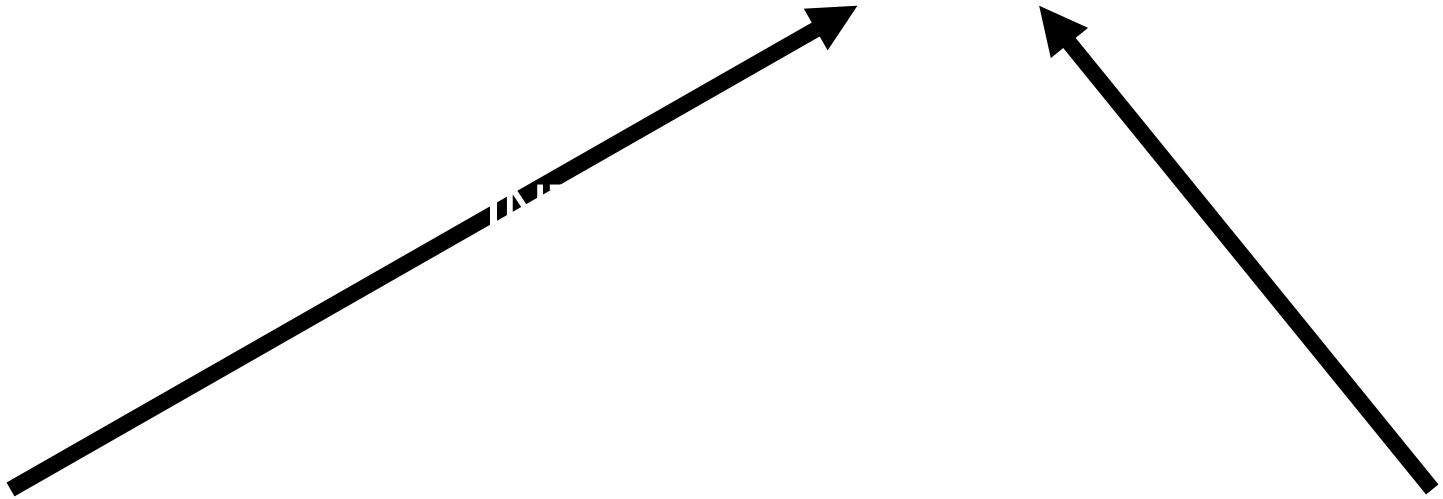
JEM-X particle trigger rate is lowered

- JEM-X HW and SW trigger rate (dominated by particles) is lowered by ~20% since Oct 2010
  - Now ~2500 triggers/sec
- Processing dead time is reduced from ~18% to ~16%
- Background (dominated by CXB, direct + induced Compton) is unchanged, as particle rejection is efficient



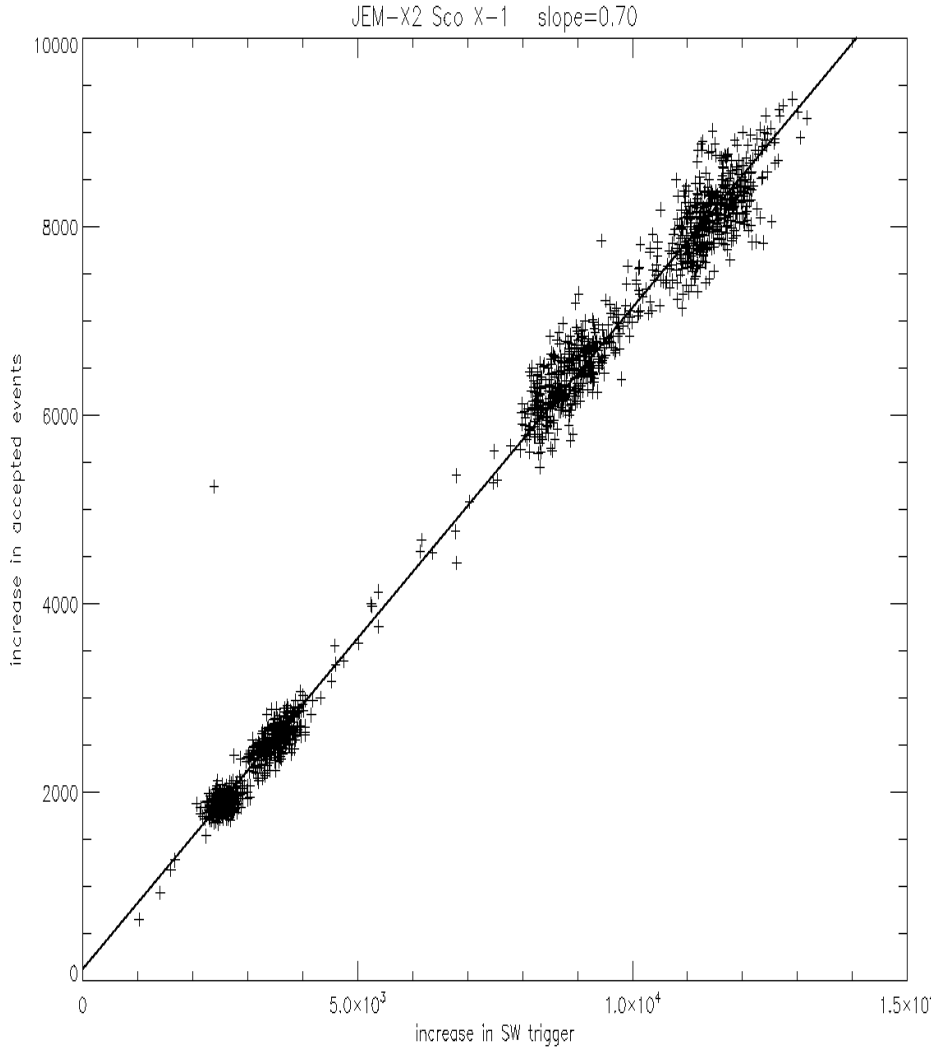
the cosmic ray flux is coming down….
slowly.

Not much variation over 2011…

Recent one year period

Under-estimated dead time?

- During Sco X-1 observations increase in number of SW triggers and accepted events show a 0.7 correlation
- Does this mean that we loose 30% of good X-rays?
- And why are they lost?
  - "Pile-up"?
  - Too strict selection criteria?
  - Still under investigation



JEM-X Mosaic in Aitoff projection

- JEM-X mosaic tool now supports all WCS projections
- 5-25 keV significance map of 11353 ScWs with JEM-X2 revolutions 861-1054, ~20 Ms, 10^9 photons

SW development: PIF weighted imaging

- Find and fit the brightest sources
- Assign weights to detector pixels according to expected illumination by brighter sources
- Redo back projected image with better S/N

New 3-10 keV Old

Source	S/N impr.
GX 5+1	0.92
GX 3+1	1.14
GX 354+0	1.00
XTE J1739	1.22
GRS 1747	1.26
1A 1742	1.55
Etc….	

JEM-X Support of Mission Extension

- DTU Space will support the INTEGRAL extension in 2015-16
  - Main routine work is related to gain calibration, general performance monitoring, OSA support, and Crab calibration
  - Some team members will retire – but some will stay on – transfer of knowledge needed
  - Expected support in 2015-16 at the level of 2 FTE (TBC by end of Jan 2012)

Conclusion

- JEM-X is running smoothly
- JEM-X is not affected by lowered perigee
- Gain evolution is progressing (as expected)
- Switch from JEM-X1 to JEM-X2 was implemented by start AO7 (Oct 2009) to even the “wear” on the detectors
- Running both JEM-X1 and JEM-X2 was implemented in Oct 2010, as sufficient telemetry became available
  - Improved statistics and reduction of systematics
  - Increased TM allocation would reduce number of cases with grey filter and also improve stability of gain fitting
- Team is still intact – but also busy with other projects
- We expect JEM-X and INTEGRAL to operate through 2014, and also in the next extension 2015-2016
  - Performance is monitored to ensure that running both units will not endanger the future use