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GEOMETRIC CORRECTION OF AIRBORNE LINEAR ARRAY IMAGE BASED ON BIAS MATRIX

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Abstract. As the linear array sensor has great potential in disaster monitoring, geological survey, the quality of the image geometric correction should be guaranteed. The primary focus of this paper is to present a new method correcting airbone linear image based on the bias matrix,which is bulit by describing and analysing the errors of airbone linear image included the misalignment. The bias matrix was considered as additional observations to the traditional geometric correction model in our method. And by using control points which have both image coordinate and object coordinate, the solving equation from geometric correction model can be established and the bias matrix can be calculated by adjustment strategy. To avoid the singularity problem in the calculating process, this paper uses quaternion to describe the image's attitude and rotation instead of traditional calculating method which is structured by the Euler angle. Finally, geometric correction of airborne linear array image with high accuracy based on bias matrix can be achieved.

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