RECENT REPORT ON THE ASCA GIS SOURCE CATALOG PROJECT

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1. Introduction

We are constructing the ASCA GIS source catalog from the ASCA public archive, mainly for extra-galactic sky. The large field of view and the low-background characteristics of the GIS make it suitable for a search for serendipitous sources in a wide energy band of 0.7–10 keV. Sources to be detected by the project will provide valuable information on the $\log N$-$\log S$ relation over the entire sensitivity band, which has never been available before. About this project, also refer to Ishisaki *et al.* (1995), Ueda *et al.* (1997) and Takahashi *et al.* (1997). There is the SIS source catalog project, too (Gotthelf *et al.*, 1996). These catalogs are going to appear on the WEB.

2. Field Selection and Present Progress

The automatic source-finding procedure has been applied to all the archival data (1993–1996) which satisfy the following selection criteria; the Galactic latitude $|b|$ is higher than 10 degrees, the net exposure is longer than 10 ks, and the primary target is less bright than 10 c/s/GIS in the total count rate. Data out of 481 pointings which amount to 262 deg^2 have been analyzed so far. After running the automatic process, we further rejected the field where the results of the 2-dimensional fitting turned out to be unacceptable. With

K. Koyama et al. (eds.), The Hot Universe, 467-468.

these filters, we detected 992 sources above 5σ detection in 0.7–7 and/or 2–10 keV band including the main targets.

3. Derived log$N$-log$S$ Relation

The detected source fluxes distribute in a wide range from 10^{-14}–10^{-10} erg s^{-1} cm^{-2} (2–10 keV). To convert flux distribution to the log N-log S relation, we must carefully estimate the survey area at this detection limit, as well as the influence of the main target. To reduce the influence of the main targets, we further selected 27 fields observed in 1994 with severer conditions that $|b| > 50°$ and the primary target is less bright than 0.25 c/s/GIS. To estimate the detection significance for a given flux, we utilized a simplified simulation at every position (4×4 arcmin cell in practice). Figure 1 shows the derived log N-log S relation from the 2–10 keV band survey of the selected 27 sample fields. Although the contributions of the main targets are not excluded, our result lies on the extrapolation from the results of *Ginga* fluctuation analysis (Stewart 1992) and the source counts by HEAO-1 A2 (Piccinotti *et al.* 1982), which is consistent with the ASCA Large Sky Survey (LSS) results (Ueda 1996).

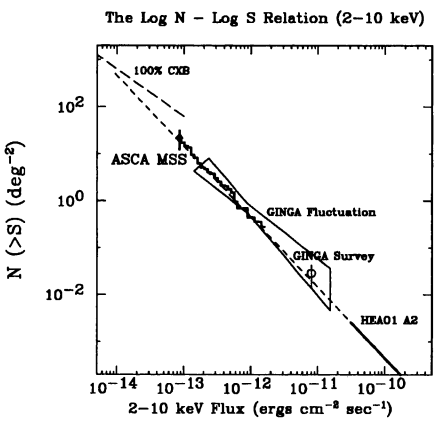

Figure 1. The 2–10 keV log N-log S relation (labeled "ASCA MSS") derived from the selected 27 sample fields. Main targets are also included. 4σ significance detection level are chosen for this plot.

References

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