

Photovoltaic Potential



Tags

48 Contiguous United States, Resource Potential

Summary

Provides information on solar resource potential.

Description

Monthly and annual average global horizontal irradiance for Hawaii and the contiguous United States.

Credits

NREL

Use limitations

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Extent

West -161.000000 **East** -66.900000
North 49.400000 **South** 18.000000

Scale Range

Maximum (zoomed in) 1:5,000
Minimum (zoomed out) 1:150,000,000

ArcGIS Metadata

Topics and Keywords

* CONTENT TYPE Downloadable Data

Citation

TITLE Photovoltaic Potential

PRESENTATION FORMATS digital map

OTHER CITATION DETAILS

Perez, R., P. Ineichen, K. Moore, M.Kmiecik, C. Chain, R. George and F. Vignola (2002): A New Operational Satellite-to-Irradiance Model. Solar Energy

Citation Contacts

RESPONSIBLE PARTY

INDIVIDUAL'S NAME Anthony Lopez

ORGANIZATION'S NAME NREL

CONTACT'S POSITION GIS Scientist

CONTACT'S ROLE point of contact

CONTACT INFORMATION

ADDRESS

TYPE

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Resource Details

DATASET LANGUAGES (UNITED STATES)

DATASET CHARACTER SET utf8 - 8 bit UCS Transfer Format

SPATIAL REPRESENTATION TYPE vector

SUPPLEMENTAL INFORMATION

This data provides monthly average and annual average daily total solar resource averaged over surface cells of 0.1 degrees in both latitude and longitude, or about 10 km in size. This data was developed using the State University of New York/Albany satellite radiation model. This model was developed by Dr. Richard Perez and collaborators at the National Renewable Energy Laboratory and other universities for the U.S. Department of Energy. Specific information about this model can be found in Perez, et al. (2002). This model uses hourly radiance images from geostationary weather satellites, daily snow cover data, and monthly averages of atmospheric water vapor, trace gases, and the amount of aerosols in the atmosphere. Atmospheric water vapor, trace gases, and aerosols are derived from a variety of sources. Where possible, existing ground measurement stations are used to validate the data. Nevertheless, there is uncertainty associated with the meteorological input to the model, since some of the input parameters are not available at a 10km resolution. As a result, it is believed that the modeled values are accurate to approximately 15% of a true measured value within the grid cell. Due to terrain effects and other microclimate influences, the local cloud cover can vary significantly even within a single grid cell. Furthermore, the uncertainty of the modeled estimates increase with distance from reliable measurement sources and with the complexity of the terrain.

* PROCESSING ENVIRONMENT Microsoft Windows 7 Version 6.1 (Build 7601) Service Pack 1; Esri ArcGIS 10.3.0.4322

CREDITS

NREL

* NAME energy_potential_solar_pv_v2

Extents

EXTENT

GEOGRAPHIC EXTENT

BOUNDING RECTANGLE

EXTENT TYPE Extent used for searching

* WEST LONGITUDE -161.000000

* EAST LONGITUDE -66.900000

* NORTH LATITUDE 49.400000

* SOUTH LATITUDE 18.000000

* EXTENT CONTAINS THE RESOURCE Yes

EXTENT IN THE ITEM'S COORDINATE SYSTEM

* WEST LONGITUDE -17922438.017717

* EAST LONGITUDE -7447273.934070

* SOUTH LATITUDE 2037548.544751

* NORTH LATITUDE 6343007.591429

* EXTENT CONTAINS THE RESOURCE Yes

Resource Constraints

CONSTRAINTS

LIMITATIONS OF USE

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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 -22041545.367140558

Y ORIGIN -33272760.666300893
XY SCALE 135368852.55357128
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 0
* CODESPACE EPSG
* VERSION 8.2.6

Spatial Data Properties

VECTOR

* LEVEL OF TOPOLOGY FOR THIS DATASET geometry only

GEOMETRIC OBJECTS

FEATURE CLASS NAME energy_potential_solar_pv_v2
* OBJECT TYPE composite
* OBJECT COUNT 91439

ARCGIS FEATURE CLASS PROPERTIES

FEATURE CLASS NAME energy_potential_solar_pv_v2
* FEATURE TYPE Simple
* GEOMETRY TYPE Polygon
* HAS TOPOLOGY FALSE
* FEATURE COUNT 91439
* SPATIAL INDEX TRUE
* LINEAR REFERENCING FALSE

Geoprocessing history

PROCESS

PROCESS NAME
DATE 2012-09-19 11:44:51
TOOL LOCATION C:\Program Files\ArcGIS\Desktop10.0\ArcToolbox\Toolboxes\Data Management
Tools.tbx\Append
COMMAND ISSUED
Append hi_DNI_Cell_Export_Output us9809_ghi NO_TEST "ID "ID" true false false
11 Double 0 11 ,First,#,C:\GIS\2012Projects\hi_DNI_Cell_Export_Output.shp,ID,-
1,-1;GRIDCODE "GRIDCODE" true false false 32 Double 10
31 ,First,#,C:\GIS\2012Projects\hi_DNI_Cell_Export_Output.shp,GRIDCODE,-1,-
1;ANN_GHI "ANN_GHI" true false false 32 Double 10 31 ,First,#;JAN "JAN" true
false false 32 Double 10 31 ,First,#;FEB "FEB" true false false 32 Double 10
31 ,First,#;MAR "MAR" true false false 32 Double 10 31 ,First,#;APR "APR" true
false false 32 Double 10 31 ,First,#;MAY "MAY" true false false 32 Double 10
31 ,First,#;JUN "JUN" true false false 32 Double 10 31 ,First,#;JUL "JUL" true
false false 32 Double 10 31 ,First,#;AUG "AUG" true false false 32 Double 10

```
31 ,First,#;SEP "SEP" true false false 32 Double 10 31 ,First,#;OCT "OCT" true
false false 32 Double 10 31 ,First,#;NOV "NOV" true false false 32 Double 10
31 ,First,#;DEC "DEC" true false false 32 Double 10 31 ,First,#" #
INCLUDE IN LINEAGE WHEN EXPORTING METADATA No
```

Distribution

DISTRIBUTION FORMAT

* NAME File Geodatabase Feature Class

TRANSFER OPTIONS

* TRANSFER SIZE 11.860

Fields

DETAILS FOR OBJECT [energy_potential_solar_pv_v2](#)

* TYPE Feature Class

* ROW COUNT 91439

FIELD OBJECTID

* ALIAS OBJECTID

* 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 ID

* ALIAS ID

* DATA TYPE Double

* WIDTH 8

* PRECISION 0

* SCALE 0

FIELD GRIDCODE

* ALIAS GRIDCODE

* DATA TYPE Double

* WIDTH 8

* PRECISION 0

* SCALE 0

FIELD ANN_GHI

* ALIAS ANN_GHI
* DATA TYPE Double
* WIDTH 8
* PRECISION 0
* SCALE 0

FIELD DESCRIPTION

Annual average global horizontal irradiance (kWh/m2/day)

DESCRIPTION SOURCE

NREL

FIELD JAN

* ALIAS JAN
* DATA TYPE Double
* WIDTH 8
* PRECISION 0
* SCALE 0

FIELD FEB

* ALIAS FEB
* DATA TYPE Double
* WIDTH 8
* PRECISION 0
* SCALE 0

FIELD MAR

* ALIAS MAR
* DATA TYPE Double
* WIDTH 8
* PRECISION 0
* SCALE 0

FIELD APR

* ALIAS APR
* DATA TYPE Double
* WIDTH 8
* PRECISION 0
* SCALE 0

FIELD MAY

* ALIAS MAY
* DATA TYPE Double
* WIDTH 8
* PRECISION 0
* SCALE 0

FIELD JUN

* ALIAS JUN
* DATA TYPE Double
* WIDTH 8
* PRECISION 0
* SCALE 0

FIELD JUL

* ALIAS JUL
* DATA TYPE Double
* WIDTH 8
* PRECISION 0
* SCALE 0

FIELD AUG

* ALIAS AUG

- * DATA TYPE Double
- * WIDTH 8
- * PRECISION 0
- * SCALE 0

FIELD SEP

- * ALIAS SEP
- * DATA TYPE Double
- * WIDTH 8
- * PRECISION 0
- * SCALE 0

FIELD OCT

- * ALIAS OCT
- * DATA TYPE Double
- * WIDTH 8
- * PRECISION 0
- * SCALE 0

FIELD NOV

- * ALIAS NOV
- * DATA TYPE Double
- * WIDTH 8
- * PRECISION 0
- * SCALE 0

FIELD DEC

- * ALIAS DEC
- * DATA TYPE Double
- * WIDTH 8
- * 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)

SCOPE OF THE DATA DESCRIBED BY THE METADATA dataset

SCOPE NAME * dataset

* LAST UPDATE 2016-08-29

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 2016-08-05 12:42:44

LAST MODIFIED IN ARCGIS FOR THE ITEM 2016-08-29 90:91:40

AUTOMATIC UPDATES

HAVE BEEN PERFORMED Yes

LAST UPDATE 2016-08-29 09:08:33

Metadata Contacts

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