LOFT Large Area Detector RXTE X-ray target catalogue Observing time vs. PCA area

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1 Introduction

The NASA Rossi X-ray Timing Explorer (RXTE) mission (Bradt et al., 1990) which flew from late 1995 to early 2012 became one of NASA's longest running astrophysics missions. RXTE contained three complimentary experiments - the Proportional Counter Array (PCA) provided by the Goddard Space Flight Center (GSFC), the High Energy X-ray Timing Experiment (HEXTE) provided by The University of California at San Diego (UCSD) and the All Sky Monitor (ASM) provided by the Massachusetts Institute of Technology (MIT). The large area, high time resolution, PCA provides the 'bench-mark' for many aspects of the Large Area Detector (LAD) experiment proposed on the ESA LOFT mission.

The PCA comprised 5 notionally identical Proportional Counter Unit (PCU) detectors. These detectors were comprehensively described, particularly the calibration aspects, in Jahoda et al. (2006) (and references therein). Only a few of these details are directly relevant to the study reported here. The scientific data from the PCA (ignoring housekeeping, health & safety and commanding) was all produced by a single additional box known as the Experiment Data System (EDS). This box was also provided by MIT and although operated and monitored as a separate device by the MIT team was, for scientific purposes, effectively part of the PCA and was routinely operated by the staff of the Science Operation Facility (SOF) at GSFC. The Guest Observer Facility (GOF), also at GSFC, ran the proposal rounds and generated the final package of FITS format data files delivered to a successful Principal Investigator (PI) once their observations had been executed. The PI then had one year's priority on the data before it became public. The RXTE spacecraft was operated from the Mission Operation Centre (MOC) which was located next to the SOF.

Four of the five PCU's developed high voltage (HV) break-down problems during the long mission. An on-board device was used to curtail a break-down by turning off the PCU which protected the detector from irreversible damage. These same break-down issues also led to PCU's being 'rested' or switched off for periods of time in an effort to prolong their operational life. Both these variable factors overrode the routine X-ray data acquisition intervals existing in the observing schedule making it complicated to assess, from the command history, the true PCA geometric area exposed to any particular X-ray source.

This study analyses all the available information to construct a table of PCA area vs. exposure time for the 941 identified unique point sources in the RXTE observing history. This information may serve as a guide to planning the LAD experiment observations on LOFT since this will essentially be observing the same set of target sources. Such follow-on observations by the LAD will have a ~16x increase in area (compared to the whole PCA) with corresponding increases in detected count rate and telemetry loading, much better energy resolution and more PHA channels.

2 The X-ray target catalogue and on-source Goodtime

Several pieces of information need to be pulled together to construct the desired catalogue. These data reside in different locations and combining them, though fairly straight forward in principle, is not a trivial process. The components in this section describe the building of the X-ray catalogue and the potential on-source observing time available assuming no PCA or spacecraft issues result in data loss.

2.1 Target names and identification

During its mission RXTE carried out ~347,000 observation sequences which are all available in 5,847 'obscat' ASCII text files on the RXTE web pages (see references). It is not proposed to discuss here in detail the decoding or structure of these daily obscat files and the reader is referred to the earlier companion document 'LOFT-LAD-PCAmodes-20140817' (see references). For most RXTE targets the actual observation was split into three separate sub-sections (part slew to target, on target, part slew off target) so the actual number of specific pointing's would be closer to ~1/3 of the above number.

Source names usually reference the accepted name of a particular X-ray target but these can vary a little and so there is some redundancy of names when using strict character strings for name comparisons (trivial upper vs. lower case differences are easy to trap). The obscat files use the source name specified by the proposing PI and there was no precise standard imposed. This document is concerned with RXTE observations of specific X-ray sources having well defined names and locations. Therefore, any observation source names containing sub-strings listed in the following table have been dropped from the analysis. These dropped observations represent ~7.3 % of the total Goodtime but were very important to the mission, providing in particular, the data bases of background and long term light curves of sources in the galactic bulge (by raster scanning).

SCAN	)=(
SLEWS	RANDOM
BACKGROUND	LOOP
BCKG	C4_
GALACTIC_RIDGE	CXB
DECOMISSIONING	HXBG
RASTER	CALIBRATION
GRID	BACKGOUND
No Power	MYSTERY
ENGINEERING_TEST	BKG
PRE-IOC	SAFE_HOLD

This selection is somewhat arbitrary but does remove observations on background or with the spacecraft moving in some way (scan & slews). This culling reduces the target list from 1,678 to 1,311 names. Slight differences in name specification are then located by searching the set of target RA and Dec positions to locate sources within 0.1 degrees distance of each other. These are effectively exactly the same sky position, given the relatively large PCA field of view of ~1 deg FWHM, and are deemed to be the same source. There were also some cases where all or part of the observations of a particular source were done with an offset larger than 0.1 degrees to minimise or avoid contaminating flux from a nearby source. These are difficult to handle without introducing additional potential problems with more general source confusion. Source names containing the sub-string OFFSET (or variants) have been retained.

As an example of multiple names, the well known X-ray source Cyg X-1 (#842 in Appendix A) occurs in 7 forms (CYG_X-1_LH, CYG_X-1, CYG_X-1_TLH, CYG_X-1_HH, CYGNUS_X-1, CYG_X-1-10238-01, CYG_X-1_HL). In some cases, as for Cyg X-1, the name given to the target included additional information, for example the source state that was being observed. For various operational reasons, particularly for short notice Target Of Opportunity (TOO) observations, some source names were also created 'on the fly' and may not appear very meaningful. The target catalogue reduces to 941 names after all the above types of redundancy were removed. Thus all RXTE targets in the eventual catalogue can be specified by a number 1-941 which provides an index to the actual X-ray source name strings. As discussed in LOFT document 'LOFT-LAD-PCAmodes-20140817' (see references) all observations of the form 'source_xxx_Slew' are considered to be observations of 'source_xxx' since the slew part of such observations is rapidly completed.

No. discrete target names (with _Slew extension ignored)	1,678
No. Targets (after `unwanted' sub-strings removed)	1,311
No. Targets (after position matching)	941

2.2 Target classification as Galactic or Extragalactic sources

The obscat files do not contain any indication of whether target sources are considered to be galactic or extragalactic in nature. A handle on this differentiation can be found in the 'scorecard' files used to record the progress towards completing the required ksec of observation on each approved target in each AO cycle. The scorecard files (see references – RXTE AO scorecard files) are divided into two types – TOO and non-TOO. To aid in planning the RXTE observations Evan Smith (RXTE SOF), who created these files, split the lists into two halves with all approved galactic targets preceding the extragalactic targets. This was done to make it easier to select the extragalactic targets as 'filler' items to ease the telemetry loading between the generally brighter galactic targets. These scorecard files have been read and the contained target names used to set flags (G, E or U) in the final catalogue for the X-ray source types. With some simple manipulation to match names ~80% of observed targets in the obscat files are immediately identified. Additional checks for particular character sub-strings such as 'NGC' or 'MKN', which clearly indicate extragalactic, push this figure up to ~94%. Further sources were classified using NASA HEASARC tools or simple Google web searches. The undefined sources are denoted in the catalogue with a U symbol. They are probably almost all galactic in nature and are therefore included with the 'G' set in Appendix A.

X-ray sources	Symbol	Number
Galactic	G	665
Extragalactic	E	248
Undefined	U	28
Total	-	941

2.3 PCU Goodtime

The individual observation sequences in the obscat files include information on the orbital variables such as Earth occultation, where the target is obscured by the Earth, and passages through the South Atlantic Anomaly (SAA) where the detectors are switched off (see integrated times in section 5). This leaves a set of time intervals, referred to as `Goodtime', where the target X-ray source is visible and in principle being observed (ignoring overriding HV turn-offs for the varied reasons discussed in the following sections). The HV would normally be on during Earth occultation's for background monitoring. All the times associated with these events are specified in Mission Elapsed Time (MET) which logs the elapsed time in seconds since the clock start some two years before launch (00:00 UT on January 1st 1994). This prior time base allowed all the various integration tests carried out before launch to be logged on a consistent time-base for record keeping purposes. Every Goodtime interval has a target X-ray source name associated with it and collectively they represent the maximum on-source observing time available. It must be stressed that these Goodtime intervals indicate the time when on-source data could be acquired but do not actually confirm that it was by any or all of the 5 PCU's. Clearly, having all 5 detectors on is the optimum mode of operation and was the intention prior to launch. Until the emergence of the PCU HV break-down issues, all the detectors were almost always on for the indicated Goodtime.

2.4 PCU High Voltage (HV) break-down issues

HV break-down problems first emerged for PCU 3 & 4 (0-4 numbering system) in March 1996, PCU 1 in March 1999 and PCU 0 in April 2006. PCU 2 remained sound for the entire mission but in the later stages it was 'rested' during long slews as a precautionary measure. Once break-down started in a PCU it continued until the voltage was turned off. It was for this reason that the on-board Telemetry Status Monitor (TSM) feature described in section 3.2 was brought into service. Once detectors were 'rested' for a period it proved possible to turn them back on with no apparent residual damage. However, after some time had passed the problem would reappear. The macros described in section 3.3 were added to provide pre-planned regular rest periods. During the mission this recurrence period decreased and detectors needed more and more rest time. Early on in their anomalous behaviour the problem detectors could be operated for typically half the day but by the end of the mission this was down to 1-2 orbits a day. The break-down characteristics of the different PCU's were similar, but the events followed various courses and particular patterns have not been identified. During laboratory testing prior to launch, small imperfections on the wires were identified as causes of break-down. All the wires visible through the collimator were scanned for tell-tale variations in gain to spot potential defects. However, the veto wires were not completely accessible and at least some break-downs involving those wires occurred during the mission. Deposits of polymers formed in the detector gas would deposit on imperfections causing high field regions, eventually leading to break-down. Luckily for RXTE, the deposits apparently dissipated to some degree during the rest periods.

2.5 Effective PCA area

For various assembly reasons the precise effective detector area of each of the 5 PCU's is slightly different. The definitive numbers are given in Table 6 of Jahoda et al. (2006) which also discusses the spacecraft boresight and PCU alignment issues. The present study is only concerned with the actual number of PCU's operating at any particular time and not the many possible area combinations. Such accuracy is not required here and the average value per PCU is used. Therefore, the PCU areas appropriate for the tables in Appendix A & B are given in the following table.

No. PCU's on	1	2	3	4	5
Area (cm^2)	1,580	3,160	4,740	6,320	7,900

3 Components causing potential loss of data

Once the basic Goodtime sequences on each source are established it is necessary to start removing any time intervals where, for whatever reason, detectors were not actually operating. This needs to be done separately for each PCU. The circumstances when a PCU might be off fall into three main categories as detailed in the following sections. Clearly if there are higher level issues with the spacecraft itself such as pointing problems or bulk memory corruption this would also result in data loss with the whole PCA effectively being off from a PI perspective. Such issues have generally been tidied up, after the event, in the obscat files by the SOF team. However, there is no guarantee that such manual edits, particularly following TOO observations, were comprehensively made or completely accurate. This is especially true in the latter stages of the long mission when RXTE operated with low funding levels and reduced staff.

3.1 PCU High Rate Monitor (HRM) function

A standard feature of the PCA experiment was the ability to set an on-board threshold count rate limit in each PCU. Once this HRM rate test failed the individual detector was turned off automatically. This feature was intended as a safety device to autonomously detect and act when evidence for an excessive high count rate was detected, above an expected level. The cause could be a HV break-down, an unexpected intensity of background particle radiation or an extremely bright X-ray source. The HRM level was therefore set to a count rate number that was not expected to be exceeded when observing most X-ray sources. This threshold was typically set to 16,384 cs^{-1} PCU^{-1} and was seldom changed except during observations of extremely bright sources such as Sco X-1 when the level had to be raised substantially. During the mission five different macros were used to set the HRM level – PCA_HRM_8K, 16K, 24K, 32K and 64K. The HRM trip required three consecutive HRM violations (3 x 8 seconds) above the set HRM threshold. HRM violations could be set by any of 3 chosen rates selected from a set of 8 (L1, R1, L2, R2, L3, R3, Xe veto, Propane rate). All rates were contiguous 8 second integrations. Assuming the L1 or R1 rate was one of those selected, the PCA_HRM_8K option (the lowest rate choice used) sets each PCU trip-off threshold at a source strength corresponding to ~4 Crab. The HRM status was monitored in the PCA housekeeping for each PCU. The currently set HRM value was returned along with bit flags to indicate if the HRM level had been exceeded for one interval, two consecutive intervals or three consecutive intervals (tripped off). Typically, the HRM threshold was set to the same level in all PCU's.

In reality the emerging detector break-down problems could be identified before they produced the count rate the HRM was programmed to avoid. The HRM was quite useful to protect against unexpected high levels of background radiation. For RXTE the boundaries of the South Atlantic Anomaly (SAA) were estimated and preset in the SOF command generation system but were subsequently refined, following HRM trip-offs, during the early in-orbit check-out operations. However, the SAA has a time dependence and in particular is subject to solar activity (general space weather). This causes the actual SAA region to grow beyond the `fixed' model contour edges resulting in an occasional unexpected HRM trip-off. Occasional trip-offs, generated by X-ray sources, were generally due to Sco X-1 or rare transients such as XTE J1550-564. Due to the nature of all the above types of events the HRM trip-offs typically occurred in all PCU's at the same time. Following an HRM turn-off in any PCU it required a specific command to be sent by the SOF to re-enable it for subsequent routine turn-on commands. This could be done either manually during a real-time command window or by including the command in the next routine daily uplink set. During the mission the HV on/off command history (see references – The PCA HV on/off history) seems to list ~52 occasions when the HRM function was triggered, turning off all PCU's, and 18 HRM 'recovery' commands.

3.2 Telemetry Status Monitor (TSM) turn-off events

The TSM was a spacecraft function that could initiate action depending on real-time telemetry values and allowed a set of macros to be executed once triggered by the real-time conditions. The EDS had the capacity to put into telemetry a flag based on a calculation from the PCU data. Potentially at any time, a PCU could be switched off by this device which looked for break-down in a detector by comparing PHA distributions between each of the L and R anode chains (1-3). The ratio of the PHA mean for the L & R anode chains should be constant, within statistical errors, until break-down at a single location within the gas volume of the proportional counter causes an imbalance. Once this error had occurred for 3 consecutive 8 second samples a signal was passed to the spacecraft which then commanded that particular detector off. The spacecraft command system routinely switched PCU's on and off for SAA passages but this was an overriding OFF until a specific ON command was sent to the same PCU at a later time. The EDS software to monitor this ratio needed to be active all the time and ran in the EA performing the Standard 2 mode.

The times of these TSM events are not present in the obscat files but have been catalogued by Craig Markwardt (RXTE PCA) and can be downloaded from the Web (see references – PCU HV break-down history). The trigger was subject to statistical fluctuations, and the few triggers for PCU 2 (18) are thought to have been such events rather than real break-downs. There was almost always at least one PCU operating for the indicated obscat Goodtime intervals.

PCU `off'	No. Times	First Event (MET)	First Event (yyyy:ddd)
0	1,002	76,541,719	1996:156
1	428	76,541,783	1996:156
2	18	76,540,247	1996:156
3	1,543	76,562,503	1996:157
4	900	76,492,759	1996:156

The number of times TSM trips occur in the preceding table is not a true indication of the relative 'reliability' of the various PCU's. Specific detectors were sometimes off for extended rest periods during which TSM's could not occur. After a Relative Time Sequence (RTS) turn-off the system would re-enable that PCU after a suitable waiting period of 1-2 hours. This re-enabling process was inhibited if there had been more than one TSM trip off for that PCU within a recent time interval of ~8 hours.

Unlike HRM trips, which typically trigger all PCU's at the same time, TSM events typically occur in a single PCU. The `automatic' re-enabling process might occur or a manual command might be sent to achieve this. Any such manual commands are only recorded and available from the SOF operators log (see references - The PCA HV on/off history).

3.3 PCU on/off macros

In order to preserve the useful lifetime of the PCU's, those subject to break-down were 'rested' when maximum PCA area was judged to be non-essential to the scientific goals of PI proposals. The precise details on how the decisions were made about which detectors to rest are quite complex and also varied somewhat throughout the mission. These details will not be discussed here. PCU 2 was eventually rested during long slews or Earth occults just as a precautionary extension of lifetime.

Macros were incorporated into the command load, as shown in the obscat files, to rest specific detectors by turning them off and later, back on. Commands were immediately introduced for PCU's 3 & 4 when the break-down issues first emerged but these interim macros were replaced a few months later by a standardised set which later covered all 5 PCU's. These macros were installed after the TSM's in section 3.2 had been in operation for several weeks. For PCU's 0, 1 & 2 the actual `first use', and a few other early instances, of the `stop' and `start' macros occurred many days before routine use commenced. Most of these early commands were associated with the major Leonid meteor showers of 1998 & 1999. There was great concern, at the time, that the storm rates would be exceptional for these two years. To protect the fragile proportional counter windows from pinhole causing micro-meteor collisions the spacecraft turned the PCU's away from the storm and spacecraft orbital motion directions. The detectors were also turned off for the expected duration of peak level activity.

As mentioned earlier, most RXTE targeted observations were split into three parts (slew to target, on target, slew off target). This was done semi-automatically by software so most of the on/off macro calls were replicated three times. Due to this the whole obscat data set contains many more macro calls than the number listed in the table, typically ~3 times more though this varies depending on PCU usage and RXTE pointing mode (stationary, scanning, slewing etc.). Such duplicates of `same command at same MET' were automatically dropped by the MOC when the command loads were passed across from the SOF.

Once again, unlike HRM trips, which typically trigger all PCU's at the same time, macro on/off events occur for single PCU's with the possibility that various combinations might be commanded at the same MET time. One might assume that all `PCU_x' macros occur in pairs since clearly any unit turned off will eventually have to be turned back on. However, this is not the case and there are substantial differences between the numbers of on and off commands for each PCU in the following table. Clearly, many manual commands must have also been sent which are not available from the obscat files. Any such manual commands are only recorded and available from the SOF operators log (see references - The PCA HV on/off history).

PCU No.	Macro Name	No. Times	Comment	First Use (MET)	First Use (yyyy:ddd)
0	Pcu1stop	11,947	A	153,931,263	1998:321
0	Pcu1start	11,879	B, C	185,544,184	1999:322
0	Pcu1stop	-	routine use	201,397,744	2000:140
0	Pcu1start	-	routine use	201,400,264	2000:141
1	Pcu2stop	20,595	A	153,931,263	1998:321
1	Pcu2start	20,402	C, D	165,138,664	1999:086
1	Pcu2stop	-	routine use	165,150,004	1999:086
1	Pcu2start	-	routine use	165,175,024	1999:086
2	Pcu3stop	15,484	A	153,931,263	1998:321
2	Pcu3start	15,759	B, C	185,544,184	1999:322
2	Pcu3stop	-	routine use	248,676,304	2001:322
2	Pcu3start	-	routine use	248,686,564	2001:322
3	PCU_4_Quit	119	-	82,175,761	1996:222
3	PCU_4_Restore	130	-	82,179,361	1996:222
3	Pcu4stop	35,928	-	84,730,561	1996:251
3	Pcu4start	35,845	-	84,736,921	1996:251
4	PCU_5_Quit	119	-	82,175,761	1996:222
4	PCU_5_Restore	129	-	82,179,361	1996:222
4	Pcu5stop	24,949	-	84,730,561	1996:251
4	Pcu5start	24,777	-	84,736,921	1996:251

Table comments:

A) Time of macro commands to turn off all the PCU's for the Leonid meteor shower in 1998. This was the first use of the off command for PCU's 0, 1 & 2 (PCU's 3 & 4 had previously been commanded off). After the 'AVOID_LEONIDS' observations, PCU's 3 & 4 were commanded back on BUT there do not seem to be any macros to turn PCU's 0, 1 & 2 on for many months. These were restored by manual commands which are not present in the obscat files. The earliest `start' macro command for Pcu2start does not occur for ~130 days.

B) Time of macro commands to turn on all the PCU's for the Leonid meteor shower in 1999. This was the first use of the on command for PCU's 0 & 2 (PCU's 1, 3 & 4 had previously been commanded on). All detectors were off from MET 185,485,924 to 185,544,184 (58,260 seconds).

C) The No. Times column includes an extra `dummy start' MET macro, which is not in the obscat files, to cover the turn on of PCU's 0, 1 & 2 after the 1998 Leonid meteor shower.

D) This was the first use of the Pcu2start macro (PCU's 0, 1, 3 & 4 had all previously been commanded on).

3.4 PCA HV on/off history (manual commands)

Throughout the whole mission the PCA SOF duty personnel maintained a detailed log of all PCA HV on/off commands (all types of causes). These files were routinely used by the GOF science data processing pipeline to provide a flag to indicate valid PCU time (HV on) in the FITS data sets delivered to PI's. The PCA HV on/off history files are available as ASCII text files on a monthly basis and can be downloaded from the RXTE web pages (see references – THE PCA HV on/off history). Robin Corbet (RXTE SOF) has kindly supplied the author with all 193 monthly files as a single ASCII file.

The files contain the manual commands sent and are the only source of such information. However they also contain all the other necessary commands and event information concerning the on/off state of the PCU's duplicating much of the information from the command loads which was described in the previous few sections. These HV on/off command files were manually created so there is no guarantee that, very occasionally, some commands were missed but they do form the most complete and reliable record available. However, this alternate information is somewhat semi-independent and can be compared in detail with the lists of times derived in sections 3.1, 3.2 and 3.3. The various versions of HV on/off lists have been combined to form a `more complete' master list that hopefully captures any rare commands which are missing in any individual list.

3.5 PCA housekeeping cross-check

The housekeeping data for the PCA was logged throughout the 16 year mission with 8 second sampling. Many parameters from each PCU were logged including several relating to the HV status – voltage level, command on/off status, relay status on/off etc. This is a very large body of data but Craig Markwardt (RXTE PCA) has kindly provided the author with files containing a few key x-ray count rates for each PCU with 60 second resolution. These 5 large files provide a definitive record of the `as-flown' HV status of the PCA but not at the 1 second MET specification within the commanding system records. However, these 5 PCU housekeeping lists are invaluable as they provide a cross-check of the actual PCA status:

- The x-ray count rates for each PCU automatically indicate each ones HV status. PCU's could be off for any of the reasons discussed in the previous sections including routine SAA passages.
- Any missing HV on/off commands, of any type, within the SOF command list are therefore roughly locatable since, collectively, they must match the 'as-flown' HV on/off housekeeping record.
- Any discrepancies in the 5 PCU state arrays generated (as in sections 3.1, 3.2, 3.3 and 3.4) can, in principle, be coarsely patched to match the 'as-flown' housekeeping record.
- The HV status in these files is continuous (ignoring lost spacecraft data). For several specific observations, periods of active x-ray count rate have been cross-checked against expectation from the command loads.

4 Strategy for combining timing information

To build the catalogues in Appendix A & B the following steps were carried out.

X-ray catalogue:

- The initial `starting' source catalogue was built as described in section 2.1.
- A large integer array of 600,000,000 words was created, each word representing a second of time starting at MET zero. Working at one second resolution is perhaps overkill but it keeps manipulation of the timescale simple and a powerful computer was available. The array was loaded with integers (1-941) corresponding to the source catalogue name sequence described in section 2.1. These were placed at times corresponding to the Goodtime intervals in the corresponding obscat files (section 2.2). The result is an integer array vector – `source_vec'

PCU status (off/on):

- Lists of HRM events for each PCU (0-4) were built as described in section 3.1.
- Lists of TSM events for each PCU (0-4) were built as described in section 3.2.
- Lists of PCU on/off macro times were built for each PCU as described in section 3.3.
- PCU 0 byte array (version A) of the same length as the 'source_vec' array was created which was built using the best available information on HRM events, TSM events and PCU on/off macros to define when PCU 0 was on and functioning. Zero denotes PCU off, one denotes PCU on.
- A similar PCU 0 byte array (version B) was constructed from the HV on/off command records discussed in section 3.4.
- The version B array was then taken as the master and checked against version A. Any discrepancies were corrected as best as possible to create a combined byte array (version C).
- Version C byte mask was cross checked against the PCU 0 status in the PCA housekeeping data set described in section 3.5 (60 sec. resolution) to check for any inconsistencies. These were then `patched in' at one second time resolution in an approximate fashion. The result is a PCU_0 state flag byte array – `PCU_0_vec'
- Similar arrays were built for PCU's 1-4.

Final catalogue:

- The PCU 0-4 state flag arrays were used to give the total seconds exposure for each individual PCU (less than or equal to the Goodtime since, in reality, detectors could be off).
- The PCU 0-4 state flags were used to give the total seconds exposure for each source name integer (1-1311) for 0, 1, 2, 3, 4 or 5 PCU's operating (no differentiation between units). In IDL the required exposure times are efficiently given by HISTOGRAM(source_vec x PCU_*_vec). The exposure for the grouped individual targets (1-941) was then computed and the integer source numbers were used to index and reconnect a source name string back into the Appendix A & B tables.

5 Summary of main RXTE PCA findings

The first following table shows the general main parameters of the RXTE mission and observations. The Goodtime values (GT' and GT'') represent the maximum possible on-source time ignoring the many planned and unplanned HV turn-offs. The actual Goodtime achieve (T' and T'') are also shown.

SUMMARY TIMES	sec	% of MET
Mission MET start	63,120,241	-
Mission MET end	568,425,606	-
Mission MET span (MET)	505,305,365	-
All Observation Names		
1678 target names	-	-
1278 discrete RA, Dec	-	-
Max. possible Goodtime (GT)	355,590,132	70.4
Actual Goodtime (T)	355,590,132	70.4
Appendix A & B Catalogues		
1311 target names	-	-
941 discrete RA, Dec	-	-
Max. possible Goodtime (GT')	329,719,657	65.3
Actual Goodtime (T')	329,719,657	65.3

The next table shows the overall time durations for which each PCU (0-4) was on during Goodtime intervals. This is listed for all targets, Appendix A & B combined and also separately for galactic and extragalactic sources. Although this summary might be of interest for the RXTE mission legacy, a far more useful value, going forwards with LOFT, is the actual number of PCU's on (effective area of the PCA) at any time observing each particular source listed in the catalogue.

INDIVIDUAL PCU'S	PCU 0	PCU 1	PCU 2	PCU 3	PCU 4
HV on (sec)	333,881,996	150,221,856	467,454,555	207,436,237	134,613,318
% of 505,305,356	66.1	29.7	92.5	41.1	26.6
All Obs. Names					
Goodtime (with HV on)	238,814,312	111,533,952	339,772,103	162,538,314	103,243,381
% of 355,590,132	67.2	31.4	95.6	45.7	29.0
Appendix A & B					
Goodtime (with HV on)	219,064,539	99,879,102	315,645,303	147,733,204	92,388,821
% of 329,719,657	66.4	30.3	95.7	44.8	28.0
Appendix A **Galactic sources**					
Goodtime (with HV on)	152,118,774	74,044,988	213,367,749	119,474,329	73,289,579
% of 329,719,657	46.1	22.5	64.7	36.2	22.2
Appendix B **Extragalactic sources**					
Goodtime (with HV on)	66,945,765	25,834,114	102,277,554	28,258,875	19,099,242
% of 329,719,657	20.3	7.8	31.0	8.6	5.8

The next table therefore shows the overall time durations for which 1, 2, 3, 4, 5 or 'any' PCU's were on during Goodtime intervals. This is listed for all targets, Appendix A & B combined and also for galactic and extragalactic sources. As noted earlier, knowledge of the precise combination of detectors is unimportant as the five PCU's are treated as identical units.

NO. PCU’s ON	1	2	3	4	5	Any
All Obs. Names						
Time on (sec)	63,369,804	105,936,917	81,732,251	37,993,474	56,697,555	345,730,001
% of 355,590,132	17.8	29.8	23.0	10.7	15.9	97.2
Appendix A & B						
Goodtime (HV on)	60,952,459	99,339,300	76,602,281	35,392,808	48,740,365	321,027,213
% of 329,719,657	18.5	30.1	23.2	10.7	14.8	97.4
Appendix A Galactic sources						
Goodtime (HV on)	29,926,733	61,572,633	59,820,671	30,390,205	35,640,116	217,350,358
% of 329,719,657	9.1	18.7	18.1	9.2	10.8	65.9
Appendix B Extragalactic						
Goodtime (HV on)	31,025,726	37,766,667	16,781,610	5,002,603	13,100,249	103,676,855
% of 329,719,657	9.4	11.5	5.1	1.5	4.0	31.4

The Appendix A & B tables provide a number of insights into the performance of the PCA during the RXTE mission. In both tables the first column is the X-ray source catalogue number (1-941). The second column gives the number of name variations grouped together as a common target source. As an example, CYG_X-1 is source number #842 in Appendix A and has 7 name variations. This is followed by the target name and type (T) of G, E or U with unidentified being grouped with galactic sources. Following the source RA and Dec the observing time in ksec is listed for 1, 2, 3, 4, 5 or any PCU’s operating. The final Goodness Value (GV) column indicates the percentage (0-100) each line of source observations represents compared to that which would have been obtained if all PCU’s had been on for the total on-source Goodtime. In reality the GV values can only range from 20 (observations only ever made of that particular source with a single PCU, any PCU, operating) up to 100 (all observations of that source carried out with all 5 PCU’s on). GV has been defined in the following way for each target source:

$$\frac{[\text{1 PCU}]_{\text{on ksec}} \times 1 + [\text{2 PCU's}]_{\text{on ksec}} \times 2 + [\text{3 PCU's}]_{\text{on ksec}} \times 3 + [\text{4 PCU's}]_{\text{on ksec}} \times 4 + [\text{5 PCU's}]_{\text{on ksec}} \times 5}{\text{Total ksec} \times 5}$$

It is also possible to compute an overall ‘average’ GV value for each entire catalogue of galactic and extragalactic targets. Remembering earlier comments on the declining performance of the PCA in later years, it can be argued that these ‘whole mission’ values are diluted by the geriatric nature of the final years. The following table provides the equivalent values for only for the first 4 years of the mission (to January 1st 2000). Clearly, there is no simple measure or statistic that can allow for whether particular sources are scientifically better studied in a short period with most PCU’s on or over a longer time span with only a few PCU’s operating. X-ray sources can move between various states and there are also many transient sources.

RXTE PCA GV	Galactic sources (Appendix A)	Extragalactic sources (Appendix B)
Entire mission	58 %	47 %
1st 4 years only	91 %	82 %

6 Aspects with possible relevance for the LAD on LOFT

The above analysis leads to a number of conclusions that may provide guidance towards planning for the observing schedule to be developed for the LAD experiment on the LOFT mission.

- Unfortunately the obscat files do not contain any flag to indicate whether a target is considered to be a galactic, extra-galactic or undefined (some TOO's) source. There is also no indication of the expected mean count rate. Both of these might be useful additional information lines (perhaps as comments in the LAD command loads) for post mission global analysis.
- Some better formalisation of source names seems a good idea. Perhaps not a specific approved list concept but a few basic rules such as meaningful names, no spaces, no commas, standard capitalisation, consistent use of underbar such as 4U_ and 3C_ etc. RXTE had a low operating budget with minimal staff in the later years of the mission which perhaps led to shortcuts and many imprecise name simplifications. Individual PI's may not be too bothered with the name of their observation but for general archive analysis this becomes an issue. HEASARC tools tend to get round most of these potential problems by having fancy name matching code and/or searching based on coincident sky positions.
- Many RXTE source names were generated on the fly with extra `descriptive' information included which indicates the source state or that it was a deliberately offset observation. It would probably be better to try and stick with standard primary source names and include any additional information i.e. indicating a non-standard pointing as some kind of secondary `name tag' or comment line.
- Manual editing of records should be avoided if at all possible though this may be hard to implement rigorously for dynamic real-time alterations to targeting i.e. TOO's. This issue becomes increasingly difficult for long missions operating with reduced funding and manning levels. A single location definitive up-to-date log seems a good idea.
- For the LAD on LOFT the detector on/off history may become extremely complex given that there are 2016 SDD units (compared to only 5 PCU's). Corrections `after the fact' as sometimes manually edited for RXTE PCA will be impossible and a very well thought out system needs to be defined. Such a system needs to be very robust to handle unexpected anomalous operation – for instance one would not want to ditch data from a whole panel due to one or two SDD's in undefined or noisy states.
- Appendix A shows that the PCA area (no. PCU's used) when observing galactic targets (LOFT's primary concern) was only ~ ½ PCA thus making LOFT's LAD advance over the PCA perhaps 2x better than commonly stated.
- Over the long mission ~70% of galactic target Goodtime was obtained with 3 or more PCU's operating compared to only ~25% on extragalactic targets. This illustrates the policy of conducting extragalactic observations with minimal PCU's to give some detectors a rest.
- Some quite extended observation sequences of galactic sources were made later in the mission when not all PCU's were available which dilutes the previous statistic. However, most galactic sources were observed for at least some time, particularly in the early years, with all 5 PCU's operating.

7 Acknowledgements

I thank members of the 'old' PCA team and other former RXTE colleagues at GSFC and MIT for pointing out some corrections and relevant omissions in an early draft of this report. In particular I thank Craig Markwardt for comments and supplying various data files, Robin Corbet for supplying data and Jean Swank for her own input plus concisely summarising the comments of others. I also thank the Antarctic and Climate Ecosystems Cooperative Research Centre (ACE CRC) at the University of Tasmania, Australia, and the Australian Antarctic Division (AAD) for the use of computer facilities to perform the IDL based data analysis and to produce this document. [Barry.Giles@utas.edu.au]

8 References

NASA RXTE home page:
http://heasarc.gsfc.nasa.gov/docs/xte/xtegof.html

'obscat' files can be downloaded from the NASA HEASARC facility:
ftp://heasarc.gsfc.nasa.gov/FTP/xte/timelines/obscat/

PCU HV break-down history:
http://heasarc.gsfc.nasa.gov/FTP/caldb/data/xte/pca/cpf/breakdown/pca_breakdown_hist_20120110.fits

PCA HV on/off history:
http://heasarc.gsfc.nasa.gov/docs/xte/SOF/pca/pcahv.html
This command history (including manual commands) covers 1996 – 2009 but 2010 & 2011 missing.

RXTE AO scorecard files:
http://heasarc.gsfc.nasa.gov/docs/xte/SOF/score.html

Relevant earlier LOFT-LAD document:
Giles, A.B., `LOFT Large Area Detector. An analysis of the usage/popularity of the many PCA/EDS/EA data modes on RXTE', 2014, LOFT-LAD-PCAmodes_20140817, Issue 2

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9 Author Statements

RXTE has been an incredibly productive scientific spacecraft, making many discoveries over its 16 year mission. The PCA experiment has opened up the field of high resolution X-ray timing and set the benchmark for future missions such as the LAD experiment on LOFT. These statements should be remembered when reading the preceding pages which often focus on problems, uncertainties and unresolved issues. It is absolutely not the author's intention to create a negative impression or suggest poor performance but what happened is now history (I was after all a part of this).

It has been mentioned several times that some of the information used to build PCU HV on/off status histories in the result of manual editing and the data records used cannot be guaranteed as totally 100% complete. Therefore Appendices A & B have been constructed with HV status based on the 'as-flown' PCA housekeeping record. Resolving or discussing discrepancies between these two approaches, which exist at ~2% of Goodtime level, fall outside the scope of this document.

This report has probably become a bit more detailed than strictly necessary for LOFT but it seemed appropriate to include additional relevant material to provide a fairly comprehensive account in the one place.

There are probably also a few misclassifications between galactic and extragalactic targets. The author would appreciate any reports of problems or errors which will be collected together for a possible revised version.

Appendix A Galactic X-ray catalogue (693 sources)

Cat. No	No Var	X-ray Source Target Name	T	RA (deg.)	Dec (deg.)	No. of PCU`s ON (ksec) 1	2	3	4	5	Any	GV
1	2	FDF	G	0.00	0.00	0.0	1.1	0.0	0.0	7.0	8.1	92
4	1	WW_CET	G	2.85	-11.48	0.0	222.6	129.3	15.3	0.0	367.2	48
6	1	IGR_J00234+6141	G	5.74	61.69	1.8	49.4	0.0	0.0	0.0	51.2	39
7	2	47_TUCANAE	G	6.02	-72.08	111.7	2.0	15.7	4.2	84.3	217.9	55
8	1	TYCHO_SNR	G	6.32	64.14	0.0	0.0	3.6	5.0	96.2	104.8	97
9	1	COMET_HALE-BOPP	G	6.44	45.76	0.0	0.0	0.0	0.0	5.8	5.8	100
10	1	RX_J0028.8+5917	G	7.20	59.29	0.0	0.0	1.1	0.0	41.5	42.6	98
11	2	V709_CAS	G	7.26	59.57	452.8	139.5	353.9	90.9	11.5	1048.6	42
15	1	IGR_J00370+6122	G	9.29	61.36	0.0	9.2	36.6	9.3	0.0	55.1	60
17	1	RX_J0049.1-7250	G	12.27	-72.85	26.5	84.3	6.3	0.0	0.9	118.1	37
22	1	2E_0050.1-7247	G	12.97	-72.53	21.2	90.0	0.0	0.0	0.0	111.2	36
23	1	PULSAR_TRANSIENT_3	G	13.00	-71.50	0.0	0.0	0.0	0.0	3.0	3.0	100
25	1	XTE_J0052-723	G	13.05	-70.79	0.0	0.4	3.0	0.8	2.5	6.6	76
27	1	HD5394_10170-01	G	13.12	59.31	0.0	0.0	0.0	0.0	1.8	1.8	100
32	2	PG0052+251	G	13.72	25.43	2.5	258.8	47.2	0.0	17.5	326.0	45
33	1	XSS_J00564+4548	G	13.83	46.22	0.1	6.1	45.1	0.0	0.0	51.4	57
34	2	GAMMA_CAS	G	14.18	60.72	12.8	188.7	208.7	66.7	191.6	668.5	67
37	1	XSS_J01023-4731	G	15.59	-47.54	0.0	1.3	2.9	0.0	0.0	4.2	53
38	1	SXP6.85	G	15.72	-72.74	33.8	121.4	6.7	0.0	0.0	161.8	36
40	1	IGR_J01054-7253	G	16.36	-72.89	11.8	102.7	3.2	0.0	4.0	121.6	40
42	1	J0109+6134	G	17.44	61.56	2.7	0.0	0.0	0.0	0.0	2.7	20
43	2	XTE_J0111.2-7317	G	17.81	-73.28	0.0	0.0	44.9	1.2	30.7	76.8	76
47	2	2S_0114+65	G	19.51	65.29	2.8	57.2	165.8	20.6	114.6	361.0	70
48	3	4U_0115+63	G	19.63	63.74	59.8	175.0	229.0	117.1	174.1	755.0	64
52	1	IGR_J01363+6610	G	24.08	66.18	0.7	9.8	0.0	0.0	0.0	10.6	38
53	1	X0142+614_10193-01	U	25.25	60.40	0.0	0.0	0.0	2.0	0.0	2.0	80
54	1	BL_HYI	G	25.25	-67.89	0.0	0.0	29.2	4.9	43.7	77.8	83
55	2	X0142+614	G	26.59	61.75	136.9	613.4	588.4	286.1	72.6	1697.4	54
56	2	RX_J0146.9+6121	G	26.75	61.36	0.0	0.0	2.7	0.0	73.1	75.8	98
57	1	PSR_B0144+59	G	26.94	59.37	0.0	0.0	0.6	0.0	30.5	31.1	99
60	1	RGB_J0152+017	U	28.16	1.79	42.6	0.0	5.2	0.0	0.0	47.8	24
62	2	J0153+7442	G	28.27	74.71	10.3	41.4	5.3	0.0	0.0	57.0	38
63	1	IGR_J015712-7259	G	29.32	-72.98	11.6	15.0	0.0	0.0	0.0	26.6	31
64	1	IGR_J01538+6713	U	29.58	67.22	0.0	4.0	0.0	0.0	0.0	4.0	40
65	4	PSR_J0205+6449	G	31.41	64.83	13.4	166.9	540.9	467.4	17.5	1206.1	65
66	1	TT_ARI	G	31.72	15.30	0.0	0.0	0.0	29.6	13.6	43.1	86
67	1	XSS_J02087-7418	G	32.21	-74.30	0.0	1.4	2.7	0.0	0.0	4.1	53
69	1	PSR_J0218+4232	G	34.53	42.54	2.8	31.5	121.3	87.0	0.0	242.5	64
71	1	NEW_GRO_BURSTER	G	37.29	2.75	0.0	0.0	0.0	0.0	4.0	4.0	100
72	1	AGL_J0229+2054	G	37.39	20.91	1.1	0.0	0.0	0.0	0.0	1.1	20
74	1	WW_HOR	G	39.05	-52.32	14.0	7.4	0.0	0.0	0.0	21.4	26
76	2	LS_I_+61_303	G	40.13	61.23	534.2	149.6	283.8	12.8	111.2	1091.6	41
80	1	4U0241+622	G	41.25	62.47	0.0	0.0	12.4	14.9	195.9	223.2	96
81	1	XY_ARI	G	44.03	19.44	13.9	97.4	48.3	61.0	67.0	287.6	64

82	1	COMET_HYAKUTAKE	G	44.90	38.35	0.0	0.0	5.2	0.0	0.0	5.2	60
84	1	ALGOL	G	47.04	40.96	0.0	26.4	207.9	72.2	136.5	443.0	74
86	1	EF_ERI	G	48.55	-22.59	0.5	8.7	18.3	4.5	53.5	85.4	83
89	1	GK_Per_10023-01	G	50.97	43.21	0.0	0.0	0.0	0.0	2.4	2.4	100
90	1	1H_0323+342	G	51.17	34.18	125.3	0.0	0.0	0.0	0.0	125.3	19
92	1	GK_PER	G	52.80	43.90	33.3	40.0	37.9	4.5	67.3	182.9	63
93	1	PKS0332-403	G	53.56	-40.14	12.9	3.7	5.1	0.0	0.0	21.7	32
94	2	V0332+53	G	53.75	53.17	23.8	168.1	424.5	101.7	50.7	768.8	59
95	1	UZ_FOR	G	53.87	-25.74	0.0	0.0	8.5	0.2	12.2	20.9	83
96	1	NEAR_V_0332+53	U	53.94	48.92	0.0	1.0	2.0	0.0	0.0	3.0	53
98	2	HR_1099	G	54.20	0.59	0.0	0.0	9.3	12.4	122.0	143.7	95
100	1	H0348-120_10329-02	U	56.80	-12.22	0.0	0.0	0.0	0.0	1.5	1.5	100
102	1	X_PER	G	58.84	31.05	23.9	177.8	366.0	176.5	193.0	937.2	67
103	1	1H0402+573	G	61.70	57.58	0.0	0.0	0.0	3.5	6.7	10.1	93
104	1	PKS0405-385	G	61.74	-38.44	0.0	0.0	0.0	0.0	21.4	21.4	100
105	1	VW_HYI	G	62.29	-71.29	0.0	0.2	55.7	23.6	38.7	118.1	77
106	1	V773_TAU	G	63.55	28.20	0.0	0.0	4.1	6.8	68.6	79.5	96
109	1	SGR_0418+5729	G	64.61	57.49	73.0	205.4	6.5	0.0	0.6	285.6	35
110	2	XTE_J0421+560	G	65.25	56.06	0.0	0.0	4.3	0.0	67.1	71.5	97
112	2	GROJ0422+32	G	65.43	32.91	0.0	0.8	1.6	4.6	8.3	15.3	86
113	1	AH_ERI	G	65.66	-13.36	0.0	6.2	0.0	0.0	0.0	6.2	40
117	2	J0437-4715	G	69.32	-47.25	0.0	0.0	3.5	18.6	65.9	88.1	94
119	3	LS_V+4417	G	70.25	44.53	17.7	45.2	10.6	14.9	1.5	89.8	46
120	1	PKS_0447-439	G	72.35	-43.84	16.9	6.1	0.0	0.0	0.0	22.9	25
121	1	SWIFT_J0451.5-6949	G	72.78	-69.80	1.7	10.0	0.0	0.0	0.0	11.7	37
122	1	IRAS_0457-7537	U	74.00	-75.54	0.0	0.0	33.4	0.0	32.5	65.9	79
125	1	G156.2+5.7--NW	G	74.19	52.35	0.0	3.0	2.9	1.2	38.8	46.0	92
126	1	1H0455+276	G	74.21	27.72	0.0	0.0	0.0	0.0	8.8	8.8	100
127	1	SGR_0501+4516	G	75.28	45.28	19.8	54.1	16.3	5.3	1.6	97.0	42
128	1	G156.2+5.7--SE	G	75.50	51.25	0.0	7.5	2.2	4.3	55.0	69.0	90
129	1	V1062_TAU	G	75.62	24.76	0.0	2.1	2.9	57.7	0.0	62.7	77
131	1	XSS_J05054-2348	G	76.35	-23.80	0.0	0.1	0.0	0.8	0.0	0.9	74
132	1	GRO_J0332-87	G	76.39	-83.70	0.0	0.8	0.0	10.6	0.0	11.4	77
133	1	1FGL_J0505.9+6121	G	76.49	61.23	6.1	0.0	0.0	0.0	0.0	6.1	20
136	1	SWIFT_J0513.4-6547	G	78.37	-65.79	7.0	31.0	1.7	0.0	0.0	39.7	37
137	1	X0513-401	G	78.53	-40.04	569.6	1264.1	266.6	38.4	132.5	2271.2	41
138	1	MILAGRO_UNID	G	78.56	23.23	7.1	13.8	17.5	0.0	0.0	38.4	45
139	1	RXJ0515+0104.6	G	78.92	1.08	0.0	0.0	39.2	0.0	17.5	56.7	72
142	2	HD_34029_(CAPELLA)	G	79.17	46.00	0.0	0.0	0.0	0.0	54.4	54.4	100
144	1	XSS_J05188+1823	G	79.72	18.39	0.0	0.4	0.4	3.1	1.0	4.9	79
145	1	PICTOR_A	G	79.96	-45.78	0.0	0.0	4.6	5.3	35.7	45.6	93
150	1	ASM_ANTI_SUN	G	80.20	18.40	2.8	3.3	14.0	1.4	11.8	33.2	69
153	1	X0521+373	G	80.65	37.68	0.0	0.0	0.3	3.3	7.7	11.2	93
155	1	SGR_0526-66	G	81.50	-66.08	0.0	0.0	1.2	0.0	104.0	105.2	99
157	1	AB_DORADUS	G	82.19	-65.45	0.0	0.0	0.2	3.0	51.0	54.2	98
158	1	V1159_ORI	G	82.25	-3.56	0.0	0.0	9.3	0.0	155.3	164.7	97
159	1	ASM_AntiSun	G	82.30	18.40	0.0	0.0	0.0	0.0	9.2	9.2	100
160	1	TV_COL	G	82.35	-32.82	18.6	236.4	65.0	10.9	81.6	412.6	55
162	1	PKS_0528+134	G	82.53	13.53	0.0	0.0	20.5	0.0	0.0	20.5	60
168	5	CRAB_PULSAR/NEBULA	G	83.63	22.01	81.0	278.0	192.0	132.0	1010.7	1693.8	80
169	1	TW_PIC	G	83.71	-58.03	0.0	0.2	8.8	11.6	0.0	20.6	71
171	1	A0538-66	G	83.92	-66.86	0.0	0.0	15.9	18.9	42.7	77.5	86
172	1	PSR_J0537-6910	G	84.45	-69.17	317.7	1237.3	1115.8	1588.9	671.8	4931.5	64
173	1	PSR_J0538+2817	G	84.60	28.29	0.0	0.0	4.8	2.5	101.0	108.4	97

174	1	PKS0537-441	G	84.71	-44.09	22.4	0.0	0.0	0.0	0.0	22.4	20
175	5	A0535+262	G	84.73	26.32	90.2	471.0	166.1	34.0	18.9	780.1	45
179	1	PKS_0537-286	G	84.98	-28.67	17.8	20.5	2.6	0.0	0.0	40.8	32
182	1	PSR_B0540-69	G	85.05	-69.33	0.0	1.3	0.6	15.8	53.6	71.3	94
183	1	1A_0535+26_OFFSET	G	85.16	28.15	0.9	9.6	0.0	0.0	0.0	10.5	38
184	1	IGR_J05414-6858	G	85.36	-68.97	3.0	5.0	0.0	0.0	0.0	8.0	32
185	1	EBX	G	85.45	12.35	4.3	0.0	0.0	0.0	0.0	4.3	19
186	1	BY_CAM	G	85.70	60.86	0.2	10.1	143.6	11.9	111.5	277.4	76
187	1	TX_COL	G	85.83	-41.03	0.0	0.0	16.2	8.4	230.8	255.4	96
190	1	XMMUJ054134.7-682550	G	86.00	-68.00	17.1	41.7	49.8	0.3	0.0	108.9	46
191	1	X0544-665	G	86.06	-66.56	0.0	0.0	0.5	0.0	11.0	11.5	98
192	1	PKS0548-322	G	87.67	-32.27	0.0	19.0	0.0	0.0	0.0	19.0	40
195	1	X0556+286	G	88.98	28.78	0.0	0.0	0.6	0.0	10.2	10.8	97
196	1	MAXI_J0556-332	G	89.19	-33.17	169.6	607.7	3.4	1.8	1.6	784.0	35
197	1	RXJ_0558.0+5353	G	89.50	53.90	0.0	0.0	0.0	34.4	0.0	34.4	80
198	2	PKS_0558-504	G	89.95	-50.45	1173.1	549.3	9.8	9.5	52.0	1793.7	28
199	1	V347_PUP	G	92.64	-48.74	0.0	0.0	7.9	0.0	0.0	7.9	60
200	1	4U0614+091_10095-01	G	92.84	9.62	0.0	0.0	2.8	0.0	0.0	2.8	59
201	1	H0551-819	G	92.94	-81.82	0.0	0.0	0.0	0.0	41.7	41.7	100
202	1	SWIFT_J061223.0+7012	G	93.09	70.21	12.8	38.1	0.0	0.0	0.0	51.0	34
203	1	SS_AUR	G	93.35	47.74	0.0	0.3	0.0	15.4	0.0	15.8	79
204	1	PSR_J0614-33	G	93.55	-33.38	0.6	41.2	2.6	0.0	0.0	44.4	40
206	1	IC_443	G	94.26	22.58	0.0	0.0	1.0	12.4	31.8	45.2	93
207	1	G189.2+2.9	G	94.27	22.36	0.0	9.3	98.0	0.0	0.0	107.4	58
208	6	4U0614+09	G	94.28	9.14	294.4	1034.9	1156.0	291.0	557.5	3333.9	58
209	1	PSR_J0633+0632	G	98.43	6.54	8.1	83.5	0.0	0.0	0.0	91.6	38
210	1	GEMINGA	G	98.47	17.77	0.0	0.0	5.1	39.0	96.0	140.0	92
211	1	SAX_J0635+0533	G	98.82	5.56	0.0	57.0	24.8	28.2	166.6	276.6	82
212	1	1H0636-403	G	99.10	-40.24	0.0	0.0	0.0	0.0	8.4	8.4	100
215	2	MXB_0658-072	G	104.57	-7.21	231.3	288.7	329.5	15.7	2.4	867.6	43
216	1	RX_J0658--5557	G	104.64	-55.94	0.0	356.2	103.6	4.6	0.0	464.4	44
217	1	PSR_B0656+14	G	104.95	14.24	0.0	0.0	6.2	13.8	162.6	182.7	97
218	1	MON_TRANS	U	106.02	-3.85	0.0	7.9	2.1	0.0	0.0	10.1	44
221	1	V348_PUP	G	108.14	-36.09	0.0	0.3	5.8	0.0	0.0	6.2	58
223	2	0716+714	G	110.47	71.34	687.5	3.0	104.2	12.3	26.8	833.8	28
224	1	BG_CMi_10033-01	G	111.42	10.39	0.0	0.0	2.4	0.0	0.0	2.4	60
225	1	X0726-260	G	112.22	-26.11	0.0	0.0	3.2	32.3	130.8	166.3	95
226	1	BG_CMI	G	112.87	9.94	2.2	0.0	46.9	4.7	79.2	133.0	83
227	1	SWIFT_J0732.5-1331	G	113.16	-13.52	0.2	1.2	48.9	0.0	0.0	50.3	59
229	1	J0737-3039	G	114.46	-30.66	1.8	6.9	29.6	0.0	0.0	38.3	54
231	1	ROSAT_1	G	115.67	65.18	0.0	0.0	0.0	0.0	0.0	0.0	0
232	1	V436_CAR	G	116.24	-52.95	14.4	39.7	0.0	0.0	0.0	54.1	34
233	1	X0739-529	G	116.85	-53.33	0.0	0.0	0.0	0.0	10.1	10.1	100
234	2	EXO_0748-676	G	117.14	-67.75	120.7	535.3	1326.7	411.9	347.1	2741.7	62
235	1	PQ_GEM	G	117.82	14.74	0.0	0.0	3.9	0.0	60.9	64.7	97
236	1	U_GEM	G	118.77	22.00	23.3	92.0	63.1	61.4	163.8	403.5	72
237	1	X0749-600	G	119.07	-61.10	0.0	0.0	0.0	4.8	5.1	9.9	90
238	1	HT_CAM	G	119.25	63.10	0.0	5.7	45.3	0.0	0.0	51.0	57
240	1	PKS_0805-07	G	122.06	-7.85	1.8	0.0	0.0	0.0	0.0	1.8	20
241	1	ROSAT_2	G	122.17	49.84	0.0	0.0	0.0	0.0	0.0	0.0	0
242	2	0809+523	G	122.45	52.32	28.2	21.2	11.2	0.0	0.0	60.7	34
243	1	PG_0804+761	G	122.74	76.04	56.3	503.2	19.4	15.6	24.6	619.2	42
244	1	1H0806-545	G	123.09	-55.35	0.0	0.0	0.4	1.2	8.2	9.8	96
245	1	SU_UMA	G	123.12	62.61	54.9	202.0	211.4	23.3	4.5	496.1	48

246	1	LS_992	G	123.12	-31.24	0.0	0.3	3.6	17.9	0.0	21.9	76
247	1	RXJ0812.4-3114	G	123.24	-31.24	0.0	0.4	0.0	15.0	0.0	15.5	78
248	1	ROSAT_3	G	123.40	48.22	0.0	0.0	0.0	0.0	0.0	0.0	0
249	1	VV_PUP	G	123.78	-19.05	0.0	1.6	33.0	0.0	20.7	55.2	74
251	1	PUPPIS_A	G	125.60	-43.02	0.0	0.0	6.6	0.0	60.6	67.2	96
252	1	VELA_SNR_EW1	G	125.83	-45.18	0.0	0.0	6.7	0.0	6.1	12.7	79
253	1	ROSAT_4	G	126.20	55.88	0.0	0.0	0.0	0.0	0.0	0.0	0
254	1	VELA_SNR_EW2	G	126.83	-45.68	0.0	0.0	0.5	0.0	7.8	8.3	97
255	1	VELA_SNR_EW3	G	126.83	-46.68	0.0	0.0	0.0	0.0	9.4	9.4	100
256	1	SWIFT_BURST	G	127.63	-42.70	0.8	0.0	0.2	0.0	0.0	0.9	26
258	1	VELA_SNR_NS1	G	128.83	-48.18	0.0	0.0	1.5	0.0	12.0	13.5	95
259	2	VELA_PULSAR	G	128.84	-45.18	0.0	0.0	44.2	43.6	371.7	459.5	94
260	1	1SAX_J0835.9+5118	G	128.98	51.31	0.0	0.4	2.7	0.0	0.0	3.1	57
261	1	ROSAT_5	G	129.18	53.48	0.0	0.0	0.0	0.0	0.0	0.0	0
262	1	MX_0836-429	G	129.35	-42.89	0.4	39.1	35.1	70.9	15.1	160.7	67
263	1	IGR_J08408-4503	G	130.21	-45.05	0.0	1.6	0.0	0.2	0.0	1.8	43
264	1	ROSAT_6	G	130.32	64.38	0.0	0.0	0.0	0.0	0.0	0.0	0
265	2	0836+710	G	130.35	70.90	381.5	14.9	139.2	9.9	10.6	556.2	33
266	1	ROSAT_7	G	131.19	76.89	0.0	0.0	0.0	0.0	0.0	0.0	0
267	1	ROSAT_8	G	132.49	51.14	0.0	0.0	0.0	0.0	0.0	0.0	0
268	1	OJ_287	G	133.70	20.11	0.0	11.4	160.2	9.2	47.1	227.9	68
269	1	H0857-242	G	134.83	-24.48	0.0	0.0	0.0	0.0	55.2	55.2	100
271	1	VELA_SNR_SHELL	G	135.30	-49.65	0.0	0.0	1.4	0.2	36.0	37.6	98
272	1	VELA_X-1	G	135.53	-40.55	58.8	341.2	398.6	69.3	95.3	963.3	55
273	1	T_PYX	G	136.17	-32.38	0.0	3.4	0.0	0.0	0.0	3.4	39
277	1	ROSAT_9	G	137.91	60.04	0.0	0.0	0.0	0.0	0.0	0.0	0
278	1	ROSAT_10	G	138.99	53.42	0.0	0.0	0.0	0.0	0.0	0.0	0
279	5	2S_0918-549	G	140.11	-55.21	175.8	257.8	177.5	144.5	52.6	808.1	51
280	1	ROSAT_11	G	140.26	64.19	0.0	0.0	0.0	0.0	0.0	0.0	0
281	1	ROSAT_12	G	140.40	62.26	0.0	0.0	0.0	0.0	0.0	0.0	0
282	2	X0921-630	G	140.64	-63.29	0.0	0.3	78.4	32.2	63.6	174.5	78
283	1	PKS_0921-213	G	140.91	-21.60	0.0	99.7	0.0	2.4	8.8	110.9	45
284	1	X0922-314	G	141.08	-31.70	0.0	2.1	30.0	0.0	0.0	32.1	58
286	1	ROSAT_13	G	142.03	74.78	0.0	0.0	0.0	0.0	0.0	0.0	0
287	1	MN_HYA	G	142.28	-24.08	0.0	0.0	0.9	0.0	5.0	5.8	94
288	1	XTE_J0929-314	G	142.47	-31.40	0.2	34.5	36.0	99.4	5.6	175.6	68
289	1	ROSAT_14	G	143.10	65.73	0.0	0.0	0.0	0.0	0.0	0.0	0
290	1	ROSAT_15	G	143.97	61.35	0.0	0.0	0.0	0.0	0.0	0.0	0
291	1	Transient	U	144.25	-42.77	0.0	0.0	1.0	0.0	0.0	1.0	59
293	1	ROSAT_16	G	144.85	83.26	0.0	0.0	0.0	0.0	0.0	0.0	0
296	1	ROSAT_17	G	147.00	46.50	0.0	0.0	0.0	0.0	0.0	0.0	0
297	1	PMN_J0948+022	G	147.24	-0.37	6.8	5.7	0.0	0.0	0.0	12.5	29
299	1	ROSAT_18	G	149.41	55.38	0.0	0.0	0.0	0.0	0.0	0.0	0
300	1	ROSAT_19	G	149.70	65.57	0.0	0.0	0.0	0.0	0.0	0.0	0
301	1	GRO_J1008-57	G	152.45	-58.29	16.1	152.4	101.0	13.9	224.0	507.4	70
302	1	J1015+0904	G	153.90	9.08	0.0	0.0	5.2	0.0	0.0	5.2	60
303	1	KO_VEL	G	153.99	-47.97	0.0	0.0	0.3	5.4	0.0	5.7	78
304	1	PSR_J1016-5857	G	154.09	-58.95	12.6	46.1	4.3	0.0	0.0	63.0	37
307	1	1E_1024.0-5732	G	156.49	-57.81	0.0	0.0	0.7	7.2	20.6	28.5	94
308	1	X1036-565	G	157.59	-57.08	0.0	0.0	6.3	6.3	0.0	12.6	70
311	1	LS_1698	G	159.40	-56.80	0.0	0.0	0.0	22.2	0.0	22.2	80
312	1	NOVA_VELORUM	G	161.21	-52.43	0.0	1.3	4.3	4.5	0.0	10.1	66
314	9	ETA_CAR	G	161.26	-59.68	592.7	579.0	782.8	232.4	173.6	2360.5	49
315	1	1E_1048.1-5937	G	162.53	-59.89	440.9	1426.0	1125.7	568.5	161.4	3722.5	52

316	1	1E1048.1-5937	G	163.65	-60.07	0.0	0.0	1.0	0.0	63.2	64.2	99
317	1	PSR_B1055-52	G	164.49	-52.45	0.0	0.0	7.9	31.2	72.0	111.1	91
320	1	AN_UMA	G	166.11	45.05	0.0	0.0	0.0	5.4	0.0	5.4	80
322	1	PSR_J1105-6107	G	166.36	-61.13	0.0	0.0	3.0	14.9	83.5	101.3	95
324	1	NEAR_XTE_J1118+480	U	167.05	50.83	0.0	0.8	0.4	3.8	0.0	5.0	71
325	1	G291.0-0.1	G	167.98	-60.63	0.0	2.9	89.8	12.9	0.0	105.7	61
326	1	AR_UMA	G	168.94	42.97	0.0	0.0	0.0	0.0	21.3	21.3	100
327	1	XTE_J1118+480	G	169.57	48.05	13.1	50.0	123.4	72.2	41.6	300.3	65
330	1	PSR_J1119-6127	G	169.81	-61.46	22.9	205.3	0.0	0.0	0.0	228.2	37
331	1	1A_1118-616	G	170.24	-62.10	57.2	61.7	1.7	0.0	1.8	122.3	31
332	2	CEN_X-3_10133-01	G	170.31	-60.62	0.2	1.7	54.7	47.4	545.9	650.0	94
333	1	IGR_J11215-5952	G	170.55	-59.40	7.2	34.8	21.1	0.8	0.0	64.0	44
338	1	IGR_J11321-5311	G	173.02	-53.18	0.0	0.2	2.3	0.0	0.0	2.5	58
341	1	T_LEO	G	174.61	3.37	0.0	0.0	2.2	6.1	36.2	44.5	95
344	1	IGR_J11435-6109	G	175.57	-60.65	0.0	4.6	0.0	0.0	0.0	4.6	40
345	1	YY_DRA	G	175.91	71.69	0.0	4.3	14.2	21.7	20.8	61.0	79
347	1	1E_1145.1-6141	G	176.87	-61.95	2.9	45.6	192.4	58.8	231.0	530.6	77
348	1	2S_1145-619	G	177.00	-62.21	0.0	0.0	0.1	2.9	79.2	82.3	99
349	1	XMMU_J115004.9-62244	G	177.52	-62.41	77.6	37.1	0.0	3.8	0.0	118.5	28
355	1	4U_1210-64	G	183.31	-64.88	100.2	158.8	23.0	0.0	0.0	282.1	34
356	2	PG1211+143	G	183.57	14.05	0.0	19.2	117.4	6.3	34.7	177.7	66
357	1	G299.2-2.9	G	183.80	-65.50	0.0	0.0	108.6	0.0	0.2	108.8	60
361	1	1ES_1218+304	G	185.34	30.18	70.2	0.0	0.0	0.0	0.0	70.2	19
363	1	1218+304	G	185.60	30.30	0.0	0.0	16.8	0.0	0.0	16.8	59
365	5	GX301-2_NA_FLARE	G	186.65	-62.77	53.8	272.4	210.1	64.5	217.0	817.8	62
366	1	XSS_J12270-4859	G	186.99	-48.90	106.9	52.2	20.4	0.0	0.0	179.6	30
371	1	PSR_J1231-14	G	187.80	-14.17	9.6	41.9	0.0	0.0	0.0	51.4	36
374	1	RX_1238-38	G	189.57	-38.71	0.0	0.0	0.3	6.5	35.2	42.0	96
375	1	XSS_J12389-1614	G	189.73	-16.24	0.0	0.4	2.8	4.5	0.0	7.7	70
376	1	X1253-761	G	189.81	-75.37	0.0	0.5	0.1	2.1	8.1	10.9	92
379	2	HD_110432	G	190.71	-63.06	72.7	0.0	0.0	2.9	8.1	83.7	29
381	1	A_1246-588	G	192.41	-58.09	34.7	62.0	90.8	16.4	0.0	204.0	48
382	2	X1246-588	G	192.41	-59.09	85.6	47.6	6.5	2.1	1.1	142.8	29
383	2	EX_HYA	G	193.01	-29.27	4.4	19.4	33.9	30.8	155.4	243.8	85
384	1	X1255-567	G	193.65	-57.17	0.0	0.0	1.1	0.0	11.1	12.2	96
386	1	EX_Hya_10032-01	G	194.16	-30.43	0.0	0.0	0.0	0.0	2.3	2.3	100
387	6	X1254-690	G	194.40	-69.29	12.8	162.7	374.4	70.0	92.4	712.2	61
389	1	1H1304-497	G	195.31	48.84	0.0	0.0	0.3	0.0	9.1	9.4	98
390	1	GX_304-1	G	195.32	-61.60	71.4	248.4	0.0	0.0	0.9	320.6	35
391	2	PSR_1259-63	G	195.70	-63.84	9.5	22.0	35.2	10.2	94.9	171.8	78
394	1	WP_23	G	198.87	-16.40	32.6	185.6	1.5	0.0	0.0	219.8	37
398	4	X_1323-619	G	201.65	-62.14	8.5	58.8	109.5	85.8	92.4	355.1	70
400	2	AVOID_LEONIDS	G	202.76	-65.45	0.0	0.5	2.2	0.0	2.6	5.3	77
402	1	IRAS_13349+2438	U	204.33	24.38	0.0	0.0	0.0	0.0	50.3	50.4	99
403	1	DEEP_IMPACT	G	204.50	-9.58	0.0	0.3	0.3	0.0	1.2	1.8	82
404	1	SAX_J1342.2-3833	G	205.56	-38.54	0.0	2.2	0.0	0.0	0.0	2.2	40
405	1	IC_4329A	G	207.33	-30.31	183.0	624.1	210.4	2.9	17.1	1037.6	41
408	1	XSS_J13563-7342	G	209.05	-73.70	0.0	0.0	4.8	2.8	0.0	7.6	67
409	1	SWIFT_J1357.2-0933	G	209.32	-9.54	10.0	57.5	0.0	0.0	0.0	67.4	37
410	2	GS_1354-644	G	209.54	-64.74	0.0	0.8	1.8	10.6	48.1	61.4	94
411	2	IGR_J14003_6362	G	210.19	-63.43	4.7	73.3	10.5	0.0	0.0	88.5	41
412	2	MAXI_J1409-619	G	212.01	-61.98	51.4	106.2	1.5	0.0	0.0	159.1	33
416	1	1E_1415.6+2557	G	214.49	25.72	0.0	0.0	7.9	1.6	31.6	41.1	91
419	2	PSR_J1420-6048	G	215.03	-60.81	0.0	3.1	66.8	0.0	0.0	70.0	59

420	3	2S_1417-624	G	215.30	-62.70	122.7	361.5	187.9	156.1	84.9	913.0	53
421	1	DD_CIR	G	215.85	-69.15	58.8	0.0	0.0	0.0	0.0	58.8	20
422	1	PG_1424+240	G	216.75	23.80	0.0	40.0	301.8	35.0	14.7	391.5	61
423	3	H1426+427	G	217.13	42.67	39.4	444.9	181.4	2.8	3.7	672.2	44
424	1	XTE_J1429-544	G	217.16	-54.37	0.8	19.1	10.8	4.2	11.2	46.2	62
425	2	PROX_CEN_10009-01	G	217.33	-62.65	2.0	30.9	0.0	14.4	55.0	102.3	77
426	1	EUVE_J1429-38.0	G	217.35	-38.07	0.0	8.0	19.6	11.7	5.0	44.3	66
428	1	RCW86	G	220.75	-62.47	0.0	0.0	1.8	0.0	43.1	44.9	98
430	1	XTE_J1450-603	G	222.89	-60.50	0.0	5.6	0.0	0.0	0.0	5.6	40
431	1	1SAX_J1452.8-5949	G	223.20	-58.32	0.0	1.3	0.8	0.0	0.0	2.1	47
432	1	IGR_J14536-5522	G	223.42	-55.36	2.0	46.4	4.6	0.0	0.0	53.1	40
434	1	CEN_X-4	G	224.59	-31.67	0.0	0.9	6.5	4.4	0.0	11.8	65
435	1	SN1006-SW	G	225.45	-42.10	0.0	0.0	0.0	0.0	21.3	21.3	100
436	1	SN1006-NE	G	226.00	-41.80	0.0	0.0	0.0	0.0	20.8	20.8	100
437	1	IGR_J15094-6649	G	227.36	-66.82	8.8	42.4	0.0	0.0	0.0	51.1	36
438	3	PKS_1510-089	G	228.21	-9.10	1608.7	1216.5	192.5	14.7	63.8	3096.1	32
440	3	PSR_1509-058	G	228.48	-59.14	0.0	0.0	11.5	6.1	93.6	111.3	94
441	1	PSR_B1509-58	G	228.48	-58.14	111.6	297.5	222.2	183.2	255.4	1069.9	63
442	1	AP_LIB	G	229.42	-24.37	15.0	0.0	0.0	0.0	0.0	15.0	20
443	2	CIR_X-1	G	230.17	-57.17	188.1	690.3	1126.4	481.1	923.2	3409.2	67
444	1	A_1524-62	G	232.07	-61.88	0.0	0.8	0.0	0.0	0.0	0.8	40
445	1	CirX-1_10122-03	G	232.56	-57.94	0.0	0.0	0.0	0.0	2.2	2.2	100
446	1	H4043	G	233.59	-15.54	0.0	2.0	0.0	0.0	0.0	2.0	39
448	1	4U_1538-52_Offset#2	G	234.00	-53.20	0.0	0.0	0.6	0.0	3.0	3.6	93
449	1	J1539.2-6227	G	234.80	-62.45	3.2	0.0	0.0	0.0	0.0	3.2	20
450	1	SWIFT_J1539.2-6227	G	234.94	-62.46	61.9	322.8	5.4	0.0	0.0	390.2	37
452	1	4U_1538-52	G	235.60	-52.39	1.6	30.5	173.8	66.5	252.1	524.4	80
453	1	XTE_J1543-56	G	235.79	-56.76	34.3	111.3	56.2	63.4	10.8	276.0	53
454	1	MAXI_J1543-564	G	235.82	-56.41	39.6	177.6	4.3	0.0	1.2	222.7	37
455	1	4U1543-47	G	236.79	-47.67	0.0	67.2	121.4	131.9	12.6	333.1	65
456	1	X1543-624	G	236.98	-62.57	0.0	0.0	1.0	0.0	42.9	44.0	99
458	1	4U_1538-52_Offset#1	G	237.30	-51.60	0.0	0.0	0.0	0.0	3.0	3.0	100
459	2	1E1547.0-5408	G	237.70	-54.31	168.3	610.8	26.6	0.0	1.4	807.1	36
460	1	XTE_1550-564	G	237.75	-56.48	0.0	2.6	10.8	17.5	0.0	30.8	69
461	1	XTE_J1550-564	G	237.86	-56.54	19.8	95.4	352.8	293.9	517.3	1279.2	78
463	1	G327.1-1.1	G	238.60	-55.15	2.4	62.0	38.9	0.0	0.0	103.4	47
464	1	HD142361	G	238.75	-23.79	0.0	0.0	5.7	7.8	69.5	83.0	95
465	2	1555+111	G	238.93	11.19	0.0	149.5	18.8	3.0	0.0	171.3	42
466	2	2S1553-54	G	239.40	-54.40	30.2	99.6	63.5	4.6	18.0	216.0	48
468	1	T_CRB	G	239.88	25.92	54.0	16.2	6.3	0.0	0.0	76.5	27
469	2	1556-605	G	240.26	-60.74	0.0	0.0	34.0	0.0	44.2	78.2	82
470	1	AG_DRA	G	240.42	66.80	0.0	0.0	0.0	0.0	15.4	15.4	99
471	1	SGR_J1627-41	G	241.25	-43.97	0.0	0.0	0.0	0.0	4.4	4.4	100
472	1	MS_1603.6+2600	G	241.44	25.86	0.0	7.3	19.2	9.3	0.0	35.8	61
474	6	X1608-522	G	243.18	-52.42	459.1	786.8	903.2	459.5	424.6	3033.1	57
475	1	1RXS_J161434	G	243.64	-60.91	0.0	0.0	0.0	0.0	2.7	2.7	100
476	1	SIGMA_CRB	U	243.67	33.86	0.0	0.0	1.3	3.4	97.8	102.5	98
478	1	IGR_J16167-4957	G	244.16	-49.98	9.7	40.9	0.0	0.0	0.0	50.6	36
479	2	PSR_J1617-5055	G	244.38	-50.92	0.0	3.2	87.3	0.0	0.0	90.5	59
480	1	1E_161348-5055	G	244.40	-51.04	0.0	0.0	0.3	16.7	64.6	81.6	95
481	1	SCORPIUS_X-1	G	244.62	-16.06	11.3	153.6	9.7	0.0	0.0	174.7	39
482	1	IGR_J16194-2810	G	244.89	-28.13	1.3	25.0	0.0	0.0	0.0	26.3	39
483	2	ASM_Sco_X-1_Cal	G	244.98	-15.64	413.7	422.6	208.4	98.7	1005.0	2148.5	67
484	1	4U1608-522_10094-01	G	245.55	-52.85	0.0	0.0	0.0	0.0	1.6	1.6	100

485	1	U_SCO	G	245.63	-17.88	1.1	0.0	0.0	0.5	1.0	2.6	61
486	1	PSR_J1622-4950	G	245.69	-49.85	3.8	70.5	0.0	0.0	0.0	74.3	38
487	1	PKS_1622-297	G	246.52	-29.86	80.2	18.5	22.5	4.5	50.4	176.1	51
488	1	GALACTICBULGE_XMINUS	G	246.55	-44.61	16.4	12.8	39.3	38.4	0.0	106.9	58
489	1	SWIFT_J1626.6-5156	G	246.63	-51.94	117.0	258.5	247.5	102.2	14.9	740.1	50
490	2	IGR_J1628-4838	G	246.80	-47.90	0.0	0.4	3.0	3.7	0.0	7.1	69
491	2	X1624-490	G	247.01	-49.19	0.0	34.6	101.9	100.4	67.0	303.9	73
492	1	MCQC_J162847-4152	G	247.20	-41.88	0.0	1.5	0.0	0.9	0.0	2.5	55
493	1	V592_HER	G	247.74	21.28	0.0	0.0	1.4	0.0	0.2	1.6	64
494	1	IGR_J16320-4751	G	248.00	-47.61	3.2	35.2	86.8	0.0	0.0	125.1	53
495	3	4U_1626-67	G	248.07	-67.46	42.3	208.4	11.2	37.5	246.6	546.1	68
497	4	4U_1630-47	G	248.50	-47.39	403.7	860.4	785.5	480.4	322.7	2852.7	56
498	1	IGR_J16318-4848	G	248.80	-48.85	0.0	0.6	0.0	7.3	0.0	8.0	76
500	1	SGR_1627-41	G	248.95	-52.96	9.6	17.3	36.5	28.0	21.0	112.4	65
501	1	1632-477	G	249.12	-47.83	0.0	8.1	8.9	32.0	0.0	48.9	69
502	1	XTE_J1637-498	G	249.61	-50.49	0.6	1.1	0.0	1.2	0.0	2.9	52
503	1	3EG_J1639-4702	G	249.62	-46.82	2.1	25.7	166.4	15.1	0.0	209.4	58
504	1	IGR_J16418-4532	G	249.77	-45.48	8.7	144.4	0.0	0.0	0.0	153.1	38
505	1	IGR_J16393-4643	G	249.80	-46.70	1.7	37.1	166.6	55.6	0.0	261.0	61
506	1	IGR_J16358-4726	G	250.07	-47.43	0.0	10.0	0.0	3.5	2.9	16.3	59
507	4	4U1636-536	G	250.23	-53.75	488.6	1717.2	2015.7	1051.9	608.6	5882.0	58
508	1	ASM_TRANSIENT	G	250.75	-42.88	0.0	0.0	0.0	0.3	2.6	2.9	97
509	1	SWIFT_J164449.3+573451	U	251.21	57.58	4.2	0.0	0.0	3.8	0.0	8.0	48
510	2	GX_340-0	G	251.45	-45.61	24.8	83.0	256.3	153.3	333.9	851.4	76
511	1	4U_1626-67_10101-01	G	251.92	-67.24	0.0	0.0	0.0	0.0	1.5	1.5	100
512	2	IGRJ16479-4514	G	252.00	-45.22	19.0	146.7	1.3	0.0	0.0	167.0	37
513	1	XTE_J1648-427	U	252.17	-42.77	0.0	0.0	0.0	0.0	3.2	3.2	100
514	1	IGR_J16493-4348	G	252.34	-43.81	3.7	189.4	2.6	3.7	0.0	199.4	40
515	1	CXOJ164710.2-455216	U	252.43	-46.34	1.6	3.5	3.5	0.0	0.0	8.6	44
516	2	XTEJ1650-500	G	252.50	-50.00	0.0	86.6	179.2	135.6	47.0	448.4	66
517	1	NEAR_IGR_J16479-4514	U	252.70	-44.70	0.2	0.0	1.7	0.0	0.0	1.9	56
520	1	GRO_J1655-40	G	253.50	-39.85	0.4	425.0	1692.8	502.8	329.6	2950.5	64
521	1	XTE_J1652-453	G	253.57	-45.31	38.9	85.4	4.1	0.0	4.3	132.5	36
522	1	IGR_J16558-4150	G	253.95	-41.83	0.5	0.0	3.0	0.0	0.0	3.4	54
523	2	GALACTIC_BULGE_RMINUS	G	254.14	-50.45	11.2	28.4	45.3	99.9	0.0	184.9	65
524	1	V1280_SCO	G	254.42	-32.34	0.0	0.2	0.9	0.0	0.0	1.1	56
525	6	HER_X1	G	254.46	35.34	67.8	464.2	915.2	340.5	454.4	2242.2	65
526	1	MAXI_J1659-152	G	254.76	-15.26	51.8	118.0	1.4	0.0	1.6	172.9	34
527	1	V841_OPH	G	254.88	-12.89	0.1	0.8	2.9	0.4	24.8	29.0	93
528	1	OAO_1657-415	G	255.20	-41.65	0.3	26.7	39.0	11.4	233.5	310.9	89
529	1	XTE_J1701-462	G	255.26	-46.23	186.1	931.2	1898.0	320.6	112.9	3448.8	55
531	3	XTE_J1701-407	G	255.35	-40.50	38.1	183.7	30.2	5.0	1.6	258.6	40
533	2	X1658-298	G	255.53	-29.95	4.0	35.3	120.4	181.8	57.8	399.2	72
535	1	XTEJXXXX.X-YYYY	U	255.70	-44.60	0.0	0.4	2.0	0.0	0.0	2.4	56
536	2	GX_339-4	G	255.71	-48.79	415.6	1288.2	1032.4	590.3	508.6	3835.0	57
537	2	NEWBULGESOURCE	G	255.83	-44.45	0.7	5.0	20.6	0.0	0.0	26.3	55
539	3	4U_1700-37	G	255.99	-37.84	9.0	76.8	67.0	74.6	151.2	378.6	74
540	1	XTE_J1704-412	G	256.01	-41.24	0.4	1.8	0.0	0.0	0.0	2.3	36
541	2	GX_349+2	G	256.43	-36.42	6.9	72.1	85.6	149.3	227.9	541.8	79
542	4	4U_1702-42	G	256.56	-43.04	49.6	571.7	452.2	282.1	130.6	1486.2	58
543	1	SWIFT_J1706.6-6146	G	256.57	-61.71	0.4	1.4	0.0	0.0	0.0	1.8	35
544	2	HD_154791	G	256.64	23.97	0.0	4.3	11.0	9.2	20.3	44.7	80
545	1	NOVA_OPH_1977	G	257.06	-25.09	0.0	0.2	0.0	0.4	0.0	0.6	68
546	1	RXS_J170849.0-400910	G	257.19	-40.16	112.5	458.5	434.3	308.3	85.3	1399.0	57

547	1	1RXS_J170854.4-32185	G	257.22	-32.32	11.5	43.0	0.0	0.0	0.0	54.5	35
548	3	4U1705-440	G	257.23	-44.10	131.5	647.7	424.9	138.8	133.3	1476.1	53
549	2	RXJ1709.5-2639	G	257.38	-26.66	0.0	16.5	79.2	46.9	19.0	161.5	68
550	1	PSR_B1706-44	G	257.43	-44.48	0.0	0.0	2.8	0.0	149.9	152.7	99
551	1	WGA_J1715.3-2635	G	257.50	-27.00	0.0	0.2	0.0	0.8	0.0	0.9	73
552	1	XTE_J1710-281	G	257.65	-28.05	29.6	255.0	263.9	111.9	26.5	686.9	55
553	1	SAX_J1711.6-3808	G	257.90	-38.14	0.7	10.5	17.2	18.1	10.3	56.8	69
554	2	IGR_J17091-3624	G	257.95	-36.40	113.6	516.9	6.0	5.7	4.5	646.8	37
555	2	1708-408	G	258.10	-40.84	0.0	9.2	1.5	19.6	43.2	73.5	86
556	1	SAXJ1712.6-3739	G	258.14	-37.00	0.7	0.0	6.4	0.0	0.0	7.1	56
557	2	SAX_J1712.6-3739	G	258.14	-37.64	0.4	0.6	4.4	0.0	3.8	9.2	73
558	2	RX1712-24	G	258.15	-24.25	18.7	51.3	243.1	63.1	177.8	553.9	71
559	1	V795_HER	G	258.24	33.52	0.0	0.0	2.6	0.0	24.5	27.1	96
560	1	HESS_J1713-38	G	258.25	-38.10	20.5	84.5	0.0	0.0	0.0	105.0	36
561	1	GALACTIC_BULGE_1	G	258.34	-28.18	903.1	179.4	444.0	409.9	1.3	1937.8	43
562	1	SWIFT_J1713.4-4219	G	258.36	-42.33	7.9	11.2	0.0	0.0	0.0	19.1	31
563	1	NOVA_OPH_77	G	258.50	-26.50	0.0	1.0	0.0	0.5	0.0	1.6	53
564	1	RX_J1713.7-3946	G	258.55	-39.84	0.0	5.8	46.5	51.3	0.0	103.6	68
565	2	2S_1711-339	G	258.56	-34.05	0.0	0.0	3.2	6.7	36.1	46.0	94
566	1	XMINUS_EXCESS	G	258.79	-38.93	0.0	2.3	0.0	0.0	0.0	2.3	40
567	2	GALACTIC_BULGE_XMINUS	G	258.83	-34.27	525.6	25.1	18.3	62.9	0.0	631.9	27
568	1	XTE_J1716-389	G	259.10	-38.90	6.1	46.5	83.4	66.5	37.5	239.9	66
569	1	XTE_J1716-379	G	259.14	-37.98	0.0	6.6	0.0	0.0	0.0	6.6	39
571	1	IGR_J17176-3656	G	259.41	-36.94	0.3	1.3	0.0	0.0	0.0	1.6	36
572	2	XTE_J1716-379	G	259.48	-38.24	6.4	28.5	10.4	0.0	0.0	45.4	41
573	1	XTE_TOOS	U	259.53	-34.26	0.1	1.2	0.0	0.0	0.0	1.3	38
574	1	PSR_J1718-3718	G	259.54	-37.31	15.4	181.9	0.0	0.0	0.0	197.2	38
576	1	4U_1715-390	G	259.60	-39.35	0.0	0.3	2.9	0.0	0.0	3.2	57
578	1	XMM_J171900.4-353217	G	259.75	-35.54	0.9	2.5	0.0	0.0	0.0	3.4	34
579	1	IGR_J17191-2821	G	259.77	-28.35	2.0	27.5	60.5	2.5	0.0	92.4	53
580	1	IGR_J17195-4100	G	259.90	-41.01	0.0	16.0	32.4	0.0	0.0	48.3	53
581	1	XTE_J1720-318	G	259.99	-31.78	0.0	48.9	128.5	147.0	8.9	333.4	66
582	1	XTE_J1720-291	G	260.07	-29.28	0.8	1.8	0.8	0.0	0.0	3.4	39
583	1	GALACTIC_BULGE	G	260.90	-38.83	12.2	125.6	207.3	93.4	28.6	467.1	60
584	1	NEW_SOURCE	G	261.28	-38.77	0.0	3.2	0.0	0.0	0.0	3.2	40
585	1	XTE_J1723-376	G	261.30	-35.91	0.0	0.0	0.2	4.8	9.6	14.7	92
586	2	IGR_J17254-3257	G	261.36	-32.96	0.7	6.1	4.1	0.0	0.0	10.9	46
587	2	X1722-36	G	261.48	-36.41	0.0	14.3	56.8	27.2	52.2	150.5	75
588	1	XTE_J1726-283	G	261.66	-28.30	0.0	1.5	0.0	0.0	0.0	1.5	40
589	1	XTE_J1726-476	G	261.66	-47.60	0.0	1.0	10.2	0.0	2.4	13.7	65
590	1	XTE_J1719-356	G	261.71	-35.30	0.7	0.7	0.4	0.1	2.1	4.0	70
591	7	4U1724-30	G	261.89	-30.80	19.7	72.5	119.8	151.6	267.6	631.2	78
594	1	XTE_J1728-295	G	262.16	-29.52	1.7	21.8	1.6	0.0	0.0	25.1	39
595	1	SWIFT_J1729.9-3437	G	262.17	-34.74	7.1	40.0	0.0	0.0	0.0	47.1	36
597	1	GX354-0	G	262.60	-34.33	0.0	0.1	0.0	9.8	0.0	9.9	79
598	1	KEPLER'S_SNR	G	262.67	-21.49	0.0	0.0	0.6	1.7	50.0	52.3	98
599	2	GX_9+9	G	262.93	-16.96	13.8	122.2	186.8	68.8	74.2	465.7	62
600	1	GX_1+4_10104-02_and_Klein_TOO	G	262.95	-26.24	0.0	0.0	0.0	0.0	1.9	1.9	100
601	3	4U1728-34	G	262.99	-33.83	65.4	355.3	652.9	316.9	768.1	2158.7	72
602	1	V2487_OPH	G	263.00	-19.23	48.5	0.0	0.0	0.0	0.0	48.5	20
603	3	GX_1+4	G	263.01	-24.75	2.2	78.4	202.6	116.6	222.1	622.0	75
606	2	RAPID_BURSTER_+_AXAF	G	263.35	-33.39	11.7	97.3	123.6	167.8	160.5	560.9	73
607	1	IGR_J17361-4441	G	263.40	-45.00	0.4	0.0	0.0	0.0	2.4	2.8	89
608	1	IGR_J17331-2406	G	263.50	-23.60	0.0	0.0	0.0	1.0	0.0	1.0	80

609	3	KS_1732-260	G	263.55	-26.09	27.8	58.5	93.6	139.9	213.9	533.7	77
610	1	GX4+1	G	263.58	-27.67	0.0	0.7	3.6	7.1	0.0	11.4	71
611	1	NEAR_RAPID_BURSTER	G	263.61	-33.56	0.6	12.0	0.0	0.0	0.0	12.7	38
612	3	MXB1730-335	G	263.70	-32.92	0.0	0.7	5.2	9.5	1.8	17.2	74
613	2	1732-304	G	263.95	-30.48	0.0	2.9	1.3	0.0	30.9	35.1	93
614	1	XTE_J1736-375	G	264.19	-37.55	0.3	3.8	0.0	0.0	0.0	4.1	38
615	1	PSR_J1734-3333	G	264.21	-33.37	6.3	72.0	0.0	0.0	0.0	78.3	38
617	1	IGR_J17375-3022	G	264.39	-30.38	0.0	1.1	0.0	0.0	0.0	1.1	40
618	1	XTE_J1737-376	G	264.46	-37.66	6.3	11.1	0.0	0.0	0.0	17.4	32
619	2	SLX1735-269	G	264.57	-27.00	21.9	100.9	98.9	78.6	61.3	361.6	63
620	1	N_OPH_2009	G	264.58	-26.74	0.8	5.1	0.0	0.0	0.0	5.9	37
621	1	GX_1+4_10104-02_and_10133-02 *	G	264.66	-24.79	0.0	0.0	0.0	0.0	1.1	1.1	100
622	5	1735-44	G	264.74	-44.45	59.2	424.8	530.3	142.8	166.8	1323.9	58
623	1	1728-34_10073-01	U	264.79	-33.76	0.0	0.0	0.0	0.0	1.5	1.5	100
624	1	XTE_J1739-302	G	264.80	-30.34	3.9	44.7	36.2	0.0	0.0	84.9	47
625	1	AX_J1739.2-2923	G	264.84	-29.39	5.2	11.4	68.1	0.9	0.0	85.5	55
626	1	XTE_J1739-285	G	264.98	-28.50	1.8	34.3	59.6	54.1	0.0	149.8	62
627	1	AX_J1740.2-2904	G	265.07	-29.08	0.5	2.1	20.0	10.2	0.0	32.8	64
629	1	IGR_J17419-2802	G	265.48	-28.04	0.0	0.4	1.7	0.0	0.0	2.1	55
630	1	PSR_J1741-2054	G	265.49	-20.90	6.7	86.1	0.0	0.0	0.0	92.8	38
631	1	SAX_J1747.0-2853	G	265.51	-28.88	0.0	0.7	8.9	7.5	3.4	20.6	73
633	2	1E_1740.7-2942	G	265.65	-30.19	212.8	439.4	292.0	266.1	431.9	1642.2	63
634	1	XTE_J1743-363	G	265.74	-36.33	0.4	12.0	53.7	10.0	0.0	76.1	59
635	1	1E1740.7-2942	G	265.85	-29.97	0.0	0.4	3.4	19.6	32.3	55.7	90
636	1	GALACTIC_BULGE_XPLUS	G	265.94	-22.24	436.6	35.2	48.0	83.1	0.0	602.9	32
637	1	GALACTIC_BULGE_RMINU	G	265.97	-36.91	513.3	9.1	16.5	0.0	0.0	538.9	21
639	1	XTE_J1742-363	G	266.00	-38.50	0.0	0.0	0.9	0.0	7.3	8.2	95
640	1	1E_1740.7_-_2942	G	266.01	-29.72	0.0	0.0	2.5	0.0	28.7	31.3	96
641	3	GC_BURSTING_SOURCE	G	266.10	-28.75	0.0	0.5	160.0	67.7	1118.0	1346.2	94
642	1	GAL._CENTER	G	266.25	-29.40	0.0	0.0	5.2	13.7	248.0	266.9	98
644	1	GALACTIC_CENTER	G	266.30	-28.81	0.0	25.3	226.2	134.8	0.0	386.4	65
645	1	EXO_J1742-326	G	266.37	-32.69	1.7	28.6	69.2	0.0	0.0	99.6	53
646	1	SGR_A	G	266.40	-29.00	0.0	2.3	0.6	7.4	0.0	10.4	69
647	1	MAXI_J1745-288	G	266.46	-28.82	0.2	3.7	0.0	0.0	0.0	3.9	38
648	2	H_1743-322	G	266.57	-32.24	135.0	362.4	138.5	10.2	5.0	651.1	41
649	1	XTE_J1746-319	G	266.62	-31.92	19.5	238.8	381.3	407.9	31.1	1078.6	63
650	2	SAXJ1747.0-2853	G	266.79	-28.88	11.3	53.6	91.9	8.4	0.0	165.2	51
651	1	SLX_1744-300	G	266.86	-30.04	8.4	18.4	98.9	0.0	0.0	125.7	54
652	1	XTE_J1747-274	G	266.91	-27.44	204.7	238.4	144.2	8.3	0.0	595.7	38
653	2	GX_3+1	G	266.98	-26.56	6.4	109.3	256.5	169.0	76.5	617.6	66
654	3	EXO1745-248	G	267.01	-24.78	162.3	296.2	56.9	73.6	24.5	613.4	43
655	3	X1744-361	G	267.08	-36.12	30.7	106.9	32.4	6.6	3.5	180.1	42
656	1	NEAR_SLX_1744-300	U	267.15	-30.38	0.2	18.6	24.3	0.0	0.0	43.2	51
658	3	XTE_J1748-2848	G	267.33	-28.39	0.0	7.7	36.6	17.8	91.5	153.6	85
659	1	SWIFT_J1749.4-2807	G	267.38	-28.13	27.7	29.6	0.0	0.0	0.9	58.3	31
660	1	NEAR_1740_10232-01	U	267.39	-30.24	0.0	0.0	0.0	0.0	2.5	2.5	100
661	1	IGR_J17498-2921	G	267.45	-29.35	10.2	140.5	4.6	0.0	0.0	155.3	39
662	4	SLX_1746-311	G	267.46	-33.22	2.8	44.4	108.5	59.4	3.2	218.4	61
663	3	X1746-370	G	267.55	-37.05	0.0	41.0	210.0	90.2	133.9	475.0	73
664	1	RS_OPH	G	267.55	-6.71	0.0	8.3	4.4	9.4	25.5	47.5	81
665	2	SAX_J1750-29	G	267.60	-29.03	124.8	50.9	72.3	23.5	14.9	286.4	42
666	4	GRS_1747-312	G	267.69	-31.29	22.3	104.4	159.0	186.9	24.3	496.8	63
667	1	IGR_J17511-3057	G	267.81	-30.95	257.9	147.1	10.5	2.8	45.2	463.5	35
668	1	XTE_J1751-305	G	267.85	-30.54	25.8	84.9	235.4	200.3	3.7	550.1	62

669	1	XTE_J1752-223	G	268.05	-22.31	103.8	420.5	29.5	6.3	12.0	572.0	39
670	1	XTE_J1752-280	G	268.20	-28.00	4.0	17.5	79.7	2.8	0.0	103.9	55
671	1	SWIFT_J1753.5-0127	G	268.38	-1.46	113.2	543.6	272.6	75.9	1.1	1006.4	46
672	1	SAX_J1753.5-2349	G	268.54	-23.55	8.1	16.6	0.0	0.0	0.0	24.7	33
673	2	IGR_J17544-2619	G	268.61	-26.33	21.7	211.4	3.5	0.0	0.0	236.5	38
674	1	XTE_J1755-312	G	268.78	-31.16	0.0	0.0	0.3	3.4	0.0	3.7	78
675	1	ASM_J1755-324	G	268.86	-32.48	0.0	0.0	0.0	0.0	3.7	3.7	100
676	2	ASM_J1755-324	G	268.86	-32.59	0.0	0.0	0.0	0.0	6.5	6.5	100
677	1	XTE_J1756-342	G	269.02	-34.21	0.0	0.5	0.0	1.4	0.0	2.0	69
678	1	SWIFT_J1756.9-2508	G	269.22	-25.12	28.8	207.7	69.7	2.7	0.0	308.9	42
679	1	XTE_J1807-294	G	269.25	-28.24	0.0	59.2	105.0	353.3	36.5	554.0	73
680	1	XTE_J1757-306	G	269.41	-30.66	4.9	11.1	83.4	0.0	0.0	99.4	55
681	1	4U1755-33	G	269.67	-33.81	0.0	0.0	0.8	0.0	30.8	31.5	99
682	2	XTE_J1759-220	G	269.85	-22.00	4.1	32.3	152.5	60.0	1.1	249.9	61
683	1	SAX_J1808.4-3658	G	270.00	-36.92	209.1	593.1	463.5	675.2	225.2	2166.1	61
684	2	H1752+081	G	270.15	8.17	0.0	0.0	2.3	8.2	60.8	71.4	96
685	2	GX5-1	G	270.28	-25.08	5.6	63.6	223.7	113.1	368.6	774.6	80
688	1	W28_-_GROJ1758-23	G	270.34	-23.21	0.0	0.0	2.0	2.8	57.7	62.5	97
689	1	FAINTTRANS3	U	270.35	-28.30	3.4	0.0	0.0	0.0	0.0	3.4	19
690	2	GX9+1	G	270.38	-20.53	10.1	52.7	63.7	22.6	126.7	275.8	74
691	1	V884_HER	G	270.53	18.08	0.0	5.8	9.0	1.4	0.0	16.2	54
692	1	BULGE_SOURCE	G	271.02	-18.53	5.7	1.9	0.8	0.8	1.5	10.9	42
693	1	SAX_J1802.7-2017	G	271.20	-19.70	0.2	0.0	3.2	0.0	0.0	3.3	58
694	1	SAX_J1805.5-2031	G	271.59	-20.52	0.0	31.8	26.6	37.8	3.6	99.7	62
695	1	SAX_J1806.5-2215	G	271.64	-22.25	44.9	130.2	9.8	0.0	0.0	184.9	36
696	1	X1803-245	G	271.70	-24.60	0.0	0.0	3.1	4.9	30.9	38.8	94
697	1	XTE_J1812-182	G	272.00	-18.30	17.3	38.8	4.7	0.0	0.0	60.7	35
698	2	SAXJ1808.4-3658	G	272.11	-36.98	977.7	212.9	446.4	462.2	0.0	2099.1	43
699	3	NEW_SGR	G	272.16	-20.41	78.0	851.4	1242.3	894.1	297.2	3363.0	62
700	2	NEWSOURCE_EXCESS	G	272.28	-18.91	78.7	39.5	49.9	0.0	0.0	168.1	36
701	1	PSR_J1809-1917	G	272.43	-19.29	0.0	6.5	50.8	15.3	0.0	72.6	62
702	1	3EG_J1809-2328	U	272.45	-23.56	0.0	6.4	52.1	38.6	0.0	97.2	66
703	1	SAX_J1810.8-2609	G	272.68	-26.15	7.0	37.5	124.1	0.0	4.2	172.8	55
704	1	NEW_SOURCE_3	U	272.70	-18.24	0.0	0.0	0.0	0.0	0.7	0.7	100
705	2	XTE_J1810-197	G	272.71	-19.70	4.0	43.2	35.1	30.8	13.2	126.4	60
706	1	PSR_J1811-1925	G	272.87	-19.42	47.1	621.6	464.6	202.6	0.0	1336.0	52
707	1	HESS_J1813-178	G	273.22	-18.30	153.8	0.0	0.0	0.0	0.0	153.8	20
708	1	FAINTTRANS4_JXXYY+ZZ	U	273.25	-33.75	0.0	0.6	0.8	0.0	0.0	1.4	51
709	1	XTE_J1814-338	G	273.43	-33.77	0.5	46.1	217.7	226.1	9.3	499.7	67
710	1	GROJ1814-12	G	273.50	-12.40	0.0	0.0	1.1	0.0	29.2	30.3	98
711	2	GX13+1	G	273.63	-17.16	13.2	111.3	158.4	93.0	312.4	688.4	76
712	1	PSR_J1814-1744	G	273.68	-17.75	18.3	132.7	0.0	0.0	0.0	151.0	37
714	2	GX_17+2	G	274.01	-14.04	71.1	544.8	235.1	127.8	350.7	1329.4	62
715	1	AM_HER	G	274.06	49.87	0.0	7.6	33.4	27.3	135.5	203.9	88
716	1	SWIFT_J1816.7-1613	G	274.20	-16.00	0.4	0.0	7.8	0.0	0.0	8.2	58
717	1	XTE_J1818-245	G	274.55	-24.55	3.6	31.1	74.7	64.7	3.1	177.1	63
718	1	XTE_J1817-330	G	274.56	-32.92	19.9	105.3	258.1	91.7	66.5	541.5	62
719	1	GALACTIC_BULGE_AQL	G	274.62	-7.48	199.0	2.3	0.0	0.0	0.0	201.3	20
720	1	AX_J1818.8-1559	G	274.72	-16.00	0.0	6.4	16.8	0.0	0.0	23.1	54
721	1	SAX_J1818.6-1703	G	274.80	-17.06	0.7	50.3	0.0	0.0	0.0	51.0	39
722	6	XTE_J1819-254	G	274.83	-25.41	3.4	62.7	99.0	48.8	25.3	239.2	62
723	2	PSR_J1819-1458	G	274.89	-14.97	15.5	167.0	13.7	0.0	0.0	196.2	39
724	1	SAXJ1818.6-1703	G	274.90	-17.05	6.2	80.1	6.9	0.0	0.0	93.3	40
725	1	GALACTIC_BULGE_RPLUS	G	275.07	-23.01	445.3	37.9	61.7	77.9	4.7	627.5	33

726	1	AX_J1820.5-1434	G	275.12	-14.57	0.0	0.0	5.4	21.2	60.8	87.4	92
727	1	PSR_J1821-1419	G	275.39	-14.32	11.2	137.3	0.0	0.0	0.0	148.5	38
728	1	GX_17+2_10065-01	G	275.54	-14.23	0.0	0.0	0.0	0.0	0.7	0.7	100
729	1	SWIFT_J1822.3-1606	G	275.60	-16.10	18.6	157.8	6.8	0.0	0.0	183.3	38
731	7	4U1820-303	G	275.92	-30.36	76.1	306.2	554.3	415.3	452.0	1804.0	69
732	4	PSR_1821-24	G	276.13	-24.87	61.7	159.0	354.1	13.0	103.3	691.1	58
733	1	GALACTIC_DISK	G	276.17	-12.82	22.7	58.5	57.7	12.4	35.7	186.9	57
734	1	XTE_J1824-141	G	276.19	-14.20	4.2	21.5	0.0	0.0	0.0	25.7	36
735	1	X1822-00	G	276.34	-0.01	0.0	0.0	1.1	0.0	31.9	33.0	98
736	1	XTE_J1821-141	G	276.43	-15.33	0.0	0.0	0.4	0.0	3.4	3.9	95
737	5	4U1822-371	G	276.44	-37.10	6.4	131.3	264.8	192.0	75.5	670.0	65
738	1	3EG_J1823-1314	G	276.52	-13.00	0.0	15.7	70.2	30.6	1.2	117.7	62
739	1	PSR_B1823-13	G	276.55	-13.58	9.0	83.1	69.0	0.0	0.0	161.1	47
740	1	LS_5039	G	276.56	-14.85	109.3	91.3	158.8	54.7	2.9	417.0	48
742	1	SAX_J1828.5-1037	G	277.14	-10.63	12.0	28.5	1.5	0.0	1.4	43.4	37
743	4	GS1826-238	G	277.37	-23.80	85.4	273.9	476.6	210.5	138.2	1184.5	60
745	1	XTE_J1829-098	G	277.43	-9.83	8.7	54.3	10.2	0.0	0.0	73.2	40
747	1	G21.5-0.9	G	278.39	-10.57	0.0	0.0	0.0	0.0	22.0	22.0	100
748	1	SGR_1833-0832	G	278.44	-8.54	53.9	411.7	15.1	3.4	0.2	484.2	38
750	1	XTE_NEWSOURCE	U	278.53	-13.06	0.8	0.0	3.5	0.0	0.0	4.3	52
751	3	SWIFT_1834.9-0846	G	278.71	-8.76	19.2	302.4	0.0	0.0	0.0	321.6	38
754	1	MAXI_J1836-194	G	278.96	-19.39	29.4	129.7	3.4	0.0	0.0	162.6	36
755	2	SCUTUM_X-1	G	279.12	-7.61	0.0	0.0	1.1	9.3	44.1	54.6	95
757	2	AX_J1838.0-0655	G	279.51	-6.93	40.7	306.7	77.8	7.6	0.0	432.7	42
758	1	ESO_103-G35	G	279.58	-65.43	0.0	0.0	4.2	28.1	172.9	205.1	96
760	5	SERX-1	G	279.99	5.04	26.6	192.9	185.1	114.9	103.0	622.5	62
761	1	TRANSIENT	G	280.03	-5.51	0.0	3.1	1.3	0.8	0.9	6.1	58
762	2	1E_1841-045	G	280.33	-4.94	84.6	538.7	539.0	209.7	42.8	1414.8	54
763	1	GS_1839-06	G	280.42	-5.85	0.0	0.2	3.4	0.0	0.0	3.6	58
766	1	SWIFT_J1842.5-1124	G	280.57	-11.42	29.8	71.5	1.9	1.2	3.0	107.5	36
767	1	SWIFT_J1843.5-0343	G	280.90	-3.73	4.5	18.8	0.0	0.0	0.0	23.3	36
768	1	V347_PAV	G	281.20	-74.31	0.0	6.8	0.0	0.0	0.0	6.8	40
769	1	AX_J1845-0258	G	281.21	-2.97	7.8	106.4	152.0	167.8	9.4	443.5	62
770	2	GS_1843+00	G	281.38	0.95	3.5	0.0	0.0	0.0	11.1	14.6	80
771	5	G29.7-0.3	G	281.60	-2.97	126.8	910.8	928.1	394.5	4.4	2364.6	53
772	1	J1846+5538	G	281.74	55.64	0.0	0.2	0.3	5.8	0.0	6.2	77
773	1	PSR_J1847-0130	G	281.90	-1.51	8.9	176.3	2.3	0.0	0.0	187.5	39
774	3	GS_1843-02	G	282.07	-2.42	22.1	57.4	36.8	34.5	188.9	339.6	78
775	1	IGR_18483-0311	G	282.08	-3.18	0.0	28.7	0.0	12.3	0.0	41.0	51
776	2	V603_AQL_(2.5_DAY)	G	282.23	0.58	0.0	9.0	60.5	16.2	34.1	119.7	72
777	1	IGR_J18490-0000	G	282.26	-0.02	26.9	94.9	0.0	0.0	0.0	121.7	35
778	1	NOVA_SCT_2003	G	282.41	-9.56	0.0	0.2	0.0	1.1	0.0	1.3	73
779	1	SWIFT_J185003-005627	G	282.51	-0.94	4.0	3.4	0.0	0.0	0.0	7.4	29
780	1	BETA_LYR	G	282.52	33.36	4.6	6.2	18.3	0.0	0.0	29.1	49
781	4	X1850-087	G	283.27	-8.70	6.9	21.0	20.8	21.0	46.4	116.1	73
782	1	AX_J1853.3-0128	G	283.38	-1.47	0.7	22.2	54.3	2.6	0.0	79.8	54
783	1	XTEJ_1859+226	G	283.45	22.51	0.6	0.7	1.2	0.0	0.0	2.5	44
784	1	IGR_J18539+0727	G	283.48	7.46	0.0	0.5	0.0	3.3	0.0	3.8	74
785	1	V1223_SGR	G	283.76	-31.16	4.5	31.5	15.3	21.7	73.7	146.6	77
786	2	XTE_J1856-0237	G	283.92	-2.62	15.3	137.0	7.7	1.6	6.8	168.4	41
787	1	XTEJ1856+053	G	284.16	5.31	0.2	2.7	16.9	0.0	0.0	19.7	56
788	1	XTE_J1859+226	G	284.71	23.86	38.5	154.3	65.6	147.8	52.9	459.1	60
789	1	XTEJ1858+034	G	284.73	3.41	3.4	4.4	24.1	1.4	11.8	45.1	66
790	1	SCUTUM_REGION	G	284.75	6.97	7.6	20.2	33.6	25.3	31.9	118.6	69

791	2	XTE_J1859+0817	G	284.78	8.28	0.0	13.9	36.8	12.9	4.7	68.4	62
792	1	HETE_J1900.1-2455	G	285.03	-24.92	85.2	468.0	526.6	172.6	35.2	1287.6	53
793	1	TRANSIENT1	U	285.03	6.32	0.0	0.0	0.0	0.9	0.0	0.9	80
794	1	NEW_PULSAR_NEAR_SCUTUM	G	285.11	-3.23	0.0	0.0	1.3	0.0	0.5	1.8	70
795	1	NEAR_XTEJ1856+053	G	285.16	5.33	0.0	3.2	3.9	0.0	0.0	7.2	50
796	1	XTE_J1901+014	G	285.40	1.44	0.0	0.0	1.0	0.0	0.0	1.0	60
797	2	X1901+031	G	286.05	3.18	0.0	57.5	116.4	88.6	11.9	274.3	63
798	1	XTE_J1908+094	G	286.55	9.10	0.0	25.4	15.6	17.4	3.5	61.9	59
799	1	EP_DRA	G	286.78	69.14	0.0	0.0	0.2	0.0	14.6	14.8	99
800	1	W50-WESTERN_LOBE	G	286.81	4.90	0.0	12.4	106.9	58.0	22.5	199.8	69
801	1	SGR_1900+14	G	286.82	9.32	109.3	497.7	1132.3	1129.0	518.6	3386.8	68
803	1	XTE_J1908+0632	G	286.93	6.53	1.3	0.0	0.0	0.0	0.0	1.3	19
804	2	1905+000	G	287.11	0.17	0.0	8.2	3.2	31.2	37.3	79.9	84
805	3	4U_1907+09	G	287.41	9.83	58.0	279.9	213.4	171.1	285.4	1007.7	66
806	1	X1908+075	G	287.70	7.60	0.0	80.7	148.9	138.5	5.1	373.2	63
807	1	IGR_J19112+1358	G	287.80	13.98	0.7	2.9	3.5	0.0	0.0	7.0	48
808	3	AQLX-1	G	287.82	0.58	149.9	589.4	753.7	534.5	441.0	2468.5	64
809	3	SS433	G	287.96	4.98	199.7	97.0	185.5	103.5	302.4	888.2	64
810	1	IGR_J19140+098	G	288.48	9.66	0.3	6.2	43.0	17.5	0.0	66.9	63
811	1	IGR_J19140+0951	G	288.50	9.89	2.2	5.6	64.8	2.8	0.0	75.3	58
812	1	J1914+2456	G	288.61	24.94	5.9	0.0	0.0	0.0	0.0	5.9	20
813	1	W50	G	288.62	4.95	0.0	0.0	5.7	9.3	93.9	108.9	96
814	1	EXO_1912+097	G	288.62	9.60	0.0	3.9	0.0	0.0	0.0	3.9	40
816	1	SS_433_10127-01	G	289.46	5.10	0.0	0.0	2.3	0.0	0.0	2.3	59
817	4	4U_1916-053	G	289.70	-5.24	5.3	16.0	138.3	59.0	238.3	456.9	82
820	1	GALACTIC_PLANE	G	290.60	15.26	0.0	0.0	6.6	12.0	150.3	168.8	97
821	1	SWIFT_J1922.7-1716	G	290.65	-17.28	0.0	0.2	1.2	3.6	0.4	5.4	75
822	1	CH_CYG	G	291.14	50.24	238.9	45.8	22.8	0.0	0.0	307.5	25
823	1	IGR_J19294+1816	G	292.35	18.27	11.0	27.1	0.0	0.0	0.0	38.2	34
827	1	PSR_J1932+1059	G	293.06	10.99	0.0	0.0	1.0	0.0	30.0	31.0	98
828	1	1H1936+541	G	293.22	53.88	0.0	0.0	0.0	6.2	3.1	9.3	86
829	1	RX_J1940.1-1025	G	294.64	-10.49	0.0	39.1	104.5	67.6	114.0	325.2	75
830	1	QS_TEL	G	294.65	-46.22	0.0	1.2	16.5	10.8	11.2	39.6	76
831	2	PSR_J1939+2134	G	294.90	21.60	0.0	20.9	158.0	17.8	1.7	198.3	60
832	1	V1432_AQL	G	295.05	-10.42	0.0	2.4	21.4	0.4	21.5	45.7	77
834	1	XTE_J1946+274	G	296.41	27.36	33.3	135.9	68.3	96.2	2.3	336.0	53
835	1	XTE_J1946+273	G	296.56	27.35	0.0	0.0	1.8	12.5	34.1	48.4	93
837	1	KS_1947+300	G	297.40	30.21	15.7	111.2	160.6	135.5	60.1	483.1	64
838	1	DA_495	G	298.07	29.43	0.0	2.6	36.2	13.6	0.0	52.4	64
839	1	PSR_B1951+32	G	298.24	32.88	0.0	0.0	12.4	0.3	12.6	25.3	80
840	1	SWIFT_J195509.6+2614	G	298.79	26.24	1.2	8.7	7.4	0.0	0.0	17.3	47
841	2	3A_1954+319	G	298.93	32.10	1.5	39.7	0.0	1.8	8.5	51.5	50
842	7	CYG_X-1	G	299.59	35.20	643.6	2339.0	2040.3	721.1	917.8	6661.8	56
843	1	3EG_J1958+2909	G	299.69	29.16	9.5	2.9	96.4	0.0	0.0	108.8	55
844	5	V1408_AQL	G	299.85	11.71	37.6	144.6	287.4	224.0	56.9	750.5	63
846	2	PSR_J1959+2048	G	299.90	20.80	0.0	0.8	16.8	7.9	51.8	77.4	88
849	1	XTE_J2012+381	G	300.70	38.15	0.0	0.5	0.2	2.3	0.8	3.8	77
850	1	GS2000+250	G	300.71	25.24	0.0	1.1	0.0	0.0	0.0	1.1	40
851	1	QQ_VUL	G	301.42	22.67	0.0	0.0	0.0	0.3	6.0	6.3	98
852	1	WZ_SGE	G	301.90	17.70	0.0	3.6	0.5	0.0	0.0	4.0	42
853	2	PKS2005-489	G	302.36	-48.83	212.5	63.0	106.0	58.6	139.0	579.2	54
856	1	XTEJ_2012+381	G	303.16	38.18	0.0	0.0	6.4	12.2	50.2	68.7	92
859	1	IRU_CAL	U	303.95	46.74	13.5	9.6	0.0	0.0	0.0	23.1	28
860	1	G74.9+1.2	G	304.01	37.20	8.1	40.2	60.1	0.0	0.0	108.4	49

861	1	PSR_J2017+06	G	304.34	6.06	5.8	37.5	0.0	0.0	0.0	43.2	37
864	4	WR_140-_WEEKLY	G	305.12	43.85	521.8	158.9	109.3	72.5	24.8	887.4	35
865	2	PSR_J2021+3651	G	305.27	36.86	3.3	73.0	32.7	7.0	0.0	116.0	47
867	1	GS_2023+338	G	306.02	33.87	1.1	2.0	6.9	0.4	0.0	10.5	52
869	1	EXO_2030+375	G	308.06	37.50	288.7	927.7	966.2	90.1	253.5	2526.1	52
870	3	CYG_X-3	G	308.10	40.96	156.5	523.5	144.2	86.5	272.1	1182.9	56
873	2	AU_MIC	G	311.29	-31.34	0.0	0.0	56.9	5.2	51.4	113.4	79
874	1	AX_J2049.6+2939	G	312.40	29.65	0.0	0.0	1.6	3.6	27.4	32.6	95
875	1	IC_5063	G	313.01	-57.07	0.0	0.0	0.5	0.0	83.3	83.8	99
876	1	SWIFT_J2058.4+0516	G	314.58	5.23	1.6	0.0	0.0	0.0	0.0	1.6	20
877	1	GRO_J2058+42	G	314.75	41.72	18.7	120.6	47.1	115.9	76.2	378.6	65
878	1	V407_CYG	G	315.54	45.78	0.0	2.4	0.0	0.0	0.0	2.4	40
879	2	SAX_J21035+4545	G	315.89	45.75	146.2	545.8	521.0	374.3	128.4	1715.7	57
880	1	J2058+42	G	316.00	40.50	0.0	0.0	0.0	0.0	1.4	1.4	100
881	1	RE_2107-05	G	317.65	-5.08	0.0	0.0	1.5	2.9	13.4	17.8	93
882	1	EUVE_J2115-586	G	318.92	-58.66	0.0	0.0	2.9	0.0	71.7	74.6	98
883	1	NEW_ASM_SOURCE	G	320.70	-5.97	0.0	0.0	1.5	1.7	3.7	6.9	86
884	1	XTE_J2123-058	G	320.82	-5.79	3.0	23.1	0.2	3.1	62.5	91.8	81
885	1	V2069_CYG	G	320.94	42.30	46.4	0.0	0.0	0.0	0.0	46.4	20
886	1	PKS_2126-158	G	322.30	-15.65	0.0	6.4	35.8	0.0	0.0	42.2	56
887	2	X2127+119	G	322.49	12.17	101.7	192.0	131.5	10.7	53.7	489.6	48
888	1	X2127+119_10077-01	U	324.03	12.11	0.0	0.0	0.0	0.0	2.8	2.8	100
889	1	CEP_X-4	G	324.89	57.06	0.0	4.8	18.4	23.8	18.4	65.4	77
890	2	SS_CYG	G	325.68	43.59	103.8	137.6	358.6	220.6	285.7	1106.2	68
892	2	CYGNUS_X-2	G	326.17	38.32	106.1	647.8	1191.5	395.5	565.7	2906.5	64
893	1	CygX-2_10065-02	G	327.66	37.39	0.0	0.0	0.0	0.0	2.2	2.2	100
894	1	LS_PEG	G	327.99	14.11	0.3	5.8	0.0	0.0	0.0	6.0	39
895	1	SWIFT_J2156.1-5748	G	329.03	-57.82	0.4	0.0	2.4	0.0	0.0	2.8	54
896	4	PKS2155-304	G	329.71	-30.23	679.6	385.8	212.1	23.5	145.3	1446.3	40
897	1	X2202+501	G	330.41	50.17	0.0	0.0	0.0	0.0	11.8	11.8	100
899	2	BL_LACERTAE	G	330.68	42.28	2334.3	827.2	64.3	0.8	2.3	3229.0	25
901	1	4U2206+54	G	331.99	54.52	12.5	53.2	264.6	2.4	13.5	346.1	57
902	2	AR_LAC	G	332.17	45.74	0.0	43.6	154.2	29.8	102.0	329.6	71
904	1	PSR_J2214+30	G	333.68	30.05	11.3	37.4	0.0	0.0	0.0	48.7	35
906	1	FO_AQR	G	334.48	-8.35	0.0	1.1	5.4	16.8	93.1	116.4	94
909	1	X2214+589	G	336.64	61.24	0.0	0.0	0.7	0.0	11.0	11.7	97
910	2	G106.6+2.9	G	337.25	61.25	11.7	143.1	96.8	4.4	0.0	256.0	47
913	1	DI_LAC	G	338.95	52.72	0.0	0.2	1.9	0.1	26.9	29.1	96
914	1	SAXJ2239+6116	G	339.84	61.27	0.0	9.0	6.3	4.2	3.2	22.6	61
917	2	MR2251-178	G	343.52	-17.58	683.5	257.0	6.1	9.8	93.9	1050.4	32
919	1	AO_PSC	G	343.83	-3.18	0.0	0.0	6.3	11.9	57.0	75.2	93
921	1	PKS_2255-282	G	344.50	-28.20	0.0	0.0	0.0	0.0	6.5	6.5	100
922	3	1_E2259+596	G	345.28	58.88	188.6	1131.4	932.3	525.5	359.8	3137.6	58
923	1	PSR_J2302+44	G	345.73	44.73	10.2	33.1	0.0	0.0	0.0	43.3	35
928	1	AX2315-592	G	348.83	-59.17	0.0	0.0	4.1	4.4	94.4	103.0	97
931	1	CAS_A	G	350.86	58.82	1.7	3.2	206.9	17.9	306.9	536.6	83
932	1	1ES2322-40.9	G	351.19	-40.68	21.0	25.2	0.0	0.0	0.0	46.2	30
934	1	CasA_10271-01	G	352.14	57.47	0.0	0.0	0.0	0.0	2.3	2.3	100
935	1	EQ_PEG	G	352.96	19.94	0.0	0.0	0.0	1.3	53.4	54.8	99
936	1	Z_AND	G	353.42	48.82	0.0	0.0	1.2	4.2	59.0	64.4	97
937	1	PSR_B2334+61	G	354.27	61.85	0.0	0.0	0.6	0.0	44.0	44.7	99
938	1	ASM	G	355.60	-4.87	0.0	0.0	0.0	0.0	60.6	60.6	100
939	1	1ES_2344+514	G	356.77	51.71	159.1	1.1	4.8	1.5	0.0	166.4	21
940	1	II_PEG	G	358.77	28.63	0.0	0.0	17.6	25.1	62.9	105.5	88

941	1	H2356-309	G	359.78	-30.63	0.0	3.6	1.7	0.0	0.0	5.3	46

Appendix B Extragalactic X-ray catalogue (248 sources)

Cat. No	No Var	X-ray Source Target Name	T	RA (deg.)	Dec (deg.)	No. of PCU`s ON (ksec) 1	2	3	4	5	Any	GV
2	1	GRB_980125	E	0.97	36.61	0.0	1.3	0.0	2.0	0.0	3.2	64
3	2	MKN335	E	1.58	20.20	238.3	37.2	0.2	0.0	0.0	275.7	22
5	1	GRB_980203	E	3.50	-18.00	0.0	0.0	0.0	3.8	0.0	3.8	79
12	1	RHS03	E	8.59	-79.09	0.0	0.0	0.0	0.0	10.9	10.9	100
13	1	SMC_LMC_PULSAR1	E	8.83	-71.71	0.3	0.8	0.0	0.0	0.0	1.2	34
14	1	GRB_981022	E	8.97	46.46	0.0	0.0	0.0	0.0	2.7	2.7	100
16	2	MRK_348	E	12.20	31.96	413.4	0.0	37.5	25.7	225.8	702.4	50
18	1	SMC_NEW_PULSAR_2	E	12.50	-74.60	0.0	0.7	0.1	0.9	0.0	1.6	62
19	3	SMC_POSITION_D	E	12.50	-73.10	188.0	1416.7	515.2	47.6	1.7	2169.2	43
20	1	NGC253	E	12.50	-25.02	0.0	0.0	117.2	0.0	3.9	121.1	61
21	3	SMC_POSITION_4	E	12.69	-73.27	8.2	131.6	16.6	6.1	3.1	165.5	43
24	1	SMC_X-3	E	13.03	-72.44	0.0	16.0	76.2	51.8	187.2	331.1	84
26	1	MAGELLANIC_PULSAR_1	E	13.10	-72.34	13.8	103.9	0.0	0.0	0.0	117.7	37
28	1	SMC_POSITION_F	E	13.40	-73.40	44.5	223.4	221.4	0.0	0.0	489.3	47
29	3	SMC_POSITION_1	E	13.47	-72.44	57.4	440.8	919.8	675.2	110.3	2203.5	63
30	1	F00521-7054	E	13.48	-70.63	0.0	0.0	1.6	0.0	1.2	2.8	77
31	1	SMC_X-2	E	13.64	-73.68	4.1	9.4	6.2	5.6	0.0	25.4	50
35	1	SMC_POSITION_E	E	14.30	-72.30	264.0	1626.5	281.1	3.7	3.9	2179.2	40
36	1	TON_S180	E	14.33	-22.38	155.1	491.4	109.0	0.0	0.0	755.6	38
39	3	SMC_POSITION_2	E	16.25	-72.10	6.0	102.3	163.6	46.8	3.3	322.0	56
41	1	SMC_POSITION_G	E	16.95	-72.60	28.7	88.2	229.8	3.6	0.0	350.3	51
44	1	SMC_POSITION_3	E	18.75	-73.10	0.0	0.0	5.1	3.5	5.4	14.1	80
45	1	SMC_POSITION_C	E	18.75	-73.42	0.0	10.3	36.0	16.4	0.0	62.8	61
46	1	SMC_X-1	E	19.27	-73.44	44.0	437.6	197.8	99.0	406.8	1185.3	66
49	4	FAIRALL-9	E	20.94	-58.81	77.7	816.3	398.6	11.3	47.8	1351.7	47
50	2	NGC_529A	E	20.98	-35.07	6.5	133.7	0.0	0.0	0.0	140.1	39
51	1	GRB_970616	E	23.47	-5.15	0.0	0.0	0.1	0.0	5.2	5.3	99
58	1	H0147-537	E	27.22	-53.47	0.0	0.0	2.0	2.6	99.3	103.8	98
59	1	F01475-0740	E	27.51	-7.43	0.0	0.0	2.0	0.0	3.6	5.6	85
61	1	ABELL_262	E	28.21	36.15	3.4	169.1	72.3	0.0	0.0	244.8	45
68	1	MKN590	E	33.64	-0.77	19.6	46.9	1.0	0.0	0.0	67.6	34
70	1	3C_66A	E	35.67	43.03	275.0	159.4	2.6	0.0	0.0	437.0	27
73	1	1ES_0229+200	E	38.20	20.29	398.2	1.7	0.0	0.0	0.0	399.9	20
75	3	0235+164	E	39.66	16.62	409.3	86.8	5.2	1.9	21.3	524.5	27
77	2	NGC_1052	E	40.27	-8.26	443.3	49.8	0.0	0.0	0.0	493.1	22
78	1	RHS15	E	40.56	5.51	0.0	0.0	0.0	0.0	11.4	11.4	100
79	1	NGC_1068	E	40.67	-0.01	0.0	0.0	4.3	10.4	48.9	63.6	94
83	1	RHS17	E	45.03	16.50	0.0	0.0	0.0	0.0	12.0	12.0	100
85	1	GRB990806	E	47.63	-68.12	0.0	2.1	0.4	0.0	0.0	2.5	43
87	1	GRB_050318	E	49.68	-46.40	0.0	0.3	1.3	0.0	0.0	1.6	55
88	2	PERSEUS_CLUSTER	E	49.95	41.52	0.0	0.0	0.0	3.5	40.7	44.1	98
91	1	NGC_1320	E	51.20	-3.04	0.0	0.0	5.0	0.0	0.0	5.0	60
97	1	NGC_1386	E	54.19	-36.00	0.0	0.0	4.5	0.0	0.0	4.5	60

99	1	F03362-1642	E	54.64	-16.54	0.0	0.0	4.2	0.0	0.0	4.2	60
101	1	H0348-120	E	58.26	-11.75	0.0	0.0	0.0	0.0	108.7	108.7	100
107	2	0414+009	E	64.22	1.09	22.2	0.0	6.7	0.0	11.2	40.1	48
108	1	3C_111	E	64.59	38.03	1156.4	543.6	64.1	7.2	41.6	1812.8	29
111	1	GRB980923	E	65.27	-79.25	0.0	0.0	0.0	0.9	0.0	0.9	79
114	1	0420-014	E	65.82	-1.34	0.0	0.0	1.9	0.0	0.0	1.9	59
115	2	3C120	E	68.30	5.35	817.3	1939.5	382.7	49.7	61.1	3250.3	39
116	1	A496	E	68.40	-13.30	0.0	0.0	2.7	1.0	124.0	127.7	98
118	1	F04385-0828	E	70.23	-8.37	0.0	0.0	2.0	0.0	1.9	3.9	79
123	1	LMC_0456-695	E	74.00	-69.50	0.0	0.0	0.0	0.0	20.4	20.4	100
124	1	LMC_0456-685	E	74.00	-68.50	0.0	0.0	0.2	0.0	21.0	21.1	99
130	1	GRB_970228	E	76.19	11.84	0.0	0.0	0.0	0.0	3.9	3.9	100
134	1	LMC_0508-695	E	77.00	-69.50	0.0	0.0	1.1	0.0	20.3	21.3	97
135	1	LMC_0508-685	E	77.00	-68.50	0.0	0.0	0.0	0.0	22.3	22.3	100
140	1	LMC_Transient	E	79.02	-69.34	0.0	0.0	0.0	0.0	8.2	8.2	100
141	1	AKN_120	E	79.04	-0.15	128.0	92.5	241.3	16.4	85.0	563.3	54
143	1	GRB_980208	E	79.45	-76.34	0.0	0.0	0.0	2.9	0.0	2.9	80
146	1	LMC_0520-705	E	80.00	-70.50	0.0	0.0	0.5	0.0	20.2	20.7	99
147	1	LMC_0520-695	E	80.00	-69.50	0.0	0.0	0.0	14.2	6.6	20.8	86
148	1	LMC_0520-685	E	80.00	-68.50	0.0	0.0	0.0	0.0	20.5	20.5	100
149	1	LMC_X-2	E	80.12	-71.96	0.0	113.2	544.0	280.6	120.3	1058.1	67
151	1	F05189-2524	E	80.26	-25.36	0.0	0.0	1.9	0.0	0.9	2.8	73
152	1	LMC_TRANSIENT	E	80.63	-69.62	0.0	0.0	0.0	0.0	1.5	1.5	100
154	1	E253-G3	E	81.32	-46.01	0.0	0.0	1.4	0.0	1.9	3.3	82
156	1	LMC_0528-675	E	82.00	-67.50	0.0	0.0	0.4	19.9	0.0	20.4	79
161	1	LMC_POSITION_A	E	82.50	-66.50	1.7	23.1	79.4	9.8	3.4	117.3	58
163	2	PKS0528+134	E	82.74	13.53	205.5	39.8	37.2	8.8	0.0	291.4	29
164	1	GRB_991216	E	82.86	10.28	0.0	0.0	2.3	2.8	0.0	5.1	71
165	1	LMC_0532-705	E	83.00	-70.50	0.0	0.0	0.5	6.2	13.9	20.6	93
166	1	LMC_0532-685	E	83.00	-68.50	0.0	0.0	0.8	21.5	0.0	22.3	79
167	1	LMC_X-4	E	83.21	-66.37	0.0	12.9	104.6	25.5	570.8	713.8	92
170	1	SN1987A	E	83.87	-69.27	0.0	0.0	1.1	2.6	101.9	105.7	99
176	1	LMC_X-3	E	84.74	-64.08	1142.0	789.4	1012.3	322.9	724.6	3991.1	53
177	1	NEAR_LMC_X-1	E	84.75	-70.00	820.3	86.0	18.6	0.0	1.5	926.4	22
178	1	LMC_X-1	E	84.91	-69.74	42.2	88.5	57.9	70.4	444.1	703.2	82
180	1	LMC_X-1_NORTH	E	84.99	-67.74	0.0	0.0	0.5	0.0	20.6	21.1	99
181	1	GRB_990424	E	85.00	36.00	0.0	0.0	2.2	0.0	0.0	2.2	60
188	1	LMC_0544-705	E	86.00	-70.50	0.0	0.0	0.0	0.0	20.3	20.3	100
189	1	LMC_0544-685	E	86.00	-68.50	0.0	0.0	10.4	11.5	0.0	21.9	70
193	2	NGC2110	E	88.05	-7.46	0.0	20.4	20.1	66.2	125.9	232.6	85
194	1	MCG_8-11-11	E	88.72	46.44	0.0	0.0	0.0	0.0	74.4	74.4	100
205	1	MKN_3	E	93.90	71.04	0.0	0.0	46.0	0.0	22.4	68.5	73
213	1	1ES_0647+250	E	102.69	25.05	55.2	0.0	0.0	0.0	0.0	55.2	20
214	1	RGB_J0710+591	E	103.62	59.14	23.6	0.0	0.8	0.0	0.0	24.4	21
219	1	H_0707-495	E	107.17	-49.55	0.0	0.0	0.0	15.5	85.1	100.6	96
220	1	1H_0707-495	E	107.17	-49.00	135.7	0.0	0.0	0.0	0.0	135.7	20
222	1	A576	E	110.35	55.74	0.0	48.2	72.5	0.0	0.0	120.7	52
228	1	GRB_20000115	E	114.39	-19.65	2.9	0.0	0.0	0.0	0.0	2.9	20
230	1	MKN79	E	115.64	49.81	1416.4	1025.3	2.4	3.1	1.8	2448.9	28
239	1	GRB_2000115	E	120.80	-17.10	0.0	2.3	0.0	0.0	0.0	2.3	39
250	1	GRB_980401_ANNULUS	E	124.43	17.64	0.0	0.0	1.7	0.0	5.9	7.6	90
257	1	0829+046	E	127.95	4.49	281.7	3.2	0.0	0.0	0.0	284.9	20
270	1	F08572+3915	E	135.10	39.07	0.0	0.0	6.0	0.0	0.0	6.0	60
274	1	GRB_100423A	E	136.45	21.50	0.6	2.9	0.0	0.0	0.0	3.6	36

275	1	A754	E	137.21	-9.63	0.0	0.0	4.5	6.2	98.6	109.3	97
276	1	GRB_980326	E	137.64	-22.26	0.0	0.0	1.8	1.6	0.8	4.2	75
285	1	MKN110	E	141.30	52.29	1466.8	683.4	6.8	0.8	1.0	2158.8	26
292	1	GRB_980803	E	144.32	57.90	0.0	0.0	0.0	0.0	1.6	1.6	100
294	1	NGC_2992	E	146.43	-14.33	0.0	91.3	3.7	0.0	0.0	94.9	40
295	1	MCG-5-23-16	E	146.92	-30.95	0.0	16.9	22.7	25.6	148.0	213.2	88
298	2	M82_ULX	E	148.96	69.68	343.9	170.9	636.4	226.1	199.1	1576.3	57
305	1	GRB_980706	E	154.78	55.31	0.0	0.0	0.9	0.0	2.3	3.2	88
306	2	NGC3227	E	155.88	19.86	431.7	1358.7	71.6	27.0	142.0	2030.9	41
309	1	NGC3281	E	157.97	-34.85	0.0	17.7	0.0	0.0	0.0	17.7	40
310	1	A1060	E	159.18	-27.53	0.0	37.9	53.4	0.0	0.0	91.3	51
313	1	GRB_030329	E	161.21	21.52	0.0	10.7	0.5	3.4	0.0	14.6	50
318	1	1ES_1101-232	E	165.90	-23.49	145.4	117.0	10.5	0.0	0.0	272.9	30
319	1	SN1996CB	E	165.93	28.90	0.0	0.0	0.0	0.0	5.7	5.7	100
321	4	MKN_421	E	166.11	38.21	1428.4	953.0	678.3	146.3	294.3	3500.2	42
323	1	NGC_3516	E	166.70	72.57	208.5	258.1	679.0	144.0	451.2	1740.8	64
328	1	GRB_990615	E	169.77	-51.98	0.0	0.0	1.3	0.0	0.0	1.3	59
329	1	PG1116+215	E	169.79	21.32	0.0	0.0	38.7	0.0	23.7	62.4	75
334	1	NGC_3660	E	170.89	-8.66	0.0	0.0	5.6	0.0	0.0	5.6	59
335	1	SNR_G292.0+1.8	E	171.17	-59.27	0.0	0.0	4.6	39.8	52.2	96.6	89
336	1	GRS_1124-68	E	171.61	-68.68	0.0	0.8	0.3	0.0	0.0	1.1	44
337	1	GRB_980706_ANNULUS	E	172.56	55.72	0.0	0.0	0.0	4.4	2.6	6.9	87
339	1	GRB_990506	E	173.79	-23.17	0.0	7.7	1.4	0.0	6.5	15.5	66
340	2	1133+704	E	174.11	70.16	0.0	23.5	5.5	0.0	1.1	30.1	45
342	2	NGC3783	E	174.76	-37.74	1519.2	1208.1	57.4	7.0	78.9	2870.5	31
343	1	GRB_970603	E	174.94	63.16	0.0	0.0	0.0	0.0	3.3	3.3	100
346	1	A1367	E	176.12	19.83	0.0	0.0	2.6	0.0	32.3	34.9	97
350	1	NGC_3998	E	179.48	55.45	545.0	0.4	0.0	0.0	0.0	545.4	20
351	3	4C29.45	E	179.88	29.25	73.0	97.2	37.0	0.0	0.0	207.2	36
352	2	NGC4051	E	180.79	44.53	1511.1	1708.2	382.9	50.0	216.1	3868.2	38
353	1	PG1202+281	E	181.18	27.90	0.0	0.0	14.1	0.9	22.0	37.0	84
354	2	NGC_4151	E	182.64	39.41	129.7	611.0	151.0	26.7	150.6	1069.1	49
358	1	1217+301	E	184.47	30.12	0.0	0.0	2.7	0.0	3.0	5.6	81
359	2	MARKARIAN_766	E	184.61	29.81	798.3	340.0	73.2	0.0	0.8	1212.3	28
360	2	NGC4258	E	184.74	47.30	747.2	865.1	720.4	17.9	69.2	2419.9	41
362	2	1219+285	E	185.38	28.23	33.5	0.0	0.0	0.0	7.5	41.0	34
364	2	NGC4388	E	186.44	12.66	0.0	9.6	15.6	5.5	89.0	119.8	89
367	4	3C273_N2	E	187.28	2.05	1468.8	1656.6	308.6	46.9	134.2	3615.1	36
368	1	NGC_4472	E	187.45	8.00	0.0	4.8	7.1	43.9	0.0	55.8	74
369	2	3C273_OFFSET_N1	E	187.70	2.41	0.0	0.0	19.8	0.1	0.7	20.6	61
370	1	M87	E	187.71	12.39	2.8	8.1	18.3	121.2	74.7	225.1	82
372	1	TON1542	E	188.01	20.16	0.0	0.0	24.6	0.2	80.2	105.0	90
373	2	NGC_4507_10325-02	E	188.90	-39.91	0.0	6.9	3.4	0.0	159.3	169.6	96
377	2	NGC4593	E	189.91	-5.34	1231.6	957.1	77.9	10.2	0.0	2276.8	30
378	1	TOL1238-364	E	190.21	-36.75	0.0	0.0	3.5	0.0	0.0	3.5	60
380	1	NGC_4649	E	190.92	11.55	0.0	17.0	36.3	4.6	0.0	57.9	55
385	2	3C279	E	194.00	-5.79	2072.6	1558.2	556.2	37.6	156.8	4381.3	35
388	1	COMA_CLUSTER	E	194.98	27.91	0.0	20.3	230.2	44.9	83.0	378.4	70
392	2	NGC4945	E	196.36	-49.47	482.4	761.0	209.2	6.8	25.0	1484.4	37
393	1	GRB_981223	E	196.99	13.17	0.0	0.0	0.9	1.4	2.0	4.3	85
395	1	MCG-3-34-63	E	200.60	-16.73	0.0	0.0	2.1	0.0	1.4	3.4	75
396	1	V803_CEN	E	200.93	-41.74	0.0	0.0	2.0	36.0	50.6	88.6	90
397	2	CEN_A	E	201.37	-43.02	683.8	384.3	85.8	10.8	81.0	1245.7	34
399	1	ABELL_1750	E	202.72	-1.84	0.0	213.7	0.4	0.0	0.0	214.1	40

401	2	MGC-6-30-15	E	203.97	-34.30	1020.5	1321.6	571.6	96.0	419.9	3429.5	45
406	2	MKN_279	E	208.26	69.31	0.0	92.2	71.7	63.8	24.1	251.8	61
407	1	NGC_5347	E	208.32	33.49	0.0	0.0	2.6	0.0	2.8	5.4	80
413	1	V834_CEN	E	212.28	-45.29	0.0	0.8	38.8	0.0	47.0	86.6	81
414	1	CIRCINUS_GALAXY	E	213.29	-65.34	0.0	6.0	31.5	6.6	99.4	143.6	87
415	1	NGC_5506	E	213.31	-3.21	300.0	665.6	195.5	12.1	141.5	1314.8	45
417	2	NGC5548	E	214.50	25.14	344.7	1100.6	176.3	28.0	353.8	2003.4	49
418	1	PG1416-129	E	214.77	-13.18	0.0	0.0	4.9	0.0	22.8	27.8	92
427	1	PG1440+356	E	220.53	35.44	0.0	0.0	1.8	4.3	30.1	36.2	95
429	1	GRB_970402	E	222.57	-69.33	0.0	0.0	0.0	0.0	2.0	2.0	100
433	1	GRB_980703	E	224.00	3.08	0.0	0.0	1.3	0.0	0.9	2.1	76
439	1	GRB_971113	E	228.47	-73.95	0.0	0.0	0.5	0.0	1.5	2.0	89
447	1	ARP_220	E	233.74	23.50	0.0	0.0	0.0	0.0	1.2	1.2	100
451	1	RHS53	E	235.06	81.92	0.0	0.0	0.0	0.0	10.9	10.9	100
457	1	MCG-2-40-4	E	237.10	-13.76	0.0	0.0	5.4	0.0	0.0	5.4	59
462	3	G326.3-1.8	E	238.05	-56.32	0.0	1.2	143.8	0.0	4.4	149.4	61
467	1	ABELL_2142	E	239.59	27.23	0.0	0.5	2.8	1.4	0.0	4.7	64
473	1	GRB_971209	E	242.00	64.00	0.0	0.0	0.0	0.0	1.4	1.4	100
477	1	A2163	E	243.94	-6.15	0.0	506.0	149.7	2.3	0.0	658.0	44
496	1	NGC_6251	E	248.13	82.54	0.0	222.4	5.5	0.0	0.0	227.9	40
499	1	4C38.41	E	248.81	38.13	79.0	0.0	0.0	0.0	0.0	79.0	20
518	1	NGC_6240	E	253.25	2.40	0.0	29.1	70.1	7.2	36.2	142.6	67
519	6	1652+398	E	253.47	39.76	289.6	204.6	527.1	12.6	139.2	1173.2	51
530	1	NGC_6266	E	255.30	-30.11	91.1	5.4	0.0	0.0	0.0	96.6	21
532	1	PG1700+518	E	255.35	51.82	0.0	0.0	0.8	0.0	40.8	41.6	99
534	1	RHS54	E	255.68	72.89	0.0	0.0	0.4	0.0	10.5	10.9	98
538	1	A2256	E	255.93	78.72	0.0	448.9	9.8	0.0	30.7	489.5	44
570	1	NGC_6300	E	259.25	-62.82	0.0	0.0	0.6	1.3	37.0	38.9	98
575	1	NGC_6393	E	259.59	59.64	0.0	0.0	0.0	0.0	7.2	7.2	100
577	1	X1715-321	E	259.70	-32.18	0.0	0.0	0.7	0.3	46.4	47.3	99
592	3	IZW187	E	262.08	50.22	0.0	19.8	5.3	0.0	10.3	35.3	60
593	1	PDS456	E	262.08	-14.27	0.0	0.0	2.1	15.0	87.2	104.3	96
596	1	NGC6393	E	262.59	59.64	0.0	0.0	0.0	2.2	29.2	31.4	98
604	1	PDS_456	E	263.11	-13.26	114.4	194.1	53.0	13.8	0.0	375.3	38
605	1	NRAO530	E	263.26	-13.08	160.7	3.2	0.0	0.0	0.0	163.9	20
616	1	GRB_980611	E	264.37	58.49	0.0	0.0	0.0	0.0	4.1	4.1	100
628	1	GRS_1737-31	E	265.10	-31.00	0.0	0.0	1.6	15.8	38.8	56.2	93
632	3	GRS1739-128	E	265.52	-27.62	0.0	0.0	24.0	0.0	11.8	35.8	73
638	1	1ES1741+196	E	265.99	19.59	0.0	12.9	1.5	4.5	1.4	20.4	54
643	2	GRS1741.9-2853	E	266.26	-28.91	0.0	4.3	12.7	0.0	0.0	17.0	54
657	4	SAX_J1748.9-2021	E	267.22	-20.36	151.5	276.2	93.4	76.4	16.0	613.5	44
686	1	GRS_1758-258	E	270.30	-25.74	0.0	8.7	141.1	55.1	53.6	258.5	71
687	1	NEAR_GRS_1758-258	E	270.32	-26.25	227.0	445.7	295.3	341.4	432.4	1741.8	63
713	2	4U_1812-12	E	273.80	-12.08	23.0	70.5	45.6	16.3	124.2	279.6	70
730	1	XSS_J18236-5616	E	275.89	-56.28	0.0	0.0	0.3	9.2	0.0	9.5	79
741	1	SNR_G20.0-0.2	E	277.04	-11.58	0.0	0.8	32.5	0.0	0.0	33.2	59
744	1	SNR_G18.9-1.1	E	277.41	-12.97	0.0	1.7	6.6	40.4	3.3	52.0	77
746	1	GRB_970828	E	277.71	59.30	0.0	0.0	0.3	0.0	4.2	4.5	97
749	1	SNR_G24.7+0.6	E	278.52	-7.07	0.0	3.6	3.5	42.5	0.0	49.6	75
752	2	3C382	E	278.76	32.70	0.0	135.4	16.3	1.8	38.7	192.3	54
753	4	X_1832-330	E	278.93	-32.99	0.0	4.3	33.2	29.3	43.3	110.1	80
756	2	IRAS_18325-5926	E	279.24	-59.40	0.0	0.0	7.7	32.8	355.7	396.1	97
759	1	SNR_G27.8+0.6	E	279.96	-4.37	0.0	0.0	0.0	15.4	0.0	15.4	80
764	2	3C_390.3	E	280.50	79.77	139.9	407.1	252.2	13.6	98.9	911.7	49

765	1	GRB_970912	E	280.57	-15.61	0.0	0.0	1.9	0.2	2.4	4.5	82
802	1	3C_397_(G41.1-0.3)	E	286.90	7.12	0.0	0.0	1.0	10.4	68.9	80.2	96
815	4	GRS_1915+105	E	288.80	10.95	904.3	2194.7	1248.4	751.8	1701.1	6800.3	60
818	1	GRB090709A	E	289.93	60.73	1.2	7.9	0.0	0.0	0.0	9.0	37
819	1	A2319	E	290.30	43.96	98.8	124.4	9.6	0.0	0.0	232.8	32
824	1	GRB_970807	E	292.55	-37.34	0.0	0.0	0.0	0.0	1.7	1.7	100
825	1	SNR_G54.1+0.3	E	292.62	18.87	0.0	8.1	44.5	42.6	0.0	95.2	67
826	1	F19254-7245	E	292.84	-72.66	0.0	0.0	3.2	0.0	0.0	3.2	60
833	1	NGC_6814	E	295.69	-10.28	0.0	0.0	4.1	6.8	24.7	35.5	91
836	1	SNR_G63.7+1.1	E	296.99	27.74	7.8	93.7	0.0	0.0	0.0	101.5	38
845	2	CYGNUS_A	E	299.87	40.73	0.0	43.6	54.5	3.9	49.0	151.0	67
847	2	1ES_1959+650	E	300.00	65.15	64.8	273.7	16.8	13.7	3.7	372.7	39
848	1	MG4_J200112+4352	E	300.30	43.88	56.4	4.7	1.0	1.2	0.0	63.4	23
854	1	A3667_2006-56	E	302.62	-56.50	0.0	79.5	5.8	0.0	0.0	85.2	41
855	1	A3667	E	303.12	-56.83	0.0	43.1	0.0	0.0	0.0	43.1	40
857	1	GRB050925	E	303.48	34.33	0.0	0.8	2.5	0.0	0.0	3.2	55
858	1	A3667_2010-57	E	303.62	-57.00	0.0	81.0	3.5	1.3	0.7	86.5	41
862	1	NGC_6890	E	304.58	-44.81	0.0	0.0	5.4	0.0	0.0	5.4	59
863	1	2EG_J2020+40	E	305.07	40.44	0.0	0.0	6.7	10.4	192.1	209.1	97
866	1	SNR_G076.9+01.0	E	305.59	38.70	12.4	93.5	0.0	0.0	0.0	106.0	37
868	1	GRB_990323	E	307.62	-83.40	0.0	0.0	0.0	0.0	4.9	4.9	100
871	1	RHS56	E	309.86	-30.31	0.0	0.0	0.0	0.0	11.6	11.6	100
872	3	MRK_509	E	311.04	-10.72	169.5	673.2	75.8	3.0	169.2	1090.6	47
891	1	GRB_971208_ANNULUS	E	326.00	74.50	0.0	0.0	0.0	0.0	4.1	4.1	100
898	1	NGC_7172	E	330.51	-31.87	0.0	0.0	3.8	3.3	100.4	107.5	97
900	1	GRB_970926	E	331.33	-12.31	0.0	0.0	0.0	0.0	2.3	2.3	100
903	2	NGC_7213	E	332.32	-47.17	1158.9	78.4	5.4	0.0	0.0	1242.7	21
905	1	LBQS2212-1759	E	333.88	-17.74	0.0	0.0	20.3	0.0	0.0	20.3	60
907	1	GRB_990425	E	336.02	-11.25	0.0	0.0	0.4	3.1	0.0	3.5	77
908	1	3C_446	E	336.36	-4.95	9.4	54.9	1.8	0.0	0.0	66.0	37
911	1	CTA_102	E	338.20	11.73	0.0	117.8	3.6	0.0	0.0	121.4	40
912	1	NGC_7314	E	338.90	-26.10	33.5	250.9	110.4	1.5	2.3	398.6	44
915	2	ARK_564	E	340.66	29.73	133.8	886.4	41.4	2.2	53.5	1117.3	41
916	1	3C_454.3	E	343.49	16.15	81.2	157.8	217.1	14.2	36.9	507.2	50
918	1	3C454.3	E	343.67	15.65	205.2	0.4	0.0	0.0	0.0	205.6	20
920	1	GRB_980125_ANNULUS	E	344.43	32.35	0.0	0.0	0.0	2.9	0.0	2.9	79
924	2	NGC_7469	E	345.81	8.87	445.6	327.7	370.5	84.1	613.3	1841.1	60
925	1	MCG-2-58-22	E	346.18	-8.69	8.4	163.4	44.1	4.9	46.0	266.9	53
926	1	GRB_980306_ANNULUS	E	346.93	-56.81	0.0	0.0	0.0	0.0	6.6	6.6	100
927	1	NGC_7469_10293-01	E	347.33	8.82	0.0	0.0	0.0	0.0	2.2	2.2	100
929	1	NGC_7582	E	350.37	-41.22	18.4	204.0	0.0	1.8	0.0	224.1	38
930	1	GRB_980519	E	350.54	77.29	0.0	0.0	0.0	0.0	0.7	0.7	100
933	1	RHS61	E	351.47	21.89	0.0	0.0	0.0	0.0	10.7	10.7	100