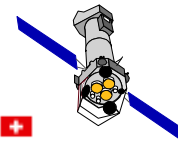EPIC BGWG Meeting#6

November 5th, 2007

BGWG Report from the June

XMM-Newton User Group Meeting

Matthias Ehle

XMM-Newton

Matthias Ehle - SCI-OAX

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User Group Meeting: 7-8 June 2007

- **Motivation**
  - XMM-Newton User Group (UG) asked for presentation on
    - BG Radiation Level (Pedro Rodriguez, see XMM-SOC-USR-TN-0014, 15 minutes)
    - BG Treatment (M. Ehle, 30 minutes)

- Talk was iterated with A. Read & S. Snowden who provided comments & suggestions

- **Full presentation is available from UG web page at http://xmm.esac.esa.int/external/xmm_user_support/usersgroup/**
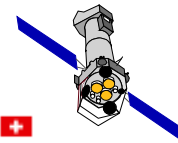
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The EPIC Background Working Group

Contents of the Talk:

- Motivation and Goals of the BGWG; Meetings
- Announcements in XMM-Newton Newsletters
- The Background analysis web page:
  - Summarizing table
  - Products: files and software
  - Other Useful Information
- Products of the BGWG:
  - blank sky files; future selection tools (countrate, RA/Dec,…)
  - Filter wheel closed (FWC) data
  - ESAS: method, status, further developments
 - Further Scripts:
    - Fin/Fout
    - Images
  - Future plans
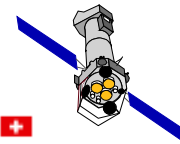
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Future Plans

- **Standing open invitation to bkg. experts to bring in their ideas, methods, comments**

- **Maintenance of web page, adding info on EPIC background**

- **Adding more scripts: e.g.**
  - Coming soon: 'images', script to create 'nice-looking' merged & smoothed false-color EPIC images (YGT, based on idea from W. Pietsch, M. Bauer) some examples in Image Gallery
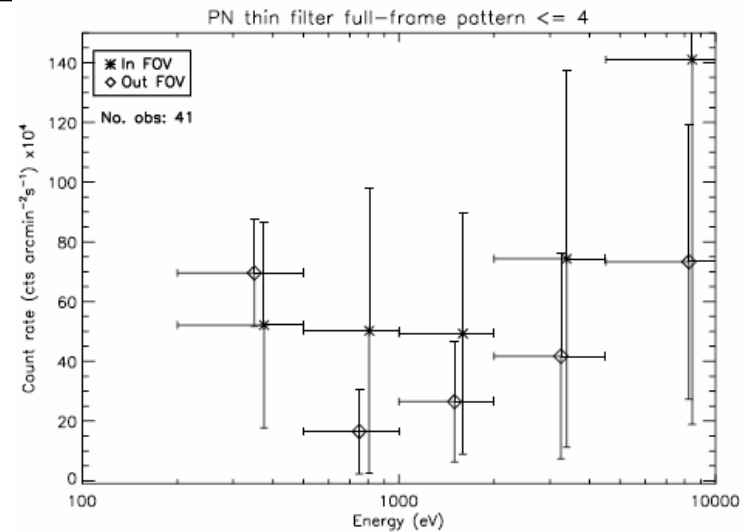
- **Adding more data:**
  - FWC
  - Blank-sky files
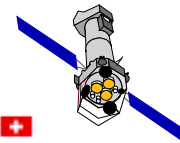
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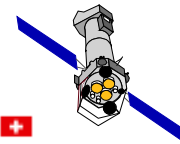
Future Plans

- **Blank-Sky data:**
  - Background count-rate spectra: again for all available mode/filter combination, in & out FoV

  - Blank-sky data for window modes

  - Selection by location (and count-rate) tool

- **Espfilt SAS task:**
  - Count rate histogram based flaring bkg. removal (as available in ESAS) as proper SAS task, also for pn. Under testing…

- **Update of ESAS, esp. extending functionality to pn data**

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Products of the BGWG: blank sky

- **Future Plans:**
  - Possible increase number of datasets for blank sky fields – depending on 2XMM catalogue processing & reprocessing in BGWG
  - Ghosting script for users - in progress
  - Count rate selection tool
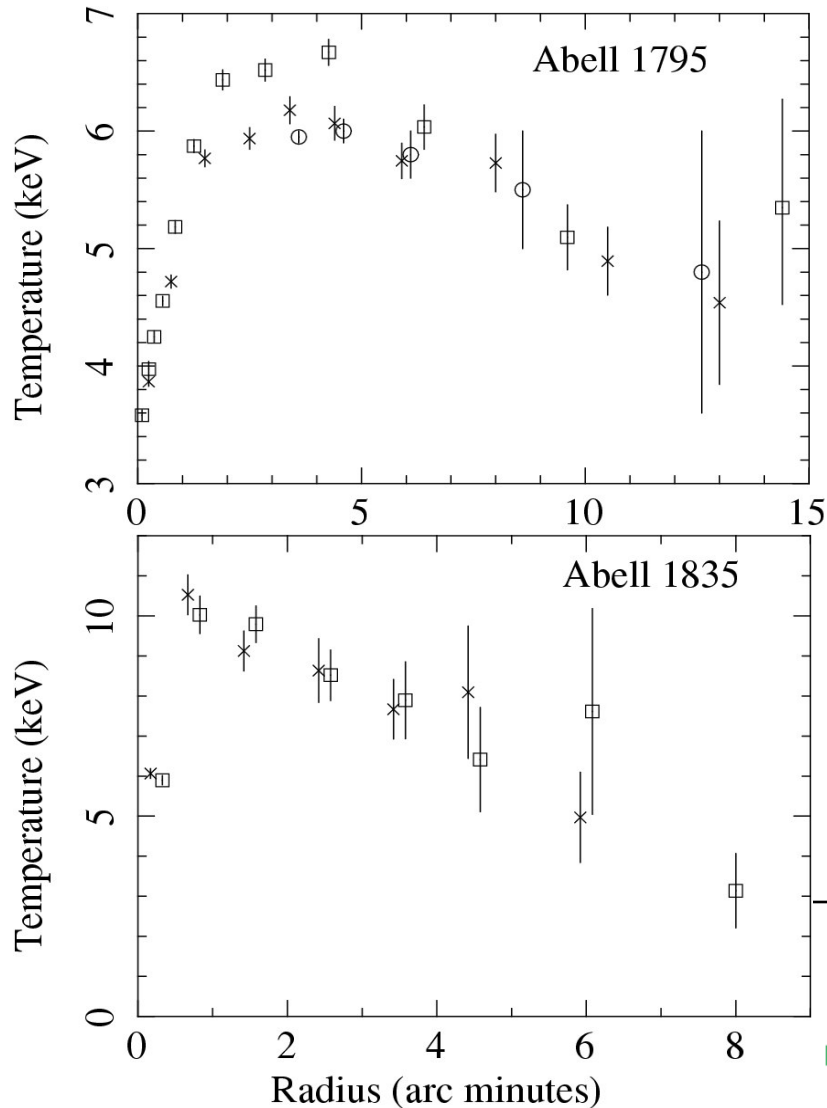 - nH selection (by galactic coords.)

  - SelectRADec tool available but requires download of script & all exposure files $\Rightarrow$ New selection by location tool (user fills in form, request is sent, file returned - cf. XSA)
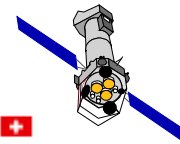
Products of the BGWG: ESAS

- **Examples Abell 1795 & Abell 1835**

Temperature radial profile for A1795 from Chandra (squares), XMM-ESAS (crosses) and Nevalainen et al. (circles). *Watch out for discrepancies between XMM-Newton & Chandra*

XMM-ESAS processing of two separate observations of A1835: very different soft-proton backgrounds!

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Reactions

Immediately after presentation:

- UG chair (M. Arnaud) expressed <u>thanks for all the work done by EPIC BGWG</u>

- R. Mushotzky asked about maintainability of ESAS $\Rightarrow$ **plan is to get it into SAS**

- Lack of enough FWC data to properly characterize instrumental BG $\Rightarrow$ deferred for general discussion

- M. Arnaud asked about tool to **select blank sky fields based on galactic coordinates** (not only RA/Dec). Are exposure times after selection provided as well? $\Rightarrow$ message will be passed on to BGWG

- $\Rightarrow$ *e-mail discussion with AR: exposure maps are already computed:*
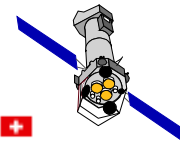   *see SelectRADec description: 'A final event file and exposure map is produced'*
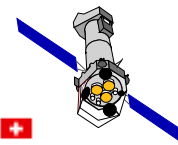
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Reactions

During Discussions:

- UG recognized and was <u>impressed by tremendous amount of work done by BGWG !</u>

- Lack of enough FWC data to properly characterize instrumental BG $\Rightarrow$ **Recommendation 2007-06-08/45**: The UG recommends that the BGWG makes a study of the needs for closed filter data

- *This study exists as shown by S. Snowden during previous BGWG meeting "Filter Wheel Closed Calibration Observations"*

- $\Rightarrow$ *<u>Quick solution:</u> NRCO#70 approved for 2007 in August; now in EPIC routine cal plan: monthly 10 ksec dedicated FWC full frame exposures in 'good part' of orbit:*
  - *Can FWC data be collected during slews? (but slew catalogue..)*
  - *Always full frame mode for pn?*
  - *Can it be done at beginning/end of orbit?*