

## **Abstract**

Traditional survey methods become tedious and time consuming and hence very cost with large scale surveys.

In recent years remote sensing imagery was adopted to reduce the cost and facilitate the survey works.

These images require some control points to match with the ground coordinates.

This research work is oriented to study the effect of the number of control points on the adjusted satellite image. Quick bird image of (0.6 resolution) was tested by using (22) control points. These points were selected on the image first and observed on the ground.

Ten control points out of (22) were used as control, where the others were used as check points.

Satellite image was adjusted using (3) control points and using affine georeferencing model then accuracy was estimated.

The effect of the number of control points on the adjusted image was examined by increasing the number of control points used in georeferencing procedures and estimating the accuracy in each case.

The control points were well distributed under studying area. Three georeferencing models were taken into account in this research. These models were affine, polynomial (First order) and projective. The research concludes with that the Affine and polynomial (First order) models required at least (3) control points to adjust a satellite image, at the same time (4) control points were required when using projective model, also the accuracy of the adjusted satellite image was improved with increasing the number of control points. The projective model yields a better accuracy using four control points compared

with other tested models and six control points were sufficiently enough to adjusted satellite image using polynomial(First order) model.

The Affine model always provide lower accuracy, and the three tested models provide accuracy better than (0.01m) when using seven control points. On the other hand more than seven control points did not significantly improve the accuracy.



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