



Meeting date	25.10. 2006	ref./réf.	XMM-SOC_EPIC_BG_WG-004	page/page	1 7
--------------	--------------------	-----------	------------------------	-----------	--------

date de la réunion

Meeting place	Mallorca, Hotel Tora	chairman	A. Read
<i>lieu de la réunion</i>		<i>président</i>	

Minutes' date	25.10.2006	Participants Andy Read (AMR): scientific chair, MOS (Leicester) Jenny Carter (JC), EPIC calibration and BGWG Support (Leicester) Steve Snowden (SS), XMM-Newton US-Guest observers facility (Goddard) Matthias Ehle (ME), ESA coordination (ESAC) (many) guests: Ulrich Briel, Vadim Burwitz, Konrad Dennerl, Eckard Kendziorra, Michael Martin, Paul Plucinsky, Steve Sembay, Chris Tenzer This minutes plus related documents will all be available on the web: http://www.src.le.ac.uk/projects/xmm/technical/
<i>dates de minute</i>		

Subject/objet	Minutes of meeting EPIC Background Working Group 4	copy/copi	Minutes by M. Ehle
		M. Kirsch, M. Freyberg, M. Turner, S. Sembay, U. Briel , L.. Metcalfe, N. Schartel, A. Parmar	

1.0 Action Items from last meetings (AMR)

- AI_EPIC_BG_WG_02_01: MK to ask RGS if RGS BG light curve could help EPIC screening
OPEN: MK shortly discussed with A. Pollock: **no news from MK**,
 A. Pollock should be involved later (invite him for one of the next meeting)
- AI_EPIC_BG_WG_02_03: ME to test and transfer WNP's script of 01_11 to SOC thread
ONGOING, to be used/tested by SAS-WS participants;
 AI is now part of the project of a Young Graduate Trainee (YGT) working with ME at ESAC
- AI_EPIC_BG_WG_02_05: MK to send SS information how to get CALCLOSED and CLOSED data and to include SS in the CALCLOSED and CLOSED mailing list
DONE but inconsistencies in ObsIds (less data than K. Kuntz thinks...)
 SS still to be included in automatic e-mail - **CLOSED**
- AI_EPIC_BG_WG_02_06: MK to change wording for "Files that you do need for your data analysis" to Files that you may need for your data analysis", and separate link of Response from BG files – **was Partly CLOSED:** re-wording still TBC – **now CLOSED**
- AI_EPIC_BG_WG_02_10: all to provide proposal to AMR to link relevant papers to the BG component table – **ONGOING** (also see AI_EPIC_BG_WG_03_02)
- AI_EPIC_BG_WG_02_11: ME to check with mission planning if criterion can be added for SWCX avoidance – **ONGOING** (offline between mission planning & SS)
 An AO5 observation (100ks) in June should help to constrain model
 First Results reported by SS: A beautiful data set without any high radiation nor SWXC signatures! ⇒ upper limits only will be extracted
- AI_EPIC_BG_WG_01_01: SS to provide by October 2005 to SOC
- Proton screening tool
 - Use of multiple light curves for screening
 - Provide list of st. candles for BG analysis comparison with different tools
- By end of December 2005 a SAS task version will be available for DT, aiming release for SAS 7.0 – **OVERDUE** (SAS task by B. Perry for DT; there was a problem with Perl numerical recipes & PGP key for upload) – see new AI_EPIC_BG_WG_03_07
 - list of BG candles - **ONGOING**
- AI_EPIC_BG_WG_01_04: AMR to invite other BG experts to next meetings and to provide possibly scripts/tasks - **ONGOING**
- AI_EPIC_BG_WG_01_12: MJF: Once any BG or Closed fits files had been obtained, the user can change their CCF_PATH etc. setup so that a new cifbuild would incorporate these extra files. This enables the BG/Closed events files (e.g. the ones used in SS's task) to be used in the SAS, without them having to be included in the CCF files. – **ONGOING, no news from MJF** - Interface TBD (MJF & RS)
- AI_EPIC_BG_WG_03_00: on all: send presentations to AMR - **CLOSED**
- AI_EPIC_BG_WG_03_01: on KK/SS: provide text & page related to MOS closed data sets (before UG meeting) - **CLOSED**
- AI_EPIC_BG_WG_03_02: on AMR: to publish new background table (with links to papers) - **CLOSED**
 On all: provide AMR with additional links & more papers - **ONGOING**
 On MJF: to send SPIE paper to ME for inclusion into ESAC document system

- CLOSED

- AI_EPIC_BG_WG_03_03: on AMR/JAC: to explain on blank sky web page when to use filled and/or unfilled data sets (recommendations) - **OPEN**
- AI_EPIC_BG_WG_03_04: on SM: send shell script for f_{in} / f_{out} test for flaring bkg to AMR – **CLOSED**
- AI_EPIC_BG_WG_03_05: on AMR: to test if sky-recast tool is working correctly on specific data set (i.e a cluster) – **half CLOSED**
- AI_EPIC_BG_WG_03_06: on ME: on background page: make clear which are the old blank sky fields and that these only should be used if you know exactly what to do... (sort papers chronologically) - **CLOSED**
- AI_EPIC_BG_WG_03_07: on ME: test soft proton screening s/w SAS tool (in dev. track?, TBC) **OPEN – waiting for task delivery**
- AI_EPIC_BG_WG_03_08: on MJF: UHB update section 3.2.4: outside FoV eff. Area (up to 80 arcmin), Update of CCF (currently not supported, calview, 15 arcmin, TBC) **OPEN, no news from MJF**
- AI_EPIC_BG_WG_03_09: on MJF: prepare web page describing and linking to closed pn data files (before UG meeting, if possible) - **CLOSED**
- AI_EPIC_BG_WG_03_10: on SM: provide BGWG with script on bkg treatment in spectral analysis (after publication of related paper) - **OPEN**
- AI_EPIC_BG_WG_03_11: on AMR: check HK parameters for anomalous MOS FWC data - **OPEN**

2 Progress Reports

2.1 Update on XMM-ESAS (SS)

Work is ongoing on a tool to merge several MOS observations: individually extracted point-sources are converted into an overall criteria; the tool is now in a development stage and needs to be made more user friendly. The envisaged release date is by March 2007 (see AI_EPIC_BG_WG_04_01).

K. Kunz is also working on another tool to handle the soft-proton background: to create detector maps, to check how soft proton flux varies with position on the detector and to introduce a scaling of the spectral fitting of this background component (unfolded power-law). Also here the release date is planned for March 2006 (see AI_EPIC_BG_WG_04_02).

Work is ongoing on the MOS trend data base to screen observations for odd status of the MOSs background and to search for enhanced periods

As a side note: some work is ongoing related to the generation of the planned optical monitor (OM) catalogue.

SS also presented ongoing work (together with R. Mushotzky) on a 'Clusters Galore' where the MOS data of 45 clusters of galaxies are analysed making use of XMM-ESAS. A paper in ApJS is planned. SS is now

using 'cross ARF matrices' calculated with a new version of arfgen (in SAS development track) that takes into account contributions of photons at a certain detector position stemming from different parts of the detector. With these new ARFs, the derived temperatures of the central cooling cores change significantly (the fluxes, as well). This effect does probably still not solve the observed discrepancies between XMM-Newton and Chandra observations of clusters but certainly reduces them.

Further details on the MOS related tools and Cluster analysis is given in the presentation available on-line at <http://www.src.le.ac.uk/projects/xmm/technical/>

Future development plans: start extending the background tools also to pn data; a first version should become available by about June 2007.

2.2 Update on Blank Sky event files (JAC)

Blank Sky event lists, related files, tools and descriptions have been made available at http://xmm.esac.esa.int/external/xmm_sw_cal/background/blank_sky.shtml in May 2006.

Since then a few bugs were fixed and updated files were delivered.

Missing DATE-OBS keywords result in SAS warning and cause a crash or arfgen. The keywords were not filled in on purpose as the blank sky files are combination of many observations spread over a wide range of XMM-Newton orbits (see AI_EPIC_BG_WG_04_03).

A paper on the new blank-sky files has been submitted and referee comments were received in July 2006. The main open point is the request to check reliability of background files - work is ongoing. Not only in the paper, but also on the blank-sky web page, it should be made clear which flare filter has been applied to the data and that the flare filter differs from the expression explained in the SAS threads, the SAS Manual and previous Blank Sky work (see AI_EPIC_BG_WG_04_04).

All the details are available from the presentation available on-line at <http://www.src.le.ac.uk/projects/xmm/technical/>

Future Plans:

- adding more observations (currently limited by 2XMM catalogue), esp. needed for thick filter data
- check brightened row in pn exposure maps (comment by J. Ballet)
- s/w improvements: selection by location (RA, Dec) tool (see AI_EPIC_BG_WG_04_05).

This could be done in the form of a java web based tool: as files are big, it might be good for the user not to have the need to transfer all blank sky files before running the selection tool at his/her location; instead the idea is to offer a tool that runs at the SOC, creating a result output file there and restricting the needed data transfer to this single output file only

- the script used to fill holes caused by extracted point sources (used as 'ghosting' script for the blank sky file generation) might be of interest to all users (see AI_EPIC_BG_WG_04_06)
- further updates due to user response

3 Discussion

for details, see presentation by AMR available on-line at <http://www.src.le.ac.uk/projects/xmm/technical/>

3.1 Web Pages (AMR)

The current layout and contents of the BGWG web-pages was shown and changes since the previous meeting were highlighted.

3.2 Filter wheel closed (FWC) data (AMR)

FWC data both for MOS and pn has been put on-line. The announcement of the files as an item of a future XMM-Newton Newsletter is on-hold: some users were requesting that not only MOS CCD specific files are available; also combined full field-of-view data sets are needed (see AI_EPIC_BG_WG_04_07). As soon as the combined event lists are there, the FWC data will be announced.

Some users report problems with the down-load and transfer of the rather big pn FWC data sets (see AI_EPIC_BG_WG_04_08).

3.3 F_in – F_out script (AMR)

A script to check the remaining amount of soft proton contamination after flare removal has been prepared and is available now on-line at the BGWG scripts page. The results of the script (amount of contamination) still should be described in somewhat more details especially giving some help/advice to the user (see AI_EPIC_BG_WG_04_09).

3.4 Flare free observing periods (AMR, reporting results from K. Kuntz)

K. Kuntz is analysing the dependence of flare free observing periods on the orbital position of XMM-Newton and can draw some general conclusions on the best observing periods:

Low background can be expected:

- if XMM-Newton is far away from Earth
- 180 degrees away from Sun
- away from about +/- 90 degrees to the Sun (limbs of the magnetosphere?)
- in (northern) winter

Other work (e.g. by Fioretti & Foschini) supports these conclusions.

A paper is going to be submitted soon, summarizing these results (see AI_EPIC_BG_WG_04_10).

4 Final session: - Summing up

4.1 AOB

ME: M. Smith reported a possible problem with the SAS thread to clean EPIC data for flaring background: We currently advise the users to create rate curves above 10 keV.

In some observations, badpixfind does not find high-energy (> 12 keV) hot noisy pixels that hence will make it into the final calibrated event list. Such a hot pixel will create much higher than normal high energy count rates that might drive a user to the conclusion that all of his observation is suffering from high flaring background.

A possible workaround might be to advise users to create and check rate curves in the energy interval 10-12 keV. Alternatively (and possibly better) would it be to let badpixfind find and flag such hot noisy hard energy pixels (see AI_EPIC_BG_WG_04_11).

It was also discussed that B. Perry's/SS's planned espfilt SAS task should (by default) avoid the hot flickering pixel found by M. Smith (in pn column 63, CCD 11) – see AI_EPIC_BG_WG_04_12.

4.2 Plans for next period

Extend XMM-ESAS tools to pn.

4.3 Next meeting

- Date and Location will be attached to the next EPIC Cal/Ops meeting, currently planned for 11-13 April 2007 in Milano, Palermo or Saclay: These meetings usually take 1.5 days so that a 0.5 day BGWG meeting can be scheduled before or after this.

New Action Items resulting from this meeting:

AI_EPIC_BG_WG_04_00: on all: send presentations to AMR

AI_EPIC_BG_WG_04_01: on SS/K. Kuntz: delivery of tools for MOS to merge data and for improved soft proton handling by March 2007

AI_EPIC_BG_WG_04_02: on SS/K. Kuntz: try to extend MOS tools such that they also work for EPIC-pn by about June 2007

AI_EPIC_BG_WG_04_03: on JAC: discuss introduction of DATE-OBS keywords (if and what values) in the blank-sky event lists

AI_EPIC_BG_WG_04_04: on JAC/AMR: specify which filter has been applied on blank-sky event lists to remove flaring background periods: give selection express and explain why it is different from the one given in SAS threads and SAS Manual.

AI_EPIC_BG_WG_04_05: on JAC/ME: test if location selection tool for blank-sky fields can be installed at ESAC

meeting date **25.10. 2006**

ref./réf. XMM-SOC_EPIC_BG_WG-004

page/page 7 /

date de la réunion

7

AI_EPIC_BG_WG_04_06: on JAC/AMR: check if 'ghosting' script can be made available to all users via the BGWG script page

AI_EPIC_BG_WG_04_07: on AMR: trigger the generation of full field-of-view FWC MOS data by K. Kuntz (standard mode), and make them available to ME for an update of the FWC web page and related Newsletter announcement

AI_EPIC_BG_WG_04_08: on AMR: trigger the generation of smaller sub-sets of EPIC-pn FWC data (with M. Freyberg) ⇒ update of FWC web page needed

AI_EPIC_BG_WG_04_09: on AMR: provide further explanation of the output of the f_in-f_out script together with some advise to the user on what to do next

AI_EPIC_BG_WG_04_10: on SS: ask K. Kuntz to include a figure on the dependence of the flaring MOS background on the orbital position of XMM-Newton in the planned paper

AI_EPIC_BG_WG_04_11: on ME: discuss with MS problem of undetected high energy noisy hot pixels and see if they can be detected in badpixfind or if SAS thread for background removal needs modifications

AI_EPIC_BG_WG_04_12: on SS to trigger on B. Perry that espfilt avoids the hot flickering pixel in pn CCD 11, column 63 (and eventually other bad regions of detectors)

Possible future AI (with R. Saxton+student)?

Use SciSim to simulate cluster & bkg and test different analysis methods on it (also for Chandra simulator).