Status of EPIC operations

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23 March 2010
Overview

- Routine operations
- New DB items
- Special operations
- Not nominal events
- AOB’s
Routine Operations

- Nominal observations
  - No time lost due to the instruments!

- Eclipse season fully nominal.
  - 19 earth eclipses, any lunar eclipse.
  - On each the instruments are switched OFF and ON

- RBI clock resynchronization every ~194 days
  - One on July 14th 2009
  - Other on January 24th 2010.
Routine Operations

➢ MOS1 CCD6 periodic check: no changes
  • CCD still full of AFFA (hex)

➢ First Mosaic observations performed
New ODBs from 6.5 to 6.8

- No significant changes for EPICs

- Includes:
  - Automated MOS SW & LW Diagnostics (see later)
  - First items for automate the Eclipse time tagged commands preparation
  - Some preparation for use the redundant instruments if needed (imminent ecl case)
  - Correction of 1 bug
  - Simplification of spacon work ...
MOS SW & LW diagnostics

- Routine calibration, one 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

- Automatised as an Activity
Special operations

- **NRCO#81**: CTI calibration using internal CAL source and SNR.
  - Purpose: assess whether an extended SNR can be used together with the internal calibration source for CTI evaluation
  - Executed in the period from 24th to 26th October 2009 (rev 1809).

- **NRCO#82**: Monitoring of MOS1 CCD1 column offset induced by meteorite.
  - Executed in rev 1802 (11th October).

- **OCR#2000**: Test of noise reduction technique, requested by Instrument team.
  - Consisted in repetitive start and stop of MOS 1&2 exposure every 10 minutes.
  - Executed manually in Rev 1732, on 25th May 2009

- **EPIC-MOS slew exposures**: every four revolutions all slews are executed with FW in Closed position as opposed to Close_cal (no changes for PN).
  - This implied a duplication of RCF’s; swap between the two RCF’s still to be automated
  - In place since 29/05/09, first rev 1750
Incidents

➢ MOS 1 current limiter alarm in not used circuit => SEU
  • The instrument was switched OFF as per procedure
  • Later was switched on without any anomaly
  • 11 Feb 2010, NCR#133, no science time lost.

➢ MOS 2 science telemetry stop being generated => sequencers hung up
  • Solved by procedure via exposure stop and restart
  • 4 Dec 2009, lost about 5½ hours of science time.

➢ PN to Safe Standby due to safety time tagged command not deleted on time.
  • 14 Oct 2009, no science time lost.

➢ Any of this have further consequences.
MOS 2 voltages change

- All EMAE and EMCR voltages go up 1 Less Significant Bit (LSB), i.e. the minimum that is possible measure in the telemetry.

  - K1076 C EMAE -6V LINE
  - K1079 C EMAE +14V LINE
  - K1082 C SIGNAL GROUND
  - K1086 C EMCR +5V LINE
  - K1089 C EMCR +13V LINE...

- No change in EMDH values

- Values still far away from the limits.
MOS 2 voltages change
MOS 2 voltages change

- Not so bad as appear
- Scale
  - Up +0.04V
  - Down -0.02V
  - Span: all the mission (10 years)
- caution, show statistical effects
MOS 2 voltages change

- Only 1 revolution (48 hours)
Other cases from the pass
Conclusion

- Still alive and doing well

- And that after
  10 years of almost continuous work!