



Langley Research Center

Prediction Of Worldwide Energy Resources (POWER)

Enabling actionable decisions, accelerating learning, and improving outcomes in energy, infrastructure, and agroclimatology in the United States and around the world.

NASA Global Data for Decisions

No Cost & No Account Needed



Solar Radiation

Solar flux data from satellite analysis and research



Meteorology Conditions

Meteorological data from models optimized with observations



Temporal levels from: Hourly > Daily > Monthly > Annual > Climatology

✓ **2,500+ Community Parameters**
With scientific validation

✓ **Long-term Historical Time-series Data**
For variability analysis, impact studies, and planning

✓ **Units & Formats for User Communities**
Improves usability and lower data integration costs

User Friendly Tools



DAV

Data Access Viewer

Data subsetting and visualization



PRUVE

PaRAMeter Uncertainty Viewer

Statistical analysis and validation



API

Service Endpoints

Data access for custom scripts



GIS

Geospatial Services

Mapping, visualization, and analysis

Monthly Metrics



22 Million

Data Requests



1.8 Terabytes

Data Volume



45 Thousand

Unique Users

The metrics represent a typical month in 2024. Unique users is a proxy since user registration is not required.



NASA POWER provides trusted, free solar and meteorological analysis-ready data derived from NASA Earth observations, modeling, and scientific expertise to enable actionable decisions, accelerate learning, and improve outcomes in energy, infrastructure, and agriculture.

<https://power.larc.nasa.gov/>

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NASA POWER

Assisting in Energy Systems

Across generation, transmission, and distribution



Supported Projects

- Solar Forecasting
- AI/ML Applications
- Site Suitability Studies
- Resource Adequacy Studies
- Economic Feasibility Studies
- Wind Energy Site Assessment
- Energy Forecasting and Modeling
- Integrated Resource Plans
- Solar Energy Planning and Design
- Hydrologic Modeling and Forecasting
- Monitor Energy System Performance
- Resource Assessment in Off-grid Areas

Societal Benefits



Encourages energy dominance, security, and economic advantage



Provides opportunities for data driven education and research



Bridges data gaps for underserved geographic regions worldwide



Increases accessibility for energy and infrastructure decisions

User Impact Stories



Xcel Energy uses POWER data to assist in **monitoring power generation** for hundreds of community solar gardens across the United States.



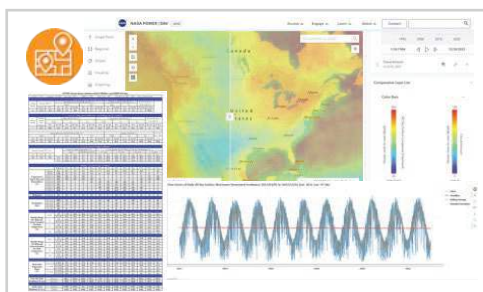
Urban Solar uses POWER data to **manufacture and place solar** panels to power lighting solutions at bus stops.



ACES used POWER data to conduct a **market analysis** on “dark calm” events to determine more **dependable energy solutions**.

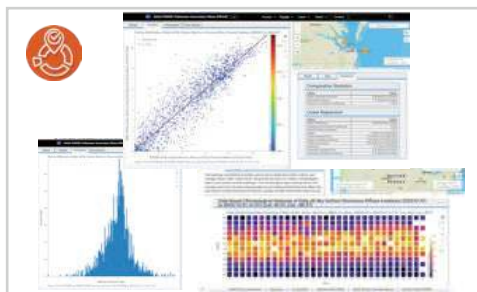


Saildrone used POWER data to **ensure energy output** for drones conducting **oceanic research and maritime domain awareness**.



DAV | Data Access Viewer

Provides access to data via custom parameter selections; allows users to subset and download data, perform basic statistical analysis, and generate community reports.



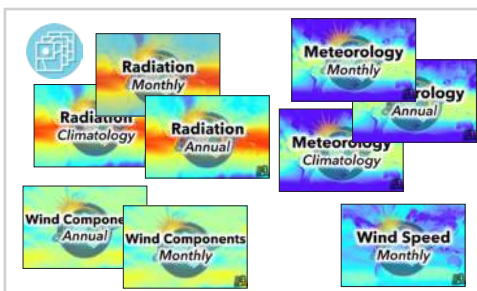
PRUVE | PaRAMeter Uncertainty ViEwer

Provides comparative analysis of satellite based and assimilation data products to in-situ surface site measurements.



API | Service Endpoints

Service endpoints providing analysis ready data for direct integration into external decision support tools, providing data responses in web compliant standards in community specific formats.



GIS | Geospatial Services

Service endpoints providing efficient data access within geospatial applications enabling time-series based access to monthly, annual, and climatology solar radiation and meteorology datasets.



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