V305a X線分光撮像衛星 XRISM 搭載軟 X線撮像装置 Xtend による突発天体探査 (4)

Yohko Tsuboi, Tomokage Yoneyama (Chuo Univ.), Marina Yoshimoto (Osaka Univ.), Yukiko Ishihara, Tomohiro Yanagi, Koichiro Akasu, Noboru Nemoto (Chuo Univ.), Yoshitomo Maeda, Kotaro Fukushima, Katsuhiro Hayashi, Yoshiaki Kanemaru, Shoji Ogawa, Tessei Yoshida (JAXA/ISAS) and XRISM/Xtend Transient Team

The X-ray Imaging Spectroscopy Mission (XRISM) was launched on September 7, 2023, and the on-board Xtend, which has a wide field of view of 38 arcmin, is now performing spectral imaging in the 0.4-13 keV band. Using Xtend's wide field of view, we have been performing a transient search called XRISM/Xtend Transient Search (XTS) once a day. We have been reporting to the world via telegram within several days of detection. From the beginning of January 2024, when the XTS became operational, to the end of November 2024, we have issued 18 reports on the Astronomer Telegram (ATel). The lower limit of sensitivity is about 10-14 ergs-1 cm-2 for a one-day observation, i.e. for the observation with an exposure time of about 40 ks and an observing efficiency of about 50%. This is orders of magnitude fainter than that obtained with all-sky survey satellites (e.g., MAXI and Einstein probe) and comparable to that obtained with Swift's XRT and SRG's eROSITA. XRISM's typical exposure time has been several days so far, allowing searches with practical sensitivity to variable sources with timescales greater than one day in the 10-14 erg s-1 cm-2 flux range. Together with these instruments, XRISM now plays a key role in time-domain astronomy. In this presentation, we report the development, operation, and results by February 2025.