PROCEEDINGS OF SCIENCE

Bursts detected in hard X-rays by the IBIS telescope onboard the INTEGRAL observatory in 2003-2009

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We present results of our search for X-ray bursts in the publicaly available archival data of the IBIS/ISGRI telescope onboard INTEGRAL. In the January 2003 - April 2009 data we were able to find 833 bursts within the IBIS field of view in the 15-25 keV energy band from 24 known X-ray bursters. Only 243 of the bursts were simultaneously detected by the INTEGRAL/JEM-X telescope in the standard X-ray band. Most of the bursts (586 events) were detected from the well known X-ray burster GX 354-0. Such a large amount of bursts gave us an opportunity to trace the correlations in the burst rate, luminosity, burst duration, fluence and peak flux for this source.

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1. Introduction and data analysis

One of the main evidences of the presence of a neutron star in a binary system is the detection of type I X-ray bursts from it. Type I X-ray bursts originate from thermonuclear flashes taking place on the surface of a neutron star in LMXB (Low Mass X-ray Binary). Depending on the accreted material they last from several seconds to several hours and have a characteristic FRED form with fast rise and exponential decay. Detection of such events may help to identify the nature of new sources and evaluate such parameters of the system as distance, type of accretion material, accretion rate etc. Most of the energy released during type I X-ray bursts is radiated as a black body emission in the standard X-ray energy band. The IBIS telescope onboard INTEGRAL [6] is sensitive to photons with energies over 15 keV. It is a very convenient tool for searching for type I X-ray bursts, because it has a huge field of view (FOV) and dedicates a lot of observing time to study the Galactic Center field where most of the elder stellar population of the Galaxy (including LMXBs) is situated.

The IBIS telescope onboard INTEGRAL consists of two detector layers: ISGRI and PICsIT. In this work we only used data from the ISGRI detector layer in the 15-25 keV energy band. To search for X-ray bursts we first reconstructed detector lightcurves, using all the detected photons irregardless of their incidence direction. These curves were corrected for detector noisy pixels, dead time and turn-offs of one or several detector segments. Then these curves were analyzed for significant excesses in the count rate over its average level. For this purpose we calculated the average count rate for a 500 s window, including each 5 s bin of a given individual observation (SCW - SCience Window). Access of the count rate in a single bin over this average value more significant than 3 standard deviations was marked as a burst candidate. Applying this procedure to each 5 s bin of over 60000 SCWs (observations in 2003-2009) we found over 52000 burst candidates. For each of these bins we reconstructed an image of the sky in the FOV of the IBIS/ISGRI telescope again in the 15-25 keV energy range. Comparing statistical significances of the detection of sources in this image with images reconstructed for time bins of the same duration several seconds before and after the current bin we were able to identify 833 bursts with known X-ray bursters (Tabs. 1-4).

2. Results

Simular to previous versions of the catalog [1, 2, 4] over 70% of the bursts were detected from one well known X-ray burster GX 354-0. Our analysis shows that it is not a selection effect, so bursts from this source must be harder than the ones from other sources. One of the possible reasons for this may be Comptonization in the accretion disk corona of thermal photons emitted by the surface of the neutron star during the burst. Five bursters (4U 1724-307, 4U 1702-429, 4U 1608-522, 4U 1636-536 and 4U 1812-12) were responsible for other 22% of the bursts.

Most of the burst sources during the detected bursts were situated outside the FOV of the JEM-X telescope so only 243 bursts were detected in the standard 3-20 keV X-ray band. In principle this may give us a chance to perform spectral analysis for these bursts, but this work is still in progress.

The manual analysis of lightcurves from the IBIS/ISGRI detector revealed several X-ray bursts with statistical significance less than 3 standard deviations, yet well detectable on the corresponding

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Table 1: X-ray bursts detected by the IBIS/ISGRI telescope in the 15-25 keV energy range in 2003-2009.

#	Time	Source$^{\delta t/F^a}$	#	Time	Source$^{\delta t/F^a}$	#	Time	Source$^{\delta t/F^a}$	#	Time	Source$^{\delta t/F^a}$
	2003		64	Sep 8.82037	GX 354-0$^{5/2.2}$	127	Feb 17.19991	GX 354-0$^{7/3.5}$	191	May 1.95605	Aql X-1$^{10/1.9}$
1	Feb 28.32994	GX 354-0$^{13/3.1}$	65	Sep 9.13306	GX 354-0$^{6/2.6}$	128	Feb 17.61215	IGR J17380$^{c13/1.1}$	192	Aug 16.09451	4U 1702-429$^{5/1.0}$
2	Mar 1.00337	GX 354-0$^{11/3.1}$	66	Sep 9.41855	GX 354-0$^{11/1.9}$	129	Feb 19.87969	GX 354-0$^{6/1.9}$	193	Aug 21.88880	GX 354-0$^{5/1.6}$
3	Mar 1.67052	GX 354-0$^{8/2.9}$	67	Sep 9.68674	GX 354-0$^{7/1.3}$	130	Feb 20.08125	4U 1724-307$^{5/0.6}$	194	Aug 22.60964	GX 354-0$^{7/1.2}$
4	Mar 2.32110	GX 354-0$^{9/3.3}$	68	Sep 9.93222	GX 354-0$^{6/1.8}$	131	Feb 20.11391	GX 354-0$^{8/2.1}$	195	Aug 22.75145	GX 354-0$^{8/1.6}$
5	Mar 3.81052	4U 1636-536$^{6/1.1}$	69	Sep 10.70983	GX 354-0$^{4/2.3}$	132	Feb 20.31569	GX 354-0$^{5/1.9}$	196	Aug 22.98624	GX 354-0$^{13/0.7}$
6	Mar 4.80420	4U 1636-536$^{10/1.1}$	70	Sep 11.21144	GX 354-0$^{7/2.7}$	133	Feb 20.50028	GX 354-0$^{6/3.0}$	197	Aug 23.00824	4U 1724-307$^{6/0.8}$
7	Mar 9.91057	4U 1702-429$^{9/2.7}$	71	Sep 11.45683	GX 354-0$^{5/0.9}$	134	Feb 22.88642	GX 354-0$^{6/2.6}$	198	Aug 23.09454	GX 354-0$^{6/1.6}$
8	Mar 9.94103	4U 1608-522$^{7/3.1}$	72	Sep 11.91656	GX 354-0$^{5/2.4}$	135	Feb 27.36888	GX 354-0$^{4/2.2}$	199	Aug 23.42120	GX 354-0$^{6/1.4}$
9	Mar 11.25126	4U 1702-429$^{3/2.3}$	73	Sep 12.13362	GX 354-0$^{4/1.6}$	136	Feb 27.45503	GX 354-0$^{6/2.6}$	200	Aug 23.67521	GX 354-0$^{9/0.9}$
10	Mar 12.43225	GX 354-0$^{5/3.3}$	74	Sep 12.39075	GX 354-0$^{11/1.8}$	137	Feb 27.56432	GX 354-0$^{7/1.6}$	201	Aug 23.72499	SLX 1735-269$^{27/0.8}$
11	Mar 12.46601	4U 1702-429$^{6/1.9}$	75	Sep 12.62994	GX 354-0$^{6/1.9}$	138	Feb 27.64726	GX 354-0$^{6/2.1}$	202	Aug 23.91249	GX 354-0$^{7/1.6}$
12	Mar 13.57611	4U 1608-522$^{10/2.3}$	76	Sep 12.88613	GX 354-0$^{7/2.8}$	139	Feb 28.57413	GX 354-0$^{6/2.1}$	203	Aug 24.26698	GX 354-0$^{5/0.7}$
13	Mar 15.10972	4U 1702-429$^{8/2.3}$	77	Sep 13.69494	GX 354-0$^{9/0.9}$	140	Feb 28.70667	GX 354-0$^{5/1.8}$	204	Aug 24.54538	4U 1636-536$^{4/0.8}$
14	Mar 15.50108	GX 354-0$^{4/1.3}$	78	Sep 13.93656	GX 354-0$^{6/1.7}$	141	Mar 1.33455	GX 354-0$^{7/0.8}$	205	Aug 28.88685	4U 1702-429$^{7/1.4}$
15	Mar 15.65634	GX 354-0$^{7/1.3}$	79	Sep 14.62666	GX 354-0$^{5/1.3}$	142	Mar 2.19493	GX 354-0$^{5/1.4}$	206	Aug 30.66490	4U 1724-307$^{5/0.8}$
16	Mar 15.76584	4U 1702-429$^{4/1.5}$	80	Sep 14.87166	GX 354-0$^{8/1.8}$	143	Mar 2.24319	4U 1724-307$^{6/0.7}$	207	Sep 1.05719	GX 354-0$^{6/0.7}$
17	Mar 15.85887	GX 354-0$^{9/1.8}$	81	Sep 15.40297	GX 354-0$^{6/1.7}$	144	Mar 2.31573	GX 354-0$^{7/1.9}$	208	Sep 1.64238	GX 354-0$^{5/1.0}$
18	Mar 16.03722	GX 354-0$^{7/2.3}$	82	Sep 15.65913	GX 354-0$^{6/2.6}$	145	Mar 2.39275	GX 3+1$^{5/0.9}$	209	Sep 1.81022	GX 354-0$^{5/1.4}$
19	Mar 21.13435	GX 354-0$^{6/1.4}$	83	Sep 15.73837	SLX 1735-269$^{101/1.0}$	146	Mar 2.69263	GX 354-0$^{3/0.7}$	210	Sep 1.96687	GX 354-0$^{6/1.4}$
20	Mar 21.21152	GX 3+1$^{27/1.4}$	84	Sep 16.53400	GX 354-0$^{4/1.7}$	147	Mar 2.72517	4U 1724-307$^{9/0.8}$	211	Sep 2.14126	GX 354-0$^{7/2.1}$
21	Mar 21.65741	GX 354-0$^{5/2.4}$	85	Sep 16.59046	4U 1724-307$^{44/1.0}$	148	Mar 3.11889	GX 354-0$^{5/0.9}$	212	Sep 2.30302	GX 354-0$^{7/1.3}$
22	Mar 31.56782	GX 354-0$^{9/2.9}$	86	Sep 17.11309	GX 354-0$^{7/2.2}$	149	Mar 3.17708	4U 1724-307$^{9/1.2}$	213	Sep 2.77139	GX 354-0$^{5/1.1}$
23	Apr 3.36132	GX 354-0$^{6/3.3}$	87	Sep 17.37397	GX 354-0$^{7/2.4}$	150	Mar 3.23904	4U 1812-12$^{8/2.5}$	214	Sep 2.94285	GX 354-0$^{7/0.9}$
24	Apr 6.32102	Aql X-1$^{10/2.0}$	88	Sep 17.63356	GX 354-0$^{5/1.6}$	151	Mar 3.47359	GX 354-0$^{5/1.4}$	215	Sep 3.60590	GX 354-0$^{4/2.6}$
25	Apr 6.77257	4U 1724-307$^{12/1.3}$	89	Sep 18.44000	GX 354-0$^{8/2.1}$	152	Mar 3.63218	4U 1724-307$^{7/1.2}$	216	Sep 3.77749	GX 354-0$^{8/1.5}$
26	Apr 6.82325	GX 354-0$^{7/1.8}$	90	Sep 19.67512	GX 354-0$^{4/2.3}$	153	Mar 4.18317	4U 1724-307$^{8/1.0}$	217	Sep 3.83395	4U 1724-307$^{13/0.8}$
27	Apr 7.14341	GX 354-0$^{8/2.7}$	91	Sep 20.23649	GX 354-0$^{12/2.1}$	154	Mar 8.17691	GX 354-0$^{4/1.1}$	218	Sep 3.97063	GX 354-0$^{8/1.6}$
28	Apr 9.94193	Aql X-1$^{7/1.6}$	92	Sep 20.99101	GX 354-0$^{10/2.6}$	155	Mar 8.54659	GX 354-0$^{4/2.5}$	219	Sep 4.17719	GX 354-0$^{5/1.8}$
29	Apr 11.75924	4U 1636-536$^{11/0.7}$	93	Sep 22.73502	GX 354-0$^{5/2.4}$	156	Mar 9.04190	GX 354-0$^{8/0.9}$	220	Sep 4.37919	GX 354-0$^{4/2.5}$
30	Apr 14.84293	GX 354-0$^{5/0.8}$	94	Sep 23.09458	GX 354-0$^{6/2.0}$	157	Mar 9.32154	4U 1724-307$^{3/1.7}$	221	Sep 4.67999	GX 354-0$^{6/1.9}$
31	Apr 15.02109	GX 354-0$^{7/1.5}$	95	Sep 23.21647	SLX 1735-269$^{9/0.9}$	158	Mar 9.91117	KS 1741-293$^{7/1.4}$	222	Sep 4.99310	GX 354-0$^{3/2.4}$
32	Apr 15.28282	4U 1702-429$^{7/2.6}$	96	Sep 23.45390	GX 354-0$^{6/2.3}$	159	Mar 11.51999	3A 1850-087$^{8/1.6}$	223	Sep 7.45263	4U 1702-429$^{5/1.3}$
33	Apr 21.15042	4U 1812-12$^{14/3.5}$	97	Sep 23.76054	GX 354-0$^{7/2.2}$	160	Mar 12.92760	GX 354-0$^{6/1.1}$	224	Sep 7.46517	GX 354-0$^{4/1.4}$
34	Apr 22.10255	GX 354-0$^{5/1.4}$	98	Sep 23.96749	SLX 1735-269$^{8/0.7}$	161	Mar 14.52118	1A 1743-288$^{11/2.0}$	225	Sep 7.60225	GX 354-0$^{4/2.5}$
35	Apr 22.26042	GX 354-0$^{5/1.5}$	99	Sep 24.16125	GX 354-0$^{7/1.5}$	162	Mar 14.54631	GX 354-0$^{7/1.0}$	226	Sep 7.75343	GX 354-0$^{5/1.0}$
36	Apr 24.48027	GX 17+2$^{5/0.8}$	100	Sep 24.45935	GX 354-0$^{8/2.8}$	163	Mar 15.95197	GX 354-0$^{8/1.1}$	227	Sep 7.89639	GX 354-0$^{5/1.0}$
37	Apr 25.45444	4U 1812-12$^{10/3.3}$	101	Sep 24.58344	SAX J1712$^{b18/1.2}$	164	Mar 16.56646	GX 354-0$^{4/1.3}$	228	Sep 7.97912	4U 1724-307$^{9/0.8}$
38	Jun 16.83973	2S 0918-549$^{23/3.4}$	102	Sep 24.76413	GX 354-0$^{5/1.8}$	165	Mar 20.87465	4U 1608-522$^{13/3.9}$	229	Sep 8.07947	GX 354-0$^{7/1.5}$
39	Aug 9.27112	4U 1636-536$^{7/1.3}$	103	Sep 26.11035	4U 1608-522$^{14/3.5}$	166	Mar 21.04428	4U 1608-522$^{10/1.7}$	230	Sep 8.23568	GX 354-0$^{3/1.1}$
40	Aug 18.42025	4U 1702-429$^{7/1.7}$	104	Sep 26.64920	4U 1608-522$^{13/3.6}$	167	Mar 24.71076	Aql X-1$^{9/1.6}$	231	Sep 8.37525	GX 354-0$^{5/1.8}$
41	Aug 19.25397	4U 1702-429$^{7/1.6}$	105	Sep 27.16926	4U 1608-522$^{12/4.0}$	168	Mar 29.11163	GX 354-0$^{4/1.1}$	232	Sep 8.52892	GX 354-0$^{5/1.6}$
42	Aug 19.46014	GX 354-0$^{6/0.8}$	106	Sep 27.67274	4U 1812-12$^{17/3.3}$	169	Mar 29.47677	GX 354-0$^{4/1.2}$	233	Sep 8.65984	GX 354-0$^{8/2.7}$
43	Aug 19.95667	GX 354-0$^{3/1.5}$	107	Oct 2.22275	4U 1608-522$^{14/2.4}$	170	Mar 30.14274	GX 354-0$^{4/2.1}$	234	Sep 8.73850	4U 1702-429$^{5/0.7}$
44	Aug 23.67641	GX 354-0$^{4/0.8}$	108	Oct 3.08093	GX 354-0$^{15/2.6}$	171	Mar 30.15123	SLX 1744-299$^{22/0.8}$	235	Sep 10.04558	4U 1702-429$^{7/0.8}$
45	Aug 23.87957	GX 354-0$^{6/1.0}$	109	Oct 3.79734	GX 354-0$^{5/2.0}$	172	Mar 30.15538	KS 1741-293$^{7/0.8}$	236	Sep 11.17840	4U 1636-536$^{8/1.2}$
46	Aug 24.93106	GX 354-0$^{5/1.4}$	110	Oct 4.47390	GX 354-0$^{4/1.8}$	173	Mar 30.44325	KS 1741-293$^{7/0.9}$	237	Sep 14.84625	GX 354-0$^{4/1.5}$
47	Aug 25.78175	SAX J1712$^{b14/1.6}$	111	Oct 4.67227	GX 354-0$^{5/2.5}$	174	Mar 30.77493	GX 354-0$^{6/1.9}$	238	Sep 15.00088	GX 354-0$^{2/1.1}$
48	Aug 27.06859	4U 1724-307$^{4/1.3}$	112	Oct 4.92132	GX 354-0$^{8/1.3}$	175	Mar 31.13123	GX 354-0$^{6/0.8}$	239	Sep 15.53902	GX 354-0$^{4/1.2}$
49	Aug 27.83280	GX 354-0$^{7/0.9}$	113	Oct 5.39910	GX 354-0$^{6/2.3}$	176	Mar 31.43572	GX 354-0$^{5/1.2}$	240	Sep 17.86605	4U 1812-12$^{13/1.8}$
50	Aug 28.05838	GX 354-0$^{7/1.1}$	114	Oct 6.56242	GX 354-0$^{6/1.2}$	177	Apr 1.98394	GX 354-0$^{5/0.9}$	241	Sep 19.50037	GX 354-0$^{4/0.7}$
51	Aug 28.25104	GX 354-0$^{6/1.0}$	115	Oct 7.68753	GX 354-0$^{7/0.8}$	178	Apr 2.07060	GX 354-0$^{3/0.8}$	242	Sep 19.60965	GX 354-0$^{3/0.9}$
52	Aug 29.60520	GX 354-0$^{5/1.7}$	116	Oct 7.91182	GX 354-0$^{4/1.5}$	179	Apr 2.30529	GX 354-0$^{4/1.2}$	243	Sep 21.96418	GX 354-0$^{6/0.8}$
53	Aug 29.80808	GX 354-0$^{5/1.2}$	117	Oct 8.09153	GX 354-0$^{6/1.3}$	180	Apr 8.34214	GX 354-0$^{4/1.0}$	244	Sep 22.73419	GX 354-0$^{4/0.9}$
54	Aug 30.18797	GX 354-0$^{5/0.9}$	118	Oct 8.26181	GX 354-0$^{5/1.5}$	181	Apr 8.62988	GX 354-0$^{6/2.3}$	245	Sep 22.89787	GX 354-0$^{5/0.7}$
55	Aug 31.66270	GX 354-0$^{7/0.9}$	119	Oct 8.41572	GX 354-0$^{5/1.3}$	182	Apr 8.78947	GX 354-0$^{6/1.4}$	246	Sep 23.02172	GX 354-0$^{7/0.5}$
56	Sep 3.14345	GX 354-0$^{5/1.4}$	120	Oct 8.57534	GX 354-0$^{7/1.7}$	183	Apr 13.47522	GX 354-0$^{6/2.7}$	247	Sep 23.17419	GX 354-0$^{4/1.1}$
57	Sep 3.36079	GX 354-0$^{6/1.6}$	121	Oct 8.74529	GX 354-0$^{5/2.2}$	184	Apr 14.02149	GX 354-0$^{7/1.2}$	248	Sep 23.31770	GX 354-0$^{7/0.9}$
58	Sep 3.75184	GX 354-0$^{6/1.1}$	122	Oct 8.93979	GX 354-0$^{3/1.6}$	185	Apr 14.35212	GX 354-0$^{4/1.7}$	249	Sep 23.39726	4U 1724-307$^{10/0.8}$
59	Sep 4.76612	GX 17+2$^{5/0.7}$	123	Oct 9.33531	4U 1724-307$^{15/1.2}$	186	Apr 19.80485	GX 354-0$^{7/1.8}$	250	Sep 23.45913	GX 354-0$^{5/1.5}$
60	Sep 6.01648	4U 1812-12$^{10/3.2}$	124	Oct 10.70194	SLX 1744-299$^{5/1.2}$	187	Apr 20.12966	GX 354-0$^{8/1.9}$	251	Sep 23.86362	GX 354-0$^{5/1.3}$
61	Sep 7.85425	GX 354-0$^{5/1.1}$	125	Oct 18.00852	4U 1812-12$^{18/2.8}$	188	Apr 20.72501	XB 1832-330$^{11/0.8}$	252	Sep 30.49123	GX 354-0$^{6/1.3}$
62	Sep 8.57054	GX 354-0$^{5/1.8}$		**2004**		189	Apr 28.32970	Aql X-1$^{7/1.2}$	253	Sep 30.62112	GX 354-0$^{6/2.0}$
63	Sep 8.78367	4U 1724-307$^{44/1.2}$	126	Feb 16.94463	GX 354-0$^{6/2.1}$	190	Apr 29.90811	3A 1850-087$^{10/1.5}$	254	Oct 1.13295	GX 354-0$^{5/1.6}$

Table 2: X-ray bursts detected by the IBIS/ISGRI telescope in the 15-25 keV energy range in 2003-2009.

#	Time	Source$^{\delta t/F^a}$	#	Time	Source$^{\delta t/F^a}$	#	Time	Source$^{\delta t/F^a}$	#	Time	Source$^{\delta t/F^a}$
255	Oct 1.28706	GX 354-0$^{6/2.2}$	318	Mar 4.55139	4U 1608-522$^{9/2.8}$	382	Apr 17.57600	GX 354-0$^{5/1.0}$	446	Oct 7.46564	GX 354-0$^{6/1.1}$
256	Oct 1.31781	4U 1724-307$^{6/0.9}$	319	Mar 5.94267	4U 1608-522$^{17/2.6}$	383	Apr 17.75966	GX 354-0$^{6/1.9}$	447	Oct 7.64552	GX 354-0$^{5/1.5}$
257	Oct 1.60317	GX 354-0$^{5/2.1}$	320	Mar 6.05965	4U 1636-536$^{7/1.0}$	384	Apr 17.90194	GX 354-0$^{4/1.3}$	448	Oct 7.94231	GX 354-0$^{4/0.8}$
258	Oct 1.92470	GX 354-0$^{4/2.0}$	321	Mar 6.52148	4U 1608-522$^{9/3.8}$	385	Apr 19.67782	4U 1724-307$^{13/2.4}$	449	Oct 9.71155	4U 1812-12$^{6/3.0}$
259	Oct 2.08262	GX 354-0$^{7/2.4}$	322	Mar 6.95546	4U 1608-522$^{15/5.3}$	386	Apr 19.70581	GX 354-0$^{5/0.7}$	450	Oct 12.46123	1A 1743-288$^{7/0.9}$
260	Oct 2.24948	GX 354-0$^{6/2.1}$	323	Mar 8.33102	4U 1608-522$^{14/5.6}$	387	Apr 20.02684	GX 354-0$^{7/2.1}$	451	Oct 15.64469	4U 1608-522$^{7/2.9}$
261	Oct 2.42512	GX 354-0$^{6/1.4}$	324	Mar 8.95139	4U 1608-522$^{15/3.4}$	388	Apr 21.03378	GX 354-0$^{5/2.1}$	452	Oct 25.85022	4U 1812-12$^{20/3.5}$
262	Oct 2.59451	GX 354-0$^{5/2.5}$	325	Mar 9.58920	4U 1608-522$^{11/4.2}$	389	Apr 21.15072	4U 1724-307$^{7/1.5}$	453	Oct 26.64425	GX 354-0$^{5/1.4}$
263	Oct 2.76942	GX 354-0$^{5/1.6}$	326	Mar 9.80399	4U 1636-536$^{10/2.6}$	390	Apr 28.25044	4U 1812-12$^{12/5.0}$	454	Nov 9.02796	2S 0918-549$^{5/1.1}$
264	Oct 2.90983	GX 354-0$^{8/2.5}$	327	Mar 15.20450	4U 1724-307$^{8/1.6}$	391	Jun 27.46313	3A 1246-588$^{25/3.0}$		**2006**	
265	Oct 4.13598	4U 1812-12$^{16/3.3}$	328	Mar 15.24972	GX 354-0$^{5/1.6}$	392	Aug 11.58782	4U 1812-12$^{6/3.4}$	455	Feb 14.93834	GX 354-0$^{5/0.8}$
266	Oct 4.37657	GX 354-0$^{9/1.3}$	329	Mar 17.34481	GX 354-0$^{6/1.0}$	393	Aug 12.69961	GX 354-0$^{6/0.9}$	456	Feb 16.91250	XB 1832-330$^{7/1.4}$
267	Oct 4.52059	GX 354-0$^{6/1.8}$	330	Mar 17.89240	GX 354-0$^{8/1.7}$	394	Aug 12.92359	4U 1608-522$^{5/3.0}$	457	Feb 18.15795	GX 354-0$^{7/1.7}$
268	Oct 4.63104	GX 354-0$^{4/1.5}$	331	Mar 18.03736	GX 354-0$^{6/1.9}$	395	Aug 17.12953	GX 354-0$^{5/1.8}$	458	Feb 18.39065	GX 354-0$^{7/1.2}$
269	Oct 4.74056	GX 354-0$^{4/2.8}$	332	Mar 18.88670	4U 1724-307$^{5/1.3}$	396	Aug 17.37184	4U 1608-522$^{4/2.6}$	459	Feb 18.58038	GX 354-0$^{5/1.7}$
270	Oct 4.98751	GX 354-0$^{4/1.7}$	333	Mar 18.96700	GX 354-0$^{6/3.1}$	397	Aug 25.68031	GX 354-0$^{6/1.4}$	460	Feb 19.50265	GX 354-0$^{3/1.0}$
271	Oct 5.20637	GX 354-0$^{6/2.7}$	334	Mar 20.00623	GX 354-0$^{4/1.5}$	398	Aug 25.89470	4U 1636-536$^{7/0.7}$	461	Feb 19.83166	GX 354-0$^{7/1.5}$
272	Oct 5.32293	GX 354-0$^{5/1.5}$	335	Mar 20.30259	4U 1724-307$^{5/1.8}$	399	Aug 26.29693	4U 1702-429$^{5/1.8}$	462	Feb 20.89456	GX 354-0$^{4/1.4}$
273	Oct 5.41552	GX 354-0$^{4/2.6}$	336	Mar 20.37237	GX 354-0$^{4/1.6}$	400	Aug 26.45237	4U 1608-522$^{14/4.2}$	463	Feb 20.98247	GX 354-0$^{6/0.7}$
274	Oct 5.50881	GX 354-0$^{5/2.4}$	337	Mar 20.81814	GX 354-0$^{6/2.6}$	401	Aug 27.48198	4U 1608-522$^{17/3.3}$	464	Feb 24.41230	4U 1724-307$^{3/2.1}$
275	Oct 5.61649	GX 354-0$^{7/1.4}$	338	Mar 20.84273	4U 1724-307$^{8/1.7}$	402	Aug 28.55852	GX 354-0$^{4/3.0}$	465	Feb 25.41543	GX 354-0$^{5/1.6}$
276	Oct 5.71613	GX 354-0$^{4/1.3}$	339	Mar 20.97800	GX 354-0$^{7/2.1}$	403	Aug 28.90257	GX 354-0$^{6/2.1}$	466	Feb 25.71772	GX 354-0$^{4/1.7}$
277	Oct 5.90140	GX 354-0$^{5/2.2}$	340	Mar 21.15336	GX 354-0$^{4/2.2}$	404	Aug 29.35388	GX 354-0$^{7/1.7}$	467	Feb 28.80182	GX 354-0$^{6/1.4}$
278	Oct 9.50992	GX 354-0$^{4/2.0}$	341	Mar 21.38184	4U 1724-307$^{9/1.1}$	405	Aug 29.44397	4U 1608-522$^{12/3.3}$	468	Mar 2.89631	GX 354-0$^{4/1.1}$
279	Oct 11.54111	GX 354-0$^{6/2.3}$	342	Mar 21.79590	SAX J1712$^{b\,17/2.2}$	406	Aug 29.57470	4U 1636-536$^{8/0.7}$	469	Mar 3.02529	GX 354-0$^{5/1.1}$
280	Oct 11.96586	GX 354-0$^{4/2.1}$	343	Mar 22.05876	GX 354-0$^{6/2.7}$	407	Aug 30.26516	4U 1702-429$^{9/2.4}$	470	Mar 3.64709	4U 1812-12$^{4/3.5}$
281	Oct 12.82149	GX 354-0$^{4/1.9}$	344	Mar 22.99983	GX 354-0$^{6/2.4}$	408	Aug 30.50738	GX 354-0$^{6/3.2}$	471	Mar 4.22095	GX 354-0$^{6/1.4}$
282	Oct 16.00078	GX 354-0$^{4/1.1}$	345	Mar 23.48927	GX 354-0$^{6/1.3}$	409	Aug 30.69831	4U 1702-429$^{6/1.0}$	472	Mar 4.27218	4U 1724-307$^{6/1.0}$
283	Oct 16.31061	GX 354-0$^{4/1.0}$	346	Mar 23.70220	GX 354-0$^{4/2.0}$	410	Sep 4.21410	4U 1636-536$^{6/0.8}$	473	Mar 4.34631	GX 354-0$^{6/1.1}$
284	Oct 17.45757	GX 354-0$^{7/0.8}$	347	Mar 24.65220	GX 354-0$^{5/1.8}$	411	Sep 4.70041	4U 1636-536$^{4/1.2}$	474	Mar 6.20780	GX 354-0$^{4/1.9}$
285	Oct 17.59061	GX 354-0$^{5/0.7}$	348	Mar 24.88498	GX 354-0$^{6/2.6}$	412	Sep 4.89499	4U 1608-522$^{6/2.3}$	475	Mar 6.34253	GX 354-0$^{4/2.4}$
286	Oct 19.89889	GX 354-0$^{3/0.9}$	349	Mar 25.09917	GX 354-0$^{5/2.5}$	413	Sep 5.85539	4U 1724-307$^{15/2.2}$	476	Mar 6.48028	GX 354-0$^{6/1.5}$
287	Oct 20.27584	GX 354-0$^{6/0.8}$	350	Mar 25.25861	GX 354-0$^{4/3.0}$	414	Sep 7.52523	4U 1636-536$^{7/1.1}$	477	Mar 6.64554	GX 354-0$^{7/1.7}$
288	Oct 20.48316	GX 354-0$^{6/1.0}$	351	Mar 25.99409	GX 354-0$^{5/2.2}$	415	Sep 18.86241	GX 354-0$^{6/2.5}$	478	Mar 6.81705	GX 354-0$^{5/1.6}$
	2005		352	Mar 26.16729	GX 354-0$^{5/1.9}$	416	Sep 19.52906	GX 354-0$^{5/1.8}$	479	Mar 8.18552	GX 354-0$^{6/2.1}$
289	Feb 6.79707	4U 1636-536$^{5/1.1}$	353	Mar 26.37870	GX 354-0$^{8/3.3}$	417	Sep 19.62778	4U 1724-307$^{9/1.1}$	480	Mar 8.94843	GX 354-0$^{5/2.3}$
290	Feb 7.27337	4U 1702-429$^{6/1.7}$	354	Mar 27.36503	GX 354-0$^{6/2.0}$	418	Sep 19.63869	KS 1741-293$^{3/1.6}$	481	Mar 9.10529	GX 354-0$^{4/2.4}$
291	Feb 14.49324	4U 1702-429$^{9/1.3}$	355	Mar 27.49241	4U 1702-429$^{9/1.9}$	419	Sep 19.67499	GX 354-0$^{5/1.9}$	482	Mar 9.38468	GX 354-0$^{4/2.9}$
292	Feb 16.24782	GX 354-0$^{4/3.1}$	356	Mar 27.64102	GX 354-0$^{5/2.6}$	420	Sep 20.60427	GX 354-0$^{7/2.2}$	483	Mar 9.52313	GX 354-0$^{6/2.0}$
293	Feb 16.39537	GX 354-0$^{5/2.5}$	357	Mar 27.83860	4U 1702-429$^{17/1.0}$	421	Sep 20.85595	4U 1724-307$^{7/1.5}$	484	Mar 9.67598	GX 354-0$^{5/1.5}$
294	Feb 16.57978	GX 354-0$^{6/3.9}$	358	Mar 28.07435	GX 354-0$^{6/1.8}$	422	Sep 22.36052	XB 1832-330$^{10/0.7}$	485	Mar 9.81978	GX 354-0$^{5/1.9}$
295	Feb 16.72207	GX 354-0$^{8/2.8}$	359	Mar 31.30079	H 0614+091$^{11/7.4}$	423	Sep 23.12988	GX 354-0$^{6/1.5}$	486	Mar 9.94637	GX 354-0$^{8/2.6}$
296	Feb 16.82600	4U 1724-307$^{9/0.9}$	360	Apr 2.14510	GX 354-0$^{4/1.1}$	424	Sep 23.28286	GX 354-0$^{9/1.7}$	487	Mar 10.22729	GX 354-0$^{6/2.6}$
297	Feb 16.86184	GX 354-0$^{5/2.1}$	361	Apr 4.05381	GX 354-0$^{4/1.2}$	425	Sep 23.44171	GX 354-0$^{6/2.4}$	488	Mar 10.33303	1A 1743-288$^{8/1.2}$
298	Feb 17.14962	GX 354-0$^{4/2.4}$	362	Apr 4.20545	4U 1702-429$^{6/3.2}$	426	Sep 24.85078	GX 354-0$^{7/1.7}$	489	Mar 10.87576	GX 354-0$^{6/1.2}$
299	Feb 17.29080	GX 354-0$^{6/2.1}$	363	Apr 6.20405	4U 1636-536$^{8/1.2}$	427	Sep 25.51096	GX 354-0$^{5/0.9}$	490	Mar 12.16110	1A 1743-288$^{7/0.8}$
300	Feb 17.45230	GX 354-0$^{4/2.4}$	364	Apr 6.37285	4U 1702-429$^{15/1.8}$	428	Sep 25.62209	GX 354-0$^{5/1.3}$	491	Mar 14.12279	1A 1743-288$^{6/0.9}$
301	Feb 18.64995	4U 1702-429$^{8/2.3}$	365	Apr 7.42135	GX 354-0$^{4/1.0}$	429	Sep 26.85381	GX 354-0$^{4/1.3}$	492	Mar 14.24740	GX 354-0$^{4/1.3}$
302	Feb 19.10154	4U 1702-429$^{8/2.3}$	366	Apr 8.25300	4U 1702-429$^{17/1.9}$	430	Sep 29.05125	GX 354-0$^{5/1.3}$	493	Mar 14.86765	GX 354-0$^{7/1.5}$
303	Feb 19.12567	4U 1636-536$^{6/1.1}$	367	Apr 8.72740	4U 1636-536$^{5/1.4}$	431	Sep 29.18831	4U 1724-307$^{4/0.8}$	494	Mar 15.08088	GX 354-0$^{4/1.4}$
304	Feb 19.60236	4U 1702-429$^{6/2.7}$	368	Apr 9.33196	GX 354-0$^{6/1.9}$	432	Sep 29.43228	GX 354-0$^{4/1.4}$	495	Mar 23.60730	GX 354-0$^{5/1.3}$
305	Feb 19.65199	4U 1636-536$^{5/1.2}$	369	Apr 10.12573	4U 1702-429$^{9/2.8}$	433	Oct 1.18756	4U 1724-307$^{5/1.1}$	496	Mar 25.79014	GX 354-0$^{6/2.0}$
306	Feb 21.42105	GX 354-0$^{4/1.4}$	370	Apr 10.32111	GX 354-0$^{9/1.0}$	434	Oct 1.91075	GX 354-0$^{11/1.5}$	497	Mar 26.19435	GX 354-0$^{6/1.9}$
307	Feb 21.78507	4U 1636-536$^{3/1.2}$	371	Apr 11.03066	GX 354-0$^{4/1.3}$	435	Oct 2.06775	GX 354-0$^{11/1.5}$	498	Mar 26.34499	GX 354-0$^{4/1.8}$
308	Feb 22.52300	4U 1702-429$^{6/3.6}$	372	Apr 11.34444	SLX 1737-282$^{230/1.6}$	436	Oct 2.09316	4U 1724-307$^{5/1.4}$	499	Mar 26.68338	GX 354-0$^{5/2.1}$
309	Feb 22.57569	4U 1636-536$^{9/1.2}$	373	Apr 11.66178	GX 354-0$^{8/2.1}$	437	Oct 2.23190	GX 354-0$^{5/1.8}$	500	Mar 27.05199	GX 354-0$^{9/1.9}$
310	Feb 22.95903	4U 1636-536$^{5/1.4}$	374	Apr 14.27325	GX 354-0$^{3/1.1}$	438	Oct 2.38448	GX 354-0$^{7/0.8}$	501	Mar 27.23087	GX 354-0$^{6/2.4}$
311	Feb 24.45561	4U 1702-429$^{7/1.0}$	375	Apr 14.71081	GX 354-0$^{5/1.4}$	439	Oct 4.15946	4U 1724-307$^{7/1.1}$	502	Mar 27.38312	GX 354-0$^{6/0.7}$
312	Feb 24.84869	4U 1702-429$^{10/1.2}$	376	Apr 14.90975	4U 1724-307$^{9/1.9}$	440	Oct 6.38223	4U 1724-307$^{7/0.9}$	503	Mar 27.39259	1A 1743-288$^{7/1.4}$
313	Feb 25.20411	4U 1702-429$^{6/1.6}$	377	Apr 16.29328	GX 354-0$^{6/0.7}$	441	Oct 6.57362	GX 354-0$^{10/1.5}$	504	Mar 27.54622	GX 354-0$^{5/3.0}$
314	Feb 25.58235	4U 1702-429$^{6/1.8}$	378	Apr 16.71932	GX 354-0$^{4/1.7}$	442	Oct 6.76226	GX 354-0$^{7/1.5}$	505	Mar 27.69937	GX 354-0$^{5/2.0}$
315	Feb 26.43791	4U 1702-429$^{9/3.1}$	379	Apr 16.92435	AX J1754.2$^{d\,46/1.2}$	443	Oct 6.94855	GX 354-0$^{9/1.4}$	506	Mar 27.87420	GX 354-0$^{6/1.5}$
316	Feb 27.67270	4U 1702-429$^{10/1.9}$	380	Apr 16.92898	4U 1724-307$^{9/1.4}$	444	Oct 7.12789	GX 354-0$^{5/1.6}$	507	Mar 28.02593	GX 354-0$^{7/2.6}$
317	Mar 3.82380	4U 1608-522$^{11/4.0}$	381	Apr 17.48009	GX 354-0$^{6/1.1}$	445	Oct 7.15448	4U 1724-307$^{8/1.1}$	508	Mar 28.16992	GX 354-0$^{5/1.9}$

Table 3: X-ray bursts detected by the IBIS/ISGRI telescope in the 15-25 keV energy range in 2003-2009.

#	Time	Source$^{\delta t/F^a}$	#	Time	Source$^{\delta t/F^a}$	#	Time	Source$^{\delta t/F^a}$	#	Time	Source$^{\delta t/F^a}$
509	Mar 28.30883	GX 354-0$^{7/1.9}$	573	Aug 30.49650	GX 354-0$^{4/2.5}$	637	Oct 3.64841	GX 354-0$^{4/1.1}$	700	Apr 2.15383	GX 354-0$^{7/0.8}$
510	Apr 1.15138	GX 354-0$^{6/1.2}$	574	Aug 30.62875	GX 354-0$^{4/1.7}$	638	Oct 5.11174	GX 354-0$^{5/0.8}$	701	Apr 2.24900	SLX 1737-282$^{200/1.4}$
511	Apr 3.81205	GX 354-0$^{6/1.4}$	575	Aug 31.20118	GX 354-0$^{6/3.4}$	639	Oct 17.12191	GX 354-0$^{4/2.8}$	702	Apr 2.77090	GX 354-0$^{5/0.9}$
512	Apr 4.06792	4U 1724-307$^{8/1.2}$	576	Sep 3.78056	4U 1812-12$^{17/3.4}$		**2007**		703	Apr 4.35556	GX 354-0$^{8/1.3}$
513	Apr 4.21806	GX 354-0$^{4/1.5}$	577	Sep 4.55081	GX 354-0$^{4/1.4}$	640	Jan 31.33458	4U 1702-429$^{6/1.7}$	704	Apr 12.56955	GX 354-0$^{6/2.0}$
514	Apr 4.73549	GX 354-0$^{6/1.2}$	578	Sep 4.71833	GX 354-0$^{4/2.5}$	641	Feb 1.22624	4U 1702-429$^{7/1.9}$	705	Aug 19.20929	SAX J1810$^{e5/1.6}$
515	Apr 4.88863	4U 1724-307$^{4/1.0}$	579	Sep 4.85507	GX 354-0$^{4/1.8}$	642	Feb 15.80740	4U 1724-307$^{12/1.3}$	706	Aug 24.42512	4U 1812-12$^{28/1.8}$
516	Apr 5.11566	GX 354-0$^{5/2.0}$	580	Sep 4.97245	GX 354-0$^{5/1.4}$	643	Feb 15.83472	GX 354-0$^{4/2.5}$	707	Aug 27.48400	GX 354-0$^{7/1.3}$
517	Apr 5.20463	GX 354-0$^{7/1.6}$	581	Sep 5.10675	GX 354-0$^{6/1.6}$	644	Feb 15.92481	GX 354-0$^{6/2.6}$	708	Aug 28.15122	GX 354-0$^{4/2.2}$
518	Apr 5.56279	GX 354-0$^{5/1.4}$	582	Sep 5.24973	GX 354-0$^{6/1.7}$	645	Feb 18.10461	4U 1702-429$^{10/2.0}$	709	Aug 28.88547	GX 354-0$^{4/2.0}$
519	Apr 5.81956	4U 1724-307$^{7/0.9}$	583	Sep 5.61337	GX 354-0$^{8/3.0}$	646	Feb 18.59244	4U 1702-429$^{6/2.1}$	710	Aug 29.53885	GX 354-0$^{4/1.6}$
520	Apr 5.89032	GX 354-0$^{4/1.1}$	584	Sep 6.51091	GX 354-0$^{5/1.3}$	647	Feb 19.18225	4U 1702-429$^{7/1.6}$	711	Aug 29.73396	GX 354-0$^{5/0.7}$
521	Apr 7.52313	GX 354-0$^{7/0.8}$	585	Sep 6.92483	GX 354-0$^{4/1.0}$	648	Feb 27.44191	GX 354-0$^{4/1.7}$	712	Aug 29.94657	GX 354-0$^{5/1.9}$
522	Apr 8.27196	GX 354-0$^{5/2.0}$	586	Sep 7.23216	GX 354-0$^{4/2.2}$	649	Feb 27.90705	4U 1812-12$^{17/2.6}$	713	Aug 30.18226	GX 354-0$^{5/2.1}$
523	Apr 8.59797	GX 354-0$^{4/0.8}$	587	Sep 7.37579	GX 354-0$^{5/2.4}$	650	Feb 28.37293	GX 354-0$^{6/1.4}$	714	Aug 31.14920	4U 1724-307$^{8/0.7}$
524	Apr 10.07944	XB 1832-330$^{7/1.1}$	588	Sep 7.79648	GX 354-0$^{5/1.7}$	651	Feb 28.58138	GX 354-0$^{7/2.1}$	715	Aug 31.19021	GX 354-0$^{5/0.9}$
525	Apr 10.55303	GX 354-0$^{5/1.0}$	589	Sep 8.06065	GX 354-0$^{6/1.5}$	652	Feb 28.78042	GX 354-0$^{7/2.0}$	716	Sep 1.47185	SAX J1810$^{e8/2.6}$
526	Apr 10.84956	GX 354-0$^{6/1.4}$	590	Sep 8.43045	GX 354-0$^{6/1.5}$	653	Feb 28.99317	GX 354-0$^{3/1.8}$	717	Sep 9.61692	GX 354-0$^{4/1.2}$
527	Apr 10.95185	GX 354-0$^{5/1.1}$	591	Sep 9.11844	GX 354-0$^{4/2.4}$	654	Mar 1.13497	4U 1702-429$^{8/1.7}$	718	Sep 10.63593	GX 354-0$^{7/3.1}$
528	Apr 11.20318	4U 1724-307$^{6/0.9}$	592	Sep 9.46955	GX 354-0$^{6/1.1}$	655	Mar 1.59529	GX 354-0$^{6/1.6}$	719	Sep 10.88616	GX 354-0$^{6/1.6}$
529	Apr 11.49005	GX 354-0$^{5/1.3}$	593	Sep 9.52387	4U 1724-307$^{14/1.1}$	656	Mar 1.75788	GX 354-0$^{6/1.9}$	720	Sep 11.51619	GX 354-0$^{5/1.5}$
530	Apr 11.74716	GX 354-0$^{5/1.3}$	594	Sep 9.59251	GX 354-0$^{8/1.4}$	657	Mar 1.91089	GX 354-0$^{5/2.4}$	721	Sep 12.16646	GX 354-0$^{6/2.4}$
531	Apr 12.71479	GX 354-0$^{6/2.1}$	595	Sep 12.47226	GX 354-0$^{4/2.0}$	658	Mar 2.07708	GX 354-0$^{5/2.0}$	722	Sep 12.45285	GX 354-0$^{7/3.1}$
532	Apr 13.04207	GX 354-0$^{6/1.0}$	596	Sep 13.59584	GX 354-0$^{6/2.4}$	659	Mar 2.18448	4U 1702-429$^{7/2.9}$	723	Sep 13.15847	GX 354-0$^{6/2.0}$
533	Apr 13.15161	GX 354-0$^{6/0.8}$	597	Sep 13.76587	GX 354-0$^{6/2.5}$	660	Mar 2.27244	GX 354-0$^{9/2.5}$	724	Sep 13.38271	GX 354-0$^{4/1.4}$
534	Apr 13.40162	4U 1724-307$^{11/1.0}$	598	Sep 13.96916	GX 354-0$^{5/1.8}$	661	Mar 2.43212	GX 354-0$^{4/1.1}$	725	Sep 13.64028	GX 354-0$^{6/1.7}$
535	Apr 13.42983	GX 354-0$^{8/1.6}$	599	Sep 14.13339	GX 354-0$^{7/1.5}$	662	Mar 3.86067	GX 354-0$^{9/2.7}$	726	Sep 14.12581	GX 354-0$^{6/1.4}$
536	Apr 13.56368	GX 354-0$^{5/1.2}$	600	Sep 15.37828	GX 354-0$^{5/2.1}$	663	Mar 4.09067	GX 354-0$^{9/3.0}$	727	Sep 15.09432	SAX J1810$^{e11/1.8}$
537	Apr 13.71803	GX 354-0$^{4/0.9}$	601	Sep 15.83309	GX 354-0$^{6/1.9}$	664	Mar 4.87584	4U 1702-429$^{8/2.2}$	728	Sep 15.18228	GX 354-0$^{5/1.4}$
538	Apr 13.94462	GX 354-0$^{8/1.1}$	602	Sep 15.96280	GX 354-0$^{4/2.2}$	665	Mar 5.49545	4U 1702-429$^{7/1.4}$	729	Sep 15.97255	SAX J1810$^{e10/2.2}$
539	Apr 14.31703	GX 354-0$^{4/2.4}$	603	Sep 16.27881	GX 354-0$^{5/3.2}$	666	Mar 6.09343	4U 1702-429$^{7/2.0}$	730	Sep 16.03082	GX 354-0$^{8/1.6}$
540	Apr 14.76248	1A 1743-288$^{4/1.6}$	604	Sep 16.45326	GX 354-0$^{4/2.5}$	667	Mar 6.76431	GX 354-0$^{7/1.8}$	731	Sep 16.25043	GX 354-0$^{4/1.9}$
541	Apr 15.66900	GX 354-0$^{3/0.9}$	605	Sep 16.59231	GX 354-0$^{6/3.0}$	668	Mar 7.65411	GX 354-0$^{8/3.6}$	732	Sep 16.66273	SAX J1810$^{e4/1.8}$
542	Apr 15.75833	4U 1724-307$^{8/1.2}$	606	Sep 16.88648	GX 354-0$^{6/2.1}$	669	Mar 8.02162	GX 354-0$^{4/3.4}$	733	Sep 16.66451	GX 354-0$^{5/2.4}$
543	Apr 15.78678	GX 354-0$^{8/1.2}$	607	Sep 17.41647	GX 354-0$^{4/1.5}$	670	Mar 8.39041	GX 354-0$^{4/2.9}$	734	Sep 16.90650	GX 354-0$^{6/1.6}$
544	Apr 16.46579	GX 354-0$^{6/1.2}$	608	Sep 17.56862	GX 354-0$^{5/2.9}$	671	Mar 8.70664	GX 354-0$^{6/2.5}$	735	Sep 17.13939	GX 354-0$^{6/3.0}$
545	Apr 16.67411	GX 354-0$^{13/1.1}$	609	Sep 18.36767	GX 354-0$^{10/2.5}$	672	Mar 8.85852	GX 354-0$^{5/3.7}$	736	Sep 17.24557	SAX J1810$^{e11/2.4}$
546	Apr 16.96860	GX 354-0$^{8/1.2}$	610	Sep 18.50299	GX 354-0$^{4/3.2}$	673	Mar 8.89833	4U 1702-429$^{7/2.7}$	737	Sep 20.14677	4U 1812-12$^{15/2.5}$
547	Apr 17.12730	GX 354-0$^{4/1.4}$	611	Sep 18.66197	GX 354-0$^{5/3.0}$	674	Mar 9.13527	GX 354-0$^{6/2.4}$	738	Sep 22.38260	4U 1812-12$^{15/3.0}$
548	Apr 17.39197	GX 354-0$^{7/1.1}$	612	Sep 18.77786	GX 354-0$^{5/1.8}$	675	Mar 9.29167	GX 354-0$^{5/2.7}$	739	Sep 24.07093	SAX J1810$^{e13/1.4}$
549	Apr 19.64799	4U 1812-12$^{18/3.2}$	613	Sep 18.87347	4U 1724-307$^{6/1.3}$	676	Mar 9.43788	GX 354-0$^{5/1.9}$	740	Sep 24.12275	GX 354-0$^{5/1.7}$
550	Apr 21.10010	GX 354-0$^{6/3.4}$	614	Sep 18.92693	GX 354-0$^{7/2.2}$	677	Mar 9.58961	GX 354-0$^{6/3.1}$	741	Sep 24.59876	GX 354-0$^{4/1.1}$
551	Apr 25.87170	4U 1812-12$^{18/3.3}$	615	Sep 18.99302	SLX 1737-282$^{370/1.4}$	678	Mar 9.71971	GX 354-0$^{6/3.5}$	742	Sep 24.62985	SAX J1810$^{e5/0.9}$
552	May 19.88958	2S 0918-549$^{9/3.1}$	616	Sep 20.01508	GX 354-0$^{3/3.4}$	679	Mar 9.85433	GX 354-0$^{5/2.5}$	743	Sep 24.82852	SAX J1810$^{e7/1.0}$
553	Aug 14.71275	4U 1702-429$^{13/1.5}$	617	Sep 20.14553	GX 354-0$^{5/2.1}$	680	Mar 9.96073	4U 1702-429$^{8/1.9}$	744	Sep 25.17578	GX 354-0$^{6/2.4}$
554	Aug 16.30230	4U 1724-307$^{6/1.1}$	618	Sep 20.26706	GX 354-0$^{4/2.5}$	681	Mar 9.98800	GX 354-0$^{5/2.0}$	745	Sep 25.55712	GX 354-0$^{6/3.5}$
555	Aug 19.19355	GX 354-0$^{5/1.2}$	619	Sep 20.38528	GX 354-0$^{4/2.4}$	682	Mar 10.12791	GX 354-0$^{7/2.4}$	746	Sep 25.90204	GX 354-0$^{9/0.8}$
556	Aug 25.95803	GX 354-0$^{5/1.8}$	620	Sep 20.51389	GX 354-0$^{11/2.2}$	683	Mar 13.64028	GX 354-0$^{5/3.4}$	747	Sep 25.92625	1A 1743-288$^{8/2.2}$
557	Aug 26.11714	GX 354-0$^{4/2.3}$	621	Sep 21.20716	GX 354-0$^{5/3.7}$	684	Mar 13.84264	GX 354-0$^{6/1.7}$	748	Sep 26.24347	GX 354-0$^{8/3.5}$
558	Aug 26.29554	GX 354-0$^{6/2.8}$	622	Sep 21.34306	GX 354-0$^{6/2.3}$	685	Mar 15.10946	GX 354-0$^{5/1.9}$	749	Sep 30.33037	SAX J1810$^{e7/2.3}$
559	Aug 26.65587	GX 354-0$^{5/2.3}$	623	Sep 22.23731	GX 354-0$^{4/2.8}$	686	Mar 15.21080	GX 354-0$^{5/2.8}$	750	Sep 30.71537	SAX J1810$^{e9/2.6}$
560	Aug 26.82876	GX 354-0$^{5/1.7}$	624	Sep 22.33385	GX 354-0$^{5/2.8}$	687	Mar 15.31615	GX 354-0$^{4/2.4}$	751	Oct 1.90428	SAX J1810$^{e12/2.2}$
561	Aug 26.97507	GX 354-0$^{7/1.5}$	625	Sep 22.44771	GX 354-0$^{6/2.9}$	688	Mar 15.42230	GX 354-0$^{6/3.4}$	752	Oct 5.41138	SAX J1810$^{e12/1.5}$
562	Aug 26.98157	4U 1724-307$^{7/2.0}$	626	Sep 22.55341	GX 354-0$^{7/3.3}$	689	Mar 15.51346	GX 354-0$^{5/3.0}$	753	Oct 10.99552	Aql X-1$^{6/1.1}$
563	Aug 27.26970	GX 354-0$^{5/1.6}$	627	Sep 22.64469	GX 354-0$^{7/3.0}$	690	Mar 15.59589	GX 354-0$^{6/2.2}$	754	Oct 12.06720	SAX J1810$^{e6/1.7}$
564	Aug 27.73252	GX 354-0$^{5/1.6}$	628	Sep 22.75123	GX 354-0$^{9/2.9}$	691	Mar 15.68277	GX 354-0$^{4/2.4}$	755	Oct 14.99272	GX 354-0$^{6/1.2}$
565	Aug 28.35613	GX 354-0$^{4/2.4}$	629	Sep 22.84416	GX 354-0$^{4/2.1}$	692	Mar 15.79550	GX 354-0$^{10/2.2}$	756	Oct 15.07104	SAX J1810$^{e12/1.6}$
566	Aug 28.54286	GX 354-0$^{8/1.4}$	630	Sep 22.97222	GX 354-0$^{6/2.2}$	693	Mar 15.89183	SAX J1712$^{b10/1.3}$		**2008**	
567	Aug 28.70782	GX 354-0$^{6/2.7}$	631	Sep 24.10591	GX 354-0$^{5/2.8}$	694	Mar 15.91240	GX 354-0$^{6/2.2}$	757	Feb 24.83573	4U 1812-12$^{8/4.2}$
568	Aug 28.85932	GX 354-0$^{4/2.0}$	632	Sep 26.54994	GX 354-0$^{5/1.6}$	695	Mar 16.55179	GX 354-0$^{5/2.7}$	758	Mar 3.97998	4U 1812-12$^{7/3.4}$
569	Aug 29.46419	GX 354-0$^{4/2.6}$	633	Sep 30.46416	GX 354-0$^{8/1.1}$	696	Mar 18.30517	GX 354-0$^{5/1.9}$	759	Mar 8.91211	H 0614+091$^{3/3.9}$
570	Aug 29.62402	GX 354-0$^{5/1.6}$	634	Oct 1.38697	GX 354-0$^{7/0.7}$	697	Mar 19.07780	GX 354-0$^{4/1.1}$	760	Mar 9.95373	4U 1812-12$^{14/3.7}$
571	Aug 29.94397	GX 354-0$^{5/1.9}$	635	Oct 1.59743	GX 354-0$^{5/1.5}$	698	Mar 23.77554	GX 354-0$^{4/1.4}$	761	Mar 18.78530	GX 354-0$^{6/2.1}$
572	Aug 30.07606	GX 354-0$^{3/1.1}$	636	Oct 3.59536	4U 1702-429$^{8/2.5}$	699	Mar 25.05993	GX 354-0$^{4/1.2}$	762	Mar 19.41024	GX 354-0$^{4/3.1}$

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Table 4: X-ray bursts detected by the IBIS/ISGRI telescope in the 15-25 keV energy range in 2003-2009.

#	Time	Source$^{\delta t/F^a}$	#	Time	Source$^{\delta t/F^a}$	#	Time	Source$^{\delta t/F^a}$	#	Time	Source$^{\delta t/F^a}$
763	Mar 19.82632	GX 354-0$^{7/2.3}$	781	Sep 20.10641	GX 354-0$^{5/1.9}$	799	Oct 2.36093	GX 354-0$^{5/2.1}$	816	Feb 21.91147	GX 354-0$^{4/2.1}$
764	Mar 20.92708	GX 354-0$^{8/2.2}$	782	Sep 20.31375	GX 354-0$^{5/1.7}$	800	Oct 2.47804	GX 354-0$^{3/3.0}$	817	Feb 22.76160	GX 354-0$^{7/2.2}$
765	Mar 22.75968	GX 354-0$^{5/2.6}$	783	Sep 20.71078	GX 354-0$^{5/1.9}$	801	Oct 2.75248	GX 354-0$^{4/2.7}$	818	Feb 22.92381	GX 354-0$^{6/1.2}$
766	Apr 6.13483	GX 354-0$^{7/2.1}$	784	Sep 20.90190	GX 354-0$^{6/1.9}$	802	Oct 5.02817	GX 354-0$^{6/1.6}$	819	Feb 23.09534	GX 354-0$^{5/2.6}$
767	Apr 6.29241	GX 354-0$^{5/2.5}$	785	Sep 21.09396	GX 354-0$^{8/2.4}$		**2009**		820	Feb 23.26100	GX 354-0$^{6/1.9}$
768	Apr 6.43753	GX 354-0$^{3/2.4}$	786	Sep 21.29137	GX 354-0$^{8/2.6}$	803	Jan 28.63763	4U 1608-522$^{14/1.7}$	821	Feb 23.60672	GX 354-0$^{6/1.8}$
769	Apr 6.50782	IGR J17473$^{f\,11/1.3}$	787	Sep 21.49521	GX 354-0$^{8/2.4}$	804	Jan 29.71948	4U 1608-522$^{8/3.0}$	822	Feb 25.99637	GX 354-0$^{7/2.6}$
770	Apr 6.59962	GX 354-0$^{6/2.6}$	788	Sep 21.71001	GX 354-0$^{6/3.5}$	805	Jan 30.16971	4U 1608-522$^{6/2.1}$	823	Feb 26.36900	GX 354-0$^{7/2.8}$
771	Apr 7.06725	GX 354-0$^{5/2.0}$	789	Sep 21.94872	GX 354-0$^{7/1.7}$	806	Jan 30.57470	4U 1608-522$^{6/2.9}$	824	Mar 4.00832	GX 354-0$^{9/1.9}$
772	Apr 8.57277	GX 354-0$^{6/1.3}$	790	Sep 22.30863	GX 354-0$^{8/2.4}$	807	Jan 31.18564	4U 1608-522$^{10/2.3}$	825	Mar 6.64737	GX 354-0$^{7/1.7}$
773	Apr 17.54950	GX 354-0$^{3/2.7}$	791	Sep 23.39289	GX 354-0$^{6/1.1}$	808	Jan 31.59103	4U 1608-522$^{8/1.6}$	826	Mar 6.81059	GX 354-0$^{4/1.2}$
774	Aug 18.08433	GX 354-0$^{6/2.3}$	792	Sep 23.85531	GX 354-0$^{5/1.9}$	809	Feb 1.14700	4U 1608-522$^{8/2.2}$	827	Mar 7.49990	GX 354-0$^{6/2.5}$
775	Sep 10.49925	GX 354-0$^{7/2.0}$	793	Sep 24.21376	GX 354-0$^{7/2.3}$	810	Feb 1.62561	4U 1608-522$^{7/1.5}$	828	Mar 11.40462	4U 1608-522$^{10/3.2}$
776	Sep 11.12200	GX 354-0$^{5/2.0}$	794	Sep 24.38043	GX 354-0$^{6/1.1}$	811	Feb 5.06657	4U 1608-522$^{10/1.8}$	829	Mar 12.59326	GX 354-0$^{7/1.2}$
777	Sep 18.44472	GX 354-0$^{6/2.5}$	795	Sep 24.59205	GX 354-0$^{8/2.5}$	812	Feb 6.43797	4U 1608-522$^{10/2.3}$	830	Mar 19.61958	4U 1608-522$^{11/2.1}$
778	Sep 18.63818	GX 354-0$^{5/1.8}$	796	Sep 24.77784	GX 354-0$^{6/2.3}$	813	Feb 7.10690	4U 1608-522$^{11/2.3}$	831	Apr 2.85838	4U 1636-536$^{6/1.0}$
779	Sep 18.83859	GX 354-0$^{8/2.9}$	797	Sep 24.95779	GX 354-0$^{6/1.0}$	814	Feb 7.59847	4U 1608-522$^{10/2.3}$	832	Apr 9.55622	GX 354-0$^{5/1.0}$
780	Sep 19.06193	GX 354-0$^{8/1.9}$	798	Sep 25.12663	GX 354-0$^{6/3.0}$	815	Feb 7.91425	4U 1636-536$^{7/1.9}$	833	Apr 18.01957	GX 354-0$^{5/0.8}$

^{a} - burst duration (in seconds) / pick flux (in Crab); $^b SAX\ J1712.6-3739$; $^c IGR\ J17380-3749$ [5]
$^d AX\ J1754.2-2754$ [3]; $^e SAX\ J1810.8-2609$; $^f IGR\ J17473-2721$

sky images. Therefore, although it increases computing time an order of magnitude, we plan to search and identify all X-ray bursts with statistical significance exceeding 2 standard deviations.

Other possible applications of such a large number of detected X-ray bursts include investigation of statistical properties of the phenomena and empirical study of the burst rate - accretion rate dependence. This work is in progress and we are planning to submit a paper with the results by the end of this year. Due to the lack of volume here we list the minimum information on the bursts (Tabs. 1-4). The complete list of burst parameters will appear in the above-mentioned paper.

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