SKYLAB A PROPOSAL AEROTRIANGULATION WITH VERY SMALL SCALE PHOTOGRAPHY - EREP INVESTIGATION NO. 459

CONTRACT NO. T-4110B

Principal Investigations Management Office
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The objective of this study was to investigate the feasibility of utilizing SKYLAB spacecraft Earth Terrain Camera (S-190B) 1:946,000 scale photography in analytic aerotriangulation procedures to provide low-order, high-density control suitable for small-scale mapping operations.

The long range application is the employment of this technique for coastal zone mapping at medium and small scales, surveys in remote areas, forest and range management, various planning activities, and route location for highways, pipelines, transmission lines, and canals.

The National Oceanic and Atmospheric Administration, National Ocean Survey (NOAA/NOS) office-identified the locations of 29 photo control points of known position and elevation on a strip of 12 photographs ranging along a 350-mile track from Charlotte, North Carolina, to the Rappahannock River in Virginia. The coordinates of pertinent images on each photograph were observed on comparators operated by NOS, and the resulting data were then processed through an established analytic aerotriangulation system of computer programs. The inherent errors in using office-identified control made it necessary to perform numerous block adjustment solutions involving different combinations of control and weights. The final block adjustment was performed holding to 14 of the office-identified photo control points. The accuracy of the solution was evaluated by comparing the analytically computed ground positions of the 15 withheld photo control points with their known ground positions. A horizontal position RMS error of 15 meters was attained. The maximum observed error in position at a control point was 25 meters.

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The final report on this study is now in preparation.

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