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Telecon

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Cut the AO calls

Galactic Center and Galactic Plane plus galactic/extragalactic targets selected by the IUG and the rest free for ToO
In the last 8 years, we had excellent results from the ToOs selected via TAC review and un-solicited ones (e.g. V404, the neutrino counterpart, Nova, SNs, Magnetar not to talk about GW1708017).

- The IUG is not the community.
- **DATA PUBLIC**
- Mandatory:

1. Matrices for long term studies appealing for the astrophysical community from orbit 37 to now
2. Easier access to the survey data with:

- Light curves
- Timing information
- Specta
- ….+

Future extension brainstorming

We are receiving conflicting requests from the Agency

1. **INTEGRAL has been assessed by all the ESA scientific and programmatic advisory bodies (AWG, SSAC, SPC). They certified INTEGRAL exploited outstanding scientific results and , after MEOR, can continue to operate in the next 5 years.**

2. **The executive asked to terminate the mission in 2020 , for budget problems, and after the SPC meeting, at the end 2022.**

So said, which is the problem?

- **Why should we spend our time to invent new ideas to improve the science outcome if it is ok (as per AWG and SSAC), instead of implementing Calibrations, dashboard for MMA, preparation of the legacy archive, etc**

- **Why should we risk to create problems messing up with the mission operations, on-board SW changes etc?**

1. **Finally the argument of sparing money is NOT valid for INTEGRAL. ESA has convinced us (PIs and IUG) that merging Spacon etc was the way to save money… Terminating INTEGRAL will be a minuscule save, with more cost on XMM and GAIA**

1. INTEGRAL following XMM/NuSTAR: does not seems a good idea because these 2 Missions do not need long exposure as INTEGRAL does and will be difficult accommodate common targets one after the other ones for both of them so close by to be in the INTEGRAL FOV

2. Cut the AO calls to save cost imply the community not being involved anymore (though usually we get proposal more or less from the same scientists). Also, the cost saving does not seems to have great impact but, one can think to just go on with Galactic Center and Galactic Plane plus an extragalactic target selected by the IUG and the rest free for ToO but, again, the IUG is not the community.

Possible options

Leave only the Galactic Plane and TOOs. DATA PUBLIC.
In the last 8 years, we had excellent results from the ToOs selected via TAC review and un-solicited ones (e.g. V404, the neutrino counterpart, Nova, SNs, Magnetar not to talk about GW1708017).

Use INTEGRAL as Solar Nuclear astrophysucs Observatory

- AO for solar science?
- ToO for Massive Solar Ejection

INTEGRAL Program for educational purpose

Indeed no small Mission, ISS experiments or else have been secured or are on the way in the close future from European countries: Theseus, if selected , will cover a period well behind 2028; e-XTp, in case it goes ahead, will be operative in 2027; the HERMES constellation of nanoSat will be possibly operative in 2022 but with limited capabilities

This is a strong weakness while NASA programmes are also supporting experiments to cover the electromagnetic emission at Gamma-ray starting from 2021 (Burstcube Satellite, Glowbug on the ISS) as back-up solution if Fermi and SWIFT will be over.

INTEGRAL is still keeping a flag to join the GWs observations and plays a crucial role for MM Astrophysics (see detectoin of FRB from Magnetars etc).

Future extension brainstorming

1) the idea to have INTEGRAL following XMM/NuSTAR, does not seems a good idea because these 2 Missions do not need long exposure as INTGRAL does and will be difficult accomodate common targets one after the other for both of them so close by to be in the INTEGRAL FOV.

2) Cut the AO call to save cost imply the community not being involve anymore (though usually we get proposal more or less from the same scientist).
Also, the cost saving is really minimum. One can think to just go on with Galactic Center and Galactic Plane plus an extragalactic target selected by the IUG and the rest free for ToO but, again, the IUG is not the community.

3) Leave only the Galactic Plane and ToOs. We know very well the last 8 years, every 2 years we had excellent results from the ToO selected via TAC and unsolicited ones (e.g. V404, the neutrino counterpart, Nova, SN, Magnetar not to talk about GW1708017).
Now , I think we should emphasize deleting INTEGRAL will make Europe and hence ESA,completely missing the opportunity of the new run of LIGO/Virgo and the ones starting in the fall of 2024 with the new A+ configuration(with Kagra, the Indian Ligo etc. to cover the Gamma ray and joining GEW detection expected).

Future extension brainstorming

Indeed no small Mission, ISS experiment or whatever have been secured or are on the way in the close future from European countries: Theseus, if selected , will cover a period well behind 2028; e-XTp, in case it goes ahead, will be operative in 2027; the HERMES constellation of nanoSat will be possible operative in 2022 but with limited capabilities. This is a strong weakness compared to NASA that is supporting experiments to cover the electromagnetic emission at Gamma ray starting from 2021 (Burstcube Satellite, Glowbug on the ISS) as as back-up solution if Fermi and SWIFT will be over.

So, INTEGRAL is still keeping a flag to join the GWs observations and still play a crucial role.

Finally, I should say I was in the AWG the first time it was suggested to cut the Mission far in the 2006 and since then the cost for INTEGRAL operation have been cut (MOC and ISOC going from 9.6 to 8.5 and then 7.6 ME from 2006 to 2008)) and these has been then revised years ago joining XMM and GAIA Spacons and ISOC . This is a bit annoying as ESA will not save enough just removing INTEGRAL and leave XMM and GAIA.
My one is not a complain but … I am sure NASA will not cut soon Fermi or Swift unless they operation become a problem.
We will work with our delegates but I think we should not support “innovative” ideas if not compliant with the INTEGRAl unique capabilities.

IBIS Italian team Mission Support

- IBIS is supported with an ASI/INAF agreement starting form August 2016 up to the end of 2019 (A. Bazzano)

This support is for **non** permanent positions, Clean Room maintenance and PI Team support for duties/travels.

A new agreement has been signed the 15 November. The formal ASI-INAF agreement will start beginning 2020 for 3y funding at the same level of the past years:

- **9 FTE** from INAF, all of them are on permanent contracts working on calibration, cross calibration, instrument health monitoring and operation, IBAS and science (GPS, AGN, Galactic Sources, GW etc)
- **2 FTE** working 60% on INTEGRAL/XMM, etc data
- **1 Contract** at IAPS for real time data flow and informatics support waiting for the new setup from ISOC, becoming soon (<April 2020) staff member.

- 1 Temporary contract @ IASP, started 1 August 2019 mainly on PiCsIt calibration and data exploitation, MM activities, Burt Advocate

- 2 AdR started on May 2018: 1 @ OAR-Bologna on X-ray follow up of INTEGRAL source and 1 @IAPS-Rome on Radio coverage of INTEGRAL sources

- 0.4 Fellowship on HEMERA- working on GPS data

INAF is organizing the 2021 INTEGRAL Workshop

Mikhail G. Revnivtsev Prize

It is our intention to continue the memorial award devoted to a young scientist for her/his significant contribution to the promotion of science in the framework of the INTEGRAL Mission. This research has to show an excellent achievement in the High Energy Astrophysics field.

The competition is open to scientists working in worldwide organizations.

Specific relevance will be attributed to results that have obtained a diffuse and large application either because innovative or for their impact and citations.

The research have to be performed in the period 2018-2019 and published by June 2020.
The deadline for application is June 30th this year.

Application should be sent as for the past edition.
The prize will cover all the expenses to participate to the next INTEGRAL Conference in 2020.

Further details TBD among supporting partners (IAPS, IKI and ESA).

PICsIT GRB Spectral Production

- IAPS is continuing the off-axis IBIS response to generate the matrices for real time deconvolution of GRB connected with GW detection

- Two different test cases:

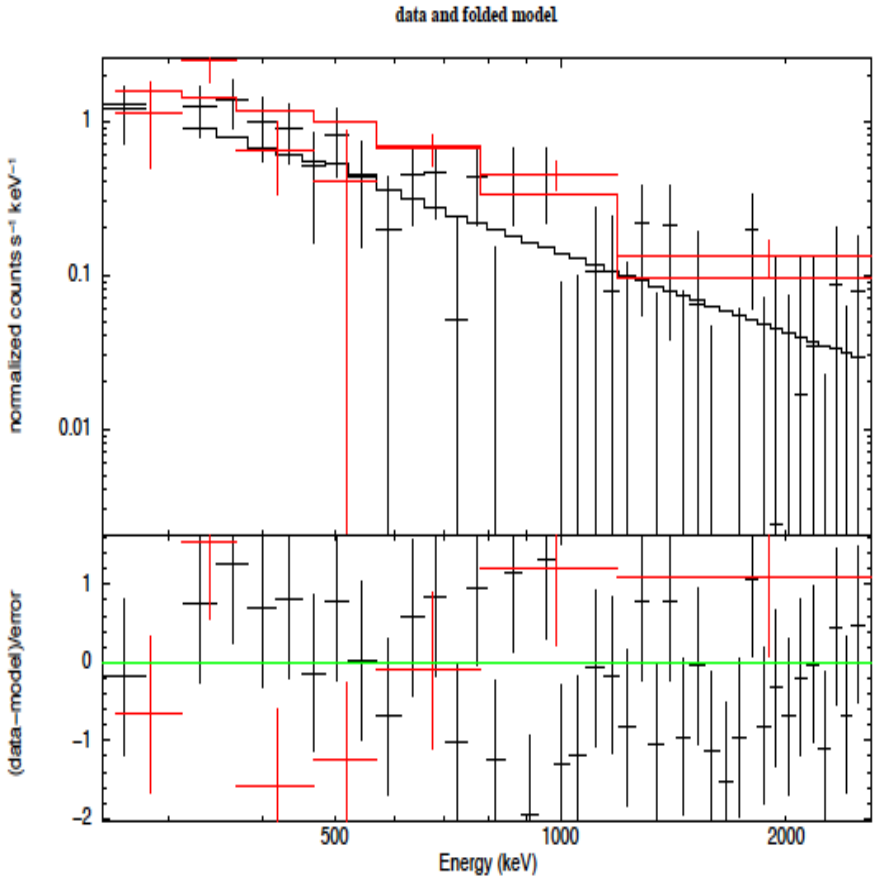
✓ GRB from 10-15 deg to 90 deg

✓GRB from bottom +/- 70-80 degree

- Encouraging results obtained. SW for spectra production available at the IAPS with manual care

- Work in progress, not yet ready to deliver matrices to ISDC.

PICsIT GRB Spectra



- GRB 100625A
- Short t90 ~ 0.5 s
- Incident angle = 42.2°

- GBM: Γ= 1.36 ± 0.05
- PICsIT: Γ= 1.0 ± 0.3

- RMF is standard OSA multiples
- ARF is OSA singles + multiples with absorption due to lead from tube

- Tested 3 short GRBs so far; need to test more before ready to release routines