XMM-Newton Calibration (Pre-)view Tool

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(overall coordination, early processing scripts, idl plotting)

M. Stuhlinger[1)] & Elena Gonzales[3)]
(refined processing scripts and automated xspec data fitting)

Andy Pollock[1)]
(some RGS related routines and other ideas)

Stephan Doerr[2)]
(automation of data processing, version control and interfaces to the ESAC grid)

Daniel Harbarth[2)]
(front end web system)

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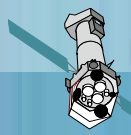
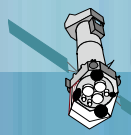


starting situation

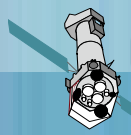
- Calibration status is updated once per year
- User has no information between these updates what (s)he can expect
- Cross cal document will have same frequency of updates

- Information flow is to slow and unclear
  - Should I wait for the new calibration to reprocess or not ?



idea - proposal

- Calibration (pre-)view tool
  - browse cross cal examples for various targets for
    - actual SAS/Calibration
    - new upcoming versions
      --> Improving transparency of current calibration work
  - Giving expectation horizon
  - User will be able to judge if (near) future calibration will impact his analysis



implementation

XSA

Automated fitting tool

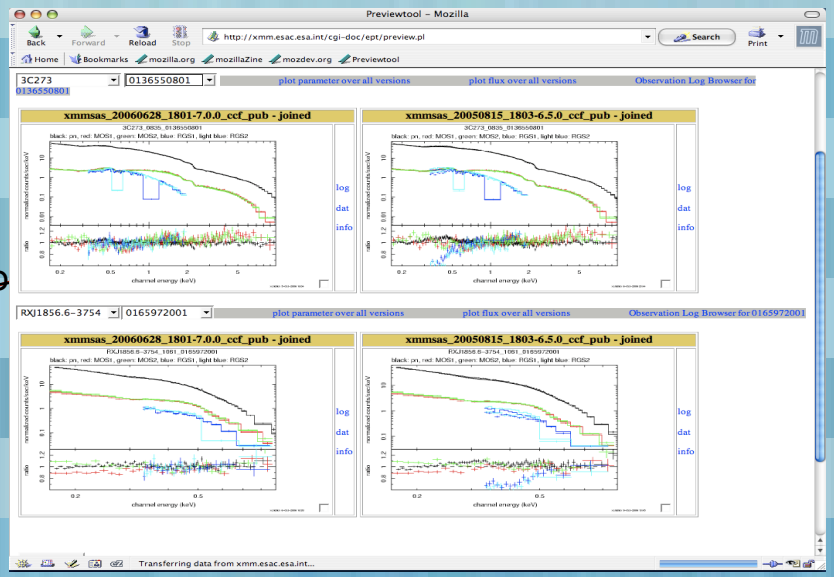
data processing and spectral extraction

Cross Cal data archive

fully automated + version control

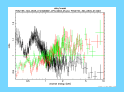
AJAX based web application

web page

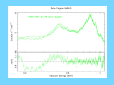


Cal scientist can tick to publish information

news web page



Comment to be made public



Comment to be made public

Upload of other interesting calibration progress

Tool released

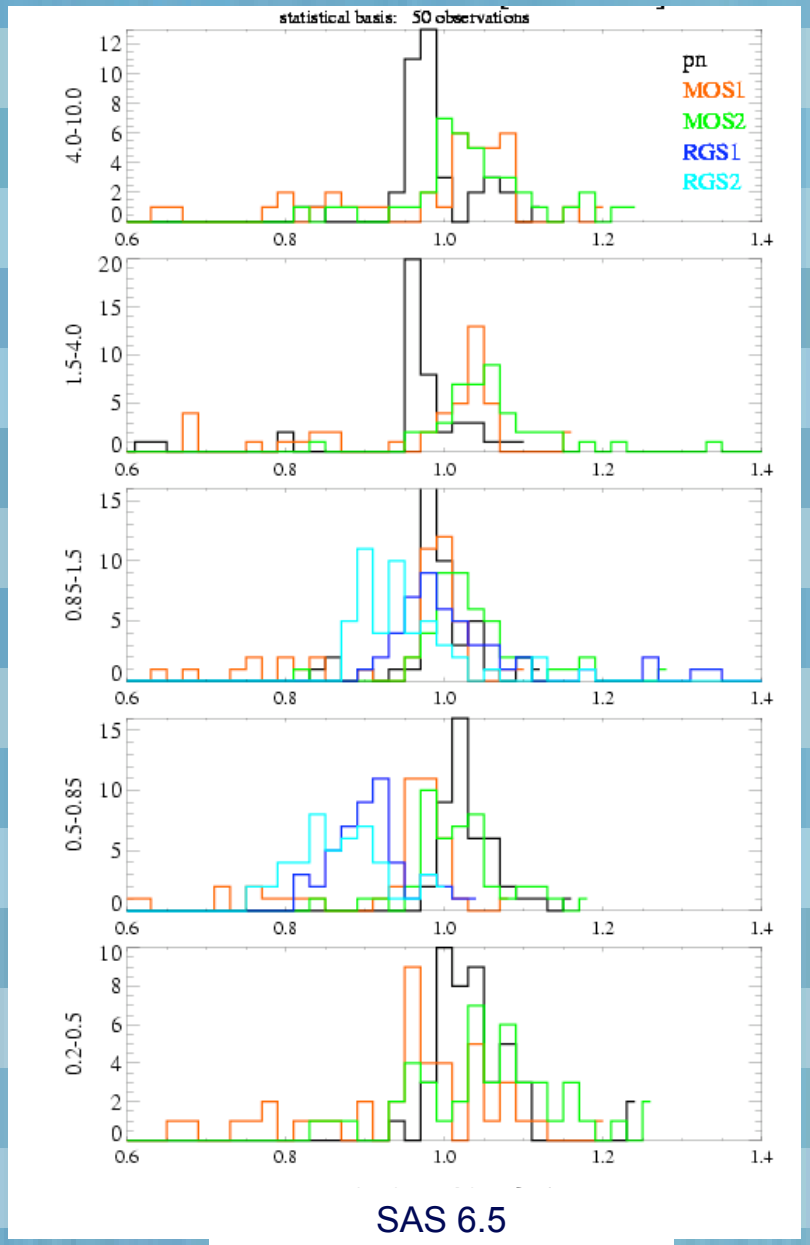
- http://xmm.vilspa.esa.es/cgi-doc/ept/preview.pl
- Using ESAC grid:
  - 10 nodes so far, each node has 2 CPUs Intel(R) Xeon(TM) 3.00GHz with 2GB of memory and hyper-threading
  - That reduces processing time by factor ~15-20 -->15-25 observations/hour
  - further speed up possible by
    - parallel fitting
    - enhancing data-caching on the grid
- Current content:
  - 234 observations
  - 50 ready to process

features

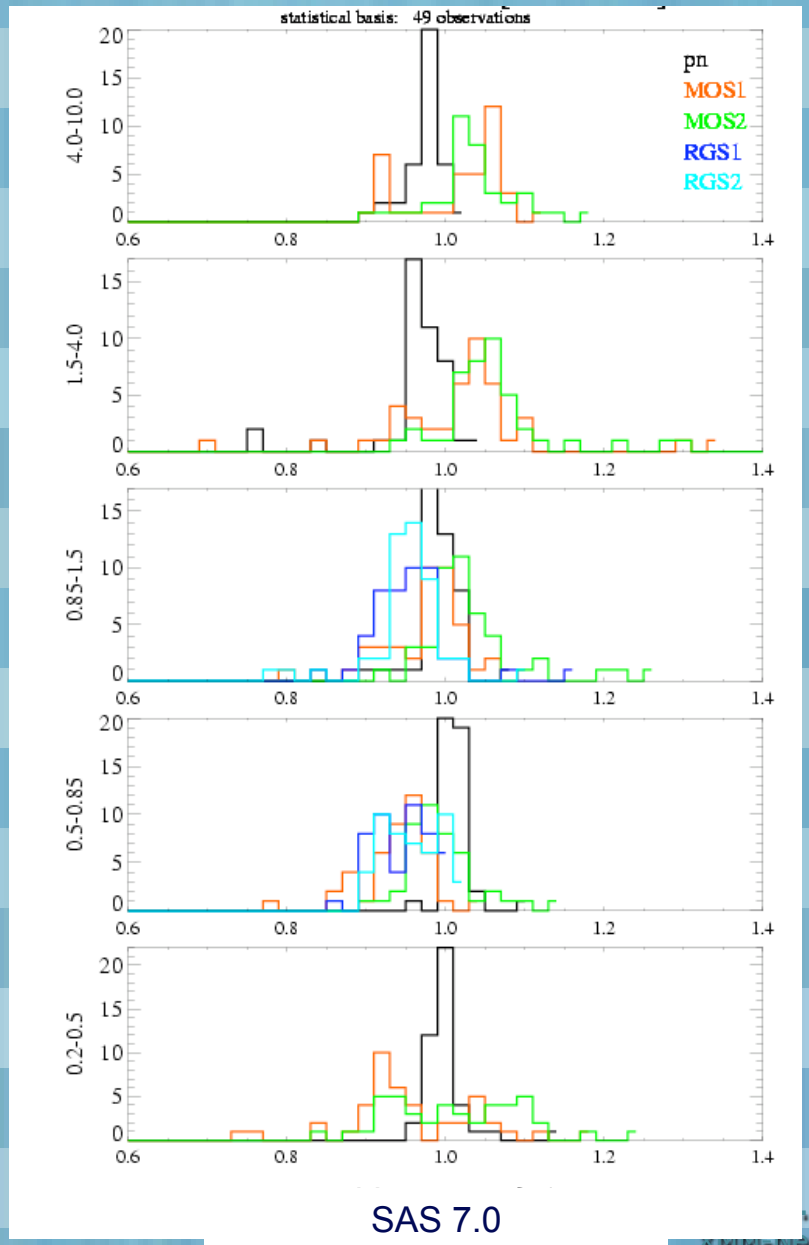
- website as the front end of the tool → easy access the cross calibration data archive
- comparing joint and individual fits and their parameters and fluxes for various targets and observations concerning different calibration versions
- Features for every FIT (one table entry):
  - pop up and enlarge the spectrum
  - display the associated logfile
  - display the associated readme file
  - display the parameter (extraction of some values of the log file)
- Features for every version (a whole column):
  - see parameters for all cameras shows a pop-up which contains all parameters for all cameras in a table
  - see flux for all cameras shows a pop-up which contains all flux for all cameras in a table
- Features for all cameras and all versions (the whole table)
  - plot parameter over all versions this executes an IDL script, which plots all n parameter values of all cameras versus the versions. A pop-up shows the n plots
  - plot flux over all version a similar IDL script plots the flux in different energy ranges versus the versions. For every energy range one plot
  - Observation Log Browser executes the Observation Log Browser for the given observation id.
- Second level data products regarding statistical flux comparison (only dev version)

More in Martin Stuhlingers talk

rel flux in diff. energy bands



SAS 6.5



SAS 7.0

let **us** check **your** new calibration updates