

Identification_Information:

Citation:

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Originator: U.S. Geological Survey

Publication_Date: 20040701

Title: Powell, Poplar, Rose and Big Fires of Grand Canyon National Park - 2003

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 Names: Powell, Poplar, Rose and Big

Agency: National Park Service

Land Management Unit: Grand Canyon National Park

Dates of Fire: Powell- 6/15/03; Big- 8/24/03; Poplar- 9/5/03

Rose- 10/7/2003

Type of assessment: Extended

Acres within Fire Perimeters: Powell: 3840

Poplar, Rose & Big (combined): 16900

Landsat Path and Row: 37/35

Pre-Fire Landsat Date/Scene ID:

Landsat 7; June 28, 2002 / LE7037035000217950

Post-Fire Landsat Date/Scene ID:

Landsat 5; July 11, 2004 / LT5037035200419300

Output Dataset Projection: UTM

UTM Zone: 12

Datum Name: NAD27

Spheroid Name: Clarke 1866

Image subset Corner Coordinate:

(center of upper left pixel, projection meters)

ULX: 366270 LRX: 430320

ULY: 4031460 LRY: 3977550

Image subset size:

#Rows: 1798

#Columns: 2136

Pixel size: 30 meters

Bounding Box:

North Lat: 36 25 39 N

South Lat: 35 56 07 N

East Long: 111 46 23 W

West Long: 112 29 30 W

Latitude and Longitude within Fire Perimeter:

	Latitude:	Longitude
Powell:	36 18 45 N	112 22 33 W
Poplar:	36 18 40 N	112 11 03 W
Rose:	36 19 37 N	112 15 37 W
Big:	36 20 06 N	112 14 10 W

Fire Perimeter: Digitized from Landsat DNBR image

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>

Product List:

ppbr03b_pretm.tif
Pre-Fire Landsat data subset (bands 1-5,7 Geo-TIFF format)

ppbr03b_postm.tif
Post-Fire Landsat data subset (bands 1-5,7 Geo-TIFF format)

ppbr03b_dnbr
Differenced Normalized Burn Ratio (DNBR) subset (ArcInfo GRID)

ppbr03b_pi
Fire Perimeter (shape file)

ppbr03b_hist.xls
DNBR pixel count within the fire perimeter (excel file)

d373506020704
Full Scene DNBR (ArcInfo GRID)

Time_Period_of_Content:

Time_Period_Information:

Multiple_Dates/Times:

Single_Date/Time:

Calendar_Date: 20020628 (pre-fire image)

Single_Date/Time:

Calendar_Date: 20031007 (date fire began)

Single_Date/Time:

Calendar_Date: 20040711 (post-fire image)

Currentness_Reference: ground condition

Status:

Progress: Complete

Maintenance_and_Update_Frequency: as needed

Spatial_Domain:

Bounding_Coordinates:

West_Bounding_Coordinate: -112.29.30

East_Bounding_Coordinate: -111.46.23

North_Bounding_Coordinate: 36.25.39

South_Bounding_Coordinate: 35.56.07

Keywords:

Theme:

Theme_Keyword_Thesaurus: none

Theme_Keyword: burn mapping

Theme_Keyword: imagery

Theme_Keyword: fire

Theme_Keyword: Landsat

Theme_Keyword: National Park Service

Place:

Place_Keyword_Thesaurus: none
Place_Keyword: Grand Canyon National Park
Place_Keyword: Powell
Place_Keyword: Poplar
Place_Keyword: Rose
Place_Keyword: Big
Place_Keyword: Arizona

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:

+001 605-594-6151 or (USA) 800-252-4547

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 automated, (seed value 425, distance 325) with manual edits.

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: 20040701

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: 20040729
 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
 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

Metadata_Standard_Name: Content Standard for Digital Geospatial Metadata
Metadata_Standard_Version: FGDC-STD-001-1998
Metadata_Access_Constraints: none
Metadata_Use_Constraints: none