

Where can I find solar resource data?

Explore solar resource data via our online geospatial tools and downloadable maps and data sets. Access our tools to explore solar geospatial data for the contiguous United States and several international regions and countries.

Does NREL provide solar resource data for the United States?

NREL has provided solar resource data for the United States through the NSRDB for more than 25 years. The NSRDB contains not only data for the United States, but also for a growing list of countries in different parts of the world. Learn about the Typical Meteorological Year (TMY) data type used in the NSRDB.

What is the national solar radiation database (nsrdb)?

The National Solar Radiation Database (NSRDB) is a serially complete collection of meteorological and solar irradiance data sets for the United States and a growing list of international locations for 1998-2017. The NSRDB provides foundational information to support U.S. Department of Energy programs, research, and the general public.

How much solar energy does the United States use?

Total solar energy use in the United States increased from about 0.02 trillion British thermal units (Btu) in 1984 to about 878 trillion Btu (or about 0.9 quadrillion Btu) in 2023. Solar electricity generation accounted for about 93% of total solar energy use in 2023 and solar energy use for space and water heating accounted for about 7%.

What is global horizontal solar irradiance?

Global Horizontal Solar Irradiance--Americas (Print Format: 8.5"x11") This map provides annual average total daily solar resource from PSM v3 at a resolution of 0.038-degree latitude by 0.038 longitude (nominally 4 km x 4 km). The insolation values represent the resource available for solar energy systems.

What is direct normal solar irradiance?

Direct Normal Solar Irradiance--Americas (Print Format: 8.5"x11") This map provides annual average total daily solar resource from PSM v3 at a resolution of 0.038-degree latitude by 0.038 longitude (nominally 4 km x 4 km). The insolation values represent the resource available for solar energy systems.



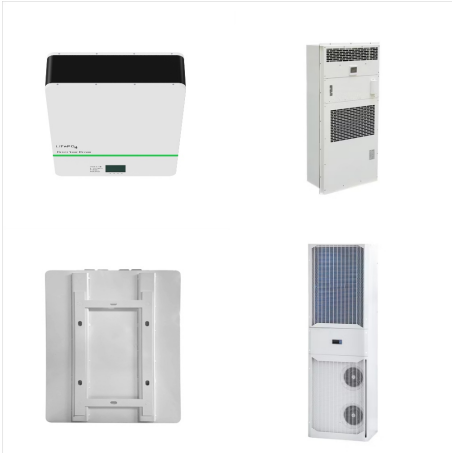
The Global Solar Atlas provides a summary of solar power potential and solar resources globally. It is provided by the World Bank Group as a free service to governments, developers and the general public, and allows users to quickly obtain data and carry out a simple electricity output calculation for any location covered by the solar resource database.



Importance of Solar Radiation Maps. Solar radiation maps visually represent the solar energy potential in different regions. These maps are essential for: Site Selection: Identifying the best locations for solar installations. System Design: Optimizing the design and configuration of ???



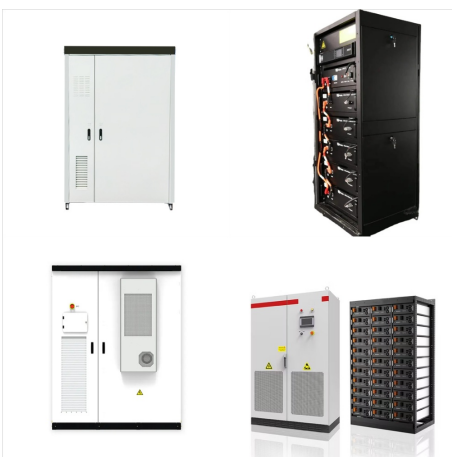
Learn more about OpenWeather's Solar Radiation API which offers current, forecast, and historical solar data globally. Tailored for accurate solar performance evaluation, it includes indices like GHI, DNI, DHI under both clear and cloudy sky models. Access 16-day forecasts with varied granularity and historical data since 1979.



Global Map of Global Horizontal Radiation [5]
Global Map of Direct Normal Radiation [5]. There are several measured types of solar irradiance. Total solar irradiance (TSI) is a measure of the solar power over all wavelengths per unit area incident on the Earth's upper atmosphere is measured facing (pointing at / parallel to) the incoming sunlight (i.e. the flux through a surface



An interactive map with filters from the National Solar Radiation Database that allows the user to visualize irradiance in the United States. National Solar Radiation Database Data Viewer | The Nicholas Institute for Energy, Environment & Sustainability



These maps show Earth's average monthly solar insolation, or the rate of incoming sunlight reaching the surface, from July 2006 to the present as derived from Clouds and Earth's Radiant Energy System (CERES) measurements of radiant energy escaping the top of Earth's atmosphere. The CERES instrument flies onboard NASA's Terra and Aqua satellites and ???



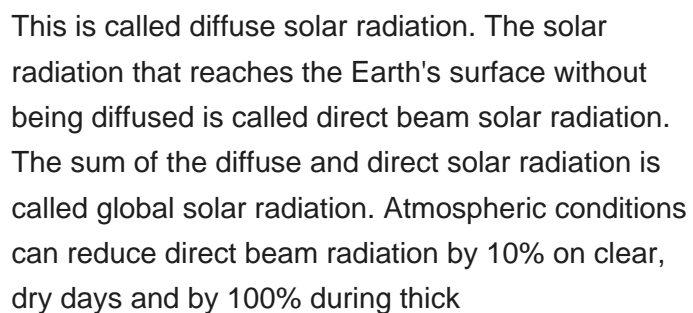
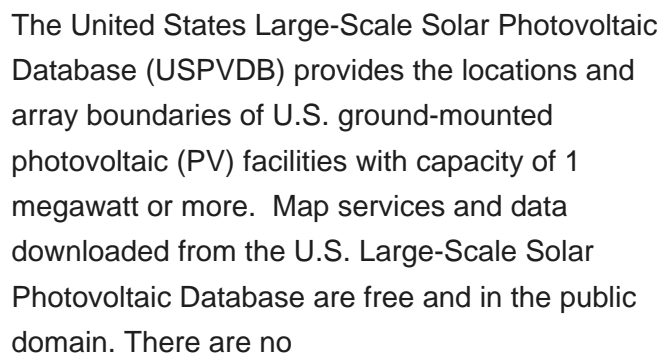
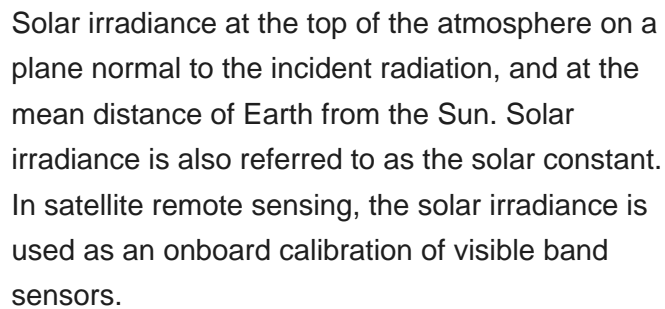
Contact us if you need maps for a different region or at a different spatial or temporal resolution. Map navigation. Change layers between potential solar radiation (clear skies with atmosphere) and actual average solar radiation for local climatic conditions by clicking on the layer symbol at the upper-right corner of the map.

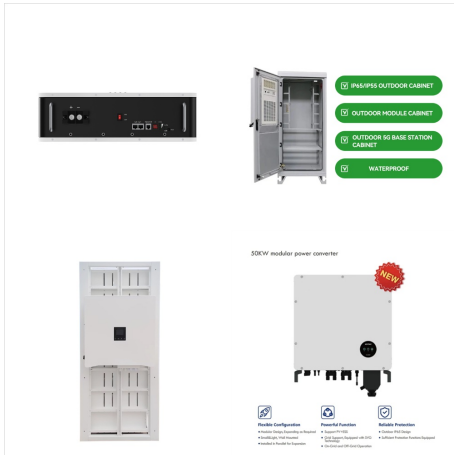


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The solar radiation data used by PVGIS consists of values for every hour over a period of several years, based on data from satellites and reanalysis. This part of PVGIS makes it possible to download the full set of hourly data for solar radiation and/or PV ???





Total Solar Irradiance (TSI) data available from the NOAA National Centers for Environmental Information and collocated World Data Center for Solar-Terrestrial Physics. TSI is the total solar irradiance measured at the top of the Earth's atmosphere. Data include Arvesen's NASA research aircraft database, Composite (Frohlich and Lean, plus Willson) databases, and satellite data ???



The RadNet system monitors the nation's air, precipitation and drinking water to track radiation in the environment, 24 hours a day, 7 days a week. RadNet sample analyses and monitoring results provide baseline data on background levels of radiation in the environment and can detect increased radiation from radiological incidents.



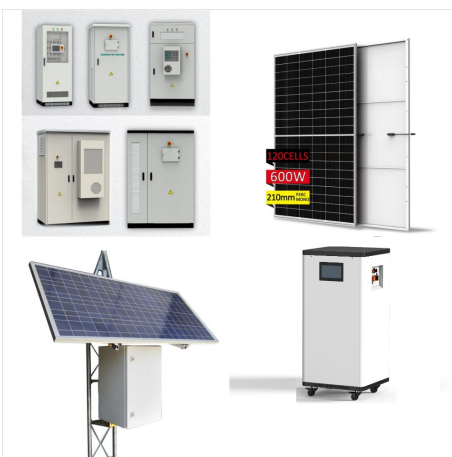
This map shows the general trends in the amount of solar radiation received in the United States and its territories. It is a spatial interpolation of solar radiation values derived from the 1961-1990 National Solar Radiation Data Base (NSRDB). The dots ???



The National Solar Radiation Database (NSRDB) is an extensive collection of solar radiation data used by solar planners and designers, building architects and engineers, renewable energy analysts, and experts in many other disciplines and professions. Maps; Monitoring; Online Store; Regional; State of the Services; World Data System



By showing the solar irradiation of the building rooftops, the Hong Kong Solar Irradiation Map (the Map) enables users to perform a preliminary assessment of the solar energy potential for their building rooftops. Users can define the PV system settings and select an area of the building rooftops to display the corresponding solar irradiation and the estimated annual electricity ???



Explore North America's solar capacity, from Mexico to Canada. Solcast provides real-time and forecast satellite-based irradiance data, specifically designed for solar applications. Data is API-ready and updates every 5-15 minutes.



In some states, solar energy accounts for a large part of the energy mix, as illustrated on the solar map USA. What Are the Three Types of Solar Radiation? Per the NSRDB solar radiation map, there are three main types of solar radiation: Visible light. Visible light has the lowest frequency in red, orange, yellow, green, and blue and the



A serially complete collection of hourly and half-hourly values of meteorological data and the three most common measurements of solar radiation: global horizontal, direct normal and diffuse horizontal irradiance. It covers the United States and a growing subset of international locations.



The National Solar Radiation Database (NSRDB) is a serially complete collection of meteorological and solar irradiance data sets for the United States and a growing list of international locations for 1998-2023. The NSRDB is updated annually and provides foundational information to support U.S. Department of Energy programs, research, industry and the ???



Provides access to live graphical displays, current and historic datasets and more at NREL's Solar Radiation Research Laboratory in Golden, Colorado. Federal Energy Management Program Screening Map Examines the viability of three solar technologies in the United States at the state and federal levels.



Access our tools to explore solar geospatial data for the contiguous United States and several international regions and countries. Solar Resource Maps and Data. Find and download resource map images and data for North America, the contiguous United States, Canada, Mexico, and Central America. Solar Supply Curves



Unlock Australia's solar potential from Sydney to Brisbane using Solcast's solar radiation map. Our real-time and forecast irradiance data and PV power data are grounded in three-dimensional cloud modelling. Tailored for solar applications, our data updates every 5-15 minutes, empowering businesses to make informed decisions.



Radiation Belts; Solar EUV Irradiance; Solar Flares (Radio Blackouts) Solar Radiation Storm; Solar Wind; Sunspots/Solar Cycle; Total Electron Content; Additional Info. NOAA Space Weather Scales; Customer Needs & Requirements Study; Products and Data. Forecasts. 27-Day Outlook of 10.7 cm Radio Flux and Geomagnetic Indices; 3-Day Forecast; ???