SMEX03 Landsat Thematic Mapper Imagery: Georgia, Version 1

USER GUIDE

How to Cite These Data

As a condition of using these data, you must include a citation:

Cosh, M. 2007. *SMEX03 Landsat Thematic Mapper Imagery: Georgia, Version 1*. [Indicate subset used]. Boulder, Colorado USA. NASA National Snow and Ice Data Center Distributed Active Archive Center. doi: https://doi.org/10.5067/NWSOGVLENI2J. [Date Accessed].

National Snow and Ice Data Center

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1   DETAILED DATA DESCRIPTION

This data set provides imagery developed from Landsat 5 Thematic Mapper (TM) data for use in studying land cover features during the Soil Moisture Experiment 2003 (SMEX03).

For this study, TM bands 2, 3, and 4 were combined to make false color composites.

- Vegetation appear as shades of red. Brighter reds indicate thicker vegetation.
- Soils with little or no vegetation appear as shades from white (sands) to green or brown, depending on moisture and vegetation content.
- Water appears blue.
- Urban areas appear as blue-gray.
- Clouds and snow appear bright white.

1.1 Format

Data are provided as a GeoTIFF image file with associated TIFF world file (TFW) containing georeferencing information. GeoTIFF defines a set of publicly available TIFF tags that describe cartographic and geodetic information associated with TIFF images. GeoTIFF enables referencing a raster image to a known geodetic model or map projection. The initial tags are followed by image data, that in turn may be interrupted by more descriptive tags. By using the GeoTIFF format, both metadata and image data can be encoded into the same file.

The TFW file provides georeference information for the image with the same file name and is a text file with six numbers. Refer to Table 1 for a description of the TFW file contents.

Table 1: TFW File Rows

Row	Description
1	the dimension of a pixel in map units in the x direction
2	rotation term for row
3	rotation term for column
4	the dimension of a pixel in map units in the y direction
5	x coordinate for upper left corner
6	y coordinate for upper left corner

1.2 File Naming Convention

Files are named according to the following convention:

Example File Names: TM5_GA_072003.tif and TM5_GA_072003.tfw

TM5_GA_MMDDYY.tif and TM5_GA_MMDDYY.tfw

Where

MM = month

DD = day

YY = year

1.3 Spatial Coverage

Southernmost Latitude: 30.90° N

Northernmost Latitude: 31.96° N

Westernmost Longitude: 83.97° W

Easternmost Longitude: 83.36° W

1.3.1   Spatial Resolution

The Landsat TM data are high-resolution 30 m data.

1.3.2   Projection

Universal Transverse Mercator (UTM) Zone 15.

1.4 Temporal Coverage

20 July 2003

1.5 Parameter or Variable

Infrared Imagery (Band 4)

Visible Imagery (Bands 2 and 3)

1.5.1   Parameter Description

Bands 2, 3, and 4 as blue, green, and red are used to generate a false color image that can be used to identify land cover and vegetation.

1.5.2   Parameter Source

TM scenes from Landsat 5 were acquired during the study period. The following table details the Landsat coverage for the dates of the study.

Table 2: Landsat Coverage Details

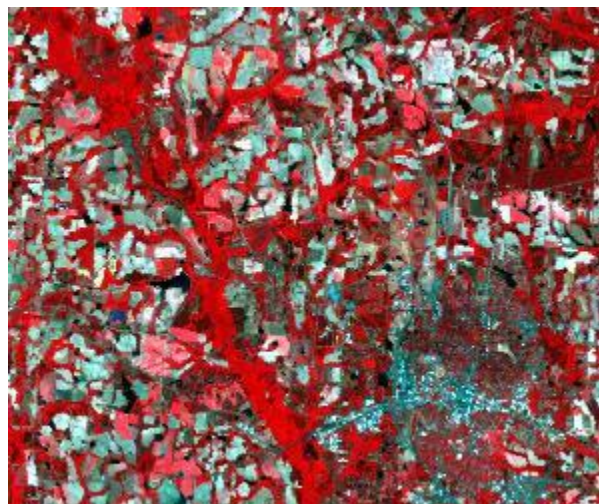| Date	Landsat Number	Path / Row
July 20	5	18 / 36

1.5.3   Sample Data Record

Figure 1: False Color Image of the Tifton Area,
Sample from Image File TM5_GA_072003.tif.

2   SOFTWARE AND TOOLS

A program which recognizes the GeoTIFF file format is recommended for this image.

3   REFERENCES AND RELATED PUBLICATIONS

Cosh, M. 2007. SMEX03 Landsat Thematic Mapper Imagery: Georgia. [indicate subset used]. Boulder, Colorado USA: NASA National Snow and Ice Data Center Distributed Active Archive Center. doi: 10.5067/NWSOGVLENI2J.

U.S. Geological Survey (USGS). Landsat Missions. 1 May 2008. http://landsat.usgs.gov/ 1 May 2008.

Sheffner, Ed. Landsat Program. 5 October 1991. http://geo.arc.nasa.gov/sge/landsat/landsat.html 31 October 2007.

3.1 Related Data Collections

AMSR-E/Aqua Data at NSIDC: AMSR-E standard products available at NSIDC.

3.2 Related Websites

Please see the USDA SMEX03 Web site for in depth information on the science mission and goal of the SMEX project.

4 CONTACTS AND ACKNOWLEDGMENTS

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5 DOCUMENT INFORMATION

5.1 Publication Date

15 November 2007

5.2 Date Last Updated

1 May 2008 - Updated new USGS Landsat web page