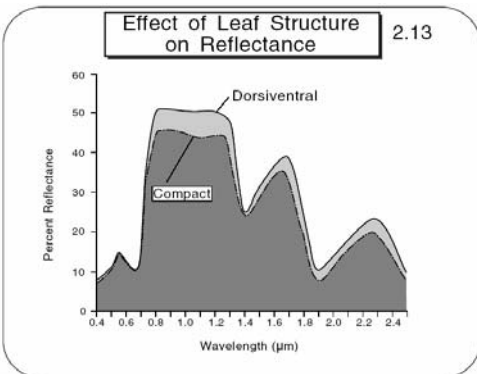
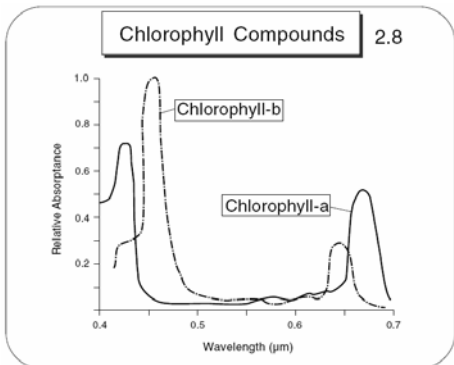
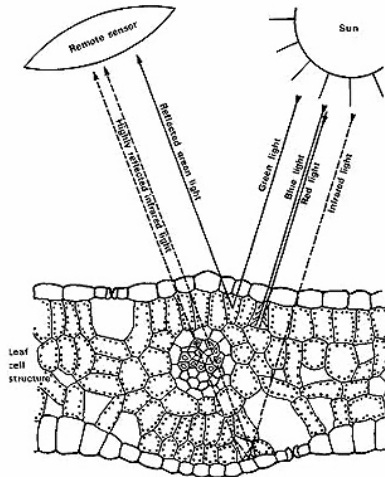
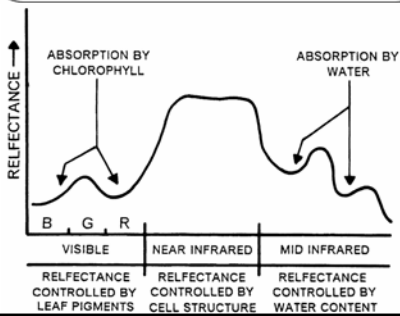
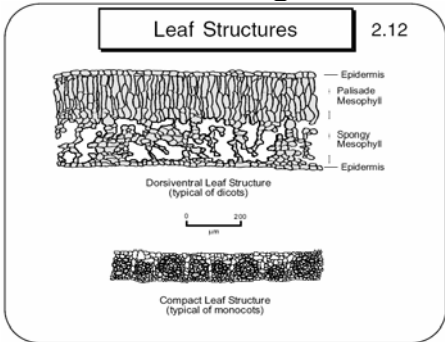


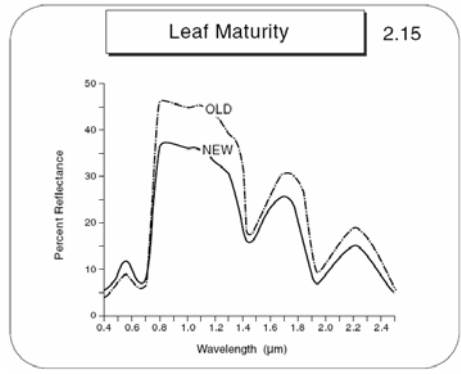
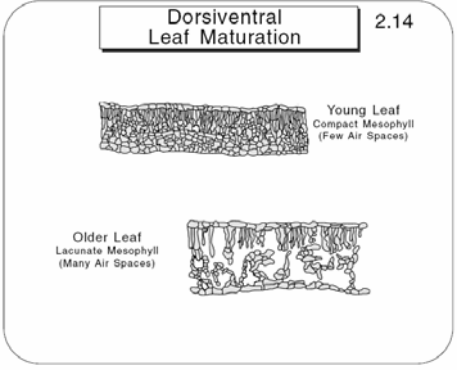
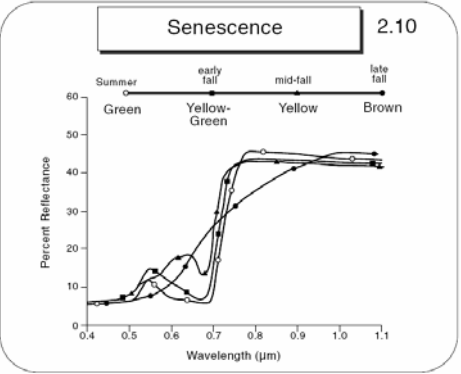
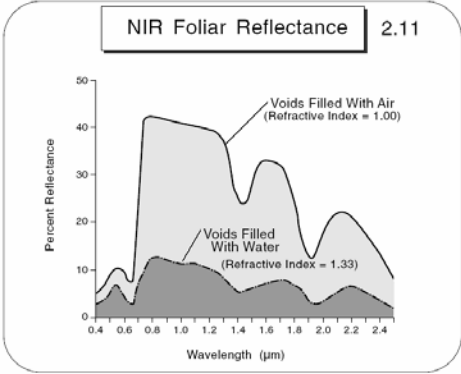
RS and Plant Science

Vegetation Mapping

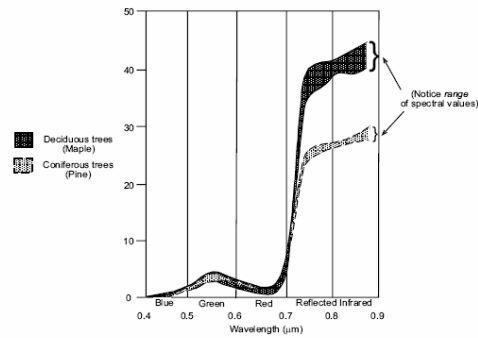
- Classification schemes
 - Plant community
 - Multiple species
 - Multiple vertical strata
 - Floristics classification
 - Class, order, family, genus, species
 - Physiognomy classification
 - Life forms: tree, shrub, herbaceous, ...
 - Ecological zones (ecoregions)

Vegetation Reflectance





Spectral Signatures of Deciduous and Coniferous Trees 2.16



from: Kalensky, Z. and Wilson, D.A. 1975. Spectral Signatures of Forest Trees. Proc., Third Canadian Symposium on Remote Sensing. pp. 155-171

Indices

- Band ratioing
- NDVI (Normalized Difference Vegetation Index)

$$\frac{IR - R}{IR + R}$$

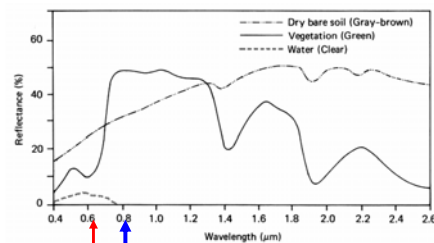
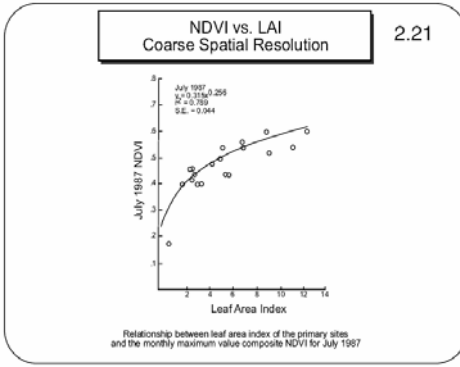
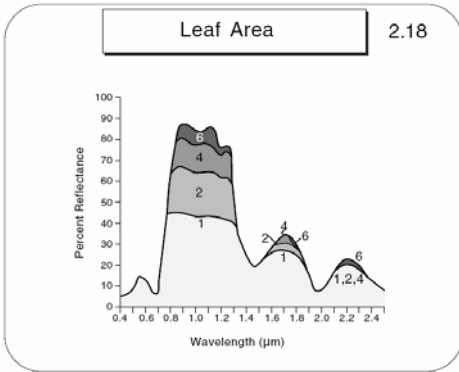
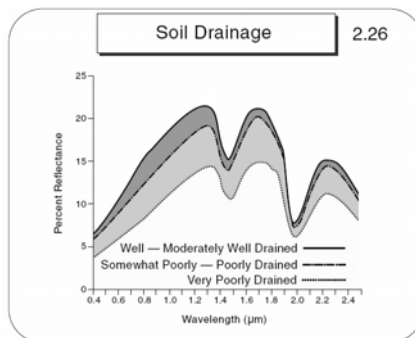
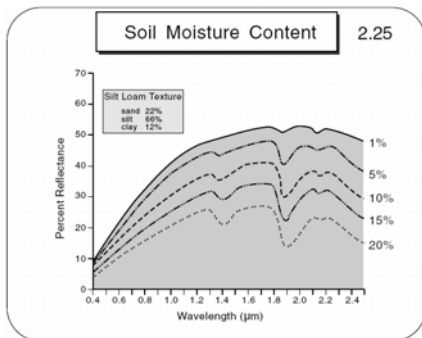


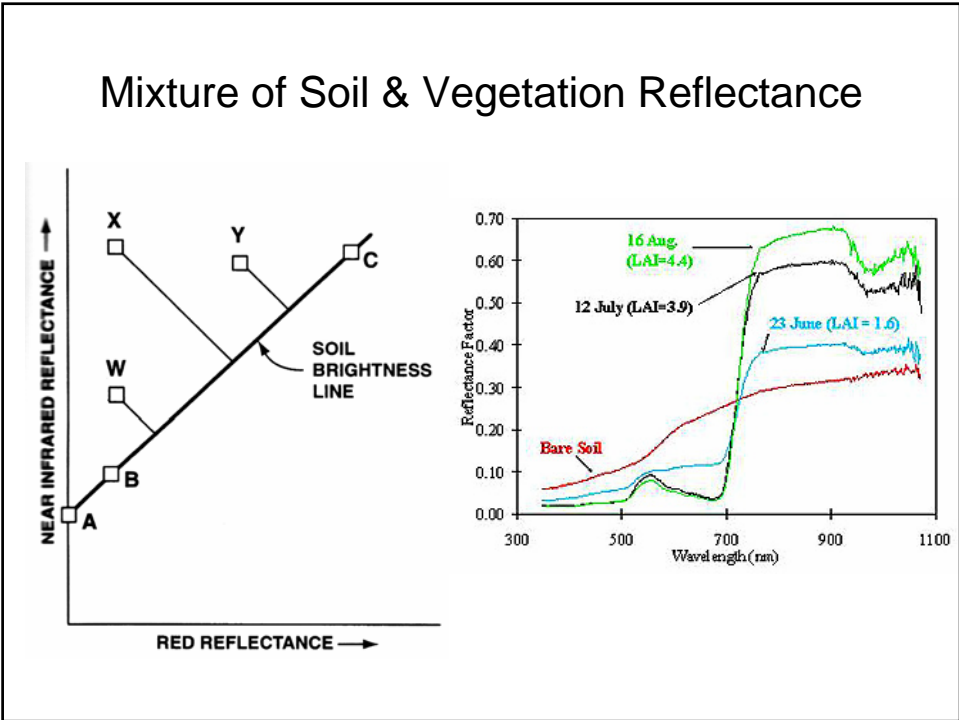
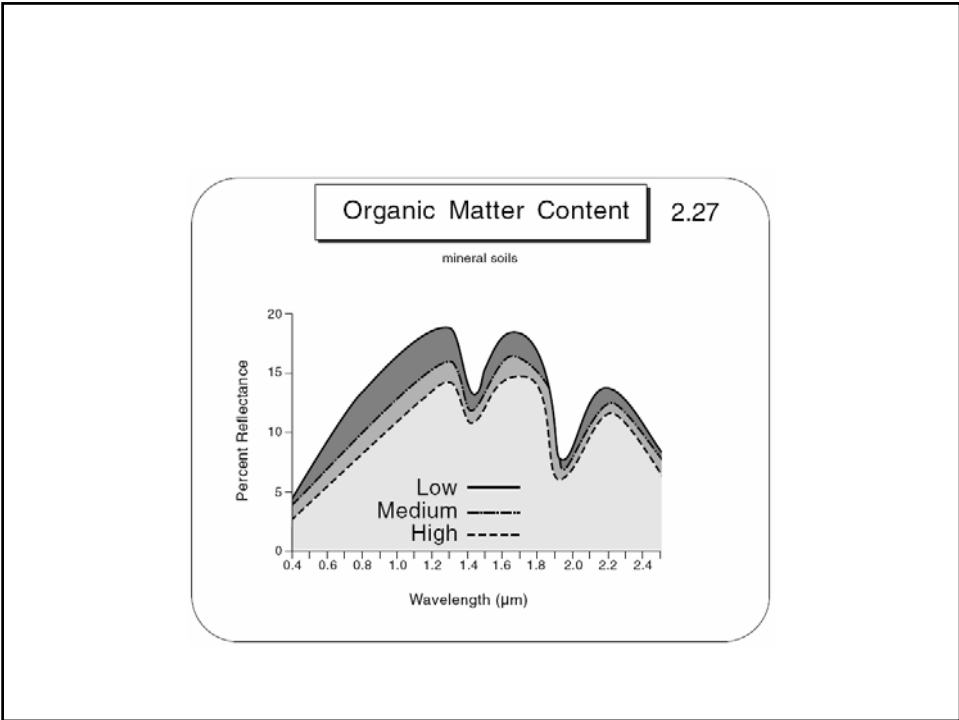
Figure 1.10 Typical spectral reflectance curves for vegetation, soil, and water.

LAI & NDVI

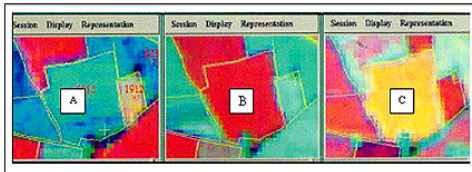


Soil Reflectance Separation

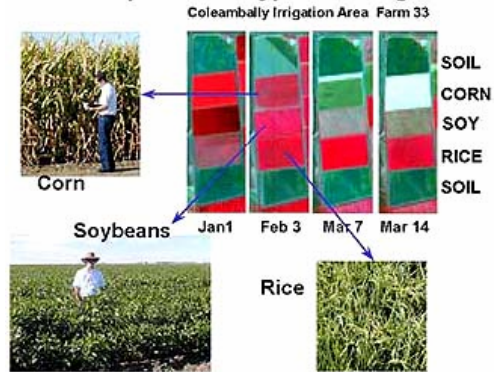




Phenology



Time Sequence of Hyperion Images



EO-1 Hyperion Hyperspectral Sensor http://rs.csr.utexas.edu/rsinfo/sensors/sensor.php?n_id=13

TM vs SPOT in Crop Identification

| 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 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 | | | | | | | |
| 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 |