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# Dynamic Maps, GIS Data, & Analysis Tools

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## Solar Data

### 10-Kilometer

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.

MapSearch
Searching for maps has never been easier.

### Geographic Coordinate System Name: WGS_1984

These three datasets include the option to view the data in Google Earth. Click on the links in the KMZ Files column to launch this capability. Other KMZ links are available through our MapSearch Tool.

| Coverage | Zipped Shapefiles | Last Updated | Metadata | KMZ Files |
|---|---|---|---|---|
| Lower 48 and Hawaii DNI 10km Resolution 1998 to 2009 | (Zip 9.6 MB) | 09/12/2012 | Direct Normal.xml | Direct Normal.kmz |
| Lower 48 and Hawaii GHI 10km Resolution 1998 to 2009 | (Zip 8.5 MB) | 09/12/2012 | Global Horizontal.xml | Global Horizontal.kmz |
| Lower 48 and Hawaii PV 10km Resolution 1998 to 2009 | (Zip 11.3 MB) | 09/12/2012 | Photovoltaic.xml | Photovoltaic.kmz |

### Geographic Coordinate System Name: GCS_North_American_1983

For these datasets, we've included the option to view the data in Google Earth. To launch this capability, click on the kmz link in the KMZ Files field. Other KMZ links are available through our MapSearch Tool.

| Coverage | Zipped Shapefiles | Last Updated | Metadata | KMZ Files |
|---|---|---|---|---|
| Lower 48 DNI 10km Resolution 1998 to 2005 | (Zip 9.1 MB) | 12/13/2010 | Direct Normal.xml | Direct Normal.kmz |
| Lower 48 GHI 10km Resolution 1998 to 2005 | (Zip 10.4 MB) | 04/01/2011 | Global Horizontal.xml | Global Horizontal.kmz |
| Lower 48 PV 10km Resolution 1998 to 2005 | (Zip 9.1 MB) | 03/24/2011 | Photovoltaic.xml | Photovoltaic.kmz |
| Hawaii DNI 10km Resolution 1998 to 2005 | (Zip 216.0 MB) | 05/13/2009 | Hawaii Direct Normal.xml | — |
| Hawaii PV 10km Resolution 1998 to 2005 | (Zip 1.6 MB) | 03/24/2011 | Hawaii Photovoltaic.xml | — |

### Geographic Coordinate System Name: WGS_1984

This data provides filtered solar resource averaged over surface cells of 0.1 degrees in both latitude and longitude, or about 10km in size.

| Coverage | Zipped Shapefiles | Last Updated | Metadata |
|---|---|---|---|
| Southwest US DNI Filtered 2-percent 10km Resolution 1998 to 2009 | (Zip 500.49 MB) | 12/04/2012 | 2 percent.xml |
| Southwest US DNI Filtered 3-percent 10km Resolution 1998 to 2009 | (Zip 530.29 MB) | 12/04/2012 | 3 percent.xml |
| Southwest US DNI Filtered 4-percent 10km Resolution 1998 to 2009 | (Zip 517.93 MB) | 12/04/2012 | 4 percent.xml |
| Southwest US DNI Filtered 5- | (Zip 489.26 MB) | 12/04/2012 | 5 percent.xml |

| | | | |
|---|---|---|---|
| percent 10km Resolution 1998 to 2009 | | | |
| Southwest US DNI Filtered Less than 1-percent 10km Resolution 1998 to 2009 | (Zip 373.62 MB) | 12/04/2012 | Less than 1 percent.xml |

## 40-Kilometer Resolution

This data provides monthly average and annual average daily total solar resource averaged over surface cells of approximately 40 km by 40 km in size.

This data was developed from the Climatological Solar Radiation (CSR) Model. The CSR model was developed by the National Renewable Energy Laboratory for the U.S. Department of Energy.

## Geographic Coordinate System Name: WGS_1984

| Coverage | Zipped Shapefiles | Last Updated | Metadata |
|---|---|---|---|
| Alaska DNI 40km Resolution 1985 to 1991 | (Zip 2.3 MB) | 07/09/2009 | Alaska Direct Normal.xml |
| Alaska PV 40km Resolution 1985 to 1991 | (Zip 2.2 MB) | 07/09/2009 | Alaska Photovoltaic.xml |
| Hawaii DNI 40km Resolution 1985 to 1991 | (Zip 1.2 MB) | 04/01/2011 | Hawaii Direct Normal.xml |
| Hawaii PV 40km Resolution 1985 to 1991 | (Zip 1.2 MB) | 04/01/2011 | Hawaii Photovoltaic.xml |
| Lower 48 DNI 40km Resolution 1985 to 1991 | (Zip 3.6 MB) | 10/30/2009 | Lower 48 Direct Normal.xml |
| Lower 48 PV 40km Resolution 1985 to 1991 | (Zip 2.9 MB) | 04/22/2009 | Lower 48 Photovoltaic.xml |
| Lower 48 PV 40km Resolution Collector Data Files 1985 to 1991 | (Zip 6.2 MB) | 02/19/2009 | Lower 48 Collector Data.htm |

## National Solar Radiation Data Base (NSRDB) TMY3 Stations

This data provides the approximation of the best NSRDB weather station to use given a specific location. To see a map of this data, go to TMY3 NSRDB Boundaries.

## Geographic Coordinate System Name: USA_Contiguous_Albers_Equal_Area_Conic

| Coverage | Zipped Shapefile | Last Updated | Metadata |
|---|---|---|---|
| TMY3 NSRDB Boundaries | (Zip 6.2 MB) | 06/01/2012 | TMY3 NSRDB Boundaries.xml |

**Note -** These zipped shapefile datasets are designed to be used in GIS software applications.

## Solar summary

Spreadsheet of annual 10-Kilometer solar data (DNI, LATTILT and GHI) data by state and zip code (Solar Summaries.xlsx).

## NREL's Solar Radiation Research Laboratory Baseline Measurement Station (BMS) data

The BMS data site provides links to live graphical displays and solar data from the Solar Radiation Research Laboratory in Colorado.

## More Information

For more information on CSP research, access the research page on the Concentrating Solar Power website.

For more information on PV research, access the Photovoltaic Research site.

For additional solar resource data, access Renewable Resource Data Center (RReDC) and the Solar Resource Data.

Go to the Solar Maps Development page for links to publications and information on the 10km and 40km data.

If you have difficulty accessing this data because of a disability, please contact the Geospatial Data Science Team.

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Did you find what you needed?

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