

A SAS/xmmselect/evselect versus XANADU/xselect/fselect comparison

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Outline:

Comparison of extracting **standard** products through

- 1) Command lines (fselect vs. evselect)
- 2) GUIs Tools (flaunch vs sas)
- 3) Standard User–Interface Tools
(xselect vs. xmmselect)

XANADU–ftools:V5.0.1

SAS:V5.0 (Dec. 3rd)

Command Lines

Left: XANADU

Commands parameters
actions

Right: SAS

Commands parameters
actions

Extracting Lightcurves

fselect PI, etc.
.evt ----> .evt

lcurve binsize etc.
.evt ----> .qdp

(User-CPU)Time consumed:
~1.4 s

Problems: Wrong Exposure
(~2%high) (=TSTOP-TSTART)

evselect PI, binsize,etc.
.evt ----> .ds

dsplot
.ds ----> .agr

(User-CPU)Time consumed:
~11 s

Problems: Grace less known/used
than QDP

Command Lines

Left: XANADU
Commands parameters
 actions

Right: SAS
Commands parameters
 actions

Extracting Images

fselect PATTERN, PI, etc.
 .evt ---> .evt

evselect PATTERN, PI,
 binsize, etc.
 .evt ---> .ds

f2dhisto binsize etc.
 .evt ---> .ima

ds9

ds9

(User-CPU)Time consumed:
 ~5 s

(User-CPU)Time consumed:
 ~19 s

Problems: None found

Problems: None found

Command Lines

Left: XANADU

Commands parameters
actions

Right: SAS

Commands parameters
actions

Extracting Spectra

xselect @script PATTERN, PI,
≈fselect region, etc.
.evt ----> .pi

fmodhead TLMAX1
.pi ----> .pi

grppha

(User-CPU)Time consumed:
~30 s

Problems: counts ~1% larger due to
different region extraction algorithm

evselect PATTERN, PI,
region, binsize, etc.
.evt ----> .ds

fmodhead TLMAX1
.ds ----> .ds

grppha

(User-CPU)Time consumed:
~18 s

Problems: BACKSCAL wrong (always 3.6e5)

Left: XANADU

Commands

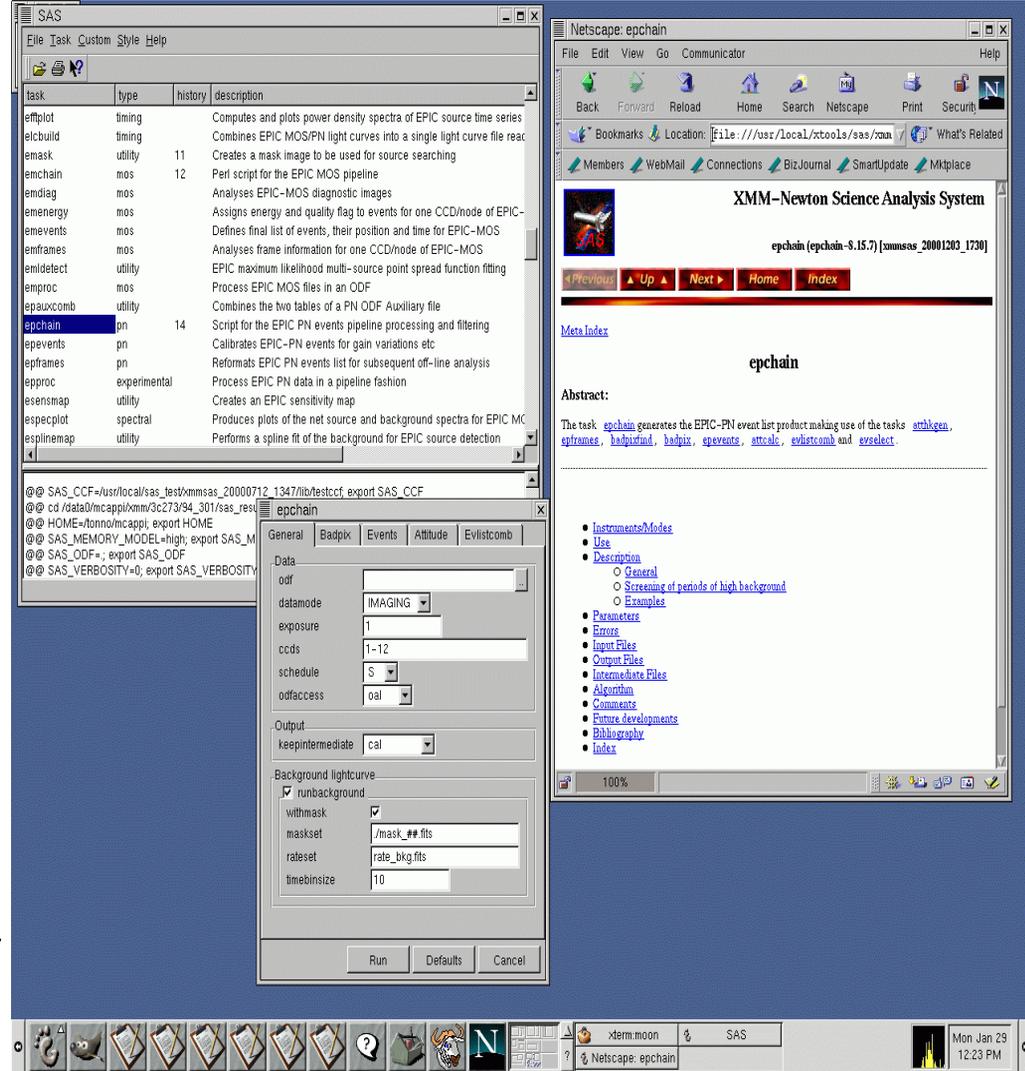
Right: SAS

Commands

GUIs Tools

flaunch

sas



⇒ Similar capabilities... (e.g both allow scripts);
 but of course SAS is mandatory for XMM

Left: XANADU

Commands

Right: SAS

Commands

Standard User-Interface/interactive Tools

xselect (+ ximage, xronos)

xmmselect

The screenshot shows the xselect terminal interface. The top part displays a table of data statistics:

Grand Total	Good	Bad	Region	Time	Phase	Out
1141921	780915	361006	0	0	0	0

Below the table, it shows the status of XSELECT and various configuration parameters like MISSION, DATA, and PRODUCTS. At the bottom, a plot shows 'COUNTS count' on the y-axis (0 to 6000) and 'CHANNEL' on the x-axis (0 to 800). The plot shows a sharp peak at channel 0 followed by a long tail.

The screenshot shows the xmmselect graphical user interface. It features a 'Selection expression' field containing: `circle(26105,26010,800,X,Y) and PATTERN <= 12 and FLAG == 0`. Below this are sections for 'Column selection', 'Region selection', and 'Product selection'. A 'Grace: Untitled (modified)' window is overlaid on the right, showing a plot of 'COUNTS [count]' on the y-axis (0 to 6000) and 'CHANNEL' on the x-axis (0 to 1500). The plot shows a peak at channel 0 and a long tail. The terminal window at the bottom shows the execution of the xmmselect script and the resulting plot.

Currently, two advantages of xselect:
already known to most users + allows easy scripts

The Standard User–Interface/interactive Tools is the most important for most GOs

		xselect	xmmselect
<u>Beginners</u>	⇒	Typing is not easy, but already known + easy to "save"	Clicking is easy, but not known + impossible to "save"
<u>Typical</u>	⇒	Scripts are user–friendly (extract curve, plot image...)	Scripts are user–UNfriendly (#!/usr/bin/sh ...+ very long strings of commands)
<u>Experts</u>	⇒	Scripts are powerfull + commands are fast	Scripts are powerfull but commands are slower

⇒ My suggestion is:

We shall really add "**xmmselect logging**" (for beginners) or/and "**xmmselect scripting**" (for typical&experts) output or/and make **file scripts** (for standard analysis) **available** to GO community.