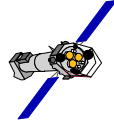
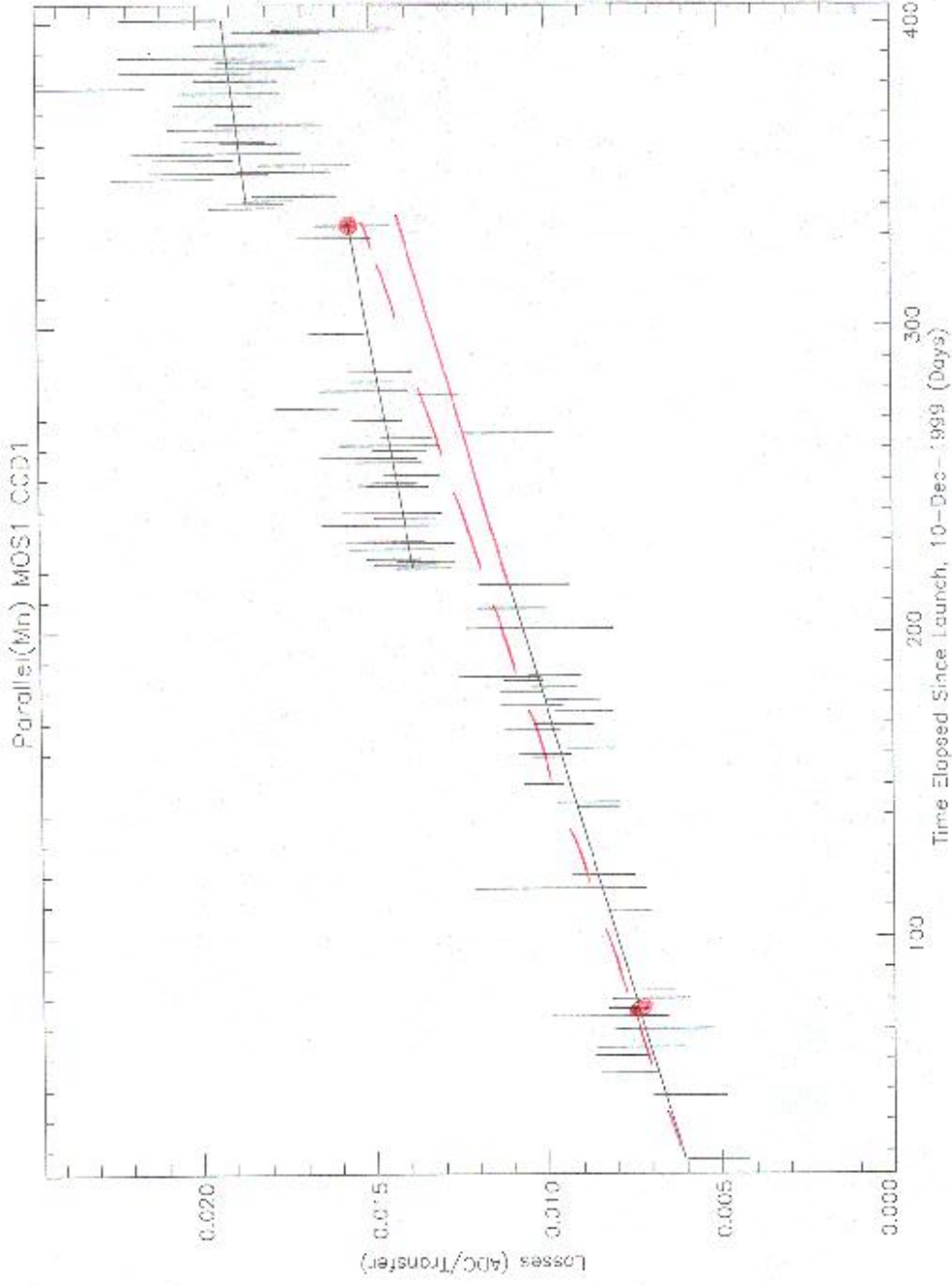


EPIC CTI



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EPIC CTI

CTI Correction and Radiation damage

Rev 38

| | Raw data | | Existing SAS | | New CCF | |
|------|----------|------|--------------|------|---------|------|
| | YCTI | FWHM | YCTI | FWHM | YCTI | FWHM |
| AL K | 7.3e-6 | 78 | 4.2e-6 | 77 | 6.1e-7 | 77 |
| Mn K | 4.8e-6 | 133 | 3.6e-6 | 137 | 1.5e-7 | 137 |

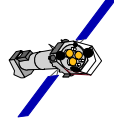
Rev 166

| | Raw data | | Existing SAS | | New CCF | |
|------|----------|------|--------------|------|---------|------|
| | YCTI | FWHM | YCTI | FWHM | YCTI | FWHM |
| AL K | 10.9e-6 | 80 | 7.6e-6 | 77 | 5.7e-7 | 77 |
| Mn K | 8.2e-6 | 141 | 5.7e-6 | 137 | 1.9e-7 | 137 |

- Gone from 30 % of lost charge recovered to 90-95 %
- Removes large part of mean energy discrepancy
- Transfer *NOISE* is still apparent



esa

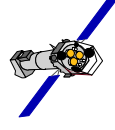
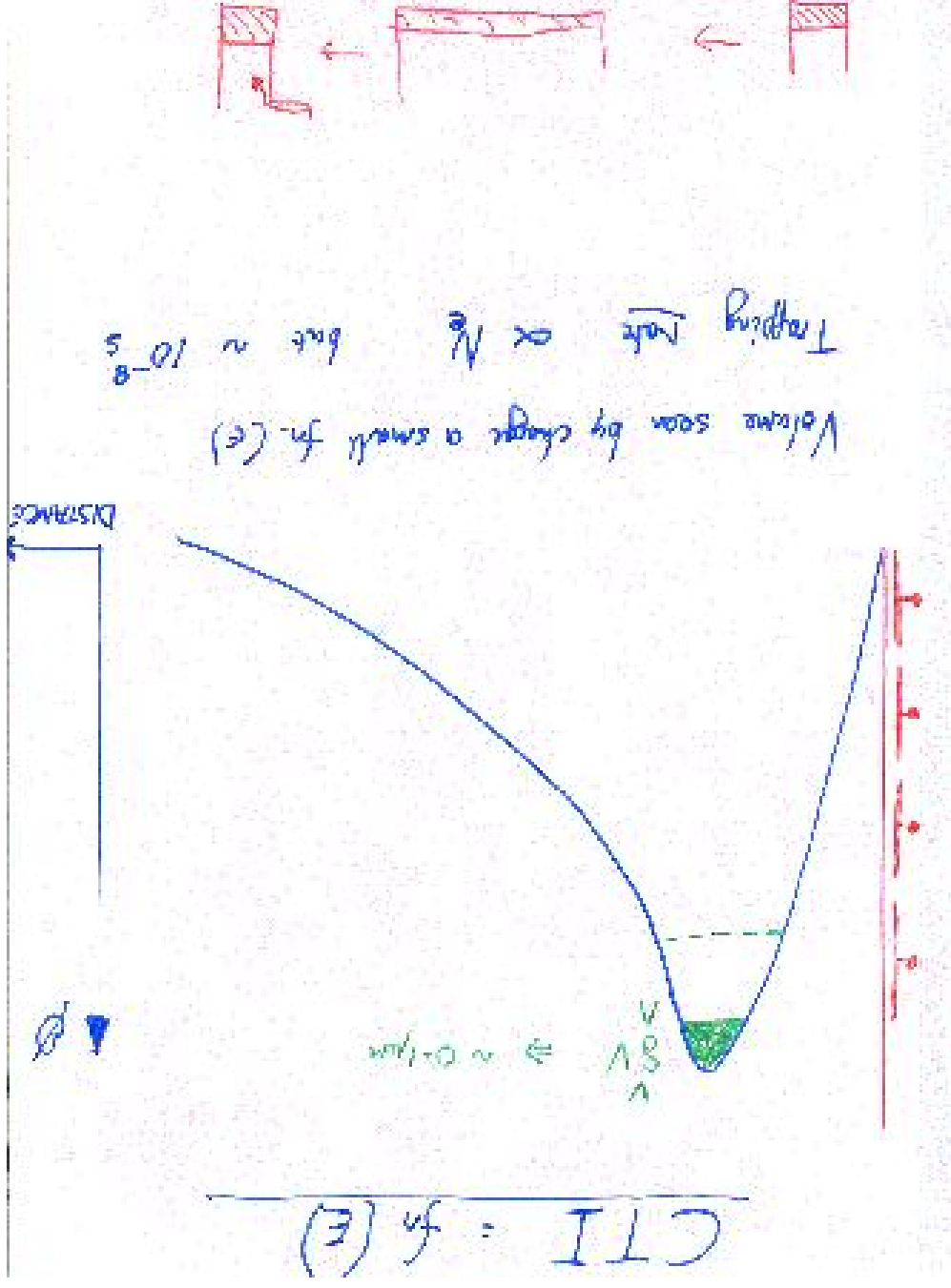


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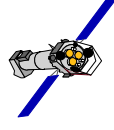
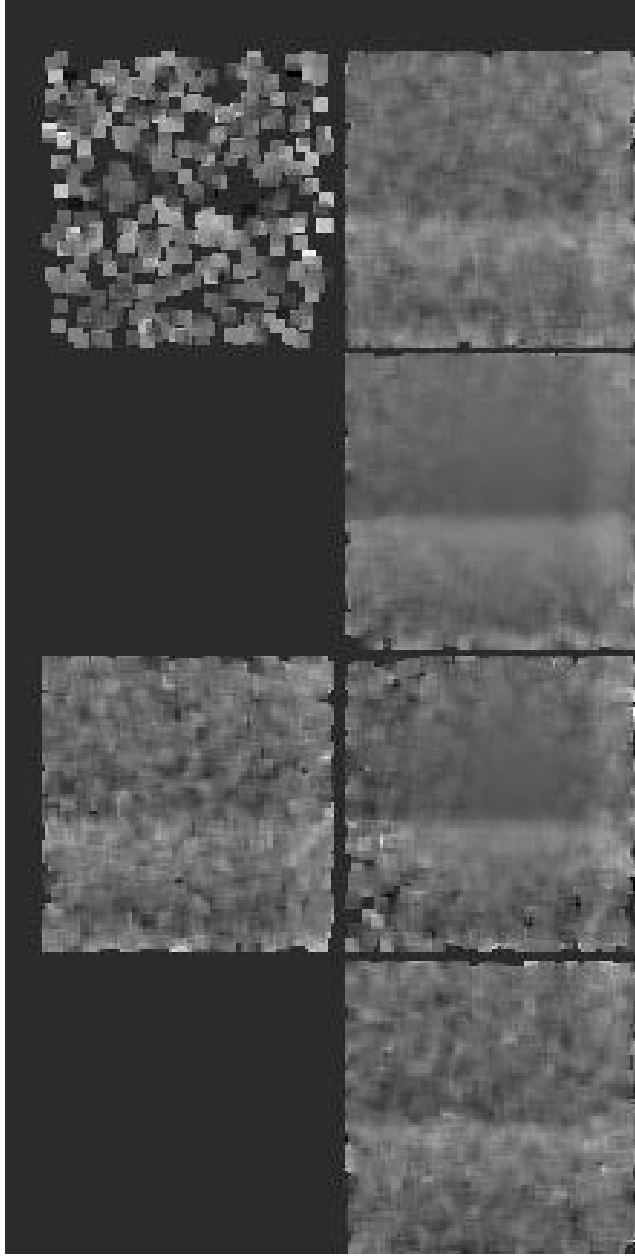
EPIC CTI contd

- SAS correction assumes charge loss $\sim c + b \cdot E$
- Note the change with time also $fn(E)$
- Complete the analysis for other CCDs and other observations



EPIC Offsets

- Used the E3/E4 maps on internal cal source exposures and bright X-ray targets (more S:N in middle)
- Here are some difference maps compared with fixed tables (W2 mode)

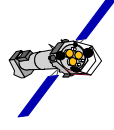
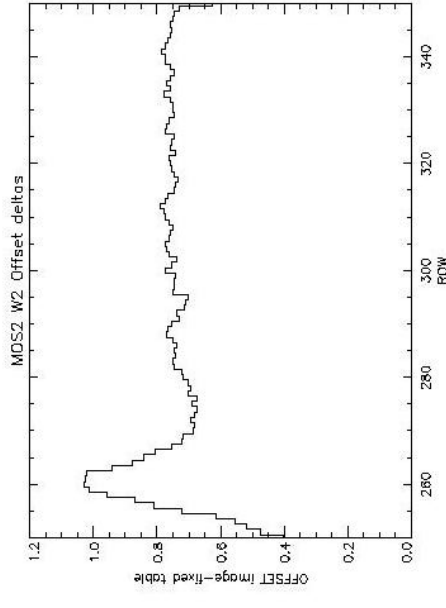
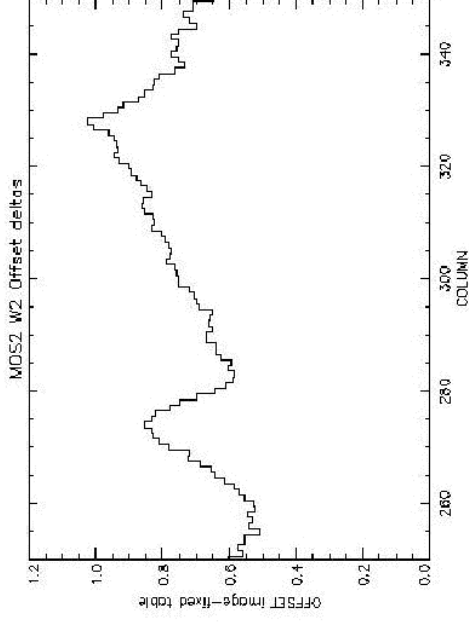


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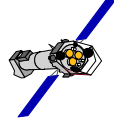
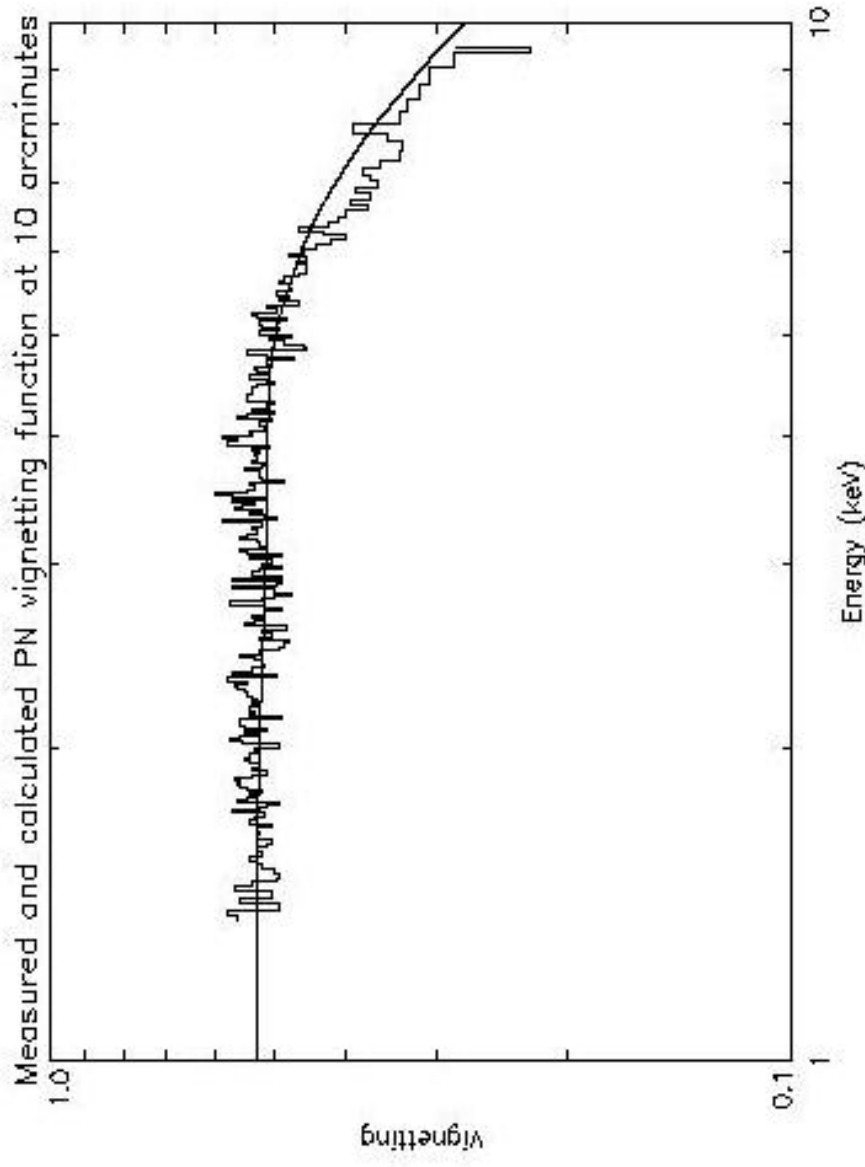
EPIC Offsets (contd)

- Consistent pattern (charging of reset node?)
- W2 mean offset divergence consistently higher than W3 (about 0.7 ADU or 0.35 for row /column offset vector)
- Slightly favours increasing one of these by 1 ADU
- For most accurate measurement in small window of RXJ0720, this needs to be confirmed



PN Vignetting

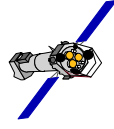
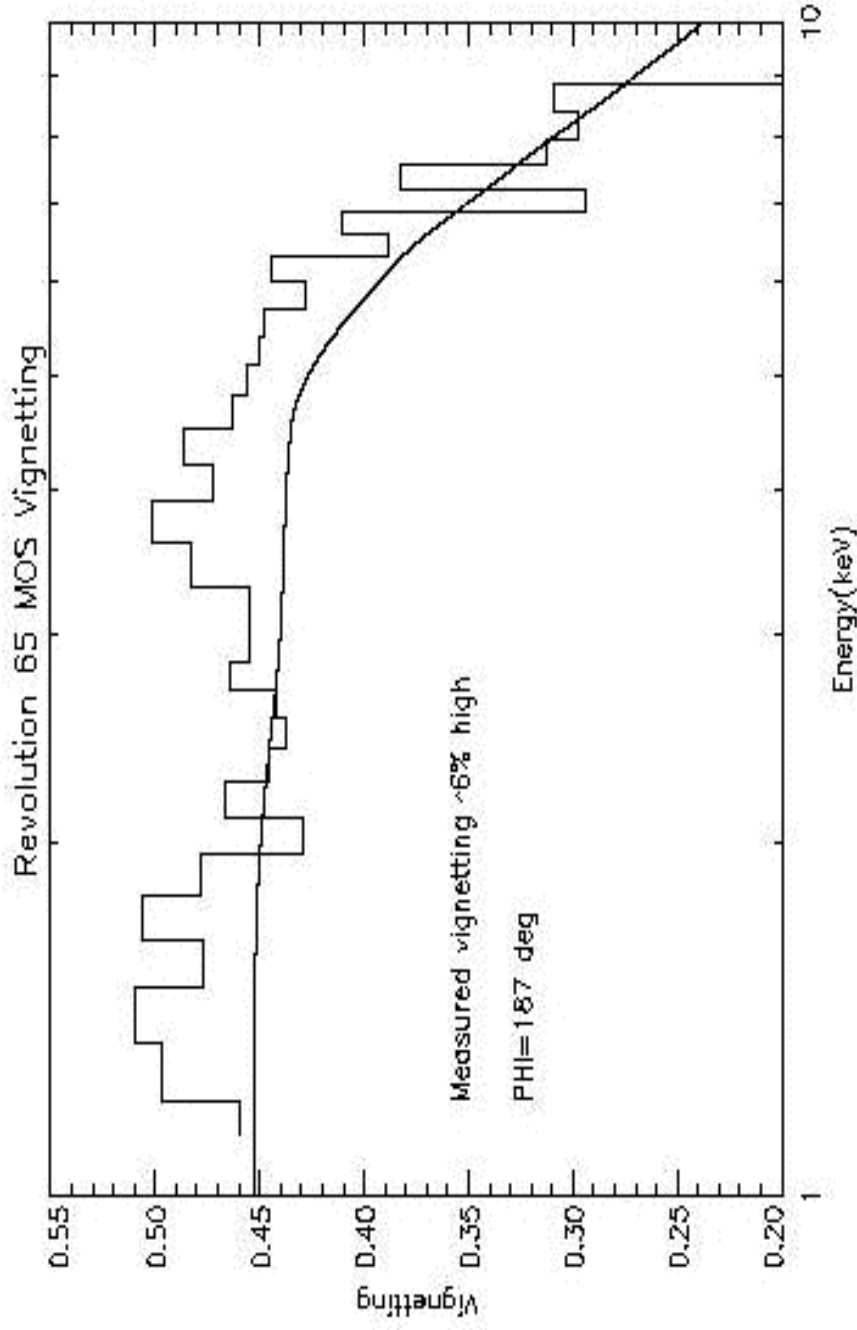
- **Cleaning and extraction of PN data**
- **On-axis fitting by XSPEC**
wabs *pow ~ [2.16 , 1.8]
- **Repeat for 4 off-axis locations & average, then plot *RATIO* for fixed parameters**
- **Compare with CALVIEW predictions, and CSL geometric measurement**
- **Verify same method confirms data of Doris Neumann in MOS**



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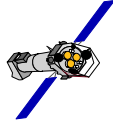
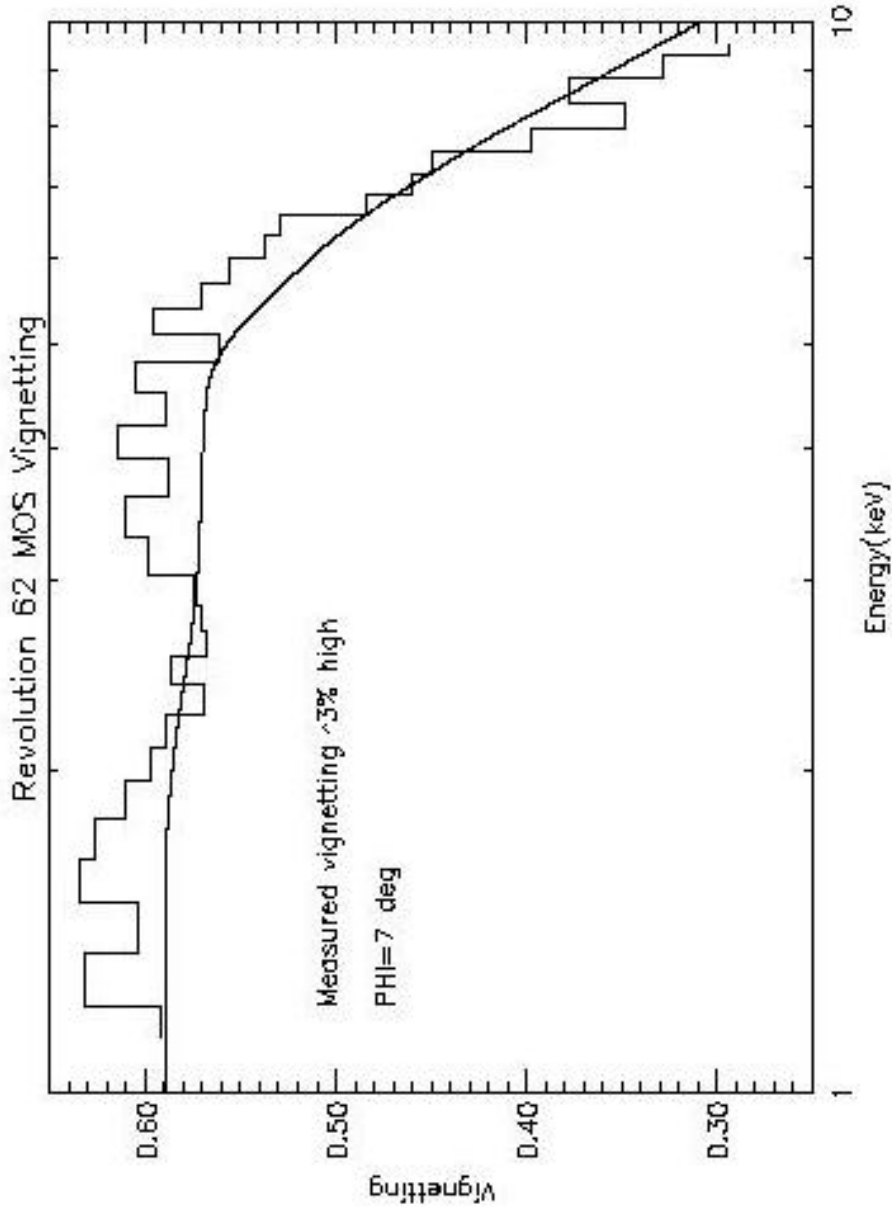
MOS Vignetting (Rev65)



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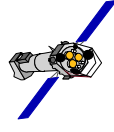
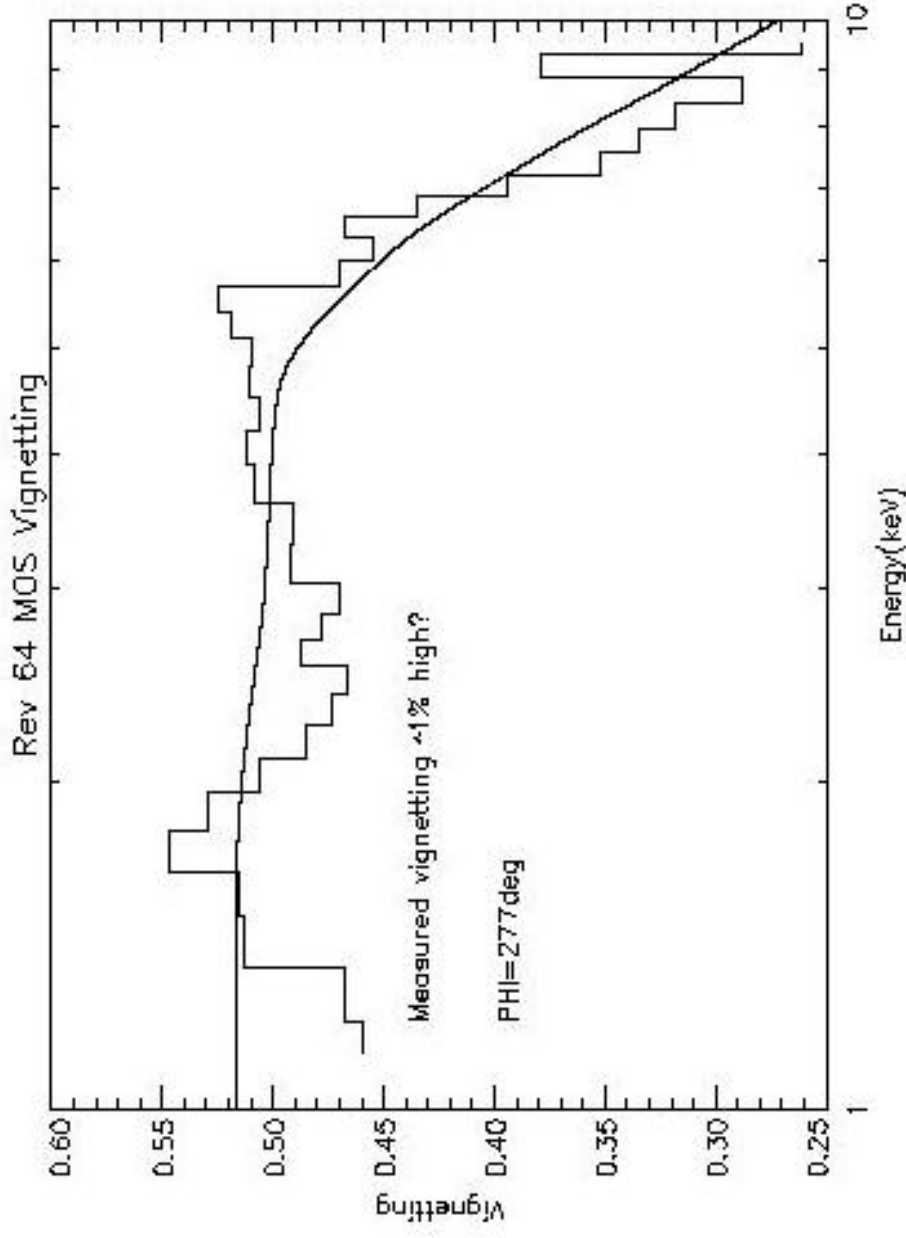
MOS Vignetting (Rev62)



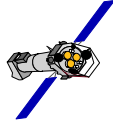
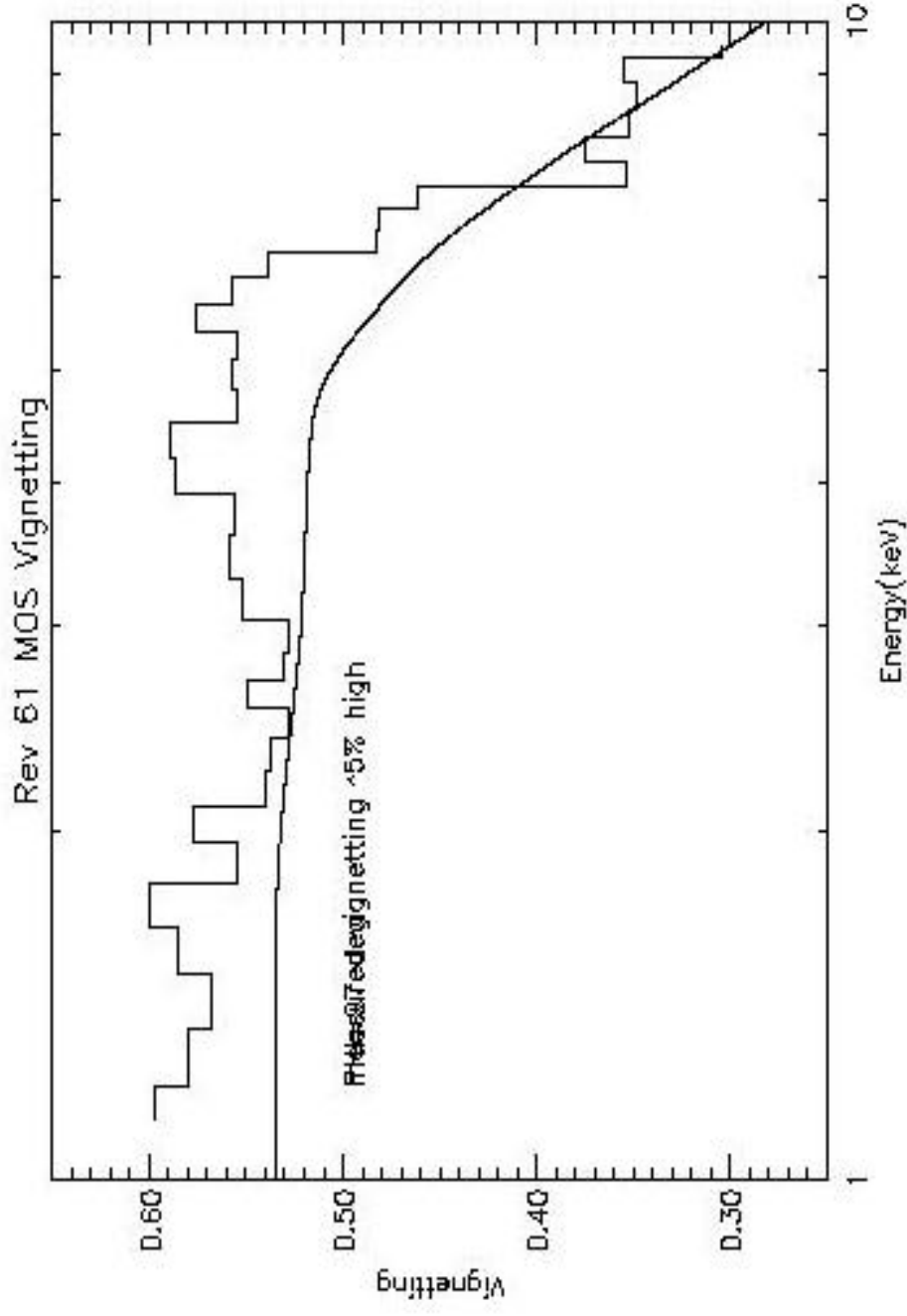
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MOS Vignetting (Rev64)



MOS Vignetting (Rev61)

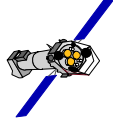


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Calibration Programme

- Any requests ?
- Every 3 months use one of N132D or 1ES0102 SNRs - for gain and flux comparisons, - working with HEASARC GOF to compare existing data sets with ASCA/ROSAT/CHANDRA
- Hard, stable source - preferably moderately extended ?
- Continue the cycle of internal cal observations and diagnostics
- RGS uses Mkn 421 / 3C273 / PKS2155



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