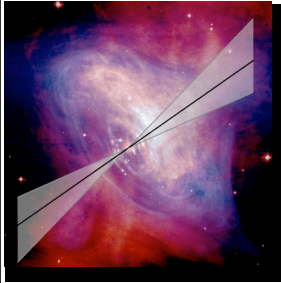
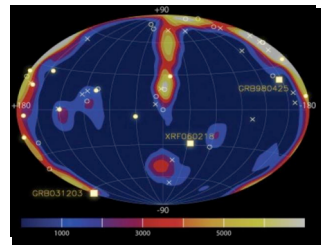
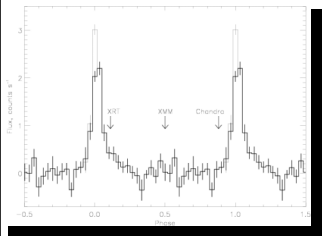
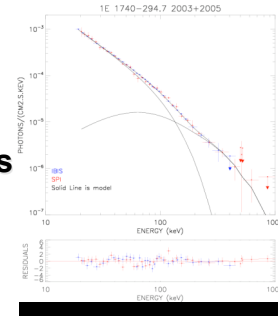


PS Status Report



- ◆ Observatory status
- ◆ Community interfaces
- ◆ Science highlights
- ◆ Outreach



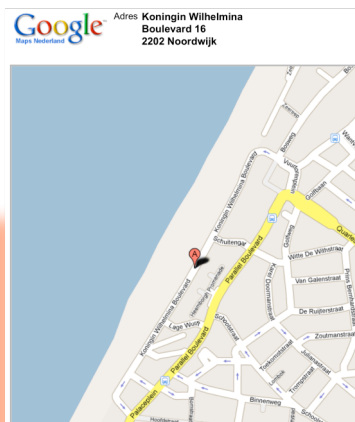
INTEGRAL IUG Meeting

21-22 April 2009

Christoph Winkler

TONIGHT, 21 April 2009, 19:30

IUG Dinner @ "Trattoria Mimmo",
Noordwijk aan Zee, Koningin Wilhelmina Boulevard 16, 071 – 362 44 77



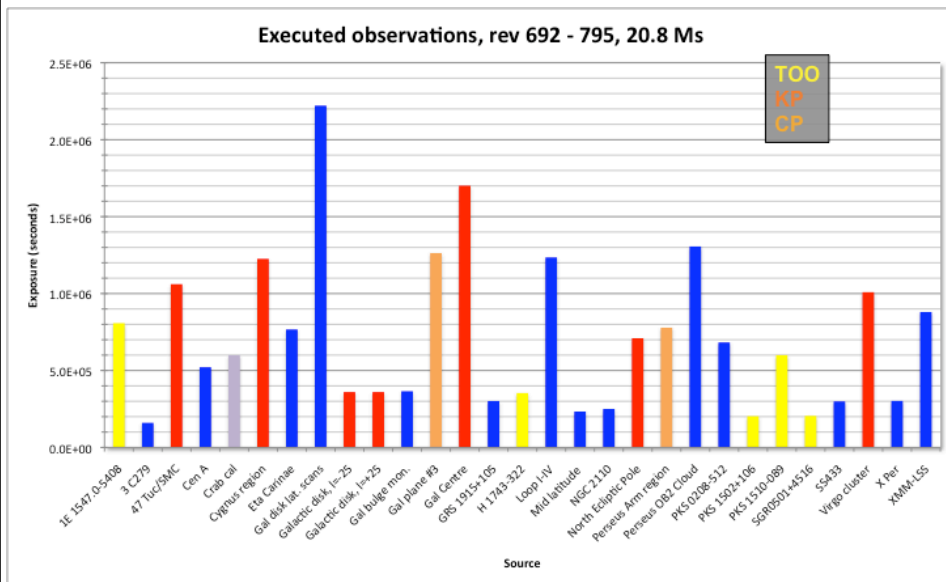
INTEGRAL IUG Meeting

21-22 April 2009

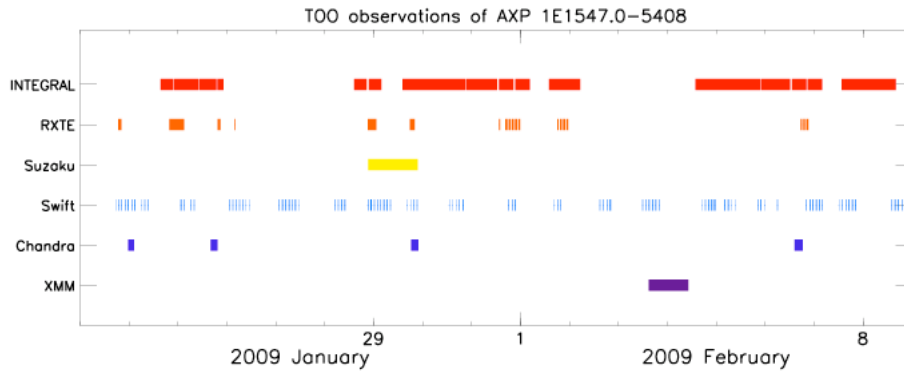
Christoph Winkler

From rev 692 (13 June 2008) until rev 795 (19 April 2009)	
Target	PI
1E 1547.0-5408/ TOO	Götz, den Hartog, public
3C 279	Collmar
47 Tuc and SMC/ KP	Maccarone
Cen A	Rothschild
Cygnus Region/ KP	Knödseder
η Car	Leyder
Crab calibration	Public data
Galactic disk latitude scans	Sunyaev
Galactic bulge monitoring	Kuulkers
Galactic plane #3/ CP	CP/ISWT
Galactic Centre/ KP	Bélanger
Galactic disk, $l = \pm 25$ / KP	Weidenspointner
GRS 1915+105	Rodriguez
H 1734-322/ TOO	Miller, public
Loop I-IV	Iyudin
Mid latitude 1 & 2	Weidenspointner

From rev 692 (13 June 2008) until rev 795 (19 April 2009)	
Target	PI
NGC 2110	Beckmann
North Ecliptic Pole/ KP	Ajello
Perseus arm region/ CP	CP/ISWT
Perseus OB-2 Cloud	(Terrier/von Kienlin) amalgamated
PKS 0208-512	Zhang
PKS 1502+106/ TOO	Pian
PKS 1510-089/ TOO	Pian
SGR 0501+4516/ TOO	Hurley
SS 433	Cherpashchuk
Virgo Cluster/ KP	Stella
X Per	Kreykenbohm
XMM-LSS	Virani



Date	Source	PI, Comment
August 2008	PKS 1502+106	Pian
August 2008	SGR 0501+4516	Hurley
October 2008	1E 1547.0-5408	Götz
October 2008	H 1734-322	Miller (public data)
January 2009	PKS 1510-089	Pian
January 2009	1 E1547.0-5408	Den Hartog, and separate public observation
August 2008	IGR J00291+5934	Falanga, did not meet trigger criteria
September 2008	IGR J17464-3213	Wilms, can only trigger on new BHT, not on known BHT
October 2008	J0910-5041	Castro-Tirado, (unsollic.) technically unfeasible
December 2008	3C 279	Pian, did not meet trigger criteria
January 2009	1A 1118-616	Santangelo, schedule conflict (TOO, co-ord. obs.)
March 2009	Aql X-1	Campana, schedule conflict (KP) and soure (late, fading)
March 2009	GRO J1008-57	Santangelo, schedule conflict (KP), late short exp? (fading)
GRB 090107B, 081226B	GRB inside FOV	Hanlon, Wunderer, Götz
GRB 081204, 081003B, 080613	GRB inside FOV	Sazonov, Wunderer
GRB 0810016, 081003, 080922	GRB inside FOV	Hanlon, Wunderer



AO-7 for obs time proposals Release: 12 Jan, deadline: 20 Feb 2009

76 proposals received :

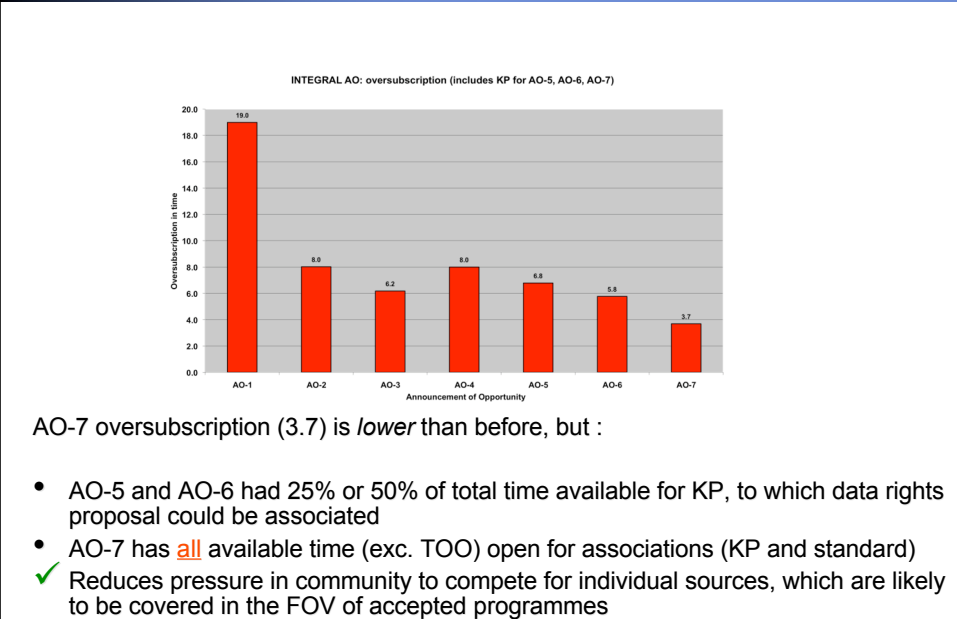
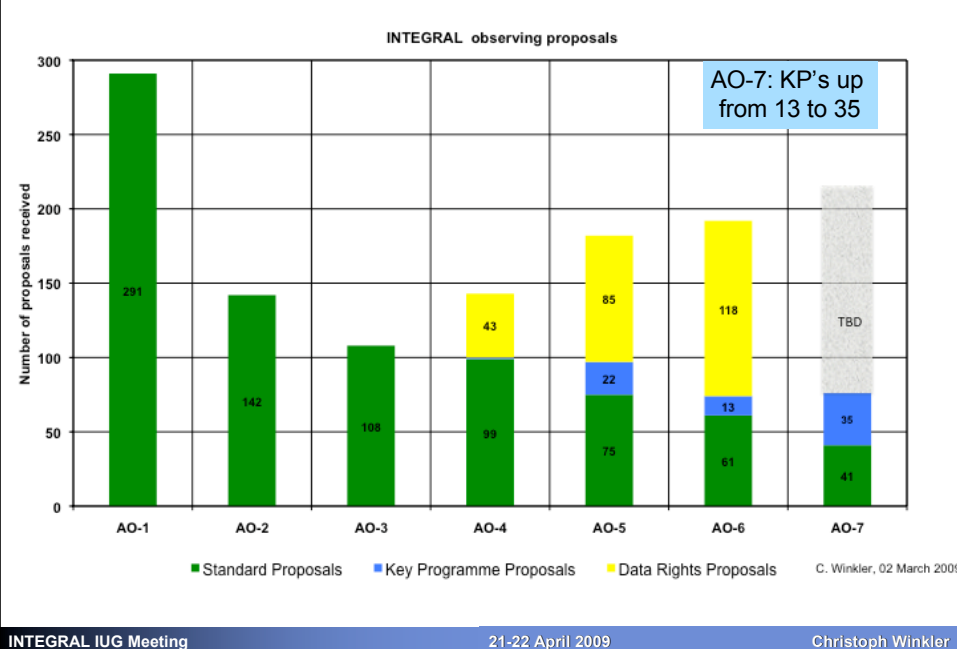
- All proposals requesting observing time:
 - < 1 Ms: 10 proposals, 3.7 Ms total
 - ≥ 1 Ms (KP): 35 proposals, 84.1 Ms total
 - TOO: 31 proposals, 190.0 Ms total

Total requested observing time: 107 Ms (TOO x 10% included)

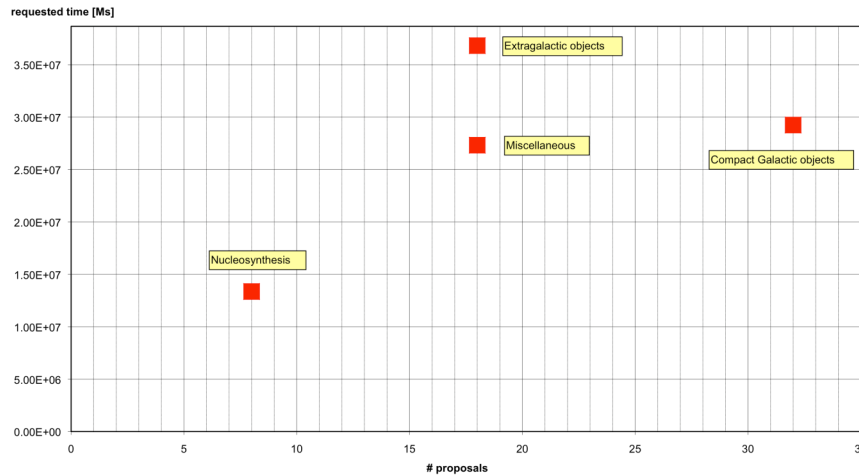
Available observing time:

29 Ms (14.5 months) – 2.6 Ms (TOO earmark) = 26.4 Ms
 Carry-over (0 Ms) , SPI annealing

Target allocation for TAC: 26.4 x 1.2 = 31.7 Ms



AO-7 proposals requesting observing time
 76 proposals request 107 Msec



TAC Meeting 23-25 March 2009, recommended programme approval: 15 April

- Non-TOO time available for distribution: $26.4 \times 1.2 = 31.7$ Ms (target)
- Selected 50 out of 76 open time proposals (incl 19 TOO, 5 GRB)
- Total non-TOO time awarded: 35.5 Ms (A/B/C: 21.6/7.6/6.2 Ms) [133 %]

Non-TOO observations by science category, all grades

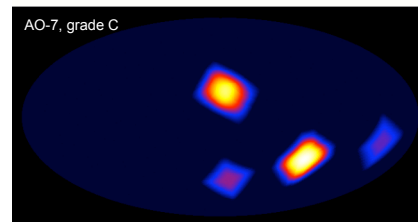
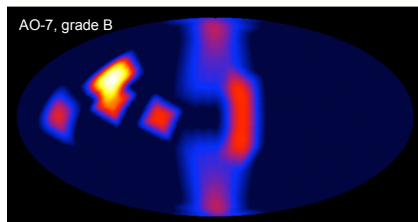
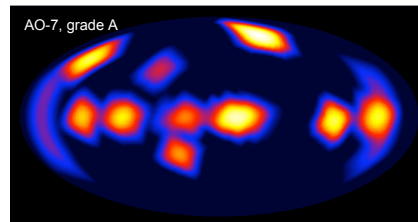
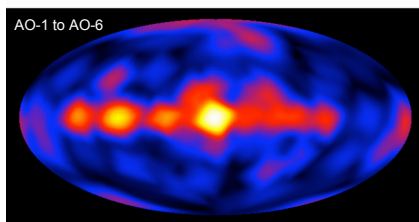
Science category	Time requested		Time accepted		Proposals submitted		Proposals accepted	
	(Ms)	(%)	(Ms)	(%)	(#)	(%)	(#)	(%)
Compact Objects	20.1	22.9	8.1	22.7	16	35.6	9	34.6
Extragalactic Objects	28.0	31.9	8.9	25.1	12	26.7	6	23.1
Nucleosynthesis	12.4	14.1	8.5	24.0	5	11.1	5	19.2
GRB & others	27.3	31.1	10.0	28.2	12	26.7	6	23.1
Total	87.8	100.0	35.5	100.0	45	100.0	26	100.0

Time for TOO observations by science category, all grades

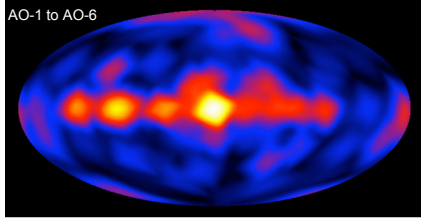
Science category	Time requested		Time accepted		Proposals submitted		Proposals accepted	
	(Ms)	(%)	(Ms)	(%)	(#)	(%)	(#)	(%)
Compact Objects	91.2	48.1	3.8	28.6	16	51.6	11	45.8
Extragalactic Objects	88.7	46.8	2.8	21.3	6	19.4	5	20.8
Nucleosynthesis	9.6	5.1	6.6	50.2	3	9.7	3	12.5
GRB & others	0.2	0.1	0.0	0.0	6	19.4	5	20.8
Total	189.7	100.0	13.2	100.0	31	100.0	24	100.0

Note: Requested TOO time = # proposed sources x exposure per source. Trigger probability is typically a few% (depending source type) or less.

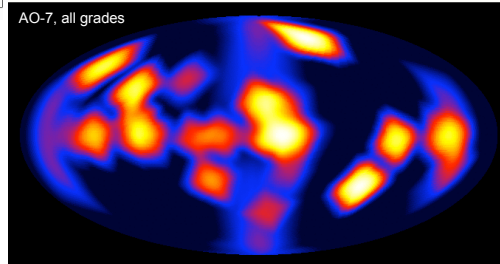
- Return to Russian scientific community:
 - 25% of available time = $0.25 \times 29 \text{ Ms} = 7.25 \text{ Ms}$
 - 2.2 Ms compensation of under-return AO-1 ... AO-5
 - Total: 9.45 Ms (target)
 - ❖ 11 observations selected with **11.2 Ms** (incl. 0.8 Ms TOO) > 9.45 Ms
- Share long/short exposures: IUG (June 08): 80% / 20% **AO-7: 92% / 8%**
- Proposals generally of good to excellent quality, however, some proposers convincingly continue to demonstrate to both, to TAC and to ESA, that the submission of a proposal does not necessarily require reading the documentation in detail nor reading the TAC comments from previous round. In particular the latter are meant to help improving the proposal !
- **Next steps:**
 - ISOC: update DB, inform PIs, publish programme on WWW, amalgamation (?), LTP, TOO strategies...
 - Selection of data rights proposals: summer 2009 (release AO 25 May, deadline 03 July)
 - AO-7: start on 16 October 2009, duration 14.5 months



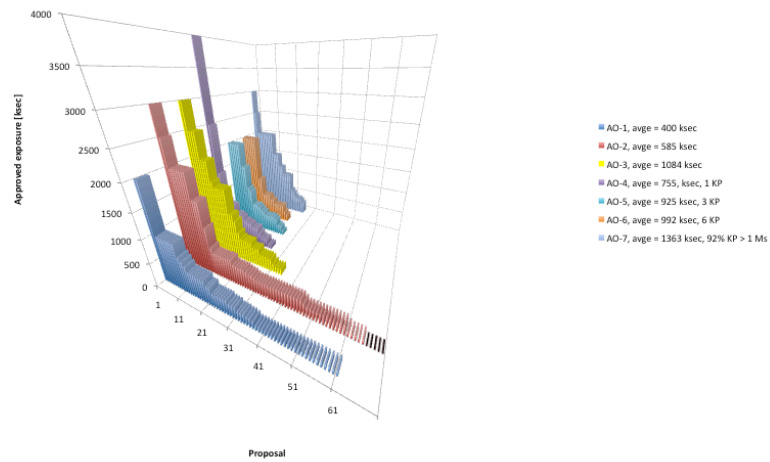
AO-1 to AO-6



AO-7, all grades



Approved observing time, non-TOO



A deep INTEGRAL hard X-ray survey of the 3C 273/Coma region	S.Paltani et al. A&A 485, 707, 2008
Polarized Gamma-Ray Emission from the Crab	A. Dean et al., Science 321, 1183, 2008
Polarization of the Crab pulsar and nebula as observed by the Integral/IBIS telescope	M. Fort et al., ApJ, 688, L29, 2008
Properties of the Galactic population of cataclysmic variables in hard X-rays	M. Revnivtsev et al., A&A 489, 1121, 2008
Global characteristics of GRBs observed with INTEGRAL and the inferred large population of low luminosity GRBs	S. Foley et al., A&A 484, 143, 2008
Discovery of a 30-d period in the supergiant fast X-ray transient SAX J1818.6–1703	A.Bird et al., MNRAS, 393, L11, 2008
High energy emission from 1E 1740-2942	L. Bouchet et al., arXiv:0811.3381
Multi-wavelength observations of 3C 454.3	S. Vercellone et al., arXiv:0809.1737
Variable polarization in the prompt emission of GRB 041219A	D. Götz et al., ApJ 695, L208, 2009
The space density of Compton thick AGN and the X-ray background	E. Treister et al., arXiv:0902.0608v1

Observatory status
Community interfaces
Science highlights
Outreach

Outreach



de Volkskrant

Mysterieuze magnetar op heterdaad betrapt

Door Govert Schilling
gepubliceerd op 28 januari 2009 16:41, bijgewerkt op 16:41

Met de Europese kunstmaan Integral zijn de afgelopen dagen gedetailleerde waarnemingen verricht van een zogeheten magnetar tijdens een krachtige uitbarsting. De nieuwe metingen zullen er hopelijk toe bijdragen dat sterrenkundigen een beter inzicht krijgen in de ware aard van deze mysterieuze hemellichamen. Magnetars zijn kleine, compacte neutronensterren (zwaarder dan de zon maar niet veel groter dan een...



nature

Dark matter could be light

Gamma rays from galaxy centre may signify less massive mix

17 March 2004

Philip Ball

Gamma rays streaming from the centre of our galaxy could be signature of elusive dark matter, astrophysicists claim. The ray support an exotic theory about dark matter: that it consists of particles.

Physicists know that a large proportion of the universe's mass be accounted for by objects we can see, such as stars and planets galaxies such as our own, there could be as much as ten times dark matter than normal matter.

One popular idea suggests that the 'missing' dark matter consists of electrically charged particles colliding at speeds of thousands of kilometres per second.



SPACE DAILY
your portal to space

Integral: Stellar Winds Colliding At Our Cosmic Doorstep

by Staff Writers
Paris, France (Space.com) Feb 22, 2009

ESA's Integral has made the first unambiguous discovery of high-energy X-rays coming from a rare massive star at our cosmic doorstep, Eta Carinae. It is one of the most violent places in the galaxy, producing vast winds of electrically charged particles colliding at speeds of thousands of kilometers per second.

The only astronomical object that emits gamma-rays and is observable by the naked eye is an image of the region around Eta Carinae, as seen by Integral in the high-energy X-ray band between the Integral LEIS 1-027 Credits: ESA

GODDARD SPACE FLIGHT CENTER

RELEASE NO. 08-08

Four years of observations from the European Space Agency's Integral (International Gamma-Ray Astrophysics Laboratory) satellite may have solved one of the most vexing mysteries in our Milky Way: the origin of a pool of ionization surrounding the galactic center.

Image credit: Integral imaged the glow of 117 soft gamma-ray lines from electron-positron annihilation. The map shows the whole sky, with the galactic center in the middle. The ionization extends to the right. One image for enlargement. Credit: ESA/INTEGRAL/MPFS/MS/ESA/ESA/ESA

As reported by an international team in the January 10 issue of Nature, Integral found that the cloud extends farther on the western side of the galactic center than it does on the eastern side. This imbalance suggests the distribution of populations of binary star systems that contain black holes or neutron stars. MPFS says suggesting that these binaries are situated not at the high of the ionization, and perhaps a bit off.

"This reported Integral detection of an asymmetry represents a significant step toward solving a problem of one of the major outstanding problems in high energy astrophysics. I think it can have a collective sign of relief surrounding it from the community," says Martin Jonker, a University of Maryland professor emeritus and scientist in the field.



THE AUSTRALIAN

French explain gamma ray mystery

From AFP
By Reuters

OUR galaxy, the Milky Way, is awash in low-energy gamma rays emitted by black holes and massive stars, which are buried in clusters of dust and gas, according to a French study published on Thursday.

The research, which appears in the British science journal Nature, resolves a 30-year-old enigma as to where the so-called "soft" radiation comes from.

The team from France's Atomic Energy Commission (CEA) say they have found 91 gamma ray sources, accounting for what they believe to be 90 per cent of the energy.

Twenty-six of these sources were previously unidentified, and most of the other sources are binary star systems that had already been detected in the X-ray part of the energy spectrum.

The remaining 10 per cent of the gamma radiation is likely to come from very compact stars, the researchers say.

INTEGRAL IUG Meeting

21-22 April 2009

Christoph Winkler

Published since June 2008 (on ESA Space Science and/or Sci-Tech web)

- Polarization in prompt emission of GRB 041219A 03 April 2009
- Magnetar observed during outburst thanks to rapid response of INTEGRAL 27 Jan 2009
- First light curve analysis of 20 eclipsing binaries with INTEGRAL's OMC 19 Jan 2009
- XMM-Newton and INTEGRAL clues on magnetic powerhouses 14 November 2008
- Faint gamma-ray bursts do actually exist 13 October 2008
- INTEGRAL locates origin of high-energy emission from Crab Nebula 29 August 2008
- Astronomers may have glimpsed tiny star's surface 17 June 2008

Total: 43 ESA press/web news releases since launch

Archive: <http://integral.esac.esa.int/press/press.html>

In preparation

- The evolution of the first outburst from the new magnetar candidate SGR 0501+4516 (N. Rea et al., MNRAS, 2009, in press) – 15 May
- PSR J1846-0258: a young rotation-powered pulsar with high magnetic field, which underwent, unexpectedly, a strong magnetar-like outburst (L. Kuiper et al., A&A subm., 2009) – date TBD

Requests/ideas for new press releases to CW, please.

INTEGRAL participates in IYA – 100 hrs of astronomy campaign

Competition for secondary school and undergraduate students

“Be an INTEGRAL Astronomer”

Deadline 14 August 2009

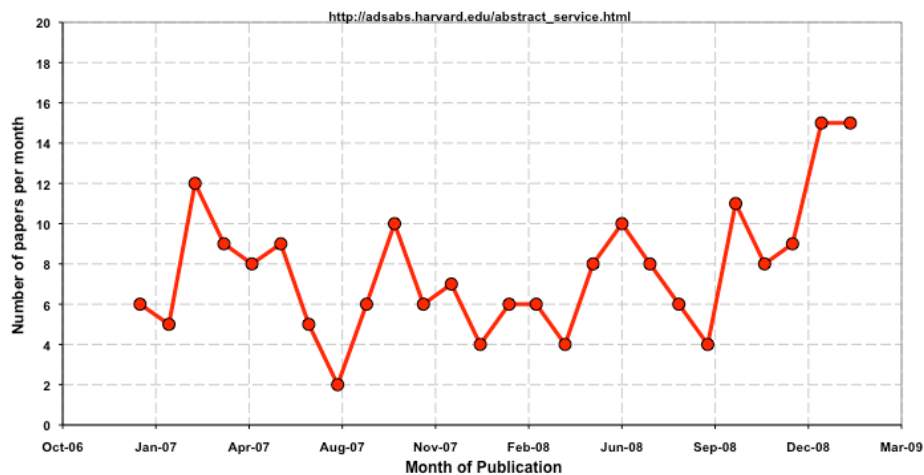


Tasks: Use public ISGRI 18-40 keV data from GB monitoring programme and analyse various light curves.

1st Prize: Trip to ESAC, Celestron sky scout, books etc

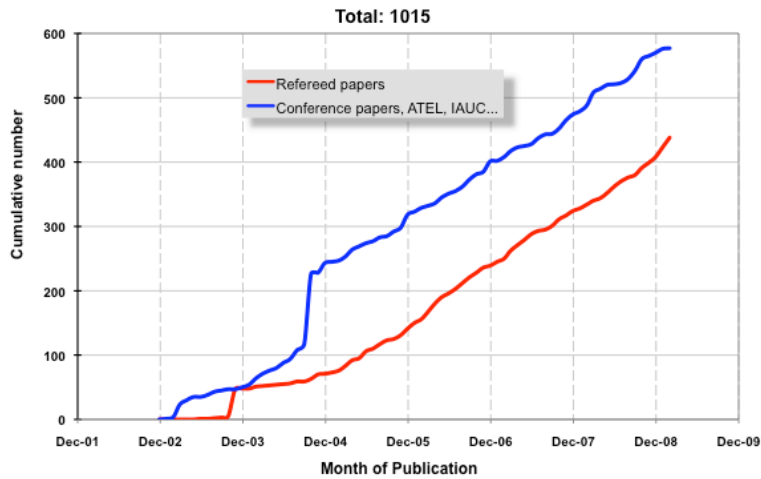


Refereed publications per month over last two years using INTEGRAL scientific data



Average = (8 ± 3) ref. papers/month

Publications using INTEGRAL scientific data
 From launch (Oct 2002) until February 2009



Top 10 citations to science papers,
 as of Feb 2009

Reference	Topic	Citations to paper
C. Böhm et al. <i>Phys. Rev L</i> 92, 101301, 2004	MeV dark matter: has it been detected ?	145
P. Jean et al. <i>A&A</i> 407, 55, 2003	511 keV line emission from 4 th quadrant	117
A. Bird et al. <i>ApJS</i> 170, 175, 2007	The third IBIS source catalogue	113
J. Knödseder et al. <i>A&A</i> 411, 457, 2003	Constraints on the 511 keV line morphology	105
N. Arkani-Hamed et al. <i>Phys. Rev D</i> 79, 015014, 2009	A theory of dark matter	100
J. Knödseder et al. <i>A&A</i> 441, 513, 2005	511 keV all-sky distribution	98
A. Bird et al. <i>ApJ</i> 607, 33, 2004	The first IBIS source catalogue	80
S. Sazonov et al. <i>Nature</i> 430, 646, 2004	An apparently normal γ -ray burst with an unusually low luminosity	72
J. F. Beacom & H. Yüksel <i>Phys. Rev L</i> 97, 071102, 2006	Stringent constraints on Galactic positron production	71
R. Diehl et al. <i>Nature</i> 439, 45, 2006	Radioactive ²⁶ Al from massive stars in the Galaxy	70



Dublin, Sep 2010



Copenhagen, Sep 2008

POS PROCEEDINGS
OF SCIENCE

a service of STS&A

