He-like triplets observed by RESIK

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The RESIK is a high sensitivity, uncollimated bent crystal spectrometer which successfully operated aboard Russian CORONAS-F solar mission between 2001 and 2003. It measured systematically for the first time solar soft X-ray spectra in the four wavelength channels from 3.3 Å to 6.1 Å. This range includes characteristic triplet lines of He-like ions of K, Ar, Cl and S in the respective spectral channels. Interpretation of observed line ratios within each triplet provides diagnostics of plasma conditions in the emitting source. We reduced the observed spectra for a number of flares using the absolute RESIK calibration software. We analyzed the observed intensities of spectral line components comprising the triplets and investigated their time variability. The evolution of important plasma parameters like temperature and emission measure have been studied for selected events. Flaring plasma densities were measured from these parameters using X-ray brightness maps as determined from the RHESSI observations. The CHIANTI v5.1 atomic data package was used as a consistent tool for spectral data analysis.