

AN INTEGRATED PACKAGE FOR THE PROCESSING
AND ANALYSIS OF SAR IMAGERY, AND THE FUSION OF
RADAR AND PASSIVE MICROWAVE DATA

**Evaluation of Digital Elevation Modelling and Ortho-image Production from
Airborne Digital Frame Camera Imagery**

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ABSTRACT

The objective of this research is to evaluate airborne digital frame camera imaging in digital elevation modelling and ortho-image production for areas of natural and rugged terrain at scales similar to standard mapping scales. A Kodak Megaplug 1.4 digital frame camera with 1280 x 1024 pixel format was flown over the Gatineau Park in May, 1993. The altitude selected was approximately 3,940 m above ground level to provide similar ground coverage to standard 1:10,000, 23 cm photography. The corresponding ground pixel size was about 2.0 m. For an initial stereo triplet, over fifty points were selected in the imagery, four for control and the rest as check points. These were accurately surveyed using rapid-static differential GPS techniques. A digital elevation model (DEM) for the triplet was created from the control points using commercial software which includes automated image matching and elevation determination through calculation of parallax at each point. Residuals for each check point in relation to the elevation model and an overall RMS error were computed. An ortho-image for the area was then produced from the DEM. Methodology and results of airborne imagery acquisition, DEM and ortho-image production, and DEM accuracy evaluation will be presented.

Notes: Poster presentation preferred in GIS symposium, although both an oral presentation and ISPRS presentation would be acceptable if you need a paper to fill in a time slot for a specific theme. An abstract will be submitted in French with the final version of the paper.

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