

Serendipitous NuSTAR stray light observations provide unique data sets for bright X-ray sources

We **found** them so you don't have to and made the **tools** to analyze these observations

StrayCats II: A catalog of NuSTAR Stray Light Observations

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Intro

- Stray light known since before launch because of open geometry
- For focused observations, try to avoid SL when predictable
- Realized SL could be used for **calibration** and **science**
- Extends the NuSTAR energy range above 78 keV while maintaining energy resolution and timing precision

Status

- StrayCats v1.0 released early 2021, base catalog through June 2020
- StrayCats v2.0 (Ludlam et al, in press) extends through Jan 2022 (>50 new observations, 3 new sources, MAXI/BAT lightcurves, HRs, and source regions!)
- Analysis tools now science-ready as part of **nustar-gen-utils**

By the Numbers

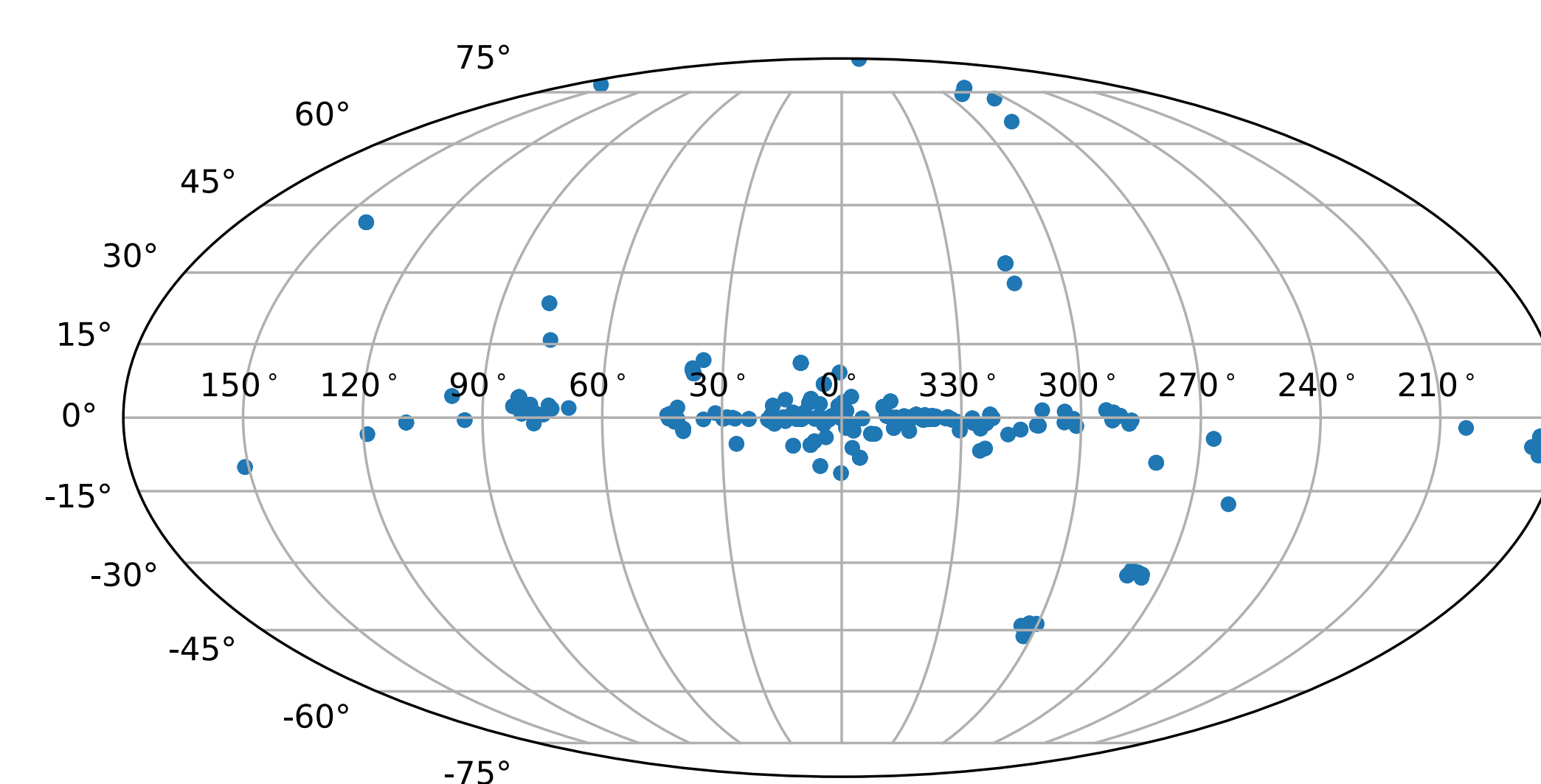
> 3000 observations checked

> 500 telescope fields ID'd

> 80 Stray Light Sources

4 Papers, >7 SURF Projects (and counting)

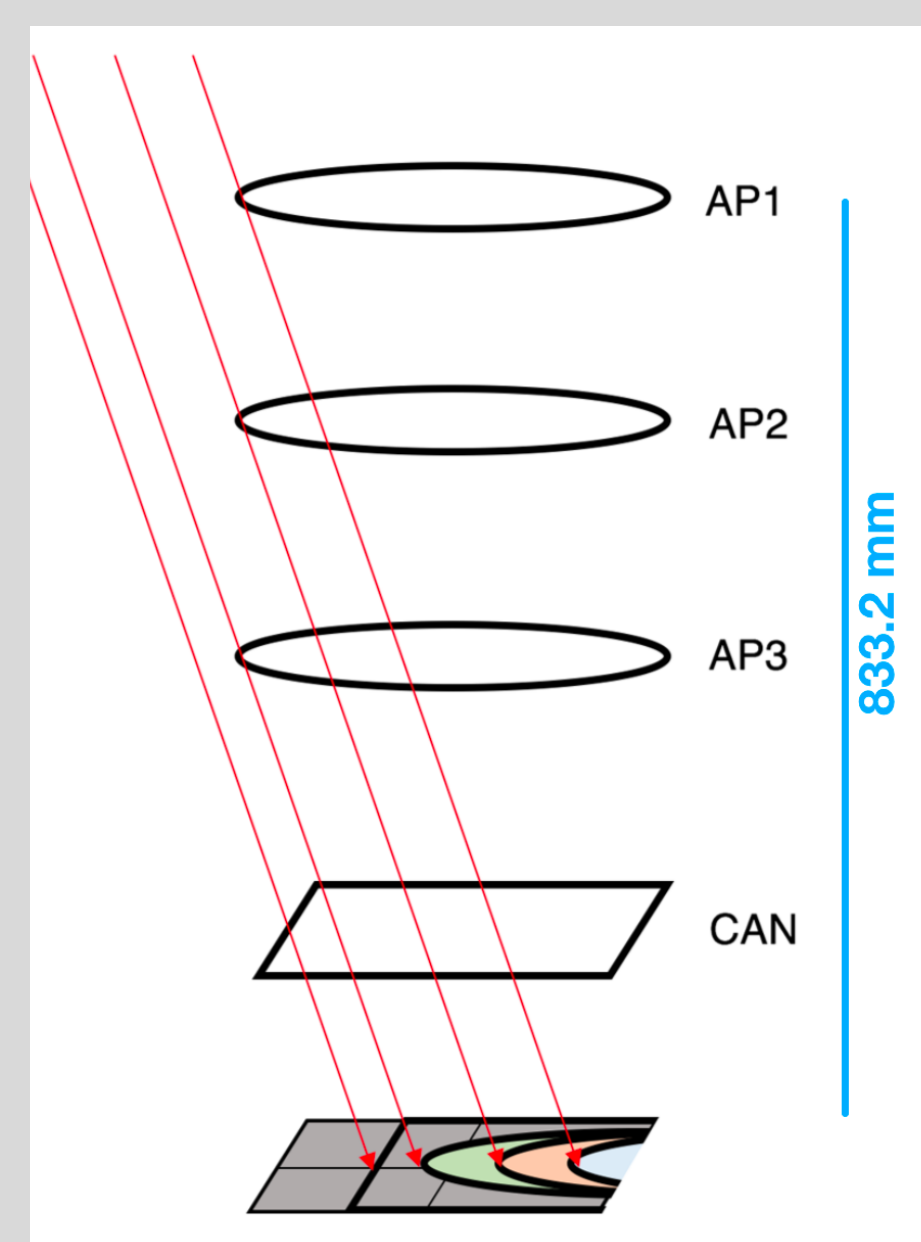
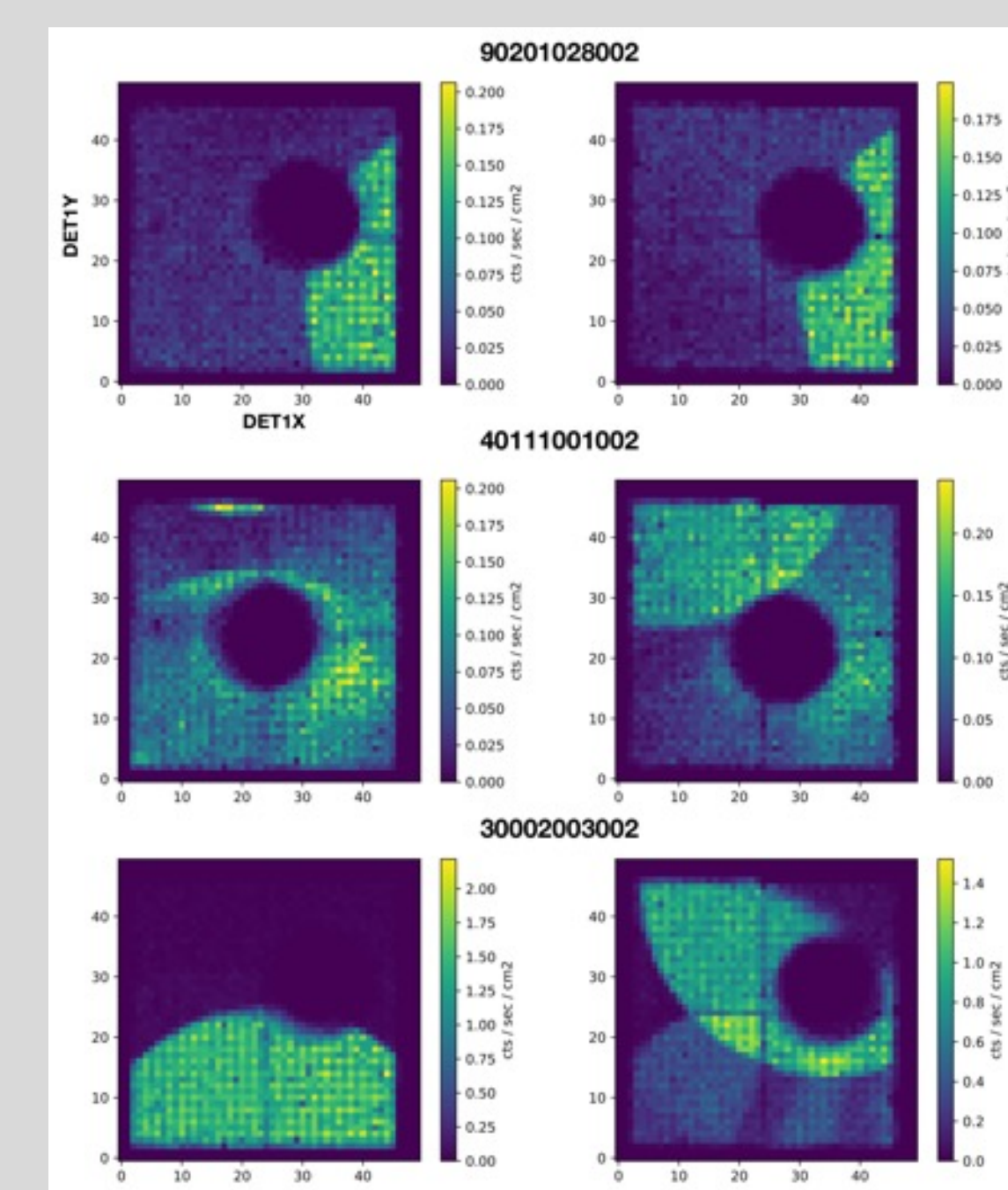
Where are the StrayCats?



To the Future

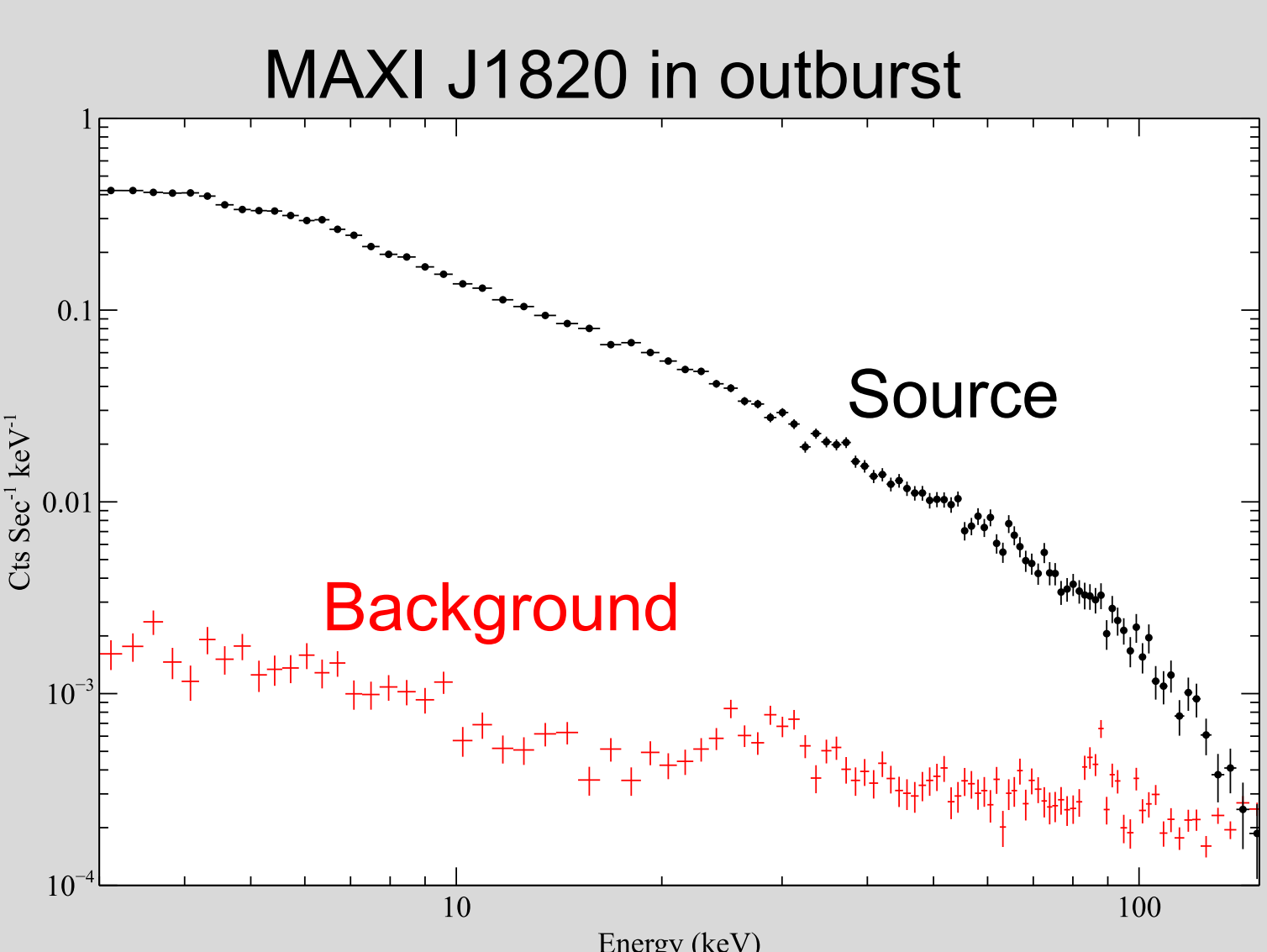
- StrayCats v3.0 in progress
 - Quicklook products
 - Estimated backgrounds
- Yearly updates
- More science!

Where does SL come from?



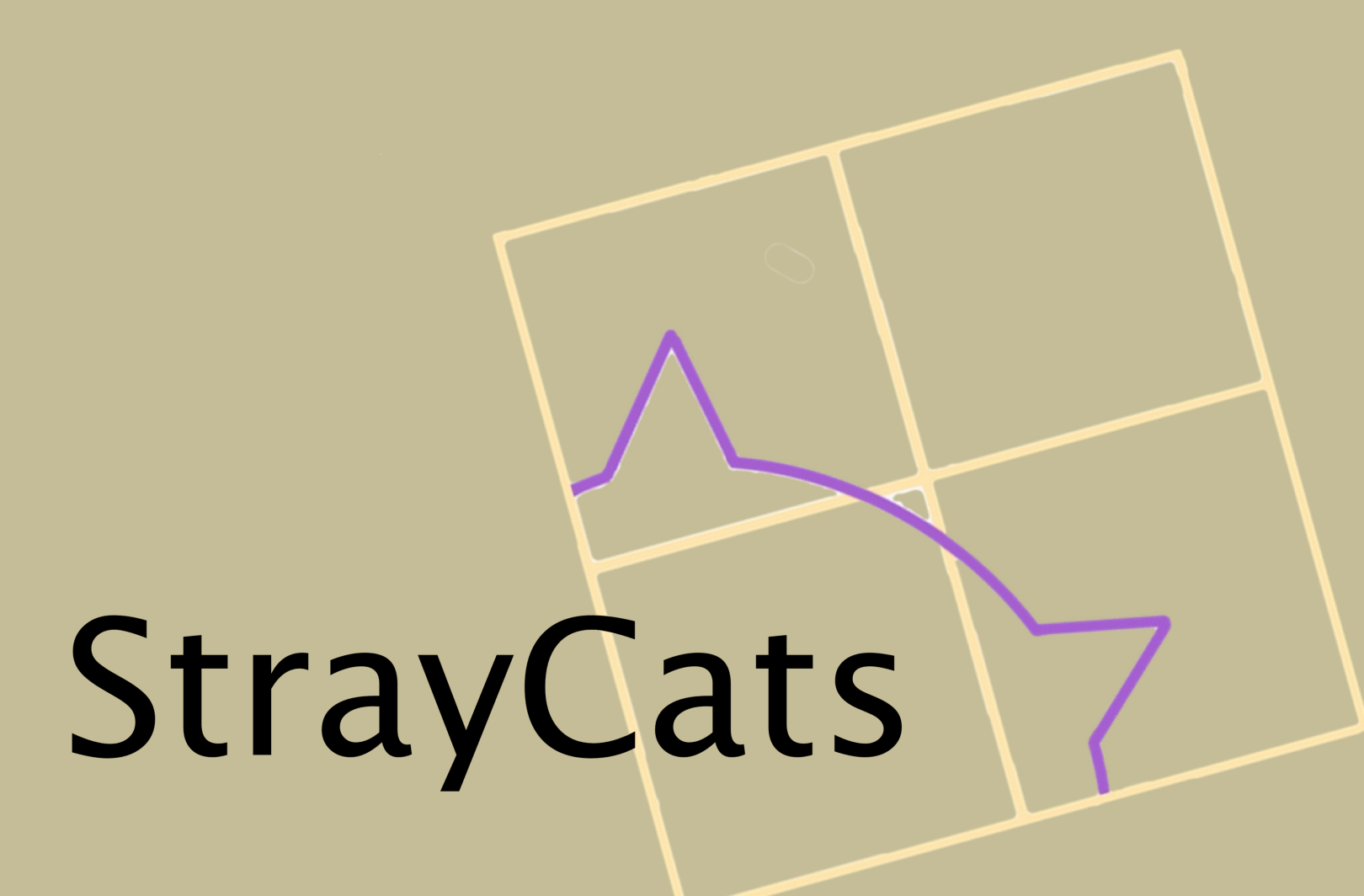
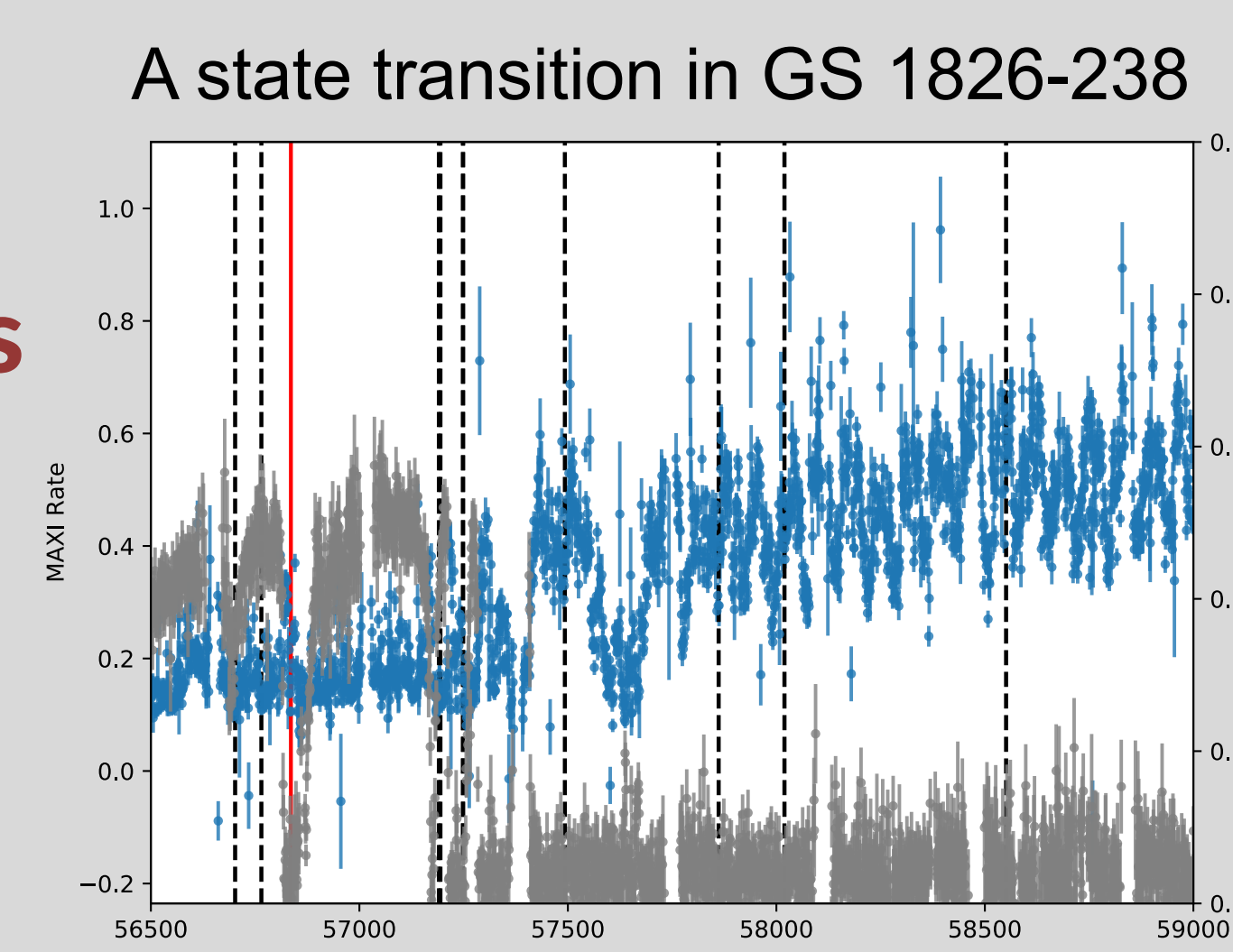
What does SL look like?

SL Can be used for timing (Brumack et al, 2021)



SL works >100 keV

Provides serendipitous observations of dynamic sources



Caltech

Is your favorite source a Stray Cat?

Come see.

