The problem with pattern 31

Pattern ratio evolution at high energies - using data from 3C273

## Include pattern 31 type events

3C 273 MOS1 Rev 2015
Black (Pattern 0–12) Red (Pattern 31)
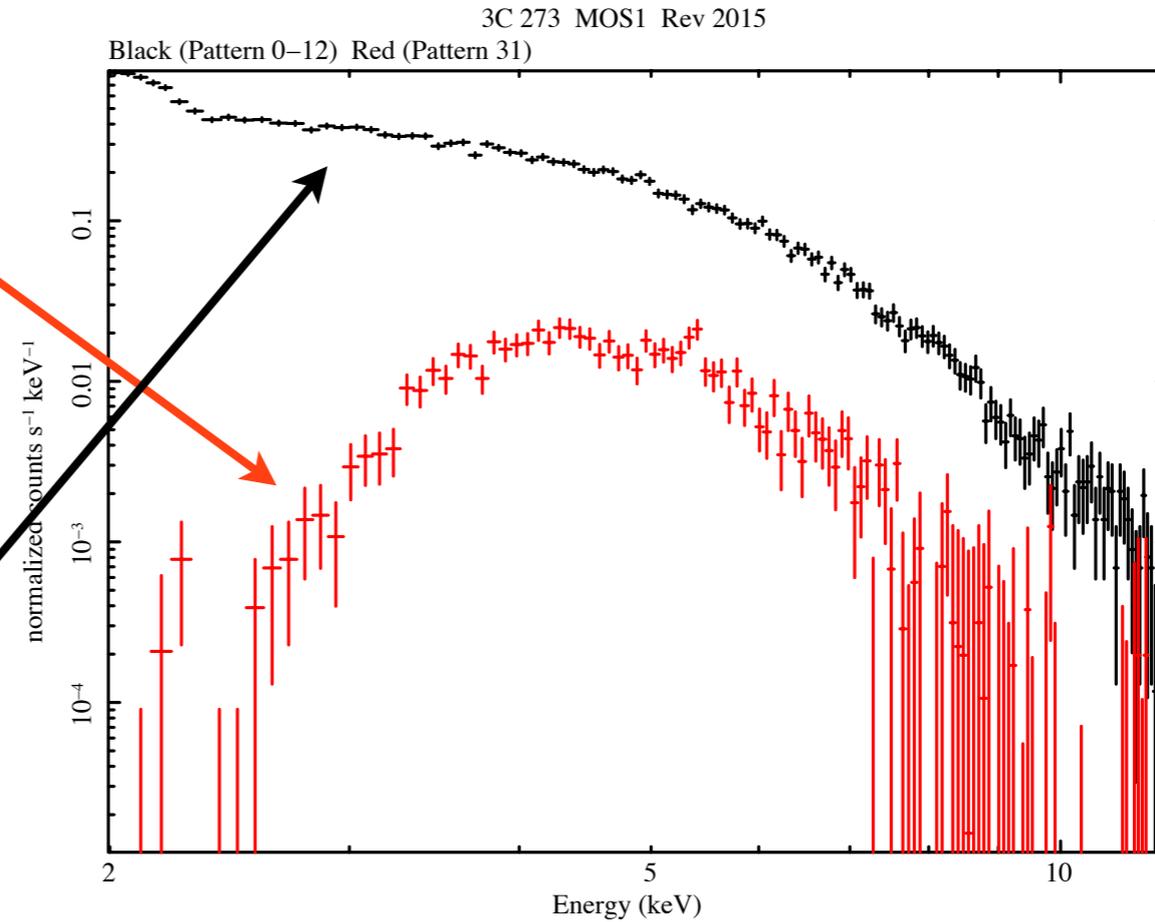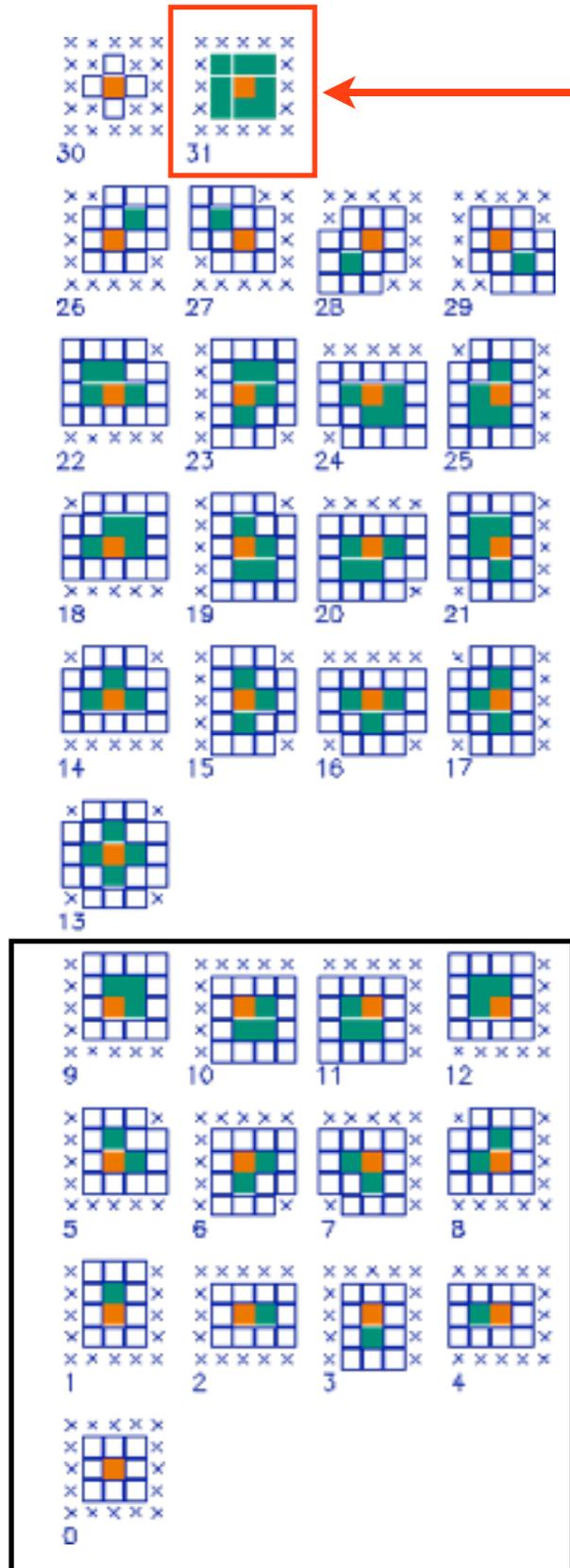
BGD subtracted P31 rates (>2.0 keV) x 10^{-2}

Rev	M1	M2
94	6.07±0.11 (97%)	6.97±0.12 (94%)
2015	4.42±0.13 (81%)	4.52±0.13 (82%)

P31 Images of 3C273

Slope

M1 p31/All

M2 p31/All
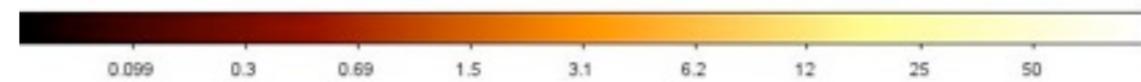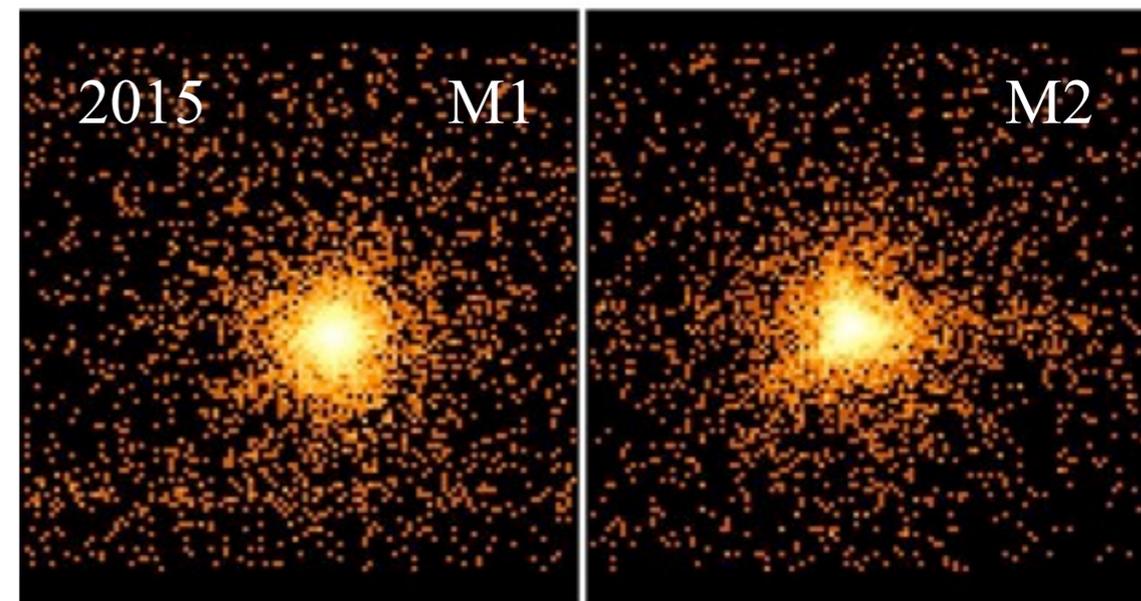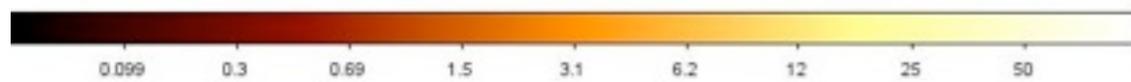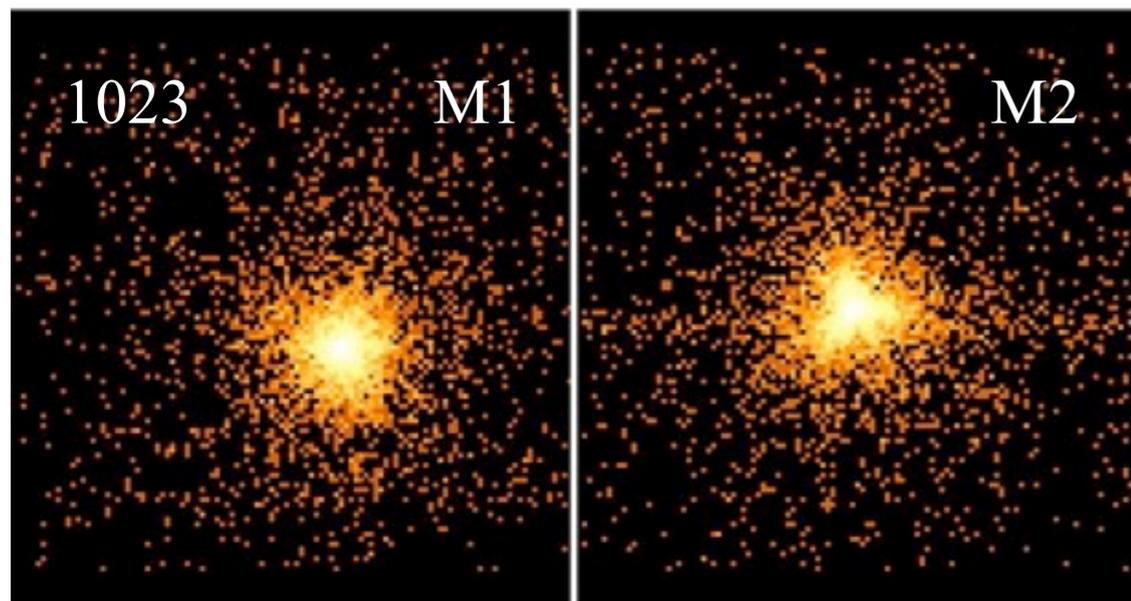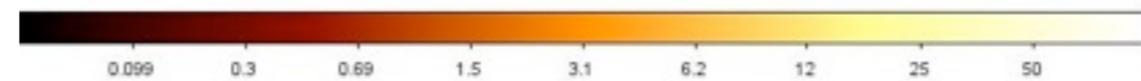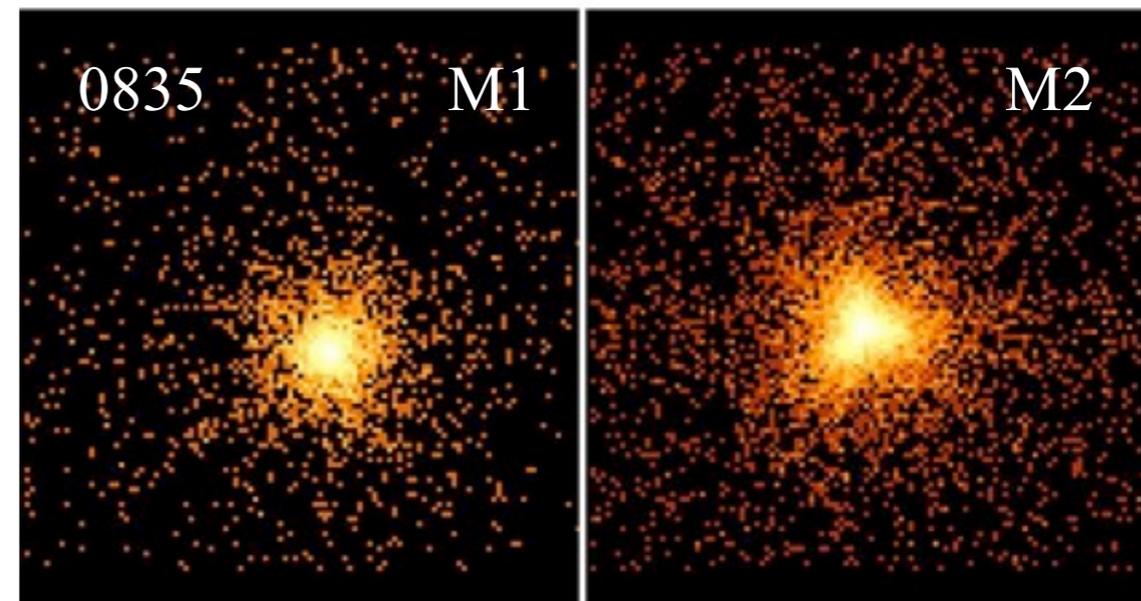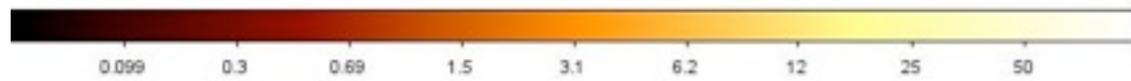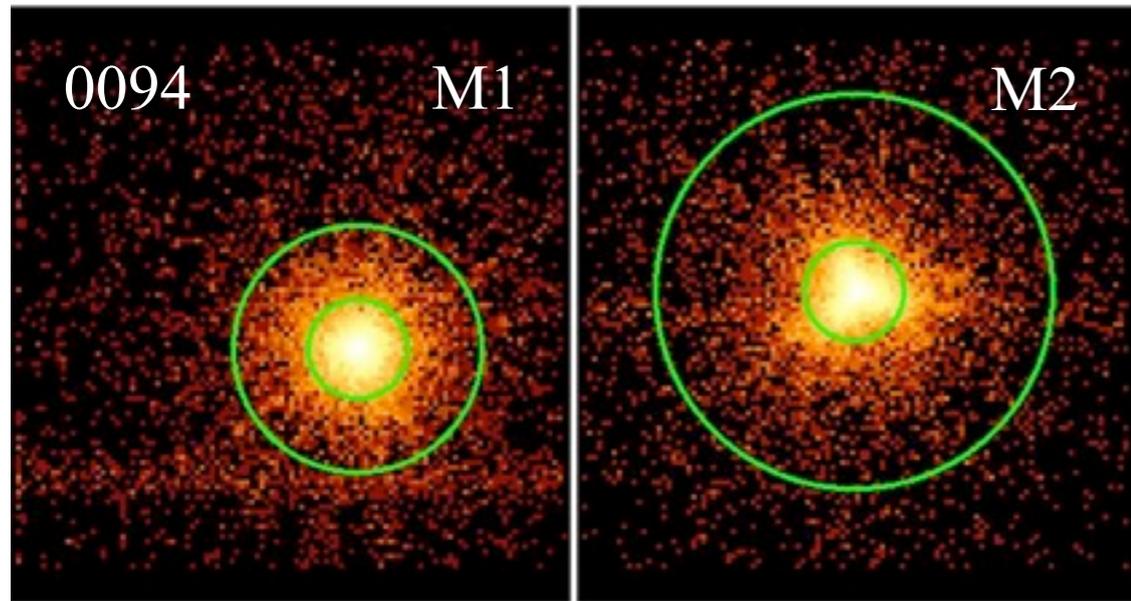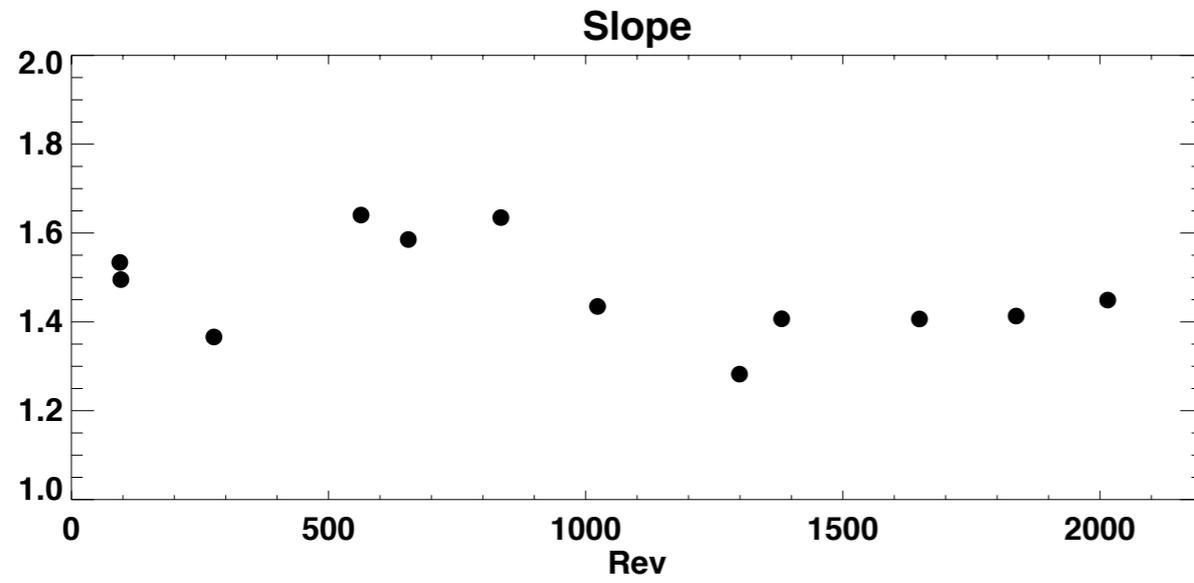
High energy slope
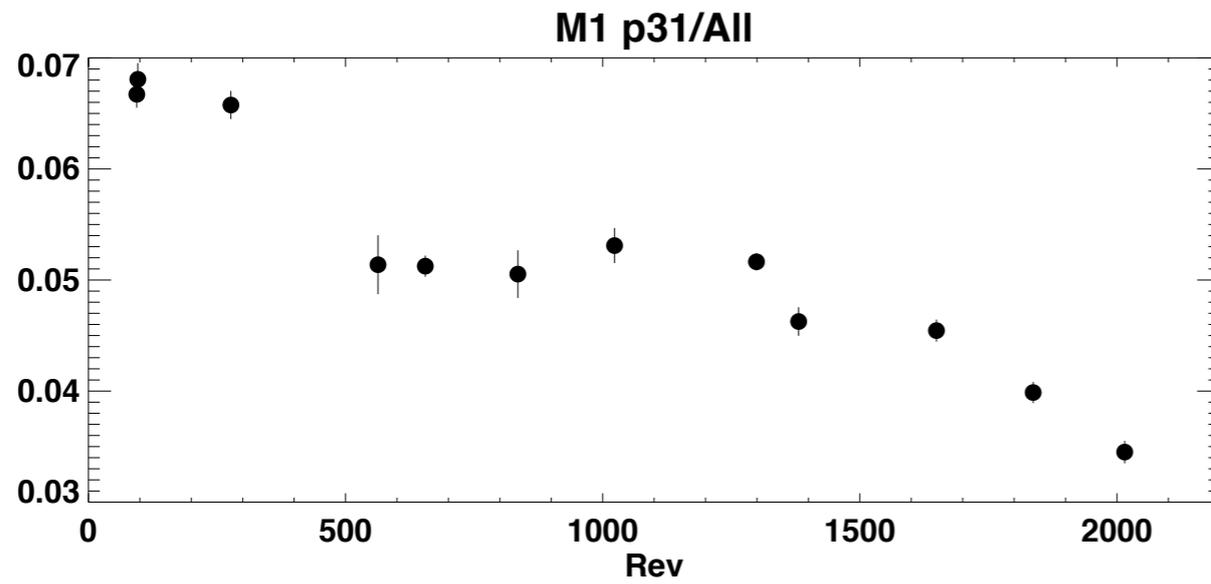
~ x2 decrease in P31/all
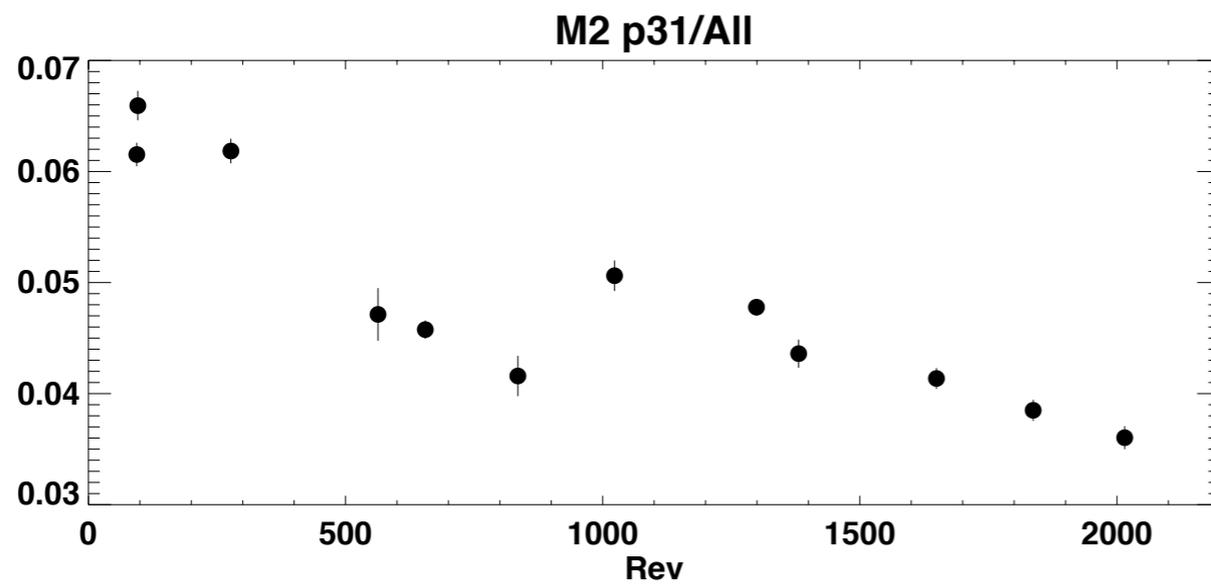
Pattern ratios in band 2.0-12 keV

~ x2 decrease in P31/all

~ 15% change in quad/mono

M1 p31/All

M2 p31/All
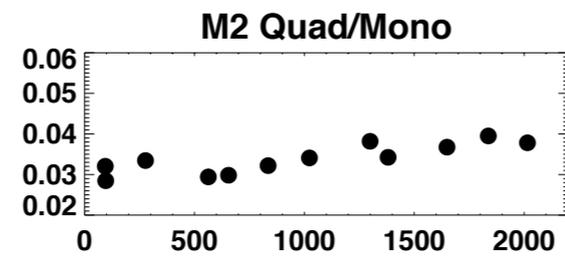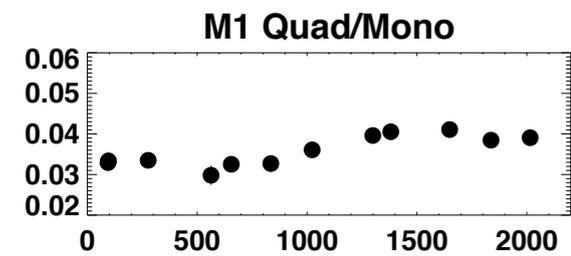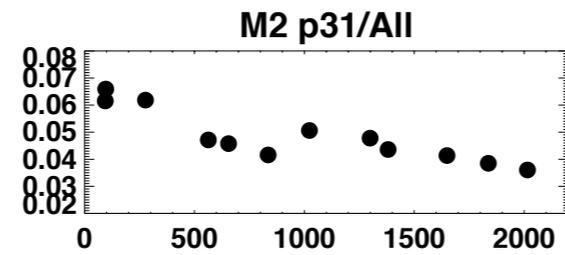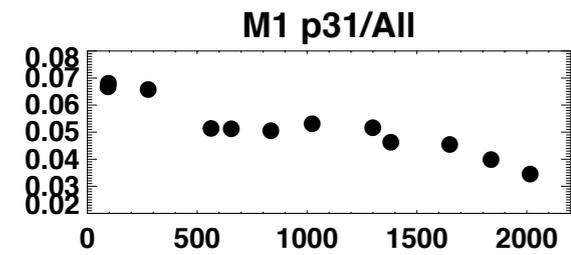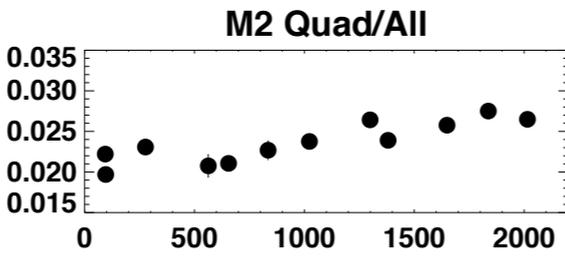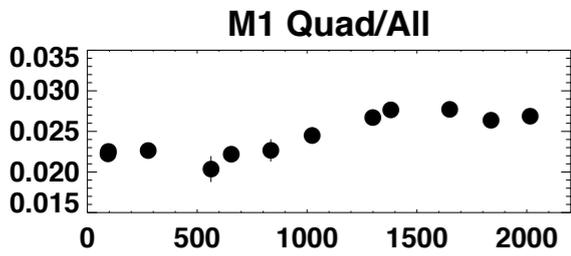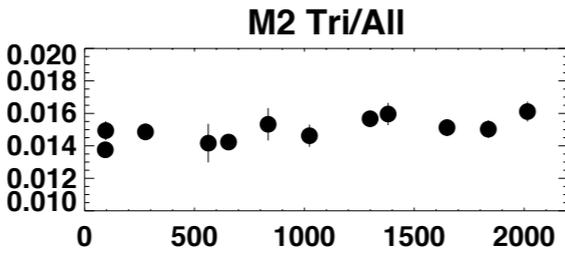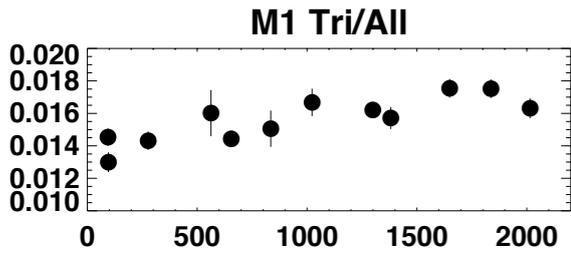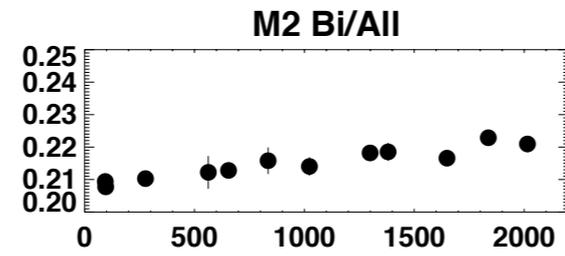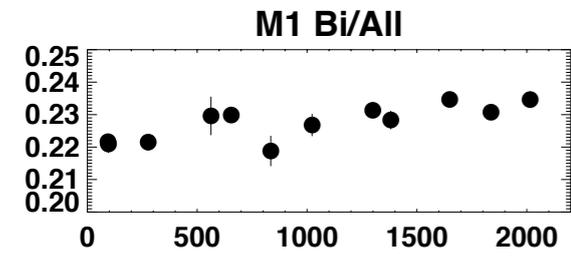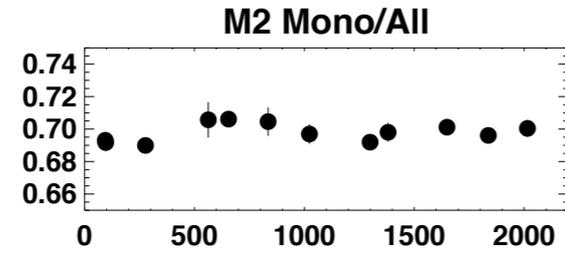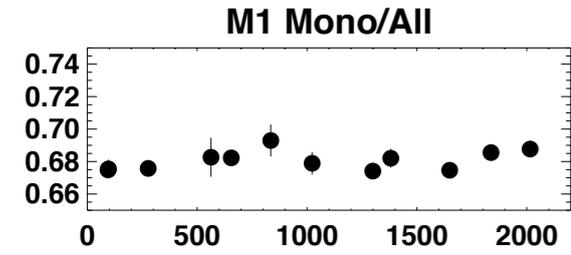
M1 Quad/Mono
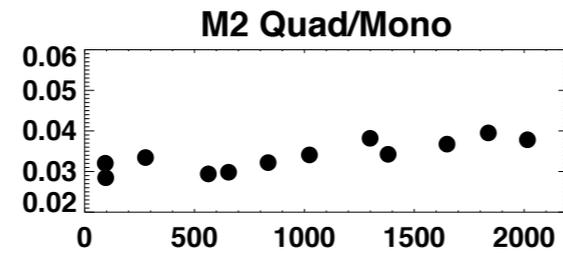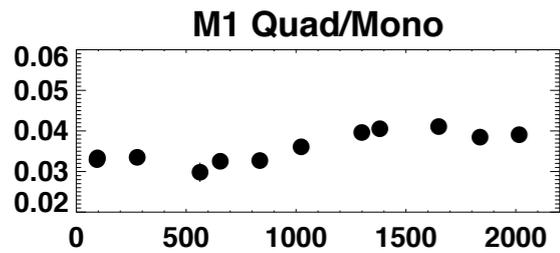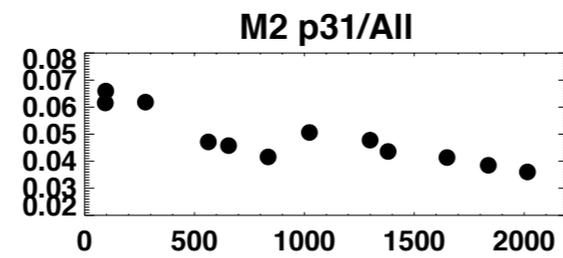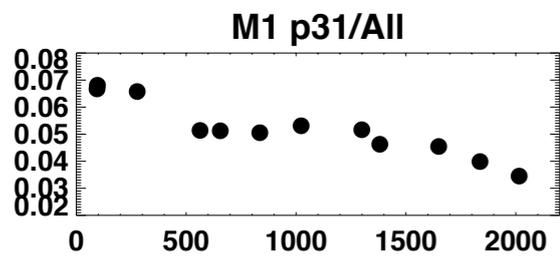
M2 Quad/Mono

~ 10% change in quad/mono
similar for tri/mono

Quad-pixel spectrum at Al K$_\alpha$

Early

Mid

Late
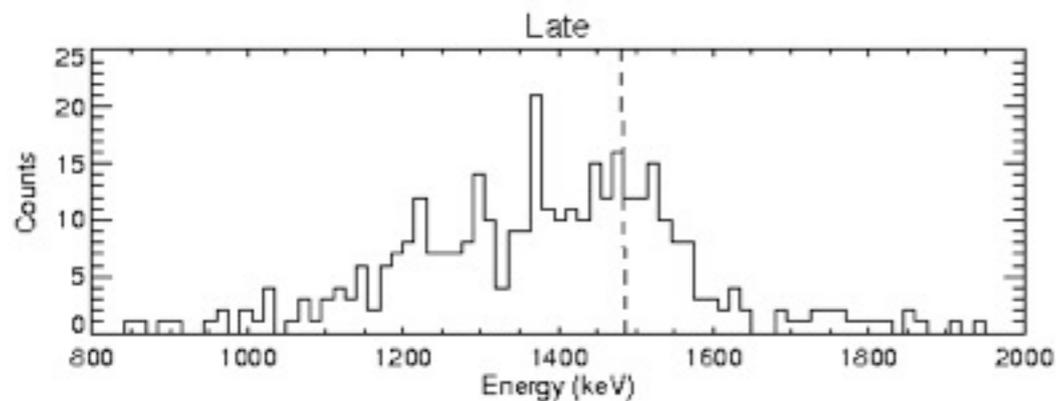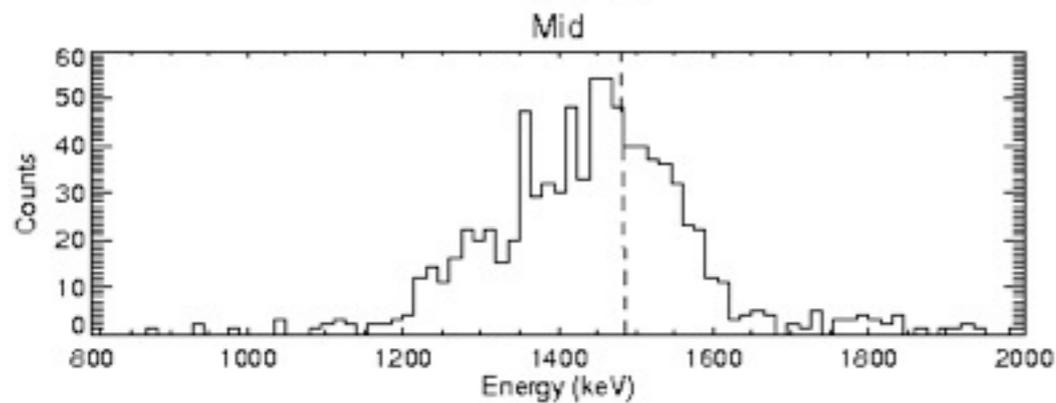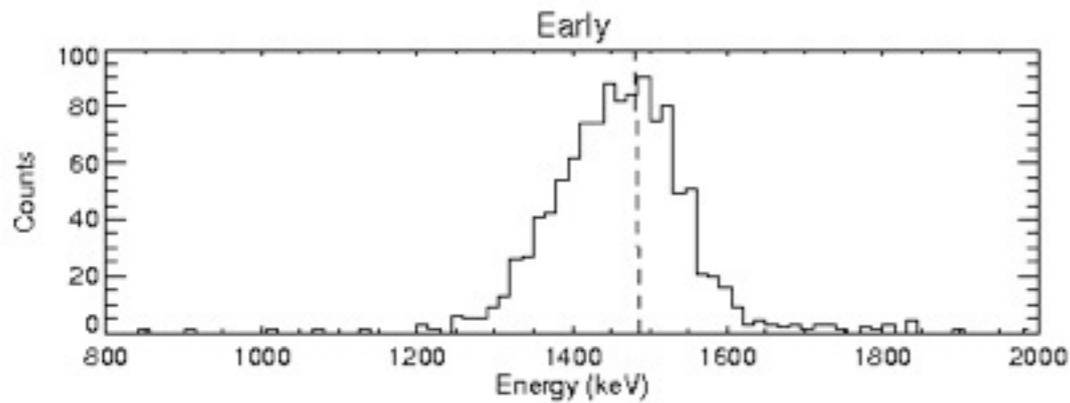
But high pattern tri- and quad- energy
reconstruction is degrading

Ratio change spectral shift effect?

Currently re-writing
MOS CTI/GAIN analysis package.
See talk by Jenny Carter.