The Northern Galactic Cap AGN in the 58-month Swift/BAT catalogue: A low-redshift anchor for the study of global AGN properties

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The evolution of BAT AGN X-ray properties with survey depth:

Vasudevan et al. (2013a), ApJ, 763, 111

We have fit a suite of models to a complete, hard X-ray-selected, unbiased-to-N limit sample of 100 BAT AGN with Galactic latitude b > 50°, using XMM, XRT, ASCA with BAT data, determining the best-fitting model for each source. Some Stats:

• Low Galactic column, good for analysing soft X-ray features
• High Galactic latitude reduces confusion with Galactic sources
• Sky region has plenty of multi-band archival data available for SED construction
• 40% unabsorbed (logN_H < 22)
• 60% absorbed (logN_H > 22)
• 9% Compton-thick (logN_H > 24.15)
• 14% Hidden/buried AGN

Spin-off studies include: studying the relation between reflection and the soft excess, the stacked spectrum and comparison with the X-ray background (see below), multi-band SEDs (see Vasudevan et al. 2013b, MNRAS accepted, arXiv: 1303.0009)

Spin-off: Vasudevan et al. (2013c), submitted to ApJL

We compare the stacked emission from this sample, separated out into different N_limit bins, to the X-ray background and synthesis model of Gilli et al. (2007). The agreement poses a puzzle as to why local AGN should also reproduce the XRB spectral shape.

We find greater reflection for moderately absorbed sources (23 < logN_H < 24), possibly indicating intrinsic geometrical difference in this class