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U.S. DEPARTMENT OF THE INTERIOR
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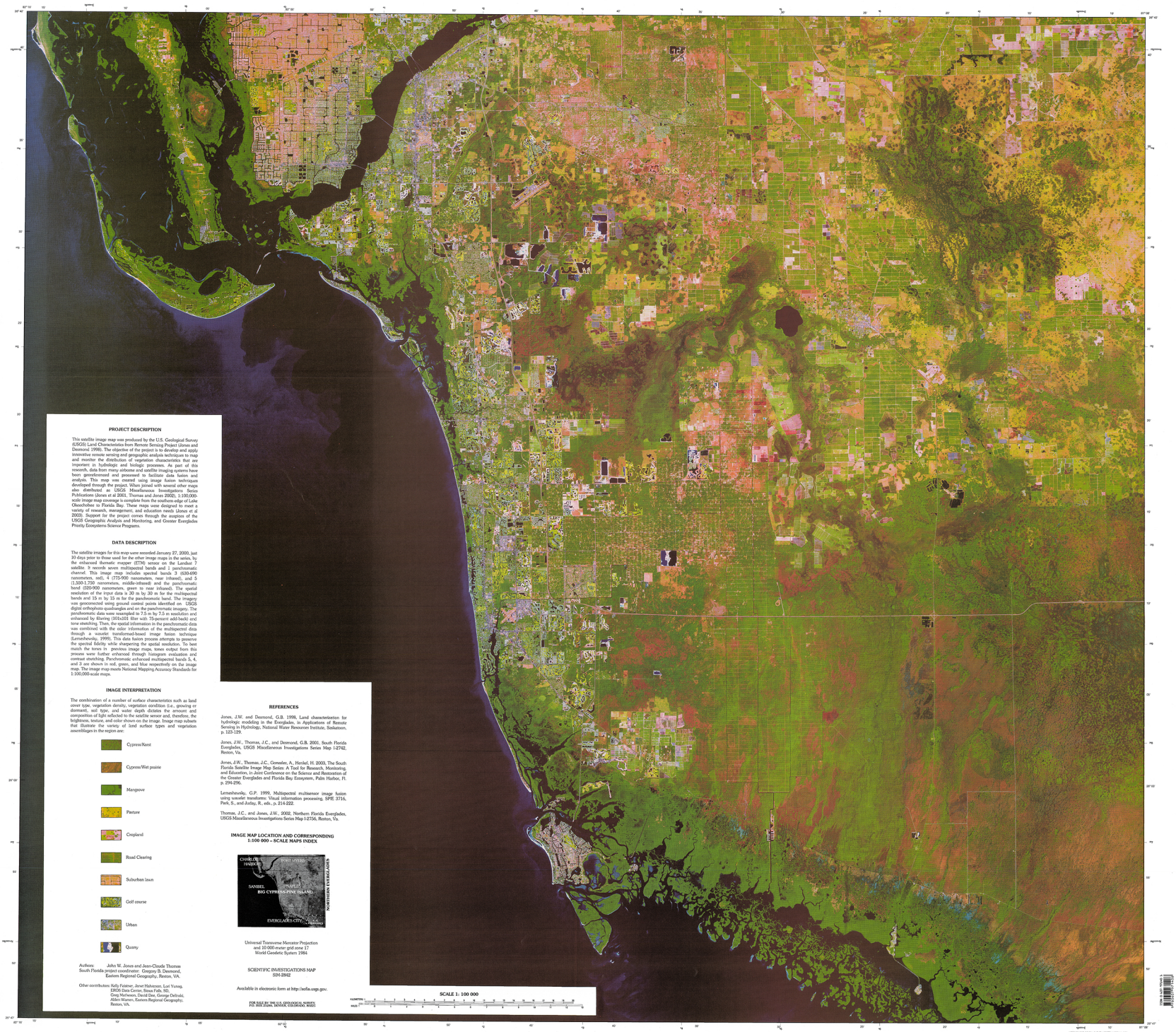
BIG CYPRESS-PINE ISLAND

BIG CYPRESS-PINE ISLAND FL
SATELLITE IMAGE MAP



PROJECT DESCRIPTION

This satellite image map was produced by the U.S. Geological Survey (USGS) Land Characteristics from Remote Sensing Project (Jones and Desmond 1998). The objective of the project is to develop and apply innovative remote sensing and geographic analysis techniques to map and monitor the distribution of vegetation characteristics that are important in hydrologic and biologic processes. As part of this research, data from many airborne and satellite imaging systems have been georeferenced and processed to facilitate data fusion and analysis. This map was created using image fusion techniques developed through the project. When joined with several other maps also distributed as USGS Miscellaneous Investigations Series Publications (Jones et al 2001, Thomas and Jones 2002), 1:100,000-scale image map coverage is complete from the southern edge of Lake Okeechobee to Florida Bay. These maps were designed to meet a variety of research, management, and education needs (Jones et al 2003). Support for the project comes through the auspices of the USGS Geographic Analysis and Monitoring, and Greater Everglades Priority Ecosystems Science Programs.

DATA DESCRIPTION

The satellite images for this map were recorded January 27, 2000, just 10 days prior to those used for the other image maps in the series, by the enhanced thematic mapper (ETM) sensor on the Landsat 7 satellite. It records seven multispectral bands and 1 panchromatic channel. This image map includes spectral bands 3 (630-690 nanometers, red), 4 (775-900 nanometers, near infrared), and 5 (1,550-1,750 nanometers, middle-infrared) and the panchromatic band (520-900 nanometers, green to near infrared). The spatial resolution of the input data is 30 m by 30 m for the multispectral bands and 15 m by 15 m for the panchromatic band. The imagery was geocorrected using ground control points identified on USGS digital orthophoto quadrangles and on the panchromatic imagery. The panchromatic data were resampled to 7.5 m by 7.5 m resolution and enhanced by filtering (101x101 filter with 75-percent add-back) and tone stretching. Then, the spatial information in the panchromatic data was combined with the color information of the multispectral data through a wavelet transformed-based image fusion technique (Lemeshewsky, 1999). This data fusion process attempts to preserve the spectral fidelity while sharpening the spatial resolution. To best match the tones in previous image maps, tones output from this process were further enhanced through histogram evaluation and contrast stretching. Panchromatic enhanced multispectral bands 5, 4, and 3 are shown in red, green, and blue respectively on the image map. The image map meets National Mapping Accuracy Standards for 1:100,000-scale maps.

IMAGE INTERPRETATION

The combination of a number of surface characteristics such as land cover type, vegetation density, vegetation condition (i.e., growing or dormant), soil type, and water depth dictates the amount and composition of light reflected to the satellite sensor and, therefore, the brightness, texture, and color shown on the image. Image map subsets that illustrate the variety of land surface types and vegetation assemblages in the region are:

- Cypress/Karst
- Cypress/Wet prairie
- Mangrove
- Pasture
- Cropland
- Road Clearing
- Suburban lawn
- Golf course
- Urban
- Quarry

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IMAGE MAP LOCATION AND CORRESPONDING 1:100 000 – SCALE MAPS INDEX

Universal Transverse Mercator Projection
and 10 000-meter grid zone 17
World Geodetic System 1984

SCIENTIFIC INVESTIGATIONS MAP
SIM-2842

Available in electronic form at http://sofia.usgs.gov.

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SCALE 1: 100 000

KILOMETERS 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20
MILES 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20

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