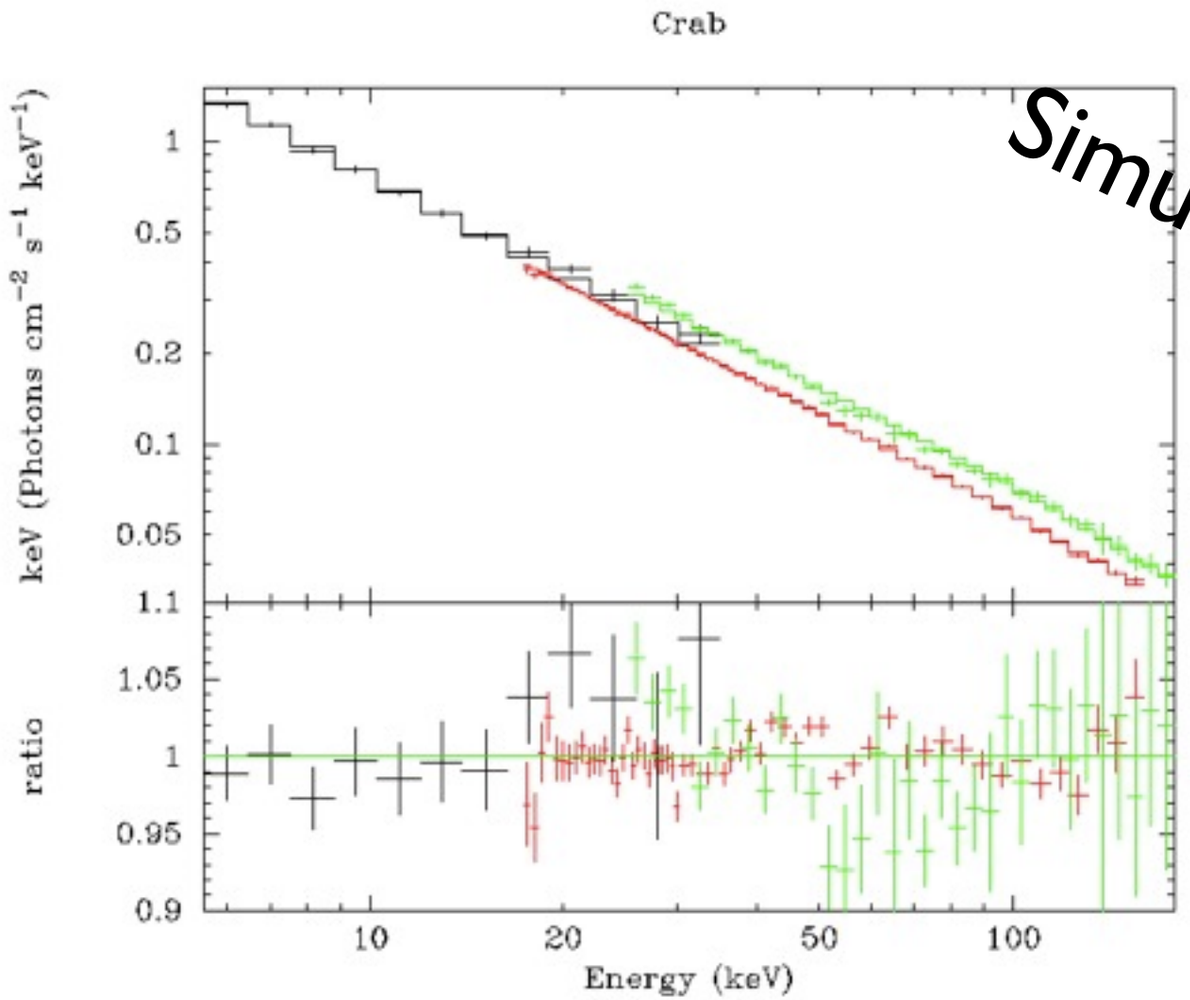
ISDC status

Carlo Ferrigno (ISDC)

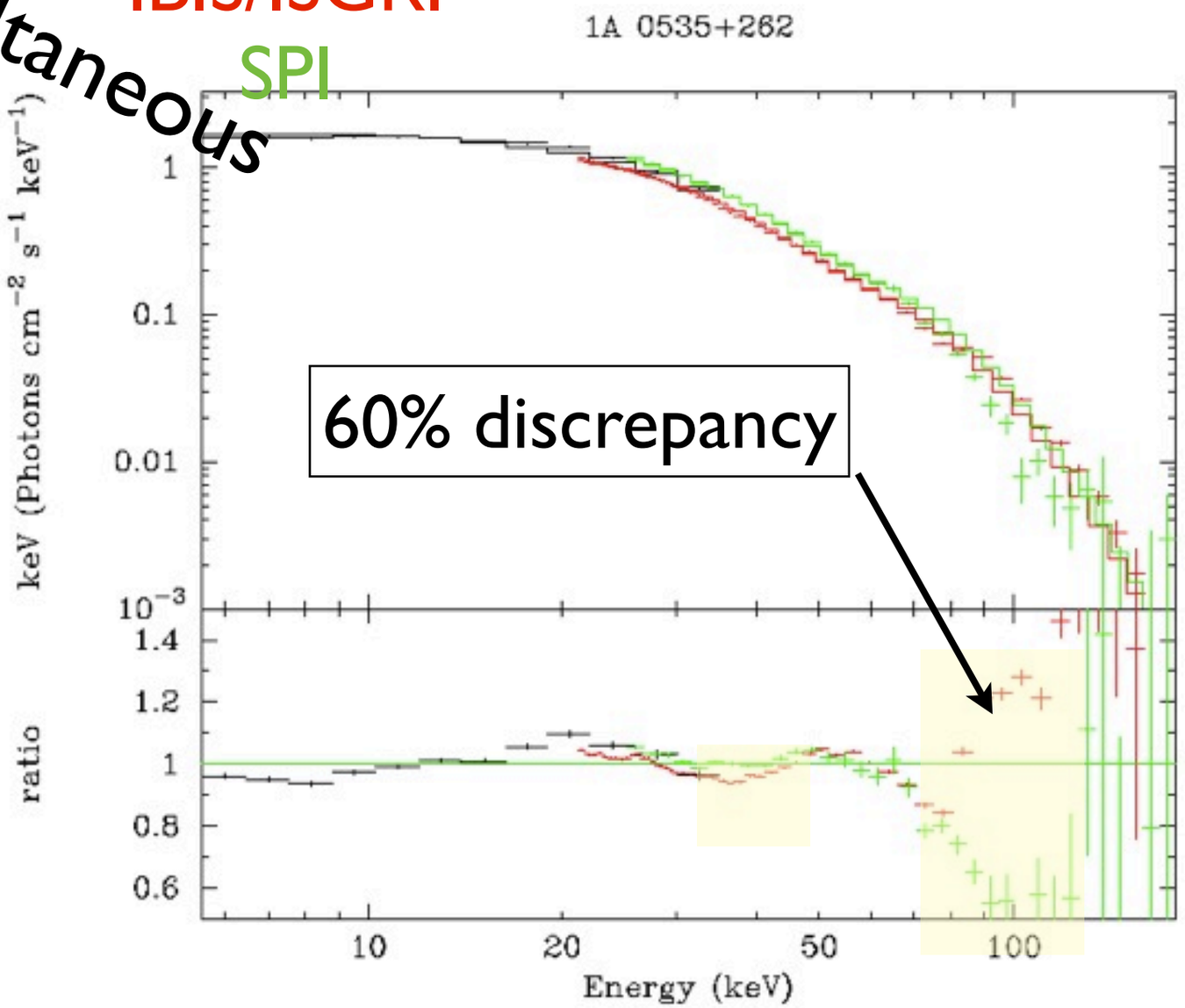
ESTEC, 25-27 November 2013

INTEGRAL issues with data



Simultaneous

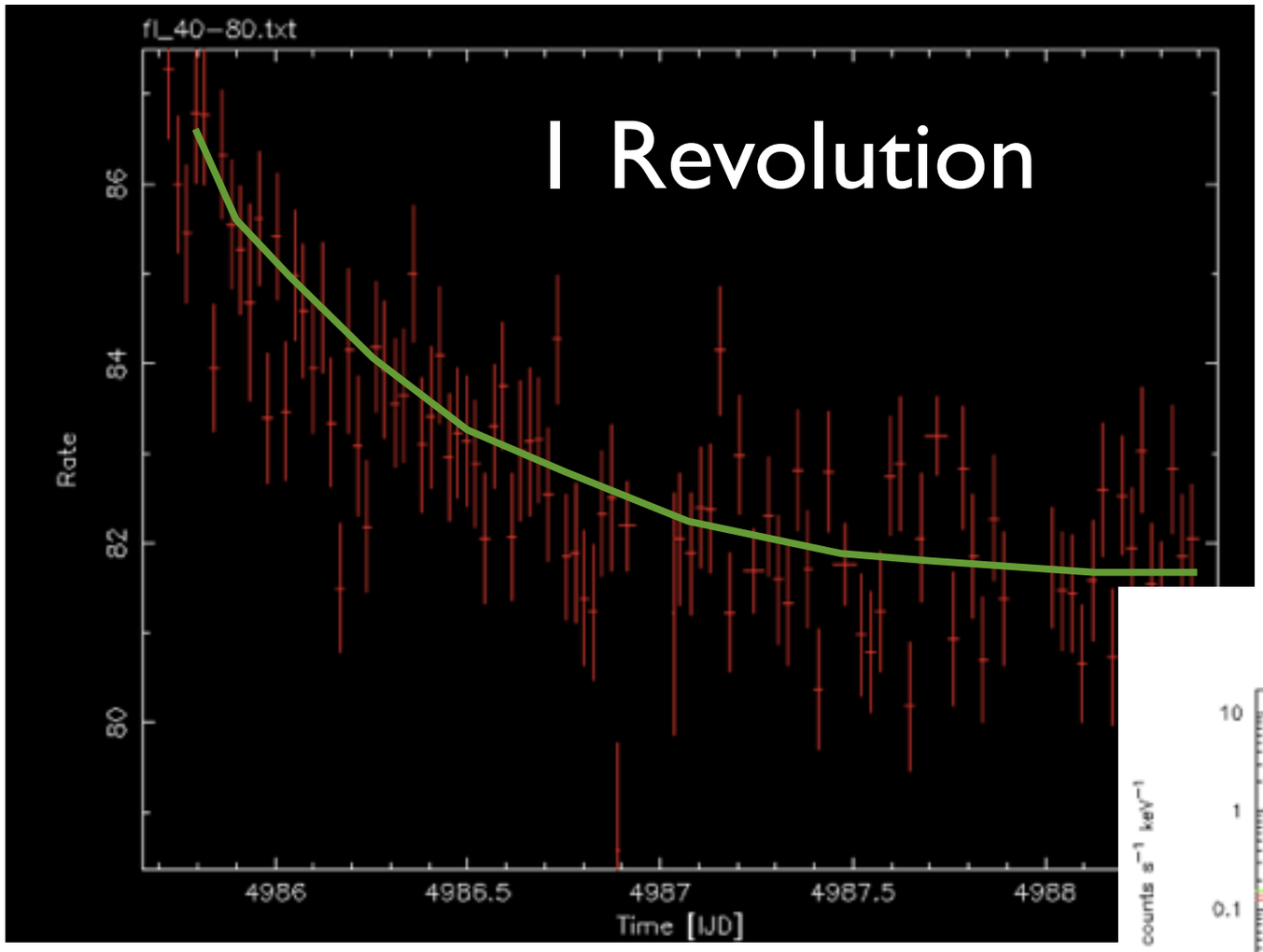
JEM-X1
IBIS/ISGRI
SPI



Systematic set at 1%

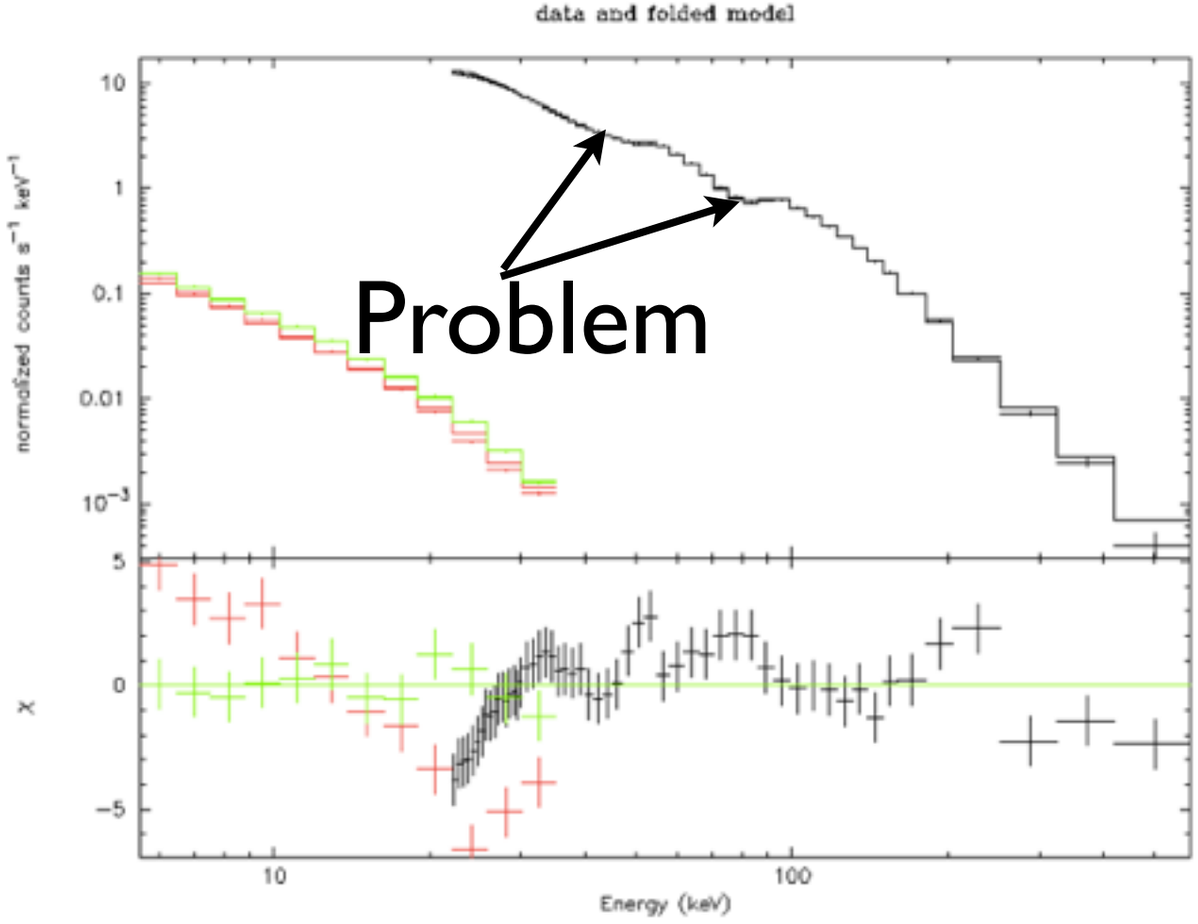
- Revolution 1021 Crab and 1A0535+262 in the same FOV (100 ks)
- Affects other bright sources or long exposures.

Calibration issues



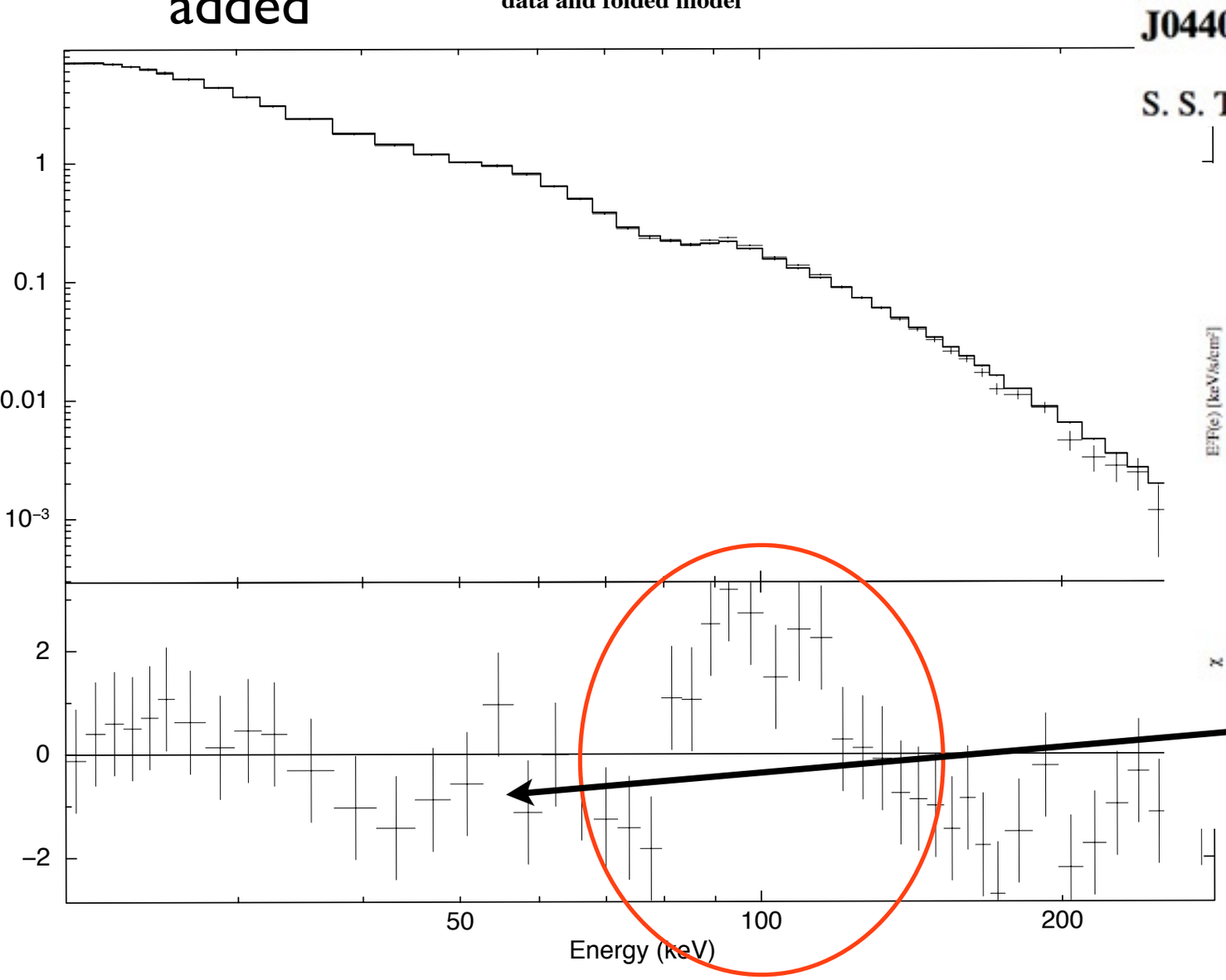
- Crab calibration rev. 1327 (NRT)
- systematic 3%: chi squared 4

Corrected with new ARFs



ISGRI spectra

- User data on Swift J174510.8-262411(~1 Crab, PL index 1.8-2.2) 380 ks 1% systematic error added

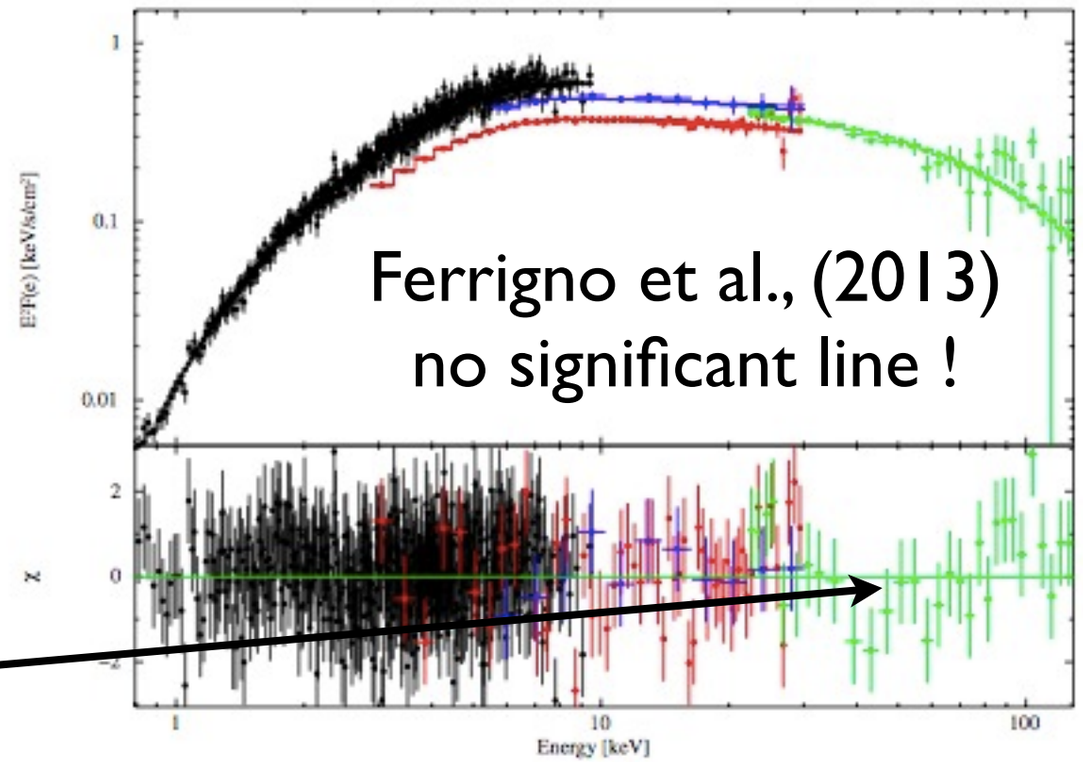


Monthly Notices of the ROYAL ASTRONOMICAL SOCIETY

Mon. Not. R. Astron. Soc. **421,** 2407–2413 (2012) doi:10.1111/

Broad-band observations of the Be/X-ray binary pulsar RX J0440.9+4431: discovery of a cyclotron absorption line

S. S. Tsygankov,[1,2,3,4★] R. A. Krivonos[3,4] and A. A. Lutovinov[4,2]

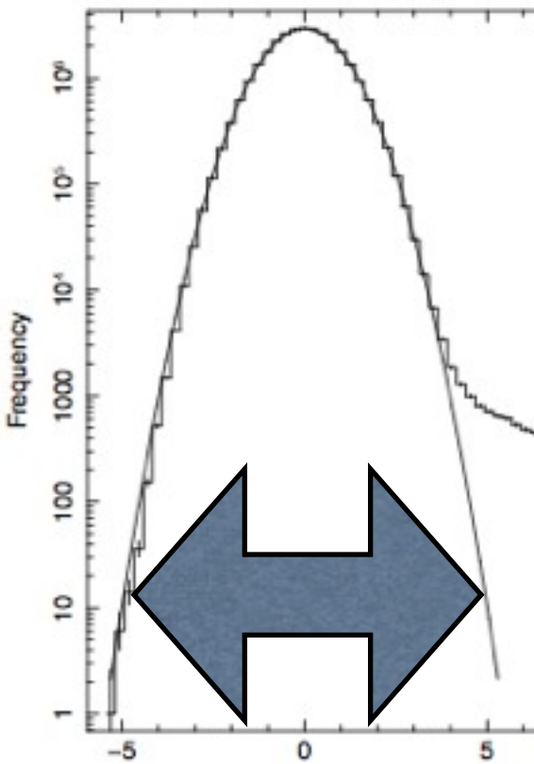


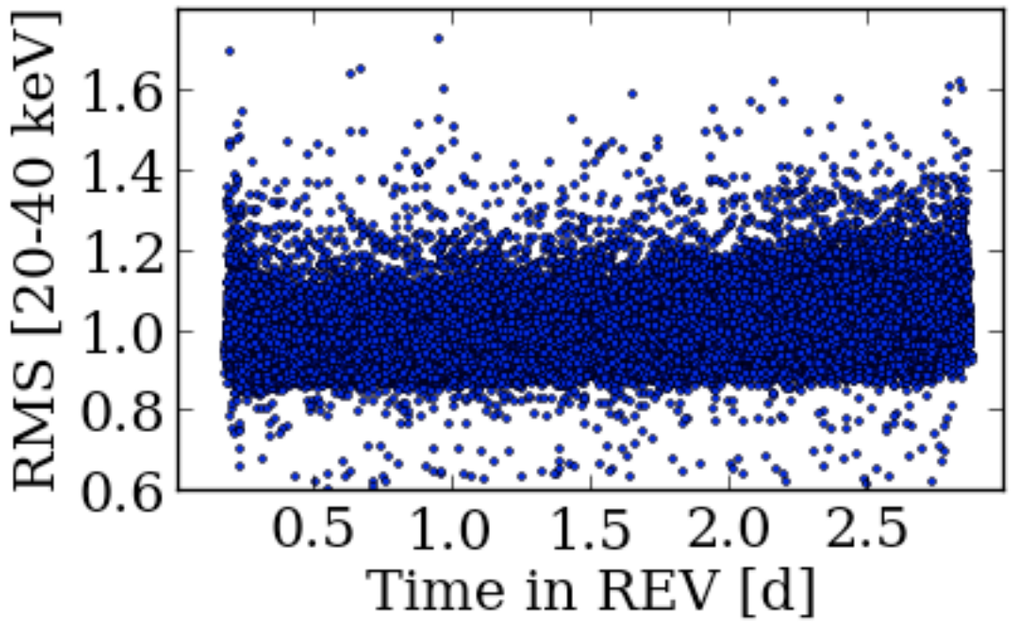
Ferrigno et al., (2013) no significant line !

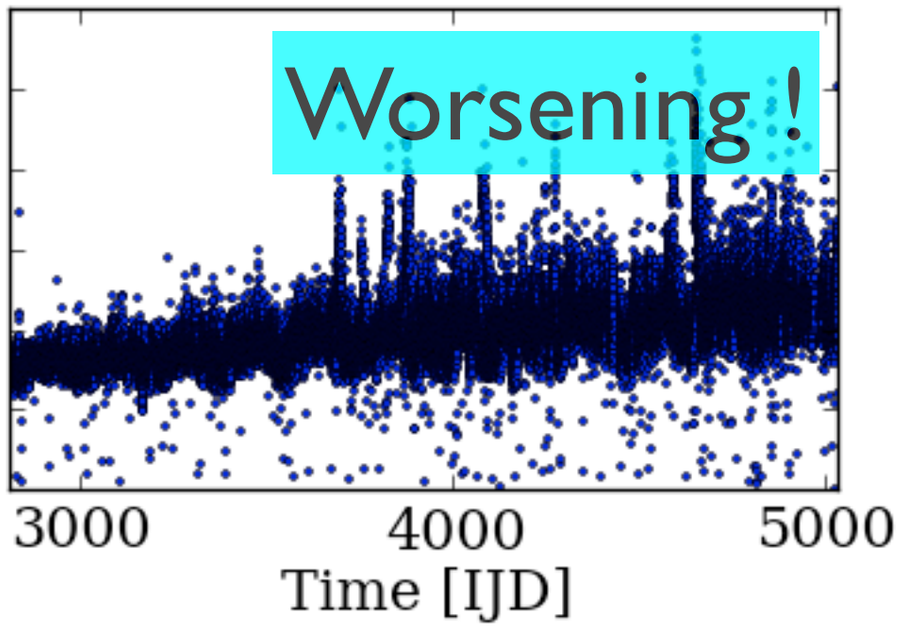
Melania.DelSanto@iaps.inaf.it 4–Nov–2013 15:28

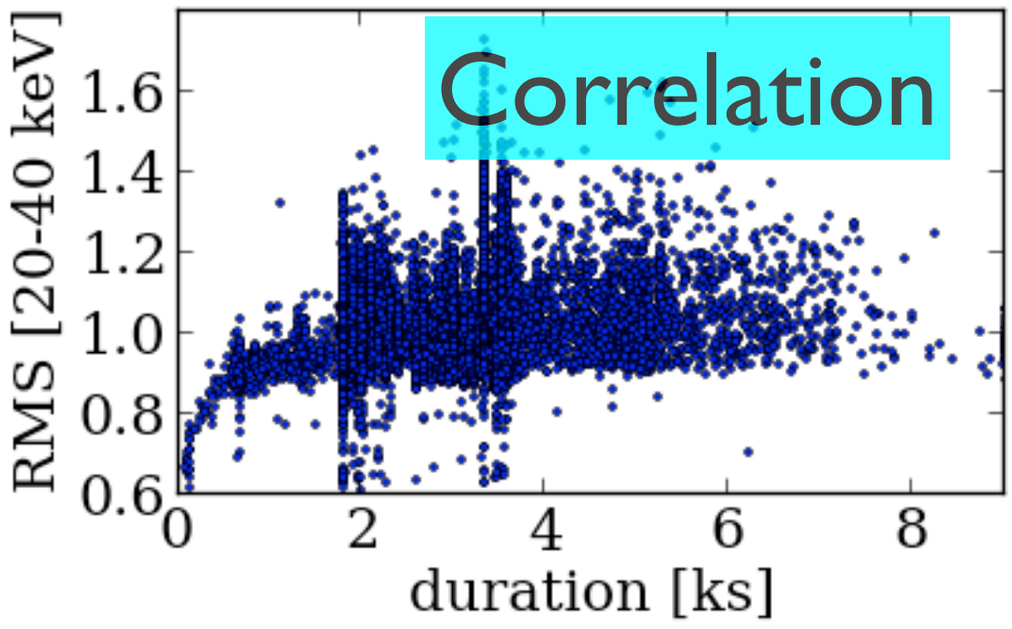
Imaging tests

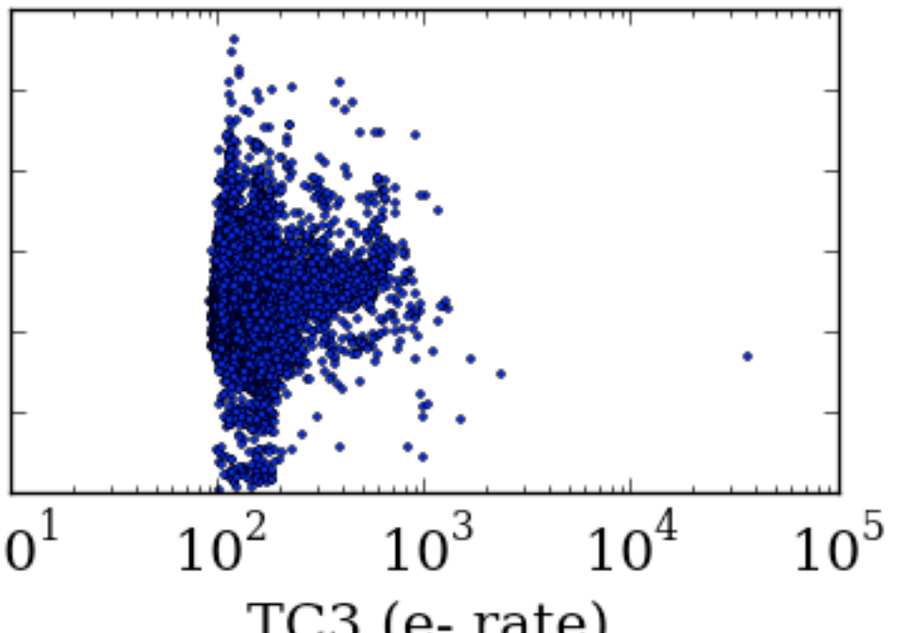
- Rev 600-1340, SCWs with associated OBSID and SSS=1 (avoids dummy SCW at the end of revolution)
- ISGRI images in 20-40 keV band, compute RMS from pixels with significance +/-5
- Correlate with SCW duration and electron rate in IREM (TC3, energy >0.5 MeV)

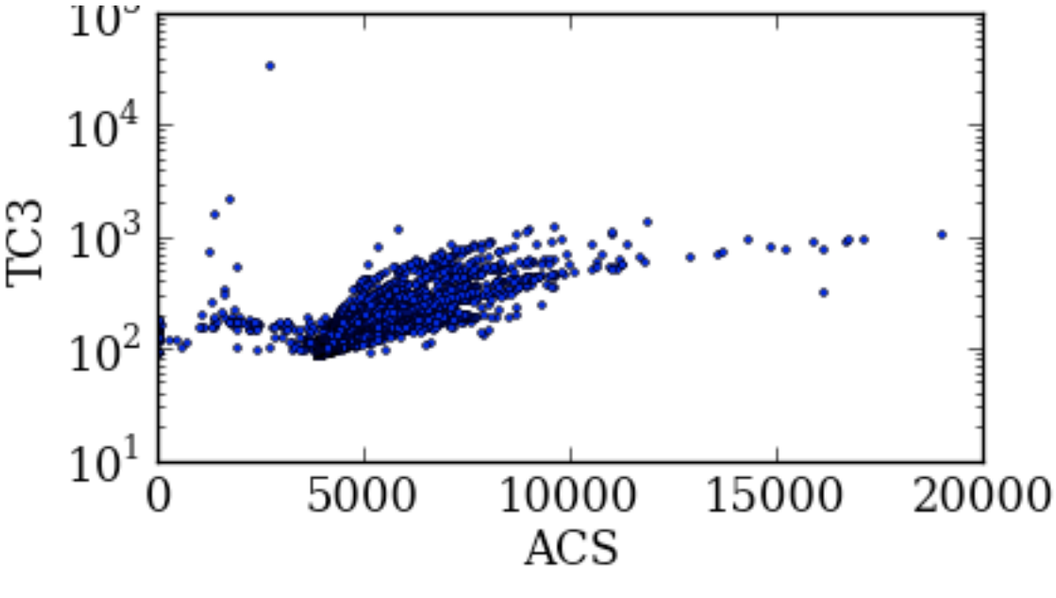


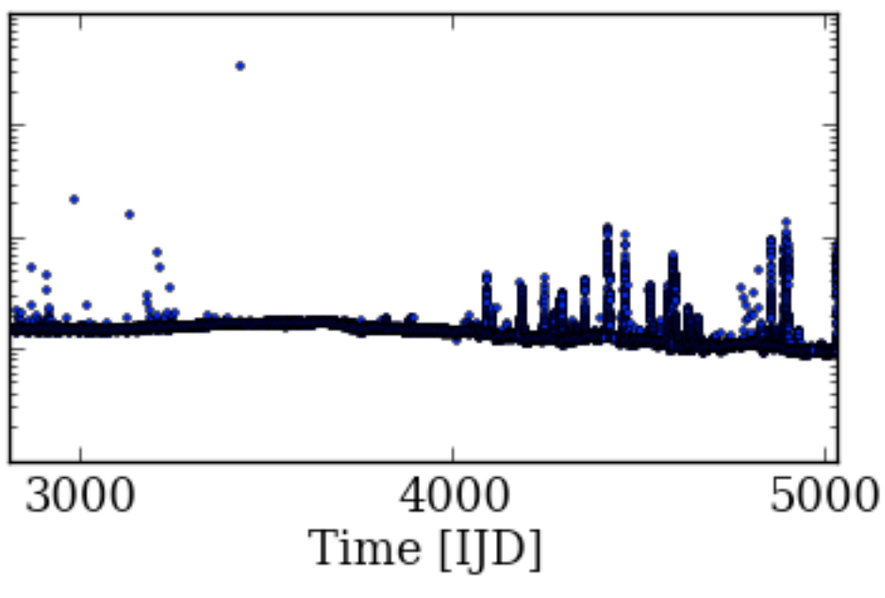

RMS [20-40 keV]
1.6
1.4
1.2
1.0
0.8
0.6
0.5
1.0
1.5
2.0
2.5
Time in REV [d]


Worsening !
3000
4000
5000
Time [IJD]


Correlation
RMS [20-40 keV]
1.6
1.4
1.2
1.0
0.8
0.6
0
2
4
6
8
duration [ks]


10^1
10^2
10^3
10^4
10^5
TC3 (e- rate)


TC3
10^4
10^3
10^2
10^1
0
5000
10000
15000
20000
ACS


3000
4000
5000
Time [IJD]

ISDC Status

- Funding for 2014-2016 being defined (high pressure to further reduce it).
- Sharing of manpower with other projects.
- The level of support for INTEGRAL operations is satisfactory, but at the minimum possible.
- Operation hardware is getting old, need replacement, no dedicated funding (solutions in progress).
- Simplifying costs: moving of data receipt to normal network, testing GFTS and telemetry stream: good so far, but need time to finalize it with reduced resources.

Quick look analysis of INTEGRAL data

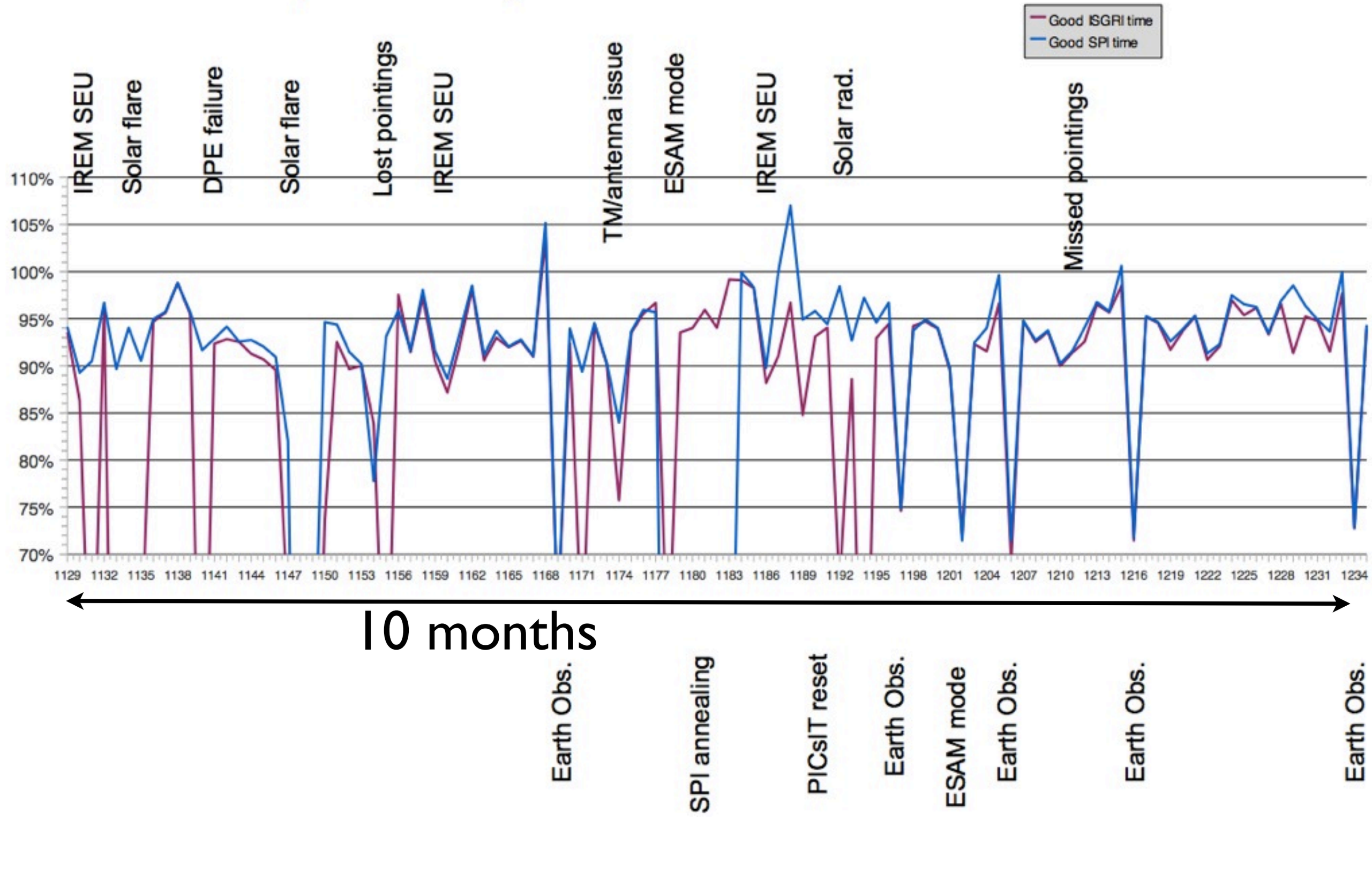
- 7 GRB in the IBIS Fov (one was a SGR)
- ~200 GRB/year in SPI ACS. Used for IPN triangulation.
- Inform PI of Open programs of the observation status.
- Inform all PIs of data rights in case of problems or relevant serendipitous sources (no data rights).
- 45 ATeLs related to INTEGRAL discoveries (with important follow-up).
- We coordinate with the PIs of public programs to exploit the observations.

http://www.isdc.unige.ch/integral/science/circulars

ISDC Operations/data distribution

- NRT data are available within 3 hours. Smooth processing.
- The operational archive is revision 3
- IBIS energy calibration is frozen to OSA9, need to run energy reconstruction step in OSA; not suitable for legacy archive
- JEM-X off-line energy calibration not always used the due to variable delivery time: need of OSA energy reconstruction step; not suitable for legacy archive

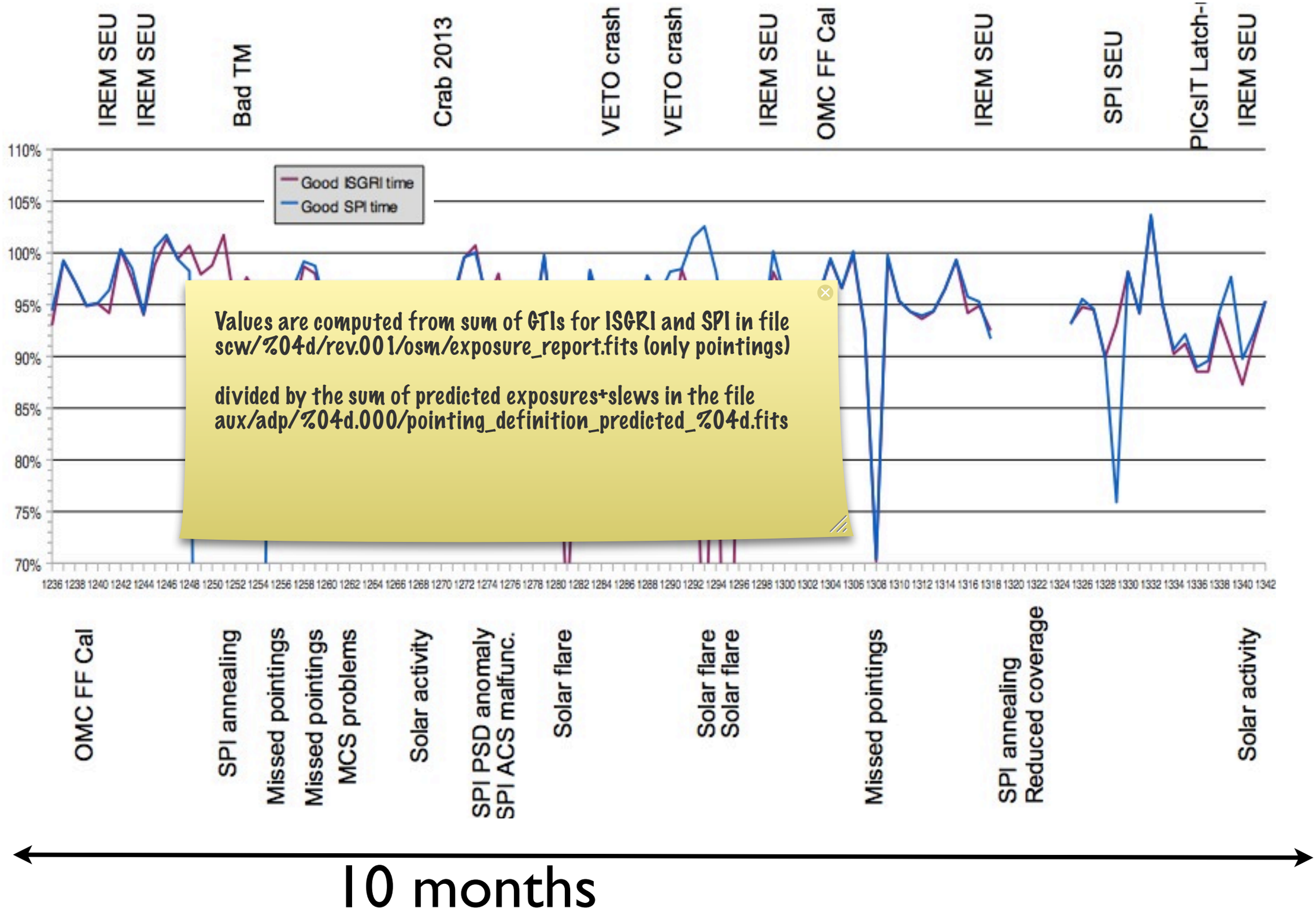
Sum of Good time intervals wrt to planned time



10 months

Earth Obs.
SPI annealing
PICsIT reset
Earth Obs.
ESAM mode
Earth Obs.
Earth Obs.
Earth Obs.

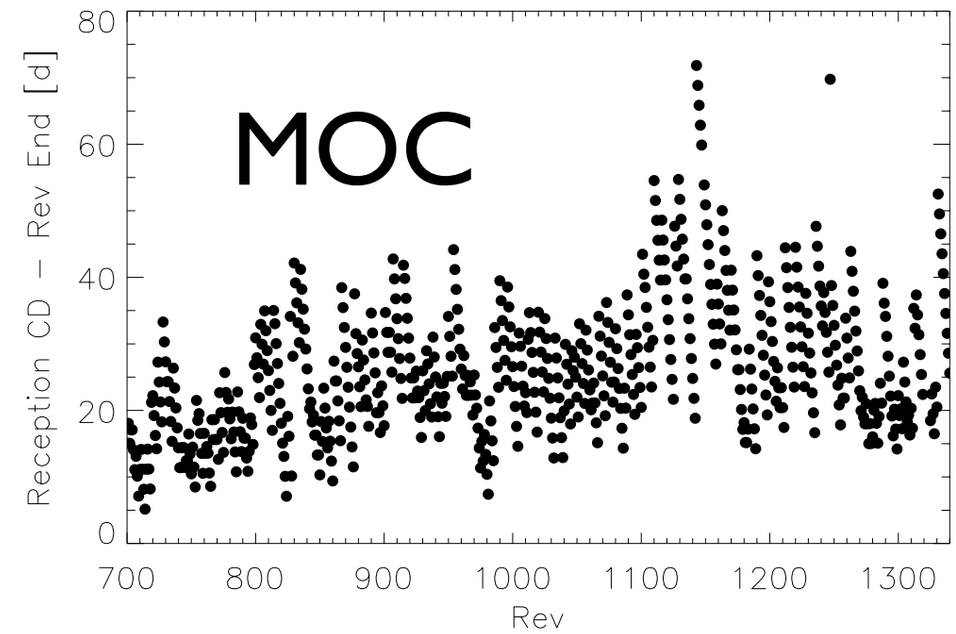
Sum of Good time intervals wrt to planned time

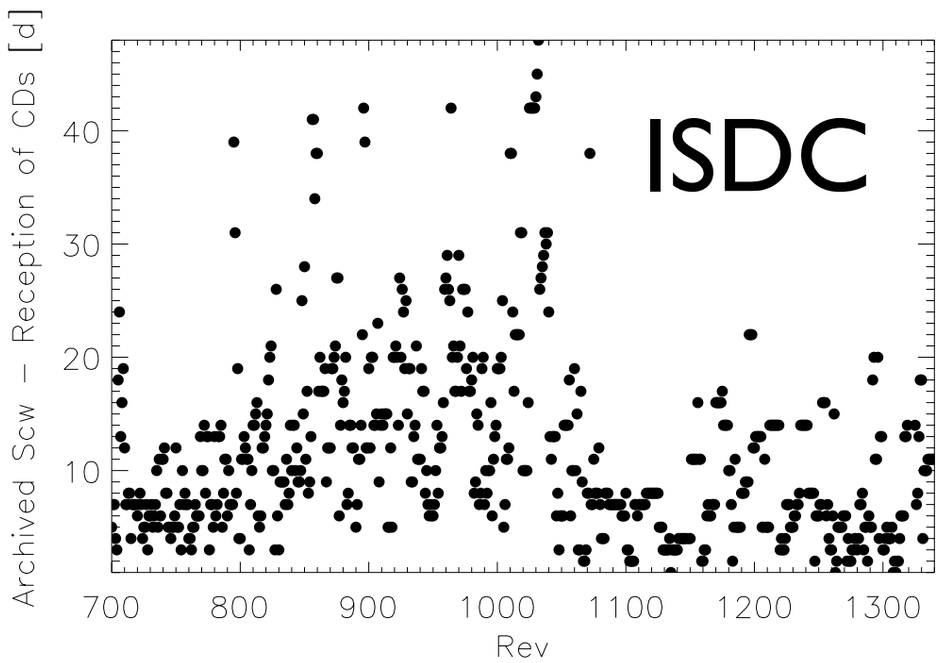


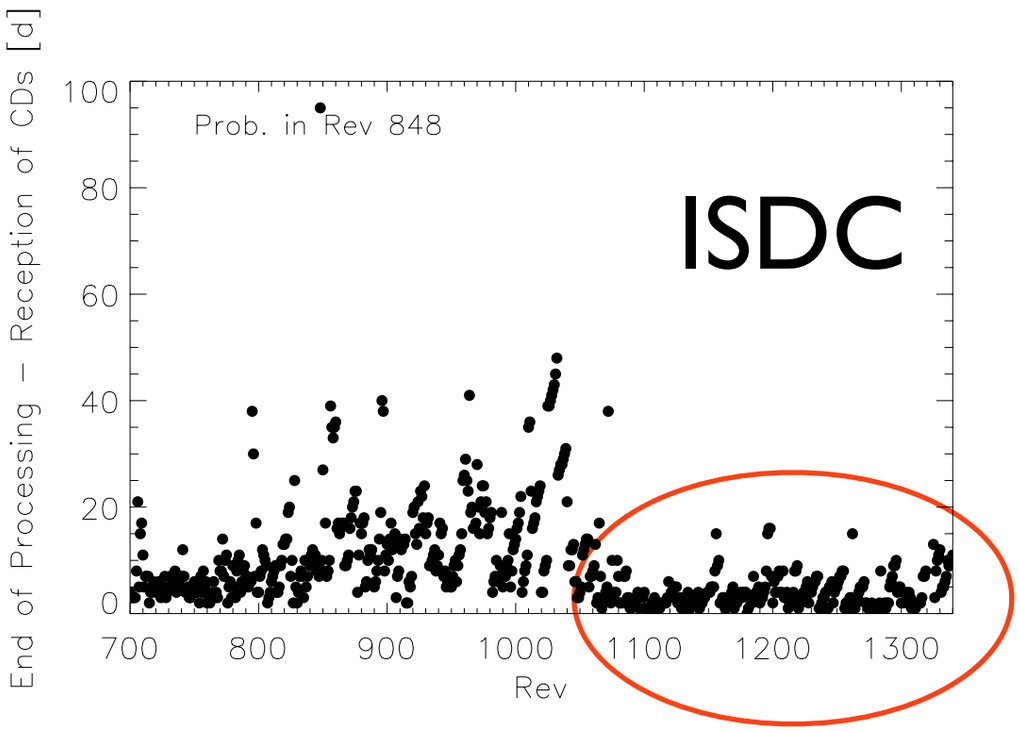
10 months

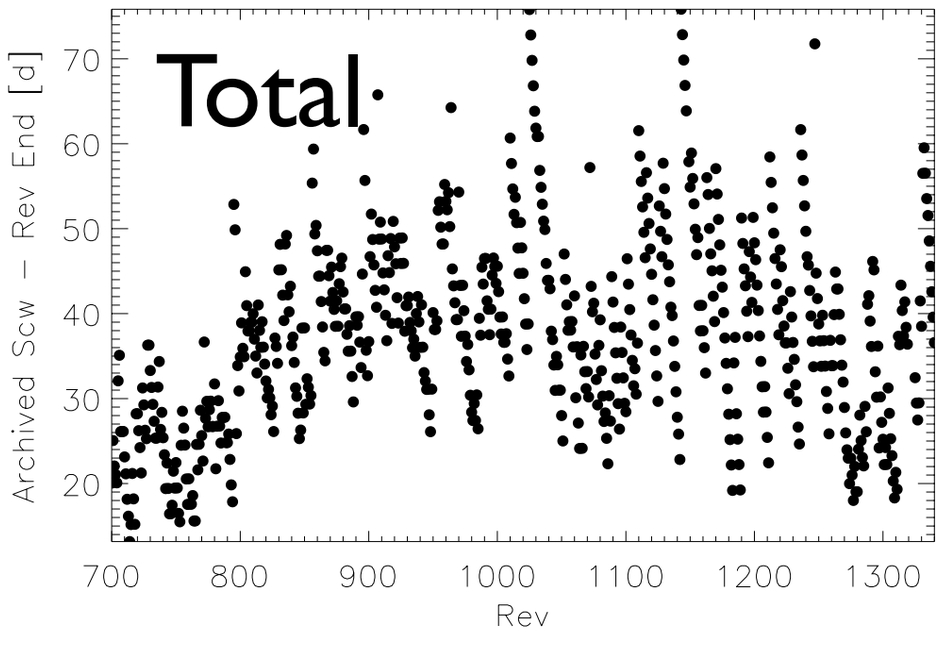
Cons distribution delay

Last considered revolution is 1340 (3-6 Oct 2013)

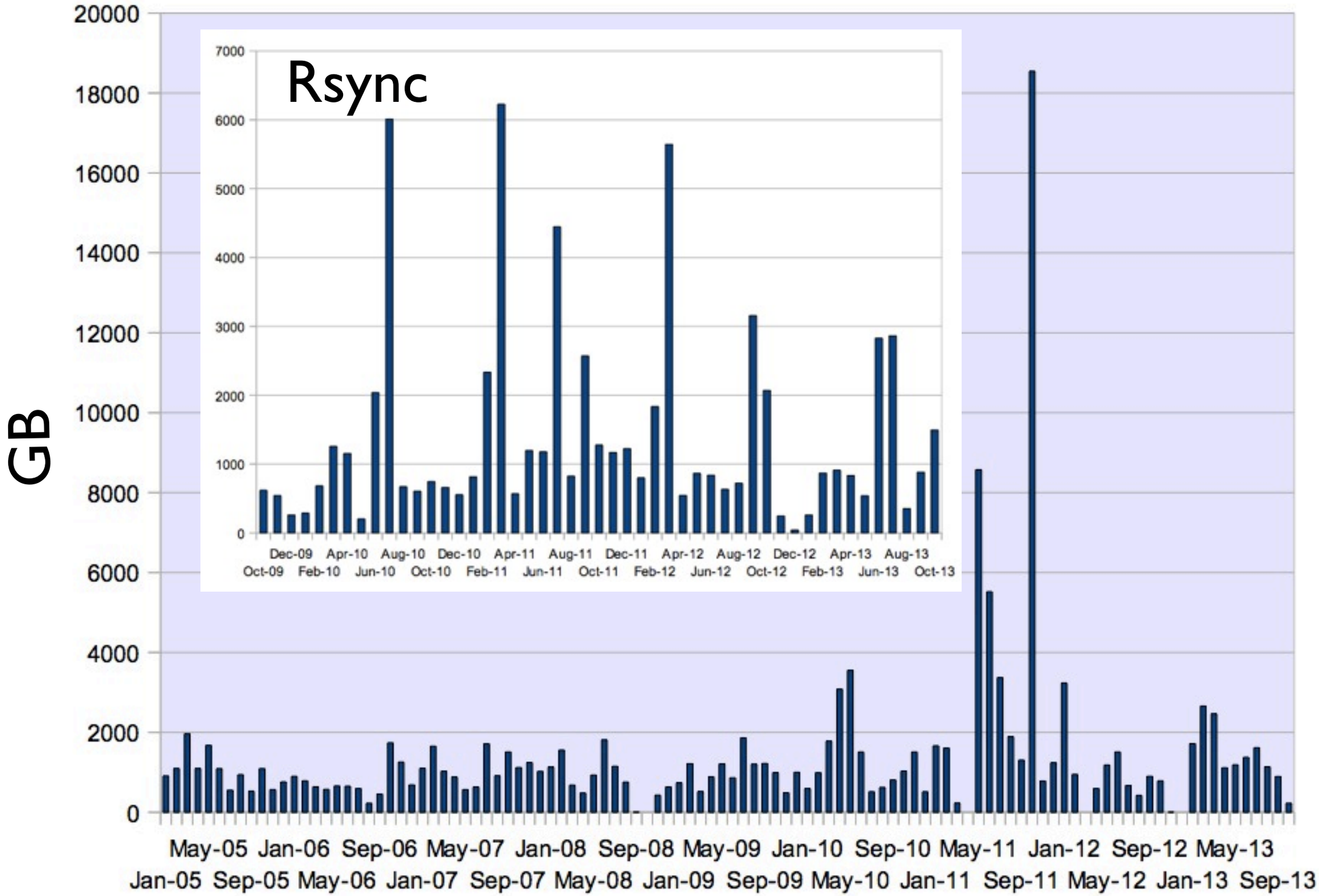






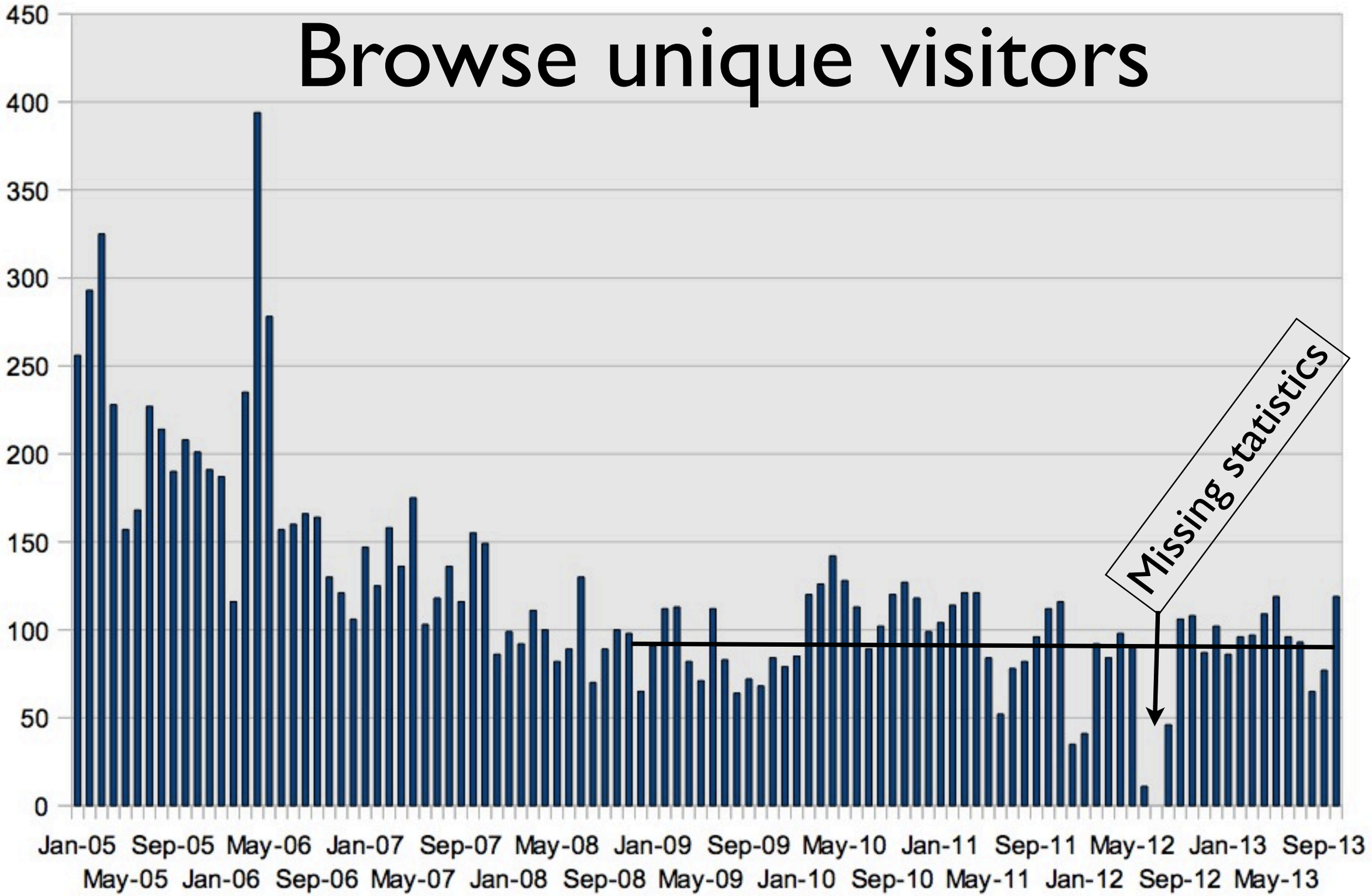


ISDC processes in <15 days



Added Rsync since 2009

Browse unique visitors



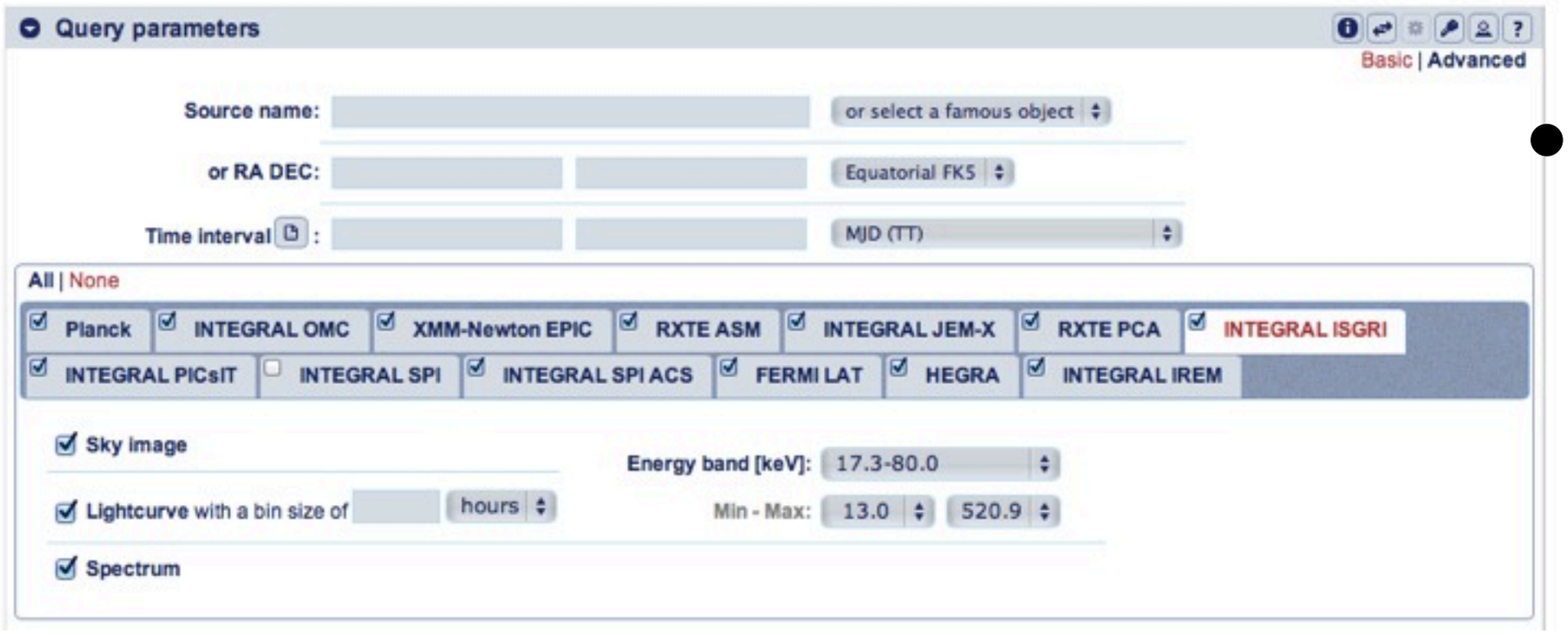
OSA downloads

- OSA 10 software was downloaded 201 times since its delivery in September 2012 (excluded ISDC downloads).
  - 75 linux 64, 52 linux 32, 49 Mac, 25 source
  - 72 testdata downloads
- Continuous interest, main contact point.

Info in
intg_web@isdc-web00:/d00/production/integral/contents/osa/DOWNLOADED

cat DOWNLOADED | grep "osa10.0" | grep "bin.dmg" | grep -v "129.194." | cut -d " " -f 3 | sort | uniq | wc -l

High level archive, HEAVENS



130 single accesses per month

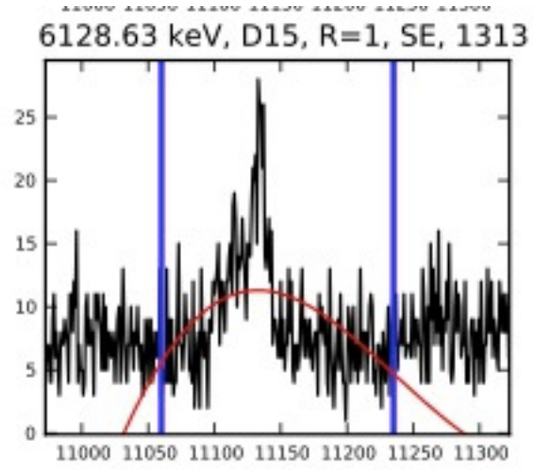
- Included FERMI/LAT, Planck, SPI, RXTE, and XMM-Newton.
- Development on hold for funding shortage (inclusion of Swift/BAT)
- Contact with ASDC (Rome)

On-going activity

- Routine update of IC files
- Guarantee smooth operations
- Update of OSA for JEM-X (first half of 2014)
- Prepare for long term operational phase: archive calibration and OSA packaging

Calibration activities (with instrument teams)

- Monitoring of OSA processing
- SPI energy calibration updates
- Testing of JEM-X deliveries
- Exclude first ~6 scws for JEM-X spectra in OSA 10.1 (to be delivered)
- Preparation of new ISGRI background maps



How to improve calibration and S/W?

- Goal: to provide a reliable archive and exploitable data
- ISDC provides coordination and infrastructure, but we need synergy with instrument teams for calibration and S/W improvements
- Collaboration is on-going with JEM-X team
- We should optimize our collaboration with the ISGRI calibration team
- SPI hypothesis to be evaluated: frozen OSA and CNES via Web Interface