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MEETING

Meeting Date 21-22 May 2015

Ref MoMUG#16

Meeting Place ESAC/XMM-Newton SOC B5/B65

Chairperson Martin J. Ward

Minute's Date 26 May 2015

Participants
Members: Martin J. Ward (UG Chair), Hans Böhringer, Chris Done, Ioannis Georgantopoulos, Nanda Rea, Craig Sarazin;
Norbert Schartel (Project Scientist), Maria Santos-Lleó (Science Support Manager), Matthias Ehle (UG Secretary);
Invitees: Frank Haberl (EPIC-pn acting PI), Jelle Kaastra (RGS PI), Natalie Webb (SSC Project Director), Mike Watson (Survey Scientist);
Presenters and interested staff from the XMM-Newton Science Operations Centre.
Absent: Fred Jansen (Mission Manager), Mat Page (OM acting PI), Steve Sembay (EPIC-MOS acting PI), Marco Salvati (OTAC Chair), Anne Decourchelle, Richard Mushotzky, and Beate Stelzer (UG Members) had excused themselves.

Subject
Minutes of XMM-Newton Users Group Meeting 16

Copy

Description	Action	Due Date
Edited by Matthias Ehle. Approved by UG members on 31 July 2015		

WELCOME:

M. J. Ward (Chair) and N. Schartel (Project Scientist) opened the meeting on May 21st at 10:10. New Users Group (UG) members were welcomed and participants introduced themselves. M. J. Ward described the format of the meeting, beginning with an open meeting on the 1st day, and an open discussion session in the morning of the 2nd day followed by a UG member-only executive session in the afternoon.

ADOPTION OF THE AGENDA:

The agenda of the meeting was presented and then adopted by the participants.

PRESENTATIONS:

The following presentations were given on May 21st:

Overall Mission Status	(F. Jansen, presented by M. Santos; 10:15-10:40)
Instrument Operations	(R. Muñoz; 10:50-11:10)
Report of the Project Scientist	(N. Schartel; 11:15-11:30)
User Support and Mission Planning	(M. Ehle; 12:00-12:15)
Pipeline Future Plans	(P. Rodriguez; 13:45-14:00)
Status of the Scientific Archive	(N. Loiseau; 14:15-14:30)
Calibration	(M. Smith; 14:40-15:20)
Requirements for Calibration	(N. Schartel; 15:30-15:35)
Analysis Software Future Plans	(C. Gabriel; 16:00-16:25)
SSC Status	(N. Webb; 16:35-16:55)

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

DISCUSSIONS:

During the presentations, several questions were raised and discussions took place:

After the presentation on the Overall Mission Status, UG members asked about further details on the risk of failure of the optocouplers. The study of this matter is on-going and the report provided by industry needs further investigation. On the Assessment of Potential Reaction Wheels Failure, the UG decided to formulate **Recommendation 2015-05-22/01**. Discussion of other points introduced in the presentation was postponed until after further details are to be provided in following talks.

After the presentation on Instrument Operations, and also related to the information about ground station (un-)availability received during the previous talk, UG members understood that the impact would not only be loss of science time, but also increased risks to instrument health e.g. thermal control of the MOS would not be possible). The UG considers the maintenance of continuous ground station coverage to be of the highest priority and issued **Resolution 2015-05-22/01.**

The Report of the Project Scientist led the UG to discuss the science still possible in case of failure of two reaction wheels. A situation studied by industry and based on requirements proposed by the Project Scientist: N. Schartel explained that pointed observations with 2-wheels-only will be using significant amounts of fuel, limiting operations to at best another two years (if such a failure should occur in ~2019). If scanning mode observations are to be performed instead, some overlap with e-ROSITA science is foreseen and should be considered at an appropriate time. After ~2020 the 2-wheel-drive options will become obsolete as the

remaining fuel levels will by then become too low. The UG's opinion on the continuation of XMM-Newton operations after a wheel failure and on further studies on the 2-wheel-drive are expressed in **Recommendation 2015-05-22/01.**

Related to information presented regarding joint programmes, the UG expressed their strong support to further strengthening the links between XMM-Newton and other missions, and issued **Recommendation 2015-05-22/03**, including a proposal to formalize a Joint Programme with NuSTAR.

N. Schartel invited UG members to provide him with suggestions for a new OTAC chairperson, see **Action-Item 2015-05-22/01**. The chairperson should be a leading senior astronomer with outstanding leading skills and with no (or only minimal) involvement in XMM-Newton observing time proposals.

UG members are also invited to provide the Project Scientist with suggestions for a venue for the conference "The X-ray Universe 2017", see **Action-Item 2015-05-22/02**. This Symposium should preferably take place in a European city that can easily be reached by direct flights; Provision of local support by colleagues involved in XMM-Newton or (X-ray) astronomy would be necessary; Selecting a university as the conference location is an option as this usually results in lower conference fees than holding it in a commercial conference centre. The venue needs to provide space for up to 400 participants with 4 splinter rooms (100 seats each) for the afternoon splinter sessions.
The proposed theme for the next annual XMM-Newton workshop to be organized at ESAC in 2016 is "XMM-Newton: The Next Decade", following the idea of the previous legacy workshop which took place in 2007.

The presentation on User Support and Mission Planning was followed by a question by M. J. Ward asking about whether movies existed in the XMM-Newton image gallery; A few animations are available for download; automatic submissions by users are not possible but entries can be added 'by hand'. Some movies are available from the '1o years in orbit' web page, http://xmm.esac.esa.int/external/xmm_news/items/10th_Anniversary, from http://sci.esa.int/xmm-newton/31090-images-and-videos/?farchive_objecttypeid=19&farchive_objectid=30912&fareaid_2=23 and http://www.esa.int/spaceinvideos/content/search?SearchText=XMM-Newton.

After the presentation on Pipeline Future Plans, UG members asked for further clarifications on some of the pipeline products: Reprocessing of mosaic observations had been performed as previously with only the 3 arcmin around the median pointing processed; Source detection in individual slew observations (SDFs) is currently not done but is planned for the future; Source detection on 1x1 arcsec binned images might improve the detection wrt the currently used 4x4 arcsec binning; Time resolved source detection is difficult for pipeline processing and is therefore considered a long term project. The SOC is aware that external teams are working on it and would welcome input from them if they are willing to do so; With regard to the selection of background regions for spectra and lightcurves, M. Watson referred to the recently expressed opinion of his Leicester colleagues that the original background determination was probably better, with the exception of MOS small-window data; Spectral analysis of data observed in timing mode may require blank sky data, something that is under study for long: Publication of such blank sky data is not possible because a scientific validation was not done (yet), see http://xmm2.esac.esa.int/external/xmm_sw_cal/calib/documentation/epic_cal_meetings/ -> Garching 2014 -> B. Mueck. If such files are provided by the EPIC team, they can be used in the pipeline. N. Rea commented that blank sky data cannot be used for Galactic sources due to their complex background; An Upper Limit Server implemented such that limits for all observed positions can be provided, is considered a very useful tool.

After the presentation on the Status of the Scientific Archive, the UG noted progress made and formulated **Recommendation 2015-05-22/04** especially on open issues that were in place in the 'old' archive.
Following the presentation on Calibration, the UG acknowledged the work done by the full team and decided to formulate their views on calibration priorities, see **Recommendation 2015-05-22/02**. C. Done asked about the impact of the new SAS/calibration on the power-law index derived from burst mode data on the Crab pulsar: new observations, coordinated with Chandra, are available but still need to be analysed. As

inputs for the discussion, C. Done presented plots of bright sources observed simultaneously with XMM-Newton EPIC-pn in timing mode and NuSTAR, exhibiting differences in the derived power-law indices of 0.1-0.2 in the 3-10 keV overlapping energy band. N. Rea, however, does not see a similar effect in their bright-source XMM-Newton-NuSTAR simultaneous observations. N. Schartel also finds discrepancies, but these appear to be in the opposite sense to those seen in the Crab observations (reported by C. Done). A recommendation to collect all such cases and to evaluate them consistently using the latest available calibration, is seen as an important multi-mission task that should be addressed by the IACHEC, the International Astronomical Consortium for High Energy Calibration (see item 3 of the related UG Recommendation).

N. Schartel presented the Requirements for Calibration, summarized in XMM-PS-RQ-002, a document edited by the Project Scientist and a dedicated working group, based on the results of a survey performed amongst most impacted users. Asked about why the document does not include statements about cross-calibration with other missions, N. Schartel explained that the document defines requirements for the relative and absolute effective areas which implies that cross-calibration issues are resolved (although this may not be the case). H. Böhringer commented that the current version of the document still refers to differences between EPIC-pn single and double event calibrations, an issue that has been improved in SAS 14. N. Schartel agreed that there are some discrepancies since the calibration as well as the document were progressing continuously in parallel over some time. However, these discrepancies have no impact on the actual requirements themselves or on the scientific justification of the requirements. H. Böhringer and C. Sarazin sent minor comments which will be ingested into the final version of the document. The UG already endorsed the report, see **Resolution 2015-05-22/02.**

Following a presentation on the Analysis Software Future Plans, M. Watson asked for further details on the RISA, the Remote Interface for Science Analysis: UG panels in the past had expressed some concerns over the complexity of RISA; this complexity is determined by the complexity of the SAS. Indeed, it is remarkable that the RISA could be made to work again (under a new Grid environment, and with the new XSA and latest SAS) without major problems after 3 years, while it was put on hold due to higher priority tasks for the SAS team. The RISA is planned to be advertised to the community when it is incorporated into the XSA, at the latest. C. Done asked about differences between RISA and Hera, a data processing facility provided by the HEASARC at the NASA GSFC that includes the SAS software, too: some noted differences are that the RISA allows the use of workflows, i.e. easy guidance for its use. “Stop/Go” functionalities allowing the users to check intermediate processing steps are planned for the future. C. Done noted that expectations are that the pipeline will provide most of the community needs after post-operations. This was confirmed, and full data re-analysis is only foreseen to be necessary in special situations.
Addressing the presented planning for XMM-Newton Post-Mission Data Analysis, the UG formulated **Recommendation 2015-05-22/05** and took the related **Action-Item 2015-05-22/03**.

N. Webb presented the status of the Survey Science Centre (SSC), highlighting especially restructuring of the SSC, work on the XMM-Newton catalogues, catalogue related projects funded by the European Commission, and the new web link hosted at IRAP, Toulouse, see http://xmmssc.irap.omp.eu/.

INPUT FROM THE COMMUNITY

In addition to the inputs on the calibration of bright sources observed in timing and burst mode (as presented by C. Done, see above) N. Rea informed the UG about an issue related to the current policies & procedures for anticipated Targets of Opportunity (ToOs): The fact that XMM-Newton OTAC can approve ToO proposals with a duration extending over three Announcements of Opportunity (AOs), can result in cases in which a newly accepted ToO has overlap in their science goals and/or trigger criteria. N. Schartel pointed out that even within a single AO competing triggers can be accepted because - due to conflicts of interest - competing proposals often have to be sent to different panels. Unanticipated ToOs frequently compete in addition. The

UG had discussed this issue in the previous meeting and formulated **Recommendation 2014-04-11/03.** The matter is still open and will be addressed next year. The three years of ToO validity was originally introduced in order not to miss a scientifically interesting observation: sometimes (and for various reasons) a PI may not trigger an approved observation, but if there is a (partly) overlapping proposal, another PI might still do so. The large majority of conflicts occur in areas where the PIs do not have a specific search strategy, rather they depend on public circulars related to sources such as Magnetars, gamma-ray bursts or novae. It is an option to handle such events differently, as was done in the first year of the mission, where only unanticipated ToOs were allowed. The UG agreed that in future OTAC members shall be given access from the beginning of the review process - to those proposals that are still valid from earlier AOs, allowing them to check for possible duplications (up to now this was only done on request).
In order to gain additional advice on the pros and cons of the one or three year validity period, M. J. Ward plans to contact the OTAC chairperson.

The meeting finished, without any further AOB, on the 1st day at 17:15.

DEDICATED DISCUSSION:

Discussions continued on May 22nd starting at 10:05; UG discussed and finalized resolutions, recommendations and action items, based on a draft prepared by M. J. Ward, summarizing items that came up for discussion of presentations received on the 1st day of the meeting.

RECOMMENDATIONS FROM PREVIOUS MEETINGS

In the UG's executive session that started at 13:40, M. Ehle presented, and UG revised, the status of resolutions, recommendations and action items formulated in previous meetings. Their disposition grouped by topic is as follows:

On Project Aging and Replacement of Key Personnel:

Resolution 2014-04-11/01: After almost 15 years of very successful operations and delivering extraordinary science results, it is to be expected that project staff that have been working on XMM-Newton for a long time and treasure most of the essential expertise continues leaving the project. The UG strongly recommends ESA management to deal with such staff turnover in a very careful way, by making sure that the accumulated expertise is successfully transferred to people joining the project. This is crucial to keep the mission safe and scientifically productive. **Closed, normal work.**

On the Mission Extension:

Resolution 2014-04-11/06: In view of the upcoming decision on the possible extension of XMM-Newton to 2015-16 and preliminary decision to extend it to 2017-18, the UG expresses it strong support to these extensions based on the following facts:

- XMM-Newton is ESA's flagship observatory, producing over 300 scientific papers per year, with outstanding impact across all astronomical themes (Ness et al., AN 335, 210, 2014). There are no signs of aging in the scientific output of the mission, which is continuously opening new scientific avenues with the use of X-ray observations.
- There are new potential scientific opportunities driven by synergies with other missions and/or facilities in next years that XMM-Newton cannot miss. Examples include those triggered by NuSTAR, ALMA, LOFAR, GAIA (which will find many transient sources), Pan-STARRs and other panoramic

telescopes/experiments. In the future, when ASTRO-H comes on line, XMM-Newton will be critical in complementing Astro-H observations thanks to XMM-Newton's much better imaging capability.
- There are new physical phenomena being unveiled by XMM-Newton itself, thanks to highest Signal to Noise observations being conducted over long time baselines and improved calibration (e.g., the detection of an unidentified line in stacked cluster spectra).
- Now that ESA has decided that the Horizon 2015-2035 L2 mission will be a large X-ray observatory, due for launch in 2028, XMM-Newton has the responsibility of building a legacy and ensuring continuity for that future mission. The vibrant community of European astronomers requires continued use of XMM-Newton to prepare for a successful L2 mission exploitation.

The UG notes that severe budget reductions to the mission operation costs have been implemented in recent times, putting the scientific remit of the mission at risk. XMM-Newton is currently running with the absolute minimum - if not below - the level of resources needed to keep it as what it is: ESA's astronomical flagship observatory. Further reductions in the operations budget would certainly result in a very significant loss of science output of XMM-Newton. **Closed.**

On 4 Reaction Wheel Drive Implementation:

Resolution 2014-04-11/02: The UG commends the XMM-Newton project, and especially the MOC, for having successfully implemented the 4 Reaction Wheel Drive mode in a safe and smooth way. This will secure safer operations as well as a potentially longer mission lifetime. **Closed.**

On the 2 Reaction Wheel Drive Operations:

Resolution 2014-04-11/07: Noting that ESA is considering scenarios in which XMM-Newton might eventually have to be operated with less than 3 Reaction Wheel Drives due to aging of the S/C systems, the UG is willing to be involved in the definition of the science that could be done under such conditions, once such scenarios are better defined. **Closed, as reported by N. Schartel**

On Target-of-Opportunity (ToO) Policies:

Recommendation 2014-04-11/03: The UG recommends that a realistic and sufficient amount of observing time is allocated at every AO to anticipated ToO observations. This amount of observing time should be estimated using the real number of ToOs executed in previous AOs, among other factors. The OTAC should allocate up to that amount of observing time by carefully ranking the ToO proposals.
In that scenario the UG recommends that there are no changes in the rules for ToO triggers, and expects that this will decrease the amount of executed normal Priority C observations. The situation regarding the latter point will be reviewed in 2 years time. **Open & for next year's meeting**

On Gravitational Wave Events Follow-up:

The UG was enthusiastically supportive of the XMM-Newton involvement in any reliable Gravitational Wave (GW) potential trigger from the LIGO/VIRGO collaborations and formulated

Recommendation 2014-04-11/06: With regard to the proposed signature of a Memorandum of understanding (MoU) between the GW collaborations and XMM-Newton, the UG requested to have the draft MoU and to provide feedback to the Project Scientist before 30.04.2014.

An observational strategy had been suggested as input item from the community, proposing follow up of GW triggers slewing through large areas of the sky. The scientific requirements and detailed needs are not clear, however, but overall the strategy was deemed to have very serious feasibility issues by the SOC, rendering such option virtually impossible. **Closed, as reported by N. Schartel.**

On Community Support Activities:

Recommendation 2014-04-11/04: As in previous meetings, the UG considers that SAS workshops are important to get the community - especially young PhD students, postdocs and researchers with little previous expertise in dealing with X-ray observations - engaged with XMM-Newton. Such SAS workshops should be kept at a reasonable frequency. **SAS workshop cancelled for 2015, future TBC.**

The X-ray symposia that XMM-Newton organises every three years are extremely important to foster interactions among the research community around XMM-Newton data, and to showcase to all astronomers the importance of X-ray observations for astronomy at large. The UG strongly encourages that these symposia continue into the future with the support of the XMM-Newton SOC. The yearly thematic Workshops, which are hosted by ESAC in a very cost-effective fashion, are also vital to support the scientific health of the mission and they should also continue under a similar scheme. **Closed, standard tasks modulo available manpower.**

On the new Archive Interface:

Resolution 2014-04-11/03: In noting the new XMM-Newton archive interface, the UG wants to commend the SOC and the Science Archive Team for their efforts in providing such a user-friendly and easy to use access tool to the science archive. The UG looks forward to further progress and continuous improvements on this important tool. **Closed, transferred into Recommendation 2015-05-22/04.**

Action-Item 2014-04-11/01: While recognising that this might take significant effort, the UG suggests that a useful addition to the EPIC X-ray source archive would be that OM data products would be made easily accessible for every X-ray source. This would probably enhance the use of OM-related data products in the science derived from XMM-Newton data. Both the SOC and the SSC agreed to look into options. **On-going.**

On the OM Source Catalogue:

Resolution 2014-04-11/08: The UG noted with satisfaction the recent release of the OM source catalogue, and thanked MSSL **and all other contributors** to this resource for this very valuable addition to the XMM-Newton science archive. **Closed.**

On the Pipeline:

Recommendation 2014-04-11/05: With regard to the new pipeline products, the UG notes the addition of EPIC images binned to 1”x1”, but strongly suggests to keep the existing 4”x4” format as well. **On-going.**

On Calibration:

Resolution 2014-04-11/04: The UG noted with satisfaction the enormous progress in the calibration areas that were identified in 2013 as highest priorities, in particular

a. The on-going EPIC MOS-pn cross-calibration and multi-mission effective area calibration. **Transferred into Recommendation 2015-05-22/02, item 1.**
b. The Timing Mode energy scale calibration which is now accurate to ~20 eV. **Closed.**
c. The start of the Burst Mode calibration activities. **Closed, see Recommendation 2015-05-22/02, item 4.**
d. The updated PSF calibration based on EPIC-pn Timing Mode data. **Closed.**
e. The RGS absolute wavelength calibration scale, now accurate to 5-7 milli-Angstroms. **Closed.**

Recommendation 2014-04-11/01: The UG establishes the following priorities for the calibration activities:

1. Continue progress on non-finished issues should be the top priority:
    a. Finalise cross-calibration among EPIC cameras, with a proper scientific validation, within the next months and continue monitoring EPIC-RGS cross-calibration. **High-priority for SOC; transferred into Recommendation 2015-05-22/02, item 1.**
    b. EPIC-pn issues to be fixed within SAS 14: fix the different calibration between single and double events, re-engineering of the long-term CTI and correct for the time-evolution of energy resolution. **Closed.**
    c. Continue the Burst Mode calibration activity, leading to a new calibration in ~1 year timeframe. **Closed.**
2. Understanding the background for low-surface brightness observations
    a. Recognise Dr. David Lumb's contributions and encourage him to continue with the on-going progress on stray-light in-orbit calibration activities. **Closed/on-going.**
    b. Make progress on the characterisation of the particle-generated background (either through protons or reflected X-rays) in the EPIC cameras. **Closed; SAS task.**

On Future Calibration Goals:

Action Item 2013-05-17/01: In order to review calibration requirements formulated before the launch of XMM-Newton, a working group is to be appointed by the Project Scientist with the task of updating the original mission calibration requirements, taking into account the current science goals of the mission as well as a realistic estimate of the progress that can be achieved in meeting such calibration specifications in the future. The working group shall have members with a broad view and expertise in data reduction covering all XMM-Newton instruments, e.g. members from different OTAC panels and from the calibration team. UG members are asked to send their inputs and suggestions for memberships to the Project Scientist. Results from the working group shall be available and agreed upon well before the next UG meeting.
Closed, see Action-Item 2014-04-11/03.

Action-Item 2014-04-11/03: The UG received an early draft of the Calibration Requirements Document, from the Project Scientist, and asked him to distribute the table on which he based the presentation. The UG agreed to send any feedback to the PS, especially on the science drivers for the various parameters, before 15.05.2014. The PS will then circulate a further draft for discussion by 15.06.2014, with the goal of having converged on it by the end of 2014. **Closed. Draft distributed.**

On Interactions with Astro-H:

Recommendation 2014-04-11/02: The UG applauds discussions between the XMM-Newton and Astro-H operations teams to engage in coordinated calibration plans, and encourages the SOC to continue with such plans.
It also notes and supports the offer of the XMM-Newton Project Scientist to Astro-H to consider joint science observation programmes, and looks forward to a response in due course. **Closed; M. Guainazzi located at Astro-H/JAXA & preparing in-flight calibration plan; N. Schartel contacted Astro-H wrt. joint programmes.**

On the Science Analysis System (SAS):

Resolution 2014-04-11/05: In recognising that the SAS has evolved into a highly-performing and user-friendly tool to analyse XMM-Newton data, the UG commends the SAS team, both at the SOC and in the community (the SSC and the instrument teams) for that success. The UG is of the opinion that having this high-quality tool has been instrumental in the high productivity of XMM-Newton. **Closed.**

On the Post-operational Requirements Document:

Action-Item 2014-04-11/02: The UG was content with the draft version of the Post-Operational Requirements as prepared by the Project Scientist, with the following comments:

- The document should emphasize that data products should be VO-compliant and easy to use by non-X-ray astronomers. The format for such goal will have to be defined at the epoch when this final archive is constructed.
- At the time of production, archival data should have links to all scientific publications that used every data sample.
- An additional data product should be added to facilitate preliminary analysis of extended sources: A Hardness Ratio background-subtracted and exposure-corrected image.

The UG expects to receive a final version of this document for endorsement by 30.04.2014. **Endorsed & Closed.**

RESOLUTIONS, RECOMMENDATIONS AND ACTION ITEMS

The UG formulated the following new resolutions, recommendations and action items:

On Ground Station Availability:

Resolution 2015-05-22/01: The UG was informed that the Perth ground station will cease to be available during 2016. Furthermore, frequently other ground stations are unavailable. It is considered to be of the highest priority that continuous ground station coverage be maintained for two reasons. First, the loss of good quality science observations is unacceptable given the high oversubscription factor. Also, the significant temperature fluctuations on the MOS detectors that will occur during eclipse periods, are potentially harmful, and will compromise the data quality over time. Therefore, there is a clear cost benefit advantage in procuring access to ground stations to replace those that become unavailable.

On Assessment of Reaction Wheel Failures:

Recommendation 2015-05-22/01: If a reaction wheel fails for some reason then operations should still continue under a contingency plan for 3 reaction wheel operation, which is already planned. In the event of the loss of a further wheel, it should be considered whether a very restricted operational mode should be implemented. Industry has studied this case, but requires a substantial financial commitment to keep the knowledge of it active. The UG is not convinced that this would be a justified use of resources.

On Calibration Requirements:

Resolution 2015-05-22/02: The UG commends the XMM-Newton project staff for the progress made in this area, and it endorses the report that was tabled at this meeting, document XMM-PS-RQ-002.

On Calibration Priorities:

Recommendation 2015-05-22/02: The UG identifies the following tasks in order of priority;

1. Cross-calibration of the responses of the XMM-Newton X-ray cameras and spectrometers. This is a longstanding issue, and it should be resolved as far as is possible in the near future.
2. Evidence for a shift in gain of the PN detectors, which is dependent on the quiescent background. This should be investigated and quantified, and a correction implemented.
3. Calibrated spectra from NuSTAR and XMM-Newton sometimes show a significant mis-match in spectral slope and offset above 3keV. This is a matter which the IACHEC should be encouraged to investigate.
4. Complete the calibration of the PN Burst Mode, RDPHA correction.

On Links between XMM-Newton and NuSTAR:

Recommendation 2015-05-22/03: The UG noted the successful agreement that had been in place for scientifically linked observations between XMM-Newton and NuSTAR. Now that NuSTAR is operating as a partially open time facility, the UG recommends that this agreement should now progress to the level of a Joint Programme (at the level of 1.5Msec on each side), and should be implemented in this way starting from the next mission AOs. In general the UG wishes to encourage the science of multi-frequency programmes. It suggests that means be found to facilitate such opportunities, and that they should be assessed on a case-by-case basis.

On the XMM-Newton Science Archive:

Recommendation 2015-05-22/04: The UG commends the continuing work that has been carried out on this important resource. The UG recommends that all 75 open issues detailed in the attachment related to the mission archive should be closed as soon as possible and with highest priority, and noted that many of these were already available in the previous version of the archive.

On XMM-Newton Post-Mission Data Analysis:

Recommendation 2015-05-22/05: The UG recognises that XMM-Newton data will continue to be used by the community for many years after the operational phase of the mission is complete. It is important to consider this now, since after the end of this phase the resources available to the project will be much reduced. The preferred way forward is to ensure that data analysis can be carried out independent of a possible “virtual machine” option which would have a limited lifetime of 10-15 years. The UG endorses the proposal to carry out a study of how a long term solution may be achieved, for example by using ftools.

On a new OTAC Chairperson:

Action-Item 2015-05-22/01: The UG is invited to contact the Project Scientist with proposals for a new OTAC chairperson needed for AO-17. The UG suggestions should reach the Project Scientist by July 1, 2015.

On a venue for the next X-ray Symposium in 2017:

Action-Item 2015-05-22/02: The UG is invited to contact the Project Scientist with proposals for a venue for the next major international symposium in the series “The X-ray Universe” which is planned for 2017. Ideally the proposals should be specific and point to economic venues, like universities or congress centres. As preparations need to start in 2015 already, suggestions should reach the Project Scientist by August 1, 2015.

On Minimum Requirements for a long-term Scientific Data Analysis:

Action-Item 2015-05-22/03: The UG is invited to contact the Project Scientist with inputs on minimum requirements for a long-term Scientific Data Analysis (aiming ~15 years into the future). Requirements should address analysis goals that should still be possible to attain even when no SAS is running on any machine anymore, when no software support will be available, and when the currently planned virtual machine set-up might no longer be available. Inputs should reach the Project Scientist by July 1, 2015.

The executive session ended on May 22nd at 15:20.

Date of next meeting: June 1st (Wednesday) and 2nd 2016, starting at 10:00 at ESAC.

Attachment related to XMM-Newton Science Archive: Open Issues

The following table lists the 75 open issues of the XMM-Newton Science Archive (XSA), ordered by priority, at the time of this UG meeting.

Issue#	Tracker	Priority	Subject
2770	SCREW	High	For Search in a circle change radius default to 10 arcsec
2651	SCREW	High	Include under AIO system a help on direct access possibilities
2609	SPR	High	Include slew observations in the log for HEASARC
1830	SCREW	High	Implement a statistics tool
1613	SPR	High	Send table to Topcat does not work for results of search on file
1564	SCREW	High	More on help and on-mouse texts
808	SCREW	High	Add password encryption for DAO module
2789	SCREW	High	Spectra Visualizer
2648	SCREW	High	Implement display of non-default columns (issues #682, #708, #710, #811 and #1817)
2624	SCREW	High	Duplicate of the DB for XMM-SOC queries
2247	SCREW	High	ObsIDs without science data should not appear in the results tables

1817	SCREW	High	Add columns with AB Magnitude errors to the OM Catalogue display
1532	SPR	High	Fit to screen the size of panels or use scroll bar
1526	SPR	High	Open ds9, Aladin or TOPCAT for proprietary data using privileged accounts
1385	SPR	High	Disable "Field of View" for Catalogue searches
1322	SCREW	High	Target-list-based matches should identify the matching target.
1304	SCREW	High	Downloaded PPS products (spectra/light curves, etc.) should be the FITS and PDF/PNG files
1089	SCREW	High	Observations details panel -> OM Exposures icons to be displayed
1088	SPR	High	Update mode column with correct value for OM Exposures (add FAST info)
893	SCREW	High	Direct download options for OM/PPS Sources and Cataloges
822	SCREW	High	Implement AND/OR combination of instrument modes in Exposure panel.
819	SCREW	High	Implement search by Ecliptic coordinates
812	SCREW	High	Add options in AIO to search by Instrument Mode and by Exposure Duration
670	SCREW	High	Distance units customizable
667	SCREW	High	Results: RA, Dec units should be customizable: sexagesimal or decimal degrees
2782	SCREW	Normal	Send back a summary report as a result of a ingestion process
2763	SCREW	Normal	Replace the EPIC Postcards and links P*EPX*IMAGE* by the new products P*EPX*COLIM*
2739	SCREW	Normal	Upper Limit Tool integration
2610	SCREW	Normal	Introduce some kind of break to heavy requests to avoid having to block an IP in these cases
2602	SCREW	Normal	Implement functionality to restrict access based on IP
2577	SCREW	Normal	Add a column to results display informing about simultaneous/coordinated observations
2526	SCREW	Normal	OM "Modes" to display in corresponding OM exposure column and in "Instrument configuration" panel
2304	SPR	Normal	Implement SAT solution for REST request being cached in IE with GWT
2243	SCREW	Normal	XAT interface tool to deal with Observations information
2130	SPR	Normal	Selecting some instrument configurations give wrong or incomplete list of results
2071	SPR	Normal	Directory trees consistency for different download selections
1948	SCREW	Normal	A more precise definition for the Slew exposures footprint
1834	SCREW	Normal	As default Engineering proposals should be deselected
1672	SCREW	Normal	Target positions cache
1661	SCREW	Normal	Include the possibility to search, plot and download Radiation Monitor files
1643	SCREW	Normal	Link each source in the EPIC source catalogue (3xmm) to its XcatDB page
1602	SPR	Normal	Bib Codes point to nXSA home page instead of the corresponding abstract page
1601	SPR	Normal	Login problem under SUSE 12.2
1585	SCREW	Normal	On-the-fly reprocessing (RISA integration)
1506	SCREW	Normal	For the 3XMM catalogue please use the MJD dates/times given in the catalogue
1444	SCREW	Normal	Indicate the size of the files to be downloaded directly or via the basket
1443	SCREW	Normal	Include a button to "Go to Results" from the basket panel.
1415	SPR	Normal	Validation of Equatorial coordinates does not allow i.e. 30h or 77m, but allows 29h or 77s
1413	SCREW	Normal	On the Slew Catalogue results
1331	SCREW	Normal	OM Grism Exposures Icons
1319	SPR	Normal	A search on proposal program gives different numbers of results for XSA and nXSA
1302	SPR	Normal	Wrong publication identification
1012	SCREW	Normal	Exposure icons to be ingested and displayed
1001	SCREW	Normal	Manage direct data download from GWT windows
880	SPR	Normal	Link EPIC Source Catalogue Panel with corresponding Search Presenter
858	SCREW	Normal	Include the possibility of selecting exposures and sources to add to Shopping Basket
857	SCREW	Normal	Add a "Filter" to the results display to select the rows to display
765	SCREW	Normal	Shopping cart 'Custom' selection of files
705	SCREW	Normal	Selection of rows from different results pages
695	SCREW	Normal	Do not keep active the hidden constraints
692	SCREW	Normal	Add a button to remove all Results # tabs
688	SCREW	Normal	Search for data in other archives using VO protocols
678	SCREW	Normal	Save options: also Custom, ASCII and Fits, and all the sub-tabs of the given results
2320	SPR	Low	Accents in authors of the publications
2319	SPR	Low	Remove the tag <NUMPAGES> from the 'Journal' column in Publications
1777	SPR	Low	Send Image to Aladin or DS9 sometimes gives an http error
1641	SCREW	Low	Resume the automatic production of the ADS publications log
1527	SPR	Low	Some users downloading data via the Basket do not get the corresponding email
1448	SCREW	Low	Use upper case and lower case consistently
1436	SCREW	Low	Update of the XMM-Newton logo
1338	SPR	Low	Performing web based actions eg "View Image" one can view the image but not go back to previous search
855	SPR	Low	Capture paste event to validate fields when data is pasted
810	SCREW	Low	Add instant result count to some of the Search fields
769	SPR	Low	The tabs sizes are not adjusted to the browser size
709	SCREW	Low	Add a search "Sources" panel to Main panel (for PPS sources)