

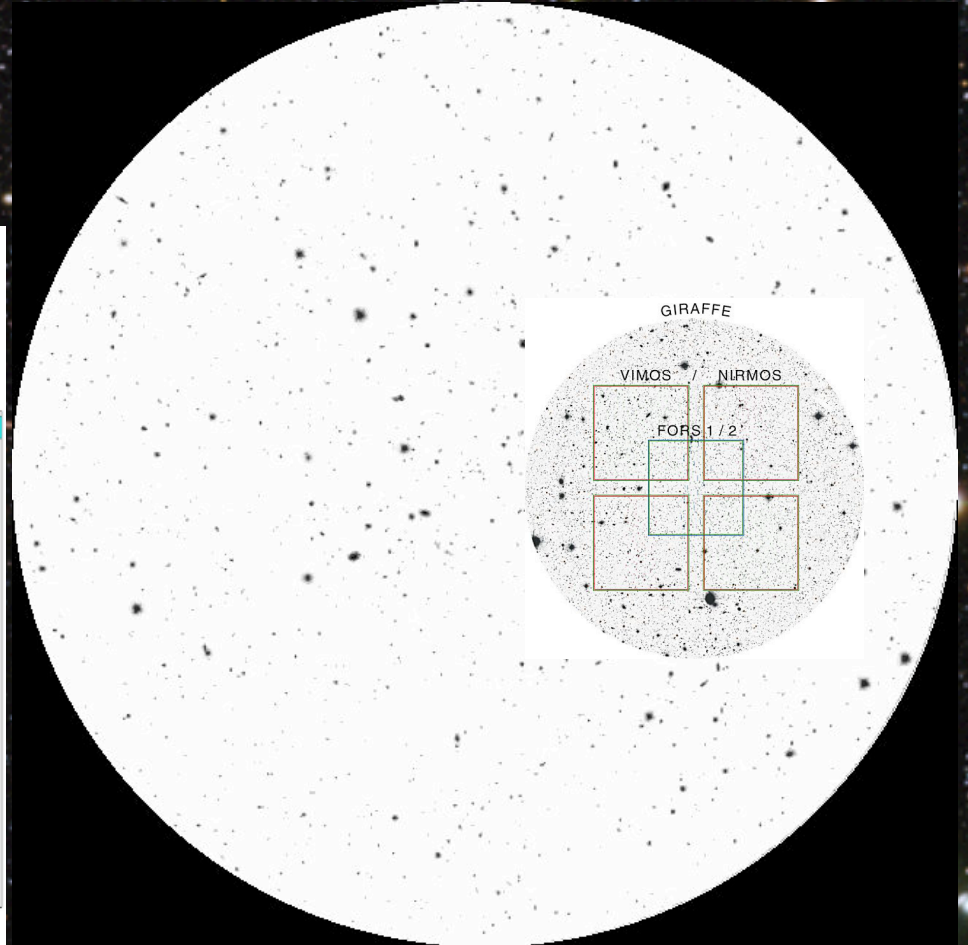
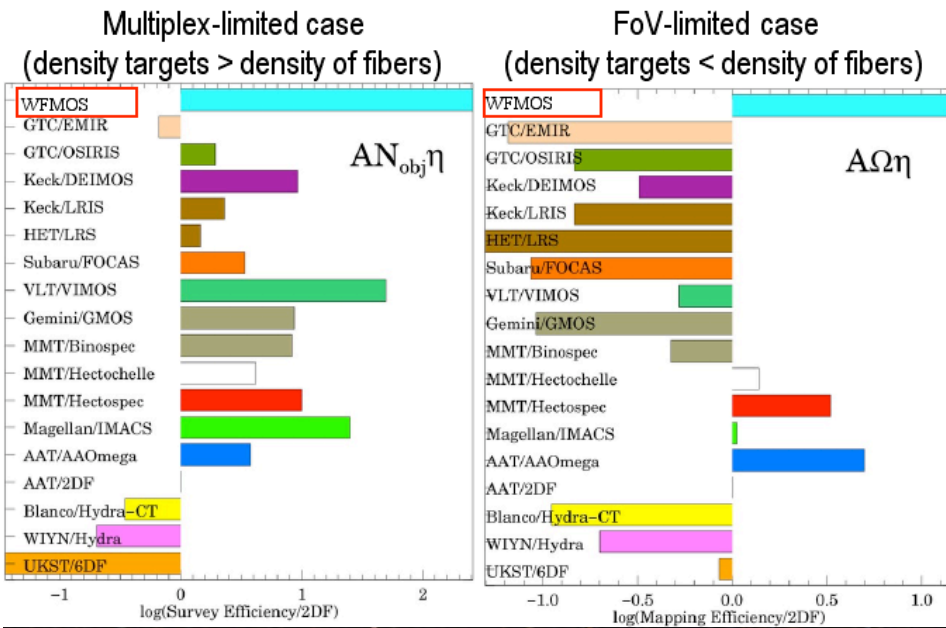


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Review of VIMOS and its Future

F. Selman, the IOT team
and many others...

WF MOS Efficiency Advantages



Colless 2007



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The VIMOS IOT

- Michael Hilker User Support, Garching
- Carlo Izzo Pipeline development, Garching
- Jean-Luis Lizon Engineering, Garching
- Eduardo Peña Software, Paranal
- Marina Rejkuba User Support, Garching
- Pascal Robert Engineering, Paranal
- Burkhard Wolff Quality Control, Garching
- Fernando Selman Instrument Scientist, Paranal
- Gianni Marconi Instrument Scientist Emeritus, Paranal



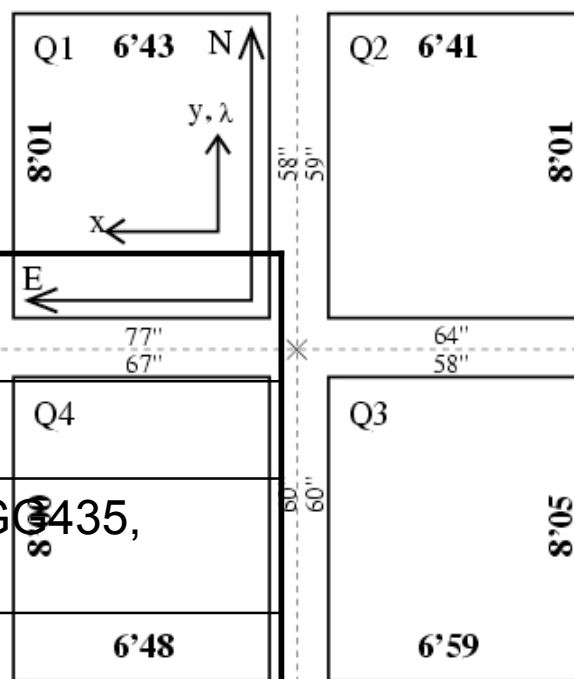
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VIMOS in a nutshell

FoV= 1/16.5 deg²

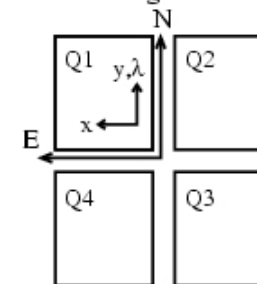
λ range	0.37-1.0 μm	IFU	
R	180 - 2500		Q4
Filters	UBVRiz OS-red, OS-blue, GG435, GG475, 170mm ϕ		8'8''
Grisms	6 per channel		6'48
Flexures	Passive compensation: ± 2 pixels peak-to-valley		
Multiplex	840 slits, 10'' at long R=200 210 slits, 10'' long at R=2000		

VIMOS FoV

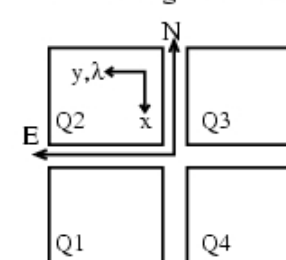


Orientation ON SKY IMAGING/MOS MODE

Rotator angle = PA = 0



Rotator angle = PA = 90

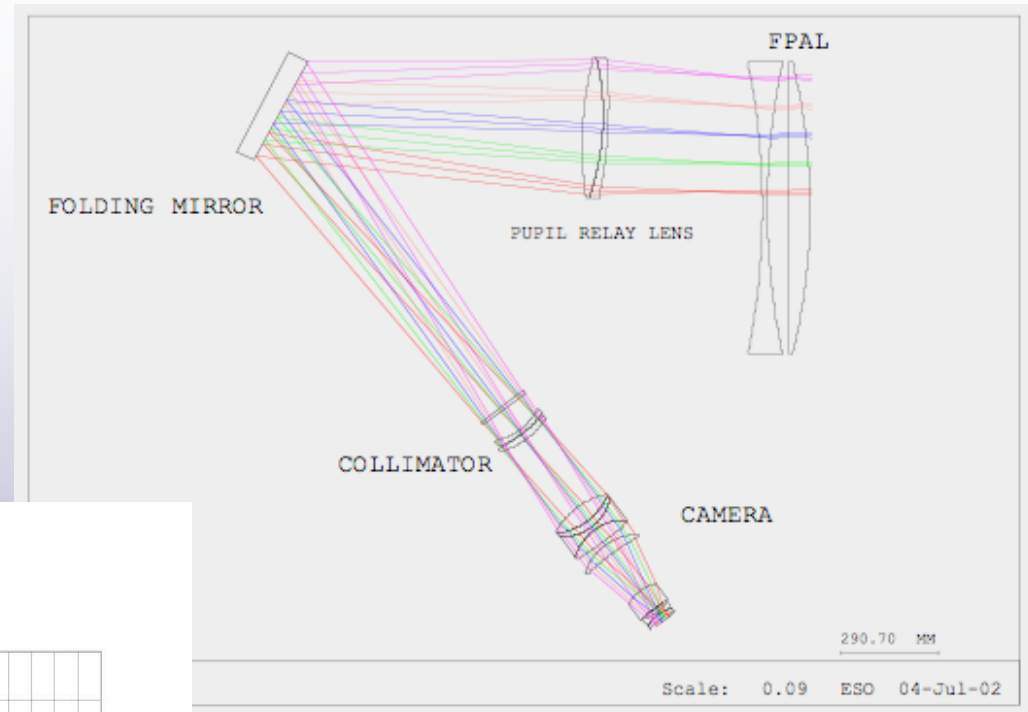




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VIMOS in a nutshell

- 4 2k x 4k CCDs
- 0.205 μm pixels



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VIMOS MOS Configurations

Grism	OS Filt	$\Delta\lambda$ [nm]	npix	1" R	Disp. Å/pix	mux	Peak eff gris. only
LR_blue	OS-blue	370-670	550	180	5.3	4	0.80
LR_red	OS-red	550-950	550	210	7.3	4	0.75
MR	GG475	480-1000	2000	580	2.5	2	0.80
MR	OS-red	550-970	2000	580	2.5	2	
HR_blue	Free	415-620	4096	2050	0.5	1	0.50
HR_orange	GG435	520-760	4096	2150	0.6	1	0.55
HR_red	GG475	630-870	4096	2500	0.6	1	0.85



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VIMOS improvement/recovery project

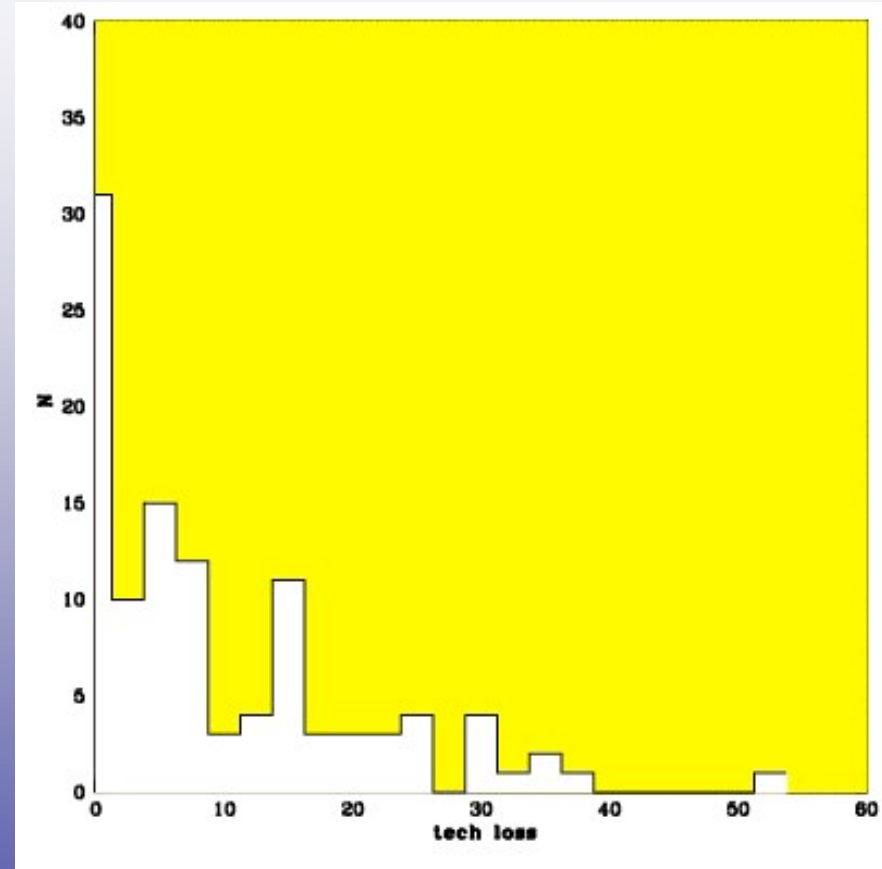
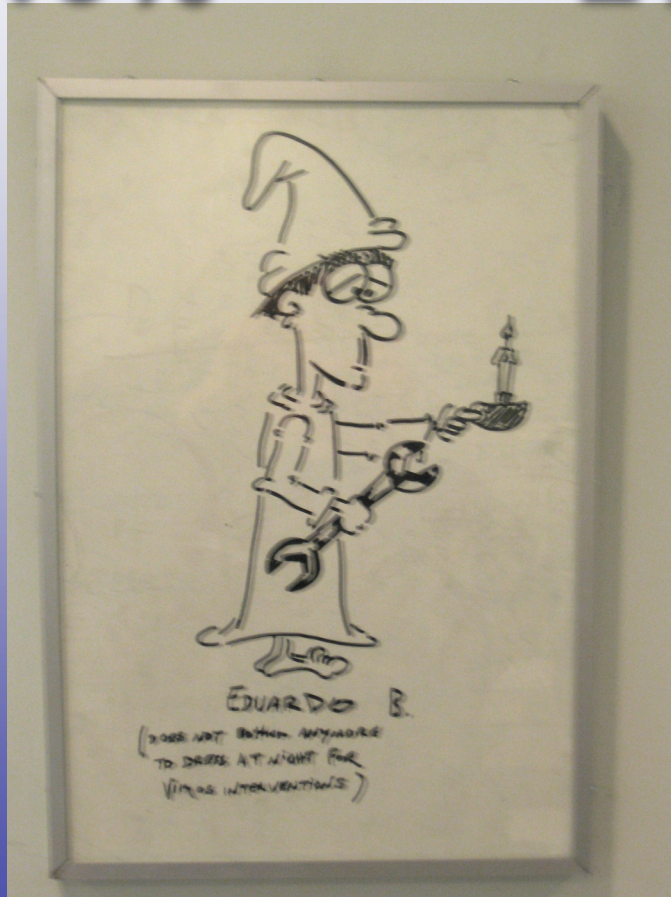
- RELIABILITY
 - Lower failure rate
- STABILITY
 - Focal plane stability
 - Flexures
- SENSITIVITY
 - Detector upgrade in the red
- Overall efficiency (VMMPS?)



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Improve reliability by reducing the rate of failures

10% -----> ~2%



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Improve reliability by reducing the rate of failures

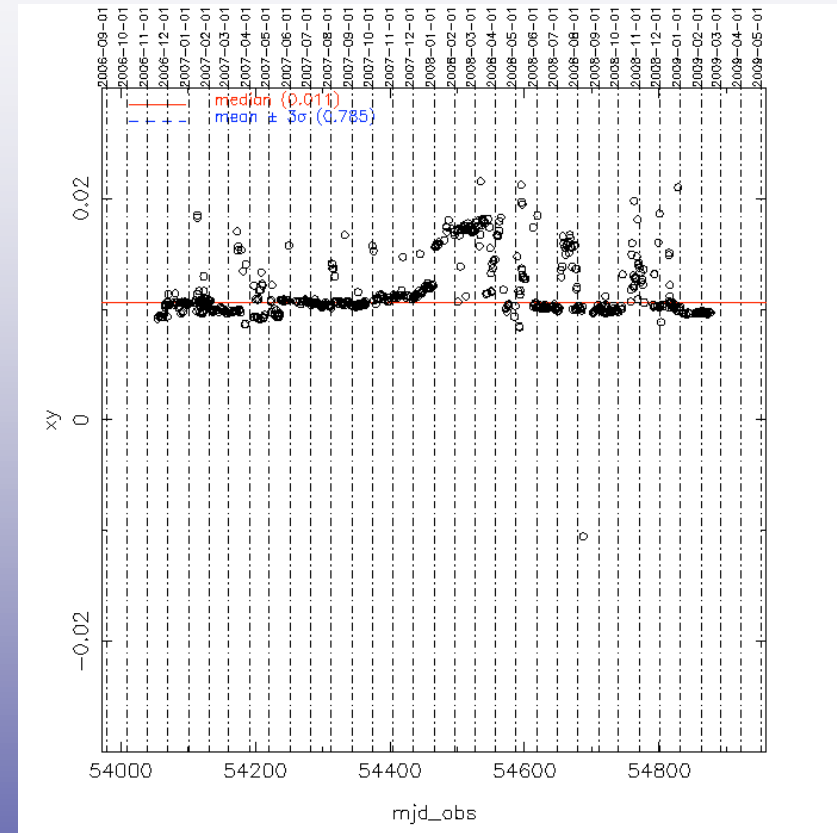
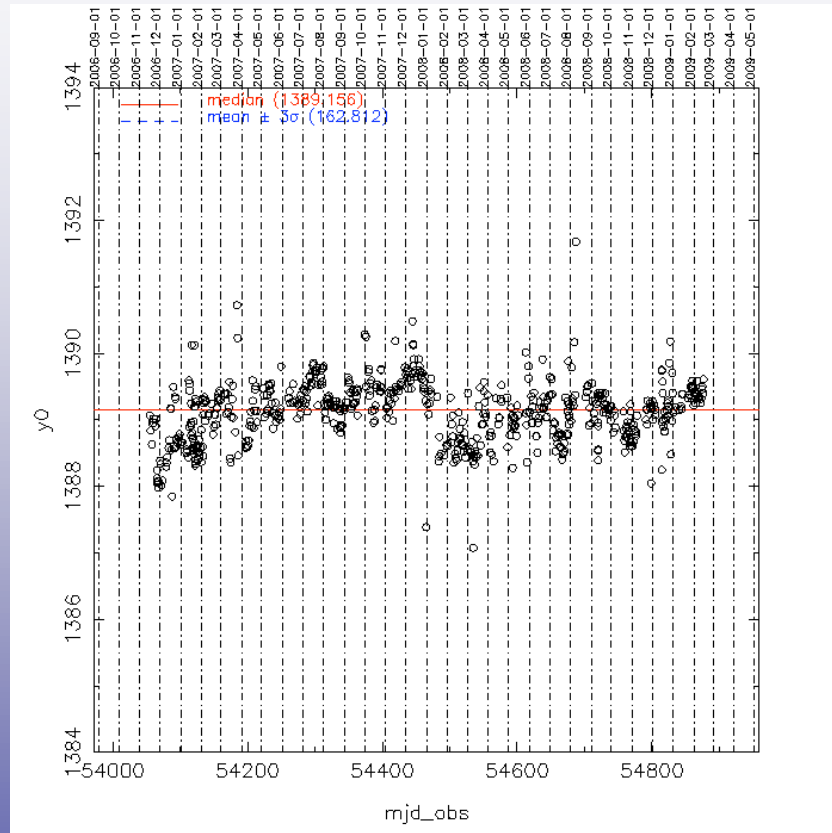
- Redesign of Mask Exchange Unit (MEU) clamp/translator/blocker.
- Redesign of Grism Exchange Unit (GEU). If possible to permit the insertion of gratings at any angle.
- Filter Exchange Unit (FEU)
- New shutters
- Pick-up noise/connector overhaul
- Software (possibly implied by the above)



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Focal Plane Stability

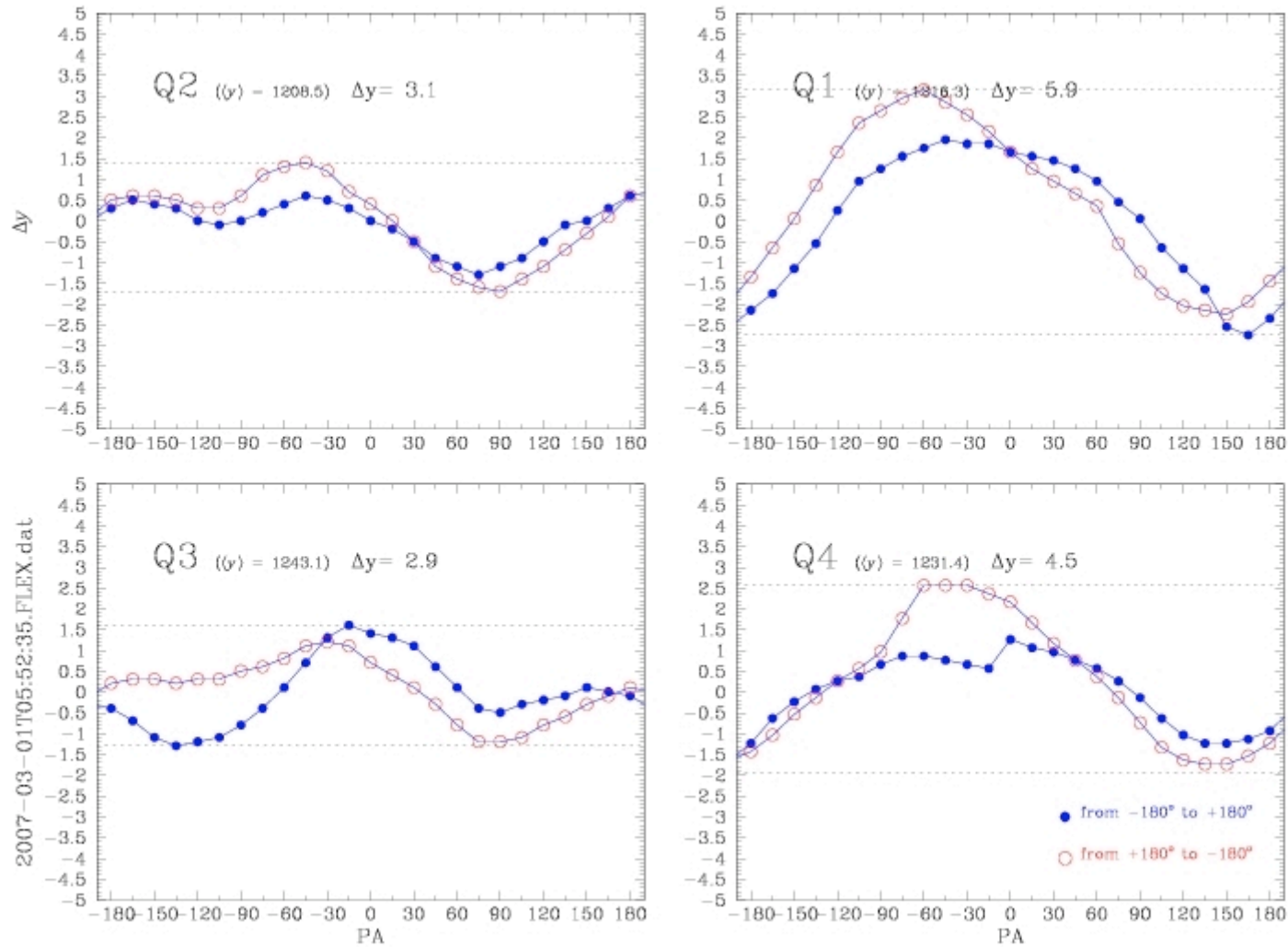
Focal plane is stable, but insertion can be unreliable.



$$Y[\text{pix}] = a(yx)x + a(yy)y + y(0)$$



Flexures

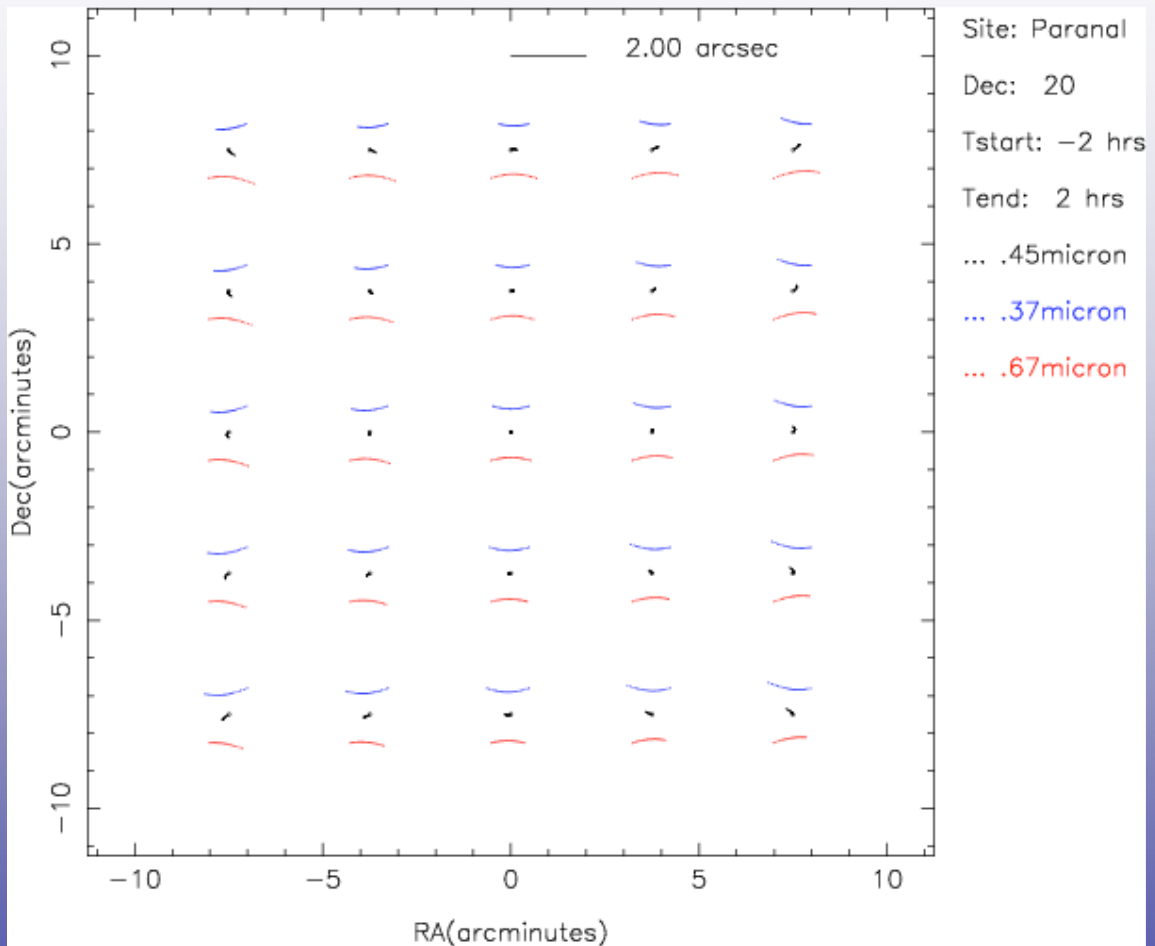




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But remember that there is a limit...

VIMOS does not have an
ADC





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Nevertheless...

OB



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Red detector upgrade (Q2 2010)

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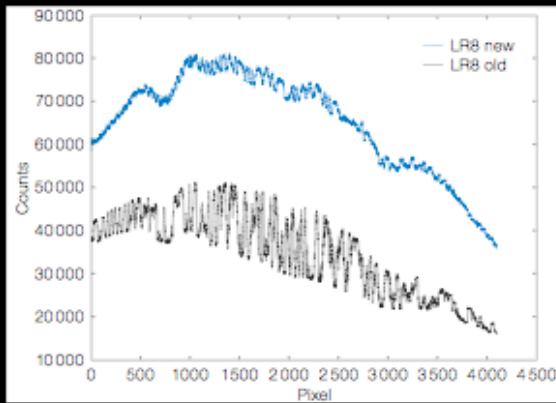
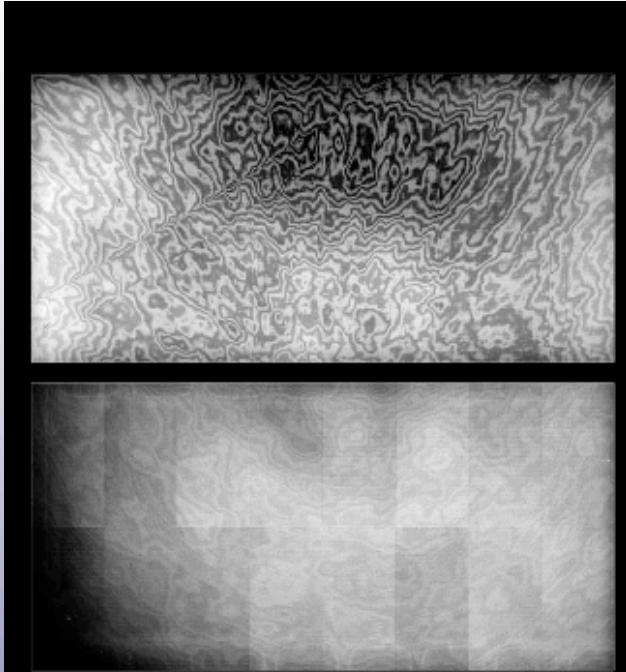
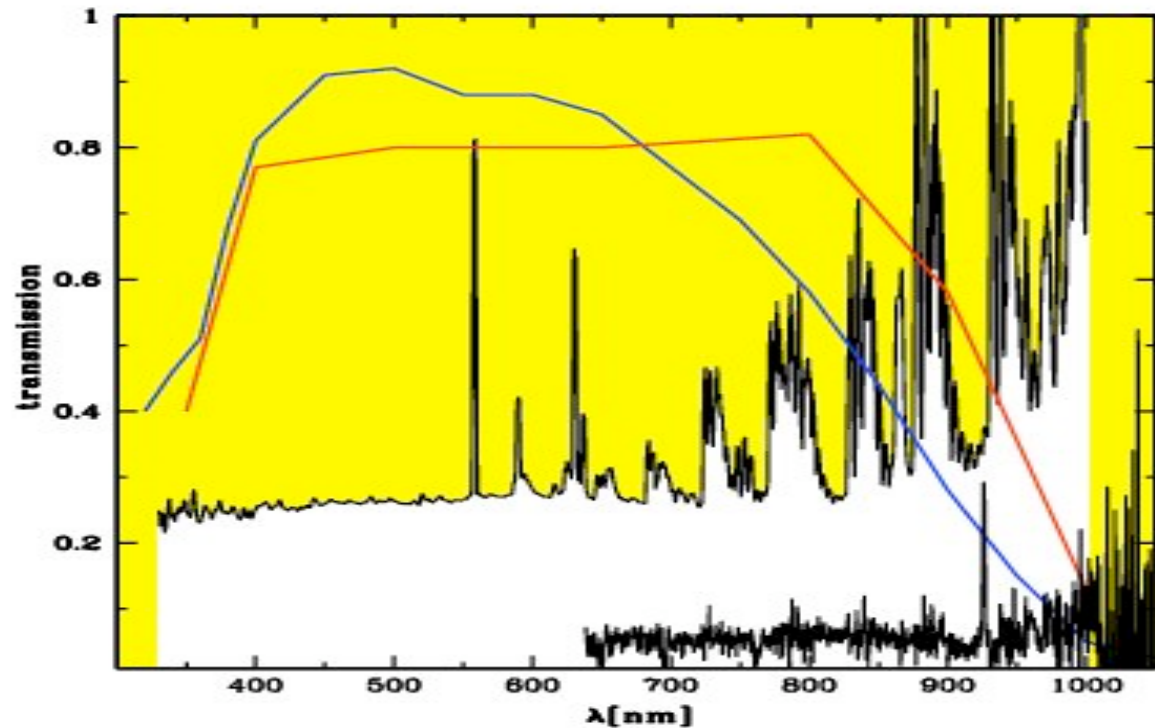


Figure 2. Expanded red field for the 20" 7-mi. seeing area with the same exposure time. Blue line is for the top field taken in with Camera whereas the black line is the top field collected with Bruke.

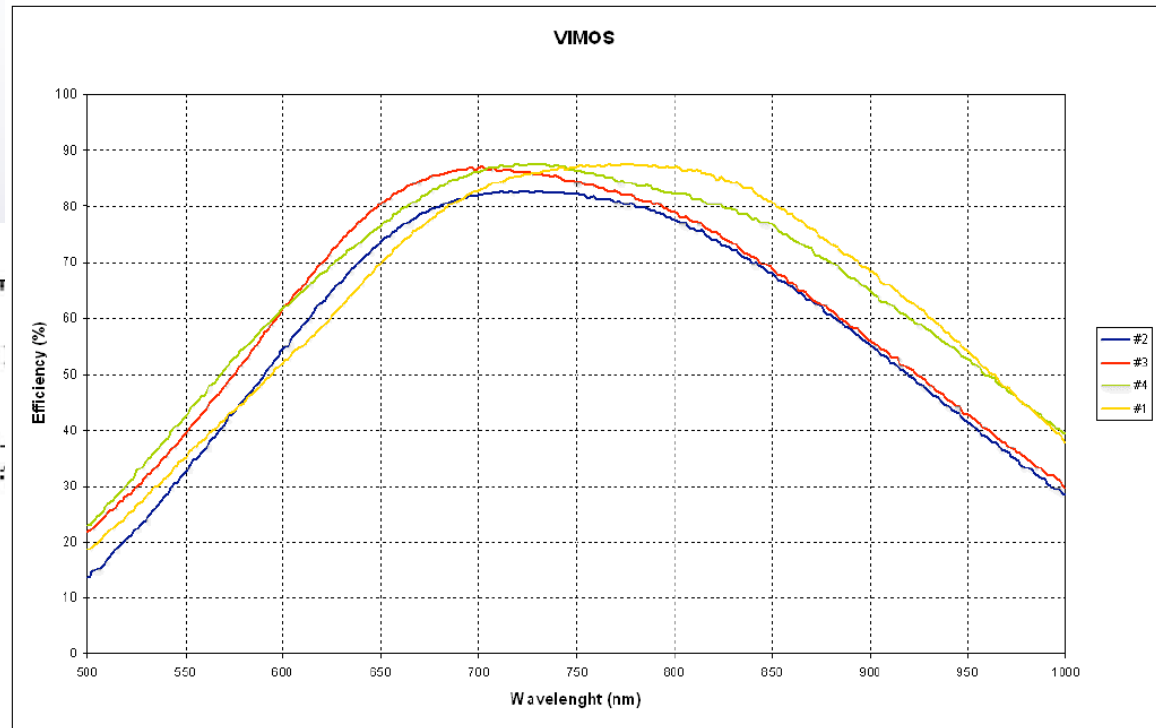
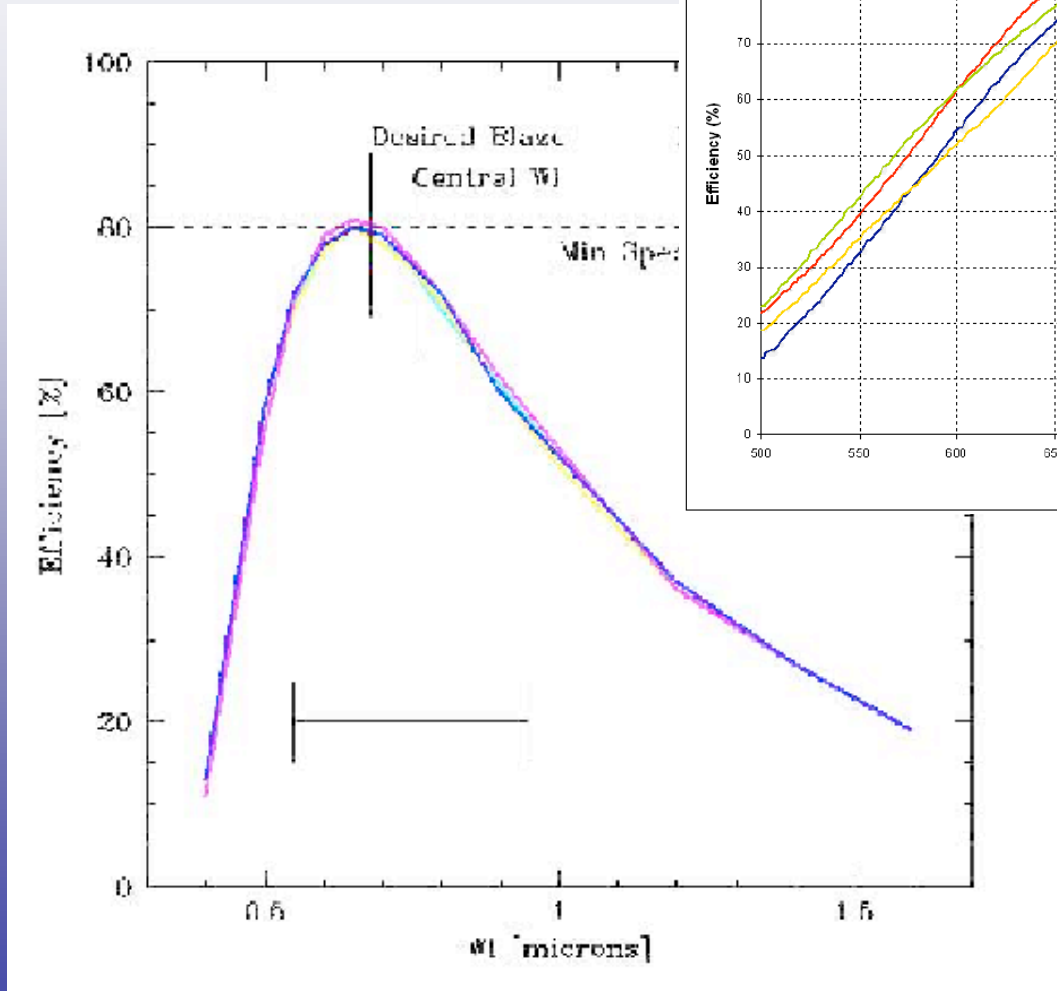


- E2V deep depletion 2kx4k CCDs, reduce fringes, increases red response (and CR contamination).



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Should we get new NIR grisms?



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Conclusions: what can be expected

On-target time: 2700s

PRE-IMG	855	(?) 0
ACQ	1150	1000
OBS	3115	3025
NightCal	510	(?) 0
Sub Total	5630	4025
Tech	(10%) 563	(2%) 80
Total	6193	4105
Efficiency	43%	66%
Obs/10h	6.7	8.8