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Part 1 – AERIAL PHOTOGRAPHY – Pescara, 9[h] April 2011

Aerial photographs are taken along parallel flight paths, also known as strips, that are arranged in order to ensure complete coverage of the area to be photographed. If we look at the drawing in the bottom side of the page, we see that two overlapping photographs (stereopair) are taken while the aircraft flies along the air-base b during the time Δt , so that there exists the equality between the following ratios

$$l : d = p : h \qquad\qquad \text{cross-multiplying:} \qquad h = p \,\frac{d}{l}$$

$$h = p\,n$$

**height h of the aircraft above mean ground level
is equal to focal length p times photo scale denominator n**

(l = side of the photograph = 0.23 m; d = width of the ground shown in the photograph)

The height of the aircraft above mean sea level is equal to h plus mean ground elevation in the surveyed area.

Wide-angle lenses are generally used, which have a focal length of 0.153 m.

The time Δt equals the ratio between b and the velocity v of the aircraft:

$$\Delta t \;=\; d\,(1 - \eta)\,/\,v \;=\; l\,n\,(1 - \eta)\,/\,v$$

(η = percentage of forward overlap)

b = d (1 − η)   d η