



The 2006 ODT Christmas Tree and NGC Sleigh



MAD

CCD 220

MUSE

VLTSW

FORS1

Open House

UV QE Boosting

Labs

OmegaCAM

Documentation

WFS for ELT

Test Bench

MIT/LL Phase 4

BlueWave

NGC

Pixel Coupling

SAD 2006

IRDD

ODT

GROND

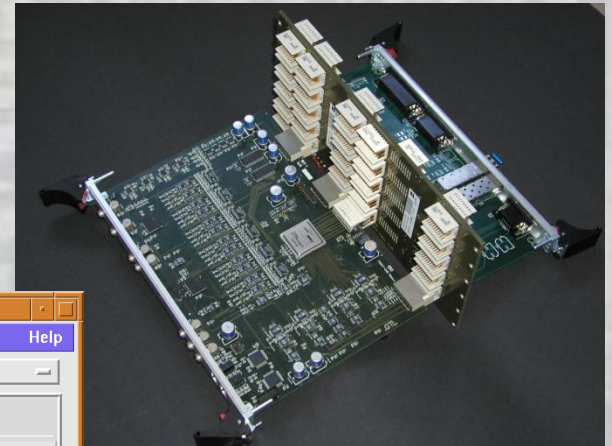
X-shooter Twins

1st Delivery

La Silla Paranal

New general Detector Controller (NGC)

- First delivery of a (prototype) NGC system (to KMOS) imminent
- Very broad (but informal) Design Review of control software
- Java-based waveform editor (BlueWave)
- Prototype housing
- Draft of manual for serial production



NGC Control Panel - @wdcs

File Mode Online Help

ONLINE idle Mode HW-SIM Detector Configuration test2 Read-Mode Double

Exposure: Start Abort End Naming Scheme: request Reset

Name: ngc

Format: extension Enable File History CLEAR

Multiple Files

ngc.fits

Exposure Time 00:00:00

Countdown -00:00:05

Status success

PARAM FRAME HISTORY

European Southern Observatory

NGC

New General Detector Controller

Acquisition 1 Continuous Mode

Status running Transfer

Burst: 0

Skip: 0

Process

cppTemplate

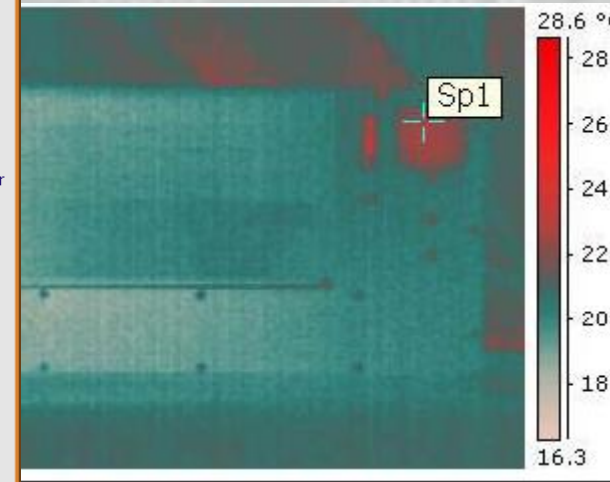
1 NX: 1024

1 NV: 1024

Statistics

Board name	Clock name	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	FNs Line
Board_0	CLK_01																	BRDO_LINE01
Board_0	CLK_02																	BRDO_LINE02
Board_0	CLK_03																	BRDO_LINE03
Board_0	CLK_04																	BRDO_LINE04
Board_0	CLK_05																	BRDO_LINE05
Board_0	CLK_06																	BRDO_LINE06
Board_0	CLK_07																	BRDO_LINE07
Board_0	CLK_08																	BRDO_LINE08
Board_0	CLK_09																	BRDO_LINE09
Board_0	CLK_10																	BRDO_LINE10
Board_0	CLK_11																	BRDO_LINE11
Board_0	CLK_12																	BRDO_LINE12

RateC/SYSTEM/DET/DIR/ngc.fits

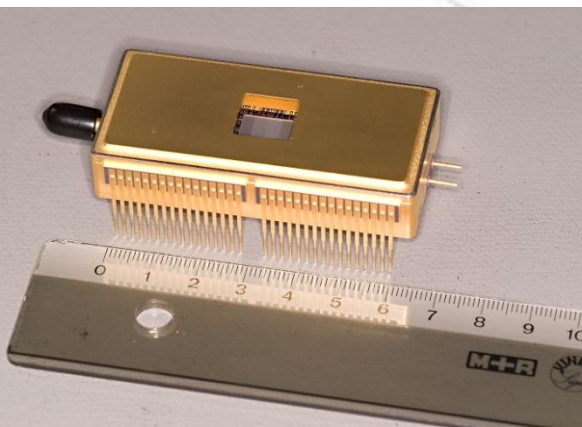




CCD 220 for wavefront sensing @ VLT

(6+1 systems for GRAAL (HAWK-I); 5+2 for GALACSI (MUSE); 1+1 for SPHERE)

- Mechanical sample received from e2v
- Design Review of test controller being built in France
- A lot of progress and contract monitoring
- Combined testing in 2007 May
- Presented at SPIE in Orlando



Wavefront sensing @ ELT

- Conducted market survey; 7 replies to preliminary inquiry
- TSD will award 4 contracts for conceptual design studies; monitoring and evaluation by ODT



MAD: Multi-conjugated Adaptive Optics Demonstrator

- Three + two detector heads - one FIERA controller
- Up to 400 frames/s (500 frames/s with 2x2 binning)
- With DSP optimization, FIERA spec of 1 Mpix/s much exceeded
- Read noise: $\sim 6-7 e^-$
- Jumo Imago 500 used for control of Peltier coolers
- Ready for shipment
- Commissioning in March, 2007



OmegaCAM

Packing list:

Instrument
Detector head
Synchronized FIERAs
Handling tools
Pulpo 2

Cooling controller
Drawings
PAE
Test reports
Spare parts
Cables
Blood, sweat, & tears
No cash
Hope



Routing information:

Paranal



Garching Storage Hall



Orlando (SPIE)

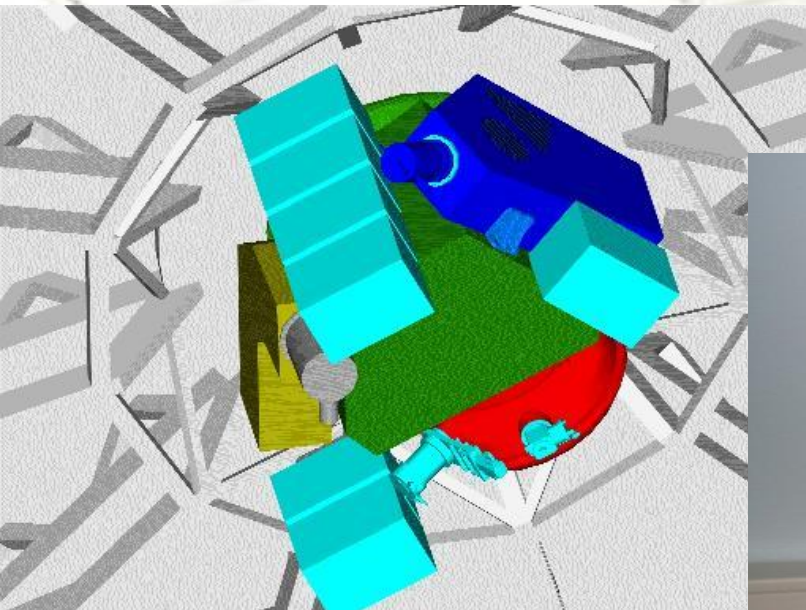


Garching ODT Labs



X-shooter

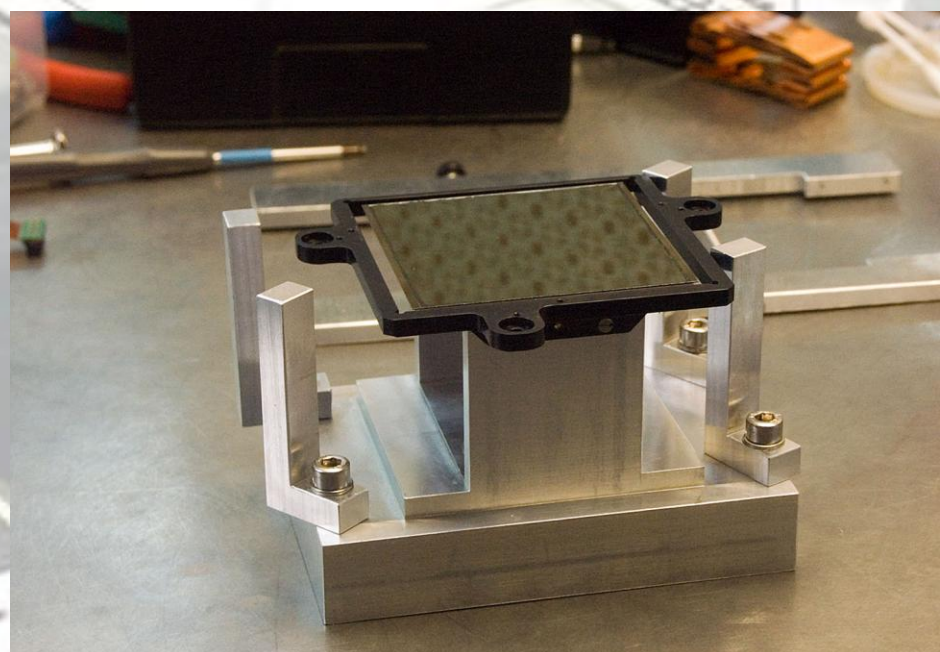
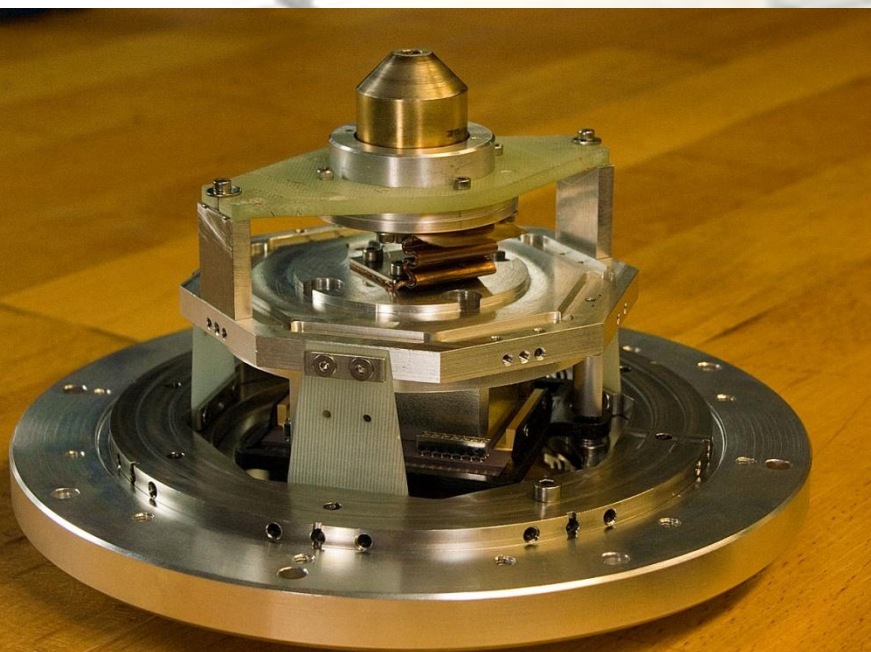
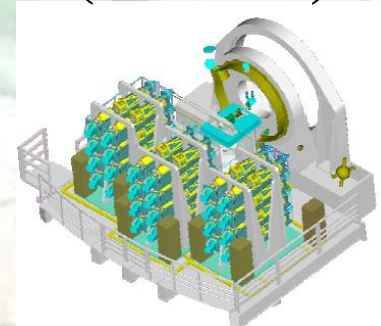
- 2 optical arms (e2v CCD44-82 and MIT/LL CCID-20)
- FIERA software defines 2 nearly fully independent virtual cameras on one common front-end electronics
 - FDR
 - AIT
 - Handover to consortium in March, 2007





Multi-unit Spectroscopic Explorer (MUSE)

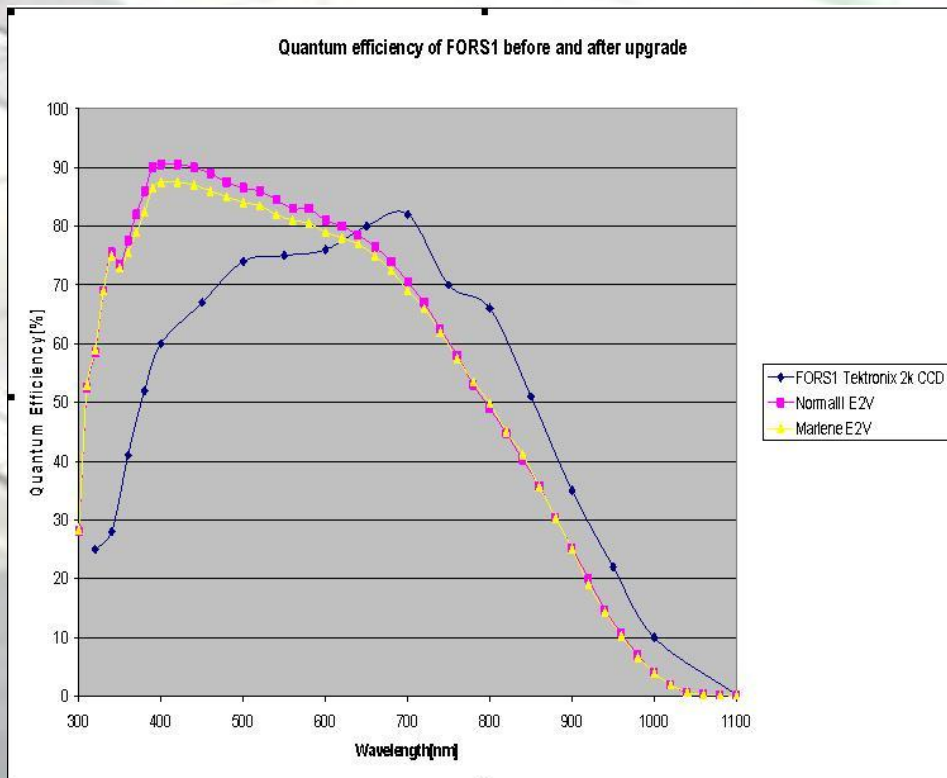
- Twenty-four separate 4k x 4k CCD systems
- Proto-type of 2nd-generation cryostat head
- CCD tests:
 - Fairchild 4k x 4k (on-going)
 - deep-depletion 2k x 4k device with graded AR coating from e2v
- In 2007, will build prototype system with e2v device
- Will probably use Jumo Imago 500 for house keeping
- Many management formalisms





FORS1 Blue Upgrade

- Mosaic of 2 2k x 4k e2v CCD44-82 devices selected for extra-high UV sensitivity
- Shipped to Paranal (today!)
- Commissioning in January



Giraffe upgrade

- Deep-depletion CCD (2k x 4k) ordered from e2v



MIT/LL Phase 4

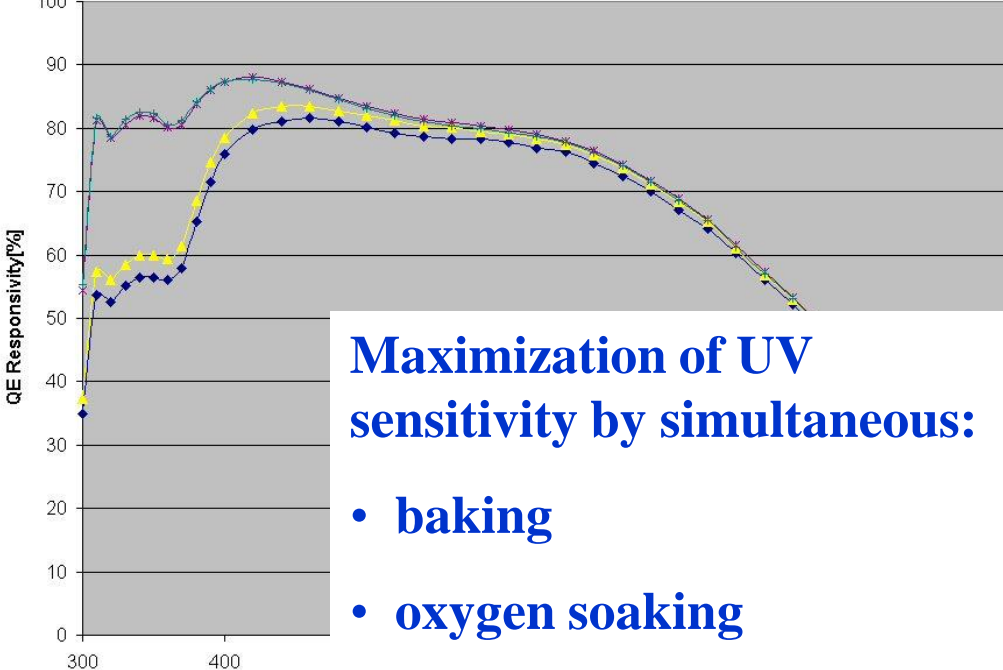
- **One chip tested and returned (large trap close to serial register)**
- **A second device (with 2-layer AR coating) is on its way**

GROND

- **Delivered FIERA system, head electronics, patterns, and software**
- **System working OK**



Research & Development (I)

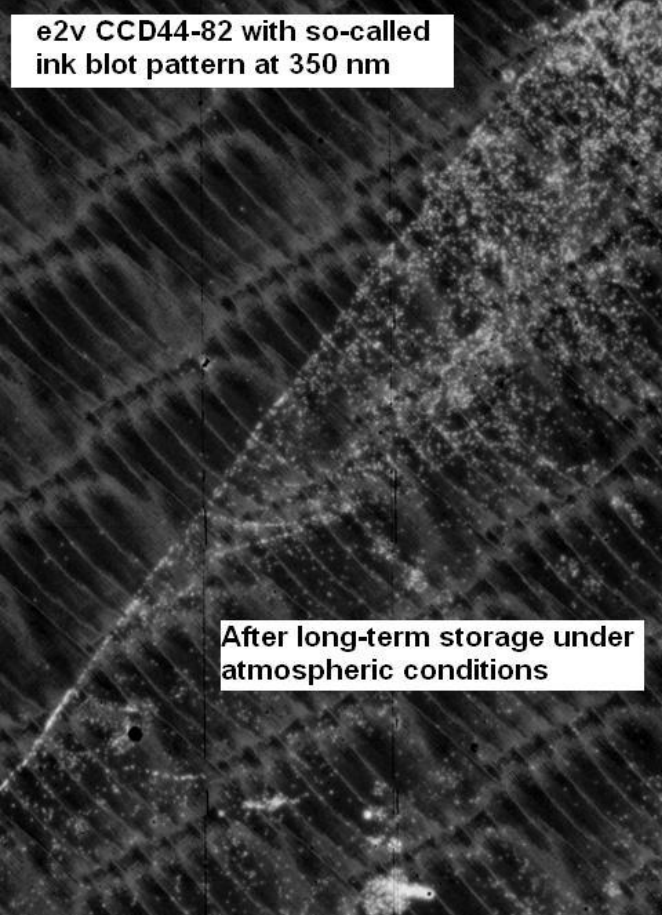


Maximization of UV sensitivity by simultaneous:

- baking
- oxygen soaking
- UV flooding

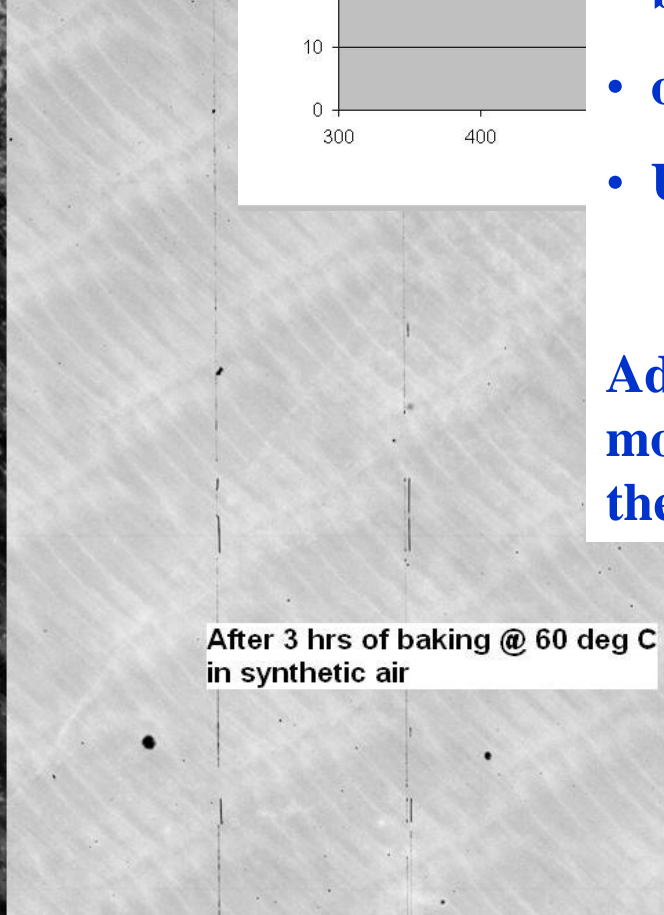
Adsorption of water molecules to (or below?) the AR coating layer?

e2v CCD44-82 with so-called ink blot pattern at 350 nm



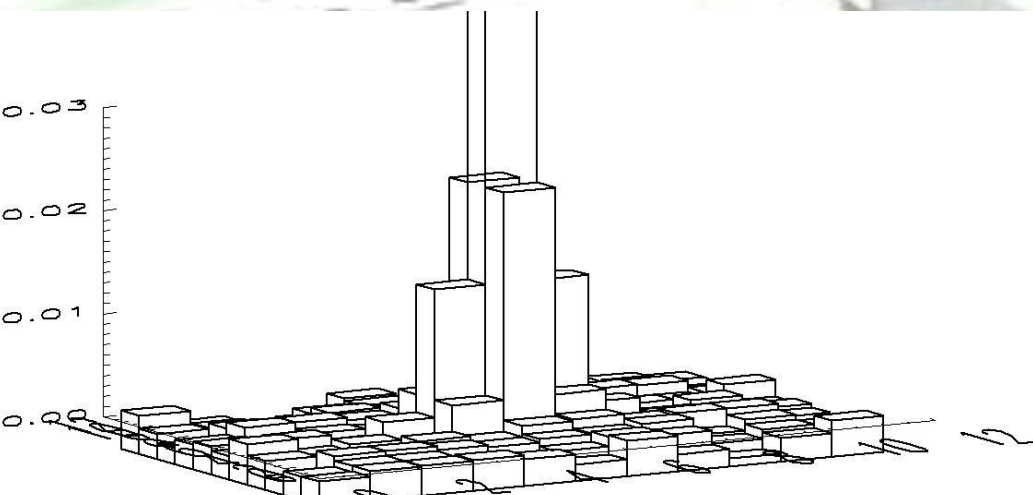
After long-term storage under atmospheric conditions

After 3 hrs of baking @ 60 deg C in synthetic air

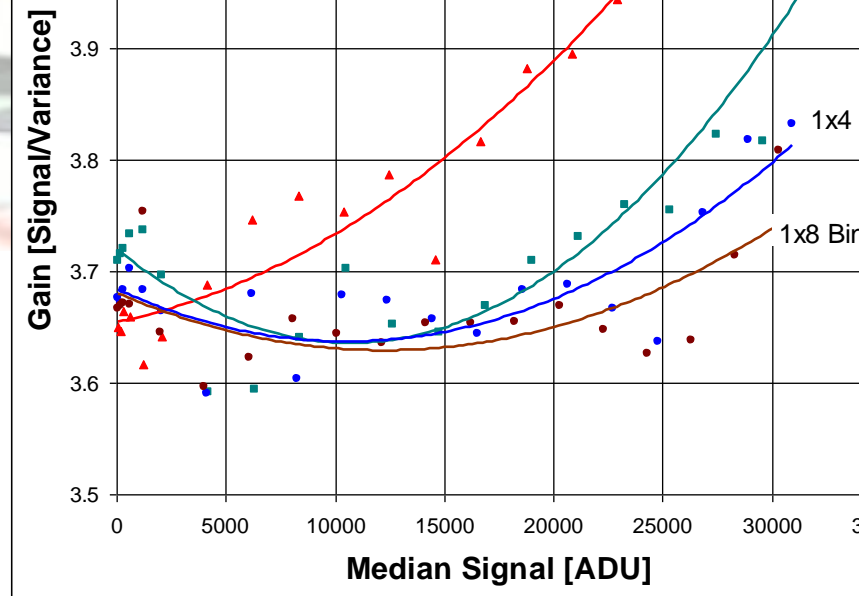




Research & Development (II)



2-D cross-correlation function



Non-linear photon transfer curve

Analysis:

- Neighbouring pixels know about each other's signal

Explanation:

- TBD (charge diffusion [spill-over] is excluded)

Presented at SPIE in Orlando



Highlights build up on a basis of excellent routine activities

- 2006 release of VLTSW
- FIERA SPRs: all but one cleared

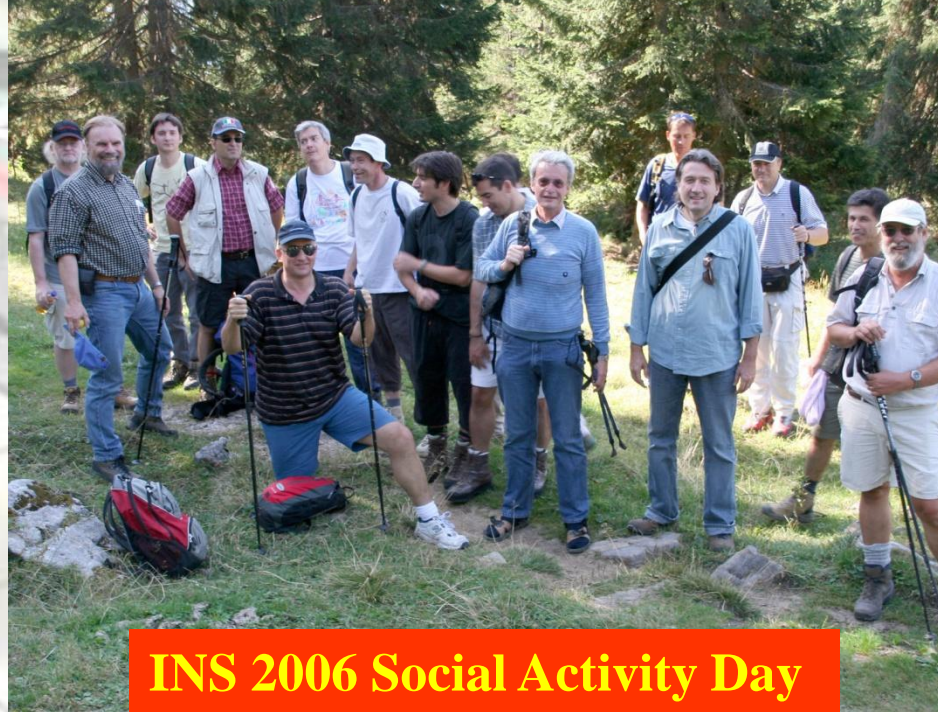
- Test bench
- Monitoring of market
- Procurement
- Obsolescence hunting
- Stock keeping
- Incoming quality control
- Repairs
- Preventive maintenance
- Trouble shooting
- Support of La Silla Paranal
- Soldering
- Ultra-cleaning
- Web pages
- Safety
- Debugging
- Meetings
- Reporting
- Training (too little!)



Human Relations, etc.



Traditional Isar Party



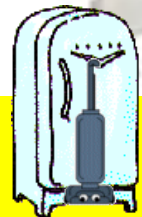
INS 2006 Social Activity Day

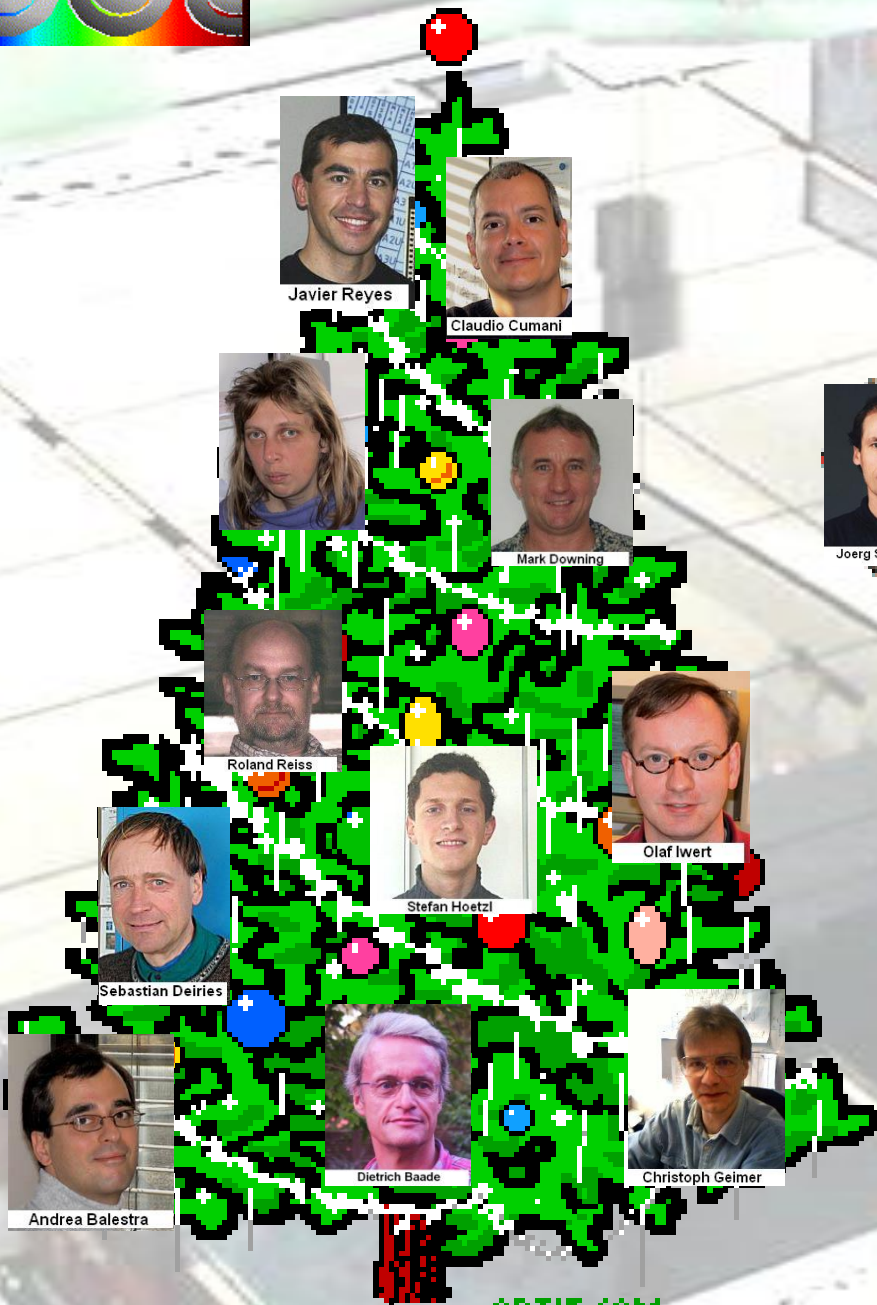
Various joint ODT dinners w/ and w/o guests



Open House (joint stand of both detector departments) and other ESO PR activities were supported

The ODT thanks the Integration and CryoVacuum Dept. for their essential contributions to the FORS1 Upgrade, MUSE, OmegaCAM, and X-shooter detector systems.





Javier Reyes



Claudio Cumani



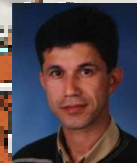
Mark Downing



Joerg Stegmeier



Siegfried Eschbaumer



Leander Mehrgan



Gert Finger



Manfred Meyer



Roland Reiss



Stefan Hoetzi



Olaf Iwert



Sebastian Deiries



Andrea Balestra



Dietrich Baade



Christoph Geimer

Season's
Greetings!