

What is remote sensing derived dataset for large-scale photovoltaic power stations in China?

We provide a remote sensing derived dataset for large-scale ground-mounted photovoltaic (PV) power stations in China of 2020, which has high spatial resolution of 10 meters. The dataset is based on the Google Earth Engine (GEE) cloud computing platform via random forest classifier and active learning strategy.

Does the solar PV industrial chain have a spatial and temporal evolution?

The study reveals the spatial and temporal evolution of the emission and mitigation intensities of the solar PV industrial chain, applying spatiotemporal data to take account of historical net GHG savings.

Are semi-transparent organic photovoltaics feasible?

Semi-transparent organic photovoltaics (OPVs) are an emerging solar-energy-harvesting technology with promising applications, such as rooftop energy supplies for environmentally friendly greenhouses. However, the poor operational stability of OPVs poses challenges to their feasibility as incessantly serving facilities.

Can remote sensing derived data be used for large-scale photovoltaic power stations?

Scientific Data 11, Article number: 198 (2024) Cite this article We provide a remote sensing derived dataset for large-scale ground-mounted photovoltaic (PV) power stations in China of 2020, which has high spatial resolution of 10 meters.

Are organic photovoltaics a smart greenhouse?

Hence, a smart greenhouse with semi-transparent organic photovoltaics (OPVs) integrated into the power-generating roof is highly desirable for modern agriculture 2, 3. Due to the unique band structure of organic materials, OPVs are able to selectively absorb light with a desired wavelength 4, 5, 6.

How efficient is a mirror-based high concentration photovoltaic (HCPV) system?

Mirror or lens-based high concentration photovoltaic (HCPV) systems could reach a module efficiency between 36.7% and 41.6%. The environmental footprint of HCPV (16.4–18.4 g CO<sub>2</sub> eq./kWh) is three times lower than that of crystalline photovoltaic solutions (Payet and Greffe, 2019).

Research on the size optimization of photovoltaic panels and integrated application with Chinese solar greenhouses. Kai Zhang, Jihua Yu, Yanhua Ren. Published in Renewable Energy 1 ...

The direct and indirect emissions associated with photovoltaic (PV) electricity generation are evaluated, focussing on greenhouse gas (GHG) emissions related to crystalline ...

Global efforts are underway to diversify environmentally sustainable strategies for photovoltaic (PV) installations to enhance the accessibility of green electricity. Here, we ...

Our world is facing an environmental crisis that is driving scientists to research green and smart solutions in terms of the use of renewable energy sources and low polluting ...

Install PV panels on the greenhouse rooftops can provide required power for the greenhouse, but the shading from the PV panels may affect crop development and yield. In this article, the roof ...

To verify the potential to grow various plants in the photovoltaics/photosynthesis integrated system, we built greenhouses with the semi-transparent OPV roofs incorporating ...

The dataset can support more work on PV technology for greater value, such as developing a PV detection algorithm, simulating PV conversion efficiency, and estimating regional PV potential. The dataset is ...

LUMO combines photovoltaic (solar electric) technology and luminescent red light for electricity generation and optimized plant growth. Located at the intersection of the world's technology and agricultural capitals, Soliculture offers innovative ...

Virtually, the potential of PCM to alleviate the temperature rise of building-integrated PV cells has been established [7]. At one time of the day, the surface temperature of ...

greenhouse s and it s suitability in comparison to other PV technologies has also been discussed [18-21]. With the energy crisis that humanity is facing and the urgent ...

A model for solar panel efficiency that incorporates the influence of the panel's microclimate was derived from first principles and validated with field observations, confirming ...

WASHINGTON -- Covering the world's highways with solar panel roofs could dramatically reduce carbon dioxide emissions and road accidents, according to new research. The ambitious estimate, which ...

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