

Orthophoto Workshop

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Session 1 (morning)

Introduction to Creating Orthophotos

This session focuses on working with orthophotos and how they are created, and will discuss the principles and tasks necessary to produce orthophotos from both film and digital aerial images. The topics will include: The three necessary ingredients to create orthophotos, the methods of acquiring the necessary external orientation for each image, producing single orthophotos from the imagery, producing orthophoto mosaics and color balancing the mosaics.

- I. Introduction
- II. Interior Orientation
 - 1. Film Cameras
 - 2. Digital Cameras
- III. Introduction to Exterior Orientation
 - 1. Manual point selection
 - 2. Airborne GPS/INS
- IV. Producing an Orthophoto
 - 1. Resampling
 - 2. Single Orthophotos
- V. Automatic and Manual Mosaic Routines
- VI. Color Balancing

Session 2 (afternoon)

Orientation and Orthophoto Applications

This session focuses on the production of orthophotos and how the external orientation parameters are determined for the task and will discuss the principles of determining the Exterior Orientation parameters for aerial imagery, which are necessary in the production of orthophotos. Specialized tasks in orthophoto production will also be discussed. The topics covered will include: A review of aerotriangulation and direct-georeferencing, manual and automated methods of finding common points on imagery, automated point selection using airborne GPS/IMU data, and completely automated aerial triangulation is described and demonstrated. The specialized orthophoto topics covered include: updating an existing orthophoto mosaic, creating true orthophotos, orthorectifying map information, overlaying an aerial image and methods of performing quality control of orthophotos. The orthophoto applications discussed will be of interest to the professional who wishes to broaden his/her knowledge in the field of orthophoto production.

- I. Introduction
- II. Exterior Orientation
 - 1. Review of Aerotriangulation
 - 2. Using GPS data
 - 3. Using IMU data
 - 4. RPC Camera Model
- III. Matching Fundamentals
- IV. Automated Point Selection
 - 1. Using Ground Control
 - 2. Using GPS/IMU data
 - 3. Using only GPS data
 - 4. Examples and Accuracy
- V. Orthophoto Applications
 - 1. Updating Orthophoto Mosaics
 - 2. Creating Orthorectified Overlays
 - 3. Creating True Orthophotos
 - 4. Correcting Individual Tiles
 - 5. Orthophoto Quality Control