SIZES AND POSITION OF ON-DISK X-RAY SOLAR FLARES SOURCES: EFFECT OF X-RAY ALBEDO

Eduard Kontar, eduard@astro.gla.ac.uk
University of Glasgow, Glasgow, United Kingdom
Natasha Jeffrey, 0401270j@student.gla.ac.uk
University of Glasgow, United Kingdom

Using Monte Carlo simulation of X-ray photon transport, we calculate the apparent source sizes and positions of X-ray sources at the solar disk for various source sizes, spectral indices and directivities of the primary X-ray emitting sources. It is shown the albedo effect will alter the true source positions and substantially increase the measured source sizes. The source positions are shifted up to about 0.5 arcsecond radially towards the disk centre and the source sizes can be two times larger even for an isotropic source (minimum albedo effect) at 1 Mm above the photosphere. The source size and position change is the largest for flatter primary X-ray spectra, stronger downward anisotropy, for sources closer to the solar disk centre, and between the energies of 30 and 50 keV.