

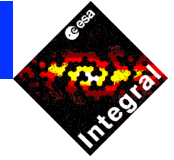
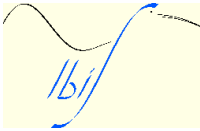
Current Activities

Update existing responses to OSA 8.0:

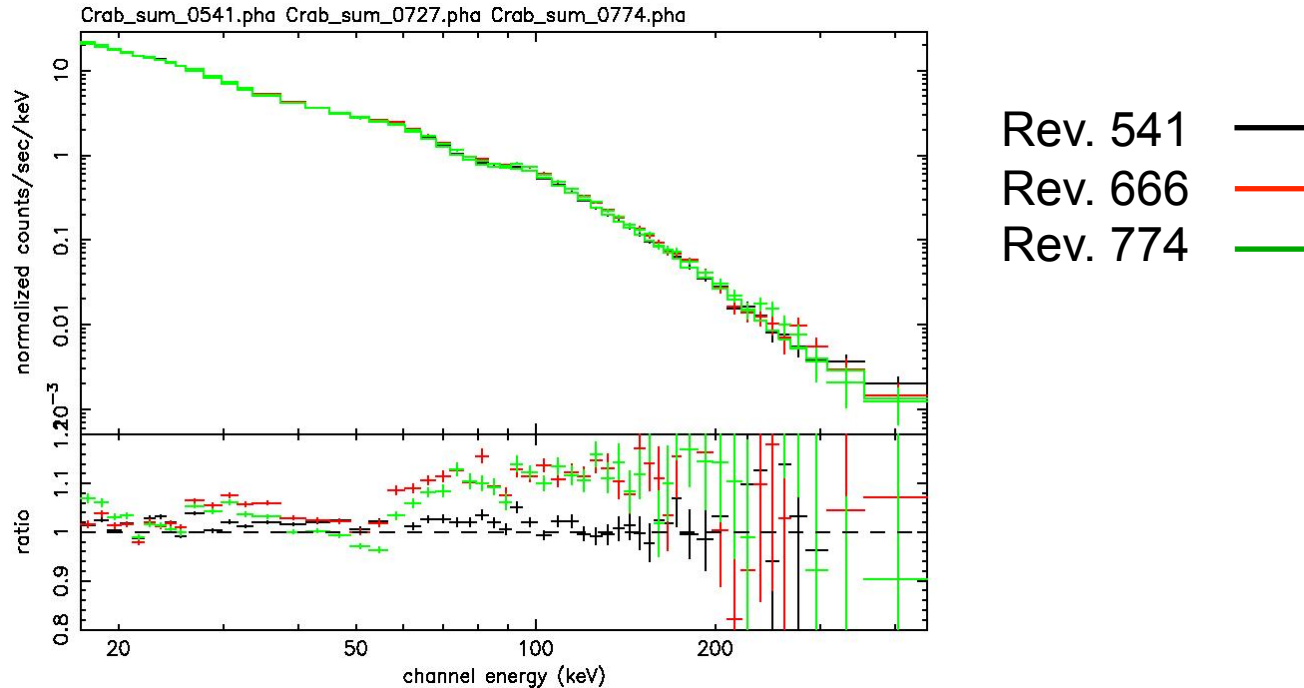
- Latest ARFs delivered have been obtained with OSA 7
- OSA-8 software contains minor changes in *ii-spectra-extract* (includes new interpolation of IREM data)

Provide new ARFs for more complete time coverage:

- Relatively small changes in the charge loss effect requires to use post-facto **response correction by using Crab in-flight data**: need **time dependent ARFs** to account for (typically each 1 year)
- Latest ARFs delivered up to rev. 541: provide new ARFs to cover latest period (*see next slide*)



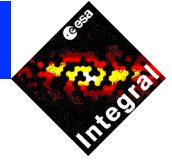
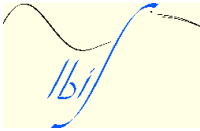
A look at recent Crab spectra



The fit of the most recent Crab data with the **Rev.541 response** shows the need for update.

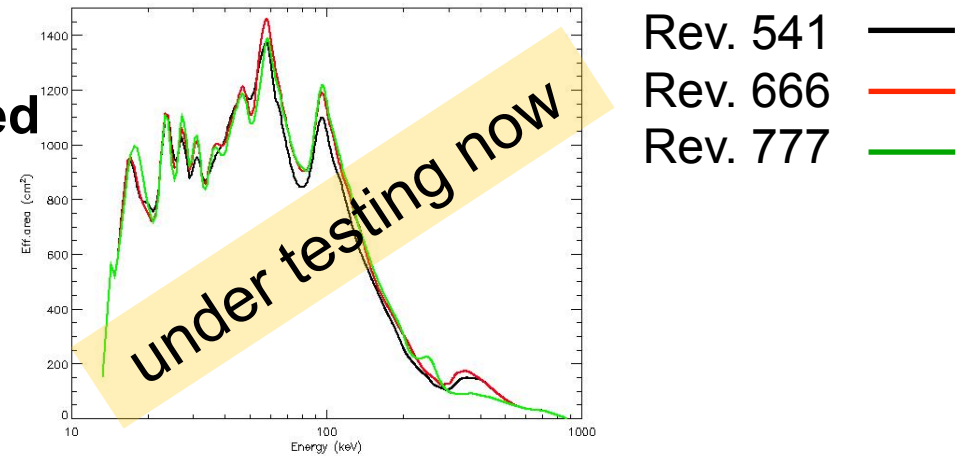
The data show a significant change occurring especially between Revs. 541 and 666

All spectra are produced with OSA 8.0

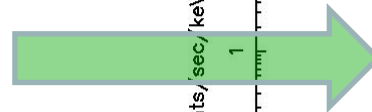


Production of new ARFs

- New ARFs from three recent revolutions have been produced
- Now in testing phase (*Saclay and Rome*)
- Test against source data and determine validity periods

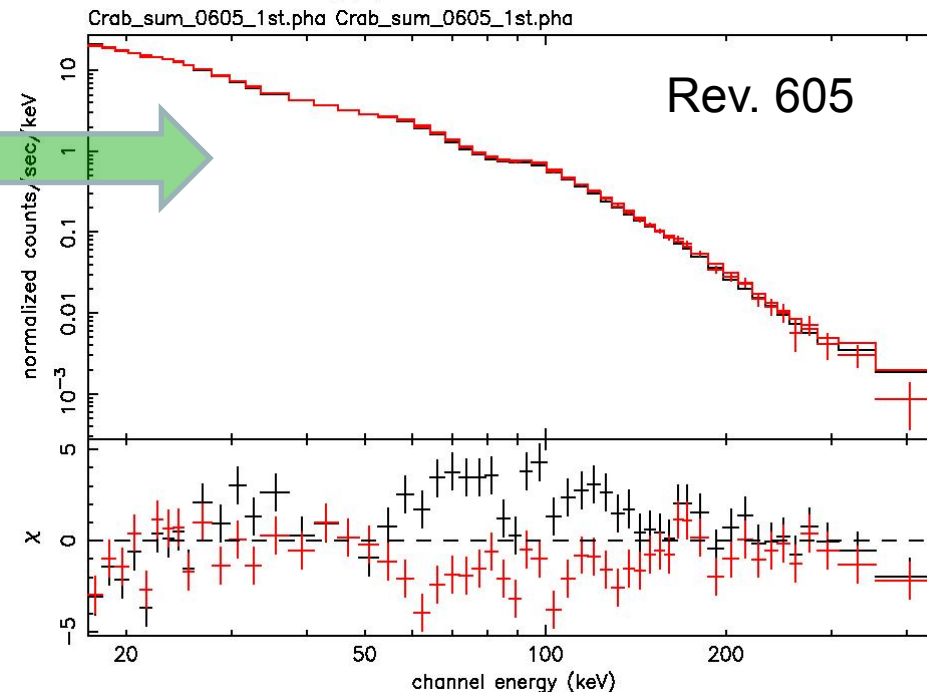


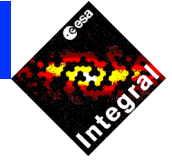
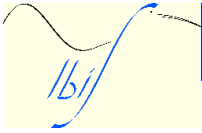
Example test:



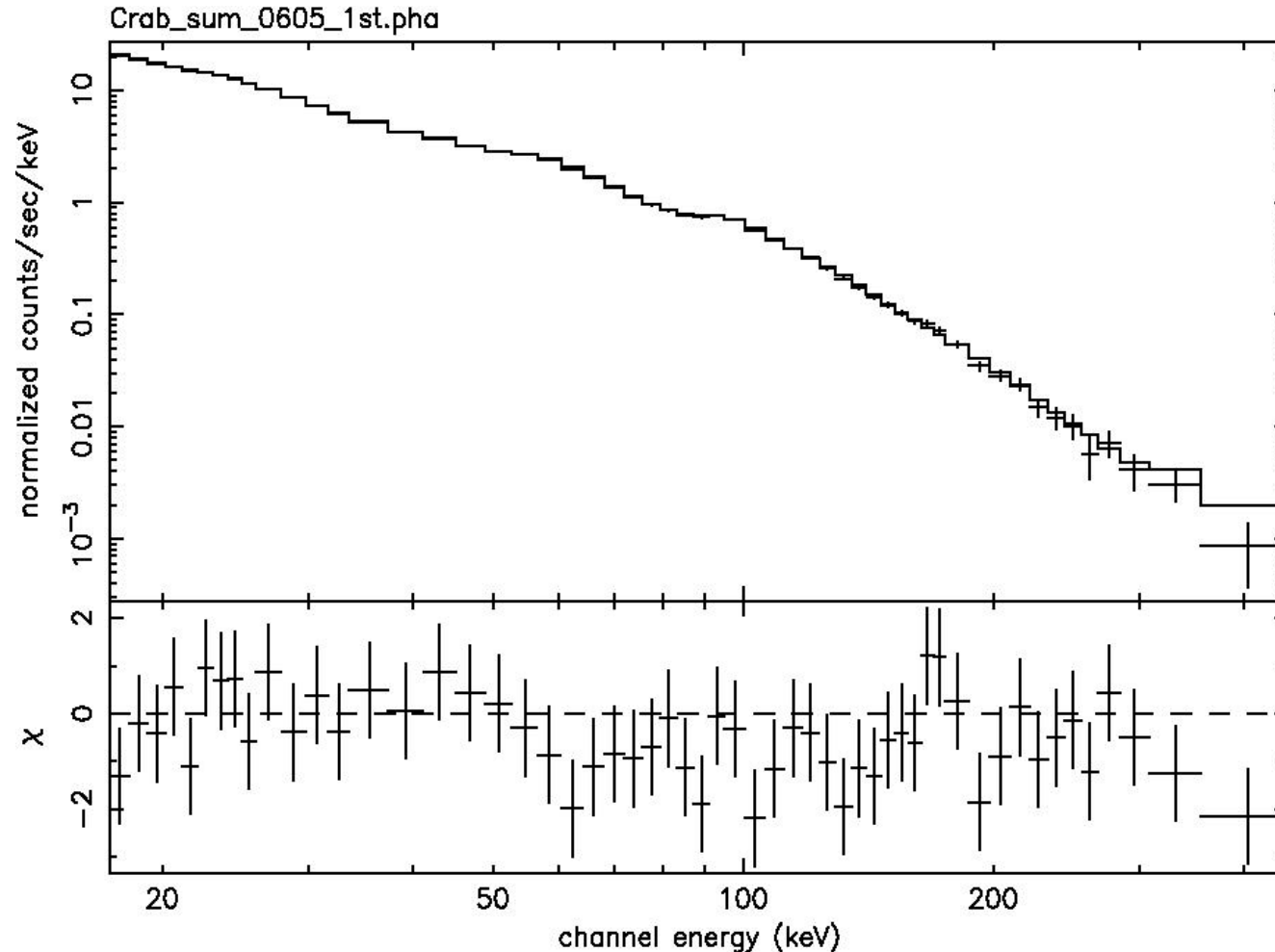
Look at the Crab data of Rev. 605 vs. Revs. 541 and 666 ARFs

Ratios of data vs. Crab model show preference for Rev.666 ARFs



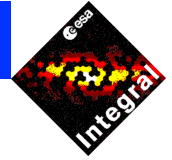
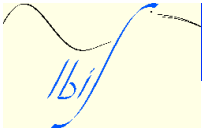


Crab Rev. 605 (5x5 pattern) fitted by ARF of Rev. 666

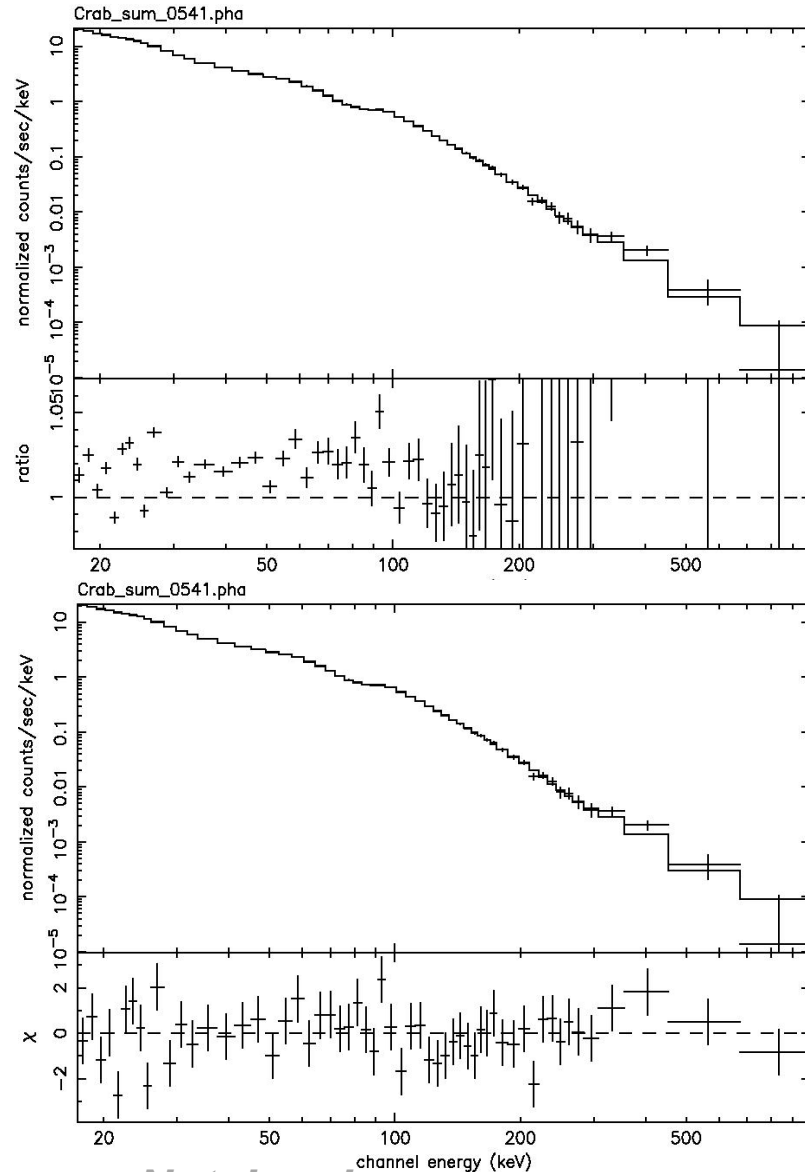


Errors with 2% syst, $\chi^2_r=0.98$

No change in spectral parameters and normalization



OSA-8 vs OSA-7 spectral data - Rev. 541



Rev.541 OSA-8 spectrum fit by OSA-7 ARF built on the same revolution

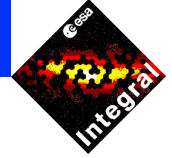
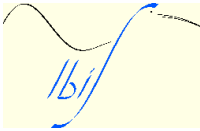
Ratios to reference model, **NORM fixed**

1% syst, $\chi^2_r=2.43$

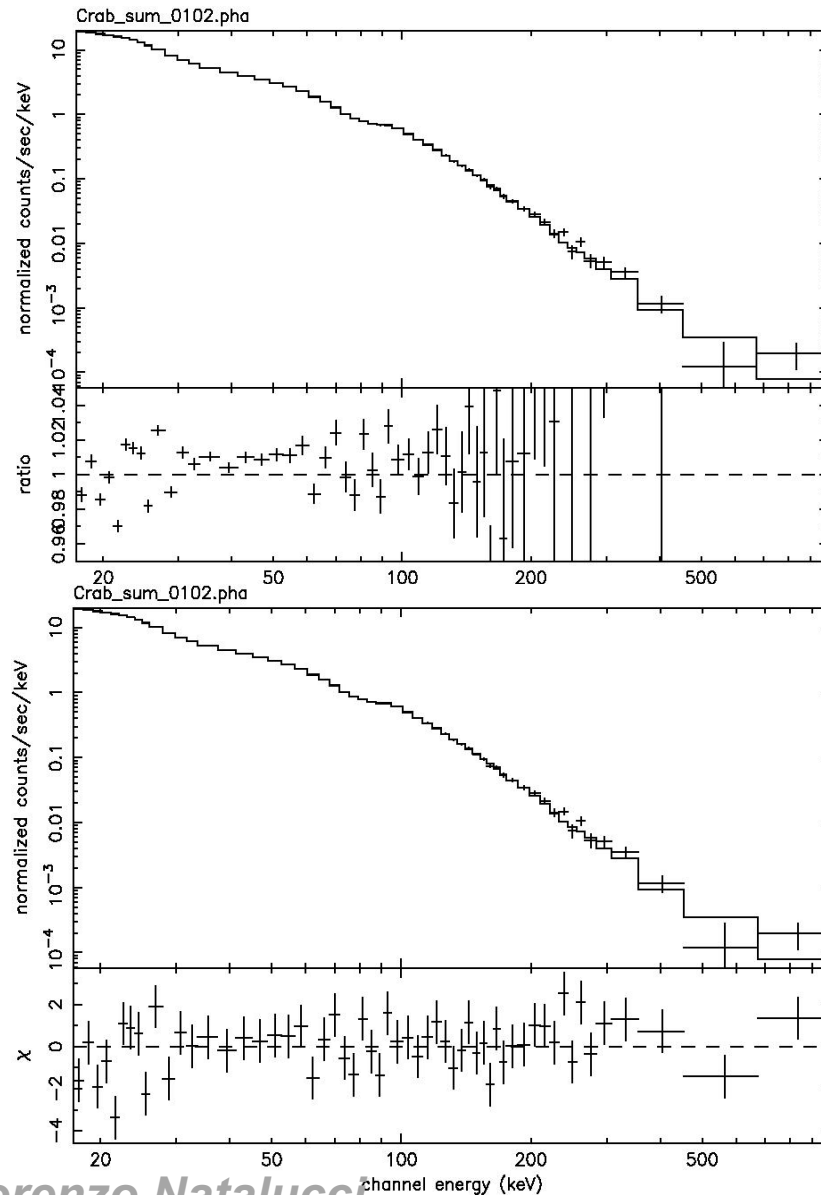
Rev.541 OSA-8 spectrum fit by OSA-7 ARF built on the same revolution

Fit with reference model, **NORM allowed to vary** (best fit: 1.7% higher)

1% syst, $\chi^2_r=1.07$



OSA-8 vs OSA-7 spectral data - Rev. 102



Rev.102 OSA-8 spectrum fit by OSA-7 ARF built on the same revolution

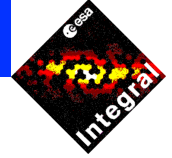
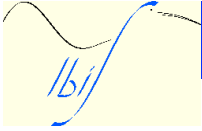
Ratios to reference model, **NORM fixed**

1% syst, $\chi^2_r=1.47$

Rev.102 OSA-8 spectrum fit by OSA-7 ARF built on the same revolution

Fit with reference model, **NORM allowed to vary** (best fit: 0.5% higher)

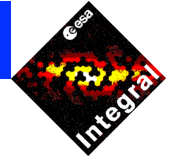
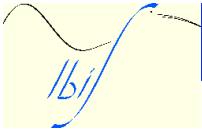
1% syst, $\chi^2_r=1.37$



Final Remarks

- Testing of the ARFs for the last 3 years period to be completed (*expectation: delivery before mid-March*)
- On a preliminary analysis, OSA-7 released ARFs seem to behave rather satisfactorily (within ~1-2%) for OSA-8 spectra taken before ~Rev. 550
- To be decided if new OSA-8 ARFs are needed before Rev. 541 observation

....wait OSA-9 release?



New determination of the IBIS PSLA

- The Point Source Location Accuracy of IBIS has been checked against a large amount of data obtained from sources with best known positions:

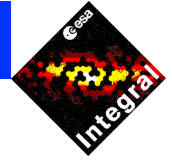
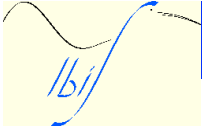
332 sources from the IBIS catalog with position error < 30''

Database analysed: 40,000 SCWs, OSA version 7.0

- The only available determination to date is reported by Gros et al. (2003) based on analysis of SCWs from Crab and other few bright sources, and early analysis software (OSA3)

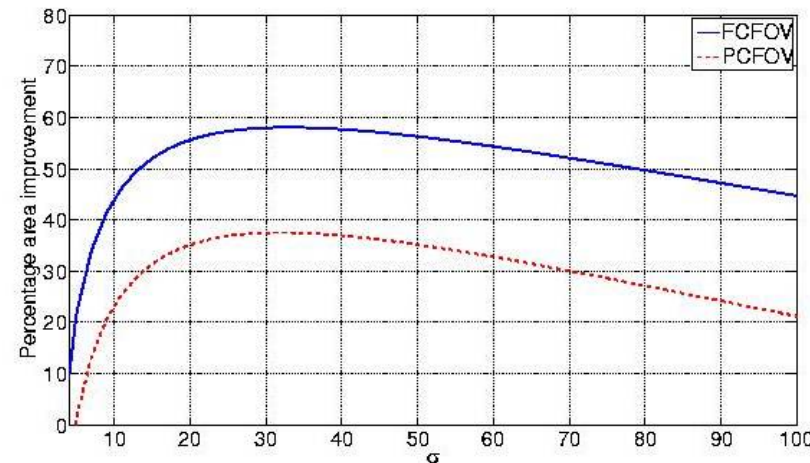
- **Method**

Record and analyze the **measured offset distribution respect to true positions** in FCFOV and PCFOV (~100,000 offset measurements) against SNR



Main results

The PSLA is found to be improved significantly by the new analysis



The PSLA is found to be improved significantly by the new analysis. For $\text{SNR} > 10\sigma$ the **area of the error region for source search** improves by:

- > 20% (up to 40%) for PC sources,
- 45% (up to 60%) for FC sources

PRELIMINARY RESULTS by S.Scaringi et al