

Flux Comparisons

Epic-Cal 4 Feb 2003

Flux check
Richard Saxton XMM-SOC/SSC

Flux ratios as of SAS v5.1

Band	E(keV)	(M1 - M2)/M1	(M1 - PN)/M1
1	0.2-0.5	0.9+-0.6 (75)	
2	0.5-2.0	-0.2+-0.4 (211)	5.1+-0.5 (205)
3	2.0-4.5	-1.6+-0.6 (72)	4.7+-0.8 (73)
4	4.5-7.5	-0.2+-0.7 (28)	7.9+-1.0 (28)
5	7.5-12	3.6+-1.3 (17)	11.2+-1.4 (14)

Flux ratios - SAS v5.1

with correction for new optical axis positions

Band	E(keV)	(M1 - M2)/M1	(M1 - PN)/M1
1	0.2-0.5	-2.4 \pm 0.4 (170)	9.0 \pm 0.6 (170)
2	0.5-2.0	1.1 \pm 0.3 (413)	0.9 \pm 0.5 (407)
3	2.0-4.5	1.5 \pm 0.4 (232)	2.8 \pm 0.6 (232)
4	4.5-7.5	0.6 \pm 0.5 (132)	4.3 \pm 0.8 (126)
5	7.5-12	-2.9 \pm 1.2 (39)	5.9 \pm 1.4 (37)

Sources with M1 counts > 250, inner 5 arcmins

Flux ratios - SAS v5.4, latest QE with correction for new optical axis positions

Band	E(keV)	(M1 - M2)/M1	(M1 - PN)/M1
1	0.2-0.5	-1.4 \pm 0.4 (170)	-2.9 \pm 0.7 (167)
2	0.5-2.0	-1.2 \pm 0.3 (413)	-2.2 \pm 0.5 (407)
3	2.0-4.5	2.0 \pm 0.4 (239)	4.8 \pm 0.6 (235)
4	4.5-7.5	4.1 \pm 0.5 (132)	4.4 \pm 0.8 (126)
5	7.5-12	4.3 \pm 1.2 (39)	7.7 \pm 1.4 (37)

Sources with M1 counts > 250, inner 5 arcmins

Flux ratios - SAS v5.4, latest QE with correction for new optical axis positions

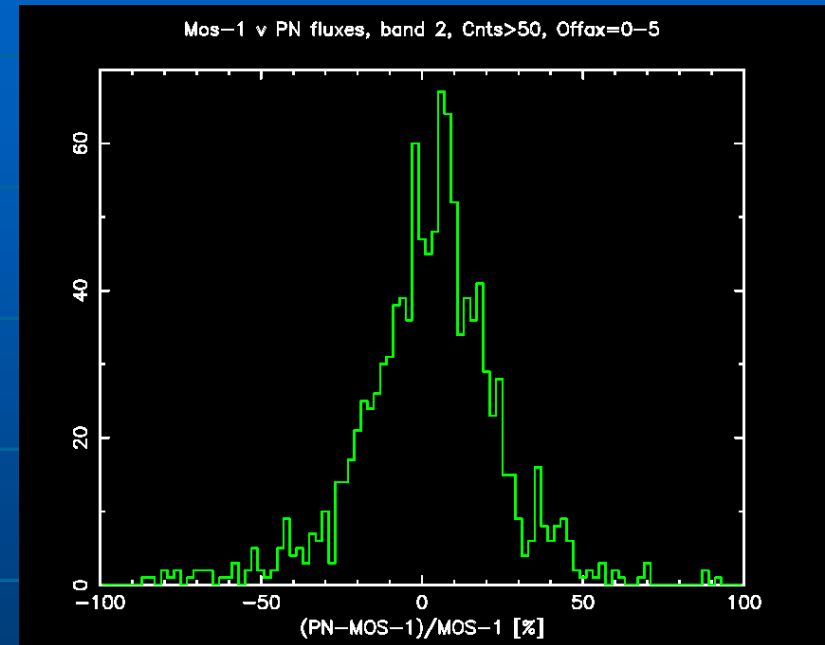
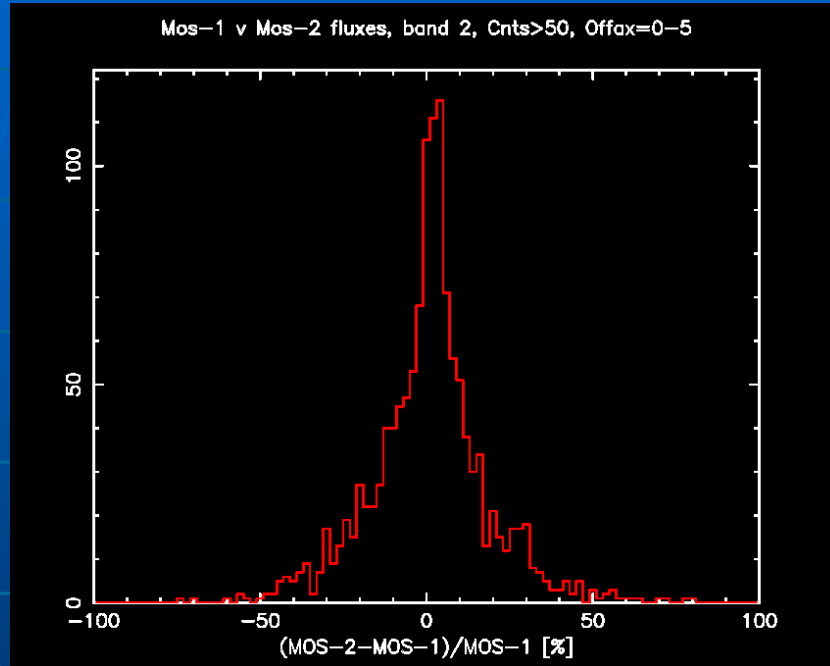
Band	E(keV)	(M1 - M2)/M1	(M1 - PN)/M1
1	0.2-0.5	-1.4+-0.4 (170)	6.4+-0.6 (170)
2	0.5-2.0	-1.2+-0.3 (413)	-2.2+-0.5 (407)
3	2.0-4.5	2.0+-0.4 (239)	4.8+-0.6 (235)
4	4.5-7.5	4.1+-0.5 (132)	4.4+-0.8 (126)
5	7.5-12	4.3+-1.2 (39)	7.7+-1.4 (37)

NB: The band 1 PN fluxes reported at the meeting hadn't been corrected for the change to using pattern 0 only in the pipeline. Corrected values are much closer to the MOS.

Band	(M2-PN)/M2
1	0.0+-0.8
2	-0.2+-0.5
3	3.8+-0.6
4	1.2+-0.9
5	4.1+-1.6

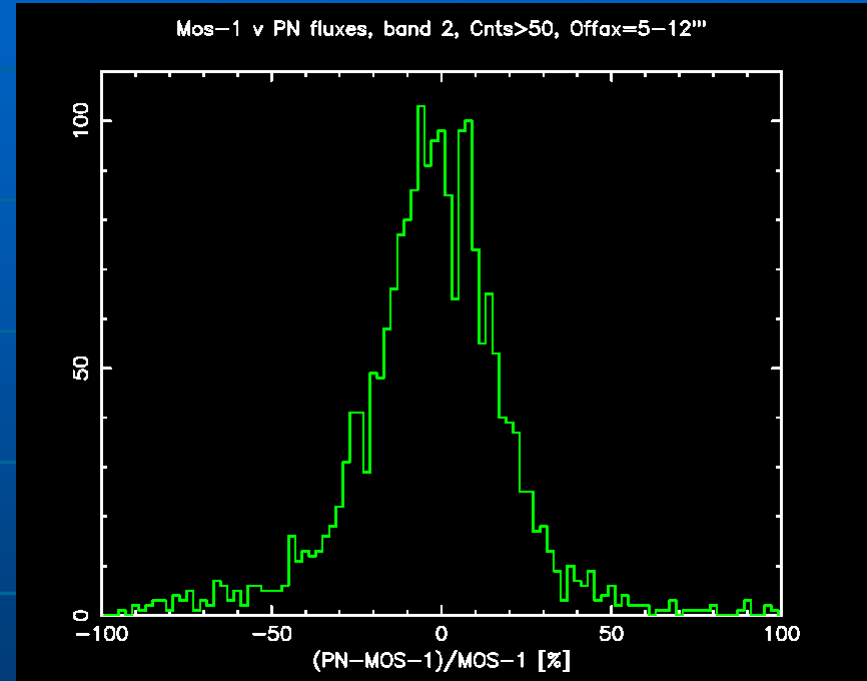
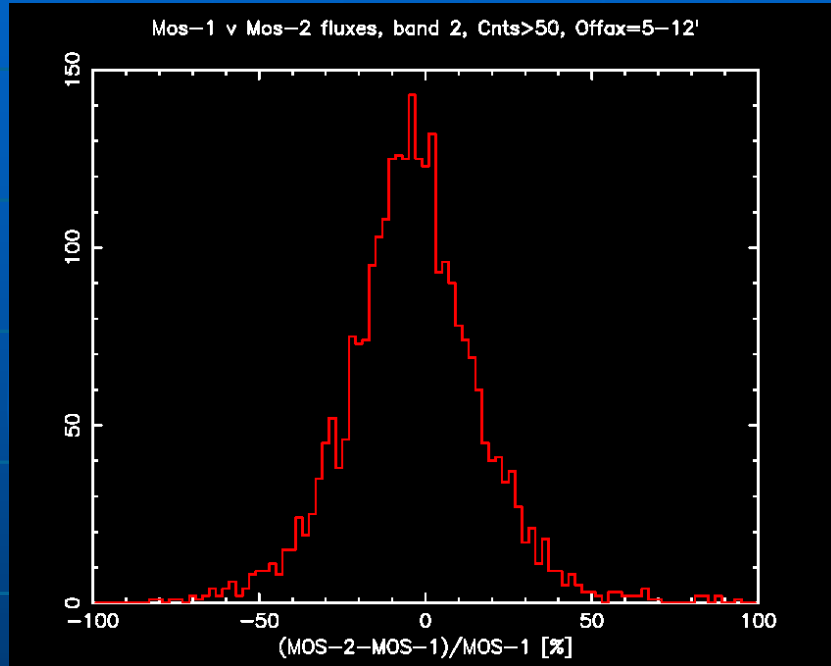
Sources with M1 counts > 250, inner 5 arcmins

Band 2 on-axis flux ratio distributions



HWHM: M1/M2=6% M1/PN=14%

Band 2 off-axis flux ratio distributions



HWHM: $M1/M2=18\%$ $M1/PN=17\%$

Summary

- n Mos-2 and PN broad-band fluxes agree to better than 5% at all energies.
- n Mos-1 over-predicts PN by 4-8% above 2 keV and Mos-2 by $\sim 4\%$ higher flux above 4.5 keV – possibly needs a further QE tweak
- n The Mos-1/Mos-2 distribution gets significantly wider off-axis
- n The Mos-1/PN distribution has a sigma 2.5 times wider than that of the Mos-1/Mos-2 distribution.