

**GENERATION OF ORTHOIMAGE CONTROL PATCHES AND
EXTERIOR
ORIENTATION DETERMINATION OF NEW AERIAL IMAGES**

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KEY WORDS: Orthoimage, Exterior Orientation, Object Space Matching

ABSTRACT :

Existing aerial images and related space data are suitable for control data in aerial photogrammetry. The study will employ the concept of object space matching to generate the orthoimage control patches of plane features from existing aerial images data and digital surface model generated from aerial image matching. Afterwards, those orthoimage control patches will be used to determine exterior orientation of new aerial images by the concept of object space matching. Essentially, object space matching is based on the concept of groundel. The terrain surface condition is described by radiation information and geometry information in each groundel, i.e. each location (or pixel) in orthoimage control patches. The corresponding grey value of each pixel in each aerial image is transformed by the collinear condition and the adjustment of groundel's radiation information. According to the above-mentioned relationship, the relevant theory for generation of orthoimage control patches and exterior orientation determination of new aerial images will be developed based on the comparison of grey value between each groundel and each corresponding image pixel. To verify the feasibility of our derived theory, the simulated data and real data will be utilized for the test. Meanwhile, the relevant problems will be discussed and investigated in the experiments. Finally, the suggestions and the conclusions will be drawn.