

## CHAPTER 5

# Aerial Photographs

### 5.1 NOMENCLATURE OF AN AERIAL PHOTOGRAPH

Precision aerial mapping cameras most commonly furnish a photographic format with an image area  $9 \times 9$  in. plus a 0.5-in. border on all four sides. Refer to the aerial photograph in Chapter 6, [Figure 6.2](#).\*

### 5.2 USES OF AERIAL PHOTOGRAPHS

Aerial photographs can be utilized in both planimetric and topographic mapping as well as in photo interpretation or image analysis for various disciplines. Sometimes a single type of film is best for a particular use, but for some applications several film types can be used in combination.

Aerial photography utilizing color films is somewhat more expensive than black and white film; however, in some situations the additional cost may be overshadowed by the amount of extra detail that can be extracted from one film type as opposed to another. A list of some uses that take advantage of various film types is found in Appendix II of *Aerial Mapping: Methods and Applications* (Lewis Publishers, Boca Raton, FL, 1995).

### 5.3 TIME-LAPSE PHOTOGRAPHY

There are many applications for time-lapse air photo comparison, where the aerial photos can be exposed over the same features periodically to detect changes during the interim period. A few examples are:

- Glacial movement
- Rock slide movement

\* For a discussion of exposure information and fiducial marks refer to *Aerial Mapping: Methods and Applications*, Lewis Publishers, Boca Raton, FL, 1995.

- Long-term construction sites
- Advancing vegetation pathogens
- Timber cutting and reforestation tracts
- Wetlands expansion or decline
- Charting urban growth
- Monitoring flood pools
- Monitoring erosion
- Assessing disaster damage

## 5.4 SOURCES OF AERIAL PHOTOGRAPHS

Aerial photography for mapping and geographic information system (GIS) projects may be flown specifically for each project. Otherwise, the photo scale may not be compatible with the map scale and/or vertical mensuration. Image analysts can sometimes locate existing coverage for a project, since there are a number of sources from which to purchase aerial photographs. When dealing with these organizations, customers must accept whatever coverage is available, which may or may not suit the needs of the project. Those listed herein do not represent the complete market.

When requesting information from these organizations, it is advisable to provide them with a map specifically outlining the area of interest.

### 5.4.1. Private-Sector Mappers

Some mapping companies, especially those located near large metropolitan areas, periodically offer speculation aerial photography for sale to the general public. This is often valuable for historical study, business location forecasting, or trend analysis. These firms are also available for custom photo projects.

In addition, their film libraries contain negatives from clients who may give permission for reproduction products. There are various sources for locating firms which engage in aerial photographic activities. The inquirer can reference the local phone book, or inquiries can be made through the long distance information operators in appropriate regions.

#### 5.4.1.1 *Management Association for Private Photogrammetric Surveyors*

The Management Association for Private Photogrammetric Surveyors (MAPPS) is an organization of private-sector aerial mapping companies in the United States and several foreign countries. It may be contacted through:

Management Association for Private Photogrammetric Surveyors  
 12020 Sunrise Valley Drive  
 Suite 100  
 Reston, VA 22091

Their web site <http://www.mapps.org/> lists its member companies alphabetically by name and by individual states in the United States or in Canada, Germany, India,

Poland, and New Zealand for easy access to pertinent information such as address, contacts, telephone, Fax, and e-mail. Web sites of many firms can be directly referenced to gain some insight to their organizations, facilities, and services.

#### **5.4.1.2 American Society for Photogrammetry and Remote Sensing**

ASPRS is a professional society whose membership is comprised of remote sensing scientists, photogrammetrists, GIS users, and others who rely on these disciplines. Numerous mapping companies and firms in related endeavors are also sustaining members of this society. The ASPRS publishes a monthly technical journal, *Photogrammetric Engineering and Remote Sensing*. Information may be requested from:

American Society for Photogrammetry and Remote Sensing  
5410 Grosvenor Lane, Suite 210  
Bethesda, MD 20814-2160  
301-493-0290 (Tel)  
301-493-0208 (Fax)  
<http://www.asprs.org>

#### **5.4.2 Federal**

There are a number of federal agencies which can furnish copies of existing aerial photographic coverage.

##### **5.4.2.1 Agricultural Stabilization and Conservation Service**

All counties in the U.S. are photographed periodically, every ten years or so, under the ongoing Agricultural Stabilization and Conservation Service (ASCS) program. Each county agent retains a set of the most recent coverage. These are available for perusal within the office of the agent. Copies of photos from previous flights may be ordered from:

U.S. Department of Agriculture  
Agricultural Stabilization and Conservation Agency  
Aerial Photography Office  
2222 West 2300 South  
P.O. Box 30010  
Salt Lake City, UT 84130-0010

##### **5.4.2.2 U.S. Geological Surveys**

This agency maintains a massive ongoing mapping and map revision program throughout the United States. Their library files contain volumes of aerial photo coverage throughout the country. Information can be obtained from:

Earth Sciences Information Center  
U.S. Geological Survey  
1400 Independence Road  
Rolla, MO 65401

### **5.4.2.3 National Archives**

An enormous amount of historical federal aerial photography prior to 1950 is available for purchase from:

Cartographic Branch (NNSC)  
National Archives  
Washington, D.C. 20408

### **5.4.2.4 The Earth Resources Observation Satellite**

The Earth Resources Observation Satellite (EROS) Data Center is a repository for resource imagery. Information can be supplied by:

Data Services Branch  
EROS Data Center  
Sioux Falls, SD 57198

### **5.4.2.5 Others**

Many federal agencies maintain files of aerial photographs for in-house use. Unless restricted for security purposes, reproductions of these may be purchased from the agency which exposed the photographs. The U.S. Army Corps of Engineers, U.S. Forest Service, Bureau of Reclamation, Bureau of Land Management, U.S. Fish & Wildlife, or Bureau of Indian Affairs may be viable sources. Information about these coverages should be directed toward the appropriate regional, division, district, or facility office.

### **5.4.3 States**

Individual states maintain agencies that require aerial photographs. Information may be acquired from the appropriate state department of transportation or department of natural resources.

### **5.4.4 Counties and Municipalities**

Most county tax assessors have a store of aerial photographs, and many municipalities maintain files of photographs. Queries should be directed toward the appropriate county or municipal assessors or city managers.