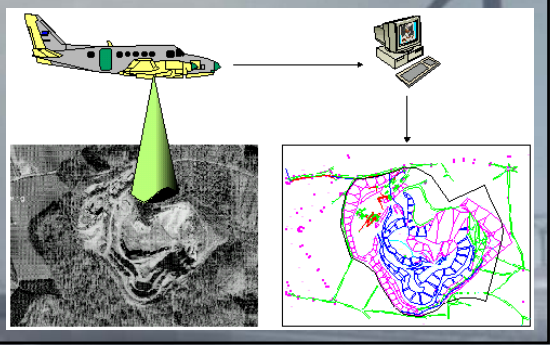
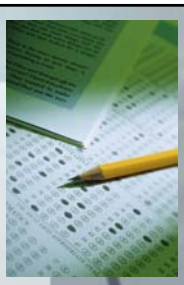
# FINAL EXAM REVIEW

Center for Photogrammetric Training
Ferris State University



## Readings and Format



- Chapters 12, 13, 16,18
- Readings:
  - Notes on the web including PowerPoint presentations
  - Geospatial Positioning Accuracy Standards (from the fgdc web site)
- Homework #6, 7
- Labs 7 – 9
- Review sample old exam questions on the web
- Format: True/False questions (~45), Multiple Choice questions (~30), Problems (~5)

## STEREOSCOPIC PLOTTING INSTRUMENTS

- Differences between different types of plotters (optical, mechanical, analytical, digital); advantages and disadvantages; design principles
- How lens distortion can be accommodated on a plotter
- What do the different motions look like (κ, φ, ω, by, bz)
- Components of a direct optical projection plotter
- Minimum number of control points for leveling and scaling

## STEREOSCOPIC PLOTTING INSTRUMENTS

- Interior orientation principles
- Procedure for dependent and independent relative orientation; von Gruber points; when is a model properly oriented; what is relative orientation
- What is exterior orientation; scaling a model on a stereoplotter
- Instrument requirements for relative orientation; coplanarity concept
- Causes of x-parallax

## Topographic Mapping

- Definition of topographic and planimetric mapping
- Photogrammetric contouring concepts; planimetric feature collection in photogrammetry
- Importance of base-height ratio
- Sampling schemes for digital elevation models; what is a TIN; TIN principles
- How are topographic features represented (point, line, polygon)

## ACCURACY STANDARDS

- Accuracy of natural versus artificial targets; what is the photogrammetric accuracy of a targeted point
- Define limiting mean absolute and limiting standard errors (ASCE); statistical tests for each error; bias and error determination
- Reporting for NSSDA accuracy
- Height error proportional to?
- Vertical accuracy requirements for ASPRS standard; how is ASPRS standard defined (limiting rms error); differences in classes
- Horizontal and vertical definitions of National Map Accuracy Standards

## PROJECT PLANNING

- Causes of loss of stereoscopic coverage
- Compute percent end lap or side lap
- Compute photo scale given enlargement ratio
- Definition of C-factor, principles
- Photogrammetric errors increase/decrease when? What is drift?
- Oxygen and flying heights
- Advantages/disadvantages of shadow
- What is the neat model area
- QBS guidelines

## LPS

- Rotational systems used in LPS
- Photo direction in Camera Model
- Display of acceptable interior and exterior orientation
- Know the options in the Cursor Render Mode
- Know the different options within the LPS Stereo Mode

## Ground Control

- Minimum control point for scale, for space resection
- Size requirements for artificial targets
- Criteria for horizontal and vertical control points
- Control requirements for aerotriangulation, mapping
- Use of artificial targets; what is paneling?

## Possible Problem Topics

- Significance of the equation for relative orientation using parallax
- Be able to scale a model
- Be able to determine flying height working with enlargement ratios
- Level a model by computing Ω and Φ
- Compute flying height using C-factor
- Compute percent endlap, sidelap
- Determine number of photographs in a project
- Compute error from NMAS to the ground
- Compute the accuracy (vertical) using the NSSDA (remember the multiplier: 1.9600)