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Remote Sensing EET 3132

Ch. 6 HW

1) Based off of the image, I can tell that the first ship can be a carrier of weapons and soldiers alike. The second ship looks like a runway for the aircrafts as well as a place to store aircrafts before launch. The carrier is 315 m long, which can be converted to 15.4 inches if measure to scale with a 12 in ruler, then the ship is:

$$\frac{315}{x}=\frac{15.4 in}{12 in}=245m$$

2) You can tell a road or rail line was intended for missile transport by looking at the association of the rail lines with the air ships in the image. This spatial relationship between these objects can be used to tell their use.

3) Variance = 5106.4.

 Standard deviation:

$$Standard deviation\left(σ\right)=\sqrt{Variance}=\sqrt{5106.4}=71.45$$

The estimated distance between the background and target is:

$$mean=0.61 $$

$$St. dev=71.45$$

$$\frac{250-0.61}{71.45}=3.5 σ$$

4) The dynamic ranges I would use to display the scene and enhance each region of interest would be:

Water= 60-200

Moss=350-450

Factory=400-1250

So we would use a range from 60 to 1250 mapped from 0-255.

5)

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Red(DN)** | **Green(DN)** | **Blue(DN)** |
| **1** | **40** | **50** | **60** |
| **2** | **20** | **25** | **28** |
| **3** | **30** | **30** | **30** |
| **4** | **15** | **16** | **14** |

A=[40 50 60; 20 25 28; 30 30 30; 15 16 14];

C= corr(A)

c= cov(A)

C =

 1.0000 0.9693 0.9397

 0.9693 1.0000 0.9949

 0.9397 0.9949 1.0000

c =

 122.9167 154.5833 201.6667

 154.5833 206.9167 277.0000

 201.6667 277.0000 374.6667