

MAXI data archive plan

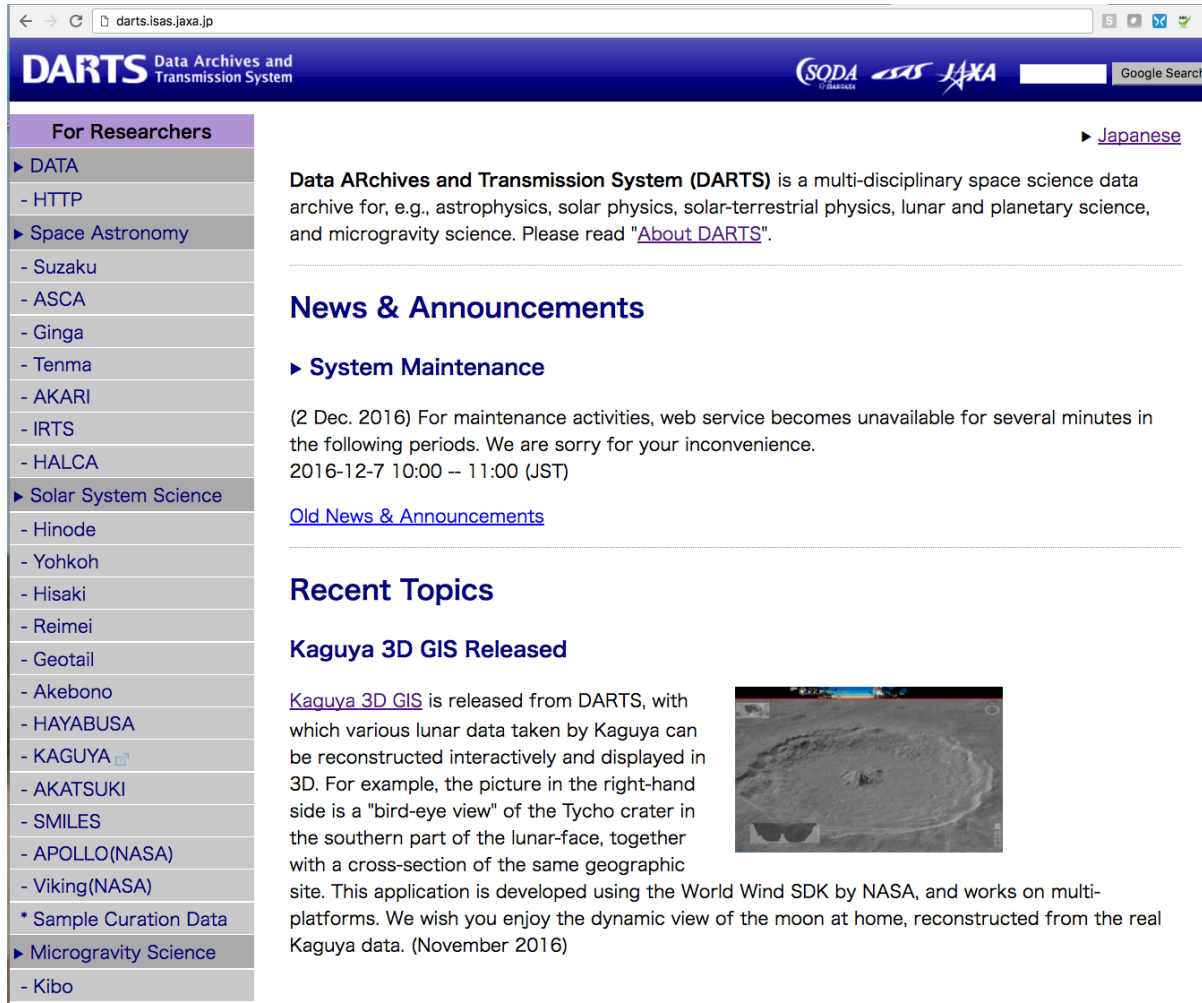
Ken Ebisawa (JAXA/ISAS) and the MAXI archive team

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1. JAXA's Science Archive DARTS



DARTS Data Archives and Transmission System

For Researchers [Japanese](#)

DATA

- HTTP
- ▶ **Space Astronomy**
 - Suzaku
 - ASCA
 - Ginga
 - Tenma
 - AKARI
 - IRTS
 - HALCA
- ▶ **Solar System Science**
 - Hinode
 - Yohkoh
 - Hisaki
 - Reimei
 - Geotail
 - Akebono
 - HAYABUSA
 - KAGUYA
 - AKATSUKI
 - SMILES
 - APOLLO(NASA)
 - Viking(NASA)
 - * Sample Curation Data
- ▶ **Microgravity Science**
 - Kibo

Data ARchives and Transmission System (DARTS) is a multi-disciplinary space science data archive for, e.g., astrophysics, solar physics, solar-terrestrial physics, lunar and planetary science, and microgravity science. Please read "[About DARTS](#)".

News & Announcements

▶ **System Maintenance**


(2 Dec. 2016) For maintenance activities, web service becomes unavailable for several minutes in the following periods. We are sorry for your inconvenience.
2016-12-7 10:00 – 11:00 (JST)

[Old News & Announcements](#)

Recent Topics

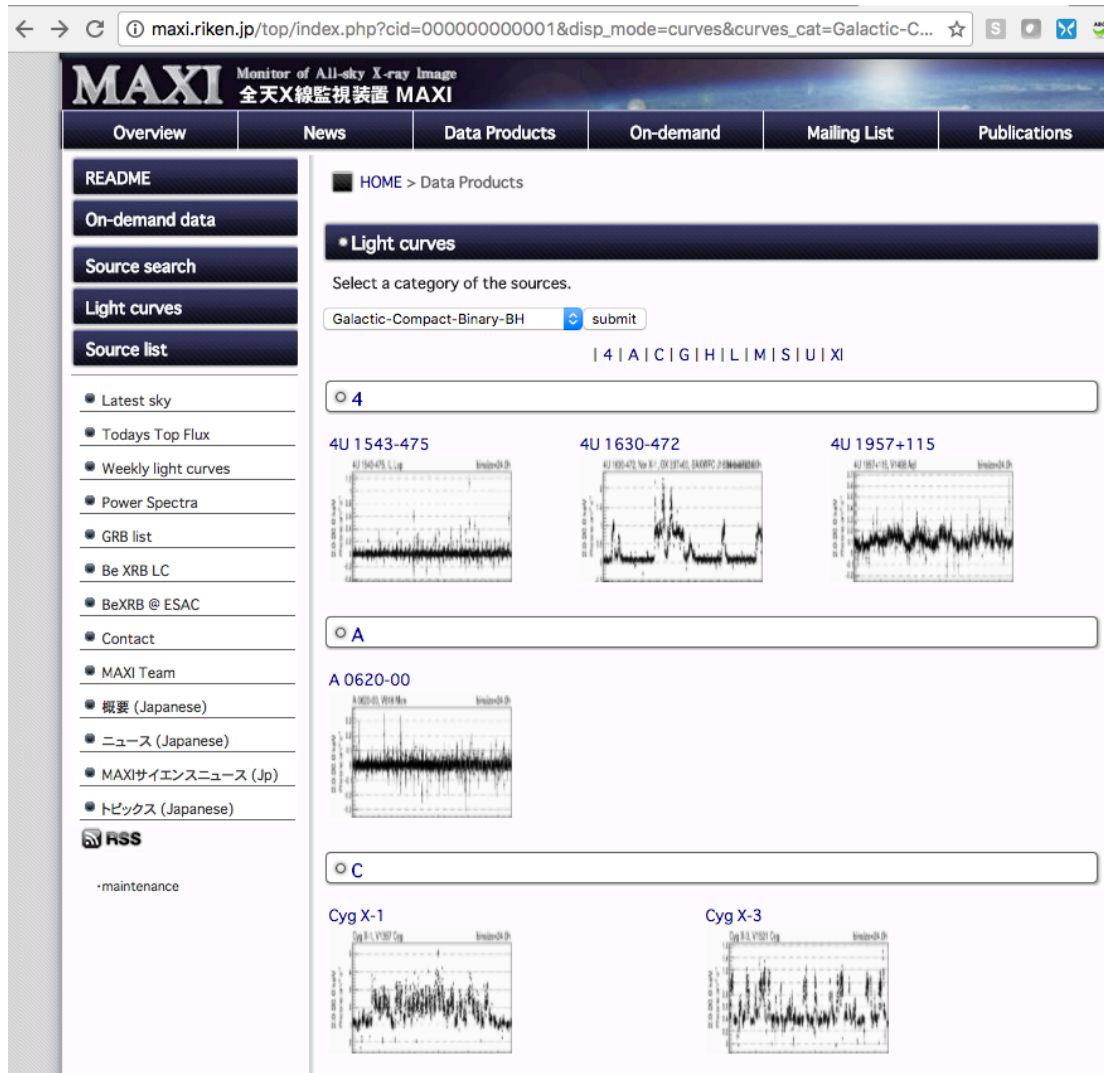
Kaguya 3D GIS Released

[Kaguya 3D GIS](#) is released from DARTS, with which various lunar data taken by Kaguya can be reconstructed interactively and displayed in 3D. For example, the picture in the right-hand side is a "bird-eye view" of the Tycho crater in the southern part of the lunar-face, together with a cross-section of the same geographic site. This application is developed using the World Wind SDK by NASA, and works on multi-platforms. We wish you enjoy the dynamic view of the moon at home, reconstructed from the real Kaguya data. (November 2016)



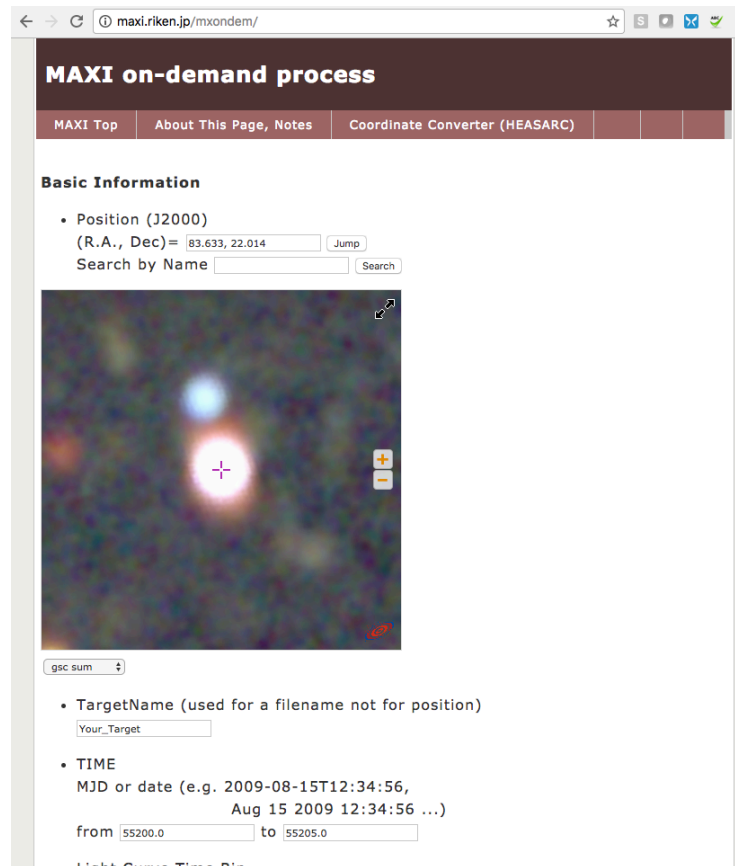
- DARTS (<http://darts.isas.jaxa.jp>) is JAXA's sole science data archive
- After JAXA's science satellite operation is finished, the data are archived at DARTS
- MAXI data will be archived at DARTS, together with the data of ASCA, Suzaku, Hitomi (X-rays), Akari (IR)etc.

2. MAXI light-curves



- MAXI source light-curves are being released from RIKEN, under <http://maxi.riken.jp>
- This site will be maintained as long as MAXI is in operation.
- After MAXI operation is finished, these light-curves will be permanently archived at DARTS.

3. MAXI on-demand analysis system



- <http://maxi.riken.jp/mxondem/>
- Users can specify a time-period and sky-region to extract a light curve, spectrum and response.
- Being ported to **DARTS**, and will be permanently available in **UDON2**, on-demand quick-analysis tool currently for ASCA, Suzaku and Hitomi.

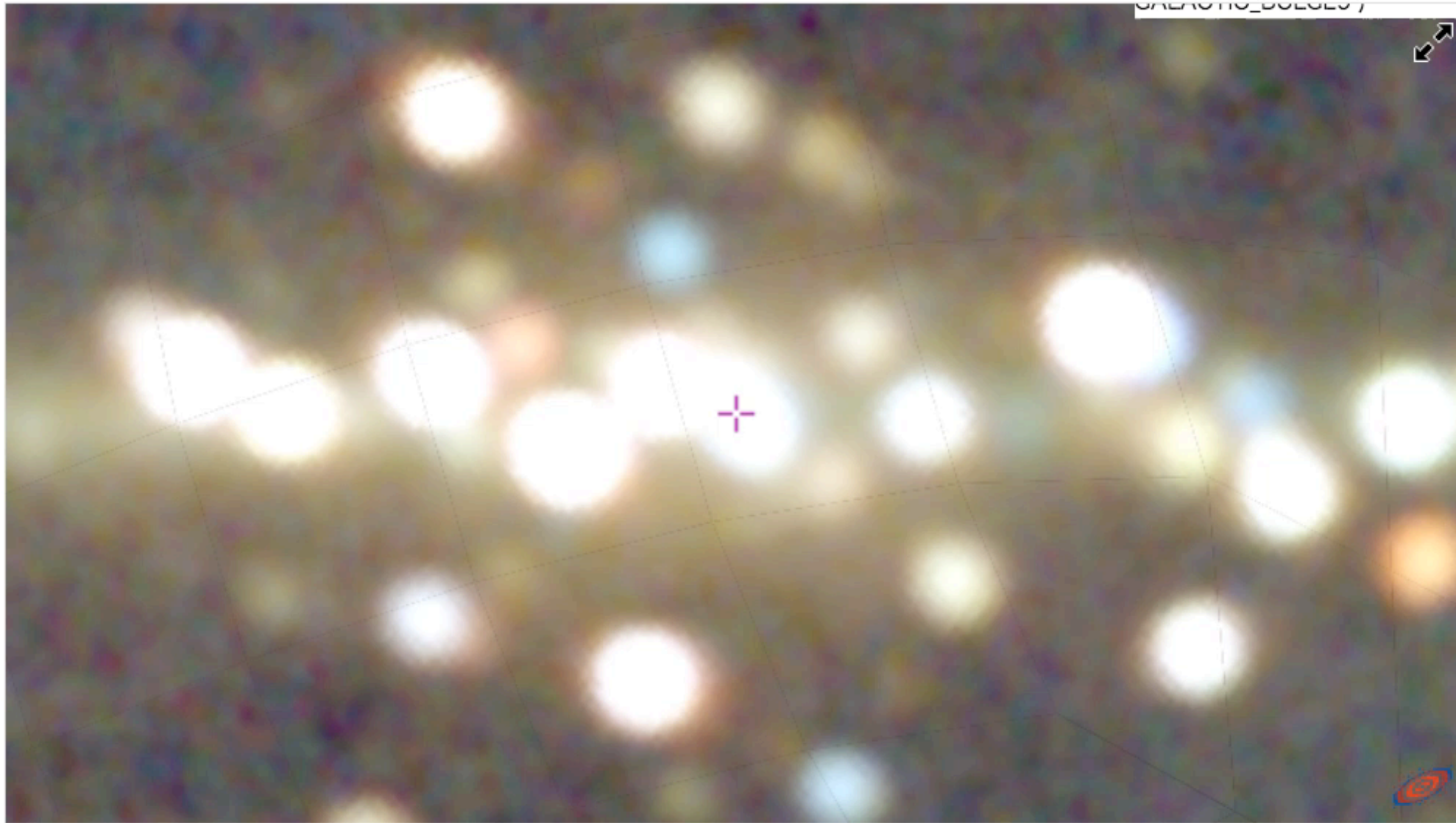
UDON2 – second version of Universe via DARTS ON-line
<http://darts.isas.jaxa.jp/astro/udon2/udon2.html>

4. Interactive image browsing system (JUDO2)

- **JUDO2 can display various all-sky images, overlaying on each other**
 - Adopting the HiPS/Aladin Lite technology by CDS
- Users can jump to Suzaku, ASCA archive at DARTS, XMM-archive at ESAC
- Users can jump to UDON2 (ASCA, Suzaku) or MAXI on-demand for quick-analysis

JUDO2 – second version of JAXA Universe Data Oriented
<http://darts.isas.jaxa.jp/astro/judo2/>

MAXI and Swift-BAT images of the Galactic plane



Useful to compare instruments with different PSF sizes

FOVs: ● SUZAKU Public ● SUZAKU Proprietary ● SIS ● GIS ● GIS64 ● XMM-Newton

Transparency

Top Image



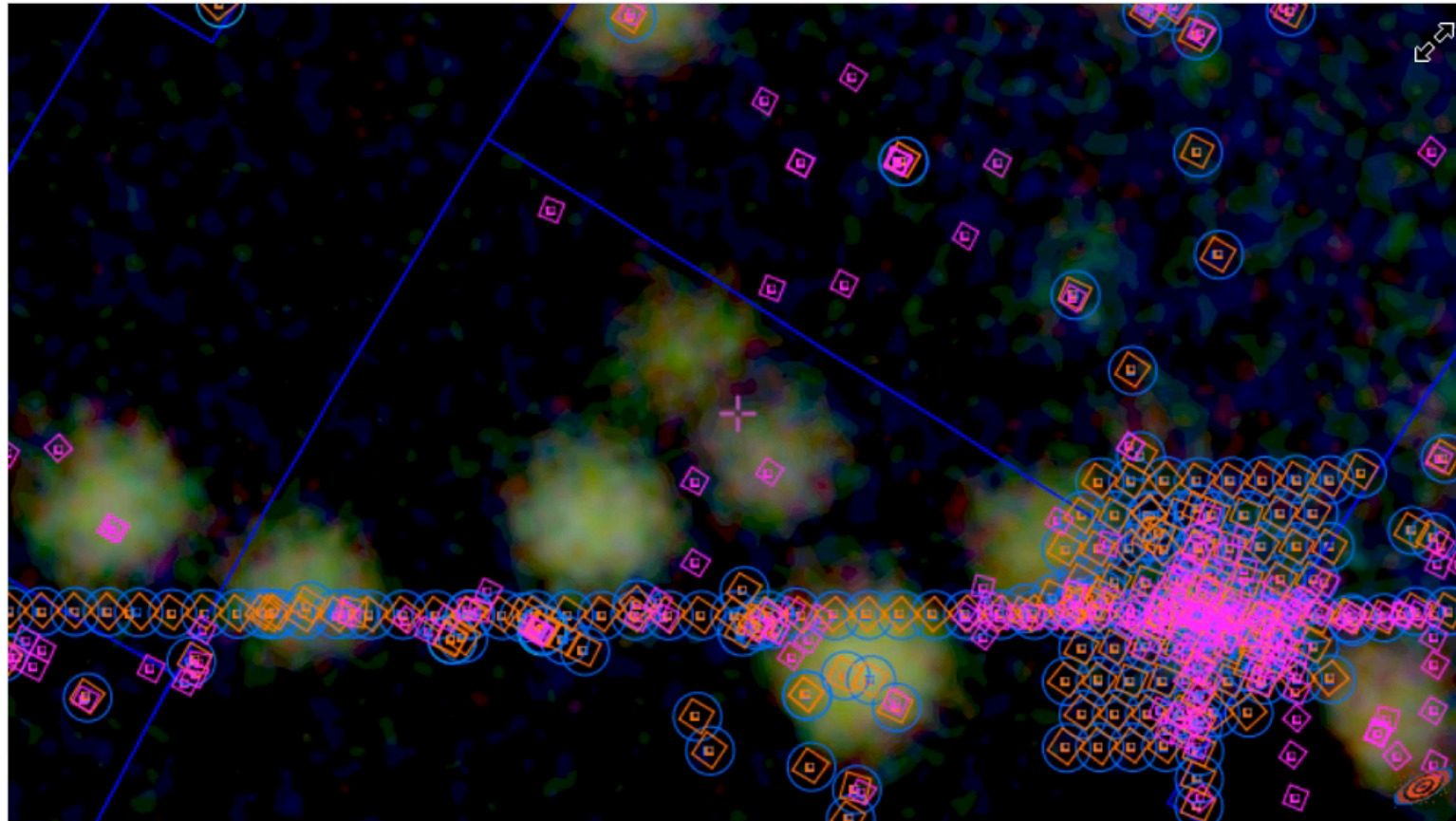
Graphic



Hard to Soft state transition of the black hole candidate XTE J1752-223 (MAXI GSC) around January 21, 2010

The source color changes from bluish (hard X-ray spectrum) to reddish (soft X-ray spectrum).

permalink



FOVs: ● SUZAKU Public ● SUZAKU Proprietary ● SIS ● GIS ● GIS64 ● XMM-Newton

Transparency

Time Series Control

maxi gsc daily

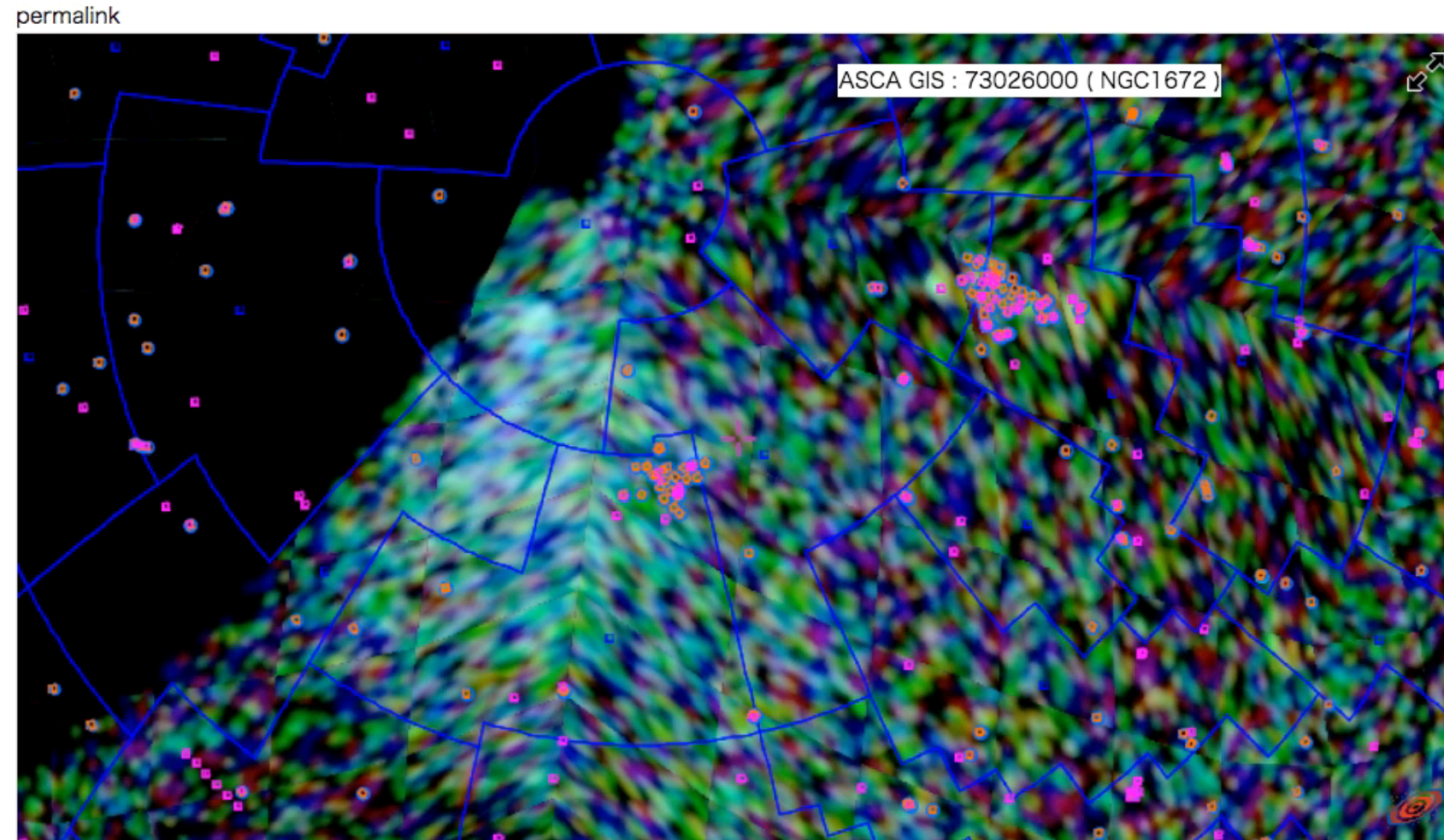
<- -> Start Play S F

/2010/01/09

Useful to see time-evolution of images

Soft X-ray transition MAXI J0158-744 on Nov. 11, 2011

The soft transient source is discovered with SSC, but not seen with GSC



Time Series Control

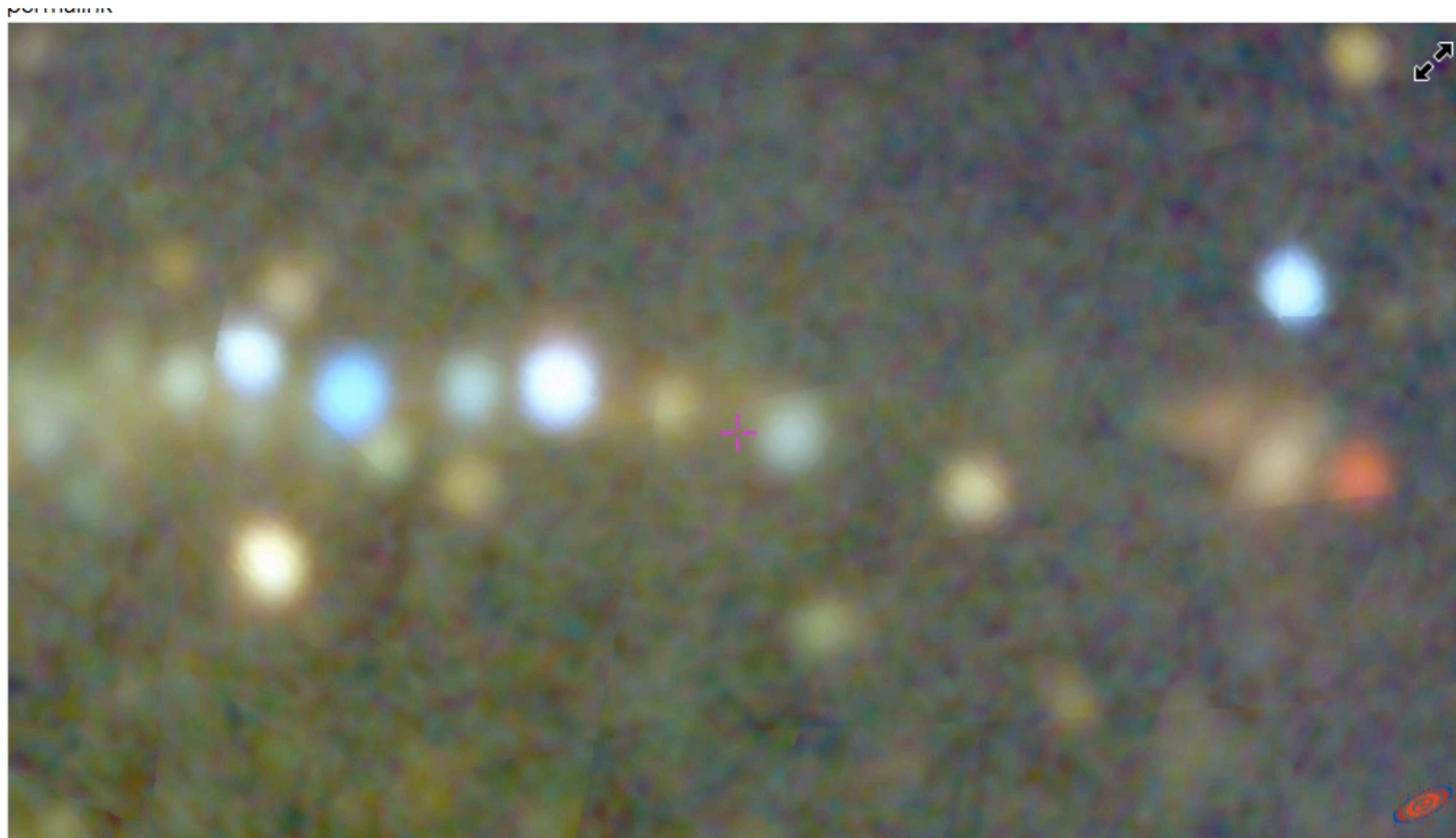
maxi ssc daily

<- -> Start Play S F

/2011/11/05

Useful to see time-evolution of images

Vela-Carena region MAX GSC and SSC images



Compare different energy bands

FOVs: ● SUZAKU Public ● SUZAKU Proprietary ● SIS ● GIS ● GIS64 ● XMM-Newton

Transparency

Top Image

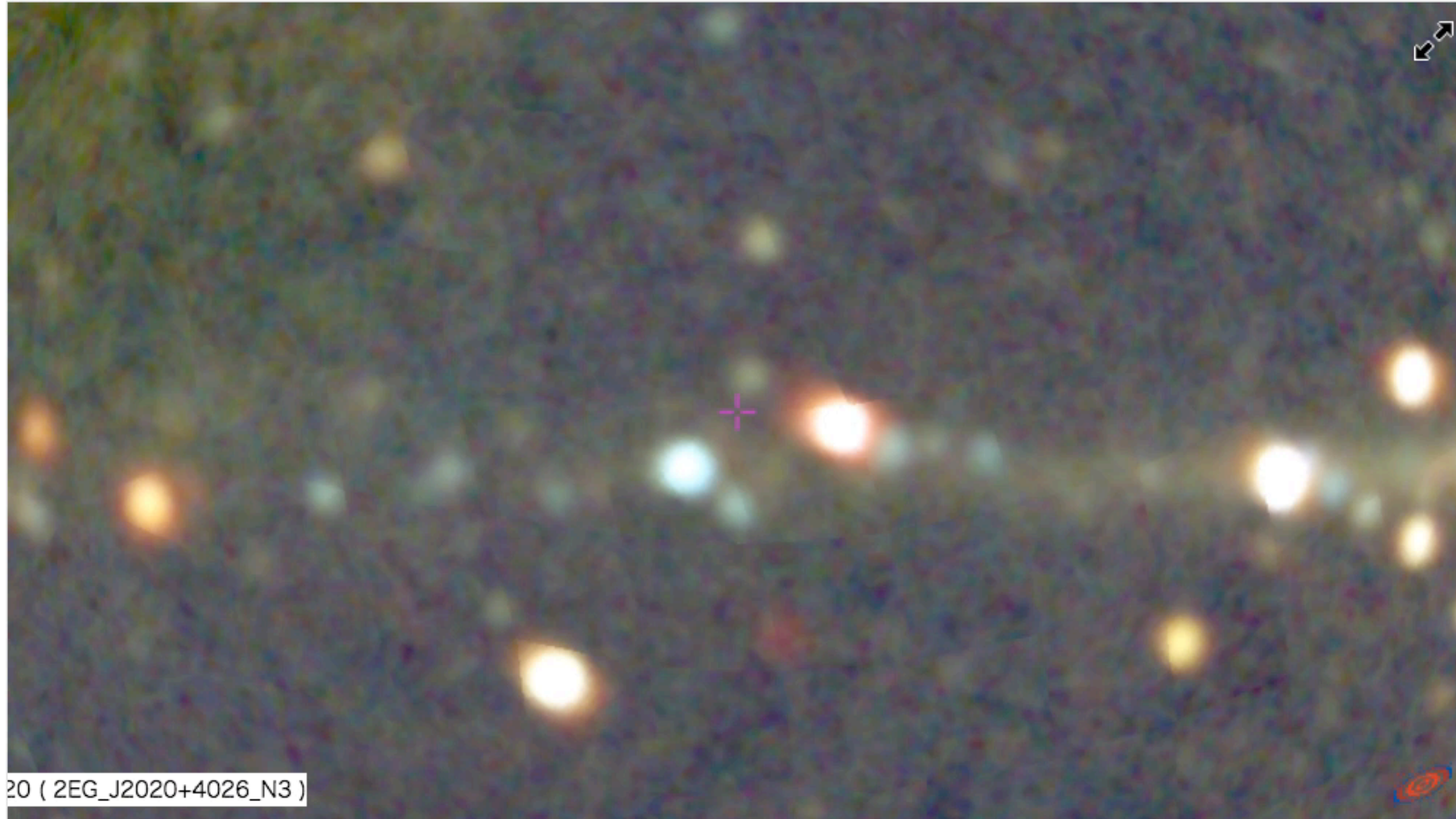


Graphic



Constellation

permalink



20 (2EG_J2020+4026_N3)

FOVs: ● SUZAKU Public ● SUZAKU Proprietary ● SIS ● GIS ● GIS64 ● XMM-Newton

Transparency

Top Image

Graphic

Can easily tell which constellation is being observed

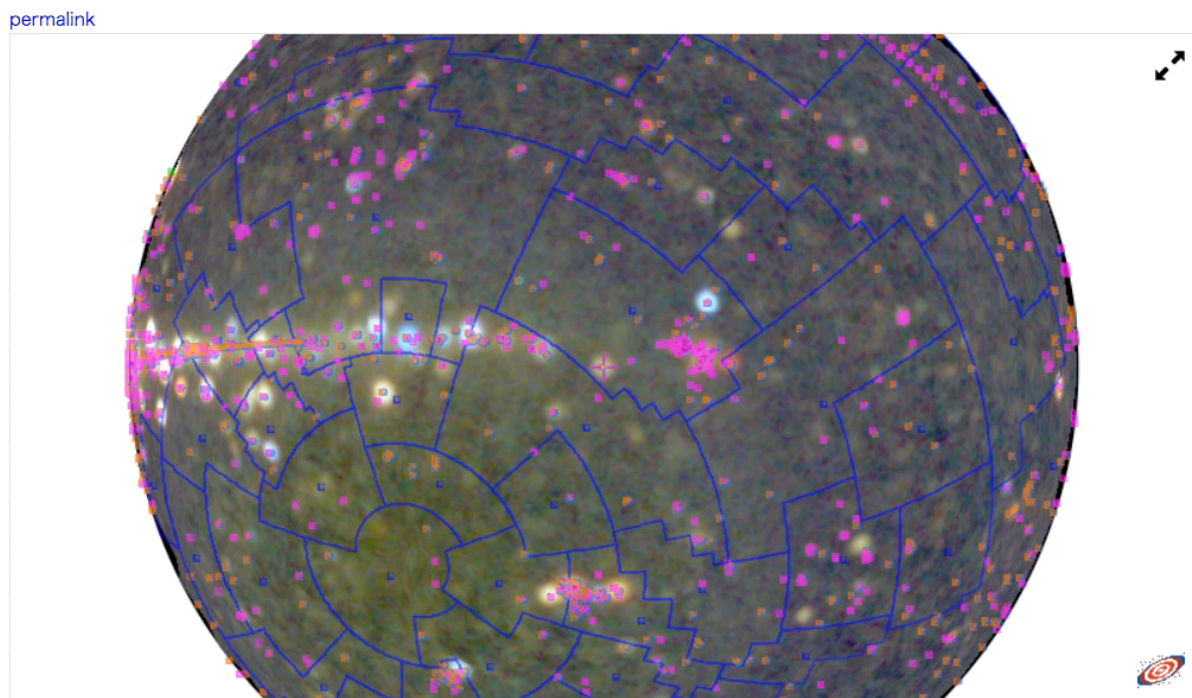
- ▶ Main
- ▶ About JUDO2
- ▶ Samples
- ▶ Help

- SIMBAD Progressive Catalog
- Constellation Boundaries
- Aladin Healpix Grid

Name	Bottom	Top
SUZAKU		
public image	<input type="checkbox"/>	<input checked="" type="checkbox"/>
public FOV ●	<input checked="" type="checkbox"/>	
proprietary FOV ●	<input checked="" type="checkbox"/>	
ASCA SIS		
public image	<input type="checkbox"/>	<input type="checkbox"/>
public FOV ●	<input checked="" type="checkbox"/>	
ASCA GIS		
public image	<input type="checkbox"/>	<input type="checkbox"/>
public FOV ●	<input checked="" type="checkbox"/>	
ASCA GIS64		

The position you are interested.
 (Click to change on the image.)
 pos=(277.078875, -3.311607)
 coord=galactic
 radius=0.02 deg
 Check with external services:
[SDSS DR9 Navigate Tool](#)
[NED](#)
[SIMBAD](#)
[ADS](#)

longitude= 280.44255398462445 latitude= -1.9936444519151222
 18h41m46s.21 -01d59'37".1
 Constellation= Vela
 coordinate: Show Information Go To:



FOVs: ● SUZAKU Public ● SUZAKU Proprietary ● SIS ● GIS ● GIS64 ● XMM-Newton
 Transparency
 Top Image Graphic

Information:

SUZAKU	ASCA SIS	ASCA GIS	ASCA GIS64
100001010 (E0102-72)	100001020 (E0102-72)	100002010 (N132D)	
100002060 (N132D)	100003010 (DEM_L71/N23)	100004010 (MCG-6-30-15)	
100005010 (Cen A)	100008010 (NGC 4945)	100008020 (NGC 4945)	
100008030 (NGC 4945)	100009010 (PSR1509-58)	100011010 (Galactic bulge)	

Jump from JUDO2 to MAXI on-demand or UDON2

Quickly look at ASCA spectrum and light-curve

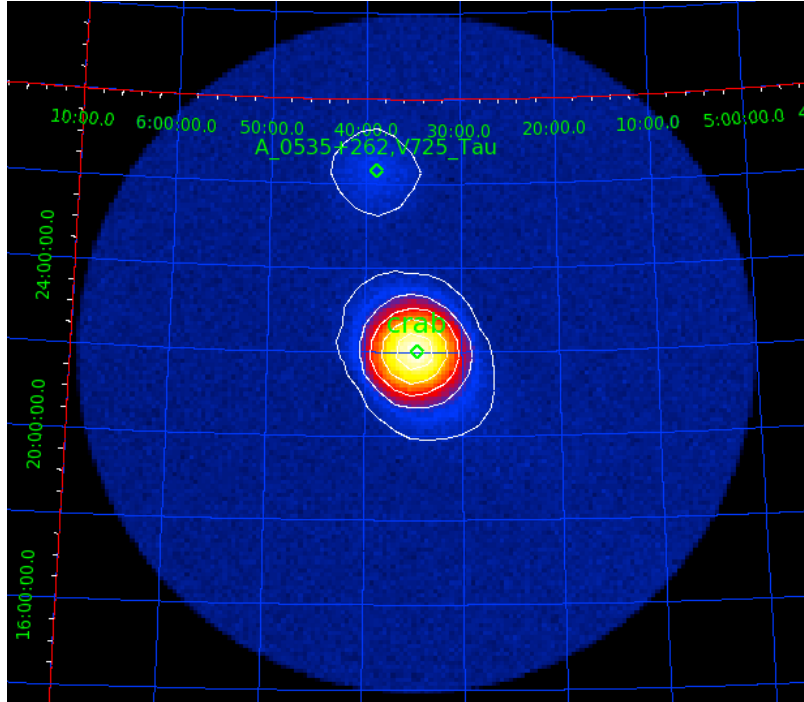
5. The MAXI archive

- Daily event files are divided into 768 Healpix regions.
- All the event files will be immediately public, just after the observation (typical delay ~15 min).
 - ~800 Gbytes for seven years
- Data archive will be released from DARTS at ISAS/JAXA and HEASARC at NASA/GSFC.
- MAXI analysis tools and calibration files will be included in HEASoft and CALDB, respectively, and released from HEASARC.
- MAXI data can be analyzed just like other pointing satellite data !

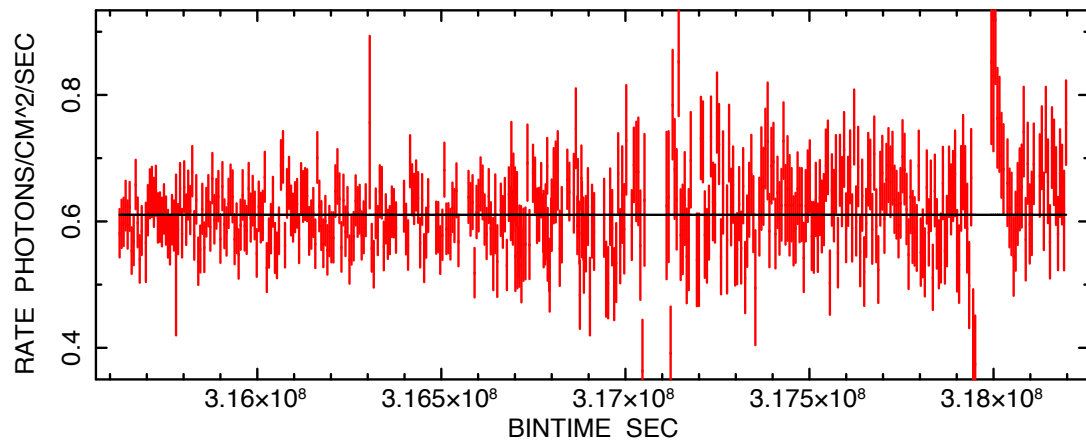
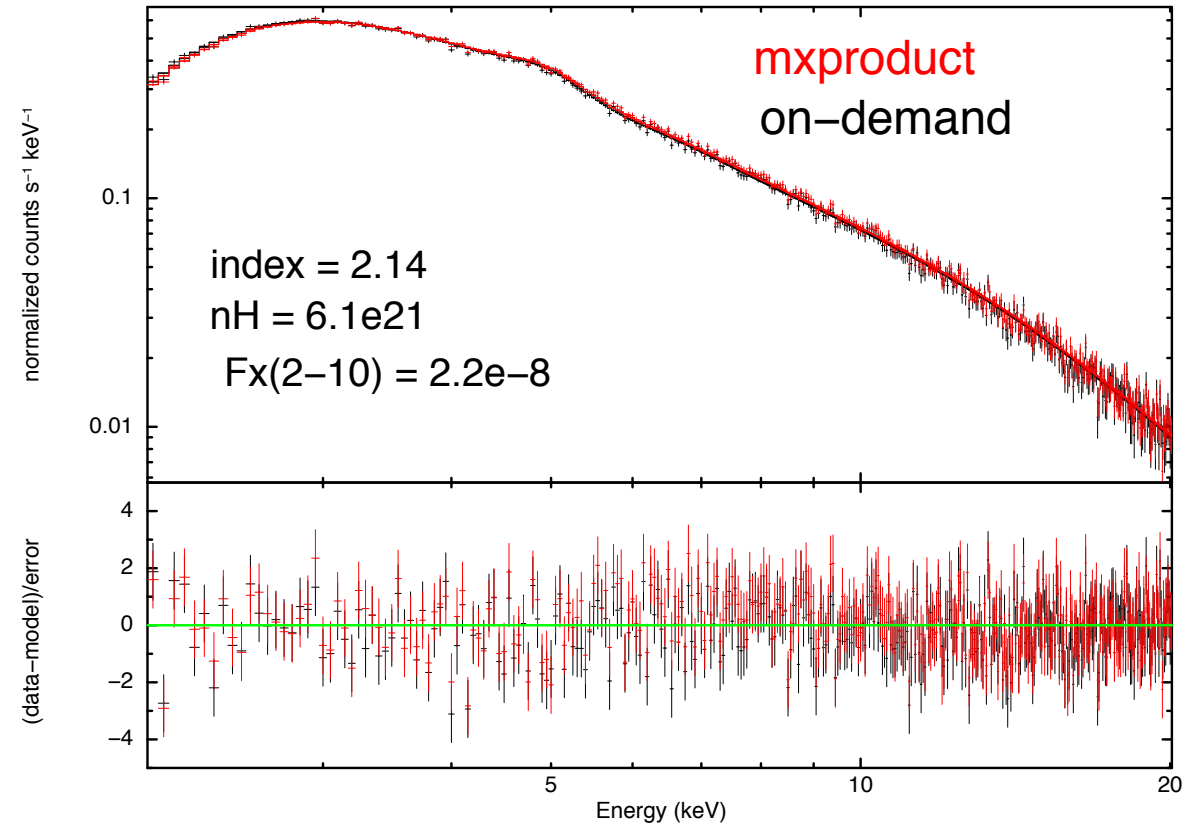
MAXI data analysis so easy...

- **Download data from DARTS (only specify RA, DEC and time-period)**
`mxdownload -x 83.633083 -y 22.01450 -f 2010-01-01 -t 2010-01-31 -r 5`
`--uri=https://darts.isas.jaxa.jp/pub/maxi`
- **Run the analysis script (only specify RA, DEC, time-period and source region file)**
`mxproduct 83.633083 22.01450 2010-01-01 2010-01-31 object=crab`
`srcregfile_gsc=crab_src.reg`

Crab image



See P-43 for clusters of galaxies over years



Crab spectrum and model fitting

Crab light curve

6. Schedule

- We are now testing the MAXI archive system toward the public release
- JUDO2 – full capability available (update daily, weekly, monthly, yearly images) – **early 2017**
- MAXI on-demand system merged to UDON2 – **early 2017**
- MAXI archive release from DARTS – **early 2017**
 - MAXI ftools and CALDB released from DARTS
 - Users need install MAXI ftools separately on the standard HEASoft
- MAXI archive release from HEASARC – **spring 2017**
 - MAXI ftools and CALDB released from HEASARC
 - Users no-longer need MAXI specific installation