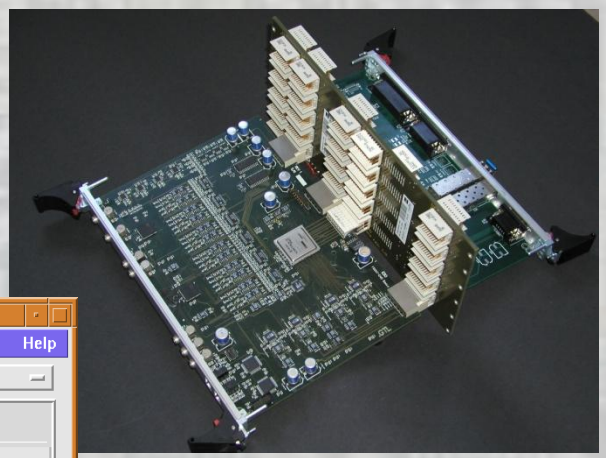
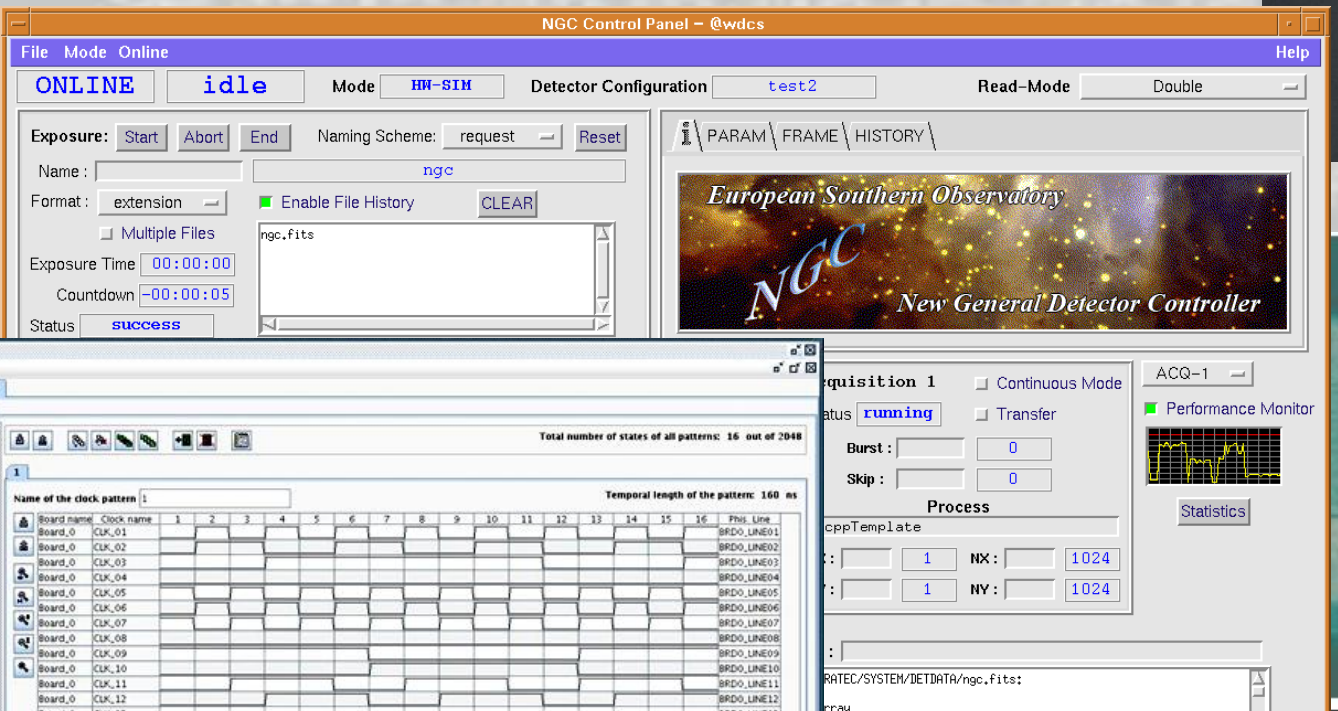
The 2006 ODT Christmas Tree

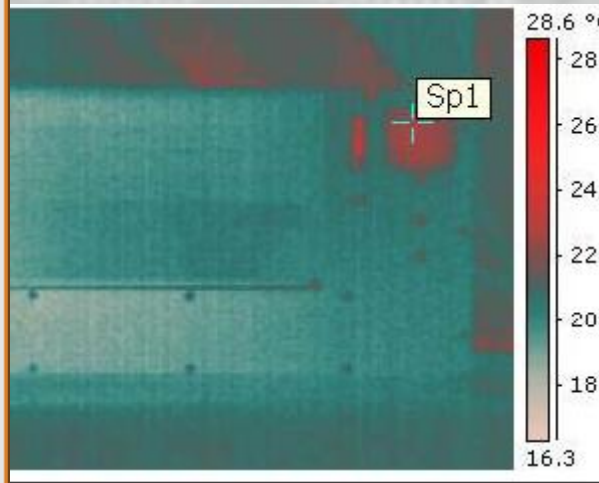
and NGC Sleigh

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

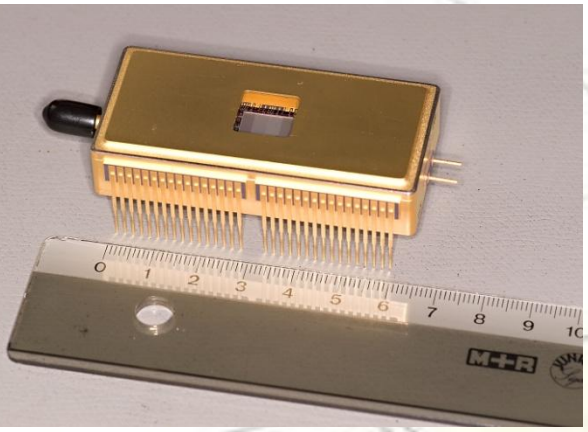




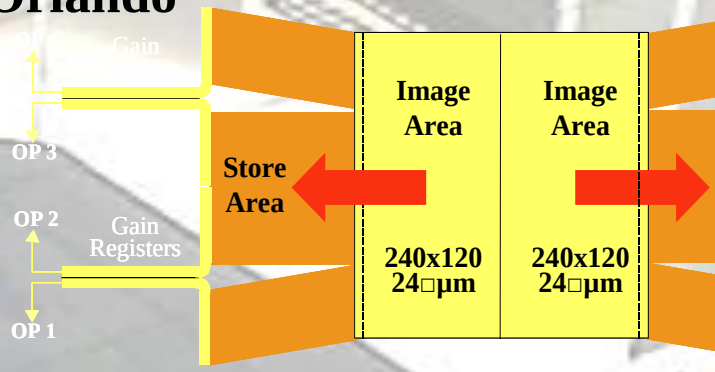


CCD 220 for wavefront sensing @ VLT

(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: ~ 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)

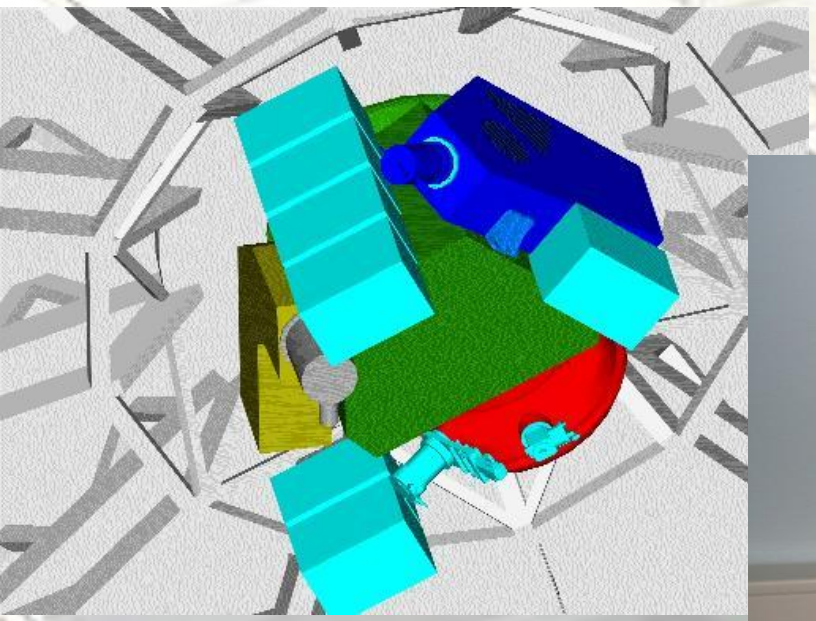
↑

Garching ODT Labs

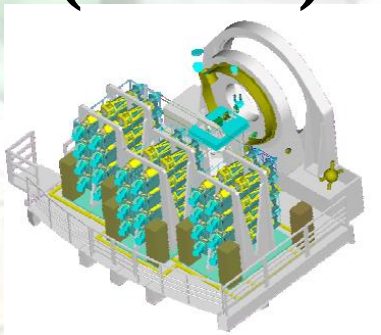
X-shooter

- 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

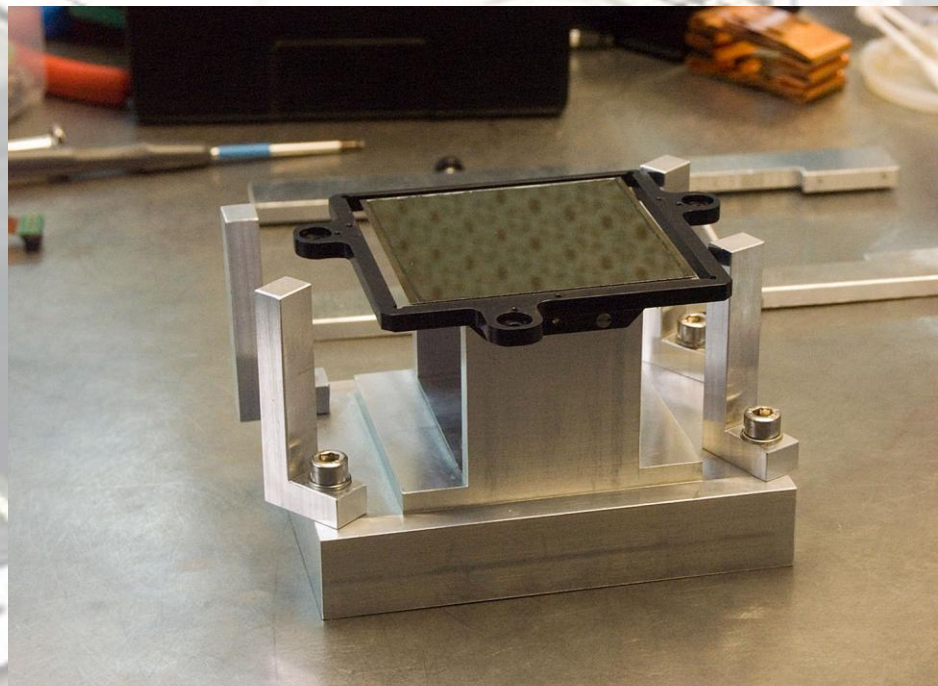
- FDR
- AIT
- Handover to consortium in March, 2007



Multi-unit Spectroscopic Explorer (MUSE)

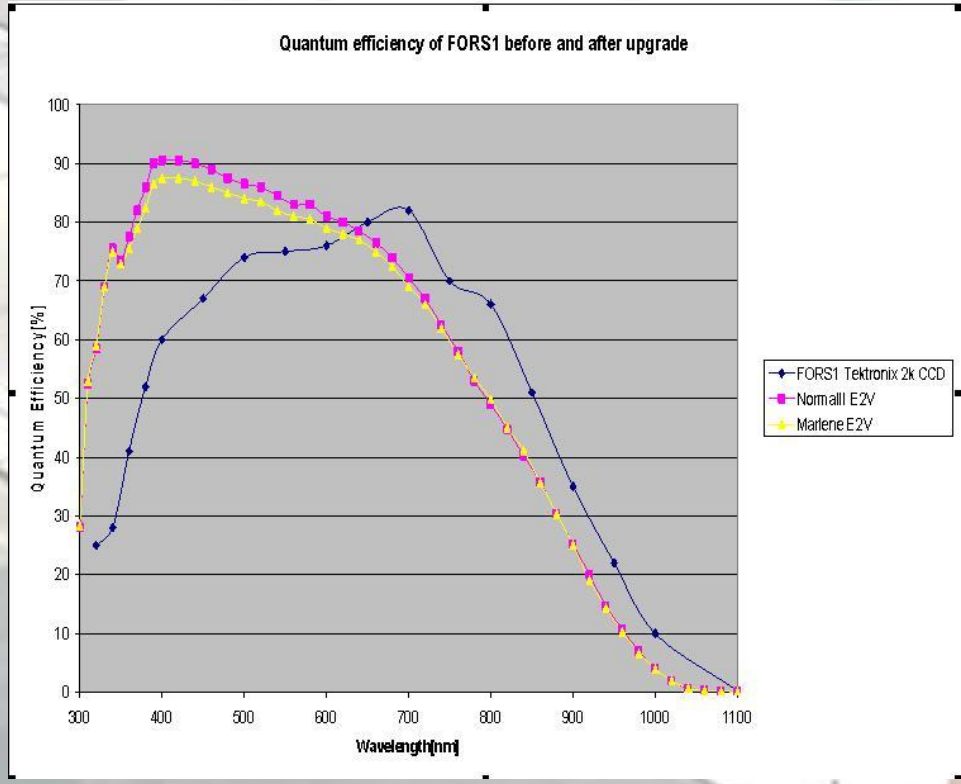


- Twenty-four separate 4k x 4k CCD systems
- Proto-type of 2nd-generation cryostat head
- CCD tests:
  - Fairchild 4k x 4k (on-going)
  - deep-depletion 2k x 4k device with graded AR coating from e2v
- In 2007, will build prototype system with e2v device
- Will probably use Jumo Imago 500 for house keeping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

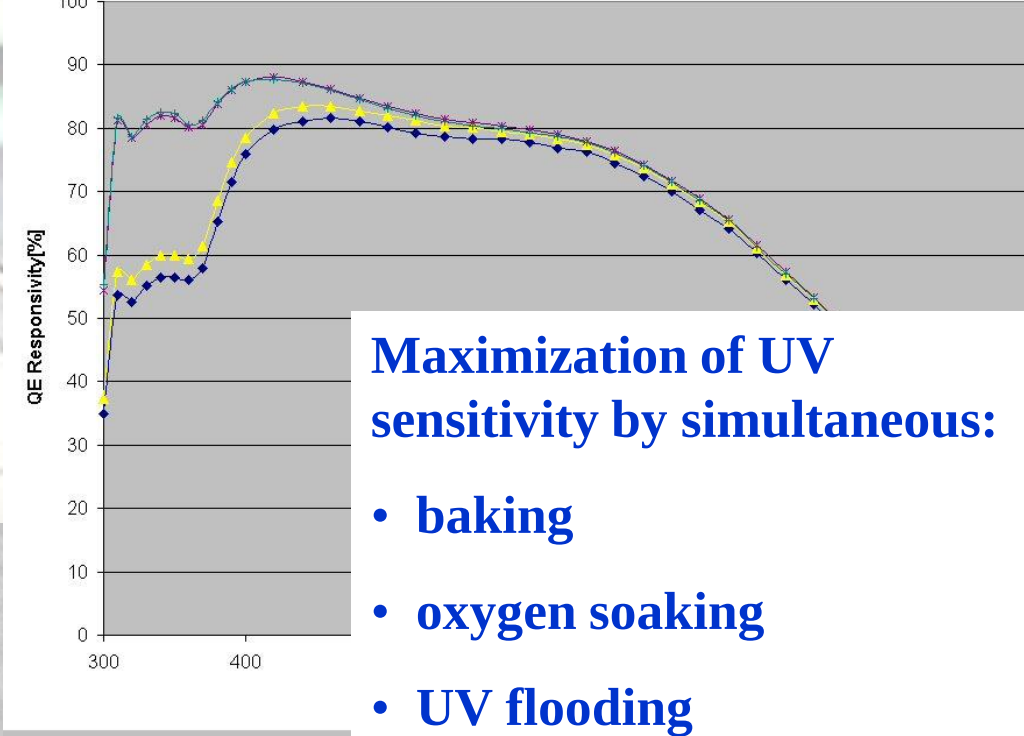
MIT/LL Phase 4

- 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

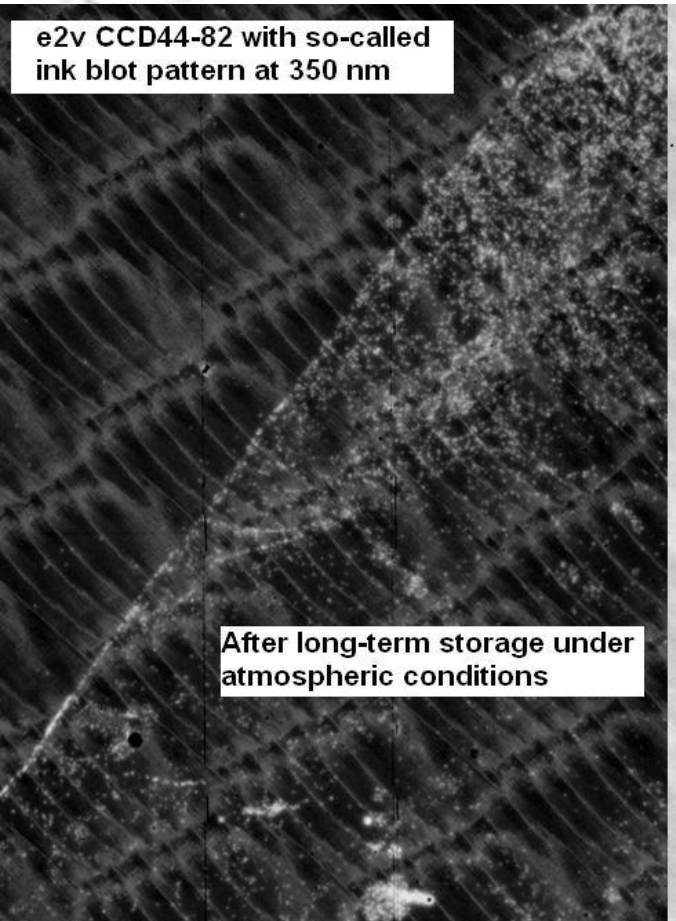
Research & Development (I)

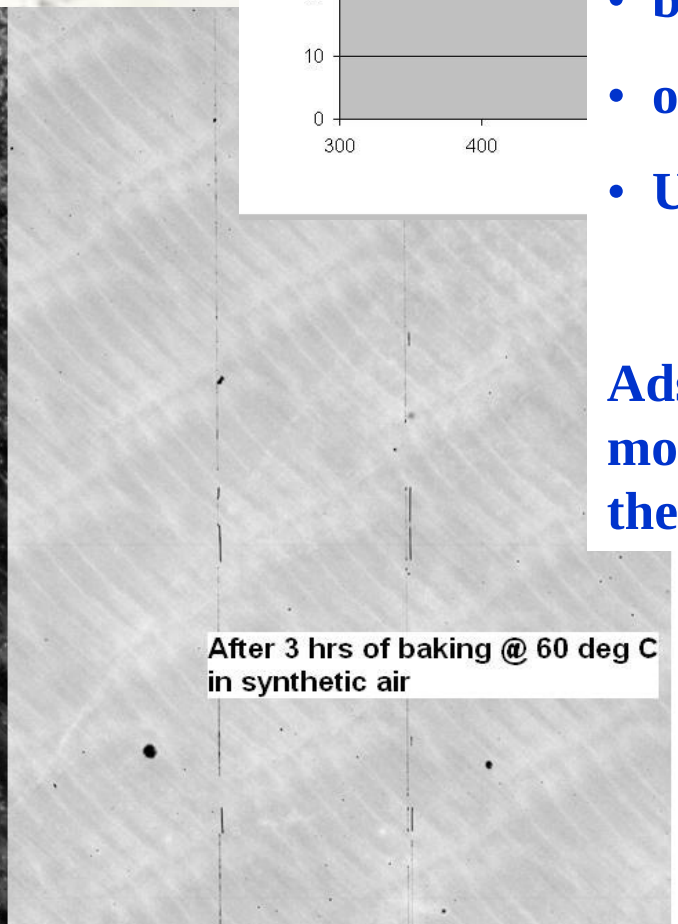


Maximization of UV sensitivity by simultaneous:

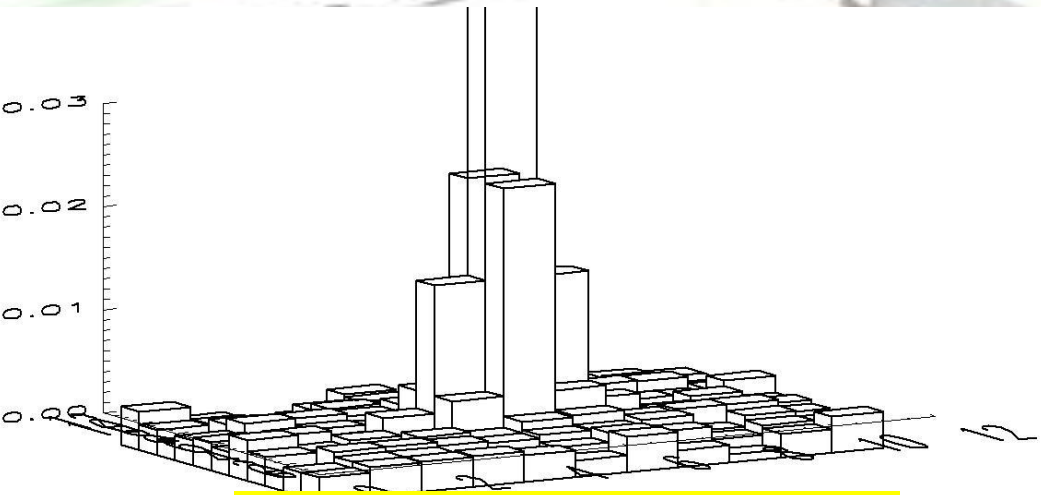
- **baking**
- **oxygen soaking**
- **UV flooding**

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

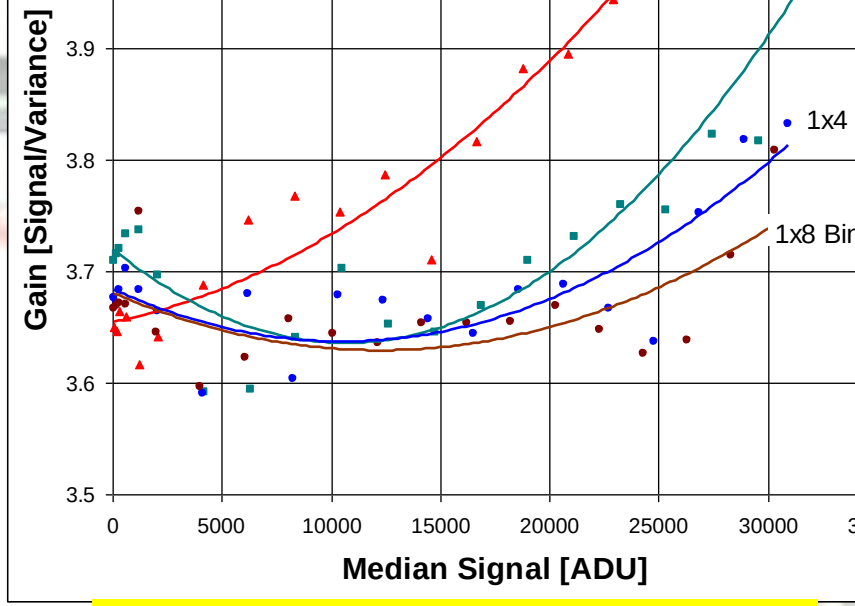




Research & Development (II)



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

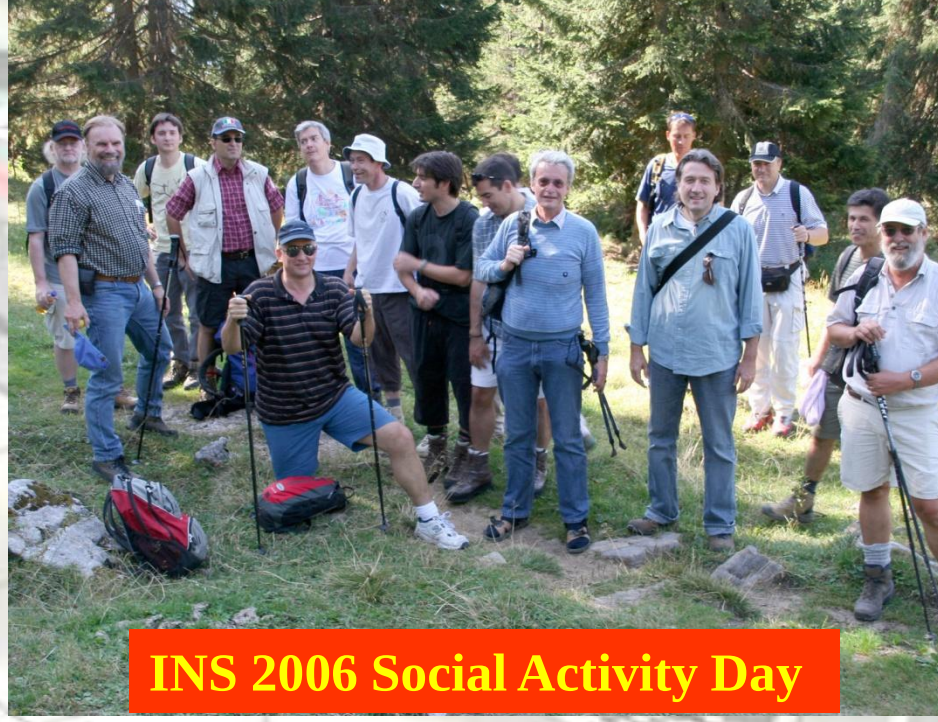
Highlights build up on a basis of excellent routine activities

- 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.

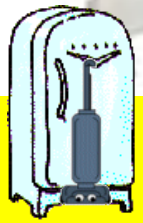
Traditional Isar Party



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.

Season's Greetings!