



The 3XMM Catalogue



Natalie Webb

Institut de Recherche en Astrophysique et Planétologie, Toulouse, France



on behalf of the XMM-Newton Survey Science Centre

<http://xmssc.irap.omp.eu>

Abstract

The 3XMM X-ray catalogue (Watson et al. 2009) produced by the XMM-Newton Survey Science Centre (SSC) contains 531261 X-ray detections across 794 square degrees of sky and 372728 unique X-ray sources. This catalogue released on 23rd July 2013 contains almost 50% more sources than the previous version (2XMMi-DR3) and uses significant improvements to the XMM-Newton Science Analysis Software as well as incorporating developments with the calibration. Improvements include better source characterisation, a reduced number of spurious source detections, better astrometric precision, greater net sensitivity and spectra and timeseries for fainter sources, with improved signal-to-noise. The median flux is $\sim 2.4 \times 10^{-14}$ erg cm⁻² s⁻¹ and the data taken span 12 years. It is therefore the ideal resource to search for faint/distant sources as well as variable objects. We resume the 3XMM catalogue and present some of the rare and interesting objects discovered within it, including accreting stellar mass compact objects, tidal disruption events and extreme AGN.

Figure 1:

Sky map of XMM-Newton pointings in Hammer-Aitoff projection in Galactic coordinates.

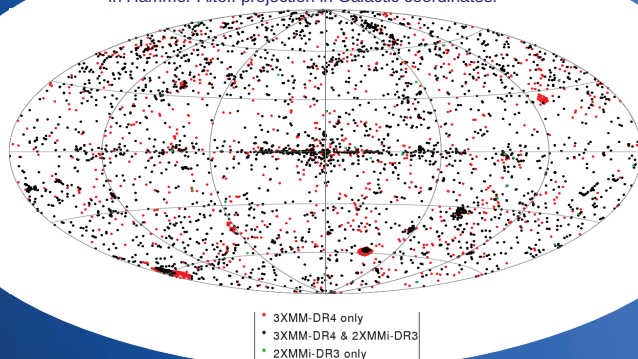
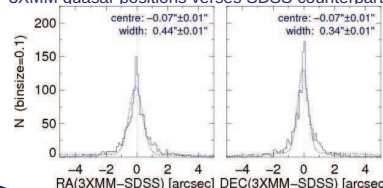


Figure 2:

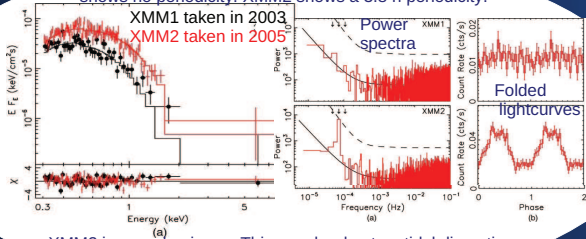
3XMM quasar positions versus SDSS counterparts



Credit:
Iris
Traulsen

Figure 3:

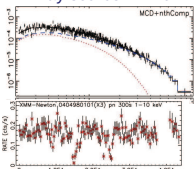
First two XMM observations of an AGN. XMM1 shows no periodicity. XMM2 shows a 3.8 h periodicity.



XMM2 is more luminous. This may be due to a tidal disruption event (Lin et al. 2013)

Figure 6:

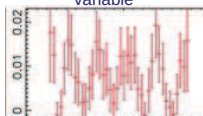
0.2-10.0 keV spectrum of a new, dipping, ultra-luminous X-ray source in M 94



Lightcurve of the same source (Lin et al. 2013b)

Figure 4:

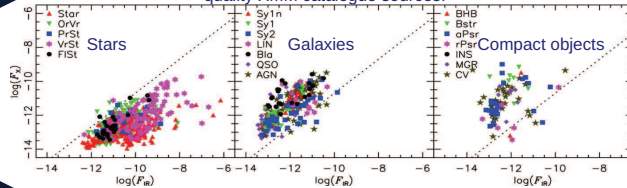
Lightcurve of a 1.62h magnetic cataclysmic variable



(Lin, Webb & Barret 2014)

Figure 7:

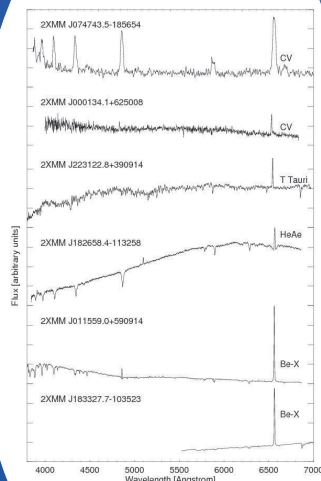
X-ray versus 2MASS Ks flux of 4330 of the high quality XMM catalogue sources.



X-ray & IR fluxes are one good characteristic for identifying sources (Lin, Webb & Barret 2012)

Figure 5:

Optical spectra of X-ray sources found in the SSC Galactic plane survey (Nebot Gomez-Morán et al. 2013)



References:

- Lin, D., Webb, N.A., Barret, D., 2014, ApJ, 780, 39
 Lin, D., Irwin, J.A., Webb, N.A., et al., 2013b, ApJ, 779, 149
 Lin, D., Irwin, J.A., Godet, O., et al., 2013, ApJ, 776, 10
 Lin, D., Webb, N.A., Barret, D., 2012, ApJ, 756, 27
 Nebot Gómez-Morán, A., Motch, C., Barcons, X., et al. 2013, A&A, 553, 12
 Watson, M.G., Schröder, A.C., Fyfe, D., et al., 2009, A&A, 493, 339

Access the catalogue at:

<http://xmm.esac.esa.int/xsa/>
<http://www.ledas.ac.uk>
<http://heasarc.gsfc.nasa.gov/W3Browse/xmm-newton/xmmssc.html>
<http://xcatdb.unistra.fr/3xmm/>

....and coming soon, 3XMM-DR5 with 42582 more detections and 10000 more spectra and lightcurves, e.g.:

