SCI_IMG	200Kps/low_HR_I_BEES_2x2		ok							all ok
	200Kps/low_SR_2x2		ok	analyzed: [1]						all ok
	200Kps/low_SR_I_BEES_2x2				ok		ok			all ok
	200Kps/low_SR_R_SPECIAL_2x2		ok		ok		ok			all ok
	200Kps/low_SR_SII/2000_2x2						miss (not yet analyzed)			FLAT SKY
	200Kps/low_SR_SII/4500_2x2						miss (not yet analyzed)			FLAT SKY
	200Kps/low_SR_b_HIGH_2x2				ok					all ok
	200Kps/low_SR_g_HIGH_2x2		ok		ok					all ok
	200Kps/low_SR_z_GUNN_2x2		ok		ok		ok			all ok

ANALYSIS NOTES:

Index	data type	setup	date	flag	analysis
[1]	SCI_IMG	200Kps/low_SR_2x2	2015-11-06	OK	science OB does not require a standard (analyzed by lschmidt@eso.org)

flags per set up and date:
OK, NOK, or MISS





calChecker (2)

- interactivity:
- can be used by both Paranal and Garching staff

CAL | HC | refs | QC

CALCHECKER

HOME | HELP

ALL INSTRUMENTS

UT1

FORS2

KMOS

NACO

UT2

FLAMES/GIRAFFE

UVES&FLAMES/UVES

X-SHOOTER

UT3

SPHERE

VIMOS

VISIR

UT4

HAWK-I

MUSE

SINFONI

VLT1

AMBER

PIONIER

Survey Cameras

OMEGACAM

VIRCAM

QC links:

QC home

Data Products

calChecker

HealthChecks

Reference Frames

QC1 database

Paranal outrep database (ESO internal)

CAL FORS2 calChecker: calibration completeness monitor

Last update: 2015-11-11T14:56:52 (UT) (0d 00h:04m ago) [?] Paranal date*: 2015-11-10 [?] server: www.eso.org HQ [HELP ASSOC]

Last header: FORS2, 2015-11-10T23:45:44.758.hdr ✓ transfer ✓ ngas [?] *Date on this monitor changes at 21:00 UT. Refresh frequency: 1/2hr day and night

General news: Long-term calibrations and maintenance [complete overview](#) | [all long-term calibrations within validity range](#)

FORS2 news:

refresh analyze ISSUES mark BAD QUALITY

HELP O&A ASSOC-RULES history... contact monitors: DataTransferMonitor | BandWidth

science calibration [?]

Product availability depends on the data transfer to Garching and the archive access there (check the "transfer" and "archive" buttons)

	DATE*	2015-11-04	2015-11-05	2015-11-06	2015-11-07	2015-11-08	2015-11-09	2015-11-10	daytime calbs:	LOST?	Calibration action?
	<small>(color if science data acquired)</small>		SM 54 <small>report NLT</small>	SM 184 <small>report NLT</small>	SM 162 <small>report NLT</small>	SM VM 384 <small>report NLT</small>	SM 156 <small>report NLT</small>			<small>[may require OB grade review]</small>	<small>[take these data types ...]</small>
r...	Raw CAL displays:	raw	raw	raw	raw	raw	raw	no raw files			
P...	Product quality:	✓ products	✓ products	✓ products	✓ products	products	products	no products			
Data types: Setup:											
SCI_IMG	200Kps/low_HR_I_BEES_2x2		ok <small>analyzed: [1]</small>		ok		ok				all ok
	200Kps/low_SR_2x2										all ok
	200Kps/low_SR_I_BEES_2x2						ok				all ok
	200Kps/low_SR_R_SPECIAL_2x2		ok		ok		ok				all ok
	200Kps/low_SR_SII/2000_2x2						miss <small>[not yet analyzed]</small>				FLAT_SKY
	200Kps/low_SR_SII/4500_2x2						miss <small>[not yet analyzed]</small>				FLAT_SKY
	200Kps/low_SR_b_HIGH_2x2				ok						all ok
	200Kps/low_SR_g_HIGH_2x2		ok		ok						all ok
	200Kps/low_SR_z_GUNN_2x2				ok		ok				all ok

ANALYSIS NOTES:

Index	data type	setup	date	flag	analysis
[1]	SCI_IMG	200Kps/low_SR_2x2	2015-11-04	OK	science OB does not require a standard (analyzed by lschmidt@eso.org)

analyzed issue

pending issues





Health Check plots

HealthCheck Monitor

HOME | UsersGuide

ALL INSTRUMENTS

FULL reports

VIMOS: score overview

Common ...

- detector: bias
- detector: monitoring
- lamp stability
- focus

Imaging ...

- IMG filter performance
- IMG astrometry
- IMG zeropoints
- IMG sky flat structure

MOS ...

- MOS dispersion
- MOS resolution
- MOS efficiency
- MOS mask to CCD

IFU ...

- IFU dispersion
- IFU stability
- IFU slope
- IFU resolution
- IFU lost fibres
- IFU efficiency

HISTORICAL ...

- image quality science

QC VIMOS

Other HC:

- UT1: FORS2, KMOS, NACO
- UT2: FLAMES/GIRAFFE, UVES&FLAMES/UVES, X-SHOOTER
- UT3: SPHERE, VIMOS, VISIR
- UT4: HAWK-I, MUSE, SINFONI

VIMOS trending system: HEALTH CHECK report

Last update: 2015-11-13T03:38:15 (UT) (0d 10h:44m ago) | now: 2015-11-13T14:22:21 (UT) | QC pipeline: vimos-2.9.13 (installed 2015-04-23)

same group: LRb_cent LRr_cent MR_cent HRb_cent HRo_cent HRr_cent LRb_full LRr_full MR_full HRb_full HRo_full HRr_full

General news:

VIMOS news:

Report news: **2015-11-11 Q1 for IFU HR_orange seems out of focus [qc_vimos@eso.org]**

DATE*: [?] 2015-11-06 2015-11-07 2015-11-08 2015-11-09 2015-11-10 2015-11-11 2015-11-12

Raw CAL displays: raw raw raw raw raw raw raw

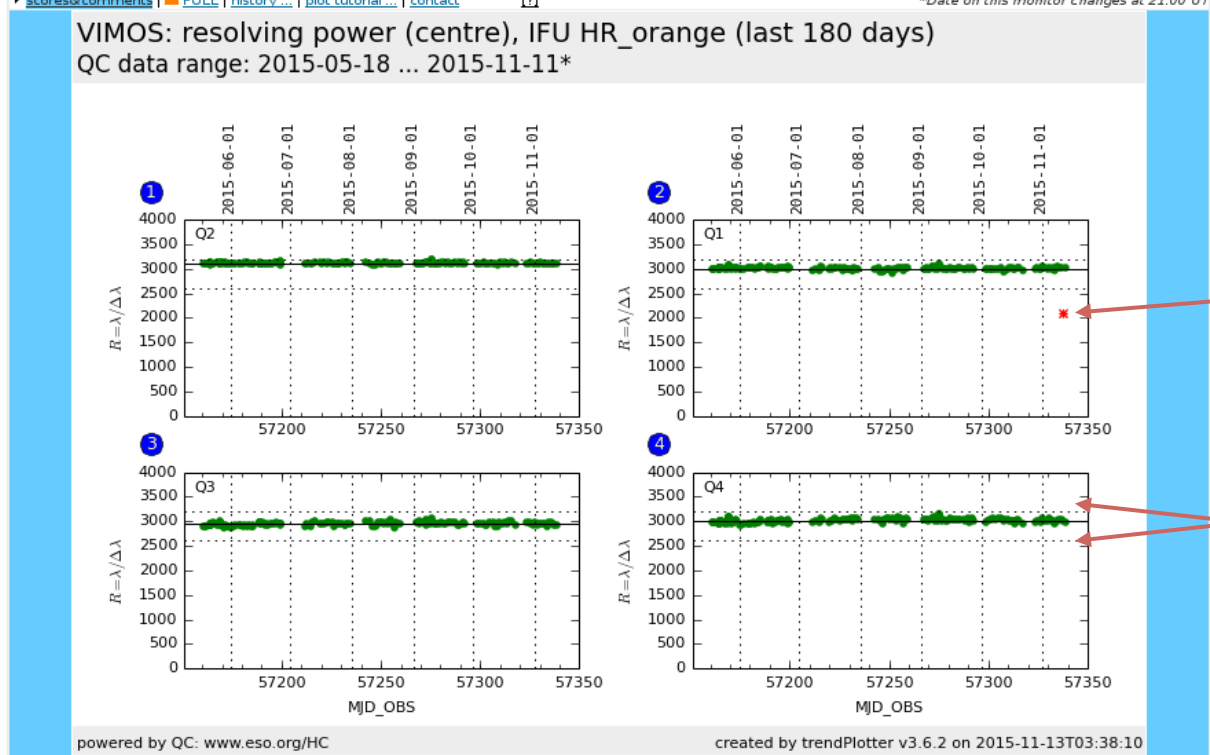
Product quality: products products products products products products products

transfer ngas [?] forced refresh

scores&comments | FULL | history ... | plot tutorial ... | contact

*Date on this monitor changes at 21:00 UT

comment provided



outlier

thresholds





Raw file overview (1)

processing units

data types

scoring results

bottom

VIMOS raw files (date: 2015-10-08)

monitor with screenshots of raw calibration data. There is one displayed files per template is limited depending on raw type and can be downloaded from the archive are marked as "not yet available".

Click on the thumbnails to get a larger display together with histograms and cuts. Find more information in the help.

CAL report products: fits | fits

Available raw types: [BIAS](#) | [IFU_CAL](#) | [MASK_TO_CCD](#) | [MOS_CAL](#) | [SKYFLAT](#)

AB NAME	COMPL.	AB LOG	RECIPE	RAW_TYPE	SETUP	AB STATUS	P LOG	T_EXEC	QC REPORT	SCORE	CERTIF
VIMOS_2015-10-08T23:06:42.590_tpl.ab	compl.	OK	vmimflatsky	SKYFLAT	U_1	OK	PLOG	0.1+0.3	QC COVER	HC (0/1)	OK
VIMOS_2015-10-08T23:06:42.590_tpl.ab	compl.	OK	vmimflatsky	SKYFLAT	U_4	OK	PLOG	0.1+0.1	QC COVER	HC (0/1)	OK
VIMOS_2015-10-08T23:06:42.591_tpl.ab	compl.	OK	vmimflatsky	SKYFLAT	U_2	OK	PLOG	0.1+0.1	QC COVER	HC (0/1)	OK
VIMOS_2015-10-08T23:06:42.592_tpl.ab	compl.	OK	vmimflatsky	SKYFLAT	U_3	OK	PLOG	0.1+0.1	QC COVER	HC (0/1)	OK
VIMOS_2015-10-08T23:13:56.890_tpl.ab	compl.	OK	vmimflatsky	SKYFLAT	I_3	OK	PLOG	0.1+0.1	QC COVER	HC (0/1)	R:J reflections in Q2 and Q4
VIMOS_2015-10-08T23:13:56.891_tpl.ab	compl.	OK	vmimflatsky	SKYFLAT	I_1	OK	PLOG	0.1+0.2	QC COVER	HC (0/1)	R:J reflections in Q2 and Q4
VIMOS_2015-10-08T23:13:56.892_tpl.ab	compl.	OK	vmimflatsky	SKYFLAT	I_4	OK	PLOG	0.1+0.1	QC COVER	HC (0/1)	R:J reflections in Q2 and Q4
VIMOS_2015-10-08T23:13:56.893_tpl.ab	compl.	OK	vmimflatsky	SKYFLAT	I_2	OK	PLOG	0.1+0.1	QC COVER	HC (0/1)	R:J reflections in Q2 and Q4
VIMOS_2015-10-08T23:20:46.565_tpl.ab	compl.	OK	vmimflatsky	SKYFLAT	V_3	OK	PLOG	0.1+0.1	QC COVER	HC (0/1)	OK
VIMOS_2015-10-08T23:20:46.566_tpl.ab	compl.	OK	vmimflatsky	SKYFLAT	V_2	OK	PLOG	0.1+0.1	QC COVER	HC (0/1)	OK
VIMOS_2015-10-08T23:20:46.569_tpl.ab	compl.	OK	vmimflatsky	SKYFLAT	V_1	OK	PLOG	0.1+0.2	QC COVER	HC (0/1)	OK
VIMOS_2015-10-08T23:20:46.570_tpl.ab	compl.	OK	vmimflatsky	SKYFLAT	V_4	OK	PLOG	0.1+0.1	QC COVER	HC (0/1)	OK

INS.FILT1.NAME=I OCS.CON.QUAD=1

VIMOS_IMG_SKY281_0007_B.1.fits VIMOS_2015-10-08T23:13:56.891.fits IMG_SKY_FLAT (1/100)	VIMOS_IMG_SKY281_0008_B.1.fits VIMOS_2015-10-08T23:14:40.087.fits IMG_SKY_FLAT (2/100)	n/c (3..4/100)	VIMOS_IMG_SKY281_0011_B.1.fits VIMOS_2015-10-08T23:17:01.093.fits IMG_SKY_FLAT (5/100)	VIMOS_IMG_SKY281_0012_B.1.fits VIMOS_2015-10-08T23:17:50.370.fits IMG_SKY_FLAT (6/100)
		...		

INS.FILT4.NAME=I OCS.CON.QUAD=4

VIMOS_IMG_SKY281_0007_B.4.fits VIMOS_2015-10-08T23:13:56.892.fits IMG_SKY_FLAT (1/100)	VIMOS_IMG_SKY281_0008_B.4.fits VIMOS_2015-10-08T23:14:40.086.fits IMG_SKY_FLAT (2/100)	n/c	VIMOS_IMG_SKY281_0011_B.4.fits VIMOS_2015-10-08T23:17:01.094.fits IMG_SKY_FLAT (5/100)	VIMOS_IMG_SKY281_0012_B.4.fits VIMOS_2015-10-08T23:17:50.369.fits IMG_SKY_FLAT (6/100)

issue: not discovered by scoring!!!

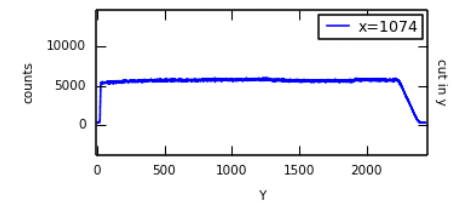
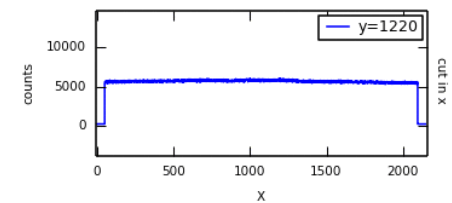
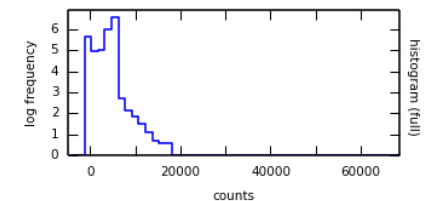
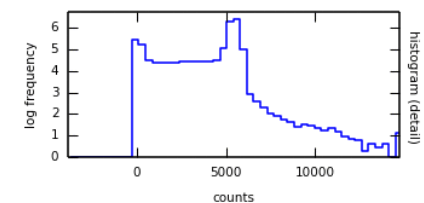
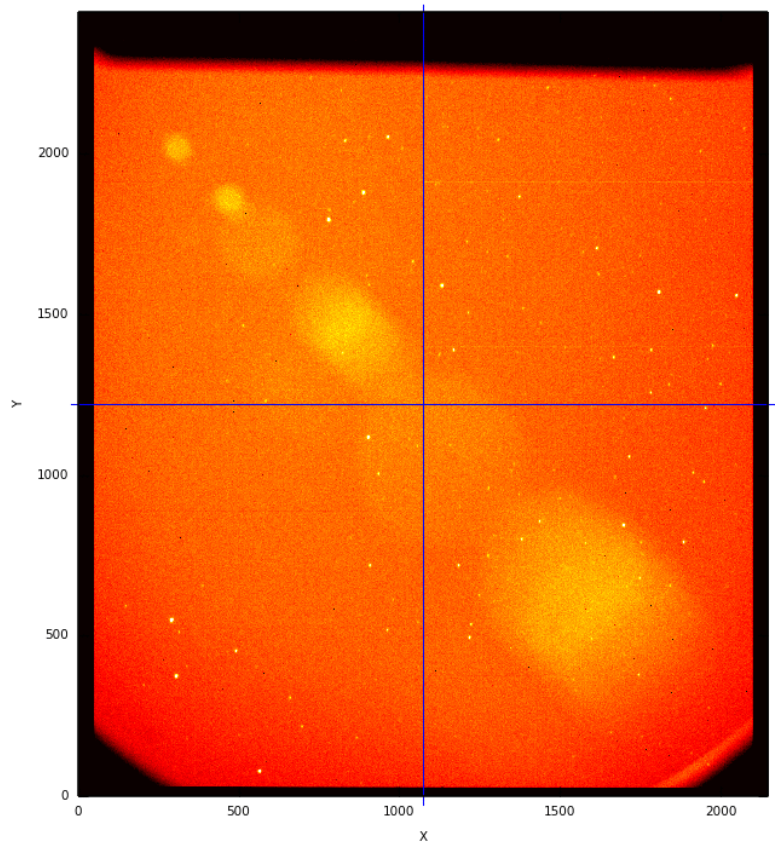


Raw file overview (2)

link to reference plot

current | [reference](#)

2015-10-08: VIMOS	type info	set-up info
ORIGFILE: VIMOS_IMG_SKY281_0007_B_4.fits	DPR.CATG: CALIB	INS.FILT4.NAME: 1
ARCFILE: VIMOS.2015-10-08T23:13:56.892.fits	DPR.TYPE: FLAT,SKY	OCS.CON.QUAD: 4
raw_type: SKYFLAT	DPR.TECH: IMAGE	
do_class: IMG_SKY_FLAT	TPL.ID: VIMOS_img_cal_FlatSky	
extension: 0		



powered by QC: www.eso.org/HC

created by qc_rawdisp.py v1.2 on 2015-10-09T00:37:44



Summary

- Real-time classification of science data (QC0)
 - Data quality (mostly IQ)
 - Range of quality control procedures depending on instrument / data type
 - Signal to noise is checked but is no formal user constraint
 - IQ measurements also used as input for short-term scheduling
 - Quality control includes feedback on observing preparation to USD
- Shared QC
 - Distributed between 2 sites
 - Automated processing and feedback: close the loop
 - Interactivity
- See also:
 - Talks on QC for PIONIER (Percheron) and on science products (Hanuschik)
 - Posters on QC for MUSE and SPHERE (Dobrzycka, Hummel)