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REMOVING SHADOWS FROM HIGH-RESOLUTION URBAN AERIAL IMAGES BASED ON COLOR CONSTANCY

Q. Ye[1], H. Xie[2], and Q. Xu[3]

[1]Department of Surveying and Geo-Informatics, Tongji University, 200092 Shanghai, China
[2]Shanghai Municipal Institute of Surveying and Mapping, 200063 Shanghai, China
[3]Research Center for Remote Sensing and Spatial Information, Tongji University, 200092 Shanghai, China

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Abstract. A method is explored to remove tall building shadows in true color and color infrared urban aerial images based on the theory of color constancy. This paper first uses the specthem ratio and Otsu threshold segmentation methods to detect building shadows on urban aerial true color and color infrared aerial images. Then, based on the shadow detection result, one of the color constancy algorithms SoG (Shades of Gray) is used to remove the shadows in aerial images with different *p* values of the Minkowski norm. Finally, the shadow removal results with different *p* values have been compared by brightness, contrast and average gradients. The experiments show that the result of this method based on color constancy has a good visual effect, and different from general scene image shadow removal, the aerial images get the best shadow removal result when *p* is 2. It means the two types of aerial images should not be simply regarded as gray world images.

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