



Meeting date	22.03.2010	ref./réf.	XMM-SOC_EPIC_BG_WG-009	page/page	1 7
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date de la réunion

Meeting place	Madrid, Facultad de Matematicas, Universidad Complutense de Madrid	chairman	A. Read
<i>lieu de la réunion</i>		<i>président</i>	

Minutes' date	23.04.2010	Participants Andy Read (AR, scientific chair, EPIC, Leicester) Jenny Carter (JC, EPIC, Leicester), Kip Kuntz (KK, Johns Hopkins & GSFC), Carlos Gabriel (CG, XMM-Newton SOC), Ignacio de la Calle (IdC, XMM-Newton SOC), Silvano Molendi (SM, INAF) and Richard Owen (RO, Saclay), and guests Steve Sembay (SSE, EPIC, Leicester) Andrea Tiengo (AT, INAF) and Matteo Guaniazzi (MG, XMM-Newton SOC)
<i>dates de minute</i>		

This minutes plus related documents and presentations are available on the web at <http://www2.le.ac.uk/departments/physics-and-astronomy/research/src/Missions/xmm-newton/technical/bg-meetings#bgmeetings>

Apologies from S. Snowden (Ssn) and W. Pietsch (WP).

1 Open action Items from last meetings (AR)

- AI_EPIC_BG_WG_01_12: on MF: 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. - **CLOSED (merged with AI_EPIC_BG_WG_04_08)**
- AI_EPIC_BG_WG_03_08: on MF: 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** – provide numbers from simulations by B. Aschenbach
- 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 AR/HC: check HK parameters for anomalous MOS FWC data- **CLOSED**
- 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 – **ONGOING (see presentation KK)**
- AI_EPIC_BG_WG_04_08: on AR: trigger the generation of smaller sub-sets of EPIC-pn FWC data (with M. Freyberg) ⇒ update of FWC web page needed – **CLOSED (replaced by AI_EPIC_BG_WG_09_02)**
- AI_EPIC_BG_WG_06_07: On SM: to provide new threshold numbers for the Fin/Fout tool to AR to allow him another update of that script (specifically to account for the MOS1 CCD6 loss) – **OPEN**
- AI_EPIC_BG_WG_07_04 On JC: continue investigation of possible solutions to ghosting problem – **CLOSED**
- AI_EPIC_BG_WG_07_07 On CG & IdC: to check BGWG pages from a users point of view and to provide ideas for further improvement of the documentation – **OPEN**
- AI_EPIC_BG_WG_07_08 On CG & IdC: to consider preparation of simple analysis threads and recipes for the analysis of extended sources (mentioning complexity & different approaches) – **ONGOING (documentation of esas SAS task & thread needed)**
- AI_EPIC_BG_WG_08_01 On JC: Add example current Blank Sky files to web form so that 'standard' requests might be fulfilled avoiding duplications of such requests - **ONGOING**
- AI_EPIC_BG_WG_08_02 On JC: Implement some changes to web page text taking into account user comments - **CLOSED**
- AI_EPIC_BG_WG_08_03 On JC: Add to Blank Sky request response page information on the exposure weighted NH from the used component files - **CLOSED**
- AI_EPIC_BG_WG_08_04 On AR & JC: Consider and plan the long term support for the Blank Sky - delivery system, i.e. a transfer from the semi- to a full-automatic system **ONGOING**

AI_EPIC_BG_WG_08_05 On KK & CG: Discuss possibilities to simplify the calibration files for esas – **ONGOING (SS working on it)**

AI_EPIC_BG_WG_08_06 On ME: Take care of the implementation of the new approach for FWC observations at the SOC: Change of Routine calibration Plan, two versions of RCFs, scheduling procedure - **CLOSED**

AI_EPIC_BG_WG_08_07 On IdC: Prepare a draft version of the planned report of BGWG activities to the XMM-Newton User Group meeting in May 2009, and iterate it with AR - **CLOSED**

AI_EPIC_BG_WG_08_08 On KK: Look at whether anomalous MOS cases can come and go within observations. - **CLOSED**

2 Reports

2.1 Past action Items reviewed (AR)

AI_EPIC_BG_WG_03_08: on MF: 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** – provide numbers from simulations by B. Aschenbach – **MG says MF is not following the activities of the group, so if important, we should assign this to some one else. SM believes this is an important item, someone should do it. The SOC will take care of it. The TBC will be assigned to someone at the SOC.**

AI_EPIC_BG_WG_03_10: on SM: provide BGWG with script on bkg treatment in spectral analysis (after publication of related paper) – **CLOSED**
Can the Fin/Fout (for MOS) script be merged with ESAS ? SM points out that the Fin/Fout script already works within XSPEC as a model for the background. It does not work for pn because of lack of good out of FOV information.

AI_EPIC_BG_WG_06_07: On SM: to provide new threshold numbers for the Fin/Fout tool to AR to allow him another update of that script (specifically to account for the MOS1 CCD6 loss) – **OPEN**
SM will provide this numbers to A. Read because he has them.

AI_EPIC_BG_WG_07_04 On JC: to provide descriptions of limitations of refilled blank-sky event files on the blank sky web page (Watchout section) – **this part CLOSED** - and continue investigation of possible solutions to ghosting problem – **CLOSED**
The second part of this AI is closed: No more queries about it, so it might be small and could be closed.

AI_EPIC_BG_WG_07_08 On CG & IdC: to consider preparation of simple analysis threads and recipes for the analysis of extended sources (mentioning complexity & different

approaches) – **ONGOING** (documentation of esas SAS task & thread needed)

Documentation updated for the SAS v.10.0 tasks related to ESAS. There are some upgrades in the ESAS SAS tasks for v10.0. The new ESAS cookbook will be integrated into the SAS Manual corresponding to the release of SAS v10.0.

AI_EPIC_BG_WG_08_08 On KK: Look at whether anomalous MOS cases can come and go within observations. - **CLOSED**

AR will report at the EPIC-cal part of meeting. Closed.

2.2 MOS CCD Noise (AR)

Presentation given at the EPIC Calibration meeting.

<http://www2.le.ac.uk/departments/physics/research/src/Missions/xmm-newton/technical>

2.3 Update of Blank Sky Project (JC)

Review of past action items dealing with the Blank Sky Project: AI_EPIC_BG_WG_08_01 AI_EPIC_BG_WG_08_02, AI_EPIC_BG_WG_08_03 and AI_EPIC_BG_WG_08_04.

Action items AI_EPIC_BG_WG_08_02, AI_EPIC_BG_WG_08_03 are considered closed.

Action item ongoing AI_EPIC_BG_WG_08_01: all completed requests added to table on the web page, but its not currently linked to main page. There is no way to control the downloads people make, and we would therefore be unsure how to monitor usage.

Action item ongoing AI_EPIC_BG_WG_08_04: continued development to automate the process.

The archive is being reprocessed with SAS v9.0 and files are being added up to revolution 1789 (AI_EPIC_BG_WG_09_06). A new release is expected to take place in Summer 2010 including all these updates as well as updated information on the Web Pages. An announcement is planned to be made on the XMM-Newton Newsletter as for the previous release.

Some comments gathered from users:

- Count rate selection added to the form
- A user found that large Blank Sky event files are too big for the SAS task *espfilt*. Some suggestions were given to the user (small blank sky files could be processed, advised user to use standard GTI filtering, appears there is a limit to size of file *espfilt* can handle).
- Large/Small Window mode occasional query, which are directed to the FWC repository or the use of the outer CCDs in the case of MOS in Small Window. This comment results in AI_EPIC_BG_WG_09_01.

Suggestion to update the SAS thread on the use of Blank Sky event files results in AI_EPIC_BG_WG_09_05.

2.4 Solar Wind Charge Exchange (SWCX) as seen by XMM-Newton (JC)

Update on the work of SWCX done by JC (see A&A 2008, MNRAS 2010). The method was described in the presentation. A second paper is in preparation using all Leicester archive and MOS full frame. Some preliminary results were presented. Some line of sight (LOS) modelling has been implemented to account for the satellite position in the orbit and where it is looking at (model LOS in each time step and emissivity through the magnetosheath). The model-to-data comparison shows that there are still things to understand.

CONCLUSION and FUTURE: About 5% of observations exhibit temporally variable SWCX; Method does NOT identify cases where SWCX is constant throughout the observations – need comparison of fields, e.g. Kuntz & Snowden 2008 etc.; LOS modelling challenging – components of SWCX emission from inside and outside of bow shock (see Carter et al. 2010); provide online 'SWCX likelihood' information for user for each observation, maybe in observation log browser. The information is meant to be for observations already taken - i.e. the data is analysed and the SWCX likelihood can be noted for each observation.

As a result of this work, should the BGWG provide the user with information about SWCX ? The plan is to do it in the future in the form described above. AI_EPIC_BG_WG_09_08 has been raised to explore this issue.

AR raises the question on how easy it would be to create a SAS task to tell the users if their event file is affected by SWCX. There is a manual component to the analysis so it might not be easy. S. Molendi, mentioned that however, a warning could be raised. The effect is primarily at energies below 1 keV, especially around the oxygen lines Ovii and Oviii.

2.5 BGWG activities at the SOC (IdC)

IdC gave a summary of activities at the SOC regarding the BGWG:

The BGWG members list was updated. Alberto Leccardi, Hubert Chen, Uli Briel were removed and Richard Owen was added as a member to the list.

A summary of the outcome of the UG Meeting on May 2009 was given to the group regarding the BGWG activities.

2.5.1 Blank Sky Fields

- As a result of a general SAS thread update, the thread dealing with Blank Sky event files needs updating resulting in AI_EPIC_BG_WG_09_05.
- Update/change information on Blank Sky Web pages provided by JC.
- The recommendation to the users regarding Blank Sky fields in Small Window is to use FWC

data, but this is not mentioned anywhere. As a result AI_EPIC_BG_WG_09_01 is raised.

- An update in the performance of the Blank Sky repository through the web form is requested in preparation for the 2010 Users group meeting. The update was given in JC talks.

2.5.2 Filter Wheel Closed data

As of January 2010 the SOC has taken on the task of maintaining the FWC repository. Work has been started on the update of the FWC repository. So far, pn Full Frame data from 2006 up to 2010 has been analyzed. The analysis chain is shown for input on the filtering of the event file used. A light curve shows the rates since 2000 up to 2010. The figure shows an increase of the count rate, especially after 2006. The increase will be investigated. It is suggested that the existing repository (2000-2006) is analyzed using the same analysis chain as used on the 2006-2010 data to see if the analysis has introduced a bias. The FWC data web pages will need updating to reflect the new analysis. This results in AI_EPIC_BG_WG_09_02 and AI_EPIC_BG_WG_09_03.

2.5.3 XMM-ESAS

The current status of ESAS is presented. ESAS code has been integrated in SAS v9.0+ release in June 2009. The code will be maintained by SSn and there will no longer be a stand-alone version of ESAS. The inclusion in ESAS of EPIC-pn analysis is currently on-going. The future plans are to include the EPIC-pn component, update the ESAS Cookbook to reflect the way the ESAS tasks are called within SAS and the development of an ESAS thread. The SOC has a trainee student working on the analysis of extended sources where the trainee will use the two approaches available: Blank Sky event files and ESAS. A comparison study will be made and presented at the next BGWG Meeting. As of May 2010 an ESAC Trainee is working in applying both methods to a given data set. SM raised the issue that a cluster would be better suited, but since there are no experts in cluster analysis at the SOC, this is not feasible.

2.5.4 Background Treatment Scripts

Nothing done in this area.

3 Discussion

3.1 Simulation of background Images

SM asked if anyone is looking into the modelling of background images. KK replied that ESAS produces images that can be used.

3.2 QPB MOS

KK asked if the update of the QPB MOS database used by ESAS is going to be taken over by the SOC. KK said he could do it, that it does not take much time, but would like to know for the future. As a result, AI_EPIC_BG_WG_09_07 was raised.

3.3 Background Scripts available on the BGWG web pages

There is no support from the 'Background correction for faint extended EPIC-pn emission' since M. Bauer has left. It has been agreed to remove this page and give only links to papers on the main section. This results in AI_EPIC_BG_WG_09_04. The images script can be removed from these pages.

4 Final session: - Summing up

4.1 Next Meeting

Date and location will be attached to the next EPIC Cal/Ops meeting, currently planned for spring 2011 in TBD: The next EPIC Cal/Ops meetings will likely take 2 days so a 0.5 day BGWG meeting can be scheduled preferably before (or after) this.

New Action Items resulting from this meeting:

- AI_EPIC_BG_WG_09_01 On JC: Update Small Window mode information on the Blank Sky Web Page to point users to the use of FWC data as an alternative.
- AI_EPIC_BG_WG_09_02 On IdC: Update FWC repository at the SOC. Extend current work to the rest of pn mode and MOS. Before updating the repository, compare with data from the old repository and investigate increase of the count rate with time. Add plots and update information on the FWC data web pages.
- AI_EPIC_BG_WG_09_03 On AR: send to IdC KK FWC MOS data document to put on the FWC data web pages.
- AI_EPIC_BG_WG_09_04 On JC & IdC: Update/clean up of BGWG web pages regarding all the scripts provided. Remove obsolete scripts.
- AI_EPIC_BG_WG_09_05 On IdC & JC: Update the SAS thread for the use of Blank Sky event files so that is instrument independent, i.e., valid for pn and MOS.
- AI_EPIC_BG_WG_09_06 On JC: Release of Blank Sky event files processed with SAS v9.0.
- AI_EPIC_BG_WG_09_07 On CG: To decide on the update of MOS QPB data base by the SOC.
- AI_EPIC_BG_WG_09_08 On AR & JC: Look into compiling a list of SWCX likelihood (contamination) for each obsid and study ways to present to users.