

Identification_Information:

Citation:

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Originator: U.S. Geological Survey
Publication_Date: 20020601
Title: Sharp Fire of Great Smokey Mountain National Park - 2001
Geospatial_Data_Presentation_Form:
Raster digital data.
Vector data are also available as ArcView Shape Files.

Publication_Information:

Publication_Place: Sioux Falls, South Dakota USA
Publisher: U.S. Geological Survey
Online_Linkage: <http://edc.usgs.gov>

Description:

Abstract:

The U.S. Geological Survey (USGS) has entered into a cooperative agreement with the National Park Service (NPS) to deliver satellite imagery and derivative products centered on major fires that impact national parks and other federal lands. This data set was compiled at the request of a federal land management agency and is part of a suite of products generated for a specific fire. See the National Burn Severity Mapping web site at: http://edc2.usgs.gov/fsp/severity/fire_main.asp

Purpose:

The purpose of this project is to develop a robust mapping methodology and consistent data products that allow federal land managers and fire ecologists to evaluate and compare burn severity within individual fires and between fires across various ecosystems. These products will help land managers to more effectively plan, implement and monitor fire recovery activities.

Supplemental_Information:

Fire Name: Sharp
Park: Great Smoky Mountain
Date of Fire: 11/10/2001
Type of assessment: Initial
Acres within Fire Perimeter: 740
Landsat Path and Row: 19/35
Pre-Fire Landsat Date/Scene ID: Landsat 7;
December 1, 2000 / LE7019035000033650
Post-Fire Landsat Date/Scene ID: Landsat 7;
December 4, 2001 / LE7019035000133850
Output Dataset Projection: UTM
Zone 17
NAD 27
Clarke1866

Image subset Corner Coordinate
(center of upper left pixel, projection meters)
ULX: 266101 LRX: 286561
ULY: 3941474 LRY: 3920354

Image subset size:

#Rows 705
#Columns 683
Pixel size: 30 meters
Bounding Box:
North Lat: 35 35 45 N
South Lat: 35 24 03 N
East Long: 83 21 02 W
West Long: 83 34 54 W

Latitude and Longitude within Fire Perimeter:

Lat (N) Long (W)
35 30 08 83 27 51

Fire Perimeter: Manually digitized.
Interpretation of burn perimeter was difficult.

For further information on NLAPS and Landsat
TM data, please refer to the metadata documentation found on the
USGS Clearinghouse website at:
<http://www.fgdc.gov/clearinghouse/clearinghouse.html>
Information on Landsat 7 can be found at the Clearinghouse site and
also at: <http://landsat7.usgs.gov/>

Product list:

shar01apretm.tif
Pre-Fire Landsat TM Color Composite Image subset
(bands 1,2,3,4,5,7 Geo-TIFF)

shar01apostm.tif
Post-Fire Landsat TM Color Composite Image subset
(bands 1,2,3,4,5,7 Geo-TIFF)

shar01a_dnbr
Differenced Normalized Burn Ratio (DNBR) subset (ArcInfo GRID)

shar01ap
Fire Perimeter (shape file)

dnbra_19-35
Full Scene DNBR (ArcInfo GRID)

Time_Period_of_Content:

Time_Period_Information:

Multiple_Dates/Times:

Single_Date/Time:

Calendar_Date: 20001201 (pre-fire image)

Single_Date/Time:

Calendar_Date: 20011110 (date fire began)

Single_Date/Time:

Calendar_Date: 20011204 (post-fire image)

Currentness_Reference: ground condition

Status:

Progress: Complete

Maintenance_and_Update_Frequency: as needed

Spatial_Domain:

Bounding_Coordinates:

West_Bounding_Coordinate: -83.34.54

East_Bounding_Coordinate: -83.21.02

North_Bounding_Coordinate: 35.35.45

South_Bounding_Coordinate: 35.24.03

Keywords:

Theme:

Theme_Keyword_Thesaurus: none

Theme_Keyword: burn mapping

Theme_Keyword: imagery

Theme_Keyword: fire

Theme_Keyword: Landsat

Place:

Place_Keyword_Thesaurus: none

Place_Keyword: Great Smokey Mountain National Park

Place_Keyword: Sharp

Place_Keyword: Tennessee

Place_Keyword: North Carolina

Access_Constraints: FTP data sets are available to any user.

Use_Constraints: There are no restrictions on use, except for reasonable and proper acknowledgement of information sources.

Point_of_Contact:

Contact_Information:

Contact_Organization_Primary:

Contact_Organization: U.S. Geological Survey

Contact_Position: CSR

Contact_Voice_Telephone: +001 605-594-6151

Contact_Address:

Address_Type: physical and mailing address

Address: 47914 252nd Street

City: Sioux Falls

State_or_Province: SD

Postal_Code: 57198-0001

Country: USA

Contact_TDD/TTY_Telephone: +001 605-594-6933

Contact_Voice_Telephone: +001 605-594-6151

Contact_Facsimile_Telephone: +001 605-594-6589

Contact_Electronic_Mail_Address: fsedc@usgs.gov

Hours_of_Service: 0800 - 1600 CT, M-F, -6 h GMT

Contact_Instructions: http://edc2.usgs.gov/fsp/severity/contact_us.asp

Data_Set_Credit: USGS and NASA

Native_Data_Set_Environment: Oracle, ERDAS Imagine, & ArcInfo

Data_Quality_Information:

Attribute_Accuracy:

Attribute_Accuracy_Report:

Three on-board calibrators (two solar, one internal) provide an absolute accuracy of 5 percent, excluding band 6.

Logical_Consistency_Report:

These Landsat data are collected from a nominal altitude of 705 kilometers in a near-polar, near-circular, sun-synchronous orbit at an inclination of 98.2 degrees, imaging the same 183-km swath of Earth's surface every 16 days. The pixels representing the bands for the image are in the data set only once.

Completeness_Report:

Fire perimeter was manually digitized; interpretation of burn perimeter was difficult.

Positional_Accuracy:

Horizontal_Positional_Accuracy:

Horizontal_Positional_Accuracy_Report:

Energy reflected from Earth's surface passes through a whisk-broom scanning system and all-reflective optics before being collected by the solid-state detectors at the focal plane.

Lineage:

Process_Step:

Process_Description:

These data products are derived from Landsat Thematic Mapper data. A pre-fire scene and a post-fire scene are analyzed to create a Differenced Normalized Burn Ratio (DNBR) image. The DNBR image portrays the variations of burn severity within the fire.

The Landsat images are terrain corrected and geometrically rectified to an Albers Conical Equal Area map projection using the National Landsat Archive Production System (NLAPS). The images are further

processed to convert bands 1-5 and 7 to at-satellite-reflectance.
The Normalized Burn Ratio (NBR) is computed for each date of imagery
using the following formula:
$$(\text{Band 4} - \text{Band 7}) / (\text{Band 4} + \text{Band 7}) = \text{NBR}$$

The differenced NBR is computed by subtracting the post-fire NBR from
the pre-fire NBR:
$$\text{PreNBR} - \text{PostNBR} = \text{DNBR}$$

Higher DNBR values are correlated with more severe burns. The DNBR
image is evaluated to determine the threshold value between burned and
unburned areas. The perimeter of the fire is delineated using the DNBR
image. The DNBR image, the pre-fire and post-fire TM images, and a
fire perimeter vector file are provided in digital format in the map
projection used by the National Park Service.

Source_Used_Citation_Abbreviation: TM

Process_Date: 20020601

Source_Produced_Citation_Abbreviation: DNBR

Cloud_Cover: 10

Distribution_Information:

Distributor:

Contact_Information:

Contact_Organization_Primary:

Contact_Organization: U.S. Geological Survey

Contact_Position:

Principal Scientist

Land Cover Applications

Contact_Address:

Address_Type: mailing and physical address

Address:

47914 252nd Street

EROS Data Center

City: Sioux Falls

State_or_Province: SD

Postal_Code: 57198-0001

Country: USA

Contact_Voice_Telephone: +001 605-594-6151

Contact_TDD/TTY_Telephone: +001 605 594-6933

Contact_Facsimile_Telephone: +001 605 594-6589

Contact_Electronic_Mail_Address: fsedc@usgs.gov

Hours_of_Service: 0800 - 1600 CT, M-F, -6 h GMT

Contact_Instructions: http://edc2.usgs.gov/fsp/severity/contact_us.asp

Distribution_Liability:

No warranty expressed or implied is made by the USGS regarding the use
of the data, nor does the act of distribution constitute any such warranty.

Standard_Order_Process:

Digital_Form:

Digital_Transfer_Information:

Format_Name: Geo-TIFF

Format_Version_Number: 1

Digital_Transfer_Option:

Online_Option:

Computer_Contact_Information:

Network_Address:

Network_Resource_Name: http://edc2.usgs.gov/fsp/severity/download_data.asp

Digital_Form:

Digital_Transfer_Information:

Format_Name: DNBR ArcInfo GRID

Format_Version_Number: 1

Digital_Transfer_Option:

Online_Option:

Computer_Contact_Information:

Network_Address:

Network_Resource_Name: http://edc2.usgs.gov/fsp/severity/download_data.asp

Digital_Form:

Digital_Transfer_Information:

Format_Name: shape file

Format_Version_Number: 1

Digital_Transfer_Option:

Online_Option:

Computer_Contact_Information:

Network_Address:

Network_Resource_Name: http://edc2.usgs.gov/fsp/severity/download_data.asp

Fees: No charge

Ordering_Instructions: <http://edc2.usgs.gov/fsp/severity/help.asp#ordering>

Turnaround: same day

Metadata_Reference_Information:

Metadata_Date: 20020703

Metadata_Contact:

Contact_Information:

Contact_Organization_Primary:

Contact_Organization:

USGS EROS Data Center

Science & Applications Branch

Contact_Position:

Principal Scientist

Land Cover Applications

Contact_Address:

Address_Type: mailing and physical address

Address:

47914 252nd Street

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Metadata_Standard_Name: Content Standard for Digital Geospatial Metadata

Metadata_Standard_Version: FGDC-STD-001-1998

Metadata_Access_Constraints: none

Metadata_Use_Constraints: none