Tasseled Cap Transformation

Mississippi Coastal Corridor July 24, 2000

Tasseled Cap transformation is one of the available methods for enhancing spectral information content of Landsat TM data. Tasseled Cap transformation especially optimizes data viewing for vegetation studies. Tasseled Cap index was calculated from data of the related six TM bands. Three of the six tasseled cap transform bands are often used:

- band 1 (brightness, measure of soil)
- band 2 (greenness, measure of vegetation)
- band 3 (wetness, interrelationship of soil and canopy moisture)

The Tasseled Cap Transformation for Landsat satellite imagery is calculated with the following coefficients:

- **Brightness**: $0.3037(TM1) + 0.2793(TM2) + 0.4743(TM3) + 0.5585(TM4) + 0.5082(TM5) + 0.1863(TM7)$
- **Greenness**: $-0.2848(TM1) - 0.2435(TM2) - 0.5436(TM3) + 0.7243(TM4) + 0.0840(TM5) - 0.1800(TM7)$
- **Wetness**: $0.1509(TM1) + 0.1973(TM2) + 0.3279(TM3) + 0.3406(TM4) - 0.7112(TM5) - 0.4572(TM7)$

Tasseled cap results and change in tasseled cap values between images will be used to assess changes to the environment. These changes will be compared and contrasted to changes in radiometric value, NDVI value, and classification.

References:
Center for Advanced Spatial Technologies, http://www.cast.uark.edu/gap/chap2.htm

LOCATION SHOWN IS JUST TO THE EAST OF BILOXI. THE LARGE DELTAIC REGION NEAR THE CENTER OF THE MAP IS THE MOUTH OF THE PASCAGOULA RIVER.