

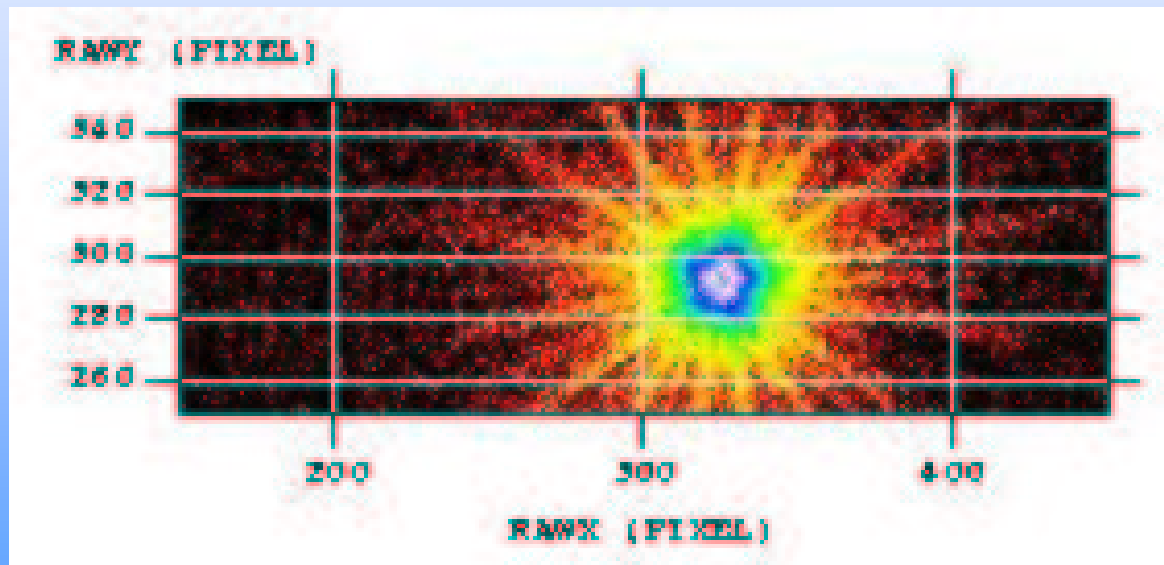
# Proposed new window mode for MOS Cameras

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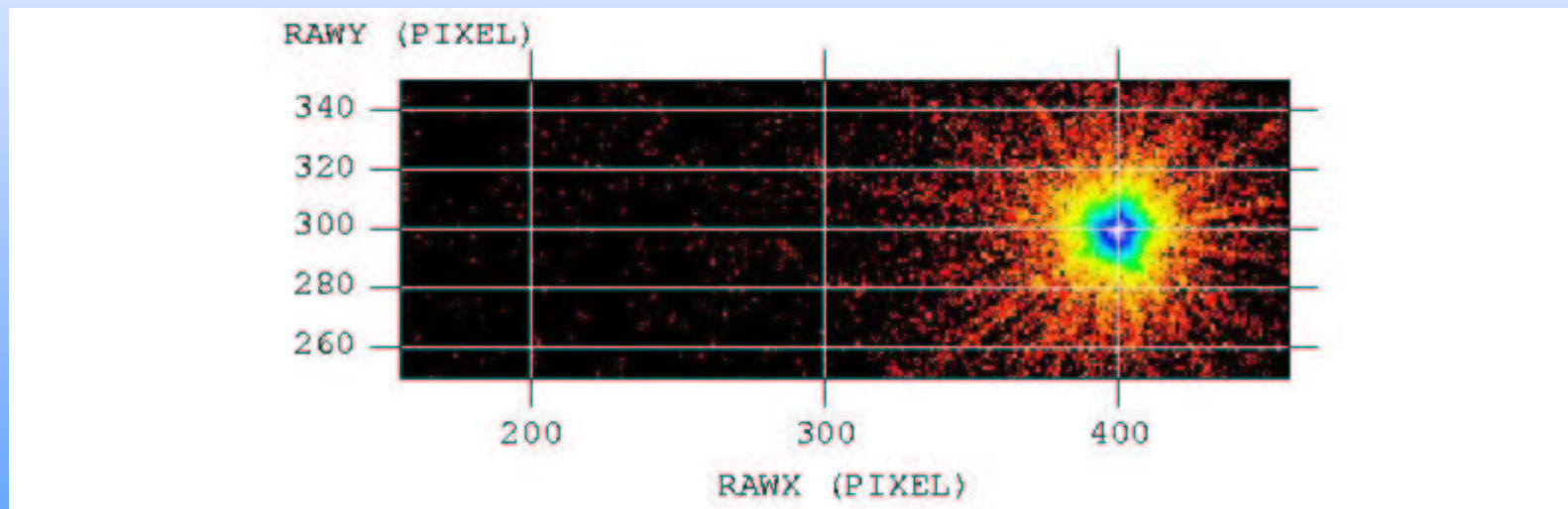
# Introduction

- Small Window Mode (100 X 100) is difficult to use because there is no area to measure background
- Large Window Mode (300 X 300) is good, but too slow, resulting in greater pileup
- An extended width window mode could be read out as fast as present synchronised SW by using free run mode
- Calibration or modified Gatti use can keep DNL acceptable
- Following slides show some window options based on 300 X 100
- Other sizes could also be considered
- Binning is not an option because it does not reduce pile-up
- A small trade-off can also be made between gain and speed

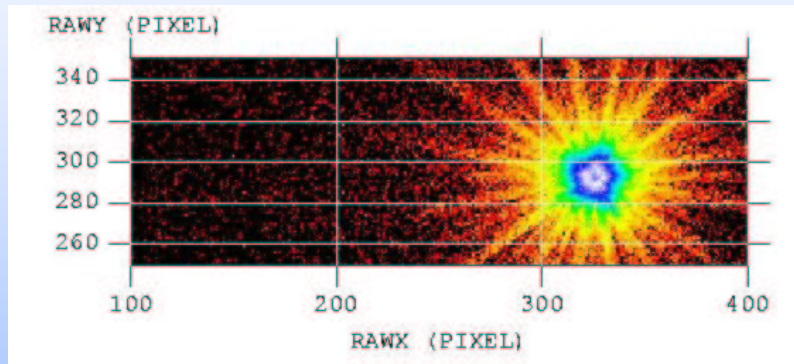
300 X 100 central – still not much  
room for background



# 300 X 100 offset XMM pointing

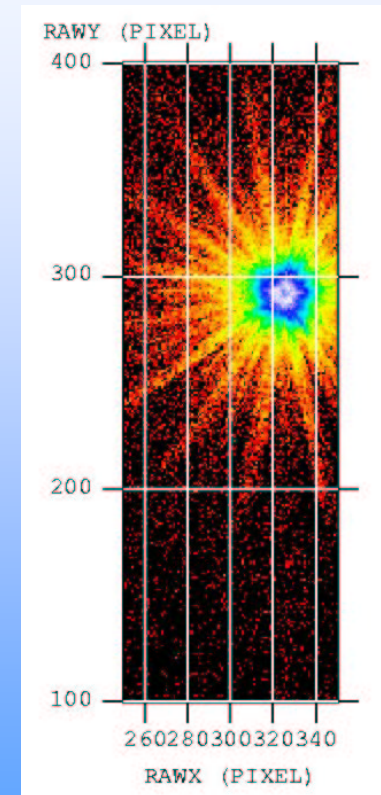


# 300 X 100 and 100 X 300 offset windows

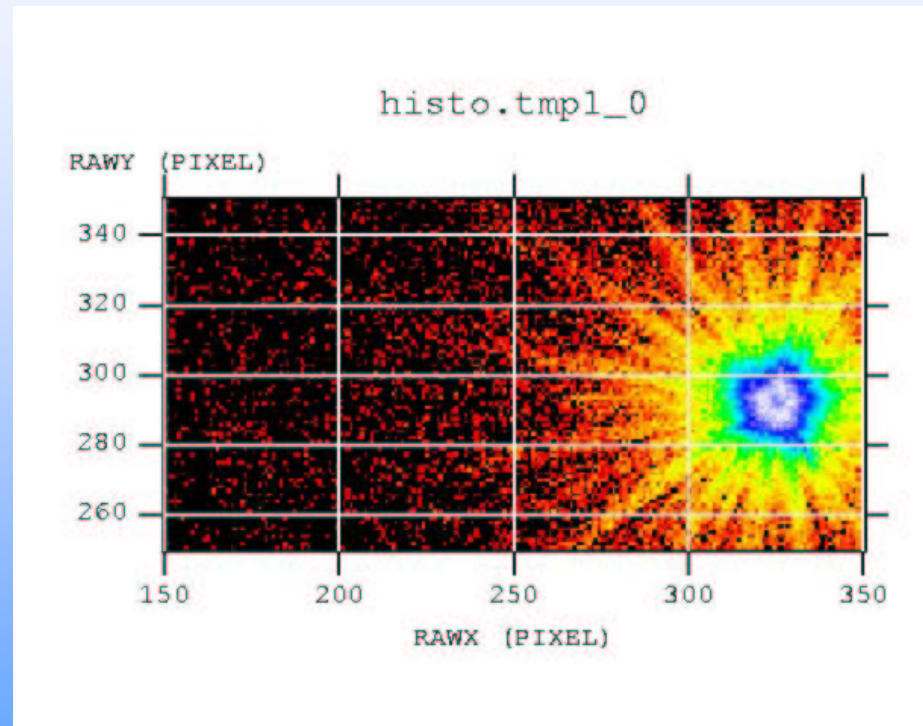


Horizontal offset window is slightly slower than a centralised window because of non-symmetrical pixel dumps (nearly 10mS longer)

Vertical offset window is even slower despite horizontal symmetry because of 300 rows being read rather than 100 (nearly 70ms longer)



# Offset 200 X 100



# Timing concerns

- Synchronised SW is currently 0.3s/frame
- Free run SW is 0.13s/frame
- Free run 300X100 would be c. 0.23s/frame
- Sync 300X100 would be 0.4s/frame
- If window was 200 X 100 approx. 70 ms could be saved to give 0.18s/frame in free run mode or 0.3s in sync mode – same as now

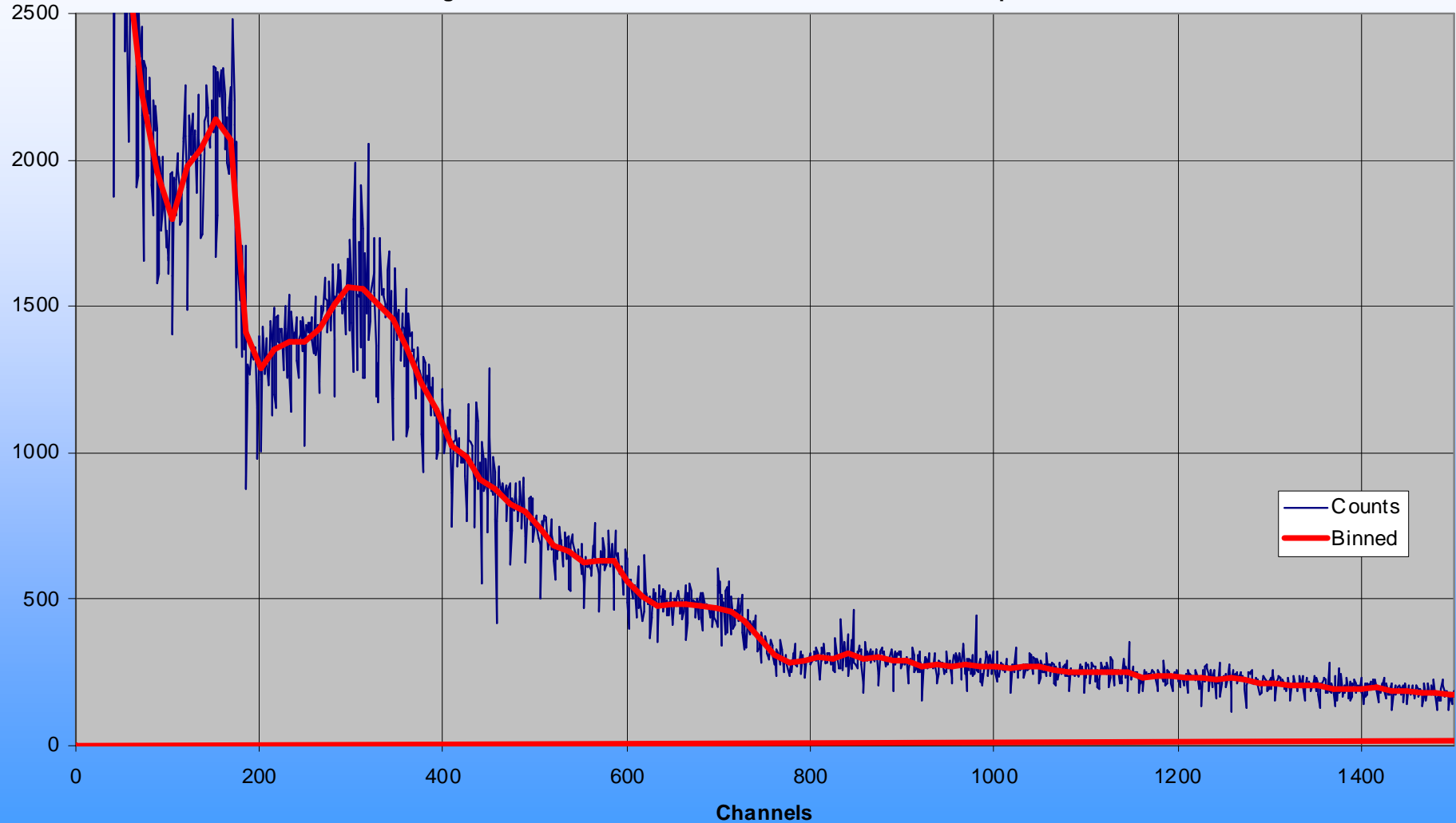
# DNL concerns

- Some discussion has taken place with Saclay as to whether Gatti can be used in unsynchronised modes
- Does it need EMCR s/w mod?
- Needs to be taken further – tests on spare chain
- Otherwise Gatti cal/binning (Ballet code or next slide)



# Binning to remove DNL

Her X1 Timing Mode MOS1 0207\_0134120101 Binned X16 with start point -8DN



XMM Calibration/Ops Meeting Mallorca  
1-3 Feb 2005

