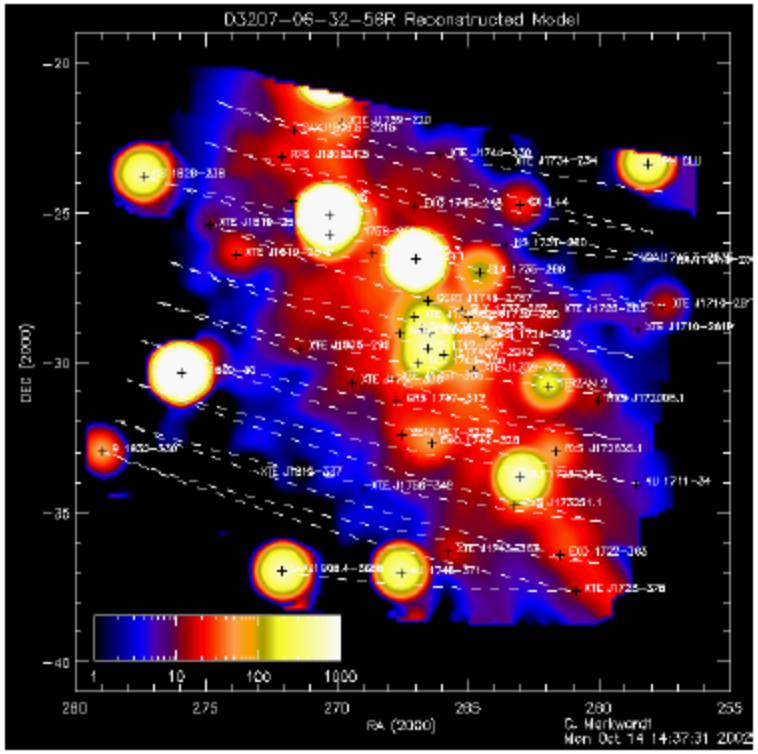
LAXPC Scan Observations

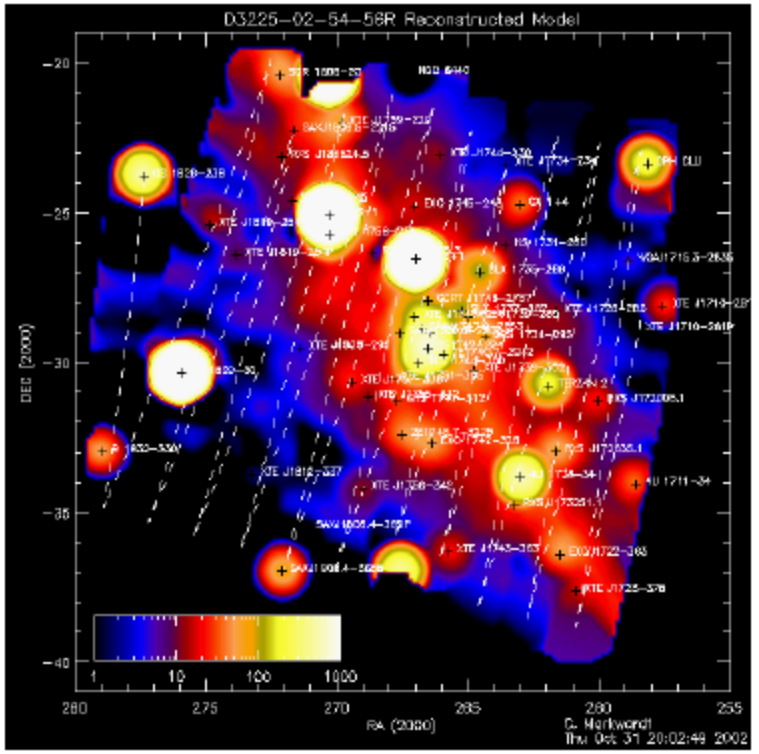
Purpose:

- **To detect transients in crowded regions, like the galactic plane, galactic bulge, SMC etc.**
- **To confirm faint transients detected with the SSM, flux measurement, in short observations.**
- **Identification of SSM discovery of transients in crowded regions.**

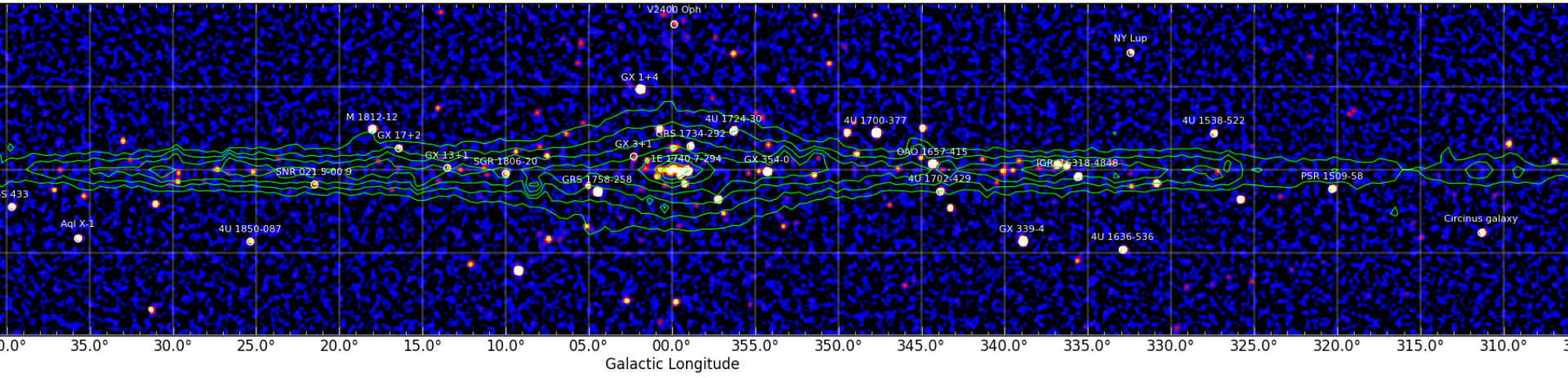
- **LAXPC scan is advantagous for 1-20 mCrab sources, in crowded regions.**
- **Some of these sources can be followed up with TOO.**

RXTE-PCA Scans

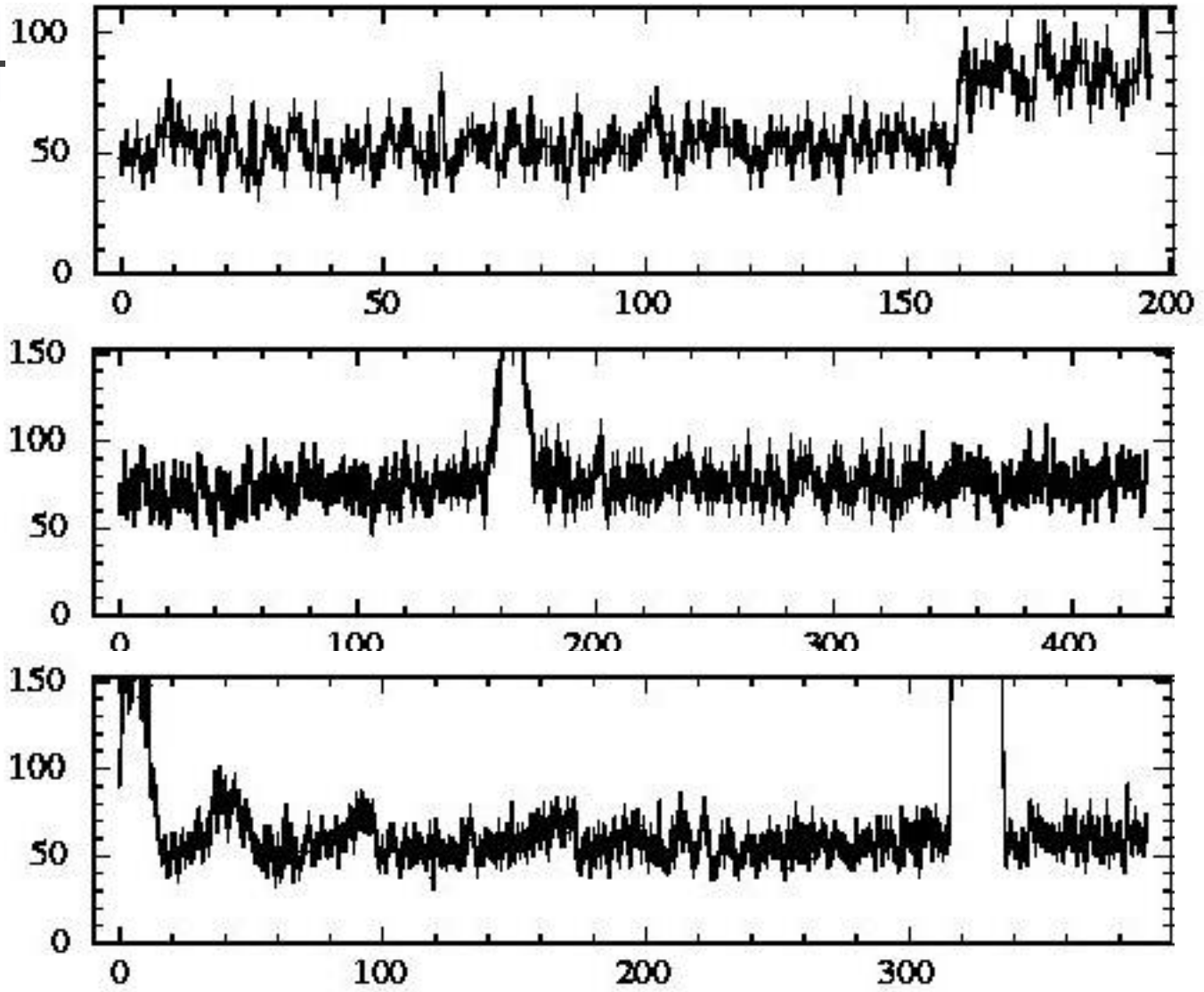




Integral Monitoring



PCA Scan Light Curves



LAXPC Scan Sensitivity

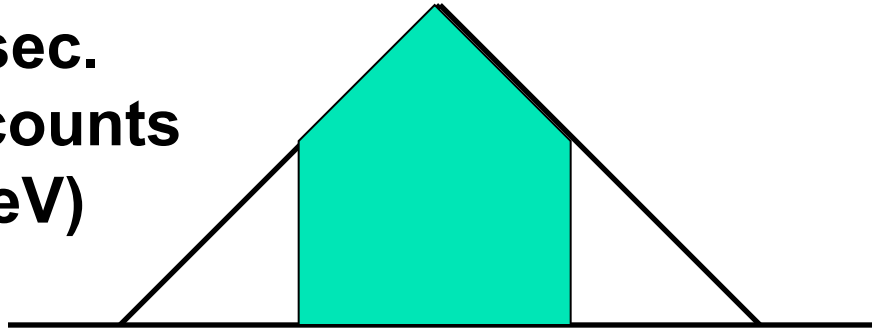
- Scan speed?
- Sensitivity: Depends on the background, but does not depend on the slow (>20 sec) variations in the background.

- At 0.2 deg sec^{-1} a source remains in the FOV for 3.5 sec.

- 1 mCrab --> 20 counts per sec.
- 3.5 seconds --> 52 excess counts
- Background --> 105 (3-10 keV)

→5σ detection

3-4 arcmin angular resolution



LAXPC Scan Plan

One scan every week will give sufficient time to follow through the transients during the rest of the outbursts (sun avoidance)

Galactic plane: ± 40 deg longitude, ± 3 deg latitude
400 sec x 10 scans → 4000 sec

Galactic bulge: 16 x 16 degree
80 sec x 20 scans (excluding the galactic plane) → 1600 sec

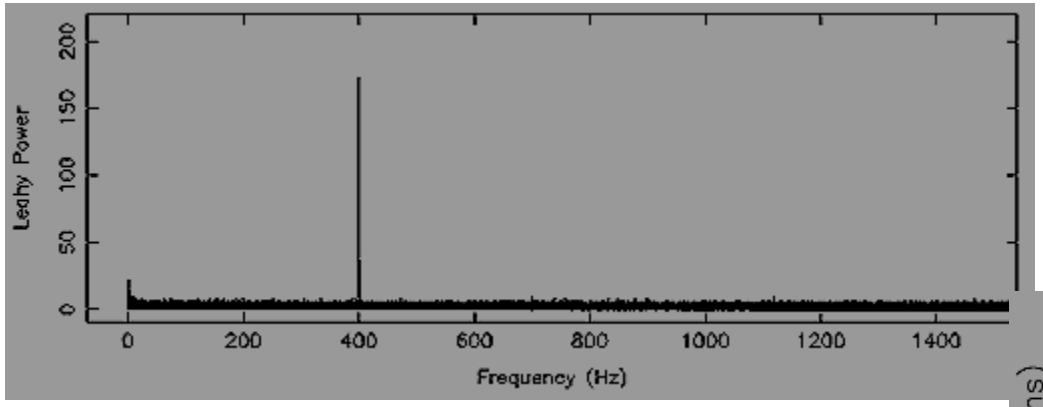
SMC: 6 deg x 6 deg
30 sec x 10 scans→ 300

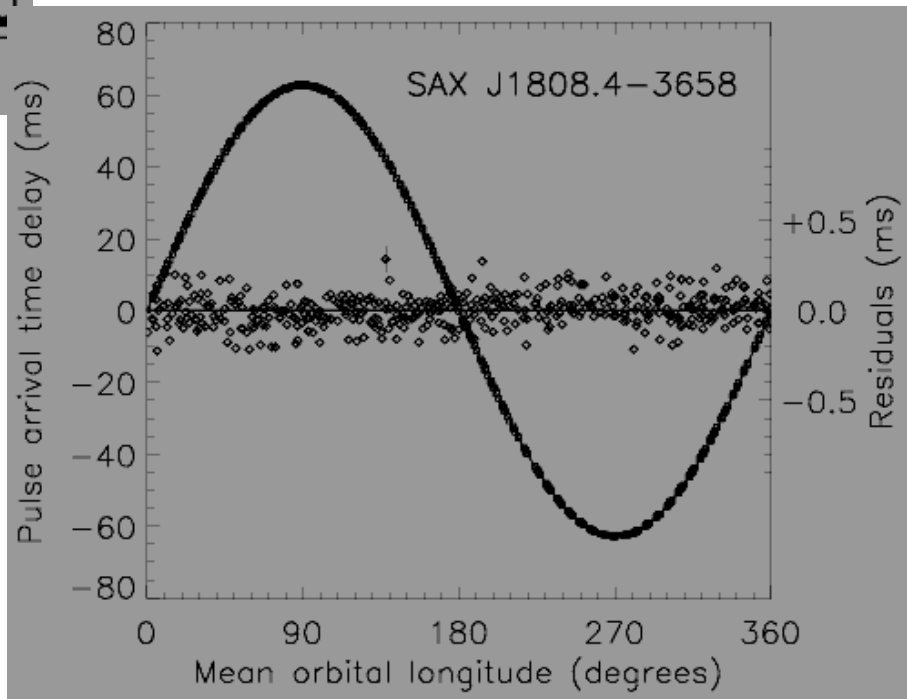
Total time for one scan = 5900 sec

Types of Transients from LAXPC Scan

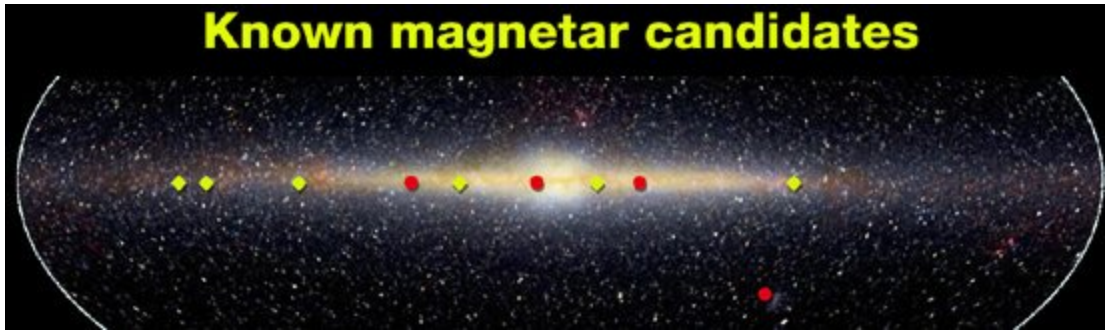
- SXTs: BH binaries
- LMXB-NS: Millisecond pulsars, Rapid burster, Bursting pulsar, Other transients
- Magnetars: Bursts, Active states
- Supergiant Fast X-ray Transients
- Be X-ray binaries
- Decaying LMXB transients: NS Cooling

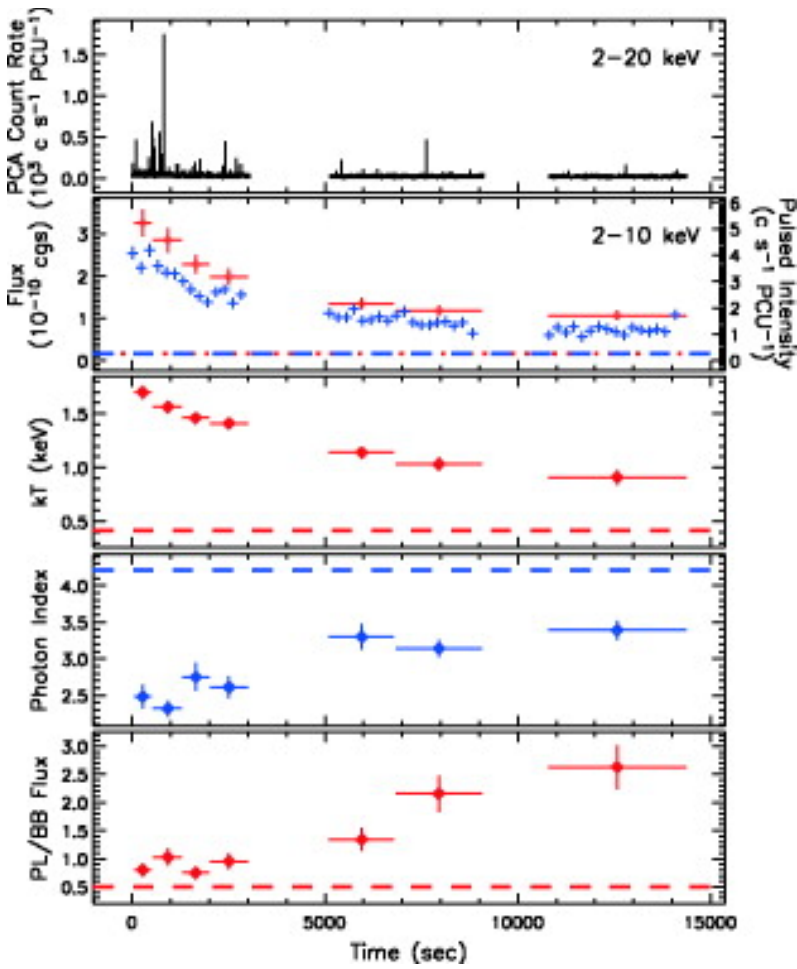
NS Millisecond Pulsations



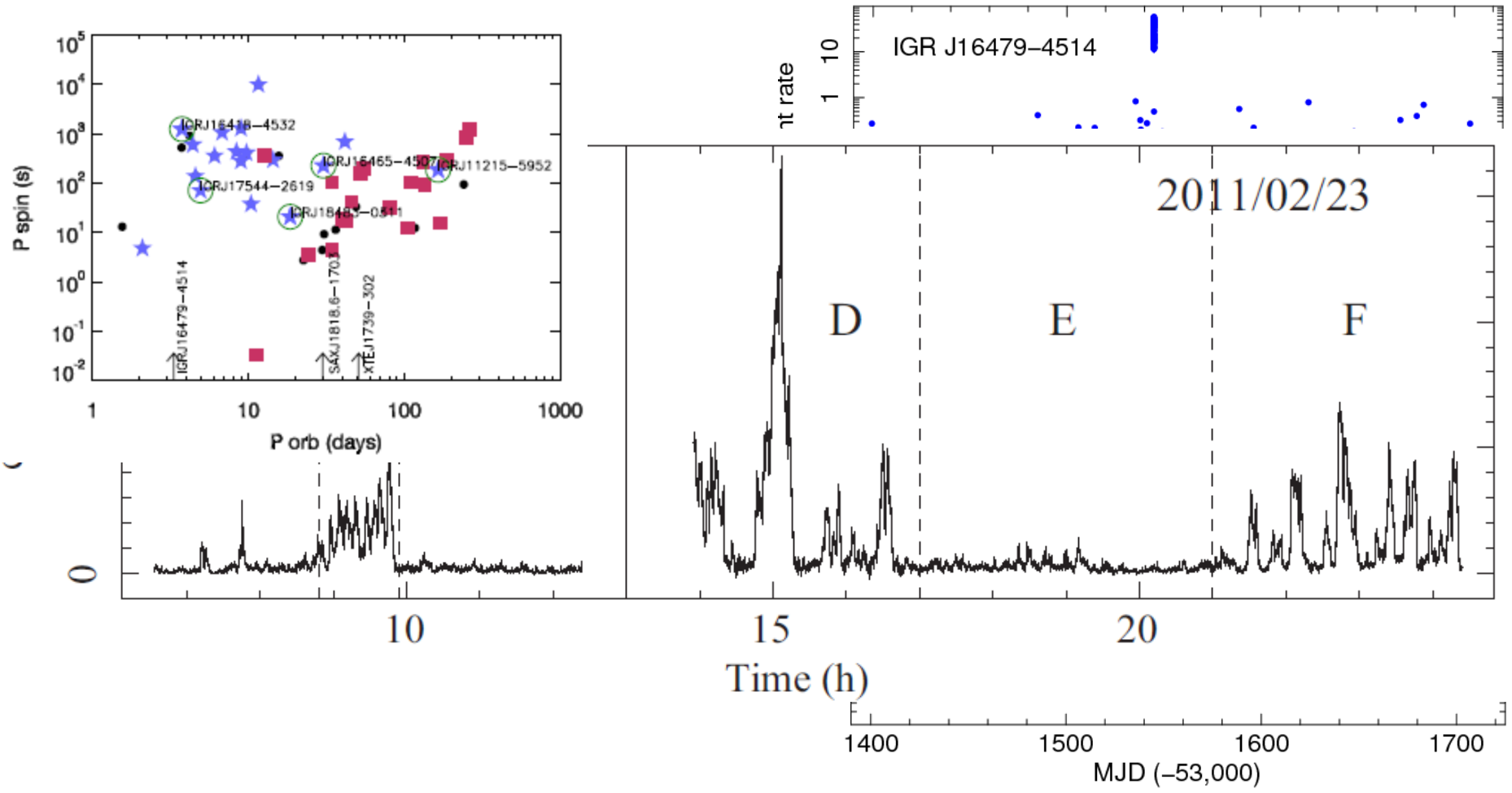


Bursting Magnetars





Supergiant Fast X-ray Transients



NS Binary – NS Cooling