

Minutes of User Group Meeting 8 (7-8 June 2007)

Edited by María Santos-Lleó

Approved by voting members on June 2007

Participants:

Monique Arnaud (chairperson), Didier Barret (external), Massimo Cappi (external), Miguel Mas Hesse (external), Gregor Rauw (external), Jacqueline Bergeron (Mission Scientist), Richard Griffiths (Mission Scientist), Richard Mushotzky (Mission Scientist), Jelle Kaastra (RGS-PI), Matthew Page (OM-PI delegate), Martin Turner (EPIC-PI), Mike Watson (SSC-PI), Brian McBreen (OTAC chairman) Norbert Schartel (XMM-Newton Project Scientist), María Santos-Lleó (User Group executive secretary).

Arvind Parmar (XMM-Newton Mission Manager), Leo Metcalfe (Science Support Manager), Ramon Muñoz (Instrument Operations Manager), and interested staff from ESAC and XMM-Newton instrument teams.

Absent: R. Pallavicini (mission scientist) had excused himself for not being able to attend the meeting.

Welcome:

M. Arnaud (Chairperson) opened the meeting on June 7 at 9:00.

Adoption of the agenda:

The agenda was presented and approved by the participants after a few changes. The calibration presentations were post-poned to the second day to allow early discussion of the issues presented in the morning.

Presentations:

The following presentations were given on June 7:

1. Overall mission status & Mission Extended Operations Review, MEOR (A. Parmar; 9:10-9:30)
2. Instrument Operations and ODF & PPS delivery (R. Muñoz; 9:40-10:15)
3. Report of the Project Scientist (N. Schartel; 10:22-10:40) (End session at 10:50)
4. Background Radiation Level (P.Rodríguez-Pascual; 11:12-11:26)
5. Background Treatment (M.Ehle; 11:42-12:18)
6. SAS developments and future plans (C.Gabriel; 12:30-12:43) (End session at 12:55)
7. SSC status and 2XMM catalogue (M.Watson; 14:04-14:16)
8. Action items from last meeting (M. Santos-Lleó; 14:20-14:30)

The following presentations were given on June 8:

9. EPIC calibration status (M. Kirsch; 9:05-9:30)
10. RGS calibration status (A. Pollock; 9:44-10:00)
11. Cross calibration status (M. Stuhlinger; 10:02-10:25)
12. OM calibration status (A. Talavera; 10:30-10:45)

The viewgraphs of the presentations are available on the XMM-Newton public web site, under “User Support” → “XMM-Newton Users Group”.

Discussions:

During the presentations, the speakers were frequently interrupted with questions and short discussions, in particular:

1. After A. Parmar’s presentation there were a few questions regarding the revised operations concept and future extensions. A. Parmar explained that the tied operations with INTEGRAL is considered the most efficient one in terms of budget since some expenses are shared by both missions. The detailed budget sharing between XMM-Newton and INTEGRAL is still being worked out. A. Parmar also explained that the extension to be discussed this Autumn is to continue up to 2012. The extension up to 2014 will be discussed in 2009. Currently, the pressure from the scientific community is very high to keep the mission operating and it is very important that XMM-Newton continues providing first class science in support for further extensions.

2. After R. Muñoz’s presentation, there were a few questions about the slow-slew-survey test. R. Mushotzky asked what is the 40% of efficiency quoted for this test and it was explained that 40% refers to the ratio between total science time available in the revolution to the time actually spent taking science data. Causes of this low efficiency are for instance the need to avoid taking slew data during ground-station handovers and AOCS constraints at the end of each slew (AOCS: Attitude and Orbit Control Subsystem). Ways of increasing the efficiency are currently under study, but without much hope to get significant improvement, so are ways of reducing the slew rate. M. Cappi asked about the cost of implementing this mode. R. Muñoz answered that the cost is non-negligible and L. Metcalfe detailed that preliminary estimates indicate that about 1-1.5 man years will be needed. This mode was further discussed in the general discussion (see below).

M. Arnaud asked about the backlog in data delivery. There are about 100 observations for which either the ODF or the PPS generation has failed and no data has been delivered. Most of them are normal guest observer data. While currently the SOC routinely informs the principal investigator about such problems, the early ones were not informed. R. Muñoz explained that SOC and SSC are trying to understand what happens and how to deal with them. Given the whole reprocessing currently taking place (see M. Watson presentation) it was decided to revise the situation once the reprocessing is finished.

3. During the Project Scientist’s presentation, there was some discussion about Large Programs and the time allocation process, but it was deferred to the general discussion later on.

M. Cappi asked about other coordinated programs (only the VLT program was mentioned by N. ScharTEL in his presentation). N. ScharTEL explained that the program with Chandra is running very smoothly and well. With Swift and RXTE the coordinated observations are dealt with on a case by case basis in a smooth way. The discussion about a possible coordinated program with INTEGRAL was deferred to the general discussion.

4. After P. Rodríguez presentation, the UG members congratulated the co-authors for the very good work done.

The net seasonal effect shown in the presentation is that the fraction of the orbit which has low background varies through the year. M. Arnaud asked if the science window could be reduced accordingly, but N. ScharTEL explained that as far as the safety of the instruments is not put at risk, reducing the science window is not desirable mainly because, due to the un-predictable nature of the background, we could in practice remove low-background periods. The best is to have the Observing Time Allocation Committee (OTAC) prioritize the observations and schedule

A-priority observations outside the ends of the science window, if scheduling conditions allow it. N. Schartel explained that this has been done already for a few years (see L.Metcalf presentation to the UG meeting number 5, page 25, and minutes of the meeting, held on May 2005). However, it became clear that the SOC has failed to pass this message to the scientists, since this scheduling procedure was not known by the UG members outside the SOC.

It was agreed that the OTAC guidelines will highlight the fact that A-priority observations are scheduled, whenever other scheduling constraints allow it, away from the ends of the science window in order to minimize as much as possible the probability of high background during the highest priority observations. See below for the recommendation issued during the general discussion session.

5. After M. Ehle's presentation, M. Arnaud expressed thanks for all the work done by the EPIC Background Working Group.

R. Mushotzky asked about the maintainability of the background software (ESAS) and M. Ehle explained that the plan is to get it into SAS.

A pending issue was identified as the lack of enough closed-filter data to properly characterize the instrumental background. It was deferred for the general discussion.

M. Arnaud asked for the future plans to incorporate a tool that allows selection in galactic coordinates (currently it allows selection in RA and Dec). She also asked for the exposure maps to be provided at the same time as the blank sky fields after selection. M. Ehle told her that he will pass the message to the EPIC background working group.

6. During C.Gabriel's presentation, he explained that SAS 7.1 for Mac Intel will only be released at least three months later than for the other platforms. The main reason for this delay is that the NAG Fortran compiler for Mac Intel has just been beta-released and is under testing. The SOC SAS team has been asked by NAG to collaborate in the beta testing.

There was some discussion about the planned SAS Web service. It was generally seen as an excellent direction for future development, also because it will be very difficult to maintain SAS for all possible platforms in the long term. M. Arnaud expressed her concern about the possibility for scientists to use their own scripts which combine SAS and other software packages. C. Gabriel explained that it will be possible to create workflows which call SAS tasks remotely, retrieve intermediate products to be analysed locally and then continue the remote SAS processing with input parameters based on the local analysis. What will not be possible is to submit private scripts to the Web SAS server. The submission of private files will be investigated, but will not be offered in the first release.

7. After M. Watson's presentation there were a few questions about the 2XMM catalogue access and releases. The events files are in the XMM-Newton Science Archive, XSA, as well as the science data products for the brightest sources (which will be there when the reprocessing is finished).
9. M. Kirsch presented the status of the EPIC calibration. He stressed the fact that the work has been done by the whole EPIC team, including people from the institutes outside ESA. He thanked the team for their efforts and motivation.

After the talk, M. Arnaud expressed congratulations to the team for the work done in the last year and thanked them all.

M. Cappi asked how much the 5-8 keV telescope effective area calibration was relying on 3C 273 because there is currently a controversy on a possible iron line in this object. M. Kirsch replied that the new calibration has been tested on the whole calibration database consisting on about 90 objects. R. Mushotzky asked what is the reason for the uncertainties of the ground calibration of

the EPIC effective area. M. Turner explained that the uncertainties might be due to the way the quantum efficiency was measured on ground: on small energy scales, the calibration is reliable, but there might be relative shifts among different energy ranges.

M. Arnaud asked as well when the new MOS calibration will be made available. M. Kirsch replied that the CCF is ready although a few more checks need to be done. The plan is to release it in July with the hope that the EPIC-pn new calibration can go at the same time.

M. Watson asked about the new determination of the off-axis 2-D PSFs and when they will be incorporated in SAS. The current off-axis PSFs are based on simulator (SciSim) calculations, while there is quite some work being done by A. Read to measure them with observations. S. Sembay said that the new PSFs for point sources can be ready in weeks to months time. G. Rauw asked whether there is an azimuthal dependence of the off-axis PSFs and the answer was that indeed there is such dependence for MOS2, whose triangular PSF makes it more complicated. There was some more discussion on how the PSFs are incorporated into SAS: for the time being the plan is to provide images, a model parametrization is more complicated and may come later. Last, there were also questions on whether there are plans to update the ray-trace model in SciSim. There are no such plans, but to base the calibration on observations rather than on simulations as up to now.

M. Cappi asked how much feedback is the EPIC team getting from the community about the calibration priorities. The input is through the helpdesk, scientists that are in close contact with the EPIC-team members and the Users Group. M. Arnaud expressed that this is why the UG meetings and minutes are advertised on the web and that the UG members try to get input from the community. There was some discussion on whether a survey among XMM-Newton users would be useful, but it was thought that currently the main calibration issues are identified.

10. A. Pollock presented the calibration status of the RGS instruments. He explicitly mentioned that this work would have not been possible without the extremely efficient work of the RGS instrument team, many of them at SRON (Utrecht).

After the presentation, the work done was acknowledged.

M. Cappi asked why there is contamination built on the RGS but not in EPIC. A. Pollock replied that the reason might be that the EPIC detectors are protected by the filters and less exposed to the carbon that is in the environment.

11. After M. Stuhlinger's presentation about cross-calibration, M. Arnaud conveyed to the SOC the UG recognition of the excellent initiative of establishing the International Astronomical Consortium for High Energy Calibration, IACHEC, and the UG strong support for further activities aimed at improving the cross-calibration among several X-ray instruments.

M. Kirsch explained that the IACHEC plan is to publish a paper with their first results in mid 2008

M. Cappi asked whether there are plans for simultaneous calibration observations. M. Stuhlinger explained that this is indeed being done routinely for a few years: the cross-calibration plans are agreed with the calibration teams from other observatories, mainly Chandra and also RXTE, Suzaku, INTEGRAL and Swift. Once the list of observations to be done is settled, the mission planning teams agree on the simultaneous observing date.

There were some questions about the disagreement of some galaxy-cluster temperatures as derived from the analysis with XMM-Newton (EPIC-pn, MOS) and Chandra (ACIS-S) observations. M. Stuhlinger explained that following this comparison, Chandra has found some indications that the thickness of the contamination layer on the mirrors (HRMA) might have been underestimated. However, it is not the intention to force the calibration without a proper understanding of all the related issues. The work is currently underway with promising expectations.

12. After the OM presentation by A. Talavera R. Griffiths asked about the justification of the statement that the count-to-flux conversion does not depend on spectral type and hence the white dwarf conversion is good enough. A. Talavera explained that this is based on both computations and observations.

R. Mushotzky asked how SAS is dealing with extended OM sources. A. Talavera explained that the whole flux is given after an ellipse fitting.

R. Mushotzky expressed the fear that under the “revised operations concept” (see A. Parmar presentation) planned to be implemented by the end of 2007, operations like the comet Tempel 1 - “Deep Impact” campaign in July 2005, would not be possible anymore. This campaign, was shown by A. Talavera to be extremely successful and providing the first images of the probe impact onto the Comet (with the only exception of the images provided by the Deep Impact mission itself). However, as he explained, this was only possible because of the careful planning and the presence on site of the instrument controllers and the engineers, taking care of the observations and instruments in almost real time. L. Metcalfe explained that it is planned to keep the possibility of having real time telemetry at the SOC for, at least, special instrument operations.

To conclude the calibration session, M. Arnaud reminded that in the UG extraordinary meeting, held in January 2007, a strong requirement from the UG was issued to “maintain adequate XMM-Newton user support, that includes”, among other things, “calibration and instrument health monitoring”. Already at that meeting it was considered essential to keep the existing expertise in each instrument, in cross-calibration and the capacity to react to changes in instrument performances. This is still considered to be valid and the UG supports the calibration efforts by the SOC and instrument teams. The UG continues to endorse calibration plans (see Endorsement 2006-05-19/19 and the first part of Recommendation 2007-06-08/39 below)

Action items from last meetings:

Seven recommendations and six endorsements were pending since last meeting. Their disposition was as follows:

Recommendation 2006-05-19/32 : The UG recommends the reprocessing of the archive data to be performed with SAS version 7.0: **Closed**

Recommendation 2006-05-19/33 : As far as possible, the UG recommends regular updates of 2XMM catalogue in an incremental fashion plus periodic reprocessing of the archive: **on going**

Recommendation 2006-05-19/34 : The UG recommends to reassess the EPIC background loading for a 1 year sample in order to investigate a seasonal dependence: **Closed. Ref. P. Rodríguez presentation.**

Recommendation 2006-05-19/35 : The UG recommends to study the possibility to define a new type of proposal whose scientific objectives can be achieved with short observations performed in high background conditions in the last science time of the revolution: **Closed; see discussion below**

Recommendation 2006-05-19/36 : The UG recommends to have a science workshop to identify open questions that require legacy-type projects in the X-ray regime with XMM-Newton: **Closed**

Recommendation 2006-05-19/37 : The UG recommends that the XMM-Newton project and the instrument teams study slow-slew observing and modified mosaicing modes: **Underway; see discussion below**

Recommendation 2006-05-19/38 : About one month before the next UG meeting, an XMM-Newton news should announce the date of the meeting, agenda and contact points, to allow all the interested astronomers to send their comments and suggestions to the UG members. XMM-Newton news should also announce the publication of the minutes on the Web: **Closed**

Endorsement 2005-05-20/08 The UG endorses the XMM-Newton Large Program, LP, handling; the OTAC panel chairs should continue to be consulted for their views of the quality of the submitted LP programs to obtain a clear view on whether the LP time share in the overall program should be changed: **Closed**

Endorsement 2005-05-20/10 The UG endorses the activities currently being performed at SOC to develop SAS tools to deal with slew exposures and that these tools, together with the slew data, and a catalogue are made available to the general public: **Closed**

Endorsement 2006-05-19/11 : The UG endorses the future plans for calibration improvements, with particular emphasis on the following areas:

Solve the high energy discrepancies between EPIC-pn and MOS: **Underway**

Pursue the development of background estimation tools: **Underway**

Refine the EPIC redistribution for line rich sources: **Closed**

Develop the off-axis PSF: **Underway**

Further improve the RGS calibration: **Underway**

Endorsement 2006-05-19/12 : The UG endorses the plan of the SAS development team to release new versions of the SAS with nearly one-year intervals: **Closed, implemented in SOC plans**

Endorsement 2006-05-19/13 : The UG endorses SOC plans to regularly update the slew catalogue with the new data: **Closed, implemented in SOC plans**

Endorsement 2006-05-19/14 : The UG supports a pre-release of the 2XMM catalogue in July 2006
Closed

No actions or recommendations were issued during the presentations, rather it was decided to postpone them to the general discussion session.

The presentations ended at 14:30 on June 7 and at 10:45 on June 8.

Input from the community and general discussion:

The general discussion was based on the inputs from the Mission Scientists, UG external members and points collected through the previous discussions. The issues addressed and the recommendations are detailed below.

- New operating modes

The UG discussed possible new operating modes, in view of the scientific cases presented at the workshop “XMM-Newton: the Next Decade”. This includes large galactic or extragalactic surveys, which might be performed better with slow slew or modified mosaicing modes, detailed high resolution spectroscopy with RGS and the capability to study the hard X-ray emission of sources of a specific flux range and spectral shape with a modified timing mode for EPIC-pn instead of the burst mode.

- Slow slew

P. Rodriguez summarized how the XMM-Newton spacecraft performs the slews. He also explained what was the strategy for slews considered best when the test was performed. In summary: pure sun-line paths are strongly preferred to minimize the slew errors and hence ensure that the desired area of the sky is fully covered, without deviations from the planned paths and hence avoiding gaps to be left.

This mode would allow coverage of large sky region with uniform exposure. However, M. Arnaud mentioned that one issue is to know how slow the slews can go. R. Mushotzky agreed, but pointed that the main issue is to know the scientific requirements on the slew speed. The scientific cases presented in the workshop “XMM-Newton the Next Decade”, held just before the UG meeting, were reviewed. As a result, the UG decided to put an action on its members:

Action 2007-06-07/13, on the Users Group, the UG should provide the XMM-Newton SOC with two or three typical examples of slew surveys, with details about the needs on exposure time, sensitivity to be achieved, sky area to be covered and typical sky position. Deadline: end of June, 2007

Based on this input the UG recommends the XMM-Newton SOC to have an assessment on the feasibility by the end of September 2007.

M. Watson offered to draft a first report, distribute it and collect inputs. M. Arnaud clarified that it is not the intention to recommend offering this mode for the next call for proposals.

- Modified mosaicing

The scientific projects that aim at observing medium-to-large areas of the sky with moderate exposure times (typically of a few ks duration) are penalized by the overheads needed for the set up of the instruments and the slews. In particular EPIC-pn exposures carry 3000 s of overhead in full frame mode, mostly to measure and download the offset map. This renders short exposures of contiguous fields in the sky very inefficient in terms of science time versus elapsed time, even if they are scheduled one after the other in the same revolution. After some discussion there was common agreement among the UG members that a study of possible ways of reducing the overhead in this case is needed. In particular, the impact should be investigated, as function of the filter, of using a fixed offset table for all the consecutive EPIC-pn exposures of a given field.

Action 2007-06-07/14: On the EPIC team to report on the impact of reducing the overhead for EPIC-pn thin, medium and thick filter exposures in modified mosaicing mode, by using a fixed offset table.

- RGS multi-pointing

As mentioned at the XMM-Newton Workshop, J. Kaastra explained how essential for some detailed RGS studies this would be to wash out the bad pixels and bad columns by making use of the multi-pointing mode, with five different pointings per observation with up to 30 arcsec offset along the dispersion direction. L. Metcalfe informed that, following the study of the XMM-Newton SOC, the changes required to introduce this mode and offer it to XMM-Newton users are moderate and doable. However, N. Schartel stated that the scientific impact, its pros and cons need still to be fully clarified. He explained that care should be taken on the impact on the usefulness of the parallel data from other instruments. The mode should be used for RGS-prime observations only. According to N. Schartel, an EPIC-pn offset map is required for each pointing of the multi-pointing observations, to ensure that EPIC-pn data can be properly interpreted. This implicitly adds extra overhead to the EPIC-pn exposures in multi-pointing and means, in addition, that the EPIC-pn data taken during the “micro-slews” would be considered essentially useless, since proper offset maps will not be available. Hence, the effective EPIC-pn exposure time would be significantly decreased with the corresponding loss in signal-to-noise and with high impact on studies aiming at timing analysis as added value, because of the gaps added in the light-curves due to absence of data acquisition during slews and offset map calculation.

There was a suggestion that for very long exposure times which need observations split across different XMM-Newton revolutions, the strategy could be to plan on the basis of one-revolution long observations with different pointings. The longest observation that fits in one revolution is of about 130 ks. Pending on the sky position, this time could be shorter. Therefore, for observations longer than 400-500 ks, the washing out of RGS bad columns could be simply done by scheduling on different revolutions five or more long (80-130 ks) observations with five different pointing coordinates.

Another suggestion was to investigate the impact of using the same offset table for all EPIC-pn exposures in one multi-pointing observation. The impact in this case will probably be much higher than in the modified mosaicing mode (see previous point), because here we are dealing with very long exposures of a single and bright target. A wrong offset may render the whole EPIC-pn data unusable, while in the modified mosaicing the expectation is that this may happen for only a small part of the area covered. An additional problem to evaluate the feasibility of using a fixed offset table is that very often the UV flux (and hence the actual EPIC-pn offset) of the target or other sources in the field of view is either un-known or un-predictable due to variability.

The following action was raised:

Action 2007-06-07/15, on the Users Group, the UG should write the scientific requirements of the RGS multi-pointing mode, when it is recommended to be used and how many observations are expected to benefit from it

The final decision on whether to make the necessary changes and exactly which are these changes will be taken in view of the above report.

– EPIC-pn modified timing

There was some discussion on whether it is desirable to publicly offer a mode whose complete calibration would still require quite some efforts from the EPIC instrument teams. It is not clear either for how many sources this mode would be useful. Moreover, the calibration of the standard timing and burst modes of EPIC-pn still has some pending issues. A count-rate dependent calibration of the CTI is required to reduce the features that currently appear around line edges.

The UG decided on the following

Recommendation 2007-06-08/39 The priority for timing modes of EPIC-pn needs to be focused on solving the current problems of the timing and burst calibration.

Only after they are fixed, the UG would be glad to revise its recommendation about the modified timing. For the time being, the modified timing mode should only be made available on a case by case basis.

- Time allocation process and Large Programs

The following issues were discussed in this context

- Large Program selection process

B. McBreen explained that the chairs of the previous Observing Time Allocation Committee (OTAC) suggested that Large Programs would be better dealt with by at least two panels rather than with only one. There was a general feeling among the UG members that this was a good idea. The UG decided to issue the following:

Recommendation 2007-06-07/40: All Large Programs should be discussed in two OTAC panels

In addition, R. Mushotzky suggested that it would be desirable that panel chairs of the same scientific category meet sometime before the chairpersons meeting to discuss the Large Programs in their category and homogenize their view. N. ScharTEL explained that this usually happens informally, but that it should also be considered that in some cases it might not be possible due to conflicts of interest. The following recommendation was agreed among the UG members:

Recommendation 2007-06-07/41: The agenda and timing of the OTAC chairpersons meeting should be defined in such a way that some time before the meeting is allowed for chairs of the same category to meet.

The UG discussed how to deal with conflict of interests. This is an issue for Large Programs, since panel chairs may be PI of such programs. It was suggested to prohibit panel chairs to propose such programs. However, the panel chairs are nominated well before the AO deadline and N. ScharTEL explained that in practice, with such a rule, it would be difficult to obtain the most competent review panels. The UG recognizes this and made the following recommendation:

Endorsement 2007-06-07/15: The UG group endorses current OTAC policy that allows OTAC chairpersons to be principal investigators of Large Programs but in this case they can only take part of the discussion in the OTAC chairperson meeting, without rating the Large Program proposals.

- Time dedicated to Large Programs and possible setting of a Very Large Program

B. McBreen explained that the pressure on Large Programs has been very high in the last call (AO6). The over-subscription of the Large Programs being higher than that of normal programs motivated the decision to slightly increase the LP time to 20% of the total available time. Still the pressure continues to be high. In the 'XMM-Newton: the Next Decade' workshop, several high level science projects were recommended which would need of-the-order-of at least 1 Ms. In this context, the UG discussed the need to increase the time dedicated to Large and Very Large Programs, and whether such a new proposal type be introduced.

The discussion showed that there is probably a psychological effect that biases scientists against submitting proposals asking for 1 Ms or more. This is because the probability for a proposal that is asking an amount of time close to the limit of its type to be selected is considered very low.

The possibility of allocating a single very large program over several years was discussed. In general, the UG considered that this is not a scientifically-justified option. It is not

acceptable that the science XMM-Newton can do is frozen for several years. It is considered much better to submit long-term projects every year until their completion.

N. Schartel stressed the request that OTAC should always focus its recommendation on the expected science, in contrast, for instance, to archive completeness.

Despite recognizing the potential value of Large Programs, Guest Observer proposals asking for moderate amounts of time should not be considered as low-level science proposals. It is not at all the UG intention to discourage astronomers from writing this type of proposals!. There is a big community of X-ray astronomers behind XMM-Newton with a great scientific potential and this potential needs to be handled with care. Both high level science and great new ideas usually come from it.

The relationship between number of publications and exposure time is another concern because it may decrease for very large programs. If the number of papers published in refereed journals decreases significantly it may risk future XMM-Newton extensions. It was considered that the current XMM-Newton publication rate is not a concern and it is expected to continue at the same level in the near future.

As a result of the discussion, the UG decided to issue the following

Recommendation 2007-06-07/42: To introduce a new proposal type for very large programs, asking for 1-3 Ms of time and to increase the time dedicated to large and very large programs to about 30% of the total available time for priority A and B observations. The distribution of time between Large and Very Large Programs shall be left flexible to allow OTAC decisions be based on the expected scientific outcome.

The length of the scientific justification, i.e. maximum number of allowed pages, will be the same for VLP as for LP.

- Data rights for Very Large Programs

There was some discussion on whether the data from the recommended VLP should be public right-away after the observations are performed. N. Schartel expressed the need that, in spite of data rights requests, OTAC must always consider only scientific arguments in their evaluation and never be biased against or in favour astronomers giving up their data rights.

Three options were considered: 1) the proprietary period should be as for any other observation, 2) the data is made immediately public and 3) the data is public but principal investigators can request and justify a period of proprietary rights on the data. After voting, the third option was selected by the majority of the voting members involved in the discussion. Consequently, the following recommendation was issued:

Recommendation 2007-06-07/43: Data resulting from observations of Very Large Programs will be immediately public, but principal investigators can request a period of proprietary rights on the data. This request shall be explicitly mentioned in the scientific justification submitted for OTAC review and within the same page limits that are applied to Large Programs

- Input from community

- M. Mas-Hesse presented an issue related to the recently defined INTEGRAL key program. The issue was forwarded to him by astronomers interested in both XMM-Newton and INTEGRAL science. The point was to find ways to improve coordination of INTEGRAL key program observations with XMM-Newton. The time schedule of the INTEGRAL key project makes it very difficult. Both missions are based on yearly calls for proposals. Their normal calls were adjusted in the past to make it feasible to request simultaneous observations.

INTEGRAL key program proposals are currently due in September-October and approved in early December to start observing in August the following year. XMM-Newton calls end in October, i.e. before the INTEGRAL key program is defined, to start observing in May the following year.

A possible solution was identified, provided that INTEGRAL can shift the key program timeline by two to three months, i.e. make the call around June and have the decisions in early September. This would allow scientists to submit XMM-Newton observing proposals right away in September-October, before the October deadline. At this point the INTEGRAL deputy project scientist was invited to join the UG for this specific point and he promised to study the feasibility of this suggestion. Then he left the meeting.

A related point was discussed as to whether the UG felt the need to establish a coordinated XMM-Newton and INTEGRAL program, similar to the Chandra and VLT proposal types by which time is granted on one observatory by the OTAC of the other. The issue has been discussed in the past and the main difficulty found was the huge difference between typical exposure times for observations with each mission. This led to difficult-to-define reciprocity rules: how much time each OTAC should allocate on the other observatory?. It was finally considered best that scientists interested in time with both XMM-Newton and INTEGRAL respond to both calls for proposals through the normal channels. The UG considered that this is working fine for the moment and did not suggest any change in the current policy.

The above discussion triggered a comment from M. Cappi about similar issues collected from the scientific community: Some astronomers would consider it important to ensure a better phasing with Suzaku announcements of opportunity. Currently, the Suzaku deadline is a few days to weeks before the publication of the results of the XMM-Newton OTAC review process. Although the UG understood this point and feel sympathetic with scientists that want to get a target observed, there is no margin in the XMM-Newton calendar to shift its annual call. The fact that when the Suzaku allocation committees met, the XMM-Newton results are known is, in any case, considered as a good point for the best use of both missions, although it is agreed that it does not solve the problem of astronomers having to submit two proposals. No specific recommendation was issued because no alternative was found.

- J. Bergeron said that almost all the inputs she got, mainly from the French community, had been covered in the discussion about the time allocation process. The rest were people feeling happy about the XMM-Newton project in general.
- R.Griffiths reported on the U.S. Users Group meeting, held in April. The main point in this meeting was that XMM-Newton will go to the NASA senior review next April, in 2008, some material will need to be prepared in advance, as in previous reviews.

- XMM-Newton mission extension

As explained in A. Parmar's presentation, submission for the 2010–2012 XMM-Newton ESA funding extension is planned for the 2007 November SPC and prior Advisory Structure meetings, as originally foreseen. To this end the XMM-Newton Project Scientist has to write the science case. The aim is to focus both on scientific achievements and on future prospects, with more emphasis in the later, and taking into account the scientific output of the Science Workshop, 'XMM-Newton the Next Decade'. The UG group offered help. N. Schartel will establish a first draft with a collection of most promising topics and distribute it among the UG members asking for details on specific topics.

- ODF and PPS delays

N. Schartel recognised concerns about several ODF and PPS files that have not been produced, in spite of observations being performed. Currently, about a hundred observations, most of them

of guest observers, suffer from this problem. M. Arnaud recognized the problem and the UG agreed that recommendations are needed to avoid similar problems in the future and to ensure the backlog in data delivery is cleaned.

The following recommendation was issued:

Recommendation 2007-06-08/44: The UG recommends that SOC and SSC come with a clear plan for handling failed processing issues. The plan should detail a procedure that allows a report to be issued when six months after an observation is performed, the corresponding data-set has not been processed and ODF and PPS products have not been made available to the principal investigator. This report has to include a complete analysis of the problem and an assessment on whether the data is processable or not. It will be reference for the Project Scientist to decide whether there is a need for the field to be re-observed. The decision will be taken shortly after.

Regarding the backlog of observation data products, G. Rauw asked if neither ODF nor the PPS are delivered and N. Schartel replied that principal investigators can access the ODF in the Science Archive, XSA, if available. D. Barret asked whether there are any complaints from users. N. Schartel explained that he gets regularly, usually via the helpdesk, complaints from principal investigators and also from other astronomers that see data not public, but with papers based on it published even a few years ago. When the problem is related to ODF generation, or the data cannot be processed at all, a decision is needed on whether the observation needs to be done again. However, it is a decision that probably needs to be done on a case by case basis, given that some of the observations were requested and approved a few years ago.

The UG needs a more complete view of the remaining problems after the re-processing of the whole XSA is finished. Therefore the UG wishes to re-analyse the problem at its next meeting for the still pending issues.

- Background issues

The UG recognized and was impressed by the tremendous amount of work that has been done by the Background Working Group as well as by the excellent analysis of the long-term evolution of the EPIC and RGS background presented to the UG the day before. A report like this was requested in the previous UG meeting and the UG appreciates the response that has gone beyond the request.

The following points were addressed during the discussion.

- Calibration of internal background and calibration plan

M. Arnaud mentioned that there is a need for more EPIC data taken with closed filter. N. Schartel suggested that this might be collected during slews, even at the expense of the serendipitous science provided by the slew exposures. M. Turner answer that indeed the slews have the potential to be useful for this purpose. There is a need to study how much time of closed-filter exposures is necessary to better understand the background induced by cosmic rays penetrating the CCDs and the electronic noise together with the spatial distribution of these background components.

The UG decided to make the following recommendation:

Recommendation 2007-06-08/45: The UG recommends that the Background Working Group makes a study of the needs for closed filter data

- The long-term evolution of the background

The UG found the report on the background evolution with time to be of great interest for XMM-Newton users and encouraged the SOC to make it public.

There was some discussion on whether the results of above analysis could be used in the scheduling to reduce the background of the observations. A first suggestion was to reduce the science window. However, although it seems that the average background level for an epoch of the year could be modeled as a function of the orbit, the exact level for a given date and time is unpredictable. Reducing the science window would certainly reduce not only high background intervals, but also low background ones. This would mean, in the end, an unacceptable loss of efficiency. In addition, N. ScharTEL pointed out that not all astronomers that get their observations performed under high background conditions come back with requests of additional, compensation time to the OTAC. This is interpreted as indicating that they were able to achieve at least part of the scientific objectives. This time is indeed of scientific use.

It is clearly understood, however, that some scientific objectives do need the lowest possible background. The UG understands that this needs to be demonstrated in the scientific justification submitted for OTAC review. The UG group made the following endorsement and recommendations:

Endorsement 2007-06-08/16: The UG endorses the currently applied SOC policy: Observations that were given highest priority by OTAC, i.e. priority A, are scheduled, when all observing constraints allow it, away from the ends of the science window. This is because, at both ends, the probability for the radiation background to be high is significantly greater than anywhere else in the orbit

Recommendation 2007-06-08/46: The UG strongly recommends that the above policy (e.g. endorsement 2007-06-08/16) is highlighted in the OTAC instructions and guidelines, to ensure that it is considered by the panels when prioritizing the observations

Recommendation 2007-06-08/47: The UG recommends that the target visibility tool on the XMM-Newton web site provides ways to provide the astronomers with an assessment on whether a given target can only be scheduled at the revolution ends. To this end, a link should be provided to the report on the background behaviour with time.

The later recommendation would allow astronomers willing to observe a target which has bad visibility to decide on choosing other targets with better visibility, provided that similar targets exist in different sky areas.

– Observations under high background

M. Arnaud asked the opinion about last year's recommendation: The possibility to define a new type of proposals whose scientific objectives can be achieved with short observations performed in the high background conditions at the last science time of the revolution. Following a question in this sense, M. Santos-Lleo explained that, from the point of view of scheduling, this is feasible provided that no compensation time is automatically granted for failing observations, like the case of scheduled C-priority observations.

N. ScharTEL explained that he is not in favour, since before the observation a slew and the instrument overhead are required, and hence both make use of better time (in terms of probability for low background conditions).

In general, the UG understood the point stated by N. ScharTEL. R. Mushotzky pointed out that in this respect it might be useful to analyse the results of the requested study about the possibility to define a new mode that does not take offset maps for EPIC-pn (action 2007-06-07/14). In particular, it is expected that the use of the thick filter is quite robust against fixed offset map tables.

The UG agreed that it is not necessary to recommend the definition of a proposal type with

observations to be performed at the end of the science window.

- Miscellanea

M. Cappi came back to the point on whether it would be worth making a survey among XMM-Newton users, but after some discussion the general feeling was that it is currently not needed.

N. Schartel expressed his intention to allow observers to propose in the AO for Target of Opportunity observations (ToO), starting with the next call for proposals (AO7) due in October 2007. This means that it will be allowed for the first time to ask for observations of targets whose coordinates are not known at the time of writing. The UG expressed its support to this new policy.

Endorsement 2007-06-08/17: The UG endorses the new AO policy which allows to propose ToO observations of targets whose coordinates are not known at the time of writing.

N. Schartel also mentioned that it is the intention of the SOC to make slew data public right after the slew data files are generated. The slew survey is nicely progressing and it is important to allow people to process it quickly to request, if needed, pointing observations of interesting sources.

M. Arnaud expressed again her concern should the Web SAS service not accept submission of user's scripts.

The discussion ended at 13h. M. Arnaud thanked everybody for their contributions to the meeting.

Date of next meeting May 6 and 7, 2008, starting at 10 a.m. in Villafranca