



An official website of the United States government [Here's how you know](#)

NASA Prediction Of Worldwide Energy Resources

Access

Engage

Learn

About

Contact

Parameter Dictionary

The NASA Prediction of Worldwide Energy Resources (POWER) Parameter Dictionary is an interactive online tool that helps users explore and understand the wide variety of environmental and energy-related data parameters available from the NASA POWER project. The parameters provided by POWER are based upon solar radiation derived from satellite observations and meteorological data from assimilation models. The base solar and meteorological parameters are available as hourly, daily, monthly, annual, and climatological time series formats for user selected grids. The base data is available in its original source spatial resolution. This section explains the structure, naming convention, and availability of the specific solar and meteorological parameters that can be accessed through the POWER data services.

Whether you're working on a science fair project or a classroom assignment, conducting research, developing real-world solutions, or simply curious about Earth science data, the Parameter Dictionary is a great place to start. For additional resources on computation of data Parameters review the [POWER Methodology Documentation](#).

Capabilities

Using the **Parameter Dictionary**, you can:

- Search for specific parameters by name or keyword.
 - Filter parameters by categories like radiation or meteorology.
 - Learn what each parameter means, including available units, a description, and its data source.
 - Select desired parameters to use in the POWER [Data Access Viewer \(DAV\)](#) or [Application Programming Interface \(API\)](#).

User Guide

Parameter Dictionary

Search, explore, and select POWER's data parameters.

Name	Tags	Services	Availability	Actions
Temperature at 2 Meters				
All Sky Surface Shortwave Downward Irradiance				
Relative Humidity at 2 Meters				
Wind Speed at 2 Meters				
Dew/Frost Point at 2 Meters				
Temperature at 2 Meters Maximum				
Temperature at 2 Meters Minimum				
Surface Pressure				
Wet Bulb Temperature at 2 Meters				
Wind Speed at 50 Meters				
All Sky Surface Longwave Downward Irradiance				
Wind Direction at 0 Meters				
Wind Direction at 2 Meters				
All Sky Surface Shortwave Diffuse Irradiance				
All Sky Surface Shortwave Downward Direct Normal Irradiance				

[← Previous](#) 0 of 15 [Next →](#)

Explore Parameters Details

Search, explore, and select POWER's data parameters.

T2M

Temperature at 2 Meters

Description:

The average air (dry bulb) temperature at 2 meters above the surface of the earth.

Temporal Resolution: Hourly
Start: 1980/12/01 End: 2020/12/31

Ingested directly from the source provider: no computation required.

Units: Degrees Celsius (C)
Minimum Value: -125 Data Type: float32
Maximum Value: 80 Significant Digits: 2

GMAO MERRA-2

Temporal Resolution: Spatial Resolution
Hourly
Start: 2000/12/01 End: 2020/12/31

Ingested directly from the source provider: no computation required.

Units: Degrees Celsius (C)
Minimum Value: -125 Data Type: float32
Maximum Value: 80 Significant Digits: 2

Sustainable Buildings (SB)

Temporal Resolution: Spatial Resolution
Hourly
Start: 2010/12/01 End: 2020/12/31

Ingested directly from the source provider: no computation required.

Units: Degrees Celsius (C)
Minimum Value: -125 Data Type: float32
Maximum Value: 80 Significant Digits: 2

Agriculture/Forestry (AF)

Temporal Resolution: Spatial Resolution
Hourly
Start: 2010/12/01 End: 2020/12/31

Ingested directly from the source provider: no computation required.

Units: Degrees Celsius (C)
Minimum Value: -125 Data Type: float32
Maximum Value: 80 Significant Digits: 2

Example Use Case

Once you find the parameter you need, copy the short name (e.g., T2M). You can now use this in the POWER [Data Access Viewer \(DAV\)](#) or [Application](#)

[Programming Interface \(API\)](#).

Tips

- Use filters to narrow down your search by topic (e.g., energy, agriculture, etc.).
- Check the units to make sure you're interpreting the data correctly.
- Compare parameters to find the best one for your specific question or project.

Ready to explore? Visit the [Parameter Dictionary](#) or read about the ways organizations around the world utilize POWER data with [impact stories](#).

Naming Convention

POWER uses a standard naming convention across all services in the POWER data services, enabling users to access data from any of the POWER Services using the same naming convention.

- Names are typically less than 20 characters
- Abbreviated words are separated by a `_`.
- Grouped parameters lead with a common name (e.g. T2M: T2M_MAX, T2M_MIN, T2M_RANGE)

Groupings

The parameter groups are dependent on the user community and temporal level selected when using the [Data Access Viewer \(DAV\)](#). These groups enable parameter recommendations to be tailored to each of the communities: Renewable Energy (RE), Sustainable Infrastructure (formerly Sustainable Buildings) (SB), and Agroclimatology (AG). While within each community, parameters are filtered by the temporal availability (Hourly, Daily, Monthly, Annual, or Climatological) allowing users to only select data that is available.

For each user community and temporal level, the parameters are organized in a hierarchical structure under their respective folder names.

Parameters Limit

There is currently a limit of 20 parameters that can be downloaded at a time using the Data Access Viewer (DAV).

DAV Groupings

DAV Groupings

Parameters

Parameters Search (Limit of 20) ^

Parameters for Solar Cooking

All Sky Surface Shortwave Downward Irradiance

Clear Sky Surface Shortwave Downward Irradiance

Wind Speed at 2 Meters

Temperatures

Temperature at 2 Meters

Dew/Frost Point at 2 Meters

Wet Bulb Temperature at 2 Meters

Earth Skin Temperature

Temperature at 2 Meters Range

Temperature at 2 Meters Maximum

Temperature at 2 Meters Minimum