

Geographical test site for planting Chinese medicine under photovoltaic panels

How to identify medicinal plants in remote sensing?

A sample database with reasonable classification and a sufficient quantity of information such as planting patterns, habitat characteristics, and phenological characteristics of medicinal plants should be built and applied to remote sensing recognition of medicinal plants in combination with data assimilation technology.

What are the technical links between spectrometers and medicinal plants?

The key technical links need to use ground-based spectrometers to measure and obtain the spectral data of medicinal plants, analyze and study them, clarify the spectral characteristics of each medicinal plant species, and establish the standard spectral characteristics database of medicinal plant species.

Why is cropland abandonment a problem for PV plants in China?

The rapid expansion of PV plants has led to the conversion of significant amounts of land, with cropland being the most prevalent type of land use occupied by PV plants in China (Zhang et al., 2022). This process has brought attention to cropland abandonment due to PV facilities (Hu, 2023).

What is the geographic distribution pattern of medicinal plants?

3.1. Geographic distribution pattern of commonly used medicinal plants Commonly used medicinal plants were distributed in all grid cells, with an average of 411.7 per grid cell. Medicinal plant diversity was higher in southern than in northern China.

What factors affecting the prioritized planting areas in China?

Temperature and precipitation were main factors affecting the prioritized planting areas. As an important plant resource in China, medicinal plants dominate the Chinese herbal medicine market. The intensified human activities and the deteriorated ecological environment have caused the reduction or even extinction of medicinal plants nationwide.

How can remote sensing extract medicinal plant planting information?

The planting extraction method based on multi-temporal image data sources can make full use of the seasonal rhythm characteristics of medicinal plants, which has gradually become the mainstream method for remote sensing extraction of medicinal plant planting information.

Solar panel backtracking uses a motor and tracking control program that adjusts the tilt of the panels as the sun moves across the sky throughout the day and the year. This maximizes the direct sunlight that ...

The objective of this work is to test a place-based methodology to model the solar irradiation and then energy production with photovoltaic (PV) technology considering the whole ...

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Many researchers studied the consequences of dust deposition on PV modules. Dust blocks sun rays from reaching the surface of the PV panel (based on density, particle ...

Physiological outcomes mostly consisted in measures of plant height and growth while reproductive ones mainly studied the seed bank of desert plant species under PV ...

2.1. Photovoltaic solar collection systems overview. Photovoltaic renewable energy sources, which are among the most expanding renewable energy technologies (31% in ...

This study identifies regions suitable for growing specific Chinese herbal medicine (CHM) plants, providing an important reference for farmers, enterprises and government ...

In this respect, this study conducts a case study on selecting the site for PV-panel installation in the vicinity of a highway (e.g., slopes) by integrating geographic ...

The dried rhizome of *Atractylodes macrocephala* Koidz. (AM), a kind of famous herb in the genus *Atractylodes* of the Asteraceae family, is one of the important plants of TCM, ...

Impacts of colocation of agriculture and solar PV panels (agrivoltaic) over traditional (control) installations on irrigation resources, as indicated by soil moisture. a, b, ...

The growing adoption of photovoltaic systems as a result of government incentives and the cost-effectiveness of the technology will bring significant environmental ...

Photovoltaic power generation is an important clean energy alternative to fossil fuels. To reduce CO₂ emissions, the Chinese government has ordered the construction of a ...

Deploying PV plant on cropland can lead to non-agriculturalization or non-grainization, decreasing regional food supply (Nakata and Ogata, 2023). Therefore, this study ...

For instance, Ezzaeri et al. (2018) observed similar growth and yield patterns in shaded and control treatments when tomato was grown under 10% PV cover ratio; Liu et al. ...

Therefore, the Golmud region is ideal for testing the extraction of PV plants using satellite imagery. of PV plants [32], and thus, these features are also important for the ...

With the continuous expansion of introduction regions for Chinese medicinal plants, the GMPGIS will continuously adjust the sampling data and incorporate additional wild ...

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The height of the panels in relation to the ground makes it possible to classify the systems into two types : on one hand, there are overhead or stilted AV systems (S-AV), ...

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