BGWG Blank sky project update

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Action items; 2010

- AI_EPIC_BGWG_08_01: add standard examples to web page - table created, not yet linked

- AI_EPIC_BGWG_08_04: consider the long term plan for the blank sky project - see later in the talk

- AI_EPIC_BGWG_09_01: add links to FWC for SW requests - see later in the talk, completed

- AI_EPIC_BGWG_09_04: JC/IdC updates to web pages, removing obsolete threads - mini meeting held in Sept. 2010, updates discussed with IdC, completed by IdC

- AI_EPIC_BGWG_09_05: IdC/JC update to thread, make generic - updated by IdC

- AI_EPIC_BGWG_09_06: AR/JC how to present likelihood of SWCX contamination - see later in the talk, possibly completed
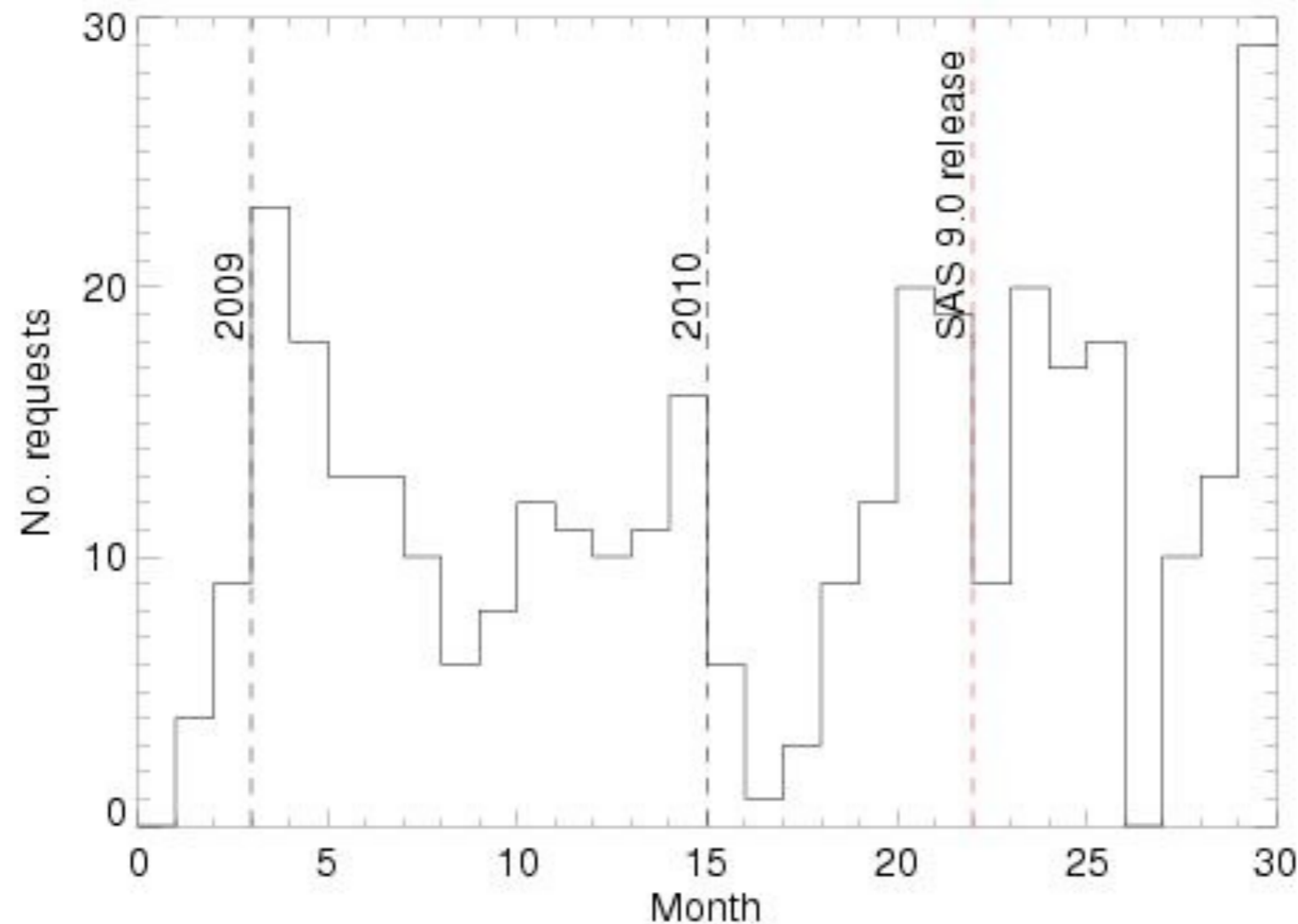
Current status of blank sky database and online

- General: processed using SAS 9.0.0, available from July 2010

- General: numbers of file combinations available (restrict merged output so manageable with SAS, e.g. ~ approx. 25 files PN, 200 files MOS)

INST	FILT	MODE	No. FILES
PN	T	EF	174
PN	M	EF	81
PN	K	EF	9
PN	T	FF	718
PN	M	FF	469
PN	K	FF	65
M1	T	FF	899
M1	M	FF	707
M1	K	FF	77
M2	T	FF	887
M2	M	FF	715
M2	K	FF	90

- Web form: warnings added regarding loss of MOS1 CCD 6

- File delivery: advise if request spans loss of MOS1 CCD 6

Requests by month, up to March 2011

- Feedback: 'Thanks a lot for your effort' 'Thanks again for the fast creation and delivery of these blank sky files!' 'thank you very much for producing the files in such a short time, I really appreciate it'

- Suggestion: selection avoiding anomalous states of the MOS CCDs

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Users

- 76 individual users from 20 different, 4.5 mean no. requests per user

- By mode: 91% FF mode (~80% all pn), 8% eFF (~20% all pn), <1% LW

- By filter: 33% thin, 66% medium, 1% thick

- By filled status: 71% ghosted, 29% unfilled

Table of all requests: AI_BGWG_EPIC_08_01

XMM-Newton EPIC Background Blank Sky file requests details

Request from the EPIC Blank Sky team:
We politely request that should the files here contribute to work that leads to publication, that the reference to the Blank Sky work (Carter and Read (A&A 464, p1155, 2007)) be cited.

Diagnostic files for all blank sky available observations, regardless of instrument, filter or mode:

1. Revolution histogram : revnhist.jpg
2. Ontime histogram (post flare cleaning) : ontimehist.jpg
3. Component map (galactic coordinates) : map_selection.jpg
4. Exposure weighted galactic column (cm-2): 1.88e+21

Requests summary:

ID	Inst.	Filt.	Mode	Status	SAS	Time	Date	Revn	Exposure	Galactic column	Count rate	Coord	Max no. events
				Unfilled (U) or ghosted (G)		limits (s)		limits	limits (ks)	limits (cm-2)	limits (ct/s)	RA, Dec (or Gal.(G) long, lat), radius (deg)	
0325	M1	T	FF	G	9.0		2006-01-01,2010-10-31		25,50	2.0e20,6.0e20			
0324	M1	T	FF	U	9.0		2006-01-01,2010-10-31		25,50	2.0e20,6.0e20			
0323	PN	T	FF	G	9.0							193.2,-15.5,10	
0322	M1	T	FF	G	9.0					8.0e19,1.2e20		140.5,51,20	
0321	M1	T	FF	U	9.0					8.0e19,1.2e20		140.5,51,20	

Partial window files: AI_BGWG_EPIC_09_01

- Partial window, merged blank sky files for each inst-filt-mode-fill (large window and small window) available by request from users

  - http://www.star.le.ac.uk/~jac48/BG/UserRequest/partial_window_files/

- Comment added to blank sky web request form for users to contact the blank sky team if these files are required, also link added to FWC datasets

- Number of files by filter and mode:

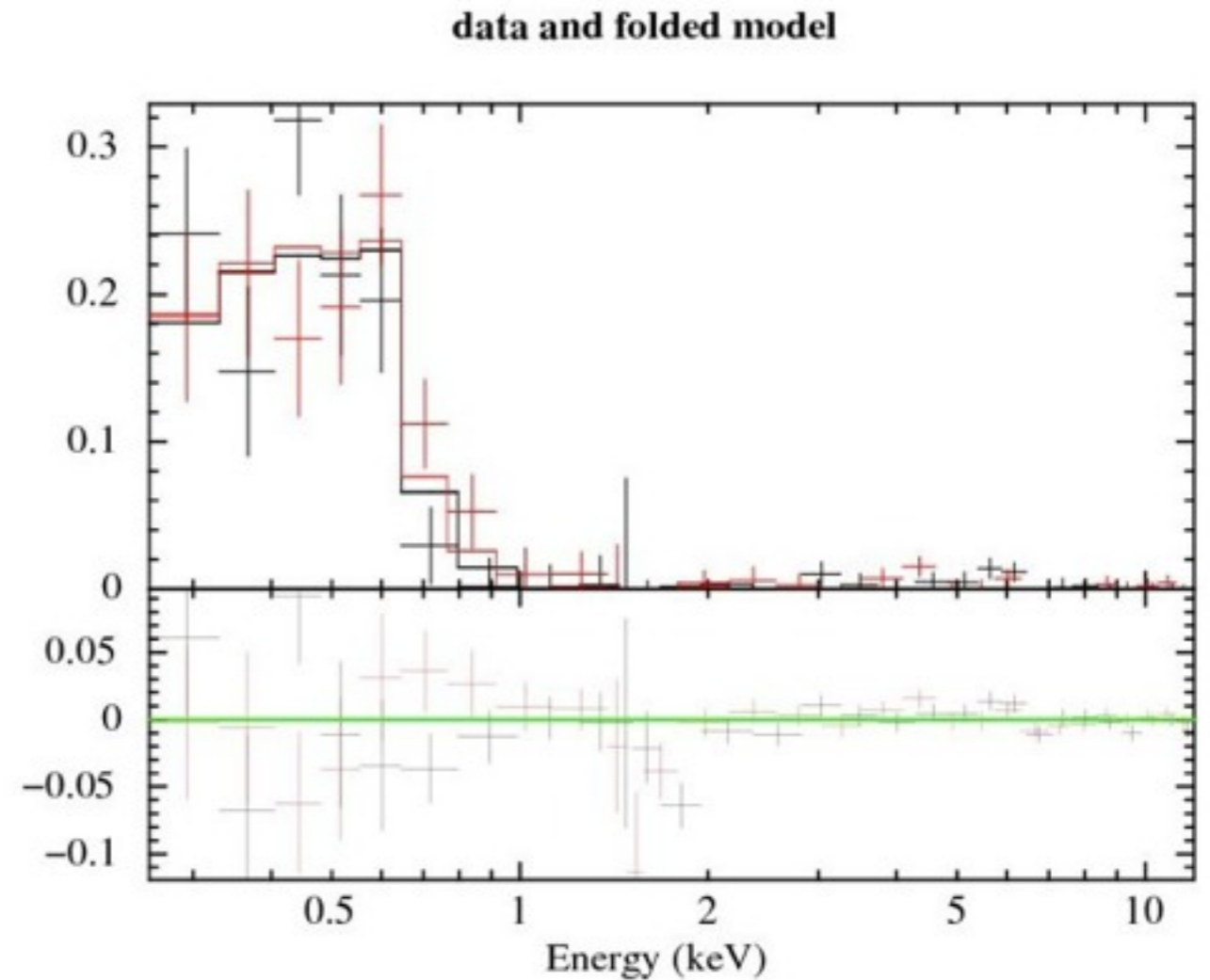| INST	FILT	MODE	No. FILES
PN	T	LW/SW	32/24
PN	M	LW/SW	38/13
PN	K	LW/SW	14/6
M1	T	LW/SW	35/17
M1	M	LW/SW	43/9
M1	K	LW/SW	8/8
M2	T	LW/SW	32/21
M2	M	LW/SW	44/11
M2	K	LW/SW	7/9

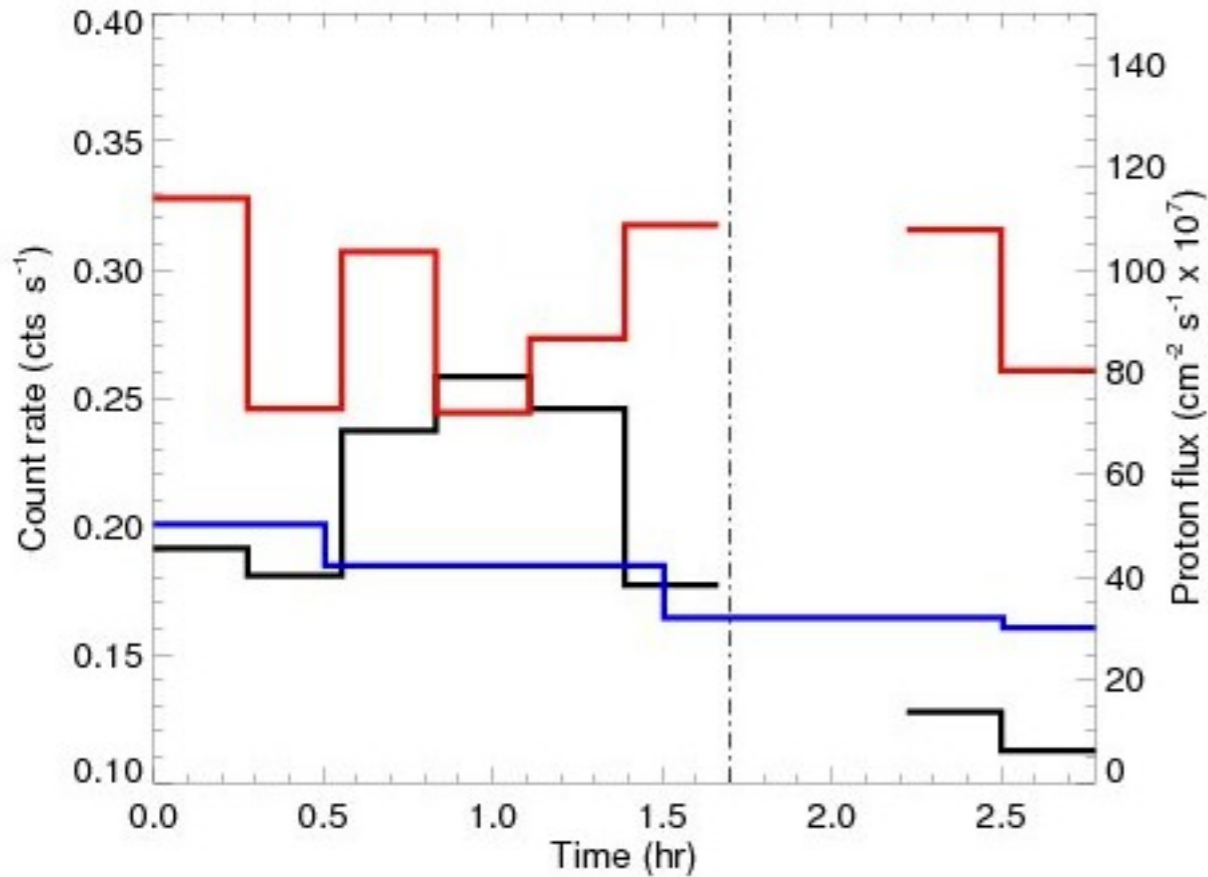# SWCX-affected observations: AI_BGWG_EPIC_09_06

- Time-variable exospheric-SWCX affected observations only

- Reference: Carter, Sembay & Read 2011, A&A, 527A, 115C

- Table on web: www.star.le.ac.uk/~jac48/SWCX/swcx_cases_web.html

- Links to spectra and lightcurves

- Yet to link from BG pages

XMM-Newton observations affected by time-variable Solar Wind Charge Exchange occurring in the exosphere of the Earth.

This table contains details of the set of EPIC-MOS observations affected by exospheric Solar Wind Charge Exchange (Carter et al. 2011). We quote the EPIC MOS1 and MOS2 four-digit exposure identifier for each case. The column "Diagnostic graphs" contains links to two graphs. The first shows low energy (0.5 - 0.7 keV) and high energy (2.5 - 5.0 keV) lightcurves (black and red respectively) for the observation in question, along with the solar proton flux as measured by ACE (blue) when available. The second shows the resultant SWCX spectra for MOS1 (black) and MOS2 (red), with a basic SWCX model fit to the data (solid line). Please refer to the article referenced above for more information. If your analysis involves data taken by the EPIC-pn during one of the observations listed below, please check carefully whether your observation overlaps with the EPIC-MOS exposures.

Index	Revn.	Obsn.	Date	Expn MOS1	Expn MOS2	Xu	Rx	Diagnostic graphs
1	0342	0085150301	2001-10-21T21:20:41	U003	U003	27.2	10.3	lightcurve & spectrum
2	0209	0093552701	2001-01-28T15:09:09	S001	S002	23.0	4.0	lightcurve & spectrum
3	1014	0305920601	2005-06-23T07:32:57	S001	S002	15.0	30.9	lightcurve & spectrum
4	0690	0149630301	2003-09-16T09:57:29	S001	S002	14.1	21.6	lightcurve & spectrum

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SWCX example; lightcurve and spectrum

data and folded model

Long term plan for blank sky: AI_BGWG_EPIC_08_04

- Future steps:

    1) Process with SAS 11.0 (~5 months)

    2) Verification, cleaning (~2 months)

    3) Web changes and release (~1 month)

    4) Documentation

    5) Make table of all requests available (will not be able to monitor usage)

    6) Discuss again in 1 year

Action items outstanding and potential; 2011

- ACTION ITEM 1: re-process of database with SAS11.0 ? (discussion)

- ACTION ITEM 2: add link to SWCX-affected observations table to BG page

- ACTION ITEM 3: offer filter on anomalous states? Would require list/established method of identification

- ACTION ITEM 4: add link to table of all requests to blank sky request form

- ACTION ITEM 5: continue evaluating long-term plan