

AERIAL REMOTE SENSING

UNIT 5



Figure 1. 1:3000 Aerial Photograph (Reduced to 85%)

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PHOTO MOSAICS

Mosaics:

An assemblage of two or more individual overlapping photographs to form a single continuous picture of an area.

Photographic reproduction of a whole series of aerial photographs assembled in such a manner that the detail of one photograph matches the detail of all adjacent photographs at a much smaller scale.

Uses of Mosaics:

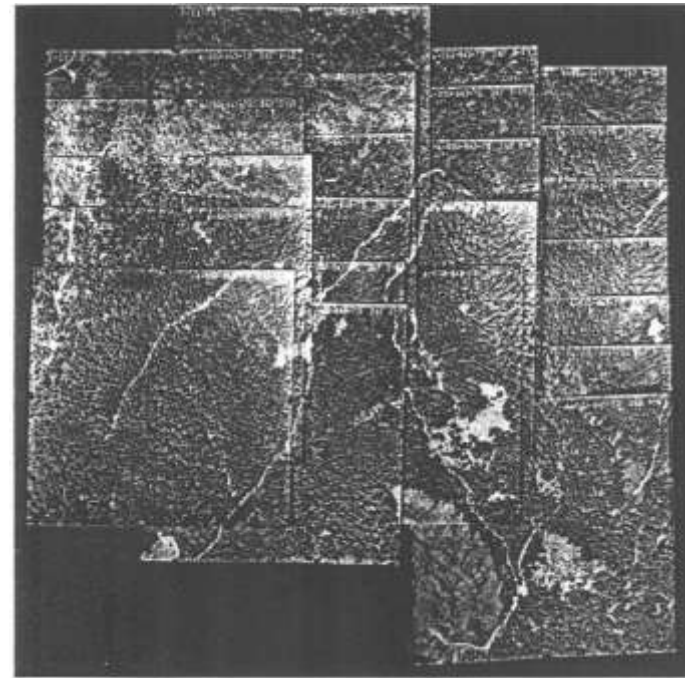
- Useful in the field of planning – landuse / engineering
- Geological and natural resource inventory
- Many more interpretations and mapping them
- Shows areas completely and comprehensively
- Prepared rapidly and economically
- Alternate plans can be conveniently investigated
- Useful for detailed study and best overall plan can be finally adopted.
- Used as planimetric map substitutes for many engineering projects
- Eliminates most of the ground surveying and plotting
- Design drawings and construction specifications are superimposed directly over the mosaic as overlay
- Time and cost saving and
- Higher accuracy.

Types of Mosaics:

- i. Index or photo index
- ii. Strip
- iii. Controlled
- iv. Semi controlled
- v. Uncontrolled
- vi. Temporary and
- vii. Orthophoto mosaic.

1. Photo indexing or index mosaics

Uncontrolled mosaic which has been laid to very rough specifications. Prepared immediately after the flight for the purpose of providing an index to individual photographs for correlating photo numbers and photo coverages.



The primary use

- for indexing
- for photo retrieval from the files
- to know the ground coverage and
- to check for any gaps or missed areas for any necessary reflights
- Least expensive type of mosaic – uncontrolled and
- Not permanently mounted on a backing.

2. Strip Mosaic:

A strip mosaic is the assembly of a series of photographs along a single flight strip. Useful in planning and designing linear engineering projects like, Rail roads, pipelines, etc.

May be controlled, uncontrolled or semicontrolled.

3. Controlled Mosaic

A compilation of rectified photographs, so assembled that their principal points and other selected intermediate points are located in their true horizontal positions.

Rectification – the process of projecting a tilted or oblique photo on to a horizontal plane.

This projection may be of graphic or by photography in a special camera called rectifier or rectifying camera.

Each photograph is oriented in position by matching the photographic images of selected control points to the corresponding plotted position of the pre-established points

The rectified photo will have

- horizontality or free from tilt**
- better uniformity of scale**
- uniformity in tones and contrasts of the print.**

4.0 Uncontrolled mosaic

Prepared by simply matching the image details of adjacent photos.

- There is no ground control and**
- Vertical photos which have not been rectified or ratioed are used.**
- They are not as accurate as controlled mosaics**
- But for qualitative uses they are completely satisfactory.**
- Usually, the central portion of each photograph is taken which is relatively free from relief and tilt displacements, and scale distortions.**
- The photos are laid out in strips in straight lines.**
- Then the different strip mosaics are matched together to compile a mosaic for the entire area.**

5.0 Semicontrolled mosaic:

Assembled utilizing some combination of the specifications for controlled and uncontrolled mosaics.

- ➔ By using ground control but using
- ➔ Photographs that have not been rectified or ratioed (or)
- ➔ Use rectified and ratioed photos but no ground control
- ➔ These mosaics are a compromise between economy and accuracy.

6.0 Temporary Mosaic:

Whenever the conditions do not permit to prepare a controlled or uncontrolled mosaic and a large area needs to be viewed within a short time, then a very temporary mosaic may be prepared.

- ➔ Save the photo from trimming and
- ➔ The same photos can be used for stereoscopic viewing for photo interpretation after this purpose
- ➔ Alternate photos in a strip are taken
- ➔ Their borders only are trimmed
- ➔ Used without rectification or ratioing
- ➔ Strips are laid in a soft board
- ➔ Multiple strips are assembled and pinned on the board and used.

7. Orthophoto Mosaic:

An assembly of two or more orthophotos to form a continuous picture of the terrain. Ortho photos are derived from vertical aerial photographs using a differential rectification instrument.

- Have had no image displacements due to relief and tilt – they are removed**
- So that they show features in their true planimetric positions**
- Distances, angles and areas can therefore be measured directly**
- They have the pictorial advantages of aerial mosaics and the geometric correctness of maps.**
- They can usually be prepared more rapidly and economically than line and symbol maps.**