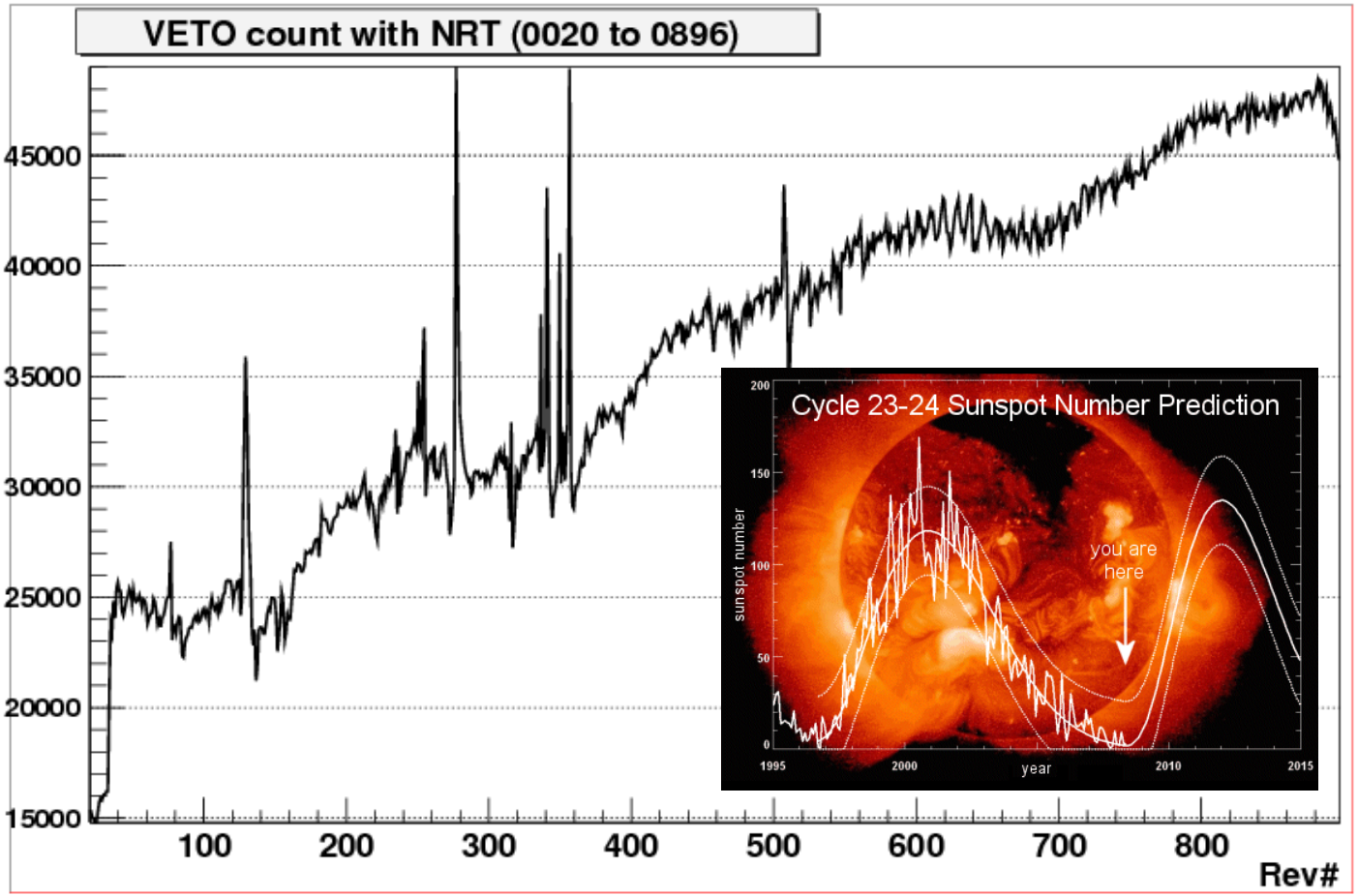
Team status

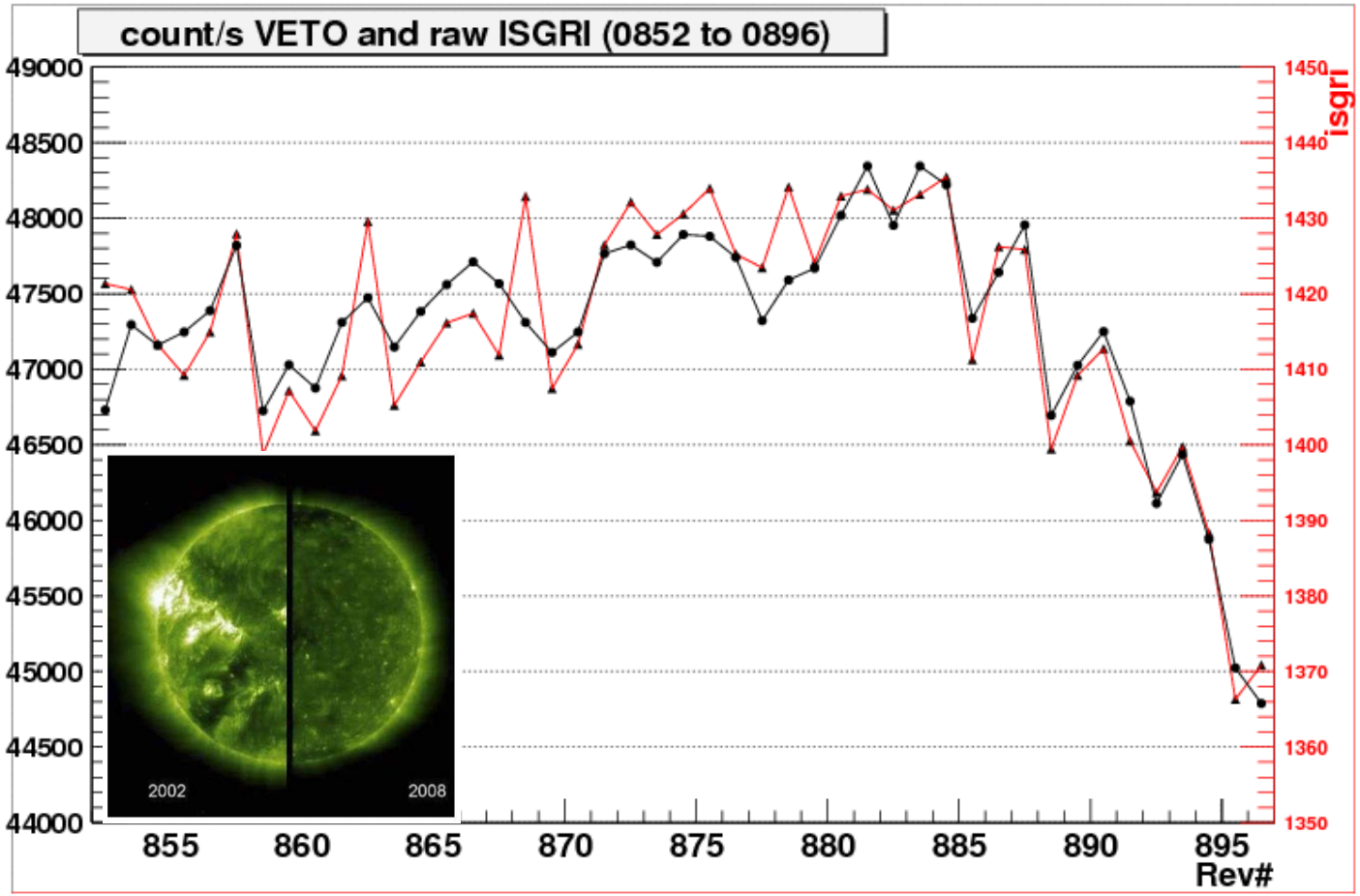
* Mathieu Renaud left APC end of 2009
* Isabel Caballero arrived at Saclay
* Another INTEGRAL postdoc to be hired soon at APC
* INTEGRAL activities at APC to be moved to the Francois Arago Centre

Solar minimum's over!

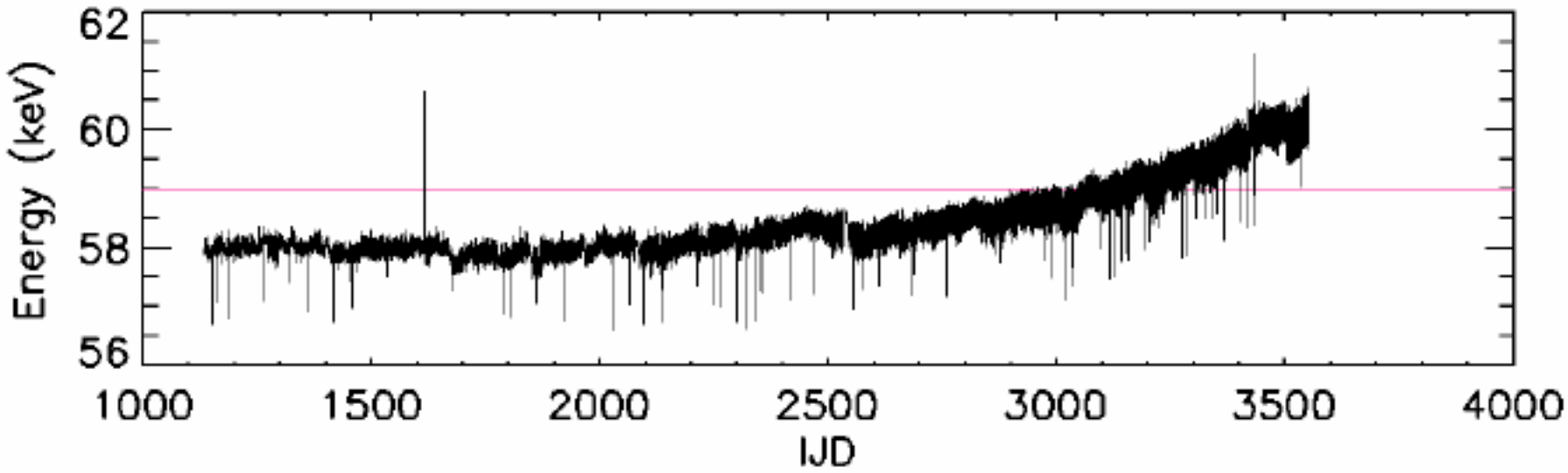


Solar minimum's over!

Decrease of ~6% over 10 revolutions



Spectral drift



… more about this in the OSA discussion

IBIS calibration

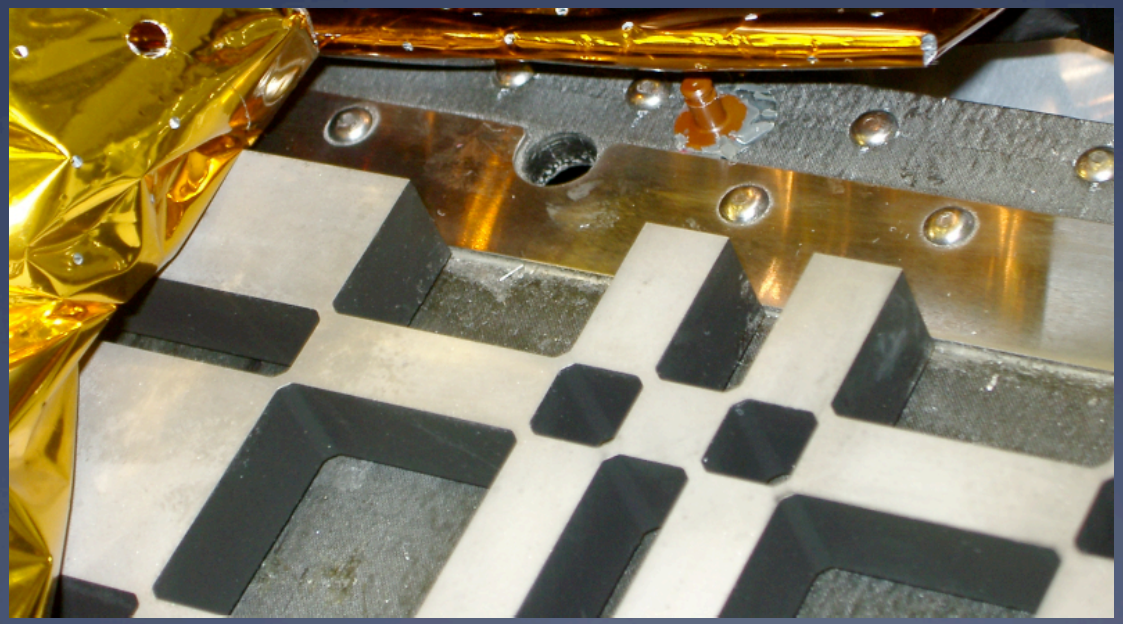
François Lebrun
Volker Beckmann, A. Goldwurm, F. Mattana, R. Terrier
(APC)
I. Caballero, A. Gros, P. Laurent, A. Sauvageon, S. Soldi
(CEA/SAp Saclay)

IOCG meeting ESOC, February 23, 2010

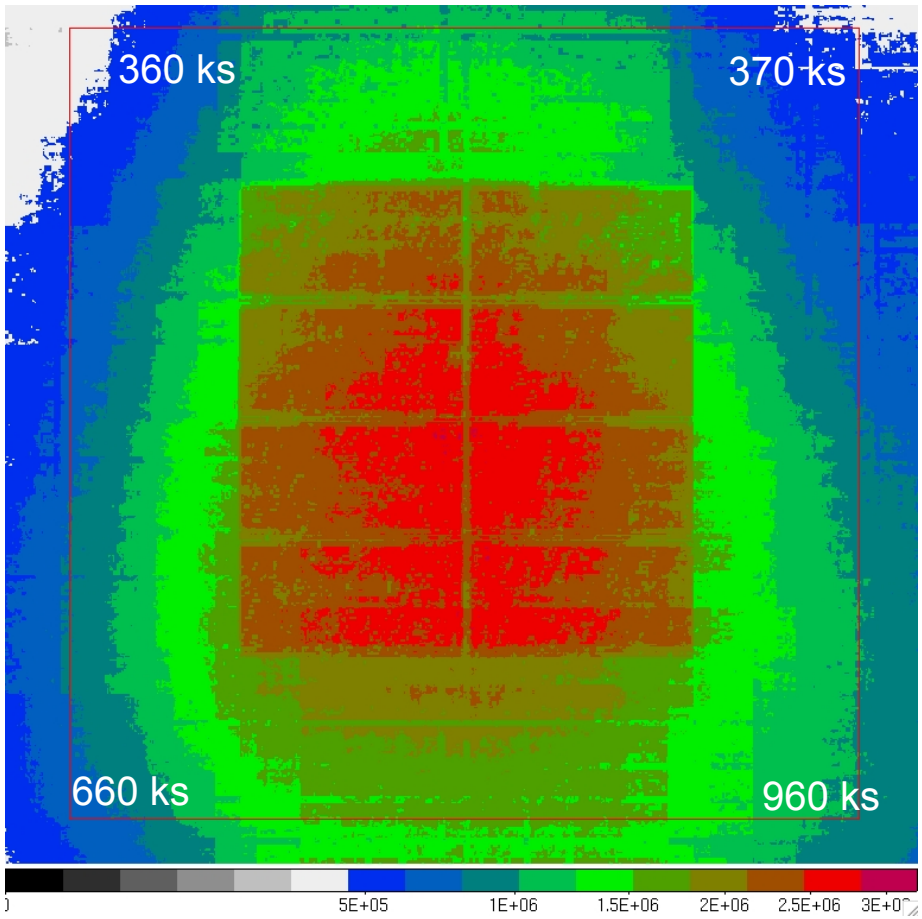
IBIS mask calibration

* IOCG 2009-02-11 meeting: Francois' presentation on IBIS mask calibration

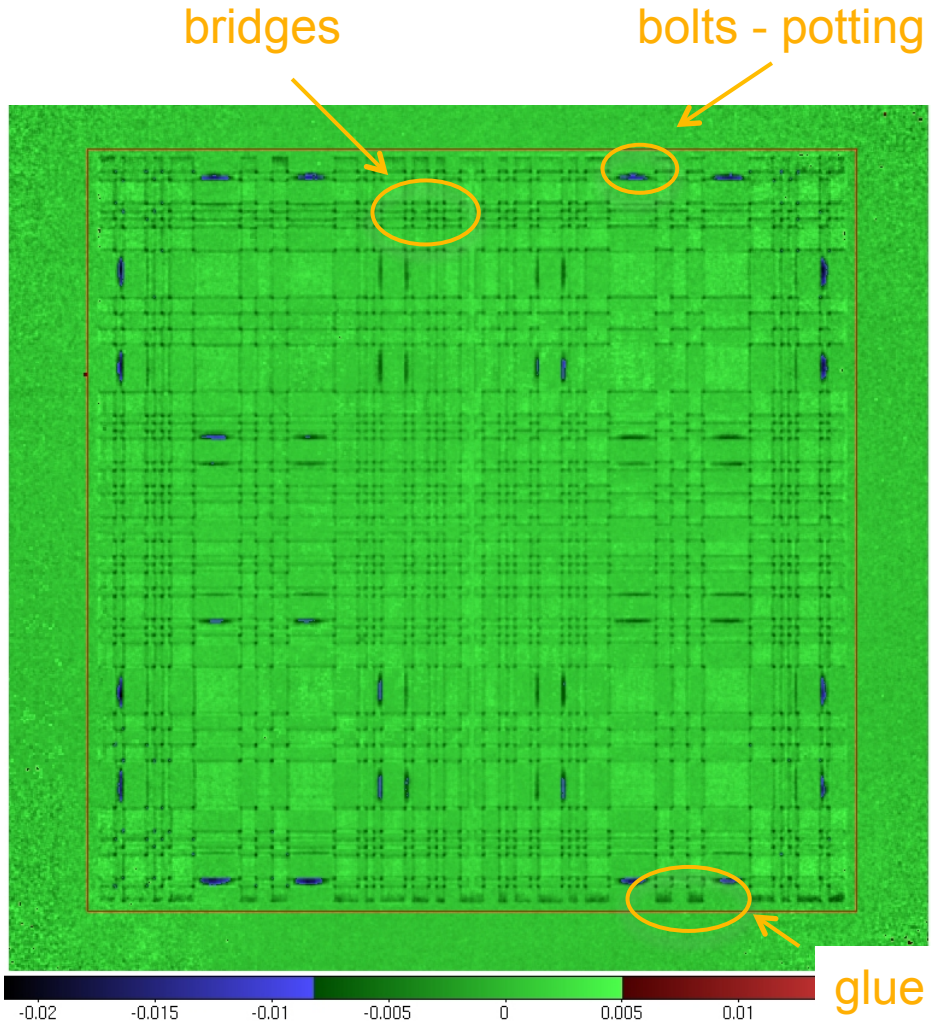
* Motivation: best mask calibration needed for INTEGRAL legacy
* Glue, gaps, bridges, bolts…
* Affects mainly the corners and the rim of the mask, which have least exposure time



Current Crab + Cyg X-1data



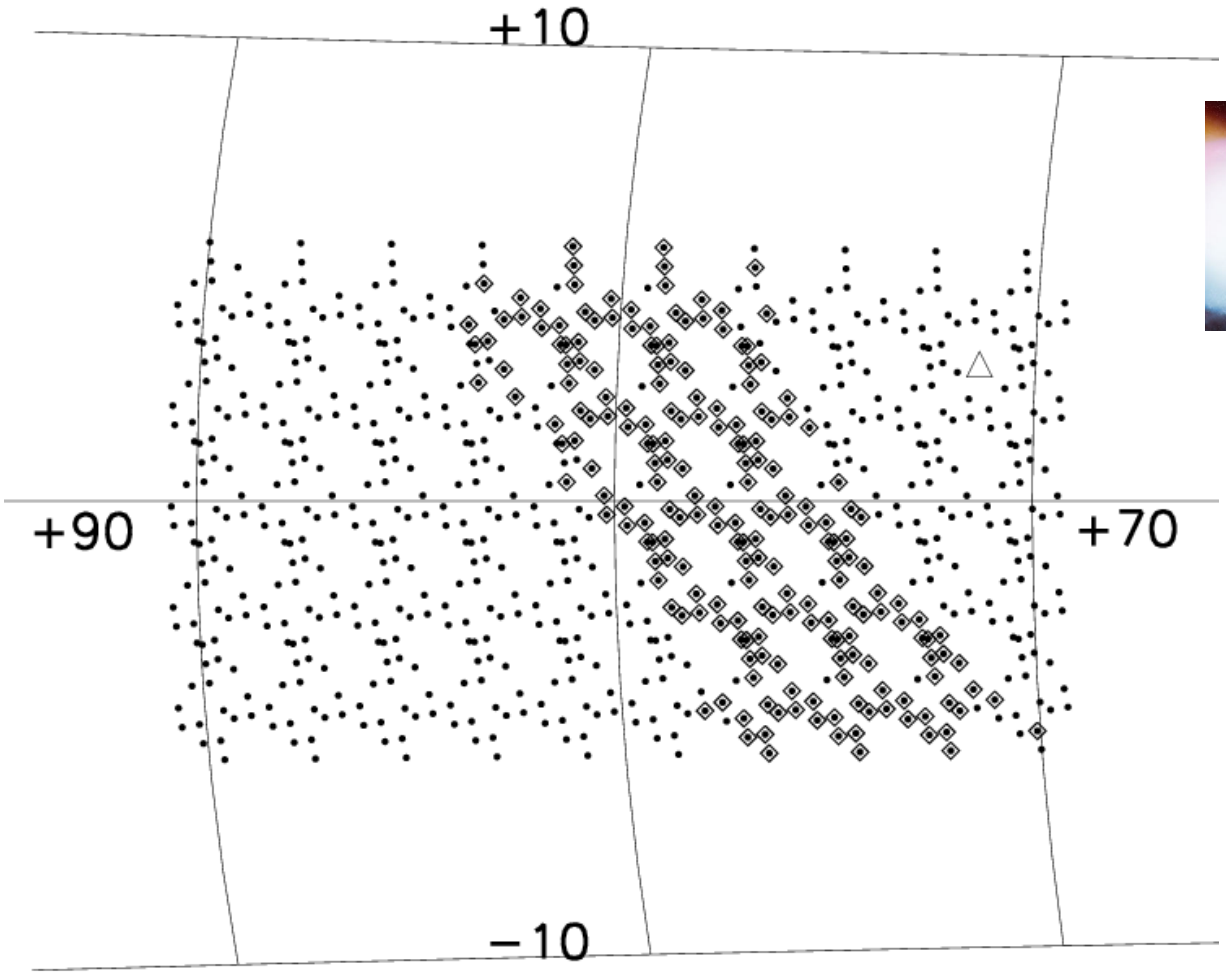
Effective mask exposure time in ks



Mask defects radiography

S. Soldi (CEA/SAp Saclay) & G. Belanger (ESAC)

AO-7 Cygnus region observations



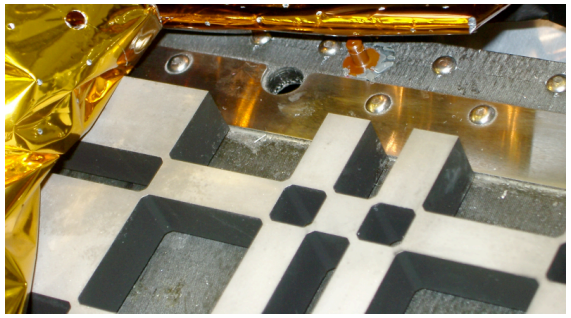
Cyg X-1

New strategy for 2 Ms Cygnus region observation (PI Pierrick Martin, MPE)

S. Soldi (CEA/SAp Saclay) & G. Belanger (ESAC)

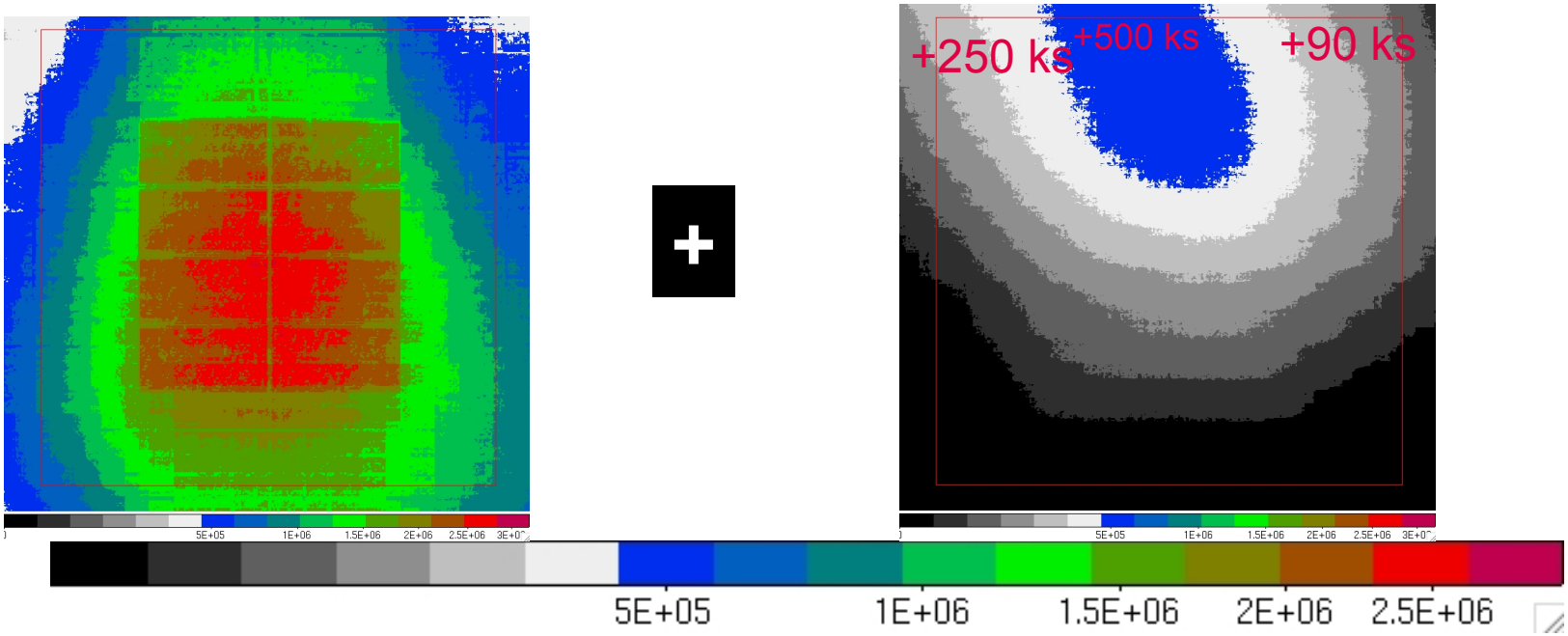
Irfu cea saclay

Improvement



Current exposure map

1.8 Ms exposure

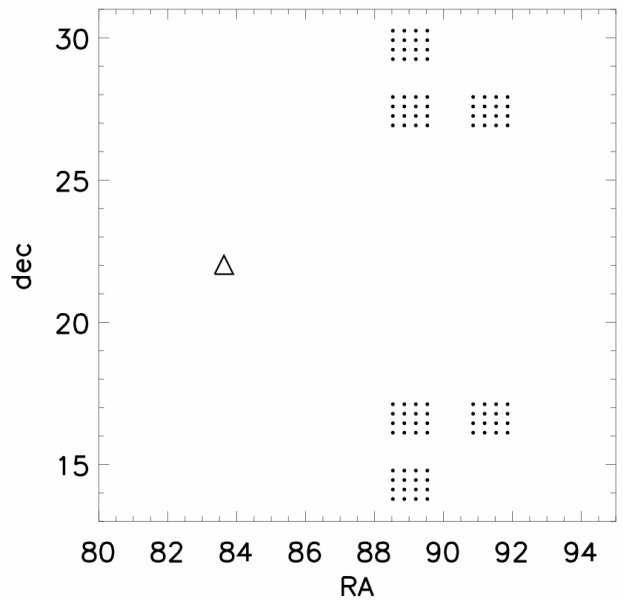


Improvement of mask coverage (top corners and top rim)
without additional exposure time

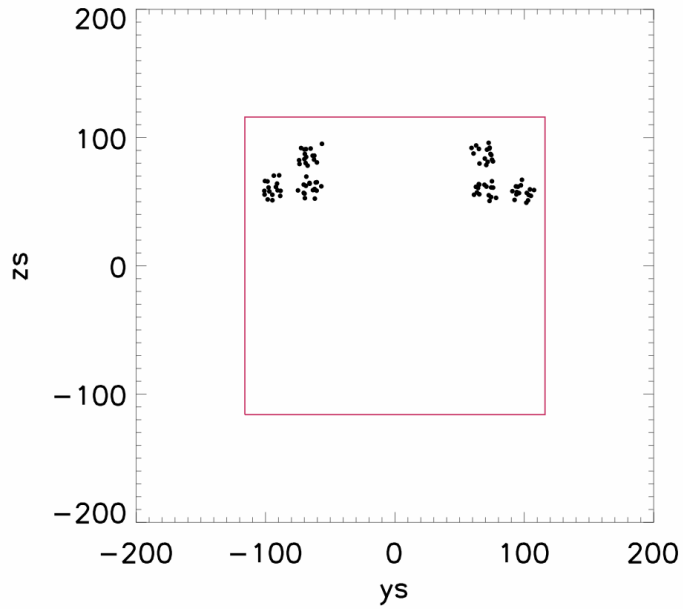
S. Soldi (CEA/SAp Saclay) & G. Belanger (ESAC)

Crab calibration

Observation strategy in sky coordinates



Observation strategy in mask coordinates



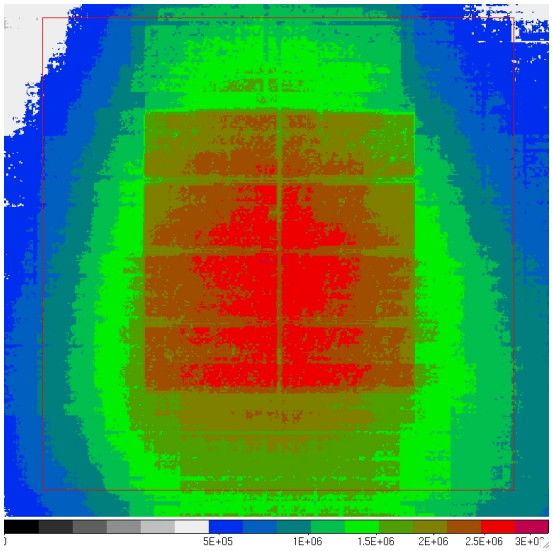
Next Crab calibration March 2010: 1 revolution, 3 reduced 4x4 patterns
(20' sep., patterns sep. by 2.3 deg)
on each of the upper, least exposed corners of the mask

S. Soldi (CEA/SAp Saclay) & G. Belanger (ESAC)

Irfu cea saclay

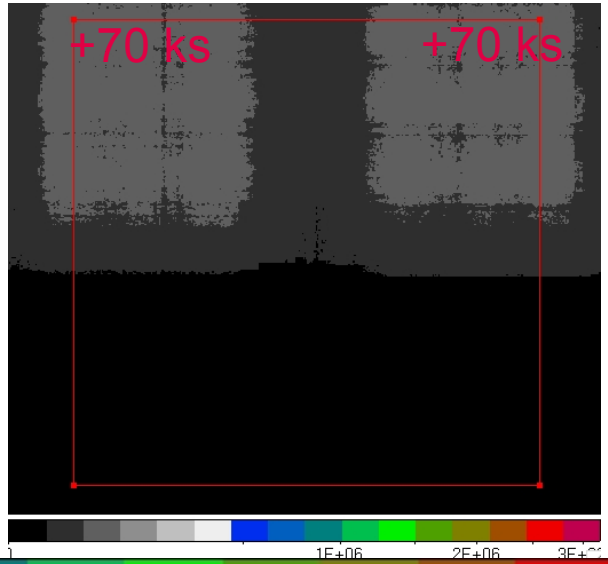
Improvement Crab calibration

Current exposure map



+

200 ks exposure

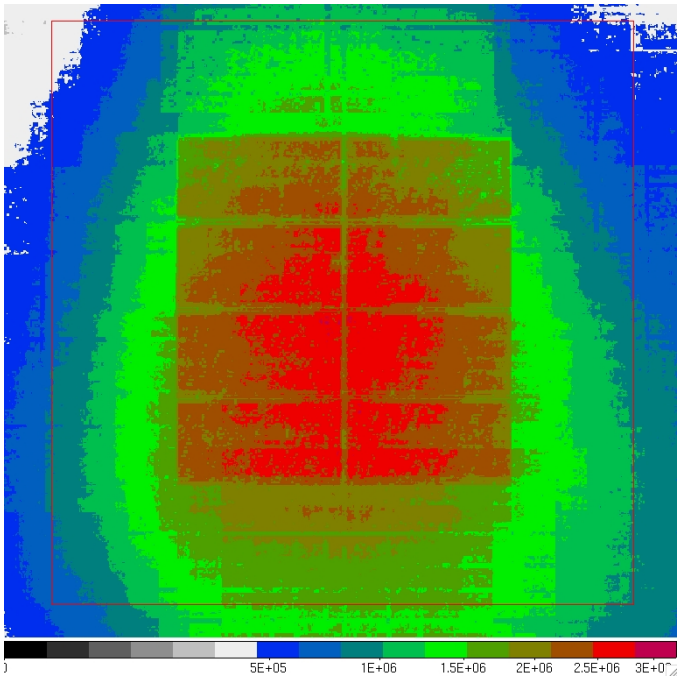


Improvement of mask coverage (upper corners and rims)
from 1 revolution customized Crab calibration

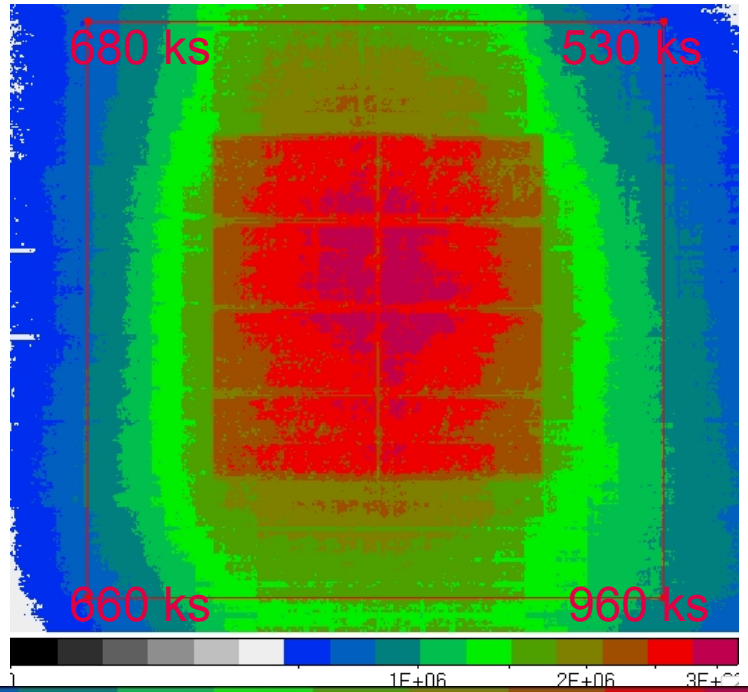
S. Soldi (CEA/SAp Saclay) & G. Belanger (ESAC)

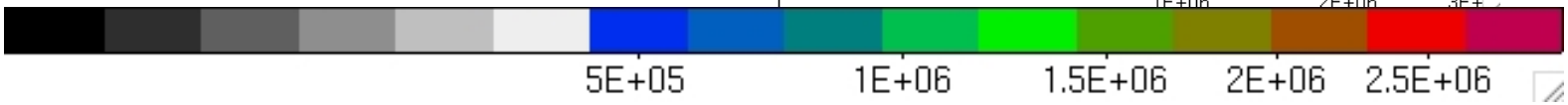
Total Improvement

Current exposure map



Exposure map after Crab + Cygnus observation

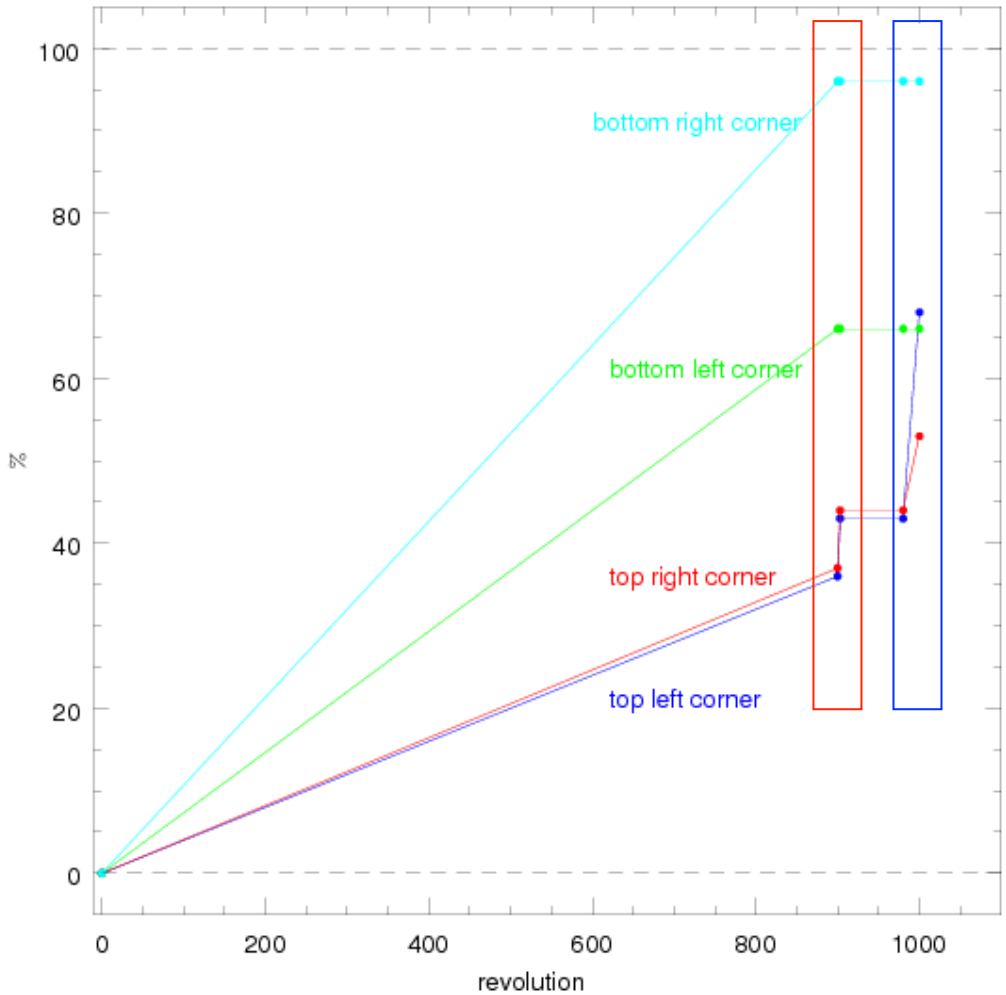




Improvement of mask coverage (upper corners and rims)
from 1 revolution customized Crab calibration plus Cygnus Region observations

S. Soldi (CEA/SAp Saclay) & G. Belanger (ESAC)

Improvement



Crab calibration
March 2010

Cygnus
Observation
Nov. 2010

The goal is to have 1 Msec exposure on each corner of the mask

S. Soldi (CEA/SAp Saclay) & G. Belanger (ESAC)

Irfu
cea
saclay

ISGRI: OSA9 and beyond

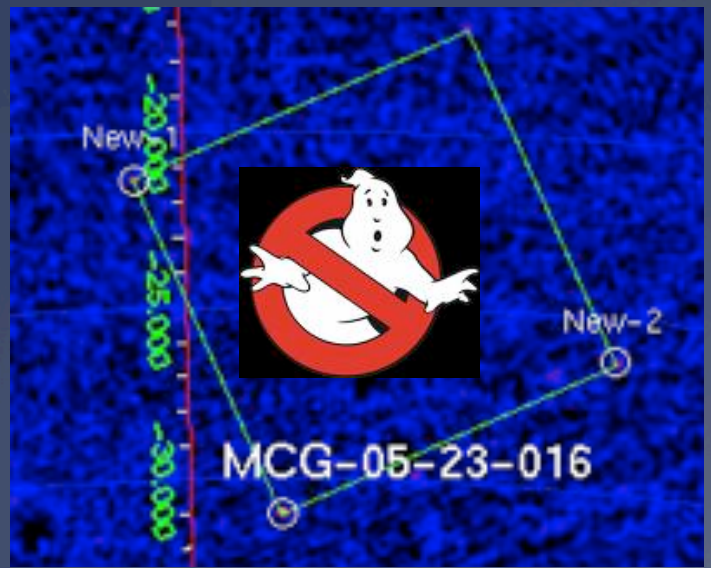
François Lebrun
Volker Beckmann, A. Goldwurm, F. Mattana, R. Terrier
APC
I. Caballero, A. Gros, P. Laurent, A. Sauvageon, S. Soldi
CEA/SAp Saclay

IOCG meeting ESOC, February 23, 2010

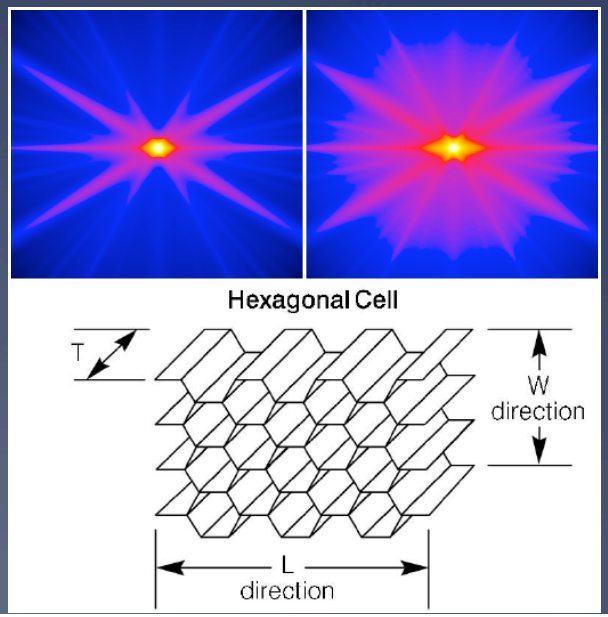
OSA 9 improvements

* ISGRI s/w improvements implemented in OSA9:
* OSA 9 includes Nomex correction and ghostbuster (based on s/w by Dominique Eckert [CNR/INAF-Milano])
* Imaging of bright sources and around bright sources

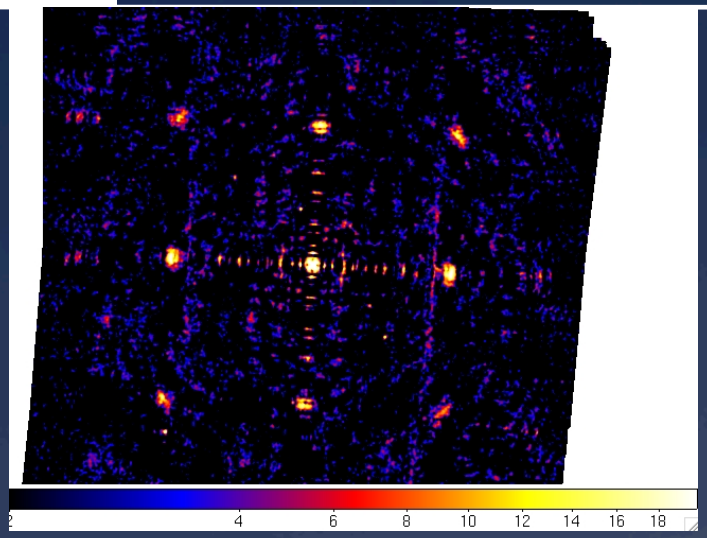
* ARFs are right now tested at Saclay
* ISGRI ARFs OSA8 the same as for OSA9
* Delivery of ARFs around March 5th



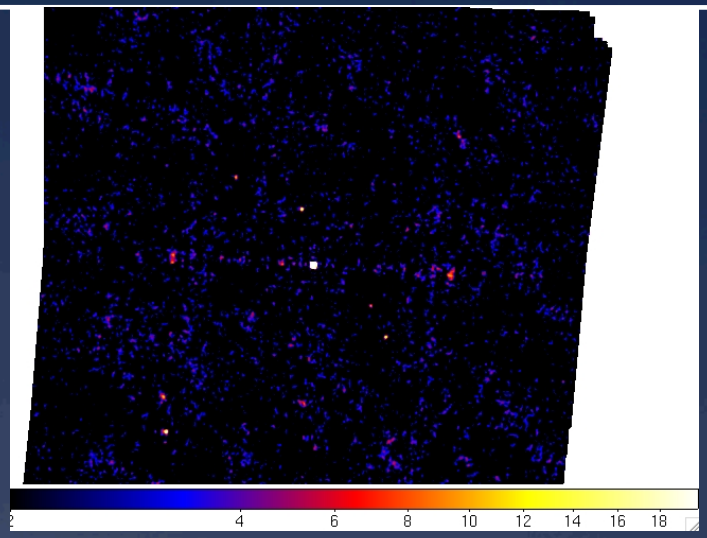
Nomex correction



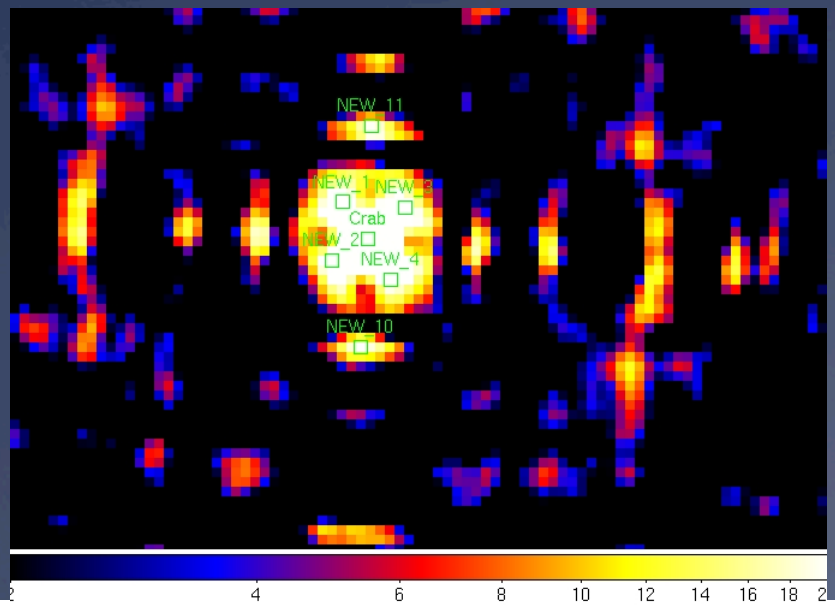
OSA 9 improvements

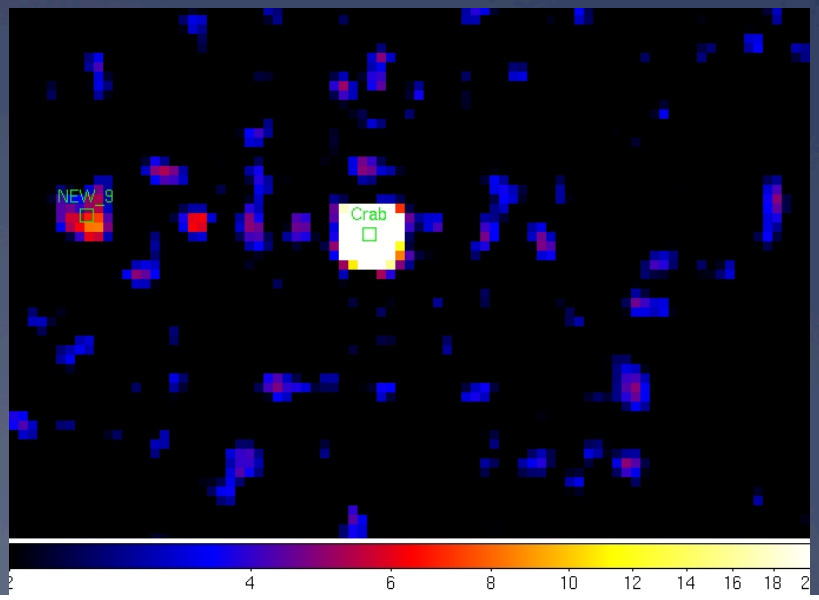


OSA 8

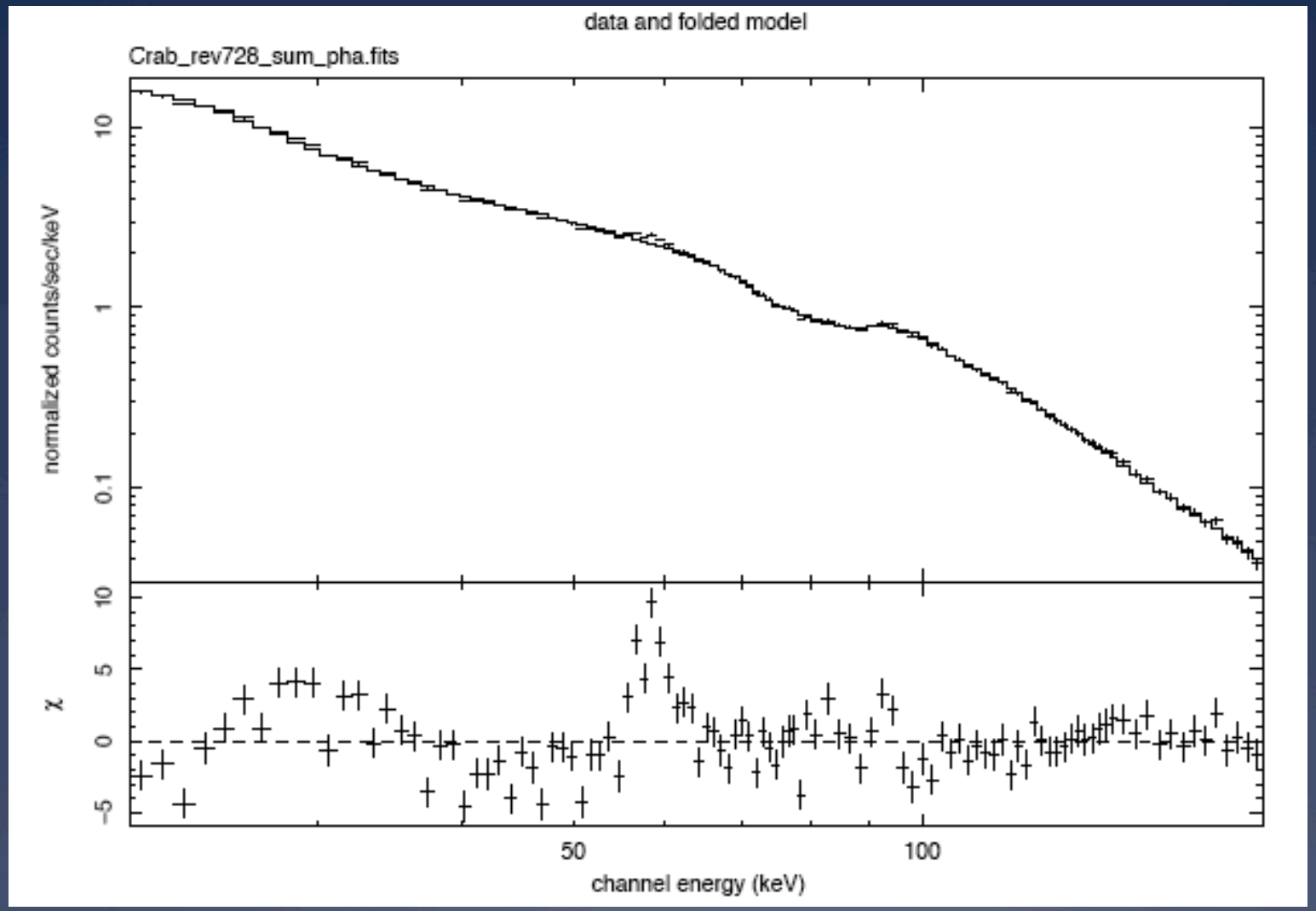


OSA 9



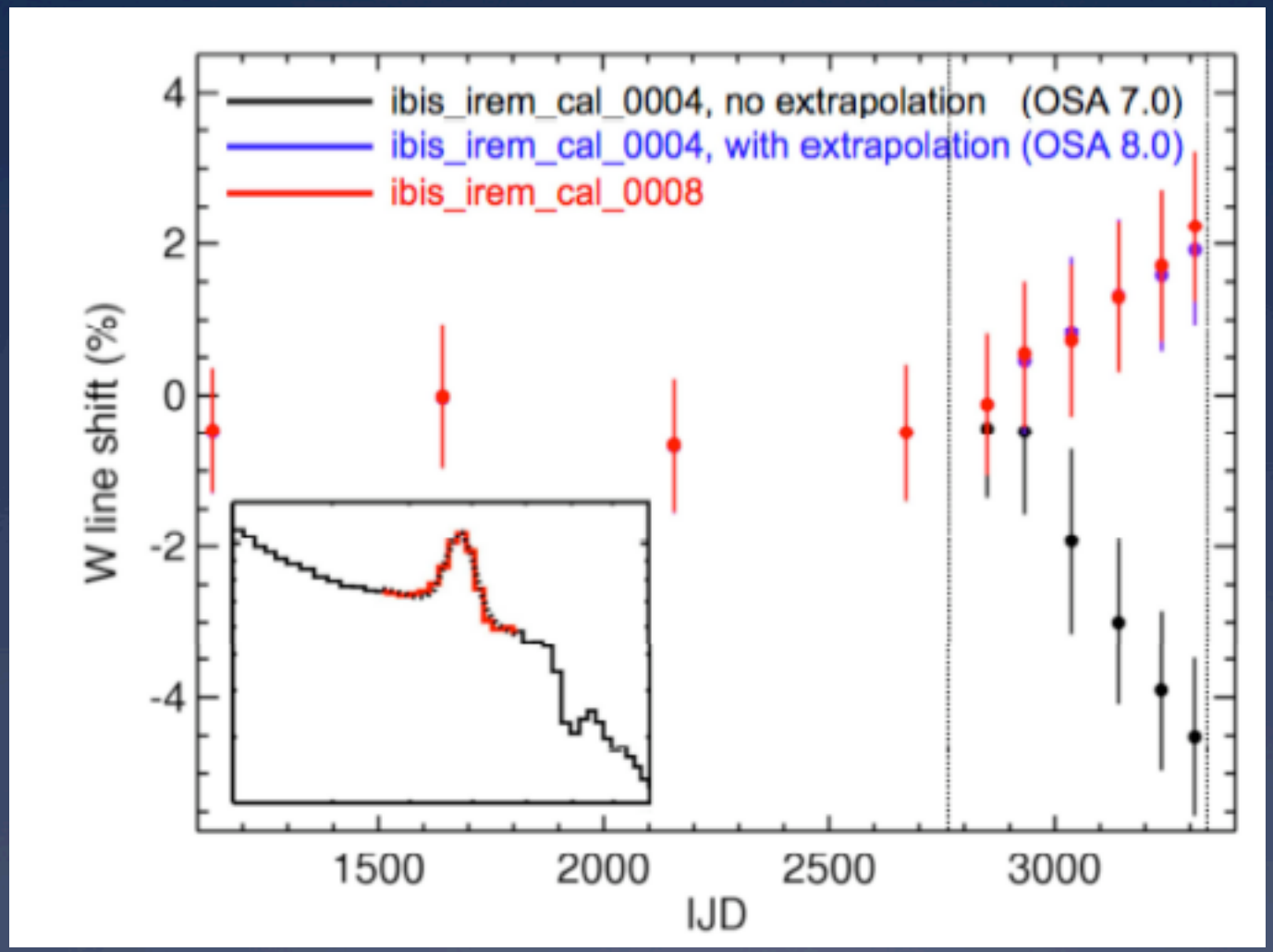


OSA 9 open issue



Prominent Tungsten line at 59 keV

OSA 9 open issue

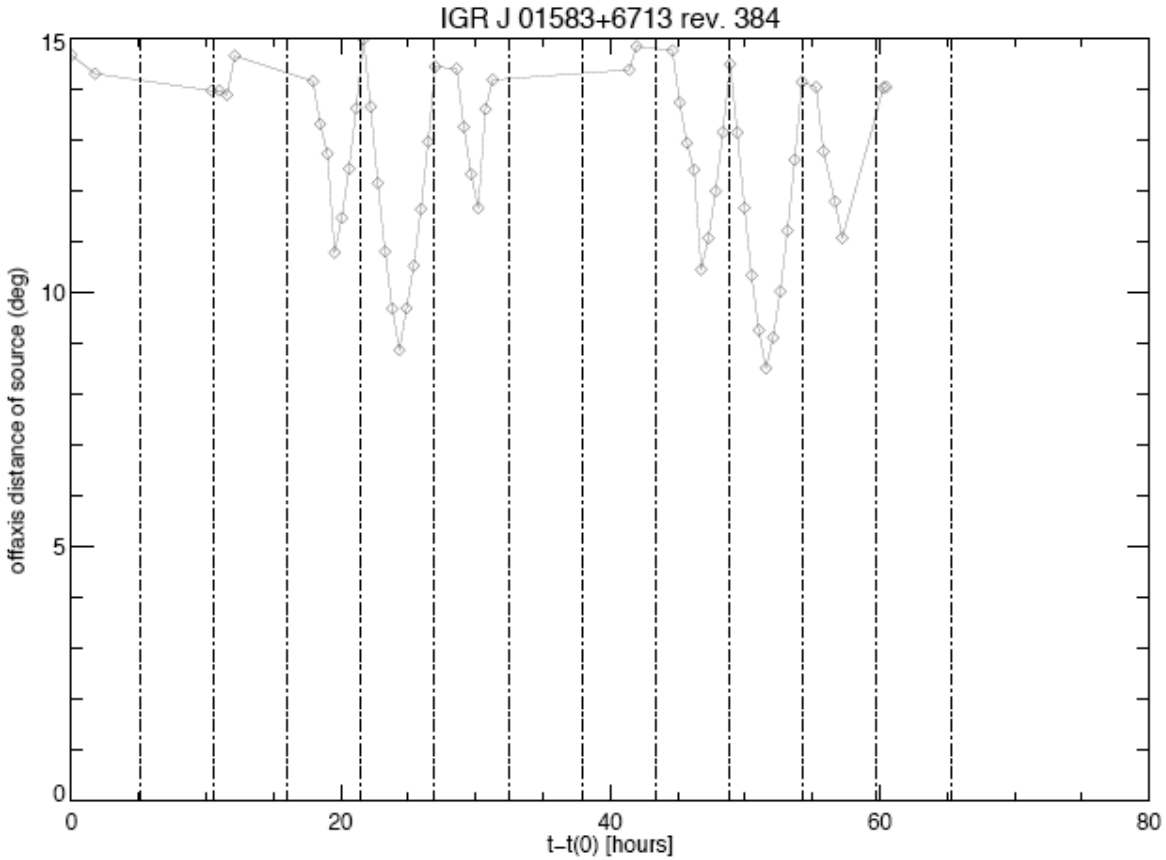


59 keV W alpha line

Beyond OSA 9

* ISGRI energy correction
* Solve the problem with IC files first
* Update of calibration files (which are based on IREM files)
* New LUT2
* Software solution?
* Under investigation by Saclay team (Caballero et al.)

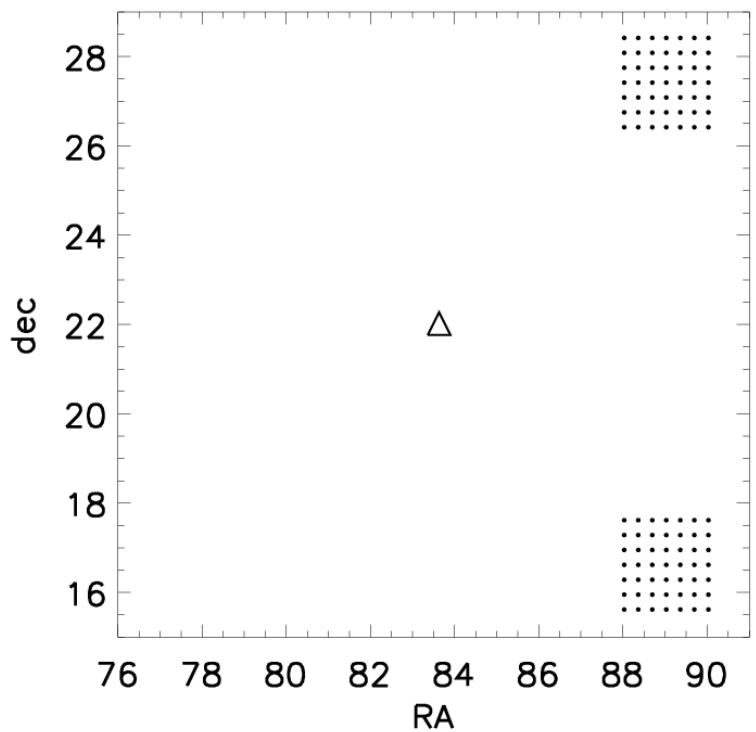
ISGRI off-axis correction



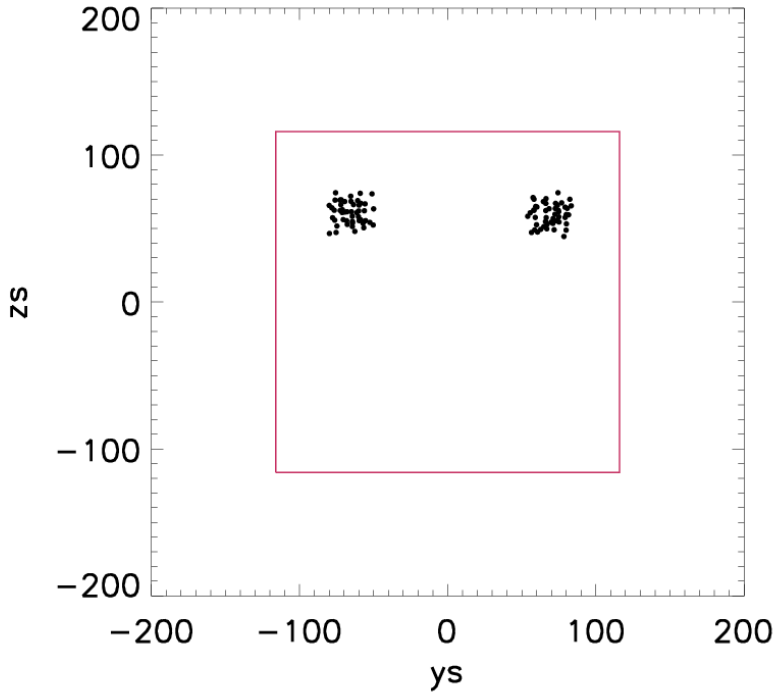
Wang et al. 2009, arXiv:0912.0337, A&A accepted:
periodicity and cyclotron lines in IGR J0158+6713
Caused by data at large off-axis angle (>10 degrees)

Crab calibration

Observation strategy in sky coordinates



Observation strategy in mask coordinates



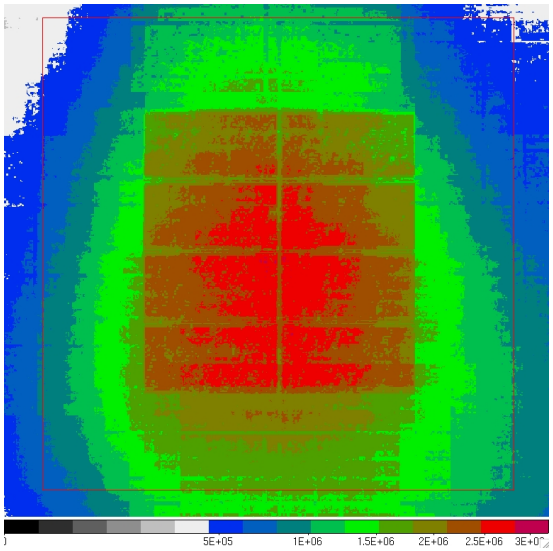
Next Crab calibration March 2010: 1 revolution, reduced 4x4 pattern (3 per corner, sep. by 2.3 deg) on the top two corners of the mask

S. Soldi (CEA/SAp Saclay) & G. Belanger (ESAC)

Irfu cea saclay

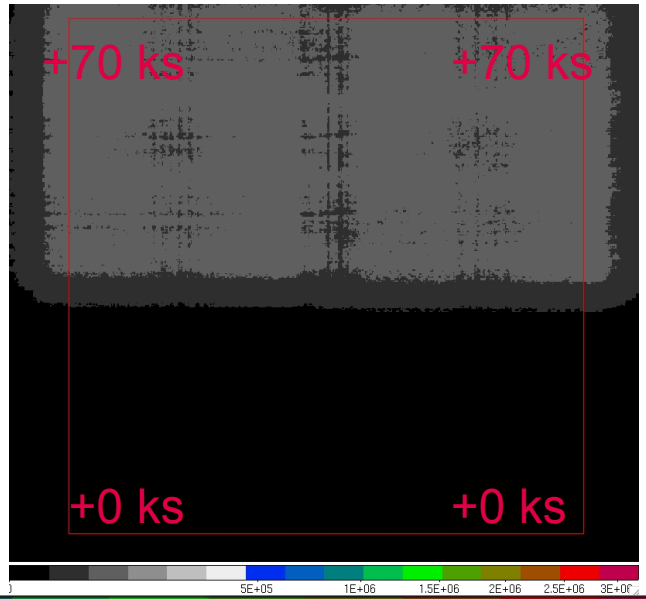
Improvement Crab calibration

Current exposure map



+

200 ks exposure



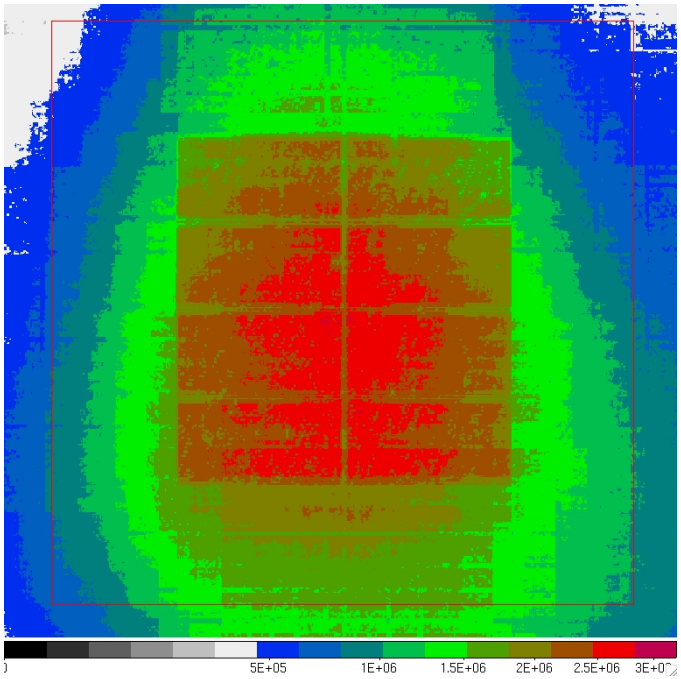
Improvement of mask coverage (all corners and rims)
from 1 revolution customized Crab calibration

S. Soldi (CEA/SAp Saclay) & G. Belanger (ESAC)

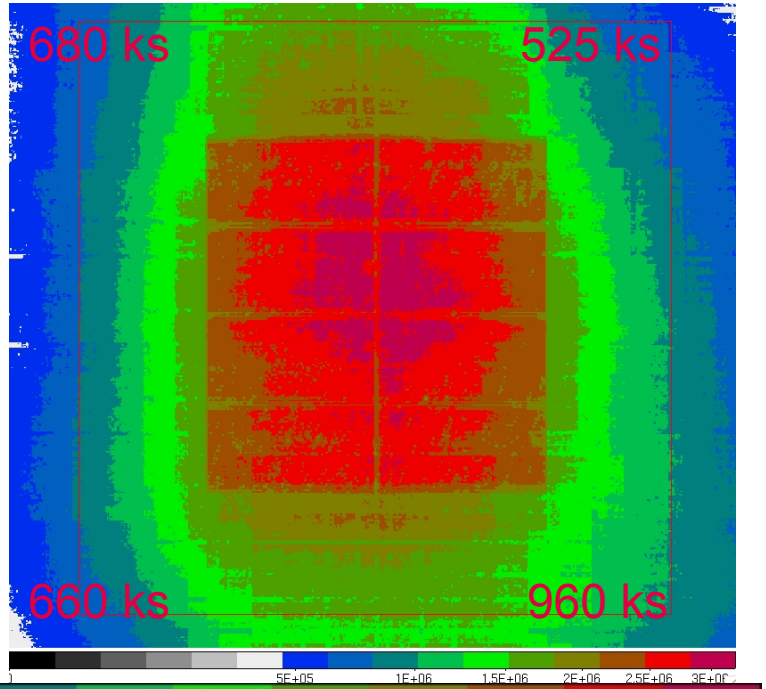
Irfu cea saclay

Total Improvement

Current exposure map



Exposure map after Crab + Cygnus observation



Improvement of mask coverage (top corners and rim)
from 1 revolution customized Crab calibration
and Cygnus region observation

S. Soldi (CEA/SAp Saclay) & G. Belanger (ESAC)