

Keetch-Byram Drought Index (KBDI) Modeled Days over 600 Projections



Tags

Keetch-Byram Drought Index, KBDI, wildfire risk

Summary

Depicts statistics for the Keetch-Byram Drought Index, (KBDI) which is used as a measure of wildfire risk, specifically the number of days with KBDI values over 600 for historical, mid-century, and end-of-century years, based on climate modeling results.

Description

This layer provides statistics for the Keetch-Byram Drought Index, (KBDI) which is used as a measure of wildfire risk. KBDI values range from 0 (low wildfire potential) to 800 (extreme drought and unpredictable wildfire behavior). KBDI is calculated using daily maximum temperature, daily precipitation, and annual accumulated precipitation. The statistics in this layer are the number of days with KBDI values over 600 for historical, mid-century, and end-of-century years, based on climate modeling results. The KBDI performs best in regions less sensitive to wind effects, and with sufficient fuel on the ground. Computations and conversion to GIS format were made using Geospatial Analysis Tool Kit for Regional Climate Data (GATOR). For more information, see: (1) Brown, E.K., J. Wang, and Yan Feng. 2020. U.S. wildfire potential: a historical view and future projection using high-resolution climate data. Environmental Research Letters. 16034060, and (2) Wang, J., and V. R. Kotamarthi, 2015: High-resolution dynamically downscaled projections of precipitation in the mid and late 21st century over North America. Earth's Future, 3, 268-288, doi:10.1002/2015EF000304, and (3) Kuiper, James, Veerabhadra Kotamarthi, Andrew Orr and Jiali Wang. Geospatial Analysis Tool Kit for Regional Climate Datasets (GATOR) An Open-source Tool to Compute Climate Statistic GIS Layers from Argonne Climate Modeling Results. Argonne National Laboratory, ANL/EVS-18/3, August, 2017.

Credits

Argonne National Laboratory

Use limitations

There are no access and use limitations for this item.

Extent

West -173.595263 **East** -33.459228
North 78.312363 **South** 17.775065

Scale Range

Maximum (zoomed in) 1:50,000
Minimum (zoomed out) 1:50,000,000

Topics and Keywords

THEMES OR CATEGORIES OF THE RESOURCE climatologyMeteorologyAtmosphere, environment, planningCadastre
* CONTENT TYPE Downloadable Data
EXPORT TO FGDC CSDGM XML FORMAT AS RESOURCE DESCRIPTION No

Citation

TITLE Keetch-Byram Drought Index (KBDI) Modeled Days over 600 Projections
PUBLICATION DATE 2021-08-02
PRESENTATION FORMATS * digital map

Citation Contacts

RESPONSIBLE PARTY
INDIVIDUAL'S NAME Jim Kuiper
ORGANIZATION'S NAME Argonne National Laboratory
CONTACT'S ROLE originator

CONTACT INFORMATION
PHONE
VOICE 630-252-6206
ADDRESS
TYPE postal
DELIVERY POINT 9700 S. Cass Avenue
CITY Lemont
ADMINISTRATIVE AREA Illinois
POSTAL CODE 60439
COUNTRY US
E-MAIL ADDRESS jkuiper@anl.gov

Resource Details

DATASET LANGUAGES * English (UNITED STATES)
DATASET CHARACTER SET utf8 - 8 bit UCS Transfer Format
STATUS completed
SPATIAL REPRESENTATION TYPE * vector
* PROCESSING ENVIRONMENT Version 6.2 (Build 9200) ; Esri ArcGIS 10.8.0.12790
CREDITS
Argonne National Laboratory
ARCGIS ITEM PROPERTIES
* NAME kbdi_dygt_600_ccsmbc
* ACCESS PROTOCOL Local Area Network

Extents

EXTENT
DESCRIPTION
Includes projections for 1996-2004, 2046-2054, and 2086-2094

TEMPORAL EXTENT
BEGINNING DATE 1996-01-01
ENDING DATE 2004-12-31

TEMPORAL EXTENT
BEGINNING DATE 2046-01-01
ENDING DATE 2054-12-31

TEMPORAL EXTENT
BEGINNING DATE 2086-01-01
ENDING DATE 2094-12-31

EXTENT
GEOGRAPHIC EXTENT
BOUNDING RECTANGLE
EXTENT TYPE Extent used for searching
* WEST LONGITUDE -173.595263
* EAST LONGITUDE -33.459228
* NORTH LATITUDE 78.312363
* SOUTH LATITUDE 17.775065
* EXTENT CONTAINS THE RESOURCE Yes

EXTENT IN THE ITEM'S COORDINATE SYSTEM
* WEST LONGITUDE -19324536.249789
* EAST LONGITUDE -3724664.206216
* SOUTH LATITUDE 2011237.056075
* NORTH LATITUDE 14538111.840232
* EXTENT CONTAINS THE RESOURCE Yes

Resource Maintenance

RESOURCE MAINTENANCE
UPDATE FREQUENCY not planned

Spatial Reference

ARCGIS COORDINATE SYSTEM
* TYPE Projected
* GEOGRAPHIC COORDINATE REFERENCE GCS_WGS_1984
* PROJECTION WGS_1984_Web_Mercator_Auxiliary_Sphere
* COORDINATE REFERENCE DETAILS
PROJECTED COORDINATE SYSTEM
WELL-KNOWN IDENTIFIER 102100
X ORIGIN -22041257.952553775
Y ORIGIN -30241100
XY SCALE 144148035.48642668
Z ORIGIN -100000
Z SCALE 10000
M ORIGIN -100000
M SCALE 10000
XY TOLERANCE 0.001
Z TOLERANCE 0.001
M TOLERANCE 0.001
HIGH PRECISION true
LATEST WELL-KNOWN IDENTIFIER 3857
WELL-KNOWN TEXT PROJCS["WGS_1984_Web_Mercator_Auxiliary_Sphere",GEOGCS["GCS_WGS_1984",DATUM
["D_WGS_1984",SPHEROID["WGS_1984",6378137.0,298.257223563]],PRIMEM["Greenwich",0.0],UNIT
["Degree",0.0174532925199433]],PROJECTION["Mercator_Auxiliary_Sphere"],PARAMETER["False_Easting",0.0],PARAMETER
["False_Northing",0.0],PARAMETER["Central_Meridian",0.0],PARAMETER["Standard_Parallel_1",0.0],PARAMETER
["Auxiliary_Sphere_Type",0.0],UNIT["Meter",1.0],AUTHORITY["EPSG",3857]]

REFERENCE SYSTEM IDENTIFIER
* VALUE 3857
* CODESPACE EPSG
* VERSION 8.8(9.3.1.2)

Spatial Data Properties

VECTOR

* LEVEL OF TOPOLOGY FOR THIS DATASET geometry only

GEOMETRIC OBJECTS

FEATURE CLASS NAME kbdi_dygt_600_ccsmbc

* OBJECT TYPE composite

* OBJECT COUNT 163014

ARCGIS FEATURE CLASS PROPERTIES

FEATURE CLASS NAME kbdi_dygt_600_ccsmbc

* FEATURE TYPE Simple

* GEOMETRY TYPE Polygon

* HAS TOPOLOGY FALSE

* FEATURE COUNT 163014

* SPATIAL INDEX TRUE

* LINEAR REFERENCING FALSE

Distribution

DISTRIBUTION FORMAT

* NAME File Geodatabase Feature Class

Fields

DETAILS FOR OBJECT kbdi_dygt_600_ccsmbc

* TYPE Feature Class

* ROW COUNT 163014

FIELD OBJECTID

* ALIAS OID

* DATA TYPE OID

* WIDTH 4

* PRECISION 0

* SCALE 0

* FIELD DESCRIPTION

Internal feature number.

* DESCRIPTION SOURCE

Esri

* DESCRIPTION OF VALUES

Sequential unique whole numbers that are automatically generated.

FIELD Shape

* ALIAS Shape

* DATA TYPE Geometry

* WIDTH 0

* PRECISION 0

* SCALE 0

* FIELD DESCRIPTION

Feature geometry.

* DESCRIPTION SOURCE

Esri

* DESCRIPTION OF VALUES

Coordinates defining the features.

FIELD RowId

* ALIAS RowId

* DATA TYPE SmallInteger

* WIDTH 2

* PRECISION 0

* SCALE 0

FIELD ColumnId

* ALIAS ColumnId

* DATA TYPE SmallInteger

* WIDTH 2

* PRECISION 0

* SCALE 0

FIELD Latitude

* ALIAS Latitude

* DATA TYPE Double

* WIDTH 8

* PRECISION 0

* SCALE 0

FIELD Longitude

* ALIAS Longitude

* DATA TYPE Double

* WIDTH 8

* PRECISION 0

* SCALE 0

FIELD [DyGt_KBDI_600_1996](#)

* ALIAS 1996 - Days with KBDI over 600
* DATA TYPE SmallInteger
* WIDTH 2
* PRECISION 0
* SCALE 0

FIELD [DyGt_KBDI_600_1997](#)

* ALIAS 1997 - Days with KBDI over 600
* DATA TYPE SmallInteger
* WIDTH 2
* PRECISION 0
* SCALE 0

FIELD [DyGt_KBDI_600_1998](#)

* ALIAS 1998 - Days with KBDI over 600
* DATA TYPE SmallInteger
* WIDTH 2
* PRECISION 0
* SCALE 0

FIELD [DyGt_KBDI_600_1999](#)

* ALIAS 1999 - Days with KBDI over 600
* DATA TYPE SmallInteger
* WIDTH 2
* PRECISION 0
* SCALE 0

FIELD [DyGt_KBDI_600_2000](#)

* ALIAS 2000 - Days with KBDI over 600
* DATA TYPE SmallInteger

* WIDTH 2
* PRECISION 0
* SCALE 0

FIELD [DyGt_KBDI_600_2001](#)

* ALIAS 2001 - Days with KBDI over 600
* DATA TYPE SmallInteger
* WIDTH 2
* PRECISION 0
* SCALE 0

FIELD [DyGt_KBDI_600_2002](#)

* ALIAS 2002 - Days with KBDI over 600
* DATA TYPE SmallInteger
* WIDTH 2
* PRECISION 0
* SCALE 0

FIELD [DyGt_KBDI_600_2003](#)

* ALIAS 2003 - Days with KBDI over 600
* DATA TYPE SmallInteger
* WIDTH 2
* PRECISION 0
* SCALE 0

FIELD [DyGt_KBDI_600_2004](#)

* ALIAS 2004 - Days with KBDI over 600
* DATA TYPE SmallInteger
* WIDTH 2
* PRECISION 0
* SCALE 0

FIELD [DyGt_KBDI_600_1996_2004](#)

* ALIAS 1996-2004 - Days with KBDI over 600
* DATA TYPE SmallInteger
* WIDTH 2
* PRECISION 0
* SCALE 0

FIELD [DyGt_KBDI_600_2046](#)

* ALIAS 2046 - Days with KBDI over 600
* DATA TYPE SmallInteger
* WIDTH 2
* PRECISION 0
* SCALE 0

FIELD [DyGt_KBDI_600_2047](#)

* ALIAS 2047 - Days with KBDI over 600
* DATA TYPE SmallInteger
* WIDTH 2
* PRECISION 0
* SCALE 0

FIELD DyGt_KBDI_600_2048
* ALIAS 2048 - Days with KBDI over 600
* DATA TYPE SmallInteger
* WIDTH 2
* PRECISION 0
* SCALE 0

FIELD DyGt_KBDI_600_2049
* ALIAS 2049 - Days with KBDI over 600
* DATA TYPE SmallInteger
* WIDTH 2
* PRECISION 0
* SCALE 0

FIELD DyGt_KBDI_600_2050
* ALIAS 2050 - Days with KBDI over 600
* DATA TYPE SmallInteger
* WIDTH 2
* PRECISION 0
* SCALE 0

FIELD DyGt_KBDI_600_2051
* ALIAS 2051 - Days with KBDI over 600
* DATA TYPE SmallInteger
* WIDTH 2
* PRECISION 0
* SCALE 0

FIELD DyGt_KBDI_600_2052
* ALIAS 2052 - Days with KBDI over 600
* DATA TYPE SmallInteger
* WIDTH 2
* PRECISION 0
* SCALE 0

FIELD DyGt_KBDI_600_2053
* ALIAS 2053 - Days with KBDI over 600
* DATA TYPE SmallInteger
* WIDTH 2
* PRECISION 0
* SCALE 0

FIELD DyGt_KBDI_600_2054
* ALIAS 2054 - Days with KBDI over 600
* DATA TYPE SmallInteger
* WIDTH 2
* PRECISION 0
* SCALE 0

Hide Field DyGt_KBDI_600_2054 ▲

FIELD DyGt_KBDI_600_2046_2054 ►
* ALIAS 2046-2054 - Days with KBDI over 600
* DATA TYPE SmallInteger
* WIDTH 2
* PRECISION 0
* SCALE 0

FIELD DyGt_KBDI_600_2086
* ALIAS 2086 - Days with KBDI over 600
* DATA TYPE SmallInteger
* WIDTH 2
* PRECISION 0
* SCALE 0

FIELD DyGt_KBDI_600_2087
* ALIAS 2087 - Days with KBDI over 600

* DATA TYPE SmallInteger
* WIDTH 2
* PRECISION 0
* SCALE 0

FIELD DyGt_KBDI_600_2088
* ALIAS 2088 - Days with KBDI over 600
* DATA TYPE SmallInteger
* WIDTH 2
* PRECISION 0
* SCALE 0

FIELD DyGt_KBDI_600_2089
* ALIAS 2089 - Days with KBDI over 600
* DATA TYPE SmallInteger
* WIDTH 2
* PRECISION 0
* SCALE 0

FIELD DyGt_KBDI_600_2090

* ALIAS 2090 - Days with KBDI over 600
* DATA TYPE SmallInteger
* WIDTH 2
* PRECISION 0
* SCALE 0

FIELD DyGt_KBDI_600_2091

* ALIAS 2091 - Days with KBDI over 600
* DATA TYPE SmallInteger
* WIDTH 2
* PRECISION 0
* SCALE 0

FIELD DyGt_KBDI_600_2092

* ALIAS 2092 - Days with KBDI over 600
* DATA TYPE SmallInteger
* WIDTH 2
* PRECISION 0
* SCALE 0

FIELD DyGt_KBDI_600_2093

* ALIAS 2093 - Days with KBDI over 600
* DATA TYPE SmallInteger
* WIDTH 2
* PRECISION 0
* SCALE 0

FIELD DyGt_KBDI_600_2094

* ALIAS 2094 - Days with KBDI over 600
* DATA TYPE SmallInteger
* WIDTH 2
* PRECISION 0
* SCALE 0

FIELD DyGt_KBDI_600_2086_2094

* ALIAS 2086-2094 - Days with KBDI over 600
* DATA TYPE SmallInteger
* WIDTH 2
* PRECISION 0
* SCALE 0

FIELD Shape_Length

* ALIAS Shape_Length
* DATA TYPE Double
* WIDTH 8
* PRECISION 0
* SCALE 0
* FIELD DESCRIPTION
Length of feature in internal units.
* DESCRIPTION SOURCE
Esri
* DESCRIPTION OF VALUES
Positive real numbers that are automatically generated.

FIELD Shape_Area

* ALIAS Shape_Area
* DATA TYPE Double
* WIDTH 8
* PRECISION 0
* SCALE 0
* FIELD DESCRIPTION
Area of feature in internal units squared.
* DESCRIPTION SOURCE
Esri
* DESCRIPTION OF VALUES
Positive real numbers that are automatically generated.

Metadata Details

* METADATA LANGUAGE English (UNITED STATES)
METADATA CHARACTER SET utf8 - 8 bit UCS Transfer Format
SCOPE OF THE DATA DESCRIBED BY THE METADATA * dataset
SCOPE NAME * dataset
* LAST UPDATE 2021-08-30
ARCGIS METADATA PROPERTIES
METADATA FORMAT ArcGIS 1.0
METADATA STYLE FGDC CSDGM Metadata
STANDARD OR PROFILE USED TO EDIT METADATA FGDC
CREATED IN ARCGIS FOR THE ITEM 2021-08-27
LAST MODIFIED IN ARCGIS FOR THE ITEM 2021-08-30
AUTOMATIC UPDATES
HAVE BEEN PERFORMED Yes
LAST UPDATE 2021-08-30

Metadata Contacts

METADATA CONTACT

INDIVIDUAL'S NAME Jim Kuiper

ORGANIZATION'S NAME Argonne National Laboratory

CONTACT'S ROLE point of contact

CONTACT INFORMATION

PHONE

VOICE 630-252-6206

ADDRESS

TYPE postal

DELIVERY POINT 9700 S. Cass Avenue

CITY Lemont

ADMINISTRATIVE AREA Illinois

POSTAL CODE 60439

COUNTRY US

E-MAIL ADDRESS jkuiper@anl.gov