

Status of EPIC Operations

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XMM-Newton





- 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





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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





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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 ...



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- New versions of the MOS Offset Tables
 Now at version V13
- Changes in place since Revolution 1690 (March 1st)



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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.





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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)





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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





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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





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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 Alaria to	D unacked User User INSCON	Role Workstation Sp INSC_001 XSoc2 X	Dacecraft Server Printer	LAUNCHER 0 1 2	2008,056,13,20,45,837 Exit
- [EXP: 91503000	001_M1U002] Epic MOS 1 QL	A Display Kernel: Retriev	al Accumulation	2008.056.13.20.46	
File Display Accumulation Analysis Options					Help P
Frames : 1 Events : 367220 Int Time : 64 sec OBS : 2008.053.	14.50.33	Start tim End time Bin size: Vixel X r	ne: DEFAULT DEFAULT 2.7 sec "ange : 0, 1829	Active Fov: 1188, 1051r Cam: 138, 275	
					Color Bar 4090 3087 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:PDSserIH] ctFuncError: general error on file: 0 on File: /home/xscsops/hfiles/old_hfiles//HFA-TH-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





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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!





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