The Cosmic X-ray Background and the Chandra Southern Deep Field

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[Invited Review Talk, 30 min.]

Abstract

The Chandra Observatory has obtained the deepest observations so far in x-ray astronomy in selected regions of the sky. The Chandra Deep Field South (CDFS) has been observed for a total of 940 ks. The CDFS team has completed a catalogue of sources to limiting fluxes of 6×10^{-17}, 4.5×10^{-15} and 1.2×10^{-15} erg cm^{-2} s^{-1} in the energy ranges .5 to 2 kev, 2 to 10 kev and 5 to 10 kev, respectively. We utilize two detection techniques (sextractor and wavelet) and obtain 300 sources which are detected by both techniques. We compare the Log N-Log S obtained in the three energy bands with previous results and model predictions for the x-ray background. We measure the hardness ratio (H/R) for all the sources and the stacked spectrum of the total sample. We obtained finding charts for all the detected sources and measured optical spectra for some 100 of them. For the 50 best-observed sources we obtain spectroscopic redshifts. We present results on x-ray versus optical R band flux ratio, H/R versus redshift and Lx versus redshift. We discuss the classification of the securely identified point sources. We have observed a number of extended sources which constitute a separate catalogue. We discuss the observed number as compared to the model expectations for groups and clusters.

CATEGORY: EXTRAGALACTIC DIFFUSE EMISSION AND SURVEYS