The JEM-X catalogue

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Abstract

The ESA high-energy observatory, INTEGRAL, performed its last observations in February 2025 after more than 22 years of service. The X-ray monitor JEM-X aboard INTEGRAL has covered the full sky in the 3-25 keV energy range with an angular resolution of 3 arcmin, leading to the detection of more than 250 X-ray sources, including the discovery of a number of previously unknown X-ray binaries. ESA has been releasing the INTEGRAL Science Legacy Archive (ISLA) to offer the community access to all INTEGRAL science data products as one of its main outcomes. The JEM-X instrument Team at DTU Space, provider of the X-ray monitor, is contributing to ISLA with its catalogue of X-ray sources obtained by systematically analysing all JEM-X' observational data since the beginning of INTEGRAL's science operations. Thanks to a systematic analysis to produce sky images and time series, the JEM-X source catalogue is foreseen to contain for each source (X-ray binaries, supernova remnants, and extra-galactic sources): - sky coordinates with positional uncertainties, - Detection dates, - average fluxes and flux limits measured in two energy bands (3-10 keV and 10-25 keV) as well as their corresponding hardness ratios, - information (date and peak flux) about detected X-ray bursts and/or transient outbursts, when relevant. The present poster describes this systematic data mining performed with the help of DTU Space's students, and it represents a first release of the JEM-X source catalogue.

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