Application of High-Resolution Satellite Imagery for Large Scale Maps Updating

تطبيق صور الأقمار الصناعية عالية الدقة لتحديث الخرائط ذات مقاييس الرسم الكبيرة

Prof. Dr. Ahmed A. Shaker **Assoc. Prof. Dr. Ali A. El-Sagheer**
Dr. Ayman R. El-Shehaby **Eng. Mahmoud S. Mahmoud**
Departement of Surveying, Shoubra Faculty of Engineering, Zagazig University

Abstract

Obsolete maps creates so many problems to engineers, planners and other professionals who need to develop their work based on updated records. An extensive and time –consuming field revision would be required to update such obsolete maps. On the other hand the conventional methods of map revision with aerial photographs are so costly and highly time-consuming that base map revision cycle cannot be done as planned. In this research, an attempt is made to develop a workflow for map updating using satellite imagery of high resolution. The workflow comprises all necessary technical steps of dealing with satellite imagery until extracting desired image information. An experimental test utilizing a l-m resolution satellite image for updating an old map is investigated. Two experiments were conducted to evaluate the planimetric accuracy. The first one based on GPS Control Points and the second one based on MRP (Map Reference Points) Also the effects of both DEM (Digital Elevation Model) and DBM (Digital Building Model) on the rectification process were discussed. The used models are specified and the obtained results are tabulated and analyzed, which indicated that there is a significant effect of both DEM and DBM on the obtained results. Finally it has been found that, the rectified high-resolution satellite imagery will be of sufficient accuracy for large-scale maps updating.

Keywords: (Ortorectification- High Resolution Satellite Imagery-DEM-DBM-Map Updating-)