S_USA.MTBS_FIRE_OCCURRENCE_PT

Identification Information:

Citation:

Citation Information:

Originator: U.S. Geological Survey
Originator: USDA Forest Service
Publication Date: 20221018
Publication Time: 130630
Title: S_USA.MTBS_FIRE_OCCURRENCE_PT
Geospatial Data Presentation Form: vector digital data
Online Linkage: https://doi.org/10.5066/P9IED7RZ
Online Linkage: https://www.mtbs.gov/
Larger Work Citation:

Citation Information:

Originator: Zhi-Liang Zhu
Originator: Jeff Eidenshink
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Originator: Brian Schwind
Originator: Stephen Howard
Originator: Brad Quayle
Publication Date: 20221018
Publication Time: 130630
Title: A Project for Monitoring Trends in Burn Severity
Geospatial Data Presentation Form: publication
Other Citation Details: Fire Ecology Special Issue Vol. 3, No. 1, 2007
Online Linkage: https://www.mtbs.gov/sites/default/files/inline-files/Eidenshink-final.pdf

Description:

Abstract: The Monitoring Trends in Burn Severity (MTBS) Program assesses the frequency, extent, and magnitude (size and severity) of all large wildland fires (including wildfires and prescribed fires) in the conterminous United States (CONUS), Alaska, Hawaii, and Puerto Rico from the beginning of the Landsat Thematic Mapper archive to the present. All fires reported as greater than 1,000 acres in the western U.S. and greater than 500 acres in the eastern U.S. are mapped across all ownerships. MTBS produces a series of geospatial and tabular data for analysis at a range of spatial, temporal, and thematic scales and are intended to meet a variety of information needs that require consistent data about fire effects through space and time. This map layer is a vector point shapefile of the location of all currently inventoried fires occurring between calendar year 1984 and the current MTBS release for CONUS, Alaska, Hawaii and Puerto Rico. Please visit https://mtbs.gov/announcements to determine the current release. Fires

omitted from this mapped inventory are those where suitable satellite imagery was not available or fires were not discernable from available imagery.

Purpose: The data generated by MTBS will be used to identify national trends in burn severity, providing information necessary to monitor the effectiveness of the National Fire Plan and Healthy Forests Restoration Act. MTBS is sponsored by the Wildland Fire Leadership Council (WFLC), a multi-agency oversight group responsible for implementing and coordinating the National Fire Plan and Federal Wildland Fire Management Policies. The MTBS project objective is to provide consistent, 30 meter spatial resolution burn severity data and burned area delineations that will serve four primary user groups including: 1. National policies and policy makers such as the National Fire Plan and WFLC which require information about long-term trends in burn severity and recent burn severity impacts within vegetation types, fuel models, condition classes, and land management activities. 2. Field management units that benefit from mid to broad scale GIS-ready maps and data for pre- and post-fire assessment and monitoring. Field units that require finer scale burn severity data will also benefit from increased efficiency, reduced costs, and data consistency by starting with MTBS data. 3. Existing databases from other comparably scaled programs, such as Fire Regime and Condition Class (FRCC) within LANDFIRE, that will benefit from MTBS data for validation and updating of geospatial data sets. 4. Academic and government agency research entities interested in fire severity data over significant geographic and temporal extents.

Supplemental Information: See https://www.mtbs.gov/ for project information and data access. Refer to https://www.mtbs.gov/contact for additional support.

Time Period of Content:

Time Period Information:

Range of Dates/Times:

Beginning Date: 19840101
Ending Date: 20180101

Currentness Reference: observed

Status:

Progress: Complete

Spatial Domain:

Bounding Coordinates:

West Bounding Coordinate: -166.091125
East Bounding Coordinate: -65.350629
North Bounding Coordinate: 70.139256
South Bounding Coordinate: 17.956561

Keywords:

Theme:

Theme Keyword Thesaurus: ISO 19115 Topic Category

Theme Keyword: imageryBaseMapsEarthCover

Theme:

Theme Keyword Thesaurus: None

Theme Keyword: Sentinel

Theme Keyword: Differenced normalized burn ratio

Theme Keyword: Burned area

Theme Keyword: Normalized burn ratio

Theme Keyword: Burn severity

Theme Keyword: Landsat

Theme Keyword: Location

Theme Keyword: Wildland fire

Theme Keyword: Fire occurrence

Theme Keyword: MTBS

Theme Keyword: Fire location

Theme Keyword: Wildfire

Theme Keyword: Prescribed fire

Place:

Place Keyword Thesaurus: Common geographic areas

Place Keyword: Hawaii

Place Keyword: Puerto Rico

Place Keyword: United States

Place Keyword: Continental U.S.

Place Keyword: Alaska

Place:

Place Keyword Thesaurus: Common geographic areas

Place Keyword: HI

Place Keyword: AK

Place Keyword: CONUS

Place Keyword: PR

Place Keyword: US

Access Constraints: None

Use Constraints: There are no restrictions on use, except for reasonable and proper acknowledgement of information sources.

Point of Contact:

Contact Information:

Contact Organization Primary:

Contact Organization: USFS Chief Information Office, Enterprise Data Warehouse

Contact Electronic Mail Address: data@fs.fed.us

Data Set Credit: Monitoring Trends in Burn Severity Project (U.S. Geological Survey and USDA Forest Service). U.S. Geological Survey (physical address): 47914 252nd Street: Sioux Falls, SD, USA, 57198. Phone: 800-252-4547. USDA Forest Service (physical address): 125 South State Street, Suite 7105: Salt Lake City, UT, USA, 84138. Phone: 801-975-3800.

Native Data Set Environment: Version 6.2 (Build 9200) ; Esri ArcGIS 10.7.1.11595

Data Quality Information:

Attribute Value Accuracy Information:

Attribute Accuracy Report: N/A

Logical Consistency Report: N/A
Completeness Report: N/A
Positional Accuracy:

Horizontal Positional Accuracy:

Horizontal Positional Accuracy Report: N/A

Vertical Positional Accuracy:

Vertical Positional Accuracy Report: N/A

Lineage:

Process Step:

Process Description: For a detailed definition and discussion on the processing and production of MTBS geospatial data, please refer to https://www.mtbs.gov. A synopsis of the production of this layer is provided below. MTBS fire occurrence location data are spatially derived ultimately from suitable imagery (including Landsat TM, Landsat ETM+, Landsat OLI, Sentinel 2A, and Sentinel 2B). Delineation of the burned area for each fire is conducted by on-screen interpretation and digitization of the Landsat/Sentinel 2-derived reflectance imagery and the Normalized Burn Ratio (NBR), difference NBR (dNBR) and relativized dNBR (RdNBR) images. To ensure consistency and high spatial precision, digitization is performed at on-screen display scales between 1:24000 and 1:50000. The MTBS fire occurrence locations for each fire is subsequently determined by calculating the geographic centroid of the delineated burned area boundary for each fire. Relevant fire occurrence attributes gleaned from fire reporting systems of record are integrated for each fire. The MTBS mapping approach has consistently occurred in five primary steps: 1. Fire Occurrence Data Compilation 2. Scene Selection and Image Pre-processing 3. Perimeter Delineation 4. Burn Severity Interpretation 5. Data Distribution 1. Fire Occurrence Data Compilation: Historically, MTBS compiled fire occurrence data from a number of federal and state databases that maintained little consistency in standards for content, geospatial accuracy, and nomenclature. These datasets were then filtered and standardized internally by MTBS staff in an effort to reduce duplication of incident records reported by multiple agencies, and to resolve gross geospatial inaccuracies that were commonly found in the source data. In recent years, significant improvements have been made to streamline the reporting procedures and data exchange for land management agencies in their creation and maintenance of fire occurrence data. Specifically, the Integrated Reporting of

Wildland-Fire Information (IRWIN) Project has provided an end-to-end fire reporting system focused on the goals of reducing redundant data entry, identifying authoritative data sources, and improving the consistency, accuracy, and availability of operational data. Through a multi-year phased approach, the IRWIN Project is tasked with identifying and integrating fire occurrence data from a number of different sources and applications. Fire occurrence data from IRWIN are routinely ingested into a database maintained by MTBS and other postfire mapping programs, and currently make up the bulk of the records used by MTBS to identify candidate fires for mapping. More information on IRWIN can be found at: https://www.forestsandrangelands.gov/WFIT/applications/IRWIN/index.shtml.
Process Date: 20190906

Process Step:

Process Description: 4. Burn Severity Interpretation: The process of developing a categorical burn severity product is subjective and is dependent on analyst interpretation. The analyst evaluates the dNBR data range and determines where significant thresholds exist in the data to discriminate between burn severity classes. Interpretations are conducted on the NBR, dNBR and RdNBR data, aided by the prefire and postfire imagery, and analyst experience with fire behavior and effects in a given ecological setting. Where available, high resolution imagery is visually inspected to provide confidence in selecting the burn severity thresholds. Thresholding dNBR data into thematic class values results in an intuitive map depicting a manageable number of ecologically significant classes (typically 4 to 7 class values). There are uncertainties in this approach stemming from analyst subjectivity and limited or no plot data to guide threshold selection. Ecological significance of burn severity classes will also likely vary across regions and landscapes and one set of thresholds cannot be expected to apply equally well to all analysis objectives and management issues.
Process Date: 20190906

Process Step:

Process Description: 3. Perimeter Delineation: The burned area boundary is delineated by on-screen interpretation of the reflectance imagery, NBR, dNBR and/or RdNBR images. The mapping analyst digitizes a perimeter to include any detectable fire area derived from these images. Clouds, cloud shadows, snow or other anomalies intersecting the fire area are also delineated and used to generate a mask later in the workflow. The mapping analyst may inspect and/or modify an existing burn area boundary and mask sourced from a reputable fire occurrence dataset or fire detection model when available. To ensure consistency and high spatial precision, digitization and inspection is performed at on-screen display scales between 1:24000 and 1:50000.
Process Date: 20190906

Process Step:

Process Description: 2. Scene Selection and Image Pre-processing: For fire events that meet the minimum size requirement for MTBS mapping, corresponding Landsat or Sentinel scenes are selected based upon the reported location and ignition date. After an initial review and determination of the appropriate assessment strategy: initial, extended or single scene, candidate prefire and postfire scenes are reviewed and downloaded using tools and applications

developed by U.S. Geological Survey Earth Resources Observation and Science (EROS) Center, such as Earth Explorer and GloVis. Limitations due to scene quality are common in areas prone to cloud cover (e.g., the Southeast United States). Other atmospheric conditions such as smoke from active fires, terrain shadows and other obscurations also reduce the number of candidate scenes. In addition, northern latitudes are subject to a shorter period of optimal scene selection due to undesirable sun angles in the fall and a shorter growing season. Downloaded scenes are processed to generate top-of-atmosphere reflectance images according to existing USGS-EROS protocols that include geometric (including terrain correction) and radiometric correction through the Landsat Ground Processing System process. Prior to processing the imagery into a burn severity product, prefire and postfire images are inspected for co-registration accuracy and corrected if spatial differences are noted. Using the reflectance imagery, a Normalized Burn Ratio (NBR) image is generated for each prefire and postfire scene as the normalized difference between middle infrared and near infrared wavelength bands and then differenced to create a dNBR image. A relativized dNBR (RdNBR) is also calculated to evaluate potential limitations of dNBR to characterize fire severity on low biomass sites and potentially enhance inter-fire comparability of the results at larger ecological scales. Processing the Landsat or Sentinel image data to NBR, dNBR and RdNBR is a straightforward series of calculations relying principally on automated production sequences.
Process Date: 20190906

Process Step:

Process Description: 5. Data Distribution: The primary access point for acquiring MTBS data is through the program website: https://www.mtbs.gov. There you will find an interactive viewer which allows users to search for and download individual fire data in addition to direct download options for state and national data products. Connection information is also provided for those interested in using web map services.
Process Date: 20190906

Spatial Data Organization Information:

Direct Spatial Reference Method: Vector
Point and Vector Object Information:

SDTS Terms Description:

SDTS Point and Vector Object Type: Entity point
Point and Vector Object Count: 29533

Spatial Reference Information:

Horizontal Coordinate System Definition:

Geographic:

Latitude Resolution: 8.98315284119521e-09
Longitude Resolution: 8.98315284119521e-09
Geographic Coordinate Units: Decimal Degrees

Geodetic Model:

Horizontal Datum Name: D North American 1983
Ellipsoid Name: GRS 1980
Semi-major Axis: 6378137.0
Denominator of Flattening Ratio: 298.257222101

Entity and Attribute Information:

Detailed Description:

Entity Type:

Entity Type Label: S_USA.MTBS_FIRE_OCCURRENCE_PT
Entity Type Definition: Table containing attribute information associated with the data set.
Entity Type Definition Source: Producer Defined

Attribute:

Attribute Label: OBJECTID
Attribute Definition: Internal feature number.
Attribute Definition Source: Esri
Attribute Domain Values:

Unrepresentable Domain: Sequential unique whole numbers that are automatically generated.

Attribute:

Attribute Label: FIRE_ID

Attribute:

Attribute Label: FIRE_NAME

Attribute:

Attribute Label: Post_ID
Attribute Definition: Landsat or Sentinel post scene ID.
Attribute Definition Source: Producer Defined
Attribute Domain Values:

Unrepresentable Domain: Example: 701503620081007

Attribute:

Attribute Label: FIRE_TYPE

Attribute:

Attribute Label: NODATA_THRESHOLD

Attribute:

Attribute Label: GREENNESS_THRESHOLD

Attribute:

Attribute Label: LOW_THRESHOLD

Attribute:

Attribute Label: MODERATE_THRESHOLD

Attribute:

Attribute Label: HIGH_THRESHOLD

Attribute:

Attribute Label: Pre_ID
Attribute Definition: Landsat or Sentinel pre scene ID.
Attribute Definition Source: Producer Defined
Attribute Domain Values:

   Unrepresentable Domain: Example: 503803520040723

Attribute:

Attribute Label: LATITUDE

Attribute:

Attribute Label: LONGITUDE

Attribute:

Attribute Label: ACRES

Attribute:

Attribute Label: Asmnt_Type
Attribute Definition: Fire mapping assessment label (Initial (SS) (SS=single scene), Initial, Extended, Extended (SS) (SS=single scene), Emergency, or Emergency (SS)).
Attribute Definition Source: Producer Defined
Attribute Domain Values:

   Enumerated Domain:

      Enumerated Domain Value: Extended (SS)
      Enumerated Domain Value Definition: Imagery aquired during seasonal peak-of-green after fire containment. No pre-fire image was available; assessment based on NBR.
      Enumerated Domain Value Definition Source: Producer defined

   Enumerated Domain:

      Enumerated Domain Value: Emergency (SS)
      Enumerated Domain Value Definition: Imagery aquired during active incident or immediatly after fire containment. No pre-fire image was available; assessment based on

NBR.
Enumerated Domain Value Definition Source: Producer defined

Enumerated Domain:

Enumerated Domain Value: Initial (SS)
Enumerated Domain Value Definition: Imagery aquired shortly after fire containment. No pre-fire image was available; assessment based on NBR.
Enumerated Domain Value Definition Source: Producer defined

Enumerated Domain:

Enumerated Domain Value: Initial
Enumerated Domain Value Definition: Imagery aquired shortly after fire containment.
Enumerated Domain Value Definition Source: Producer defined

Enumerated Domain:

Enumerated Domain Value: Extended
Enumerated Domain Value Definition: Imagery aquired during seasonal peak-of-green after fire containment.
Enumerated Domain Value Definition Source: Producer defined

Enumerated Domain:

Enumerated Domain Value: Emergency
Enumerated Domain Value Definition: Imagery aquired during active incident or immediatly after fire containment.
Enumerated Domain Value Definition Source: Producer defined

Attribute:

Attribute Label: Shape
Attribute Definition: Feature geometry.
Attribute Definition Source: ESRI
Attribute Domain Values:

Unrepresentable Domain: Coordinates defining the features.

Attribute:

Attribute Label: dNBR_offst
Attribute Definition: The mean dNBR value sampled from an unburned area outside the fire perimeter.
Attribute Definition Source: Producer Defined
Attribute Domain Values:

Enumerated Domain:

Enumerated Domain Value: -9999 or 9999

Enumerated Domain Value Definition: No Data
Enumerated Domain Value Definition Source: Producer defined

Attribute Domain Values:

Range Domain:

Range Domain Minimum: -9999
Range Domain Maximum: 9999

Attribute:

Attribute Label: dNBR_stdDv
Attribute Definition: The standard deviation of the mean dNBR value sampled from an unburned area outside the fire perimeter.
Attribute Definition Source: Producer Defined
Attribute Domain Values:

Enumerated Domain:

Enumerated Domain Value: -9999 or 9999
Enumerated Domain Value Definition: No Data
Enumerated Domain Value Definition Source: Producer defined

Attribute Domain Values:

Range Domain:

Range Domain Minimum: -9999
Range Domain Maximum: 9999

Attribute:

Attribute Label: irwinID
Attribute Definition: IRWIN ID.
Attribute Definition Source: IRWIN Defined
Attribute Domain Values:

Unrepresentable Domain: The IRWIN ID is a unique identifier created by the Integrated Reporting of Wildland-Fire Information (IRWIN) service. Example: 5DF6471C-07B0-4EA0-8188-4F83B18A47F8

Attribute:

Attribute Label: Perim_ID
Attribute Definition: Landsat or Sentinel perimeter scene ID. Used to help delinate perimeter of an Extended or Extended (SS) assessment. Not always utilized sometimes field will be populated, others not.
Attribute Definition Source: Producer Defined
Attribute Domain Values:

Unrepresentable Domain: Example: A15RVQ20190514

Attribute:

Attribute Label: COMMENTS

Attribute:

Attribute Label: Map_ID
Attribute Definition: Mapping ID.
Attribute Definition Source: Producer Defined
Attribute Domain Values:

Range Domain:

Range Domain Minimum: 1
Range Domain Maximum: 99999999

Attribute:

Attribute Label: Map_Prog
Attribute Definition: Mapping program/protocol the fire was mapped with.
Attribute Definition Source: Producer Defined
Attribute Domain Values:

Unrepresentable Domain: Examples: MTBS, RAVG, BAER, NPS

Attribute:

Attribute Label: Ig_Date
Attribute Definition: Date of fire ignition (from source fire occurrence databases).
Attribute Definition Source: Producer Defined
Attribute Domain Values:

Unrepresentable Domain: Example: 9/30/1992

Distribution Information:

Distributor:

Contact Information:

Contact Organization Primary:

Contact Organization: USFS Chief Information Office, Enterprise Data Warehouse

Contact Electronic Mail Address: data@fs.fed.us

Distribution Liability: This product is produced from MTBS geospatial information prepared by the U.S. Geological Survey EROS and USDA Forest Service. By taking receipt of these files via electronic file transfer methods, you understand that the data may be updated due to the availability of additional data or revision of existing data. Represented features may not be in an accurate geographic location. The U.S. Geological Survey EROS and USDA Forest Service make no expressed

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Standard Order Process:

   Digital Form:

      Digital Transfer Information:

         Format Name: Digital Data

      Digital Transfer Option:

         Online Option:

            Computer Contact Information:

               Network Address:

                  Network Resource Name: https://doi.org/10.5066/P9IED7RZ

   Fees: None

 Metadata Reference Information:

   Metadata Date: 20221018

   Metadata Contact:

      Contact Information:

         Contact Organization Primary:

            Contact Organization: USFS Chief Information Office, Enterprise Data Warehouse

         Contact Electronic Mail Address: data@fs.fed.us

 Metadata Standard Name: FGDC Content Standard for Digital Geospatial Metadata
 Metadata Standard Version: FGDC-STD-001-1998
 Metadata Time Convention: local time