Identification_Information:
  Citation:
   Citation_Information:
     Originator: U.S. Geological Survey
     Publication_Date: 20070801
     Title: Roaring, Burnt and Horse Trail Fires of Sequoia & Kings Canyon National Parks - 2006
     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 derivitive 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: Roaring, Burnt and Horse Trail
     Agency: National Park Service
     Land Management Unit: Sequoia & Kings Canyon National Parks
     Date of Fire:
     Roaring: 7/23/2006
     Burnt: 7/21/2006
     Horse Trail: 6/19/2006
     Type of assessment: Extended Assessment
     Acres within Fire Perimeter:
     Roaring: 1910
     Burnt: 810
     Horse Trail: 160
     Landsat Path and Row: 42/34
     Pre-Fire Landsat Date/Scene ID:
     Landsat 5; July 14, 2004/LT5042034000419610
     Post-Fire Landsat Date/Scene ID:
     Landsat 5; July 7, 2007/LT5042034000718810
     Output Dataset Projection: UTM
     UTM Zone: 11
     Datum Name: NAD83

Spheroid Name: GRS80
Image subset Corner Coordinate (center of upper left pixel, projection meters)
ULX: 318360   LRX: 367740
ULY: 4100430   LRY: 4051800
Image subset size:
#Rows: 1622
#Columns: 1647
Pixel size: 30 meters
Bounding Box:
North Lat: 37 02 11 N
South Lat: 36 36 51 N
East Long: 118 29 01 W
West Long: 119 02 16 W
Latitude and Longitude within Fire Perimeter:
Roaring   Lat: 36 46 05 N   Long: 118 39 16 W
Burnt   Lat: 36 57 19 N   Long: 118 43 49 W
Horse Trail   Lat: 36 47 22 N   Long: 118 36 34 W

Fire Perimeter: Fire perimeters Were manually digitized from Landsat imagery.

  The pre-fire scene was shifted X= +30 meters.

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:

roar06b_pretm.tif
Pre-Fire Landsat data subset (bands 1-5,7 Geo-TIFF format)

roar06b_postm.tif
Post-Fire Landsat data subset (bands 1-5,7 Geo-TIFF format)

roar06b_dnbr.tif
Differenced Normalized Burn Ratio (DNBR) subset (Geo-TIFF format)

roar06b_pi
Fire Perimeter (shape file)

roar06b_hist.xls
DNBR pixel count within the fire perimeter (excel file)

d423404070707
Full Scene DNBR (Geo-TIFF format)

Time_Period_of_Content:
 Time_Period_Information:
  Multiple_Dates/Times:
   Single_Date/Time:
     Calendar_Date: 20040714 (pre-fire image)

     Single_Date/Time:
       Calendar_Date: 20060723 (date Roaring fire began)
     Single_Date/Time:
       Calendar_Date: 20060721 (date Burnt fire began)
     Single_Date/Time:
       Calendar_Date: 20060619 (date Horse Trail fire began)
     Single_Date/Time:
       Calendar_Date: 20070707 (post-fire image)
   Currentness_Reference: ground condition
Status:
 Progress: Complete
 Maintenance_and_Update_Frequency: as needed
Spatial_Domain:
 Bounding_Coordinates:
   West_Bounding_Coordinate: -119.02.16
   East_Bounding_Coordinate: -118.29.01
   North_Bounding_Coordinate: 37.02.11
   South_Bounding_Coordinate: 36.36.51
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: Sequoia & Kings Canyon National Parks
   Place_Keyword: Roaring
   Place_Keyword: Burnt
   Place_Keyword: Horse Trail
   Place_Keyword: California
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:
    (Band 4 - Band 7) / (Band 4 + Band 7) = NBR

    The differenced NBR is computed by subtracting the post-fire NBR from
    the pre-fire NBR:
    PreNBR - PostNBR = 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: 200708

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   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
     USGS 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
 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
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      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: 20070821
  Metadata_Contact:
    Contact_Information:
      Contact_Organization_Primary:
        Contact_Organization:
          USGS EROS
          Science & Applications Branch
      Contact_Position:
        Principal Scientist
        Land Cover Applications
      Contact_Address:
        Address_Type: mailing and physical address
        Address:
          47914 252nd Street
          USGS 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
  Metadata_Standard_Name: Content Standard for Digital Geospatial Metadata
  Metadata_Standard_Version: FGDC-STD-001-1998
  Metadata_Access_Constraints: none
  Metadata_Use_Constraints: none
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