EPIC MOS monitoring

EPIC calibration meeting

Saclay, 24-25 September 2003

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MOS operations

• Smooth operations

• A lot of time lost due to radiation, especially at the end of revolution in of revolutions
MOS1 bad pixel monitoring

Number of hot pixels at >1% recurrence frequency per CCD
MOS2 bad pixel monitoring

Number of hot pixels at >1% recurrence frequency per CCD
MOS background monitoring (1)
MOS background monitoring (2)

MOS1

Revolution number

CCD6

CCD7

MI-AN back

CCD6

esa
MOS background monitoring (3)
MOS background monitoring (4)

![Graph showing MOS 2 background monitoring for CCD6, CCD5, and CCD7. Each panel represents a different CCD, with data points plotted against revolution number.]
MOS background monitoring (5)
MOS2 SW noise

- Diagonal pattern
- E3 < 0
- No scientific impact
MOS1 timing dark rows

- every 16 rows
- artifact ?
- no impact?
MOS1 CCD4 segment leak

- started around rev 656
- apparently no impact on scientific quality
MOS bad energy columns

- 88 and 57 columns with shifted energy or dead identified by Saclay (Pratt&Ballet, 2003)
- It seems they were always there, although effect is worse after cooling (rev 533)
- All segments flagged as “dead” in BADPIX CCV v17, but can be only be accessed with emevents 7.6+, hence with SAS v6.0
- Cleaning effect can be clearly seen on extended sources
MOS Corrupted offsets

- Revs 576 & 576, MOS2 CCD4 RAWY=384 offset +2048 ADUs
- Revs 640 & 641, MOS2 CCD6 RAWY=303 offset: +256 ADUs

- Effect from SAS: 3 to 5 empty rows depending on offset shift and event energy (negative E3 and E4)

- Detected by SSC screening

- Currently no way to monitor and flag systematically these events

- If due bit flip in the EDU fixed-offset memory, there is no explanation as why the problem cures by itself.