



Newsletter of the INTEGRAL Science Operations Centre



No. 14

February 2005

3rd Announcement of Opportunity (AO-3)

Christoph Winkler - Project Scientist

The INTEGRAL Time Allocation Committee (TAC), chaired by Prof. E.P.J. van den Heuvel (Amsterdam) completed the peer review process of AO-3 observing proposals in December as scheduled, and recommended the AO-3 observing programme to ESA. The General Observer (open time) Programme has been endorsed by ESA's Director of Science. It comprises the best and most exciting new science that can be achieved by INTEGRAL, reflecting the interests of the high-energy science community. The observing programme for AO-3 will allow a great variety of innovative studies of objects and phenomena. The full list of approved open time AO-3 observations and a sky map showing the AO-3 target pointings are shown in the attachment to this Newsletter (see also <http://www.rssd.esa.int/Integral/>).

The total granted observing time for normal and fixed time observations (i.e. excluding TOO's) amounts to 37.9 Ms. The total granted observing time for Targets of Opportunity (TOO) is 20 Ms. However, taking the estimated probabilities of these events into account (1% to 33% depending on the source type), the total effective time for TOO's amounts to 2.7 Ms. Gamma-ray burst observations do not require dedicated observation time.

The scientific observing time available for the AO-3 General Programme is about 27 Ms. The amount of un-completed AO-2 observations which will be carried over into AO-3 is about

3.3 Ms. In addition, 3 Ms have been reserved as default for TOO observations. Therefore, the accepted observing time for non-TOO observations results in an over-subscription of 1.8. AO-3 will last from 18 February 2005 until 17 August 2006.

Table 1: Granted Time for non-TOO observations

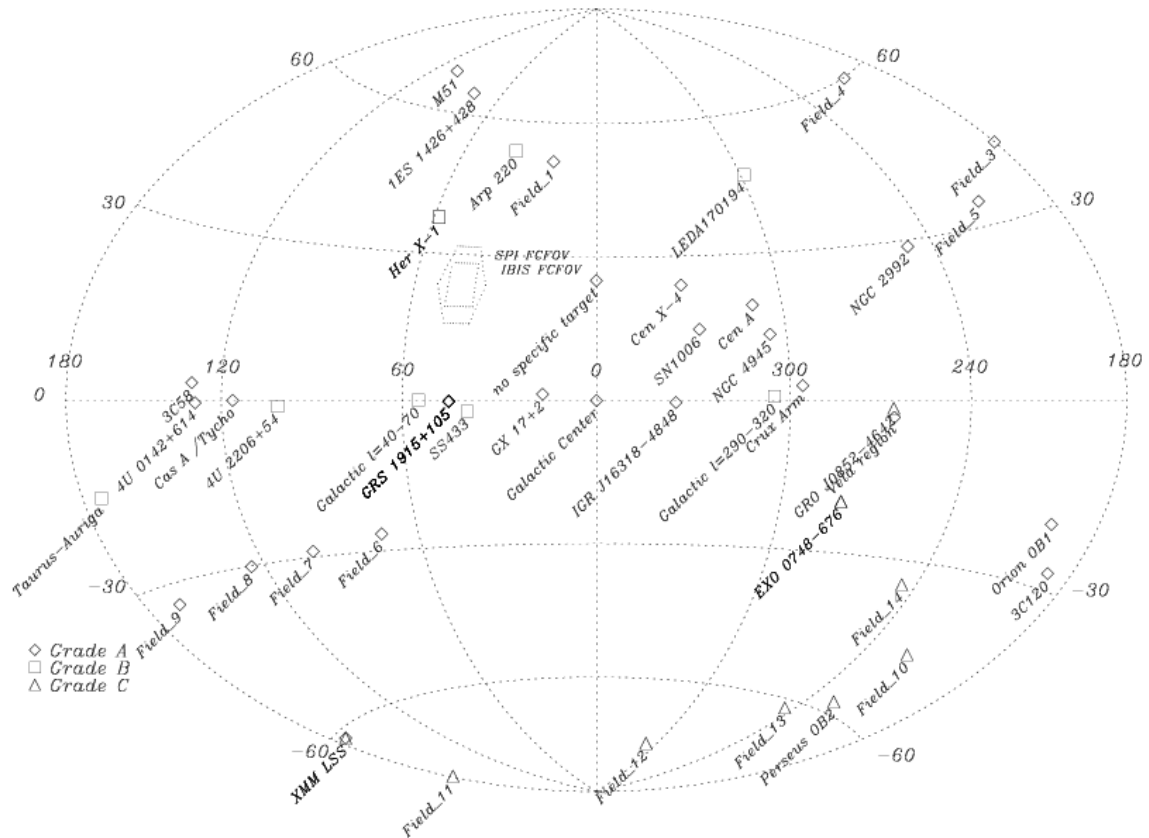
Category	Time (ksec)	Time (%)
Compact objects	8500	22.40
Extragalactic objects	7450	19.63
Nucleosynthesis	19000	50.07
Miscellaneous	3000	7.91
Total	37950	100.00

Table 2: Granted Time for TOO observations

Category	Time (ksec)	Time (%)
Compact objects	6346	31.66
Extragalactic objects	2700	13.47
Nucleosynthesis	9000	44.90
Miscellaneous	2000	9.98
Total	20046	100.00

Scientific Grades: The INTEGRAL TAC approved individual observations of a proposal by assigning a grade, A, B, C to each observation (type: normal time, fixed time, or TOO). A special sub-group of proposals, using seren-

Accepted INTEGRAL AO-3 observations



ao3_targets.pro, TO, 18 Jan 2004

serendipitous data on gamma-ray bursts (GRB), has been identified as GRB. The characteristics of a specific grade are as follows:

- A:** Excellent proposal. High scheduling priority.
- B:** Very good proposal. Normal scheduling priority.
- C:** Good proposal. Low scheduling priority. TOO observations will only be executed if specific trigger criteria are fulfilled.
- GRB:** No scheduling impact as serendipitous data are being used.

General note on scheduling: The scheduling on INTEGRAL will be optimized in such a way that greatest scientific return is ensured within the time available. Consequently the allocated priorities do not reflect the sequence of the observations within the AO-3 cycle. However, it is emphasised that - for operational and technical reasons - no guarantee can be given that

any particular observation will in fact be executed.

Transfer of uncompleted observations: Following the TAC recommendation and ESA's endorsement, any observation commenced in AO-3 cycle, but uncompleted, will be carried over into the next AO for completion, irrespective of its grade. In this context "commenced" is understood as execution of at least 25% of the approved time. This does not apply for observations which have been carried over into AO-3 from AO-2. Any observation which has not been started in AO-3 will not be carried over to the next AO.

Mission Status

Arvind Parmar - Mission Manager

INTEGRAL continues to operate smoothly with all the spacecraft sub-systems performing nominally. Observations have been, however, interrupted by higher than usual solar activity during January. In addition, INTEGRAL had its first Emergency Sun Acquisition (ESAM) which resulted in the loss of about 12 hours of observing time and fuel equivalent to about 2-3 weeks operation. The ESAM was triggered by an incorrect calculation on-ground, and not by any on-board anomaly.

Fuel consumption remains low with approximately 164 kg remaining as of January 2005. The power sub-system is working nominally with about 2100 W available from the solar arrays. This is sufficient power to continue operations at a solar pitch angle of 40° for the foreseeable future. Thermal control is working nominally and all temperatures are as expected. Preparations for the move of the ISOC from ESTEC to ESAC are on-schedule for the ESAC team to assume responsibility for mission planning at the start of AO-3 observations.

No clear link between the losses of the 2 (out of 19) SPI detectors and detector annealing, which preceded the failures in both cases, has been established. Failure investigations have focused on the detector preamplifiers, the high voltage power supplies and associated cabling. However, extensive ground tests by the SPI PI using flight spare hardware have been unable to replicate the failures. In addition, ESA supported thermal tests of the high-voltage feedthroughs, and computer modeling of the failure characteristics have not revealed any clues as to the nature of the failures. Since annealing is necessary to maintain the SPI high spectral resolution, it has been decided to perform the next annealing, as planned, in 2005 January-February. The annealing is underway

with a modified procedure in order to minimize the thermal stresses on the preamplifiers.

INTEGRAL science workshop

Peter Kretschmar - Operations Scientist

On the initiative of J.-P. Roques and C. Winkler, an Internal INTEGRAL Science Workshop was held at ESTEC from January 18 to 21. The purpose was not only to present the latest scientific results (after the INTEGRAL workshop #5 in Munich, 2004), but also to provide a forum for discussion on instrument (cross-)calibration, software performance and other issues. More than 100 participants from ISWT and collaborating teams attended a lively and productive workshop with many new exciting scientific results, demonstrating the power of INTEGRAL observations with improved calibration and software. Only a brief summary can be mentioned in this Newsletter below, for more information please consult the INTEGRAL web pages at <http://www.rssd.esa.int/Integral/workshops/Jan2005/> where the presentations have been published.

In the first session on payload and software performance, the good status of all instruments was demonstrated. Impressive progress has been achieved in the deconvolution of IBIS data and the suppression of systematics. Sub-Crab sources are visible in deep mosaics reaching the predicted sensitivity. Hard work is also on-going for JEM-X promising significant progress. All this is to become part of the next analysis software release from ISDC. SPI and OMC continue to perform well.

The following session presented results from the INTEGRAL surveys. These continue to find new sources, many of which are obscured at classical (soft) X-ray energies and to provide new and sometimes unexpected information about the high energy spectrum of known source classes. Follow-up observations at other

wavelengths complement the INTEGRAL observations.

Updated results on the galactic diffuse emission, a topic for which INTEGRAL plays a very important role, were presented in the next session.

New key results from nucleosynthesis and gamma-ray line spectroscopy were presented, including the 511 keV all-sky map featuring dominant emission from the galactic bulge region and a 511 keV spectrum, with most stringent constraints on line energy and width, showing that annihilation takes place in a warm (8000 K), weakly ionized interstellar medium. The detection of gamma-ray line emission from interstellar Fe⁶⁰ at 1173 and 1333 keV and the detection of Ti⁴⁴ emission at 68 keV from the SNR Cas A were announced.

In the session on compact sources, several presentations, e.g. on H1744-322 or GX 339-4, demonstrated how the observations in the soft gamma energy range complement and extend the X-ray data for transient sources. Frequently, the outburst is first visible in the harder band, or, due to the spectral evolution, shows a very different evolution than in the soft X-ray range alone. For various sources (msec pulsars, AXPs, SGRs, bursters) hard emission is detected above 100 keV, for some, like the Anomalous X-ray Pulsars (AXP), this comes as a surprise, since they were known for their soft X-ray spectra. First results on the very recent INTEGRAL TOO observation of V0332+53 were presented from all 4 INTEGRAL instruments, only ~1 week after the data became publicly available, showing the impressive cyclotron line features visible in the spectra up to 70 keV.

In the AGN session results were presented for sources where INTEGRAL makes it possible to monitor Comptonization components. This area will benefit strongly from the improve-

ments in the analysis demonstrated in the first session.

The impressive results obtained with the IBAS GRB alert system were summarized in the last session. INTEGRAL delivers good localization for faint bursts, with the underluminous GRB 031203 pointing at a possible faint - and largely unknown - GRB population. GRB 041219 was observed together with the Swift satellite (see below). While Swift has a much larger field of view, INTEGRAL remains more sensitive on axis by 20-40%.

Under certain circumstances INTEGRAL can even localize sources far outside its field of view! For strong bursts, the source position can eventually be reconstructed from Compton scattering information in the IBIS layers using a satellite and instrument mass model. Another example is the super giant flare from SGR 1806-20 (27 Dec) observed at 106° off-axis (see below).

Looking ahead, preparations for the 6th INTEGRAL workshop (June 2006, St. Petersburg/Russia) are commencing.

Science Operations - Highlights

Erik Kuulkers - Operations Scientist

The last three months have been mainly devoted to extra-galactic (e.g., NGC 7172, MCG-2-58-22) and nucleosynthesis targets (e.g., Coma Cluster, Cas A). This will change soon however, when the Galactic bulge region becomes visible again. During the period, various exciting and unexpected events happened, to which INTEGRAL responded. During a GPS on Dec 2, 2004, a new IGR source was discovered by both IBIS and JEM-X, i.e., IGR J00291+5934 (ATel #352). Quick RXTE follow-up observations showed it to be a new milli-second pulsar (ATel #353). With a spin period of 599 Hz it is the fastest known accret-

ing X-ray millisecond pulsar system to date. Very soon thereafter, an optical and a radio counterpart were also found (ATels #354, #355). The detection resulted in many further reports (ATels #356, #357, #361-366, #369, #395) of this ~2.5 hour (ATel #360) binary system. INTEGRAL performed TOO observations of IGR J00291+5934 on Dec 6-7 and 8-10, 2004. Analysis of these proprietary observations is in progress. For further information see also astro-ph/0501507 and astro-ph/0501064.

A rapid brightening in the optical range was seen in the Be/X-ray binary transient V0332+53 (BQ Cam) a year ago (ATel #245). About 10 months later the X-ray outburst of this 4.4 sec pulsar in a 34.2 day orbit was observed by the RXTE/ASM (ATel #349; #371). V0332+58 was at the very edge of the visibility window of INTEGRAL at the time of outburst and appeared very bright (~1 Crab, 21-36 keV) in a GPS pointing on Dec 26, 2004 (ATel #372). Multiple cyclotron lines were reported from RXTE/PCA observations (ATel #381). INTEGRAL TOO follow-up observations were performed as soon as the visibility window permitted it, on Jan 6, 2005 (in Staring mode), and Jan 8-10, Jan 19-20 and Jan 23-24 (all using hexagonal dither patterns). Unfortunately, the observations on Jan 19-20 were lost due to high solar activity (the instruments were switched off). Because no specific AO-2 proposal exists on this source, the data were made public immediately (see ATel #382 and <http://isdc.unige.ch/?Science+news>).

In the meantime more INTEGRAL sources were discovered: IGR J11435-6109 during a GPS scan, a new Be/X-ray transient (ATels #350, #358, #359, #362, #370, #377), and IGR J00234+6141 during a Guest observer program on Cas A, also possibly a new X-ray binary (ATel #394). SGR 1806-20 again appeared to be active; a giant flare was seen at the end of 2004 by INTEGRAL. It occurred,

however, outside the field of view of its instruments (GCN 2920). It was also observed by various other satellites currently in operation (GCNs 2921-2923, 2925, 2927, 2936, 2945, 2950). Note that this flare even disturbed the Earth's ionosphere by a noticeable amount (GCN 2932). Subsequent radio observations showed a clear radio counterpart (GCNs 2928, 2929, 2933-2935, ATels #373, #375, #380, IAUC 8459) and a possible IR counterpart (ATel #378) to the source. SGR 1806-20 remains active (GCN 3002).

Near the end of 2004 two long GRBs triggered IBAS (Alerts #2072 and 2073) on consecutive days (GRB 041218 and GRB 041219; GCN 2858 and GCN 2866, respectively). Both were within the field of view of IBIS. The first one lasted about 1 minute; subsequent optical/IR afterglows were found (GCN 2860, GCN 2861; see also subsequent GCN). The second one was exceptionally long (about 9 minutes duration) and bright, and was caught by Swift-BAT (GCN 2874, GCN 2906), and also by RXTE/ASM (GCN 2917). It had a peak intensity of about 43 Crab (~15-200 keV, GCN 2874), and clearly saturated IBIS/ISGRI (GCN 2866). It is the first event with near-simultaneous IR observations (GCN 2870). Radio (GCN 2881) and optical (GCN 2882) fading counterparts were found (see also subsequent GCN). Just recently a 20 sec long GRB was detected by IBAS, i.e., GRB 050129, but due to its faintness no automatic IBAS Alert was sent out (GCN 3003).

Archival and proprietary data from INTEGRAL observations have now revealed that 300-400 years ago the massive black hole at the center of our galaxy was much more active, releasing a million times more energy than at present. It is expected that it will become active again in the future (A&A 425, L49, 2004), see also ESA Science News Release (SNR-2-2005), http://www.esa.int/esaSC/Pr_2_2005_s_en.html.

ISOC at ESAC - latest news

Lars Hansson - ISOC Manager

Since October 2004 a copy of the ISOC operational system has been set up in ESAC in Spain. This copy has undergone extensive testing before being used for operations. For this purpose reference scenarios have been created in ESTEC and then re-generated in ESAC showing same results by comparison. All interfaces with MOC and ISDC have been tested. Since early January 2005, so-called parallel operations have taken place. This means that all planning products have been generated in parallel at both sites. After checking that the outputs are the same, the ESTEC output is sent to MOC and ISDC. So far, this activity has been exercised without problems. The intention is to plan the AO-3 revolutions from ESAC only. This switch-over from ESTEC to ESAC will occur in early February. Since early January the team build-up in Spain has started and it is foreseen that the team will be complete in ESAC by 1 March.

How to reach the ISOC?

The ISOC is right now moving from ESTEC (The Netherlands) to ESAC (Spain) with staff temporarily located at both sites as indicated below.

(1) ISOC at ESTEC

ESA-ESTEC, Science Operations and Data Systems Division (SCI-SDG), Keplerlaan 1, 2201 AZ Noordwijk, The Netherlands
 Fax: +31-(0)71-56-55434,
 Phone: +31-(0)71-565-xxxx (see below)

<http://www.rssd.esa.int/integral/>

E-mail: name@rssd.esa.int

(name = first initial and surname, max 8 characters)

ISOC helpdesk: inthelp@rssd.esa.int

Name	Function	Phone	Mailcode
Parmar, A.	Mission Manager	4532	SCI-SA
Winkler, C.	Project Scientist	3591	SCI-SD
<i>ISOC Personnel</i>			
Hansson, L.	ISOC Manager	3471	SCI-SDG
Barr, P.	Resident Astronomer	5139	SCI-SDG
Oosterbroek, T.	Operations Scientist	3612	SCI-SDG
Orr, A.	Operations Scientist	3943	SCI-SDG
Dean, N.	Software Engineer	3959	SCI-SDG
Riemens, M.	Secretary	4754	SCI-SD

(2) ISOC at ESAC

European Space Astronomy Centre (ESAC)
 Urb. Villafranca del Castillo
 P.O. Box 50727
 28080 Madrid, Spain
 Fax: +34-91-8131172,
 Phone: +34-91-8131-xxx (see below)

Name	Function	Phone	Mailcode
Kretschmar, P.	Operations Scientist	399	SCI-SDG
Kuulkers, E.	Operations Scientist	358	SCI-SDG
Homminga, M.	Software Engineer	335	SCI-SDG
Jacobs, F.	Software Engineer	357	SCI-SDG
O'Rourke, L.	Software Engineer	363	SCI-SDG
Williams, O.R.	Software Engineer	356	SCI-SDG

Proposal ID	Title	PI	Country	Category	Approved Target	Approved Time [ksec]	Grade	Comments
320004	Deep survey of the Vela region for nucleosynthesis studies through ^{26}Al , ^{60}Fe and e^+e^- annihilation lines	Schanne	France	Nucleosynthesis	Vela region	2000	A	
320011	Low-mass X-ray binaries as sources of 511 keV line emission: Scorpius X-1, Centaurus X-4, and A0620-00	Weidenspointner	France	Nucleosynthesis	Cen X-4	1500	A	
320013	Galactic positron annihilation radiation: discriminating bulge, halo, and disk components by mid-latitude observations	Weidenspointner	France	Nucleosynthesis	Mid-latitude North	2000	A	
320015	INVESTIGATING THE CENTRAL ENGINE NATURE OF THE TWO ENIGMATIC SEYFERT GALAXIES NGC 2110 AND NGC 2992	Deluit	Switzerland	Extragalactic Objects	NGC 2992	400	A	
320020	Deciphering the inscrutable microquasar GRS 1915+105	Rodriguez	France	Compact Objects	GRS 1915+105	500	A	split into 5 observations
320026	Search for the Hard X-ray Break in Centaurus A with AstroE2/INTEGRAL	Rothschild	USA	Extragalactic Objects	Cen A	150	A	coordinated with Astro-E2
320038	The Gamma-ray characteristics of nearby AGN	Dean	United Kingdom	Extragalactic Objects	M51	300	A	
320056	Probing the nature of Cas A's and Tycho's supernova explosions.	Vink	Netherlands	Nucleosynthesis	Cas A/Tycho	2500	A	
320060	Positrons in AGN Jets: Search for Annihilation Line Radiation	Marscher	USA	Extragalactic Objects	3C120	500	A	
320062	Detecting Positron Annihilation Radiation and Hard X-ray Emission from Type Ia Supernova Remnants	Milne	USA	Nucleosynthesis	SN1006	2500	A	
320068	Search for Isolated Stellar Mass Black Holes in Taurus GMC	Grindlay	USA	Compact Objects	Taurus GMC	150	A	
320072	A deep INTEGRAL observation of anomalous X-ray pulsar 4U 0142+614: Deriving the soft gamma-ray spectral details	Kuiper	Netherlands	Compact Objects	4U 0142+614	1000	A	
320081	Probing Compton-thick Absorption: Simultaneous INTEGRAL/Astro E2 Observations of IGR J16318-4848	Wilms	United Kingdom	Compact Objects	IGR J16318-4848	150	A	coordinated with Astro-E2
320092	Galactic Center Field: Ultra Deep Exposure III	Sunyaev	Russian Federation	Compact Objects	Galactic Center region	2000	A	
320093	Study of the Role of Jet Emission in the Origin of Hard X-ray Components in Bright Low Mass X-ray Binaries	Di Salvo	Italy	Compact Objects	GX 17+2	300	A	
320102	Deep observations of Crux spiral arm tangent	Revnitsev	Russian Federation	Compact Objects	Crux spiral arm	1500	A	point sources only
320106	High-Energy Pulsed Observations of the Young Pulsar in 3C58	Roberts	USA	Compact Objects	3C58	200	A	
320108	All sky survey in the hard X-ray energy band	Churazov	Russian Federation	Extragalactic Objects	All sky survey	1600	A	split into 8 observations; additional 1000 ksec in C
320109	Regular and frequent INTEGRAL monitoring of the Galactic Bulge region	Kuulkers	Netherlands	Compact Objects	Galactic Bulge region	870	A	split into 69 observations
320110	An INTEGRAL Way to Solve the X-ray Background Problem	Urry	USA	Extragalactic Objects	XMM-LSS	1500	A	additional 500 ksec in C
320001	Origin of Galactic Ridge Continuum Emission	Strong	Germany	Others	Galactic ridge ($l = -60$)	1500	B	diffuse emission only
320001	Origin of Galactic Ridge Continuum Emission	Strong	Germany	Others	Galactic ridge ($l = +60$)	1500	B	
320016	INTEGRAL MONITORING OF THE BRIGHT SY-2 GALAXY NGC4945 AND ITS FIELD OF VIEW	Deluit	Switzerland	Extragalactic Objects	NGC 4945	300	B	
320033	Dedicated observations of two INTEGRAL discovered AGN: IGR J21247+5058 and LEDA170194	Bassani	Italy	Extragalactic Objects	LEDA 170194	300	B	
320041	Probing the accretion on a magnetized neutron star by pulse profile and cyclotron line studies in Her X-1	Shakura	Russian Federation	Compact Objects	Her X-1	630	B	split into 2 observations
320044	INTEGRAL identifies the Hard X-ray excess in Blazars' fields	Wolter	Italy	Extragalactic Objects	1E 1426	400	B	

Proposal ID	Title	PI	Country	Category	Approved Target	Approved Time [ksec]	Grade	Comments
320052	Confirmation of a cyclotron line in the non-pulsating massive X-ray binary 4U 2206+54	Neguerela	Spain	Compact Objects	4U 2206+54	280	B	
320067	What powers ULIRGs? INTEGRAL observations of IRAS 08572+3915 and Arp 220	Dudley	USA	Extragalactic Objects	Arp220	500	B	
320086	INTEGRAL observation of primary eclipse in SS433 in precessional phase 0.5	Cherepashchuk	Russian Federation	Compact Objects	SS433	520	B	
320008	The Nature of SNR RX J0852-4622 / GROJ0852-4642	von Kienlin	Germany	Nucleosynthesis	GRO J0852-4642 (Vela junior)	3000	C	
320012	A possible Ti44 excess in the Perseus OB 2 association?	von Kienlin	Germany	Nucleosynthesis	Perseus OB2	2500	C	
320069	Massive Stars of Orion OB1 and the ISM	Diehl	Germany	Nucleosynthesis	Orion OB1	3000	C	
320080	A High Energy Study of the Dipping LMXB EXO 0748-676	Gotz	Italy	Compact Objects	EXO 0748-676	400	C	split into 2 observations
320108	All sky survey in the hard X-ray energy band	Churazov	Russian Federation	Extragalactic Objects	All sky survey	1000	C	split into 5 observations; additional 1600 ksec in A
320110	An INTEGRAL Way to Solve the X-ray Background Problem	Urry	USA	Extragalactic Objects	XMM-LSS	500	C	additional 1500 ksec in A
320006	ToO Observations of Centaurus A in a Bright State	Weidenspointner	France	Extragalactic Objects	Cen A	500	A (TOO)	
320009	Timing the ⁵⁶ Ni formation in GRB associated hypernovae	Barbiellini	Italy	Others	Hypernova/GRB	2000	A (TOO)	
320010	INTEGRAL AND XMM-NEWTON OBSERVATIONS OF BLAZARS IN OUTBURST	Pian	Italy	Extragalactic Objects	Blazar	200	A (TOO)	1 out of 219 targets
320014	Target of Opportunity Observations of a Major Radio/Hard X-Ray Flare in the Relativistic Jet Source Cygnus X-3	McCullough	USA	Compact Objects	Cyg X-3	300	A (TOO)	split into 3 observations
320017	Connections between Spectral States, Line Emission, and Radio Jets in the Black Hole X-Ray Transient 4U 1630-47	Tomsick	USA	Compact Objects	4U 1630-47	500	A (TOO)	split into 2 observations
320022	ToO observations of the "Bursting Pulsar" during outburst with INTEGRAL	Masetti	Italy	Compact Objects	GRO J1744-28	280	A (TOO)	split into 3 observations
320028	Target of Opportunity Observations of Active Soft Gamma Repeaters	Hurley	USA	Compact Objects	Soft Gamma-ray Repeater	480	A (TOO)	240 ksec per target
320031	Type Ia supernovae	Isern	Spain	Nucleosynthesis	Type Ia SN	2000	A (TOO)	split into 2 observations
320036	Monitoring the latest stage of neutron star soft X-ray transients with INTEGRAL	Campana	Italy	Compact Objects	Cen X-4	300	A (TOO)	split into 4 observations
320042	New Black Hole X-Ray Novae in the Galactic Halo	Cadolle Bel	France	Compact Objects	New Halo BH transient	353	A (TOO)	1 target; split into 2 observations
320043	High-Energy Emission of Faint Galactic Bulge Black Hole X-Ray Novae in Outburst	Goldoni	France	Compact Objects	New Bulge BH transient	353	A (TOO)	1 target; split into 2 observations
320045	Connecting Black Hole States and Accretion Flow Geometry	Miller	USA	Compact Objects	Known or new BH transient	800	A (TOO)	2 targets, 400 ksec each; split into 4 observations
320047	TOO Observations of Galactic Transients Discovered by Swift	Gehrels	USA	Compact Objects	Swift transient	400	A (TOO)	coordinated with Swift
320049	Target of Opportunity Observations of an Outburst in A 0535+26	Kretschmar	Switzerland	Compact Objects	A 0535+26	400	A (TOO)	split into 2 observations
320051	TOO Observation of the high-energy spectrum of a black-hole transient in the Intermediate and Steep Power-Law States	Belloni	Italy	Compact Objects	Known or new BH transient	200	A (TOO)	1 target; split into 2 observations
320058	An INTEGRAL Observation of the Blazar 3C 279 in Optical 'High State'	Collmar	Germany	Extragalactic Objects	3C279	600	A (TOO)	
320061	INTEGRAL observations of classical novae	Hernanz	Spain	Nucleosynthesis	Classical Carbon/Oxygen Nova	2400	A (TOO)	
320063	FURTHER INTEGRAL OBSERVATIONS OF NEARBY SUPERNOVAE	Leising	USA	Nucleosynthesis	Nearby SN	4600	A (TOO)	split into several observations
320065	Early Rises of X-ray Novae	Swank	USA	Compact Objects	Known or new BH transient	200	A (TOO)	1 target; early rise; RXTE trigger
320070	Observation of Known and Unknown Soft Gamma Repeaters Serendipitously Detected by INTEGRAL	Feroci	Italy	Compact Objects	Soft Gamma-ray Repeater	0	A (TOO)	SGR in outburst only, no dedicated observation time required
320076	Observations of Mrk 421 in its active state with INTEGRAL	Lichti	Germany	Extragalactic Objects	Mkn 421	1000	A (TOO)	split into 4 observations

Proposal ID	Title	PI	Country	Category	Approved Target	Approved Time [ksec]	Grade	Comments
320082	Target of Opportunity Observation(s) of known and unknown X-ray Pulsating Transients in Outburst	Santangelo	Germany	Compact Objects	HMXB/XRP transient	200	A (TOO)	1 target; split into 2 observations
320083	Studying known soft X-ray transients during the rising phase of the outbursts	Castro-Tirado	Spain	Compact Objects	Known BH transient	100	A (TOO)	1 target; early rise; optical trigger
320084	Multiwavelength Study of Known and New Transient X-/Gamma-ray sources.	Lutovinov	Russian Federation	Compact Objects	Known or new X-ray transient	400	A (TOO)	2 targets, 200 ksec each; split into 4 observations
320096	Measuring the Total Electromagnetic Luminosity of the Universe with INTEGRAL	Krawczynski	USA	Extragalactic Objects	Blazar	400	A (TOO)	1 out of 3 targets
320111	Known Black Hole Transients in Outburst	Kuulkers	Netherlands	Compact Objects	Known BH transient	500	A (TOO)	1 target; split into 5 observations
320115	A Super-Eddington Outburst from the LMC Transient A0538-66	McBreen	Netherlands	Compact Objects	A0538-66	320	A (TOO)	split into 4 observations
320032	Measuring the High Energy Emission of Millisecond X-Ray Pulsars in Outburst	Falanga	France	Compact Objects	Known or new msec XRP	260	B(TOO)	1 target
320003	Polarization Measurements of Prompt Gamma-Ray and X-Ray Emission in Gamma-Ray Bursts and SGR flares with INTEGRAL	Kouveliotou	USA	Others	GRB	n/a	GRB	no dedicated observation time required
320007	Using Gamma-Ray Bursts to Test Lorentz Invariance and Quantum Gravity	Wunderer	USA	Others	GRB	n/a	GRB	MeV spikes; no dedicated observation time required
320018	Maintaining INTEGRAL in the 3rd Interplanetary Network of Gamma Ray Burst Detectors	Hurley	USA	Others	GRB	n/a	GRB	usage of public data for IPN; no dedicated observation time required
320029	Searching for spectral features in the prompt emission of a GRB using SPI	Beckman	USA	Others	GRB	n/a	GRB	time-resolved spectroscopy; no dedicated observation time required
320048	An INTEGRAL Census of GRB Properties	Hanlon	Ireland	Others	GRB	n/a	GRB	spectra & polarimetry; no dedicated observation time required
320054	Broad-band spectroscopy of GRB prompt and early afterglow emission	Sazonov	Russian Federation	Others	GRB	n/a	GRB	late time GRB; no dedicated observation time required
320098	Study of the MeV Spectrum in Gamma-Ray Bursts	Ryde	Sweden	Others	GRB	n/a	GRB	MeV spectrum; no dedicated observation time required