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College of Science – Applied Geology Department
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2nd Stage

Remote Sensing

Lecture 9 : Interpretations

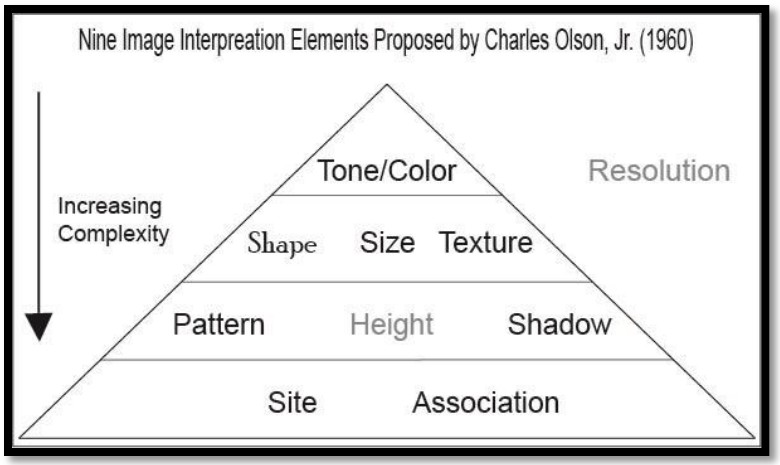
Satellite and Aerial photos interpretation

Interpretation is process to identifying objects and their relations with the background , we use in interpretation : maps – report – field observations – old images or photos .the success of that depend on :

1- skill and experience of interpreter

2- type of features being interpreted

3- quality of photos used



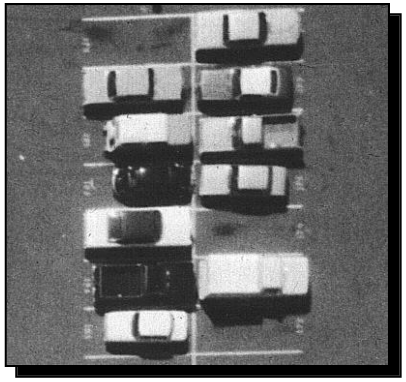
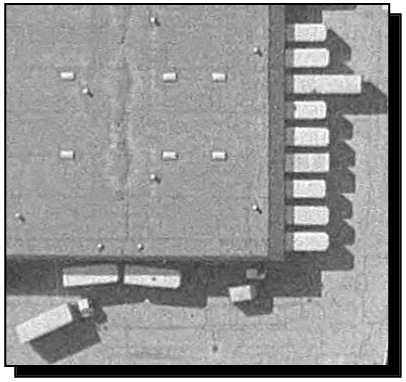
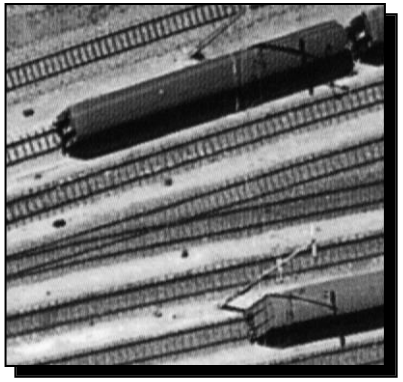
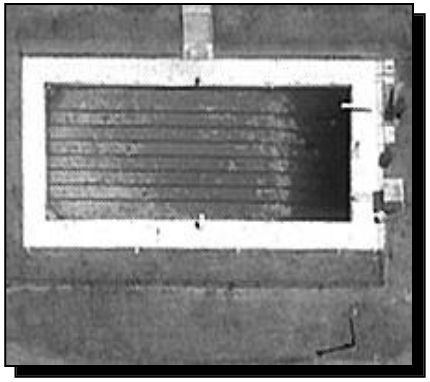
Elements of photo interpretation

We can use one or more of the basic elements of photo

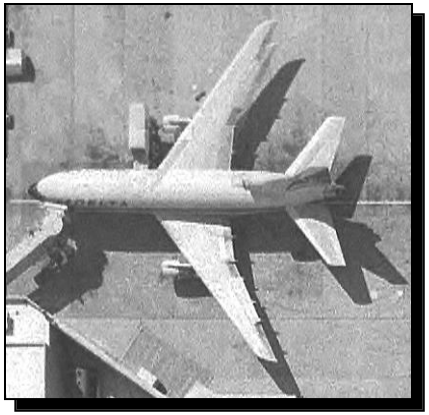
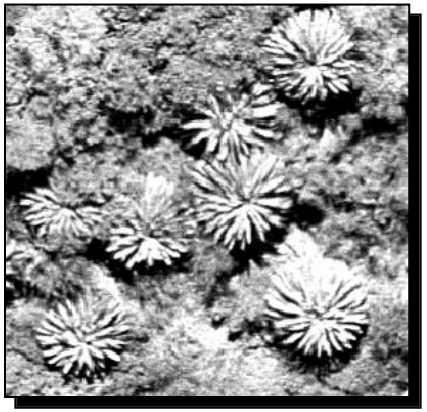
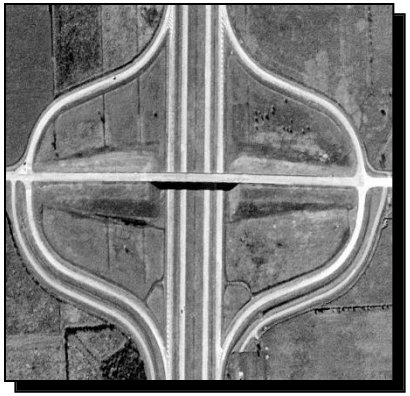
1- Size : its more important in photo interpretation , there are two types of size :

a- Relative size – we know the size of object relative to known object – cars vs. buses ; houses vs. building

b- Absolute size – we know the actual size of some objects – trains – foot ball stadium .

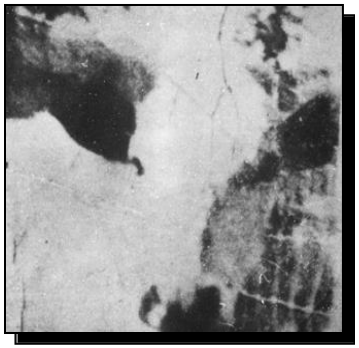





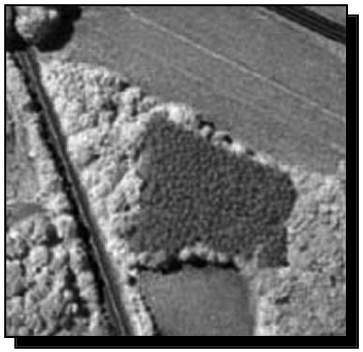
2- Shape : many objects can be recognized by 2 D or 3 D shape when it show from above as compared to shape around it , many objects can be identified by their stander shape

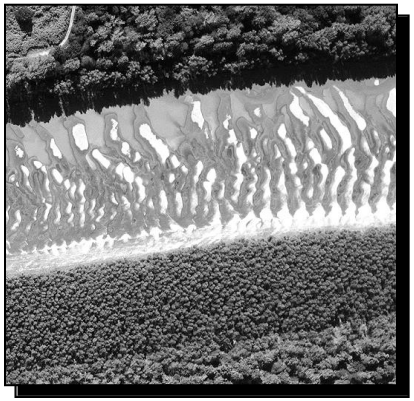
3- Shadow : most Remote sensing records done with 2 hrs +- noon to avoid bad effect of shadow because it cover the feature under it , but it had useful job , by give the shape of side , also the idea about the height of object .

4- Tone and color : in black and white images we can see the varies between these colors as gray scale , eye can see 40-50 shade in gray , but about 100 times more in color images .



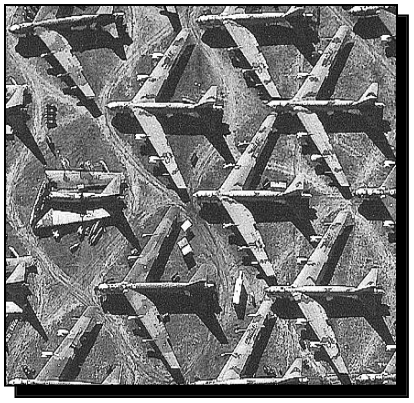


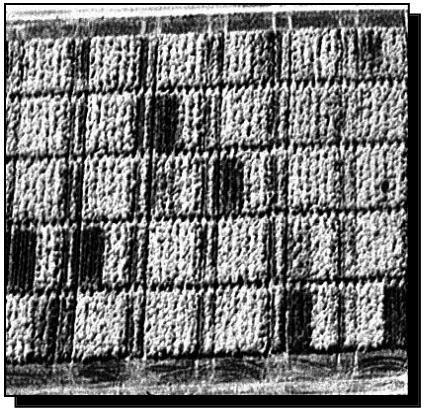
5- Texture : its arrangement of repetitions of tone and color in an image , the texture can be coarse or smooth

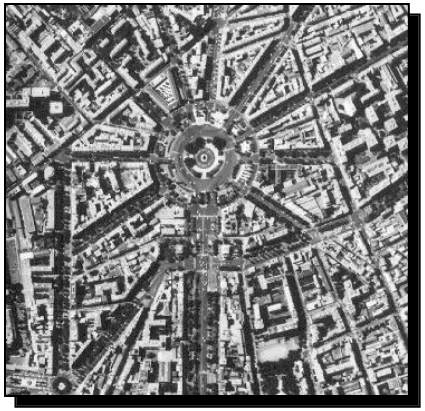


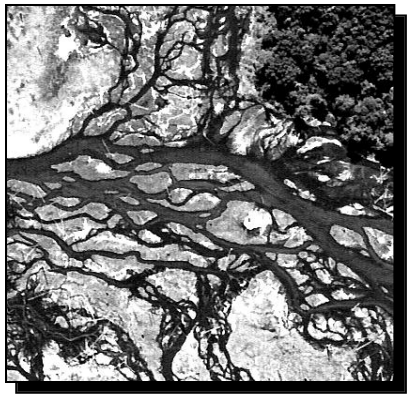
6- Pattern : spatial arrangement of objects in ground , that can be in different types , systematic – random – circular – linear – radial …..

Pattern can be man – made or natural , if it man – made most time be geometric patterns .

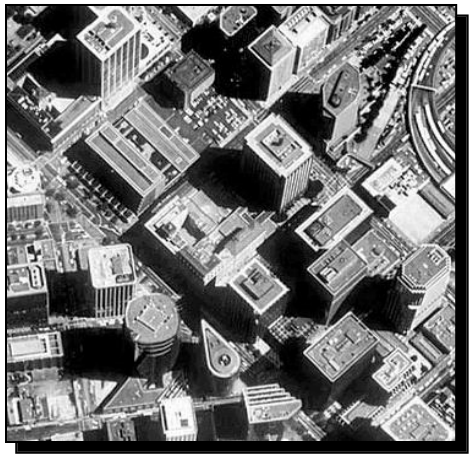




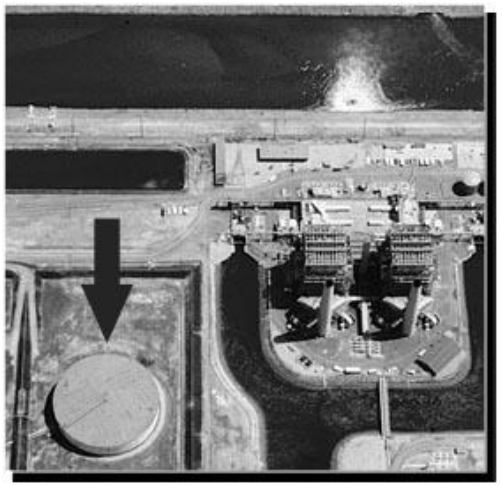




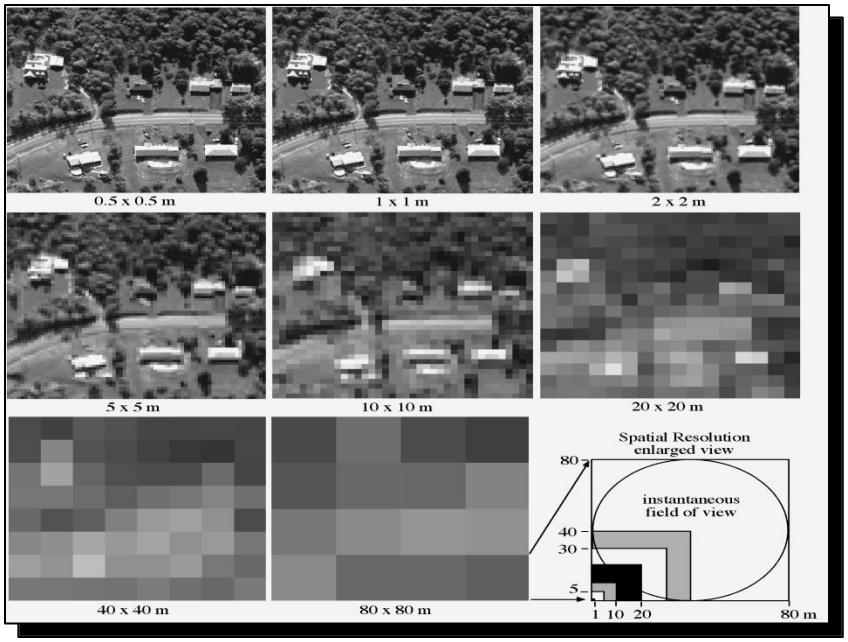
7- **Height** : in stereoscopic images we can see in image 3D , and measure it . Side looking view of building can show the height of it with help of shadow .



8- **Site** : its help to identify an object with association with other objects surroundings , to know what that object used for .



9 – **Resolution** : some objects are too small or have too little contrast with surrounding to be seen clearly in image .



References

IMAGE INTERPRETATION IMAGE INTERPRETATION , Seventh Edition, Lillesand T. M., Kiefer R. W., Chipman J. W., WILEY press , USA , 2015

Earth Science Satellite Remote Sensing Vol. 1: Science and Instruments , Qu J. J., Gao W. , Kafatos M. , Murphy R. E, Salomonson V. V., Tsinghua University Press, Beijing and Springer-Verlag GmbH Berlin Heidelberg . 2006

Internet Remote Sensing Lectures sites