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STRIPING NOISE REMOVAL OF IMAGES ACQUIRED BY CBERS 2 CCD CAMERA SENSOR

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Abstract. CCD Camera is a multi-spectral sensor that is carried by CBERS 2 satellite. Imaging technique in this sensor is push broom. In images acquired by the CCD Camera, some vertical striping noise can be seen. This is due to the detectors mismatch, inter detector variability, improper calibration of detectors and low signal-to-noise ratio. These noises are more profound in images acquired from the homogeneous surfaces, which are processed at level 2. However, the existence of these noises render the interpretation of the data and extracting information from these images difficult. In this work, spatial moment matching method is proposed to modify these images. In this method, the statistical moments such as mean and standard deviation of columns in each band are used to balance the statistical specifications of the detector array to those of reference values. After the removal of the noise, some periodic diagonal stripes remain in the image where their removal by using the aforementioned method seems impossible. Therefore, to omit them, frequency domain Butterworth notch filter was applied. Finally to evaluate the results, the image statistical moments such as the mean and standard deviation were deployed. The study proves the effectiveness of the method in noise removal.