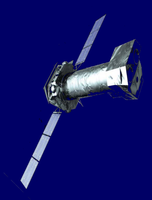
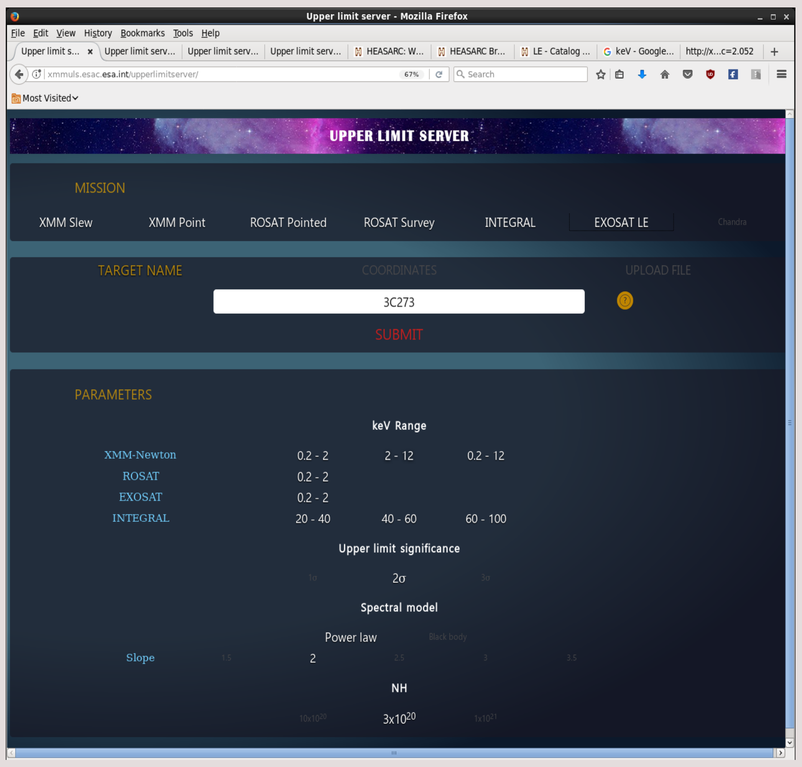
Does my source emit X-rays ?



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

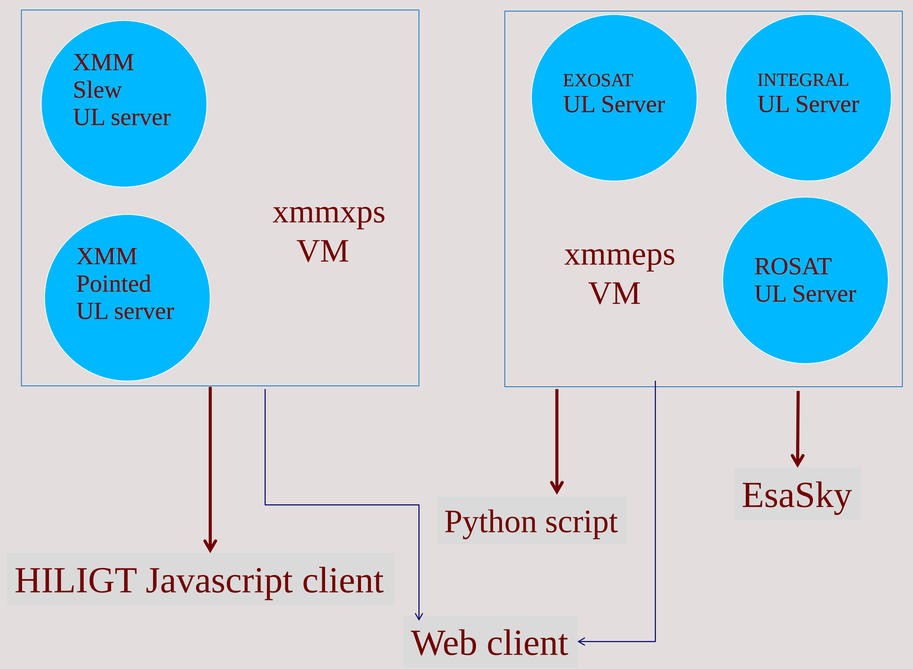
Imagine that you have just discovered an amazing new galaxy in an HST observation and you want to know if it emits X-rays. First you look in the catalogues but find nothing. Then you want to know if it has ever been looked at with a decent X-ray detector. How do you find out? Where is the information? Help will soon be at hand in the form of *HILIGT*, 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, and plots the historical light-curve in a way which will please and impress your collaborators.

HILIGT



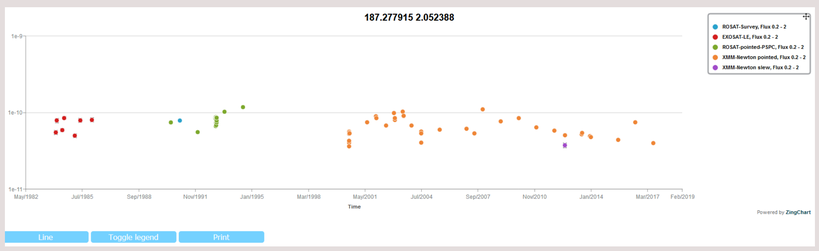
- Choose missions
- Select coordinates, a target name or a list of positions
- Select energy bands
- Select upper limit statistic
- Select a spectral model to convert count rate into flux

A set of individual servers that can be called from anywhere



Output

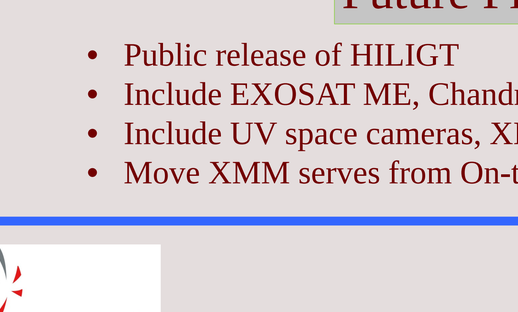
Returns the count rate and flux for each energy band selected for each X-ray camera.



The long-term (0.-2 keV) light curve of 3C 273

```
\begin{center}
\begin{table}
{\small
\caption{X-ray observation log of MKN231 194.059308 56.873677}
\label{tab:xobs}
\hfill{}
\begin{tabular}{l c l l l l l l}
\hline\hline
Mission & Date & Exp time & Flux$^{a}$ & Flux$^{a}$ & Flux$^{a}$ & Flux$^{a}$ & Flux$^{a}$ & Flux$^{a}$  \\
 &  & (s) & 0.2-2 keV & 2-12 keV & 0.2-12 keV & 20-40 keV & 40-60 keV & 60-100 keV  \\
\\
ROSAT-Survey & 1990-11-02 & 436.8 & $<0.4386$ & $$ & $$ & $$ & $$ & $$\\
ROSAT-pointed-PSPC & 1991-06-07 & 23333.0 & $0.1437 \pm 0.00904$ & $$ & $$ & $$ & $$ & $$\\
Integral & 2003-05-20 & 17000.0 & $$ & $$ & $$ & $<6.8596$ & $<6.0114$ & $<6.0412$\\
XMM-Newton slew & 2003-06-30 & 1.0 & $<4.9287$ & $<71.389$ & $<21.156$ & $$ & $$ & $$\\
XMM-Newton slew & 2004-05-27 & 5.3 & $<2.0532$ & $<8.1979$ & $<5.2653$ & $$ & $$ & $$\\
XMM-Newton slew & 2015-04-25 & 9.7 & $<0.5353$ & $<4.3729$ & $<1.3447$ & $$ & $$ & $$\\
XMM-Newton slew & 2015-05-29 & 9.9 & $<0.5260$ & $<4.2804$ & $<1.3178$ & $$ & $$ & $$\\
\hline
\end{tabular}}
\hfill{}
\\
\\
$^{a}$ Absorbed flux, units of $10^{-12}$ ergs/s/cm$^{2}$. Count rate to flux conversion performed with the
spectral model Power law of slope 2.5 and absorbtion N$_{H}$ = 3x10$^{20}$cm$^{2}$.\\
\end{table}
\end{center}
```

Example latex table output



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

How do the upper limit servers work ?

Find any catalogue entries

- Search in TAP-enabled catalogues for any entries for this sky position

GET CATALOGUE VALUES

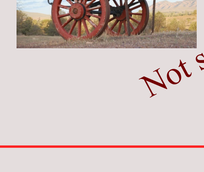
Database Method

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

FAST

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



Not so fast

FIND UPPER LIMIT

Future Plans

- Public release of HILIGT
- Include EXOSAT ME, Chandra,, Swift, Ariel-V etc. data
- Include UV space cameras, XMM-OM, Swift-UVOT, GALEX
- Move XMM serves from On-the-fly to Database (make them faster)

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