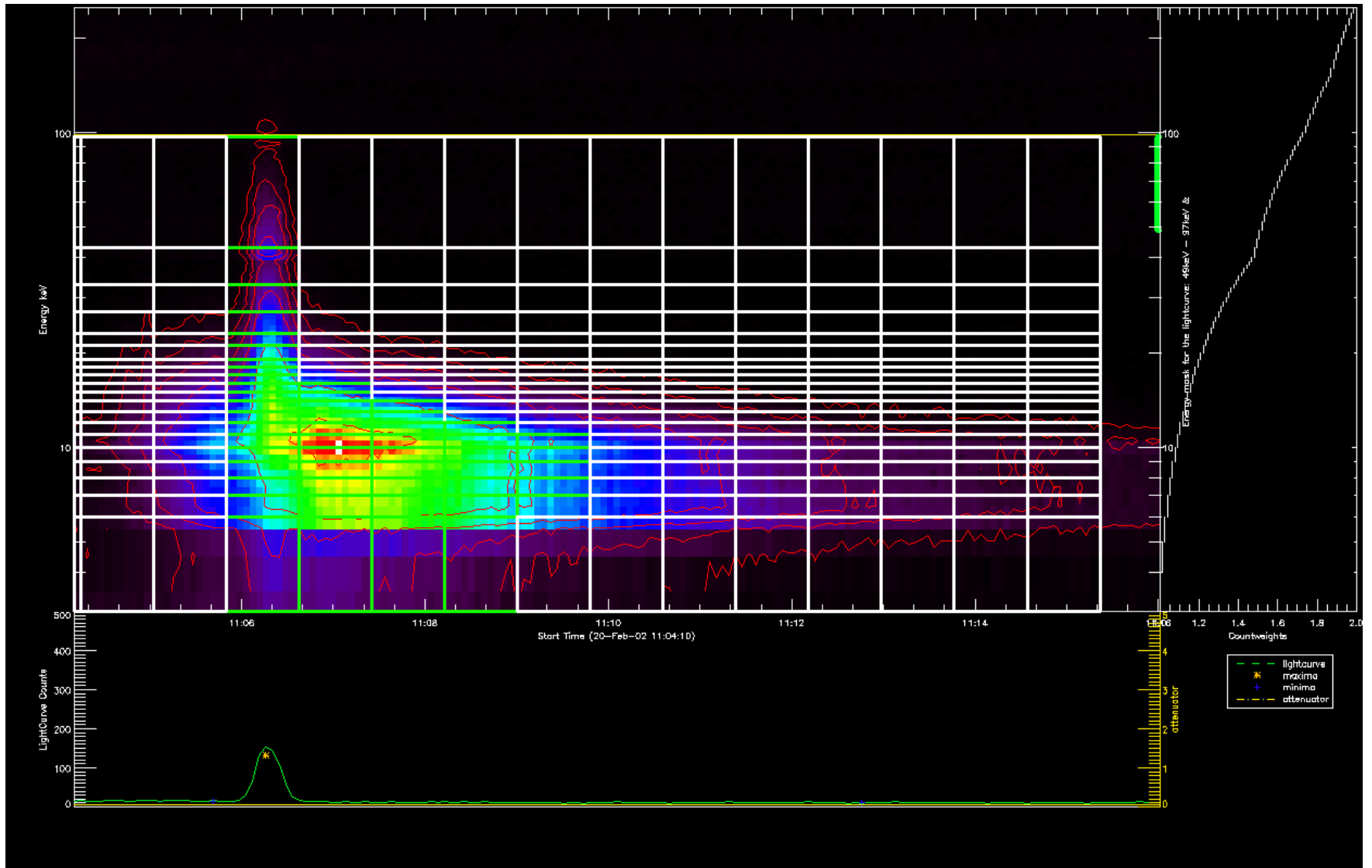


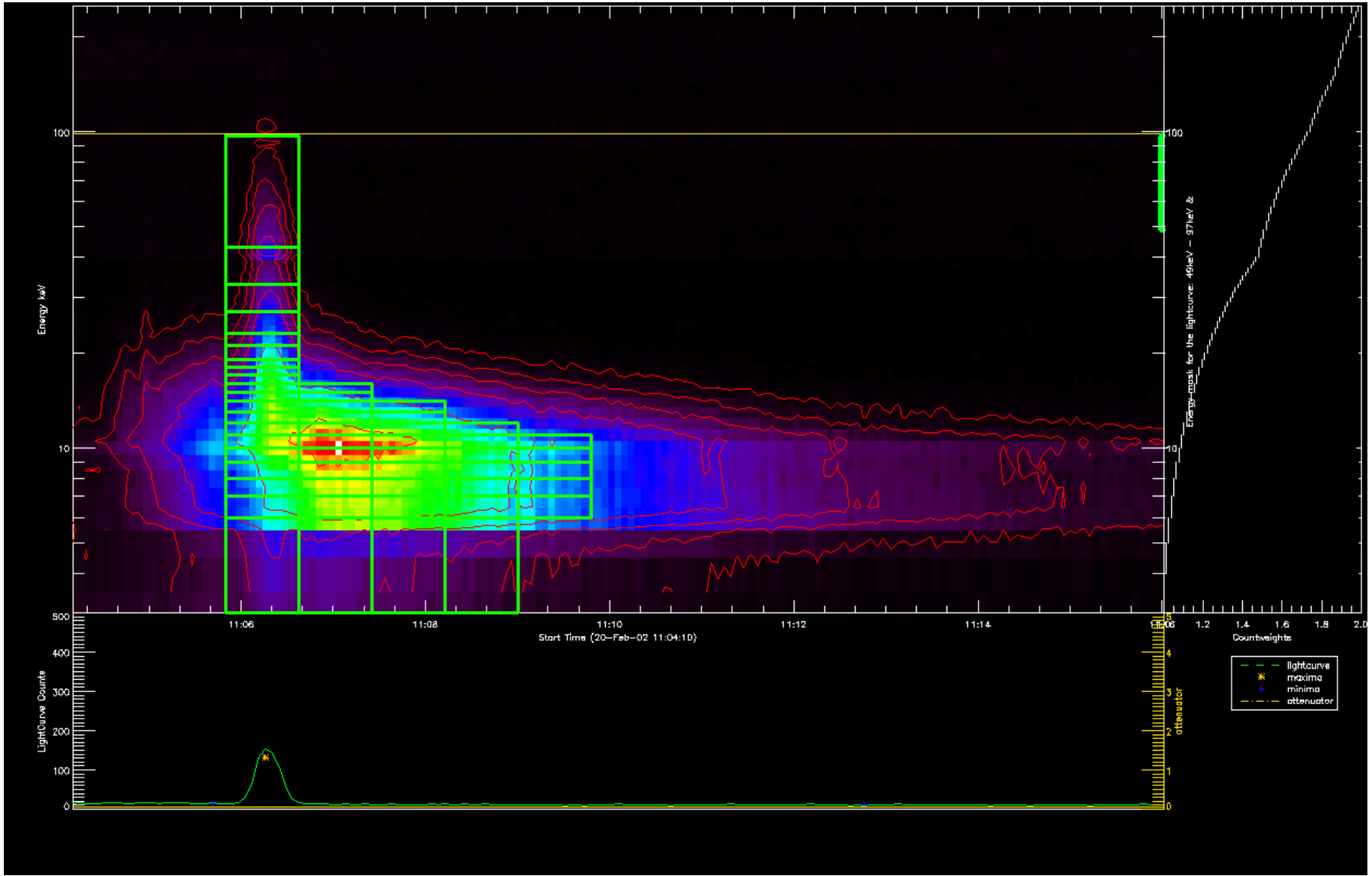
IVS for Imaging and Spectroscopy

- Find a time energy grid
 - with uniform time bins
 - and contiguous energy bins
- maximize the number of time/energy bins with enough counts
- try not to split points of interest
- treat attenuator states separate
- derive a aligned time binning for spectroscopy

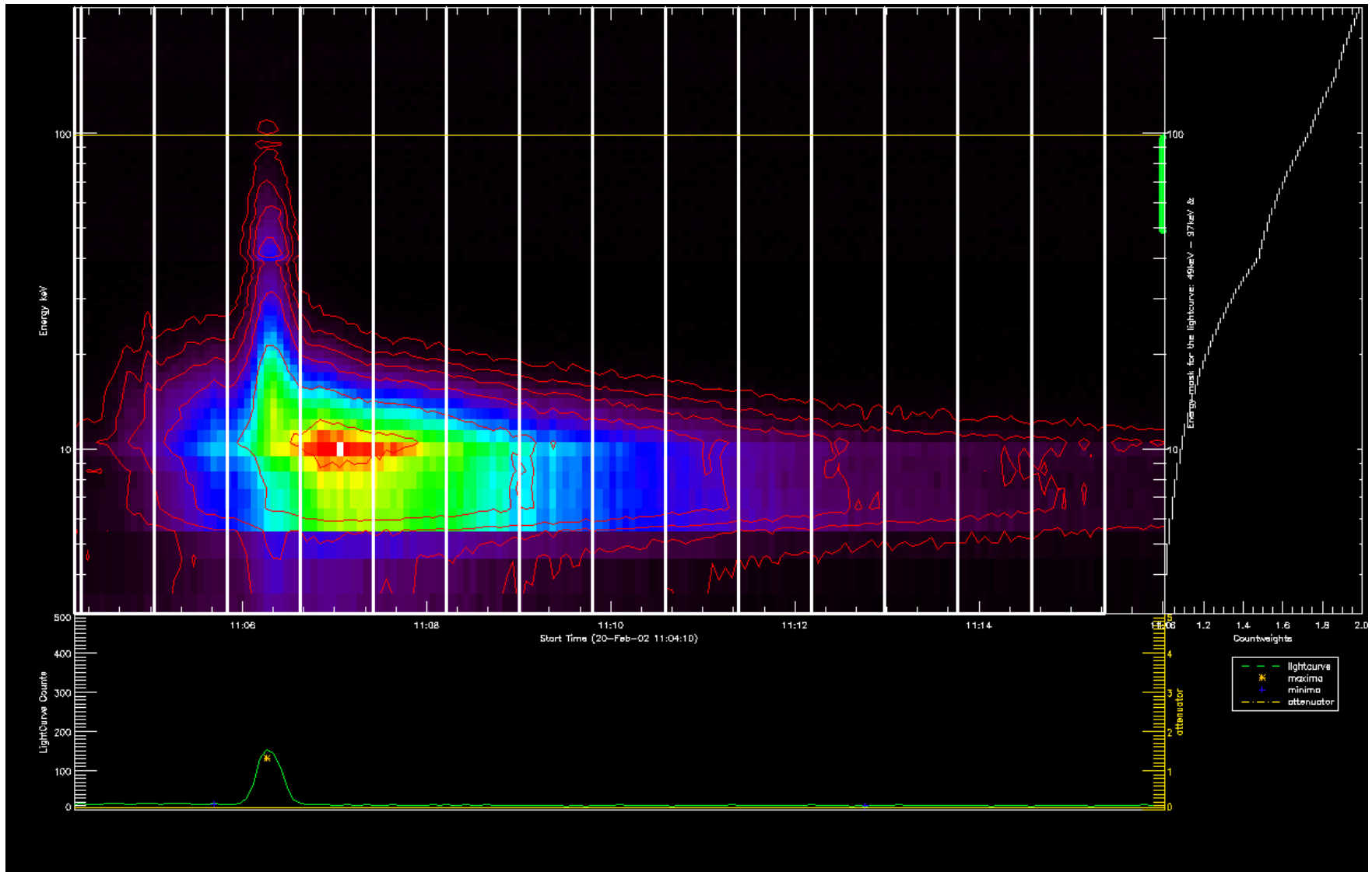
C-Flare: 20. Feb. 2002 IVS-Grid



C-Flare: 20. Feb. 2002 Imaging



C-Flare: 20. Feb. 2002 Spectroscopy

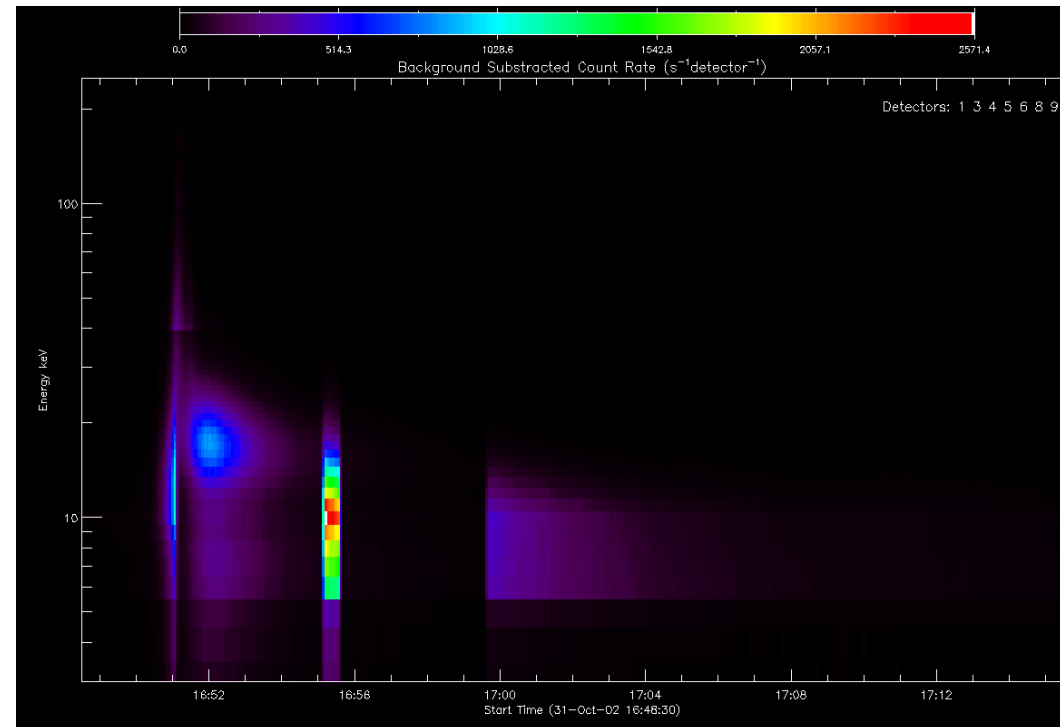


Science Products Review

- Input
- Configurations
- Presumption
- Output
 - **Format**
- Spectrogram
- Light curves
- Visibilities
- Photon Maps
- Spectra
- Fitted Spectra
- Electron Maps

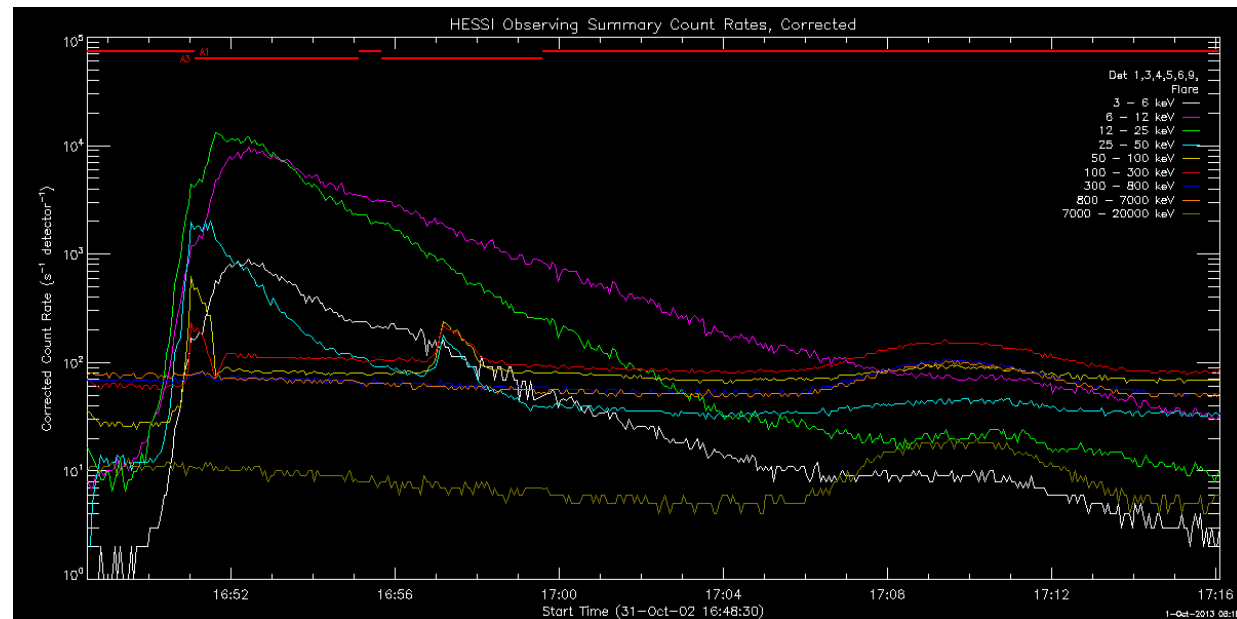
Spectrogram

- **Units:** Count Rate (/s /detector)
- **Detectors:** 1,3,4,5,6,8,9
- **Filter:**
 - Background removed
constbacksub.pro
- **Energy binning:**
 - 14: 4-250keV
- **Time binning:**
 - uniform avg(roll_period)
from hsi_obs_summary
- **Fits:**
 - hsi_spectrogram



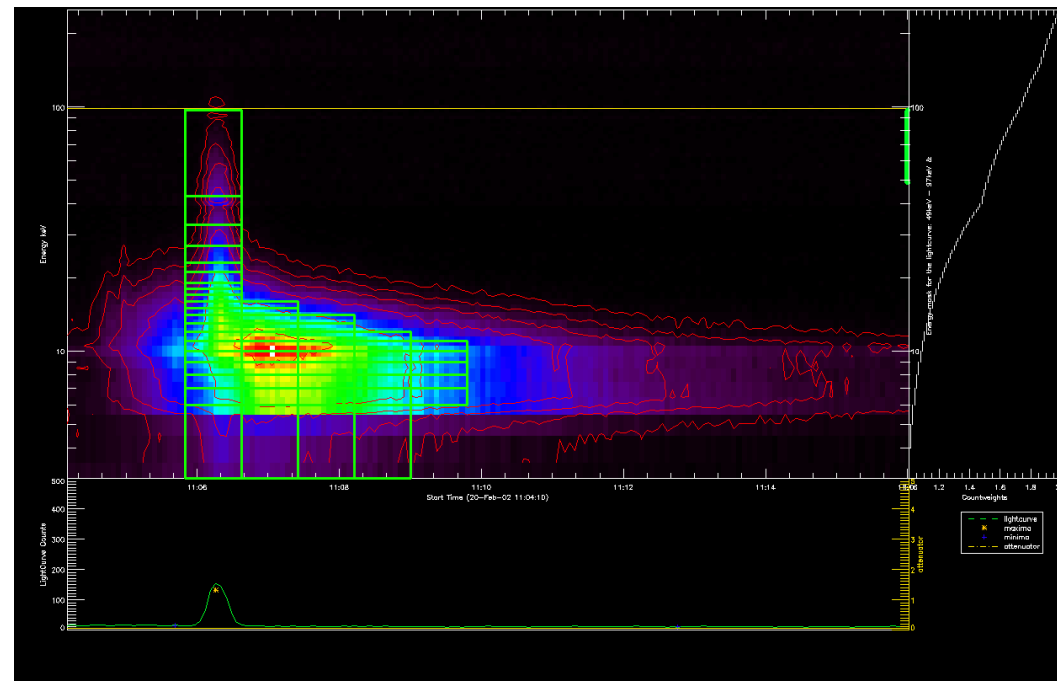
Light curves - hsi_obs_summary

- **Units:** Corrected Count Rate (/s /detector)
- **Detectors:** 1,3,4,5,6,9
- **Energy bands:**
 - default
- **Time binning:**
 - default
- **Fits:**
 - time-array
 - energy-array
 - count-array



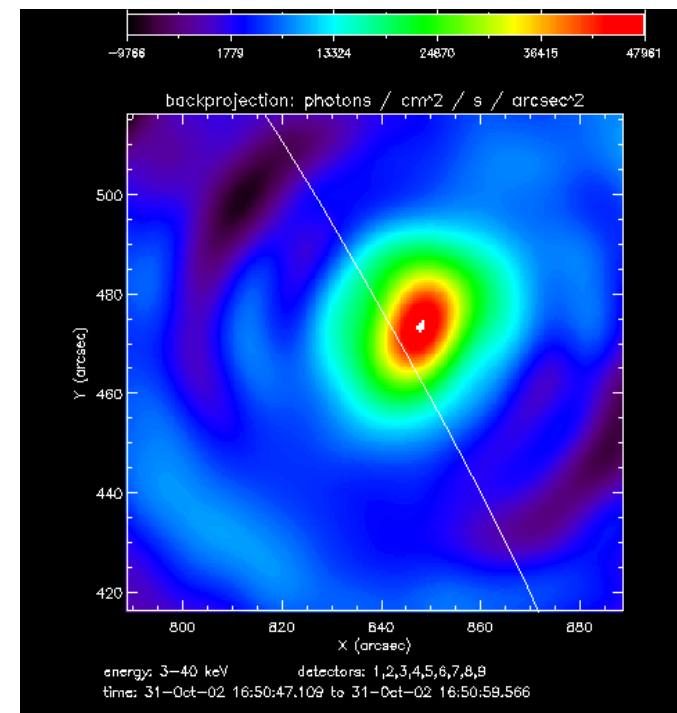
Photon-Maps

- Input
 - Visibilities based on IVS
 - only bins with min counts criteria
- Imaging Algorithm
 - Backprojection
 - uv_smooth
 - mem njit
 - vis_clean
- Output
 - Quicklook: png
 - Fits: map struct



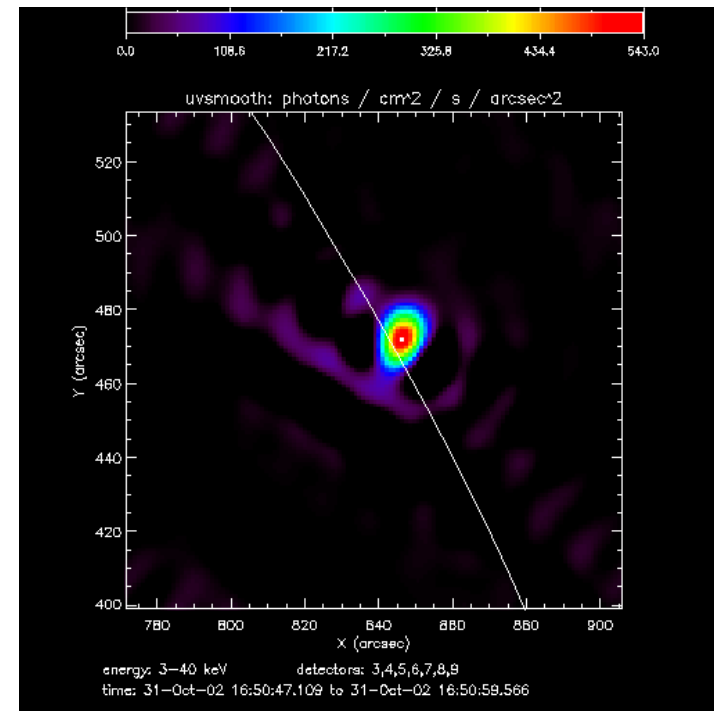
Photon-Maps - vis_bpmap

- **Units:** photons / cm² / s / arcsec²
- **Detectors:** 1,2,3,4,5,6,7,8,9
- **Vis.-Filter:**
 - hsi_vis_edit
 - hsi_vis_combine(/conj)
- **Res / fow**
 - pixel_size=0.4
 - im_dim=80



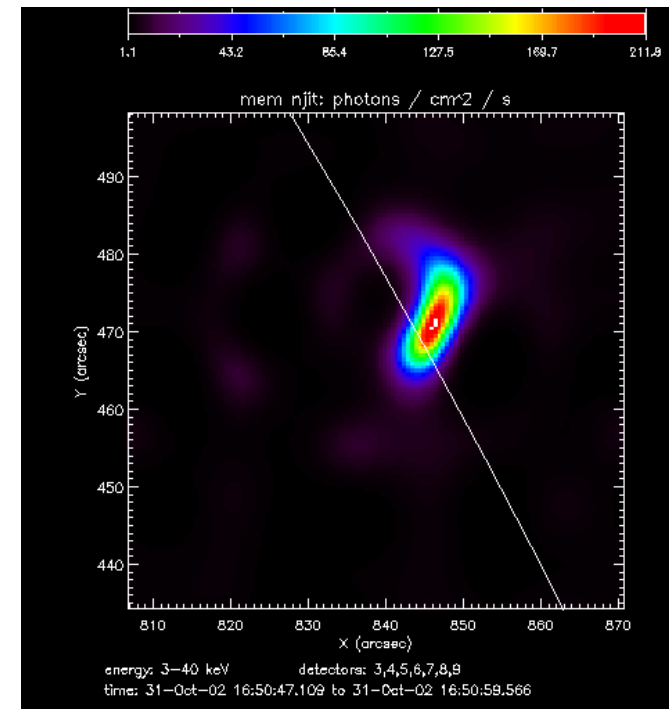
Photon-Maps - uv_smooth

- **Units:** photons / cm² / s / arcsec²
- **Detectors:** 3,4,5,6,7,8,9
- **Vis.-Filter:**
 - hsi_vis_edit
 - hsi_vis_combine(/conj)
 - hsi_vis_duplicate
- **Res / fow**
 - pixel_size=0.5
 - im_dim=128



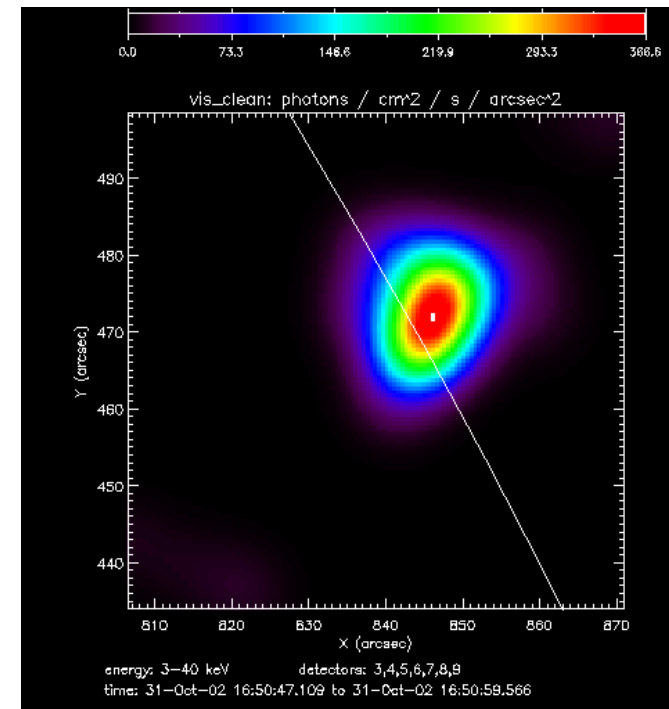
Photon-Maps - mem_map

- **Units:** photons / cm² / s
- **Detectors:** 3,4,5,6,7,8,9
- **Vis.-Filter:**
 - hsi_vis_edit
 - hsi_vis_combine(/conj)
- **Res / fow**
 - pixel_size=0.5
 - im_dim=128



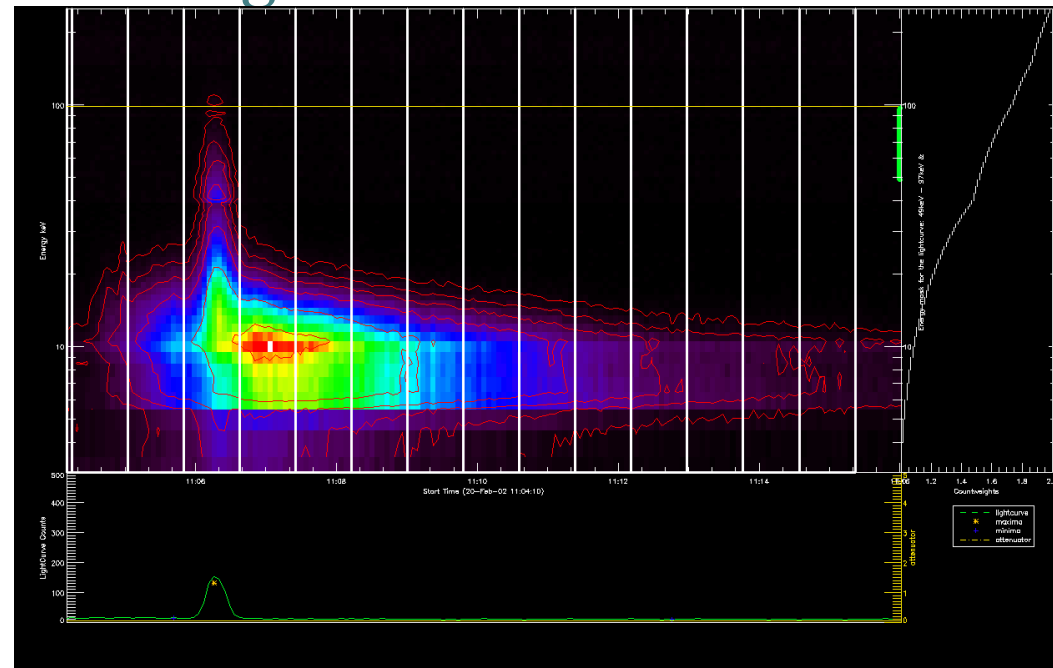
Photon-Maps - vis_clean

- **Units:** photons / cm² / s / arcsec²
- **Detectors:** 3,4,5,6,7,8,9
- **Vis.-Filter:**
 - hsi_vis_edit
 - hsi_vis_combine(/conj)
 - hsi_vis_duplicate
- **Res / fow**
 - pixel_size=0.5
 - im_dim=128



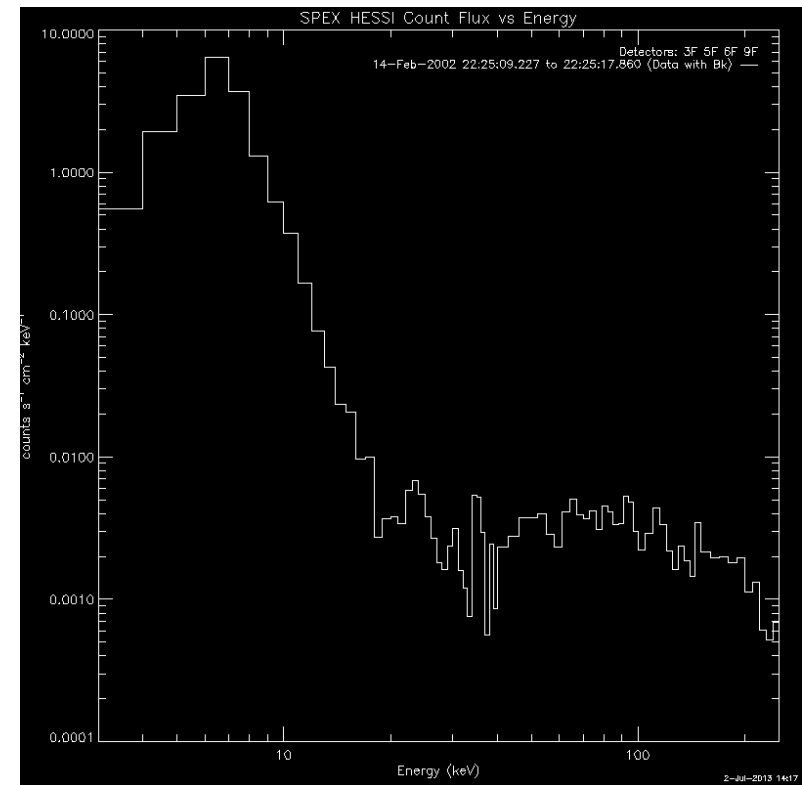
Spectra

- Input
 - Time bins based on IVS
 - hsi_spectrogram with background
- Output
 - Quicklook: png for each time bin
 - Data: ospex
 - hsi_spectrogram
 - srm



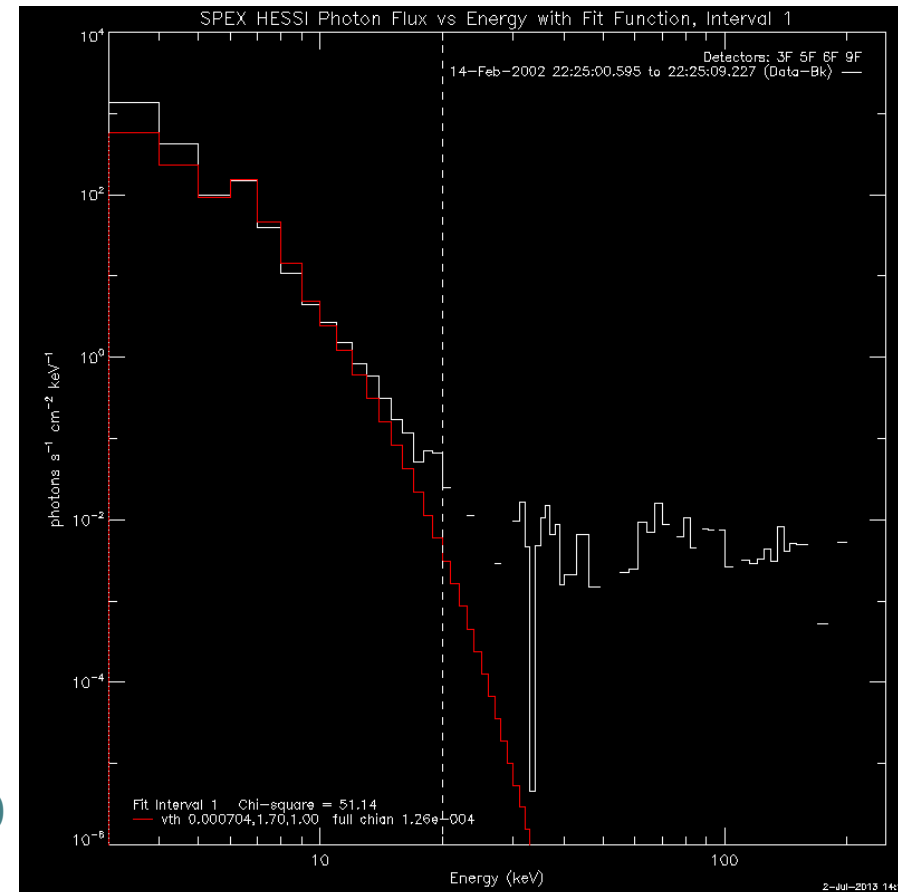
Spectra

- **Units:** counts / s / cm² / keV
- **Detectors:** 3,5,6,9
- **Energy binning:**
 - 14: 4-250keV



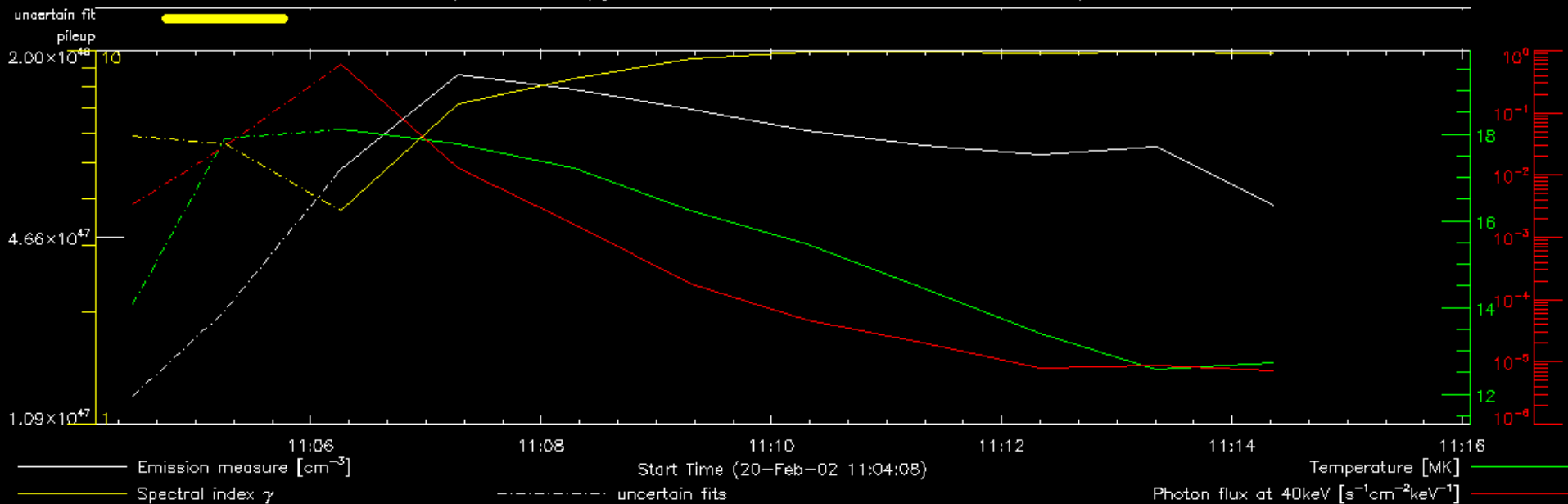
Fitted-Spectra

- **Units:** photons / s / cm² / keV
- **Detectors:** 3,5,6,9
- **Background:**
 - 2min night before/after
- **Model:**
 - vth: max energy < 50keV
 - vth+bpow: else
- **Energy**
 - low -> attenuator state
 - 0 3keV
 - 1 6keV
 - 3 12keV
 - high:
 - max energy (flare list)
 - spex_fit_auto_erange = 1
- **Output:**
 - Quicklook png
 - determined key figures as DB value (search)



Fitted-Spectra: key figures

Spectroscopy Time Evolution for Model: vth+bpow



- determined key figures

- emission measure [cm⁻³]
- temperature [MK]
- spectral index
- Photon flux at 40keV [1/s/cm²/keV]

- uncertainty

- outlier in *CHISQ*
> (mean+stddev*2)
- pileup
lifetime < 0.85

Electron-Maps

- Input
 - TBD in November
- Imaging Algorithm
 - TBD
- Output
 - TBD

