The First MAXI/SSC Catalog of X-ray Sources in 0.7–7.0 keV

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Abstract

We present the first source catalog of the Solid-state Slit Camera (SSC) of the Monitor of All-sky X-ray Image (MAXI) mission on the International Space Station, using the 45-month data from 2010 August to 2014 April in 0.7–7.0 keV bands. Sources are searched for in two energy bands, 0.7–1.85 keV (soft) and 1.85–7.0 keV (hard), the limiting sensitivity of 3 and 4 mCrab are achieved and 140 and 138 sources are detected in the soft and hard energy bands, respectively. Combining the two energy bands, 170 sources are listed in the MAXI/SSC catalog. All but 2 sources are identified with 22 galaxies including AGNs, 29 cluster of galaxies, 21 supernova remnants, 75 X-ray binaries, 8 stars, 5 isolated pulsars, and 9 non-categorized objects. Comparing the soft-band fluxes at the brightest end in our catalog with the ROSAT survey, which was performed about 20 years ago, 10% of the cataloged sources are found to have changed the flux since the ROSAT era.

Key words: Catalogs — Surveys — X-rays: general

1 Introduction

The Monitor of All-sky X-ray Image (MAXI : Matsuoka et al. 2009) is the first astronomical payload aboard the International Space Station (ISS). MAXI has been performing the monitoring observations since its first light in 2009 August. The monitoring data of MAXI are open to the public at the RIKEN web site (http://maxi.riken.jp), where the light curves of more than 380 X-ray sources are available. MAXI is equipped with two types of cameras: the Gas Slit Camera (GSC: Mihara et al. 2011, Sugizaki et al. 2011) and the Solid-state Slit Camera (SSC: Tsunami et al. 2010, Tomida et al. 2011). The GSC is an array of position-sensitive gas proportional counters with beryllium windows with a total detection area of 5350 cm². The SSC is an array of X-ray CCDs with a total detection area of 200 cm². Both have a fan-beam field of view (FOV) and scan almost the entire sky every 92 minutes. The FOVs of the GSC and SSC are 1.5×160° and 1.5×90°, respectively.

The first all-sky catalog for X-ray sources was obtained by
UHURU observations (Forman et al. 1978) in the period between 1970 and 1973 and includes 339 sources in 2–6 keV. The Ariel-V satellite, which was active between 1974 and 1980, provided two catalogs: one contains 142 sources in 2–18 keV ($|b| > 10^\circ$, McHardy et al. 1981) and the other, 109 sources in 2–10 keV ($|b| < 10^\circ$, Warwick et al. 1981). The next comprehensive ones were published based on the HEAO1 data between 1977 and 1979: A1 catalog in 1–20 keV (842 sources, Wood et al. 1984), A2 catalog in 0.2–2.8 keV (114 sources, Nugent et al. 1983), and A3 catalog in 13–180 keV (40 sources, Levine et al. 1984). All of these catalogs were based on the data taken with non-focusing optics. ROSAT, equipped with X-ray mirrors, performed all-sky survey during the first half year of the mission in 1990–1991. Its energy range is in 0.1–2.4 keV. The bright source catalog of ROSAT from the survey includes 18811 sources (Voges et al. 1999), and the faint source catalog does 105924 sources (Voges et al. 2000) in 0.1–2.4 keV.

There are two types of instruments to perform all-sky survey. One has a relatively narrow FOV; UHURU ($15\times10^\circ$), Ariel-V ($0.75\times12^\circ$), HEAO1 ($2\times8^\circ$ etc.) and ROSAT ($2^\circ$ circle) are of this type. They can take a long time to cover the entire sky, up to half a year in the case of ROSAT, while individual sources are observed for a relatively short period. As a result, they can miss sources that happen to be in quiet phase during its covering period. The other has a much wider FOV, like MAXI. They periodically scan a large area of, or even the entire, sky with a relatively short interval, for example, 92 minutes with MAXI. The source intensities listed in our MAXI catalog are accordingly the average ones over 3.7 years of our survey period presented in this paper. Hence, MAXI is far less likely to miss sources that fall in quiescence for a relatively short period than the other type of all-sky survey instruments.

All-sky survey in the X-ray band is a powerful tool to investigate the entire spectrum of high-energy phenomena in the universe since most of X-ray sources show strong time variabilities in various time scales, from a milli-second to years. MAXI has a potential to upgrade the existing all-sky X-ray source catalog. Hiroi et al. (2011) presented the first GSC catalog in the 4–10 keV band that contains 143 sources at high galactic latitudes ($|b| > 10^\circ$), using the first 7 months of the monitoring data. Hiroi et al. (2013) later updated the GSC catalog, using the 37-month data that contains more than 500 sources. The limiting sensitivity reaches $7.5 \times 10^{-12} \text{erg cm}^{-2} \text{s}^{-1} (0.6 \text{mCrab})$ in the 4–10 keV band.

Since the MAXI/GSC employs a similar detector to those of UHURU and HEAO1/A1, the GSC catalog covers the energy range between a few keV and a few tens of keV, which is above that of ROSAT. Here, we report the MAXI/SSC catalog that covers the energy range of 0.7–7.0 keV. We describe the data reduction of the MAXI/SSC data in section 2 and method of the source detection with the SSC data in section 3. In section 4, we present the SSC source list and discussions. Summary is presented in section 5.

2 Data reduction

The SSC consists of 2 units: SSC-H and SSC-Z. The two units are identical and are composed of 16 CCDs with a total detection area of 100 cm$^2$ per unit. SSC-H views the forward direction of the ISS, while SSC-Z does the zenith (anti-earth) direction. Each is equipped with a fan-beam collimator of $1.5 \times 90^\circ$. CCDs work in the pixel-sum mode that functions as one-dimensional imager along the long direction of the collimator. The details are given in the literatures (Tsunemi et al. 2010, Tomida et al. 2011).

MAXI has been in operation since 2009 till present. However, we use the data taken between 2010 August 1 and 2014 April 30 only for the catalog presented in this paper, discarding the data before and after for the following reasons. The SSC event data before 2010 August were heavily contaminated with dark-level saturated pixels due to sun-light leak. It was thus difficult to estimate the correct effective area. The data taken after 2014 April were seriously affected by flickering pixels because gradual increase of the dark current since the launch had reached an unacceptable level by then, which generated many flickering pixels.

We exclude the data taken around the geomagnetic pole at high latitude and the South Atlantic Anomaly region, which suffer from many charged-particle events. We also exclude the data obtained during day-time. In order to exclude the charged-particle events, we accept grade-0 (single pixel) events as X-rays below 1.85 keV, and grade-0, 1, and 2 (single pixel and two-pixel split) events above 1.85 keV just as done by Kimura et al. (2013).

The SSC is equipped with the radiator and the peltier cooler, which cools the CCD around $-60^\circ$C. Since the temperature of one CCD (SSC-Z/CCDID=0) is rather high due to insufficient...
function of the peltier cooler attached on it, we exclude it from our analysis. Due to the thermal noise, the events with the energy lower than 0.7 keV are practically unusable and are discarded. Since the collimator is made of copper that generates Cu-K lines on all the CCDs, we set the upper energy limit of the SSC data to be 7.0 keV. Consequently, we accept the X-ray events between 0.7 keV and 7.0 keV.

Figure 1 is the exposure map obtained through the above-mentioned screening method. The daily observation coverage of the MAXI/SSC was limited to smaller than 40% of the entire sky, considering the FOV (±45°) and the day-time data discarded. The ISS orbital plane shows a precession in every 70 days (the inclination angle of the ISS orbit is 51°7). Accordingly, the MAXI/SSC covers the entire sky in a yearly observation. The region around the celestial north pole is more frequently observed than other regions and has a deep exposure (figure 1). The ISS moves around the Earth at the almost constant attitude. This means that MAXI always looks at sky and never sees the dark-Earth nor bright-Earth, which is in stark contrast to other satellites in a low Earth orbit like Suzaku (Tawa et al. 2008).

3 Analysis

After obtaining the screened X-ray data, we take two steps to detect X-ray sources. The first one is the image production for the entire sky. Then the second one is source finding. We execute these steps for two energy bands, 0.7–1.85 keV (soft band) and 1.85–7.0 keV (hard band), where the energy of 1.85 keV corresponds to the boundary of the grade selection (see the previous section). Since the low-energy limit of the MAXI/GSC detection is 2 keV, the soft-band data of the SSC provide us with a view of the sky that is invisible with the MAXI/GSC. The hard-band data are similar to that of the MAXI/GSC except that the working time is not always the same due to the observation conditions. We can compare sources detected in our hard-band data with those of the GSC catalogs (Hiroi et al. 2011, Hiroi et al. 2013) to check the consistency, as performed and described in section 3.4.

3.1 Image production

We create 48 square images, which cover the entire sky as a whole. The center position of each square is selected by using Healpix (Hierarchical Equal Area isoLatitude Pixelization: Górski et al. 2005). We select each image to be 67°5 square to ensure that it covers one Healpix segment. The left panel of figure 2 is a sample of the square images, near the galactic center. It is neither background-subtracted nor exposure-corrected. We divide each image into 300×300 pixels. The pixel is 0°225 square that is small enough not to affect the shape of the point spread function (PSF) of the SSC (1°5 in FWHM). Each square image overlaps its adjacent images. Therefore, when we find a source in an image, we check that it is not doubly counted because of this overlap. When a source is very close to the segment boundary, we make visual inspection.

3.2 Source finding

We employ the SExtractor V2.5.0 (Source Extractor : Bertin & Arnouts 1996) for source detection in the images produced as described in the previous section. In SSC images, most of detected sources are expected to be point-like. The SExtractor requires the following three parameters to be carefully set to detect point-like sources accurately. The parameter BACK_SIZE is used to subtract the background (extended) component and it is tuned to the size of the PSF. DETECT_THRESHOLD
is used to determine the significance of the source candidate. \texttt{DETECT\_MINAREA} is the minimum number of adjacent pixels above \texttt{DETECT\_THRESHOLD}, which is set to a slightly smaller value than the pixel number in the PSF of the MAXI/SSC. Table 1 summarizes these three parameters.

The right panel of figure 2 is a background-subtracted image created with SExtractor from the left panel. With the procedure described above, we create 48 background-subtracted images and combine them to obtain the entire-sky image shown in figure 3 in the galactic coordinates. We have extracted 814 and 754 sources, using SExtractor, in the soft- and hard-band images, respectively. Then we check the Healpix segment, to which each source belongs, to avoid double counts. Some sources are located very close to a segment boundary. When two sources are located within 0\textdegree.1, we select one of them. In this way, we filter out duplicated sources and obtain 350 and 347 sources as candidates for the soft and hard bands, respectively.

The next step of the catalog creation is validation of the source candidates. Our method for the validation is rather simple. We compare the number of events in a candidate region with that of the background region. Each candidate region is a circle with a radius of 1\textdegree.5, and the background region is an contiguous annular region with the outer radius of 3\textdegree.0. We then define the significance level, $S_D$, as

$$S_D = (N_s - N_b \times S_c) / \sqrt{N_s + N_b \times S_c}, \quad (1)$$

where $N_s$ is the number of events in a candidate region, $N_b$ is that of the background region, and $S_c$ is the ratio of the areas of the candidate to the background regions. We define $S_D > 5.0$ as the threshold for significant detection.

Crowded regions must be treated with caution. When a region overlaps those of other sources, we simply exclude the overlapping region. However, when the nearby source is determined to be insignificant (or fake), we recalculate the source and/or background region. We iterate this process to calculate the significance $S_D$ until no fake source is obtained. In this way, we extract the list of the true sources from candidates.

For each of the true sources, we calculate the center of gravity of events in the source region and assign it as the candidate source position. Then, we re-define the circle of the source region and calculate the center of gravity again. We iterate this procedure until the shift of the source position becomes smaller than 0\textdegree.02. Since we do not take into account the potential effects from nearby sources, the position accuracies may be worse than 0\textdegree.02, particularly in crowded regions.

The source flux is evaluated from the number of events in the background-subtracted image. We then compare it with the number of events in the Crab simulation, where we assume the photon index of 2.1, the interstellar absorption $N_H$ of $3.4 \times 10^{21}$ cm$^{-2}$ with the solar abundance\textsuperscript{1}, and the photon flux density at 1.0 keV of 10 photon sec$^{-1}$ cm$^{-2}$ keV$^{-1}$. We perform the simulation, using XSPEC version 12.8.2 and the spectrum response files created in the same way as those distributed at the MAXI web site. The flux is expressed in units of erg sec$^{-1}$ cm$^{-2}$.

In our SSC data of the Crab observations, we find the flux to be $8.21 \times 10^{-9}$ and $1.824 \times 10^{-8}$ erg sec$^{-1}$ cm$^{-2}$ for the soft and the hard bands, respectively. On the other hand, our simulation of the Crab gives $9.34 \times 10^{-9}$ and $1.807 \times 10^{-8}$ erg sec$^{-1}$ cm$^{-2}$, respectively. Hence, the observed results with the SSC are 0.88 and 1.01 times that of the simulation. Although this difference depends partially on the systematic error of the SSC normalization, the differences mainly depends on the spectral model. The Crab model that we employed was determined with the INTEGRAL mission, of which the energy range is >3 keV. Then, the discrepancy in the soft band is larger than that of the hard band.

### Table 1. The parameters for SExtractor in the SSC source-finding

| Parameter | Value |
|-----------|-------|
| BACK\_SIZE | 10 |
| DETECT\_THRESHOLD | 1.0 |
| DETECT\_MINAREA | 18 |

1 The spectral parameters are adopted from the INTEGRAL General Reference Catalog (ver. 40). http://www.isdc.unige.ch/integral/catalog/40/catalog.html
Therefore, they all must be false detection. We also find that $S_D > 5.0$ is large enough to avoid the false detection due to the background fluctuation. Applying this threshold of $S_D > 5.0$, more than half of the sources in the source lists are filtered out, and 154 and 154 sources remain as significant in the soft and hard bands, respectively.

For all the significant sources, we perform visual inspection and find some false detections, as described below. In the hard-band image of figure 3, we see some bright regions, which are suspected artificial structures: stripes parallel to the celestial equator and a region around the celestial south pole. From our visual inspection, we find 23 sources that must originate from the fluctuation of the background. Then, the number of the sources are reduced to 140 and 138 for the soft and hard bands, respectively, after the 23 sources are excluded.

By comparing the source positions in the two energy bands, we find that 108 sources are common in both the energy bands, where their positional separations are smaller than $0.5^{\circ}$. Consequently, the final SSC catalog contains 170 unique sources. Table 2 summarizes the number of source candidates at each source-finding step.

3.4 Source identification

X-ray sources usually show strong variabilities in various time scales. Hence, we compare the SSC source catalog with that obtained by the MAXI/GSC rather than those obtained in the past by other satellites. We employ the source list in the MAXI web-site and the MAXI/GSC high-galactic source catalog (GSC Catalog: Hiroi et al. 2013).

First, we focus on the hard-band sources at high galactic latitudes, because the energy bands and periods of observations are almost identical between the SSC and GSC catalogs except for the detection limits. We find that all of the 58 hard sources at $|b| > 10.0$ in the SSC catalog have a counterpart in the GSC catalog. This fact confirms that our analysis procedure is appropriate.

Then, for the SSC soft band, we employ the ROSAT Bright Source Catalog (ROSAT/BSC: Voges et al. 1999) for source identification, as the GSC is insensitive to the energy band. The ROSAT/BSC does not include highly extended objects like supernova remnants (SNR) and cluster of galaxies. Therefore, we also employ the SNR catalog (Green 2014) and REFLEX galaxy cluster survey catalog (Böhringer et al. 2004). Taking into account the positional accuracy of the SSC, we set the upper threshold for the angular distance for identification to be $0.5^{\circ}$.

4 Results and Discussion

We summarize the MAXI/SSC catalog in table 5, in which sources with $S_D > 5.0$ are listed. The columns in the table are (1) identification number, (2) MAXI-SSC name, (3) Right Ascension (degree in J2000), (4) Declination (degree in J2000), (5)(6) detection significances in the soft and hard bands, respectively, (7)(8) flux in the soft and hard bands, respectively, (9) source identification, and (10) counterpart in the MAXI/GSC catalog. The source locations in the galactic coordinates are plotted in figure 4.

4.1 Source category

In table 3, we summarize the statistics of the source identifications, referring to the 9th column of table 5. The MAXI/SSC catalog contains more binary sources than the MAXI/GSC catalog, because the MAXI/SSC catalog includes sources at low galactic latitudes. The high sensitivity of the SSC in the soft band yields detection of many SNRs.
4.2 Position accuracy

From the source identification result, we estimate the positional errors of the MAXI/SSC as a function of $S_D$ (the columns 5 and 6 in Table 5). Figure 5 shows the distribution of the angular separation between the MAXI/SSC sources and the identified sources for three intervals of detection significance. As can be seen, sources with higher significance have smaller angular separations. In the top panel, relevant to sources with $S_D > 30$, the statistical errors are smaller than the systematic errors. When the significance is high enough, $S_D > 30$ (top panel), the statistical errors must be dominant, compared with the systematic errors. Thus, we estimate the systematic error of the source positions, using the 43 sources with $S_D > 30$. Out of the 43 sources, three sources have the separation $>0^\circ.2$: GX 3+1, Pup A, and LMC X-1. GX 3+1 is near the galactic center, and LMC X-1 is in the Large Magellanic Cloud. These two are very close to bright sources, which affect the accuracies of source positions. Pup A is an extended SNR that is on the edge of the large SNR, Vela-SNR, which also affects the positional accuracy. Therefore, these three sources are exceptional. The separation angle of any of the other 40 sources than these three sources with $S_D > 30$ is smaller than $0^\circ.2$. We conclude that the systematic error of the position determination for the MAXI/SSC is at largest $0^\circ.2$.

4.3 logN-logS relation

The logN-logS relation from a survey observation provides us with the fundamental information of the source population, where $N$ is the number of sources brighter than the flux $S$. Figure 6 shows the one based on the SSC catalog. Red marks in Figure 6 are the sources at high galactic latitude ($|b| > 10^\circ$) : this distribution is well fit by a straight line with a slope 1.5 above 3 mCrab and 4 mCrab for the soft and hard band plots, respectively. The break points should correspond to the sensitivity limit of the SSC catalog. Consequently, the limiting sensitivities of the MAXI/SSC catalog are 3 mCrab and 4 mCrab for the soft and hard bands, respectively.

4.4 Comparison with the ROSAT era

Since the MAXI/SSC catalog in the soft band covers the all sky below 2 keV, we compare it with the ROSAT all-sky catalog. We find that 18 out of 140 sources in the SSC soft-band catalog have no counterpart in the ROSAT/BSC (Voges et al. 1999). We find that 9 out of the 18 sources with no counterpart are highly extended sources (8 SNRs including Cygnus supper bubble and M87/Virgo). They were clearly detected by ROSAT, although are not included in the BSC, which does not list highly extended sources. Six out of the remaining 9 sources are new transients after the ROSAT survey: MAXI J0556–332 (Sugizaki et al. 2013), MAXI J1836–194 (Negoro et al. 2011), HETE J1900.1–2455 (Vanderspek et al. 2005), Swift J1753.5–0127 (Palmer et al. 2005), MAXI J1910–057/Swift J1910.2–0546 (Usui et al. 2012, Krimm et al. 2012), and GRS 1915+105 (Castro-Tirado et al. 1994). The rests are 4U 1608–52 and two unidentified sources. 4U 1608–52 is an Atoll source, which shows a transition (Hasinger & van der Klis 1989). It was likely to be in the quiescent phase at the time of the ROSAT survey. The two unidentified sources (ID=137 and 141 in table 5) are on the
galactic plane. Hence, we can not exclude the possibility that they may be fluctuations of the galactic ridge emission and are mistakenly identified as sources.

Next, we search the SSC catalog for the brightest 50 ROSAT sources, and find that 35 sources have a counterpart. Table 4 summarizes the nature of the other 15 sources with no counterpart in the SSC catalog, taken from the SIMBAD\(^2\) database. Eight out of the 15 sources are transient, and 6 out of the 8 have not been detected with the MAXI/GSC, either. The 6 sources are 1RXS J074833.8–674505, 1RXS J112623.5–684040, 1RXS J173413.0–260527, 1RXS J173602.0–272541, 1RXS J175840.1–334828, and 1RXS J215852.2–301338. They had been active in the ROSAT era, but were quiescent during the MAXI survey period. The other two out of the 8 were detected with the MAXI/GSC: 1RXS J152040.8–571007 and 1RXS J170248.5–484719. This difference in detection is probably due to the difference in the coverage periods between the GSC and the SSC. We should note that GX339–4 was in an almost quiescent phase during the period of the SSC survey, used in this paper. It became bright in 2014 October (Yan et al. 2014). Another 4 of the 15 are white dwarfs (1RXS J064509.3–164241, 1RXS J131621.4+290555, 1RXS J150209.2+661220, and 1RXS J200542.0+223955). White dwarfs are bright only due to the small angular distance. Another undetected source, 1RXS J052502.8−693840, is SNR N132D in the Large Magellanic Cloud, and is located close to a bright source that may be fluctuations of the galactic ridge emission and are mistaken as sources.

5 Summary

We present the first MAXI/SSC catalog produced from an unbiased X-ray survey for 45 months in the 0.7–1.85 keV (soft) and 1.85–7.0 keV (hard) bands. The limiting sensitivity of 3 and 4 mCrab are achieved and 140 and 138 sources are detected for the soft and hard bands, respectively. Combining the data in the two bands, the MAXI/SSC catalog contains 170 unique sources. The breakdown is 22 galaxies including AGNs, 29 cluster of galaxies, 21 supernova remnants, 75 X-ray binaries, 8 stars, 5 isolated pulsars, 9 non-categorized objects, and 2 unidentified objects. Comparing the soft-band catalog with the ROSAT survey, which was performed about 20 years ago, we find that roughly 10% of sources have changed in intensity.

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\(^2\) http://simbad.u-strasbg.fr/simbad
Table 4. Bright ROSAT sources that the SSC did not detect.

| BSC name (1RXS) | identification | class* | comment |
|-----------------|----------------|--------|---------|
| J052502.8-693840 | N132D          | C      | SNR close to LMC X-1 |
| J064509.3-164241 | H1504+65/Sirius-B | B  | White Dwarf |
| J074833.8-674505 | EXO 0748−676   | A      | X-ray burster |
| J112623.5-684040 | GRS 1124−683   | A      | Black hole |
| J131621.4+290555 | HZ43           | B      | White Dwarf |
| J150209.2+661220 | H1504+65       | B      | White Dwarf |
| J152040.8-571007 | Cir X-1        | A      | Neutron Star. Detected with MAXI/GSC |
| J161741.2-510455 |                | E      |         |
| J170248.5-484719 | GX339−4        | A      | Black hole. Detected with MAXI/GSC |
| J173413.0-260527 | KS 1731−260    | A      | X-ray burster. |
| J173602.0-272541 | GS 1732−273/KS 1732−273 | A | Black hole |
| J175840.1-334828 | 4U 1755−338    | A      | Black hole |
| J200542.0+223955 | QQ Vu          | B      | CV of AM Her type |
| J215852.2-301338 | QSO B2155−304/1H 2156−304 | A | BL Lac |
| J233733.3+462736 | lam And        | D      | Variable of RS CVn |

* The third column indicates A: transient source, B: very soft source (white dwarf), C: source confusion, D: flare star, E: others.

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Table 5. The MXAI/SSC catalog. The flux is calculated only when $S_D > 5.0$ in the energy band.

| No. | MAXI SSC Name | RA (degree) | DEC (degree) | $S_D$ | $10^{-11}$ erg sec$^{-1}$ cm$^{-2}$ | identification | GSC-ID |
|-----|---------------|-------------|--------------|------|------------------------------------|----------------|--------|
| 1   | MAXIS J0006+728 | 1.73 | 72.87 | 6.0 | 1.7 | 3.3 | CTA 1(SNR) | 2MAXI J0004+726 |
| 2   | MAXIS J0025+641 | 6.41 | 64.14 | 28.4 | 22.9 | 22.9 | 31.1 | Tycho SNR(SNR) | 2MAXI J0041-092 |
| 3   | MAXIS J0034+596 | 8.61 | 59.65 | 4.3 | 5.9 | - | 8.6 | 1ES 0333+595(AGN) | 2MAXI J0243-582 |
| 4   | MAXIS J0042-094 | 10.52 | -9.45 | 8.1 | 4.9 | 3.7 | - | Abell 85(GC) | 2MAXI J0254+416 |
| 5   | MAXIS J0055+606 | 14.04 | 60.68 | 8.7 | 9.7 | 5.1 | 13.0 | Gamma Cas(Star) | 2MAXI J0258+135 |
| 6   | MAXIS J0116-735 | 19.16 | -73.52 | 5.9 | 12.3 | 2.3 | 13.0 | SMC X-1(Binary-Pulsar) | 2MAXI J0319+415 |
| 7   | MAXIS J0146+617 | 26.65 | 61.75 | 10.7 | 6.8 | 6.8 | 11.4 | 4U 0142+61(Isolated Pulsar) | 2MAXI J0326+310 |
| 8   | MAXIS J0153+361 | 28.31 | 36.14 | 5.3 | 3.0 | 3.0 | - | Abell 262(GC) | 2MAXI J0318+361 |
| 9   | MAXIS J0246-584 | 41.61 | -58.46 | 6.8 | 0.4 | 2.5 | - | 2MAXI J0243-582(Unknown) | 2MAXI J0413+106 |
| 10  | MAXIS J0254+415 | 43.74 | 41.55 | 7.2 | 6.7 | 4.7 | 10.1 | AWM 7(GC) | 2MAXI J0431-663 |
| 11  | MAXIS J0258+133 | 44.65 | 13.35 | 7.2 | 10.2 | 2.8 | 10.7 | Abell 401(GC) | 2MAXI J0433-131 |
| 12  | MAXIS J0320+415 | 50.01 | 41.52 | 42.4 | 49.5 | 37.0 | 94.3 | Perseus Cluster(GC) | 2MAXI J0356+311 |
| 13  | MAXIS J0326+286 | 51.59 | 28.62 | 9.0 | 3.6 | 2.7 | - | UX Ari(Star) | 2MAXI J0326+287 |
| 14  | MAXIS J0337+006 | 54.28 | 0.66 | 10.0 | 5.2 | 5.0 | 6.9 | HR1099(Star) | 2MAXI J0336+006 |
| 15  | MAXIS J0338+100 | 54.63 | 10.04 | 6.1 | 4.4 | 3.3 | - | ZwCl 0335+0956(GC) | 2MAXI J0339+100 |
| 16  | MAXIS J0339-353 | 54.83 | -35.39 | 9.5 | 3.6 | 5.8 | - | FORNAX(GC) | 2MAXI J0450-035 |
| 17  | MAXIS J0354+310 | 58.72 | 31.05 | 15.9 | 38.0 | 8.5 | 50.7 | X Per(Binary-Pulsar) | 2MAXI J0355+311 |
| 18  | MAXIS J0413+105 | 63.44 | 10.54 | 6.6 | 7.5 | 2.6 | 6.9 | Abell 478(GC) | 2MAXI J0413+106 |
| 19  | MAXIS J0430-613 | 67.61 | -61.36 | 5.8 | 4.2 | 3.5 | - | Abell 3266(GC) | 2MAXI J0431-613 |
| 20  | MAXIS J0433-132 | 68.39 | -13.27 | 8.1 | 4.9 | 3.4 | - | Abell 496(GC) | 2MAXI J0433-131 |
| 21  | MAXIS J0450+450 | 72.63 | 45.02 | 7.0 | 10.8 | 4.8 | 15.5 | 3C 129(AGN) | 2MAXI J0518-720 |
| 22  | MAXIS J0451+107 | 72.91 | -3.75 | 2.2 | 5.9 | - | 2.4 | MCG -01-13-025(AGN) | 2MAXI J0520-719 |
| 23  | MAXIS J0500+518 | 75.10 | 51.82 | 16.7 | 1.3 | 12.5 | - | GI56.2+5.7(SNR) | 2MAXI J0532-663 |
| 24  | MAXIS J0500+461 | 75.24 | 46.17 | 8.1 | -0.6 | 6.3 | - | HB9(SNR) | 2MAXI J0535-054 |
| 25  | MAXIS J0514-401 | 78.60 | -40.15 | 9.0 | 9.7 | 6.7 | 11.5 | 4U 0513-40(Binary-NS) | 2MAXI J0514-399 |
| 26  | MAXIS J0517+459 | 79.37 | 45.97 | 9.1 | -2.1 | 6.0 | - | 1RXS J051642.2+460001(GC) | 2MAXI J0520-719 |
| 27  | MAXIS J0518-720 | 79.66 | -72.02 | 17.3 | 27.1 | 9.6 | 36.4 | LMC X-2(Binary-NS) | 2MAXI J0532-663 |
| 28  | MAXIS J0531-661 | 82.98 | -66.12 | 15.5 | 8.5 | 8.8 | 8.7 | LMC X-4(Binary-Pulsar) | 2MAXI J0535-052 |
| 29  | MAXIS J0534+220 | 83.64 | 22.03 | 309.5 | 366.4 | 816.2 | 1816.0 | Crab(Isolated-Pulsar) | 2MAXI J0539-696 |
| 30  | MAXIS J0535-054 | 83.78 | -5.40 | 15.9 | 10.6 | 6.8 | 11.0 | 2MAXI J0535-052(Star Cluster) | 2MAXI J0539-696 |
| 31  | MAXIS J0536-697 | 84.20 | -69.72 | 36.4 | 31.0 | 50.7 | 46.9 | LMC X-1(Binary-BH) | 2MAXI J0539-640 |
| 32  | MAXIS J0538-641 | 84.65 | -64.18 | 25.0 | 21.9 | 17.2 | 28.2 | LMC X-3(Binary-BH) | 2MAXI J0539-640 |
| No. | MAXI SSC Name | RA     | DEC     | $S_D$ soft | $S_D$ hard | flux soft | flux hard | identification | GSC ID |
|-----|---------------|--------|---------|-----------|-----------|----------|----------|----------------|--------|
| 33  | MAXIS J0539+263 | 84.81  | 26.31   | 7.5       | 25.7      | 3.5      | 31.3     | A 0535+262(Binary-Pulsar) |        |
| 34  | MAXIS J0551-074 | 87.97  | -7.48   | 0.5       | 5.7       | -        | 8.3      | NGC 2110(AGN) | 2MAXI J0552-073 |
| 35  | MAXIS J0556-332 | 89.18  | -33.22  | 7.2       | 8.3       | 4.0      | 9.7      | MAXI J0556-332(Binary-NS) | 2MAXI J0556-331 |
| 36  | MAXIS J0602+286 | 90.65  | 28.69   | 5.9       | 5.6       | 2.9      | 6.4      | MAXI J0602+291(Uknown) |        |
| 37  | MAXIS J0603+292 | 90.79  | 29.23   | 5.2       | 6.7       | 2.1      | 5.7      | MAXI J0602+291(Uknown) |        |
| 38  | MAXIS J0617+091 | 94.30  | 9.17    | 69.9      | 68.9      | 55.8     | 108.3    | H 0614+091(Binary-NS) |        |
| 39  | MAXIS J0617+225 | 94.30  | 22.59   | 39.9      | 9.1       | 21.7     | 10.0     | IC 443 SNR(SNR) |        |
| 40  | MAXIS J0743+288 | 115.93 | 28.84   | 6.8       | 4.0       | 2.9      | -        | 2MAXI J0744+288(Uknown) | 2MAXI J0744+288 |
| 41  | MAXIS J0817-077 | 124.40 | -7.58   | 6.7       | 5.4       | 2.5      | 5.8      | Abell 644(GC) | 2MAXI J0817-074 |
| 42  | MAXIS J0822-429 | 125.71 | -42.94  | 152.1     | 19.1      | 339.3    | 29.6     | Pup A(SNR) |        |
| 43  | MAXIS J0834-455 | 128.65 | -45.54  | 19.4      | 15.6      | 9.6      | 22.2     | Vela Pulsar/SNR(Isolated Pulsar/SNR) |        |
| 44  | MAXIS J0850-461 | 132.56 | -46.19  | 27.6      | 7.0       | 26.5     | 7.1      | RX J0852.0-462(SNR) |        |
| 45  | MAXIS J0902-406 | 135.51 | -40.60  | 4.0       | 39.0      | -        | 65.1     | Vela X-1(Binary-Pulsar) |        |
| 46  | MAXIS J0908-097 | 137.23 | -9.77   | 7.4       | 7.5       | 3.6      | 9.0      | Abell 754(GC) | 2MAXI J0909-096 |
| 47  | MAXIS J0917-120 | 139.44 | -12.06  | 6.3       | 5.2       | 2.4      | 4.5      | MAXI J0918-121(Uknown) | 2MAXI J0918-119 |
| 48  | MAXIS J0920-553 | 140.09 | -55.30  | 13.4      | 15.9      | 10.1     | 23.7     | 1H 0918-548(Binary-NS) |        |
| 49  | MAXIS J0922-631 | 140.70 | -63.14  | 3.4       | 5.5       | -        | 7.0      | 2S 0921-63(Binary-NS) | 4      |
| 50  | MAXIS J0924-317 | 141.15 | -31.76  | 4.3       | 7.2       | -        | 8.8      | X 0922-314(Uknown) | 2MAXI J0924-316 |
| 51  | MAXIS J0947-310 | 146.83 | -31.04  | 0.9       | 5.2       | -        | 8.7      | MCG -05-23-016(AGN) | 2MAXI J0947-308 |
| 52  | MAXIS J1009-583 | 152.38 | -58.36  | 3.0       | 24.0      | -        | 38.2     | GRO J1008-57(Binary-Pulsar) |        |
| 53  | MAXIS J1020-038 | 155.12 | -3.81   | 2.3       | 5.6       | -        | 1.4      | 2MAXI J1020-034(AGN) | 2MAXI J1020-034 |
| 54  | MAXIS J1029-353 | 157.39 | -35.40  | 6.1       | 3.1       | 4.5      | -        | 2MAXI J1030-351(Uknown) | 2MAXI J1030-351 |
| 55  | MAXIS J1036-274 | 159.24 | -27.43  | 7.5       | 5.3       | 3.3      | 7.6      | Abell 1060(GC) | 2MAXI J1036-275 |
| 56  | MAXIS J1045-597 | 161.26 | -59.76  | 15.6      | 9.7       | 11.6     | 12.6     | Eta Car(Star) |        |
| 57  | MAXIS J1102-610 | 165.50 | -61.05  | 6.2       | -8.9      | 5.2      | -        | MSH 11-61A(SNR) | 4      |
| 58  | MAXIS J1104+381 | 166.11 | 38.16   | 29.0      | 15.2      | 16.1     | 17.1     | Mrk 421(AGN) | 2MAXI J1104+382 |
| 59  | MAXIS J1120-606 | 170.15 | -60.68  | 14.6      | 52.1      | 7.8      | 85.5     | Cen X-3(Binary-Pulsar) |        |
| 60  | MAXIS J1123-593 | 170.96 | -59.37  | 22.4      | 21.8      | 13.0     | 6.4      | MSH 11-54(SNR) |        |
| 61  | MAXIS J1139-654 | 175.00 | -65.45  | 9.6       | 5.8       | 4.6      | 7.4      | 4U 1137-65(Star) | 4      |
| 62  | MAXIS J1144+197 | 176.16 | 19.77   | 10.3      | 9.0       | 4.1      | 7.2      | Abell 1367(GC) | 2MAXI J1144+198 |
| 63  | MAXIS J1147-623 | 176.99 | -62.32  | 6.1       | 7.2       | 3.7      | 7.0      | 1E1145.1-6141(Binary-Pulsar) |        |
| 64  | MAXIS J1210+392 | 182.64 | 39.22   | 0.6       | 9.3       | -        | 14.2     | NGC 4151(AGN) | 2MAXI J1210+394 |
| No. | MAXI SSC Name | RA (degree) | DEC (degree) | $S_D$ | Flux soft ($10^{-11}$ erg sec$^{-1}$ cm$^{-2}$) | Flux hard ($10^{-11}$ erg sec$^{-1}$ cm$^{-2}$) | Identification | GSC ID |
|-----|----------------|------------|-------------|------|---------------------------------|---------------------------------|---------------|-------|
| 65  | IMAXIS J1216-652 | 184.06    | -65.26     | 7.5  | 0.6                             | 4.5                             | -             | 4U 1210-64(Binary-NS) |
| 66  | IMAXIS J1219+301 | 184.95    | 30.17      | 11.5 | 6.9                             | 4.7                             | 6.9           | Mrk 766(AGN) |
| 67  | IMAXIS J1225-629 | 186.43    | -62.91     | 2.1  | 15.8                            | -                              | 23.5          | GX 301-2(Binary-Pulsar) |
| 68  | IMAXIS J1229+020 | 187.27    | 2.09       | 7.2  | 9.8                             | 3.7                             | 8.3           | 3C 273(AGN) |
| 69  | IMAXIS J1229+082 | 187.50    | 8.26       | 6.4  | 4.8                             | 2.3                             | -             | 1H1228+081(Unknown) |
| 70  | IMAXIS J1230+123 | 187.69    | 12.37      | 57.2 | 39.0                            | 39.3                            | 46.2          | M 87(AGN) |
| 71  | IMAXIS J1249-413 | 192.27    | -41.32     | 14.2 | 13.6                            | 11.6                            | 18.4          | Centaurus Cluster(GC) |
| 72  | IMAXIS J1250-592 | 192.61    | -59.25     | 7.8  | 9.3                             | 5.2                             | 10.7          | 1A 1246-588(Binary-NS) |
| 73  | IMAXIS J1253-295 | 193.45    | -29.52     | 8.7  | 12.4                            | 5.6                             | 12.0          | EX Hya(Binary-WD) |
| 74  | IMAXIS J1257-693 | 194.27    | -69.35     | 25.5 | 40.9                            | 18.0                            | 63.0          | 4U 1254-690(Binary-NS) |
| 75  | IMAXIS J1259+278 | 194.87    | 27.89      | 28.2 | 28.7                            | 14.4                            | 32.7          | Coma Cluster(GC) |
| 76  | IMAXIS J1300-617 | 195.18    | -61.72     | 0.3  | 23.2                            | -                               | 36.7          | GX 304-1(Binary-Pulsar) |
| 77  | IMAXIS J1316-163 | 199.09    | -16.33     | 5.9  | 2.8                             | 2.8                             | -             | NGC 5044(GC) |
| 78  | IMAXIS J1325-431 | 201.39    | -43.15     | -1.5 | 11.5                            | -                               | 15.9          | Cen A(AGN) |
| 79  | IMAXIS J1325-626 | 201.49    | -62.62     | 0.0  | 7.3                             | -                               | 7.3           | 4U 1323-619(Binary-NS) |
| 80  | IMAXIS J1329-316 | 202.48    | -31.66     | 8.3  | 4.3                             | 5.9                             | -             | Abell 3558(GC) |
| 81  | IMAXIS J1347-329 | 206.95    | -32.90     | 4.9  | 7.7                             | -                               | 7.9           | Abell 3571(GC) |
| 82  | IMAXIS J1349+265 | 207.26    | 26.56      | 7.0  | 4.1                             | 3.1                             | -             | Abell 1795(GC) |
| 83  | IMAXIS J1349-303 | 207.32    | -30.39     | 4.0  | 6.2                             | -                               | 7.8           | IC 4329A(AGN) |
| 84  | IMAXIS J1413-033 | 213.46    | -3.31      | 0.0  | 8.4                             | -                               | 7.6           | NGC 5506(GC) |
| 85  | IMAXIS J1441-627 | 220.44    | -62.73     | 17.6 | 3.0                             | 14.0                            | -             | RCW 86(SNR) |
| 86  | IMAXIS J1502-420 | 225.75    | -42.04     | 10.9 | 5.2                             | 6.7                             | 6.8           | SN 1006(SNR) |
| 87  | IMAXIS J1511-058 | 227.98    | 5.85       | 5.6  | 8.7                             | 3.1                             | 7.2           | Abell 1209(GC) |
| 88  | IMAXIS J1513-591 | 228.40    | -59.14     | 7.0  | 10.1                            | 4.7                             | 12.4          | PSR B1509-58(Isolated Pulsor) |
| 89  | IMAXIS J1520-572 | 230.07    | -57.28     | 1.2  | 18.3                            | -                               | 15.0          | Cir X-1(Binary-NS) |
| 90  | IMAXIS J1541-525 | 235.49    | -52.52     | -0.8 | 12.6                            | -                               | 15.0          | 4U 1538-52(Binary-Pulsar) |
| 91  | IMAXIS J1544-563 | 236.05    | -56.39     | 1.2  | 8.7                             | -                               | 10.5          | MAXI J1543-564(Binary-BH) |
| 92  | IMAXIS J1547-626 | 236.82    | -62.67     | 25.8 | 36.0                            | 22.6                            | 59.2          | 4U 1543-624(Binary-NS/BH) |
| 93  | IMAXIS J1558+270 | 239.64    | 27.09      | 5.3  | 6.3                             | 2.3                             | 7.6           | Abell 2142(GC) |
| 94  | IMAXIS J1603-162 | 240.77    | 16.22      | 7.9  | 6.3                             | 3.9                             | 5.0           | Abell 2147(GC) |
| 95  | IMAXIS J1603-608 | 241.00    | -60.82     | 10.4 | 19.7                            | 2.5                             | 13.9          | 1H 1556-605(Binary-NS/BH) |
| 96  | IMAXIS J1610-608 | 242.69    | -60.81     | 14.1 | 19.2                            | 5.4                             | 11.8          | 2MAXS J16115141-6037549(AGN) |
| No. | MAXI SSC Name | RA (degree) | DEC (degree) | $S_D$ (soft) | $S_D$ (hard) | Flux (10^{-11} erg sec^{-1} cm^{-2}) | Identification | GSC ID |
|-----|---------------|-------------|--------------|--------------|-------------|-------------------------------|----------------|--------|
| 97  | MAXIS J1612-524 | 243.11 | -52.47 | 44.1 | 107.1 | 49.9 | 303.0 | 4U 1608-52(Binary-NS) |
| 98  | MAXIS J1614+338 | 243.67 | 33.89 | 8.4 | 1.2 | 5.2 | - | HB89 1611+343(AGN) |
| 99  | MAXIS J1619-156 | 244.98 | -15.63 | 801.6 | 1270.3 | 5258.0 | 20635.5 | Sco X-1(Binary-NS) |
| 100 | MAXIS J1629+396 | 247.29 | 39.36 | 6.1 | 9.0 | 4.3 | 12.9 | Abell 2199(GC) |
| 101 | MAXIS J1632-675 | 248.05 | -67.56 | 15.0 | 19.1 | 9.7 | 29.1 | 4U 1626-67(Binary-Pulsar) |
| 102 | MAXIS J1638-644 | 249.64 | -64.43 | 9.2 | 13.6 | 5.1 | 15.2 | TrA Cluster(GC) |
| 103 | MAXIS J1640-538 | 250.18 | -53.80 | 40.1 | 59.4 | 39.1 | 112.0 | H 1636-536(Binary-NS) |
| 104 | MAXIS J1645-456 | 251.41 | -45.67 | 11.6 | 160.3 | 9.6 | 648.5 | GX 340+0(Binary-NS) |
| 105 | MAXIS J1654+396 | 253.64 | 39.66 | 11.7 | 10.6 | 9.2 | 14.0 | Mrk 501(AGN) |
| 106 | MAXIS J1657+352 | 254.48 | 35.29 | 6.4 | 11.0 | 3.1 | 14.8 | Her X-1(Binary-Pulsar) |
| 107 | MAXIS J1705+240 | 256.42 | 24.01 | 2.5 | 5.8 | - | 6.6 | 4U 1700+24(Binary-NS) |
| 108 | MAXIS J1705-364 | 256.44 | -36.46 | 116.4 | 267.9 | 184.9 | 1293.8 | GX 349+2(Binary-NS) |
| 109 | MAXIS J1706+240 | 256.59 | 24.01 | 2.5 | 5.8 | - | 6.6 | 4U 1700+24(Binary-NS) |
| 110 | MAXIS J1708-440 | 257.13 | -44.09 | 36.9 | 127.3 | 39.9 | 390.0 | 4U 1705-440(Binary-NS) |
| 111 | MAXIS J1712-407 | 258.06 | -40.76 | 13.9 | 37.2 | 1.9 | 29.5 | 4U 1708-40(Binary-NS) |
| 112 | MAXIS J1712-234 | 258.09 | -23.41 | 22.2 | 34.9 | 14.9 | 48.1 | Ophiuchus Cluster(GC) |
| 113 | MAXIS J1713-399 | 258.32 | -39.94 | 16.8 | 33.2 | 7.2 | 11.0 | RX J1713.7-3946(SNR) |
| 114 | MAXIS J1727-308 | 261.90 | -30.83 | 12.3 | 27.7 | 8.1 | 41.1 | Terzan 2/4U 1722-30(Binary-NS) |
| 115 | MAXIS J1730-215 | 262.73 | -21.59 | 14.5 | 2.1 | 9.5 | - | Kepler SNR(SNR) |
| 116 | MAXIS J1731-169 | 262.93 | -16.96 | 93.9 | 148.6 | 105.2 | 377.9 | GX 9+9(Binary-NS) |
| 117 | MAXIS J1732-338 | 263.02 | -33.87 | 12.2 | 68.6 | 10.7 | 155.6 | GX 354-0(Binary-NS) |
| 118 | MAXIS J1738-444 | 264.70 | -44.49 | 60.4 | 102.6 | 80.7 | 279.6 | H 1735-444(Binary-NS) |
| 119 | MAXIS J1745-292 | 266.40 | -29.26 | 1.1 | 85.4 | - | 214.2 | KS 1741-293(Binary-NS) |
| 120 | MAXIS J1746-322 | 266.52 | -32.26 | 1.5 | 19.7 | - | 24.4 | H 1743-322(Binary-BH) |
| 121 | MAXIS J1747-267 | 266.94 | -26.78 | 44.5 | 177.7 | 47.2 | 639.8 | GX 3+1(Binary-NS) |
| 122 | MAXIS J1749-370 | 267.30 | -37.05 | 20.4 | 41.6 | 17.2 | 68.8 | 4U 1746-37(Binary-NS) |
| 123 | MAXIS J1753-014 | 268.36 | -1.43 | 55.9 | 38.8 | 38.7 | 54.8 | Swift J1753.5-0127(Binary-BH) |
| 124 | MAXIS J1801-250 | 270.28 | -25.09 | 50.7 | 313.3 | 53.8 | 1759.5 | GX 5-1(Binary-NS) |
| 125 | MAXIS J1801-205 | 270.38 | -20.52 | 58.6 | 229.6 | 59.3 | 965.7 | GX 9+1(Binary-NS) |
| 126 | MAXIS J1811-229 | 272.87 | -22.98 | 5.6 | 7.6 | 4.0 | 14.5 | V5588 Sgr(Binary-WD) |
| 127 | MAXIS J1814-171 | 273.64 | -17.15 | 31.3 | 176.1 | 23.8 | 578.2 | GX 13+1(Binary-NS) |
| 128 | MAXIS J1816-140 | 274.01 | -14.03 | 58.6 | 250.6 | 53.7 | 1047.3 | GX 17+2(Binary-NS) |
### Table 5. (Continued)

| No. | MAXI SSC Name | RA (degree) | DEC (degree) | $S_D$ (10$^{-11}$ erg sec$^{-1}$ cm$^{-2}$) | flux | identification | GSC ID |
|-----|---------------|-------------|--------------|------------------------------------------|------|----------------|--------|
| 129 | MAXIS J1823-303 | 275.90 | -30.37 | 95.2 | 143.6 | 150.7 | 461.8 | NGC 6624(Binary-NS) |
| 130 | MAXIS J18250000 | 276.36 | -0.01 | 14.8 | 31.5 | 8.8 | 48.5 | H 1822-000(Binary-NS/BH) |
| 131 | MAXIS J1825-371 | 276.37 | -37.15 | 2.9 | 18.6 | - | 30.9 | 4U 1822-371 V691 CrA(Binary-NS) |
| 132 | MAXIS J1829-238 | 277.37 | -23.83 | 17.2 | 40.2 | 12.4 | 62.6 | GS 1826-238(Binary-NS) |
| 133 | MAXIS J1832-103 | 278.09 | -10.31 | 1.3 | 9.6 | - | 14.3 | G21.5-0.9(SNR) |
| 134 | MAXIS J1835-193 | 278.94 | -19.31 | 9.8 | 5.8 | 4.7 | 5.7 | MAXI J1836-194(Binary-BH) |
| 135 | MAXIS J1840+050 | 280.02 | 5.06 | 76.7 | 125.0 | 96.4 | 377.6 | Ser X-1(Binary-NS) |
| 136 | MAXIS J1841-053 | 280.33 | -5.30 | 7.3 | 13.0 | 1.1 | 10.7 | 1E 1841-045(Isolated Pulsar) |
| 137 | MAXIS J1844-058 | 281.03 | -5.81 | 8.9 | 7.8 | 2.0 | 3.1 | |
| 138 | MAXIS J1846-029 | 281.59 | -2.97 | 0.8 | 11.3 | - | 10.9 | AX J1844.8-0258/AX J1845-0258(Binary-NS/BH) |
| 139 | MAXIS J1852+797 | 283.09 | 79.79 | 5.4 | 9.4 | 1.2 | 4.1 | 3C 390.3(AGN) |
| 140 | MAXIS J1853-086 | 283.27 | -8.69 | 12.3 | 11.2 | 7.5 | 15.8 | 4U 1850-086(Binary-NS) |
| 141 | MAXIS J1855-009 | 283.86 | -0.98 | 5.0 | 1.5 | 4.6 | - | |
| 142 | MAXIS J1855+013 | 283.99 | 1.32 | 9.5 | 8.0 | 5.8 | 9.7 | 1H1852+015(Unknown) |
| 143 | MAXIS J1900-249 | 285.03 | -24.95 | 26.3 | 27.5 | 23.3 | 44.1 | HETE J1900.1-2455(Binary-NS) |
| 144 | MAXIS J1910-057 | 287.61 | -5.78 | 114.9 | 80.9 | 218.3 | 219.5 | MAXI J1910-057(Binary-BH) |
| 145 | MAXIS J1911-005 | 287.81 | 0.50 | 12.8 | 17.0 | 9.6 | 28.4 | Aql X-1(Binary-NS) |
| 146 | MAXIS J1912+048 | 288.05 | 4.88 | 5.2 | 8.1 | 3.3 | 9.6 | SS 433(Binary-NS/BH) |
| 147 | MAXIS J1915+110 | 288.84 | 11.03 | 37.3 | 257.6 | 28.3 | 1294.7 | GRS 1915+105(Binary-BH) |
| 148 | MAXIS J1918-051 | 289.74 | -5.18 | 6.6 | 12.2 | 0.9 | 15.6 | 4U 1916-053(Binary-NS) |
| 149 | MAXIS J1921+438 | 290.35 | 43.87 | 10.0 | 9.4 | 6.9 | 10.4 | Abell 2319(GC) |
| 150 | MAXIS J1930+097 | 292.74 | 9.79 | 5.3 | 6.1 | 1.9 | -6.1 | 2FGL J1931.1+0938(AGN) |
| 151 | MAXIS J1933+312 | 293.32 | 31.25 | 7.8 | 0.5 | 4.3 | - | G65.3+5.7(SNR) |
| 152 | MAXIS J1937-062 | 294.40 | -6.22 | 5.0 | 1.5 | 2.5 | - | 1H 1934-063(AGN) |
| 153 | MAXIS J1958+351 | 299.58 | 35.14 | 306.3 | 274.7 | 1054.8 | 1348.8 | Cyg X-1(Binary-BH) |
| 154 | MAXIS J1959+116 | 299.86 | 11.68 | 38.0 | 51.1 | 30.1 | 96.8 | 4U 1957+115(Binary-BH) |
| 155 | MAXIS J2001+651 | 300.29 | 65.16 | 12.4 | 7.7 | 6.6 | 8.0 | 1ES 1959+650(AGN) |
| 156 | MAXIS J2019+404 | 304.89 | 40.41 | 7.8 | 1.1 | 5.0 | - | Cygnus Super Bubble(SNR) |
| 157 | MAXIS J2032+374 | 308.07 | 37.48 | -2.1 | 11.8 | - | 14.5 | EXO 2030+375(Binary-Pulsar) |
| 158 | MAXIS J2032+409 | 308.09 | 40.91 | 2.6 | 87.7 | - | 208.9 | Cyg X-3(Binary-BH) |
| 159 | MAXIS J2044+106 | 311.05 | -10.68 | 6.0 | 6.5 | 2.0 | 3.7 | Mrk 509(AGN) |
| 160 | MAXIS J2051+308 | 312.77 | 30.80 | 98.5 | 5.8 | 56.9 | 2.9 | Cygnus Loop(SNR) |
Table 5. (Continued)

| No. | MAXI SSC Name       | RA  | DEC  | $S_D$ | 10^{-11} erg sec^{-1} cm^{-2} | identification       | GSC ID |
|-----|---------------------|-----|------|-------|-------------------------------|----------------------|--------|
|     |                     | soft| hard |       |                               |                      |        |
| 161 | 1MAXIS J2053+314    | 313.27 | 31.47 | 103.0 | 3.3                           | -                    | Cyg Loop(SNR) |
| 162 | 1MAXIS J2103+456    | 315.95 | 45.67 | 3.0   | 6.1                           | -                    | V407 Cyg(Binary-WD) |
| 163 | 1MAXIS J2110+466    | 317.63 | 46.67 | 5.9   | 1.0                           | -                    | Cygnus Super Bubble(SNR) |
| 164 | 1MAXIS J2130+121    | 322.54 | 12.17 | 22.3  | 22.6                          | 11.6                | M 15/4U 2127+119(Binary-NS) 2MAXI J2130+122 |
| 165 | 1MAXIS J2144+382    | 326.18 | 38.29 | 149.9 | 224.5                         | 289.7               | Cyg X-2(Binary-NS) 2MAXI J2144+383 |
| 166 | 1MAXIS J2253+167    | 343.41 | 16.75 | 6.7   | 3.4                           | 3.9                 | IM Peg(Star) 2MAXI J2253+166 |
| 167 | 1MAXIS J2256-030    | 344.11 | -3.07 | 2.8   | 6.4                           | -                   | AO Psc(Binary-WD) 2MAXI J2255-030 |
| 168 | 1MAXIS J2302+589    | 345.53 | 58.96 | 12.4  | 3.0                           | 10.5                | 2E 2259.0+5836(Binary-NS/BH) |
| 169 | 1MAXIS J2323+588    | 350.83 | 58.81 | 59.6  | 61.1                          | 74.6                | Cas A(SNR) |
| 170 | 1MAXIS J2355+286    | 358.92 | 28.67 | 6.4   | 1.2                           | 2.5                 | II Peg(Star) 2MAXI J2354+286 |