Status of EPIC Operations

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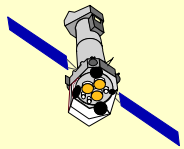
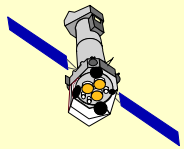
Mallorca 31-March-2009



XMM-Newton

Overview

- Routine operations
- New DB items
- Nominal OCR operations
- Not nominal events
- AOB's



Routine Operations

- RBI clock resync every ~194 days
  - One on July 21th 2008
  - Other on January 1st 2009.
- Eclipse season fully nominal.
  - 19 earth eclipses plus 4 lunar eclipses.

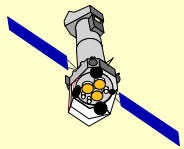
- And, of course, a lot of nominal observations performed

Routine Operations

- Autocommanding is operational
- Since October 14th, Rev 1651

- Mostly for safe in case of radiation
- The machine follow the same procedures that the {human} space craft operator
- So no change in what is done, but in who do it.

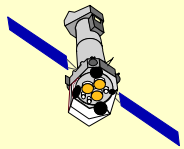
- Some ‘new thing’ fixed were needed



New ODBs from 6.0 to 6.5

- No significant changes for EPICs

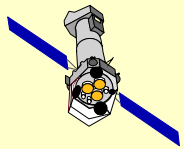
- Includes :
  - New hot stuff for MOS (offset tables)
  - Refinements to PN Mosaic mode
  - Fixes to MOS 3x3 Offset calculation
  - Autocommanding fixes
  - Simplification of spacon work ...



New Hot Stuff

- New versions of the MOS Offset Tables
  - Now at version V13

- Changes in place since Revolution 1690 (March 1st)

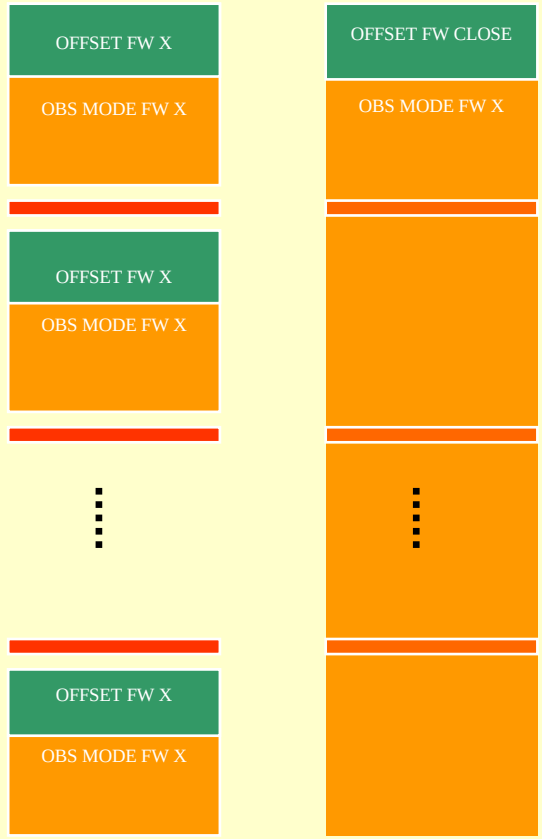


MOSAIC observation mode

- Offered in AO-8 (current one).
- EPICs are ready

- New mode for PN:
  - Calculate the offset tables in slow mode (100 repetitions) and with the FW=Closed
  - Then observe continuously (with the requested filter) when the S/C move from a pointing of the mosaic to the next one, and so on.

- MOS do not need operational modifications, impact only at Mission Planning level.

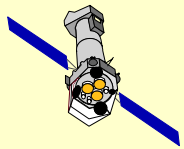


MOS 3x3 OFFSET

- **Done on 4th July**, once the new ODB items were available

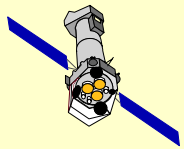
- Offsets and Variance calculated on board by MOS instruments with settings set for 3x3 mode, followed by an small observation making use of these offsets.
- Previous offset calculation performed in 2000, and was in 1x1 mode only
- The until now only available 3x3 offsets were theoretically derived by T. Abbey back in 2006

- **Results**
  - Obs ID 9156900005 (slew 5 into rev 1569)
  - Obtained the Offset and Variance tables for all CCDs
  - Plus a Full Frame 3x3 image using these offsets (FW=Closed)



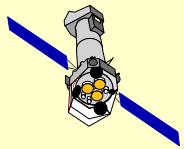
MOS Timing Diagnostics

- Done on 29th May, partially successful.
- Only tried 2 other times on the mission (2001 and 2005), and the last failed.
- Today Timing configuration is different than in 2001, so no direct comparison is possible. Thus this time was performed with the old and the current configuration.
- The instruments work as expected (raw TLM recovered) but the ground control system only was able to process a few exposures.
- Result:
  - Rev 1551, Obs_id 0551761101



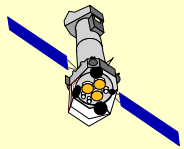
MOS SW & LW diag

- Routine calibration (1 per year)
- A lot of manual work
  - Configure for Diagnostic
  - Configure for Small Window
  - 10 Diag exp in CCD 1
  - A Diag exp per peripheral CCD (FF)
  - Configure for Large Window
  - 5 Diag exp in CCD 1
  - A Diag exp per peripheral CCD (FF)
  - Restore nominal configuration
- To be automatised as a Activity

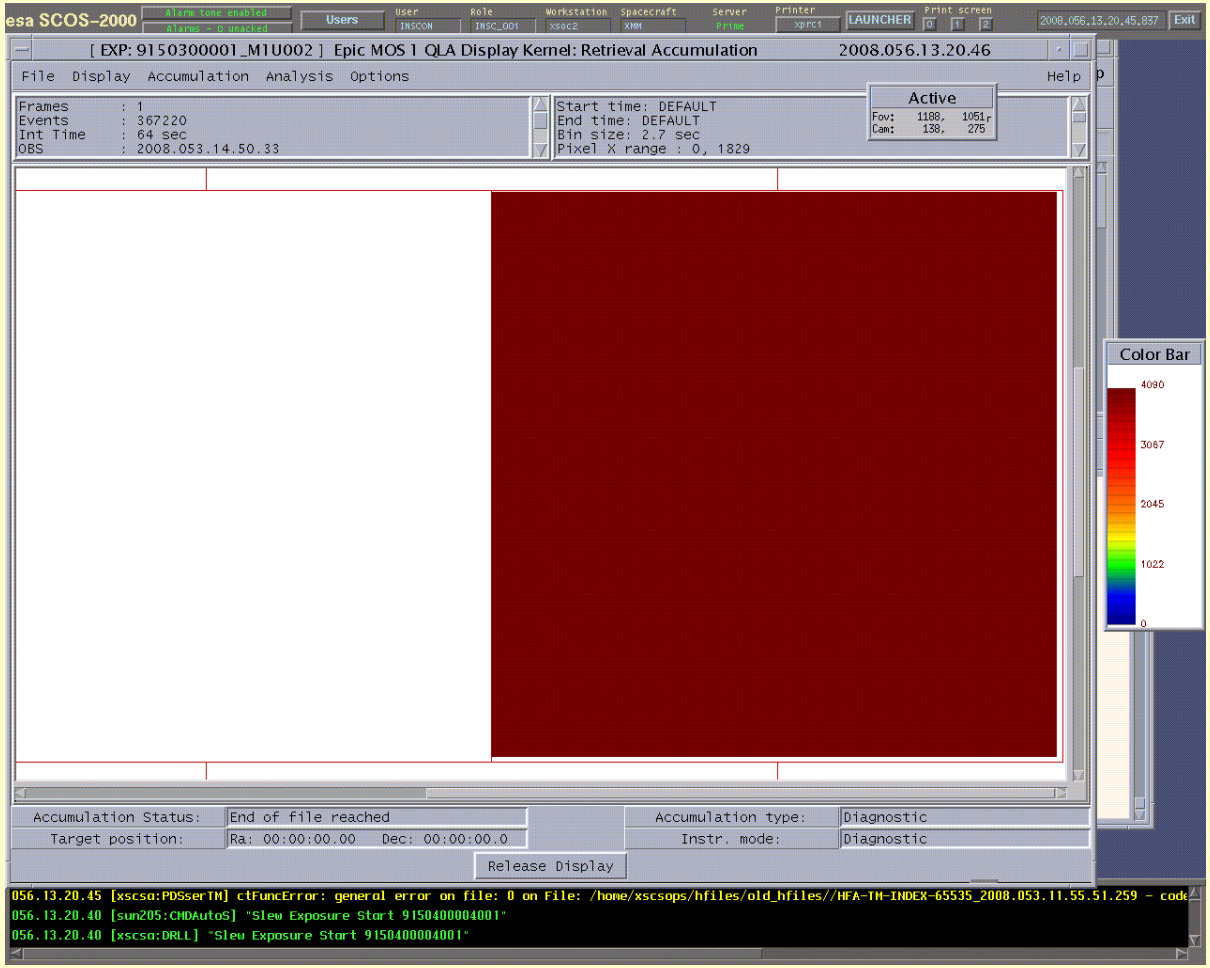


Check of MOS1 CCD6

- Last check performed on December 9th (after ESAM and RF lost)
- Its still as dead as usual
- Worth check it again?



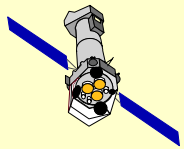
CCD6 image


esa SCOS-2000
Users
LAUNCHER
[EXP: 9150300001_M1U002] Epic MOS 1 QLA Display Kernel: Retrieval Accumulation
2008.056.13.20.46
File Display Accumulation Analysis Options
Help
Frames : 1
Events : 367220
Int Time : 64 sec
OBS : 2008.053.14.50.33
Start time: DEFAULT
End time: DEFAULT
Bin size: 2.7 sec
Pixel X range : 0, 1829
Active
Color Bar
4090
3067
2045
1022
0
Accumulation Status:
End of file reached
Accumulation type:
Diagnostic
Target position:
Ra: 00:00:00.00 Dec: 00:00:00.0
Instr. mode:
Diagnostic
Release Display
056.13.20.45 [xscsa:PDSserTM] ctFuncError: general error on file: 0 on File: /home/xscsops/hfiles/old_hfiles//HFA-TM-INDEX-65535_2008.053.11.55.51.259 - code
056.13.20.40 [sun205:CMDAutoS] "Slew Exposure Start 9150400004001"
056.13.20.40 [xscsa:DRLL] "Slew Exposure Start 9150400004001"

MOS 2 EMCR SW crash

- On Feb 23th EMCR sw changed to ROM
- Second time in history (first in 2002)
- At that time it was in Idle, FW=Closed
- Was just at the end of the Radiation Belts passage.

- Smooth recovery, no science lost.

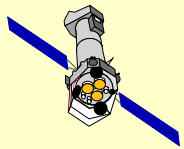


ESAM and RF lost

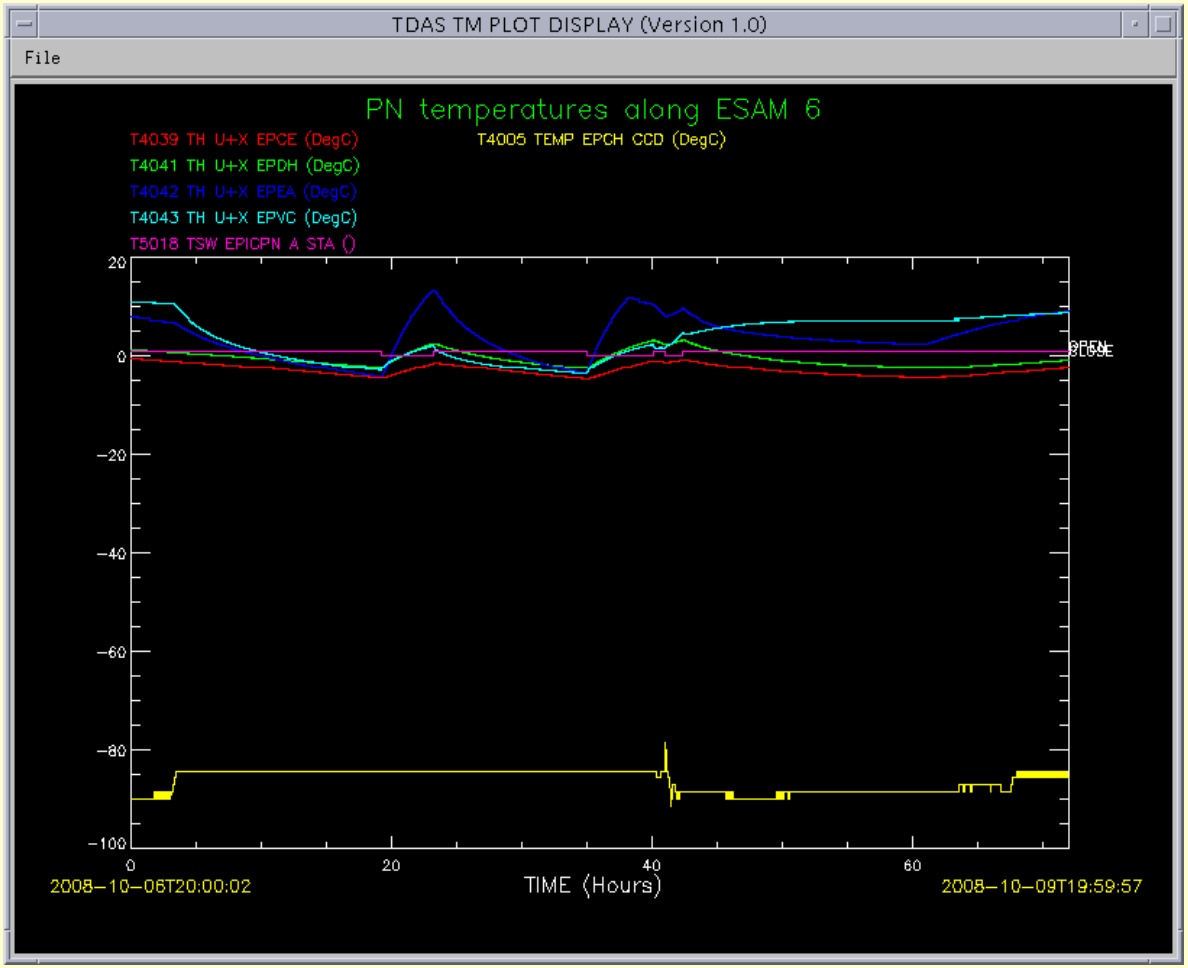
- ESAM from 6th to 9th October
- RF lost from 18th to 22th October (inst rec 24th)
- The EPICS were in perigee configuration when happened (Idle mode, filter wheel Closed), and changed shortly after to Safe Stand-by mode.

- CCD temperatures were controlled and stable all the time.
- Electronic boxes temps reached -6.4 °C

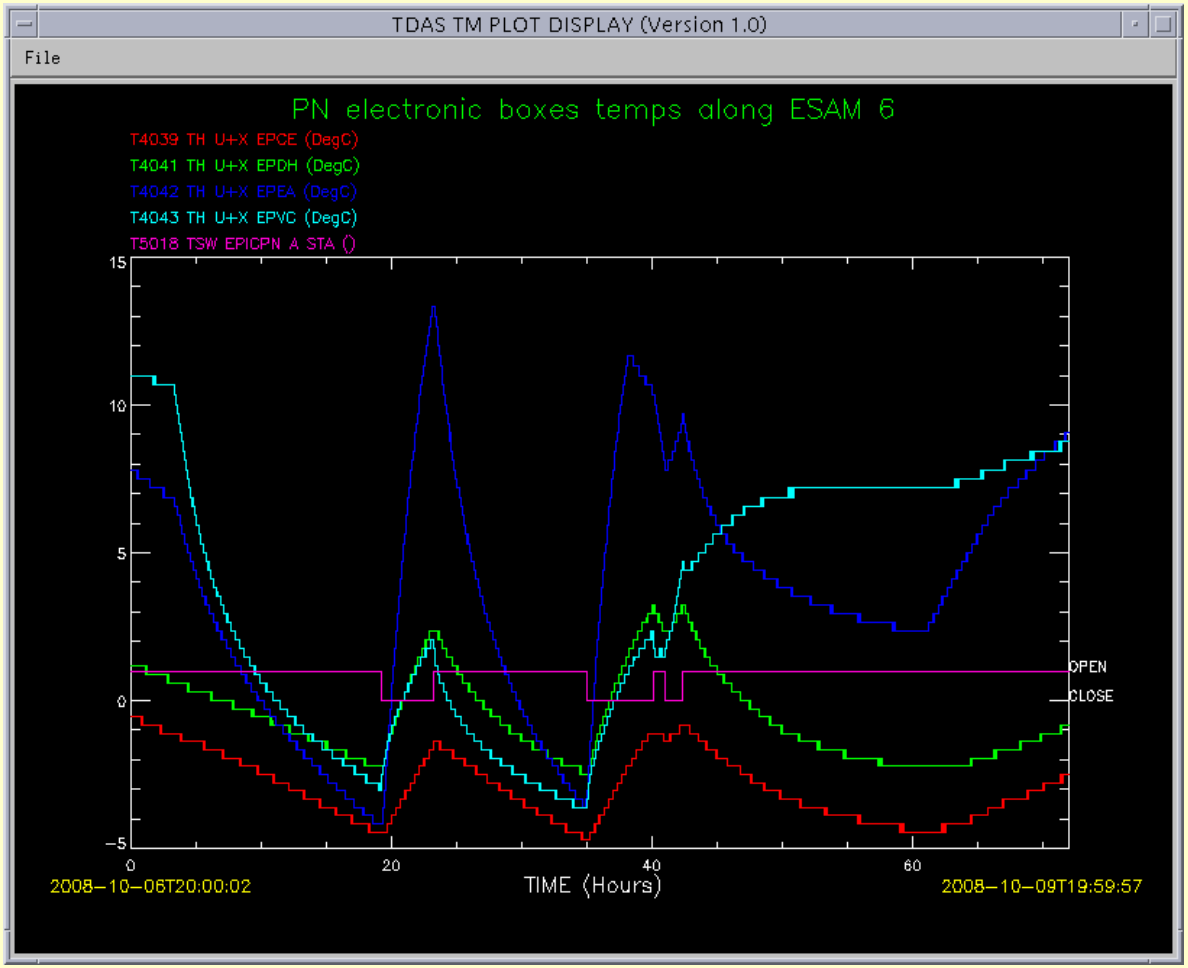
- Recover after heating up, without problems on the instruments
- PN recovery procedure need a fix (not used since years ago)
- No impact was seen in subsequent CAL observations



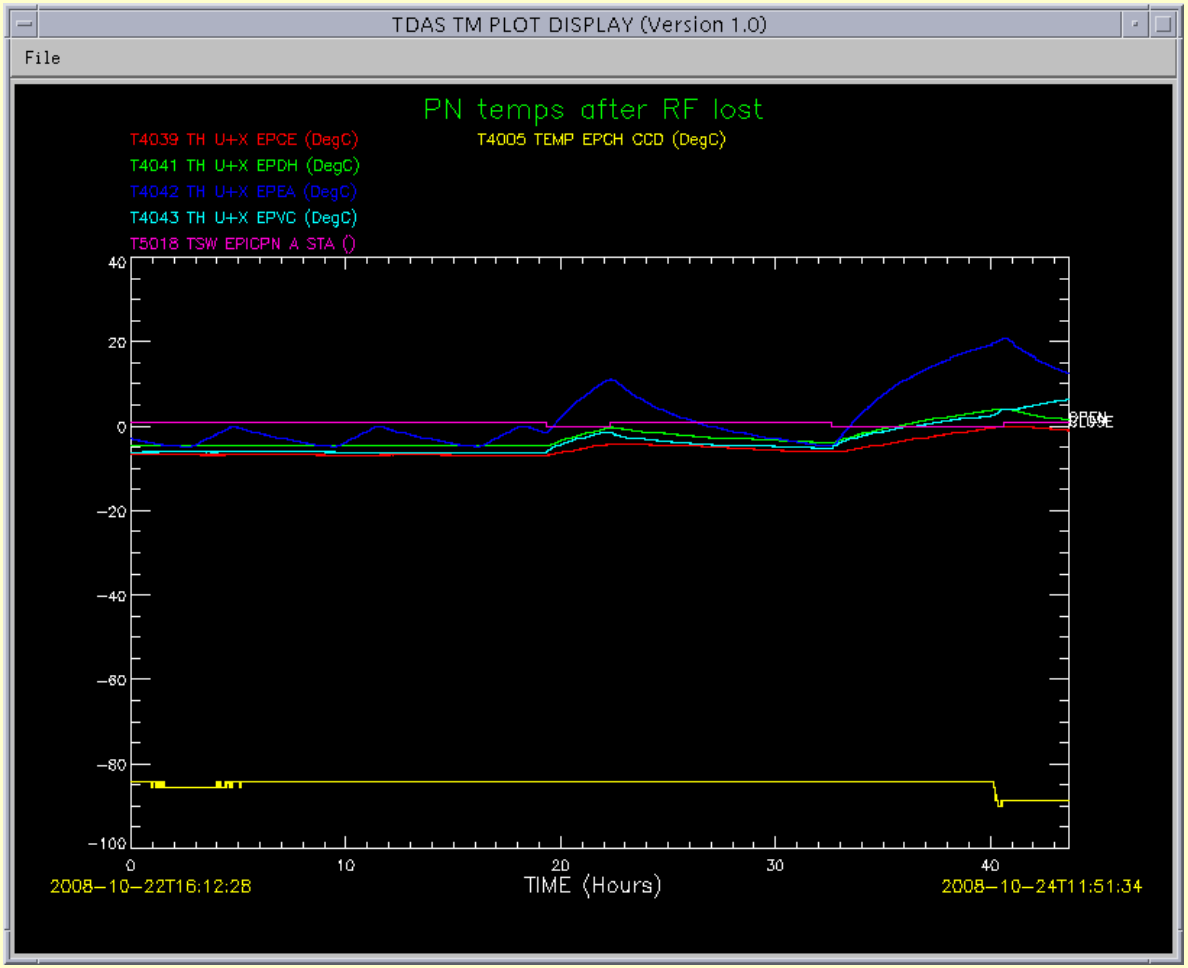
ESAM PN temps



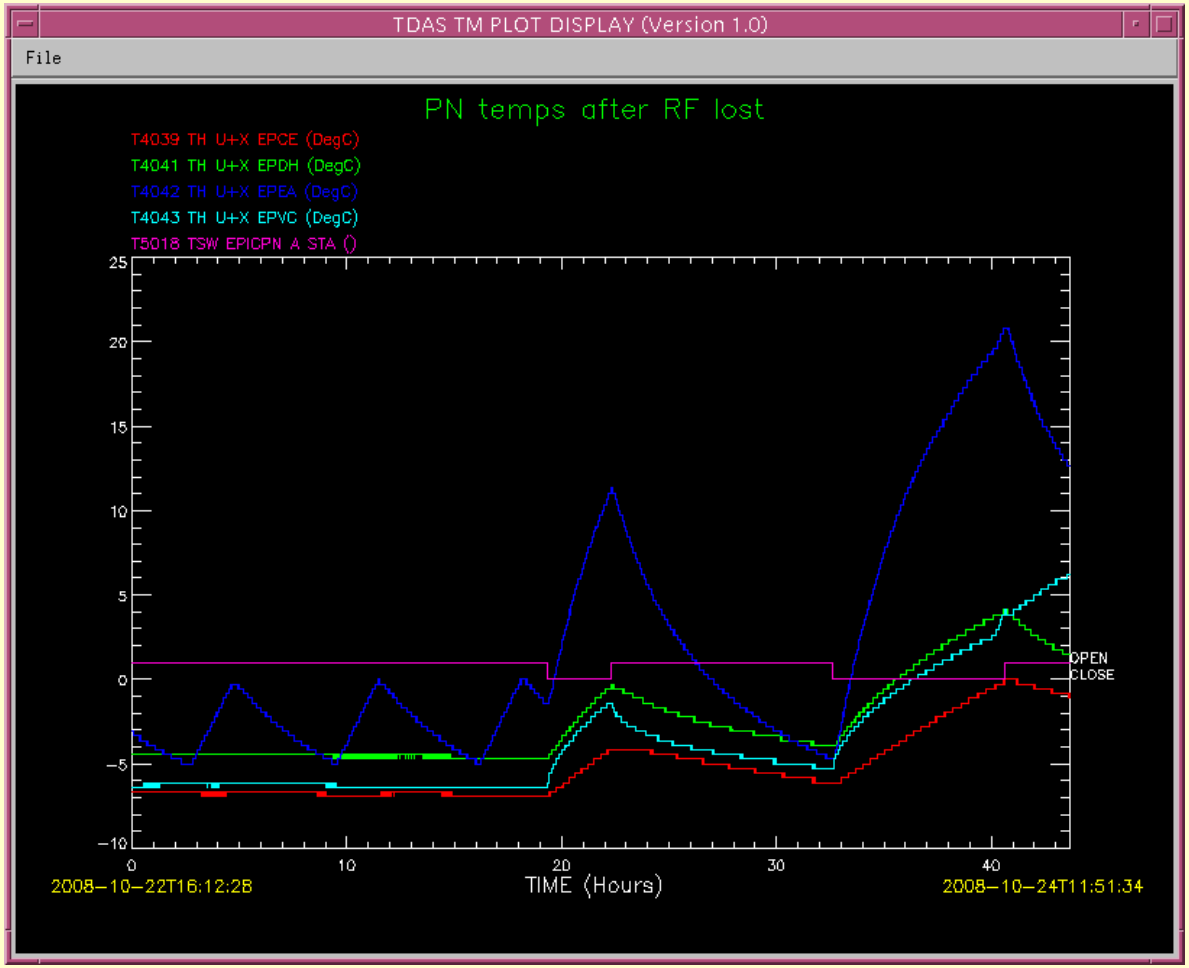
ESAM PN temps



RF lost PN temps



RF lost PN temps



Conclusion

- Still alive and doing well

- And that after
  9 years of almost
  continuous work!