

# IBIS/ISGRI STATUS

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CEA/DRF/IRFU/DAP & APC

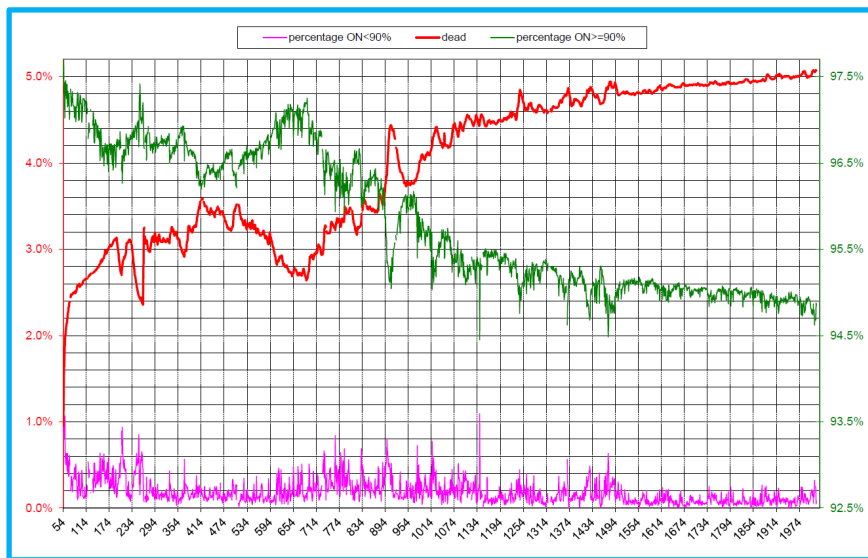
IUG#21 07/11/2018

# ISGRI OPERATION

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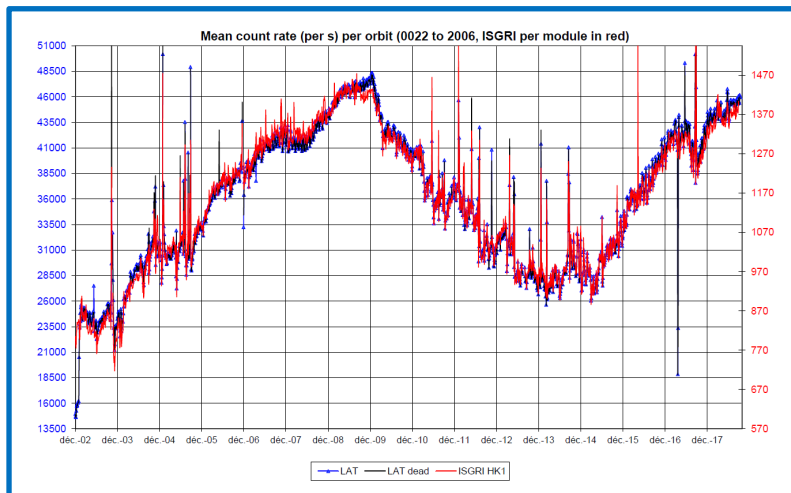
# Dead pixels

The percentage of dead pixels is still very slowly rising (around 5%).



# ISGRI/Veto Background

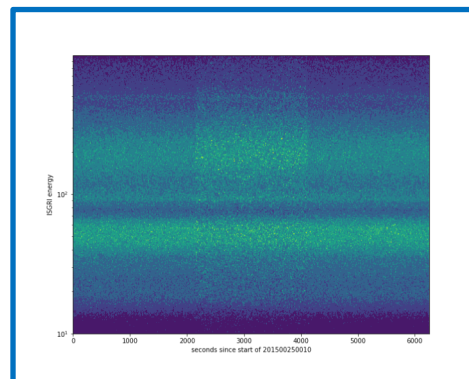
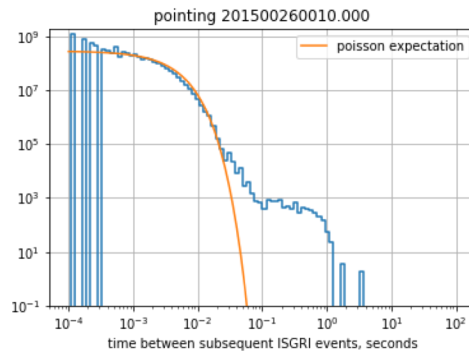
As solar activity goes to minimum, ISGRI raw count rate increases (due to cosmic rays increase, seen by VETO rate).





# ISGRI alert : ScW 201500260010

- an anomaly was found in ISGRI data of ScW 201500260010.
- It is strictly limited to a single ScW and starts abruptly at the start of the ScW.
- there is no obvious anomaly in spectrum or pixel distribution.
- IBIS/Veto rate is not unusual.
- ISGRI RAW rate seems ok.
- Investigation in process BUT
- No RH at Paris/Saclay to follow this quickly.
- No longer formal access to “PI data”.



# ISGRI SOFTWARE

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# OSA11

- Presumably the last major update for ISGRI calibration
- OSA 11 (ISGRI) : new energy reconstruction + new background map
- OSA 11 has been delivered on October 19<sup>th</sup>.
- According to our tests, it works well with bright sources like Crab or Cygnus X-1.
- It has crashed sometimes anyway in crowded regions when we select many sources (20) to fit at the same time.

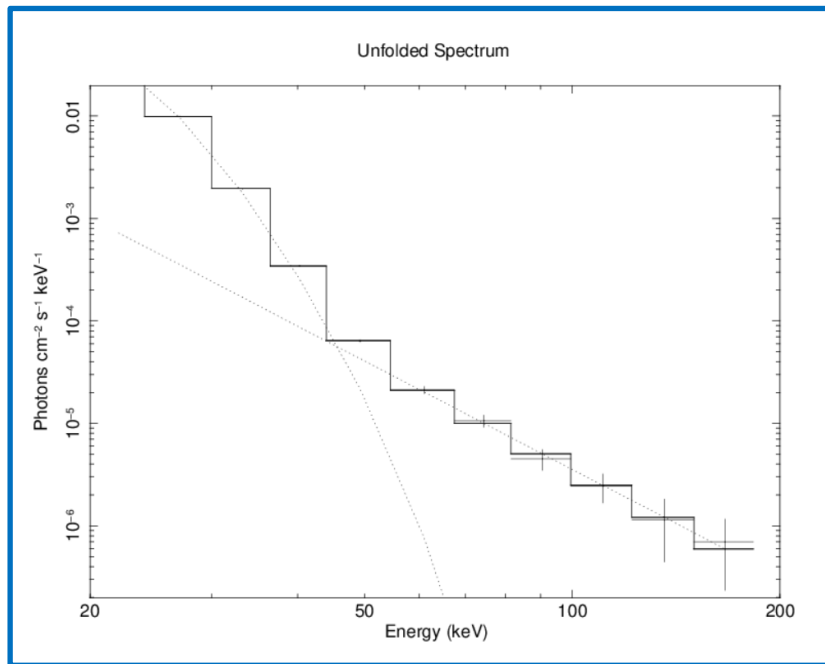
# Tests OSA 11 in process : Sco X-1

405 000 s  
rev 1653 -> 1708

Good spectrum above 20 keV.

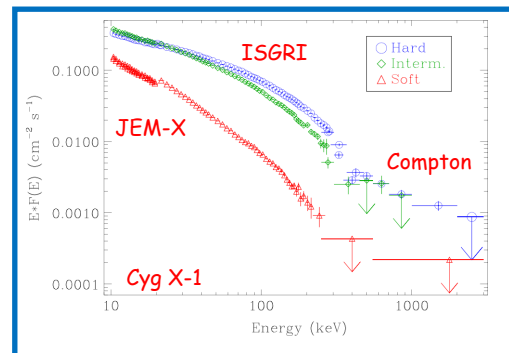
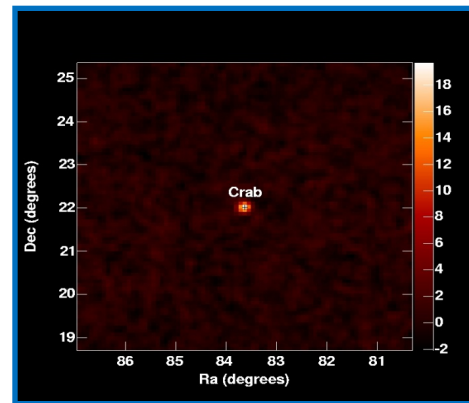
- Fit : bb + pow
- $kT = 2.94 \pm 0.01$  keV
- $\alpha = 3.38 \pm 0.2$
- $\chi^2_r = 0.7$  (7 dof)

Consistent with previous analysis.



# Compton mode data analysis

- Delivery to ISDC of Compton software to make images and spectra has been delayed, but is still foreseen.
- Software is now ready at CEA, starting from ISGRI COR data computed at ISDC with OSA11.
- We should discuss with ISDC how to deliver it.
- Most of the software is similar to the ISGRI spectral-imaging data analysis.



# SCIENCE

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# 1640014 ToO INTEGRAL and XMM-Newton observations of the repeating fast radio burst FRB 121102

AO16

C. Gouiffès (PI), P. Laurent (CEA/Dap) + many Co-Is: CEA/Dap, Obs. Paris, MpiR, NUIG, IAP, ISDC



## Outcome of the 2017 campaign

- No Pb with INTEGRAL
- Good radio coverage except some unexpected events (Hurricane on Arecibo and mechanical failure at Nançay !)
- Excellent optical observing run at OHP
- Collaboration with the main VHE facilities

**Preliminary results :** In more than 60 hours during the 2 orbits, no bright radio bursts detected (Effelsberg, GBT, FAST)

## New strategy

- The NRT (Nançay Radio Telescope) is regularly monitoring FRB121102
- Trigger if proof of recurrent activity (today criteria « Radio bursts detected in at least 2 of 3 consecutive one-hour observations »)
- Radio Follow-up with Effelsberg, Arecibo, GBT, FAST, etc.. Experiences and contacts from AO14
- Optical follow-up (OHP+others)
- Collaboration with VHE facilities

## Planned observations

- 3 orbits allocated : FRB121102 2019 visibility mid-February to mid-April, mid-August to mid-October

# Multi-messengers, Cygnus X-1, polarization, matrix inversion

- The multi-messenger team at Paris/Saclay is now composed of

P. Laurent, D. Götz, C. Gouiffès with the help of :

Alexis Coleiro (Assistant Professor, APC, neutrinos)

Sarah Antier (CNES Post-doc, GW, SVOM)

- We have a PHD student (F. Cangemi) studying Cygnus X-1 long term behavior (spectra + polarization) in collaboration with J. Wilms team.
- We have had another PHD student (G. Daniel) on spectral reconstruction/ response matrix inversion.



# Bayesian response matrix inversion

Inversion of a mix of sources ( $^{133}\text{Ba}$  et  $^{137}\text{Cs}$ )  
Very quick and precise method.

