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The serendipitous source catalogue from overlapping XMM-Newton observations

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20 years after its launch, XMM-Newton has performed more than 13,000 pointed observations which cover a total of more than 1,100 square degrees. The XMM-Newton Survey Science Centre consortium (SSC) generates serendipitous source catalogues from all public observations, which list positions and source parameters such as position, fluxes, hardness ratios, and extent. In 2018, we have published for the first time a catalogue from simultaneous source detection in a selection of 1,789 overlapping observations. It is based on a new standardised procedure for multiply observed sky areas and includes almost 72,000 sources. In addition to the standard parameters, it provides information on their inter-observation variability, derived directly from the simultaneous fit. The longer effective exposure time and the combined fit result in more faint detections, more precise determination of the source parameters, and likely lower spurious source content than for single observations.

This year, celebrating the anniversary, the SSC compiles new, fully reprocessed source catalogues. The next catalogue of sources in repeatedly observed sky areas is made from 1,340 stacks comprising about 7,500 individual observations with reasonably low background. Its sources are observed up to 65 times with a cumulated exposure time of about 1ks up to 2Ms.

Topic

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