

Identification_Information:

Citation:

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Originator: USDA Forest Service
Publication_Date: February 2005
Title: Sagehen Fire occuring on the Inyo National Forest - 2003
Geospatial_Data_Presentation_Form: raster digital data
Publication_Information:
Publication_Place: Sioux Falls, South Dakota USA
Publisher: U.S. Geological Survey
Online_Linkage: <http://edc.usgs.gov>

Description:

Abstract: These data products are derived from Landsat Thematic Mapper data. The pre-fire and post-fire subscenes included were used to create a Differenced Normalized Burn Ratio (DNBR) image. The DNBR image portrays the variation of burn severity within a fire. See the National Burn Severity Mapping web site at: http://edc2.usgs.gov/fsp/severity/fire_main.asp for information on details on fire severity mapping procedures.

Purpose: These data were created by the USDA Forest Service fire and fuels monitoring project to support monitoring of wildland fire and fire regimes. These data will allow better understanding of current fire regimes, improve the accuracy of fire perimeter data, and add spatial data on fire severity and complexity.

Supplemental_Information:

Fire Name: Sagehen Fire
Agency: US Forest Service
Land Management Unit: Inyo National Forest
Date of Fire: June 18, 2003
NIFMID Link (link to Forest Service fire history database): USF05042003000010
Type of assessment: Initial
Acres within Fire Perimeter as determined from the dNBR: 1050
Landsat Path and Row: 42/34
Pre-Fire Landsat Date/Scene ID: Landsat 5; July 9, 2002
Post-Fire Landsat Date/Scene ID: Landsat 5; July 30, 2003
Fire Perimeter: Hand edited original Region 5 fire history database perimeter using TM data.
Output Dataset Projection: UTM
UTM Zone: 11
Spheroid Name: Clarke 1866

Product List:

sage03a_pretm.tif
Pre-Fire Landsat reflectance data subset, scaled by 400 and converted to integer(bands 1-5, 7 Geo-Tiff format)

sage03a_postm.tif
Post-Fire Landsat reflectance data subset, scaled by 400 and converted to integer(bands 1-5, 7 Geo-Tiff format)

sage03a_dnbr
Differenced Normalized Burn Ratio (DNBR) subset (ArcInfo Grid)

sage03a_pr
Fire perimeter updated by hand digitizing DNBR(shape file)

Time_Period_of_Content:

Time_Period_Information:

Multiple_Dates/Times:
Single_Date/Time:
Calendar_Date: July 9, 2002 (pre-fire image)
Single_Date/Time:
Calendar_Date: June 18, 2003 (date fire began)
Single_Date/Time:
Calendar_Date: July 30, 2003 (post-fire image)

Currentness_Reference: ground condition

Status:

Progress: Evaluation of methods in process

Maintenance_and_Update_Frequency: As needed

Keywords:

Theme:

Theme_Keyword_Thesaurus: none

Theme_Keyword: Wildland Fire

Theme_Keyword: Normalized Burn Ration (NBR)

Theme_Keyword: Fire Severity

Theme_Keyword: USDA Forest Service

Theme_Keyword: Landsat

Place:

Place_Keyword_Thesaurus: none

Place_Keyword: Inyo National Forest

Place_Keyword: California

Place_Keyword: Sagehen Fire

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.

Data_Set_Credit: USDA Forest Service

Native_Data_Set_Environment: ERDAS Imagine, ARCInfo

Data_Quality_Information:

Positional_Accuracy:

Horizontal_Positional_Accuracy:

Horizontal_Positional_Accuracy_Report: These data were terrain corrected using a USGS digital elevation model with less than 1/2 pixel RMS error.

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 variation of burn severity within the fire.

The pre- and post-fire Landsat images are terrain corrected and geometrically rectified to the UTM projection. The images are further processed to convert bands 1-5 and 7 to at-sensor-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 fire perimeter vector file are provided in digital format.

Spatial_Data_Organization_Information:

Direct_Spatial_Reference_Method: Raster

Raster_Object_Information:

Row_Count: 316

Column_Count: 258

Vertical_Count: 1

Spatial_Reference_Information:

Horizontal_Coordinate_System_Definition:

Planar:

Grid_Coordinate_System:

Grid_Coordinate_System_Name: Universal Transverse Mercator

Universal_Transverse_Mercator:

UTM_Zone_Number: 11

Planar_Coordinate_Information:

Planar_Coordinate_Encoding_Method: row and column

Coordinate_Representation:

Abscissa_Resolution: 30.000000

Ordinate_Resolution: 30.000000

Planar_Distance_Units: meters

Geodetic_Model:

Horizontal_Datum_Name: North American Datum of 1927

Ellipsoid_Name: Clarke 1866

Semi-major_Axis: 6378206.400000

Denominator_of_Flattening_Ratio: 294.978698

Distribution_Information:

Resource_Description: Downloadable Data

Metadata_Reference_Information:

Metadata_Date: February 2005

Metadata_Contact:

Contact_Information:

Contact_Organization_Primary:

Contact_Organization: USDA Forest Service, Region 5, Fire, Fuels and Aviation Mgmt.

Contact_Person: Fire and Fuels Remote Sensing Specialist

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