

Identification\_Information:

Citation:

Citation\_Information:

Originator: U.S. Geological Survey

Publication\_Date: 20050801

Title: Walhalla, Long Jim, Outlet, Bright and Quartz Fires of Grand Canyon National Park -  
2004

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](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: Walhalla, Long Jim, Outlet, Bright, & Quartz

Agency: National Park Service

Land Management Unit: Grand Canyon National Park

Date of Fire: 09/12/2004, 05/05/2004, 08/30/2004, 08/24/2004, 08/09/2004

Type of assessment: Extended

Acres within Fire Perimeter: 3270, 2030, 1110, 1280, 570

Landsat Path and Row: 37/35

Pre-Fire Landsat Date/Scene ID:

Landsat 5; July 9, 2003 / LT5037035000319010

Post-Fire Landsat Date/Scene ID:

Landsat 5; July 14, 2005 / LT5037035000519510

Output Dataset Projection: UTM

UTM Zone: 12

Datum Name: NAD83

Spheroid Name: GRS80

Image subset Corner Coordinate (center of upper left pixel, projection meters)

ULX: 366270      LRX: 431010

ULY: 4031460    LRY: 3959820

Image subset size:

#Rows: 2389

#Columns: 2159

Pixel size: 30 meters

Bounding Box:

North Lat: 36 25 33 N

South Lat: 35 46 27 N

East Long: 111 45 52 W

West Long: 112 29 30 W

Latitude and Longitude within Fire Perimeter:

Latitude                  Longitude

Walhalla	36 10 58 N	111 59 27 W
Long Jim	36 02 24 N	112 06 09 W
Outlet	36 13 36 N	112 04 42 W
Bright	36 14 26 N	112 01 21 W
Quartz	36 15 38 N	112 10 21 W

Fire Perimeter: Manually Digitized from Landsat Imagery

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:

walh04b\_pretm.tif

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

walh04b\_postm.tif

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

walh04b\_dnbr

Differenced Normalized Burn Ratio (DNBR) subset (16 Bit ArcInfo GRID)

walh04b\_pi

Fire Perimeter (shape file) (includes clouds and shadow shape file)

walh04b\_hist.xls

DNBR pixel count within the fire perimeters (excel file)

d373507030705

Full Scene DNBR ( 16 Bit ArcInfo GRID)

Time\_Period\_of\_Content:

Time\_Period\_Information:

Multiple\_Dates/Times:

Single\_Date/Time:

Calendar\_Date: 20030709 (pre-fire image)

Single\_Date/Time:

Calendar\_Date: 20040912 (date Walhalla fire began)

Single\_Date/Time:

Calendar\_Date: 20040505 (date Long Jim fire began)

Single\_Date/Time:

Calendar\_Date: 20040830 (date Outlet fire began)

Single\_Date/Time:

Calendar\_Date: 20040824 (date Bright fire began)

Single\_Date/Time:

Calendar\_Date: 20040809 (date Quartz fire began)

Single\_Date/Time:

Calendar\_Date: 20050714 (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: -111.45.52

North\_Bounding\_Coordinate: 36.25.33

South\_Bounding\_Coordinate: 35.46.27

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: Walhalla  
Place\_Keyword: Long Jim  
Place\_Keyword: Outlet  
Place\_Keyword: Bright  
Place\_Keyword: Quartz  
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](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: 20050801

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

National Center EROS

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](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](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](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](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: 20050823

Metadata\_Contact:

Contact\_Information:

Contact\_Organization\_Primary:

Contact\_Organization:

USGS National Center EROS

Science & Applications Branch

Contact\_Position:

Principal Scientist

Land Cover Applications

Contact\_Address:

Address\_Type: mailing and physical address

Address:

47914 252nd Street

National Center EROS

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](mailto: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](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