Transformation Based Polynomial Model: In Case of Generating Orthophoto

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Abstract

A new approach for generating orthophoto based on polynomial models is proposed. Polynomial plays a key role in proposed transformation from 3D to 2D; meanwhile the Efficiency Index measures the accuracy of the results of orthophoto. Airborne laser and aerial photograph were two data sources for researching. Both manual and automatic functions were employed to assist and improve modes of gathering and increasing control points. Height constraint was considered in order to increase the accuracy of generating orthophoto. It was block processing as recursive applied for smaller area, when the accuracy of whole area or prior area was not accepted. Finally orthophoto with its accepted accuracy was produced. It can be summarized that polynomials could assist to generate orthophoto with acceptable accuracy (R^2>0.990) of output, which could further be increased with greater control points by recursive block processing.