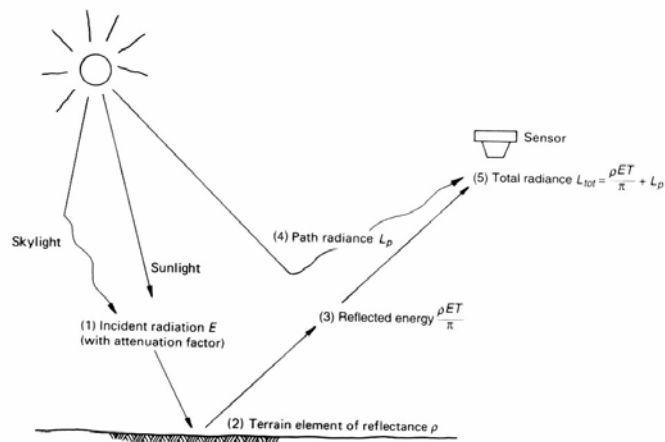
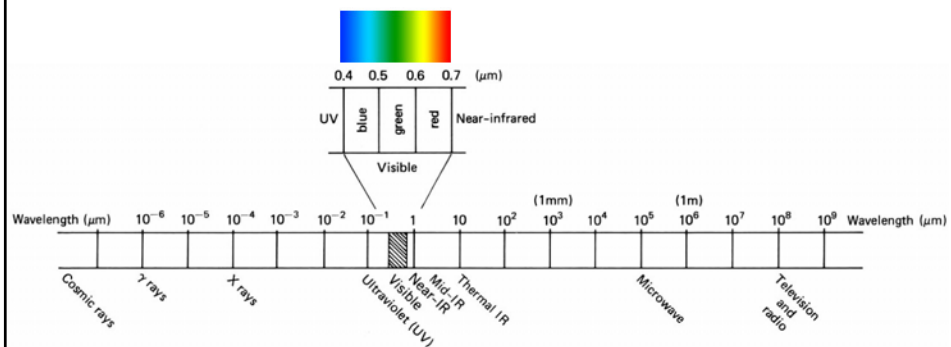
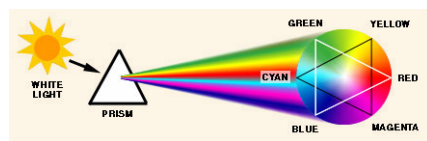


Measuring EMR

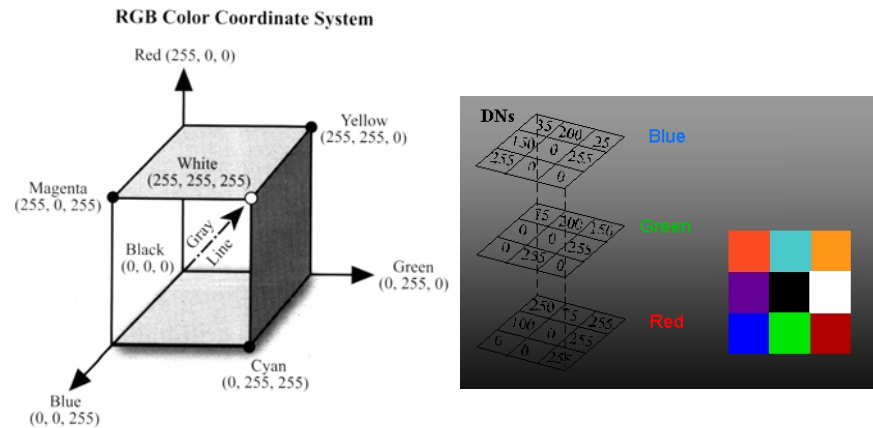


- T = transmission of atmosphere

EMR Color Spectrum



Cathode-Ray Tube (CRT) & RGB Color



Why do plants appear green?

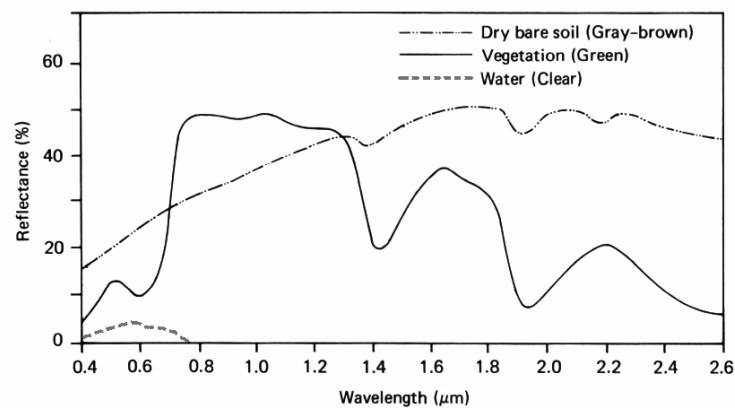
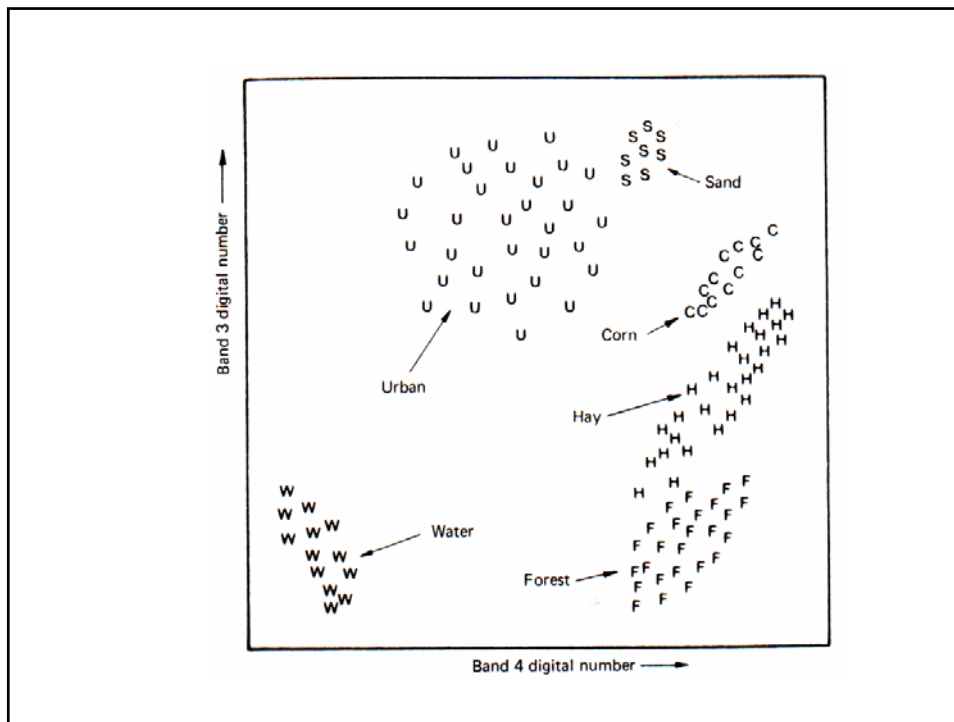
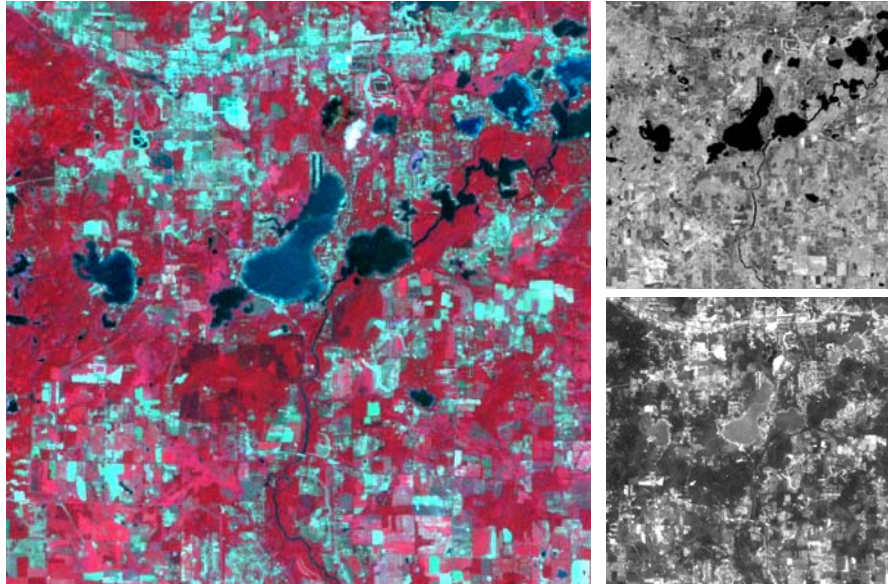


Figure 1.10 Typical spectral reflectance curves for vegetation, soil, and water.

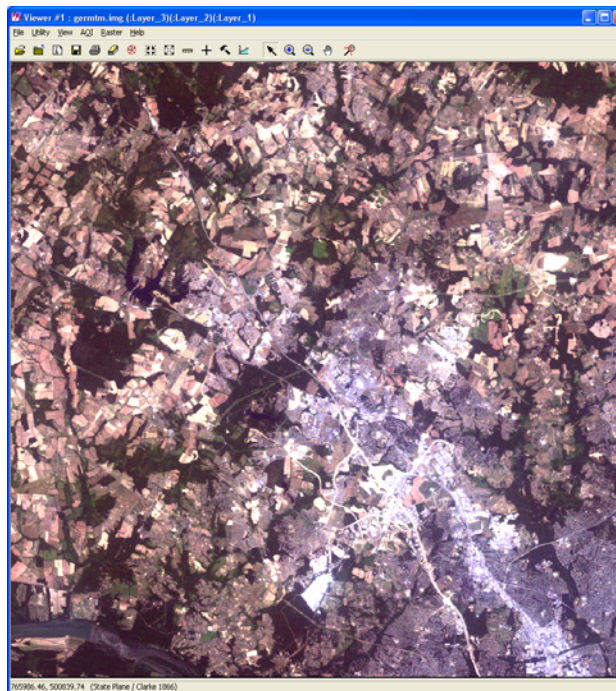


Band	Bandwidth (μm)	IFOV (m)	Quantization (bits)	Off Nadir Viewing	Temporal Resolution (days)	Altitude (km)	Total Data Rate (Mbits/s)	Number Pixels per Line	Swath Width (km)
Landsat Multispectral Scanner (MSS) on ERTS 1, 2 and Landsat 3, 4, and 5									
4 ^a	0.50–0.60	79 × 79	6–8	No	18	917	15	2340	185
5	0.60–0.70								
6	0.70–0.80								
7	0.80–1.10								
8 ^b	10.4–12.6	240 × 240							
Landsat Thematic Mapper (TM) on Landsat 4 and 5									
1	0.45–0.52	30 × 30	8	No	16	705	85	3000	185
2	0.52–0.60	30 × 30							
3	0.63–0.69	30 × 30							
4	0.76–0.90	30 × 30							
5	1.55–1.75	30 × 30							
6	10.4–12.5	120 × 120							
7	2.08–2.35	30 × 30							
NOAA Advanced Very High Resolution Radiometer (AVHRR -12) Local Area Coverage (LAC) Data									
1	0.58–0.68	1100 × 1100	8	No	Daily	861 and 845	—	—	2700
2	0.725–1.10	1100 × 1100							
3	3.55–3.93	1100 × 1100							
4	10.3–11.3	1100 × 1100							
5	11.5–12.5	1100 × 1100							
French SPOT High Resolution Visible Sensor Systems (HRV) 1, 2, and 3									
Multispectral Mode									
1	0.50–0.59	20 × 20	8	Yes	Variable	832	25	3000	60
2	0.61–0.68	20 × 20							
3	0.79–0.89	20 × 20							
Panchromatic Mode									
1	0.51–0.73	10 × 10	8	Yes	Variable	832	25	6000	60

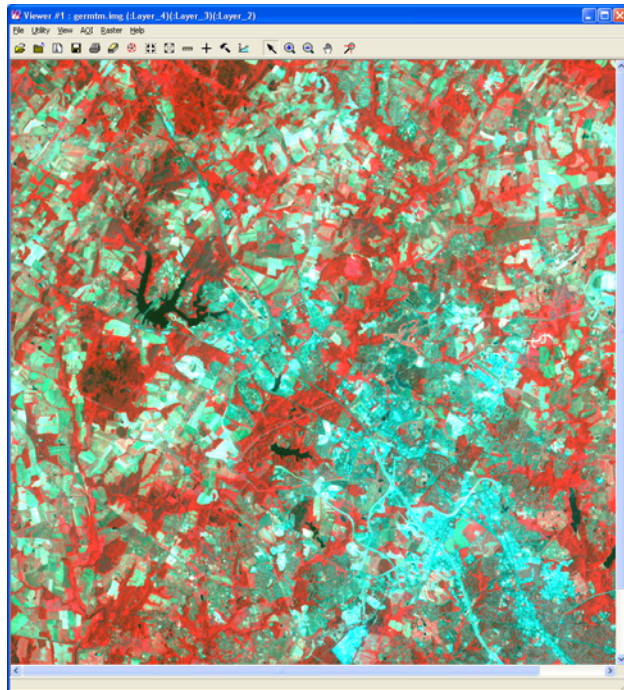
ETM+: CIR False Color Composite Image



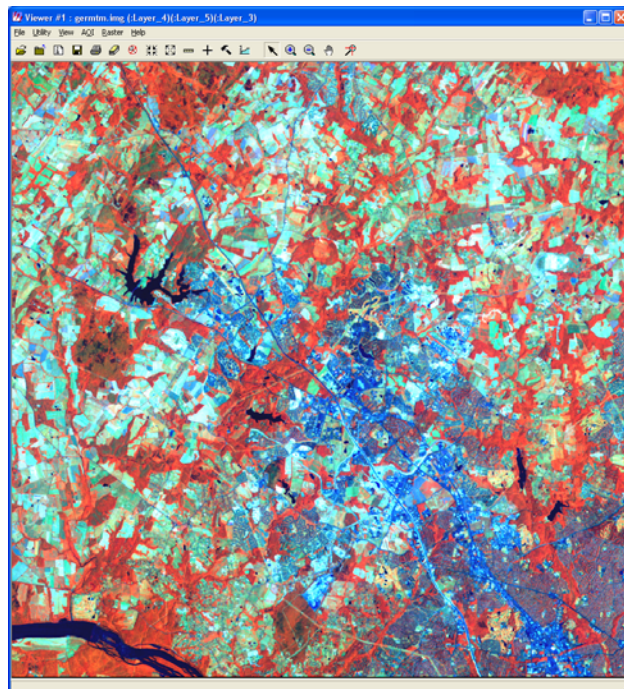
TM
R,G,B = 3,2,1



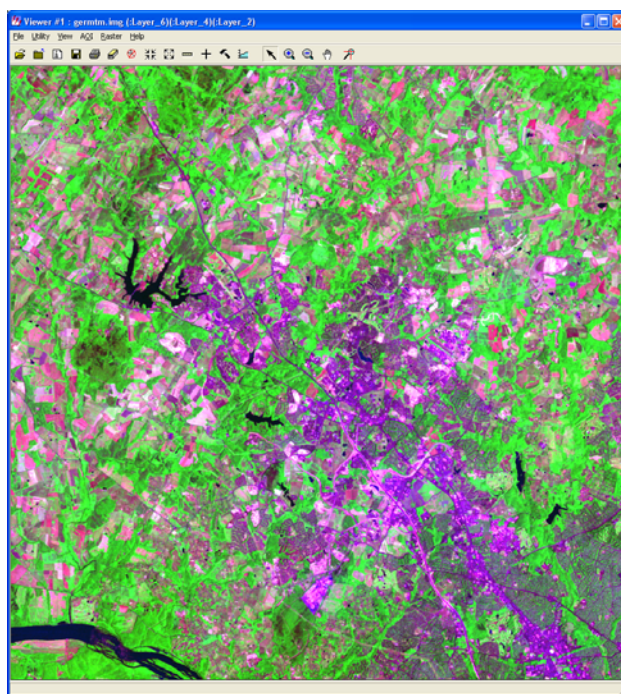
TM
R,G,B = 4,3,2



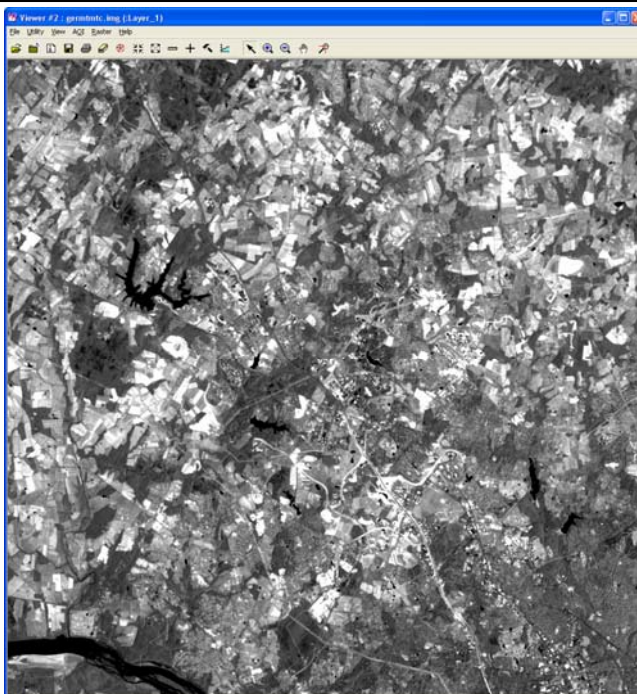
TM
R,G,B = 4,5,3



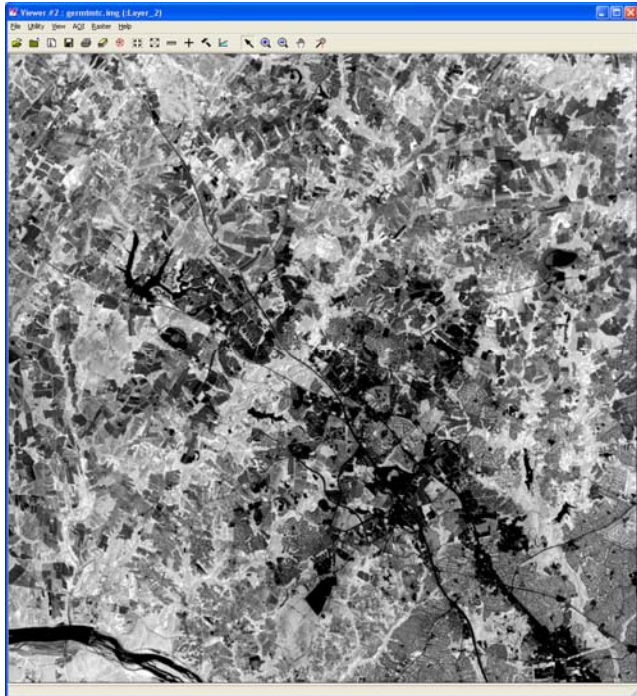
TM
R,G,B = 7,4,2



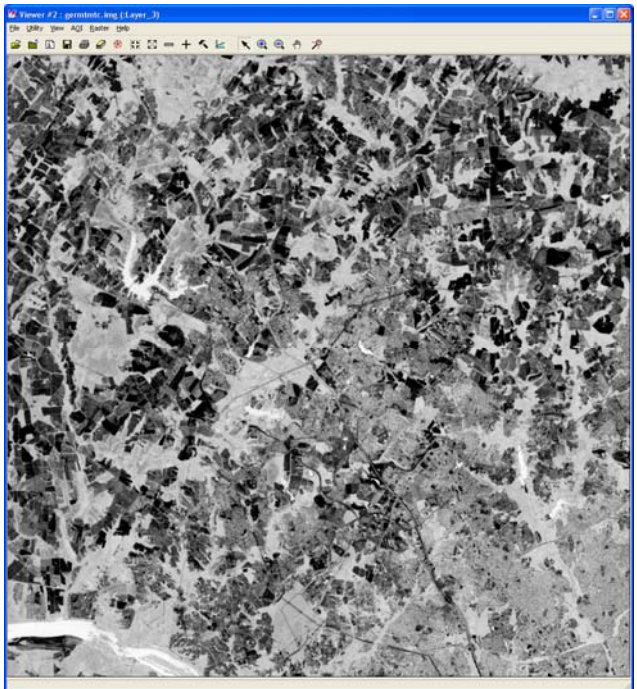
Tasseled Cap:
Brightness



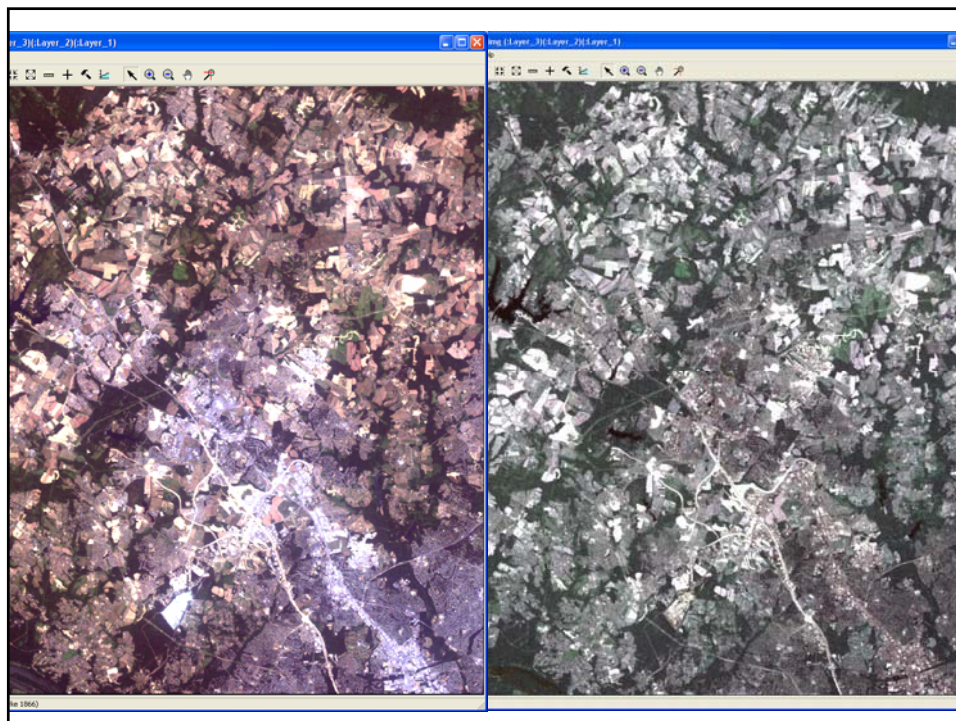
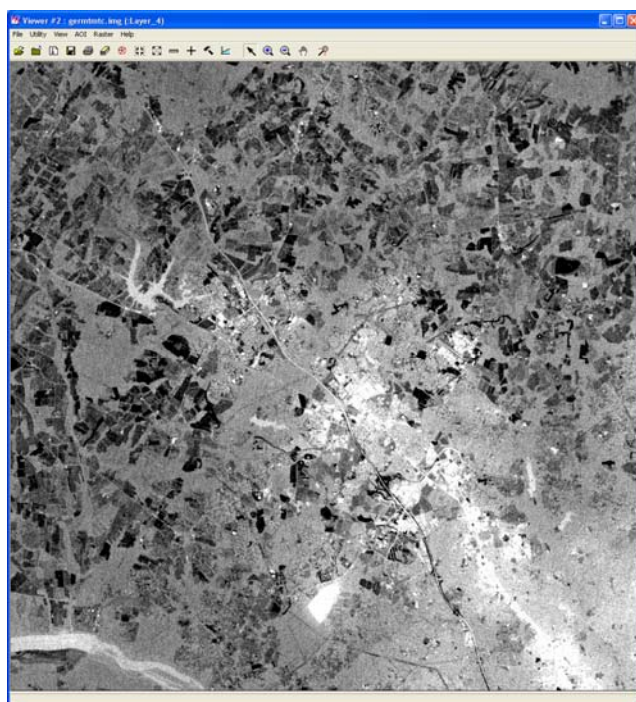
TC: Greenness



TC: Wetness

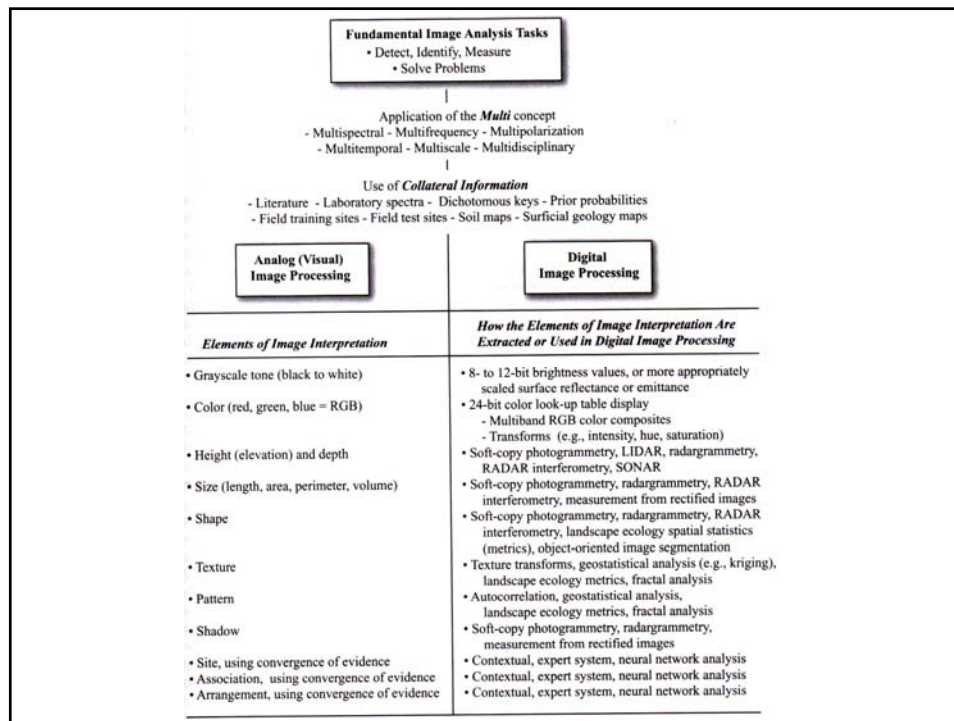


TC: Haziness

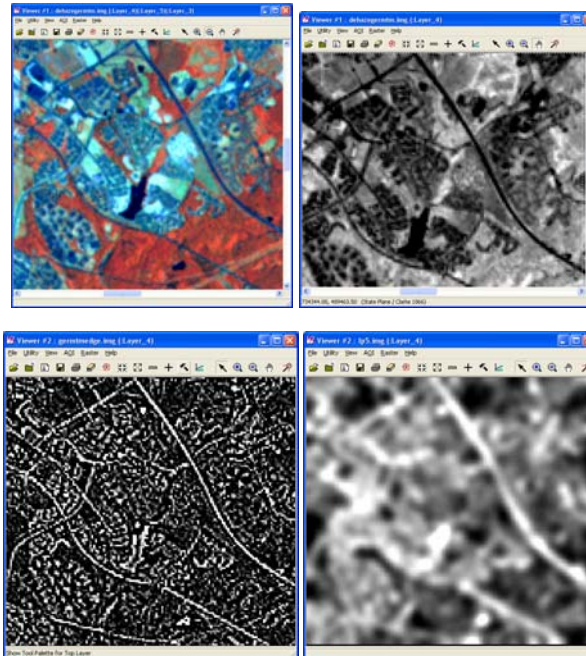


Elements of photo interpretation

- Shape
- Size
- Pattern
- Color (tone, hue)
- Texture
- Shadows
- Site
- Association



Texture Information



Classification

- Classification scheme
- Class signatures
 - Unsupervised classification (ISODATA)
 - Supervised classification
 - Training sites
- Classification rules (classifiers)

Accuracy assessment

- Classified map
- Reference (ground truth) sample points
- Error matrix (contingency table)
 - PCC