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Identification_Information:
  Citation:
    Citation_Information:
      Originator: U.S. Geological Survey
      Publication_Date: 20051001
      Title: McMillian, Little Beaver, New Hallem and Perry Fires of North Cascades 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 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 Names: McMillian, Little Beaver, New Hallem, and Perry
      Agency: National Park Service
      Land Management Unit: North Cascades National Park
      Date of Fire: McMillian 8/15/2004
                    Little Beaver 7/26/2004
                    New Hallem 7/23/2004
                    Perry 8/17/2004
      Type of assessment: Extended Assessment
      Acres within Fire Perimeter: McMillian 130
                                   Little Beaver 80
                                   New Hallem 80
                                   Perry 50
      Landsat Path and Row: 46/26
      Pre-Fire Landsat Date/Scene ID:
      Landsat 5; July 26, 2004/LT5046026000420810
      Post-Fire Landsat Date/Scene ID:
      Landsat 5; July 29, 2005/LT5046026000521010
      Output Dataset Projection: UTM
      UTM Zone: 10
      Spheroid Name: Clarke 1866
      Datum Name: NAD27
      Image subset Corner Coordinate (center of upper left pixel, projection meters)
      ULX: 596670    LRX: 687780
      ULY: 5437080   LRY: 5338620
      Image subset size:
      #Rows 3283
      #Columns 3038
      Pixel size: 30 meters
      Bounding Box:
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North Lat: 49 04 20 N
South Lat: 48 11 13 N
East Long: 120 27 08 W
West Long: 121 41 15 W
Latitude and Longitude within Fire Perimeter:

	Latitude	Longitude
McMillian	48 49 11 N	121 14 38 W
Little Beaver	48 54 57 N	121 15 10 W
New Hallem	48 37 58 N	121 13 50 W
Perry	48 56 12 N	121 09 02 W

Fire Perimeter: Perimter was 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:

mcmi04b_pretm.tif
Pre-Fire Landsat data subset (bands 1-5,7 Geo-TIFF format)

mcmi04b_postm.tif
Post-Fire Landsat data subset (bands 1-5,7 Geo-TIFF format)

mcmi04b_dnbr
Differenced Normalized Burn Ratio (DNBR) (ArcInfo GRID)

mcmi04b_pi
Fire Perimeter (shape file)

mcmi04b_hist.xls
DNBR pixel count within the fire perimeter (excel file)

d462607040705
Full Scene DNBR (ArcInfo GRID)

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Time_Period_of_Content:
  Time_Period_Information:
    Multiple_Dates/Times:
      Single_Date/Time:
        Calendar_Date: 20040726 (pre-fire image)
      Single_Date/Time:
        Calendar_Date: 20040815 (date McMillian fire began)
      Single_Date/Time:
        Calendar_Date: 20040726 (date Little Beaver fire began)
      Single_Date/Time:
        Calendar_Date: 20040723 (date New Hallem fire began)
      Single_Date/Time:
        Calendar_Date: 20040817 (date Perry fire began)
      Single_Date/Time:
        Calendar_Date: 20050729 (post-fire image)
  Currentness_Reference: ground condition
Status:
  Progress: Complete
  Maintenance_and_Update_Frequency: as needed
Spatial_Domain:
  Bounding_Coordinates:
    West_Bounding_Coordinate: -121.41.15
    East_Bounding_Coordinate: -120.27.08
    North_Bounding_Coordinate: 49.04.20
    South_Bounding_Coordinate: 48.11.13
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  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: North Cascades National Park
      Place_Keyword: McMillian
      Place_Keyword: Little Beaver
      Place_Keyword: New Hallem
      Place_Keyword: Perry
      Place_Keyword: Washington
  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
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      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: 20051001
      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
  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:
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        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: 20051031
  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
      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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