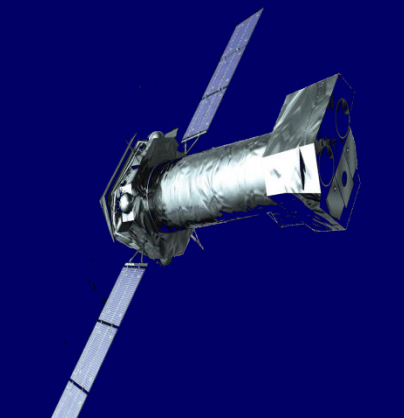




Does my source emit X-rays ?

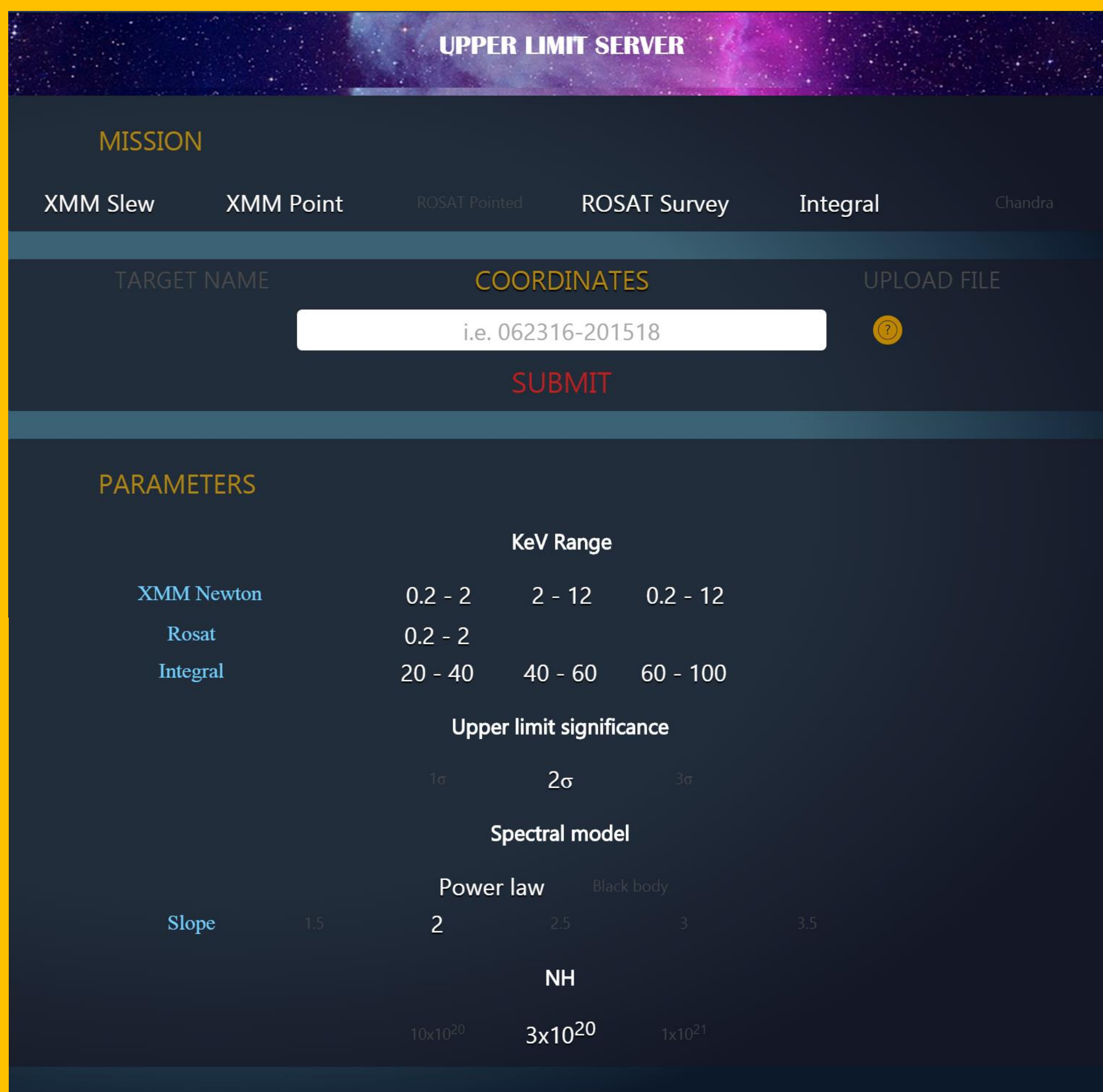


R. Saxton, M. Descalzo, G. Belanger, A. Ibarra, M. Sarmiento, E. Colomo, A. Agrafojo, D. Gonzalez, P. Kretschmar, C. Gabriel

Imagine that you have just discovered an amazing new galaxy in an HST observation and you want to know if it emits X-rays. First you look in the catalogues but find nothing. Then you want to know if it has ever been looked at with a decent X-ray detector. How do you find out? Where is the information? Why is life always so difficult?

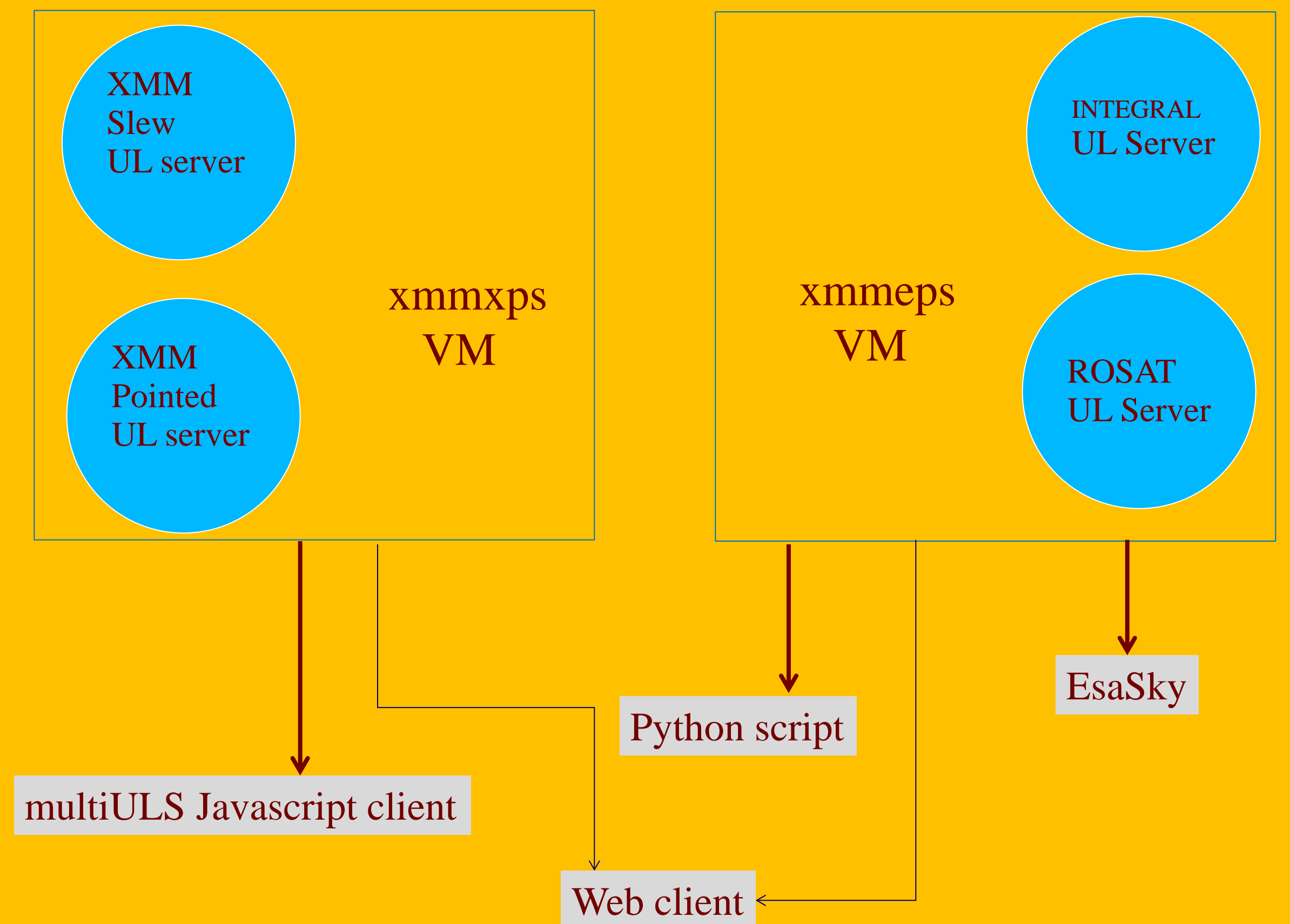
DO NOT PANIC, help is at hand in the form of *multiULS*, a system which interrogates all the X-ray observatories which ever existed, finds which ones passed their cameras over your galaxy and gives you the flux or upper limit from each of these observations. Then it produces a latex table of observations, which can be easily be inserted into a paper saving you hours of work, and plots the historical light-curve in a way which will please and impress your collaborators. Get *multiULS* now – you deserve it.

multiULS



- Choose missions
- Select coordinates, a target name or a list of positions
- Select energy bands
- Select upper limit statistic
- Select a spectral model to convert count rate into flux

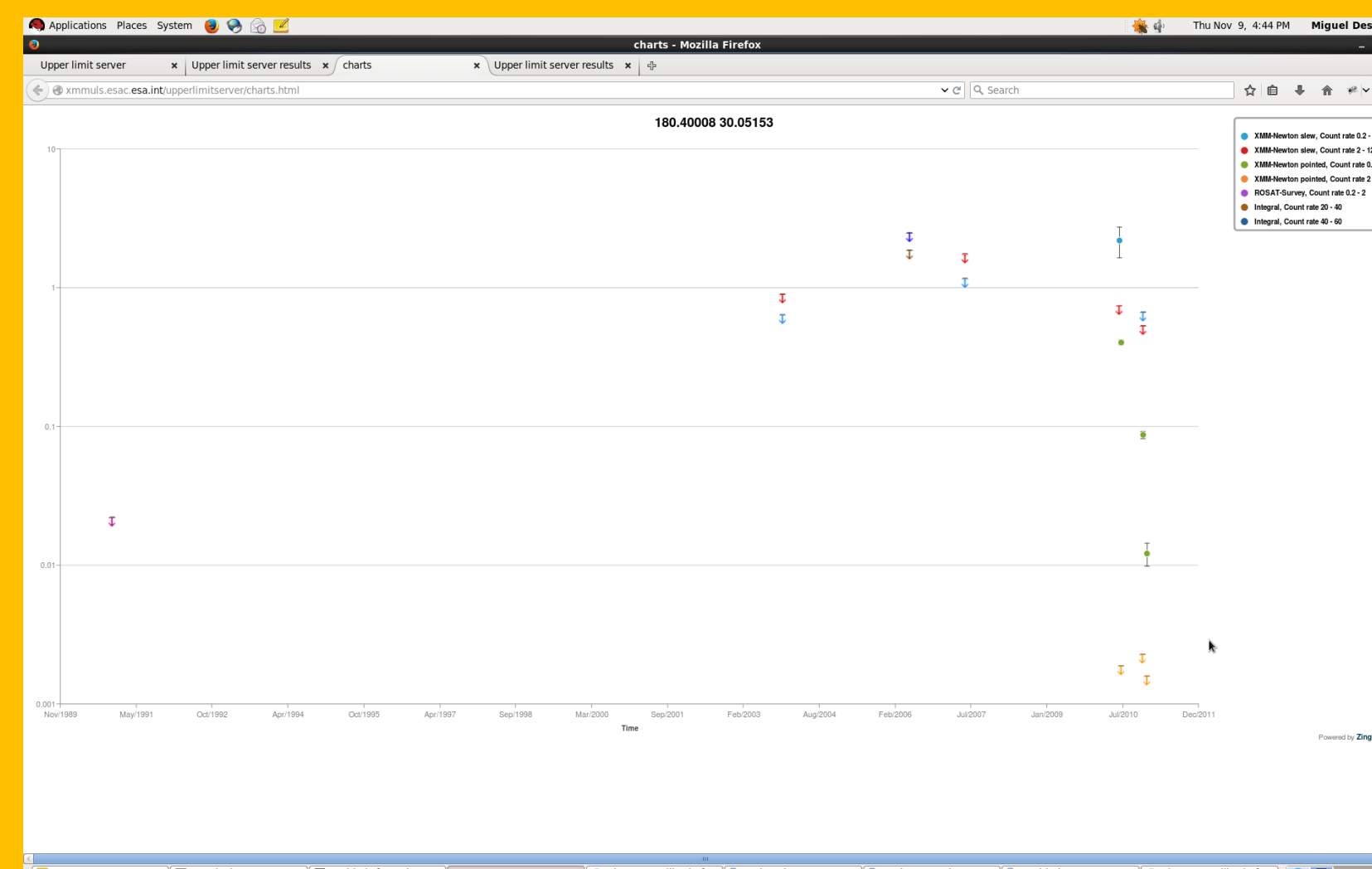
A set of individual servers which can be called from anywhere



Output

Observation Date	Count rate 0.2 - 2	Count rate 2 - 12	Exp. (seconds)	Flux 0.2 - 2	Flux 2 - 12	Flux 0.2 - 12
20030128 18:02:49	<0.0000	<0.0000	0.0013	<0.2015e-12	<0.3020e-12	<0.4842e-12
20070611 09:36:09	<1.1782	<1.7685	0.0037	<1.0059e-12	<1.4077e-12	<1.7774e-12
20090620 06:21:12	2.1078 ± 0.5495	<0.7624	0.0133	(1.1558 ± 0.2987) × 10 ⁻¹²	<0.0323e-12	(1.7689 ± 0.1801) × 10 ⁻¹²
20100126 01:39:09	<0.0729	<0.0373	0.0066	<0.0020e-12	<0.0010e-12	<0.0010e-12

Returns the count rate and flux for each energy band selected for each X-ray camera.



Plot the long-term light curve

```

\begin{table}
\caption{X-ray observation log of 10.684793 41.269065}
\begin{tbl_struct}
\begin{tbl_header}
| Mission | Date | Exp time | Flux(a) | Flux(a) | Flux(a) | Flux(a) | Flux(a) |
| --- | --- | --- | --- | --- | --- | --- | --- |


\end{tbl_struct}
\begin{tbl_info cols=8}

```

Example latex table output



Save the results as a text file, CSV file or a latex table

How do the upper limit servers work ?

Database Method



- Pre-calculate flux / upper limit at each position
- Store the results in database table(s)
- Search on celestial position

On-the-fly calculation

- Find images containing the position from a database / TAP call
- Calculate source counts from a circle in an image
- Calculate background counts from annulus
- Find exposure time from map
- Correct for fraction of counts falling outside circle

Future Plans

- Include EXOSAT, Chandra, ROSAT pointed, Swift data
- Include UV space cameras, XMM-OM, Swift-UVOT, GALEX
- Move XMM from On-the-fly to Database (make them faster)



Not so fast