ANALYSIS OF GEOMETRIC CORRECTION USING DIRECT GEOREFERENCING METHOD OF ALOS AND FORMOSAT-2 SATELLITE IMAGES

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Abstract

Nowadays, development of remote sensing technology, it is marked by number of high-resolution satellite increasing. For example ALOS/PRISM and FORMOSAT-2. To be used optimally, satellite imagery has been free from errors or distortions that occur during the process of recording data by giving a correction. Satellite Image Correction is used to rectify image correspond to the object as close to the surface of the earth. There are two kinds of Satellite Image Correction, radiometric correction and geometric correction. To get an accurate geographic position is used geometric correction process.

In this study, geometric correction using Direct Georeferencing method where each pixel in the image is positioned in accordance with the actual coordinates of Ground Control Point, while the reference to the topography and the distortion correction data recording using Digital Elevation Model (DEM). In this study, the satellite images used are ALOS/PRISM and FORMOSAT-2 captured 2008. accuracy of geometric correction are based on the Root Mean Square Error (RMSe), it was obtained from mathematical calculations that transformation conform 3D Projective, conform Bursa-Wolf, conform Molodensky-Badekas and polynomial order-2.

The results of this study show that reached of computation for ALOS/PRISM and FORMOSAT-2 satellite imagery, the smallest RMSe is 3D models projective conform
transformation Projective. While the largest RMSe is produced by Bursa-Wolf Conform Method. The smaller RMSE value indicates that more accurate and better results. The results of statistical tests showed that the most widely accepted data on the confidence level of 5%.

Keyword: ALOS/PRISM and FORMOSAT-2, Geometric Correction, Direct Georeferencing, RMSe