An Automatic Approach for Geometric Correction of Landsat Images

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Abstract:

Geometric correction is a critical step to remove geometric distortions in satellite images. For correct geometric correction, Ground Control Points (GCPs) have to be chosen carefully to guarantee the quality of corrected satellite images. In this paper, we present an automatic approach for geometric correction by constructing GCP Chip database (GCP DB) that is a collection of pieces of images with geometric information. The GCP DB is constructed by exploiting Landsat's nadir-viewing property and the constructed GCP DB is combined with a simple block matching algorithm for efficient GCP matching. This approach reduces time and energy for tedious manual geometric correction and promotes usage of Landsat images.