

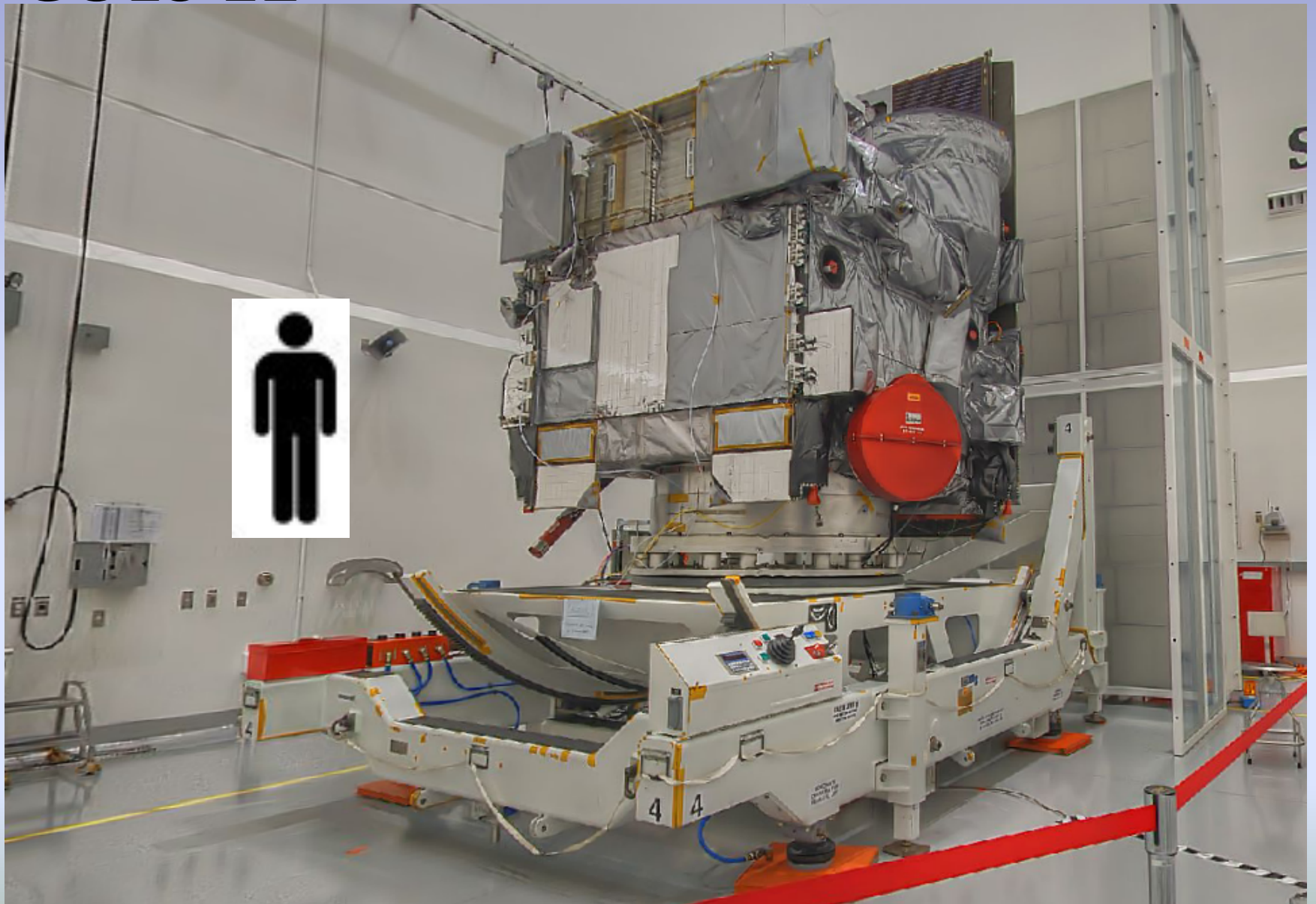
***Comparison of SphinX and GOES
solar X-ray observations***

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***Progress on EUV & X-ray
spectroscopy and imaging***

Wrocław 20 – 22 November 2012

GOES 12



GOES

- Orbit geostationary 35,790 km
- Mass 2T
- US operational satellite
- Mid 1970's - present

GOES objectives

Weather monitoring and forecasting.

Tornadoes

Floods

Hail storms

Hurricanes

Infrared and visible reflected solar radiation from the Earth's surface and atmosphere.

Moisture profiles,

Cloud temperature

Ozone distribution.

GOES instruments

Imager and the Sounder (IR, WL)

Magnetometer

Energetic Particle Sensor (EPS)

From GOES 12 solar x-ray imager (SXI)

X-ray Sensor (XRS)

GOES 13-15 solar extreme ultraviolet sensor.

Emergency Position-Indicating Radio Beacon (EPIRB)

**Emergency Locator Transmitter (ELT) receivers
used for search-and-rescue purposes by USAF**



NESDIS

Spacecraft Summary Page

[FILTER](#)

GOES Status

Last update: 10/18/2012 00:00:00

Welcome to the Geostationary Operational Environmental Satellites (GOES) spacecraft status page. This site provides up to date status information on each spacecraft and its various subsystems.

Select a spacecraft from the list below for a detailed status summary of that spacecraft. For more advanced reporting, select the [Filter](#) link.

Active Spacecraft and Operational Status

Spacecraft	Operational Status	Status
GOES 8	Decommissioned	RED
GOES 9	Decommissioned	RED
GOES 10	Decommissioned	RED
GOES 11	Decommissioned	RED
GOES 12	South America	GREEN
GOES 13	Operational East	GREEN
GOES 14	Standby	GREEN
GOES 15	Operational West	GREEN



GOES X-ray Sensor (XRS)

Detectors - Ion chambers

Whole-Sun X-rays

Two channels, wavelength bands

0.5-4 Å (3.1 – 24.8 keV)

1-8 Å (1.5 – 12.4 keV)

Magnetic shielding against particles

GOES XRS data access



SEC operational measurements and historical databases

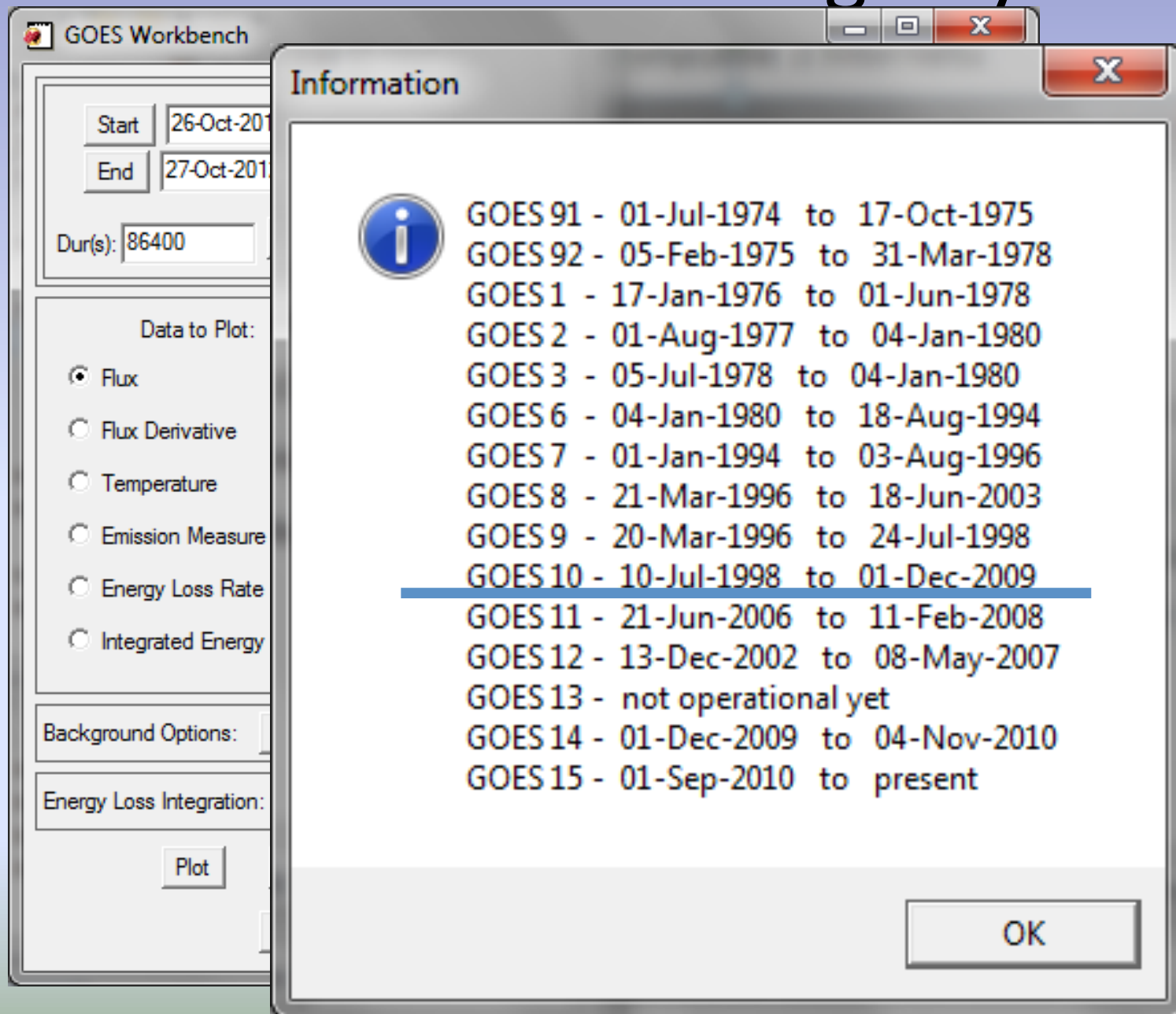
<http://www.sec.noaa.gov>

<http://ngdc.noaa.gov>

Archival GOES data

<http://spidr.ngdc.noaa.gov/spidr/>

Recommended coverage by satellite

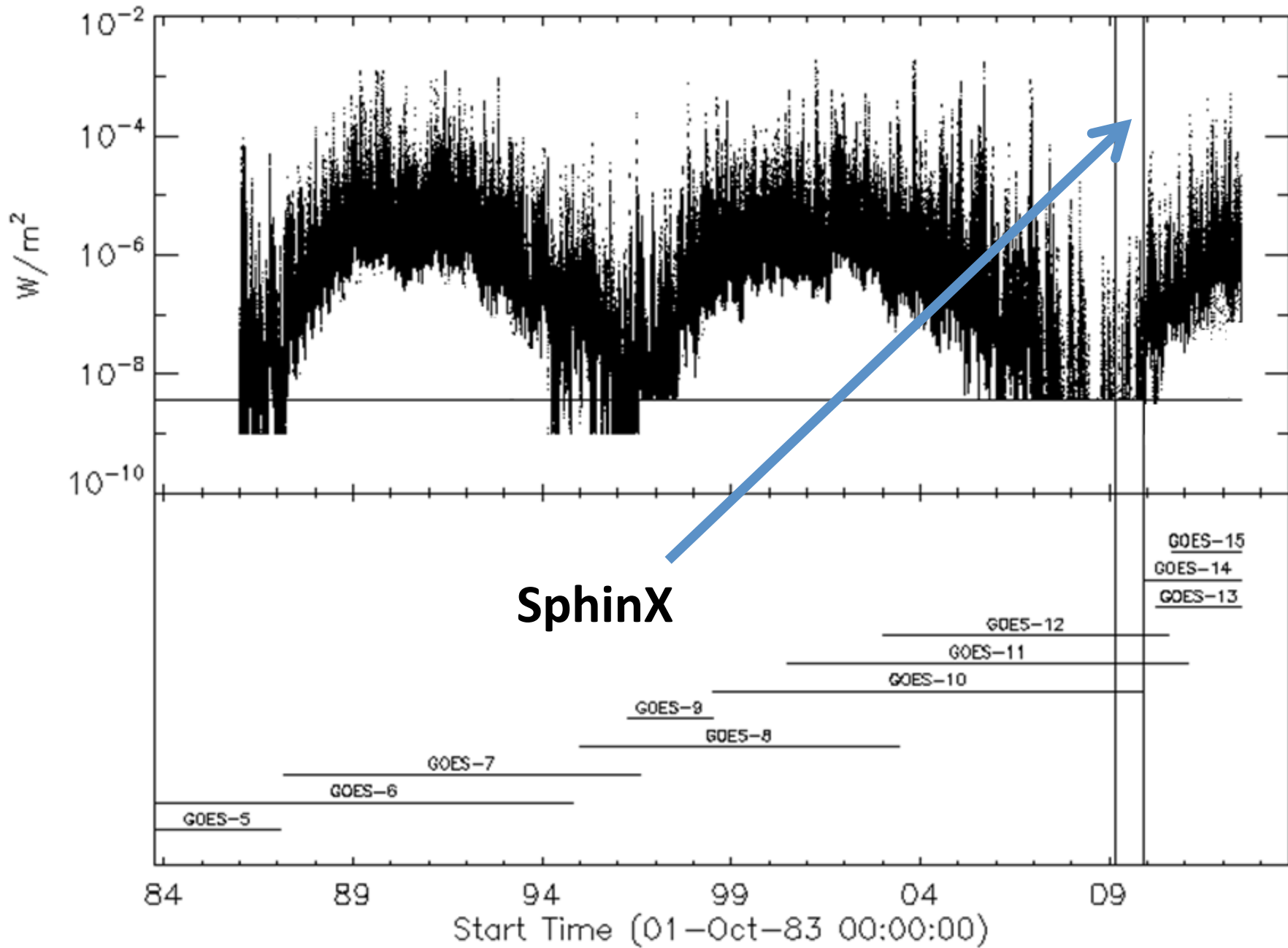


The screenshot shows the GOES Workbench interface with an 'Information' dialog box open. The dialog box contains a list of GOES satellites and their operational periods. The entry for GOES 10 is highlighted with a blue underline.

Information

- GOES 91 - 01-Jul-1974 to 17-Oct-1975
- GOES 92 - 05-Feb-1975 to 31-Mar-1978
- GOES 1 - 17-Jan-1976 to 01-Jun-1978
- GOES 2 - 01-Aug-1977 to 04-Jan-1980
- GOES 3 - 05-Jul-1978 to 04-Jan-1980
- GOES 6 - 04-Jan-1980 to 18-Aug-1994
- GOES 7 - 01-Jan-1994 to 03-Aug-1996
- GOES 8 - 21-Mar-1996 to 18-Jun-2003
- GOES 9 - 20-Mar-1996 to 24-Jul-1998
- GOES 10 - 10-Jul-1998 to 01-Dec-2009
- GOES 11 - 21-Jun-2006 to 11-Feb-2008
- GOES 12 - 13-Dec-2002 to 08-May-2007
- GOES 13 - not operational yet
- GOES 14 - 01-Dec-2009 to 04-Nov-2010
- GOES 15 - 01-Sep-2010 to present

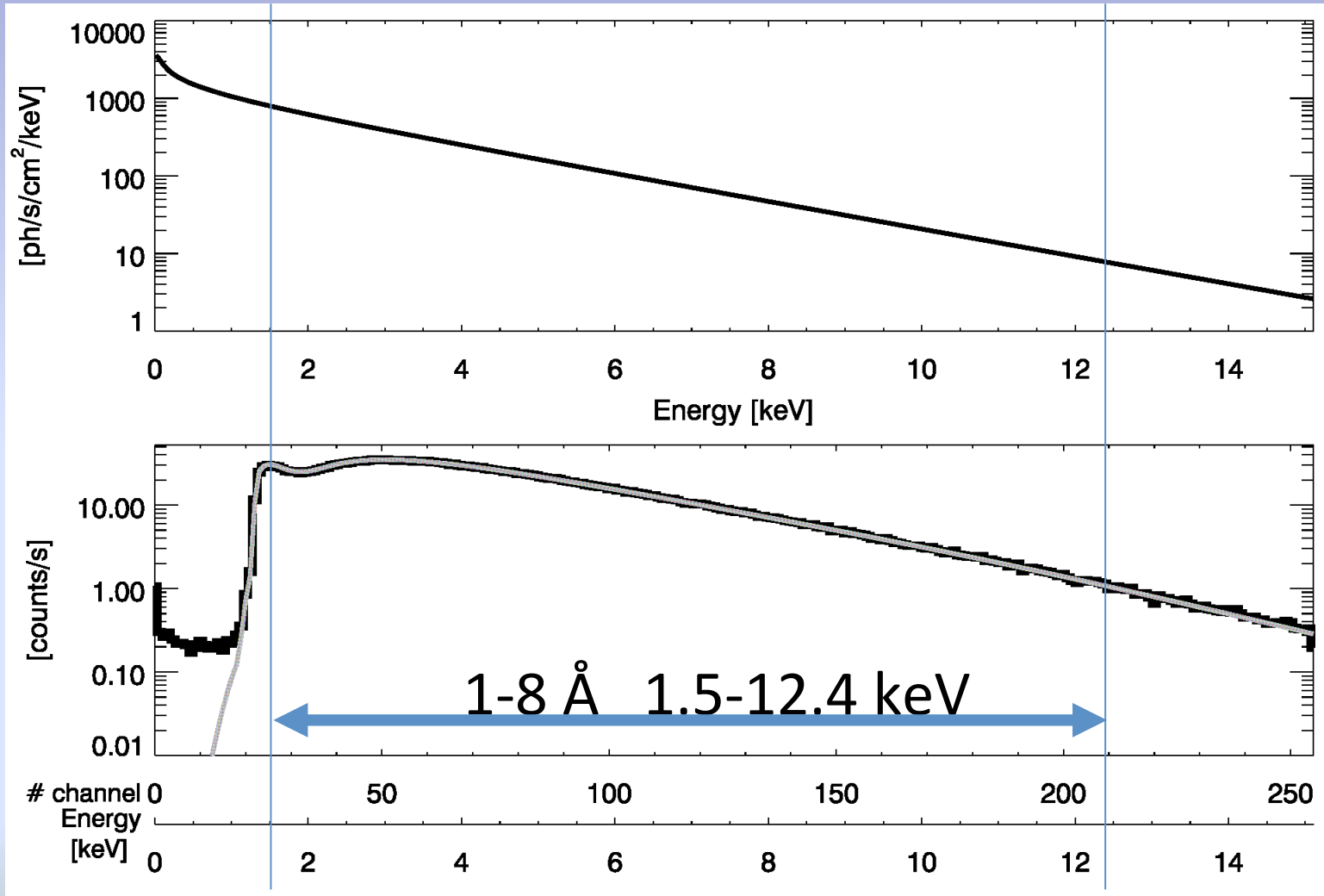
OK



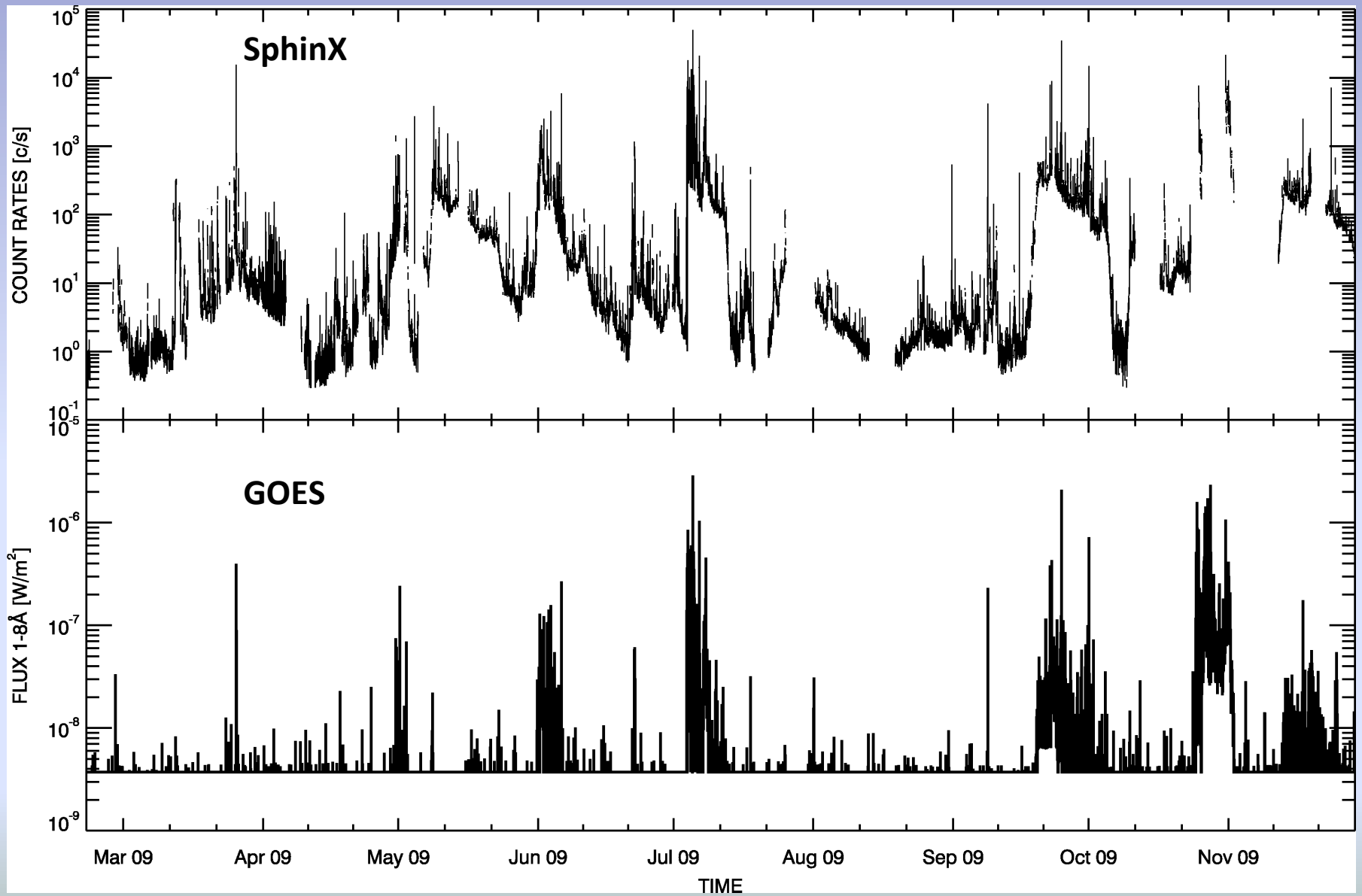
Comparison – where possible

- Flux greater than 3.8^{-9} W/m²
- 20 February 2009 - first SphinX data
- 29 November 2009 - SphinX mission end
- Wavelength range 1-8 Å

Energy/Wavelength ranges



SphinX and GOES data for comparison



Take care of

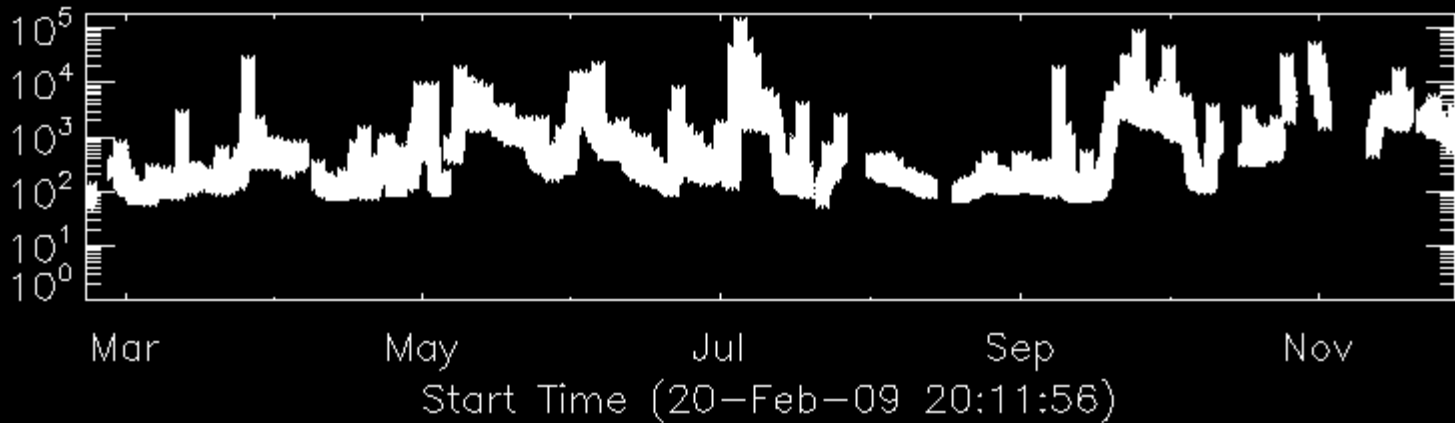
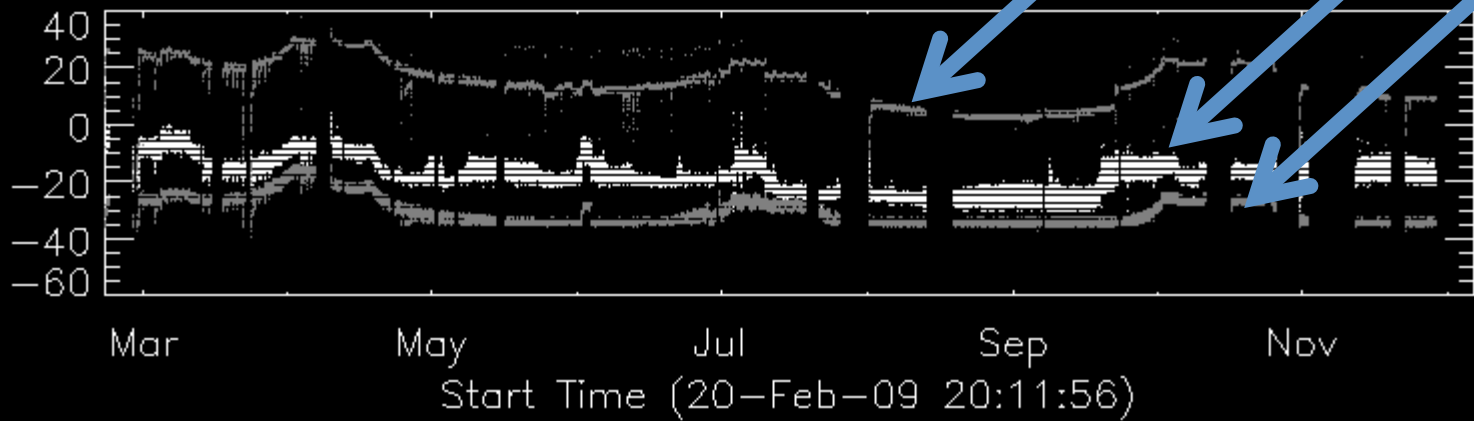
- Peak shift (with temperature and count rate)
- Pileup
- DRM off-diagonal elements
- Background

SphinX shift vs temperatures

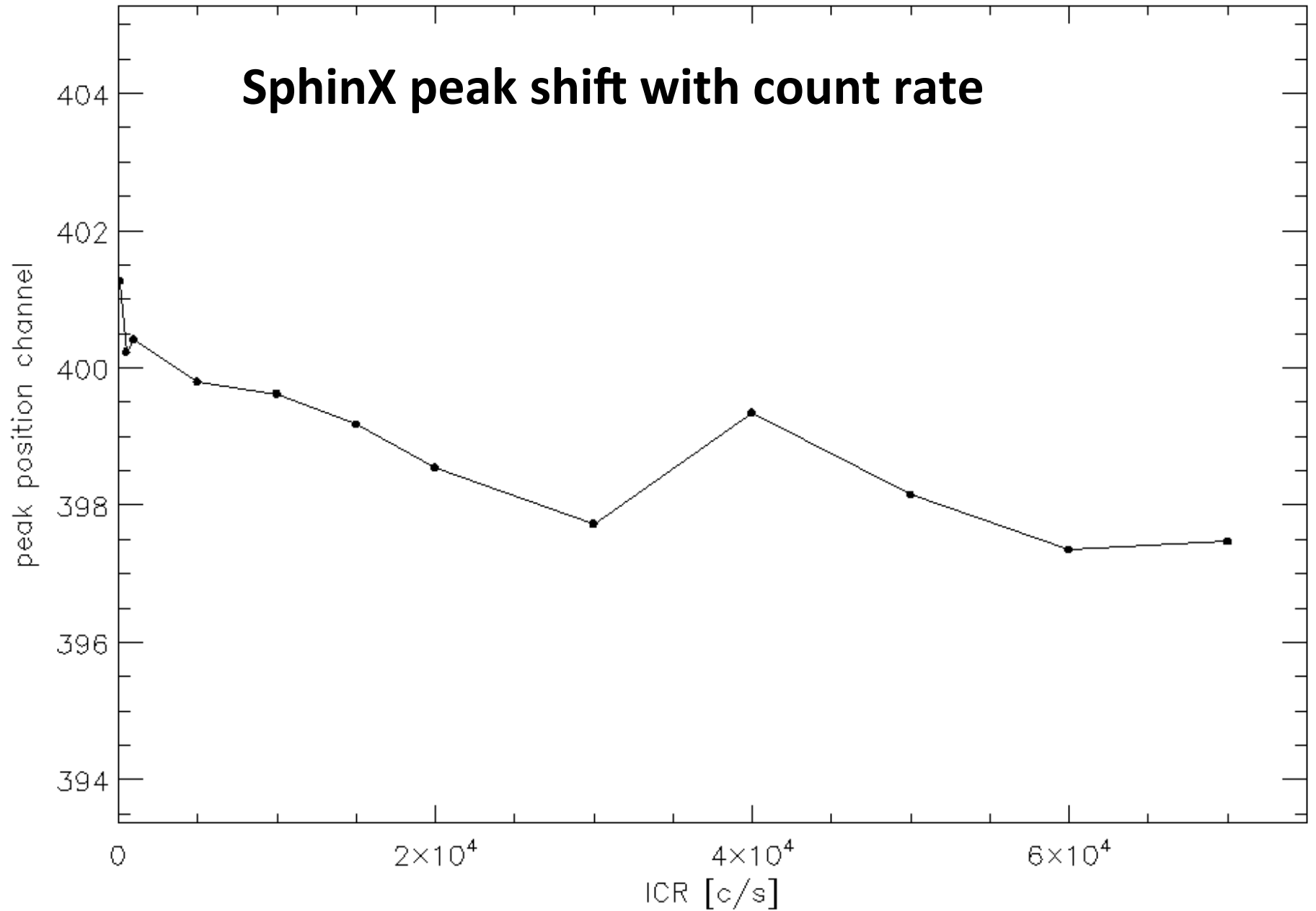
T Amplifier

Tmshift

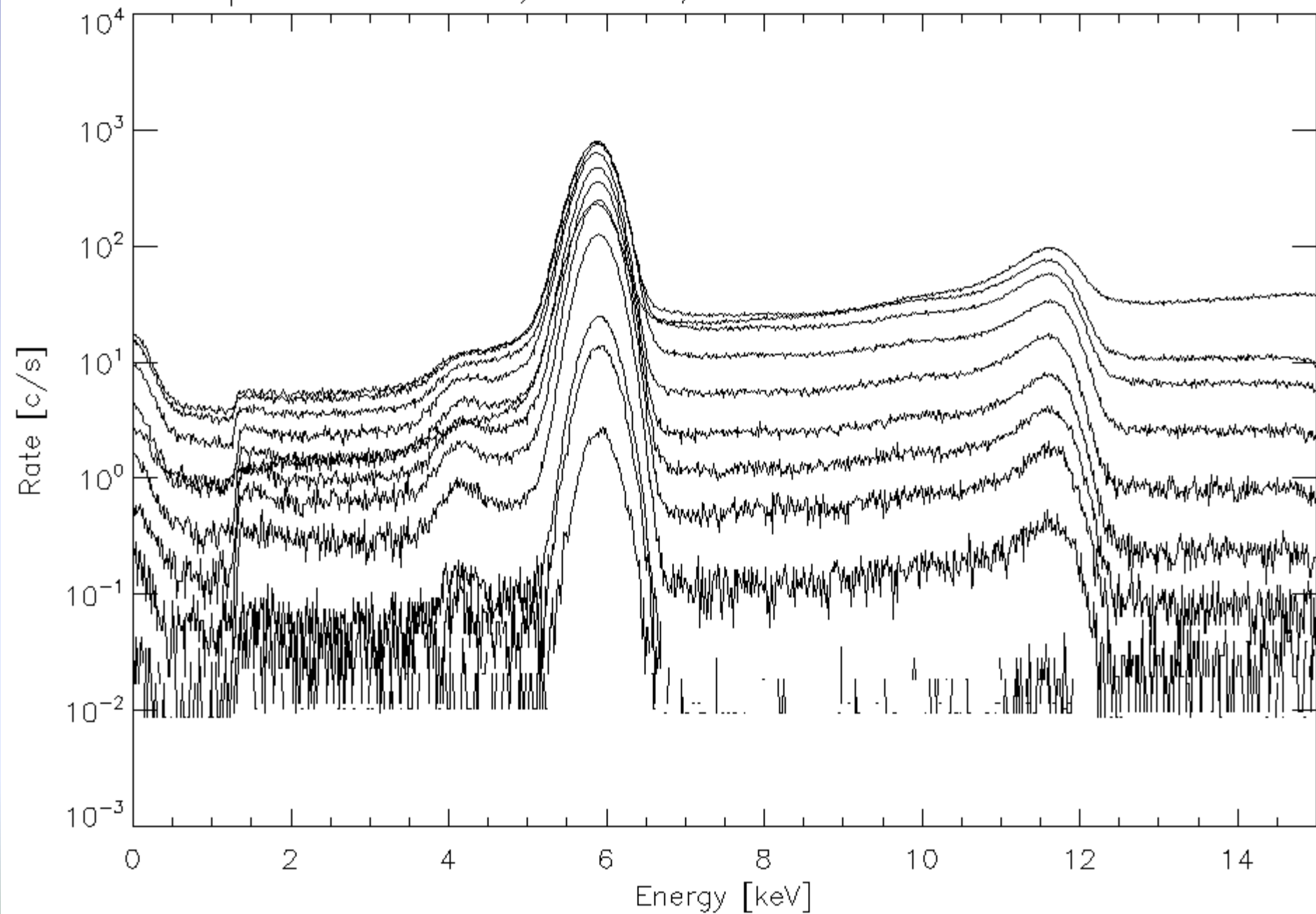
T Det



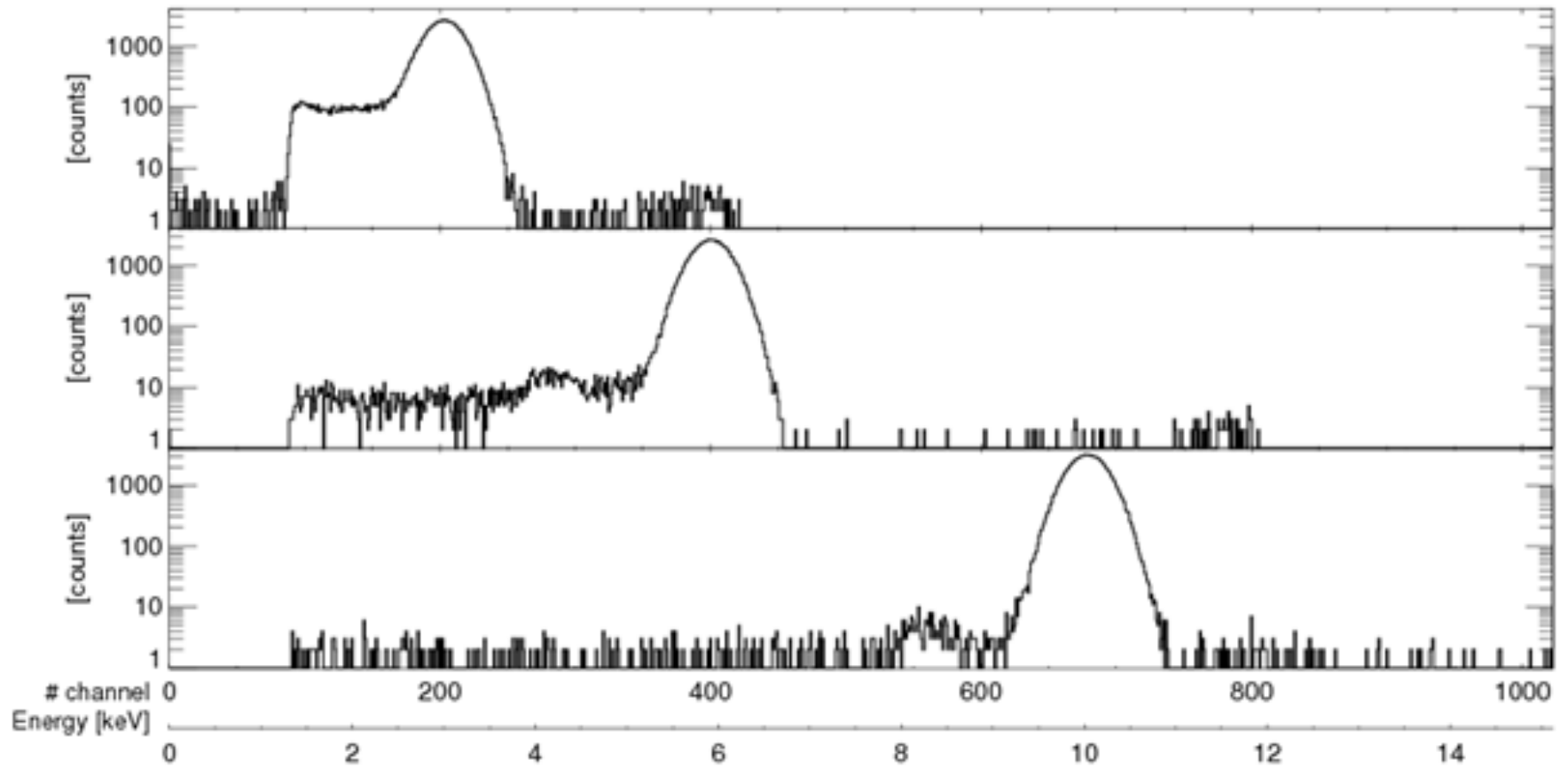
SphinX peak shift with count rate

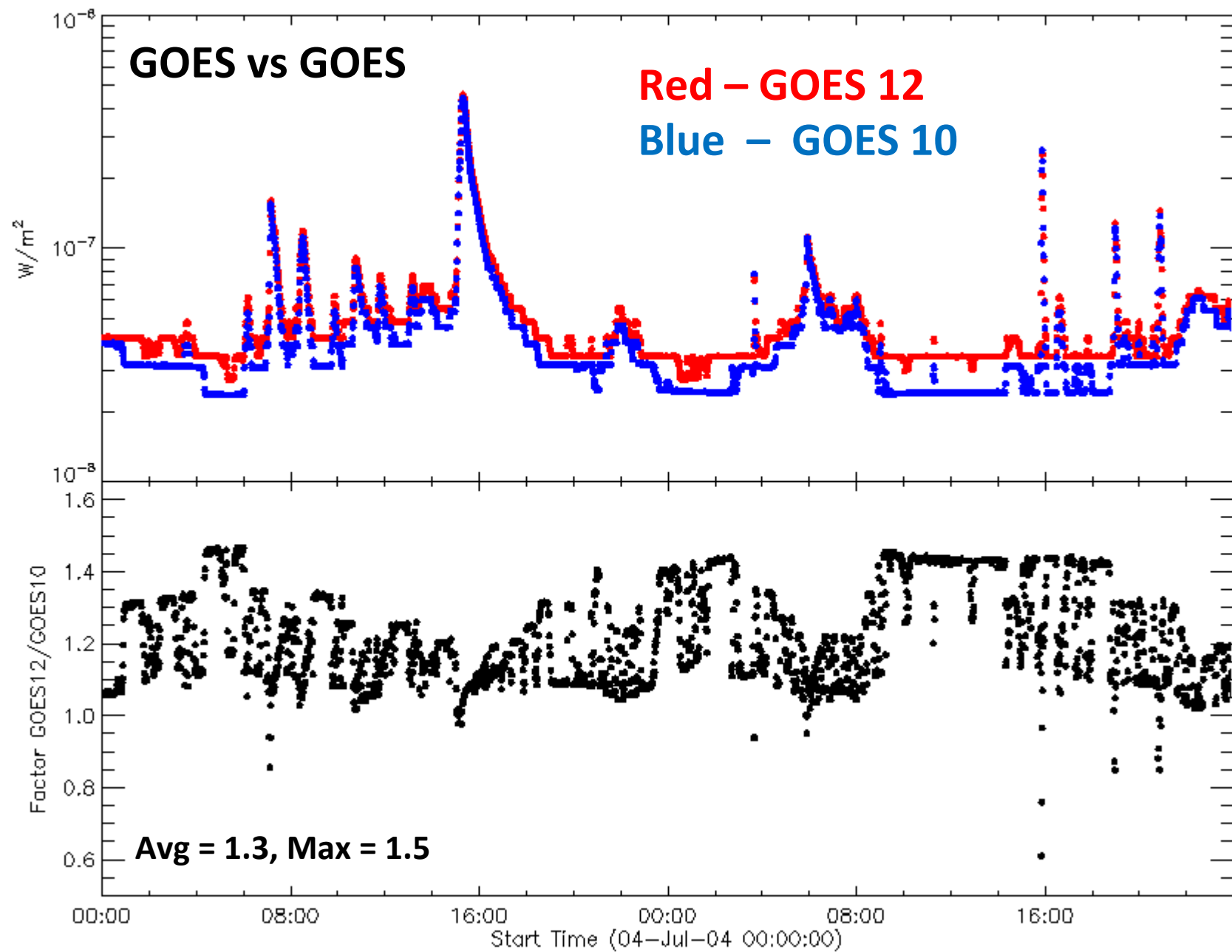


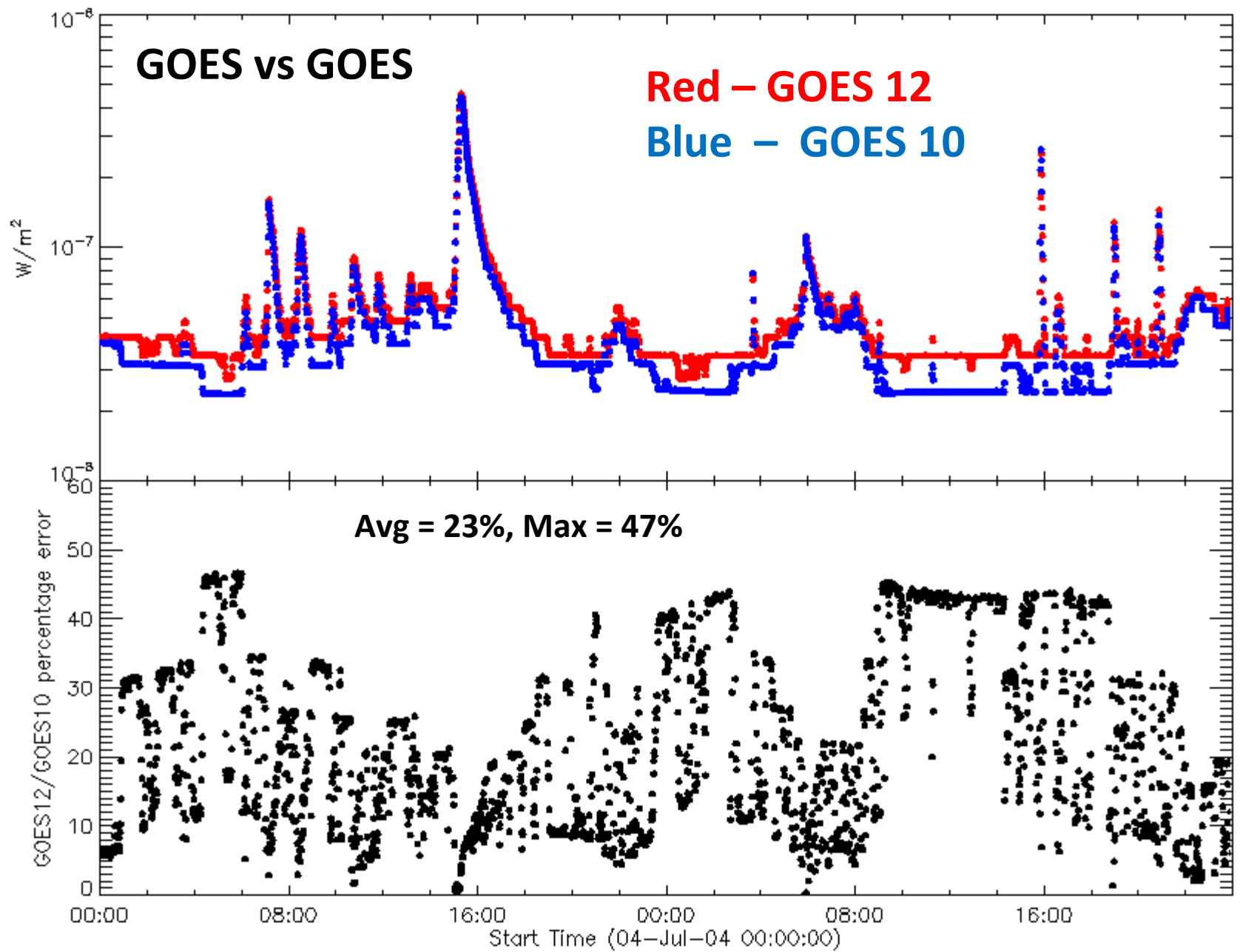
SphinX calibration, 5.9 keV, PTB FCM beamline at BESSY II



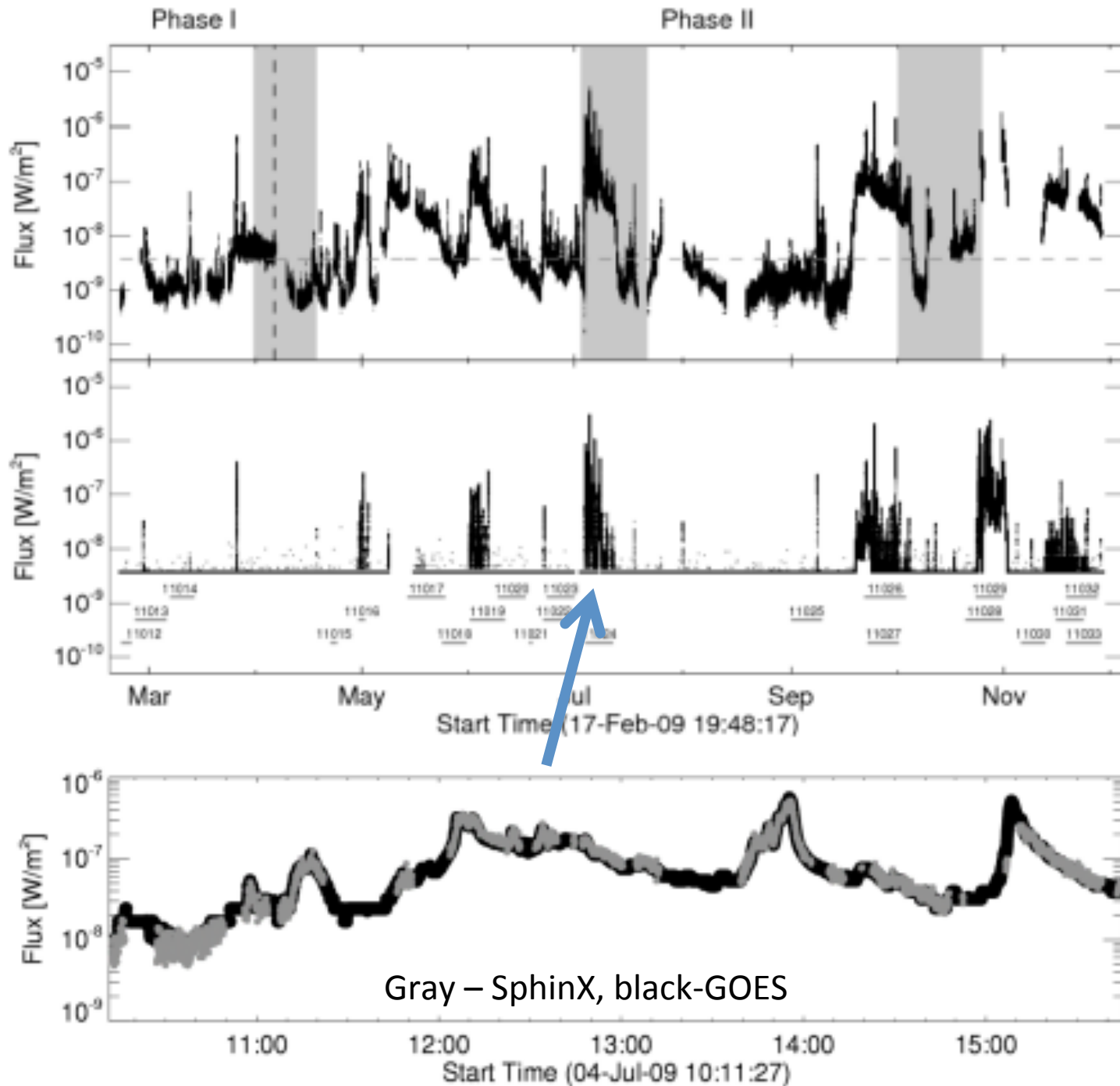
SphinX DRM off-diagonal elements







SphinX vs GOES First results



Conclusions

It is too early to be conclusive

There are methods to agree
GOES10 and SphinX within 10%

Thank you